November 29, 2018

Alexis McKinnon
Solid Waste Specialist
Kitsap County Public Works
Solid Waste Division
614 Division Street, MS-27
Port Orchard, WA 98366

Re: Third Quarter 2018 Environmental Monitoring Report, Hansville Landfill
Kitsap County, Washington
Project No. 160423-05.1

Dear Alexis:

This quarterly report summarizes the results of the environmental monitoring conducted at the Hansville Landfill (Site) during the third quarter of 2018, and was prepared by Aspect Consulting, LLC (Aspect) on behalf of Kitsap County Public Works Solid Waste Division and Waste Management of Washington (WMW). Ongoing environmental monitoring at the Site supports the selected remedy of natural attenuation of groundwater with enhanced monitoring and institutional controls that was established under Amended Consent Decree No. 95-2-03005-1 (August 5, 2011). The data sets presented in this letter report were collected in accordance with the Site Cleanup Action Plan (CAP; Ecology, 2011) and the "Compliance Monitoring Plan with Sampling & Analysis Plan and Quality Assurance Plan" (SCS, 2011; herein referred as Compliance Monitoring Plan), except where otherwise noted.

During the third quarter 2018, conditions monitored at the Site were consistent with historical trends showing improvements in protection of human health and the environment. This report is organized consistent with quarterly reporting topics listed in the Compliance Monitoring Plan (SCS, 2011) and includes:

- Site monitoring and maintenance activities, along with a discussion of any deviations from the CAP or required tasks not otherwise documented in project plans.
- Landfill gas monitoring results and gas collection system adjustments.
- Determination of groundwater flow direction and gradient, including a groundwater surface elevation contour map.
- Water quality sampling results, including tabulated field data and laboratory analyses.

Also included are time-series plots and projected trends in groundwater concentrations for selected analytes at selected monitoring locations. Finally, this report discusses geochemical parameters as indicators of landfill effects on groundwater and surface water.

Site Activities—Third Quarter 2018

Site activities included environmental monitoring of landfill gas, groundwater, and surface water. Landfill gas monitoring data are presented in Attachment A. Groundwater elevations, a

groundwater contour map, and groundwater and surface water quality analytical results are presented in Attachment B. Summary statistics, time-series graphs, and graphs of projected groundwater concentrations for arsenic and vinyl chloride at selected monitoring wells are presented in Attachment C. Supporting field records, laboratory data reports, and chain-of-custody documentation are presented in Attachment D. A chronology of on-Site activities performed during the third quarter 2018 is provided below.

- On July 26, 2018, groundwater and surface water sampling was completed by Aspect representatives. Groundwater and surface water samples were collected in accordance with the Compliance Monitoring Plan (SCS, 2011).
- On July 31 and August 23, 2018, Aspect conducted monthly system tuning of the landfill gas system. As necessary, flow rates were adjusted to ensure capture of landfill gasses.
- On August 17, 2018, compliance gas probes were monitored to correct a deviation from the Compliance Monitoring Plan during the second quarter of 2018 previously documented (Aspect, 2018b).
- On September 18, 2018, Aspect conducted landfill gas monitoring in accordance with the Compliance Monitoring Plan (SCS, 2011). As necessary, flow rates were adjusted to ensure capture of landfill gasses.

Deviations from the Compliance Monitoring Plan

There were no deviations from the Compliance Monitoring Plan (SCS, 2011) during the third quarter 2018 landfill gas compliance monitoring.

Summary of Landfill Gas Conditions

The following sections provide a discussion of landfill gas monitoring and gas extraction system performance. The layout of the landfill gas extraction system is shown on Figure A-1.

Landfill Gas Monitoring

During the third quarter 2018, the landfill gas collection system was tuned on July 31 and August 23, 2018, and compliance monitoring of the landfill gas collection system occurred on September 18, 2018.

Measurements were made with a GEM-5000 multigas meter. Landfill gas monitoring parameters collected for the compliance monitoring event are summarized in Table A-1, and listed 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, reported as “initial” and “adjusted,” respectively.
- 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.”

Landfill Gas System Performance

During the third quarter 2018, the flow at the blower inlet was approximately 70 standard cubic feet per minute (scfm). Since the third quarter 2017, methane and carbon dioxide concentrations at the blower inlet have remained relatively stable (approximately 4 percent and approximately 15 percent, respectively), and oxygen concentrations have been less than 3 percent. Well-field optimization will continue to focus on maximizing methane and carbon dioxide collection rates.

Explosive Gas Control

Methane was not detected in any of the perimeter compliance-gas probes during the compliance monitoring event on September 18, 2018. Carbon dioxide concentrations were less than 5 percent, which is within the range of natural conditions.

Summary of Groundwater and Surface Water Conditions

The following sections provide a discussion on groundwater flow, water quality, and an evaluation of statistical trends for selected groundwater parameters.

Groundwater Flow

Groundwater surface elevations from the third quarter 2018 are presented in Table B-1. Groundwater elevations ranged from 238.6 feet North American Vertical Datum of 1988 (NAVD88) in MW-12I to 269.2 feet NAVD88 in MW-5. Groundwater at the Site flowed generally towards the southwest. Groundwater gradients ranged from 0.009 feet over feet (feet/feet) in the upgradient areas, to 0.015 feet/feet further downgradient, with the gradient steepening near the groundwater discharge area (Figure B-1). Groundwater flow conditions were consistent with those observed during previous monitoring events.

Groundwater and Surface Water Quality

Groundwater quality results from the third quarter 2018 are presented in Table B-2, including field parameters, conventional parameters, dissolved metals, and volatile organic compounds. During the third quarter 2018, the arsenic concentration in groundwater was above the Site-specific cleanup levels of 0.005 milligrams per liter (mg/L) at monitoring wells MW-13D (0.00508 mg/L) and MW-14 (0.0135 mg/L). Dissolved manganese was detected in all surface water samples at concentrations below the Site-specific cleanup level of 2.24 mg/L. Vinyl chloride concentrations in groundwater were above the Site-specific groundwater cleanup level of 0.025 micrograms per liter (µg/L) at two monitoring wells, including MW-6 (0.049 µg/L) and MW-12I (0.047 µg/L).

Surface water quality results from the third quarter 2018 are presented in Table B-3, including field parameters, conventional parameters, dissolved metals, and volatile organic compounds. During the third quarter 2018, dissolved arsenic was detected in each surface water sample at concentrations below the Site-specific cleanup level of 0.005 mg/L, except at surface water location SW-6 (0.00967 mg/L). Dissolved manganese in surface water samples was either not detected or detected at concentrations below the Site-specific cleanup level of 2.24 mg/L. Vinyl chloride has not been detected in surface water samples since the third quarter 2013, and reporting limits have been less than the Site-specific cleanup level of 0.025 µg/L.

Time-Series Plots and Projected Trends

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. 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, and concentrations exceeded the cleanup level for the first time during the third quarter 2018. Dissolved arsenic concentrations at MW-14 have been decreasing over time.

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. The concentration of vinyl chloride at MW-14 (0.024 µg/L) during the third quarter 2018 was below the Site-specific cleanup level for the first time since monitoring began in 2007, consistent with the decreasing trend observed during previous monitoring events. Decreasing trends in vinyl chloride concentrations have also been observed at MW-6 and MW-12I.

Figure C-3 shows time-series plots of historical and 10-year projected groundwater concentrations for MW-6 (vinyl chloride), MW-12I (vinyl chloride), and MW-14 (arsenic and vinyl chloride). Since mid-2017, vinyl chloride concentrations in groundwater at MW-6, MW-12I, and MW-14 have been below the trend lines, potentially reflecting landfill gas collection system optimization. Dissolved arsenic concentrations in groundwater at MW-14 have been in good agreement with the trend line. Optimizing the existing landfill gas collection system will reduce the gas-to-groundwater pathway and may achieve groundwater cleanup levels within a shorter time frame than shown on Figure C-3.

Statistical Evaluation of Groundwater Trends

Dissolved arsenic and/or vinyl chloride concentrations in groundwater show statistically significant decreasing trends at monitoring wells MW-6, MW-12I, and MW-14, where one or both constituents have been detected above Site-specific cleanup levels.

Statistical analysis of groundwater data was performed in accordance with the Compliance Monitoring Plan (SCS, 2011) for historical data collected since January 23, 2007. The program Sanitas WQStat (ver. 9.0.34) 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 analysis for arsenic and vinyl chloride for monitoring wells MW-6, MW-12I, and MW-14. The statistical trend summarizes the results of 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 all cases, the trends are decreasing because the Sen's Slope is negative.[1] In summary, Table C-1 shows that 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. Concentrations of vinyl chloride in groundwater at MW-

[1] Sen's slope values reflect the median of the slopes of historical data pairs, and were provided in units of µg/L per day in reports by SCS through 2016. Starting in 2017, Sen's slope values will be provided in units of µg/L per year, to support interpretation. For comparison, Table C-1 provides Sen's slope values for both units.

14 fell below the Site-specific cleanup level during the third quarter 2018, demonstrating the efficacy of the current remedial strategy.

The 2017 annual report (Aspect, 2018a) provided additional statistical evaluation, including updates for the upper and lower confidence limits at selected wells, to provide context for projected groundwater concentrations. The upcoming 2018 annual report will provide similar statistical evaluation, as well as a discussion of the trend in arsenic concentrations in groundwater at MW-13D. Based on our preliminary analysis, the historical dissolved arsenic concentrations at MW-13D appear to correlate with long-term changes in groundwater levels and may not be related to the landfill.

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. Historically, the downgradient monitoring wells show lower dissolved oxygen concentrations than the upgradient well (MW-5) or surface water sampling locations (SW-1, SW-4, SW-6, and SW-7). Carbon dioxide in landfill gas readily dissolves in water, reducing dissolved oxygen concentrations. Optimizing landfill gas collection will reduce the gas-to-groundwater pathway that appears to be affecting groundwater geochemistry.

References

Aspect Consulting, LLC (Aspect), 2018a, 2017 Annual Environmental Monitoring Report, Hansville Landfill, Kitsap County, WA, February 28, 2018.

Aspect Consulting, LLC (Aspect), 2018b, Second Quarter 2018 Environmental Monitoring Report, Hansville Landfill, Kitsap County, WA, August 29, 2018.

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

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

Limitations

Work for this project was performed for the Kitsap County Public Works, Solid Waste Division (Client), and this letter 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 letter does not represent a legal opinion. No other warranty, expressed or implied, is made.

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Sincerely,

Aspect consulting, LLC

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Attachments

A – Landfill Gas Data
B – Water Quality Results
C – Groundwater Statistics and Time-Series Plots
D – Field Forms and Laboratory Reports

cc: Phil Perley, Waste Management of Washington
Patrick Hamel, Kitsap Public Health District
Ron Timm, Washington State Department of Ecology
Sam Phillips, Port Gamble S'Klallam Tribe

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ATTACHMENT A

Landfill Gas Data

Table A-1. Landfill Gas Data, September 18, 2018

Project No. 160423, Hansville Landfill, Hansville, WA

Location	Device ID	Date/Time	Methane CH4 (% by vol)	Carbon Dioxide CO2 (% by vol)	Oxygen O2 (% by vol)	Balance Bal (% by vol)	Static Pressure (inches H2O)			Gas Temperature (degrees F)			Flow Rate (SCFM)	
							Initial	Adjusted	Maximum	Initial	Adjusted	Maximum	Initial	Adjusted
Blower Inlet	HANSBLIN	9/18/2018 11:08	4.3	15.3	2.6	77.8	-4.45	-5.57	-4.45	68.9	68.9	68.9	69.9	70
Blower Outlet	HANSBLOT	9/18/2018 11:09	4.2	15.3	2.5	78	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Extraction Well 001	HANSR001	9/18/2018 13:16	6.9	14.1	0.5	78.5	-0.53	-0.51	-0.51	71.4	70.4	71.4	3.1	2.7
Extraction Well 002	HANSR002	9/18/2018 13:24	2.1	14.7	3.8	79.4	-2.23	-2.22	-2.22	79.5	79.6	79.6	3.1	4.5
Extraction Well 003	HANSR003	9/18/2018 13:32	7.1	13.8	0.1	79	-1.12	-1.08	-1.08	68.5	68.7	68.7	3.4	3.7
Extraction Well 004	HANSR004	9/18/2018 13:43	3.3	17.5	0.2	79	-1.51	-1.51	-1.51	70.5	70.6	70.6	3.4	3.4
Extraction Well 005	HANSR005	9/18/2018 13:49	4.2	18	0.4	77.4	-0.75	-0.75	-0.75	74.6	74.6	74.6	5.4	5.3
Extraction Well 006	HANSR006	9/18/2018 13:54	3.2	17.6	2.5	76.7	-1.14	-1.12	-1.12	78.6	78.2	78.6	3	3.4
Extraction Well 007	HANSR007	9/18/2018 13:58	1.1	14.6	0.3	84	-0.37	-0.33	-0.33	70.3	70.3	70.3	5.9	5.3
Extraction Well 008	HANSR008	9/18/2018 13:03	5.1	18	0.4	76.5	-0.66	-0.66	-0.66	67.4	67.4	67.4	2.6	3.9
Extraction Well 009	HANSR009	9/18/2018 13:10	1.9	15.7	2.1	80.3	-1.48	-1.49	-1.48	86.1	88.1	88.1	0.3	0.3
Extraction Well 010	HANSR010	9/18/2018 13:13	5.8	9.8	4.7	79.7	-0.72	-0.73	-0.72	70.3	70.5	70.5	2.1	2
Extraction Well 011	HANSR011	9/18/2018 13:28	3.4	7.4	0.2	89	-0.54	-0.54	-0.54	71.4	71.6	71.6	0.9	1.2
Extraction Well 012	HANSR012	9/18/2018 14:07	8.6	4.1	0.1	87.2	-0.79	-0.78	-0.78	70.9	70.9	70.9	1.2	1.1
Extraction Well 013	HANSR013	9/18/2018 14:00	3.4	13.7	1.5	81.4	-1.67	-1.66	-1.66	69.4	69.6	69.6	4.3	3.9
Trench Collector TD-1	HANSTD01	9/18/2018 10:35	2.8	22.1	0.2	74.9	-0.18	-0.22	-0.18	73.6	73.5	73.6	4.2	0
Trench Collector TR-1	HANSTR01	9/18/2018 13:52	1.3	16.6	2.3	79.8	-0.51	-0.5	-0.5	73.3	73.6	73.6	4.3	4.6
Trench Collector TR-2	HANSTR02	9/18/2018 13:06	9.2	18.4	0.3	72.1	-0.77	-0.76	-0.76	70	70.2	70.2	2.3	2.8
Trench Collector TR-3	HANSTR03	9/18/2018 13:19	0.1	0.1	20.7	79.1	-0.56	-0.55	-0.55	68.8	69.7	69.7	3.8	2.8
Trench Collector TR-4	HANSTR04	9/18/2018 13:41	2.4	19.7	0.2	77.7	-0.53	-0.52	-0.52	70.4	69.8	70.4	5.3	4.8
Trench Collector TR-5	HANSTR05	9/18/2018 14:09	0.1	0.1	21.2	78.6	-0.77	-0.69	-0.69	72.3	72.9	72.9	3.2	2.8
Trench Collector TR-6	HANSTR06	9/18/2018 14:04	11.1	15.2	0.3	73.4	-0.4	-0.32	-0.32	75.1	75.3	75.3	0.9	2.3
Trench Collector TR-7	HANSTR07	9/18/2018 13:36	8.9	17.5	0.3	73.3	-0.54	-0.54	-0.54	69.6	69.7	69.7	3.8	3.3
Native Soil Extraction Well 1 Shallow	HANSN01S	9/18/2018 11:27	0.1	1.4	19.3	79.2	-0.39	-0.38	-0.38	65	65.4	65.4	4.4	3.4
Native Soil Extraction Well 1 Deep	HANSN01D	9/18/2018 11:29	0.1	0.1	20.7	79.1	-0.05	-0.05	-0.05	75.1	75.9	75.9	4.1	3.9
Native Soil Extraction Well 2 Shallow	HANSN02S	9/18/2018 12:36	0.1	1.4	20.3	78.2	0.03	0.02	0.03	81.7	81.8	81.8	0	0
Native Soil Extraction Well 2 Deep	HANSN02D	9/18/2018 12:34	0.1	1.4	20.3	78.2	0	0	0	72.1	72.4	72.4	0.2	0.2
Native Soil Extraction Well 3 Shallow	HANSN03S	9/18/2018 12:44	0.1	0.1	21.3	78.5	0.05	0.05	0.05	74.1	74.1	74.1	6.9	6.5
Native Soil Extraction Well 3 Deep	HANSN03D	9/18/2018 12:40	0.1	0.1	21.5	78.3	0.02	0.02	0.02	76.3	76.2	76.3	6.6	6.5
Native Soil Extraction Well 4 Shallow	HANSN04S	9/18/2018 12:48	0.1	0.1	21.3	78.5	0.05	0.05	0.05	63.3	63.1	63.3	6.3	6.5
Native Soil Extraction Well 4 Deep	HANSN04D	9/18/2018 12:46	0.1	0.1	21.2	78.6	-0.03	-0.02	-0.02	66.9	66.8	66.9	7.2	6.9
Native Soil Extraction Well 5 Shallow	HANSN05S	9/18/2018 12:52	0.1	0.1	21.1	78.7	-0.04	0	0	67.2	67	67.2	5.8	6.7
Native Soil Extraction Well 5 Deep	HANSN05D	9/18/2018 12:50	0.1	0.1	21.2	78.6	0.02	0.03	0.03	66.7	66.3	66.7	6.7	6.7
Gas Probe 1	HANSGP01	9/18/2018 11:20	0.1	0.9	19.9	79.1	N/A	N/A	0	N/A	N/A	0	N/A	N/A
Gas Probe 2 Shallow	HANSGP2S	9/18/2018 11:38	0.1	0.2	20.8	78.9	N/A	N/A	0	N/A	N/A	0	N/A	N/A
Gas Probe 2 Middle	HANSGP2M	9/18/2018 11:43	0.1	1.1	19.8	79	N/A	N/A	0	N/A	N/A	0	N/A	N/A
Gas Probe 2 Deep	HANSGP2D	9/18/2018 11:48	0.1	0.3	21.1	78.5	N/A	N/A	0	N/A	N/A	0	N/A	N/A
Gas Probe 3	HANSGP03	9/18/2018 11:58	0.1	1.2	20.7	78	N/A	N/A	0	N/A	N/A	0	N/A	N/A
Gas Probe 4	HANSGP04	9/18/2018 12:25	0.1	1.7	20.2	78	N/A	N/A	0	N/A	N/A	0	N/A	N/A
Gas Probe 5	HANSGP05	9/18/2018 12:59	0.1	1.2	19.9	78.8	N/A	N/A	0	N/A	N/A	0	N/A	N/A
Gas Probe 6	HANSGP06	9/18/2018 10:55	0.1	2.3	18.7	78.9	N/A	N/A	0	N/A	N/A	0	N/A	N/A
Gas Probe 7	HANSGP07	9/18/2018 12:11	0.1	3	19.1	77.8	N/A	N/A	0	N/A	N/A	0	N/A	N/A

Notes

Flow rates measured using orifice plates.

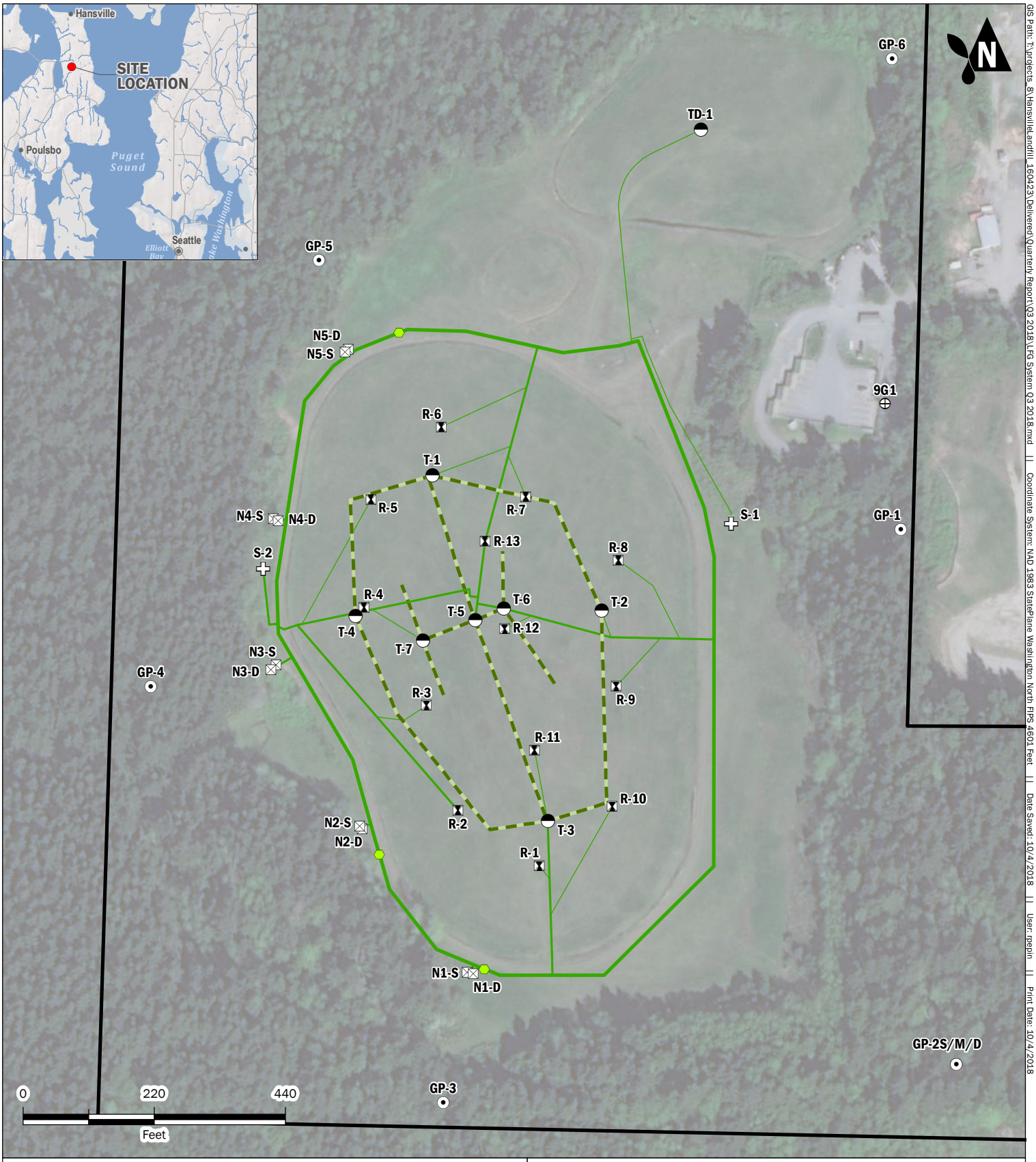
N/A = indicates parameter not measured.

inches H2O = inches water column

degrees F = degrees Fahrenheit

SCFM = standard cubic feet per minute

Gas probes were inadvertently not measured during the second quarter 2018 and were measured on 8/17/2018.



Exploration

- Condensate Sump
- Gas Detection Probe
- Gas Extraction Well (Native Soil Completion)
- Gas Extraction Well (in Refuse Completion)
- Trench Completion
- Well Geologic Control

Landfill Gas System

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

Landfill Gas System

Third Quarter 2018 Environmental Monitoring Report
Hansville Landfill
Kitsap County, Washington

Aspect Consulting	OCT-2018	BY: MLK / RAP	FIGURE NO. A-1
	PROJECT NO. 160423	REVISED BY: ---	

GIS Path: T:\projects_8\Hansville\Landfill_160423\Delivered\Quarterly Report\Q3 2018\LFG System Q3 2018.mxd || Coordinate System: NAD 1983 StatePlane Washington North FIPS 4601 Feet || Date Saved: 10/4/2018 || User: mepin || Print Date: 10/4/2018

ATTACHMENT B

Water Quality Results

Table B-1. Water Level Elevations

Project No. 160423, Hansville Landfill, Hansville, WA

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	97.7	269.2
MW-6	332	332.7	260	245	72.35	260.4
MW-7	344.3	346.0	259	244	82.73	263.3
MW-12I	245.6	248.1	217	207	9.55	238.6
MW-13D	258.1	260.4	205	195	10.45	250.0
MW-14	338.6	341.1	262	247	80.08	261.0

Notes

Depths to water collected July 25, 2018.

