

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 (CH₄), carbon dioxide (CO₂), oxygen (O₂), 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."

Kitsap County Solid Waste November 29, 2018

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 (μ g/L) at two monitoring wells, including MW-6 (0.049 μ g/L) and MW-12I (0.047 μ g/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 μ g/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

Kitsap County Solid Waste November 29, 2018

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 μ g/L at MW-5 (background well), MW-7, and MW-13D. The concentration of vinyl chloride at MW-14 (0.024 μ g/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 $\mu g/L$ per day in reports by SCS through 2016. Starting in 2017, Sen's slope values will be provided in units of $\mu g/L$ 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.

Kitsap County Solid Waste November 29, 2018

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.

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

Sincerely,

Aspect consulting, LLC



Peter S. Bannister Associate Engineer pbannister@aspectconsulting.com

Milani Lamii Komaha's

Meilani Lanier-Kamaha'o, LG Project Geologist mlkamahao@aspectconsulting.com

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

V:\160423 Kitsap County Hansville Landfill\Deliverables\2018 Reports\2018Q3\Final\Hansville LF 2018 Q3 Report_Final_20181129.docx

ATTACHMENT A

Landfill Gas Data

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

Project No. 160423, Hansville Landfill, Hansville, WA

			Methane	Carbon Dioxide	Oxygen	Balance		Static Pressu	ire	(Gas Temperat	ure	Flow	Rate
Location	Device ID	Date/Time	CH4	CO2	02	Bal		(inches H2C))		(degrees F)	(SC	FM)
			(% by vol)	(% by vol)	(% by vol)	(% by vol)	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.



Basemap Layer Credits || Copyright:© 2014 Esri Esri, HERE, Garmin, © OpenStreetMap contributors, and the GIS user community Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

ATTACHMENT B

Water Quality Results

Table B-1. Water Level Elevations

Project No. 160423, Hansville Landfill, Hansville, WA

	Cround Flowstian	Top of Casing	Screen Elevation		Donth to Water	Water Level
	Ground Elevation	Elevation	(ft NA	VD88)	Depth to water	Elevation
Well	(ft NAVD88)	(ft NAVD88)	Тор	Bottom	(ft)	(ft NAVD88)
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

				Groundwater M	Ionitoring Wells		
	Site Cleanup						
Parameter	Level	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 μ S = microSiemens degrees C = degrees Celcius NTU = Nephthalometric Turbidity Units mg/L = milligram per liter µg/L = microgram per liter

Page 1 of 1

Table B-3. Surface Water Quality Results

Project No. 160423, Hansville Landfill, Hansville, WA

			Surface Water Sa	ampling Locations	
Parameter	Site Cleanup Level	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

 $\mu g/L = microgram per liter$



Esri, HERE, Garmin, © OpenStreetMap contributors, and the GIS user community

ATTACHMENT C

Groundwater Statistics and Time-Series Plots

Table C-1. Statistical Analysis

Project 160423, Hansville Landfill, Hansville, WA

Dissolved Arsenic Statistical Results

			Mann-	Kendall Test ²		Sen's	Slope
Well	Statistical Trend ¹	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

			Mann-I		Sen's Slope			
Well	Statistical Trend ¹	Test Value, Critical Z 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

Aspect Consulting

11/29/2018

Third Quarter 2018 Environmental Monitoring Report V:\160423 Kitsap County Hansville Landfill\Deliverables\2018 Reports\2018Q3\Final\Attachment C\2018 Q3 Table C-1 Statistical Analysis Results

Table C-1



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



🔲 U - Non-Detect



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





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

MW-6 Vinyl Chloride Trend



MW-14 Dissolved Arsenic Trend

MW-14 Vinyl Chloride 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

O U - Non-Detect







2015

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

GROU	NDWATER	R SAMPLING	RECORD	· · ·		WELL NUM	IBER: M	W-7		Page: of
Project N	lame:	tansvill	e LF			Project Num	nber:	1604	23	
Date:	7/2	6/2018	_	2		Starting Wa	ter Level (ft	TOC):	22.73	2
Develope	ed by:		Po /	· · ·		Casing Stick	cup (ft):			
Screeneo	ig Point of W I Interval (ft.	TOC)	IUC:		20 	Total Depth	(fi TOC):	<u></u>		
Filter Pac	k Interval (ft	. TOC)						····/·		
Casing V	olume	(fi Wate	er) x	(Lpfv)((gpf) =	(L)(gal)				
Casing vo	olumes: 2"	= 0.16 gpf	4" = 0.65 gp	f 6'	' = 1.47 gpf		*		Sample Inte	ake Depth (ft TOC):
PURGI		UREMENTS	4" = 2.46 Lp	1 6	" = 5.56 Lpf				·	
Criteria		Typical	Stable and	na	+ 3%	+ 10%	+01	+ 10 mV	+ 10%	······································
Time	Cumul.	0.1-0.5 Lpm Pume Rate	Water	Toma	Specific	Dissolved		Eh	10%	
THINE	(gal or L)	(com or tom)	Level		Conductivity	Oxygen	рн	ORP	Unbidity	Comments
1071	<u>(gu: 0, 2)</u>	0.4	82 03		(po/ciii)	(mg/L)		(mv)	(NIU)	Gtart
526	1		40-	10.5	11.12 7	282	6 79	IVA L	10.7	- 100 1
10.27			8205	104	4135	219	6 78	147 >	5 20	
1037			8275	10.11	4235	200	6.10	142L	441	
1042	-		02.8t	10.2	1134 L	200	6 48	11114	2 2 2	
1047	1	1	82.8-	10^{2}	ILVIN I	10,1	610	1200	2 00	
10.52			82.85	Inil	11(2)11	1.14	1.70	257	7.00	
1055	1		02.05	10.5	401	1 50	619	128 1	2.57	
1058			1785	inti	1159 2	1.00	119	122	$\frac{2.71}{1.00}$	
000	 		82.00	10.7	401.00	1,88	6.01	152.0	1.71	Sample
	1									
		<u> </u>								
					. <u> </u>					
	L	1		12	. <u> </u>					Í
otal Gallo	ins Purged:			~		Total Casing	Volumes R	lemoved:		
nding Wa	ter Level (ft	TOC):				Ending Total	Depth (ft T	OC) <u>:</u>	29	
AMPLE	INVENTO	DRY								<u> </u>
Time	Volume	Bottle Type		Quantity	Filtration	Preservation	Арре	arance		Remarks
	mL						Color	Turbidity & Sediment		
100	500	amber		(SUIF	dr			
	1000	Doly		1	-	-			· · ·	
	500	Doly		1	-	. ~			····	
	40	VOA		3	~	HOL				
Ť	500	poly		2	NPS	nitric				
	250	pnly		(Yes					
ETUAS		1 1								
E I HOD	5	Gra	limbel		len a		Nauli	Lalli.	10	terla)
impling E	guipment wit	ICT LEC	in curred	, viado	ser pur	<u>"}/-</u>	peris	AITIC	<u> </u>	(rae)
irging Eqi	uipment:	SI prane		<u>swta</u>	a wtr	Decon Equi	pment:	HILDI	lox +	Water
sposal of	Discharged	Water:	<u>2n 51</u>	10	2					
servetion	s/Comment	s:		N	ЧĊ					_65 S
100) VAUUI										

a K

GROU	NDWATER		RECORD			WELL NUN	BER: MV	<u>v~5</u>		Page: of
Project N	lame:	tansvill	e LF			Project Nun	nber:	1604	23	
Date:	7/2	6/2018		54	10	Starting Wa	ter i evel (fi	TOC): (17.71	
Develop	ed by:	-	-			Casing Stic	kup (ft):			
Measurir	g Point of W	ell:	TOC			Total Depth	(ft TOC):			
Screene	i interval (ft.)					Casing Diar	meter (inche	s) <u>:</u>		
Filler Par	ak innervar(n.					78				
Casing v	olume	(11 Wate)	r) x	(Lpfv)(gpî) =	(L)(gal)			0	
Cooling	2":	= 0.62 Lpf	4" = 2.46 Lp	f 6'	- 1.47 gpi '= 5.56 Lof				Sample Ind	ake Depth (ft TOC):
PURGI	NG MEAS	JREMENTS								
Criteri	1:	Typical 0.1-0.5 Lpm	Stable and minimal and	na	± 3%	± 10%	± 0.1	± 10 mV	± 10%	· · · · ·
Time	Cumul. Volume	Purge Rate	Water Level	Temp.	Specific Conductivity	Dissolved Oxygen	рН	Eh ORP	Turbidity	Comment
	(gal or L)	(gpm or (Lpm)	(ft)	(Cor F)	(µS/cm)	(mg/L)		(mv)	(NTU)	
117			97.7	·		· ·		1		Start
201		0.4	197.7	13.7	281.0	7.77	6.53	134.2	Z=10	
1206		1	97.7	11.4	257:8	7.36	6.50	135.5	2.03	
1212			47.7	11:2	263.Z	9.07	6.79	133.4	1.38	
1215			97.7	110	263.5	933	6.89	131.3	1.22	
1218	T		97.7	11.02	7.63.6	9.38	6.91	130.6	0.93	SAMPLE
			1							
	· · · ·						1			
··		1								
·		<u> </u>								
	· · · · ·	· · ·								
						· · · · · · · · · · · · · · · · · · ·				
										· •
otal Gallo	ns Purged:			25		Total Casing	Volumes R	lemoved:	,	
					11					
nding wa	ter Level (ft	IOC):				Ending Total	Depth (ft T	00):		
SAMPLE	INVENTO	RY	······			8			·	
Time	Volume	Bottle Type		Quantity	Filtration	Preservation	Арре	arance		Remarks
	ML					· ·	Color	Sediment		· ··· · · · · · · · · · · · · · · · ·
<u>222</u>	500	amber			-	Sulf	CLEAR	NONE		
	1000	Doly		1	-	-	· .			
	500	poly		1	-	-				
	40	VOA		3	~	HI		· · · ·		<u></u>
	500	nolu		2	NOC .	till				
	250	palu		1	Jor	Prince	1			·
	232	- Knd -			- 7es		L,	2	-	
IETHOD	S									~ ~ ~
ampling E	guipment_wit	HIDS: Ded	lianted	, blade	ler pur	np/	peris	taltic	- Cc	ircle)
urging Ea	uipment: V	SIORANG	s) 7	such	10 intr	Decon For	ipment:	Alini	lox +	Water
			E Fi	I a		and a second reader			- A. I	
sposal of	Discharged	Nater:	n sr	10	19					

C:\Lleans	lana diti Do	cumente)	Ground	water.Sampli	-

GROU	NDWATE		RECORD		6	WELL NUN	IBER: <u>5</u>	<u>w-1</u>		Page: of
Project	Name:	Hansvilli	e LF			Project Nur	nber:	1604	23	
Date:	7/2	5/2018	-	22		Starting Wa	ter Level (fi	TOC):	/A	
Develop	ed by:	/all•				Casing Stic	kup (ft):			
Screene	d Interval (ft.	TOC)		<u> </u>		Casing Dia	(π 100 <u>):</u> neter (inche	es);		
Filter Pa	ck Interval (fi	. TOC)				1				
Casing \	/olume) x	(Lpfv)	(gpf) =	(L)(gal)				
Casing v	olumes: 2"	= 0.16 gpf = 0.62 i of	4" = 0.65 gp 4" = 2.46 Jr	of 6'	" = 1.47 gpf				Sample Int	ake Depth (ft TOC):
PURGI	NG MEAS	UREMENTS	2.40 E	0	- 0.00 Lpi		······································			·
Criteri	ia:	Typical	Stable and	09	+ 3%	+ 10%	+01	+ 10 m\/	+ 40%	
Time	Cumul.	0.1-0.5 Lpm	minimel and Water		Specific	Dissolved	± 0.1	Eh	± 10%	
11116	(gal or L)	(gpm or Lorp)	Level	Cor F)	Conductivity	(mg/l)	рН	ORP		Comments
1330	1/	~0.5		12.6	187.9	11.7	7.12	66.8	2.03	Start
						1				
								1		
							· · ·			
					1		1			
							- 2		1.1	
		· · · · ·					•			·)
										8
· ·					· · · · · · · · · · · · · · · · · · ·					
			·							
										·
otal Gaild	ons Purged:			Nai	-	Total Casing	Volumes F	Removed:		
Inding Wa	ater Level (ft	TOC):	⁵ - 1			Ending Total	Depth (ft T	OC):		
SAMPLE		DRY								
Time	Volume	Bottle Type		Quantity	Filtration	Preservation	Арре	anançe		Remarks
-	mL						Color	Turbidity &		
132D	500	amber		(1		GIF	UEAR	NONE		· · · · · · · · ·
	1000	Poly		1	-	-				
	500	poly		1	-	-				C
	40	VOA		3	~	HIL			,	
	500	poly		2	NPS	nitric				
	250	poly		(yes		· · ·			•
ETUO	16	1 1			1.	<u>.</u>				
		Lon Dol	intol	hlad	ler n.	~ /	Geni	talti	1. 1.	icle
amping E	quipment wit	ST RIVE	> /	Juado Cui-l	the fun	×4-/-	Peris	At		(ICE)
isposel - "		J L DUUE	n ki	swia to	(l-12+ 0	Decon Equi	pment:	HICON	$10 \times +$	vater
shosei ol	uscharged	vvater:	1 2/	15						

×

GROU	NDWATER	SAMPLING	RECORD			WELL NUN	IBER: M	W-12	I	Page: of
Project I	Name:	Hansvill	e LF			Project Num	nber:	1604	23	
Date:	7/2	5/2018	_			Starting Wa	ter Level (fi	TOC): (155	
Develop	ed by:					Casing Stic	kup (ft):			
Measurin	ng Point of We d Interval (ft.	əll:T TOC)	OC.		-	Total Depth	(fi TOC):			
Filter Pa	ck Interval (ft.	TOC)					neter (inche	PS):		<u> </u>
Casing V Casing v	/olume olumes: 2" = 2" =	(ft Wate = 0.16 gpf = 0.62 Lpf	r) x 4" = 0.65 gpt 4" = 2.46 Lp	(Lpfv)(f 6" f 6'	(gpf) = " = 1.47 gpf " = 5.56 Lpf	(L)(gal)	а		Sample inti	ake Depth (ft TOC):
PURGI	NG MEASI	JREMENTS								
Criteri	a:	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	Water Level (ft)	Temp.	Specific Conductivity (uS/cm)	Dissolved Oxygen (ma/L)	рН	Eh ORP (my)		Commente
1316		0.4								Start
1322			9.55	118	306.3	0.23	7.30	122.8	1.68	- 00
1327		· · · ·	9.53	11.7	308.8	0.21	7.32	115.1	0.94	
13302	4		9.55	11.5	309.2	0,21	2.35	105.4	0.70	
1331			9.55	11.3	309,5	0.20	7.39	47.5	0.64	
1342	-		9.55	11.6	310.3	0.19	9.41	44,2	0.14	
1345			9.55	11 6	3105	0.20	7.42	913	6.94	SAINADLE
				,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		~ ~ ~				- Aller
										;
	·							1		
	-							·		11
								· · ·		
otal Gallo	ins Purged:				l	Totel Casing	Volumes R	lamound:	I	
• 1A/-	- 1		5	· · · · · ·	Ĩ	Tom oneng	V Unarrow C	AH10702.		
		<u>OC):</u>				Ending Total	Depth (ft T	OC) <u>:</u>		
Time	Volume	Bottle Type	T	Ouentity	Filtration	Processistion	Annor		·	Demoder
	m			duality	1 10 00011	I COCIVEROLI	Oplas	Turbidity &		Remarks
250	1710	and are					Color	Sediment	·	
550	500	amber				Sult	CIT			<u> </u>
	1000	-poly-		<u> </u>			· · ·			
	500	poly						·		
	40	Vor		-3-1		HUL				
	500	poly		<u>~</u>	yes	pitric				
	250	poly 1			yes	_				
ETHOD	S	<u>'</u>		\leq						
ampling E	quipment with	IDS DEd	icated,	, bladd	ler pun	No /	perist	taltic	Co	ircle)
inning E.	uloment: Y.	SI oran	ar 1	surfa	10 intr	Decon Four	-t	Alcor		INALOY
n 8m 8 Edf	and the second sec			1		Contraction and and	J110176			
sposal of	Discharged V	Vater: 0	n 5/1	re	1					

	AS		ect TING	
·		· · ·		_

GROU	DWATEF		RECORD	м.		WELL NUN	IBER: <u>5</u>	<u>1-4</u>		Page: of
Project N	ame:	Hansvill.	e LF			Project Nun	nber:	1604	23	
Date:	7/2	5/2018	_	0		Starting Wa	ter Level (ft	TOC): ~		
Develope	d by:				3	Casing Stick	kup (ft):	·		
Screened	Interval (ft.	TOC)	·····	· · · · · · · · · · · · · · · · · · ·		Casing Diar				
Filter Pac	k Interval (fi	. TOC)				2	····			
Casing V	olume	(ft Water	r) x	(Lpfv)	(gpf) =	(L)(gal)				
Casing vo	olumes: 2"	= 0.16 gpf	4" = 0.65 gp	f 6'	" = 1.47 gpf				Sample Int	ake Depth (ft TOC):
PURGII	IG MEAS	UREMENTS	4 - 2.40 Lp	0	= 5.50 Lp1					
Criteria		Typical	Stable and			+ 400/	+04		. 400/	
	Cumul.	0.1-0.5 Lpm	minimal and Water		I Specific	I Dissolved	± 0.1		± 10%	
Ime	Volume	Purge Rate	Level	Temp.	Conductivity	Oxygen	PH	ORP	Turbidity	Comments
1445	(galor L)		(11)	12 9	270.5	(mg/L)	7.17	(mv) 98 (Cto_L
				15.1	51075	10/10	1110	1010	0.77	2100-1
•										
				· · · ·						
			·		· ·					
						+				
						+				
					1 					
· · · · · · · · · · · · · · · · · · ·										
	· · · · ·				 					
		· · · · · ·					• •			2
		1								
		<u> </u>								
				· ·						
otal Gallo	ns Purged:	·			-	Total Casing	Volumes R	emoved:	·	<u> </u>
nding Wa	ter Level (ft	TOC):	5	• <u></u>		Ending Total	Depth (ft T	OC):	8	
AMPLE	INVENTO	DRY				4			-	······································
Time	Volume	Bottle Type		Quantity	Filtration	Preservation	Аррее	anance		Remarks
	mL		1.1	_			Color	Turbidity &		
445	500	amber		(. ~	GIF	YELLON	SOME	-076	ANICS
	1000	Phly		1	-					
	57)0	poly		1	-	-				
	40	VOA		3	~	Hrl		· · ·		
	500	DOLY		2	NOC .	tile				7
	250	paly		(Vec	K IIII				
		<u>rv1</u>		•				L		
ETHOD	5	·	i en la l	1. 1	10	- /	6	(ITE	17	· (n)
ampling E	uipment wit	HADS Ded	cated	blade	ser pu	mp /_	pens	talt(c)	<u> </u>	(rcle)
Inging Equ	ipment: Y	SLALUE	2 /	surfa	a wtr	Decon Equi	pment:	Alcor	NOX +	water
SDOSal of	Discharged	Water D	n 51	te						

