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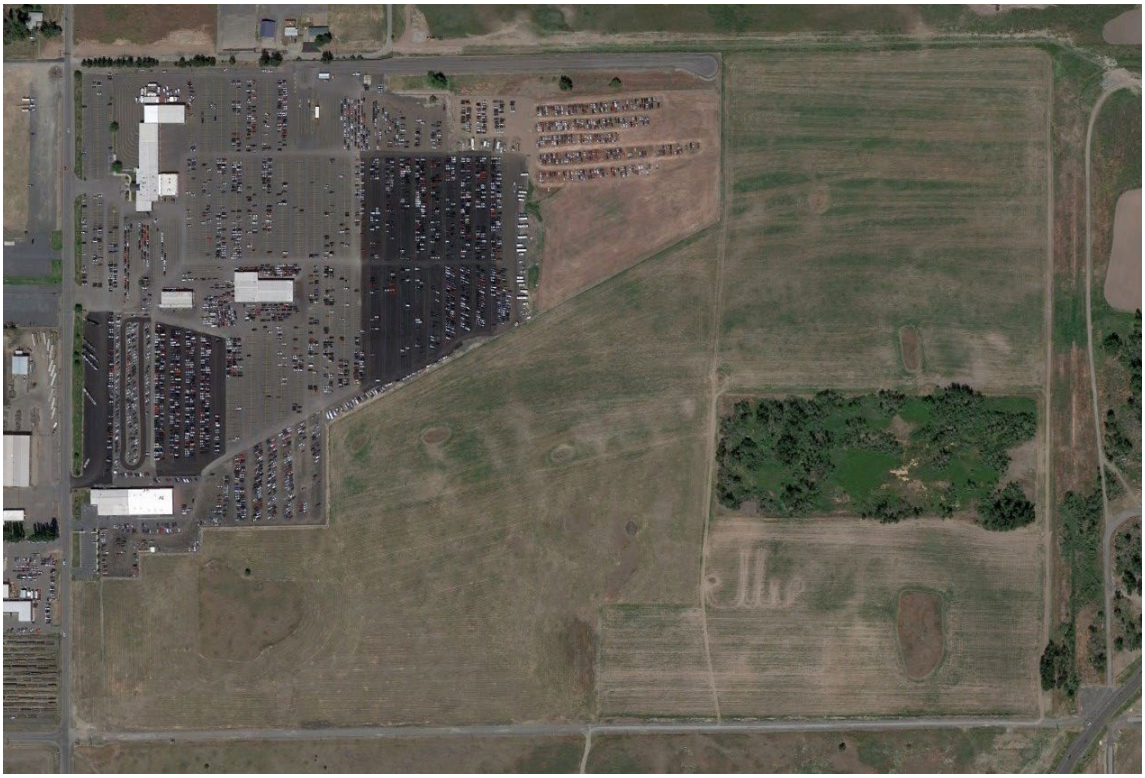

2023 Land Treatment Site Management Plan

Spokane International Airport
Spokane, Washington
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2023 Land Treatment Site Management Plan
Spokane International Airport – Spokane, Washington

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1.0 INTRODUCTION

During the months when air temperatures are at freezing or near freezing conditions, the passenger airlines and air cargo operators at the Spokane International Airport (SIA) conduct deicing of aircraft as required by Federal Aviation Regulations and each Carrier's operations specifications. Aircraft deicing is accomplished by spraying propylene glycol (glycol)-based aircraft deicing fluids onto critical aircraft surfaces. Some of the aircraft deicing fluid is retained on the aircraft and the remainder drips off onto the ground. The aircraft deicing fluid that falls to the ground can mix with stormwater, which flows to the stormwater infiltration area. As a result, SIA has implemented best management practices (BMP) to recover as much glycol as feasible to minimize the potential for groundwater contamination. In addition, SIA utilizes pavement deicers containing sodium formate, sodium acetate, and potassium acetate to melt and limit ice accumulation on paved surfaces including aprons, taxiways, and runways. These pavement deicers are also contained in the recovered stormwater-containing glycol that is stored then treated by application to a designated land treatment area on the airport property. For details on the application, collection, and storage of the stormwater-containing glycol, refer to the *2022 Glycol Recovery Best Management Practices Plan* (Valley Science and Engineering, 2022).

The collected stormwater-containing glycol, regulated under State Waste Discharge Permit by Rule Permit No. ST0045499 (Permit) (State of Washington Department of Ecology, 2020), is stored in tanks at SIA throughout the duration of the deicing season and is managed in an environmentally sound manner by controlled application to land for treatment by soil micro-organisms. The land treatment operations and application site are closely monitored in compliance with the Permit to document the continued effectiveness of this management approach.

The specific objective of this plan is to provide the actual and planned stormwater-containing glycol land treatment loads and BMP for the land treatment of the stormwater-containing glycol.

2.0 SITE DESCRIPTION

The land treatment site (Site) is an approximately 151-acre parcel containing approximately 131 farmable acres, excluding a gravel borrow area and rock outcrops (Figure 1). Historically, approximately 110 acres has been farmed with dryland crops. Based on the soils mapped at the Site and the rock outcrops, about 90 acres is available to land apply the stormwater-containing glycol. It is located in the south half of Section 30, Township 25 North, Range 42 East of the Willamette Meridian. The Site is generally bounded by Hayford Road on the west, McFarland Road on the south, and what would be West 21st Avenue on the north if it were developed. The east boundary is adjacent to the SIA Perimeter Ditch.

3.0 LAND TREATMENT

A thorough options analysis determined that the best option for treatment of the stormwater-containing glycol is land treatment (Cascade Earth Sciences, 2013). Land treatment is an efficient, sustainable, and cost effective alternative to standard mechanical-biological treatment technologies.

The benefits associated with land treatment include:

- system resiliency (e.g., land treatment systems can handle treatment upsets and short-term overloads compared to traditional mechanical-biological treatment systems), and
- zero discharge to surface water resources.

Land treatment is where the stormwater-containing glycol is treated in the soil profile by native microbes just as it would be treated in a biological treatment process. However, in this case, the stormwater-containing glycol is applied to an agricultural field at a rate that allows the soil profile to retain and treat it with little or no discharge to groundwater. Because the stormwater-containing glycol contains almost no appreciable concentrations of nutrients, such as nitrogen, the size of the land treatment system depends on the oxygen demand treatment capability of the soil.

3.1 Quality and Quantity

Operations and monitoring were conducted in compliance with the Permit. Sample analytical results and field notes for stormwater-containing glycol samples collected in 2022 are included in Appendix A and summarized in Table 1.

When stormwater-containing glycol is applied to the Site, the operator records the required information for each trip to the Site (e.g., volume, concentration, application rate, and soil type where the stormwater-containing glycol was applied). In 2022, stormwater-containing glycol was applied to soils 1, 2, and 3 as illustrated in Figure 2.

The same areas used in 2022 are planned to receive stormwater-containing glycol in 2023. The required information will be recorded and reported in the annual Land Treatment Site Management Plan, as required by the Permit. Appendix B contains the information logged by the operator during the 2022 land application activities. In 2022, 168,600 gallons of stormwater-containing glycol was applied to the Site (Table 2) from May 17 through August 9 (Appendix B).

3.2 Load

The stormwater-containing glycol must be applied at controlled rates within the capacity of the Site. In order to properly manage and document application rates, field analyses of the stormwater-containing glycol are used to calculate the load to the Site. The applications are documented by the operator (Appendix B). The laboratory analyses of the stormwater-containing glycol are used to compute the application rates for the required reporting.

Theoretical oxygen demand, chemical oxygen demand (COD), and total nitrogen loads are tabulated in Appendix B and summarized in Table 2. In 2022, 3,576,660 pounds of theoretical oxygen demand; 459,110 pounds of COD; and 31.5 pounds of total nitrogen, were applied.

No additional fertilizers were applied in 2022.

3.3 Soils

Soil sampling was conducted on April 28, 2022, prior to stormwater-containing glycol applications. Samples are collected for each of the soil types where application occurs (Soils 1, 2, and 3). The soil

types were identified during the initial soil characterization for the 2013 engineering report (Cascade Earth Sciences, 2013). A hand-held global positioning system is used to obtain consistent sampling locations across sampling events (Figure 1). The analysis completed on the April 2022 soil samples was performed in compliance with the Permit. The laboratory results are included in Appendix C with the data summarized in Table 3.

The soil monitoring is for qualitative purposes related to maintaining soil chemistry and fertility within general soil quality guidelines to support the desired treatment processes. Trend graphs showing soil pH, electrical conductivity of saturation paste extract, nitrate-nitrogen, and exchangeable sodium percentage (ESP) by depth are provided in Charts 1 through 4, respectively. These graphs provide perspective on any changes to the soil chemistry by showing the original results before the first application and the results from the most recent 3 annual pre-application sampling and analysis events. There has been no formal statistical evaluation of the data on the charts. All interpretations have been made based on visual observations of values and trends. The soil quality parameters are varying within a normal, acceptable range for an agricultural soil as needed for the desired oxygen demand treatment and cover crop growth.

In 2022, the soil ESP was calculated using the 2021 cation exchange capacity analysis.[1] The ESP values are reasonable. They appear to be increasing at depth for Soil 3, stable in Soil 1, and are fairly stable in Soil 2 (Chart 4). None are of particular concern, especially with ESP less than 3% in all soils (1, 2, and 3) in the upper 6 inches where the stormwater-containing glycol is applied.

In general, for the past 7 years, the trends and other results indicate no harmful degradation or accumulation of constituents that would harm the function of the soils and treatment appears to be successful and sustainable.

3.4 Groundwater

Monitoring wells MW-8 and MW-11 monitor background (upgradient) groundwater conditions, while the other monitoring wells (MW-9, MW-10, and MW-12) monitor downgradient groundwater characteristics potentially influenced by Site activities. Field notes and laboratory reports for sampling conducted in 2022 are included in Appendix D and summarized in Table 4 with basic intra-well statistics for each parameter with results that were detected above the method detection limit.

Groundwater trends for dissolved oxygen, oxidation reduction potential (ORP), COD, total metals (arsenic, iron, and manganese), and nitrate-nitrogen are shown in Charts 5 through 11, respectively. Decreasing or stable trends are visible for dissolved oxygen, total arsenic, and nitrate-nitrogen. The ORP steadily increased since mid-2016 until October 2022 when it declined then stabilized after peaking in April 2021. COD has been variable. Total arsenic, total iron, and more recently total manganese results have also shown some unusual variability. These observations are discussed below.

The ORP is an indication of oxidation-reduction potential, which indicates the probability of chemical reduction reactions that lead to solubilization of metals such as arsenic, iron, and

[1] ESP = Sodium (milliequivalents of charge per 100 grams of soil) ÷ Cation Exchange Capacity × 100%

manganese into the groundwater. The decrease in groundwater ORP returned the values to a range higher but similar to the original values in 2012. If stormwater-containing glycol was reaching groundwater, we would expect to see ORP values less than where they began in downgradient well locations. In this case, all ORP values, upgradient and downgradient, are varying together. This behavior is an indicator that the stormwater-containing glycol is being retained in the soil and effectively treated. The significant decrease in ORP observed at all monitoring wells in the October 2021 results compared to April. This decrease is believed to be associated with replacing the ORP meter in May 2021 as a similar decrease was seen at another site using the same meter. Continued monitoring is needed to determine if the recent data are a significant trend or a sampling/analytical anomaly.

Based on intra-well statistics (Table 4), the COD has remained within the upper and lower tolerance intervals at all monitoring wells. All samples have been analyzed by the same laboratory (Eurofins Environment Testing [formerly Eurofins Testing America] in Spokane Valley, Washington). However, the method detection limit has changed a few times since monitoring began. These changes in detection limit are causing the appearance of changing concentrations because the COD results are often below the detection limit.

Analysis of the historical data and the intra-well statistics on the data shows that the total arsenic results at both downgradient MW-9 and MW-12 have consistently been greater than the results at upgradient MW-8 and MW-11. Whereas, results at downgradient MW-10 have consistently been less than the upgradient results. The sampling event on September 3, 2019, produced results from all monitoring wells, upgradient and downgradient, that were the highest valid, detectable total arsenic concentrations since monitoring began. The concentrations were greatest at MW-9 (0.0058 mg/L) followed by MW-12 (0.0049 mg/L). Since September 3, 2019, the total arsenic concentrations at all monitoring wells have been fluctuating in a higher range than prior analyses. At this time it is unknown what would cause the total arsenic results to increase in the groundwater at all upgradient and downgradient locations.

The results for total iron have varied somewhat beginning December 18, 2019, and have returned to similar concentrations in October 2022 in all except MW-12. However, only one of those results exceeded the maximum values experienced since the beginning of monitoring. Any analysis of statistical significance is limited by the fact that the results have rarely exceeded the method detection limits for total iron. Continued monitoring is needed to determine if the recent data are a significant trend or a sampling/analytical anomaly.

Overall, the groundwater quality trends at the background monitoring wells have followed patterns similar to the downgradient monitoring wells.

4.0 BEST MANAGEMENT PRACTICES

The following BMPs apply to the current operations at the Site. These BMPs may be modified or additional BMPs implemented, as needed or as appropriate, to improve stormwater-containing glycol treatment and management as more experience is gained.

4.1 Application

Land treatment of all the stormwater-containing glycol was selected as the preferred treatment method for SIA in the *Final Recovered Deicer Land Application Pilot Project Engineering Report* (Cascade Earth Sciences, 2013). Land application occurs only on bare soils because the light application rates (300- to 1,000- gallons per acre per application) would be intercepted and dry on the plant leaves not reaching the soil for treatment. In addition, corrosion inhibitors in the stormwater-containing glycol may be present in high enough concentrations to damage the plant leaves although not concentrated enough in the soil after application to inhibit plant growth. This loading rate barely wets the soil surface creating an interface for aerobic microorganisms to digest any oxygen demanding materials. Well-established literature indicates that soil microbes have the potential to digest oxygen-demanding materials at a rate of 45 to 450 pounds per acre per day (lb/ac/day) (U.S. Environmental Protection Agency, 2006; Bausmith & Neufeld, 1999; Idaho Department of Environmental Quality, 2007). Valley Science and Engineering, calculated the site-specific oxygen demand capacity to be 150 lb/ac/day or more from April through October based on soil properties and temperatures (2013). With this understanding, SIA prescribes a short land treatment season beginning in April or May and lasting for 8 to 12 weeks or until all of the stormwater-containing glycol is applied. After which, a grass or grain crop is established with stored soil moisture and late-spring rainfall. The crop is turned under the following fall to decompose and restore nutrient balance to the soil for the upcoming year's recovered deicer application.

SIA contracts with Inland Technologies for professional land application and farming operations. Inland Technologies owns all the current application and farming equipment, and leases the equipment to SIA. The application method includes a tractor, towable tanker, and spray boom. This equipment is ideally suited to perform the stormwater-containing glycol applications. The spray boom can be configured to operate at full spray width or at tractor width (8 feet wide) using shutoff valves on the spray bar. The operators are trained in applying herbicide/water mixtures at rates measured in gallons per acre and will calculate the application rate for each tank load depending on the glycol concentration in the stormwater-containing glycol (Table 5). The glycol concentration is measured using a hand-held refractometer, the application rate is determined, and the operator proceeds to apply the tanker volume at a specific field speed to accomplish the intended application rate.

Currently, SIA does not have access to an irrigation water supply and must rely on dryland farming and spraying techniques. The Site contains about 90 acres of suitable, arable land for land treatment.

4.2 Loading Rates

Because of the high oxygen demand and the lack of other limiting constituents, such as nitrogen, the application rate for the stormwater-containing glycol is determined based on the appropriate oxygen demand loading.

4.2.1 Chemical Oxygen Demand Loading Rate

Based on the oxygen demand capacity computed for the soils at the Site, the daily COD loading rate could be as high as 147 to 335 lb/ac/day depending on the month. This is in contrast to the average annual or seasonal oxygen demand loading rate of 50 lb/ac/day allowed for land treatment systems in Idaho (Idaho Department of Environmental Quality, 2007) but within the range cited by EPA

(U.S. Environmental Protection Agency, 2006). Table 5 provides the dosage in gallons per acre for 5 example COD loading rates based on the range of concentrations expected for the stormwater-containing glycol that was developed in the 2013 engineering report (Cascade Earth Sciences, 2013). To control the application rate and loading to within the capacity of the application areas, the stormwater-containing glycol will be applied at the rate of 150 pounds per acre (lb/ac) to no more than 1,050 pounds chemical oxygen demand per acre (lb COD/ac) in any one application. The rest period between applications would be a minimum of one day for each 150 lb COD/ac in the previous application.

For example, if an application rate of 150 lb/ac was to be applied, this rate could be applied on a daily basis. At an application rate of 1,050 lb/ac, the required rest period would be 7 days before another application could begin. This will maintain a loading rate within the capacity of the soils to treat the COD.

4.2.2 Supplemental Nitrogen Loading Rate

Based on the stormwater-containing glycol analytical results (Table 1) the nitrogen load to the Site from stormwater-containing glycol application is less than 25 pounds (Table 2). In addition, the Site soil test results from April 28, 2022, indicate that there is not sufficient nitrogen in the soil to compensate for the lack of nitrogen in the stormwater-containing glycol (Table 3). As discussed above, in order to encourage microbial degradation of the recovered deicer following application, it may be necessary to apply nitrogen fertilizer.

It is well established that a carbon:nitrogen ratio of approximately 25:1 is necessary to decompose organic residues without immobilizing available soil nitrogen. Based on the analysis conducted for the 2013 engineering report, a soil nitrogen supply or fertilization is recommended to achieve a carbon:nitrogen ratio of 30:1 (Cascade Earth Sciences, 2013).

Table 6 provides a guide for the nitrogen requirements for a range of application rates, up to 15 applications. Actual nitrogen needs for any given area can be computed based on the COD load applied using the 0.009 pounds nitrogen per pound COD relationship.

$$\text{N-Fertilizer Need (lb/ac)} = \sum (\text{lb COD/ac}) \times 0.009$$

The recommendations for actual fertilizer management are as follows. If the soil available nitrogen is less than 25 pounds nitrogen per acre in the surface 6 inches, fertilizer should be applied at the rate of 25 pounds nitrogen per acre for every 2,400 lb COD/ac (8 applications at 300 lb/ac; Table 5). For areas receiving less than 2,800 lb COD/ac, the soil will be assumed to have sufficient nitrogen reserves to allow deicer decomposition. Nitrogen fertilizer application may be provided in liquid form such as urea-ammonium nitrate (UAN 32) by the spray truck. An alternative would be to provide nitrogen in a dry granular form such as urea by an agricultural broadcast fertilizer spreader.

4.3 Cropping

As described above, the soil should be cultivated and fallow during the application period. This will allow the soil to be fully exposed to receive and treat the applied stormwater-containing glycol. Following stormwater-containing glycol application, the land will be planted to a grass crop such as

annual ryegrass (*Lolium multiflorum*), a grain crop such as barley, wheat, or oats could be substituted for the grass. The crop would be planted with a seed drill at least a week following the end of stormwater-containing glycol application but as soon as possible. The seed drill is needed to plant the seed into the moist soil beneath the surface for initial germination, growth, and establishment.

Once established, the crop will consume the water from the soil to retain nutrients such as nitrogen in the upper soil horizons. It will also provide a means to consume and breakdown corrosion inhibitors that may be present in the recovered deicer. The removal of water from the soil by the crop will provide capacity for winter and spring rainfall prior to the next deicer application season. If sufficient growth and moisture are possible, a harvest might be accomplished but that is not the primary function of the crop. In the fall (late September or early October), the crop would be disked into the soil to break down, leaving the nutrients taken up in the upper soil horizons for treatment processes the next spring.

5.0 MONITORING PLAN

Monitoring is required by the Permit and provides critical data necessary for monitoring the land application operations documenting stormwater-containing glycol treatment. This plan includes field logs kept by the operators, stormwater-containing glycol testing, soil testing, and groundwater testing.

The soil and groundwater sampling locations are shown on Figure 1. Qualified individuals and laboratories will conduct sample collection and analysis. All samples will be collected, stored, and transported according to regulatory and laboratory standard methods. The constituents to be analyzed, as required in the Permit (Table 7).

5.1 Operator Logs

Field logs kept by the operators (Appendix E) will provide a record of the date, time, glycol concentration, stormwater-containing glycol volume applied, application area, application rates, and conditions. The observations in the logs will be used to calculate loading rates reported on the monthly discharge monitoring reports (April through September) and summarized in the annual Land Treatment Site Management Plan.

5.2 Stormwater-Containing Glycol

Stormwater-containing glycol monitoring is necessary for managing land treatment and has a two-fold objective:

1) to monitor the constituent composition in the stormwater-containing glycol and,
2) to obtain the information needed to know the proper application rate.

Each tank of stormwater-containing glycol is tested for % glycol prior to application using a hand-held refractometer to determine the application rate on the Site. Using the quantity of stormwater-containing glycol in the tank and the % glycol, the operator uses Table 5 to determine the application rate. One sample is collected every 2 weeks, while land applying, and analyzed for the

required constituents (Table 7). Field parameters and conditions are logged on a field sheet (Appendix F). Monitoring results will be reported on the monthly discharge monitoring reports (April through September) and summarized in the annual Land Treatment Site Management Plan.

5.3 Soil

Soils analysis is conducted to monitor for nitrogen, accumulation of salts, and to verify that treatment is occurring and can continue occurring, as expected. Samples will be collected and analyzed each spring prior to the start of land application of stormwater-containing glycol and submitted to a qualified laboratory for analysis of the required constituents listed in Table 7.

Composite soil samples representing the 0- to 6-inch, 6- to 12-inch, 12- to 18-inch, 18- to 36-inch, and 36- to 60-inch depths will be collected. The composite samples should be composed of a minimum of 4 sub-samples each and samples should represent soil areas 1, 2, and 3 (Figure 1). Monitoring results will be reported in the annual Land Treatment Management Plan.

5.4 Groundwater

The groundwater at monitoring wells (MW-8 through MW-12) at the Site will be monitored for the required constituents 2 times per year (Table 7). Prior to purging, static water elevations are measured with a measuring tape, accurate to 0.01 feet. Groundwater samples are collected using a peristaltic pump to maintain purging rates between 0.2 and 0.3 liters per minute (described as "low flow" on field sheets in Appendix G). Field parameters are measured and recorded at intervals of at least 5 minutes. Once the field parameters (pH and electrical conductivity) stabilized to within 10% of the previous reading, samples are collected and placed on ice. Samples are delivered to a qualified laboratory for analysis within the hold time requirements. Monitoring results will be reported on the bi-annual discharge monitoring reports and trends will be reported in the annual Land Treatment Management Plan.

6.0 SUMMARY

The specific objective of this plan is to address BMPs for stormwater-containing glycol application and treatment. The goal is to treat the stormwater-containing glycol recovered during aircraft deicing operations in a manner that does not negatively impact groundwater quality.
This plan includes guidance for application rates and application management along with monitoring of the:

- Stormwater-Containing Glycol – quantity, quality, application rates, and loads
- Land Treatment Site Soils
- Land Treatment Site Groundwater

Monitoring is required by the Permit and provides the critical information necessary for implementing and documenting the stormwater-containing glycol treatment and management strategy. These BMPs may be modified or additional BMPs implemented, as needed or as appropriate, to improve stormwater-containing glycol treatment and management.

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TABLES

Table 1. Stormwater-Containing Glycol Quality Data - 2022

Sample Date	pH	EC	Temp	Glycol	Total N	COD
	s.u.	µS/cm	ºC	%	mg/L	
5/16/2022	8.16	1,824	15.1	24.8	20.3	540,000
6/3/2022	8.03	2,280	19.0	23.5	39.6	410,000
6/14/2022	8.24	2,510	9.2	14.9	32.6	240,000
6/28/2022	8.00	2,070	15.2	22.7	13.4	380,000
7/12/2022	7.99	2,220	23.7	20.8	13.4	380,000
7/26/2022	8.32	1,822	28.2	16.0	15.1	260,000
Average	**8.10**	**2,121**	**18.4**	**20.5**	**22.4**	**368,333**

NOTES:

Samples were collected by Valley Science and Engineering from the application tank prior to land application and submitted to Eurofins TestAmerica in Spokane Valley, Washington for analysis.

Abbreviations: COD = chemical oxygen demand, EC = electrical conductivity, mg/L = milligrams per liter, Total N = total nitrogen (total Kjeldahl nitrogen + nitrate-nitrogen + nitrite-nitrogen), Temp = temperature, s.u. = standard units, µS/cm = microsiemens per centimeter.

Table 2. Application Summary - 2022

Month	Applied			
	Stormwater-Containing Glycol	Total Nitrogen	Chemical Oxygen Demand	Theoretical Oxygen Demand
	gallons	pounds		
May	2,700	0.5	12,160	48,600
June	78,750	20.8	211,090	2,026,660
July	62,150	7.2	181,650	1,079,100
August	25,000	3.1	54,210	422,300
Total	**168,600**	**31.5**	**459,110**	**3,576,660**
Average Rate (90 acres)		**0.35 lb/ac**	**5,101 lb/ac**	

NOTE:
Abbreviation: lb/ac = pounds per acre.

Table 3. Soil Monitoring Results - 2022

Sample Date	Depth	pH	OM	H_2O	ECe	NO_3-N	NH_4-N	TKN	SO_4-S	Avail P	K	Ca	Mg	Na	ESP [1]
	inches	s.u.	%		mmhos/cm	milligrams per kilogram						meq/100g			%
Soil 1															
4/28/2022	0 to 6	6.0	2.55	18.50	0.31	3.4	3.3	790	16	22	478	4.62	0.73	0.16	0.9
4/28/2022	6 to 12	6.5	1.79	14.55	0.21	3.1	2.0	440	8	11	377	5.40	0.84	0.13	1.1
4/28/2022	12 to 18	6.6	1.77	14.10	0.20	4.0	1.7	220	8	10	297	5.19	0.89	0.11	0.6
4/28/2022	18 to 36	6.8	0.54	8.37	0.20	2.1	1.5	170	9	8	151	4.15	1.22	0.07	0.7
4/28/2022	36 to 60	6.8	0.36	6.84	0.23	2.2	1.3	230	6	9	115	3.42	0.93	0.04	0.7
Soil 2															
4/28/2022	0 to 6	6.9	3.32	16.85	0.55	5.1	3.2	610	11	12	561	8.05	1.30	0.27	1.7
4/28/2022	6 to 12	7.3	2.79	18.58	0.58	4.8	2.5	370	8	10	367	10.34	1.80	0.35	2.2
4/28/2022	12 to 18	7.4	1.57	16.82	0.64	5.3	2.1	610	10	10	269	9.25	1.90	0.26	1.8
4/28/2022	18 to 36	7.5	0.90	15.17	0.49	2.2	1.7	100	9	9	188	7.04	1.94	0.16	1.3
4/28/2022	36 to 60	8.1	0.54	11.54	0.31	0.6	1.4	360	4	6	77	5.96	1.57	0.37	4.6
Soil 3															
4/28/2022	0 to 6	7.2	3.47	17.53	0.66	6.2	3.2	950	8	11	553	11.52	1.21	0.16	1.1
4/28/2022	6 to 12	7.5	2.57	20.13	0.62	6.3	2.1	710	10	10	474	10.63	1.54	0.26	2.3
4/28/2022	12 to 18	7.9	1.79	20.83	0.65	5.5	1.7	350	8	9	337	10.72	2.21	0.46	4.9
4/28/2022	18 to 36	8.3	1.01	16.95	0.81	2.6	1.7	310	6	8	143	8.77	1.92	0.64	7.8
4/28/2022	36 to 60	8.3	0.27	8.69	0.37	2.0	1.2	90	6	7	69	4.74	1.47	0.36	4.9

NOTES:

Soil samples were collected by Valley Science and Engineering and submitted to Kuo Testing Labs in Othello, Washington for analysis.