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

Table B-2. Groundwater Quality Results

Project No. 160423, Hansville Landfill, Hansville, WA

Parameter	Site Cleanup Level	Groundwater Monitoring Wells					
		MW-5	MW-6	MW-7	MW-12I	MW-13D	MW-14
Field Parameters							
Dissolved Oxygen (mg/L)		9.4	0.2	1.9	0.20	0.54	1.5
pH (units)		6.91	7.22	6.69	7.42	7.66	7.11
Redox (mV)		130.6	74.7	132	91.3	60.4	105.8
Specific Conductivity (µS)		263.6	731	459.2	310.5	336.3	511
Temperature (degrees C)		11	13.2	10.4	11.6	11.2	12.6
Turbidity (NTU)		0.93	2.12	1.47	0.94	1.67	5.21
Conventional Parameters (mg/L)							
Alkalinity		**60**	**150**	**130**	**81**	**71**	**110**
Ammonia (as N)		5 U	5 U	5 U	5 U	5 U	5 U
Bicarbonate		**60**	**150**	**130**	**81**	**71**	**110**
Carbonate		0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U
Chloride		**2**	**14**	**1.3**	**2.7**	**4.8**	**11**
Nitrate (as N)		**1.28**	**2.6 J**	**0.461**	0.1 U	0.1 U	**1.55**
Nitrite (as N)		0.1 U	**0.352**	0.1 U	0.1 U	0.1 U	0.1 U
Orthophosphate (as P)		0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Sulfate		**9.3 J**	**31**	**5 J**	**7 J**	**17**	**14 J**
Total Organic Carbon (TOC)		1 U	**1.6**	**2**	**2.6**	1 U	**1.7**
Dissolved Metals (mg/L)							
Arsenic	0.005	**0.00211**	**0.00151**	**0.00121**	**0.00226**	**0.00508**	**0.0135**
Manganese	2.24	1 U	**0.43**	1 U	**0.033**	**0.0062**	**0.44**
Volatile Organic Compounds (µg/L)							
Vinyl Chloride	0.025	0.02 U	**0.049**	0.02 U	**0.047**	0.02 U	**0.024**

Notes

Samples were collected on July, 2018.
Bold - detected
Shaded - Exceeded Site Cleanup Level
U - Not detected at or above reporting limit
J or UJ - Estimated result; "usable"

mV = millivolts
µS = microSiemens
degrees C = degrees Celcius
NTU = Nephthalometric Turbidity Units
mg/L = milligram per liter
µg/L = microgram per liter

Table B-3. Surface Water Quality Results

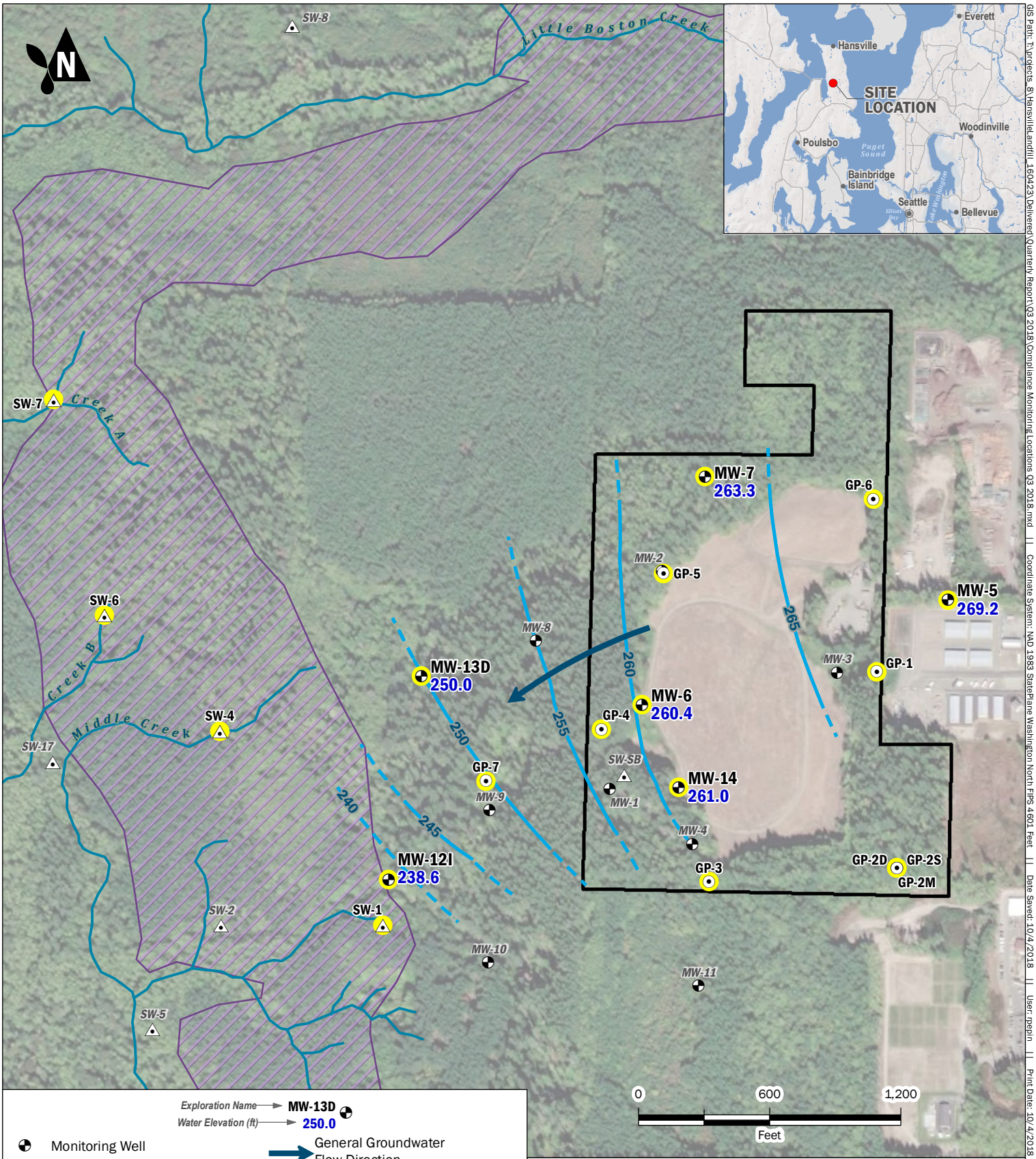
Project No. 160423, Hansville Landfill, Hansville, WA

Parameter	Site Cleanup Level	Surface Water Sampling Locations			
		SW-1	SW-4	SW-6	SW-7
Field Parameters					
Dissolved Oxygen (mg/L)		11.7	8.4	7.3	7.25
pH (units)		7.12	7.12	7.55	7.55
Redox (mV)		66.8	98.6	70.9	70.9
Specific Conductivity (µS)		187.9	370.5	181.6	181.6
Temperature (degrees C)		12.6	13.9	16.7	16.7
Turbidity (NTU)		2.03	6.77	20.3	10.4
Conventional Parameters (mg/L)					
Alkalinity		**82**	**160**	**71**	**63**
Ammonia (as N)		5 U	5 U	5 U	5 U
Bicarbonate		**82**	**160**	**71**	**63**
Carbonate		0.03 U	0.03 U	**0.11**	0.03 U
Chloride		**4.6**	**15**	**5.3**	**5**
Nitrate (as N)		**1.96**	**1.02**	**0.149**	**0.856**
Nitrite (as N)		0.1 U	0.1 U	0.1 U	0.1 U
Orthophosphate (as P)		0.1 U	0.1 U	0.1 U	0.1 U
Sulfate		**12 J**	**22**	**10 J**	**20**
Total Organic Carbon (TOC)		**1.6**	**3.8**	**15**	**5.8**
Dissolved Metals (mg/L)					
Arsenic	0.005	**0.00168**	**0.00194**	**0.00967**	**0.00171**
Manganese	2.24	1 U	**0.049**	**0.27**	**0.0038**
Volatile Organic Compounds (µg/L)					
Vinyl Chloride	0.025	0.02 U	0.02 U	0.02 U	0.02 U

Notes

Samples were collected on July 25, 2018.
Bold - detected
Shaded - Exceeded Site Cleanup Level
U - Not detected at or above reporting limit
R - Rejected data, not representative of site conditions
NA - Instrument measured dissolved oxygen outside upper limit

mV = millivolts
µS = microSiemens
degrees C = degrees Celcius
NTU = Nephthalometric Turbidity Units
mg/L = milligram per liter
µg/L = microgram per liter



Exploration Name → MW-13D
Water Elevation (ft) → 250.0

- Monitoring Well
- Gas Detection Probe
- Surface Water Station
- Compliance Monitoring Location
- Inferred Water Elevation Contour (ft, dashed where inferred) *Measured July 2018*
- 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

Third Quarter 2018 Environmental Monitoring Report
Hansville Landfill
Kitsap County, Washington

Aspect Consulting	OCT-2018	BY: MLK / RAP	FIGURE NO. B-1
	PROJECT NO. 160423	REVISED BY: ---	

GIS Path: T:\projects_8\Hansville\Landfill_160423\Delivered\Quarterly Report\Q3 2018\Compliance Monitoring Locations Q3 2018.mxd || Coordinate System: NAD 1983 StatePlane Washington North FIPS 4601 Feet || Date Saved: 10/4/2018 || User: rpapin || Print Date: 10/4/2018

ATTACHMENT C

Groundwater Statistics and Time-Series Plots

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	(ug/L per day)	(ug/L per year)
MW-5	--[3]	--	--	--	--	--	--
MW-6	--	--	--	--	--	--	--
MW-7	--	--	--	--	--		--
MW-12I	--	--	--	--	--	--	--
MW-13D	--	--	--	--	--		--
MW-14	Decreasing	-6.4	-1.96	46	Yes	-3.5E-06	-0.0013

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	-5.7	-1.96	47	Yes	-7.0E-05	-0.025
MW-7	--	--	--	--	--		--
MW-12I	Decreasing	-6.8	-1.96	47	Yes	-1.1E-04	-0.040
MW-13D	--	--	--	--	--		--
MW-14	Decreasing	-7.8	-1.96	47	Yes	-1.1E-04	-0.039

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).

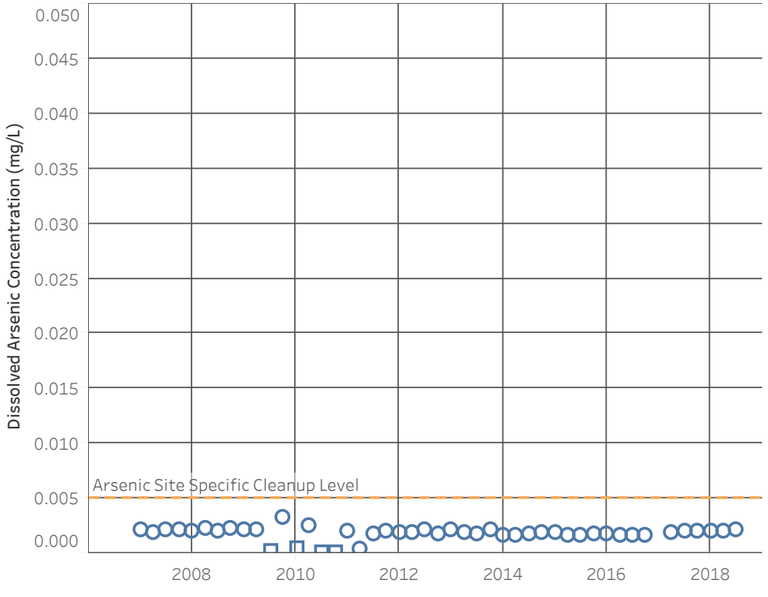
For N>40, Mann-Kendall uses an approximation of a normal distribution, represented by Test Value Z.

For N<=40, Mann-Kendall scores are reported as Test Value S.

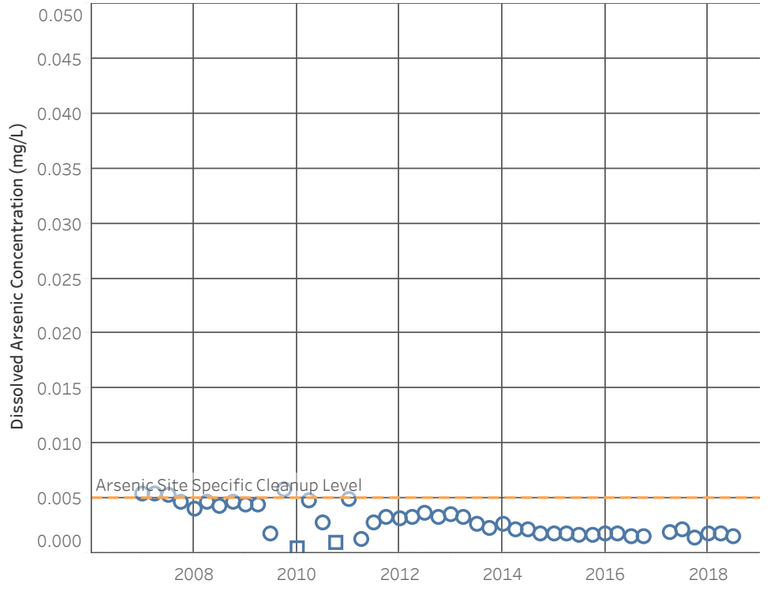
3 - "--" Indicates most recent groundwater concentrations were below the Site-specific cleanup level.

"ug/L" - micrograms per liter

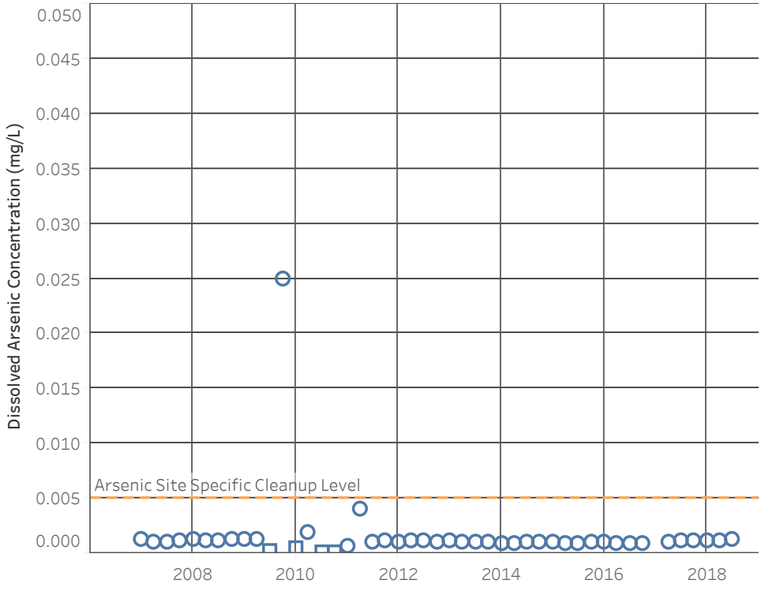
MW-5 (Background Well)



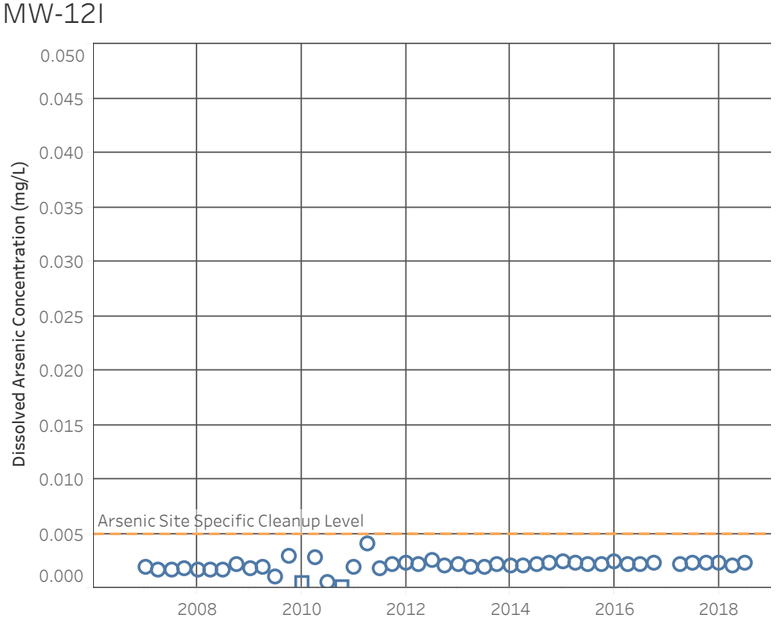
MW-6



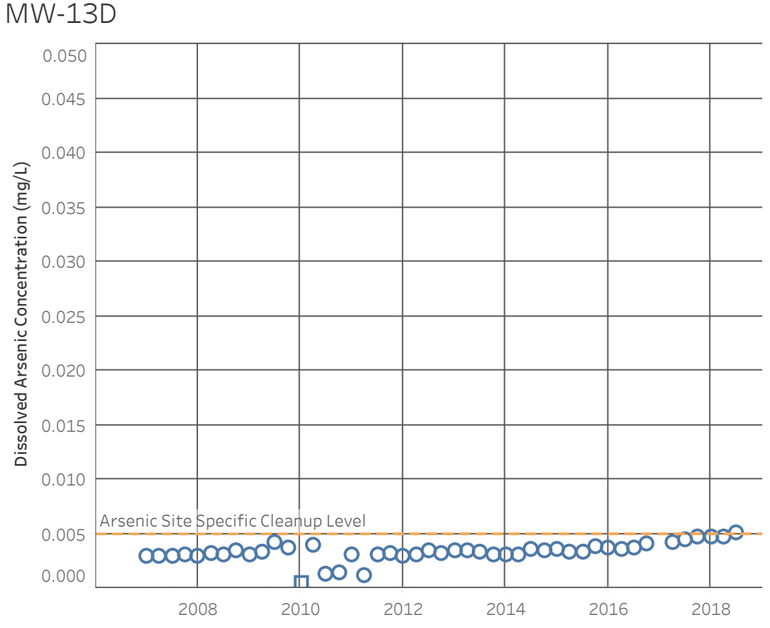
MW-7



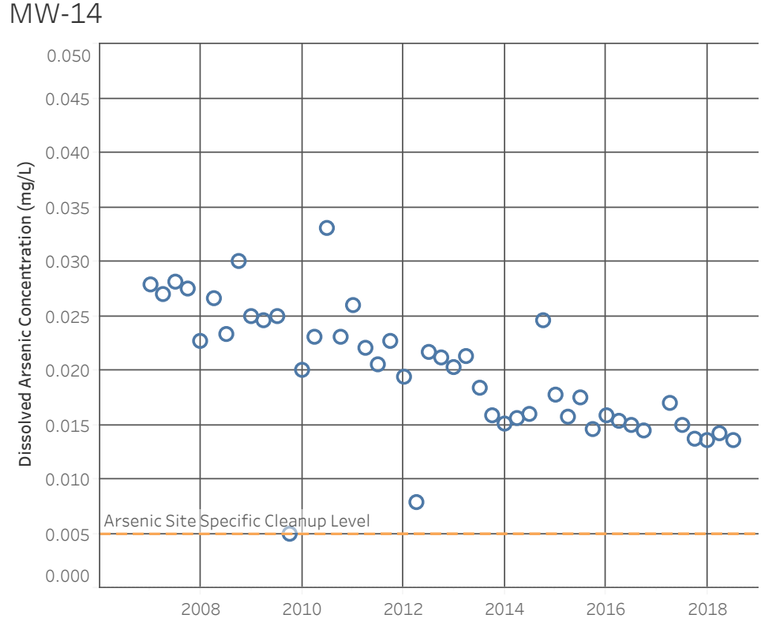
MW-12I



MW-13D



MW-14



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

Result Flags
○ Detected □ U - Non-Detect

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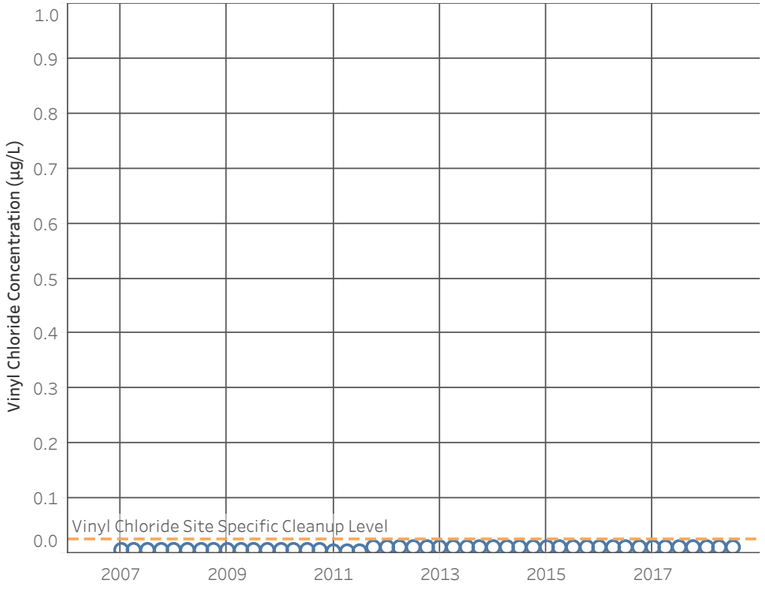
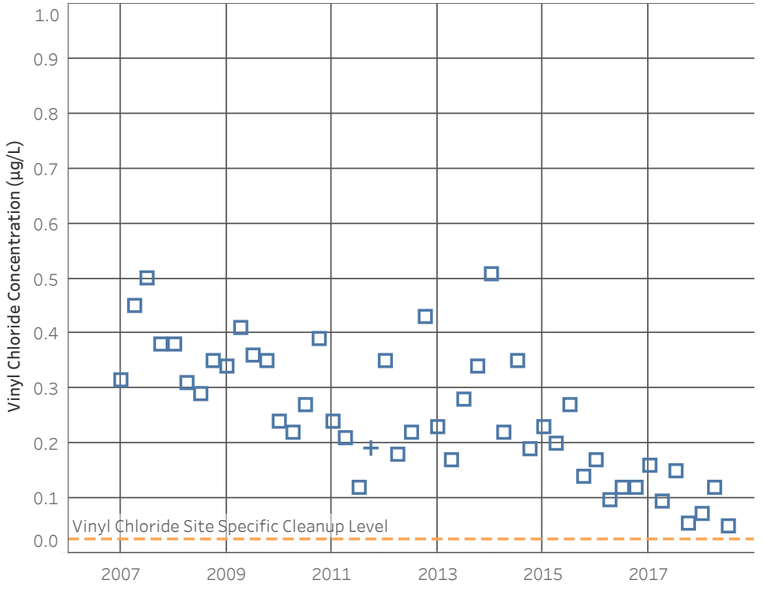
Aspect Consulting
10/09/2018
Trend Plots (As)

Figure C-1 - Dissolved Arsenic Sampling Results
Third Quarter 2018 Environmental Monitoring Report
Hansville Landfill
Kitsap County, WA

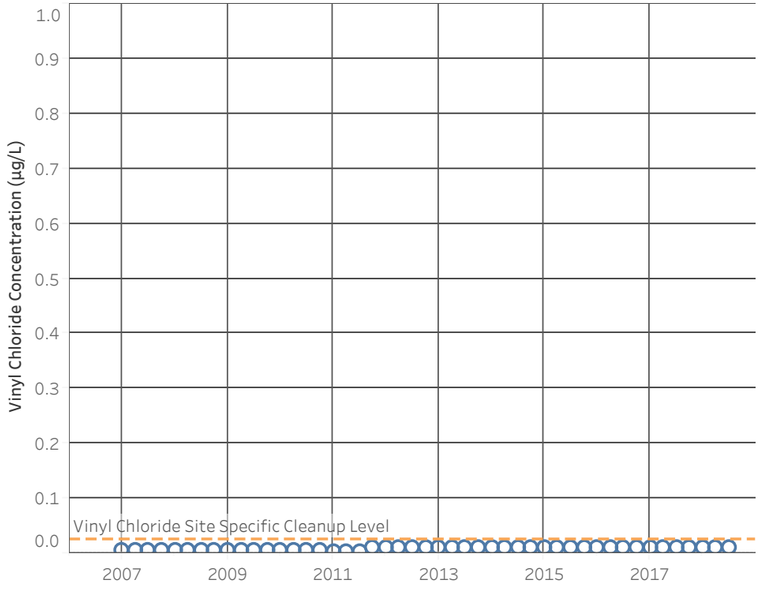
MW-5 (Background Well)