•

GROUI	NDWATER		RECORD			WELL NUN		N-131	>	Page:of
Project N	lame:	tansvill	e LF			Project Num	nber:	1604	23	,,,
Date:	7/2	6/2018	_	20		Starting Wa	ter Level (ft	TOC): (C	1.45	
Develope	ed by:					Casing Stick	kup (ft):			
Measurin	g Point of W	ell:	10C			Total Depth	(ft TOC):			
Screened Filter Pac	k Interval (ft.	TOC)				Casing Diar	neter (inche	s) <u>:</u>		
Cosina V	olume	(#1)Mintor		() = ()	(D)					
Casing v	olumes: 2" =	= 0.16 opf	$4^{"} = 0.65 \text{ and}$	(Lpiv)	(gpt) = ' = 1.47 opf	(L)(gai)	2		Sample Int	the Death (& TOO)
	2" =	= 0.62 Lpf	4" = 2.46 Lp	6	" = 5.56 Lpf				oampre int	ake Deput (it 100).
PURGI		JREMENTS			۰.					· · · · · · · · · · · · · · · · · · ·
Criteria	1:	Typical	Stable and		± 3%	± 10%	± 0.1	± 10 mV	+ 10%	
Time	Cumul.	0.1-0.5 Lpm	Water	-	Specific	Dissolved	<u> </u>	Eh	1.0%	
Ime	Volume	Purge Rate	Level	Temp.	Conductivity	Oxygen	рН	ORP	Turbidity	Comments
incil	(ga) or L)	(gpm or cpp)	(ft)	(CorF)	(µS/cm)	(mg/L)		(mv)	(NTU)	
$\frac{1+27}{2}$	+	T	1.0.10	19.11	100.0	1 1 1	0.00	400		start
451			10.65	11.7	336.'/	1.68	7.55	<u>R</u> 2.8	2.10	
504			10.65	+(.3)	335.8	1.08	1.60	15.8	2.51	
<u>1509</u>			10.65	11.4	336.2	0.85	17,63	69.7	2.17	
1514			10.65	11,3	335	0.58	7.64	65.2	3-11	
·					335.9	9	7.64			
517			10.65	11.3	335.9	0.53	7.66	63.7	1.87	
520			1065	11.2	336.3	0.54	766	60.4	167	Sample.
							400		1.01	
		1								
	<u>```</u>									4 <u>.</u>
									·	
		· · · ·								
										2
										•
tai Gallo	ns Purged:	2	/	12		Total Casing	Volumes R	emoved:		
			10		đ					
noing wa	ter Level (ft 1	OC):				Ending Total	Depth (ft T	OC):		
	INVENTO	RY				2				·
Time	Volume	Bottle Type		Quantity	Filtration	Preservation	Аррее	arance		Remarks
	mL						Color	Turbidity & Sediment		
525	500	amber		(-	GIF	clr			
	1000	Only		1	-					····
	5710	Aply			-					
	40	(DA		2	~	1101				
	500					n//				
	200	-pury			YES	pitic	<u> </u>			
	100	-poly			-yes					
	S	·				$\overline{)}$				
ETHOD		Ded Ded	lianted	black	ler nur	ho /	peris	tattic	. 01	inde)
	nuinment will			, yruch	V	F-/			<u> </u>	
ETHOD mpling Ed	guipment with doment: V	STADIA	7	cul-	· · · · -	· /_		ΛI	and to	11/1 0
ETHOD npling Eq ging Equ	upment:	SI Dan		surfa	18 wtr	Decon Equi	pment:	Alcor	NOX +	Water
ETHOD mpling Eq ging Equ posal of	quipment with lipment: Discharged V	SE Jan Water:C	n 5:1	<u>surfa</u> te	untr	Decon Equi	pment:	Alcor	lox +	Water

÷ æ

N/	spect	
- , G C	ONSULTING	
	<u> </u>	

GROUN	IDWATER		RECORD			WELL NUN	BER: 51	<u>N-6</u>		Page:of							
Project N	ame:F	Hansvill	e LF			Project Nun	nber:	1604	23	<u> </u>							
Date:	7/2	5/2018	_	8		Starting Wa	iter Level (fi	TOC):									
Developed	d by:					Casing Stic	kup (ft):										
Measuring	Point of We	ell:		· · · · · ·	6	Total Depth	(ft TOC):										
Screened Filter Paci	interval (n. 1 k Interval (fi					Casing Diar	neter (inche	es) <u>:</u>									
		(#4.3.N/=4-)	-) -:-														
Casing vo Casing voi	lumes: 2" =	0.16 ppf	4" = 0.65 ani	(Lptv)	(gpt) =	(L)(gal)	1		Comple Int								
	2* =	0.62 Lpf	4* = 2.46 Lp	f 6	" = 5.56 Lpf				Sample Inc								
PURGIN	IG MEASU	REMENTS			×												
Criteria:		Typical 0.1-0.5 Low	Stable and	na	± 3%	± 10% ± 0.1 ± 10 mV ± 10%											
Time	Cumul.	Purse Pote	Water	Tamu	Specific	Dissolved	1	Eh		_							
TITLE	Volume	(and all and	Level	Temp.	Conductivity	Oxygen	PH	ORP	Turbidity	Comments							
1540	(garor L)	(gpmoncpan)	(17)	LOTF)	(µS/cm)	(mg/L)	710		(NTU)								
				1007	10.06	TICI	1.77	70:7	20.5	Start							
		<u> </u>															
						+	l		· · · ·	· · · · · · · · · · · · · · · · · · ·							
		· · · · ·	ļ		<u> </u>		· 	l	 								
						· · · · ·											
										1							
									<u></u>								
		· · · · ·						· · · ·									
			······														
				·				<u> </u>		· · · · · · · · · · · · · · · · · · ·							
otal Gallon	s Purged:	<u> </u>			-	Total Casing	Volumes R	lemoved:	·								
nding Wate	er Level (ft T	OC):	10			Ending Total	Depth (ft T	OCI:	12								
AMPLE	INVENTO	RY								· · · · · · · · · · · · · · · · · · ·							
Time	Volume	Bottle Type	1	Quantity	Filtration	Preservation	Apper	anance	· · · · · · · · · · · · · · · · · · ·	Remarks							
	mL						Color	Turbidity &		Konlarko							
cun t	1710	and Di-					Verin	Sediment	Sant F	OBCALIZOO :							
- UTC	200	unber		1		Sult	TELCON		JOME	OKYANTCS.							
	000	Poly				-	• •			1							
<u> </u>	500	poly			-					<u></u>							
	40	VOH		3	~	Hel											
	500	poly		2	NES	nitric											
<u> </u>	250	poly			yes	· _ ·											
THODE																	
		- Nol	into 1	W-1	ler a.	1	Norder	Lalti.) /-	10)							
	upment with	IDS: VEO	unted	, viado	or pur	$\# \land$	peris	are	· <i>CC</i>	(rele)							
mpling Eq	1//			Curto	and shared and	Deselent	nmont:	Alin	ny t	Water							
mpling Equi	pment: <u>Y</u>	ST DUD		<u>swia</u>	U WTI	Deconvequi		11100		N MI M							
mpling Equi rging Equi posal of D	pment: <u>Y</u> Nischarged W	/ater:	n su	te			prinerin:										

GROU	NDWATE	R SAMPLING	RECORD		,	WELL NU	ABER: <u>5</u>	W-7		Page: of \
Project	Name:	Hansvill	e LF			Project Nu:	nber:	1604	23	
Date:	7/2	5/2018		<i>.</i>		Starting Wa	ater Level (f	TOC):		
Develop	ed by:				· · · · · · · · · · · · · · · · · · ·	Casing Stic	kup (ft):			
Screene	d Interval (ft.	TOC)		<u> </u>	2	Total Depth Cesing Dia	i (ft TOC <u>);</u>			
Filter Pa	ck Interval (f	. тос)								
Casing \	/olume	(ft Wate	r) x	(Lpfv)	(gpf) =	(L)(gal))			
Casing v	volumes: 2"	= 0.16 gpf	4" = 0.65 gp	f 6	" = 1.47 gpf				Sample Int	ake Depth (ft TOC):
PURGI	NG MEAS		<u>4" = 2.46 Lp</u>	f6	<u>8" = 5.56 Lpf</u>				····	
Critical		Typical	Stable and							
Criteri	Cumul.	0.1-0.5 Lpm	minimal and	na	± 3%	± 10%	± 0.1	± 10 mV	± 10%	
Time	Volume (gal or L)	Purge Rate	Level	Temp.	Conductivity	Oxygen	рН	ORP	Turbidity	Comments
1640		~0.5		16,7	101.6	1.25	7.55	70.9	(NTU)	Et a.t
					1.01.0	11.05		1011		Ziari
						1	1		· · ·	· · · · · · · · · · · · · · · · · · ·
								1		
								1	·····	
						·				1
	· · · ·			·						34
		;								
										•
								· · ·		
tal Galio	ns Purged:			1.542	-	Total Casing	Volumes R	emoved:		
ding Wa	ter Level (fi 1	OC):	9			Ending Total	Depth (ft T	DC):		
MPLE	INVENTO	RY	·····							<u> </u>
Time	Volume	Bottle Type	T	Quantity	Filtration	Preservation	Аррее	nance	·	Remarks
	mL		·				Color	Turbidity &		
40	500	amber		1	. ~	CIF	YELLOW	Segment	ORG	ANICS
	1000	Doly		1	-					
	500	poly		1	-	_				
	40	VOA		3	~	Hel			····· , ··	
	500	poly		2	NPS	ntric				
	250	POLY		(Yes					
THOP	S				, <u> </u>					
nolipo 5-		in Nod	intel	blad	er n	10 10	Device	alti	12	
- 1		ST PLU	= //	VINOC	ni pun	<u> </u>	- Crist	ALC.	<u>LCI</u>	ICE)
		13401	- <u> </u>	wia	IL WTR	Decon Equip	oment:	HILDN	ox + l	Nater
ging Equ	Dischamad V	Voton A	n KH	-0	*					

GROUNI	DWATER	SAMPLING F	RECORD			WELL NUM	BER: <u>MU</u>	<u>v-14</u>		Page: of
Project Na	me:E	ansville	e LF			Project Num	ber:	604	23	
Date: 🛄	7/20	7 2018	-	54 1		Starting Wat	ter Level (fl	TOC):	2.081	
Developed	by:		rol		2	Casing Stick	(ft):			
veasuring Screened I	nterval (fi. T			<u> </u>	·····	Casing Dien	(π TOC): neter (inche	s):		
itter Pack	Interval (ft.	roc)				2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2		-/:		
Casing Vol	ume	(ft Water	r) x	(Lpfv)(gpf) ≈	(L)(gal)				
asing volu	umes: 2" = 2" =	0.16 gpf 0.62 Lpf	4" = 0.65 gpf 4" = 2.46 Lpf	6" 6"	= 1.47 gpf = 5.56 Lpf		194.7		Sample Inta	ike Depth (ft TOC):
PURGIN	G MEASU	REMENTS			•			·····		· .
Criteria:		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	Water Level (ft)	Temp.	Specific Conductivity (uS/cm)	Dissolved Oxygen (mg/L)	рН	Eh ORP (my)	Turbidity (NTU)	Comments
627		0.4								Start
632			80.20	12.7	553 5	1.69	7.05	11/3	13.2	
1637		а. ¹⁹	80.10	12 6	5416	1.38	1.66	110.4	9.23	· ·
1642	-		80,10	12.4	579.4	1.42	-2.11	107.5	496	
10467	-1646		80,10	12.4	5(8 5	1.47	1.12	1065	6.22	
649			80.10	12.L.	511.0	1.53	7.11	105.8	5.21	Sanplo
<u> </u>										
										,
		_			· ·				•	· · · · · · · · · · · · · · · · · · ·
										· · ·
		· · · · · ·								
stal Gallon	s Purged:	te	1.5	÷	· · · · · ·	Total Casing	Volumes F	Removed:		
			is.		22					
nding Wate	er Level (fi T	OC):				Ending Total	Depth (ft T	OC):		
AMPLE	INVENTO	RY				5 5				
1 IITHE	volume	Bottle Type		Quantity	Filtration	Preservation	Арре	arance Turbidity &		Kemarks
	IIIL Dia						Color	Sediment		
	500	amber		. (. ~	Sult	Ur		0	ylliate
	000	poly		<u>_</u>		-				
	500	poly		1	-					· .
	40	VOH		3	~	HCL				
	500	poly		2	yes	nitric				
	150	poly		(Yes			· ·		V
ETHODS	5	<u> </u>				/				
	uipment with	IDs: Dec	liated	, blade	ser pur	np/	peris	taltic	<u> </u>	ircle)
Impling Eq	· · · ·	57	7	surfa	18 wtr	Decon Equ	ipment:	Alcor	10x +	water
Impling Equi	pment: Y_{2}			101						
impling Eq inging Equi iposal of D	pment: <u>Y</u>)ischarged V	Vater:C	n si	te						

GROU	NDWATER	R SAMPLING P	RECORD			WELL NUN	IBER: MI	N-6		Page: . of /
Project I	Name:	Hansvill	e LF			Project Nun	nber:	1.604	23	
Date:	7/2	8/2018		17		Starting Wa	ter Level (ft	TOC):	77.35	
)evelop	ed by:					Casing Stic	kup (ft):		1.0.17	·
leasurii	ng Point of W		OC .		29	Total Depth	(ft TOC):			
tter Pa	c interval (π. ck interval (fi	TOC)			<u></u>	Casing Diar	neter (inche	s):		
esina V		/ft Water	-1 -	(1-6.)	(ю () Ман ()				
asing v	olumes: 2"	= 0.16 gpf = 0.62 Lpf	4" = 0.65 gp 4" = 2.46 Lp	f 6' f 6'	' = 1.47 gpf ' = 5.56 Lpf	(L)(gai)	¥.		Sample Intr	ake Depth (ft TOC):
URGI	NG MEAS	UREMENTS		-	48) -					· · ·
Criteri	e:	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	Water Level (ft)	Temp.	Specific Conductivity (µS/cm)	Dissolved Oxygen (mg/L)	рН	Eh ORP (mv)	Turbidity (NTU)	Comments
752		~0.4							1	Start
757			72.35	13.3	753	0.25	7.17	115.3	7.81	
802			77.36	13.2	739	0.24	7.21	109.6	2,83	· · · ·
305			72.36	13.2	734	0.23	7.32	88.7	4.33	
808			72.36	13.2	733	0.23	7.77	84.3	2,00	
811			72.36	13.2	733	0.24	7,23	78.3	7.23	
314			72.36	13Z	731	0.22	7.22	74.7	2.12	SAMALO
										swipt.
•										
										· · · · · · · · · · · · · · · · · · ·
					·					······································
								•		
								••••		· · · · · · · · · · · · · · · · · · ·
al Gallo	ns Purged:	2		· · ·		Total Casing	Volumes R	emoved:	······································	
			E						<u>.</u>	
ing wa	ter Level (ft	TOC):				Ending Total	Depth (fi TO	DC):		
MPLE	INVENTO	Demi- Tool		-		<u>š</u>			······	·
une	ml	bome type		Quantity	Filtration	Preservation	Appea	Turbleby #		Remarks
7.	1112						Color	Sediment		
60	500	amber			. ~	SUF	cir			·
	1000	poly				-				
	500	poly								
	40	VOH		3		HUL				
	500	poly		Z	YEST	pitric		*	QV= B	OTTLE NOT FILTER
· .	250	poly		(yes				-11	Discolled AMOINT
ГНОр	S									
plina F	auioment wit	NDe Ded	ianted	blad	ler nun	\sim /	perist	affic	Co	inde)
ing Eo		SI ORANG	E /	Such	10 minute	Tonn East	nmont:	Alion		Water
0 41		Note	K Kir	to		Decon Equi		FILCO	WK T	
h last	Discharner •									