Soil samples were collected before the application of stormwater-containing glycol from the 2021-2022 winter season.

Abbreviations: Avail P = available phosphorus, CEC = cation exchange capacity, Ca = calcium, ECe = electrical conductivity of saturation paste extract, ESP = exchangeable sodium percentage, H_2O = moisture, K = potassium, meq/100g = milliequivalents of charge per 100 grams of soil, Mg = magnesium, mmhos/cm = millimhos per centimeter, Na = sodium, NH_4-N = ammonium-nitrogen, NO_3-N = nitrate-nitrogen, OM = organic matter, s.u. = standard units, SO_4-S = sulfate-sulfur, TKN = total Kjeldahl nitrogen.

1 Calculated using the current year soil sodium and the 2021 soil cation exchange capacity.

Table 4. Groundwater Monitoring Results - 2022

Sample Date	Field Parameters [1]						Laboratory Parameters																
							Arsenic		Iron		Manganese		NO_3-N	NO_2-N	TDS	Alk	Ca	Mg	Na	K	Cl	SO_4-S	COD
	SWL	pH	EC	Temp	DO	ORP	Dissolved	Total	Dissolved	Total	Dissolved	Total											
	feet	s.u.	µS/cm	C°	mg/L	mV	milligrams per liter																
MW-8 (Upgradient)																							
4/5/2022	12.10	7.01	414	10.6	4.90	143	0.0015	0.0015	0.039 J	0.054 J	< 0.0005	< 0.00046	3.5	< 0.069	220	95 B	49	13.0	10 B	5.1	82	8.5	< 5.9
10/18/2022	13.53	7.15	339	14.5	3.60	98	0.0020	0.0020	0.046 J	0.058 J	0.00096 J	0.00051 J	3.3	< 0.069	210	95 B	43	12.0	10	4.8	62	8.1	< 5.0
Statistics [2]																							
Total # of Samples	35	34	35	31	35	35	35	35	35	35	35	35	35	32	35	4	4	4	4	4	4	4	32
# Samples > MDL	35	34	35	31	35	35	28	29	9	12	9	28	35	0	35	4	4	4	4	4	4	4	17
Maximum	14.09	7.61	414	16.6	12.90	243	0.0031	0.0071	0.064	0.130	0.0412	0.08110	4.7	--	310	95	49	13.0	13	6.0	82	8.5	19.0
Minimum	8.16	6.84	167	8.3	3.60	-13	0.0015	0.0015	0.019	0.011	0.0005	0.00051	0.6	--	118	75	28	7.7	9	4.1	28	5.1	4.0
Mean	--	7.17	278	12.0	8.13	114	0.0022	0.0024	0.035	0.055	0.0055	0.00972	2.0	--	185	89	40	10.4	10	5.0	56	6.9	9.4
Standard Deviation	--	0.16	57	2.1	2.03	62	0.0003	0.0010	0.015	0.037	0.0134	0.02511	1.0	--	39	9	9	2.5	2	0.8	22	1.7	3.4
Tolerance Interval [3] Upper	--	7.54	408	16.7	12.78	255	0.0029	0.0048	0.080	0.157	0.0461	0.06726	4.4	--	273	137	85	23.2	20	9.1	171	15.6	17.7
Tolerance Interval [3] Lower [4]	--	6.81	148	7.2	3.48	0.0	0.0014	0.0001	0.000	0.000	0.0000	0.00000	0.0	--	96	40	0	0.0	1	0.9	0	0.0	1.0
MW-9 (downgradient)																							
4/5/2022	12.55	7.50	175	7.6	7.00	144	0.0040	0.0042	0.025 J	0.030 J	< 0.00046	0.0015 J	2.6	< 0.069	100	75 B	15	4.7	11 B	2.6	4	4.0	< 5.9
10/18/2022	12.48	7.52	150	13.2	4.90	123	0.0047	0.0046	0.018 J	0.039 J	< 0.00046	0.0011 J	4.6	< 0.069	97	80 B	15	4.4	10	2.4	4	5.9	< 5.0
Statistics [2]																							
Total # of Samples	35	34	35	31	34	34	35	35	35	35	35	35	35	32	35	4	4	4	4	4	4	4	32
# Samples > MDL	28	34	35	31	34	34	31	31	8	19	7	28	35	0	35	4	4	4	4	4	4	4	10
Maximum	12.55	7.94	444	15.9	13.72	212	0.0057	0.006	0.097	0.910	0.06640	0.0689	31.0	--	397	80	20	5.6	12	3.1	4	5.9	17.0
Minimum	4.83	7.00	141	6.8	4.80	-15	0.0023	0.002	0.010	0.010	0.00046	0.0008	0.7	--	90	75	14	4.4	10	2.4	2	3.1	4.3
Mean	--	7.35	256	10.8	8.80	107	0.0037	0.004	0.029	0.082	0.01085	0.0118	10.0	--	188	76	16	4.8	11	2.8	3	4.6	9.1
Standard Deviation	--	0.20	74	2.7	2.21	55	0.0008	0.001	0.028	0.202	0.02454	0.0215	9.0	--	69	3	3	0.6	1	0.3	1	1.3	4.4
Tolerance Interval [3] Upper	--	7.82	426	16.9	13.86	234	0.0056	0.006	0.120	0.572	0.09426	0.0610	30.6	--	347	89	30	7.7	15	4.3	9	11.1	21.9
Tolerance Interval [3] Lower [4]	--	6.88	86	4.6	3.74	0.0	0.0018	0.002	0.000	0.000	0.00000	0.0000	0.0	--	29	63	2	1.9	7	1.2	0	0.0	0.0
MW-10 (downgradient)																							
4/5/2022	10.55	7.50	230	8.2	5.90	136	0.0013	0.0013	0.032 J	0.077 J	0.0006 J	0.0042 J	8.5	< 0.069	170	50 B	20	5.7	13 B	2.1	20	12.0	< 5.9
10/18/2022	12.40	7.38	183	12.2	4.50	76	0.0017	0.0017	0.020 J	0.043 J	< 0.0005	0.0007 J	5.6	< 0.069	160	60 B	17	5.3	12	2.4	20	5.9	< 5.0
Statistics [2]																							
Total # of Samples	35	33	35	31	35	35	35	35	35	35	35	35	35	32	35	4	4	4	4	4	4	4	32
# Samples > MDL	28	33	35	31	35	35	24	23	6	29	10	28	35	0	35	4	4	4	4	4	4	4	7
Maximum	13.27	7.83	340	14.8	11.50	209	0.0021	0.0030	0.039	0.575	0.0910	0.1020	22.0	--	298	60	20	5.9	13	2.4	20	12.0	13.0
Minimum	8.88	6.94	166	8.2	4.50	-18	0.0008	0.0009	0.014	0.012	0.0006	0.0005	5.6	--	69	50	17	4.7	12	2.1	8	5.9	4.4
Mean	--	7.32	259	11.0	8.36	100	0.0013	0.0014	0.027	0.103	0.0233	0.0143	14.5	--	193	56	19	5.4	13	2.3	15	8.1	7.0
Standard Deviation	--	0.22	42	1.7	1.70	54	0.0003	0.0005	0.011	0.130	0.0372	0.0297	4.3	--	38	5	2	0.5	1	0.2	6	2.7	3.2
Tolerance Interval [3] Upper	--	7.82	354	14.9	12.26	224	0.0020	0.0024	0.066	0.400	0.1316	0.0823	24.5	--	280	81	26	8.1	15	3.1	46	22.2	17.9
Tolerance Interval [3] Lower [4]	--	6.83	164	7.0	4.46	0.0	0.0006	0.0003	0.000	0.000	0.0000	0.0000	4.6	--	106	32	11	2.7	10	1.6	0	0.0	0.0

Table 4. Groundwater Monitoring Results - 2022

Sample Date	Field Parameters [1]						Laboratory Parameters																
							Arsenic		Iron		Manganese		NO_3-N	NO_2-N	TDS	Alk	Ca	Mg	Na	K	Cl	SO_4-S	COD
	SWL	pH	EC	Temp	DO	ORP	Dissolved	Total	Dissolved	Total	Dissolved	Total											
	feet	s.u.	µS/cm	C°	mg/L	mV	milligrams per liter																
MW-11 (upgradient)																							
4/5/2022	11.75	7.13	153	8.2	5.30	167	0.0016	0.0017	0.020 J	0.026 J	0.0020	< 0.00046	6.2	< 0.069	170	50 B	13	4.2	5 B	3.2	7	4.4	< 5.9
10/18/2022	12.52	6.92	178	13.9	3.90	120	0.0019	0.0019	0.023 J	0.029 J	< 0.00046	< 0.00046	4.8	< 0.069	160	50 B	19	6.4	6	3.7	13	5.7	< 5.0
Statistics [2]																							
Total # of Samples	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	4	4	4	4	4	4	4	28
# Samples > MDL	28	28	28	28	28	28	23	24	6	11	7	28	28	0	28	4	4	4	4	4	4	4	18
Maximum	12.93	7.47	211	16.0	10.90	252	0.0027	0.0035	0.054	0.105	0.0032	0.00556	6.2	--	180	60	20	6.4	7	4.1	13	6.3	27.0
Minimum	7.68	6.64	120	7.9	3.90	7	0.0013	0.0014	0.016	0.012	0.0005	0.00054	1.5	--	85	50	13	4.2	5	3.2	7	4.4	4.2
Mean	--	6.94	160	11.3	7.45	131	0.0018	0.0019	0.032	0.046	0.0017	0.00206	2.7	--	126	54	17	5.6	6	3.8	11	5.2	8.4
Standard Deviation	--	0.21	25	2.3	1.72	59	0.0003	0.0004	0.015	0.034	0.0010	0.00208	1.2	--	25	5	3	1.0	1	0.4	3	0.9	5.0
Tolerance Interval [3] Upper	--	7.41	217	16.5	11.40	267	0.0025	0.0029	0.090	0.141	0.0051	0.00683	5.5	--	183	78	33	10.6	10	5.8	25	10.0	20.6
Tolerance Interval [3] Lower [4]	--	6.47	102	6.0	3.50	0.0	0.0012	0.0010	0.000	0.000	0.0000	0.00000	0.0	--	69	29	1	0.6	2	1.7	0	0.4	0.0
MW-12 (downgradient)																							
4/5/2022	13.30	7.24	372	6.1	7.20	124	0.0026	0.0028	0.032 J	0.036 J	< 0.0005	< 0.00046	2.4	< 0.069	210	110 B	37	11.0	17 B	3.0	47	14.0	6.6 J
10/18/2022	14.57	7.29	346	13.5	4.40	109	0.0031	0.0030	0.041 J	0.170	< 0.00046	0.00300	2.4	< 0.069	200	120 B	40	12.0	19	3.1	4	15.0	< 5.0
Statistics [2]																							
Total # of Samples	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	4	4	4	4	4	4	4	28
# Samples > MDL	28	28	28	28	28	28	28	28	8	12	6	28	28	0	28	4	4	4	4	4	4	4	19
Maximum	14.61	7.76	441	16.2	13.30	235	0.0043	0.0049	0.064	0.318	0.0062	0.00833	13.0	--	300	130	41	12.0	20	3.5	47	15.0	20.0
Minimum	5.13	7.00	286	5.4	4.40	-4	0.0022	0.0021	0.020	0.017	0.0005	0.00066	0.5	--	152	110	37	11.0	17	3.0	4	13.0	4.1
Mean	--	7.24	378	10.6	8.32	112	0.0030	0.0031	0.040	0.106	0.0026	0.00363	5.1	--	237	118	39	11.5	19	3.2	32	14.3	9.8
Standard Deviation	--	0.18	42	2.9	2.18	63	0.0004	0.0005	0.015	0.094	0.0021	0.00321	3.0	--	35	10	2	0.6	1	0.2	19	1.0	4.1
Tolerance Interval [3] Upper	--	7.66	476	17.3	13.31	258	0.0040	0.0042	0.089	0.363	0.0104	0.01098	11.9	--	316	167	49	14.5	26	4.4	131	19.2	19.7
Tolerance Interval [3] Lower [4]	--	6.82	281	4.0	3.32	0.0	0.0021	0.0019	0.000	0.000	0.0000	0.00000	0.0	--	158	68	28	8.5	12	2.1	0	9.3	0.0

NOTES:

Summary of 2022 results intra-well statistics for data collected from December 2012 through October 2022 (MW-8, MW-9, and MW-10) and September 2014 through October 2022 (MW-11 and MW-12).

Shaded results are above the upper tolerance interval value.

Abbreviations: -- = not calculated, < = not detected above the method detection limit, Alk = alkalinity, B = compound was found in the blank and sample, Ca = calcium, Cl = chloride, COD = chemical oxygen demand, DO = dissolved oxygen, EC = electrical conductivity, J = result is less than the reporting limit but greater than or equal to the method detection limit and the concentration is an approximate value, K = potassium, mg/L = milligrams per liter, Mg = magnesium, mV = millivolts, Na = sodium, NH_3-N = ammonia-nitrogen, NO_2-N = nitrite-nitrogen, NO_3-N = nitrate-nitrogen, ORP = oxidation reduction potential, s.u. = standard units, SO_4-S = sulfate-sulfur, SWL = static water level, TDS = total dissolved solids, Temp = temperature, µS/cm = microsiemens per centimeter.

1 Field parameters were tested using hand-held instruments at the time of sampling.

2 Intra-well statistics run on results detected above the method detection limit.

3 Tolerance interval based on one-sided tolerance limits for normal distributions, at the 95% confidence level, minimum of 4 samples. These intervals are useful for understanding the typical range of results.

4 For all parameters except pH and ORP, calculated tolerance interval endpoints that are negative are set equal to zero.

Table 5. Application Rate for Stormwater-Containing Glycol Land Application

Glycol Concentration	Refraction at 20°C °Brix	lb COD/gal	Application Rate (gallons per acre) [1]				
% by Volume			150 lb COD/ac	300 lb COD/ac	500 lb COD/ac	750 lb COD/ac	1,050 lb COD/ac
1	0.4	0.14	1,071	2,141	3,569	5,353	7,495
2	1.2	0.28	535	1,071	1,784	2,677	3,747
3	1.9	0.42	357	714	1,190	1,784	2,498
4	2.6	0.56	268	535	892	1,338	1,874
5	3.4	0.70	214	428	714	1,071	1,499
6	**4.1**	**0.84**	**178**	**357**	**595**	**892**	**1,249**
7	**4.8**	**1.0**	**153**	**306**	**510**	**765**	**1,071**
8	**5.5**	**1.1**	**134**	**268**	**446**	**669**	**937**
9	**6.2**	**1.3**	**119**	**238**	**397**	**595**	**833**
10	**6.9**	**1.4**	**107**	**214**	**357**	**535**	**749**
11	**7.6**	**1.5**	**97**	**195**	**324**	**487**	**681**
12	**8.3**	**1.7**	**89**	**178**	**297**	**446**	**625**
13	**9.0**	**1.8**	**82**	**165**	**275**	**412**	**577**
14	**9.7**	**2.0**	**76**	**153**	**255**	**382**	**535**
15	**10.4**	**2.1**	**71**	**143**	**238**	**357**	**500**
16	**11.0**	**2.2**	**67**	**134**	**223**	**335**	**468**
17	**11.7**	**2.4**	**63**	**126**	**210**	**315**	**441**
18	**12.4**	**2.5**	**59**	**119**	**198**	**297**	**416**
19	**13.0**	**2.7**	**56**	**113**	**188**	**282**	**394**
20	**13.7**	**2.8**	**54**	**107**	**178**	**268**	**375**
21	**14.4**	**2.9**	**51**	**102**	**170**	**255**	**357**
22	**15.0**	**3.1**	**49**	**97**	**162**	**243**	**341**
23	**15.6**	**3.2**	**47**	**93**	**155**	**233**	**326**
24	**16.3**	**3.4**	**45**	**89**	**149**	**223**	**312**
25	**16.9**	**3.5**	**43**	**86**	**143**	**214**	**300**
26	17.6	3.6	41	82	137	206	288
27	18.2	3.8	40	79	132	198	278
28	18.8	3.9	38	76	127	191	268
29	19.4	4.1	37	74	123	185	258
30	20.0	4.2	36	71	119	178	250
31	20.6	4.3	35	69	115	173	242
32	21.3	4.5	33	67	112	167	234
33	21.9	4.6	32	65	108	162	227
34	22.5	4.8	31	63	105	157	220
35	23.0	4.9	31	61	102	153	214
36	23.6	5.0	30	59	99	149	208
37	24.2	5.2	29	58	96	145	203
38	24.8	5.3	28	56	94	141	197
39	25.4	5.5	27	55	92	137	192
40	25.9	5.6	27	54	89	134	187
41	26.5	5.7	26	52	87	131	183
42	27.1	5.9	25	51	85	127	178
43	27.6	6.0	25	50	83	124	174
44	28.2	6.2	24	49	81	122	170
45	28.7	6.3	24	48	79	119	167
46	29.3	6.4	23	47	78	116	163
47	29.8	6.6	23	46	76	114	159
48	30.3	6.7	22	45	74	112	156
49	30.9	6.9	22	44	73	109	153
50	31.4	7.0	21	43	71	107	150

NOTES:

This information in this table is from Table 12 of the *Final Recovered Deicer Land Application Pilot Project Engineering Report* (Cascade Earth Sciences, 2013).

Shaded and bold section is in the range of glycol concentrations expected in recovered deicer.

Abbreviations: lb COD/ac = pounds of chemical oxygen demand per acre, lb COD/gal = pounds of chemical oxygen demand per gallon of stormwater-containing glycol theoretical oxygen demand of 14.01.

1 Application rate is computed by dividing desired application rate by lb COD/gal (i.e., Application Rate = lb COD/ac ÷ lb COD/gal).

Table 6. Nitrogen Fertilizer Application Rate

Number of Applications	C:COD [1]	Nitrogen Needed to Balance COD Load [2]			
		COD Loading Rate (pounds per acre)			
	lb C/lb COD	150 lb COD/ac	300 lb COD/ac	500 lb COD/ac	1,050 lb COD/ac
1	0.29	1.5	2.9	4.8	10.2
2	0.29	2.9	5.8	9.7	20.3
3	0.29	4.4	8.7	14.5	30.5
4	0.29	5.8	11.6	19.3	40.6
5	0.29	7.3	14.5	24.2	50.8
6	0.29	8.7	17.4	29.0	60.9
7	0.29	10.2	20.3	33.8	71.1
8	0.29	11.6	23.2	38.7	81.2
9	0.29	13.1	26.1	43.5	91.4
10	0.29	14.5	29.0	48.3	101.5
11	0.29	16.0	31.9	53.2	111.7
12	0.29	17.4	34.8	58.0	121.8
13	0.29	18.9	37.7	62.8	132.0
14	0.29	20.3	40.6	67.7	142.1
15	0.29	21.8	43.5	72.5	152.3

NOTES:

This information in this table is from Table 13 of the *Final Recovered Deicer Land Application Pilot Project Engineering Report* (Cascade Earth Sciences, 2013).

Abbreviations: C = Carbon, COD = chemical oxygen demand, lb = pounds, lb C/lb COD = pounds of carbon per pound of chemical oxygen demand, lb COD/ac = pounds of chemical oxygen demand per acre.

1 Carbon:COD ratio is based on total organic carbon and COD laboratory analysis of stormwater-containing glycol.

2 The nitrogen need assumes a carbon:nitrogen ratio of 30:1 is sufficient to promote microbial decomposition of the applied deicer. Shaded cells are less than 25 pounds nitrogen per acre which is the minimum assumed available from the soil. The ratio of COD applied to nitrogen required = 0.009 pounds nitrogen per pound of COD.

Table 7. Monitoring Requirements

Sample	Type	Frequency	Parameter	Reporting
Recovered Aircraft Deicing Fluid				
Stormwater-Containing Glycol	Measured	Each Application (while applying) [1]	Volume Applied, Application Areas	Monthly Discharge Monitoring Report
	Calculated		Theoretical Oxygen Demand	
	Field Measurement	Once Every 2 Weeks (while applying) [2]	pH, Conductivity	
	Grab		Total Nitrogen	
Groundwater				
Groundwater	Field Measurement	Twice per Year (April and October)	Depth to Groundwater, pH, Conductivity, Dissolved Oxygen, Temperature, Oxygen Reduction Potential	Monthly Discharge Monitoring Report
	Grab		Bicarbonate Alkalinity, Chemical Oxygen Demand, Chloride, Sulfate, Total Dissolved Solids, Nitrate + Nitrite-Nitrogen, Total Calcium, Total Potassium, Total Magnesium, Total Sodium, Total Arsenic, Total Dissolved Arsenic, Total Iron, Total Dissolved Iron, Total Manganese, Total Dissolved Manganese	
Soils				
Soil 1 Soil 2 Soil 3	Calculated	Annually (in the spring before stormwater-containing glycol application begins)	Exchangeable Sodium Percentage	Annual Land Treatment Site Management Plan
	Composite (for each soil) [3]		Organic Matter, Moisture Content, Total Kjeldahl Nitrogen, Nitrate + Nitrite-Nitrogen, Ammonium-Nitrogen, Available Phosphorus, Conductivity, Extractable Sodium, Extractable Calcium, Extractable Magnesium, Available Potassium, Sulfate, and pH	

NOTES:

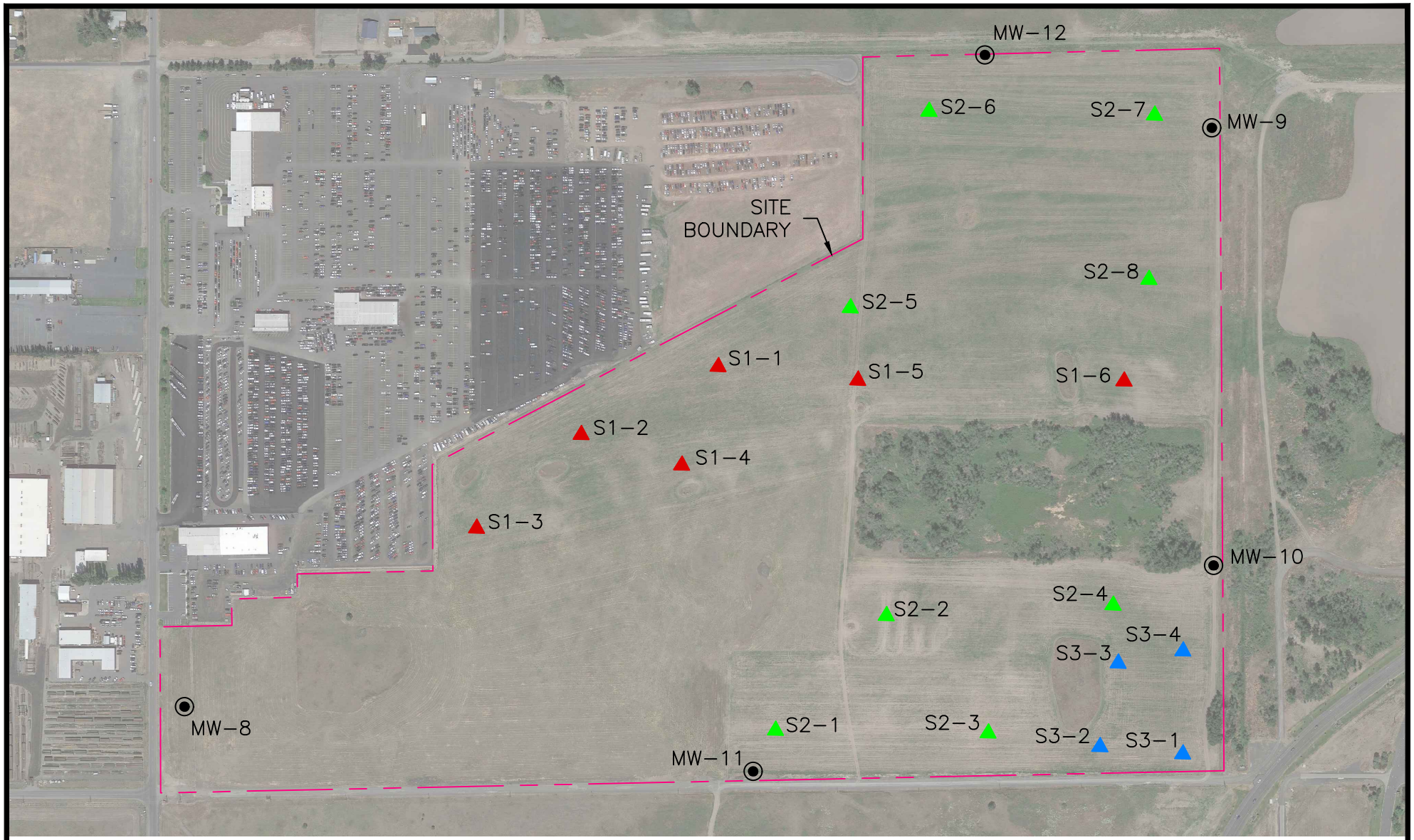
The monitoring requirements listed are required by State Waste Discharge Permit by Rule No. ST0045499 (State of Washington Department of Ecology, 2020).

1 Each application means each trip out to the land treatment site to apply stormwater-containing glycol (typically late April through September).

2 While applying means when stormwater-containing glycol is being applied to the land treatment site (typically April through September).

3 Composites for the following depths: 0 to 6 inches, 6 to 12 inches, 12 to18 inches, 18 to 36 inches, and 36 to 60 inches, or until auger refusal.