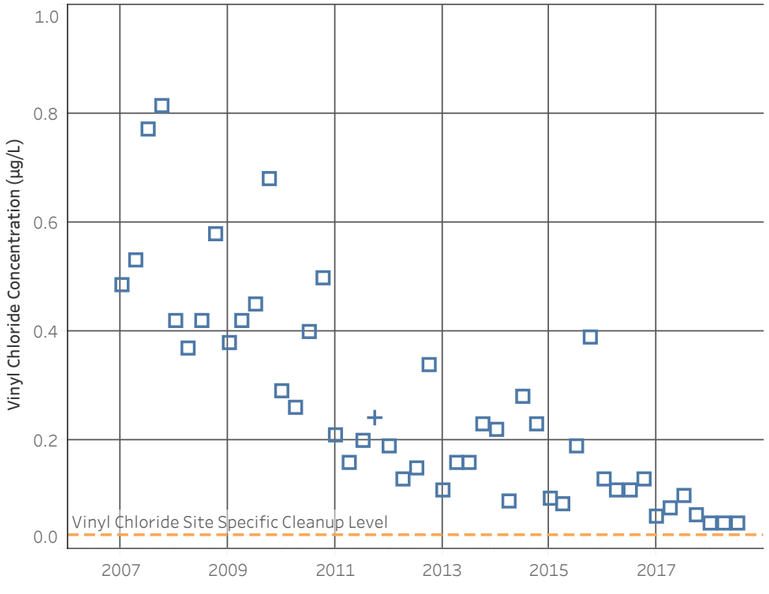
MW-6



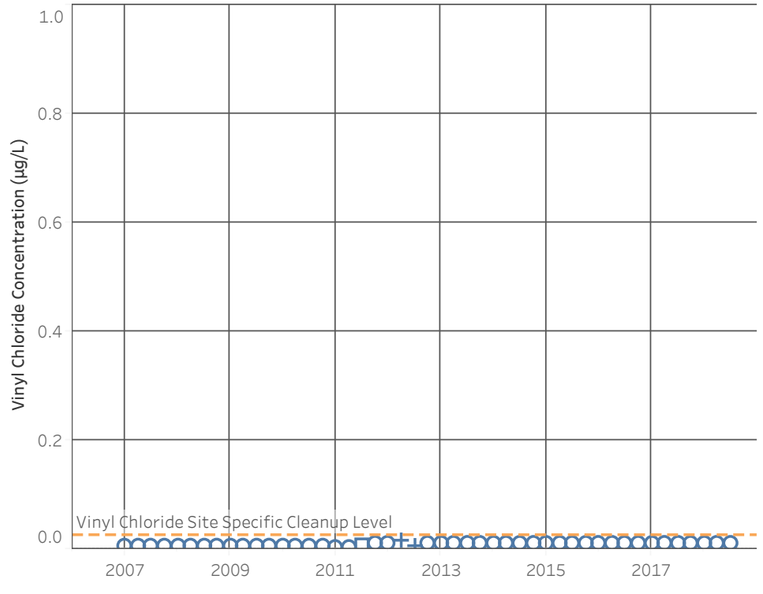
MW-7



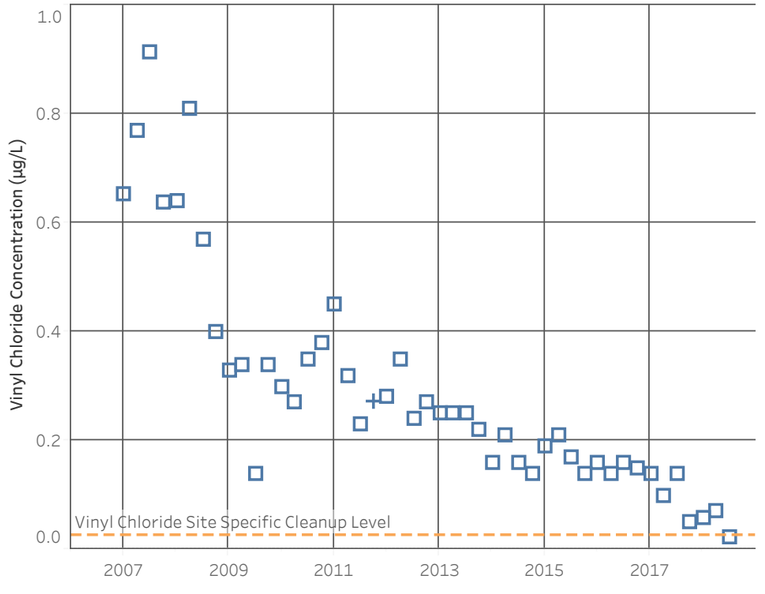
MW-12I



MW-13D



MW-14



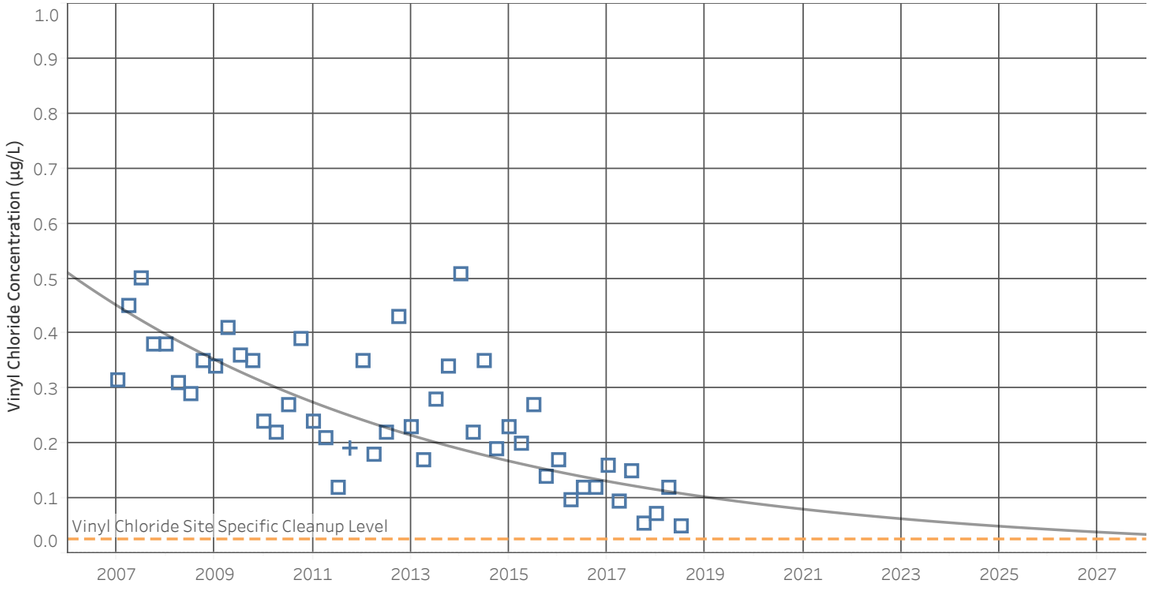
Result Flags
Detected
J - Estimate
U - Non-Detect

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

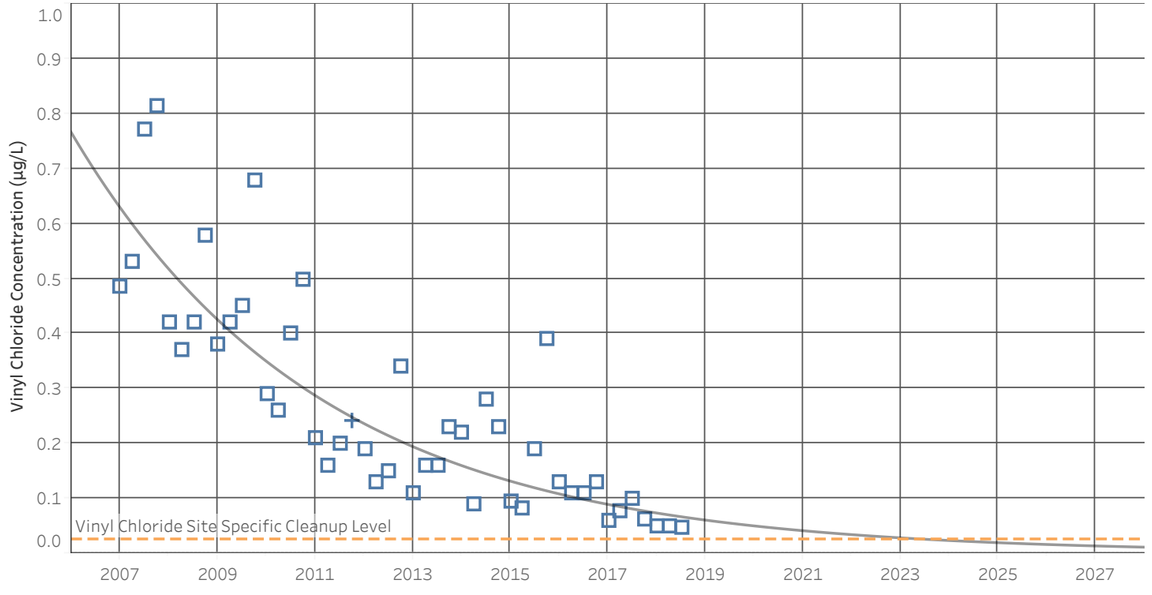
Aspect Consulting
10/09/2018
Trend Plots (VC)

Figure C-2 - Vinyl Chloride Sampling Results
Third Quarter 2018 Environmental Monitoring Report
Hansville Landfill
Kitsap County, WA

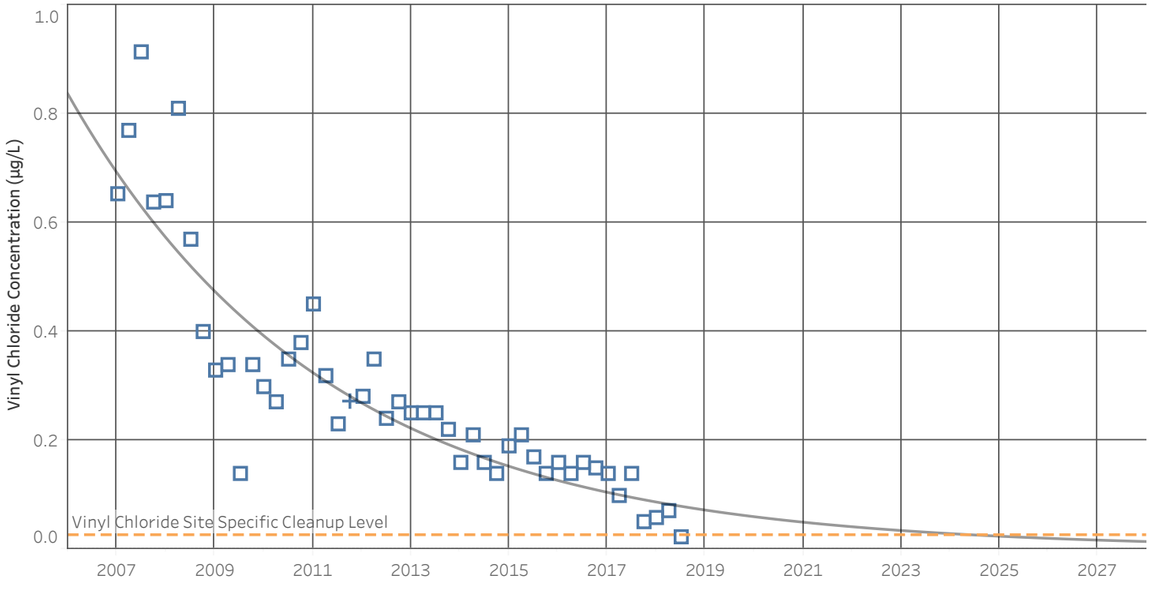
MW-6 Vinyl Chloride Trend



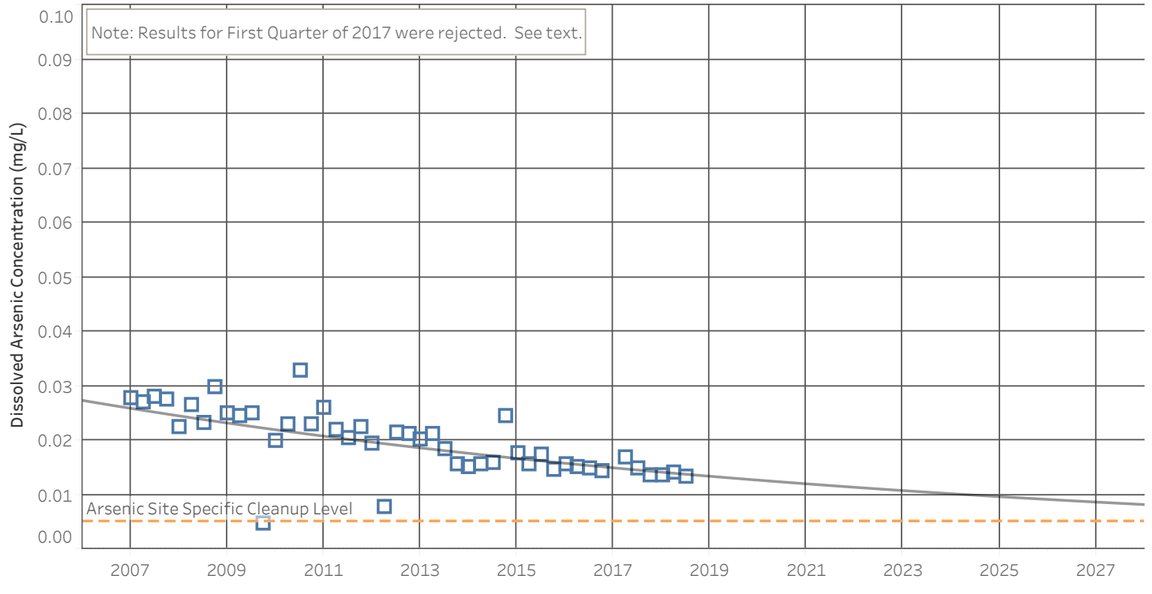
MW-12I Vinyl Chloride Trend



MW-14 Vinyl Chloride Trend



MW-14 Dissolved Arsenic Trend



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

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

Aspect Consulting
10/09/2018
Trend Plots (VC)

Figure C-3 - 10 Year Attenuation Curves
Third Quarter 2018 Environmental Monitoring Report
Hansville Landfill
Kitsap County, WA

ATTACHMENT D

Field Forms and Laboratory Reports

Aspect CONSULTING

GROUNDWATER SAMPLING RECORD

WELL NUMBER: MW-7 Page: 1 of 1

Project Name: Hansville LF
Project Number: 160423
Date: 7/26/2018
Developed by:
Measuring Point of Well: TOC
Screened Interval (ft. TOC):
Filter Pack Interval (ft. TOC)

Starting Water Level (ft TOC): 82.73
Casing Stickup (ft):
Total Depth (ft TOC):
Casing Diameter (inches):

Casing Volume _____ (ft Water) x _____ (Lpfv)(gpf) = _____ (L)(gal)
Casing volumes: 2" = 0.16 gpf 4" = 0.65 gpf 6" = 1.47 gpf
2" = 0.62 Lpf 4" = 2.46 Lpf 6" = 5.56 Lpf

Sample Intake Depth (ft TOC): _____

PURGING MEASUREMENTS

Criteria:		Typical 0.1-0.5 Lpm	Stable and minimal and	na	± 3%	± 10%	± 0.1	± 10 mV	± 10%	
Time	Cumul. Volume (gal or L)	Purge Rate (gpm or Lpm)	Water Level (ft)	Temp. (C or F)	Specific Conductivity (µS/cm)	Dissolved Oxygen (mg/L)	pH	Eh ORP (mv)	Turbidity (NTU)	Comments
1021		0.4	82.73							start
1026			~~+0.~~	10.5	413.2	2.82	6.79	149.6	10.7	
1032			82.75	10.4	413.5	2.19	6.78	147.2	5.39	
1037			82.75	10.4	423.5	2.07	6.76	143.6	4.46	
1042			82.85	10.3	434.6	2.00	6.68	141.4	3.07	
1047			82.85	10.3	447.1	1.94	6.69	137.8	3.09	
1052			82.85	10.4	453.4	1.85	6.70	135.2	5.34	
1055			82.85	10.5	459.6	1.88	6.69	133.1	2.41	
1058			82.85	10.4	459.2	1.88	6.69	132.0	1.47	sample

Total Gallons Purged: 2 Total Casing Volumes Removed: _____

Ending Water Level (ft TOC): _____ Ending Total Depth (ft TOC): _____

SAMPLE INVENTORY

Time	Volume mL	Bottle Type		Quantity	Filtration	Preservation	Appearance: Color	Appearance: Turbidity & Sediment	Remarks
1100	500	amber		1	-	sulf	clr		
	1000	poly		1	-	-			
	500	poly		1	-	-			
	40	VOA		3	-	HCl			
	500	poly		2	yes	nitric			
	250	poly		1	yes	-			

METHODS

Sampling Equipment with IDs: Dedicated bladder pump / peristaltic (circle)
Purging Equipment: YSI orange / surface w+r Decon Equipment: Alconox + water
Disposal of Discharged Water: on site
Observations/Comments: NHC

Aspect CONSULTING

GROUNDWATER SAMPLING RECORD

WELL NUMBER: MW-5 Page: 1 of 1

Project Name: Hansville LF
Project Number: 160423
Date: 7/26/2018
Developed by:
Measuring Point of Well: TOC
Screened Interval (ft. TOC):
Filter Pack Interval (ft. TOC)

Starting Water Level (ft TOC): 97.7'
Casing Stickup (ft):
Total Depth (ft TOC):
Casing Diameter (inches):

Casing Volume _____ (ft Water) x _____ (Lpfv)(gpf) = _____ (L)(gal)
Casing volumes: 2" = 0.16 gpf 4" = 0.65 gpf 6" = 1.47 gpf
2" = 0.62 Lpf 4" = 2.46 Lpf 6" = 5.56 Lpf

Sample Intake Depth (ft TOC): _____

PURGING MEASUREMENTS

Criteria:		Typical 0.1-0.5 Lpm	Stable and minimal and	na	± 3%	± 10%	± 0.1	± 10 mV	± 10%	
Time	Cumul. Volume (gal or L)	Purge Rate (gpm or Lpm)	Water Level (ft)	Temp. (C or F)	Specific Conductivity (µS/cm)	Dissolved Oxygen (mg/L)	pH	Eh ORP (mv)	Turbidity (NTU)	Comments
1156 ~~1117~~			97.7							Start
1201		0.4	97.7	13.7	281.0	7.77	6.53	134.2	2.10	
1206			97.7	11.4	257.8	7.30	6.50	135.5	2.03	
1212			97.7	11.2	263.2	9.07	6.79	133.4	1.38	
1215			97.7	11.0	263.5	9.33	6.89	131.3	1.22	
1218			97.7	11.0	263.6	9.38	6.91	130.6	0.93	SAMPLE

Total Gallons Purged: _____ Total Casing Volumes Removed: _____

Ending Water Level (ft TOC): _____ Ending Total Depth (ft TOC): _____

SAMPLE INVENTORY

Time	Volume mL	Bottle Type		Quantity	Filtration	Preservation	Appearance: Color	Appearance: Turbidity & Sediment	Remarks
1222	500	amber		1	-	50%	CLEAR	NONE	
	1000	poly		1	-	-			
	500	poly		1	-	-			
	40	VOA		3	-	HCl			
	500	poly		2	yes	nitric			
	250	poly		1	yes	-			

METHODS

Sampling Equipment with IDs: Dedicated bladder pump / peristaltic (circle)
Purging Equipment: YSI ORANGE / surface w+r Decon Equipment: Alconox + water
Disposal of Discharged Water: on site
Observations/Comments: JTL / NHC

Aspect CONSULTING

GROUNDWATER SAMPLING RECORD

WELL NUMBER: SW-1 Page: 1 of 1

Project Name: Hansville LF
Project Number: 160423
Date: 7/25/2018
Developed by:
Measuring Point of Well:
Screened Interval (ft. TOC):
Filter Pack Interval (ft. TOC)

Starting Water Level (ft TOC): N/A
Casing Stickup (ft):
Total Depth (ft TOC):
Casing Diameter (Inches):

Casing Volume _____ (ft Water) x _____ (Lpfv)(gpf) = _____ (L)(gal)
Casing volumes: 2" = 0.16 gpf 4" = 0.65 gpf 6" = 1.47 gpf
2" = 0.62 Lpf 4" = 2.46 Lpf 6" = 5.56 Lpf

Sample Intake Depth (ft TOC): _____

PURGING MEASUREMENTS

Criteria:		Typical 0.1-0.5 Lpm	Stable and minimal and	na	± 3%	± 10%	± 0.1	± 10 mV	± 10%	
Time	Cumul. Volume (gal or L)	Purge Rate (gpm or Lpm)	Water Level (ft)	Temp. (C or F)	Specific Conductivity (µS/cm)	Dissolved Oxygen (mg/L)	pH	Eh ORP (mv)	Turbidity (NTU)	Comments
1330	—	~0.5	—	12.6	187.9	11.7	7.12	66.8	2.03	Start

Total Gallons Purged: _____ Total Casing Volumes Removed: _____

Ending Water Level (ft TOC): _____ Ending Total Depth (ft TOC): _____

SAMPLE INVENTORY

Time	Volume mL	Bottle Type		Quantity	Filtration	Preservation	Appearance: Color	Appearance: Turbidity & Sediment	Remarks
1330	500	amber		1	—	S+F	CLEAR	NONE	
	1000	poly		1	—	—			
	500	poly		1	—	—			
	40	VOA		3	—	HCl			
	500	poly		2	yes	nitric			
	250	poly		1	yes	—			

METHODS

Sampling Equipment with IDs: Dedicated bladder pump / (peristaltic) (circle)
Purging Equipment: (YSI BLUE) / ~~surface wtr~~ Decon Equipment: Alconox + water
Disposal of Discharged Water: On site
Observations/Comments: JTL

Aspect CONSULTING

GROUNDWATER SAMPLING RECORD

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

Project Name: Hansville LF
Project Number: 160423
Date: 7/26/2018
Developed by:
Measuring Point of Well: TOC
Screened Interval (ft. TOC):
Filter Pack Interval (ft. TOC)

Starting Water Level (ft TOC): 9.55
Casing Stickup (ft):
Total Depth (ft TOC):
Casing Diameter (inches):

Casing Volume _____ (ft Water) x _____ (Lpfv)(gpf) = _____ (L)(gal)
Casing volumes: 2" = 0.16 gpf 4" = 0.65 gpf 6" = 1.47 gpf
2" = 0.62 Lpf 4" = 2.46 Lpf 6" = 5.56 Lpf

Sample Intake Depth (ft TOC): _____

PURGING MEASUREMENTS

Criteria:		Typical 0.1-0.5 Lpm	Stable and minimal and	na	± 3%	± 10%	± 0.1	± 10 mV	± 10%	
Time	Cumul. Volume (gal or L)	Purge Rate (gpm or Lpm)	Water Level (ft)	Temp. (C or F)	Specific Conductivity (µS/cm)	Dissolved Oxygen (mg/L)	pH	Eh ORP (mv)	Turbidity (NTU)	Comments
1316		0.4								start
1322			9.55	11.8	306.3	0.23	7.30	122.8	1.68	
1327			9.55	11.7	308.8	0.21	7.32	115.7	0.94	
1332			9.55	11.5	309.2	0.21	7.35	105.4	0.70	
1337			9.55	11.3	309.5	0.20	7.39	97.5	0.64	
1342			9.55	11.6	310.3	0.19	7.41	94.2	0.66	
1345			9.55	11.6	310.5	0.20	7.42	91.3	0.94	sample

Total Gallons Purged: _____ Total Casing Volumes Removed: _____

Ending Water Level (ft TOC): _____ Ending Total Depth (ft TOC): _____

SAMPLE INVENTORY

Time	Volume mL	Bottle Type		Quantity	Filtration	Preservation	Appearance		Remarks
							Color	Turbidity & Sediment	
1350	500	amber		1	-	sulf	clr		
	1000	poly		1	-	-			
	500	poly		1	-	-			
	40	VOA		3	-	HCl			
	500	poly		2	yes	nitric			
	250	poly		1	yes	-			

METHODS

Sampling Equipment with IDs: ~~Dedicated~~ bladder pump / peristaltic (circle)
Purging Equipment: YSI orange / surface wtr Decon Equipment: Alconox + water
Disposal of Discharged Water: on site
Observations/Comments: NHC

Aspect CONSULTING

GROUNDWATER SAMPLING RECORD

WELL NUMBER: SW-4 Page: 1 of 1

Project Name: Hansville LF
Project Number: 160423
Date: 7/26/2018
Developed by:
Measuring Point of Well:
Screened Interval (ft. TOC)
Filter Pack Interval (ft. TOC)

Starting Water Level (ft TOC):
Casing Stickup (ft):
Total Depth (ft TOC):
Casing Diameter (inches):

Casing Volume _____ (ft Water) x _____ (Lpfv)(gpf) = _____ (L)(gal)
Casing volumes: 2" = 0.16 gpf 4" = 0.65 gpf 6" = 1.47 gpf
2" = 0.62 Lpf 4" = 2.46 Lpf 6" = 5.56 Lpf

Sample Intake Depth (ft TOC): _____

PURGING MEASUREMENTS

Criteria:		Typical 0.1-0.5 Lpm	Stable and minimal and	na	± 3%	± 10%	± 0.1	± 10 mV	± 10%	
Time	Cumul. Volume (gal or L)	Purge Rate (gpm or Lpm)	Water Level (ft)	Temp. (C or F)	Specific Conductivity (µS/cm)	Dissolved Oxygen (mg/L)	pH	Eh ORP (mv)	Turbidity (NTU)	Comments
1445		~0.6	—	13.9	370.5	8.40	7.12	98.6	6.77	start

Total Gallons Purged: _____ Total Casing Volumes Removed: _____

Ending Water Level (ft TOC): _____ Ending Total Depth (ft TOC): _____

SAMPLE INVENTORY

Time	Volume mL	Bottle Type		Quantity	Filtration	Preservation	Appearance		Remarks
							Color	Turbidity & Sediment	
1445	500	amber		1	—	sulf	YELLOW	SOME	- ORGANICS
	1000	poly		1	—	—			
	500	poly		1	—	—			
	40	VOA		3	—	HCl			
	500	poly		2	yes	nitric			
	250	poly		1	yes	—			

METHODS

Sampling Equipment with IDs: Dedicated bladder pump / (peristaltic) (circle)
Purging Equipment: YSI BLUE (surface wtr) Decon Equipment: Alconox + water
Disposal of Discharged Water: on site
Observations/Comments: JTL

Aspect CONSULTING

GROUNDWATER SAMPLING RECORD

WELL NUMBER: MW-3D Page: 1 of 1

Project Name: Hansville LF
Project Number: 160423
Date: 7/26/2018
Developed by:
Measuring Point of Well: TOC
Screened Interval (ft. TOC):
Filter Pack Interval (ft. TOC)

Starting Water Level (ft TOC): 10.45'
Casing Stickup (ft):
Total Depth (ft TOC):
Casing Diameter (inches):

Casing Volume _____ (ft Water) x _____ (Lpfv)(gpf) = _____ (L)(gal)
Casing volumes: 2" = 0.16 gpf 4" = 0.65 gpf 6" = 1.47 gpf
2" = 0.62 Lpf 4" = 2.46 Lpf 6" = 5.56 Lpf

Sample Intake Depth (ft TOC): _____

PURGING MEASUREMENTS

Criteria:		Typical 0.1-0.5 Lpm	Stable and minimal end	na	± 3%	± 10%	± 0.1	± 10 mV	± 10%	
Time	Cumul. Volume (gal or L)	Purge Rate (gpm or ~~Lpm~~)	Water Level (ft)	Temp. (C or F)	Specific Conductivity (µS/cm)	Dissolved Oxygen (mg/L)	pH	Eh ORP (mv)	Turbidity (NTU)	Comments
1454		0.4								start
1459			10.65	11.4	336.7	1.68	7.53	82.8	2.10	
1504			10.65	11.3	335.8	1.08	7.60	75.8	2.31	
1509			10.65	11.4	336.2	0.85	7.63	69.7	2.19	
1514			10.65	11.3	~~335~~ 3	0.58	7.64	65.2	3.11	
					335.9		7.64			
1517			10.65	11.3	335.9	0.53	7.66	63.7	1.89	
1520			10.65	11.2	336.3	0.54	7.66	60.4	1.67	sample

Total Gallons Purged: 2
Total Casing Volumes Removed: _____
Ending Water Level (ft TOC): _____
Ending Total Depth (ft TOC): _____

SAMPLE INVENTORY

Time	Volume mL	Bottle Type		Quantity	Filtration	Preservation	Appearance: Color	Appearance: Turbidity & Sediment	Remarks
1525	500	amber		1	-	sulf	clr		
	1000	poly		1	-	-			
	500	poly		1	-	-			
	40	VOA		3	-	HCl			
	500	poly		2	yes	nitric			
	250	poly		1	yes	-			

METHODS

Sampling Equipment with IDs: Dedicated bladder pump / peristaltic (circle)
Purging Equipment: YSI orang / surface wtr Decon Equipment: Alconox + water
Disposal of Discharged Water: on site
Observations/Comments: NAC

Aspect CONSULTING

GROUNDWATER SAMPLING RECORD

WELL NUMBER: SW-6 Page: 1 of 1

Project Name: Hansville LF
Project Number: 160423
Date: 7/26/2018
Developed by:
Measuring Point of Well: —
Screened Interval (ft. TOC):
Filter Pack Interval (ft. TOC)