C

TestAmerica Denver

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

Chain of Custody Record



THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler \)_ L	hum	a Chri	Lab F	°M: a. Bei	tsv A						Carrier Tracking No(s):				ľ	COC No: 280-23414-6845.1	
Client Contact	Phone:	<u>U13-</u>	712	E-Mai	il:											ľ	Page:	·
Company:	20-	TIS		bets	y.sar	awie	stame	ncainc	.com		_						Job #:	
Aspect Consulting, LLC Address:	Due Date Request	ed:	·	<u> </u>			1		Ana	alysis	Rec	questec	1		T T	20	Preservation Code	35:
350 Madison Ave N						6											A - HCL	M - Hexane
Bainbridge Island	TAT Requested (d	ays):				1.1				2							C - Zn Acetate	O - AsNaO2
State, Zip: WA, 98110										o to A			x			1	E - NaHSO4	P - Na2045 Q - Na2SO3 P Na2S2SO3
Phone:	PO#: Purchase Order not required					(e				R						8	G - Amchlor	S - H2SO4 T - TSP Dodecabydrate
Email:	WO#:	notroquiot			or No	o) Buffa				b to A	to ARI						I - Ice	U - Acetone V - MCAA
MI KAMAT ABLE OFCE (CONSULTING, O	1 Project #:skip sites/		ζes	or N le (TA				Itered sct su	t sub (0	liner	K - EDTA L - EDA	W - ph 4-5 Z - other (specify)		
Project Name: Hansville Landfill Site:	28006013 - 2Q/3Q/4Q Sampling				ble	(Ves hlorid				ield fil	direct					conta	Other:	
Washington					d Sar	Inyl C	tals			ate (fi senice	j.					er of		
			Sample	Matrix (w=water,	litere	V - MI	ed Me	ia/T0	s04	hospf ed Ars	Vitrite					dmu		
		Sample	(C=comp,	S≖solid, O=waste/oil,	eld F	eoc s	Bsolve		ks/Cl/	ssolv	trate/					otal N		
Sample Identification	Sample Date	Time	G=grab) Preserva	BT=Tissue, A=Air)	Ē		ő	Q A		δā	Ž					Ş.	Special Ins	tructions/Note:
M11 - 7 - 077618	TILLIA	NOD		W	Ń									-	Ιſ			
$\left(\begin{array}{c} 1 \\ 0 \\ 1 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\$	1/20/13	1222							*		+				╞╴┢			
$\frac{MW-3}{MW-3} = 0.12618$		1220			₩	+		v			+						Diss As,NO3,NO2,	o-phos subbed direct to
$DW^{-1} - 0^{-1}LO(8)$		1250			┞╢						+	-				1		ARI
MW-121-0.12618		1350			┟╢				<u> </u>		-	$\left - \right $					run only	1 Wip Bonk
SW-4-0.12618		1775		_	₩						_		-		\vdash	-		
MW-13D-012618		1525			╟╟	'					_							
SW-6-072618		1540				V					+		<u> </u>		$\left \right $			
SW-7-072618		1640				í	1	4	V						↓			
MW-14-072618		1700		_	Ш	1	10	1	\square								_	
MW-6-072618		1820			Ш		- 6	4									•	
MW20DD-072618	\checkmark			V	μ	C	- 1	1	~								1	
Possible Hazard Identification					5	Sampl	e Disj	oosal	(Af	ee maj	/ be a	issessec	l if sa	mples a	re reta	aine	d longer than 1	month)
Non-Hazard Flammable Skin Irritant Pois Deliverable Requested: I. II. III. IV. Other (specify)	on B — Unki	10wn	Radiologica			Specia	Returr I Instru	n To C uctions	lient s/QC	Requi	reme	Disposal nts:	By La	b	A	arch	ive For	Months
Empty Kit Belinguished by		Date:			Tim	e:						Met	nod of !	Shipment:	_	-		
Relinquished by	Date/Time:		0.01.0	Company	<u> </u>	Red	eived b	iy:						Date/Time	;			Company
Relinquished by	Date/Time:	6/18	12.00	HSPCC Company	1	Re	eived h	IV:					_	Date/Time	:			Company
r centriquistical by.					Received by:					Date/Time:								
Relinquished by:	Date/Time:			Company		Red	ceived b	iy:						Date/Time:	:			Company
Custody Seals Intact: Custody Seal No.: ∆ Yes ∆ No						Cod	ler Terr	nperatur	re(s) °	C and O	ther R	emarks:						

TestAmerica Denver

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

Chain of Custody Record



THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler A Ja	lying U	1 Di La	ib PM: ara. Be	etsv A						Carrier Tracking	No(s):		COC No: 280-23414-6845.	1
Client Contact Mpilan, I anipr-Kamahap	Phone: Dh-	417-52	tox E-	Mail:		stame	ricainc	rom						Page: 1/	(
Company:		110 5		109.00		Julino	nounio.	Anal	veie	Baa	wested			Job #:	· ···
Address:	Due Date Request	ed:				T	<u>,</u>		<u>yəiə</u>	Neq	uesteu			Preservation Code	S:
350 Madison Ave N City:	TAT Requested (d	ays):												A - HCL B - NaOH	M - Hexane N - None
Bainbridge Island State, Zin:					e C			ARI						C - Zn Acetate D - Nitric Acid	0 - AsNaO2 P - Na2O4S
WA, 98110	DO #						b b						E - NaHSO4 F - MeOH	Q - Na2SO3 R - Na2S2SO3	
PTIONE.	PO#: Purchase Order not required				ffalo)			rects	ARI	R				G - Amchlor H - Ascorbic Acid	S - H2SO4 T - TSP Dodecahydrate
miltamanao@aspections.tting.com	WO #:			s or	No) TA Bu			ed)- di	sub to	b to A			2	J - DI Water	U - Acetone V - MCAA W - ph 4 5
Project Name: Hansville Landfill	Project #:skip sites/events 28006013 - 2Q/3Q/4Q Sampling				es or			filter	lrect s	ect su				L-EDA	Z - other (specify)
Site: Washington	SSOW#:			ampl	SD (Y			e (field	ice - d) - dire			of cor	Other:	
		Sa	mple Matrix	S per	IS/MS	Metals	υ ε	sphate	Arsen	ite (IC			ber		
		Т	ype (w=water, S=solid,	Filte	1 min	lved	onia/	- bho	lved	te/Nitr			I Nul		
Sample Identification	Sample Date	Sample (C= Time G=	Comp, O=waste/oi grab) BT=Tissue, A=	L Peiu Air) L	Perfe	Disso	Amm Alke/	Ortho	Disso	Nitra			Tota	Special Ins	tructions/Note:
	\geq		eservation Code	X	XA	D	SN	N	D	N			X		
MW-7-072618	7/26/18	1/00	W	/				1V	10	Ľ					
MW-5-072618		1222		_[[]				Ĺ	1-	11					
MT SW-1-072618		1330		Ш				V	//	\leq				Diss As,NO3,NO2,	o-phos subbed direct to ARI
MW-12I-072618		(350						~	1~	~					
SW-4-072618		1445						V		\leq					
MW-130-072618		1525						1	i	-					
SW-6-072618		1540						Y	~	~					
56-7-072618		1640						~	10	5					
MW-14-072618		1700						C	10	\mathbf{P}				MU	V-6-07261A
MW-6-072618		1820						~	10	1			112	Arsenic-r	of Filtered
MW20DD-072618				Ū				ĩ	10						
Possible Hazard Identification	 1				Samp	le Dis	posal (A fee	may	be a	ssessed if sa	imples are r	etair	ned longer than 1	month)
Non-Hazard Flammable Skin Irritant Pois Deliverable Requested: I. II. III. IV. Other (specify)	on B 💛 Unki	nown 🛄 Radi	ological		Specia	<i>Returi</i> al Instr	<u>1 To Cli</u> uctions/	ent QC R	Requir	emer	Disposal By La its:	ab	Arc	hive For	Months
Empty Kit Belinguished by:		Date:		<u> </u> Tin	ne:		10.00				Method of	Shipment:	-		
Relinquished by:	Date/Time:	(a. (7.2.)	Company	 	Re	ceived I	by:				I,	Date/Time:			Company
Relinquished by:	Date/Time:	(p 20,0	Company	\mathcal{O}	Re	ceived l	oy:					Date/Time:			Company
Relinguished by:	Date/Time:		Company		Re	ceived	ov:					Date/Time:			Company
								0.*							
Custody Seals Intact: Custody Seal No.: Δ Yes Δ No					Co	oler Ter	nperature	(s) °C a	and Ot	ner Re	marks:				



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

Betsy Sara

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

1
3
5
8
9
10
11
12
46
47
48
52
53
66
73
107
108

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 5.8° C and 5.9° 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 206-695-6200
EXECUTIVE SUMMARY - Detections

Client: Aspect Consulting

Lab Sample ID Analyte	Client Sample ID	Result	Qualifier	Reporting Limit	Units	Method
280-112582-1	MW-7-072618					
Chloride		13		10	ma/l	300.0
Sulfate		5.0	в	1.0	mg/L	300.0
Total Alkalinity		130	D	5.0	mg/L	SM 2320B
Ricarbonate Alkalini	tv	130		5.0	mg/L	SM 2320B
Total Organic Carbo	n - Average	2.0		1.0	mg/L	SM 5310B
		2.0		1.0	ing/L	
280-112582-2	MW-5-072618					
Chloride		2.0		1.0	mg/L	300.0
Sulfate		9.3	В	1.0	mg/L	300.0
Total Alkalinity		60		5.0	mg/L	SM 2320B
Bicarbonate Alkalini	ty	60		5.0	mg/L	SM 2320B
280-112582-3	SW-1-072618					
Chloride		4.6		1.0	ma/L	300.0
Sulfate		12	В	1.0	ma/L	300.0
Total Alkalinity		82		5.0	ma/L	SM 2320B
Bicarbonate Alkalini	tv	82		5.0	ma/l	SM 2320B
Total Organic Carbo	on - Average	1.6		1.0	mg/L	SM 5310B
280-112582-4	MW-12I-072618					
Vinvl chloride		0 047		0 020	ua/l	8260C SIM
Chloride		27		1.0	ma/l	300.0
Sulfate		7.0	B	1.0	mg/L	300.0
Total Alkalinity		81	В	5.0	mg/L	SM 2320B
Ricarbonate Alkalini	tv	81		5.0	mg/L	SM 2320B
Total Organic Carbo	on - 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	В	1.0	mg/L	300.0
Total Alkalinity		160		5.0	mg/L	SM 2320B
Bicarbonate Alkalini	tv	160		5.0	ma/L	SM 2320B
Total Organic Carbo	on - Average	3.8		1.0	mg/L	SM 5310B
Dissolved						
Manganese		49		1.0	ug/L	6020

EXECUTIVE SUMMARY - Detections

Client: Aspect Consulting

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	В	1.0	ma/L	300.0
Total Alkalinity		71		5.0	ma/L	SM 2320B
Bicarbonate Alkalinit	ý	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	В	5.0	mg/L	300.0
Ammonia as N		0.11		0.030	ma/L	350.1
Total Alkalinity		71		5.0	ma/L	SM 2320B
Bicarbonate Alkalinit	V	71		5.0	ma/L	SM 2320B
Total Organic Carbo	, n - 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	В	5.0	mg/L	300.0
Total Alkalinity		63		5.0	mg/L	SM 2320B
Bicarbonate Alkalinit	y	63		5.0	mg/L	SM 2320B
Total Organic Carbo	n - 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	В	1.0	mg/L	300.0
Total Alkalinity		110		5.0	mg/L	SM 2320B
Bicarbonate Alkalinit	V	110		5.0	mg/L	SM 2320B
Total Organic Carbo	n - Average	1.7		1.0	mg/L	SM 5310B
Dissolved						
Manganese		440		1.0	ug/L	6020

EXECUTIVE SUMMARY - Detections

Client: Aspect Consulting

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	В	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	В	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 Carbor	n - 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) Preparation, Total Recoverable or Dissolved Metals Sample Filtration, Field	TAL DEN TAL DEN	SW846 6020	SW846 3005A 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) Purge and Trap	TAL BUF TAL BUF	SW846 8260C S	SIM 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

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

Client: Aspect Consulting

			Date/Time	Date/Time
Lab Sample ID	Client Sample ID	Client Matrix	Sampled	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

Client Sample ID:	MW-7-072618						
Lab Sample ID: Client Matrix:	280-112582-1 Water				Date San Date Rec	npled: 07/26/201 ceived: 07/28/201	8 1100 8 0840
	82	60C SIM Volatile Org	anic Compou	nds (GC/MS)			
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8260C SIM 5030C 1.0 08/02/2018 1554 08/02/2018 1554	Analysis Batch: Prep Batch:	480-427727 N/A	Instrumer Lab File II Initial Wei Final Wei	tt ID: D: ght/Volume: ght/Volume:	HP5973J J7070.D 25 mL 25 mL	
Analyte		Result (u	g/L) G	Qualifier		RL	
Vinyl chloride		ND				0.020	
Surrogate		%Rec	C	Qualifier	Acceptar	ice Limits	
Dibromofluorometh	nane (Surr)	110			50 - 150		
TBA-d9 (Surr)		94			50 - 150		

Client: Aspect Consulting

Client Sample ID:	MW-5-072618						
Lab Sample ID: Client Matrix:	280-112582-2 Water				Date San Date Rec	npled: 07/26/201 ceived: 07/28/201	8 1222 8 0840
	82	60C SIM Volatile Org	anic Compou	unds (GC/MS)			
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8260C SIM 5030C 1.0 08/02/2018 1618 08/02/2018 1618	Analysis Batch: Prep Batch:	480-427727 N/A	Instrumer Lab File I Initial We Final We	nt ID: D: ight/Volume: ight/Volume:	HP5973J J7071.D 25 mL 25 mL	
Analyte		Result (u	g/L)	Qualifier		RL	
Vinyl chloride		ND				0.020	
Surrogate		%Rec		Qualifier	Acceptar	ice Limits	
Dibromofluorometh	nane (Surr)	110			50 - 150		
TBA-d9 (Surr)		97			50 - 150		

Client: Aspect Consulting

Client Sample ID:	SW-1-072618						
Lab Sample ID: Client Matrix:	280-112582-3 Water				Date San Date Rec	npled: 07/26/201 ceived: 07/28/201	8 1330 8 0840
	82	60C SIM Volatile Org	anic Compou	inds (GC/MS)			
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8260C SIM 5030C 1.0 08/02/2018 1643 08/02/2018 1643	Analysis Batch: Prep Batch:	480-427727 N/A	Instrumen Lab File II Initial Weig Final Weig	t ID:): ght/Volume: ht/Volume:	HP5973J J7072.D 25 mL 25 mL	
Analyte		Result (u	g/L) (Qualifier		RL	
Vinyl chloride		ND	-			0.020	
Surrogate		%Rec	(Qualifier	Acceptar	nce Limits	
Dibromofluorometh TBA-d9 (Surr)	nane (Surr)	113 94			50 - 150 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 5030C Prep Method: 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) 50 - 150 113 50 - 150 TBA-d9 (Surr) 105

Client: Aspect Consulting

Client Sample ID:	SW-4-072618						
Lab Sample ID: Client Matrix:	280-112582-5 Water				Date San Date Rec	npled: 07/26/201 ceived: 07/28/201	8 1445 8 0840
	82	60C SIM Volatile Org	anic Compou	unds (GC/MS)			
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8260C SIM 5030C 1.0 08/02/2018 1731 08/02/2018 1731	Analysis Batch: Prep Batch:	480-427727 N/A	Instrument Lab File ID Initial Weig Final Weig	ID: : ht/Volume: ht/Volume:	HP5973J J7074.D 25 mL 25 mL	
Analyte		Result (u	g/L)	Qualifier		RL	
Vinyl chloride		ND				0.020	
Surrogate		%Rec		Qualifier	Acceptan	ice Limits	
Dibromofluorometh TBA-d9 (Surr)	nane (Surr)	112 108			50 - 150 50 - 150		

Client: Aspect Consulting

08/02/2018 1756

08/02/2018 1756

Analysis Date:

Prep Date:

Vinyl chloride

TBA-d9 (Surr)

Dibromofluoromethane (Surr)

Surrogate

Analyte

Job Number: 280-112582-1

25 mL

Acceptance Limits

50 - 150 50 - 150 RL

0.020

Final Weight/Volume:

Qualifier

Qualifier

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 5030C Prep Method: Prep Batch: N/A Lab File ID: J7075.D Dilution: 1.0 Initial Weight/Volume: 25 mL

Result (ug/L)

ND

%Rec

114

99

TestAmerica	Denver
1000	

Client: Aspect Consulting

Client Sample ID:	SW-6-072618						
Lab Sample ID: Client Matrix:	280-112582-7 Water				Date San Date Rec	npled: 07/26/2018 ceived: 07/28/2018	1540 0840
	82	60C SIM Volatile Org	anic Compou	nds (GC/MS)			
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8260C SIM 5030C 1.0 08/02/2018 1820 08/02/2018 1820	Analysis Batch: Prep Batch:	480-427727 N/A	Instrument Lab File ID Initial Weig Final Weig	ID: : ht/Volume: ht/Volume:	HP5973J J7076.D 25 mL 25 mL	
Analyte		Result (u	g/L) G	Qualifier		RL	
Vinyl chloride		ND				0.020	
Surrogate		%Rec	C	Qualifier	Acceptar	ice Limits	
Dibromofluorometl TBA-d9 (Surr)	nane (Surr)	115 97			50 - 150 50 - 150		

Client: Aspect Consulting

Client Sample ID:	SW-7-072618						
Lab Sample ID: Client Matrix:	280-112582-8 Water				Date San Date Rec	npled: 07/26/2018 ceived: 07/28/2018	3 1640 3 0840
	820	60C SIM Volatile Org	anic Compou	inds (GC/MS)			
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8260C SIM 5030C 1.0 08/02/2018 1845 08/02/2018 1845	Analysis Batch: Prep Batch:	480-427727 N/A	Instrumen Lab File IE Initial Weig Final Weig	: ID:): ght/Volume: ht/Volume:	HP5973J J7077.D 25 mL 25 mL	
Analyte		Result (u	g/L) (Qualifier		RL	
Vinyl chloride		ND				0.020	
Surrogate		%Rec	(Qualifier	Acceptar	ice Limits	
Dibromofluorometh TBA-d9 (Surr)	nane (Surr)	113 102			50 - 150 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 5030C Prep Method: 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) 50 - 150 114 50 - 150 TBA-d9 (Surr) 105

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 5030C Prep Method: 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) 50 - 150 116 50 - 150 TBA-d9 (Surr) 103

Client: Aspect Consulting

Prep Method:

Analysis Date:

Dilution:

Analyte

Surrogate

Prep Date:

Vinyl chloride

TBA-d9 (Surr)

Dibromofluoromethane (Surr)