FIGURES



EXPLANATION:

- MW-8 MONITORING WELL LOCATION
- S1-1 SOIL 1 SAMPLE LOCATION
- S2-1 SOIL 2 SAMPLE LOCATION
- S3-1 SOIL 3 SAMPLE LOCATION

(SOURCE: Google Earth Pro Image July 2022, ©2022 Google™)

0 500'

1" = 500'

(SCALE AND LOCATION ARE APPROXIMATE)

Figure 1. Site Map

PROJECT NUMBER: 2018230022	2023 Land Application Management Plan
DATE: 1/4/2023	
DWG NO: 2018230022 F1.dwg	Spokane International Airport Spokane, Washington
DWG BY: 6NSG / PROJECT MANAGER: 6SJR	
REVISED:	VALLEY SCIENCE AND ENGINEERING

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EXPLANATION:

SOIL 2 — SOIL BOUNDARY LINE AND SOIL DESIGNATION

ROCK OUTCROPS

APPLICATION AREA

(SOURCE: Google Earth Pro Image July 2022, ©2022 Google™)

0 500'

1" = 500'

(SCALE AND LOCATION ARE APPROXIMATE)

Figure 2. Stormwater–Containing Glycol Applications

PROJECT NUMBER: 2018230022	2023 Land Application Management Plan
DATE: 1/4/2023	
DWG NO: 2018230022 F2.dwg	Spokane International Airport Spokane, Washington
DWG BY: 6NSG / PROJECT MANAGER: 6SJR	
REVISED:	VALLEY SCIENCE AND ENGINEERING