Starting Water Level (ft TOC): —
Casing Stickup (ft):
Total Depth (ft TOC):
Casing Diameter (inches):

Casing Volume _____ (ft Water) x _____ (Lpfv)(gpf) = _____ (L)(gal)
Casing volumes: 2" = 0.16 gpf 4" = 0.65 gpf 6" = 1.47 gpf
2" = 0.62 Lpf 4" = 2.46 Lpf 6" = 5.56 Lpf

Sample Intake Depth (ft TOC): _____

PURGING MEASUREMENTS

Criteria:		Typical 0.1-0.5 Lpm	Stable and minimal and	na	± 3%	± 10%	± 0.1	± 10 mV	± 10%	
Time	Cumul. Volume (gal or L)	Purge Rate (gpm or Lpm)	Water Level (ft)	Temp. (C or F)	Specific Conductivity (µS/cm)	Dissolved Oxygen (mg/L)	pH	Eh ORP (mv)	Turbidity (NTU)	Comments
1540	—	~0.5	—	16.7	181.6	7.25	7.55	70.9	20.3	Start

Total Gallons Purged: _____ Total Casing Volumes Removed: _____

Ending Water Level (ft TOC): _____ Ending Total Depth (ft TOC): _____

SAMPLE INVENTORY

Time	Volume mL	Bottle Type		Quantity	Filtration	Preservation	Appearance: Color	Appearance: Turbidity & Sediment	Remarks
1540	500	amber		1	—	sulf	YELLOW		SOME ORGANICS
	1000	poly		1	—	—			↓
	500	poly		1	—	—			
	40	VOA		3	—	HCl			
	500	poly		2	yes	nitric			
	250	poly		1	yes	—			

METHODS

Sampling Equipment with IDs: Dedicated bladder pump (peristaltic) (circle)
Purging Equipment: YSI BLUE surface w+r Decon Equipment: Alconox + water
Disposal of Discharged Water: on site
Observations/Comments: WATER ~ 2cm DEEP
JIL

Aspect CONSULTING

GROUNDWATER SAMPLING RECORD

WELL NUMBER: SW-7 Page: 1 of 1

Project Name: Hansville LF
Project Number: 160423
Date: 7/25/2018
Developed by:
Measuring Point of Well: —
Screened Interval (ft. TOC)
Filter Pack Interval (ft. TOC)

Starting Water Level (ft TOC): —
Casing Stickup (ft):
Total Depth (ft TOC):
Casing Diameter (inches):

Casing Volume _____ (ft Water) x _____ (Lpfv)(gpf) = _____ (L)(gal)
Casing volumes: 2" = 0.16 gpf 4" = 0.65 gpf 6" = 1.47 gpf
2" = 0.62 Lpf 4" = 2.46 Lpf 6" = 5.56 Lpf

Sample Intake Depth (ft TOC): _____

PURGING MEASUREMENTS

Criteria:		Typical 0.1-0.5 Lpm	Stable and minimal and	na	± 3%	± 10%	± 0.1	± 10 mV	± 10%	
Time	Cumul. Volume (gal or L)	Purge Rate (gpm or Lpm)	Water Level (ft)	Temp. (C or F)	Specific Conductivity (µS/cm)	Dissolved Oxygen (mg/L)	pH	Eh ORP (mv)	Turbidity (NTU)	Comments
1640		~0.5	—	16.7	181.6	7.25	7.55	70.9	10.4	start

Total Gallons Purged: _____ Total Casing Volumes Removed: _____

Ending Water Level (ft TOC): _____ Ending Total Depth (ft TOC): _____

SAMPLE INVENTORY

Time	Volume mL	Bottle Type		Quantity	Filtration	Preservation	Appearance		Remarks
							Color	Turbidity & Sediment	
1640	500	amber		1	—	Sulf	Yellow		ORGANICS
	1000	poly		1	—	—			
	500	poly		1	—	—			
	40	VOA		3	—	HCl			
	500	poly		2	yes	nitric			
	250	poly		1	Yes	—			

METHODS

Sampling Equipment with IDs: Dedicated bladder pump / (peristaltic) (circle)
Purging Equipment: YSI BLUE / Surface wtr Decon Equipment: Alconox + water
Disposal of Discharged Water: on site
Observations/Comments: JTL

Aspect CONSULTING

GROUNDWATER SAMPLING RECORD

WELL NUMBER: MW-14 Page: 1 of 1

Project Name: Hansville LF
Project Number: 160423
Date: 7/26/2018
Developed by:
Measuring Point of Well: TOC
Screened Interval (ft. TOC):
Filter Pack Interval (ft. TOC)

Starting Water Level (ft TOC): 80.08'
Casing Stickup (ft):
Total Depth (ft TOC):
Casing Diameter (inches):

Casing Volume _____ (ft Water) x _____ (Lpfv)(gpf) = _____ (L)(gal)
Casing volumes: 2" = 0.16 gpf 4" = 0.65 gpf 6" = 1.47 gpf
2" = 0.62 Lpf 4" = 2.46 Lpf 6" = 5.56 Lpf

Sample Intake Depth (ft TOC): _____

PURGING MEASUREMENTS

Criteria:		Typical 0.1-0.5 Lpm	Stable and minimal and	na	± 3%	± 10%	± 0.1	± 10 mV	± 10%	
Time	Cumul. Volume (gal or L)	Purge Rate (gpm or Lpm)	Water Level (ft)	Temp. (C or F)	Specific Conductivity (µS/cm)	Dissolved Oxygen (mg/L)	pH	Eh ORP (mv)	Turbidity (NTU)	Comments
1627		0.4								start
1632			80.20	12.7	553.5	1.69	7.05	111.3	13.2	
1639			80.10	12.6	547.6	1.38	7.06	110.4	9.23	
1642			80.10	12.4	529.4	1.43	7.11	107.5	4.96	
~~1644~~ 1646			80.10	12.4	518.5	1.47	7.12	106.5	6.22	
1649			80.10	12.6	511.0	1.53	7.11	105.8	5.21	sample

Total Gallons Purged: ~~1~~ 1.5
Total Casing Volumes Removed: _____

Ending Water Level (ft TOC): _____
Ending Total Depth (ft TOC): _____

SAMPLE INVENTORY

Time	Volume mL	Bottle Type		Quantity	Filtration	Preservation	Appearance: Color	Appearance: Turbidity & Sediment	Remarks
1700	500	amber		1	-	sulf	clr		duplicate
	1000	poly		1	-	-			
	500	poly		1	-	-			
	40	VOA		3	-	HCl			
	500	poly		2	yes	nitric			
	250	poly		1	yes	-			

METHODS

Sampling Equipment with IDs: Dedicated bladder pump / peristaltic (circle)
Purging Equipment: YSI / surface wtr Decon Equipment: Alconox + water
Disposal of Discharged Water: on site
Observations/Comments: NML

Aspect CONSULTING

GROUNDWATER SAMPLING RECORD

WELL NUMBER: MW-6 Page: 1 of 1

Project Name: Hansville LF
Project Number: 160423
Date: 7/26/2018
Developed by:
Measuring Point of Well: TOC
Screened Interval (ft. TOC):
Filter Pack Interval (ft. TOC)

Starting Water Level (ft TOC): 72.35
Casing Stickup (ft):
Total Depth (ft TOC):
Casing Diameter (inches):

Casing Volume _____ (ft Water) x _____ (Lpfv)(gpf) = _____ (L)(gal)
Casing volumes: 2" = 0.16 gpf 4" = 0.65 gpf 6" = 1.47 gpf
2" = 0.62 Lpf 4" = 2.46 Lpf 6" = 5.56 Lpf

Sample Intake Depth (ft TOC): _____

PURGING MEASUREMENTS

Criteria:		Typical 0.1-0.5 Lpm	Stable and minimal and	na	± 3%	± 10%	± 0.1	± 10 mV	± 10%	
Time	Cumul. Volume (gal or L)	Purge Rate (gpm or Lpm)	Water Level (ft)	Temp. (C or F)	Specific Conductivity (µS/cm)	Dissolved Oxygen (mg/L)	pH	Eh ORP (mv)	Turbidity (NTU)	Comments
1752		~0.4								Start
1757			72.35	13.3	753	0.25	7.17	115.3	7.81	
1802			72.36	13.2	739	0.24	7.21	109.6	2.83	
1805			72.36	13.2	734	0.23	7.32	88.7	4.33	
1808			72.36	13.2	733	0.23	7.27	84.3	2.00	
1811			72.36	13.2	733	0.24	7.23	78.3	2.23	
1814			72.36	13.2	731	0.22	7.22	74.7	2.12	sample

Total Gallons Purged: 2
Total Casing Volumes Removed: _____
Ending Water Level (ft TOC): _____
Ending Total Depth (ft TOC): _____

SAMPLE INVENTORY

Time	Volume mL	Bottle Type		Quantity	Filtration	Preservation	Appearance: Color	Appearance: Turbidity & Sediment	Remarks
1820	500	amber		1	-	sulf	clr		
	1000	poly		1	-	-			
	500	poly		1	-	-			
	40	VOA		3	-	HCl			
	500	poly		2	yes*	nitric			*ONE BOTTLE NOT FILTERED (Dissolved arsenic)
	250	poly		1	yes	-			

METHODS

Sampling Equipment with IDs: Dedicated bladder pump / peristaltic (circle)
Purging Equipment: YSI ORANGE / surface wtr Decon Equipment: Alconox + water
Disposal of Discharged Water: on site
Observations/Comments: NHC/JTL

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

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Na Hyung Choi	Lab PM: Sara, Betsy A	Carrier Tracking No(s):	COC No: 280-23414-6845.1
Client Contact: Meilani Lanier-Kamahao	Phone: 206-413-5408	E-Mail: betsy.sara@testamericainc.com		Page: 1/1
Company: Aspect Consulting, LLC				Job #:

Address: 350 Madison Ave N	Due Date Requested:
City: Bainbridge Island	TAT Requested (days):
State, Zip: WA, 98110	
Phone:	PO #: Purchase Order not required
Email: mlkamahao@aspectconsulting.com	WO #:
Project Name: Hansville Landfill	Project #:skip sites/events 28006013 - 2Q/3Q/4Q Sampling
Site: Washington	SSOW#:

Analysis Requested

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260C SIM - Vinyl Chloride (TA Buffalo)	Dissolved Metals	Ammonia/TOC	Alks/Cl/SO4	Ortho-phosphate (field filtered)- direct sub to ARI	Dissolved Arsenice - direct sub to ARI	Nitrate/Nitrite (IC) - direct sub to ARI	Total Number of containers	Special Instructions/Note:
			Preservation Code:				A	D	S	N	N	D	N		
MW-7-072618	7/26/18	1100		W	Y		✓	✓	✓	✓					
MW-5-072618		1222					✓	✓	✓	✓					
SW-1-072618		1330					✓	✓	✓	✓					Diss As,NO3,NO2,o-phos subbed direct to ARI
MW-12I-072618		1350					✓	✓	✓	✓					run only 1 trip blank
SW-4-072618		1445					✓	✓	✓	✓					
MW-13D-072618		1525					✓	✓	✓	✓					
SW-6-072618		1540					✓	✓	✓	✓					
SW-7-072618		1640					✓	✓	✓	✓					
MW-14-072618		1700					✓	✓	✓	✓					
MW-6-072618		1820					✓	✓	✓	✓					
MW20DD-072618	↓	—		↓	↓		✓	✓	✓	✓					

Preservation Codes:

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

Other:

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

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

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

Special Instructions/QC Requirements:

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

Relinquished by	Date/Time	Company	Received by	Date/Time	Company
Na Hyung Choi	7/26/18 22:00	Aspect			
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:

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

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Na Hyung Choi	Lab PM: Sara, Betsy A	Carrier Tracking No(s):	COC No: 280-23414-6845.1
Client Contact: Meiboni Lanier-Kamahaʻo	Phone: 206-413-5408	E-Mail: betsy.sara@testamericainc.com		Page: 1/1
Company: Aspect Consulting, LLC				Job #:

Address: 350 Madison Ave N	Due Date Requested:
City: Bainbridge Island	TAT Requested (days):
State, Zip: WA, 98110	
Phone:	PO #: Purchase Order not required
Email: mkamahao@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	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2SO3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - ph 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260C SIM - Vinyl Chloride (TA Buffalo)	Dissolved Metals	Ammonia/TOC	Alks/Cl/SO4	Ortho-phosphate (field filtered)- direct sub to ARI	Dissolved Arsenice - direct sub to ARI	Nitrate/Nitrite (IC) - direct sub to ARI							Total Number of containers	Special Instructions/Note:
			Preservation Code:		X	X	A	D	S	N	N	D	N								
MW-7-072618	7/26/18	1100		W	Y						✓	✓	✓								
MW-5-072618		1222									✓	✓	✓								
~~MW~~ SW-1-072618		1330									✓	✓	✓								Diss As,NO3,NO2,o-phos subbed direct to ARI
MW-12I-072618		1350									✓	✓	✓								
SW-4-072618		1445									✓	✓	✓								
MW-13D-072618		1525									✓	✓	✓								
SW-6-072618		1540									✓	✓	✓								
SW-7-072618		1640									✓	✓	✓								
MW-14-072618		1700									✓	✓	✓								MW-6-072618
MW-6-072618		1820									✓	✓	✓								Arsenic - not Filtered
MW20DD-072618	↓	-		↓	↓						✓	✓	✓								

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

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

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

Special Instructions/QC Requirements:

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

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Na Hyung Choi	7/26/18 22:00	Aspect			
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:

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

Job Number: 280-112582-1

Job Description: Hansville Landfill

For:
Aspect Consulting
350 Madison Ave N
Bainbridge Island, WA 98110

Attention: Ms. Meilani Lanier-Kamaha'o

Approved for release.
Betsy A Sara
Project Manager II
8/16/2018 5:02 PM

Betsy A Sara, Project Manager II
4955 Yarrow Street, Arvada, CO, 80002
(303)736-0189
betsy.sara@testamericainc.com
08/16/2018

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

The Lab Certification ID# is 4025.

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

Table of Contents

CASE NARRATIVE

Client: Aspect Consulting

Project: Hansville Landfill

Report Number: 280-112582-1

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 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.

Sample Receiving

The samples were received on 07/28/2018; the samples arrived properly preserved and on ice. The temperatures of the coolers at receipt were 5.8º C and 5.9º C.

One of three hydrochloric preserved VOA vials for samples SW-7-072618 and SW-1-072618 were broken in transit, however sufficient volume remained to proceed with the analysis.

The sulfuric preserved 500 ml amber bottles for samples SW-6-072618 and MW-7-072618 arrived with cracked lids. The lids were replaced. The laboratory proceeded with the analysis. The client was notified.

One of three hydrochloric preserved VOA vials for sample MW-6-072618 contained a bubble greater than 6 mm, however sufficient volume without headspace remained to proceed with the analysis. The client was notified.

Holding Times

All holding times were within established control limits.

Method Blanks

Sulfate Method 300.0 was detected in the Method Blank above the project established reporting limit, however, the requested reporting limit for Sulfate is below TestAmerica Denver's standard reporting limit and, therefore, no corrective action has been taken for this anomaly. It must be noted that results reported below TestAmerica Denver's standard reporting limits may result in false positive/false negative results, less accurate quantitation and potential misidentification at the lower concentrations.

All other Method Blanks were within established control limits.

Laboratory Control Samples (LCS)

All Laboratory Control Samples were within established control limits.

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

All MS and MSD samples were within established control limits.

General Comments

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

The analysis for Nitrate, Nitrite, Ortho-phosphate Method 300.0, and Dissolved Arsenic Method 200.8 were performed by ARI. Their address and phone number are:
Analytical Resources, Inc.
4611 S.134th Place
Tukwila, WA 98168-3240

EXECUTIVE SUMMARY - Detections

Client: Aspect Consulting Job Number: 280-112582-1

Lab Sample ID / Analyte	Client Sample ID	Result	Qualifier	Reporting Limit	Units	Method
280-112582-1	**MW-7-072618**					
Chloride		1.3		1.0	mg/L	300.0
Sulfate		5.0	B	1.0	mg/L	300.0
Total Alkalinity		130		5.0	mg/L	SM 2320B
Bicarbonate Alkalinity		130		5.0	mg/L	SM 2320B
Total Organic Carbon - Average		2.0		1.0	mg/L	SM 5310B
280-112582-2	**MW-5-072618**					
Chloride		2.0		1.0	mg/L	300.0
Sulfate		9.3	B	1.0	mg/L	300.0
Total Alkalinity		60		5.0	mg/L	SM 2320B
Bicarbonate Alkalinity		60		5.0	mg/L	SM 2320B
280-112582-3	**SW-1-072618**					
Chloride		4.6		1.0	mg/L	300.0
Sulfate		12	B	1.0	mg/L	300.0
Total Alkalinity		82		5.0	mg/L	SM 2320B
Bicarbonate Alkalinity		82		5.0	mg/L	SM 2320B
Total Organic Carbon - Average		1.6		1.0	mg/L	SM 5310B
280-112582-4	**MW-12I-072618**					
Vinyl chloride		0.047		0.020	ug/L	8260C SIM
Chloride		2.7		1.0	mg/L	300.0
Sulfate		7.0	B	1.0	mg/L	300.0
Total Alkalinity		81		5.0	mg/L	SM 2320B
Bicarbonate Alkalinity		81		5.0	mg/L	SM 2320B
Total Organic Carbon - Average		2.6		1.0	mg/L	SM 5310B
Dissolved						
Manganese		33		1.0	ug/L	6020
280-112582-5	**SW-4-072618**					
Chloride		15		1.0	mg/L	300.0
Sulfate		22	B	1.0	mg/L	300.0
Total Alkalinity		160		5.0	mg/L	SM 2320B
Bicarbonate Alkalinity		160		5.0	mg/L	SM 2320B
Total Organic Carbon - Average		3.8		1.0	mg/L	SM 5310B
Dissolved						
Manganese		49		1.0	ug/L	6020

EXECUTIVE SUMMARY - Detections

Client: Aspect Consulting Job Number: 280-112582-1

Lab Sample ID / Analyte	Client Sample ID	Result	Qualifier	Reporting Limit	Units	Method
280-112582-6	**MW-13D-072618**					
Chloride		4.8		1.0	mg/L	300.0
Sulfate		17	B	1.0	mg/L	300.0
Total Alkalinity		71		5.0	mg/L	SM 2320B
Bicarbonate Alkalinity		71		5.0	mg/L	SM 2320B
Dissolved						
Manganese		6.2		1.0	ug/L	6020
280-112582-7	**SW-6-072618**					
Chloride		5.3		5.0	mg/L	300.0
Sulfate		10	B	5.0	mg/L	300.0
Ammonia as N		0.11		0.030	mg/L	350.1
Total Alkalinity		71		5.0	mg/L	SM 2320B
Bicarbonate Alkalinity		71		5.0	mg/L	SM 2320B
Total Organic Carbon - Average		15		1.0	mg/L	SM 5310B
Dissolved						
Manganese		270		1.0	ug/L	6020
280-112582-8	**SW-7-072618**					
Chloride		5.0		5.0	mg/L	300.0
Sulfate		20	B	5.0	mg/L	300.0
Total Alkalinity		63		5.0	mg/L	SM 2320B
Bicarbonate Alkalinity		63		5.0	mg/L	SM 2320B
Total Organic Carbon - Average		5.8		1.0	mg/L	SM 5310B
Dissolved						
Manganese		3.8		1.0	ug/L	6020
280-112582-9	**MW-14-072618**					
Vinyl chloride		0.024		0.020	ug/L	8260C SIM
Chloride		11		1.0	mg/L	300.0
Sulfate		14	B	1.0	mg/L	300.0
Total Alkalinity		110		5.0	mg/L	SM 2320B
Bicarbonate Alkalinity		110		5.0	mg/L	SM 2320B
Total Organic Carbon - Average		1.7		1.0	mg/L	SM 5310B
Dissolved						
Manganese		440		1.0	ug/L	6020

EXECUTIVE SUMMARY - Detections

Client: Aspect Consulting Job Number: 280-112582-1

Lab Sample ID / Analyte	Client Sample ID	Result	Qualifier	Reporting Limit	Units	Method
280-112582-10	**MW-6-072618**					
Vinyl chloride		0.049		0.020	ug/L	8260C SIM
Chloride		14		1.0	mg/L	300.0
Sulfate		31	B	1.0	mg/L	300.0
Total Alkalinity		150		5.0	mg/L	SM 2320B
Bicarbonate Alkalinity		150		5.0	mg/L	SM 2320B
Total Organic Carbon - Average		1.6		1.0	mg/L	SM 5310B
Dissolved						
Manganese		430		1.0	ug/L	6020
280-112582-11	**MW-20DD-072618**					
Vinyl chloride		0.026		0.020	ug/L	8260C SIM
Chloride		10		1.0	mg/L	300.0
Sulfate		13	B	1.0	mg/L	300.0
Total Alkalinity		110		5.0	mg/L	SM 2320B
Bicarbonate Alkalinity		110		5.0	mg/L	SM 2320B
Total Organic Carbon - Average		1.7		1.0	mg/L	SM 5310B
Dissolved						
Manganese		410		1.0	ug/L	6020

METHOD SUMMARY

Client: Aspect Consulting Job Number: 280-112582-1

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

Lab References:

SC0056 = Analytical Resources, Inc

TAL BUF = TestAmerica Buffalo

TAL DEN = TestAmerica Denver

Method References:

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

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

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

METHOD / ANALYST SUMMARY

Client: Aspect Consulting

Job Number: 280-112582-1

Method	Analyst	Analyst ID
SW846 8260C SIM	Hill, Leah C	LCH
SW846 6020	Trudell, Lynn-Anne M	LMT
MCAWW 300.0	Moser, Angela R	ARM
MCAWW 350.1	Pedrick, Joshua A	JAP
SM SM 2320B	Loux, Lauren P	LPL
SM SM 5310B	Duplin, Alysha 1	A1D

SAMPLE SUMMARY

Client: Aspect Consulting Job Number: 280-112582-1

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
280-112582-1	MW-7-072618	Water	07/26/2018 1100	07/28/2018 0840
280-112582-2	MW-5-072618	Water	07/26/2018 1222	07/28/2018 0840
280-112582-3	SW-1-072618	Water	07/26/2018 1330	07/28/2018 0840
280-112582-4	MW-12I-072618	Water	07/26/2018 1350	07/28/2018 0840
280-112582-5	SW-4-072618	Water	07/26/2018 1445	07/28/2018 0840
280-112582-6	MW-13D-072618	Water	07/26/2018 1525	07/28/2018 0840
280-112582-7	SW-6-072618	Water	07/26/2018 1540	07/28/2018 0840
280-112582-8	SW-7-072618	Water	07/26/2018 1640	07/28/2018 0840
280-112582-9	MW-14-072618	Water	07/26/2018 1700	07/28/2018 0840
280-112582-10	MW-6-072618	Water	07/26/2018 1820	07/28/2018 0840
280-112582-11	MW-20DD-072618	Water	07/26/2018 0000	07/28/2018 0840
280-112582-12TB	TRIP BLANK	Water	07/26/2018 0000	07/28/2018 0840

SAMPLE RESULTS

Client: Aspect Consulting Job Number: 280-112582-1

Client Sample ID: MW-7-072618

Lab Sample ID: 280-112582-1 Date Sampled: 07/26/2018 1100
Client Matrix: Water Date Received: 07/28/2018 0840

8260C SIM Volatile Organic Compounds (GC/MS)

Analysis Method:	8260C SIM	Analysis Batch:	480-427727	Instrument ID:	HP5973J
Prep Method:	5030C	Prep Batch:	N/A	Lab File ID:	J7070.D
Dilution:	1.0			Initial Weight/Volume:	25 mL
Analysis Date:	08/02/2018 1554			Final Weight/Volume:	25 mL
Prep Date:	08/02/2018 1554				

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

Surrogate	%Rec	Qualifier	Acceptance Limits
Dibromofluoromethane (Surr)	110		50 - 150
TBA-d9 (Surr)	94		50 - 150

Client: Aspect Consulting | Job Number: 280-112582-1

Client Sample ID: **MW-5-072618**

Lab Sample ID: 280-112582-2 | Date Sampled: 07/26/2018 1222
Client Matrix: Water | Date Received: 07/28/2018 0840

8260C SIM Volatile Organic Compounds (GC/MS)

Analysis Method:	8260C SIM	Analysis Batch:	480-427727	Instrument ID:	HP5973J
Prep Method:	5030C	Prep Batch:	N/A	Lab File ID:	J7071.D
Dilution:	1.0			Initial Weight/Volume:	25 mL
Analysis Date:	08/02/2018 1618			Final Weight/Volume:	25 mL
Prep Date:	08/02/2018 1618				

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

Surrogate	%Rec	Qualifier	Acceptance Limits
Dibromofluoromethane (Surr)	110		50 - 150
TBA-d9 (Surr)	97		50 - 150

Client: Aspect Consulting | Job Number: 280-112582-1

Client Sample ID: **SW-1-072618**

Lab Sample ID: 280-112582-3 | Date Sampled: 07/26/2018 1330
Client Matrix: Water | Date Received: 07/28/2018 0840

8260C SIM Volatile Organic Compounds (GC/MS)

Analysis Method:	8260C SIM	Analysis Batch:	480-427727	Instrument ID:	HP5973J
Prep Method:	5030C	Prep Batch:	N/A	Lab File ID:	J7072.D
Dilution:	1.0			Initial Weight/Volume:	25 mL
Analysis Date:	08/02/2018 1643			Final Weight/Volume:	25 mL
Prep Date:	08/02/2018 1643				

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

Surrogate	%Rec	Qualifier	Acceptance Limits
Dibromofluoromethane (Surr)	113		50 - 150
TBA-d9 (Surr)	94		50 - 150

Client: Aspect Consulting Job Number: 280-112582-1

Client Sample ID: MW-12I-072618

Lab Sample ID: 280-112582-4 Date Sampled: 07/26/2018 1350
Client Matrix: Water Date Received: 07/28/2018 0840

8260C SIM Volatile Organic Compounds (GC/MS)