Job Number: 280-112582-1

J7080.D

RL

Acceptance Limits

50 - 150

50 - 150

0.020

Client Sample ID: MW-20DD-072618

5030C

08/02/2018 1957

08/02/2018 1957

1.0

Lab Sample ID: Client Matrix:	280-112582-11 Water			I	Date Sampled: 07/26/2018 0000 Date Received: 07/28/2018 0840			
8260C SIM Volatile Organic Compounds (GC/MS)								
Analysis Method:	8260C SIM	Analysis Batch:	480-427727	Instrument ID:	HP5973J			

N/A

Result (ug/L)

0.026

%Rec

117

106

Lab File ID:

Qualifier

Qualifier

Initial Weight/Volume: 25 mL

Final Weight/Volume: 25 mL

Prep Batch:

TestAmerica Denver

Client: Aspect Consulting

Client Sample ID:	TRIP BLANK					
Lab Sample ID: Client Matrix:	280-112582-12TB Water				Date Sa Date Re	mpled: 07/26/2018 0000 ceived: 07/28/2018 0840
	8260	C SIM Volatile Org	anic Compo	unds (G	C/MS)	
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	8260C SIM 5030C 1.0 08/02/2018 2021 08/02/2018 2021	Analysis Batch: Prep Batch:	480-427727 N/A	7	Instrument ID: Lab File ID: Initial Weight/Volume: Final Weight/Volume:	HP5973J J7081.D 25 mL 25 mL
Analyte		Result (u	ıg/L)	Qualifie	r	RL
Vinyl chloride		ND	-			0.020
Surrogate		%Rec		Qualifie	r Accepta	nce Limits
Dibromofluorometh TBA-d9 (Surr)	nane (Surr)	117 108			50 - 150 50 - 150	

Client: Aspect Consulting

Client Sample ID:	MW-7-072618					
Lab Sample ID: Client Matrix:	280-112582-1 Water			Date Sar Date Re	npled: 07/26/2018 ceived: 07/28/2018	1100 0840
		6020 Metals (I0	CP/MS)-Dissolv	ved		
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 (u	g/L) Q	ualifier	RL	
Manganese		ND			1.0	

Client: Aspect Consulting

Client Sample ID:	MW-5-072618						
Lab Sample ID: Client Matrix:	280-112582-2 Water			Date Sampled: 07/26/2018 122 Date Received: 07/28/2018 084			
		6020 Metals (IC	CP/MS)-Disso	olved			
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	6020 3005A 1.0 08/01/2018 0149 07/31/2018 0755	Analysis Batch: Prep Batch:	280-424423 280-424200	Instrument I Lab File ID: Initial Weigh Final Weigh	D: I t/Volume: I t/Volume: I	MT_078 250SMPL.d 50 mL 50 mL	
Analyte		Result (u	g/L)	Qualifier		RL	
Manganese		ND				1.0	

Client: Aspect Consulting

Client Sample ID:	SW-1-072618					
Lab Sample ID: Client Matrix:	280-112582-3 Water			Date San Date Rec	npled: 07/26/2018 1 ceived: 07/28/2018 0	330 840
		6020 Metals (I0	CP/MS)-Dissolv	ed		
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 (u	g/L) Qu	Jalifier	RL	
Manganese		ND			1.0	

Client: Aspect Consulting

Client Sample ID:	MW-12I-072618					
Lab Sample ID: Client Matrix:	280-112582-4 Water		Date Sa Date Re	Date Sampled: 07/26/2018 1350 Date Received: 07/28/2018 0840		
		6020 Metals (IC	CP/MS)-Disso	lved		
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	6020 3005A 1.0 08/01/2018 0216 07/31/2018 0755	Analysis Batch: Prep Batch:	280-424423 280-424200	Instrument ID: Lab File ID: Initial Weight/Volume Final Weight/Volume	MT_078 258SMPL.d : 50 mL 50 mL	
Analyte		Result (u	g/L) (Qualifier	RL	
Manganese		33			1.0	

Client: Aspect Consulting

Client Sample ID:	SW-4-072618						
Lab Sample ID: Client Matrix:	280-112582-5 Water			Date Sampled: 07/26/2018 144 Date Received: 07/28/2018 084			
		6020 Metals (I0	CP/MS)-Diss	olved			
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	6020 3005A 1.0 08/01/2018 0220 07/31/2018 0755	Analysis Batch: Prep Batch:	280-424423 280-424200	3 Ins) La Ini Fir	strument ID: lb File ID: tial Weight/Volume: nal Weight/Volume:	MT_ 2599 50 50	_078 SMPL.d mL mL
Analyte		Result (u	g/L)	Qualifier			RL
Manganese		49					1.0

Client: Aspect Consulting

Client Sample ID:	MW-13D-072618						
Lab Sample ID: Client Matrix:	280-112582-6 Water				Date Samp Date Rece	oled: 07/26/2 ived: 07/28/2	018 1525 018 0840
		6020 Metals (IC	CP/MS)-Disso	lved			
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	6020 3005A 1.0 08/01/2018 0223 07/31/2018 0755	Analysis Batch: Prep Batch:	280-424423 280-424200	Instrument I Lab File ID: Initial Weigh Final Weigh	D: I nt/Volume: I t/Volume: I	MT_078 260SMPL.d 50 mL 50 mL	
Analyte		Result (u	g/L) (Qualifier		RL	
Manganese		6.2				1.0	

Client: Aspect Consulting

Client Sample ID:	SW-6-072618						
Lab Sample ID: Client Matrix:	280-112582-7 Water			Date Sa Date Re	Date Sampled: 07/26/2018 1540 Date Received: 07/28/2018 0840		
		6020 Metals (I0	CP/MS)-Dissol	lved			
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	6020 3005A 1.0 08/01/2018 0227 07/31/2018 0755	Analysis Batch: Prep Batch:	280-424423 280-424200	Instrument ID: Lab File ID: Initial Weight/Volume Final Weight/Volume:	MT_078 261SMPL.d 50 mL 50 mL		
Analyte		Result (u	g/L) (Qualifier	RL		
Manganese		270			1.0		

Client: Aspect Consulting

Client Sample ID:	SW-7-072618					
Lab Sample ID: Client Matrix:	280-112582-8 Water			Date Sar Date Rec	npled: 07/26/2018 10 ceived: 07/28/2018 00	640 840
		6020 Metals (I0	CP/MS)-Dissolv	ved		
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	6020 3005A 1.0 08/01/2018 0230 07/31/2018 0755	Analysis Batch: Prep Batch:	280-424423 280-424200	Instrument ID: Lab File ID: Initial Weight/Volume: Final Weight/Volume:	MT_078 262SMPL.d 50 mL 50 mL	
Analyte		Result (u	g/L) Q	ualifier	RL	
Manganese		3.8			1.0	

Client: Aspect Consulting

Client Sample ID:	MW-14-072618					
Lab Sample ID: Client Matrix:	280-112582-9 Water		Date Sa Date Re	Date Sampled: 07/26/2018 1700 Date Received: 07/28/2018 0840		
		6020 Metals (IC	CP/MS)-Dissol	ved		
Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	6020 3005A 1.0 08/01/2018 0234 07/31/2018 0755	Analysis Batch: Prep Batch:	280-424423 280-424200	Instrument ID: Lab File ID: Initial Weight/Volume: Final Weight/Volume:	MT_078 263SMPL.d 50 mL 50 mL	
Analyte		Result (u	g/L) G	Qualifier	RL	
Manganese		440			1.0	

Client: Aspect Consulting

Client Sample ID:	: MW-6-072618						
Lab Sample ID: Client Matrix:	280-112582-10 Water				Date Sar Date Rec	npled: (ceived: (07/26/2018 1820 07/28/2018 0840
		6020 Metals (IC	CP/MS)-Diss	olved			
Analysis Method:	6020	Analysis Batch:	280-424423	3	Instrument ID:	MT_0	78
Prep Method:	3005A	Prep Batch:	280-42420	0	Lab File ID:	264SN	/IPL.d
Dilution:	1.0				Initial Weight/Volume:	50 m	L
Analysis Date:	08/01/2018 0237				Final Weight/Volume:	50 m	L
Prep Date:	07/31/2018 0755						
Analyte		Result (u	g/L)	Qualifie	er	R	L
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

Analysis Method: Prep Method: Dilution: Analysis Date: Prep Date:	6020 3005A 1.0 08/01/2018 0240 07/31/2018 0755	Analysis Batch: Prep Batch:	280-424423 280-424200	 Instrument ID: Lab File ID: Initial Weight/Volume: Final Weight/Volume: 	MT_078 265SMPL.d 50 mL 50 mL
Analyte		Result (u	g/L)	Qualifier	RL
Manganese		410			1.0

Job Number: 280-112582-1

General Chemistry

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

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	В	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 Alka	linity 130		mg/L	5.0	1.0	SM 2320B
	Analysis Batch: 280-424659	Analysis Date	: 08/01/2018 2336			
Carbonate Alkalir	nity ND		mg/L	5.0	1.0	SM 2320B
	Analysis Batch: 280-424659	Analysis Date	: 08/01/2018 2336			
Total Organic Ca	rbon - Average 2.0		mg/L	1.0	1.0	SM 5310B
	Analysis Batch: 280-425211	Analysis Date	: 08/07/2018 0004			

Job Number: 280-112582-1

General Chemistry

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

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	В	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 Alkal	inity 60		mg/L	5.0	1.0	SM 2320B
	Analysis Batch: 280-424659	Analysis Date	: 08/01/2018 2343			
Carbonate Alkalin	iity ND		mg/L	5.0	1.0	SM 2320B
	Analysis Batch: 280-424659	Analysis Date	: 08/01/2018 2343			
Total Organic Car	bon - Average ND		mg/L	1.0	1.0	SM 5310B
-	Analysis Batch: 280-425211	Analysis Date	: 08/07/2018 0020			

Job Number: 280-112582-1

General Chemistry

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

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	В	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 Alkal	inity 82		mg/L	5.0	1.0	SM 2320B
	Analysis Batch: 280-424659	Analysis Date	: 08/01/2018 2351			
Carbonate Alkalin	ity ND		mg/L	5.0	1.0	SM 2320B
	Analysis Batch: 280-424659	Analysis Date	: 08/01/2018 2351			
Total Organic Car	bon - Average 1.6		mg/L	1.0	1.0	SM 5310B
2	Analysis Batch: 280-425211	Analysis Date	: 08/07/2018 0113			

Job Number: 280-112582-1

General Chemistry

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

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	В	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 Alkal	inity 81		mg/L	5.0	1.0	SM 2320B
	Analysis Batch: 280-424659	Analysis Date	: 08/01/2018 2358			
Carbonate Alkalin	iity ND		mg/L	5.0	1.0	SM 2320B
	Analysis Batch: 280-424659	Analysis Date	: 08/01/2018 2358			
Total Organic Car	bon - Average 2.6		mg/L	1.0	1.0	SM 5310B
-	Analysis Batch: 280-425211	Analysis Date	: 08/06/2018 1752			

Job Number: 280-112582-1

General Chemistry

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

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	В	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 Alkal	inity 160		mg/L	5.0	1.0	SM 2320B
	Analysis Batch: 280-424659	Analysis Date	: 08/02/2018 0023			
Carbonate Alkalin	iity ND		mg/L	5.0	1.0	SM 2320B
	Analysis Batch: 280-424659	Analysis Date	: 08/02/2018 0023			
Total Organic Car	bon - Average 3.8		mg/L	1.0	1.0	SM 5310B
-	Analysis Batch: 280-425211	Analysis Date	: 08/06/2018 1849			

Job Number: 280-112582-1

General Chemistry

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

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	В	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 Car	bon - Average ND		mg/L	1.0	1.0	SM 5310B
	Analysis Batch: 280-425211	Analysis Date	: 08/06/2018 1906			
Job Number: 280-112582-1

General Chemistry

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

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	В	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 Alkal	linity 71		mg/L	5.0	1.0	SM 2320B
	Analysis Batch: 280-424659	Analysis Date	: 08/02/2018 0038			
Carbonate Alkalir	nity ND		mg/L	5.0	1.0	SM 2320B
	Analysis Batch: 280-424659	Analysis Date	: 08/02/2018 0038			
Total Organic Ca	rbon - Average 15	-	mg/L	1.0	1.0	SM 5310B
0	Analysis Batch: 280-425211	Analysis Date	: 08,06/2018 1927			

Job Number: 280-112582-1

General Chemistry

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

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	В	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 Alkal	inity 63		mg/L	5.0	1.0	SM 2320B
	Analysis Batch: 280-424659	Analysis Date	: 08/02/2018 0046			
Carbonate Alkalin	nity ND		mg/L	5.0	1.0	SM 2320B
	Analysis Batch: 280-424659	Analysis Date	: 08/02/2018 0046			
Total Organic Car	bon - Average 5.8		mg/L	1.0	1.0	SM 5310B
-	Analysis Batch: 280-425211	Analysis Date	: 08,06/2018 1946			

Job Number: 280-112582-1

General Chemistry

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

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	В	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 Alkal	inity 110		mg/L	5.0	1.0	SM 2320B
	Analysis Batch: 280-424659	Analysis Date	: 08/02/2018 0053			
Carbonate Alkalin	nity ND		mg/L	5.0	1.0	SM 2320B
	Analysis Batch: 280-424659	Analysis Date	: 08/02/2018 0053			
Total Organic Car	bon - Average 1.7		mg/L	1.0	1.0	SM 5310B
-	Analysis Batch: 280-425211	Analysis Date	: 08/06/2018 2003			

Job Number: 280-112582-1

General Chemistry

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

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	В	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 Alka	linity 150		mg/L	5.0	1.0	SM 2320B
	Analysis Batch: 280-424659	Analysis Date	: 08/02/2018 0100			
Carbonate Alkalir	nity ND		mg/L	5.0	1.0	SM 2320B
	Analysis Batch: 280-424659	Analysis Date	: 08/02/2018 0100			
Total Organic Ca	rbon - Average 1.6		mg/L	1.0	1.0	SM 5310B
	Analysis Batch: 280-425211	Analysis Date	: 08/06/2018 2019			

Job Number: 280-112582-1

General Chemistry

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

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	В	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 Alka	linity 110		mg/L	5.0	1.0	SM 2320B
	Analysis Batch: 280-424659	Analysis Date	: 08/02/2018 0109			
Carbonate Alkalir	nity ND		mg/L	5.0	1.0	SM 2320B
	Analysis Batch: 280-424659	Analysis Date	: 08/02/2018 0109			
Total Organic Ca	rbon - 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		
	В	Compound was found in the blank and sample.

QUALITY CONTROL RESULTS

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:480-427	727				
LCS 480-427727/7	Lab Control Sample	Т	Water	8260C SIM	
LCSD 480-427727/8	Lab Control Sample Duplicate	Т	Water	8260C SIM	
MB 480-427727/10	Method Blank	Т	Water	8260C SIM	
280-112582-1	MW-7-072618	Т	Water	8260C SIM	
280-112582-2	MW-5-072618	Т	Water	8260C SIM	
280-112582-3	SW-1-072618	Т	Water	8260C SIM	
280-112582-4	MW-12I-072618	Т	Water	8260C SIM	
280-112582-5	SW-4-072618	Т	Water	8260C SIM	
280-112582-6	MW-13D-072618	Т	Water	8260C SIM	
280-112582-7	SW-6-072618	Т	Water	8260C SIM	
280-112582-8	SW-7-072618	Т	Water	8260C SIM	
280-112582-9	MW-14-072618	Т	Water	8260C SIM	
280-112582-10	MW-6-072618	Т	Water	8260C SIM	
280-112582-11	MW-20DD-072618	Т	Water	8260C SIM	
280-112582-12TB	TRIP BLANK	Т	Water	8260C SIM	

<u>Report Basis</u>

T = Total

Job Number: 280-112582-1

QC Association Summary

		Report			
Lab Sample ID	Client Sample ID	Basis	Client Matrix	Method	Prep Batch
Metals					
Prep Batch: 280-42420	00				
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:280-42	24423				
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

Job Number: 280-112582-1

QC Association Summary

		Report Resis			
Lab Sample ID	Client Sample ID	Dasis	Client Matrix	Method	Prep Batch
General Chemistry					
Analysis Batch: 280-42	24434				
LCS 280-424434/18	Lab Control Sample	Т	Water	350.1	
MB 280-424434/19	Method Blank	Т	Water	350.1	
280-112582-1	MW-7-072618	Т	Water	350.1	
280-112582-2	MW-5-072618	Т	Water	350.1	
280-112582-3	SW-1-072618	Т	Water	350.1	
280-112582-4	MW-12I-072618	Т	Water	350.1	
280-112582-5	SW-4-072618	Т	Water	350.1	
280-112582-6	MW-13D-072618	Т	Water	350.1	
280-112582-7	SW-6-072618	Т	Water	350.1	
280-112582-8	SW-7-072618	Т	Water	350.1	
280-112582-9	MW-14-072618	Т	Water	350.1	
280-112582-10	MW-6-072618	Т	Water	350.1	
280-112582-11	MW-20DD-072618	Т	Water	350.1	
280-112582-11MS	Matrix Spike	Т	Water	350.1	
280-112582-11MSD	Matrix Spike Duplicate	Т	Water	350.1	
Analysis Batch:280-42	24659				
LCS 280-424659/30	Lab Control Sample	Т	Water	SM 2320B	
MB 280-424659/31	Method Blank	Т	Water	SM 2320B	
280-112518-A-5 DU	Duplicate	Т	Water	SM 2320B	
280-112582-1	MW-7-072618	Т	Water	SM 2320B	
280-112582-2	MW-5-072618	Т	Water	SM 2320B	
280-112582-3	SW-1-072618	Т	Water	SM 2320B	
280-112582-4	MW-12I-072618	Т	Water	SM 2320B	
280-112582-5	SW-4-072618	Т	Water	SM 2320B	
280-112582-6	MW-13D-072618	Т	Water	SM 2320B	
280-112582-7	SW-6-072618	Т	Water	SM 2320B	
280-112582-8	SW-7-072618	Т	Water	SM 2320B	
280-112582-9	MW-14-072618	Т	Water	SM 2320B	
280-112582-10	MW-6-072618	Т	Water	SM 2320B	
280-112582-11	MW-20DD-072618	Т	Water	SM 2320B	