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CHARTS

Chart 1. Soil Trends - pH

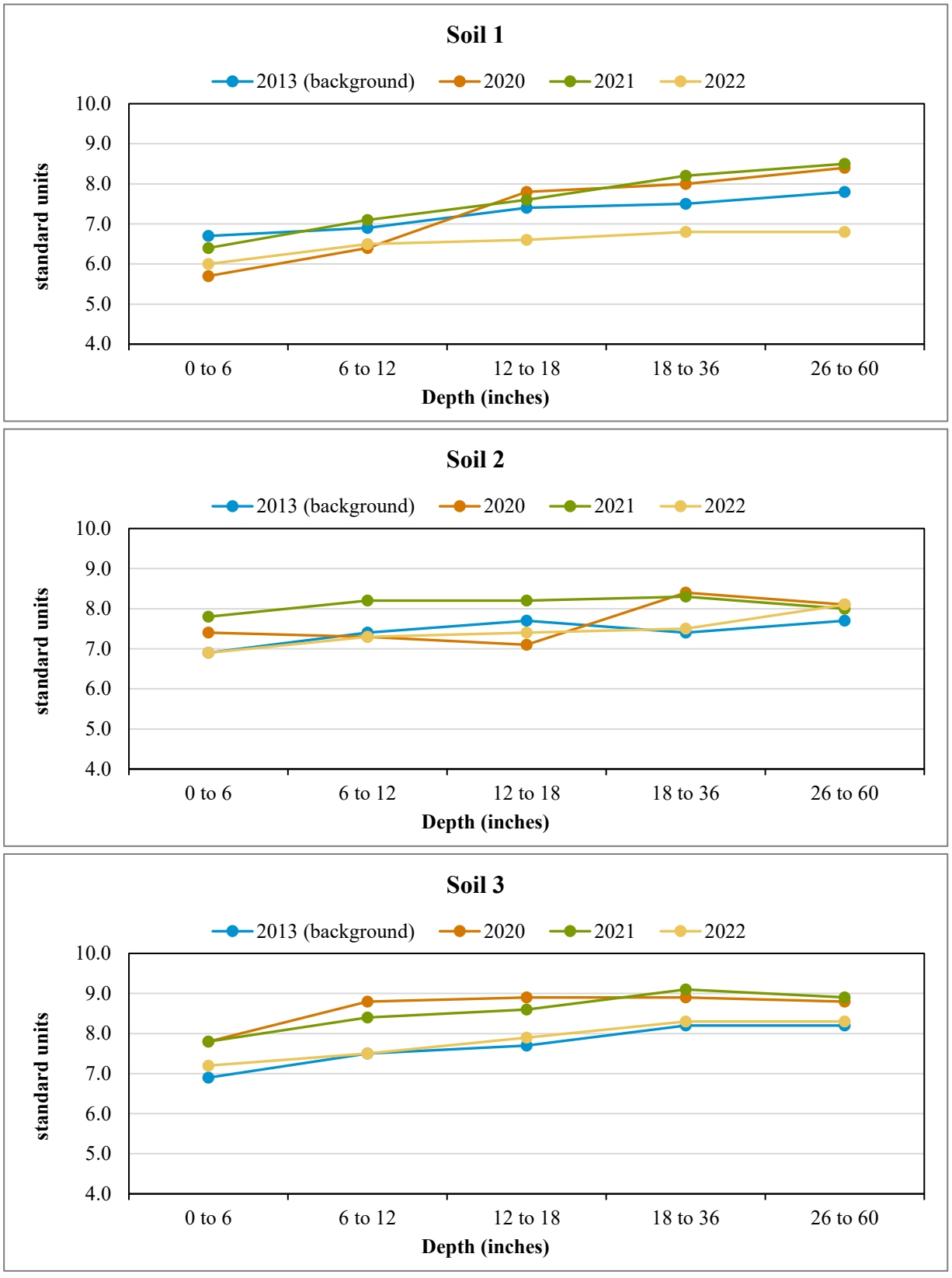


Chart 2. Soil Trends - Electrical Conductivity

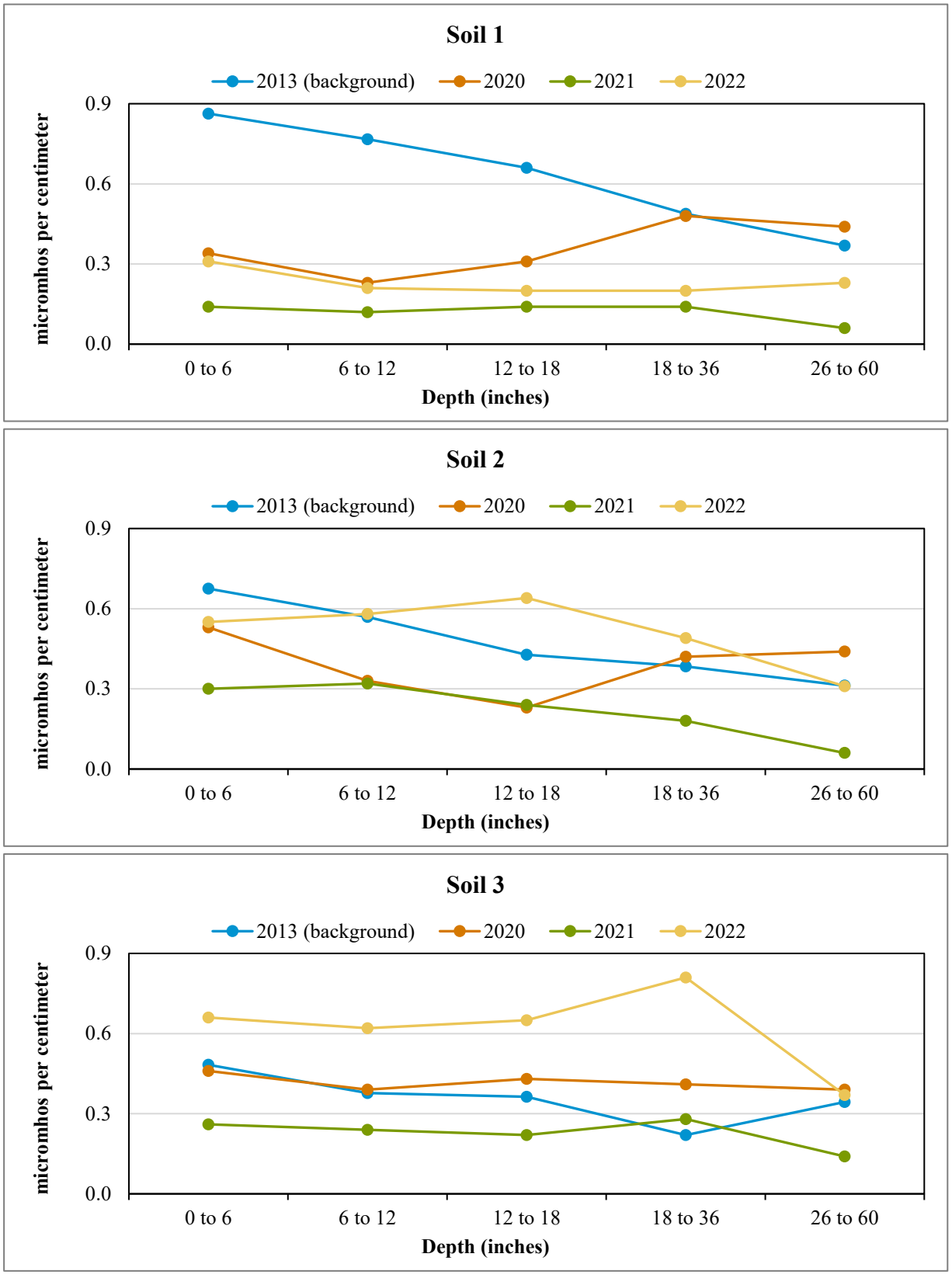


Chart 3. Soil Trends - Nitrate-Nitrogen

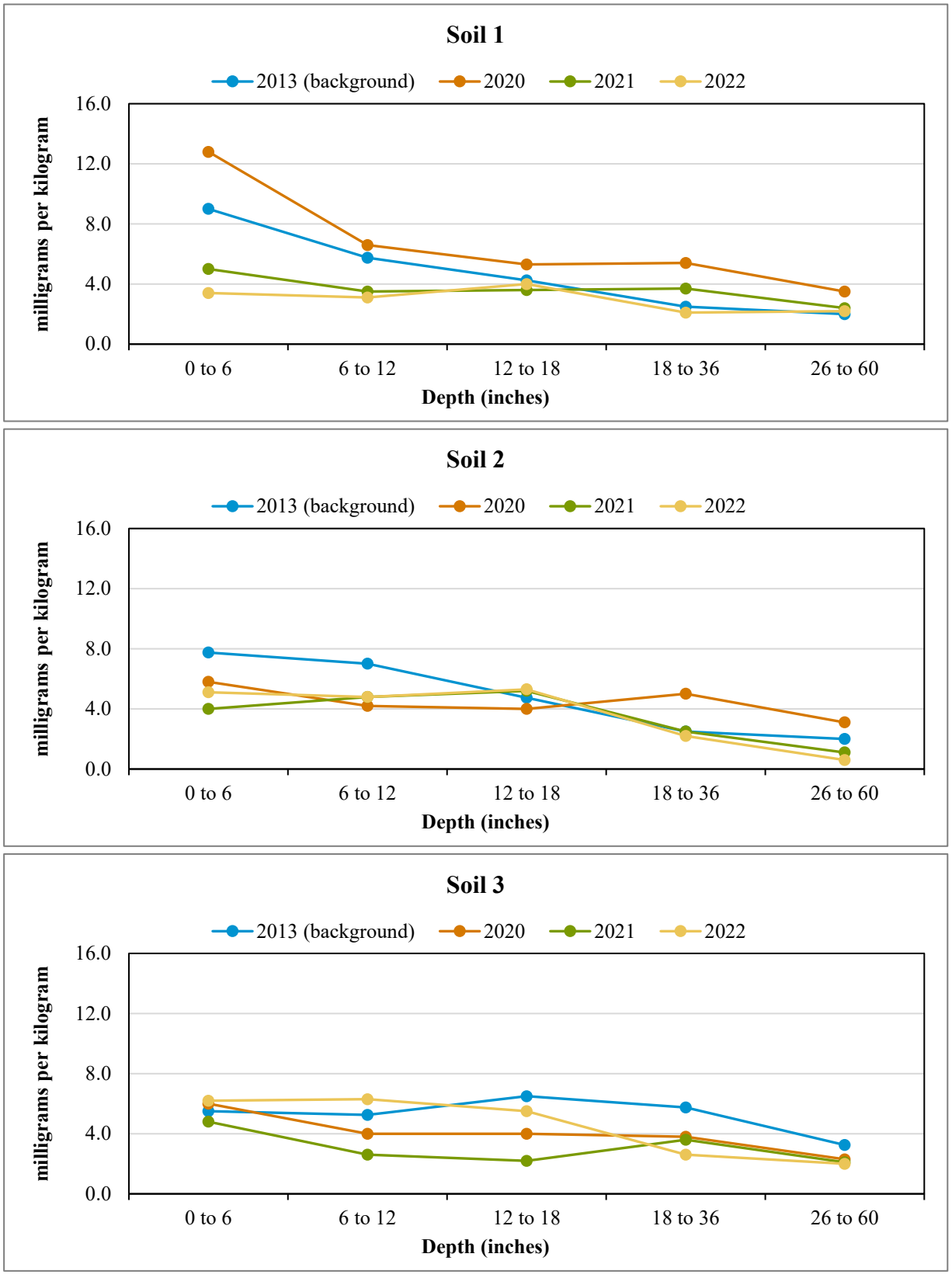


Chart 4. Soil Trends - Exchangeable Sodium Percentage

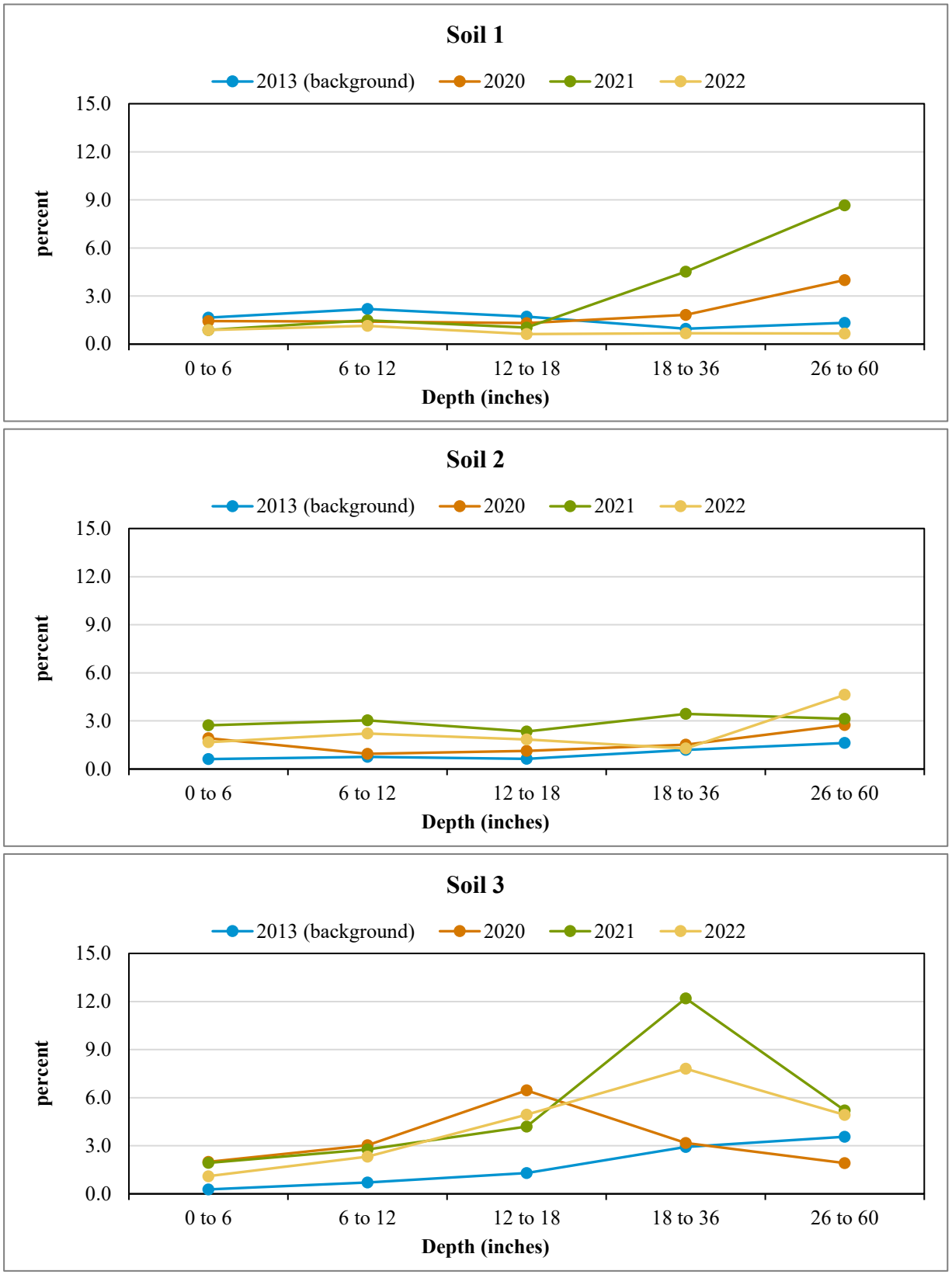


Chart 5. Groundwater Trends - Dissolved Oxygen

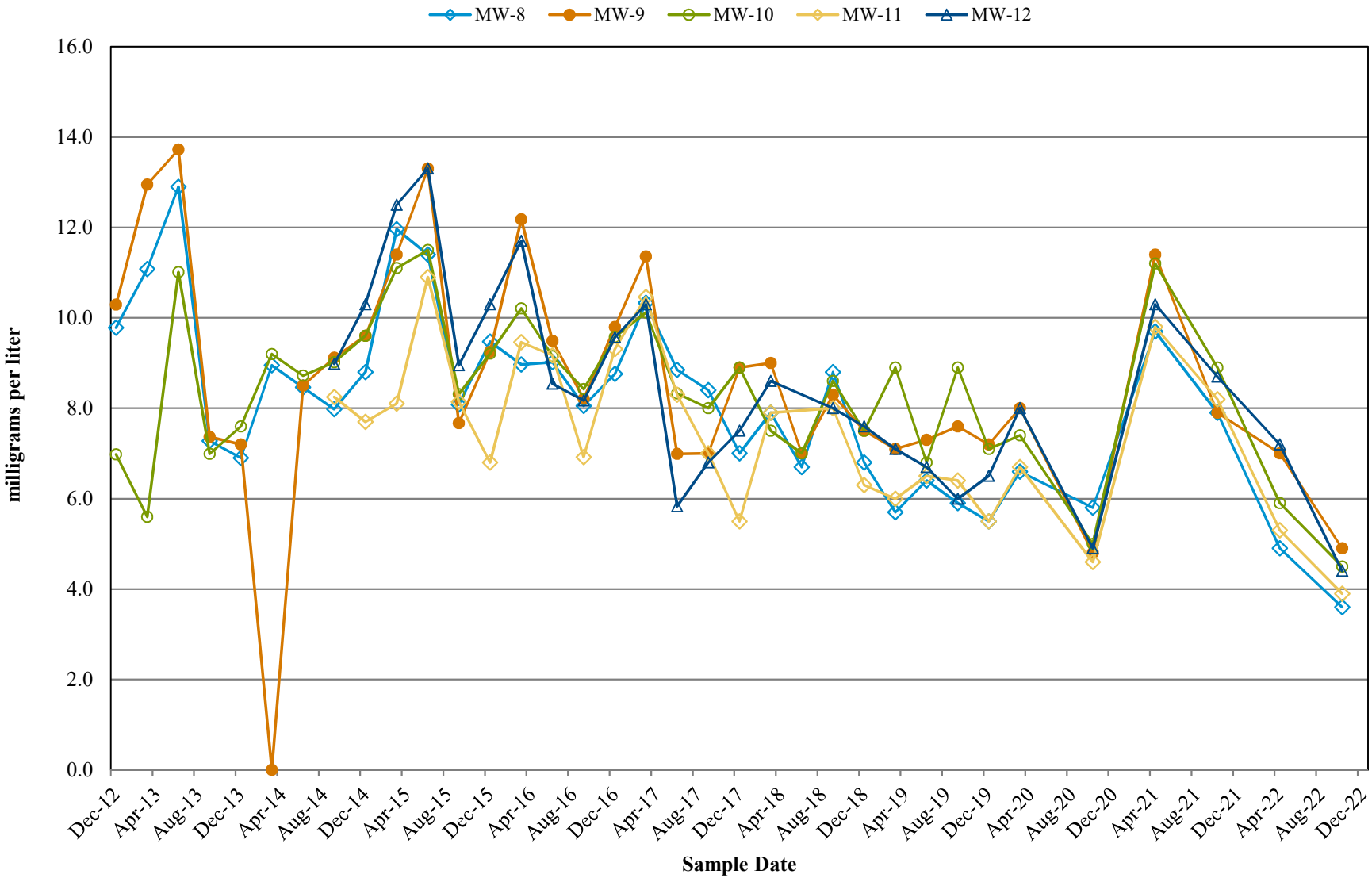


Chart 6. Groundwater Trends - Oxidation Reduction Potential

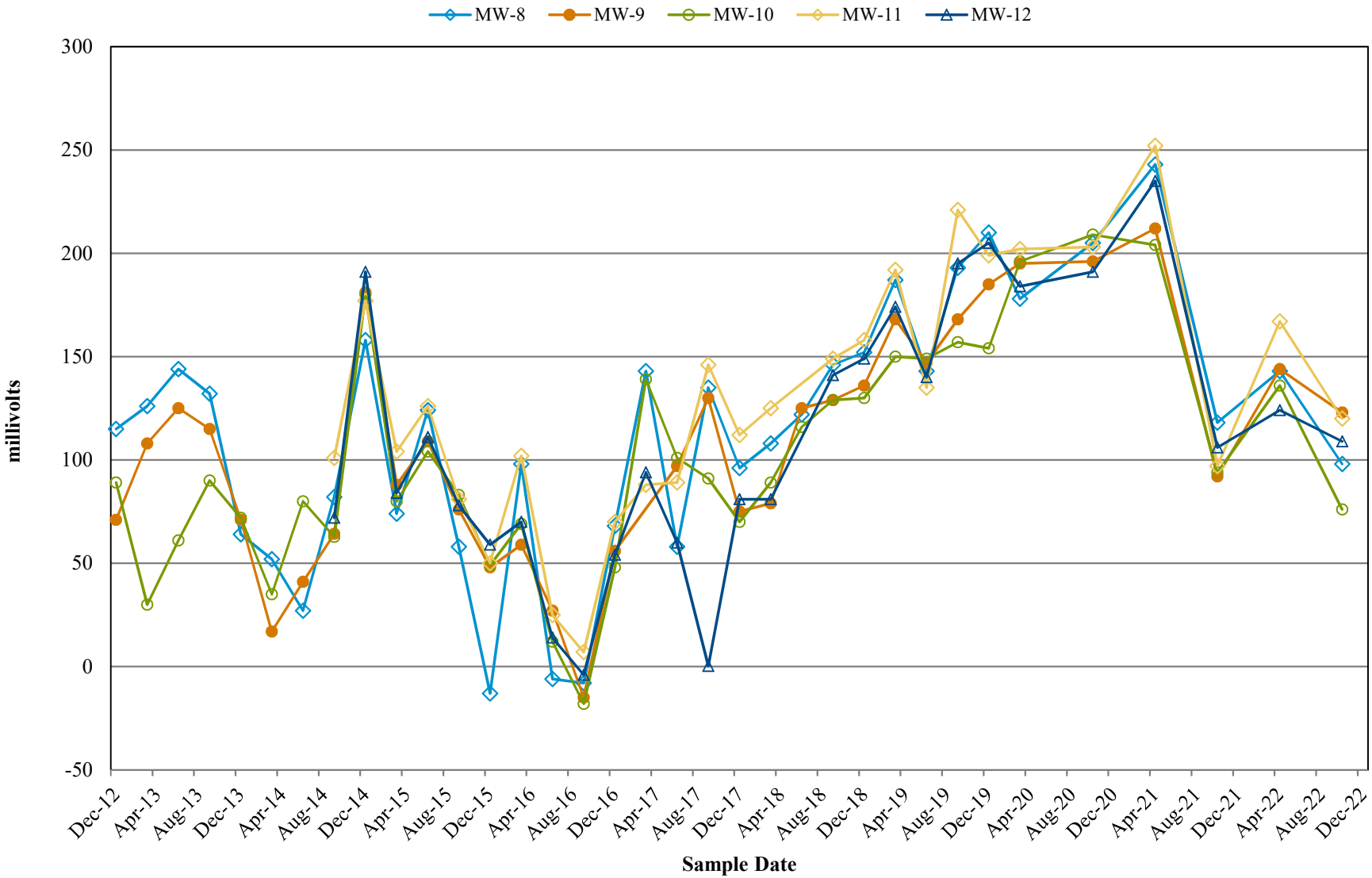


Chart 7. Groundwater Trends - Chemical Oxygen Demand

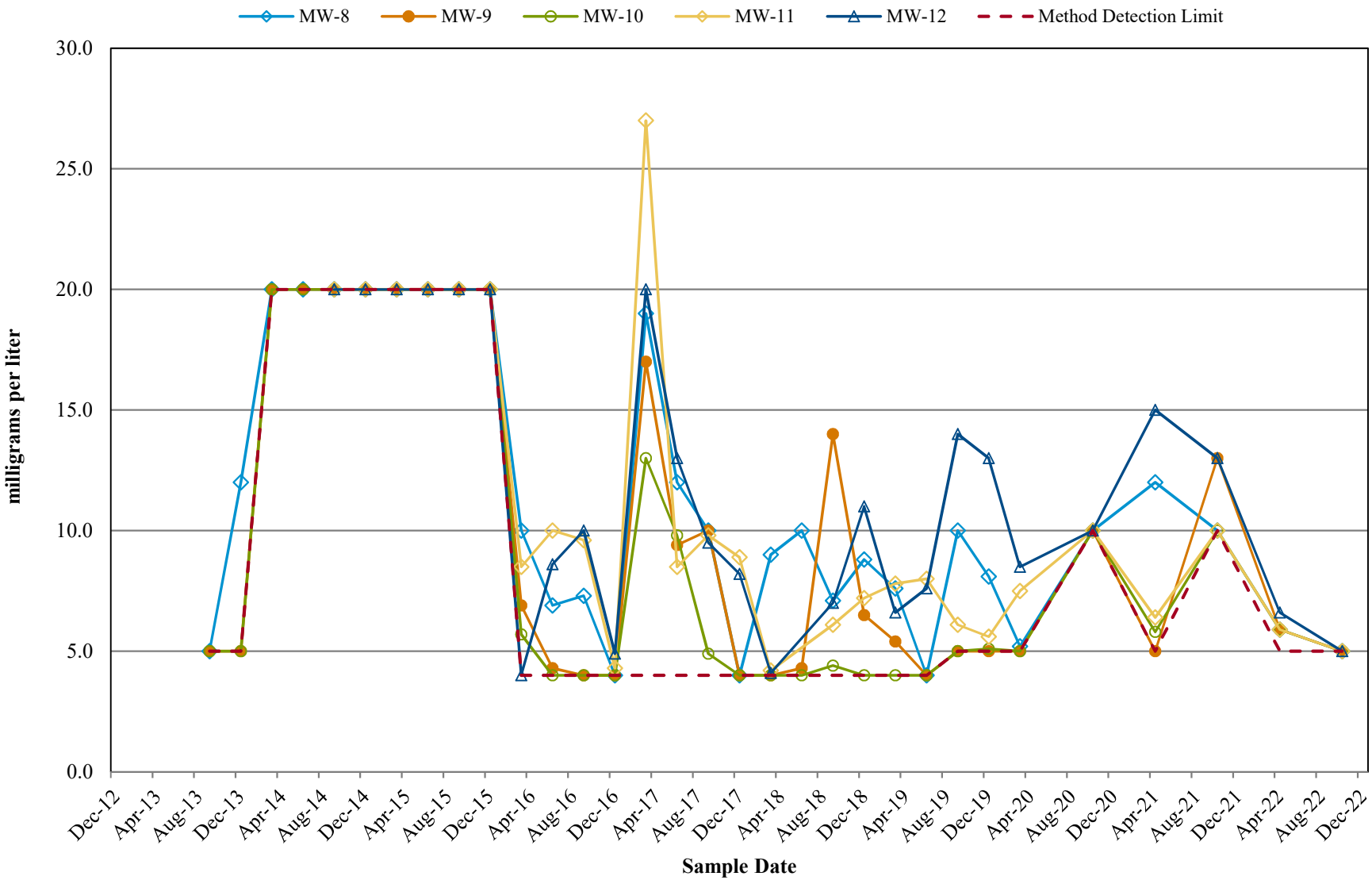


Chart 8. Groundwater Trends - Total Arsenic

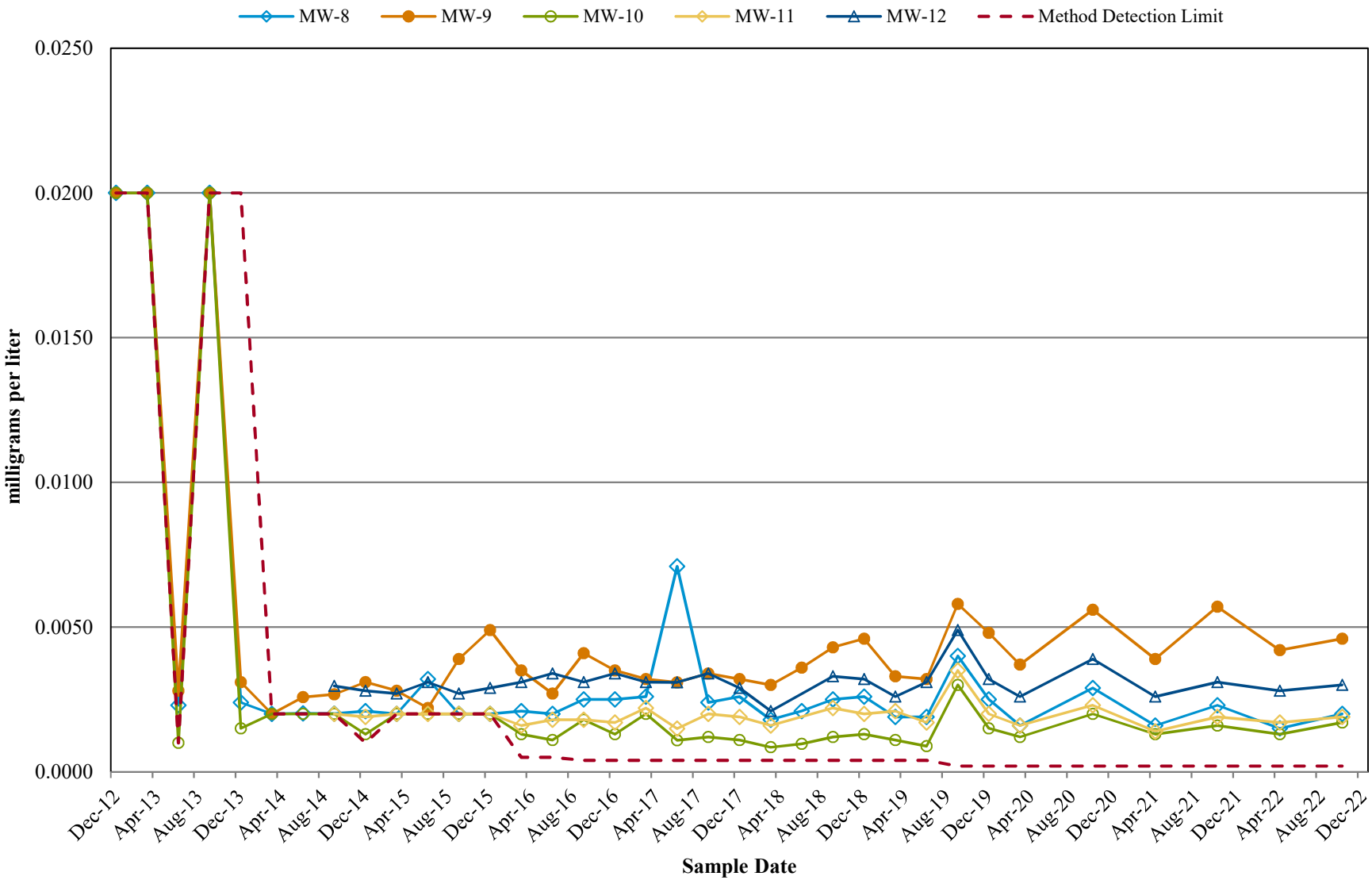


Chart 9. Groundwater Trends - Total Iron

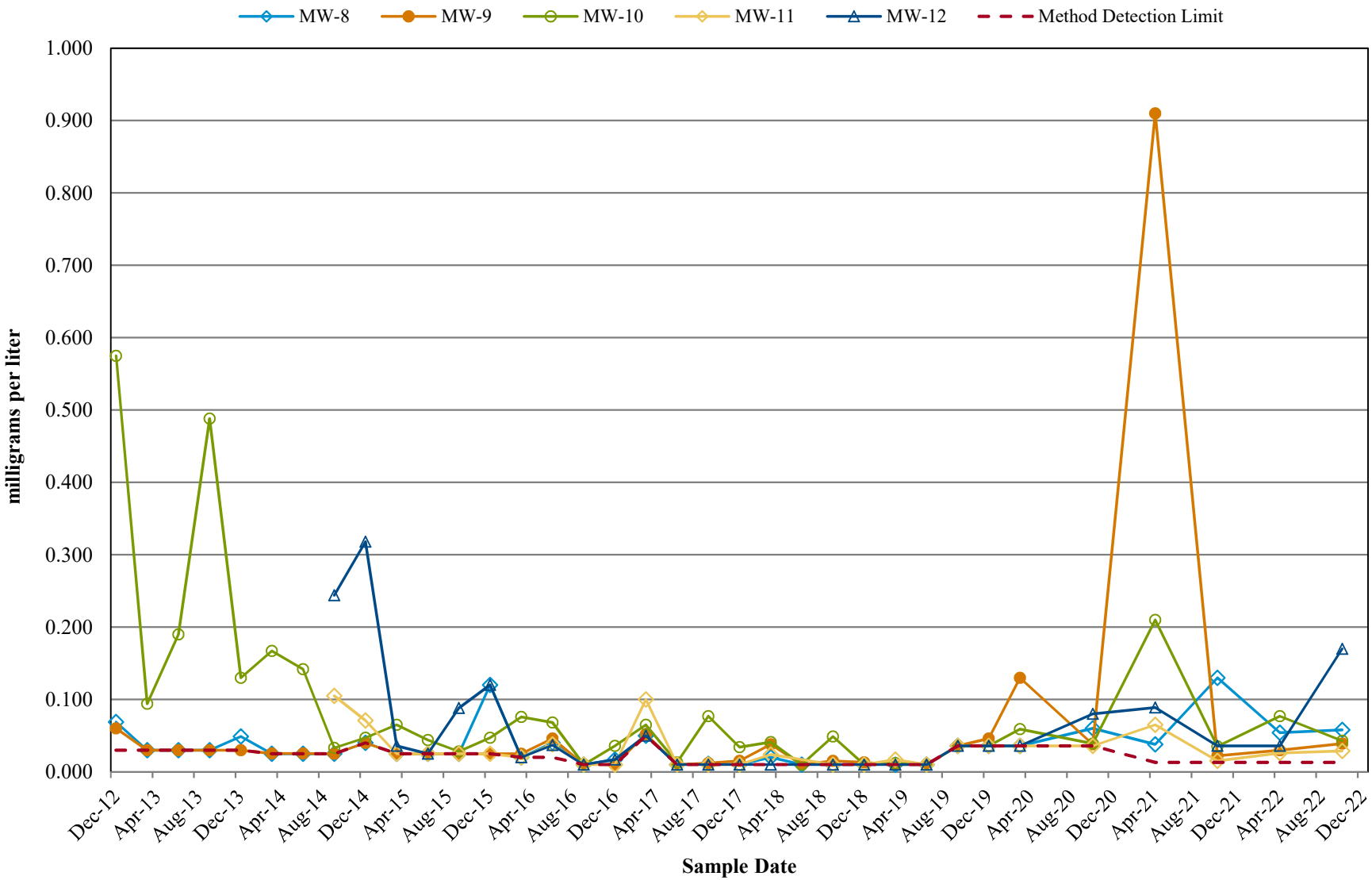


Chart 10. Groundwater Trends - Total Manganese

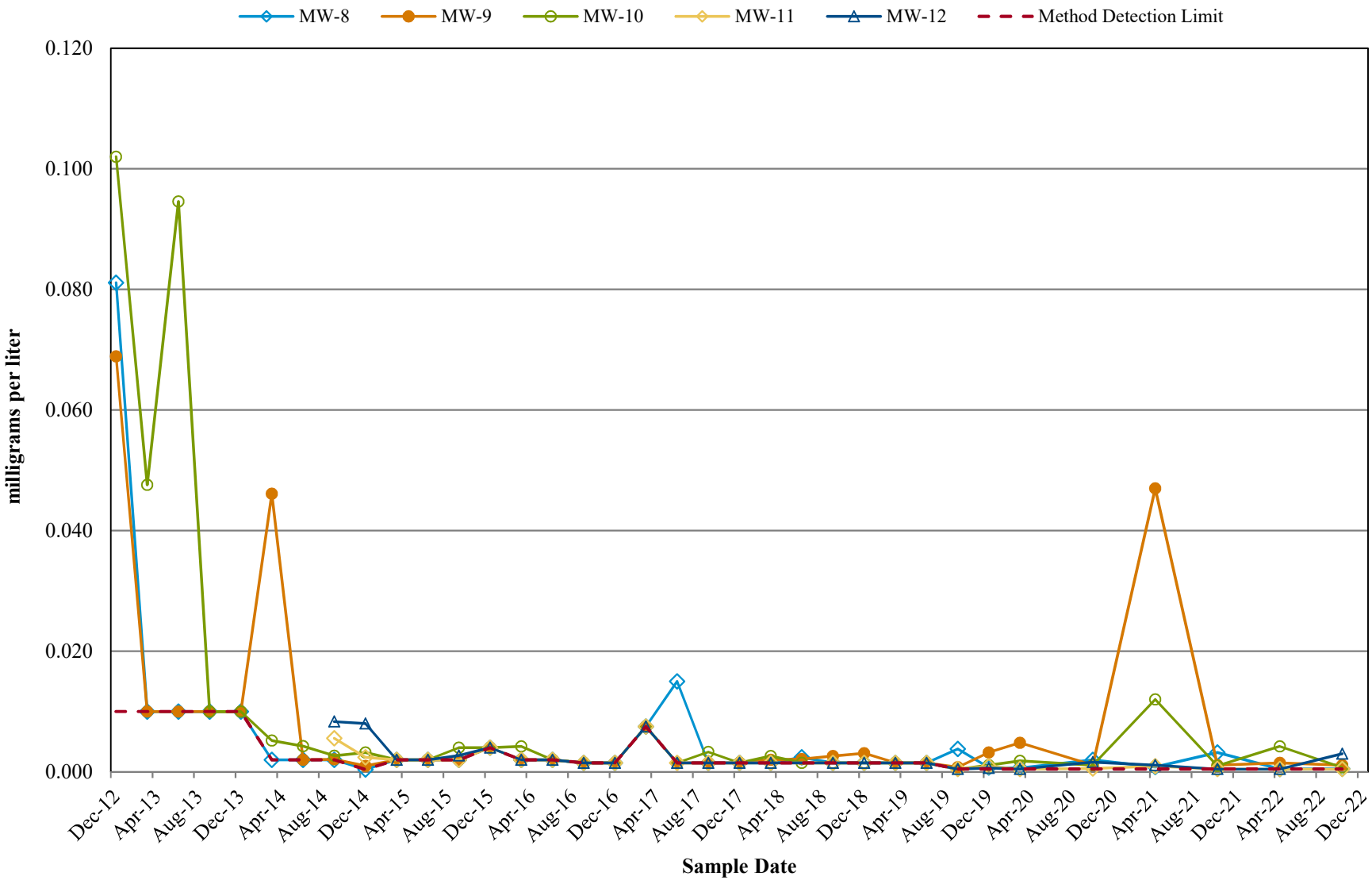
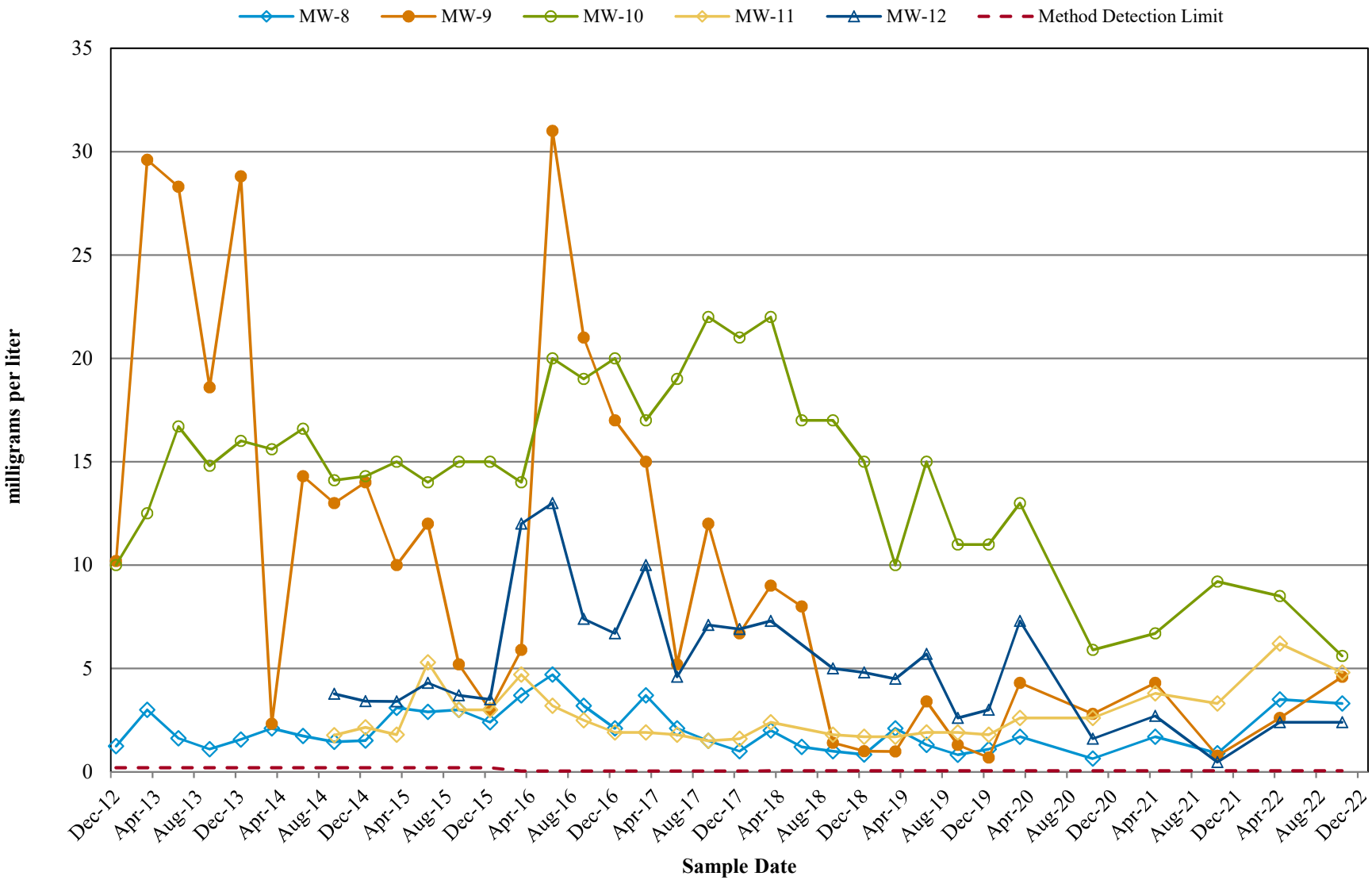


Chart 11. Groundwater Trends - Nitrate-Nitrogen



APPENDICES

Appendix A. **Stormwater-Containing Glycol Field Notes and Laboratory Reports – 2022**
Appendix B. **Stormwater-Containing Glycol Land Application Log – 2022**
Appendix C. **Soils Field Notes and Laboratory Report – 2022**
Appendix D. **Groundwater Field Notes and Laboratory Reports – 2022**
Appendix E. **Stormwater-Containing Glycol Land Application Reporting Form – Daily Log**
Appendix F. **Stormwater-Containing Glycol Sampling Field Sheet**
Appendix G. **Land Treatment Site Groundwater Sampling Field Sheet**

Appendix A.

Stormwater-Containing Glycol Field Notes and Laboratory Reports – 2022

SAMPLE COLLECTION DATA

Sample ID	**Stormwater-Containing Glycol**
Date	5/16/22
Time	11:56
Project	**SIA Land Treatment Site Monitoring**
Sample Matrix	**Liquid**
Collection Method	**Grab**
Sample Location	**Land Application Tank**
Weather	Cloudy
Sampling Personnel	JRH

FIELD INSTRUMENTS

pH	Oakton pH/Con 10
Conductivity	Oakton pH/Con 10
Temperature	Oakton pH/Con 10
Glycol	Misco Palm Abby 220 (SIA owned)

PARAMETERS

Time	pH su	Conductivity uS/cm	Temp °C	Glycol %	Comments
11:56	8.16	1824	15.1	24.8/24.5	

GENERAL NOTES

Sample collected 11:59 am

Valley Science and Engineering
12720 E Nora Avenue, Suite A | Spokane Valley, WA 99216 | (509) 921-0290 | FAX (509) 921-1788

Instrument Calibration Form

Date: 5/16/25 **Time:** 8:32 am
Personnel KH **Instrument** Orion PC 450

Calibration Standards Used	Reading After Calibration	Comments
EC 1413	1414 1413 1420 1416	
pH 10	10.03	
pH 7	6.99	

Date: _____ **Time:** _____
Personnel _____ **Instrument** _____

Calibration Standards Used	Reading After Calibration	Comments

Date: _____ **Time:** _____
Personnel _____ **Instrument** _____

Calibration Standards Used	Reading After Calibration	Comments

eurofins | Environment Testing America

ANALYTICAL REPORT

Eurofins Spokane
11922 East 1st Ave
Spokane, WA 99206
Tel: (509)924-9200

Laboratory Job ID: 590-17518-1
Client Project/Site: SIA/2018230022-002-201

For:
Valley Science and Engineering
12720 E Nora Ave
Spokane, Washington 99216

Attn: Sara Rodriguez

Authorized for release by:
5/26/2022 4:59:22 PM

Randee Arrington, Lab Director
(509)924-9200
Randee.Arrington@et.eurofinsus.com

Table of Contents

Case Narrative

Client: Valley Science and Engineering
Project/Site: SIA/2018230022-002-201

Job ID: 590-17518-1

Job ID: 590-17518-1

Laboratory: Eurofins Spokane

Narrative

Receipt
The sample was received on 5/16/2022 12:54 PM. Unless otherwise noted below, the sample arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 19.3º C.

Receipt Exceptions
The following sample was received at the laboratory outside the required temperature criteria: Recovered Deicer (590-17518-1). The sample is considered acceptable since it was collected and submitted to the laboratory on the same day and there is evidence that the chilling process has begun.

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

General Chemistry
Method 410.4: The following sample was diluted to bring the concentration of target analytes within the calibration range: Recovered Deicer (590-17518-1). Elevated reporting limits (RLs) are provided.

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

Sample Summary

Client: Valley Science and Engineering
Project/Site: SIA/2018230022-002-201

Job ID: 590-17518-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
590-17518-1	Recovered Deicer	Water	05/16/22 11:59	05/16/22 12:54

Definitions/Glossary

Client: Valley Science and Engineering
Project/Site: SIA/2018230022-002-201

Job ID: 590-17518-1

Glossary

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

Client Sample Results

Client: Valley Science and Engineering
Project/Site: SIA/2018230022-002-201

Job ID: 590-17518-1

Client Sample ID: Recovered Deicer

Lab Sample ID: 590-17518-1

Date Collected: 05/16/22 11:59

Matrix: Water

Date Received: 05/16/22 12:54

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		2.0	0.57	mg/L			05/17/22 14:17	10
Nitrite as N	ND		2.0	0.69	mg/L			05/17/22 14:17	10

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Kjeldahl	**19**		5.0	3.4	mg/L		05/18/22 15:32	05/19/22 17:56	1
Chemical Oxygen Demand	**540000**		80000	35000	mg/L			05/24/22 13:42	4000

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 590-36145/1003
Matrix: Water
Analysis Batch: 36145

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		0.20	0.057	mg/L			05/17/22 11:58	1
Nitrite as N	ND		0.20	0.069	mg/L			05/17/22 11:58	1

Lab Sample ID: LCS 590-36145/1004
Matrix: Water
Analysis Batch: 36145

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrate as N	5.00	4.78		mg/L		96	90 - 110
Nitrite as N	5.00	4.59		mg/L		92	90 - 110

Method: 351.2 - Nitrogen, Total Kjeldahl

Lab Sample ID: MB 280-575438/2-A
Matrix: Water
Analysis Batch: 575603

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 575438

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Kjeldahl	ND		1.0	0.69	mg/L		05/18/22 15:32	05/19/22 17:47	1

Lab Sample ID: LCS 280-575438/1-A
Matrix: Water
Analysis Batch: 575603

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 575438

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrogen, Kjeldahl	6.00	6.21		mg/L		104	90 - 110

Method: 410.4 - COD

Lab Sample ID: MB 280-576001/32
Matrix: Water
Analysis Batch: 576001

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chemical Oxygen Demand	ND		20	8.7	mg/L			05/24/22 13:42	1

Lab Sample ID: LCS 280-576001/30
Matrix: Water
Analysis Batch: 576001

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chemical Oxygen Demand	100	90.9		mg/L		91	90 - 110

Lab Sample ID: LCSD 280-576001/31
Matrix: Water
Analysis Batch: 576001

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chemical Oxygen Demand	100	92.2		mg/L		92	90 - 110	1	11

Lab Chronicle

Client: Valley Science and Engineering
Project/Site: SIA/2018230022-002-201

Job ID: 590-17518-1

Client Sample ID: Recovered Deicer

Lab Sample ID: 590-17518-1

Date Collected: 05/16/22 11:59

Matrix: Water

Date Received: 05/16/22 12:54

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		10			36145	05/17/22 14:17	NMI	TAL SPK
Total/NA	Prep	351.2			5 mL	25 mL	575438	05/18/22 15:32	SVC	TAL DEN
Total/NA	Analysis	351.2		1			575603	05/19/22 17:56	SVC	TAL DEN
Total/NA	Analysis	410.4		4000	2 mL	2 mL	576001	05/24/22 13:42	SJD	TAL DEN

Laboratory References:

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

TAL SPK = Eurofins Spokane, 11922 East 1st Ave, Spokane, WA 99206, TEL (509)924-9200

Accreditation/Certification Summary

Client: Valley Science and Engineering
Project/Site: SIA/2018230022-002-201

Job ID: 590-17518-1

Laboratory: Eurofins Spokane

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Washington	State	C569	01-06-23

Laboratory: Eurofins Denver

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	2907.01	10-31-23
A2LA	ISO/IEC 17025	2907.01	10-31-23
Alabama	State Program	40730	09-30-12 *
Alaska (UST)	State	18-001	02-08-23
Arizona	State	AZ0713	12-20-22
Arkansas DEQ	State	19-047-0	06-01-22
California	State	2513	01-09-23
Connecticut	State	PH-0686	09-30-22
Florida	NELAP	E87667-57	06-30-22
Georgia	State	4025-011	01-08-23
Illinois	NELAP	2000172019-1	04-30-23
Iowa	State	IA#370	12-02-22
Kansas	NELAP	E-10166	05-31-22
Kentucky (WW)	State	KY98047	12-31-22
Louisiana	NELAP	30785	06-30-14 *
Louisiana	NELAP	30785	06-30-22
Minnesota	NELAP	1788752	12-31-22
Nevada	State	CO000262020-1	07-31-22
New Hampshire	NELAP	205319	04-28-20 *
New Jersey	NELAP	190002	06-30-22
New York	NELAP	59923	04-01-23
North Carolina (WW/SW)	State	358	12-31-22
North Dakota	State	R-034	01-08-23
Oklahoma	NELAP	8614	08-31-22
Oregon	NELAP	4025-011	01-09-23
Pennsylvania	NELAP	013	07-31-22
South Carolina	State	72002001	01-08-23
Texas	NELAP	TX104704183-08-TX	09-30-09 *
Texas	NELAP	T104704183-21-19	10-01-22
US Fish & Wildlife	US Federal Programs	058448	07-31-22
USDA	US Federal Programs	P330-20-00065	03-06-23
Utah	NELAP	QUAN5	06-30-13 *
Utah	NELAP	CO000262019-11	07-31-22
Virginia	NELAP	10490	06-14-22
Washington	State	C583-19	08-03-22
West Virginia DEP	State	354	11-30-22
Wisconsin	State	999615430	08-31-22
Wyoming (UST)	A2LA	2907.01	10-31-22

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

Client: Valley Science and Engineering
Project/Site: SIA/2018230022-002-201

Job ID: 590-17518-1

Method	Method Description	Protocol	Laboratory
300.0	Anions, Ion Chromatography	MCAWW	TAL SPK
351.2	Nitrogen, Total Kjeldahl	MCAWW	TAL DEN
410.4	COD	MCAWW	TAL DEN
351.2	Nitrogen, Total Kjeldahl	MCAWW	TAL DEN

Protocol References:

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

Laboratory References:

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

TAL SPK = Eurofins Spokane, 11922 East 1st Ave, Spokane, WA 99206, TEL (509)924-9200

TestAmerica Spokane
11922 E. 1st Ave.

Spokane, WA 99206
phone 509.924.9200 fax

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Regulatory Program ☐ DW ☐ NPDES ☐ RCRA ☐ Other

Client Contact	Project Manager: Sara Rodriguez	Site Contact: Sara Rodriguez	Date: 5/16/22	COC No:
Valley Science and Engineering	Tel/Fax: (509) 703-2679	Lab Contact:	Carrier:	1 of 1 COCs
12720 E Nora Ave Ste A	Analysis Turnaround Time			Sampler:
Spokane, WA 99216	☐ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
(509) 921-0290 Phone	TAT if different from Below ____			Walk-in Client:
(509) 921 1788 FAX	☐ 2 weeks			Lab Sampling:
Spokane Airport	☐ 1 week			
Spokane Washington	☐ 2 days			Job / SDG No.
PN: 2018230022-002-201	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS/MSD (Y/N)	COD	TKN	Nitrate & Nitrite	Sample Specific Notes.
Recovered Deicer	5/16/22	11:59 pm	G	H_2O	3			X	X	X	

590-17518 Chain of Custody

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other ____

Possible Hazard Identification
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☐ Disposal by Lab ☐ Archive for ____ Months

Special Instructions/QC Requirements & Comments -> COD is high approximately 200,000 mg/L. <-

Per quote 59001981-0 (exclude Total N we can do the math on that with the requested analysis on this COC)

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No. | Cooler Temp. (°C) Obs'd: 0.2 Corr'd: 0.3 Therm ID No.: IR005

Relinquished by:	Company: Cascade Earth Sciences VSE	Date/Time: 5/16/22 1654	Received by:	Company: ECT SPO	Date/Time: 5/16/22 1254
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Form No. CA-C-WI-002, Rev. 4.3, dated 12/05/2013

Eurofins Spokane
11922 East 1st Ave
Spokane, WA 99206
Phone: 509-924-9200 Fax: 509-924-9290

Chain of Custody Record

eurofins | Environment Testing America

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Arrington, Randee E	Carrier Tracking No(s):	COC No: 590-6828.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Randee.Arrington@et.eurofinsus.com	State of Origin: Washington	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State Program - Washington		Job #: 590-17518-1
Address: 4955 Yarrow Street, ,	Due Date Requested: 5/30/2022			
City: Arvada	TAT Requested (days):			
State, Zip: CO, 80002				
Phone: 303-736-0100(Tel) 303-431-7171(Fax)	PO #:			
Email:	WO #:			
Project Name: SIA/2015230006-001-203	Project #: 59000246			
Site: CES - SIA	SSOW#:			

Preservation Codes:

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

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Analysis Requested: 410.4	Analysis Requested: 351.2/351.2_Prep	Total Number of containers	Special Instructions/Note:
			Preservation Code:							
Recovered Deicer (590-17518-1)	5/16/22	11:59 Pacific		Water			X	X	2	

Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing Northwest, LLC places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing Northwest, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing Northwest, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins Environment Testing Northwest, LLC.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

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

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	[signature]	5/17/20 14:50	ET SPO	[signature]	5/18/22 925	ETA/EN
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.: 176616	Cooler Temperature(s) °C and Other Remarks: 0.7 IR12 CF +0.1

Ver: 06/08/2021

5/26/2022

Login Sample Receipt Checklist

Client: Valley Science and Engineering

Job Number: 590-17518-1

Login Number: 17518
List Number: 1
Creator: Vaughan, Madison 1

List Source: Eurofins Spokane

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
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?	False	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Valley Science and Engineering

Job Number: 590-17518-1

Login Number: 17518
List Number: 2
Creator: Lee, Jerry

List Source: Eurofins Denver
List Creation: 05/18/22 01:53 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are 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?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

SAMPLE COLLECTION DATA

Sample ID	**Stormwater-Containing Glycol**
Date	~~05/31/22~~ 06/03/22
Time	8:40 am
Project	**SIA Land Treatment Site Monitoring**
Sample Matrix	**Liquid**
Collection Method	**Grab**
Sample Location	**Land Application Tank**
Weather	Sunny 70°
Sampling Personnel	DRH

FIELD INSTRUMENTS

pH	Oakton pH/Con 10
Conductivity	Oakton pH/Con 10
Temperature	Oakton pH/Con 10
Glycol	Misco Palm Abby 220 (SIA owned)

PARAMETERS

Time	pH su	Conductivity ~~uS/cm~~	Temp °C	Glycol %	Comments
08:41	8.03	2.28 m/s	19.0	23.5	

GENERAL NOTES

Sampled - 8:45 am

Valley Science and Engineering
12720 E Nora Avenue, Suite A | Spokane Valley, WA 99216 | (509) 921-0290 | FAX (509) 921-1788

Instrument Calibration Form

Date: ~~05/31/22~~ 06/03/22 **Time:** ~~9:15am~~ 8:30 am
Personnel JRH **Instrument** Oakton PC450

Calibration Standards Used	Reading After Calibration	Comments
14/3	14/3	
pH 10	10.01	
pH 7	7.0	

Date: _____ **Time:** _____
Personnel _____ **Instrument** _____

Calibration Standards Used	Reading After Calibration	Comments

Date: _____ **Time:** _____
Personnel _____ **Instrument** _____

Calibration Standards Used	Reading After Calibration	Comments

eurofins | Environment Testing America

ANALYTICAL REPORT

Eurofins Spokane
11922 East 1st Ave
Spokane, WA 99206
Tel: (509)924-9200

Laboratory Job ID: 590-17677-1
Client Project/Site: SIA/2018230022-002-201

For:
Valley Science and Engineering
12720 E Nora Ave
Spokane, Washington 99216

Attn: Sara Rodriguez

Authorized for release by:
6/30/2022 2:08:40 PM

Randee Arrington, Lab Director
(509)924-9200
Randee.Arrington@et.eurofinsus.com

Table of Contents

Case Narrative

Client: Valley Science and Engineering
Project/Site: SIA/2018230022-002-201

Job ID: 590-17677-1

Job ID: 590-17677-1

Laboratory: Eurofins Spokane

Narrative

Receipt
The sample was received on 6/3/2022 9:16 AM. Unless otherwise noted below, the sample arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 19.7º C.