Analysis Method:	8260C SIM	Analysis Batch:	480-427727	Instrument ID:	HP5973J
Prep Method:	5030C	Prep Batch:	N/A	Lab File ID:	J7073.D
Dilution:	1.0			Initial Weight/Volume:	25 mL
Analysis Date:	08/02/2018 1707			Final Weight/Volume:	25 mL
Prep Date:	08/02/2018 1707				

Analyte	Result (ug/L)	Qualifier	RL
Vinyl chloride	0.047		0.020

Surrogate	%Rec	Qualifier	Acceptance Limits
Dibromofluoromethane (Surr)	113		50 - 150
TBA-d9 (Surr)	105		50 - 150

Client: Aspect Consulting | Job Number: 280-112582-1

Client Sample ID: **SW-4-072618**

Lab Sample ID: 280-112582-5 | Date Sampled: 07/26/2018 1445
Client Matrix: Water | Date Received: 07/28/2018 0840

8260C SIM Volatile Organic Compounds (GC/MS)

Analysis Method:	8260C SIM	Analysis Batch:	480-427727	Instrument ID:	HP5973J
Prep Method:	5030C	Prep Batch:	N/A	Lab File ID:	J7074.D
Dilution:	1.0			Initial Weight/Volume:	25 mL
Analysis Date:	08/02/2018 1731			Final Weight/Volume:	25 mL
Prep Date:	08/02/2018 1731				

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

Surrogate	%Rec	Qualifier	Acceptance Limits
Dibromofluoromethane (Surr)	112		50 - 150
TBA-d9 (Surr)	108		50 - 150

Client: Aspect Consulting | Job Number: 280-112582-1

Client Sample ID: **MW-13D-072618**

Lab Sample ID: 280-112582-6 | Date Sampled: 07/26/2018 1525
Client Matrix: Water | Date Received: 07/28/2018 0840

8260C SIM Volatile Organic Compounds (GC/MS)

Analysis Method:	8260C SIM	Analysis Batch:	480-427727	Instrument ID:	HP5973J
Prep Method:	5030C	Prep Batch:	N/A	Lab File ID:	J7075.D
Dilution:	1.0			Initial Weight/Volume:	25 mL
Analysis Date:	08/02/2018 1756			Final Weight/Volume:	25 mL
Prep Date:	08/02/2018 1756				

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

Surrogate	%Rec	Qualifier	Acceptance Limits
Dibromofluoromethane (Surr)	114		50 - 150
TBA-d9 (Surr)	99		50 - 150

Client: Aspect Consulting | Job Number: 280-112582-1

Client Sample ID: **SW-6-072618**

Lab Sample ID: 280-112582-7 | Date Sampled: 07/26/2018 1540
Client Matrix: Water | Date Received: 07/28/2018 0840

8260C SIM Volatile Organic Compounds (GC/MS)

Analysis Method:	8260C SIM	Analysis Batch:	480-427727	Instrument ID:	HP5973J
Prep Method:	5030C	Prep Batch:	N/A	Lab File ID:	J7076.D
Dilution:	1.0			Initial Weight/Volume:	25 mL
Analysis Date:	08/02/2018 1820			Final Weight/Volume:	25 mL
Prep Date:	08/02/2018 1820				

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

Surrogate	%Rec	Qualifier	Acceptance Limits
Dibromofluoromethane (Surr)	115		50 - 150
TBA-d9 (Surr)	97		50 - 150

Client: Aspect Consulting | Job Number: 280-112582-1

Client Sample ID: **SW-7-072618**

Lab Sample ID: 280-112582-8 | Date Sampled: 07/26/2018 1640
Client Matrix: Water | Date Received: 07/28/2018 0840

8260C SIM Volatile Organic Compounds (GC/MS)

Analysis Method:	8260C SIM	Analysis Batch:	480-427727	Instrument ID:	HP5973J
Prep Method:	5030C	Prep Batch:	N/A	Lab File ID:	J7077.D
Dilution:	1.0			Initial Weight/Volume:	25 mL
Analysis Date:	08/02/2018 1845			Final Weight/Volume:	25 mL
Prep Date:	08/02/2018 1845				

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

Surrogate	%Rec	Qualifier	Acceptance Limits
Dibromofluoromethane (Surr)	113		50 - 150
TBA-d9 (Surr)	102		50 - 150

Client: Aspect Consulting Job Number: 280-112582-1

Client Sample ID: MW-14-072618

Lab Sample ID: 280-112582-9 Date Sampled: 07/26/2018 1700
Client Matrix: Water Date Received: 07/28/2018 0840

8260C SIM Volatile Organic Compounds (GC/MS)

Analysis Method:	8260C SIM	Analysis Batch:	480-427727	Instrument ID:	HP5973J
Prep Method:	5030C	Prep Batch:	N/A	Lab File ID:	J7078.D
Dilution:	1.0			Initial Weight/Volume:	25 mL
Analysis Date:	08/02/2018 1909			Final Weight/Volume:	25 mL
Prep Date:	08/02/2018 1909				

Analyte	Result (ug/L)	Qualifier	RL
Vinyl chloride	0.024		0.020

Surrogate	%Rec	Qualifier	Acceptance Limits
Dibromofluoromethane (Surr)	114		50 - 150
TBA-d9 (Surr)	105		50 - 150

Client: Aspect Consulting Job Number: 280-112582-1

Client Sample ID: MW-6-072618

Lab Sample ID: 280-112582-10 Date Sampled: 07/26/2018 1820
Client Matrix: Water Date Received: 07/28/2018 0840

8260C SIM Volatile Organic Compounds (GC/MS)

Analysis Method:	8260C SIM	Analysis Batch:	480-427727	Instrument ID:	HP5973J
Prep Method:	5030C	Prep Batch:	N/A	Lab File ID:	J7079.D
Dilution:	1.0			Initial Weight/Volume:	25 mL
Analysis Date:	08/02/2018 1933			Final Weight/Volume:	25 mL
Prep Date:	08/02/2018 1933				

Analyte	Result (ug/L)	Qualifier	RL
Vinyl chloride	0.049		0.020

Surrogate	%Rec	Qualifier	Acceptance Limits
Dibromofluoromethane (Surr)	116		50 - 150
TBA-d9 (Surr)	103		50 - 150

Client: Aspect Consulting Job Number: 280-112582-1

Client Sample ID: **MW-20DD-072618**

Lab Sample ID: 280-112582-11 Date Sampled: 07/26/2018 0000
Client Matrix: Water Date Received: 07/28/2018 0840

8260C SIM Volatile Organic Compounds (GC/MS)

Analysis Method:	8260C SIM	Analysis Batch:	480-427727	Instrument ID:	HP5973J
Prep Method:	5030C	Prep Batch:	N/A	Lab File ID:	J7080.D
Dilution:	1.0			Initial Weight/Volume:	25 mL
Analysis Date:	08/02/2018 1957			Final Weight/Volume:	25 mL
Prep Date:	08/02/2018 1957				

Analyte	Result (ug/L)	Qualifier	RL
Vinyl chloride	0.026		0.020

Surrogate	%Rec	Qualifier	Acceptance Limits
Dibromofluoromethane (Surr)	117		50 - 150
TBA-d9 (Surr)	106		50 - 150

Client: Aspect Consulting Job Number: 280-112582-1

Client Sample ID: **TRIP BLANK**

Lab Sample ID: 280-112582-12TB Date Sampled: 07/26/2018 0000
Client Matrix: Water Date Received: 07/28/2018 0840

8260C SIM Volatile Organic Compounds (GC/MS)

Analysis Method:	8260C SIM	Analysis Batch:	480-427727	Instrument ID:	HP5973J
Prep Method:	5030C	Prep Batch:	N/A	Lab File ID:	J7081.D
Dilution:	1.0			Initial Weight/Volume:	25 mL
Analysis Date:	08/02/2018 2021			Final Weight/Volume:	25 mL
Prep Date:	08/02/2018 2021				

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

Surrogate	%Rec	Qualifier	Acceptance Limits
Dibromofluoromethane (Surr)	117		50 - 150
TBA-d9 (Surr)	108		50 - 150

Client: Aspect Consulting

Job Number: 280-112582-1

Client Sample ID: **MW-7-072618**

Lab Sample ID: 280-112582-1
Client Matrix: Water

Date Sampled: 07/26/2018 1100
Date Received: 07/28/2018 0840

6020 Metals (ICP/MS)-Dissolved

Analysis Method:	6020	Analysis Batch:	280-424423	Instrument ID:	MT_078
Prep Method:	3005A	Prep Batch:	280-424200	Lab File ID:	249SMPL.d
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	08/01/2018 0145			Final Weight/Volume:	50 mL
Prep Date:	07/31/2018 0755				

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

Client: Aspect Consulting

Job Number: 280-112582-1

Client Sample ID: **MW-5-072618**

Lab Sample ID: 280-112582-2
Client Matrix: Water

Date Sampled: 07/26/2018 1222
Date Received: 07/28/2018 0840

6020 Metals (ICP/MS)-Dissolved

Analysis Method:	6020	Analysis Batch:	280-424423	Instrument ID:	MT_078
Prep Method:	3005A	Prep Batch:	280-424200	Lab File ID:	250SMPL.d
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	08/01/2018 0149			Final Weight/Volume:	50 mL
Prep Date:	07/31/2018 0755				

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

Client: Aspect Consulting

Job Number: 280-112582-1

Client Sample ID: **SW-1-072618**

Lab Sample ID: 280-112582-3
Client Matrix: Water

Date Sampled: 07/26/2018 1330
Date Received: 07/28/2018 0840

6020 Metals (ICP/MS)-Dissolved

Analysis Method:	6020	Analysis Batch:	280-424423	Instrument ID:	MT_078
Prep Method:	3005A	Prep Batch:	280-424200	Lab File ID:	255SMPL.d
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	08/01/2018 0206			Final Weight/Volume:	50 mL
Prep Date:	07/31/2018 0755				

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

Client: Aspect Consulting

Job Number: 280-112582-1

Client Sample ID: **MW-12I-072618**

Lab Sample ID: 280-112582-4
Client Matrix: Water

Date Sampled: 07/26/2018 1350
Date Received: 07/28/2018 0840

6020 Metals (ICP/MS)-Dissolved

Analysis Method:	6020	Analysis Batch:	280-424423	Instrument ID:	MT_078
Prep Method:	3005A	Prep Batch:	280-424200	Lab File ID:	258SMPL.d
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	08/01/2018 0216			Final Weight/Volume:	50 mL
Prep Date:	07/31/2018 0755				

Analyte	Result (ug/L)	Qualifier	RL
Manganese	33		1.0

Client: Aspect Consulting

Job Number: 280-112582-1

Client Sample ID: **SW-4-072618**

Lab Sample ID: 280-112582-5
Client Matrix: Water

Date Sampled: 07/26/2018 1445
Date Received: 07/28/2018 0840

6020 Metals (ICP/MS)-Dissolved

Analysis Method:	6020	Analysis Batch:	280-424423	Instrument ID:	MT_078
Prep Method:	3005A	Prep Batch:	280-424200	Lab File ID:	259SMPL.d
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	08/01/2018 0220			Final Weight/Volume:	50 mL
Prep Date:	07/31/2018 0755				

Analyte	Result (ug/L)	Qualifier	RL
Manganese	49		1.0

Client: Aspect Consulting

Job Number: 280-112582-1

Client Sample ID: **MW-13D-072618**

Lab Sample ID: 280-112582-6
Client Matrix: Water

Date Sampled: 07/26/2018 1525
Date Received: 07/28/2018 0840

6020 Metals (ICP/MS)-Dissolved

Analysis Method:	6020	Analysis Batch:	280-424423	Instrument ID:	MT_078
Prep Method:	3005A	Prep Batch:	280-424200	Lab File ID:	260SMPL.d
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	08/01/2018 0223			Final Weight/Volume:	50 mL
Prep Date:	07/31/2018 0755				

Analyte	Result (ug/L)	Qualifier	RL
Manganese	6.2		1.0

Client: Aspect Consulting

Job Number: 280-112582-1

Client Sample ID: **SW-6-072618**

Lab Sample ID: 280-112582-7
Client Matrix: Water

Date Sampled: 07/26/2018 1540
Date Received: 07/28/2018 0840

6020 Metals (ICP/MS)-Dissolved

Analysis Method:	6020	Analysis Batch:	280-424423	Instrument ID:	MT_078
Prep Method:	3005A	Prep Batch:	280-424200	Lab File ID:	261SMPL.d
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	08/01/2018 0227			Final Weight/Volume:	50 mL
Prep Date:	07/31/2018 0755				

Analyte	Result (ug/L)	Qualifier	RL
Manganese	270		1.0

Client: Aspect Consulting

Job Number: 280-112582-1

Client Sample ID: **SW-7-072618**

Lab Sample ID: 280-112582-8
Client Matrix: Water

Date Sampled: 07/26/2018 1640
Date Received: 07/28/2018 0840

6020 Metals (ICP/MS)-Dissolved

Analysis Method:	6020	Analysis Batch:	280-424423	Instrument ID:	MT_078
Prep Method:	3005A	Prep Batch:	280-424200	Lab File ID:	262SMPL.d
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	08/01/2018 0230			Final Weight/Volume:	50 mL
Prep Date:	07/31/2018 0755				

Analyte	Result (ug/L)	Qualifier	RL
Manganese	3.8		1.0

Client: Aspect Consulting

Job Number: 280-112582-1

Client Sample ID: **MW-14-072618**

Lab Sample ID: 280-112582-9
Client Matrix: Water

Date Sampled: 07/26/2018 1700
Date Received: 07/28/2018 0840

6020 Metals (ICP/MS)-Dissolved

Analysis Method:	6020	Analysis Batch:	280-424423	Instrument ID:	MT_078
Prep Method:	3005A	Prep Batch:	280-424200	Lab File ID:	263SMPL.d
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	08/01/2018 0234			Final Weight/Volume:	50 mL
Prep Date:	07/31/2018 0755				

Analyte	Result (ug/L)	Qualifier	RL
Manganese	440		1.0

Client: Aspect Consulting

Job Number: 280-112582-1

Client Sample ID: **MW-6-072618**

Lab Sample ID: 280-112582-10
Client Matrix: Water

Date Sampled: 07/26/2018 1820
Date Received: 07/28/2018 0840

6020 Metals (ICP/MS)-Dissolved

Analysis Method:	6020	Analysis Batch:	280-424423	Instrument ID:	MT_078
Prep Method:	3005A	Prep Batch:	280-424200	Lab File ID:	264SMPL.d
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	08/01/2018 0237			Final Weight/Volume:	50 mL
Prep Date:	07/31/2018 0755				

Analyte	Result (ug/L)	Qualifier	RL
Manganese	430		1.0

Client: Aspect Consulting

Job Number: 280-112582-1

Client Sample ID: **MW-20DD-072618**

Lab Sample ID: 280-112582-11
Client Matrix: Water

Date Sampled: 07/26/2018 0000
Date Received: 07/28/2018 0840

6020 Metals (ICP/MS)-Dissolved

Analysis Method:	6020	Analysis Batch:	280-424423	Instrument ID:	MT_078
Prep Method:	3005A	Prep Batch:	280-424200	Lab File ID:	265SMPL.d
Dilution:	1.0			Initial Weight/Volume:	50 mL
Analysis Date:	08/01/2018 0240			Final Weight/Volume:	50 mL
Prep Date:	07/31/2018 0755				

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

General Chemistry

Client Sample ID: MW-7-072618

Lab Sample ID: 280-112582-1 Date Sampled: 07/26/2018 1100
Client Matrix: Water Date Received: 07/28/2018 0840

Analyte	Result	Qual	Units	RL	Dil	Method
Chloride	1.3		mg/L	1.0	1.0	300.0
Analysis Batch: 280-425581	Analysis Date: 08/10/2018 0248					
Sulfate	5.0	B	mg/L	1.0	1.0	300.0
Analysis Batch: 280-425581	Analysis Date: 08/10/2018 0248					
Ammonia as N	ND		mg/L	0.030	1.0	350.1
Analysis Batch: 280-424434	Analysis Date: 08/01/2018 0919					
Total Alkalinity	130		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 280-424659	Analysis Date: 08/01/2018 2336					
Bicarbonate Alkalinity	130		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 280-424659	Analysis Date: 08/01/2018 2336					
Carbonate Alkalinity	ND		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 280-424659	Analysis Date: 08/01/2018 2336					
Total Organic Carbon - Average	2.0		mg/L	1.0	1.0	SM 5310B
Analysis Batch: 280-425211	Analysis Date: 08/07/2018 0004					

General Chemistry

Client Sample ID: **MW-5-072618**

Lab Sample ID: 280-112582-2 Date Sampled: 07/26/2018 1222
Client Matrix: Water Date Received: 07/28/2018 0840

Analyte	Result	Qual	Units	RL	Dil	Method
Chloride	2.0		mg/L	1.0	1.0	300.0
Analysis Batch: 280-425581	Analysis Date: 08/10/2018 0306					
Sulfate	9.3	B	mg/L	1.0	1.0	300.0
Analysis Batch: 280-425581	Analysis Date: 08/10/2018 0306					
Ammonia as N	ND		mg/L	0.030	1.0	350.1
Analysis Batch: 280-424434	Analysis Date: 08/01/2018 0921					
Total Alkalinity	60		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 280-424659	Analysis Date: 08/01/2018 2343					
Bicarbonate Alkalinity	60		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 280-424659	Analysis Date: 08/01/2018 2343					
Carbonate Alkalinity	ND		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 280-424659	Analysis Date: 08/01/2018 2343					
Total Organic Carbon - Average	ND		mg/L	1.0	1.0	SM 5310B
Analysis Batch: 280-425211	Analysis Date: 08/07/2018 0020					

General Chemistry

Client Sample ID: **SW-1-072618**

Lab Sample ID: 280-112582-3 Date Sampled: 07/26/2018 1330
Client Matrix: Water Date Received: 07/28/2018 0840

Analyte	Result	Qual	Units	RL	Dil	Method
Chloride	4.6		mg/L	1.0	1.0	300.0
Analysis Batch: 280-425581	Analysis Date: 08/10/2018 0323					
Sulfate	12	B	mg/L	1.0	1.0	300.0
Analysis Batch: 280-425581	Analysis Date: 08/10/2018 0323					
Ammonia as N	ND		mg/L	0.030	1.0	350.1
Analysis Batch: 280-424434	Analysis Date: 08/01/2018 0923					
Total Alkalinity	82		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 280-424659	Analysis Date: 08/01/2018 2351					
Bicarbonate Alkalinity	82		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 280-424659	Analysis Date: 08/01/2018 2351					
Carbonate Alkalinity	ND		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 280-424659	Analysis Date: 08/01/2018 2351					
Total Organic Carbon - Average	1.6		mg/L	1.0	1.0	SM 5310B
Analysis Batch: 280-425211	Analysis Date: 08/07/2018 0113					

General Chemistry

Client Sample ID: **MW-12I-072618**

Lab Sample ID: 280-112582-4 Date Sampled: 07/26/2018 1350
Client Matrix: Water Date Received: 07/28/2018 0840

Analyte	Result	Qual	Units	RL	Dil	Method
Chloride	2.7		mg/L	1.0	1.0	300.0
Analysis Batch: 280-425581	Analysis Date: 08/10/2018 0341					
Sulfate	7.0	B	mg/L	1.0	1.0	300.0
Analysis Batch: 280-425581	Analysis Date: 08/10/2018 0341					
Ammonia as N	ND		mg/L	0.030	1.0	350.1
Analysis Batch: 280-424434	Analysis Date: 08/01/2018 0925					
Total Alkalinity	81		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 280-424659	Analysis Date: 08/01/2018 2358					
Bicarbonate Alkalinity	81		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 280-424659	Analysis Date: 08/01/2018 2358					
Carbonate Alkalinity	ND		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 280-424659	Analysis Date: 08/01/2018 2358					
Total Organic Carbon - Average	2.6		mg/L	1.0	1.0	SM 5310B
Analysis Batch: 280-425211	Analysis Date: 08/06/2018 1752					

General Chemistry

Client Sample ID: **SW-4-072618**

Lab Sample ID: 280-112582-5 Date Sampled: 07/26/2018 1445
Client Matrix: Water Date Received: 07/28/2018 0840

Analyte	Result	Qual	Units	RL	Dil	Method
Chloride	15		mg/L	1.0	1.0	300.0
Analysis Batch: 280-425581	Analysis Date: 08/10/2018 0433					
Sulfate	22	B	mg/L	1.0	1.0	300.0
Analysis Batch: 280-425581	Analysis Date: 08/10/2018 0433					
Ammonia as N	ND		mg/L	0.030	1.0	350.1
Analysis Batch: 280-424434	Analysis Date: 08/01/2018 0927					
Total Alkalinity	160		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 280-424659	Analysis Date: 08/02/2018 0023					
Bicarbonate Alkalinity	160		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 280-424659	Analysis Date: 08/02/2018 0023					
Carbonate Alkalinity	ND		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 280-424659	Analysis Date: 08/02/2018 0023					
Total Organic Carbon - Average	3.8		mg/L	1.0	1.0	SM 5310B
Analysis Batch: 280-425211	Analysis Date: 08/06/2018 1849					

General Chemistry

Client Sample ID: **MW-13D-072618**

Lab Sample ID: 280-112582-6 Date Sampled: 07/26/2018 1525
Client Matrix: Water Date Received: 07/28/2018 0840

Analyte	Result	Qual	Units	RL	Dil	Method
Chloride	4.8		mg/L	1.0	1.0	300.0
Analysis Batch: 280-425581	Analysis Date: 08/10/2018 0451					
Sulfate	17	B	mg/L	1.0	1.0	300.0
Analysis Batch: 280-425581	Analysis Date: 08/10/2018 0451					
Ammonia as N	ND		mg/L	0.030	1.0	350.1
Analysis Batch: 280-424434	Analysis Date: 08/01/2018 0929					
Total Alkalinity	71		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 280-424659	Analysis Date: 08/02/2018 0030					
Bicarbonate Alkalinity	71		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 280-424659	Analysis Date: 08/02/2018 0030					
Carbonate Alkalinity	ND		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 280-424659	Analysis Date: 08/02/2018 0030					
Total Organic Carbon - Average	ND		mg/L	1.0	1.0	SM 5310B
Analysis Batch: 280-425211	Analysis Date: 08/06/2018 1906					

General Chemistry

Client Sample ID: **SW-6-072618**

Lab Sample ID: 280-112582-7 Date Sampled: 07/26/2018 1540
Client Matrix: Water Date Received: 07/28/2018 0840

Analyte	Result	Qual	Units	RL	Dil	Method
Chloride	5.3		mg/L	5.0	5.0	300.0
Analysis Batch: 280-425581	Analysis Date: 08/10/2018 0508					
Sulfate	10	B	mg/L	5.0	5.0	300.0
Analysis Batch: 280-425581	Analysis Date: 08/10/2018 0508					
Ammonia as N	0.11		mg/L	0.030	1.0	350.1
Analysis Batch: 280-424434	Analysis Date: 08/01/2018 0931					
Total Alkalinity	71		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 280-424659	Analysis Date: 08/02/2018 0038					
Bicarbonate Alkalinity	71		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 280-424659	Analysis Date: 08/02/2018 0038					
Carbonate Alkalinity	ND		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 280-424659	Analysis Date: 08/02/2018 0038					
Total Organic Carbon - Average	15		mg/L	1.0	1.0	SM 5310B
Analysis Batch: 280-425211	Analysis Date: 08/06/2018 1927					

General Chemistry

Client Sample ID: **SW-7-072618**

Lab Sample ID: 280-112582-8 Date Sampled: 07/26/2018 1640
Client Matrix: Water Date Received: 07/28/2018 0840

Analyte	Result	Qual	Units	RL	Dil	Method
Chloride	5.0		mg/L	5.0	5.0	300.0
Analysis Batch: 280-425581	Analysis Date: 08/10/2018 0526					
Sulfate	20	B	mg/L	5.0	5.0	300.0
Analysis Batch: 280-425581	Analysis Date: 08/10/2018 0526					
Ammonia as N	ND		mg/L	0.030	1.0	350.1
Analysis Batch: 280-424434	Analysis Date: 08/01/2018 0933					
Total Alkalinity	63		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 280-424659	Analysis Date: 08/02/2018 0046					
Bicarbonate Alkalinity	63		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 280-424659	Analysis Date: 08/02/2018 0046					
Carbonate Alkalinity	ND		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 280-424659	Analysis Date: 08/02/2018 0046					
Total Organic Carbon - Average	5.8		mg/L	1.0	1.0	SM 5310B
Analysis Batch: 280-425211	Analysis Date: 08/06/2018 1946					

General Chemistry

Client Sample ID: **MW-14-072618**

Lab Sample ID: 280-112582-9 Date Sampled: 07/26/2018 1700
Client Matrix: Water Date Received: 07/28/2018 0840

Analyte	Result	Qual	Units	RL	Dil	Method
Chloride	11		mg/L	1.0	1.0	300.0
Analysis Batch: 280-425581	Analysis Date: 08/10/2018 0543					
Sulfate	14	B	mg/L	1.0	1.0	300.0
Analysis Batch: 280-425581	Analysis Date: 08/10/2018 0543					
Ammonia as N	ND		mg/L	0.030	1.0	350.1
Analysis Batch: 280-424434	Analysis Date: 08/01/2018 0935					
Total Alkalinity	110		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 280-424659	Analysis Date: 08/02/2018 0053					
Bicarbonate Alkalinity	110		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 280-424659	Analysis Date: 08/02/2018 0053					
Carbonate Alkalinity	ND		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 280-424659	Analysis Date: 08/02/2018 0053					
Total Organic Carbon - Average	1.7		mg/L	1.0	1.0	SM 5310B
Analysis Batch: 280-425211	Analysis Date: 08/06/2018 2003					

General Chemistry

Client Sample ID: **MW-6-072618**

Lab Sample ID: 280-112582-10 Date Sampled: 07/26/2018 1820
Client Matrix: Water Date Received: 07/28/2018 0840

Analyte	Result	Qual	Units	RL	Dil	Method
Chloride	14		mg/L	1.0	1.0	300.0
Analysis Batch: 280-425581	Analysis Date: 08/10/2018 0601					
Sulfate	31	B	mg/L	1.0	1.0	300.0
Analysis Batch: 280-425581	Analysis Date: 08/10/2018 0601					
Ammonia as N	ND		mg/L	0.030	1.0	350.1
Analysis Batch: 280-424434	Analysis Date: 08/01/2018 0949					
Total Alkalinity	150		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 280-424659	Analysis Date: 08/02/2018 0100					
Bicarbonate Alkalinity	150		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 280-424659	Analysis Date: 08/02/2018 0100					
Carbonate Alkalinity	ND		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 280-424659	Analysis Date: 08/02/2018 0100					
Total Organic Carbon - Average	1.6		mg/L	1.0	1.0	SM 5310B
Analysis Batch: 280-425211	Analysis Date: 08/06/2018 2019					

General Chemistry

Client Sample ID: **MW-20DD-072618**

Lab Sample ID: 280-112582-11 Date Sampled: 07/26/2018 0000
Client Matrix: Water Date Received: 07/28/2018 0840

Analyte	Result	Qual	Units	RL	Dil	Method
Chloride	10		mg/L	1.0	1.0	300.0
Analysis Batch: 280-425581	Analysis Date: 08/10/2018 0618					
Sulfate	13	B	mg/L	1.0	1.0	300.0
Analysis Batch: 280-425581	Analysis Date: 08/10/2018 0618					
Ammonia as N	ND		mg/L	0.030	1.0	350.1
Analysis Batch: 280-424434	Analysis Date: 08/01/2018 0951					
Total Alkalinity	110		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 280-424659	Analysis Date: 08/02/2018 0109					
Bicarbonate Alkalinity	110		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 280-424659	Analysis Date: 08/02/2018 0109					
Carbonate Alkalinity	ND		mg/L	5.0	1.0	SM 2320B
Analysis Batch: 280-424659	Analysis Date: 08/02/2018 0109					
Total Organic Carbon - Average	1.7		mg/L	1.0	1.0	SM 5310B
Analysis Batch: 280-425211	Analysis Date: 08/06/2018 2116					

DATA REPORTING QUALIFIERS

Client: Aspect Consulting Job Number: 280-112582-1

Lab Section	Qualifier	Description
General Chemistry		
	B	Compound was found in the blank and sample.