Job Number: 280-112582-1

QC Association Summary

Lab Sampla ID	Client Sample ID	Report Basis	Client Matrix	Mothod	Pron Batch
		Buolo		Method	
General Chemistry					
Analysis Batch: 280-42	25211				
LCS 280-425211/3	Lab Control Sample	Т	Water	SM 5310B	
MB 280-425211/4	Method Blank	Т	Water	SM 5310B	
280-112582-1	MW-7-072618	Т	Water	SM 5310B	
280-112582-2	MW-5-072618	Т	Water	SM 5310B	
280-112582-3	SW-1-072618	Т	Water	SM 5310B	
280-112582-4	MW-12I-072618	Т	Water	SM 5310B	
280-112582-4MS	Matrix Spike	Т	Water	SM 5310B	
280-112582-4MSD	Matrix Spike Duplicate	Т	Water	SM 5310B	
280-112582-5	SW-4-072618	Т	Water	SM 5310B	
280-112582-6	MW-13D-072618	Т	Water	SM 5310B	
280-112582-7	SW-6-072618	Т	Water	SM 5310B	
280-112582-8	SW-7-072618	Т	Water	SM 5310B	
280-112582-9	MW-14-072618	Т	Water	SM 5310B	
280-112582-10	MW-6-072618	Т	Water	SM 5310B	
280-112582-11	MW-20DD-072618	Т	Water	SM 5310B	
280-112582-11MS	Matrix Spike	Т	Water	SM 5310B	
280-112582-11MSD	Matrix Spike Duplicate	Т	Water	SM 5310B	
Analysis Batch:280-42	25581				
LCS 280-425581/4	Lab Control Sample	Т	Water	300.0	
LCSD 280-425581/5	Lab Control Sample Duplicate	Т	Water	300.0	
MB 280-425581/6	Method Blank	Т	Water	300.0	
280-112582-1	MW-7-072618	Т	Water	300.0	
280-112582-2	MW-5-072618	Т	Water	300.0	
280-112582-3	SW-1-072618	Т	Water	300.0	
280-112582-4	MW-12I-072618	Т	Water	300.0	
280-112582-5	SW-4-072618	Т	Water	300.0	
280-112582-6	MW-13D-072618	Т	Water	300.0	
280-112582-7	SW-6-072618	Т	Water	300.0	
280-112582-8	SW-7-072618	Т	Water	300.0	
280-112582-9	MW-14-072618	Т	Water	300.0	
280-112582-10	MW-6-072618	Т	Water	300.0	
280-112582-11	MW-20DD-072618	т	Water	300.0	
280-112582-11DU	Duplicate	Т	Water	300.0	
280-112582-11MS	Matrix Spike	т	Water	300.0	
280-112582-11MSD	Matrix Spike Duplicate	Т	Water	300.0	

Report Basis

T = Total

Job Number: 280-112582-1

Surrogate Recovery Report

8260C SIM Volatile Organic Compounds (GC/MS)

Client Matrix: Water

		DBFM	TBA
Lab Sample ID	Client Sample ID	%Rec	%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

DBFM = Dibromofluorom	Surrog	ate		
	DBFM	= Dib	romof	luorom

nethane (Surr) TBA = TBA-d9 (Surr)

Acceptance Limits 50-150

50-150

Job Number: 280-112582-1

Client: Aspect Consulting

Method Blank - Batch: 480-427727

Method: 8260C SIM Preparation: 5030C

Lab Sample ID: Client Matrix: Dilution: Analysis Date: Prep Date: Leach Date:	MB 480-427727/10 Water 1.0 08/02/2018 1524 08/02/2018 1524 N/A	Analysis Batch: Prep Batch: Leach Batch: Units:	480-427727 N/A N/A ug/L	Instrument ID: Lab File ID: Initial Weight/Volur Final Weight/Volun	HP5973J J7069.D ne: 25 mL ne: 25 mL
Analyte		Res	ult Q	ual	RL
Vinyl chloride		ND			0.020
Surrogate		%	Rec	Acceptance	e Limits
Dibromofluorome TBA-d9 (Surr)	thane (Surr)	1 9	16 1	50 - 15 50 - 15	0 0
Lab Control Sa Lab Control Sa	ample/ ample Duplicate Recove	ery Report - Bat	tch: 480-427727	Method: 8260C Preparation: 503	SIM 30C
LCS Lab Sample Client Matrix: Dilution: Analysis Date: Prep Date: Leach Date:	ID: LCS 480-427727/7 Water 1.0 08/02/2018 1354 08/02/2018 1354 N/A	Analysis Bato Prep Batch: Leach Batch: Units:	ch: 480-427727 N/A N/A ug/L	Instrument ID: Lab File ID: Initial Weight/Volur Final Weight/Volun	HP5973J J7066.D ne: 25 mL ne: 25 mL 25 mL
LCSD Lab Sampl Client Matrix: Dilution: Analysis Date: Prep Date: Leach Date:	e ID: LCSD 480-427727/8 Water 1.0 08/02/2018 1419 08/02/2018 1419 N/A	Analysis Bato Prep Batch: Leach Batch: Units:	ch: 480-427727 N/A N/A ug/L	Instrument ID: Lab File ID: Initial Weight/Volur Final Weight/Volun	HP5973J J7067.D ne: 25 mL ne: 25 mL 25 mL
Analyte		<u>% Rec.</u> LCS LCS	SD Limit	RPD RPD Li	mit LCS Qual LCSD Qual
Vinyl chloride		78 75	50 - 150	3 20	
Surrogate		LCS % F	Rec LCSD %	Rec Ad	cceptance Limits
Dibromofluorome TBA-d9 (Surr)	thane (Surr)	103 99	103 99		50 - 150 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

Job Number: 280-112582-1

Client: Aspect Consulting

Method Blank	- Batch: 280-424200			Method: 6020 Preparation: 3005 Total Recoverable	A
Lab Sample ID: Client Matrix: Dilution: Analysis Date: Prep Date: Leach Date:	MB 280-424200/1-A Water 1.0 08/01/2018 0139 07/31/2018 0755 N/A	Analysis Batch: Prep Batch: Leach Batch: Units:	280-424423 280-424200 N/A ug/L	Instrument ID: Lab File ID: Initial Weight/Volume Final Weight/Volume:	MT_078 247_BLK.d : 50 mL : 50 mL
Analyte		Res	ult	Qual	RL
Manganese		ND			1.0
Lab Control Sa	ample - Batch: 280-424	200		Method: 6020 Preparation: 3005 Total Recoverable	A
Lab Sample ID: Client Matrix: Dilution: Analysis Date: Prep Date: Leach Date:	LCS 280-424200/2-A Water 1.0 08/01/2018 0142 07/31/2018 0755 N/A	Analysis Batch: Prep Batch: Leach Batch: Units:	280-424423 280-424200 N/A ug/L	Instrument ID: Lab File ID: Initial Weight/Volume Final Weight/Volume:	MT_078 248_LCS.d : 50 mL : 50 mL
Analyte		Spike Amount	Result	% Rec. Limit	Qual
Manganese		40.0	39.8	100 85	- 117
Matrix Spike/ Matrix Spike D	uplicate Recovery Rep	ort - Batch: 280	-424200	Method: 6020 Preparation: 3005 Dissolved	A
MS Lab Sample I Client Matrix: Dilution: Analysis Date: Prep Date: Leach Date:	D: 280-112582-2 Water 1.0 08/01/2018 0156 07/31/2018 0755 N/A	Analysis Batc Prep Batch: Leach Batch:	h: 280-424423 280-424200 N/A	Instrument ID: Lab File ID: Initial Weight/Volume Final Weight/Volume:	MT_078 252SMPL.d : 50 mL : 50 mL
MSD Lab Sample Client Matrix: Dilution: Analysis Date: Prep Date: Leach Date:	e ID: 280-112582-2 Water 1.0 08/01/2018 0159 07/31/2018 0755 N/A	Analysis Batc Prep Batch: Leach Batch:	h: 280-424423 280-424200 N/A	Instrument ID: Lab File ID: Initial Weight/Volume Final Weight/Volume:	MT_078 253SMPL.d : 50 mL : 50 mL
Analyte		<u>% Rec.</u> MS MSD	Limit		MS Qual MSD Qual
Manganasa		102 05	05 447	7 20	
wanganese		102 95	00 - 11 <i>1</i>	7 20	

Job Number: 280-112582-1

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

Method: 6020 Preparation: 3005A Dissolved

MS Lab Sample ID: Client Matrix:	280-112582-2 Water	Units:	ug/L		MSD Lab Sa Client Matrix	mple ID: :	280-112 Water	582-2
Dilution:	1.0				Dilution:		1.0	
Analysis Date:	08/01/2018 0156				Analysis Dat	e:	08/01/20	0159
Prep Date:	07/31/2018 0755				Prep Date:		07/31/20	0755
Leach Date:	N/A				Leach Date:		N/A	
Analyte		Sample Result/Qual		MS Spike Amount	MSD Spike Amount	MS Result/C	Qual	MSD Result/Qual
Manganese		ND		40.0	40.0	41.3		38.5

Job Number: 280-112582-1

Client: Aspect Consulting

Method Blank - Batch: 280-425581

Method: 300.0 Preparation: N/A

Lab Sample ID: Client Matrix: Dilution:	MB 280-425581/6 Water 1.0	Analysis Batch: Prep Batch: Leach Batch:	280-425581 N/A N/A	Instrument ID Lab File ID: Initial Weight): /Volume:	WC_lonCh Info 2_DEI 5 mL	nrom10 NPC179_Anic
Analysis Date: Prep Date: Leach Date:	08/09/2018 2116 N/A N/A	Units:	mg/L	Final Weight/	voiume:	5 mL	
Analyte		Res	ult C	lual		RL	
Chloride Sulfate		ND 1.46				1.0 1.0	
Method Reporting	ng Limit Check - Batch	n: 280-425581		Method: 30 Preparatior	0.0 n: N/A		
Lab Sample ID:	MRL 280-425581/3	Analysis Batch:	280-425581	Instrument ID):	WC_lonCh	nrom10
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:		Info 2_DEI	NPC179_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	
Leach Date:	N/A 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 Sar Lab Control Sar	nple/ nple Duplicate Recove	ery Report - Bat	ch: 280-425581	Method: 30 Preparation	0.0 n: N/A		
LCS Lab Sample II	D: LCS 280-425581/4	Analysis Bato	h: 280-425581	Instrument ID):	WC IonCh	10 nrom10
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:		Info 2_DEI	NPC179_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: Leach Date [:]	N/A N/A					5 uL	
LCSD Lab Sample	ID: LCSD 280-425581/5	Analysis Bato	h: 280-425581	Instrument ID):	WC_lonCh	nrom10
Client Matrix:	water	Prep Batch:	N/A	Lab File ID:	/ (olumo)	INTO 2_DEI	NPC179_Anic
Analysis Date:	1.0	Leach Datch.	ma/l	Final Weight	Volume:	5 mL	
Pren Date:	N/A	Onito.	ilig/L		volume.	5 ul	
Leach Date:	N/A					0 42	
		% Rec.					
Analyte		LCS LCS	D Limit	RPD R	PD Limit	LCS Qual	LCSD Qual
Chloride		101 101	90 - 110	0 1	0		
Sulfate		101 101	90 - 110	0 1	0		

Client: Aspect Consulting

Job Number: 280-112582-1

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

LCS Lab Sample ID:	LCS 280-425581/4	Units: mg/L	LCSD Lab Sample	ID: LCSD 280-425581/5
Client Matrix:	Water		Client Matrix:	Water
Dilution:	1.0		Dilution:	1.0
Analysis Date:	08/09/2018 2042		Analysis Date:	08/09/2018 2059
Prep Date:	N/A		Prep Date:	N/A
Leach Date:	N/A		Leach Date:	N/A

Analyte	LCS Spike Amount	LCSD Spike Amount	LCS Result/Qual	LCSD Result/Qual
Chloride	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

Method: 300.0 Preparation: N/A

MS Lab Sample ID Client Matrix: Dilution: Analysis Date: Prep Date: Leach Date:	: 280-112582-11 Water 1.0 08/10/2018 0653 N/A N/A	Anal Prep Lead	ysis Batch:) Batch: ch Batch:	280-425581 N/A N/A	Instrume Lab File Initial We Final We	ent ID: ID: eight/Volume: eight/Volume:	WC_IonCł Info 2_DE 5 mL 5 mL 5 uL	nrom10 NPC179_Anic
MSD Lab Sample I Client Matrix: Dilution: Analysis Date: Prep Date: Leach Date:	D: 280-112582-11 Water 1.0 08/10/2018 0711 N/A N/A	Ana Prep Lead	ysis Batch:) Batch: ch Batch:	280-425581 N/A N/A	Instrume Lab File Initial We Final We	ent ID: ID: eight/Volume: eight/Volume:	WC_lonCl Info 2_DE 5 mL 5 mL 5 uL	nrom10 NPC179_Anic
		<u>%</u>	Rec.					
Analyte		MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Chloride Sulfate		107 101	108 104	80 - 120 80 - 120	1 2	20 20		

Job Number: 280-112582-1

Client: Aspect Consulting

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

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

Method: 300.0

Preparation: N/A

Lab Sample ID: Client Matrix: Dilution: Analysis Date: Prep Date: Leach Date:	280-112582-11 Water 1.0 08/10/2018 0636 N/A N/A	Analysis Batch: Prep Batch: Leach Batch: Units:	280-42558 N/A N/A mg/L	1	Instrument Lab File ID: Initial Weigl Final Weigh	ID: ht/Volume: ht/Volume:	WC_lonChro Info 2_DENF 5 mL 5 mL 5 uL	om10 PC179_Anic
Analyte		Sample Result/	Qual	Result		RPD	Limit	Qual
Chloride		10		9.98		0.2	15	
Sulfate		13		13.5		0.3	15	

Page 59 of 109

Job Number: 280-112582-1

Client: Aspect Consulting

Method Blank - Batch: 280-424434

Method: 350.1 Preparation: N/A

Lab Sample ID: Client Matrix: Dilution: Analysis Date: Prep Date: Leach Date:	MB 280-424434/19 Water 1.0 08/01/2018 0843 N/A N/A	Analysis Batch: Prep Batch: Leach Batch: Units:	280-424434 N/A N/A mg/L	Instrument Lab File ID: Initial Weigl Final Weigh	ID: nt/Volume: nt/Volume:	WC_Alp 3 C:\FLOW_	_4\080118.RS [`]
Analyte		Resu	ult C	Qual		RL	
Ammonia as N		ND				0.0	30
Lab Control Sa	mple - Batch: 280-424	4434		Method: 3 Preparatio	850.1 on: N/A		
Lab Sample ID: Client Matrix: Dilution: Analysis Date: Prep Date: Leach Date:	LCS 280-424434/18 Water 1.0 08/01/2018 0841 N/A N/A	Analysis Batch: Prep Batch: Leach Batch: Units:	280-424434 N/A N/A mg/L	Instrument Lab File ID: Initial Weigl Final Weigh	ID: nt/Volume: nt/Volume:	WC_Alp 3 C:\FLOW_ 100 mL 100 mL	_4\080118.RS [`]
Analyte		Spike Amount	Result	% Rec.	Limit		Qual
Ammonia as N		2.50	2.50	100	90 -	110	
Matrix Spike/ Matrix Spike Du	uplicate Recovery Rep	oort - Batch: 280	-424434	Method: 3 Preparatio	850.1 on: N/A		
MS Lab Sample II Client Matrix: Dilution: Analysis Date: Prep Date: Leach Date:	D: 280-112582-11 Water 1.0 08/01/2018 0953 N/A N/A	Analysis Batc Prep Batch: Leach Batch:	h: 280-424434 N/A N/A	Instrument Lab File ID: Initial Weigl Final Weigh	ID: nt/Volume: nt/Volume:	WC_Alp 3 C:\FLOW_ 10 mL 10 mL	_4\080118.RS [`]
MSD Lab Sample Client Matrix: Dilution: Analysis Date: Prep Date: Leach Date:	ID: 280-112582-11 Water 1.0 08/01/2018 0955 N/A N/A	Analysis Batc Prep Batch: Leach Batch:	h: 280-424434 N/A N/A	Instrument Lab File ID: Initial Weigl Final Weigh	ID: nt/Volume: nt/Volume:	WC_Alp 3 C:\FLOW_ 10 mL 10 mL	_4\080118.RS [`]
Analyte		<u>% Rec.</u> MS MSD	Limit	RPD F	RPD Limit	MS Qual	MSD Qual
Ammonia as N		101 103	90 - 110	2 1	0		

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: r	mg/L	MSD Lab Sam	ole ID: 28	80-112582-11	
Client Matrix:	Water			Client Matrix:	W	/ater	
Dilution:	1.0			Dilution:	1.	.0	
Analysis Date:	08/01/2018 0953			Analysis Date:	08	8/01/2018 0955	
Prep Date:	N/A			Prep Date:	N	/A	
Leach Date:	N/A			Leach Date:	N	/Α	
		Comple			10	MOD	
Analyte		Sample Result/Qual	MS Spike Amount	Amount R	i5 esult/Qua	al Result/Qual	

Analyte	Result/Qual	Amount	Amount	Result/Qual	Result/Qual
Ammonia as N	ND	1.00	1.00	1.01	1.03