Receipt Exceptions
The following sample was received at the laboratory outside the required temperature criteria: Recovered Deicer (590-17677-1). The sample is considered acceptable since it was collected and submitted to the laboratory on the same day and there is evidence that the chilling process has begun.

GC Semi VOA
Method 300.0: The following samples were diluted due to the nature of the sample matrix: Recovered Deicer (590-17677-1), (590-17684-C-1) and (590-17684-C-1 DU). Elevated reporting limits (RLs) are provided.

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

General Chemistry
Method 351.2: Due to the matrix, the initial volume(s) used for the following sample deviated from the standard procedure: Recovered Deicer (590-17677-1). The reporting limits (RLs) have been adjusted proportionately.

Method SM 5220D: Spike compounds were inadvertently omitted during the extraction process for the matrix spike(MS); therefore, matrix spike recoveries are unavailable for preparation batch 580-393947 and analytical batch 580-393978. The associated laboratory control sample (LCS) met acceptance criteria.

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

Sample Summary

Client: Valley Science and Engineering
Project/Site: SIA/2018230022-002-201

Job ID: 590-17677-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
590-17677-1	Recovered Deicer	Water	06/03/22 08:45	06/03/22 09:16

Glossary

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

Client: Valley Science and Engineering
Project/Site: SIA/2018230022-002-201

Job ID: 590-17677-1

Client Sample ID: Recovered Deicer

Lab Sample ID: 590-17677-1

Date Collected: 06/03/22 08:45

Matrix: Water

Date Received: 06/03/22 09:16

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		20	5.7	mg/L			06/03/22 15:40	100
Nitrite as N	ND		20	6.9	mg/L			06/03/22 15:40	100

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Kjeldahl Nitrogen	27		4.0	3.7	mg/L		06/29/22 08:05	06/30/22 06:36	1
Chemical Oxygen Demand	410000		40000	24000	mg/L		06/15/22 16:10	06/15/22 23:09	1

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 590-36387/1003
Matrix: Water
Analysis Batch: 36387

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		0.20	0.057	mg/L			06/03/22 13:20	1
Nitrite as N	ND		0.20	0.069	mg/L			06/03/22 13:20	1

Lab Sample ID: LCS 590-36387/1004
Matrix: Water
Analysis Batch: 36387

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrate as N	5.00	4.93		mg/L		99	90 - 110
Nitrite as N	5.00	4.84		mg/L		97	90 - 110

Method: 351.2 - Nitrogen, Total Kjeldahl

Lab Sample ID: MB 480-631965/1-A
Matrix: Water
Analysis Batch: 632208

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 631965

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Kjeldahl Nitrogen	ND		0.20	0.19	mg/L		06/29/22 08:05	06/30/22 06:04	1

Lab Sample ID: LCS 480-631965/2-A
Matrix: Water
Analysis Batch: 632208

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 631965

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Kjeldahl Nitrogen	2.50	2.30		mg/L		92	90 - 110

Method: SM 5220D - COD

Lab Sample ID: MB 580-393947/3-A
Matrix: Water
Analysis Batch: 393978

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 393947

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chemical Oxygen Demand	ND		10	5.9	mg/L		06/15/22 16:10	06/15/22 23:09	1

Lab Sample ID: LCS 580-393947/4-A
Matrix: Water
Analysis Batch: 393978

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 393947

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chemical Oxygen Demand	75.0	75.4		mg/L		101	80 - 120

Lab Sample ID: LCSD 580-393947/5-A
Matrix: Water
Analysis Batch: 393978

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 393947

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chemical Oxygen Demand	75.0	75.4		mg/L		101	80 - 120	0	20

Lab Chronicle

Client: Valley Science and Engineering
Job ID: 590-17677-1
Project/Site: SIA/2018230022-002-201

Client Sample ID: Recovered Deicer
Lab Sample ID: 590-17677-1

Date Collected: 06/03/22 08:45
Matrix: Water
Date Received: 06/03/22 09:16

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		100			36387	06/03/22 15:40	NMI	TAL SPK
Total/NA	Prep	351.2			1.25 mL	25 mL	631965	06/29/22 08:05	EAG	TAL BUF
Total/NA	Analysis	351.2		1			632208	06/30/22 06:36	CLT	TAL BUF
Total/NA	Prep	SM 5220			0.0005 mL	2 mL	393947	06/15/22 16:10	MLT	FGS SEA
Total/NA	Analysis	SM 5220D		1	0.0005 mL	2 mL	393978	06/15/22 23:09	MLT	FGS SEA

Laboratory References:

FGS SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

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

TAL SPK = Eurofins Spokane, 11922 East 1st Ave, Spokane, WA 99206, TEL (509)924-9200

Accreditation/Certification Summary

Client: Valley Science and Engineering
Job ID: 590-17677-1
Project/Site: SIA/2018230022-002-201

Laboratory: Eurofins Spokane

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Washington	State	C569	01-06-23

Laboratory: Eurofins Buffalo

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Washington	State	C784	02-10-23

Laboratory: Eurofins Seattle

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Washington	State	C788	07-13-22

Method Summary

Client: Valley Science and Engineering
Project/Site: SIA/2018230022-002-201

Job ID: 590-17677-1

Method	Method Description	Protocol	Laboratory
300.0	Anions, Ion Chromatography	MCAWW	TAL SPK
351.2	Nitrogen, Total Kjeldahl	MCAWW	TAL BUF
SM 5220D	COD	SM	FGS SEA
351.2	Nitrogen, Total Kjeldahl	MCAWW	TAL BUF
SM 5220	COD	SM	FGS SEA

Protocol 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"

Laboratory References:

FGS SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

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

TAL SPK = Eurofins Spokane, 11922 East 1st Ave, Spokane, WA 99206, TEL (509)924-9200

TestAmerica Spokane
11922 E 1st Ave.

Spokane, WA 99206
phone 509 924.9200 fax

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc

Regulatory Program ☐ DW ☐ NPDES ☐ RCRA ☐ Other

Client Contact	Project Manager: Sara Rodriguez	Site Contact: Sara Rodriguez	Date	COC No:
Valley Science and Engineering	Tel/Fax: (509) 703-2679	Lab Contact:	Carrier:	1 of 1 COCs
12720 E Nora Ave Ste A	Analysis Turnaround Time			Sampler:
Spokane, WA 99216	☐ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
(509) 921-0290 Phone	TAT if different from Below ____			Walk-in Client:
(509) 921 1788 FAX	☐ 2 weeks			Lab Sampling:
Spokane Airport	☐ 1 week			
Spokane Washington	☐ 2 days			Job / SDG No.
PN: 2018230022-002-201	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	COD	TKN	Nitrate & Nitrite	Sample Specific Notes:
Recovered Deicer	6/3/22	8.45am	G	H_2O	3			X	X	X	

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other ____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☐ Disposal by Lab ☐ Archive for ____ Months

Special Instructions/QC Requirements & Comments -> COD is high approximately 200,000 mg/L. <-

Per quote 59001981-0 (exclude Total N we can do the math on that with the requested analysis on this COC)

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No. | Cooler Temp. (°C): Obs'd. 19.6 Corr'd. 19.2 Therm ID No. IR06

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
[signature]	Cascade Earth Sciences	6/3/22 9:13			
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by: [signature]	Company: FCTS SR	Date/Time: 6/3/22 9:16

Form No. CA-C-WI-002, Rev. 4.3, dated 12/05/2013

Eurofins Spokane
11922 East 1st Ave
Spokane, WA 99206
Phone: 509-924-9200 Fax: 509-924-9290

Chain of Custody Record

eurofins | Environment Testing America

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Arrington, Randee E	Carrier Tracking No(s):	COC No: 590-6870.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Randee.Arrington@et.eurofinsus.com	State of Origin: Washington	Page: Page 1 of 1
Company: Eurofins Environment Testing Northeast,		Accreditations Required (See note): State - Washington; State Program - Washington		Job #: 590-17677-1
Address: 10 Hazelwood Drive, ,	Due Date Requested: 6/16/2022			
City: Amherst	TAT Requested (days):			
State, Zip: NY, 14228-2298				
Phone: 716-691-2600(Tel) 716-691-7991(Fax)	PO #:			
Email:	WO #:			
Project Name: SIA/2018230022-002-201	Project #: 59001988			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

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

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	351.2/351.2_Prep Nitrogen, Total Kjeldahl	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
Recovered Deicer (590-17677-1)	6/3/22	08:45 Pacific		Water			X	1	

Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing Northwest, LLC places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing Northwest, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing Northwest, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins Environment Testing Northwest, LLC.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:		Date:	Time:	Method of Shipment:			
Relinquished by:	Date/Time: 6/6/22 14:10	Company EETSPK	Received by:	Date/Time: 6-7-22 1000	Company TAB		
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company		
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company		
Custody Seals Intact: ∆ Yes ∆ No	Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks: 2.7 ICE				

Ver: 06/08/2021

Eurofins Spokane
11922 East 1st Ave
Spokane, WA 99206
Phone: 509-924-9200 Fax: 509-924-9290

Chain of Custody Record

eurofins | Environment Testing America

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Arrington, Randee E	Carrier Tracking No(s):	COC No: 590-6866.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Randee.Arrington@et.eurofinsus.com	State of Origin: Washington	Page: Page 1 of 1
Company: Eurofins Environment Testing Northwest,		Accreditations Required (See note): State - Washington; State Program - Washington		Job #: 590-17677-1
Address: 5755 8th Street East, ,	Due Date Requested: 6/16/2022			
City: Tacoma	TAT Requested (days):			
State, Zip: WA, 98424				
Phone: 253-922-2310(Tel)	PO #:			
Email:	WO #:			
Project Name: SIA/2018230022-002-201	Project #: 59001988			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

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

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	410.2/410.2_Prep	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
Recovered Deicer (590-17677-1)	6/3/22	08:45 Pacific		Water			X	1	

IRB = 1.7 / 1.9

Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing Northwest, LLC places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing Northwest, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing Northwest, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing Northwest, LLC.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

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

	Date/Time	Company	Received by	Date/Time	Company
Relinquished by: M. Vaughn	6/3/22 14:30	EET SPO		6/4/22 0930	EETN
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

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

Login Sample Receipt Checklist

Client: Valley Science and Engineering

Job Number: 590-17677-1

Login Number: 17677

List Source: Eurofins Spokane

List Number: 1

Creator: Vaughan, Madison 1

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
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.	False	Received same day of collection; chilling process has begun.
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 containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Valley Science and Engineering

Job Number: 590-17677-1

Login Number: 17677
List Number: 3
Creator: Yeager, Brian A

List Source: Eurofins Buffalo
List Creation: 06/07/22 02:14 PM

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	2.7 ICE IR GUN #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.	True	
Samples requiring field filtration have been filtered in the field.	True	
Chlorine Residual checked.	True	

Login Sample Receipt Checklist

Client: Valley Science and Engineering

Job Number: 590-17677-1

Login Number: 17677
List Number: 2
Creator: Vallelunga, Diana L

List Source: Eurofins Seattle
List Creation: 06/04/22 02:38 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	False	
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 containers received 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	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

SAMPLE COLLECTION DATA

Sample ID	**Stormwater-Containing Glycol**
Date	06/14/22
Time	9:00 am
Project	**SIA Land Treatment Site Monitoring**
Sample Matrix	**Liquid**
Collection Method	**Grab**
Sample Location	**Land Application Tank**
Weather	Rainy 55°F
Sampling Personnel	JRH

FIELD INSTRUMENTS

pH	Oakton pH/Con 10
Conductivity	Oakton pH/Con 10
Temperature	Oakton pH/Con 10
Glycol	Misco Palm Abby 220 (SIA owned)

PARAMETERS

Time	pH su	Conductivity ~~uS/cm~~	Temp °C	Glycol %	Comments
9:08	8.24	2.51 m/s	9.2	14.9	Sampled from tank hose.

GENERAL NOTES

Sampled: 9:15am

Valley Science and Engineering
12720 E Nora Avenue, Suite A | Spokane Valley, WA 99216 | (509) 921-0290 | FAX (509) 921-1788

Instrument Calibration Form

Date: 6/14/22 **Time:** 8:00 am
Personnel SBH **Instrument** Oakton PC450

Calibration Standards Used	Reading After Calibration	Comments
1413	1413	
pH 7	7.0	
pH 10	10.01	

Date: _____ **Time:** _____
Personnel _____ **Instrument** _____

Calibration Standards Used	Reading After Calibration	Comments

Date: _____ **Time:** _____
Personnel _____ **Instrument** _____

Calibration Standards Used	Reading After Calibration	Comments

eurofins | Environment Testing America

ANALYTICAL REPORT

Eurofins Spokane
11922 East 1st Ave
Spokane, WA 99206
Tel: (509)924-9200

Laboratory Job ID: 590-17755-1
Client Project/Site: SIA/2018230022-002-201

For:
Valley Science and Engineering
12720 E Nora Ave
Spokane, Washington 99216

Attn: Sara Rodriguez

Authorized for release by:
6/30/2022 2:21:34 PM

Randee Arrington, Lab Director
(509)924-9200
Randee.Arrington@et.eurofinsus.com

Table of Contents

Case Narrative

Client: Valley Science and Engineering
Project/Site: SIA/2018230022-002-201

Job ID: 590-17755-1

Job ID: 590-17755-1

Laboratory: Eurofins Spokane

Narrative

Receipt
The sample was received on 6/14/2022 9:45 AM. Unless otherwise noted below, the sample arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 10.2º C.

Receipt Exceptions
The following sample was received at the laboratory outside the required temperature criteria: Recovered Deicer (590-17755-1). The sample(s) is considered acceptable since it was collected and submitted to the laboratory on the same day and there is evidence that the chilling process has begun.

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

General Chemistry
Method 351.2: Due to the matrix, the initial volume used for the following sample deviated from the standard procedure: Recovered Deicer (590-17755-1). The reporting limits (RLs) have been adjusted proportionately.

Method SM 5220D: The sample duplicate (DUP) precision for preparation batch 580-394633 and analytical batch 580-394832 was outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample / laboratory control sample duplicate (LCS/LCSD) precision was within acceptance limits.

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

Sample Summary

Client: Valley Science and Engineering
Project/Site: SIA/2018230022-002-201

Job ID: 590-17755-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
590-17755-1	Recovered Deicer	Water	06/14/22 09:15	06/14/22 09:45

Definitions/Glossary

Client: Valley Science and Engineering
Project/Site: SIA/2018230022-002-201

Job ID: 590-17755-1

Glossary

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

Client Sample Results

Client: Valley Science and Engineering
Project/Site: SIA/2018230022-002-201

Job ID: 590-17755-1

Client Sample ID: Recovered Deicer

Lab Sample ID: 590-17755-1

Date Collected: 06/14/22 09:15

Matrix: Water

Date Received: 06/14/22 09:45

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		20	5.7	mg/L			06/15/22 19:47	100
Nitrite as N	ND		20	6.9	mg/L			06/15/22 19:47	100

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Kjeldahl Nitrogen	20		4.0	3.7	mg/L		06/29/22 08:05	06/30/22 06:36	1
Chemical Oxygen Demand	240000		20000	12000	mg/L		06/22/22 16:30	06/23/22 22:07	1
Nitrogen, Total	20		1.5	1.0	mg/L			06/30/22 14:14	1

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 590-36533/1003
Matrix: Water
Analysis Batch: 36533

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		0.20	0.057	mg/L			06/15/22 09:42	1
Nitrite as N	ND		0.20	0.069	mg/L			06/15/22 09:42	1

Lab Sample ID: LCS 590-36533/1004
Matrix: Water
Analysis Batch: 36533

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrate as N	5.00	4.73		mg/L		95	90 - 110
Nitrite as N	5.00	4.72		mg/L		94	90 - 110

Method: 351.2 - Nitrogen, Total Kjeldahl

Lab Sample ID: MB 480-631965/1-A
Matrix: Water
Analysis Batch: 632208

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 631965

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Kjeldahl Nitrogen	ND		0.20	0.19	mg/L		06/29/22 08:05	06/30/22 06:04	1

Lab Sample ID: LCS 480-631965/2-A
Matrix: Water
Analysis Batch: 632208

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 631965

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Kjeldahl Nitrogen	2.50	2.30		mg/L		92	90 - 110

Method: SM 5220D - COD

Lab Sample ID: MB 580-394633/3-A
Matrix: Water
Analysis Batch: 394832

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 394633

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chemical Oxygen Demand	ND		10	5.9	mg/L		06/22/22 16:27	06/23/22 22:07	1

Lab Sample ID: LCS 580-394633/4-A
Matrix: Water
Analysis Batch: 394832

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 394633

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chemical Oxygen Demand	75.0	69.3		mg/L		92	80 - 120

Lab Sample ID: LCSD 580-394633/5-A
Matrix: Water
Analysis Batch: 394832

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 394633

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chemical Oxygen Demand	75.0	73.7		mg/L		98	80 - 120	6	20

Lab Chronicle

Client: Valley Science and Engineering
Project/Site: SIA/2018230022-002-201

Job ID: 590-17755-1

Client Sample ID: Recovered Deicer

Lab Sample ID: 590-17755-1

Date Collected: 06/14/22 09:15

Matrix: Water

Date Received: 06/14/22 09:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		100			36533	06/15/22 19:47	NMI	TAL SPK
Total/NA	Prep	351.2			1.25 mL	25 mL	631965	06/29/22 08:05	EAG	TAL BUF
Total/NA	Analysis	351.2		1			632208	06/30/22 06:36	CLT	TAL BUF
Total/NA	Prep	SM 5220			0.001 mL	2 mL	394633	06/22/22 16:30	MLT	FGS SEA
Total/NA	Analysis	SM 5220D		1	0.001 mL	2 mL	394832	06/23/22 22:07	MLT	FGS SEA
Total/NA	Analysis	Total Nitrogen		1			36830	06/30/22 14:14	REA	TAL SPK

Laboratory References:

FGS SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

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

TAL SPK = Eurofins Spokane, 11922 East 1st Ave, Spokane, WA 99206, TEL (509)924-9200

Accreditation/Certification Summary

Client: Valley Science and Engineering
Job ID: 590-17755-1
Project/Site: SIA/2018230022-002-201

Laboratory: Eurofins Spokane

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Washington	State	C569	01-06-23

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
Total Nitrogen		Water	Nitrogen, Total

Laboratory: Eurofins Buffalo

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Washington	State	C784	02-10-23

Laboratory: Eurofins Seattle

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Washington	State	C788	07-13-22

Method Summary

Client: Valley Science and Engineering
Project/Site: SIA/2018230022-002-201

Job ID: 590-17755-1

Method	Method Description	Protocol	Laboratory
300.0	Anions, Ion Chromatography	MCAWW	TAL SPK
351.2	Nitrogen, Total Kjeldahl	MCAWW	TAL BUF
SM 5220D	COD	SM	FGS SEA
Total Nitrogen	Nitrogen, Total	EPA	TAL SPK
351.2	Nitrogen, Total Kjeldahl	MCAWW	TAL BUF
SM 5220	COD	SM	FGS SEA

Protocol References:

EPA = US Environmental Protection Agency

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"

Laboratory References:

FGS SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

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

TAL SPK = Eurofins Spokane, 11922 East 1st Ave, Spokane, WA 99206, TEL (509)924-9200

TestAmerica Spokane
11922 E. 1st Ave.

Spokane, WA 99206
phone 509.924.9200 fax

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Regulatory Program [ ] DW [ ] NPDES [ ] RCRA [ ] Other:

Client Contact	Project Manager: Sara Rodriguez	Site Contact: Sara Rodriguez	Date:	COC No:
Valley Science and Engineering	Tel/Fax: (509) 703-2679	Lab Contact	Carrier:	1 of 1 COCs
12720 E Nora Ave Ste A	Analysis Turnaround Time			Sampler:
Spokane, WA 99216	[ ] CALENDAR DAYS [ ] WORKING DAYS			For Lab Use Only:
(509) 921-0290 Phone	TAT if different from Below			Walk-in Client:
(509) 921-1788 FAX	[ ] 2 weeks			Lab Sampling
Spokane Airport	[ ] 1 week			
Spokane Washington	[ ] 2 days			Job / SDG No.
PN. 2018230022-002-201	[ ] 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	COD	TKN	Nitrate & Nitrite	Sample Specific Notes.
Recovered Deicer	6/14/22	9:15am	G	H_2O	3			X	X	X	

590-17755 Chain of Custody

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample

[ ] Non-Hazard [ ] Flammable [ ] Skin Irritant [ ] Poison B [ ] Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

[ ] Return to Client [ ] Disposal by Lab [ ] Archive for _____ Months

Special Instructions/QC Requirements & Comments -> COD is high approximately 200,000 mg/L <

Per quote 59001981-0 (exclude Total N we can do the math on that with the requested analysis on this COC)

Custody Seals Intact: [ ] Yes? [ ] No	Custody Seal No.		Cooler Temp. (°C): Obs'd: 10.1 Corr'd. 10.2		Therm ID No.: IR0006
Relinquished by: Josh Hudgins	Company: Cascade Earth Sciences	Date/Time: 6/14/22 942am	Received by:	Company: ECT SPK	Date/Time: 6/14/22 945
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Form No. CA-C-WI-002, Rev 4.3, dated 12/05/2013

Eurofins Spokane
11922 East 1st Ave
Spokane, WA 99206
Phone: 509-924-9200 Fax: 509-924-9290

Chain of Custody Record

eurofins | Environment Testing America

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Arrington, Randee E	Carrier Tracking No(s):	COC No: 590-6891.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Randee.Arrington@et.eurofinsus.com	State of Origin: Washington	Page: Page 1 of 1
Company: Eurofins Environment Testing Northeast,		Accreditations Required (See note): State - Washington; State Program - Washington		Job #: 590-17755-1
Address: 10 Hazelwood Drive, ,	Due Date Requested: 6/27/2022			
City: Amherst	TAT Requested (days):			
State, Zip: NY, 14228-2298				
Phone: 716-691-2600(Tel) 716-691-7991(Fax)	PO #:			
Email:	WO #:			
Project Name: SIA/2018230022-002-201	Project #: 59001988			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

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

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	351.2/351.2_Prep Nitrogen, Total Kjeldahl	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
Recovered Deicer (590-17755-1)	6/14/22	09:15 Pacific		Water			X	1	

Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing Northwest, LLC places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing Northwest, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing Northwest, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins Environment Testing Northwest, LLC.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:				
Relinquished by:	Date/Time: 6/15/22 13:30	Company EET SFO	Received by:	Date/Time: 6-16-22 1000	Company TAB		
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company		
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company		

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 2 SIC

Ver: 06/08/2021

Eurofins Spokane
11922 East 1st Ave
Spokane, WA 99206
Phone: 509-924-9200 Fax: 509-924-9290

Chain of Custody Record

eurofins | Environment Testing America

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Arrington, Randee E	Carrier Tracking No(s):	COC No: 590-6888.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Randee.Arrington@et.eurofinsus.com	State of Origin: Washington	Page: Page 1 of 1
Company: Eurofins Environment Testing Northwest,		Accreditations Required (See note): State - Washington; State Program - Washington		Job #: 590-17755-1
Address: 5755 8th Street East, ,	Due Date Requested: 6/27/2022			
City: Tacoma	TAT Requested (days):			
State, Zip: WA, 98424				
Phone: 253-922-2310(Tel)	PO #:			
Email:	WO #:			
Project Name: SIA/2018230022-002-201	Project #: 59001988			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

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

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	5220D/5220C_prep COD	Total Number of containers	Special Instructions/Note:
			Preservation Code:		X	X		X	
Recovered Deicer (590-17755-1)	6/14/22	09:15 Pacific		Water			X	1	

Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing Northwest, LLC places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing Northwest, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing Northwest, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing Northwest, LLC.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

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

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	6/19/22 15:05	EET		6/15/22 950	EETN
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: ∆ Yes ∆ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:
		TR4 0.1/0.3

Login Sample Receipt Checklist

Client: Valley Science and Engineering

Job Number: 590-17755-1

Login Number: 17755
List Number: 1
Creator: Vaughan, Madison 1

List Source: Eurofins Spokane

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
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 containers received 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.	N/A	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Valley Science and Engineering

Job Number: 590-17755-1

Login Number: 17755
List Number: 3
Creator: Yeager, Brian A

List Source: Eurofins Buffalo
List Creation: 06/16/22 04:43 PM

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	2.5 ICE IR GUN #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.	True	
Samples requiring field filtration have been filtered in the field.	True	
Chlorine Residual checked.	True	

Login Sample Receipt Checklist

Client: Valley Science and Engineering

Job Number: 590-17755-1

Login Number: 17755
List Number: 2
Creator: Vallelunga, Diana L

List Source: Eurofins Seattle
List Creation: 06/15/22 06:06 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
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 containers received 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	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

SAMPLE COLLECTION DATA

Sample ID	**Stormwater-Containing Glycol**
Date	06/28/22
Time	9:20
Project	**SIA Land Treatment Site Monitoring**
Sample Matrix	**Liquid**
Collection Method	**Grab**
Sample Location	**Land Application Tank**
Weather	75°
Sampling Personnel	JRH

FIELD INSTRUMENTS

pH	Oakton pH/Con 10
Conductivity	Oakton pH/Con 10
Temperature	Oakton pH/Con 10
Glycol	Misco Palm Abby 220 (SIA owned)

PARAMETERS

Time	pH su	Conductivity ~~uS/cm~~	Temp °C	Glycol %	Comments
9:20	8.00	2.07 m/s	15.2	22.7	

GENERAL NOTES

Sampled: 9:25 am

Valley Science and Engineering
12720 E Nora Avenue, Suite A | Spokane Valley, WA 99216 | (509) 921-0290 | FAX (509) 921-1788

Instrument Calibration Form

Date: 06/28/22 **Time:** 8:30
Personnel JBH **Instrument** Oakton PC 5

Calibration Standards Used	Reading After Calibration	Comments
pH 7	7.1	
pH 10	10.02	
1413	1413	

Date: _____ **Time:** _____
Personnel _____ **Instrument** _____

Calibration Standards Used	Reading After Calibration	Comments

Date: _____ **Time:** _____
Personnel _____ **Instrument** _____

Calibration Standards Used	Reading After Calibration	Comments

TestAmerica Spokane
11922 E. 1st Ave.