QUALITY CONTROL RESULTS

Client: Aspect Consulting Job Number: 280-112582-1

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
GC/MS VOA					
Analysis Batch:480-427727					
LCS 480-427727/7	Lab Control Sample	T	Water	8260C SIM	
LCSD 480-427727/8	Lab Control Sample Duplicate	T	Water	8260C SIM	
MB 480-427727/10	Method Blank	T	Water	8260C SIM	
280-112582-1	MW-7-072618	T	Water	8260C SIM	
280-112582-2	MW-5-072618	T	Water	8260C SIM	
280-112582-3	SW-1-072618	T	Water	8260C SIM	
280-112582-4	MW-12I-072618	T	Water	8260C SIM	
280-112582-5	SW-4-072618	T	Water	8260C SIM	
280-112582-6	MW-13D-072618	T	Water	8260C SIM	
280-112582-7	SW-6-072618	T	Water	8260C SIM	
280-112582-8	SW-7-072618	T	Water	8260C SIM	
280-112582-9	MW-14-072618	T	Water	8260C SIM	
280-112582-10	MW-6-072618	T	Water	8260C SIM	
280-112582-11	MW-20DD-072618	T	Water	8260C SIM	
280-112582-12TB	TRIP BLANK	T	Water	8260C SIM	

Report Basis
T = Total

Client: Aspect Consulting Job Number: 280-112582-1

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
Metals					
Prep Batch: 280-424200					
LCS 280-424200/2-A	Lab Control Sample	R	Water	3005A	
MB 280-424200/1-A	Method Blank	R	Water	3005A	
280-112582-1	MW-7-072618	D	Water	3005A	
280-112582-2	MW-5-072618	D	Water	3005A	
280-112582-2MS	Matrix Spike	D	Water	3005A	
280-112582-2MSD	Matrix Spike Duplicate	D	Water	3005A	
280-112582-3	SW-1-072618	D	Water	3005A	
280-112582-4	MW-12I-072618	D	Water	3005A	
280-112582-5	SW-4-072618	D	Water	3005A	
280-112582-6	MW-13D-072618	D	Water	3005A	
280-112582-7	SW-6-072618	D	Water	3005A	
280-112582-8	SW-7-072618	D	Water	3005A	
280-112582-9	MW-14-072618	D	Water	3005A	
280-112582-10	MW-6-072618	D	Water	3005A	
280-112582-11	MW-20DD-072618	D	Water	3005A	
Analysis Batch:280-424423					
LCS 280-424200/2-A	Lab Control Sample	R	Water	6020	280-424200
MB 280-424200/1-A	Method Blank	R	Water	6020	280-424200
280-112582-1	MW-7-072618	D	Water	6020	280-424200
280-112582-2	MW-5-072618	D	Water	6020	280-424200
280-112582-2MS	Matrix Spike	D	Water	6020	280-424200
280-112582-2MSD	Matrix Spike Duplicate	D	Water	6020	280-424200
280-112582-3	SW-1-072618	D	Water	6020	280-424200
280-112582-4	MW-12I-072618	D	Water	6020	280-424200
280-112582-5	SW-4-072618	D	Water	6020	280-424200
280-112582-6	MW-13D-072618	D	Water	6020	280-424200
280-112582-7	SW-6-072618	D	Water	6020	280-424200
280-112582-8	SW-7-072618	D	Water	6020	280-424200
280-112582-9	MW-14-072618	D	Water	6020	280-424200
280-112582-10	MW-6-072618	D	Water	6020	280-424200
280-112582-11	MW-20DD-072618	D	Water	6020	280-424200

Report Basis
D = Dissolved
R = Total Recoverable

Client: Aspect Consulting Job Number: 280-112582-1

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
General Chemistry					
Analysis Batch:280-424434					
LCS 280-424434/18	Lab Control Sample	T	Water	350.1	
MB 280-424434/19	Method Blank	T	Water	350.1	
280-112582-1	MW-7-072618	T	Water	350.1	
280-112582-2	MW-5-072618	T	Water	350.1	
280-112582-3	SW-1-072618	T	Water	350.1	
280-112582-4	MW-12I-072618	T	Water	350.1	
280-112582-5	SW-4-072618	T	Water	350.1	
280-112582-6	MW-13D-072618	T	Water	350.1	
280-112582-7	SW-6-072618	T	Water	350.1	
280-112582-8	SW-7-072618	T	Water	350.1	
280-112582-9	MW-14-072618	T	Water	350.1	
280-112582-10	MW-6-072618	T	Water	350.1	
280-112582-11	MW-20DD-072618	T	Water	350.1	
280-112582-11MS	Matrix Spike	T	Water	350.1	
280-112582-11MSD	Matrix Spike Duplicate	T	Water	350.1	
Analysis Batch:280-424659					
LCS 280-424659/30	Lab Control Sample	T	Water	SM 2320B	
MB 280-424659/31	Method Blank	T	Water	SM 2320B	
280-112518-A-5 DU	Duplicate	T	Water	SM 2320B	
280-112582-1	MW-7-072618	T	Water	SM 2320B	
280-112582-2	MW-5-072618	T	Water	SM 2320B	
280-112582-3	SW-1-072618	T	Water	SM 2320B	
280-112582-4	MW-12I-072618	T	Water	SM 2320B	
280-112582-5	SW-4-072618	T	Water	SM 2320B	
280-112582-6	MW-13D-072618	T	Water	SM 2320B	
280-112582-7	SW-6-072618	T	Water	SM 2320B	
280-112582-8	SW-7-072618	T	Water	SM 2320B	
280-112582-9	MW-14-072618	T	Water	SM 2320B	
280-112582-10	MW-6-072618	T	Water	SM 2320B	
280-112582-11	MW-20DD-072618	T	Water	SM 2320B	

Client: Aspect Consulting Job Number: 280-112582-1

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
General Chemistry					
Analysis Batch:280-425211					
LCS 280-425211/3	Lab Control Sample	T	Water	SM 5310B	
MB 280-425211/4	Method Blank	T	Water	SM 5310B	
280-112582-1	MW-7-072618	T	Water	SM 5310B	
280-112582-2	MW-5-072618	T	Water	SM 5310B	
280-112582-3	SW-1-072618	T	Water	SM 5310B	
280-112582-4	MW-12I-072618	T	Water	SM 5310B	
280-112582-4MS	Matrix Spike	T	Water	SM 5310B	
280-112582-4MSD	Matrix Spike Duplicate	T	Water	SM 5310B	
280-112582-5	SW-4-072618	T	Water	SM 5310B	
280-112582-6	MW-13D-072618	T	Water	SM 5310B	
280-112582-7	SW-6-072618	T	Water	SM 5310B	
280-112582-8	SW-7-072618	T	Water	SM 5310B	
280-112582-9	MW-14-072618	T	Water	SM 5310B	
280-112582-10	MW-6-072618	T	Water	SM 5310B	
280-112582-11	MW-20DD-072618	T	Water	SM 5310B	
280-112582-11MS	Matrix Spike	T	Water	SM 5310B	
280-112582-11MSD	Matrix Spike Duplicate	T	Water	SM 5310B	
Analysis Batch:280-425581					
LCS 280-425581/4	Lab Control Sample	T	Water	300.0	
LCSD 280-425581/5	Lab Control Sample Duplicate	T	Water	300.0	
MB 280-425581/6	Method Blank	T	Water	300.0	
280-112582-1	MW-7-072618	T	Water	300.0	
280-112582-2	MW-5-072618	T	Water	300.0	
280-112582-3	SW-1-072618	T	Water	300.0	
280-112582-4	MW-12I-072618	T	Water	300.0	
280-112582-5	SW-4-072618	T	Water	300.0	
280-112582-6	MW-13D-072618	T	Water	300.0	
280-112582-7	SW-6-072618	T	Water	300.0	
280-112582-8	SW-7-072618	T	Water	300.0	
280-112582-9	MW-14-072618	T	Water	300.0	
280-112582-10	MW-6-072618	T	Water	300.0	
280-112582-11	MW-20DD-072618	T	Water	300.0	
280-112582-11DU	Duplicate	T	Water	300.0	
280-112582-11MS	Matrix Spike	T	Water	300.0	
280-112582-11MSD	Matrix Spike Duplicate	T	Water	300.0	

Report Basis
T = Total

Surrogate Recovery Report

8260C SIM Volatile Organic Compounds (GC/MS)

Client Matrix: Water

Lab Sample ID	Client Sample ID	DBFM %Rec	TBA %Rec
280-112582-1	MW-7-072618	110	94
280-112582-2	MW-5-072618	110	97
280-112582-3	SW-1-072618	113	94
280-112582-4	MW-12I-072618	113	105
280-112582-5	SW-4-072618	112	108
280-112582-6	MW-13D-072618	114	99
280-112582-7	SW-6-072618	115	97
280-112582-8	SW-7-072618	113	102
280-112582-9	MW-14-072618	114	105
280-112582-10	MW-6-072618	116	103
280-112582-11	MW-20DD-072618	117	106
280-112582-12	TRIP BLANK	117	108
MB 480-427727/10		116	91
LCS 480-427727/7		103	99
LCSD 480-427727/8		103	99

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

Method Blank - Batch: 480-427727 **Method: 8260C SIM**
Preparation: 5030C

Lab Sample ID:	MB 480-427727/10	Analysis Batch:	480-427727	Instrument ID:	HP5973J
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	J7069.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	25 mL
Analysis Date:	08/02/2018 1524	Units:	ug/L	Final Weight/Volume:	25 mL
Prep Date:	08/02/2018 1524				
Leach Date:	N/A				

Analyte	Result	Qual	RL
Vinyl chloride	ND		0.020

Surrogate	% Rec	Acceptance Limits
Dibromofluoromethane (Surr)	116	50 - 150
TBA-d9 (Surr)	91	50 - 150

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 480-427727 **Method: 8260C SIM**
Preparation: 5030C

LCS Lab Sample ID:	LCS 480-427727/7	Analysis Batch:	480-427727	Instrument ID:	HP5973J
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	J7066.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	25 mL
Analysis Date:	08/02/2018 1354	Units:	ug/L	Final Weight/Volume:	25 mL
Prep Date:	08/02/2018 1354				25 mL
Leach Date:	N/A				

LCSD Lab Sample ID:	LCSD 480-427727/8	Analysis Batch:	480-427727	Instrument ID:	HP5973J
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	J7067.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	25 mL
Analysis Date:	08/02/2018 1419	Units:	ug/L	Final Weight/Volume:	25 mL
Prep Date:	08/02/2018 1419				25 mL
Leach Date:	N/A				

	% Rec.						
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
Vinyl chloride	78	75	50 - 150	3	20		

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

Client: Aspect Consulting

Job Number: 280-112582-1

Laboratory Control/
Laboratory Duplicate Data Report - Batch: 480-427727

Method: 8260C SIM
Preparation: 5030C

LCS Lab Sample ID:	LCS 480-427727/7	Units: ug/L		LCSD Lab Sample ID:	LCSD 480-427727/8
Client Matrix:	Water			Client Matrix:	Water
Dilution:	1.0			Dilution:	1.0
Analysis Date:	08/02/2018 1354			Analysis Date:	08/02/2018 1419
Prep Date:	08/02/2018 1354			Prep Date:	08/02/2018 1419
Leach Date:	N/A			Leach Date:	N/A

Analyte	LCS Spike Amount	LCSD Spike Amount	LCS Result/Qual	LCSD Result/Qual
Vinyl chloride	0.200	0.200	0.155	0.151

Client: Aspect Consulting Job Number: 280-112582-1

Method Blank - Batch: 280-424200

Method: 6020
Preparation: 3005A
Total Recoverable

Lab Sample ID:	MB 280-424200/1-A	Analysis Batch:	280-424423	Instrument ID:	MT_078
Client Matrix:	Water	Prep Batch:	280-424200	Lab File ID:	247_BLK.d
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	50 mL
Analysis Date:	08/01/2018 0139	Units:	ug/L	Final Weight/Volume:	50 mL
Prep Date:	07/31/2018 0755				
Leach Date:	N/A				

Analyte	Result	Qual	RL
Manganese	ND		1.0

Lab Control Sample - Batch: 280-424200

Method: 6020
Preparation: 3005A
Total Recoverable

Lab Sample ID:	LCS 280-424200/2-A	Analysis Batch:	280-424423	Instrument ID:	MT_078
Client Matrix:	Water	Prep Batch:	280-424200	Lab File ID:	248_LCS.d
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	50 mL
Analysis Date:	08/01/2018 0142	Units:	ug/L	Final Weight/Volume:	50 mL
Prep Date:	07/31/2018 0755				
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Manganese	40.0	39.8	100	85 - 117	

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-424200

Method: 6020
Preparation: 3005A
Dissolved

MS Lab Sample ID:	280-112582-2	Analysis Batch:	280-424423	Instrument ID:	MT_078
Client Matrix:	Water	Prep Batch:	280-424200	Lab File ID:	252SMPL.d
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	50 mL
Analysis Date:	08/01/2018 0156			Final Weight/Volume:	50 mL
Prep Date:	07/31/2018 0755				
Leach Date:	N/A				

MSD Lab Sample ID:	280-112582-2	Analysis Batch:	280-424423	Instrument ID:	MT_078
Client Matrix:	Water	Prep Batch:	280-424200	Lab File ID:	253SMPL.d
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	50 mL
Analysis Date:	08/01/2018 0159			Final Weight/Volume:	50 mL
Prep Date:	07/31/2018 0755				
Leach Date:	N/A				

	% Rec.						
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Manganese	102	95	85 - 117	7	20		

Client: Aspect Consulting

Job Number: 280-112582-1

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-424200

Method: 6020
Preparation: 3005A
Dissolved

MS Lab Sample ID:	280-112582-2	Units: ug/L	MSD Lab Sample ID:	280-112582-2	
Client Matrix:	Water		Client Matrix:	Water	
Dilution:	1.0		Dilution:	1.0	
Analysis Date:	08/01/2018 0156		Analysis Date:	08/01/2018 0159	
Prep Date:	07/31/2018 0755		Prep Date:	07/31/2018 0755	
Leach Date:	N/A		Leach Date:	N/A	

Analyte	Sample Result/Qual	MS Spike Amount	MSD Spike Amount	MS Result/Qual	MSD Result/Qual
Manganese	ND	40.0	40.0	41.3	38.5

Method Blank - Batch: 280-425581

Method: 300.0
Preparation: N/A

Lab Sample ID:	MB 280-425581/6	Analysis Batch:	280-425581	Instrument ID:	WC_IonChrom10
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	Info 2_DENPC179_Anic
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	08/09/2018 2116	Units:	mg/L	Final Weight/Volume:	5 mL
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Result	Qual	RL
Chloride	ND		1.0
Sulfate	1.46		1.0

Method Reporting Limit Check - Batch: 280-425581

Method: 300.0
Preparation: N/A

Lab Sample ID:	MRL 280-425581/3	Analysis Batch:	280-425581	Instrument ID:	WC_IonChrom10
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	Info 2_DENPC179_Anic
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	08/09/2018 2024	Units:	mg/L	Final Weight/Volume:	5 mL
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Chloride	2.50	ND	92	50 - 150	
Sulfate	2.50	ND	127	50 - 150	

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 280-425581

Method: 300.0
Preparation: N/A

LCS Lab Sample ID:	LCS 280-425581/4	Analysis Batch:	280-425581	Instrument ID:	WC_IonChrom10
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	Info 2_DENPC179_Anic
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	08/09/2018 2042	Units:	mg/L	Final Weight/Volume:	5 mL
Prep Date:	N/A				5 uL
Leach Date:	N/A				

LCSD Lab Sample ID:	LCSD 280-425581/5	Analysis Batch:	280-425581	Instrument ID:	WC_IonChrom10
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	Info 2_DENPC179_Anic
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	08/09/2018 2059	Units:	mg/L	Final Weight/Volume:	5 mL
Prep Date:	N/A				5 uL
Leach Date:	N/A				

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

Client: Aspect Consulting

Job Number: 280-112582-1

Laboratory Control/
Laboratory Duplicate Data Report - Batch: 280-425581

Method: 300.0
Preparation: N/A

LCS Lab Sample ID:	LCS 280-425581/4	Units: mg/L	
Client Matrix:	Water		
Dilution:	1.0		
Analysis Date:	08/09/2018 2042		
Prep Date:	N/A		
Leach Date:	N/A		

LCSD Lab Sample ID:	LCSD 280-425581/5
Client Matrix:	Water
Dilution:	1.0
Analysis Date:	08/09/2018 2059
Prep Date:	N/A
Leach Date:	N/A

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

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-425581

Method: 300.0
Preparation: N/A

MS Lab Sample ID:	280-112582-11	Analysis Batch:	280-425581	Instrument ID:	WC_IonChrom10
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	Info 2_DENPC179_Anio
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	08/10/2018 0653			Final Weight/Volume:	5 mL
Prep Date:	N/A				5 uL
Leach Date:	N/A				

MSD Lab Sample ID:	280-112582-11	Analysis Batch:	280-425581	Instrument ID:	WC_IonChrom10
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	Info 2_DENPC179_Anio
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	08/10/2018 0711			Final Weight/Volume:	5 mL
Prep Date:	N/A				5 uL
Leach Date:	N/A				

Analyte	% Rec. MS	% Rec. MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Chloride	107	108	80 - 120	1	20		
Sulfate	101	104	80 - 120	2	20		

Client: Aspect Consulting

Job Number: 280-112582-1

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-425581

Method: 300.0
Preparation: N/A

MS Lab Sample ID:	280-112582-11	Units: mg/L		MSD Lab Sample ID:	280-112582-11
Client Matrix:	Water			Client Matrix:	Water
Dilution:	1.0			Dilution:	1.0
Analysis Date:	08/10/2018 0653			Analysis Date:	08/10/2018 0711
Prep Date:	N/A			Prep Date:	N/A
Leach Date:	N/A			Leach Date:	N/A

Analyte	Sample Result/Qual	MS Spike Amount	MSD Spike Amount	MS Result/Qual	MSD Result/Qual
Chloride	10	25.0	25.0	36.7	37.0
Sulfate	13	25.0	25.0	38.7	39.3

Duplicate - Batch: 280-425581

Method: 300.0
Preparation: N/A

Lab Sample ID:	280-112582-11	Analysis Batch:	280-425581	Instrument ID:	WC_IonChrom10
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	Info 2_DENPC179_Anio
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	08/10/2018 0636	Units:	mg/L	Final Weight/Volume:	5 mL
Prep Date:	N/A				5 uL
Leach Date:	N/A				

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
Chloride	10	9.98	0.2	15	
Sulfate	13	13.5	0.3	15	

Client: Aspect Consulting Job Number: 280-112582-1

Method Blank - Batch: 280-424434

Method: 350.1
Preparation: N/A

Lab Sample ID:	MB 280-424434/19	Analysis Batch:	280-424434	Instrument ID:	WC_Alp 3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	C:\FLOW_4\080118.RS
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	08/01/2018 0843	Units:	mg/L	Final Weight/Volume:	
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Result	Qual	RL
Ammonia as N	ND		0.030

Lab Control Sample - Batch: 280-424434

Method: 350.1
Preparation: N/A

Lab Sample ID:	LCS 280-424434/18	Analysis Batch:	280-424434	Instrument ID:	WC_Alp 3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	C:\FLOW_4\080118.RS
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	100 mL
Analysis Date:	08/01/2018 0841	Units:	mg/L	Final Weight/Volume:	100 mL
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Ammonia as N	2.50	2.50	100	90 - 110	

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-424434

Method: 350.1
Preparation: N/A

MS Lab Sample ID:	280-112582-11	Analysis Batch:	280-424434	Instrument ID:	WC_Alp 3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	C:\FLOW_4\080118.RS
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	10 mL
Analysis Date:	08/01/2018 0953			Final Weight/Volume:	10 mL
Prep Date:	N/A				
Leach Date:	N/A				

MSD Lab Sample ID:	280-112582-11	Analysis Batch:	280-424434	Instrument ID:	WC_Alp 3
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	C:\FLOW_4\080118.RS
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	10 mL
Analysis Date:	08/01/2018 0955			Final Weight/Volume:	10 mL
Prep Date:	N/A				
Leach Date:	N/A				

	% Rec.						
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Ammonia as N	101	103	90 - 110	2	10		

Client: Aspect Consulting

Job Number: 280-112582-1

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-424434

Method: 350.1
Preparation: N/A

MS Lab Sample ID:	280-112582-11	Units: mg/L	MSD Lab Sample ID:	280-112582-11	
Client Matrix:	Water		Client Matrix:	Water	
Dilution:	1.0		Dilution:	1.0	
Analysis Date:	08/01/2018 0953		Analysis Date:	08/01/2018 0955	
Prep Date:	N/A		Prep Date:	N/A	
Leach Date:	N/A		Leach Date:	N/A	

Analyte	Sample Result/Qual	MS Spike Amount	MSD Spike Amount	MS Result/Qual	MSD Result/Qual
Ammonia as N	ND	1.00	1.00	1.01	1.03

Client: Aspect Consulting Job Number: 280-112582-1

Method Blank - Batch: 280-424659

Method: SM 2320B
Preparation: N/A

Lab Sample ID:	MB 280-424659/31	Analysis Batch:	280-424659	Instrument ID:	WC_AT2
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	alk 080118.TXT
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	08/01/2018 2245	Units:	mg/L	Final Weight/Volume:	
Prep Date:	N/A				
Leach Date:	N/A				

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

Lab Control Sample - Batch: 280-424659

Method: SM 2320B
Preparation: N/A

Lab Sample ID:	LCS 280-424659/30	Analysis Batch:	280-424659	Instrument ID:	WC_AT2
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	alk 080118.TXT
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	08/01/2018 2238	Units:	mg/L	Final Weight/Volume:	
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Total Alkalinity	200	193	97	90 - 110	

Duplicate - Batch: 280-424659

Method: SM 2320B
Preparation: N/A

Lab Sample ID:	280-112518-A-5 DU	Analysis Batch:	280-424659	Instrument ID:	WC_AT2
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	alk 080118.TXT
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	08/01/2018 2259	Units:	mg/L	Final Weight/Volume:	
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
Total Alkalinity	110	114	1	10	

Client: Aspect Consulting

Job Number: 280-112582-1

Method Blank - Batch: 280-425211

Method: SM 5310B
Preparation: N/A

Lab Sample ID:	MB 280-425211/4	Analysis Batch:	280-425211	Instrument ID:	WC_SHI2
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	080718.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	08/06/2018 1711	Units:	mg/L	Final Weight/Volume:	
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Result	Qual	RL
Total Organic Carbon - Average	ND		1.0

Lab Control Sample - Batch: 280-425211

Method: SM 5310B
Preparation: N/A

Lab Sample ID:	LCS 280-425211/3	Analysis Batch:	280-425211	Instrument ID:	WC_SHI2
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	080718.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	08/06/2018 1651	Units:	mg/L	Final Weight/Volume:	100 mL
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Total Organic Carbon - Average	25.0	24.7	99	88 - 112	

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-425211

Method: SM 5310B
Preparation: N/A

MS Lab Sample ID:	280-112582-4	Analysis Batch:	280-425211	Instrument ID:	WC_SHI2
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	080718.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	08/06/2018 1807			Final Weight/Volume:	50 mL
Prep Date:	N/A				
Leach Date:	N/A				

MSD Lab Sample ID:	280-112582-4	Analysis Batch:	280-425211	Instrument ID:	WC_SHI2
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	080718.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	08/06/2018 1825			Final Weight/Volume:	50 mL
Prep Date:	N/A				
Leach Date:	N/A				

	% Rec.						
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Total Organic Carbon - Average	106	110	88 - 112	3	15		

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-425211

Method: SM 5310B
Preparation: N/A

MS Lab Sample ID:	280-112582-11	Analysis Batch:	280-425211	Instrument ID:	WC_SHI2
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	080718.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	08/06/2018 2136			Final Weight/Volume:	50 mL
Prep Date:	N/A				
Leach Date:	N/A				

MSD Lab Sample ID:	280-112582-11	Analysis Batch:	280-425211	Instrument ID:	WC_SHI2
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	080718.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	08/06/2018 2153			Final Weight/Volume:	50 mL
Prep Date:	N/A				
Leach Date:	N/A				