TestAmerica Denver

Quality Control Results

Job Number: 280-112582-1

Client: Aspect Consulting

Method Blank - Batch: 280-424659

Method: SM 2320B Preparation: N/A

Lab Sample ID: Client Matrix: Dilution: Analysis Date: Prep Date: Leach Date:	MB 280-424659/31 Water 1.0 08/01/2018 2245 N/A N/A	Analysis Batch: Prep Batch: Leach Batch: Units:	280-424659 N/A N/A mg/L	Instrumen Lab File II Initial Wei Final Weig	t ID: D: ght/Volume: ght/Volume:	WC_AT2 alk 080118.T	хт
Analyte		Resu	ılt	Qual		RL	
Total Alkalinity Bicarbonate Alkalin Carbonate Alkalini	nity ty	ND ND ND				5.0 5.0 5.0	
Lab Control Sa	mple - Batch: 280-4246	59		Method: Preparat	SM 2320B tion: N/A		
Lab Sample ID: Client Matrix: Dilution: Analysis Date: Prep Date: Leach Date:	LCS 280-424659/30 Water 1.0 08/01/2018 2238 N/A N/A	Analysis Batch: Prep Batch: Leach Batch: Units:	280-424659 N/A N/A mg/L	Instrumen Lab File II Initial Wei Final Wei	t ID:): ght/Volume: ght/Volume:	WC_AT2 alk 080118.T	ХТ
Analyte		Spike Amount	Result	% Rec.	Limit		Qual
Total Alkalinity		200	193	97	90 -	110	
Duplicate - Bato	ch: 280-424659			Method: Preparat	SM 2320B tion: N/A		
Lab Sample ID: Client Matrix: Dilution: Analysis Date: Prep Date: Leach Date:	280-112518-A-5 DU Water 1.0 08/01/2018 2259 N/A N/A	Analysis Batch: Prep Batch: Leach Batch: Units:	280-424659 N/A N/A mg/L	Instrumen Lab File II Initial Wei Final Weig	t ID: D: ght/Volume: ght/Volume:	WC_AT2 alk 080118.T	хт
Analyte		Sample Result/	Qual F	Result	RPD	Limit	Qual
Total Alkalinity		110	1	14	1	10	

TestAmerica Denver

Quality Control Results

Job Number: 280-112582-1

Client: Aspect Consulting

Method Blank - Batch: 280-425211

Method: SM 5310B Preparation: N/A

Lab Sample ID: Client Matrix: Dilution: Analysis Date: Prep Date: Leach Date:	MB 280-425211/4 Water 1.0 08/06/2018 1711 N/A N/A	Analysis Batch: Prep Batch: Leach Batch: Units:	280-425211 N/A N/A mg/L	Instrument ID: Lab File ID: Initial Weight/Volu Final Weight/Volu	WC_SHI2 080718.txt me: me:	
Analyte		Resi	ult	Qual	RL	
Total Organic Car	bon - Average	ND			1.0	
Lab Control Sa	mple - Batch: 280-42	25211		Method: SM 53 Preparation: N/	10B /A	
Lab Sample ID: Client Matrix: Dilution: Analysis Date: Prep Date: Leach Date:	LCS 280-425211/3 Water 1.0 08/06/2018 1651 N/A N/A	Analysis Batch: Prep Batch: Leach Batch: Units:	280-425211 N/A N/A mg/L	Instrument ID: Lab File ID: Initial Weight/Volu Final Weight/Volu	WC_SHI2 080718.txt me: me: 100 mL	
Analyte Total Organic Car	bon - Average	Spike Amount 25.0	Result 24.7	% Rec. L 99	imit 88 - 112	Qual

Job Number: 280-112582-1

Method: SM 5310B Preparation: N/A

Client Matrix: Dilution: Analysis Date: Prep Date: Leach Date: MSD Lab Sample Client Matrix: Dilution: Analysis Date: Prep Date: Leach Date: Analyte	D: 280-112582-11 Water 1.0 08/06/2018 2136 N/A N/A ID: 280-112582-11 Water 1.0 08/06/2018 2153 N/A N/A	Ana Prep Lead Ana Prep Lead <u>%</u> MS	lysis Batch: ch Batch: lysis Batch: b Batch: ch Batch: ch Batch: <u>Rec.</u> MSD	280-425211 N/A N/A 280-425211 N/A N/A	Instrume Lab File Initial We Final We Lab File Initial We Final We	ent ID: ID: eight/Volume: eight/Volume: ent ID: ID: eight/Volume: eight/Volume:	WC_SHI2 080718.txt 50 mL WC_SHI2 080718.txt 50 mL MS Qual	MSD Qual
Client Matrix: Dilution: Analysis Date: Prep Date: Leach Date: MSD Lab Sample Client Matrix: Dilution: Analysis Date: Prep Date: Leach Date:	D: 280-112582-11 Water 1.0 08/06/2018 2136 N/A N/A EID: 280-112582-11 Water 1.0 08/06/2018 2153 N/A N/A	Ana Prep Lead Ana Prep Lead	lysis Batch: b Batch: ch Batch: lysis Batch: b Batch: ch Batch:	280-425211 N/A N/A 280-425211 N/A N/A	Instrume Lab File Initial We Final We Lab File Initial We Final We	ent ID: ID: eight/Volume: eight/Volume: ent ID: ID: eight/Volume: eight/Volume:	WC_SHI2 080718.txt 50 mL WC_SHI2 080718.txt 50 mL	
Client Matrix: Dilution: Analysis Date: Prep Date: Leach Date: MSD Lab Sample Client Matrix: Dilution: Analysis Date: Prep Date: Leach Date:	D: 280-112582-11 Water 1.0 08/06/2018 2136 N/A N/A ID: 280-112582-11 Water 1.0 08/06/2018 2153 N/A N/A	Ana Prep Lead Ana Prep Lead	lysis Batch: ch Batch: lysis Batch: b Batch: ch Batch: ch Batch:	280-425211 N/A N/A 280-425211 N/A N/A	Instrume Lab File Initial We Final We Lab File Initial We Final We	ent ID: ID: eight/Volume: eight/Volume: ent ID: ID: eight/Volume: eight/Volume:	WC_SHI2 080718.txt 50 mL WC_SHI2 080718.txt 50 mL	
Client Matrix: Dilution: Analysis Date: Prep Date: Leach Date: MSD Lab Sample Client Matrix: Dilution: Analysis Date:	D: 280-112582-11 Water 1.0 08/06/2018 2136 N/A N/A N/A e ID: 280-112582-11 Water 1.0 08/06/2018 2153	Ana Prep Lead Ana Prep Lead	lysis Batch: b Batch: ch Batch: lysis Batch: b Batch: ch Batch:	280-425211 N/A N/A 280-425211 N/A N/A	Instrume Lab File Initial We Final We Lab File Initial We Final We	ent ID: ID: eight/Volume: eight/Volume: ent ID: ID: eight/Volume: eight/Volume:	WC_SHI2 080718.txt 50 mL WC_SHI2 080718.txt 50 mL	
Client Matrix: Dilution: Analysis Date: Prep Date: Leach Date: MSD Lab Sample Client Matrix: Dilution:	D: 280-112582-11 Water 1.0 08/06/2018 2136 N/A N/A N/A EID: 280-112582-11 Water 1.0	Ana Prep Lead Ana Prep Lead	lysis Batch: b Batch: ch Batch: lysis Batch: b Batch: ch Batch:	280-425211 N/A N/A 280-425211 N/A N/A	Instrume Lab File Initial We Final We Instrume Lab File Initial We	ent ID: ID: eight/Volume: eight/Volume: ent ID: ID: eight/Volume:	WC_SHI2 080718.txt 50 mL WC_SHI2 080718.txt	
Client Matrix: Dilution: Analysis Date: Prep Date: Leach Date: MSD Lab Sample Client Matrix:	D: 280-112582-11 Water 1.0 08/06/2018 2136 N/A N/A EID: 280-112582-11 Water	Ana Prep Lead Ana Prep	lysis Batch: ch Batch: lysis Batch: b Batch:	280-425211 N/A N/A 280-425211 N/A	Instrume Lab File Initial We Final We Instrume Lab File	ent ID: ID: eight/Volume: eight/Volume: ent ID: ID:	WC_SHI2 080718.txt 50 mL WC_SHI2 080718.txt	
Client Matrix: Dilution: Analysis Date: Prep Date: Leach Date: MSD Lab Sample	D: 280-112582-11 Water 1.0 08/06/2018 2136 N/A N/A e ID: 280-112582-11	Ana Prep Lead Anal	lysis Batch: b Batch: ch Batch: lysis Batch:	280-425211 N/A N/A 280-425211	Instrume Lab File Initial We Final We	ent ID: ID: eight/Volume: eight/Volume: ent ID:	WC_SHI2 080718.txt 50 mL WC_SHI2	
Client Matrix: Dilution: Analysis Date: Prep Date: Leach Date:	D: 280-112582-11 Water 1.0 08/06/2018 2136 N/A N/A	Ana Prep Lead	lysis Batch: b Batch: ch Batch:	280-425211 N/A N/A	Instrume Lab File Initial We Final We	ent ID: ID: eight/Volume: eight/Volume:	WC_SHI2 080718.txt 50 mL	
Client Matrix: Dilution: Analysis Date: Prep Date:	D: 280-112582-11 Water 1.0 08/06/2018 2136 N/A	Anal Prep Lead	lysis Batch: 9 Batch: ch Batch:	280-425211 N/A N/A	Instrume Lab File Initial We Final We	ent ID: ID: eight/Volume: eight/Volume:	WC_SHI2 080718.txt 50 mL	
Client Matrix: Dilution: Analysis Date:	D: 280-112582-11 Water 1.0 08/06/2018 2136	Anal Prep Lead	lysis Batch: 9 Batch: ch Batch:	280-425211 N/A N/A	Instrume Lab File Initial We Final We	ent ID: ID: eight/Volume: eight/Volume:	WC_SHI2 080718.txt 50 mL	
Client Matrix: Dilution:	D: 280-112582-11 Water 1.0	Anal Prep Lead	lysis Batch: b Batch: ch Batch:	280-425211 N/A N/A	Lab File	ent ID: ID: eight/Volume:	WC_SHI2 080718.txt	
Client Matrix:	D: 280-112582-11 Water	Anal Prer	lysis Batch:) Batch:	280-425211 N/A	Instrume Lab File	ent ID: ID:	WC_SHI2 080718.txt	
	D: 280-112582-11	Anal	lvsis Batch	280-425211	Instrume	ent ID:	WC SHI2	
MS I ab Sample I								
Matrix Spike/ Matrix Spike D	uplicate Recovery Re	eport - Bat	ch: 280-42	25211	Methoo Prepara	I: SM 5310B ation: N/A		
Total Organic Ca	rbon - Average	106	110	88 - 112	3	15		
Analyte		MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
		<u>%</u>	Rec.					
Prep Date: Leach Date:	N/A N/A							
Analysis Date:	08/06/2018 1825				Final We	eight/Volume:	50 mL	
Dilution:	1.0	Lead	ch Batch:	N/A	Initial W	eight/Volume:	0001 10.00	
Client Matrix:	Water	Ana	Batch:	280-425211 N/A	Lab File	ID:	080718.txt	
		A		000 405044				
Prep Date: Leach Date:	N/A N/A							
					Final We	eight/Volume:	50 mL	
Analysis Date:	08/06/2018 1807					eigni/volume.		
Dilution: Analysis Date:	1.0 08/06/2018 1807	Lead	ch Batch:	N/A	Initial W	aight//aluma		
Client Matrix: Dilution: Analysis Date:	Water 1.0 08/06/2018 1807	Prep Lead	Batch: ch Batch:	N/A N/A	Lab File Initial We	ID:	080718.txt	

Client: Aspect Consulting

Matrix Spike Duplicate Recovery Report - Batch: 280-425211

Matrix Spike/

Job Number: 280-112582-1

Method: SM 5310B

Method: SM 5310B

Preparation: N/A

Preparation: N/A

Client: Aspect Consulting

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

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	MS Spike	MSD Spike	MS	MSD
	Result/Qual	Amount	Amount	Result/Qual	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

MS Lab Sample ID:	280-112582-11	Units: m	ng/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
		Sample	MS Snike	MSD Spike MS	MSD

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

Laboratory Chronicle

Job Number: 280-112582-1

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

Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analyst
280-112582-D-1		480-427727		08/02/2018 15:54	1	TAL BUF	LCH
280-112582-D-1		480-427727		08/02/2018 15:54	1	TAL BUF	LCH
280-112582-C-1-A		280-424423	280-424200	07/31/2018 07:55	1	TAL DEN	MRJ
280-112582-C-1-A		280-424423	280-424200	08/01/2018 01:45	1	TAL DEN	LMT
280-112582-A-1		280-425581		08/10/2018 02:48	1	TAL DEN	ARM
280-112582-B-1		280-424434		08/01/2018 09:19	1	TAL DEN	JAP
280-112582-A-1		280-424659		08/01/2018 23:36	1	TAL DEN	LPL
280-112582-B-1		280-425211		08/07/2018 00:04	1	TAL DEN	A1D
	Bottle ID 280-112582-D-1 280-112582-D-1 280-112582-C-1-A 280-112582-C-1-A 280-112582-A-1 280-112582-B-1 280-112582-A-1 280-112582-B-1	Bottle IDRun280-112582-D-1280-112582-D-1280-112582-C-1-A280-112582-C-1-A280-112582-A-1280-112582-A-1280-112582-A-1280-112582-A-1280-112582-B-1280-112582-B-1	Analysis BatchBottle IDRunBatch280-112582-D-1480-427727280-112582-D-1480-427727280-112582-C-1-A280-424423280-112582-C-1-A280-424423280-112582-A-1280-425581280-112582-B-1280-424434280-112582-A-1280-424659280-112582-B-1280-425211	AnalysisBottle IDRunBatchPrep Batch280-112582-D-1480-427727280-112582-D-1480-427727280-112582-C-1-A280-424423280-424200280-112582-C-1-A280-424423280-424200280-112582-A-1280-425581280-424501280-112582-B-1280-424434	Analysis Bottle IDAnalysis RunDate Prepared / Prep BatchDate Prepared / Analyzed280-112582-D-1480-42772708/02/2018 15:54280-112582-D-1480-42772708/02/2018 15:54280-112582-C-1-A280-424423280-42420007/31/2018 07:55280-112582-C-1-A280-424423280-42420008/01/2018 01:45280-112582-A-1280-42558108/01/2018 02:48280-112582-B-1280-42443408/01/2018 09:19280-112582-A-1280-42465908/01/2018 23:36280-112582-B-1280-42521108/07/2018 00:04	Analysis Date Prepared / Analyzed Date Prepared / Analyzed Dil 280-112582-D-1 480-427727 08/02/2018 15:54 1 280-112582-D-1 480-427727 08/02/2018 15:54 1 280-112582-D-1 480-427727 08/02/2018 15:54 1 280-112582-C-1-A 280-424423 280-424200 07/31/2018 07:55 1 280-112582-C-1-A 280-424423 280-424200 08/01/2018 01:45 1 280-112582-A-1 280-4245581 08/01/2018 02:48 1 280-112582-B-1 280-424434 08/01/2018 09:19 1 280-112582-B-1 280-424659 08/01/2018 09:19 1 280-112582-B-1 280-425211 08/07/2018 00:04 1	AnalysisDate Prepared / AnalyzedDilLabBottle IDRun8atchPrep BatchAnalyzedDilLab280-112582-D-1480-42772708/02/2018 15:541TAL BUF280-112582-D-1480-42772708/02/2018 15:541TAL BUF280-112582-C-1-A280-424423280-42420007/31/2018 07:551TAL DEN280-112582-C-1-A280-424423280-42420008/01/2018 01:451TAL DEN280-112582-A-1280-42558108/10/2018 02:481TAL DEN280-112582-A-1280-42443408/01/2018 09:191TAL DEN280-112582-A-1280-42465908/01/2018 23:361TAL DEN280-112582-B-1280-42521108/07/2018 00:041TAL DEN

Lab ID: 280-112582-2

Client ID: MW-5-072618

Sample Date/Time: 07/26/2018 12:22 Received D

Received Date/Time: 07/28/2018 08:40

			Analysis		Date Prepared /			
Method	Bottle ID	Run	Batch	Prep Batch	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-С-2-В 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

Laboratory Chronicle

Job Number: 280-112582-1

Lab ID: 280-112582-3

Client ID: SW-1-072618

Sample Date/Time: 07/26/2018 13:30

:30 Received Date/Time: 07/28/2018 08:40

		_	Analysis Batab		Date Prepared /			
Method	Bottle ID	Run	Batch	Prep Batch	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 R

Received Date/Time: 07/28/2018 08:40

			Analysis		Date Prepared /			
Method	Bottle ID	Run	Batch	Prep Batch	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 531	10B 280-112582-B-4 MS		280-42521	1	08/06/2018 18:	07 1	TAL DEN	A1D
Lab ID:	280-112582-4 MSD	Client I	D: MW-12I	-072618				
		Sample	Date/Time:	07/26/2018 13:5	0 Received D	ate/Time:	07/28/2018 (08:40
Method	Bottle ID	Run	Analysis Batch	Pren Batch	Date Prepared Analvzed	/ Dil	Lab	∆nalvst

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

Laboratory Chronicle

Job Number: 280-112582-1

Lab ID: 280-112582-5

Client ID: SW-4-072618

Sample Date/Time: 07/26/2018 14:45

45 Received Date/Time: 07/28/2018 08:40

			Analysis		Date Prepared /			
Method	Bottle ID	Run	Batch	Prep Batch	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

			Analysis		Date Prepared /			
Method	Bottle ID	Run	Batch	Prep Batch	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

			Analysis		Date Prepared /			
Method	Bottle ID	Run	Batch	Prep Batch	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

Laboratory Chronicle

Job Number: 280-112582-1

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

			Analysis		Date Prepared /			
Method	Bottle ID	Run	Batch	Prep Batch	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

			Analysis		Date Prepared /			
Method	Bottle ID	Run	Batch	Prep Batch	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

			Analysis		Date Prepared /			
Method	Bottle ID	Run	Batch	Prep Batch	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

Laboratory Chronicle

Job Number: 280-112582-1

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

Sample Date/Time: 07/26/2018 00:00

8 00:00 Received Date/Time: 07/28/2018 08:40

			Analysis		Date Prepared /			
Method	Bottle ID	Run	Batch	Prep Batch	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

Received Date/Time: 07/28/2018 08:40

			Analysis		Date Prepared /				
Method	Bottle ID	Run	Batch	Prep Batch	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

			Analysis		Date Prepared /			
Method	Bottle ID	Run	Batch	Prep Batch	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

Laboratory Chronicle

Job Number: 280-112582-1

Lab ID:	MB		Client I	D: N/A								
			Sample	Date/Time: N	I/A	Received Date/Time: N/A						
Method		Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analys			
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 23	20B	MB 280-424659/31		280-424659		08/01/2018 22:45	1	TAL DEN	LPL			
A:SM 53	10B	MB 280-425211/4		280-425211		08/06/2018 17:11	1	TAL DEN	A1D			
Lab ID:	LCS		Client I	D: N/A								
			Sample	Date/Time: N	I/A	Received Date	/Time:	N/A				
Method		Bottle ID	Run	Analysis Batch	Prep Batch	Date Prepared / Analyzed	Dil	Lab	Analys			
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 23	20B	LCS 280-424659/30		280-424659		08/01/2018 22:38	1	TAL DEN	LPL			
A:SM 53	10B	LCS 280-425211/3		280-425211		08/06/2018 16:51	1	TAL DEN	A1D			
Lab ID:	LCSD		Client I	D: N/A								
			Sample	Date/Time: N	I/A	Received Date	/Time:	N/A				
				Analysis		Date Prepared /						
Method		Bottle ID	Run	Batch	Prep Batch	Analyzed	Dil	Lab	Analys			
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 I	D: N/A								
			Sample	Date/Time: N	I/A	Received Date	/Time:	N/A				
			_	Analysis		Date Prepared /						
wethod		Bottle ID	Run	Batch	Prep Batch	Analyzed	Dil		Analys			
				·)UN ADEE01		N8/N0/2018 20.2/	1					

Laboratory Chronicle

Job Number: 280-112582-1

Lab ID:	DU		Client ID: N/A											
			Sample	Date/Time:	07/26/2018 10:4	7 Received Date	/Time:	07/27/2018	09:30					
				Analysis		Date Prepared /								
Method		Bottle ID	Run	Batch	Prep Batch	Analyzed	Dil	Lab	Analyst					
A:SM 232	20B	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



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) 18G0315 Associated SDG ID(s) N/A

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

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

Analytical Resources, Inc.