Spokane, WA 99206
phone 509.924.9200 fax

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☑ Other:

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Sara Rodriguez	Site Contact: Sara Rodriguez	Date:	COC No:
Valley Science and Engineering	Tel/Fax: (509) 703-2679	Lab Contact:	Carrier:	1 of 1 COCs
12720 E Nora Ave Ste A	**Analysis Turnaround Time**			Sampler:
Spokane, WA 99216	☐ CALENDAR DAYS ☐ WORKING DAYS			**For Lab Use Only:**
(509) 921-0290 Phone	TAT if different from Below _____			Walk-in Client:
(509) 921-1788 FAX	☒ 2 weeks			Lab Sampling:
Spokane Airport	☐ 1 week			
Spokane Washington	☐ 2 days			Job / SDG No.:
PN: 2018230022-002-201	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	COD	TKN	Nitrate & Nitrite	Sample Specific Notes:
Recovered Deicer	6/28/22	9:25am	G	H_2O	3			X	X	X	

Preservation Used: 1= Ice, 2= HCl; 3= H_2SO_4; 4=HNO_3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☐ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments: -----> COD is high - approximately 200,000 mg/L. <-----

Per quote 59001981-0 (exclude Total N, we can do the math on that with the requested analysis on this COC)

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.:		Cooler Temp. (°C): Obs'd: 17.8 Corr'd: 17.5		Therm ID No. 12806
Relinquished by: Josh Hudgins	Company: Cascade Earth Sciences	Date/Time: 6/28/22 10:30	Received by:	Company: GSA Spokane	Date/Time: 6/29/22 1035
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

eurofins | Environment Testing America

ANALYTICAL REPORT

Eurofins Spokane
11922 East 1st Ave
Spokane, WA 99206
Tel: (509)924-9200

Laboratory Job ID: 590-17887-1
Client Project/Site: SIA/2018230022-002-201

For:
Valley Science and Engineering
12720 E Nora Ave
Spokane, Washington 99216

Attn: Sara Rodriguez

Authorized for release by:
7/21/2022 4:32:32 PM

Randee Arrington, Lab Director
(509)924-9200
Randee.Arrington@et.eurofinsus.com

Table of Contents

Case Narrative

Client: Valley Science and Engineering
Project/Site: SIA/2018230022-002-201

Job ID: 590-17887-1

Job ID: 590-17887-1

Laboratory: Eurofins Spokane

Narrative

Receipt
The sample was received on 6/28/2022 10:35 AM. Unless otherwise noted below, the sample arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 17.9º C.

Receipt Exceptions
The following sample was received at the laboratory outside the required temperature criteria: Recovered Deicer (590-17887-1). The sample is considered acceptable since it was collected and submitted to the laboratory on the same day and there is evidence that the chilling process has begun.

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

General Chemistry
Method 351.2: The method blank for preparation batch 280-581268 and analytical batch 280-581424 contained Kjedahl Nitrogen above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-digestion of samples was not performed.

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

Sample Summary

Client: Valley Science and Engineering
Project/Site: SIA/2018230022-002-201

Job ID: 590-17887-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
590-17887-1	Recovered Deicer	Water	06/28/22 09:25	06/28/22 10:35

Definitions/Glossary

Client: Valley Science and Engineering
Project/Site: SIA/2018230022-002-201

Job ID: 590-17887-1

Qualifiers

General Chemistry

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

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

Client Sample Results

Client: Valley Science and Engineering
Project/Site: SIA/2018230022-002-201

Job ID: 590-17887-1

Client Sample ID: Recovered Deicer

Lab Sample ID: 590-17887-1

Date Collected: 06/28/22 09:25

Matrix: Water

Date Received: 06/28/22 10:35

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		20	5.7	mg/L			06/28/22 15:23	100
Nitrite as N	ND		20	6.9	mg/L			06/28/22 15:23	100

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Kjeldahl	**0.78**	**J B**	1.0	0.69	mg/L		07/19/22 13:49	07/20/22 16:47	1
Chemical Oxygen Demand	**380000**		80000	35000	mg/L			07/02/22 12:28	4000
Nitrogen, Total	ND		1.5	1.0	mg/L			07/15/22 14:46	1

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 590-36750/1003
Matrix: Water
Analysis Batch: 36750

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		0.20	0.057	mg/L			06/28/22 12:04	1
Nitrite as N	ND		0.20	0.069	mg/L			06/28/22 12:04	1

Lab Sample ID: LCS 590-36750/1004
Matrix: Water
Analysis Batch: 36750

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrate as N	5.00	4.96		mg/L		99	90 - 110
Nitrite as N	5.00	4.88		mg/L		98	90 - 110

Method: 351.2 - Nitrogen, Total Kjeldahl

Lab Sample ID: MB 280-581268/3-A
Matrix: Water
Analysis Batch: 581424

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 581268

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Kjeldahl	0.829	J	1.0	0.69	mg/L		07/19/22 13:49	07/20/22 16:44	1

Lab Sample ID: LCS 280-581268/1-A
Matrix: Water
Analysis Batch: 581424

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 581268

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrogen, Kjeldahl	6.00	6.52		mg/L		109	90 - 110

Lab Sample ID: LCSD 280-581268/2-A
Matrix: Water
Analysis Batch: 581424

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 581268

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Nitrogen, Kjeldahl	6.00	6.52		mg/L		109	90 - 110	0	25

Method: 410.4 - COD

Lab Sample ID: MB 280-579848/5
Matrix: Water
Analysis Batch: 579848

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chemical Oxygen Demand	ND		20	8.7	mg/L			07/02/22 12:28	1

Lab Sample ID: LCS 280-579848/3
Matrix: Water
Analysis Batch: 579848

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chemical Oxygen Demand	100	96.0		mg/L		96	90 - 110

Method: 410.4 - COD (Continued)

Lab Sample ID: LCSD 280-579848/4
Matrix: Water
Analysis Batch: 579848

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chemical Oxygen Demand	100	98.2		mg/L		98	90 - 110	2	11

Lab Chronicle

Client: Valley Science and Engineering
Project/Site: SIA/2018230022-002-201

Job ID: 590-17887-1

Client Sample ID: Recovered Deicer

Lab Sample ID: 590-17887-1

Date Collected: 06/28/22 09:25

Matrix: Water

Date Received: 06/28/22 10:35

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		100			36750	06/28/22 15:23	NMI	TAL SPK
Total/NA	Prep	351.2			25 mL	25 mL	581268	07/19/22 13:49	BCR	TAL DEN
Total/NA	Analysis	351.2		1			581424	07/20/22 16:47	LRB	TAL DEN
Total/NA	Analysis	410.4		4000	2 mL	2 mL	579848	07/02/22 12:28	BCR	TAL DEN
Total/NA	Analysis	Total Nitrogen		1			37090	07/15/22 14:46	REA	TAL SPK

Laboratory References:

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

TAL SPK = Eurofins Spokane, 11922 East 1st Ave, Spokane, WA 99206, TEL (509)924-9200

Accreditation/Certification Summary

Client: Valley Science and Engineering
Project/Site: SIA/2018230022-002-201

Job ID: 590-17887-1

Laboratory: Eurofins Spokane

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Washington	State	C569	01-06-23

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
Total Nitrogen		Water	Nitrogen, Total

Laboratory: Eurofins Denver

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	2907.01	10-31-23
A2LA	ISO/IEC 17025	2907.01	10-31-23
Alabama	State Program	40730	09-30-12 *
Alaska (UST)	State	18-001	02-08-23
Arizona	State	AZ0713	12-20-22
Arkansas DEQ	State	19-047-0	06-01-22 *
California	State	2513	01-08-23
Connecticut	State	PH-0686	09-30-22
Florida	NELAP	E87667-57	06-30-23
Georgia	State	4025-011	01-08-23
Illinois	NELAP	2000172019-1	04-30-23
Iowa	State	IA#370	12-02-22
Kansas	NELAP	E-10166	05-31-22 *
Kentucky (WW)	State	KY98047	12-31-22
Louisiana	NELAP	30785	06-30-14 *
Louisiana	NELAP	30785	06-30-23
Minnesota	NELAP	1788752	12-31-22
Nevada	State	CO000262020-1	07-31-22
New Hampshire	NELAP	205319	04-28-23
New Jersey	NELAP	190002	06-30-23
New York	NELAP	59923	04-01-23
North Carolina (WW/SW)	State	358	12-31-22
North Dakota	State	R-034	01-08-23
Oklahoma	NELAP	8614	08-31-22
Oregon	NELAP	4025-011	01-09-23
Pennsylvania	NELAP	013	07-31-22
South Carolina	State	72002001	01-08-23
Texas	NELAP	TX104704183-08-TX	09-30-09 *
Texas	NELAP	T104704183-21-19	10-01-22
US Fish & Wildlife	US Federal Programs	058448	07-31-22
USDA	US Federal Programs	P330-20-00065	03-06-23
Utah	NELAP	QUAN5	06-30-13 *
Utah	NELAP	CO000262019-11	07-31-22
Virginia	NELAP	10490	06-14-23
Washington	State	C583-19	08-03-22
West Virginia DEP	State	354	11-30-22
Wisconsin	State	999615430	08-31-22
Wyoming (UST)	A2LA	2907.01	10-31-22

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

Client: Valley Science and Engineering
Project/Site: SIA/2018230022-002-201

Job ID: 590-17887-1

Method	Method Description	Protocol	Laboratory
300.0	Anions, Ion Chromatography	MCAWW	TAL SPK
351.2	Nitrogen, Total Kjeldahl	MCAWW	TAL DEN
410.4	COD	MCAWW	TAL DEN
Total Nitrogen	Nitrogen, Total	EPA	TAL SPK
351.2	Nitrogen, Total Kjeldahl	MCAWW	TAL DEN

Protocol References:

EPA = US Environmental Protection Agency

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

Laboratory References:

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

TAL SPK = Eurofins Spokane, 11922 East 1st Ave, Spokane, WA 99206, TEL (509)924-9200

TestAmerica Spokane
11922 E. 1st Ave.

Spokane, WA 99206
phone 509.924.9200 fax

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Regulatory Program ☐ DW ☐ NPDES ☐ RCRA ☐ Other

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Sara Rodriguez	Site Contact: Sara Rodriguez	Date:	COC No:
Valley Science and Engineering	Tel/Fax: (509) 703-2679	Lab Contact.	Carrier:	1 of 1 COCs
12720 E Nora Ave Ste A	Analysis Turnaround Time			Sampler:
Spokane, WA 99216	☐ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
(509) 921-0290 Phone	TAT if different from Below _____			Walk-in Client:
(509) 921-1788 FAX	☒ 2 weeks			Lab Sampling:
Spokane Airport	☐ 1 week			
Spokane Washington	☐ 2 days			Job / SDG No.
PN 2018230022-002-201	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS/MSD (Y/N)	COD	TKN	Nitrate & Nitrite	Sample Specific Notes:
Recovered Deicer	6/28/22	9:25am	G	H_2O	3			X	X	X	

590-17887 Chain of Custody

Preservation Used. 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☐ Disposal by Lab ☐ Archive for_____ Months

Special Instructions/QC Requirements & Comments -> COD is high approximately 200,000 mg/L. <-

Per quote 59001981-0 (exclude Total N we can do the math on that with the requested analysis on this COC)

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No. | Cooler Temp. (°C): Obs'd: 17.8 Corr'd: 17.5 | Therm ID No. 12806

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Josh Hudgens	Cascade Earth Sciences	6/28/22 10:30		GT Spokane	6/29/22 1035
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Form No. CA-C-WI-002, Rev. 4.3, dated 12/05/2013

Eurofins Spokane
11922 East 1st Ave
Spokane, WA 99206
Phone: 509-924-9200 Fax: 509-924-9290

Chain of Custody Record

eurofins | Environment Testing America

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Arrington, Randee E	Carrier Tracking No(s):	COC No: 590-6929.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Randee.Arrington@et.eurofinsus.com	State of Origin: Washington	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State - Washington; State Program - Washington		Job #: 590-17887-1
Address: 4955 Yarrow Street, ,	Due Date Requested: 7/12/2022			
City: Arvada	TAT Requested (days):			
State, Zip: CO, 80002				
Phone: 303-736-0100(Tel) 303-431-7171(Fax)	PO #:			
Email:	WO #:			
Project Name: SIA/2018230022-002-201	Project #: 59001988			
Site:	SSOW#:			

Analysis Requested

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	351.2/351.2_Prep	410.4	Total Number of containers	Special Instructions/Note:
			Preservation Code:							
Recovered Deicer (590-17887-1)	6/28/22	09:25 Pacific		Water			X	X	2	

Preservation Codes:

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

Other:

Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing Northwest, LLC places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing Northwest, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing Northwest, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins Environment Testing Northwest, LLC.

Possible Hazard Identification
Unconfirmed

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

Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:		Time:	Method of Shipment:	
Relinquished by: M. Vaughn	Date/Time: 6/29/22 13:50	Company: EET SPO	Received by: AKE	Date/Time: 06/30/2022 0950	Company: ETA DEN
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks: 2.1 CF +0.1 IR#12		

Ver: 06/08/2021

Login Sample Receipt Checklist

Client: Valley Science and Engineering

Job Number: 590-17887-1

Login Number: 17887
List Number: 1
Creator: Vaughan, Madison 1

List Source: Eurofins Spokane

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
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?	False	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Valley Science and Engineering

Job Number: 590-17887-1

Login Number: 17887
List Number: 2
Creator: Kazenga, Oliver M

List Source: Eurofins Denver
List Creation: 06/30/22 01:08 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are 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?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

SAMPLE COLLECTION DATA

Sample ID	**Stormwater-Containing Glycol**
Date	7-12-22
Time	9:30 am
Project	**SIA Land Treatment Site Monitoring**
Sample Matrix	**Liquid**
Collection Method	**Grab**
Sample Location	**Land Application Tank**
Weather	Sunny 85°
Sampling Personnel	JRH

FIELD INSTRUMENTS

pH	Oakton pH/Con 10
Conductivity	Oakton pH/Con 10
Temperature	Oakton pH/Con 10
Glycol	Misco Palm Abby 220 (SIA owned)

PARAMETERS

Time	pH su	Conductivity ~~uS/cm~~	Temp °C	Glycol %	Comments
9:36	7.99	2.22 m/s	23.7	20.8	

GENERAL NOTES

Sampled: 9:49 am

Valley Science and Engineering
12720 E Nora Avenue, Suite A | Spokane Valley, WA 99216 | (509) 921-0290 | FAX (509) 921-1788

Instrument Calibration Form

Date: 7-12-22 **Time:** 8:15 am
Personnel SRH **Instrument** Oakton

Calibration Standards Used	Reading After Calibration	Comments
1413	1413	
pH 10	10.01	
pH 7	7.0	

Date: _____ **Time:** _____
Personnel _____ **Instrument** _____

Calibration Standards Used	Reading After Calibration	Comments

Date: _____ **Time:** _____
Personnel _____ **Instrument** _____

Calibration Standards Used	Reading After Calibration	Comments

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ANALYTICAL REPORT

Eurofins Spokane
11922 East 1st Ave
Spokane, WA 99206
Tel: (509)924-9200

Laboratory Job ID: 590-17887-1
Client Project/Site: SIA/2018230022-002-201

For:
Valley Science and Engineering
12720 E Nora Ave
Spokane, Washington 99216

Attn: Sara Rodriguez

Authorized for release by:
7/21/2022 4:32:32 PM

Randee Arrington, Lab Director
(509)924-9200
Randee.Arrington@et.eurofinsus.com

Table of Contents

Case Narrative

Client: Valley Science and Engineering
Project/Site: SIA/2018230022-002-201

Job ID: 590-17887-1

Job ID: 590-17887-1

Laboratory: Eurofins Spokane

Narrative

Receipt
The sample was received on 6/28/2022 10:35 AM. Unless otherwise noted below, the sample arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 17.9º C.

Receipt Exceptions
The following sample was received at the laboratory outside the required temperature criteria: Recovered Deicer (590-17887-1). The sample is considered acceptable since it was collected and submitted to the laboratory on the same day and there is evidence that the chilling process has begun.

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

General Chemistry
Method 351.2: The method blank for preparation batch 280-581268 and analytical batch 280-581424 contained Kjedahl Nitrogen above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-digestion of samples was not performed.

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

Sample Summary

Client: Valley Science and Engineering
Project/Site: SIA/2018230022-002-201

Job ID: 590-17887-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
590-17887-1	Recovered Deicer	Water	06/28/22 09:25	06/28/22 10:35

Definitions/Glossary

Client: Valley Science and Engineering
Project/Site: SIA/2018230022-002-201

Job ID: 590-17887-1

Qualifiers

General Chemistry

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

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

Client Sample Results

Client: Valley Science and Engineering
Project/Site: SIA/2018230022-002-201

Job ID: 590-17887-1

Client Sample ID: Recovered Deicer

Lab Sample ID: 590-17887-1

Date Collected: 06/28/22 09:25

Matrix: Water

Date Received: 06/28/22 10:35

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		20	5.7	mg/L			06/28/22 15:23	100
Nitrite as N	ND		20	6.9	mg/L			06/28/22 15:23	100

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Kjeldahl	**0.78**	**J B**	1.0	0.69	mg/L		07/19/22 13:49	07/20/22 16:47	1
Chemical Oxygen Demand	**380000**		80000	35000	mg/L			07/02/22 12:28	4000
Nitrogen, Total	ND		1.5	1.0	mg/L			07/15/22 14:46	1

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 590-36750/1003
Matrix: Water
Analysis Batch: 36750

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		0.20	0.057	mg/L			06/28/22 12:04	1
Nitrite as N	ND		0.20	0.069	mg/L			06/28/22 12:04	1

Lab Sample ID: LCS 590-36750/1004
Matrix: Water
Analysis Batch: 36750

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrate as N	5.00	4.96		mg/L		99	90 - 110
Nitrite as N	5.00	4.88		mg/L		98	90 - 110

Method: 351.2 - Nitrogen, Total Kjeldahl

Lab Sample ID: MB 280-581268/3-A
Matrix: Water
Analysis Batch: 581424

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 581268

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Kjeldahl	0.829	J	1.0	0.69	mg/L		07/19/22 13:49	07/20/22 16:44	1

Lab Sample ID: LCS 280-581268/1-A
Matrix: Water
Analysis Batch: 581424

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 581268

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrogen, Kjeldahl	6.00	6.52		mg/L		109	90 - 110

Lab Sample ID: LCSD 280-581268/2-A
Matrix: Water
Analysis Batch: 581424

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 581268

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Nitrogen, Kjeldahl	6.00	6.52		mg/L		109	90 - 110	0	25

Method: 410.4 - COD

Lab Sample ID: MB 280-579848/5
Matrix: Water
Analysis Batch: 579848

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chemical Oxygen Demand	ND		20	8.7	mg/L			07/02/22 12:28	1

Lab Sample ID: LCS 280-579848/3
Matrix: Water
Analysis Batch: 579848

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chemical Oxygen Demand	100	96.0		mg/L		96	90 - 110

Method: 410.4 - COD (Continued)

Lab Sample ID: LCSD 280-579848/4
Matrix: Water
Analysis Batch: 579848

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chemical Oxygen Demand	100	98.2		mg/L		98	90 - 110	2	11

Lab Chronicle

Client: Valley Science and Engineering
Project/Site: SIA/2018230022-002-201

Job ID: 590-17887-1

Client Sample ID: Recovered Deicer

Lab Sample ID: 590-17887-1

Date Collected: 06/28/22 09:25

Matrix: Water

Date Received: 06/28/22 10:35

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		100			36750	06/28/22 15:23	NMI	TAL SPK
Total/NA	Prep	351.2			25 mL	25 mL	581268	07/19/22 13:49	BCR	TAL DEN
Total/NA	Analysis	351.2		1			581424	07/20/22 16:47	LRB	TAL DEN
Total/NA	Analysis	410.4		4000	2 mL	2 mL	579848	07/02/22 12:28	BCR	TAL DEN
Total/NA	Analysis	Total Nitrogen		1			37090	07/15/22 14:46	REA	TAL SPK

Laboratory References:

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

TAL SPK = Eurofins Spokane, 11922 East 1st Ave, Spokane, WA 99206, TEL (509)924-9200

Accreditation/Certification Summary

Client: Valley Science and Engineering
Project/Site: SIA/2018230022-002-201

Job ID: 590-17887-1

Laboratory: Eurofins Spokane

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Washington	State	C569	01-06-23

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
Total Nitrogen		Water	Nitrogen, Total

Laboratory: Eurofins Denver

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	2907.01	10-31-23
A2LA	ISO/IEC 17025	2907.01	10-31-23
Alabama	State Program	40730	09-30-12 *
Alaska (UST)	State	18-001	02-08-23
Arizona	State	AZ0713	12-20-22
Arkansas DEQ	State	19-047-0	06-01-22 *
California	State	2513	01-08-23
Connecticut	State	PH-0686	09-30-22
Florida	NELAP	E87667-57	06-30-23
Georgia	State	4025-011	01-08-23
Illinois	NELAP	2000172019-1	04-30-23
Iowa	State	IA#370	12-02-22
Kansas	NELAP	E-10166	05-31-22 *
Kentucky (WW)	State	KY98047	12-31-22
Louisiana	NELAP	30785	06-30-14 *
Louisiana	NELAP	30785	06-30-23
Minnesota	NELAP	1788752	12-31-22
Nevada	State	CO000262020-1	07-31-22
New Hampshire	NELAP	205319	04-28-23
New Jersey	NELAP	190002	06-30-23
New York	NELAP	59923	04-01-23
North Carolina (WW/SW)	State	358	12-31-22
North Dakota	State	R-034	01-08-23
Oklahoma	NELAP	8614	08-31-22
Oregon	NELAP	4025-011	01-09-23
Pennsylvania	NELAP	013	07-31-22
South Carolina	State	72002001	01-08-23
Texas	NELAP	TX104704183-08-TX	09-30-09 *
Texas	NELAP	T104704183-21-19	10-01-22
US Fish & Wildlife	US Federal Programs	058448	07-31-22
USDA	US Federal Programs	P330-20-00065	03-06-23
Utah	NELAP	QUAN5	06-30-13 *
Utah	NELAP	CO000262019-11	07-31-22
Virginia	NELAP	10490	06-14-23
Washington	State	C583-19	08-03-22
West Virginia DEP	State	354	11-30-22
Wisconsin	State	999615430	08-31-22
Wyoming (UST)	A2LA	2907.01	10-31-22

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

Client: Valley Science and Engineering
Project/Site: SIA/2018230022-002-201

Job ID: 590-17887-1

Method	Method Description	Protocol	Laboratory
300.0	Anions, Ion Chromatography	MCAWW	TAL SPK
351.2	Nitrogen, Total Kjeldahl	MCAWW	TAL DEN
410.4	COD	MCAWW	TAL DEN
Total Nitrogen	Nitrogen, Total	EPA	TAL SPK
351.2	Nitrogen, Total Kjeldahl	MCAWW	TAL DEN

Protocol References:

EPA = US Environmental Protection Agency

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

Laboratory References:

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

TAL SPK = Eurofins Spokane, 11922 East 1st Ave, Spokane, WA 99206, TEL (509)924-9200

TestAmerica Spokane
11922 E. 1st Ave.

Spokane, WA 99206
phone 509.924.9200 fax

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Regulatory Program ☐ DW ☐ NPDES ☐ RCRA ☐ Other

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Sara Rodriguez	Site Contact: Sara Rodriguez	Date:	COC No:
Valley Science and Engineering	Tel/Fax: (509) 703-2679	Lab Contact.	Carrier:	1 of 1 COCs
12720 E Nora Ave Ste A	Analysis Turnaround Time			Sampler:
Spokane, WA 99216	☐ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
(509) 921-0290 Phone	TAT if different from Below _____			Walk-in Client:
(509) 921-1788 FAX	☒ 2 weeks			Lab Sampling:
Spokane Airport	☐ 1 week			
Spokane Washington	☐ 2 days			Job / SDG No.
PN 2018230022-002-201	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS/MSD (Y/N)	COD	TKN	Nitrate & Nitrite	Sample Specific Notes:
Recovered Deicer	6/28/22	9:25am	G	H_2O	3			X	X	X	

590-17887 Chain of Custody

Preservation Used. 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☐ Disposal by Lab ☐ Archive for_____ Months

Special Instructions/QC Requirements & Comments -> COD is high approximately 200,000 mg/L. <-

Per quote 59001981-0 (exclude Total N we can do the math on that with the requested analysis on this COC)

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No. | Cooler Temp. (°C): Obs'd: 17.8 Corr'd: 17.5 | Therm ID No. 12806

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Josh Hudgens	Cascade Earth Sciences	6/28/22 10:30		GT Spokane	6/29/22 1035
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Form No. CA-C-WI-002, Rev. 4.3, dated 12/05/2013

Eurofins Spokane
11922 East 1st Ave
Spokane, WA 99206
Phone: 509-924-9200 Fax: 509-924-9290

Chain of Custody Record

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Client Information (Sub Contract Lab)	Sampler:	Lab PM: Arrington, Randee E	Carrier Tracking No(s):	COC No: 590-6929.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Randee.Arrington@et.eurofinsus.com	State of Origin: Washington	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State - Washington; State Program - Washington		Job #: 590-17887-1
Address: 4955 Yarrow Street, ,	Due Date Requested: 7/12/2022			
City: Arvada	TAT Requested (days):			
State, Zip: CO, 80002				
Phone: 303-736-0100(Tel) 303-431-7171(Fax)	PO #:			
Email:	WO #:			
Project Name: SIA/2018230022-002-201	Project #: 59001988			
Site:	SSOW#:			

Analysis Requested

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	351.2/351.2_Prep	410.4	Total Number of containers	Special Instructions/Note:
			Preservation Code:							
Recovered Deicer (590-17887-1)	6/28/22	09:25 Pacific		Water			X	X	2	

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

Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing Northwest, LLC places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing Northwest, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing Northwest, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins Environment Testing Northwest, LLC.