	% Rec.						
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Total Organic Carbon - Average	109	105	88 - 112	3	15		

Client: Aspect Consulting

Job Number: 280-112582-1

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-425211

Method: SM 5310B
Preparation: N/A

MS Lab Sample ID:	280-112582-4	Units: mg/L		MSD Lab Sample ID:	280-112582-4
Client Matrix:	Water			Client Matrix:	Water
Dilution:	1.0			Dilution:	1.0
Analysis Date:	08/06/2018 1807			Analysis Date:	08/06/2018 1825
Prep Date:	N/A			Prep Date:	N/A
Leach Date:	N/A			Leach Date:	N/A

Analyte	Sample Result/Qual	MS Spike Amount	MSD Spike Amount	MS Result/Qual	MSD Result/Qual
Total Organic Carbon - Average	2.6	25.0	25.0	29.0	30.0

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-425211

Method: SM 5310B
Preparation: N/A

MS Lab Sample ID:	280-112582-11	Units: mg/L		MSD Lab Sample ID:	280-112582-11
Client Matrix:	Water			Client Matrix:	Water
Dilution:	1.0			Dilution:	1.0
Analysis Date:	08/06/2018 2136			Analysis Date:	08/06/2018 2153
Prep Date:	N/A			Prep Date:	N/A
Leach Date:	N/A			Leach Date:	N/A

Analyte	Sample Result/Qual	MS Spike Amount	MSD Spike Amount	MS Result/Qual	MSD Result/Qual
Total Organic Carbon - Average	1.7	25.0	25.0	28.8	27.8

Client: Aspect Consulting Job Number: 280-112582-1

Laboratory Chronicle

Lab ID: 280-112582-1 **Client ID: MW-7-072618**

Sample Date/Time: 07/26/2018 11:00 Received Date/Time: 07/28/2018 08:40

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:5030C	280-112582-D-1		480-427727		08/02/2018 15:54	1	TAL BUF	LCH
A:8260C SIM	280-112582-D-1		480-427727		08/02/2018 15:54	1	TAL BUF	LCH
P:3005A	280-112582-C-1-A		280-424423	280-424200	07/31/2018 07:55	1	TAL DEN	MRJ
A:6020	280-112582-C-1-A		280-424423	280-424200	08/01/2018 01:45	1	TAL DEN	LMT
A:300.0	280-112582-A-1		280-425581		08/10/2018 02:48	1	TAL DEN	ARM
A:350.1	280-112582-B-1		280-424434		08/01/2018 09:19	1	TAL DEN	JAP
A:SM 2320B	280-112582-A-1		280-424659		08/01/2018 23:36	1	TAL DEN	LPL
A:SM 5310B	280-112582-B-1		280-425211		08/07/2018 00:04	1	TAL DEN	A1D

Lab ID: 280-112582-2 **Client ID: MW-5-072618**

Sample Date/Time: 07/26/2018 12:22 Received Date/Time: 07/28/2018 08:40

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:5030C	280-112582-D-2		480-427727		08/02/2018 16:18	1	TAL BUF	LCH
A:8260C SIM	280-112582-D-2		480-427727		08/02/2018 16:18	1	TAL BUF	LCH
P:3005A	280-112582-C-2-A		280-424423	280-424200	07/31/2018 07:55	1	TAL DEN	MRJ
A:6020	280-112582-C-2-A		280-424423	280-424200	08/01/2018 01:49	1	TAL DEN	LMT
A:300.0	280-112582-A-2		280-425581		08/10/2018 03:06	1	TAL DEN	ARM
A:350.1	280-112582-B-2		280-424434		08/01/2018 09:21	1	TAL DEN	JAP
A:SM 2320B	280-112582-A-2		280-424659		08/01/2018 23:43	1	TAL DEN	LPL
A:SM 5310B	280-112582-B-2		280-425211		08/07/2018 00:20	1	TAL DEN	A1D

Lab ID: 280-112582-2 MS **Client ID: MW-5-072618**

Sample Date/Time: 07/26/2018 12:22 Received Date/Time: 07/28/2018 08:40

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:3005A	280-112582-C-2-B MS		280-424423	280-424200	07/31/2018 07:55	1	TAL DEN	MRJ
A:6020	280-112582-C-2-B MS		280-424423	280-424200	08/01/2018 01:56	1	TAL DEN	LMT

Lab ID: 280-112582-2 MSD **Client ID: MW-5-072618**

Sample Date/Time: 07/26/2018 12:22 Received Date/Time: 07/28/2018 08:40

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:3005A	280-112582-C-2-C MSD		280-424423	280-424200	07/31/2018 07:55	1	TAL DEN	MRJ
A:6020	280-112582-C-2-C MSD		280-424423	280-424200	08/01/2018 01:59	1	TAL DEN	LMT

Client: Aspect Consulting Job Number: 280-112582-1

Laboratory Chronicle

Lab ID: 280-112582-3 **Client ID: SW-1-072618**

Sample Date/Time: 07/26/2018 13:30 Received Date/Time: 07/28/2018 08:40

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:5030C	280-112582-D-3		480-427727		08/02/2018 16:43	1	TAL BUF	LCH
A:8260C SIM	280-112582-D-3		480-427727		08/02/2018 16:43	1	TAL BUF	LCH
P:3005A	280-112582-C-3-A		280-424423	280-424200	07/31/2018 07:55	1	TAL DEN	MRJ
A:6020	280-112582-C-3-A		280-424423	280-424200	08/01/2018 02:06	1	TAL DEN	LMT
A:300.0	280-112582-A-3		280-425581		08/10/2018 03:23	1	TAL DEN	ARM
A:350.1	280-112582-B-3		280-424434		08/01/2018 09:23	1	TAL DEN	JAP
A:SM 2320B	280-112582-A-3		280-424659		08/01/2018 23:51	1	TAL DEN	LPL
A:SM 5310B	280-112582-B-3		280-425211		08/07/2018 01:13	1	TAL DEN	A1D

Lab ID: 280-112582-4 **Client ID: MW-12I-072618**

Sample Date/Time: 07/26/2018 13:50 Received Date/Time: 07/28/2018 08:40

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:5030C	280-112582-D-4		480-427727		08/02/2018 17:07	1	TAL BUF	LCH
A:8260C SIM	280-112582-D-4		480-427727		08/02/2018 17:07	1	TAL BUF	LCH
P:3005A	280-112582-C-4-A		280-424423	280-424200	07/31/2018 07:55	1	TAL DEN	MRJ
A:6020	280-112582-C-4-A		280-424423	280-424200	08/01/2018 02:16	1	TAL DEN	LMT
A:300.0	280-112582-A-4		280-425581		08/10/2018 03:41	1	TAL DEN	ARM
A:350.1	280-112582-B-4		280-424434		08/01/2018 09:25	1	TAL DEN	JAP
A:SM 2320B	280-112582-A-4		280-424659		08/01/2018 23:58	1	TAL DEN	LPL
A:SM 5310B	280-112582-B-4		280-425211		08/06/2018 17:52	1	TAL DEN	A1D

Lab ID: 280-112582-4 MS **Client ID: MW-12I-072618**

Sample Date/Time: 07/26/2018 13:50 Received Date/Time: 07/28/2018 08:40

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
A:SM 5310B	280-112582-B-4 MS		280-425211		08/06/2018 18:07	1	TAL DEN	A1D

Lab ID: 280-112582-4 MSD **Client ID: MW-12I-072618**

Sample Date/Time: 07/26/2018 13:50 Received Date/Time: 07/28/2018 08:40

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
A:SM 5310B	280-112582-B-4 MSD		280-425211		08/06/2018 18:25	1	TAL DEN	A1D

Client: Aspect Consulting Job Number: 280-112582-1

Laboratory Chronicle

Lab ID: 280-112582-5 **Client ID: SW-4-072618**

Sample Date/Time: 07/26/2018 14:45 Received Date/Time: 07/28/2018 08:40

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:5030C	280-112582-D-5		480-427727		08/02/2018 17:31	1	TAL BUF	LCH
A:8260C SIM	280-112582-D-5		480-427727		08/02/2018 17:31	1	TAL BUF	LCH
P:3005A	280-112582-C-5-A		280-424423	280-424200	07/31/2018 07:55	1	TAL DEN	MRJ
A:6020	280-112582-C-5-A		280-424423	280-424200	08/01/2018 02:20	1	TAL DEN	LMT
A:300.0	280-112582-A-5		280-425581		08/10/2018 04:33	1	TAL DEN	ARM
A:350.1	280-112582-B-5		280-424434		08/01/2018 09:27	1	TAL DEN	JAP
A:SM 2320B	280-112582-A-5		280-424659		08/02/2018 00:23	1	TAL DEN	LPL
A:SM 5310B	280-112582-B-5		280-425211		08/06/2018 18:49	1	TAL DEN	A1D

Lab ID: 280-112582-6 **Client ID: MW-13D-072618**

Sample Date/Time: 07/26/2018 15:25 Received Date/Time: 07/28/2018 08:40

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:5030C	280-112582-D-6		480-427727		08/02/2018 17:56	1	TAL BUF	LCH
A:8260C SIM	280-112582-D-6		480-427727		08/02/2018 17:56	1	TAL BUF	LCH
P:3005A	280-112582-C-6-A		280-424423	280-424200	07/31/2018 07:55	1	TAL DEN	MRJ
A:6020	280-112582-C-6-A		280-424423	280-424200	08/01/2018 02:23	1	TAL DEN	LMT
A:300.0	280-112582-A-6		280-425581		08/10/2018 04:51	1	TAL DEN	ARM
A:350.1	280-112582-B-6		280-424434		08/01/2018 09:29	1	TAL DEN	JAP
A:SM 2320B	280-112582-A-6		280-424659		08/02/2018 00:30	1	TAL DEN	LPL
A:SM 5310B	280-112582-B-6		280-425211		08/06/2018 19:06	1	TAL DEN	A1D

Lab ID: 280-112582-7 **Client ID: SW-6-072618**

Sample Date/Time: 07/26/2018 15:40 Received Date/Time: 07/28/2018 08:40

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:5030C	280-112582-D-7		480-427727		08/02/2018 18:20	1	TAL BUF	LCH
A:8260C SIM	280-112582-D-7		480-427727		08/02/2018 18:20	1	TAL BUF	LCH
P:3005A	280-112582-C-7-A		280-424423	280-424200	07/31/2018 07:55	1	TAL DEN	MRJ
A:6020	280-112582-C-7-A		280-424423	280-424200	08/01/2018 02:27	1	TAL DEN	LMT
A:300.0	280-112582-A-7		280-425581		08/10/2018 05:08	5	TAL DEN	ARM
A:350.1	280-112582-B-7		280-424434		08/01/2018 09:31	1	TAL DEN	JAP
A:SM 2320B	280-112582-A-7		280-424659		08/02/2018 00:38	1	TAL DEN	LPL
A:SM 5310B	280-112582-B-7		280-425211		08/06/2018 19:27	1	TAL DEN	A1D

Client: Aspect Consulting Job Number: 280-112582-1

Laboratory Chronicle

Lab ID: 280-112582-8 **Client ID: SW-7-072618**

Sample Date/Time: 07/26/2018 16:40 Received Date/Time: 07/28/2018 08:40

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:5030C	280-112582-D-8		480-427727		08/02/2018 18:45	1	TAL BUF	LCH
A:8260C SIM	280-112582-D-8		480-427727		08/02/2018 18:45	1	TAL BUF	LCH
P:3005A	280-112582-C-8-A		280-424423	280-424200	07/31/2018 07:55	1	TAL DEN	MRJ
A:6020	280-112582-C-8-A		280-424423	280-424200	08/01/2018 02:30	1	TAL DEN	LMT
A:300.0	280-112582-A-8		280-425581		08/10/2018 05:26	5	TAL DEN	ARM
A:350.1	280-112582-B-8		280-424434		08/01/2018 09:33	1	TAL DEN	JAP
A:SM 2320B	280-112582-A-8		280-424659		08/02/2018 00:46	1	TAL DEN	LPL
A:SM 5310B	280-112582-B-8		280-425211		08/06/2018 19:46	1	TAL DEN	A1D

Lab ID: 280-112582-9 **Client ID: MW-14-072618**

Sample Date/Time: 07/26/2018 17:00 Received Date/Time: 07/28/2018 08:40

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:5030C	280-112582-D-9		480-427727		08/02/2018 19:09	1	TAL BUF	LCH
A:8260C SIM	280-112582-D-9		480-427727		08/02/2018 19:09	1	TAL BUF	LCH
P:3005A	280-112582-C-9-A		280-424423	280-424200	07/31/2018 07:55	1	TAL DEN	MRJ
A:6020	280-112582-C-9-A		280-424423	280-424200	08/01/2018 02:34	1	TAL DEN	LMT
A:300.0	280-112582-A-9		280-425581		08/10/2018 05:43	1	TAL DEN	ARM
A:350.1	280-112582-B-9		280-424434		08/01/2018 09:35	1	TAL DEN	JAP
A:SM 2320B	280-112582-A-9		280-424659		08/02/2018 00:53	1	TAL DEN	LPL
A:SM 5310B	280-112582-B-9		280-425211		08/06/2018 20:03	1	TAL DEN	A1D

Lab ID: 280-112582-10 **Client ID: MW-6-072618**

Sample Date/Time: 07/26/2018 18:20 Received Date/Time: 07/28/2018 08:40

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:5030C	280-112582-D-10		480-427727		08/02/2018 19:33	1	TAL BUF	LCH
A:8260C SIM	280-112582-D-10		480-427727		08/02/2018 19:33	1	TAL BUF	LCH
P:3005A	280-112582-C-10-A		280-424423	280-424200	07/31/2018 07:55	1	TAL DEN	MRJ
A:6020	280-112582-C-10-A		280-424423	280-424200	08/01/2018 02:37	1	TAL DEN	LMT
A:300.0	280-112582-A-10		280-425581		08/10/2018 06:01	1	TAL DEN	ARM
A:350.1	280-112582-B-10		280-424434		08/01/2018 09:49	1	TAL DEN	JAP
A:SM 2320B	280-112582-A-10		280-424659		08/02/2018 01:00	1	TAL DEN	LPL
A:SM 5310B	280-112582-B-10		280-425211		08/06/2018 20:19	1	TAL DEN	A1D

Client: Aspect Consulting Job Number: 280-112582-1

Laboratory Chronicle

Lab ID: 280-112582-11 **Client ID: MW-20DD-072618**

Sample Date/Time: 07/26/2018 00:00 Received Date/Time: 07/28/2018 08:40

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:5030C	280-112582-D-11		480-427727		08/02/2018 19:57	1	TAL BUF	LCH
A:8260C SIM	280-112582-D-11		480-427727		08/02/2018 19:57	1	TAL BUF	LCH
P:3005A	280-112582-C-11-A		280-424423	280-424200	07/31/2018 07:55	1	TAL DEN	MRJ
A:6020	280-112582-C-11-A		280-424423	280-424200	08/01/2018 02:40	1	TAL DEN	LMT
A:300.0	280-112582-A-11		280-425581		08/10/2018 06:18	1	TAL DEN	ARM
A:350.1	280-112582-B-11		280-424434		08/01/2018 09:51	1	TAL DEN	JAP
A:SM 2320B	280-112582-A-11		280-424659		08/02/2018 01:09	1	TAL DEN	LPL
A:SM 5310B	280-112582-B-11		280-425211		08/06/2018 21:16	1	TAL DEN	A1D

Lab ID: 280-112582-11 MS **Client ID: MW-20DD-072618**

Sample Date/Time: 07/26/2018 00:00 Received Date/Time: 07/28/2018 08:40

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
A:300.0	280-112582-A-11 MS		280-425581		08/10/2018 06:53	1	TAL DEN	ARM
A:350.1	280-112582-B-11 MS		280-424434		08/01/2018 09:53	1	TAL DEN	JAP
A:SM 5310B	280-112582-B-11 MS		280-425211		08/06/2018 21:36	1	TAL DEN	A1D

Lab ID: 280-112582-11 MSD **Client ID: MW-20DD-072618**

Sample Date/Time: 07/26/2018 00:00 Received Date/Time: 07/28/2018 08:40

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
A:300.0	280-112582-A-11 MSD		280-425581		08/10/2018 07:11	1	TAL DEN	ARM
A:350.1	280-112582-B-11 MSD		280-424434		08/01/2018 09:55	1	TAL DEN	JAP
A:SM 5310B	280-112582-B-11 MSD		280-425211		08/06/2018 21:53	1	TAL DEN	A1D

Lab ID: 280-112582-11 DU **Client ID: MW-20DD-072618**

Sample Date/Time: 07/26/2018 00:00 Received Date/Time: 07/28/2018 08:40

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
A:300.0	280-112582-A-11 DU		280-425581		08/10/2018 06:36	1	TAL DEN	ARM

Lab ID: 280-112582-12 **Client ID: TRIP BLANK**

Sample Date/Time: 07/26/2018 00:00 Received Date/Time: 07/28/2018 08:40

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:5030C	280-112582-A-12		480-427727		08/02/2018 20:21	1	TAL BUF	LCH
A:8260C SIM	280-112582-A-12		480-427727		08/02/2018 20:21	1	TAL BUF	LCH

Client: Aspect Consulting Job Number: 280-112582-1

Laboratory Chronicle

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

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

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:5030C	MB 480-427727/10		480-427727		08/02/2018 15:24	1	TAL BUF	LCH
A:8260C SIM	MB 480-427727/10		480-427727		08/02/2018 15:24	1	TAL BUF	LCH
P:3005A	MB 280-424200/1-A		280-424423	280-424200	07/31/2018 07:55	1	TAL DEN	MRJ
A:6020	MB 280-424200/1-A		280-424423	280-424200	08/01/2018 01:39	1	TAL DEN	LMT
A:300.0	MB 280-425581/6		280-425581		08/09/2018 21:16	1	TAL DEN	ARM
A:350.1	MB 280-424434/19		280-424434		08/01/2018 08:43	1	TAL DEN	JAP
A:SM 2320B	MB 280-424659/31		280-424659		08/01/2018 22:45	1	TAL DEN	LPL
A:SM 5310B	MB 280-425211/4		280-425211		08/06/2018 17:11	1	TAL DEN	A1D

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

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

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:5030C	LCS 480-427727/7		480-427727		08/02/2018 13:54	1	TAL BUF	LCH
A:8260C SIM	LCS 480-427727/7		480-427727		08/02/2018 13:54	1	TAL BUF	LCH
P:3005A	LCS 280-424200/2-A		280-424423	280-424200	07/31/2018 07:55	1	TAL DEN	MRJ
A:6020	LCS 280-424200/2-A		280-424423	280-424200	08/01/2018 01:42	1	TAL DEN	LMT
A:300.0	LCS 280-425581/4		280-425581		08/09/2018 20:42	1	TAL DEN	ARM
A:350.1	LCS 280-424434/18		280-424434		08/01/2018 08:41	1	TAL DEN	JAP
A:SM 2320B	LCS 280-424659/30		280-424659		08/01/2018 22:38	1	TAL DEN	LPL
A:SM 5310B	LCS 280-425211/3		280-425211		08/06/2018 16:51	1	TAL DEN	A1D

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

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

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
P:5030C	LCSD 480-427727/8		480-427727		08/02/2018 14:19	1	TAL BUF	LCH
A:8260C SIM	LCSD 480-427727/8		480-427727		08/02/2018 14:19	1	TAL BUF	LCH
A:300.0	LCSD 280-425581/5		280-425581		08/09/2018 20:59	1	TAL DEN	ARM

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

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

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
A:300.0	MRL 280-425581/3		280-425581		08/09/2018 20:24	1	TAL DEN	ARM

Client: Aspect Consulting

Job Number: 280-112582-1

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

Sample Date/Time: 07/26/2018 10:47 Received Date/Time: 07/27/2018 09:30

Method	Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
A:SM 2320B	280-112518-A-5 DU		280-424659		08/01/2018 22:59	1	TAL DEN	LPL

Lab References:

TAL BUF = TestAmerica Buffalo

TAL DEN = TestAmerica Denver

Analytical Resources, Incorporated
Analytical Chemists and Consultants

15 August 2018

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

RE: Hansville

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)
18G0315	N/A

Amanda Volgardsen

Digitally signed by Amanda Volgardsen
DN: c=US, st=Washington, l=Tukwila, o=Analytical Resources, Inc., ou=Project Manager, cn=Amanda Volgardsen, email=amanda.volgardsen@arilabs.com
Date: 2018.08.15 10:55:24 -07'00'

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, Inc.

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18G0315

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Na Hyung Choi	Lab PM: Sara, Betsy A	Carrier Tracking No(s):	COC No: 280-23414-6845.1
Client Contact: Meiban Lanier-Kamaha'o	Phone: 206-413-5408	E-Mail: betsy.sara@testamericainc.com		Page: 1/1
Company: Aspect Consulting, LLC				Job #:
Address: 350 Madison Ave N	Due Date Requested:			
City: Bainbridge Island	TAT Requested (days):			
State, Zip: WA, 98110				
Phone:	PO #: Purchase Order not required			
Email: mkamahao@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	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2SO3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - ph 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260C SIM - Vinyl Chloride (TA Buffalo)	Dissolved Metals	Ammonia/TOC	Alks/Cl/SO4	Ortho-phosphate (field filtered)- direct sub to ARI	Dissolved Arsenice - direct sub to ARI	Nitrate/Nitrite (IC) - direct sub to ARI	Total Number of containers	Special Instructions/Note:
			Preservation Code:				A	D	S	N	N	D	N		
MW-7-072618	7/26/18	1100		W	Y						✓	✓	✓		
MW-5-072618		1222									✓	✓	✓		
~~MT~~ SW-1-072618		1330									✓	✓	✓		Diss As,NO3,NO2,o-phos subbed direct to ARI
MW-12I-072618		1350									✓	✓	✓		
SW-4-072618		1445									✓	✓	✓		
MW-13D-072618		1525									✓	✓	✓		
SW-6-072618		1540									✓	✓	✓		
SW-7-072618		1640									✓	✓	✓		
MW-14-072618		1700									✓	✓	✓		MW-6-072618
MW-6-072618		1820									✓	✓	✓		Arsenic - not filtered
MW20DD-072618	↓	-		↓							✓	✓	✓		

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

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

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

Special Instructions/QC Requirements:

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

	Relinquished by	Date/Time	Company	Received by	Date/Time	Company
1	Na Hyung Choi	7/26/18 22:00	Aspect	PETER BANNISTER	7/27/18 6:00	Aspect
2	PETER BANNISTER	7/27/18 07:25	Aspect	[illegible] SISW	07/27/18 0725	ARI
3						

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

Test America - Denver	Project: Hansville	
4955 Yarrow Street	Project Number: 28006013-2Q/3Q/4Q Sampling	**Reported:**
Arvada CO, 80002	Project Manager: Betsy Sara	15-Aug-2018 10:49

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-7-072618	18G0315-01	Water	26-Jul-2018 11:00	27-Jul-2018 07:25
MW-5-072618	18G0315-02	Water	26-Jul-2018 12:22	27-Jul-2018 07:25
SW-1-072618	18G0315-03	Water	26-Jul-2018 13:30	27-Jul-2018 07:25
MW-12I-072618	18G0315-04	Water	26-Jul-2018 13:50	27-Jul-2018 07:25
SW-4-072618	18G0315-05	Water	26-Jul-2018 14:45	27-Jul-2018 07:25
MW-13D-072618	18G0315-06	Water	26-Jul-2018 15:25	27-Jul-2018 07:25
SW-6-072618	18G0315-07	Water	26-Jul-2018 15:40	27-Jul-2018 07:25
SW-7-072618	18G0315-08	Water	26-Jul-2018 16:40	27-Jul-2018 07:25
MW-14-072618	18G0315-09	Water	26-Jul-2018 17:00	27-Jul-2018 07:25
MW-6-072618	18G0315-10	Water	26-Jul-2018 18:20	27-Jul-2018 07:25
MW20DD-072618	18G0315-11	Water	26-Jul-2018 00:00	27-Jul-2018 07:25

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Test America - Denver	Project: Hansville	
4955 Yarrow Street	Project Number: 28006013-2Q/3Q/4Q Sampling	**Reported:**
Arvada CO, 80002	Project Manager: Betsy Sara	15-Aug-2018 10:49

Case Narrative

Sample receipt

Samples as listed on the preceding page were received July 27, 2018 under ARI work order 18G0315. For details regarding sample receipt, please refer to the Cooler Receipt Form.

Dissolved Arsenic - EPA Method 200.8

The samples were digested and analyzed within the recommended holding times.

Sample MW-6-072618 was received unfiltered and preserved, the lab could not filter preserved volume. The lab used unpreserved volume from the Nitrates bottle to split, filter and preserve for the dissolved analysis.

Initial and continuing calibrations were within method requirements.

The method blanks were clean at the reporting limits.

The LCS percent recoveries were within control limits.

A matrix spike and duplicate were prepared in conjunction with sample MW-7-072618. The matrix spike percent recovery and duplicate RPD were within QC limits.

Anions - EPA Method 300.0

Sample MW-6-072618 was reanalyzed for Nitrate at a dilution outside of the 48 hour recommended holding time, and has been flagged with an "H" qualifier. All other samples were prepped and analyzed a within the recommended holding times.

The O-Phos for sample MW-12I-072618 was filtered in the lab as the bottle contained particulets not usually associated with field filtered volume.

Initial and continuing calibrations were within method requirements.

The method blank was clean at the reporting limits.

The LCS percent recoveries were within control limits.

A matrix spike and duplicate were prepared in conjunction with sample MW-7-072618. The matrix spike percent recoveries and duplicate RPD were within QC limits.