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



Page 1 of 34 18G0315 ARISample FINAL 15 Aug 2018 1049

08/16/2018

4611 S. 134th Place, Suite 100 • Tukwila, WA 98168 • Ph: (206) 695-6200 • Fax: (206) 695-6202

TestAmerica Denver

4955 Yai	row Street	
Arvada,	CO 80002	

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

186-0315

Chain of Custody Record



THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Na Hyur	Betsy A	etsy A				Carrier Tracking No(s):					COC No: 280-23414-6845.1		
Meibini Lanler-Kamaha'o	Phone: 206-413	1-5408	E-Mail: betsy.s	ara@t	estame	ricainc.co	om							Page: 1/1
Company: Aspect Consulting, LLC	an a		T		Job #:					Job #:				
Address: 350 Madison Ave N	Due Date Requested:				Preservation Codes:							Preservation Codes:		
City: Bainbridge Island	TAT Requested (days):													A - HCL M - Hexane B - NaOH N - None
State, Zip:	-						ARI							C - Zn Acetate O - AsNaO2 D - Nitric Acid P - Na2O4S
Phone:	PO #:	NUMBER OF STREET, STREE					ub to							E - NaHSO4 Q - Na2SO3 F - MeOH R - Na2S2SO3
Email:	Purchase Order not red	quired	- ION		ittalo)		irect s	ARI						G - Amchlor S - H2SO4 H - Ascorbic Acid T - TSP Dodecahydrate
m/ramahao@aspeitronsulting.com	WO #.		s or	(oN	IABU		ed)- d	sub to					2	I - Ice U - Acetone J - DI Water V - MCAA
Project Name: Hansville Landfill	Project #:skip sites/events 28006013 - 2Q/3Q/4Q	Sampling	e (Ye	es or			filter	lirect :				2	Itaine	K - EDTA W - ph 4-5 L - EDA Z - other (specify)
site: Washington	SSOW#:		Samp	SD (Y			e (field	ice - d					of con	Other:
		Sample Ma Type (w=	trix water, colid,	ANN MS/M	ived Metal	onia/TOC CI/SO4	-phosphat	ived Arsen e/Nitrite /IC					Number	
Sample Identification	Sample Date Tim	ole (C=comp, _{O=wa} le G=grab) _{BT=Tissi}	ste/oil, e, A=Air)	Perfe	Disso	Amm Alks/0	Ortho	Disso					Total	Special Instructions/Note:
MUX CLARAC		Preservation C	ode: X		D	S N	N	DN					X	
MW-1-072618	7/26/18 110	0 4	JY				V	4	1					
MW-5-01/2618	1 122	.2	<u> </u>				6	1						
MT SW-1-072618	33	D					V	1						Diss As,NO3,NO2,o-phos subbed direct to ARI
MW-12I-072618	(35	0			2		1	~~						
5W-4-072618	144	5					V	~~						
MW-130-072618	152	5					1	1-	/					
SW-6-072618	154	0					~	1.						
56-7-072618	1640	,	1				1	20	ea.					
MW-14-072618	170	0					~	1				+		1111-6-072610
MW-6-072618	1824	2						1						Areni-ntfilteni
MW20DD-072618	V -						1	4-	-	+			the care the loss	The second second
Possible Hazard Identification			<u> </u>	Samp	le Disp	osal (A	fee n	ay be	assesse	d if sa	ample	s are re	etaine	ed longer than 1 month)
Non-Hazard Flammable Skin Irritant Poison B Unknown Radiological Client Disposal By Lab Archive For Months														
Empty Kit Bolinguiched by	ID-tr	e organismus et also de la constante e formaria		Specia	ai instru	cuons/Q	CRE	quireme	ents:					
Relinquished by:	Date:	Compar	Tir	ne:	ceived by	r.			Me	thod of	Shipme	nt:		Compony
Reliquiched by	7/26/18	22:00 15	beut	-	PET	Ela		BAN	INUS	PR	Dater	12	7/19	\$ 6:00 Aspect
PETER BANNUSTER	7/27/18	07:25 Compar	spect Received by Date/Time: 37/18 0725 Company					8 0725 Company						
Relinquished'by:	Date/Tifne:	Compar	ý	Re	ceived by			0			Date/Ti	me:		Company
Custody Seals Intact: Custody Seal No.: Δ Yes Δ No					Cooler Temperature(s) °C and Other Remarks: Page 2 of 34 18G0315 ARISample FINAL 15 Aug 2018 1049									

08/16/2018

Test America - Denver 4955 Yarrow Street Arvada CO, 80002 Project: Hansville Project Number: 28006013-2Q/3Q/4Q Sampling Project Manager: Betsy Sara

Reported: 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

4611 S. 134th Place, Suite 100 • Tukwila, WA 98168 • Ph: (206) 695-6200 • Fax: (206) 695-6202



Test America - Denver 4955 Yarrow Street Arvada CO, 80002 Project: Hansville Project Number: 28006013-2Q/3Q/4Q Sampling Project Manager: Betsy Sara

Reported: 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.

Analytical Resources, Inc.

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

4611 S. 134th Place, Suite 100 • Tukwila, WA 98168 • Ph: (206) 695-6200 • Fax: (206) 695-6202
Analytical Resources, Incorporated Analytical Chemists and Consultant	l S	Cooler Rec	eipt Form	
ARI Client: Test America COC No(s):	P NA C	Project Name: <u>Hans V</u> Delivered by: Fed-Ex UPS Cour	ILL LANDAII	
Assigned ARI Job No:	Т	racking No:		NA
Preliminary Examination Phase:				
Were intact, properly signed and dated custody seal	s attached to the out	side of to cooler?	YES	NO
Were custody papers included with the cooler?			VES	NO
Were custody papers properly filled out (ink, signed,	etc.)		XES	NO
Temperature of Cooler(s) (°C) (recommended 2.0-6. Time: <u>0725</u>	.0 °C for chemistry)	1.12 0.92		
If cooler temperature is out of compliance fill out form	n 00070F	. 1	Temp Gun ID#:	206
Cooler Accepted by: 37w	Date:	07/27/18 Time:	6725	
Complete cus	tody forms and atta	ach all shipping documents		
				1112 - COLUMN - COLUMN

Log-In Phase:

Was a temperature blank included in the cooler?	YES	NO
What kind of packing material was used? Bubble Wrap Wet Tee Gel Packs Baggies Foam Block Paper	per Other:	as shay 5
Was sufficient ice used (if appropriate)? NA	A 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) N/	A (YES)	NO
Were all VOC vials free of air bubbles?	A YES	NO
Was sufficient amount of sample sent in each bottle?	YES	NO
Date VOC Trip Blank was made at ARI	9	
Was Sample Split by ARI : MA YES Date/Time: Equipment:	Split by:	<u></u>
Samples Logged by:		

** 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, Discrepant other samples for o-phos	MW-17I-077618	contaiters not lis is missing its fie	id fillered bottle
Small Air Bubbles Peab	ubbles'	Small → "sm" (<2 mm)	
~2mm 2-4	mm >4 mm	Peabubbles → "pb" (2 to < 4 mm)	
	•••••	Large \rightarrow "lg" (4 to < 6 mm)	
		Headspace \rightarrow "hs" (> 6 mm)	

Analy Analyt	ytical Resources, Incorpora ical Chemists and Consultants	ited		Printed: 7/27/2018 8:18:49AM
V		WORK ORD	ER	
		18G0315		
Client: Test Ame	rica - Denver	Proje	ct Manager:	Amanda Volgardsen
Project: Hansville		Proje	ct Number:	[none]
	Р	reservation Con	firmation	
Container ID	Container Type		рН	
18G0315-01 A	Miscellaneous Container	NOT (FF)	62	Pass
18G0315-01 B	Miscellaneous Container	2 414		V
18G0315-01 C	Miscellaneous Container	FF)		
18G0315-02 A	Miscellaneous Container	WO7(FF)	22	flass
18G0315-02 B	Miscellaneous Container			
18G0315-02 C	Miscellaneous Container C	(FF)		
18G0315-03 A	Miscellaneous Container	203 (FE)	42	Pass
18G0315-03 B	Miscellaneous Container			
18G0315-03 C	Miscellaneous Container (FE)		
18G0315-04 A	Miscellaneous Container H	NOJ (FF)	4	Pass
18G0315-04 B	Miscellaneous Container			
18G0315-05 A	Miscellaneous Container	NO3(FF)	62	Pass
18G0315-05 B	Miscellaneous Container	v ootto		0.00
18G0315-05 C	Miscellaneous Container (FF)		
18G0315-06 A	Miscellaneous Container	INOT (FF)	42	Pass
18G0315-06 B	Miscellaneous Container			
18G0315-06 C	Miscellaneous Container	FF)		
18G0315-07 A	Miscellaneous Container	WOJ(FE)	22	Pass
18G0315-07 B	Miscellaneous Container			8
18G0315-07 C	Miscellaneous Container [FF)		
18G0315-08 A	Miscellaneous Container	WOS (FG)	22	Pass
18G0315-08 B	Miscellaneous Container			
18G0315-08 C	Miscellaneous Container	FFS		
18G0315-09 A	Miscellaneous Container 1	NOT (FF)	CJ	Pass
18G0315-09 B	Miscellaneous Container			
18G0315-09 C	Miscellaneous Container 🖉	E)		
18G0315-10 A	Miscellaneous Container	WOS (FF)	42	Pass
18G0315-10 B	Miscellaneous Container			
18G0315-10 C	Miscellaneous Container	F)		
18G0315-11 A	Miscellaneous Container	WO3(FE)	CJ	Pass
18G0315-11 B	Miscellaneous Container			
18G0315-11 C	Miscellaneous Container (FEL		

6 7 Preservation Confirmed By

07/27/18 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)	

Aethod: EPA 200.8 UCT-KED				S	ampled: 07	/26/2018 11:00
Instrument: ICPMS2				Ana	lyzed: 02-A	ug-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				
			Reporting			
Analyte		CAS Number Dilution	Limit	Result	Units	Notes
Arsenic, Dissolved		7440-38-2 1	0.000200	0.00121	mg/L	

Analytical Resources, Inc.

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



	MW 7	072618
Arvada CO, 80002	Project Manager:	Betsy Sara
4955 Yarrow Street	Project Number:	28006013-2Q/3Q/4Q Sampling
Test America - Denver	Project:	Hansville

Reported: 15-Aug-2018 10:49

MW-7-072618

18G0315-01 (Water)

Wet Chemistry								
Method: EPA 300.0 Sampled: 07/26/2018						//26/2018 11:00		
Instrument: DX500						An	alyzed: 27-	Jul-2018 13:58
Sample Preparation:	Preparation Method: No Prep Wet Chem Preparation Batch: BGG0681 Prepared: 27-Jul-2018	Sample Size: 5 Final Volume: :	mL 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

Analytical Resources, Inc.

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



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)			

Method: EPA 200.8 UCT-KED				S	ampled: 07/	26/2018 12:22	
Instrument: ICPMS2					Anal	lyzed: 02-A	ug-2018 17:54
Sample Preparation:	Preparation Method: REN EPA 600/4-7	79-020 4.1.4 HNO3 matrix					
	Preparation Batch: BGH0044	Sample Size: 25 m	nL				
	Prepared: 02-Aug-2018	Final Volume: 25	mL				
				Reporting			
Analyte		CAS Number D	Dilution	Limit	Result	Units	Notes
Arsenic, Dissolved		7440-38-2	1	0.000200	0.00211	mg/L	

Analytical Resources, Inc.

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



Arvada CO, 80002	Project Manager:	Betsy Sara
4955 Yarrow Street	Project Number:	28006013-2Q/3Q/4Q Sampling
Test America - Denver	Project:	Hansville

Reported: 15-Aug-2018 10:49

MW-5-072618

18G0315-02 (Water)

Wet Chemistry								
Method: EPA 300.0 Sampled: 07/26/2018 1						/26/2018 12:22		
Instrument: DX500						Ar	alyzed: 27-	Jul-2018 14:48
Sample Preparation:	Preparation Method: No Prep Wet Chem Preparation Batch: BGG0681 Prepared: 27-Jul-2018	Sample Size: 5 Final Volume: :	mL 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

Analytical Resources, Inc.

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



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)	

Method: EPA 200.8 UCT-KED					Sampled: 07/26/2018 12			
Instrument: ICPMS2					Anal	yzed: 02-A	ug-2018 17:59	
Sample Preparation:	Preparation Method: REN EPA 600/4-7	79-020 4.1.4 HNO3 matrix	x					
	Preparation Batch: BGH0044	Sample Size: 2:	5 mL					
	Prepared: 02-Aug-2018	Final Volume: 2	25 mL					
				Reporting				
Analyte		CAS Number	Dilution	Limit	Result	Units	Notes	
Arsenic, Dissolved		7440-38-2	1	0.000200	0.00168	mg/L		

Analytical Resources, Inc.

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



Reported:

15-Aug-2018 10:49

,	SW-1-072618
Arvada CO, 80002	Project Manager: Betsy Sara
4955 Yarrow Street	Project Number: 28006013-2Q/3Q/4Q Sampling
Test America - Denver	Project: Hansville

18G0315-03 (Water)

Wet Chemistry								
Method: EPA 300.0						S	ampled: 07	//26/2018 13:30
Instrument: DX500						An	alyzed: 27-	Jul-2018 15:05
Sample Preparation:	Preparation Method: No Prep Wet Chem Preparation Batch: BGG0681 Prepared: 27-Jul-2018	Sample Size: 5 Final Volume: :	mL 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

Analytical Resources, Inc.

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



Reported: 15-Aug-2018 10:49

Test America - Denver	Project: Hansville				
4955 Yarrow Street	Project Number: 28006013-2Q/3Q/4Q Sampling				
Arvada CO, 80002	Project Manager: Betsy Sara				
	MW-12I-072618				
18G0315-04 (Water)					

Metals and Metallic (Compounds (dissolved)						
Method: EPA 200.8 UCT-KED					Sa	ampled: 07/2	26/2018 13:50
Instrument: ICPMS2					Anal	yzed: 02-Au	ug-2018 18:04
Sample Preparation:	Preparation Method: REN EPA 600/4-7	79-020 4.1.4 HNO3 matrix					
	Preparation Batch: BGH0044	Sample Size: 25	mL				
	Prepared: 02-Aug-2018	Final Volume: 25	mL				
				Reporting			
Analyte		CAS Number	Dilution	Limit	Result	Units	Notes
Arsenic, Dissolved		7440-38-2	1	0.000200	0.00226	mg/L	

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



Test America - Denver	
4955 Yarrow Street	
Arvada CO, 80002	

Project: Hansville Project Number: 28006013-2Q/3Q/4Q Sampling Project Manager: Betsy Sara

Reported: 15-Aug-2018 10:49

MW-12I-072618

18G0315-04 (Water)

Wet Chemistry								
Method: EPA 300.0						S	ampled: 07	/26/2018 13:50
Instrument: DX500						An	alyzed: 27-	Jul-2018 15:21
Sample Preparation:	Preparation Method: No Prep Wet Chem Preparation Batch: BGG0681 Prepared: 27-Jul-2018	Sample Size: 5 Final Volume: :	Sample Size: 5 mL 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

Analytical Resources, Inc.

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



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)	

Method: EPA 200.8 UCT-KED				Γ-KED Samplec					
Instrument: ICPMS2					Anal	yzed: 02-A	ug-2018 18:08		
Sample Preparation:	Preparation Method: REN EPA 600/4-7	79-020 4.1.4 HNO3 matri	x						
	Preparation Batch: BGH0044	Sample Size: 2	5 mL						
	Prepared: 02-Aug-2018	Final Volume: 2	25 mL						
				Reporting					
Analyte		CAS Number	Dilution	Limit	Result	Units	Notes		
Arsenic, Dissolved		7440-38-2	1	0.000200	0.00194	mg/L			

Analytical Resources, Inc.