Possible Hazard Identification
Unconfirmed

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

Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2

Special Instructions/QC Requirements:

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

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
M. Vaughn	6/29/22 13:50	EET SPO	AK	06/30/2022 0950	ETA DEN
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 2.1 CF +0.1 IR#12

Ver: 06/08/2021

Login Sample Receipt Checklist

Client: Valley Science and Engineering

Job Number: 590-17887-1

Login Number: 17887
List Number: 1
Creator: Vaughan, Madison 1

List Source: Eurofins Spokane

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
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?	False	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Valley Science and Engineering

Job Number: 590-17887-1

Login Number: 17887
List Number: 2
Creator: Kazenga, Oliver M

List Source: Eurofins Denver
List Creation: 06/30/22 01:08 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are 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?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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ANALYTICAL REPORT

Eurofins Spokane
11922 East 1st Ave
Spokane, WA 99206
Tel: (509)924-9200

Laboratory Job ID: 590-18000-1
Client Project/Site: SIA/2018230022-002-201

For:
Valley Science and Engineering
12720 E Nora Ave
Spokane, Washington 99216

Attn: Sara Rodriguez

Authorized for release by:
7/26/2022 10:35:38 AM

Randee Arrington, Lab Director
(509)924-9200
Randee.Arrington@et.eurofinsus.com

Table of Contents

Case Narrative

Client: Valley Science and Engineering
Project/Site: SIA/2018230022-002-201

Job ID: 590-18000-1

Job ID: 590-18000-1

Laboratory: Eurofins Spokane

Narrative

Receipt
The sample was received on 7/12/2022 10:41 AM. Unless otherwise noted below, the sample arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 17.5º C.

Receipt Exceptions
The following sample was received at the laboratory outside the required temperature criteria: Recovered Deicer (590-18000-1). The sample is considered acceptable since it was collected and submitted to the laboratory on the same day and there is evidence that the chilling process has begun.

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

General Chemistry
Method 351.2: Due to the matrix, the initial volume used for the following sample deviated from the standard procedure: Recovered Deicer (590-18000-1). The reporting limits (RLs) have been adjusted proportionately.

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

Sample Summary

Client: Valley Science and Engineering
Project/Site: SIA/2018230022-002-201

Job ID: 590-18000-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
590-18000-1	Recovered Deicer	Water	07/12/22 09:49	07/12/22 10:41

Glossary

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

Client: Valley Science and Engineering
Project/Site: SIA/2018230022-002-201

Job ID: 590-18000-1

Client Sample ID: Recovered Deicer

Lab Sample ID: 590-18000-1

Date Collected: 07/12/22 09:49

Matrix: Water

Date Received: 07/12/22 10:41

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		20	5.7	mg/L			07/12/22 11:59	100
Nitrite as N	ND		20	6.9	mg/L			07/12/22 11:59	100

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Kjeldahl Nitrogen	22		2.0	1.9	mg/L		07/17/22 10:23	07/18/22 08:35	1
Chemical Oxygen Demand	340000		40000	24000	mg/L		07/21/22 17:04	07/21/22 21:42	1

Client: Valley Science and Engineering
Project/Site: SIA/2018230022-002-201

Job ID: 590-18000-1

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 590-37001/1003
Matrix: Water
Analysis Batch: 37001

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		0.20	0.057	mg/L			07/12/22 10:16	1
Nitrite as N	ND		0.20	0.069	mg/L			07/12/22 10:16	1

Lab Sample ID: LCS 590-37001/1004
Matrix: Water
Analysis Batch: 37001

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrate as N	5.00	5.08		mg/L		102	90 - 110
Nitrite as N	5.00	4.75		mg/L		95	90 - 110

Method: 351.2 - Nitrogen, Total Kjeldahl

Lab Sample ID: MB 480-633825/1-A
Matrix: Water
Analysis Batch: 633900

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 633825

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Kjeldahl Nitrogen	ND		0.20	0.19	mg/L		07/17/22 10:23	07/18/22 06:58	1

Lab Sample ID: LCS 480-633825/2-A
Matrix: Water
Analysis Batch: 633900

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 633825

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Kjeldahl Nitrogen	2.50	2.28		mg/L		91	90 - 110

Method: SM 5220D - COD

Lab Sample ID: MB 580-397843/3-A
Matrix: Water
Analysis Batch: 397880

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 397843

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chemical Oxygen Demand	ND		10	5.9	mg/L		07/21/22 17:04	07/21/22 21:42	1

Lab Sample ID: LCS 580-397843/4-A
Matrix: Water
Analysis Batch: 397880

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 397843

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chemical Oxygen Demand	75.0	79.1		mg/L		105	80 - 120

Lab Sample ID: LCSD 580-397843/5-A
Matrix: Water
Analysis Batch: 397880

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 397843

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chemical Oxygen Demand	75.0	78.1		mg/L		104	80 - 120	1	20

Lab Chronicle

Client: Valley Science and Engineering
Job ID: 590-18000-1
Project/Site: SIA/2018230022-002-201

Client Sample ID: Recovered Deicer
Lab Sample ID: 590-18000-1

Date Collected: 07/12/22 09:49
Matrix: Water
Date Received: 07/12/22 10:41

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		100			37001	07/12/22 11:59	NMI	TAL SPK
Total/NA	Prep	351.2			2.5 mL	25 mL	633825	07/17/22 10:23	EAG	TAL BUF
Total/NA	Analysis	351.2		1			633900	07/18/22 08:35	CLT	TAL BUF
Total/NA	Prep	SM 5220			0.0005 mL	2 mL	397843	07/21/22 17:04	MLT	FGS SEA
Total/NA	Analysis	SM 5220D		1	0.0005 mL	2 mL	397880	07/21/22 21:42	MLT	FGS SEA

Laboratory References:

FGS SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

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

TAL SPK = Eurofins Spokane, 11922 East 1st Ave, Spokane, WA 99206, TEL (509)924-9200

Accreditation/Certification Summary

Client: Valley Science and Engineering
Job ID: 590-18000-1
Project/Site: SIA/2018230022-002-201

Laboratory: Eurofins Spokane

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Washington	State	C569	01-06-23

Laboratory: Eurofins Buffalo

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Washington	State	C784	02-10-23

Laboratory: Eurofins Seattle

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Washington	State	C788	07-13-22 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

Client: Valley Science and Engineering
Project/Site: SIA/2018230022-002-201

Job ID: 590-18000-1

Method	Method Description	Protocol	Laboratory
300.0	Anions, Ion Chromatography	MCAWW	TAL SPK
351.2	Nitrogen, Total Kjeldahl	MCAWW	TAL BUF
SM 5220D	COD	SM	FGS SEA
351.2	Nitrogen, Total Kjeldahl	MCAWW	TAL BUF
SM 5220	COD	SM	FGS SEA

Protocol 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"

Laboratory References:

FGS SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

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

TAL SPK = Eurofins Spokane, 11922 East 1st Ave, Spokane, WA 99206, TEL (509)924-9200

TestAmerica Spokane
11922 E. 1st Ave.

Spokane, WA 99206
phone 509.924 9200 fax

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Regulatory Program ☐ DW ☐ NPDES ☐ RCRA ☐ Other

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Sara Rodriguez	Site Contact: Sara Rodriguez	Date	COC No:
Valley Science and Engineering	Tel/Fax: (509) 703-2679	Lab Contact.	Carrier:	1 of 1 COCs
12720 E Nora Ave Ste A	Analysis Turnaround Time			Sampler:
Spokane, WA 99216	☐ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
(509) 921-0290 Phone	TAT if different from Below _____			Walk-in Client:
(509) 921 1788 FAX	☐ 2 weeks			Lab Sampling:
Spokane Airport	☐ 1 week			
Spokane Washington	☐ 2 days			Job / SDG No.
PN 2018230022-002-201	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	COD	TKN	Nitrate & Nitrite	Sample Specific Notes.
Recovered Deicer	7/12/22	9:49	G	H_2O	3			X	X	X	

590-18000 Chain of Custody

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☐ Disposal by Lab ☐ Archive for_____ Months

Special Instructions/QC Requirements & Comments -> COD is high approximately 200,000 mg/L. <-

Per quote 59001981-0 (exclude Total N we can do the math on that with the requested analysis on this COC)

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No. | Cooler Temp. (°C): Obs'd: 17.4 Corr'd: 17.5 | Therm ID No.: IR006

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Josh Hudgins	Cascade Earth Sciences	7.12.22 10 31			
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time: 7/12/22 1041

Form No. CA-C-WI-002, Rev. 4.3, dated 12/05/2013

Eurofins Spokane
11922 East 1st Ave
Spokane, WA 99206
Phone: 509-924-9200 Fax: 509-924-9290

Chain of Custody Record

eurofins | Environment Testing America

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Arrington, Randee E	Carrier Tracking No(s):	COC No: 590-6971.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Randee.Arrington@et.eurofinsus.com	State of Origin: Washington	Page: Page 1 of 1
Company: Eurofins Environment Testing Northeast,		Accreditations Required (See note): State - Washington; State Program - Washington		Job #: 590-18000-1
Address: 10 Hazelwood Drive, ,	Due Date Requested: 7/25/2022			
City: Amherst	TAT Requested (days):			
State, Zip: NY, 14228-2298				
Phone: 716-691-2600(Tel) 716-691-7991(Fax)	PO #:			
Email:	WO #:			
Project Name: SIA/2018230022-002-201	Project #: 59001988			
Site:	SSOW#:			

Analysis Requested

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

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	351.2/351.2_Prep Nitrogen, Total Kjeldahl	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
Recovered Deicer (590-18000-1)	7/12/22	09:49 Pacific		Water			X	1	

Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing Northwest, LLC places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing Northwest, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing Northwest, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins Environment Testing Northwest, LLC.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

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

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	7/13/22 15:00	~~EET~~ SPO 7/13/22			7/14/22 1000	TA
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 3.7# ICE

Ver: 06/08/2021

Eurofins Spokane
11922 East 1st Ave
Spokane, WA 99206
Phone: 509-924-9200 Fax: 509-924-9290

Chain of Custody Record

eurofins | Environment Testing America

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Arrington, Randee E	Carrier Tracking No(s):	COC No: 590-6968.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Randee.Arrington@et.eurofinsus.com	State of Origin: Washington	Page: Page 1 of 1
Company: Eurofins Environment Testing Northwest,		Accreditations Required (See note): State - Washington; State Program - Washington		Job #: 590-18000-1
Address: 5755 8th Street East, ,	Due Date Requested: 7/25/2022			
City: Tacoma	TAT Requested (days):			
State, Zip: WA, 98424				
Phone: 253-922-2310(Tel)	PO #:			
Email:	WO #:			
Project Name: SIA/2018230022-002-201	Project #: 59001988			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

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

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	5220D/5220C_prep COD	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
Recovered Deicer (590-18000-1)	7/12/22	09:49 Pacific		Water			X	1	

Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing Northwest, LLC places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing Northwest, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing Northwest, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing Northwest, LLC.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

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

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1		7/13/22 14:30	ESS		7/14/22 0930	ESS
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: ESS 0.8/0.4

Login Sample Receipt Checklist

Client: Valley Science and Engineering

Job Number: 590-18000-1

Login Number: 18000

List Source: Eurofins Spokane

List Number: 1

Creator: Vaughan, Madison 1

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
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?	False	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Valley Science and Engineering

Job Number: 590-18000-1

Login Number: 18000
List Number: 2
Creator: Kolb, Chris M

List Source: Eurofins Buffalo
List Creation: 07/14/22 02:21 PM

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	3.7 ir gun #1 ice
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time (Excluding tests with immediate HTs)..	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	True	
Chlorine Residual checked.	True	

Login Sample Receipt Checklist

Client: Valley Science and Engineering

Job Number: 590-18000-1

Login Number: 18000
List Number: 3
Creator: Presley, Kim A

List Source: Eurofins Seattle
List Creation: 07/14/22 04:53 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are 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	IR9 0.8/0.4
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?	N/A	Received project as a subcontract.
There are no discrepancies between the containers received 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	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

SAMPLE COLLECTION DATA

Sample ID	**Stormwater-Containing Glycol**
Date	7/26/2023
Time	0913
Project	**SIA Land Treatment Site Monitoring**
Sample Matrix	**Liquid**
Collection Method	**Grab**
Sample Location	**Land Application Tank**
Weather	SUNNY
Sampling Personnel	DMS

FIELD INSTRUMENTS

pH	Oakton pH/Con 10
Conductivity	Oakton pH/Con 10
Temperature	Oakton pH/Con 10
Glycol	Misco Palm Abby 220 (SIA owned)

PARAMETERS

Time	pH su	Conductivity uS/cm	Temp °C	Glycol %	Comments
0915	8.32	1822	28.2	16% BRIX	

GENERAL NOTES

16% BRIX

recovered deicer

S/A [redacted]

Valley Science and Engineering

12720 E Nora Avenue, Suite A | Spokane Valley, WA 99216 | (509) 921-0290 | FAX (509) 921-1788

Instrument Calibration Form

Date: 7/26/2022 **Time:** 8:01 AM

Personnel DMS **Instrument** OAKTON PC450

Calibration Standards Used	Reading After Calibration	Comments
7.0	7.00	
10.01	10.04	
1413		

Date: _____ **Time:** _____

Personnel _____ **Instrument** _____

Calibration Standards Used	Reading After Calibration	Comments

Date: _____ **Time:** _____

Personnel _____ **Instrument** _____

Calibration Standards Used	Reading After Calibration	Comments

eurofins | Environment Testing America

ANALYTICAL REPORT

Eurofins Spokane
11922 East 1st Ave
Spokane, WA 99206
Tel: (509)924-9200

Laboratory Job ID: 590-18156-1
Client Project/Site: SIA/2018230022-002-201

For:
Valley Science and Engineering
12720 E Nora Ave
Spokane, Washington 99216

Attn: Sara Rodriguez

Randee Arrington

Authorized for release by:
8/7/2022 8:42:11 AM

Randee Arrington, Lab Director
(509)924-9200
Randee.Arrington@et.eurofinsus.com

Table of Contents

Case Narrative

Client: Valley Science and Engineering
Project/Site: SIA/2018230022-002-201

Job ID: 590-18156-1

Job ID: 590-18156-1

Laboratory: Eurofins Spokane

Narrative

Receipt
The sample was received on 7/26/2022 10:00 AM. Unless otherwise noted below, the sample arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 23.9º C.

Receipt Exceptions
The following sample was received at the laboratory outside the required temperature criteria: Recovered Deicer (590-18156-1). The sample is considered acceptable since it was collected and submitted to the laboratory on the same day and there is evidence that the chilling process has begun.

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

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

Sample Summary

Client: Valley Science and Engineering
Project/Site: SIA/2018230022-002-201

Job ID: 590-18156-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
590-18156-1	Recovered Deicer	Water	07/26/22 09:15	07/26/22 10:00

Definitions/Glossary

Client: Valley Science and Engineering
Project/Site: SIA/2018230022-002-201

Job ID: 590-18156-1

Glossary

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

Client Sample Results

Client: Valley Science and Engineering
Project/Site: SIA/2018230022-002-201

Job ID: 590-18156-1

Client Sample ID: Recovered Deicer

Lab Sample ID: 590-18156-1

Date Collected: 07/26/22 09:15

Matrix: Water

Date Received: 07/26/22 10:00

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		20	5.7	mg/L			07/27/22 15:19	100
Nitrite as N	ND		20	6.9	mg/L			07/27/22 15:19	100

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Kjeldahl Nitrogen	2.5		0.20	0.19	mg/L		08/01/22 11:58	08/02/22 17:03	1
Chemical Oxygen Demand	260000		20000	12000	mg/L		08/03/22 16:57	08/03/22 21:53	1

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 590-37251/1003
Matrix: Water
Analysis Batch: 37251

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		0.20	0.057	mg/L			07/27/22 13:25	1
Nitrite as N	ND		0.20	0.069	mg/L			07/27/22 13:25	1

Lab Sample ID: LCS 590-37251/1004
Matrix: Water
Analysis Batch: 37251

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrate as N	5.00	5.00		mg/L		100	90 - 110
Nitrite as N	5.00	5.06		mg/L		101	90 - 110

Method: 351.2 - Nitrogen, Total Kjeldahl

Lab Sample ID: MB 480-635681/1-A
Matrix: Water
Analysis Batch: 635940

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 635681

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Kjeldahl Nitrogen	ND		0.20	0.19	mg/L		08/01/22 11:58	08/02/22 13:06	1

Lab Sample ID: LCS 480-635681/2-A
Matrix: Water
Analysis Batch: 635940

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 635681

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Kjeldahl Nitrogen	2.50	2.64		mg/L		106	90 - 110

Method: SM 5220D - COD

Lab Sample ID: MB 580-399315/3-A
Matrix: Water
Analysis Batch: 399332

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 399315

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chemical Oxygen Demand	ND		10	5.9	mg/L		08/03/22 16:57	08/03/22 21:53	1

Lab Sample ID: LCS 580-399315/4-A
Matrix: Water
Analysis Batch: 399332

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 399315

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chemical Oxygen Demand	75.0	77.7		mg/L		104	80 - 120

Lab Sample ID: LCSD 580-399315/5-A
Matrix: Water
Analysis Batch: 399332

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 399315

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chemical Oxygen Demand	75.0	72.7		mg/L		97	80 - 120	7	20

Lab Chronicle

Client: Valley Science and Engineering
Project/Site: SIA/2018230022-002-201

Job ID: 590-18156-1

Client Sample ID: Recovered Deicer

Lab Sample ID: 590-18156-1

Date Collected: 07/26/22 09:15

Matrix: Water

Date Received: 07/26/22 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		100			37251	07/27/22 15:19	NMI	EETNW SP
Total/NA	Prep	351.2			25 mL	25 mL	635681	08/01/22 11:58	KM	EETNE BU
Total/NA	Analysis	351.2		1			635940	08/02/22 17:03	CLT	EETNE BU
Total/NA	Prep	SM 5220			0.001 mL	2 mL	399315	08/03/22 16:57	MLT	EETNW S
Total/NA	Analysis	SM 5220D		1	0.001 mL	2 mL	399332	08/03/22 21:53	MLT	EETNW S

Laboratory References:

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

EETNW SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

EETNW SPK = Eurofins Spokane, 11922 East 1st Ave, Spokane, WA 99206, TEL (509)924-9200

Accreditation/Certification Summary

Client: Valley Science and Engineering
Job ID: 590-18156-1
Project/Site: SIA/2018230022-002-201

Laboratory: Eurofins Spokane

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Washington	State	C569	01-06-23

Laboratory: Eurofins Buffalo

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Washington	State	C784	02-10-23

Laboratory: Eurofins Seattle

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Washington	State	C788	07-13-22 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

Client: Valley Science and Engineering
Project/Site: SIA/2018230022-002-201

Job ID: 590-18156-1

Method	Method Description	Protocol	Laboratory
300.0	Anions, Ion Chromatography	MCAWW	EETNW SPK
351.2	Nitrogen, Total Kjeldahl	MCAWW	EETNE BUF
SM 5220D	COD	SM	EETNW SEA
351.2	Nitrogen, Total Kjeldahl	MCAWW	EETNE BUF
SM 5220	COD	SM	EETNW SEA

Protocol 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"

Laboratory References:

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

EETNW SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

EETNW SPK = Eurofins Spokane, 11922 East 1st Ave, Spokane, WA 99206, TEL (509)924-9200

TestAmerica Spokane
11922 E 1st Ave.

Spokane, WA 99206
phone 509.924.9200 fax

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Regulatory Program ☐DW ☐NPDES ☐RCRA ☑Other

Client Contact	Project Manager: Sara Rodriguez	Site Contact: Sara Rodriguez	Date: 7-26-2022	COC No:
Valley Science and Engineering	Tel/Fax: (509) 703-2679	Lab Contact: RANDY	Carrier:	1 of 1 COCs
12720 E Nora Ave Ste A	Analysis Turnaround Time			Sampler:
Spokane, WA 99216	☐CALENDAR DAYS ☐WORKING DAYS			For Lab Use Only:
(509) 921-0290 Phone	TAT if different from Below Standard			Walk-in Client:
(509) 921 1788 FAX	☐ 2 weeks			Lab Sampling:
Spokane Airport	☐ 1 week			
Spokane Washington	☐ 2 days			Job / SDG No.
PN 2018230022-002-201	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	COD	TKN	Nitrate & Nitrite	Sample Specific Notes:
Recovered Deicer	7/26/22	0915	G	H_2O	3			X	X	X	

590-18156 Chain of Custody

Preservation Used: 1= Ice, 2= HCl, 3= H_2SO_4, 4=HNO_3, 5=NaOH, 6= Other _____

Possible Hazard Identification
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☐Non-Hazard ☐Flammable ☐Skin Irritant ☐Poison B ☐Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐Return to Client ☐Disposal by Lab ☐Archive for_____ Months

Special Instructions/QC Requirements & Comments -> COD is high approximately 200,000 mg/L. <-

Per quote 59001981-0 (exclude Total N we can do the math on that with the requested analysis on this COC)

239

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.		Cooler Temp. (°C): Obs'd: 23.4 Corr'd. 23.5		Therm ID No.: D806
Relinquished by:	Company: ~~Cascade Earth~~ ~~Sciences~~ VALLEY	Date/Time: 9/26/22	Received by:	Company: ESA Spokane	Date/Time: 7/27/22 1000
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

8/1/2022

Eurofins Spokane
11922 East 1st Ave
Spokane, WA 99206
Phone: 509-924-9200 Fax: 509-924-9290

Chain of Custody Record

eurofins Environment Testing America

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Arrington, Randee E	Carrier Tracking No(s):	COC No: 590-7013.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Randee.Arrington@et.eurofinsus.com	State of Origin: Washington	Page: Page 1 of 1
Company: Eurofins Environment Testing Northwest,		Accreditations Required (See note): State - Washington; State Program - Washington		Job #: 590-18156-1
Address: 5755 8th Street East, ,	Due Date Requested: 8/8/2022			
City: Tacoma	TAT Requested (days):			
State, Zip: WA, 98424				
Phone: 253-922-2310(Tel)	PO #:			
Email:	WO #:			
Project Name: SIA/2018230022-002-201	Project #: 59001988			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

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

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	5220D/5220C_prep COD	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
Recovered Deicer (590-18156-1)	7/26/22	09:15 Pacific		Water			X	1	

Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing Northwest, LLC places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain of custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing Northwest, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing Northwest, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing Northwest, LLC.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

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

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	7/28/22 13:00	ECTSP		7/29/22 0920	ECTSP
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:
		A3 - 3.5 / 3.4

Login Sample Receipt Checklist

Client: Valley Science and Engineering

Job Number: 590-18156-1

Login Number: 18156
List Number: 1
Creator: Vaughan, Madison 1

List Source: Eurofins Spokane

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
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?	False	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Valley Science and Engineering

Job Number: 590-18156-1

Login Number: 18156
List Number: 2
Creator: Yeager, Brian A

List Source: Eurofins Buffalo
List Creation: 07/29/22 02:18 PM

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	2.5 ICE
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time (Excluding tests with immediate HTs)..	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	True	
Chlorine Residual checked.	True	

Login Sample Receipt Checklist

Client: Valley Science and Engineering

Job Number: 590-18156-1

Login Number: 18156
List Number: 3
Creator: Smith, Darla J

List Source: Eurofins Seattle
List Creation: 07/29/22 05:07 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are 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	A3 3.5/3.4c
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 containers received 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	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Appendix B.

Stormwater-Containing Glycol Land Application Log – 2022

Appendix B1. Stormwater-Containing Glycol Land Application Log - 2022

Date	Time		Driver Initials	Glycol Conc	Volume Applied	Application Rate		Areas [1]	Notes	Applied [2]		Theoretical Oxygen Demand Applied [3]
	Start	Stop		%	gallons	gal/ac	lb COD/ac	Soil(s)		Total Nitrogen	COD	
										pounds		pounds
5/17/2022	0945	1005	DK	17.0	900		461	2A		0.15	4,053	15,300
5/17/2022	1200	1215	DK	19.0	900		394	2A		0.15	4,053	17,100
5/17/2022	1300	1325	DK	18.0	900		416	2A		0.15	4,053	16,200
6/1/2022	1300	1310	DK	18.0	200		416	2A		0.03	901	3,600
6/2/2022	0711	0726	DK	20.0	900		375	2B		0.15	4,053	18,000
6/2/2022	0811	0826	DK	22.0	900		341	1		0.15	4,053	19,800
6/2/2022	0911	0925	DK	20.0	900		375	2A		0.15	4,053	18,000
6/2/2022	1009	1024	DK	20.0	900		375	2A		0.15	4,053	18,000
6/2/2022	1232	1247	DK	22.0	900		341	1		0.15	4,053	19,800
6/3/2022	0614	0632	DK	22.0	900		341	2B		0.30	3,077	19,800
6/3/2022	0730	0735	DK	23.0	900		326	2B		0.30	3,077	20,700
6/3/2022	0816	0827	DK	25.0	900		300	2,3		0.30	3,077	22,500
6/3/2022	0942	0950	DK	23.0	900		326	2,3		0.30	3,077	20,700
6/3/2022	1027	1042	DK	22.0	900		341	2,3		0.30	3,077	19,800
6/3/2022	1145	1200	DK	23.0	900		326	2,3		0.30	3,077	20,700
6/6/2022	0650	0715	DK	22.0	400		341	2,3		0.13	1,368	8,800
6/6/2022	0832	0846	DK	18.0	900		416	2,3		0.30	3,077	16,200
6/6/2022	0942	0957	DK	18.0	900		416	1		0.30	3,077	16,200
6/6/2022	1039	1055	DK	17.0	900		461	1		0.30	3,077	15,300
6/7/2022	0555	0611	DK	19.0	900		394	1		0.30	3,077	17,100
6/7/2022	0815	0830	DK	18.0	900		416	1		0.30	3,077	16,200
6/7/2022	0940	0955	DK	18.0	900		416	1		0.30	3,077	16,200
6/7/2022	1111	1127	DK	18.0	900		416	1		0.30	3,077	16,200
6/8/2022	0800	0822	TR	12.2	900		625	2A		0.30	3,077	10,980
6/8/2022	0920	0942	TR	13.1	900		450	2A	Empty tank	0.30	3,077	11,790
6/8/2022	1125	1246	TR	18.0	900		416	2A	new tank	0.30	3,077	16,200
6/8/2022	1255	1320	TR	17.6	900			2A	windy	0.30	3,077	15,840
6/9/2022	0632	0646	DK	18.0	900		416	1		0.30	3,077	16,200
6/9/2022	0722	0740	DK	19.0	900		394	2B		0.30	3,077	17,100
6/9/2022	0824	0745	DK	17.0	900		461	2B		0.30	3,077	15,300
6/9/2022	1055	1111	DK	18.0	900		416	2B		0.30	3,077	16,200
6/9/2022	1155	1210	DK	16.0	900		468	2B		0.30	3,077	14,400