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Test America | Project Name: Hansville Landfill

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

Assigned ARI Job No: 18G0315 | Tracking No: _____ NA

Preliminary Examination Phase:

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

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry) 1.1C 0.9C ____ ____ ____ ____
Time: 0725

If cooler temperature is out of compliance fill out form 00070F | Temp Gun ID#: D0052O6

Cooler Accepted by: JSW | Date: 07/27/18 | Time: 0725

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: Trashbags			
Was sufficient ice used (if appropriate)?	NA	(YES)	NO
Were all bottles sealed in individual plastic bags?		YES	(NO)
Did all bottles arrive in good condition (unbroken)?		(YES)	NO
Were all bottle labels complete and legible?		(YES)	NO
Did the number of containers listed on COC match with the number of containers received?		YES	(NO)
Did all bottle labels and tags agree with custody papers?		(YES)	NO
Were all bottles used correct for the requested analyses?		(YES)	NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)...	NA	(YES)	NO
Were all VOC vials free of air bubbles?	(NA)	YES	NO
Was sufficient amount of sample sent in each bottle?		(YES)	NO
Date VOC Trip Blank was made at ARI	(NA)		

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

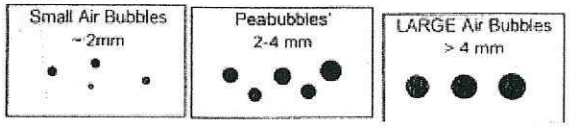
Samples Logged by: JSW | Date: 07/27/18 | Time: 0811

*** 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: # of containers not listed, based off other samples, MW-12I-072618 is missing its field filtered bottle for o-phos

By: JSW Date: 07/27/18



Small → "sm" (< 2 mm)
Peabubbles → "pb" (2 to < 4 mm)
Large → "lg" (4 to < 6 mm)
Headspace → "hs" (> 6 mm)

WORK ORDER

18G0315

Client: Test America - Denver | **Project Manager:** Amanda Volgardsen

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

Preservation Confirmation

Container ID	Container Type		pH	
18G0315-01 A	Miscellaneous Container	HNO3 (FF)	<2	Pass
18G0315-01 B	Miscellaneous Container			
18G0315-01 C	Miscellaneous Container	(FF)		
18G0315-02 A	Miscellaneous Container	HNO3 (FF)	<2	Pass
18G0315-02 B	Miscellaneous Container			
18G0315-02 C	Miscellaneous Container	(FF)		
18G0315-03 A	Miscellaneous Container	HNO3 (FF)	<2	Pass
18G0315-03 B	Miscellaneous Container			
18G0315-03 C	Miscellaneous Container	(FF)		
18G0315-04 A	Miscellaneous Container	HNO3 (FF)	<2	Pass
18G0315-04 B	Miscellaneous Container			
18G0315-05 A	Miscellaneous Container	HNO3 (FF)	<2	Pass
18G0315-05 B	Miscellaneous Container			
18G0315-05 C	Miscellaneous Container	(FF)		
18G0315-06 A	Miscellaneous Container	HNO3 (FF)	<2	Pass
18G0315-06 B	Miscellaneous Container			
18G0315-06 C	Miscellaneous Container	(FF)		
18G0315-07 A	Miscellaneous Container	HNO3 (FF)	<2	Pass
18G0315-07 B	Miscellaneous Container			
18G0315-07 C	Miscellaneous Container	(FF)		
18G0315-08 A	Miscellaneous Container	HNO3 (FF)	<2	Pass
18G0315-08 B	Miscellaneous Container			
18G0315-08 C	Miscellaneous Container	(FF)		
18G0315-09 A	Miscellaneous Container	HNO3 (FF)	<2	Pass
18G0315-09 B	Miscellaneous Container			
18G0315-09 C	Miscellaneous Container	(FF)		
18G0315-10 A	Miscellaneous Container	HNO3 (FF)	<2	Pass
18G0315-10 B	Miscellaneous Container			
18G0315-10 C	Miscellaneous Container	(FF)		
18G0315-11 A	Miscellaneous Container	HNO3 (FF)	<2	Pass
18G0315-11 B	Miscellaneous Container			
18G0315-11 C	Miscellaneous Container	(FF)		

Preservation Confirmed By

07/27/18
Date

Reviewed By

Date

Test America - Denver	Project: Hansville	
4955 Yarrow Street	Project Number: 28006013-2Q/3Q/4Q Sampling	**Reported:**
Arvada CO, 80002	Project Manager: Betsy Sara	15-Aug-2018 10:49

MW-7-072618

18G0315-01 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8 UCT-KED — Sampled: 07/26/2018 11:00

Instrument: ICPMS2 — Analyzed: 02-Aug-2018 18:17

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix
Preparation Batch: BGH0044 — Sample Size: 25 mL
Prepared: 02-Aug-2018 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.000200	**0.00121**	mg/L	

Test America - Denver	Project: Hansville	
4955 Yarrow Street	Project Number: 28006013-2Q/3Q/4Q Sampling	**Reported:**
Arvada CO, 80002	Project Manager: Betsy Sara	15-Aug-2018 10:49

MW-7-072618

18G0315-01 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 07/26/2018 11:00

Instrument: DX500 — Analyzed: 27-Jul-2018 13:58

Sample Preparation: Preparation Method: No Prep Wet Chem
Preparation Batch: BGG0681 — Sample Size: 5 mL
Prepared: 27-Jul-2018 — Final Volume: 5 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrate-N	14797-55-8	1	0.100	0.100	**0.461**	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	1426-54-42	1	0.10	0.10	ND	mg/L	U

Test America - Denver	Project: Hansville	
4955 Yarrow Street	Project Number: 28006013-2Q/3Q/4Q Sampling	**Reported:**
Arvada CO, 80002	Project Manager: Betsy Sara	15-Aug-2018 10:49

MW-5-072618

18G0315-02 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8 UCT-KED — Sampled: 07/26/2018 12:22

Instrument: ICPMS2 — Analyzed: 02-Aug-2018 17:54

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix
Preparation Batch: BGH0044 — Sample Size: 25 mL
Prepared: 02-Aug-2018 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.000200	**0.00211**	mg/L	

Test America - Denver	Project: Hansville	
4955 Yarrow Street	Project Number: 28006013-2Q/3Q/4Q Sampling	**Reported:**
Arvada CO, 80002	Project Manager: Betsy Sara	15-Aug-2018 10:49

MW-5-072618

18G0315-02 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 07/26/2018 12:22

Instrument: DX500 — Analyzed: 27-Jul-2018 14:48

Sample Preparation: Preparation Method: No Prep Wet Chem
Preparation Batch: BGG0681 — Sample Size: 5 mL
Prepared: 27-Jul-2018 — Final Volume: 5 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrate-N	14797-55-8	1	0.100	0.100	**1.28**	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	1426-54-42	1	0.10	0.10	ND	mg/L	U

Test America - Denver	Project: Hansville	
4955 Yarrow Street	Project Number: 28006013-2Q/3Q/4Q Sampling	**Reported:**
Arvada CO, 80002	Project Manager: Betsy Sara	15-Aug-2018 10:49

SW-1-072618

18G0315-03 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8 UCT-KED — Sampled: 07/26/2018 13:30

Instrument: ICPMS2 — Analyzed: 02-Aug-2018 17:59

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix
Preparation Batch: BGH0044 — Sample Size: 25 mL
Prepared: 02-Aug-2018 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.000200	**0.00168**	mg/L	

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4955 Yarrow Street	Project Number: 28006013-2Q/3Q/4Q Sampling	**Reported:**
Arvada CO, 80002	Project Manager: Betsy Sara	15-Aug-2018 10:49

SW-1-072618

18G0315-03 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 07/26/2018 13:30

Instrument: DX500 — Analyzed: 27-Jul-2018 15:05

Sample Preparation: Preparation Method: No Prep Wet Chem
Preparation Batch: BGG0681 — Sample Size: 5 mL
Prepared: 27-Jul-2018 — Final Volume: 5 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrate-N	14797-55-8	1	0.100	0.100	**1.96**	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	1426-54-42	1	0.10	0.10	ND	mg/L	U

Test America - Denver	Project: Hansville	
4955 Yarrow Street	Project Number: 28006013-2Q/3Q/4Q Sampling	**Reported:**
Arvada CO, 80002	Project Manager: Betsy Sara	15-Aug-2018 10:49

MW-12I-072618

18G0315-04 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8 UCT-KED — Sampled: 07/26/2018 13:50

Instrument: ICPMS2 — Analyzed: 02-Aug-2018 18:04

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix
Preparation Batch: BGH0044 — Sample Size: 25 mL
Prepared: 02-Aug-2018 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.000200	**0.00226**	mg/L	

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Test America - Denver	Project: Hansville	
4955 Yarrow Street	Project Number: 28006013-2Q/3Q/4Q Sampling	**Reported:**
Arvada CO, 80002	Project Manager: Betsy Sara	15-Aug-2018 10:49

MW-12I-072618

18G0315-04 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 07/26/2018 13:50

Instrument: DX500 — Analyzed: 27-Jul-2018 15:21

Sample Preparation: Preparation Method: No Prep Wet Chem
Preparation Batch: BGG0681 — Sample Size: 5 mL
Prepared: 27-Jul-2018 — Final Volume: 5 mL

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	1426-54-42	1	0.10	0.10	ND	mg/L	U

Test America - Denver	Project: Hansville	
4955 Yarrow Street	Project Number: 28006013-2Q/3Q/4Q Sampling	**Reported:**
Arvada CO, 80002	Project Manager: Betsy Sara	15-Aug-2018 10:49

SW-4-072618

18G0315-05 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8 UCT-KED — Sampled: 07/26/2018 14:45

Instrument: ICPMS2 — Analyzed: 02-Aug-2018 18:08

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix
Preparation Batch: BGH0044 — Sample Size: 25 mL
Prepared: 02-Aug-2018 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.000200	**0.00194**	mg/L	

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4955 Yarrow Street	Project Number: 28006013-2Q/3Q/4Q Sampling	**Reported:**
Arvada CO, 80002	Project Manager: Betsy Sara	15-Aug-2018 10:49

SW-4-072618

18G0315-05 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 07/26/2018 14:45

Instrument: DX500 — Analyzed: 27-Jul-2018 16:12

Sample Preparation: Preparation Method: No Prep Wet Chem
Preparation Batch: BGG0681 — Sample Size: 5 mL
Prepared: 27-Jul-2018 — Final Volume: 5 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrate-N	14797-55-8	1	0.100	0.100	**1.02**	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	1426-54-42	1	0.10	0.10	ND	mg/L	U

Test America - Denver	Project: Hansville	
4955 Yarrow Street	Project Number: 28006013-2Q/3Q/4Q Sampling	**Reported:**
Arvada CO, 80002	Project Manager: Betsy Sara	15-Aug-2018 10:49

MW-13D-072618

18G0315-06 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8 UCT-KED — Sampled: 07/26/2018 15:25

Instrument: ICPMS2 — Analyzed: 02-Aug-2018 18:13

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix
Preparation Batch: BGH0044 — Sample Size: 25 mL
Prepared: 02-Aug-2018 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.000200	**0.00508**	mg/L	

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Test America - Denver	Project: Hansville	
4955 Yarrow Street	Project Number: 28006013-2Q/3Q/4Q Sampling	**Reported:**
Arvada CO, 80002	Project Manager: Betsy Sara	15-Aug-2018 10:49

MW-13D-072618

18G0315-06 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 07/26/2018 15:25

Instrument: DX500 — Analyzed: 27-Jul-2018 16:29

Sample Preparation: Preparation Method: No Prep Wet Chem
Preparation Batch: BGG0681 — Sample Size: 5 mL
Prepared: 27-Jul-2018 — Final Volume: 5 mL

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	1426-54-42	1	0.10	0.10	ND	mg/L	U

Test America - Denver	Project: Hansville	
4955 Yarrow Street	Project Number: 28006013-2Q/3Q/4Q Sampling	**Reported:**
Arvada CO, 80002	Project Manager: Betsy Sara	15-Aug-2018 10:49

SW-6-072618

18G0315-07 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8 UCT-KED — Sampled: 07/26/2018 15:40

Instrument: ICPMS2 — Analyzed: 02-Aug-2018 18:45

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix
Preparation Batch: BGH0044 — Sample Size: 25 mL
Prepared: 02-Aug-2018 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.000200	**0.00967**	mg/L	

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Test America - Denver	Project: Hansville	
4955 Yarrow Street	Project Number: 28006013-2Q/3Q/4Q Sampling	**Reported:**
Arvada CO, 80002	Project Manager: Betsy Sara	15-Aug-2018 10:49

SW-6-072618

18G0315-07 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 07/26/2018 15:40

Instrument: DX500 — Analyzed: 27-Jul-2018 16:45

Sample Preparation: Preparation Method: No Prep Wet Chem
Preparation Batch: BGG0681 — Sample Size: 5 mL
Prepared: 27-Jul-2018 — Final Volume: 5 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrate-N	14797-55-8	1	0.100	0.100	**0.149**	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	1426-54-42	1	0.10	0.10	ND	mg/L	U

Test America - Denver	Project: Hansville	
4955 Yarrow Street	Project Number: 28006013-2Q/3Q/4Q Sampling	**Reported:**
Arvada CO, 80002	Project Manager: Betsy Sara	15-Aug-2018 10:49

SW-7-072618

18G0315-08 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8 UCT-KED — Sampled: 07/26/2018 16:40

Instrument: ICPMS2 — Analyzed: 02-Aug-2018 18:49

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix
Preparation Batch: BGH0044 — Sample Size: 25 mL
Prepared: 02-Aug-2018 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.000200	**0.00171**	mg/L	

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Test America - Denver	Project: Hansville	
4955 Yarrow Street	Project Number: 28006013-2Q/3Q/4Q Sampling	**Reported:**
Arvada CO, 80002	Project Manager: Betsy Sara	15-Aug-2018 10:49

SW-7-072618

18G0315-08 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 07/26/2018 16:40

Instrument: DX500 — Analyzed: 27-Jul-2018 17:02

Sample Preparation: Preparation Method: No Prep Wet Chem
Preparation Batch: BGG0681 — Sample Size: 5 mL
Prepared: 27-Jul-2018 — Final Volume: 5 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrate-N	14797-55-8	1	0.100	0.100	**0.856**	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	1426-54-42	1	0.10	0.10	ND	mg/L	U

Test America - Denver	Project: Hansville	
4955 Yarrow Street	Project Number: 28006013-2Q/3Q/4Q Sampling	**Reported:**
Arvada CO, 80002	Project Manager: Betsy Sara	15-Aug-2018 10:49

MW-14-072618

18G0315-09 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8 UCT-KED — Sampled: 07/26/2018 17:00

Instrument: ICPMS2 — Analyzed: 02-Aug-2018 18:54

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix
Preparation Batch: BGH0044 — Sample Size: 25 mL
Prepared: 02-Aug-2018 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.000200	**0.0135**	mg/L	

Test America - Denver	Project: Hansville	
4955 Yarrow Street	Project Number: 28006013-2Q/3Q/4Q Sampling	**Reported:**
Arvada CO, 80002	Project Manager: Betsy Sara	15-Aug-2018 10:49

MW-14-072618

18G0315-09 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 07/26/2018 17:00

Instrument: DX500 — Analyzed: 27-Jul-2018 17:19

Sample Preparation: Preparation Method: No Prep Wet Chem
Preparation Batch: BGG0681 — Sample Size: 5 mL
Prepared: 27-Jul-2018 — Final Volume: 5 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrate-N	14797-55-8	1	0.100	0.100	**1.55**	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	1426-54-42	1	0.10	0.10	ND	mg/L	U

Test America - Denver	Project: Hansville	
4955 Yarrow Street	Project Number: 28006013-2Q/3Q/4Q Sampling	**Reported:**
Arvada CO, 80002	Project Manager: Betsy Sara	15-Aug-2018 10:49

MW-6-072618

18G0315-10 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8 UCT-KED — Sampled: 07/26/2018 18:20

Instrument: ICPMS2 — Analyzed: 02-Aug-2018 17:03

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix
Preparation Batch: BGH0043 — Sample Size: 25 mL
Prepared: 02-Aug-2018 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.000200	**0.00151**	mg/L	

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Test America - Denver	Project: Hansville	
4955 Yarrow Street	Project Number: 28006013-2Q/3Q/4Q Sampling	**Reported:**
Arvada CO, 80002	Project Manager: Betsy Sara	15-Aug-2018 10:49

MW-6-072618

18G0315-10 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 07/26/2018 18:20

Instrument: DX500 — Analyzed: 27-Jul-2018 17:36

Sample Preparation: Preparation Method: No Prep Wet Chem
Preparation Batch: BGG0681 — Sample Size: 5 mL
Prepared: 27-Jul-2018 — Final Volume: 5 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrite-N	14797-65-0	1	0.100	0.100	**0.352**	mg/L	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Orthophosphorus	1426-54-42	1	0.10	0.10	ND	mg/L	U

Test America - Denver	Project: Hansville	
4955 Yarrow Street	Project Number: 28006013-2Q/3Q/4Q Sampling	**Reported:**
Arvada CO, 80002	Project Manager: Betsy Sara	15-Aug-2018 10:49

MW-6-072618

18G0315-10RE1 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 07/26/2018 18:20

Instrument: DX500 — Analyzed: 03-Aug-2018 14:02

Sample Preparation: Preparation Method: No Prep Wet Chem
Preparation Batch: BGG0681 — Sample Size: 5 mL
Prepared: 27-Jul-2018 — Final Volume: 5 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrate-N	14797-55-8	2	0.200	0.200	**2.60**	mg/L	H, D

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Test America - Denver	Project: Hansville	
4955 Yarrow Street	Project Number: 28006013-2Q/3Q/4Q Sampling	**Reported:**
Arvada CO, 80002	Project Manager: Betsy Sara	15-Aug-2018 10:49

MW20DD-072618

18G0315-11 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 200.8 UCT-KED — Sampled: 07/26/2018 00:00

Instrument: ICPMS2 — Analyzed: 02-Aug-2018 18:58

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix
Preparation Batch: BGH0044 — Sample Size: 25 mL
Prepared: 02-Aug-2018 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.000200	**0.0132**	mg/L	

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Test America - Denver	Project: Hansville	
4955 Yarrow Street	Project Number: 28006013-2Q/3Q/4Q Sampling	**Reported:**
Arvada CO, 80002	Project Manager: Betsy Sara	15-Aug-2018 10:49

MW20DD-072618

18G0315-11 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 07/26/2018 00:00

Instrument: DX500 — Analyzed: 27-Jul-2018 17:52

Sample Preparation: Preparation Method: No Prep Wet Chem
Preparation Batch: BGG0681 — Sample Size: 5 mL
Prepared: 27-Jul-2018 — Final Volume: 5 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrate-N	14797-55-8	1	0.100	0.100	**1.51**	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	1426-54-42	1	0.10	0.10	**0.10**	mg/L	

Test America - Denver	Project: Hansville	
4955 Yarrow Street	Project Number: 28006013-2Q/3Q/4Q Sampling	**Reported:**
Arvada CO, 80002	Project Manager: Betsy Sara	15-Aug-2018 10:49

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BGH0043 - REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Instrument: ICPMS2 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BGH0043-BLK1)				Prepared: 02-Aug-2018 Analyzed: 02-Aug-2018 16:43							
Arsenic, Dissolved	75a	ND	0.000200	mg/L							U
LCS (BGH0043-BS1)				Prepared: 02-Aug-2018 Analyzed: 02-Aug-2018 16:48							
Arsenic, Dissolved	75a	0.0249	0.000200	mg/L	0.0250		99.6	80-120			

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Test America - Denver	Project: Hansville	
4955 Yarrow Street	Project Number: 28006013-2Q/3Q/4Q Sampling	**Reported:**
Arvada CO, 80002	Project Manager: Betsy Sara	15-Aug-2018 10:49

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BGH0044 - REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Instrument: ICPMS2 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BGH0044-BLK1)				Prepared: 02-Aug-2018 Analyzed: 02-Aug-2018 17:45							
Arsenic, Dissolved	75a	ND	0.000200	mg/L							U
LCS (BGH0044-BS1)				Prepared: 02-Aug-2018 Analyzed: 02-Aug-2018 17:49							
Arsenic, Dissolved	75a	0.0265	0.000200	mg/L	0.0250		106	80-120			
Duplicate (BGH0044-DUP1)		**Source: 18G0315-01**		Prepared: 02-Aug-2018 Analyzed: 02-Aug-2018 18:22							
Arsenic, Dissolved	75a	0.00126	0.000200	mg/L		0.00121			4.12	20	
Matrix Spike (BGH0044-MS1)		**Source: 18G0315-01**		Prepared: 02-Aug-2018 Analyzed: 02-Aug-2018 18:27							
Arsenic, Dissolved	75a	0.0273	0.000200	mg/L	0.0250	0.00121	105	75-125			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Test America - Denver	Project: Hansville	
4955 Yarrow Street	Project Number: 28006013-2Q/3Q/4Q Sampling	**Reported:**
Arvada CO, 80002	Project Manager: Betsy Sara	15-Aug-2018 10:49

Wet Chemistry - Quality Control

Batch BGG0681 - No Prep Wet Chem

Instrument: DX500 Analyst: KOTT

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BGG0681-BLK1)				Prepared: 27-Jul-2018 Analyzed: 27-Jul-2018 13:24							
Nitrate-N	ND	0.100	0.100	mg/L							U
Nitrite-N	ND	0.100	0.100	mg/L							U
Orthophosphorus	ND	0.10	0.10	mg/L							U
LCS (BGG0681-BS1)				Prepared: 27-Jul-2018 Analyzed: 27-Jul-2018 13:41							
Nitrate-N	1.48	0.100	0.100	mg/L	1.50		98.5	90-110			
Nitrite-N	1.48	0.100	0.100	mg/L	1.50		98.9	90-110			
Orthophosphorus	1.49	0.10	0.10	mg/L	1.50		99.4	90-110			
Duplicate (BGG0681-DUP1)		**Source: 18G0315-01**		Prepared: 27-Jul-2018 Analyzed: 27-Jul-2018 14:14							
Nitrate-N	0.463	0.100	0.100	mg/L		0.461			0.43	20	
Nitrite-N	ND	0.100	0.100	mg/L		ND					U
Orthophosphorus	ND	0.10	0.10	mg/L		ND					U
Matrix Spike (BGG0681-MS1)		**Source: 18G0315-01**		Prepared: 27-Jul-2018 Analyzed: 27-Jul-2018 14:31							
Nitrate-N	2.54	0.100	0.100	mg/L	2.00	0.461	104	75-125			
Nitrite-N	2.11	0.100	0.100	mg/L	2.00	ND	106	75-125			
Orthophosphorus	2.05	0.10	0.10	mg/L	2.00	ND	103	75-125			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Test America - Denver	Project: Hansville	
4955 Yarrow Street	Project Number: 28006013-2Q/3Q/4Q Sampling	**Reported:**
Arvada CO, 80002	Project Manager: Betsy Sara	15-Aug-2018 10:49

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	02/07/2019
CALAP	California Department of Public Health CAELAP	2748	06/30/2019
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program	66169	02/07/2019
NELAP	ORELAP - Oregon Laboratory Accreditation Program	WA100006-011	05/12/2019
WADOE	WA Dept of Ecology	C558	06/30/2019
WA-DW	Ecology - Drinking Water	C558	06/30/2019

Test America - Denver	Project: Hansville	
4955 Yarrow Street	Project Number: 28006013-2Q/3Q/4Q Sampling	**Reported:**
Arvada CO, 80002	Project Manager: Betsy Sara	15-Aug-2018 10:49

Notes and Definitions

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 applicable reporting or detection limit.
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.

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

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Na Hyung Choi	Lab PM: Sara, Betsy A	Carrier Tracking No(s):	COC No: 280-23414-6845.1
Client Contact: Meilan Lanier-Kamahao	Phone: 206-413-5408	E-Mail: betsy.sara@testamericainc.com		Page: 1/1
Company: Aspect Consulting, LLC				Job #:
Address: 350 Madison Ave N	Due Date Requested:			
City: Bainbridge Island	TAT Requested (days):			
State, Zip: WA, 98110				
Phone:	PO #: Purchase Order not required			
Email: mlkamahao@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, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2SO3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - ph 4-5, Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260C SIM - Vinyl Chloride (TA Buffalo)	Dissolved Metals	Ammonia/TOC	Alks/Cl/SO4	Ortho-phosphate (field filtered)- direct sub to ARI	Dissolved Arsenice - direct sub to ARI	Nitrate/Nitrite (IC) - direct sub to ARI	Total Number of containers	Special Instructions/Note:
			Preservation Code:				A	D	S	N	N	D	N		
MW-7-072618	7/26/18	1100		W	Y		✓	✓	✓	✓					
MW-5-072618		1222					✓	✓	✓	✓					
SW-1-072618		1330					✓	✓	✓	✓					Diss As,NO3,NO2,o-phos subbed direct to ARI
MW-12I-072618		1350					✓	✓	✓	✓					MS only 1 trip blank
SW-4-072618		1445					✓	✓	✓	✓					
MW-13D-072618		1525					✓	✓	✓	✓					
SW-6-072618		1540					✓	✓	✓	✓					
SW-7-072618		1640					✓	✓	✓	✓					
MW-14-072618		1700					✓	✓	✓	✓					
MW-6-072618		1820					✓	✓	✓	✓					
MW20DD-072618	↓	—		↓	↓		✓	✓	✓	✓					

280-112582 Chain of Custody

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: Na Hyung Choi	7/26/18 22:00	Aspect	PETER BANNISTER	7/27/2018 06:00	ASPECT
Relinquished by: PETER BANNISTER	7/27/18 06:00	ASPECT	[signature]	7-28-18 0840	TA-Den
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

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

Cooler Temperature(s) °C and Other Remarks: 5.9, 5.8 IR# 8 0.0 Transfer RP 7-28-18

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08/16/2018

Login Sample Receipt Checklist

Client: Aspect Consulting

Job Number: 280-112582-1

Login Number: 112582
List Number: 1
Creator: Pottruff, Reed W

List Source: TestAmerica Denver

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	N/A	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	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.	False	No: Received extra samples not listed on COC.
Samples are received within Holding Time (Excluding tests with immediate HTs)..	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	False	No: Containers received broken and no volume could be salvaged for analysis
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.	False	No: Headspace larger than ¼''
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: 280-112582-1

Login Number: 112582
List Number: 2
Creator: Hulbert, Michael J

List Source: TestAmerica Buffalo
List Creation: 07/31/18 03:48 PM

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	4.0 #1
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time (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.	False	
Samples requiring field filtration have been filtered in the field.	N/A	
Chlorine Residual checked.	N/A	