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



Reported: 15-Aug-2018 10:49

	SW-4-072618	
Arvada CO, 80002	Project Manager: Betsy Sara	
4955 Yarrow Street	Project Number: 28006013-2Q/3Q/4Q Sampling	
Test America - Denver	Project: Hansville	

18G0315-05 (Water)

Wet Chemistry								
Method: EPA 300.0						S	ampled: 07	7/26/2018 14:45
Instrument: DX500						An	alyzed: 27	-Jul-2018 16:12
Sample Preparation:	Preparation Method: No Prep Wet Chem Preparation Batch: BGG0681 Prepared: 27-Jul-2018	Sample Size: 5 Final Volume:	mL 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

Analytical Resources, Inc.

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



Sampled: 07/26/2018 15:25

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)	

Method:	EPA	200.8	UCT-KED	
methou.	D111	200.0	COI ILLD	

Instrument: ICPMS2

Metals and Metallic Compounds (dissolved)

Instrument: ICPMS2					Ana	yzed: 02-A	ug-2018 18:13
Sample Preparation:	Preparation Method: REN EPA 600/4- Preparation Batch: BGH0044 Prepared: 02-Aug-2018	79-020 4.1.4 HNO3 matri Sample Size: 2 Final Volume:	ix 25 mL 25 mL				
Analyta		CAS Number	Dilution	Reporting Limit	Pogult	Unita	Notos
Arsenic, Dissolved		7440-38-2	1	0.000200	0.00508	mg/L	Indies

Analytical Resources, Inc.

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



Reported: 15-Aug-2018 10:49

MW-13D-072618		
Arvada CO, 80002	Project Manager: Betsy Sara	
4955 Yarrow Street	Project Number: 28006013-2Q/3Q/4Q Sampling	
Test America - Denver	Project: Hansville	

18G0315-06 (Water)

Wet Chemistry								
Method: EPA 300.0						S	ampled: 07	/26/2018 15:25
Instrument: DX500						An	alyzed: 27-	Jul-2018 16:29
Sample Preparation:	Preparation Method: No Prep Wet Chem Preparation Batch: BGG0681 Prepared: 27-Jul-2018	Sample Size: 5 Final Volume: :	mL 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

Analytical Resources, Inc.

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



Test America - Denver	Project: Hansville		
4955 Yarrow Street Project Number: 28006013-2Q/3Q/4Q Sampling			
Arvada CO, 80002 Project Manager: Betsy Sara 15-			
	SW-6-072618		
	18G0315-07 (Water)		

Method: EPA 200.8 UCT	-KED			S	ampled: 07	/26/2018 15:40
Instrument: ICPMS2				Ana	lyzed: 02-A	ug-2018 18:45
Sample Preparation:	Preparation Method: REN EPA 600/4-7	79-020 4.1.4 HNO3 matrix				
	Preparation Batch: BGH0044	Sample Size: 25 mL				
	Prepared: 02-Aug-2018	Final Volume: 25 mL				
			Reporting			
Analyte		CAS Number Dilution	Limit	Result	Units	Notes
Arsenic, Dissolved		7440-38-2 1	0.000200	0.00967	mg/L	

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



Reported: 15-Aug-2018 10:49

Test America - Denver	Project: Hansville
4955 Yarrow Street	Project Number: 28006013-2Q/3Q/4Q Sampling
Arvada CO, 80002	Project Manager: Betsy Sara
	SW-6-072618

18G0315-07 (Water)

Method: EPA 300.0 Sampled: 07/26/20. Instrument: DX500 Analyzed: 27-Jul-201	18 15:40
Instrument: DX500 Analyzed: 27-Jul-20	0.16.45
	18 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	
Detection Reporting Analyte CAS Number Dilution Limit Limit Result Units N	lotes
Nitrate-N 14797-55-8 1 0.100 0.100 0.149 mg/L	
Analyte Detection Reporting CAS Number Dilution Limit Limit Result Units N	lotes
Nitrite-N 14797-65-0 1 0.100 ND mg/L	U
Analyte Detection Reporting CAS Number Dilution Limit Limit Result Units N	lotes
Orthophosphorus 1426-54-42 1 0.10 ND mg/L	U

Analytical Resources, Inc.

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



Test America - Denver	Project: Hansville		
4955 Yarrow Street Project Number: 28006013-2Q/3Q/4Q Sampling			
Arvada CO, 80002 Project Manager: Betsy Sara 15-			
	SW-7-072618		
	18G0315-08 (Water)		

Method: EPA 200.8 UCT	-KED				S	ampled: 07/2	26/2018 16:40
Instrument: ICPMS2					Anal	yzed: 02-A	ug-2018 18:49
Sample Preparation:	Preparation Method: REN EPA 600/4-7	79-020 4.1.4 HNO3 matrix	ζ.				
	Preparation Batch: BGH0044	Sample Size: 25	5 mL				
	Prepared: 02-Aug-2018	Final Volume: 2	25 mL				
				Reporting			
Analyte		CAS Number	Dilution	Limit	Result	Units	Notes
Arsenic, Dissolved		7440-38-2	1	0.000200	0.00171	mg/L	

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



Reported: 15-Aug-2018 10:49

	SW-7-072618
Arvada CO, 80002	Project Manager: Betsy Sara
4955 Yarrow Street	Project Number: 28006013-2Q/3Q/4Q Sampling
Test America - Denver	Project: Hansville

18G0315-08 (Water)

Wet Chemistry								
Method: EPA 300.0						S	ampled: 07	/26/2018 16:40
Instrument: DX500						An	alyzed: 27-	Jul-2018 17:02
Sample Preparation:	Preparation Method: No Prep Wet Chem Preparation Batch: BGG0681 Prepared: 27-Jul-2018	Sample Size: 5 Final Volume: :	mL 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

Analytical Resources, Inc.

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



Test America - Denver	Project: Hansville			
4955 Yarrow Street	Project Number: 28006013-2Q/3Q/4Q Sampling	Reported:		
Arvada CO, 80002 Project Manager: Betsy Sara 15-Au				
	MW-14-072618			
	18G0315-09 (Water)			

Method: EPA 200.8 UCT-KED				S	ampled: 07/	26/2018 17:00	
Instrument: ICPMS2					Ana	lyzed: 02-A	ug-2018 18:54
Sample Preparation:	Preparation Method: REN EPA 600/4-7 Preparation Batch: BGH0044 Prepared: 02-Aug-2018	79-020 4.1.4 HNO3 matri Sample Size: 2 Final Volume: 2	x 5 mL 25 mL				
Analyte		CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved		7440-38-2	1	0.000200	0.0135	mg/L	

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



Reported:

15-Aug-2018 10:49

MW 14 072/19
Project Manager: Betsy Sara
Project Number: 28006013-2Q/3Q/4Q Sampling
Project: Hansville

18G0315-09 (Water)

Wet Chemistry								
Method: EPA 300.0						S	ampled: 07	//26/2018 17:00
Instrument: DX500						Ar	alyzed: 27-	Jul-2018 17:19
Sample Preparation:	Preparation Method: No Prep Wet Chem Preparation Batch: BGG0681 Prepared: 27-Jul-2018	Sample Size: 5 Final Volume: :	mL 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

Analytical Resources, Inc.

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



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 Instrument: ICPMS2					S	ampled: 07/	26/2018 18:20
					Ana	lyzed: 02-A	ug-2018 17:03
Sample Preparation:	Preparation Method: REN EPA 600/4-7	79-020 4.1.4 HNO3 matrix					
	Preparation Batch: BGH0043	Sample Size: 25 ml	L				
	Prepared: 02-Aug-2018	Final Volume: 25 m	ıL				
				Reporting			
Analyte		CAS Number Di	lution	Limit	Result	Units	Notes
Arsenic, Dissolved		7440-38-2	1	0.000200	0.00151	mg/L	

Analytical Resources, Inc.

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



	MW-6-072618 18G0315-10 (Water)	
Arvada CO, 80002	Project Manager: Betsy Sara	15-Aug-2018 10:49
4955 Yarrow Street	Project Number: 28006013-2Q/3Q/4Q Sampling	Reported:
Test America - Denver	Project: Hansville	

Wet Chemistry Method: EPA 300.0 Sampled: 07/26/2018 18:20 Instrument: DX500 Analyzed: 27-Jul-2018 17:36 Preparation Method: No Prep Wet Chem Sample Preparation: Preparation Batch: BGG0681 Sample Size: 5 mL Prepared: 27-Jul-2018 Final Volume: 5 mL Detection Reporting CAS Number Dilution Limit Limit Analyte Result Units Notes Nitrite-N 14797-65-0 1 0.100 0.100 0.352 mg/L Detection Reporting Analyte CAS Number Dilution Limit Limit Result Units Notes 1426-54-42 0.10 0.10 ND U Orthophosphorus 1 mg/L

Analytical Resources, Inc.

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



Arvada CO, 80002	Project Manager: Betsy Sara MW-6-072618	15-Aug-2018 10:49
4955 Yarrow Street Arvada CO 80002	Project Number: 28006013-2Q/3Q/4Q Sampling Project Manager: Betsy Sara	Reported: 15-Aug-2018 10:49
Test America - Denver	Project: Hansville	

Wet Chemistry								
Method: EPA 300.0						S	ampled: 07/	26/2018 18:20
Instrument: DX500						Ana	lyzed: 03-A	ug-2018 14:02
Sample Preparation:	Preparation Method: No Prep Wet Chem Preparation Batch: BGG0681 Prepared: 27-Jul-2018	Sample Size: 5 Final Volume:	mL 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

Analytical Resources, Inc.

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



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 (dissolv	red)	

			-
Method:	EPA	200.8	UCT-KED

Sampled: 07/26/2018 00:00

Analyzed: 02-Aug-2018 18:58

Instrument: ICPMS2

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix										
	Preparation Batch: BGH0044	Sample Size: 25	5 mL							
	Prepared: 02-Aug-2018	Final Volume: 2	25 mL							
				Reporting						
Analyte		CAS Number	Dilution	Limit	Result	Units	Notes			
Arsenic, Dissolved		7440-38-2	1	0.000200	0.0132	mg/L				

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



Arvada CO, 80002	Project Manager: Betsy Sara
4955 Yarrow Street	Project Number: 28006013-2Q
Test America - Denver	Project: Hansville

Q/3Q/4Q Sampling

Reported: 15-Aug-2018 10:49

MW20DD-072618

18G0315-11 (Water)

Wet Chemistry								
Method: EPA 300.0						S	ampled: 07	/26/2018 00:00
Instrument: DX500						An	alyzed: 27-	Jul-2018 17:52
Sample Preparation:	Preparation Method: No Prep Wet Chem Preparation Batch: BGG0681 Prepared: 27-Jul-2018	Sample Size: 5 Final Volume: :	mL 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	

Analytical Resources, Inc.

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



Test America - Denver 4955 Yarrow Street Arvada CO, 80002

Project: Hansville Project Number: 28006013-2Q/3Q/4Q Sampling Project Manager: Betsy Sara

Reported: 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)				Prepa	ared: 02-Aug	g-2018 An	alyzed: 02-	Aug-2018 1	6:43		
Arsenic, Dissolved	75a	ND	0.000200	mg/L							U
LCS (BGH0043-BS1)				Prepa	ared: 02-Aug	g-2018 An	alyzed: 02-	Aug-2018 1	6:48		
Arsenic, Dissolved	75a	0.0249	0.000200	mg/L	0.0250		99.6	80-120			

Analytical Resources, Inc.

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

08/16/2018



Test America - Denver 4955 Yarrow Street Arvada CO, 80002

Project: Hansville Project Number: 28006013-2Q/3Q/4Q Sampling Project Manager: Betsy Sara

Reported: 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)				Prepa	ared: 02-Aug	g-2018 An	alyzed: 02-	Aug-2018 1	17:45		
Arsenic, Dissolved	75a	ND	0.000200	00200 mg/L							U
LCS (BGH0044-BS1)				Prepa	ared: 02-Aug	g-2018 An	alyzed: 02-	Aug-2018 1	17:49		
Arsenic, Dissolved	75a	0.0265	0.000200	mg/L	0.0250		106	80-120			
Duplicate (BGH0044-DUP1)	75a 0.0265 0.000200 mg/L 0.0250 106 80-120 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	
Arsenic, Dissolved 75a ND 0.000200 mg/L Image: Mail of the state of											
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.

Analytical Resources, Inc.

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

08/16/2018



Test America - Denver Project: Hansville 4955 Yarrow Street Arvada CO, 80002 Project Manager: Betsy Sara

Project Number: 28006013-2Q/3Q/4Q Sampling

Reported: 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)				Prep	ared: 27-Jul-	2018 Ana	lyzed: 27-J	ul-2018 13:2	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)				Prep	ared: 27-Jul-	2018 Ana	lyzed: 27-J	ul-2018 13:4	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)	S	ource: 180	60315-01	Prep	ared: 27-Jul-	2018 Ana	4				
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)	Prepared: 27-30-2018 Analyzed: 27-30-2018 13:41 1.48 0.100 0.100 mg/L 1.50 98.5 90-110 1.48 0.100 0.100 mg/L 1.50 98.9 90-110 1.49 0.10 0.10 mg/L 1.50 99.4 90-110 Source: 18G0315-01 Prepared: 27-Jul-2018 Analyzed: 27-Jul-2018 14:14 0.463 0.100 0.100 mg/L 0.461 0.43 20 ND 0.100 0.100 mg/L ND ND 0.100 mg/L ND 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.

Analytical Resources, Inc.

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



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

Analytical Resources, Inc.

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



Test Amer	ica - Denver	Project:	Hansville	
4955 Yarro	ow Street	Project Number:	28006013-2Q/3Q/4Q Sampling	Reported:
Arvada CO	0, 80002	Project Manager:	Betsy Sara	15-Aug-2018 10:49
		Notes and Def	ïnitions	
D	The reported value is from a dilution			
Н	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 r	eporting or detection 1	imit.	

- 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



THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler N/A H	evin	a Uno	Lab P Sara	M: , Betsv	A						Carrier Tracking I	No(s):	COC No: 280-23414-6845	.1
Client Contact eilan Lanier-Kam	ahab Phone: 206-1	413-	5408	E-Mai	I: v.sara@	Dtesta	americ	ainc.c	om					Page:	
Company: Aspect Consulting LLC		110						1	Inali	reis	Rea	uested		Job #:	
Address: And Market An	Due Date Requeste	d:			T		T	T	T	1313	neu	dested		Preservation Con	les:
350 Madison Ave N City:	TAT Requested (da	ys):												A - HCL B - NaOH	M - Hexane N - None
Bainbridge Island					1				ARI					C - Zn Acetate D - Nitric Acid	O - AsNaO2 P - Na2O4S
WA, 98110									b to					E - NaHSO4 F - MeOH	Q - Na2SO3 R - Na2S2SO3
Phone:	PO #: Purchase Order	not require	d		0	alo)			ectsu	ARI	=			G - Amchlor H - Ascorbic Acid	S - H2SO4 T - TSP Dodecahydrate
Email:	Him (a) WO#				or N	Buff			- dir	b to /	to AR			J - Ice	U - Acetone V - MCAA
Project Name: Hansville Landfill	Project #:skip sites/e 28006013 - 20/3	wents 3Q/4Q Sam	pling		ole (Yes or N	loride (T/			ld filtered	direct su	irect sub			K - EDTA L - EDA	W - ph 4-5 Z - other (specify)
Site: Washington	SSOW#:				Sam	yl Ch	<u>s</u>		te (fie	nice -	c) - di			other:	
Sample Identification	Sample Date	Sample	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oll,	Field Filtered	3260C SIM - VIn	Dissolved Meta	Ammonia/TOC	Ortho-phospha	Dissolved Arse	Nitrate/Nitrite (I			Total Number	astructions/Note:
Cample Identification		>	Preserva	tion Code:	XX	A	DS	N	N	D	N				
MW-7-072618	7/26/18	1100		W	Y	V	VI	1	/						
MIN-5-072618		1222		1	II	r	1	V	1						
512-1-072618		1330			T	V	1	VI	1					Diss As,NO3,NO	2,o-phos subbed direct
MW - 17T - 072.618		1350			11	V	1	1	1	T	T			hun on!	y I trip bon
51-4-072618		1445			1/	V	V	~	V	1					1 1
WIN-130-072618		1525			1/1	L	1	1	-	T	1			3	
SW-6-072/18		1540				V	4	V	1	1	T				
512-7-072618		11.40			11	V	1	V	v	1	T				
MW-14-072418		1700			ttt	V	1	~	1	+	T	+++			
MUL- 0-72618		1870	1		#	V	V	VI	1	+	1	+++	280-11258	2 Chain of Custor	
MW20DD-072618		-		U	M	10	1	V	1	+	T	+++			
Possible Hazard Identification					S	ample	e Disp	osal	(A fe	e maj	y be	assessed if s	samples are ret	ained longer than	1 month)
Non-Hazard Flammable Skin Irrit	ant Poison B Unk	nown	Radiologic	al	- 0	Pagia	Return	To C	lient	Dogui		Disposal By L	.ab	Archive For	Months
Deliverable Requested: I, II, III, IV, Other (specify)		1-			5	pecial	mstru	CUONS	side	Requi	neme	ents:			
Empty Kit Relinquished by:	Date/Emo:	Date:		Company	Time	IPer	duct -					Method o	of Shipment:		Compton
Reminduisnee by Na Hyung Choi,	Date/Time. 7/	26/18	22:00	Aspec	f	F	ET	ER	1	SAM	W	STER	7/27/20	018 06:00	ASTECT
Relinquished PETER RANNISTE	R Date/Time: 2/27	118 1	05.00	ASPE	T	Rec	eived b	iPi	P		-		7-28-1	8 0840	Company TA-Den
Relinquished by:	Date/Time:			Company		Rec	eived b	y.					Date/Time:		Company
Custody Seals Intact: Custody Seal No.:				1		Coo	ler Tem	peratu	re(s) °C	and C	Other I	Remarks:	0	00 7 00	28
Δ Yes Δ No						15.	7,5	.8	L	KA	80	o ind	MISTEN	LY 1-28	10

Client: Aspect Consulting

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

Job Number: 280-112582-1

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 1/4"
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	

Client: Aspect Consulting

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

Job Number: 280-112582-1

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	