Appendix B1. Stormwater-Containing Glycol Land Application Log - 2022

Date	Time		Driver Initials	Glycol Conc	Volume Applied	Application Rate		Areas [1]	Notes	Applied [2]		Theoretical Oxygen Demand Applied [3]
	Start	Stop		%	gallons	gal/ac	lb COD/ac	Soil(s)		Total Nitrogen	COD	
										pounds		pounds
6/10/2022	0645	0700	DK	16.0	900		468	1		0.30	3,077	14,400
6/10/2022	0800	0818	DK	16.0	900		468	2B		0.30	3,077	14,400
6/14/2022	1132	1142	DK	15.0	900		500	2A-,1	rain/wind	0.24	1,801	13,500
6/15/2022	0709	0722	DK	14.0	900		535	1		0.24	1,801	12,600
6/15/2022	0810	0822	DK	15.0	900		500	1		0.24	1,801	13,500
6/15/2022	0911	0924	DK	15.0	900		500	1		0.24	1,801	13,500
6/15/2022	1057	1111	DK	15.0	900		500	1		0.24	1,801	13,500
6/15/2022	1155	1204	DK	15.0	900		500	1		0.24	1,801	13,500
6/15/2022	1305	1316	DK	17.0	900		441	1	bak to front tank	0.24	1,801	15,300
6/16/2022	0706	0719	DK	17.0	900		441	2B		0.24	1,801	15,300
6/16/2022	0804	0816	DK	17.0	900		441	2B		0.24	1,801	15,300
6/16/2022	0857	0911	DK	16.0	900		468	2B		0.24	1,801	14,400
6/16/2022	1032	1044	DK	17.0	750		441	2B	end of fuel tank	0.20	1,501	12,750
6/16/2022	1158	1211	DK	25.0	900		300	2B,3	start of mod tank	0.24	1,801	22,500
6/17/2022	0617	0632	DK	23.0	900		623	2A		0.24	1,801	20,700
6/17/2022	0716	0742	DK	24.0	900		612	2A	clogged pump	0.24	1,801	21,600
6/17/2022	0825	0900	DK	252.0	900		300	2A	clogged pump	0.24	1,801	226,800
6/17/2022	1011	1032	DK	252.0	900		300	2A	clogged pump	0.24	1,801	226,800
6/20/2022	0609	0630	DK	25.0	900		300	2A	clogged pump	0.24	1,801	22,500
6/20/2022	0720	0745	DK	25.0	900		300	3,2B	clogged pump	0.24	1,801	22,500
6/20/2022	0825	0850	DK	25.0	900		300	3,2B	clogged pump	0.24	1,801	22,500
6/20/2022	0932	0950	DK	25.0	900		300	3,2B	clogged pump	0.24	1,801	22,500
6/20/2022	1050	1111	DK	24.0	900		312	2B		0.24	1,801	21,600
6/21/2022	0700	0722	DK	25.0	900		300	3	clogged pump	0.24	1,801	22,500
6/21/2022	0807	0830	DK	23.0	900		326	3	clogged pump	0.24	1,801	20,700
6/21/2022	0911	0932	DK	23.0	900		326	3,2B	clogged pump	0.24	1,801	20,700
6/21/2022	1019	1040	DK	25.0	900		300	2A	clogged pump	0.24	1,801	22,500
6/21/2022	1210	1232	DK	25.0	900		300	2A	clogged pump	0.24	1,801	22,500
6/22/2022	0745	0801	DK	24.0	900		312	2A		0.24	1,801	21,600
6/22/2022	0845	0900	DK	22.0	900		341	2A		0.24	1,801	19,800
6/22/2022	0955	1009	DK	22.0	900		341	2A		0.24	1,801	19,800
6/22/2022	1132	1146	DK	22.0	900		341	2A		0.24	1,801	19,800

Appendix B1. Stormwater-Containing Glycol Land Application Log - 2022

Date	Time		Driver Initials	Glycol Conc	Volume Applied	Application Rate		Areas [1]	Notes	Applied [2]		Theoretical Oxygen Demand Applied [3]
										Total Nitrogen	COD	
	Start	Stop		%	gallons	gal/ac	lb COD/ac	Soil(s)		pounds		pounds
6/23/2022	0635	0650	DK	22.0	900		341	2A		0.24	1,801	19,800
6/23/2022	0732	0746	DK	23.0	900		326	1,2		0.24	1,801	20,700
6/23/2022	0825	0839	DK	23.0	900		326	1,2A		0.24	1,801	20,700
6/23/2022	0922	0935	DK	22.0	900		341	1		0.24	1,801	19,800
6/23/2022	1015	1027	DK	25.0	900		300	1		0.24	1,801	22,500
6/23/2022	1111	1124	DK	23.0	900		326	1		0.24	1,801	20,700
6/24/2022	0642	0655	DK	22.0	900		341	1		0.24	1,801	19,800
6/24/2022	0745	0800	DK	22.0	900		341	2B		0.24	1,801	19,800
6/24/2022	0840	0852	DK	23.0	900		326	2B		0.24	1,801	20,700
6/24/2022	1032	1045	DK	23.0	900		326	2B		0.24	1,801	20,700
6/24/2022	1111	1122	DK	22.0	900		341	2B		0.24	1,801	19,800
6/24/2022	1204	1215	DK	22.0	900		341	2B,3		0.24	1,801	19,800
6/27/2022	0642	0655	DK	21.0	900		357	2B		0.24	1,801	18,900
6/27/2022	0740	0753	DK	19.0	900		394	2B		0.24	1,801	17,100
6/27/2022	0235	0846	DK	20.0	900		375	2A		0.24	1,801	18,000
6/27/2022	0932	0943	DK	22.0	900		341	2A		0.24	1,801	19,800
6/27/2022	1059	1111	DK	22.0	900		341	2B		0.24	1,801	19,800
6/27/2022	1152	1203	DK	20.0	900		375	3		0.24	1,801	18,000
6/28/2022	0745	0756	DK	20.0	900		375	1,2		0.10	2,852	18,000
6/28/2022	0845	0857	DK	22.0	900		341	1		0.10	2,852	19,800
6/28/2022	1038	1050	DK	22.0	900		341	1		0.10	2,852	19,800
6/28/2022	1135	1146	DK	24.0	900		312	3,1,2A,2B		0.10	2,852	21,600
6/29/2022	0632	0645	DK	21.0	900		357	2B,1		0.10	2,852	18,900
6/29/2022	0725	0737	DK	20.0	900		375	1		0.10	2,852	18,000
6/29/2022	0825	0836	DK	19.0	900		394	1		0.10	2,852	17,100
6/29/2022	1111	1122	DK	19.0	900		394	1,2B		0.10	2,852	17,100
6/29/2022	0106	1219	DK	24.0	900		312	2B		0.10	2,852	21,600
6/30/2022	0632	0645	DK	21.0	900		357	2B		0.10	2,852	18,900
7/11/2022	0711	0722	DK	18.0	950	416		2A		0.11	3,011	17,100
7/11/2022	0809	0821	DK	18.0	900	416		2A		0.10	2,852	16,200
7/11/2022	0945	0957	DK	18.0	900	416		2A		0.10	2,852	16,200
7/11/2022	1044	1055	DK	18.0	900	416		2A		0.10	2,852	16,200
7/11/2022	1145	1157	DK	20.0	900	375		2A		0.10	2,852	18,000

Appendix B1. Stormwater-Containing Glycol Land Application Log - 2022

Date	Time		Driver Initials	Glycol Conc	Volume Applied	Application Rate		Areas [1]	Notes	Applied [2]		Theoretical Oxygen Demand Applied [3]
	Start	Stop		%	gallons	gal/ac	lb COD/ac	Soil(s)		Total Nitrogen	COD	
										pounds		pounds
7/12/2022	0632	0644	DK	19.0	900	394		2A		0.10	2,852	17,100
7/12/2022	0732	0742	DK	19.0	900	394		2A		0.10	2,852	17,100
7/12/2022	0824	0835	DK	18.0	900	416		2A		0.10	2,852	16,200
7/12/2022	1044	1055	DK	18.0	900	416		2A		0.10	2,852	16,200
7/12/2022	1140	1151	DK	19.0	900	394		2A		0.10	2,852	17,100
7/13/2022	0632	0642	DK	20.0	900	375		2A,1		0.10	2,852	18,000
7/13/2022	0750	0801	DK	19.0	900	394		2A,1		0.10	2,852	17,100
7/13/2022	1111	1122	DK	18.0	900	416		2A,1		0.10	2,852	16,200
7/14/2022	0648	0720	DK	17.0	900	441		2A,1		0.10	2,852	15,300
7/14/2022	0742	0754	DK	17.0	900	441		2A,1		0.10	2,852	15,300
7/14/2022	1045	1056	DK	17.0	900	441		2A,1		0.10	2,852	15,300
7/14/2022	1145	1156	DK	17.0	900	441		2A,1		0.10	2,852	15,300
7/15/2022	0627	0639	DK	19.0	900	394		2A,1		0.10	2,852	17,100
7/15/2022	0724	0755	DK	17.0	900	441		2A,1	Lightening CLOSE!	0.10	2,852	15,300
7/15/2022	0911	0922	DK	17.0	900	441		1		0.10	2,852	15,300
7/15/2022	1011	1024	DK	18.0	900	416		1		0.10	2,852	16,200
7/15/2022	1111	1127	DK	17.0	900	441		1		0.10	2,852	15,300
7/18/2022	0709	0721	DK	18.0	900	416		1		0.10	2,852	16,200
7/18/2022	0805	0816	DK	18.0	900	416		1		0.10	2,852	16,200
7/18/2022	0900	0911	DK	18.0	900	416		1		0.10	2,852	16,200
7/18/2022	0955	1007	DK	17.0	900	441		1		0.10	2,852	15,300
7/18/2022	1132	1144	DK	19.0	900	394		1		0.10	2,852	17,100
7/18/2022	1229	1235	DK	18.0	900	416		1		0.10	2,852	16,200
7/19/2022	0700	0711	DK	17.0	900	441		2B		0.10	2,852	15,300
7/19/2022	0755	0807	DK	17.0	900	441		2B		0.10	2,852	15,300
7/19/2022	0911	0924	DK	17.0	900	441		2B		0.10	2,852	15,300
7/19/2022	1000	1011	DK	17.0	900	441		2B,3		0.10	2,852	15,300
7/19/2022	1221	1232	DK	17.0	900	441		3		0.10	2,852	15,300
7/20/2022	0732	0742	DK	16.0	900	468		3		0.10	2,852	14,400
7/20/2022	0900	0911	DK	17.0	900	441		3		0.10	2,852	15,300
7/20/2022	0958	1010	DK	18.0	900	416		3		0.10	2,852	16,200
7/20/2022	1132	1143	DK	17.0	900	441		3		0.10	2,852	15,300

Appendix B1. Stormwater-Containing Glycol Land Application Log - 2022

Date	Time		Driver Initials	Glycol Conc	Volume Applied	Application Rate		Areas [1]	Notes	Applied [2]		Theoretical Oxygen Demand Applied [3]
	Start	Stop		%	gallons	gal/ac	lb COD/ac	Soil(s)		Total Nitrogen	COD	
										pounds		pounds
7/21/2022	0642	0653	DK	18.0	900	416		3		0.10	2,852	16,200
7/21/2022	0721	0732	DK	17.0	900	441		3		0.10	2,852	15,300
7/21/2022	0809	0821	DK	17.0	900	441		3		0.10	2,852	15,300
7/21/2022	0900	0911	DK	17.0	900	441		2A		0.10	2,852	15,300
7/21/2022	1100	1111	DK	17.0	900	441		2A		0.10	2,852	15,300
7/21/2022	1157	1208	DK	19.0	900	394		2A		0.10	2,852	17,100
7/22/2022	0722	0732	DK	17.0	900	441		2A		0.10	2,852	15,300
7/22/2022	0817	0827	DK	16.0	900	468		2A		0.10	2,852	14,400
7/22/2022	0911	0922	DK	17.0	900	441		2A		0.10	2,852	15,300
7/25/2022	0632	0644	DK	16.0	900	468		1		0.10	2,852	14,400
7/25/2022	0732	0743	DK	16.0	900	468		1		0.10	2,852	14,400
7/25/2022	0822	0832	DK	17.0	900	441		1		0.10	2,852	15,300
7/25/2022	0911	0922	DK	17.0	900	441		1		0.10	2,852	15,300
7/25/2022	1111	1122	DK	16.0	900	468		1		0.10	2,852	14,400
7/25/2022	1209	1220	DK	15.0	900	500		2A,1		0.10	2,852	13,500
7/26/2022	0632	0643	DK	16.0	900	468		1		0.11	1,952	14,400
7/26/2022	0725	0732	DK	18.0	900	416		1		0.11	1,952	16,200
7/26/2022	0816	0827	DK	17.0	900	441		1		0.11	1,952	15,300
7/26/2022	1024	1035	DK	17.0	900	441		1		0.11	1,952	15,300
7/26/2022	1111	1122	DK	17.0	900	441		1		0.11	1,952	15,300
7/26/2022	1210	1221	DK	17.0	900	441		1		0.11	1,952	15,300
7/27/2022	0711	0722	DK	18.0	900	416		2B		0.11	1,952	16,200
7/27/2022	0810	0821	DK	16.0	900	468		2B		0.11	1,952	14,400
7/27/2022	0900	0911	DK	17.0	900	441		2B		0.11	1,952	15,300
7/27/2022	1059	1111	DK	17.0	900	441		3		0.11	1,952	15,300
7/27/2022	1155	1206	DK	17.0	900	441		3		0.11	1,952	15,300
7/28/2022	0642	0653	DK	16.0	900	468		2B,3		0.11	1,952	14,400
7/28/2022	0732	0743	DK	16.0	900	468		2B		0.11	1,952	14,400
7/28/2022	0822	0823	DK	16.0	900	468		2B		0.11	1,952	14,400
7/28/2022	0819	0930	DK	17.0	900	441		2B,3		0.11	1,952	15,300
7/28/2022	1100	1111	DK	18.0	900	416		2B,3		0.11	1,952	16,200
7/28/2022	1155	1206	DK	17.0	900	441		2B,3		0.11	1,952	15,300

Appendix B1. Stormwater-Containing Glycol Land Application Log - 2022

Date	Time		Driver Initials	Glycol Conc	Volume Applied	Application Rate		Areas [1]	Notes	Applied [2]		Theoretical Oxygen Demand Applied [3]
										Total Nitrogen	COD	
	Start	Stop		%	gallons	gal/ac	lb COD/ac	Soil(s)		pounds		pounds
8/3/2022	0632	0643	DK	16.0	900	468		2B,3		0.11	1,952	14,400
8/3/2022	0721	0732	DK	17.0	900	441		1		0.11	1,952	15,300
8/3/2022	0816	0827	DK	17.0	900	441		1		0.11	1,952	15,300
8/3/2022	0911	0922	DK	17.0	900	441		1		0.11	1,952	15,300
8/3/2022	1111	1122	DK	17.0	900	441		1		0.11	1,952	15,300
8/3/2022	1226	1237	DK	17.0	900	441		1		0.11	1,952	15,300
8/4/2022	0732	0744	DK	16.0	900	468		1		0.11	1,952	14,400
8/4/2022	0827	0838	DK	17.0	900	441		1,2A		0.11	1,952	15,300
8/4/2022	1154	1205	DK	17.0	900	441		2A		0.11	1,952	15,300
8/5/2022	0700	0711	DK	16.0	900	468		2A		0.11	1,952	14,400
8/5/2022	0754	0805	DK	16.0	900	468		2A		0.11	1,952	14,400
8/5/2022	0900	0911	DK	16.0	900	468		2A		0.11	1,952	14,400
8/5/2022	0930	1001	DK	18.0	900	416		2A		0.11	1,952	16,200
8/5/2022	1111	1122	DK	18.0	900	416		2A		0.11	1,952	16,200
8/5/2022	1204	1215	DK	18.0	900	416		2A		0.11	1,952	16,200
8/8/2022	0711	0723	DK	16.0	900	468		2B,3		0.11	1,952	14,400
8/8/2022	0807	0818	DK	16.0	900	468		2B,3		0.11	1,952	14,400
8/8/2022	0900	0911	DK	17.0	900	441		2B,3		0.11	1,952	15,300
8/8/2022	0953	1005	DK	17.0	900	441		2B,3		0.11	1,952	15,300
8/8/2022	1111	1122	DK	17.0	900	441		2B,3		0.11	1,952	15,300
8/8/2022	1206	1216	DK	19.0	900	394		2B,3		0.11	1,952	17,100
8/9/2022	0642	0654	DK	17.0	900	441		2B		0.11	1,952	15,300
8/9/2022	0732	0742	DK	16.0	900	468		2B,3		0.11	1,952	14,400
8/9/2022	0822	0833	DK	17.0	900	441		2B		0.11	1,952	15,300
8/9/2022	0922	0933	DK	17.0	900	441		2B		0.11	1,952	15,300
8/9/2022	1100	1111	DK	17.0	900	441		2B		0.11	1,952	15,300
8/9/2022	1156	1206	DK	17.0	900	441		2B,3		0.11	1,952	15,300
8/9/2022	1423	1422	DK	17.0	700	441		2B		0.09	1,518	11,900

NOTES:

Abbreviations: COD = chemical oxygen demand, Conc = concentration, gal/ac = gallons per acre, lb COD/ac = pounds chemical oxygen demand per acre.

1 Area 2 is identified as 2A (north section) and 2B (south section).

2 Calculated as most recent concentration (milligrams per liter) × million gallons stormwater-containing glycol applied × 8.34 pounds per million gallons.

3 Calculated as volume applied × glycol concentration.

Table 14. Recovered Deicer Land Application Reporting Form - Daily Log

Instructions:
1. Measure and record the glycol concentration, total volume applied, application rates.
2. Report total acreage covered, date, and time.
3. Record conditions, any problems, solutions, observations
4. Complete this form and return to the airport each week, even if no operation occurred.
5. Email the completed form to mattb@spokaneairports.net

Date	Time Started	Time Stopped	Driver Initials	Glycol Concentration	Volume Applied	Application Rate		Area	Conditions/Notes [1]
				%	gallons	gal/acre	lb COD/acre	acres	
17 MAY	9:45	10:08	[illegible]	17	900		441	2A	
	12:00	12:15	↓	19	900		394	2A	
	13	13:25		18	900		416	2A	
1 JUN	13	13:10	[illegible]	18	900		416	2A	
2 JUN	7:11	7:26	[illegible]	20	900		375	2B	
	8:11	8:26	[illegible]	22	900		341	1	
	9:11	9:25	[illegible]	20	900		375	2A	
	10:09	10:24	[illegible]	20	900		375	2A	
	12:32	12:47	[illegible]	22	900		341	1	
3 JUN	6:14	6:32	[illegible]	22	900		341	1B	
	7:20	7:35	[illegible]	23	900		326	2B	
	8:16	8:27	[illegible]	25	900		300	2-3	
	9:42	9:56	[illegible]	23	900		326	2-3	
	10:27	10:42	[illegible]	22	900		341	2-3	
	11:45	12:00	[illegible]	23	900		326	2-3	
6 JUN	6:50	7:15	[illegible]	22	900		341	2-3	
	8:32	8:46	[illegible]	18	900		416	2-3	
	9:42	9:57	[illegible]	18	900		416	1	
	10:39	10:55	[illegible]	17	900		461	1	
7 JUN	5:55	6:11	[illegible]	19	900		394	1	
	8:15	8:30	[illegible]	18	900		416	1	
	9:40	9:55	[illegible]	18	900		416	1	
	11:11	11:27	[illegible]	18	900	416		1	
8 JUN	0800	0822	[illegible]	12.2	900	428		2A	
	0920	0942	[illegible]	13.1	900	450		2A	Empty Tank
	1125	1148	[illegible]	16	900	416		2A	New Tank
	1255	1320	[illegible]	17.6	900			2A	windy
9 JUN	6:39	6:46	[illegible]	18	900	416		2B	
	7:22	7:40	[illegible]	19	900	394		2B	
	8:24	7:45	[illegible]	17	900	461		2B	
	10:55	11:11	[illegible]	18	900	416		2B	
Total					0				

Comments: No spray on 6 May 20, Rain all day

1. Description of weather, site conditions, problems, results of application, runoff, or other observations related to the sites, water quality, and deicer land application.

Table 14. Recovered Deicer Land Application Reporting Form - Daily Log

Instructions:
1. Measure and record the glycol concentration, total volume applied, application rates.
2. Report total acreage covered, date, and time.
3. Record conditions, any problems, solutions, observations
4. Complete this form and return to the airport each week, even if no operation occurred.
5. Email the completed form to mattb@spokaneairports.net

Date	Time Started	Time Stopped	Driver Initials	Glycol Concentration	Volume Applied	Application Rate		Area	Conditions/Notes [1]
				%	gallons	gal/acre	lb COD/acre	acres	
9 JUN	11:55	12:10	[illegible]	16.	900		468	2B	
10 JUN	6:45	7:00	[illegible]	16	900		468	1	
	9:00	9:18	[illegible]	16	900		468	2B	
13 JUNE					900				RAINED OUT
14 JUN	11:32	11:42	[illegible]	15	900		500	2A-1	RAIN / WIND
15 JUN	7:09	7:23	[illegible]	14	900		535	1	
	8:10	8:22	[illegible]	15	900		500	1	
	9:11	9:24	[illegible]	15	900		500	1	
	10:54	11:11	[illegible]	15	900		500	1	
	11:55	12:04	[illegible]	15	900		500	1	
	1:05	1:16	[illegible]	17	900		441	1	BACK TO FRONT TANK
16 JUN	7:0	7:19	[illegible]	17	900		441	2B	
	8:04	8:16	[illegible]	17	900		441	2B	
	8:57	9:11	[illegible]	16	900		468	2B	
	10:32	1044	[illegible]	17	750		441	2B	END OF FUEL TANK
	11:58	12:11	[illegible]	25	900		300	2B-3	START OF MOD TANK
17 JUN	6:17	6:32	[illegible]	23	900		326	2A	
	7:16	7:42	[illegible]	24	900		312	2A	CLOGGED PUMP
	8:25	9:00	[illegible]	25	900		300	2A	"
	10:11	10:32	[illegible]	25	900		300	2A	"
20 JUN	6:09	6:30	[illegible]	25	900		300	2A	"
	7:20	7:45	[illegible]	25	900		300	3-2B	"
	8:25	8:50	[illegible]	25	900		300	3-2B	"
	9:32	9:50	[illegible]	26	900		300	3-2B	"
	10:50	11:11	[illegible]	24	900		312	2B	
21 JUN	7:00	7:22	[illegible]	25	900		300	3	CLOGGED PUMP
	8:07	8:30	[illegible]	23	988		326	3	"
	9:11	9:32	[illegible]	23	900		326	3-2B	"
	10:17	10:40	[illegible]	25	900		300	2A	"
	12:10	12:32	[illegible]	26	900		300	2A	"
22 JUN	7:45	8:01	[illegible]	24	900		312	2A	
Total					0				

Comments: No spray on 6 May 20, Rain all day

1. Description of weather, site conditions, problems, results of application, runoff, or other observations related to the sites, water quality, and deicer land application.

Table 14. Recovered Deicer Land Application Reporting Form - Daily Log

Instructions:
1. Measure and record the glycol concentration, total volume applied, application rates.
2. Report total acreage covered, date, and time.
3. Record conditions, any problems, solutions, observations
4. Complete this form and return to the airport each week, even if no operation occurred.
5. Email the completed form to mattb@spokaneairports.net

Date	Time Started	Time Stopped	Driver Initials	Glycol Concentration	Volume Applied	Application Rate		Area	Conditions/Notes [1]
				%	gallons	gal/acre	lb COD/acre	acres	
22 JUN	5:45	9:00	[illegible]	22	900		341	2A	
	9:58	10:09	[illegible]	22	900		341	2A	
	11:32	11:46	[illegible]	22	900		341	2A	
23 JUN	6:35	6:50	[illegible]	22	900		341	2A	
	7:32	7:46	[illegible]	23	900		326	1-2A	
	8:25	8:39	[illegible]	23	900		326	1-2A	
	9:22	9:35	[illegible]	22	900		341	1	
	10:15	10:37	[illegible]	25	900		300	1	
	11:11	11:24	[illegible]	23	900		326	1	
24 JUN	6:42	6:55	[illegible]	22	900		341	1	
	7:45	8:00	[illegible]	22	900		341	2B	
	8:40	8:56	[illegible]	23	900		326	2B	
	10:32	10:45	[illegible]	23	900		326	2B	
	11:11	11:22	[illegible]	22	900		341	2B	
	12:04	12:15	[illegible]	22	900		341	2B-3	
27 JUN	6:42	6:55	[illegible]	21	900		357	2B	
	7:40	7:53	[illegible]	19	900		394	2B	
	8:35	8:46	[illegible]	20	900		375	2A	
	9:32	9:43	[illegible]	22	900		341	2A	
	10:59	11:11	[illegible]	22	900		341	2B	
	11:52	12:03	[illegible]	20	900		375	3	
28 JUN	7:45	7:56	[illegible]	20	900		375	1-2	
	8:45	8:57	[illegible]	22	900		341	1	
	10:38	10:50	[illegible]	22	900		341	1	
	11:35	11:46	[illegible]	24	900		312	3-1-2AB	
29 JU	6:32	6:45	[illegible]	21	900		357	2B-1	
	7:25	7:37	[illegible]	20	900		375	1	
	8:25	8:36	[illegible]	19	900		394	1	
	11:11	11:22	[illegible]	19	900		394	1-2B	
	12:06	12:19	[illegible]	24	900		312	2B	
30 JU	6:32	6:45	[illegible]	21	900		357	2B	
Total					0				

Comments: No spray on 6 May 20, Rain all day

1. Description of weather, site conditions, problems, results of application, runoff, or other observations related to the sites, water quality, and deicer land application.

Table 14. Recovered Deicer Land Application Reporting Form - Daily Log

Instructions:
1. Measure and record the glycol concentration, total volume applied, application rates.
2. Report total acreage covered, date, and time.
3. Record conditions, any problems, solutions, observations
4. Complete this form and return to the airport each week, even if no operation occurred.
5. Email the completed form to mattb@spokaneairports.net

Date	Time Started	Time Stopped	Driver Initials	Glycol Concentration	Volume Applied	Application Rate		Area	Conditions/Notes [1]
				%	gallons	gal/acre	lb COD/acre	acres	
11 JUL	7:11	7:22	XX	18	750	416		2A	
	8:09	8:21	XX	18	900	416		2A	
	9:45	9:57	XX	18	900	416		2A	
	10:44	10:55	XX	18	900	416		2A	
	11:45	11:57	XX	20	900	375		2A	
12 JUL	6:32	6:44	XX	19	900	394		2A	
	7:32	7:42	XX	19	900	394		2A	
	8:24	8:35	XX	18	900	416		2A	
	10:44	10:55	XX	18	900	416		2A	
	11:40	11:51	XX	19	900	394		2A	
13 JUL	6:32	6:42	XX	20	900	375		2A-1	
	750	8:01	XX	19	900	394		2A-1	
	11:11	11:22	XX	18	900	416		2A-1	
14 JUL	6:48	7:00	XX	17	900	441		2A-1	
	7:42	7:54	XX	17	900	441		2A-1	
	10:45	10:56	XX	17	900	441		2A-1	
	11:45	11:57	XX	17	900	441		2A-1	
15 JUL	6:37	6:48	XX	19	900	394		2A-1	
	7:24	7:35	XX	17	900	441		2A-1	SURFACE TO GROUND LIGHTNING CLOSE
	9:11	9:22	XX	17	900	441		1	
	10:11	10:24	XX	18	900	416		1	
	11:11	11:21	XX	17	900	441		1	
18 JUL	7:09	7:21	XX	18	900	416		1	
	8:05	8:16	XX	18	900	416		1	
	9:00	9:11	XX	18	900	416		1	
	9:55	10:07	XX	17	900	441		1	
	11:33	11:44	XX	19	900	394		1	
	12:29	12:35	XX	18	900	416		1	
19 JUL	7:00	7:11	XX	17	900	441		2-B	
	7:55	8:07	XX	17	900	441		2-B	
	9:11	9:24	XX	17	900	441		2B	
Total					0				

Comments: No spray on 6 May 20, Rain all day

1. Description of weather, site conditions, problems, results of application, runoff, or other observations related to the sites, water quality, and deicer land application.

Table 14. Recovered Deicer Land Application Reporting Form - Daily Log

Instructions:
1. Measure and record the glycol concentration, total volume applied, application rates.
2. Report total acreage covered, date, and time.
3. Record conditions, any problems, solutions, observations
4. Complete this form and return to the airport each week, even if no operation occurred.
5. Email the completed form to mattb@spokaneairports.net

Date	Time Started	Time Stopped	Driver Initials	Glycol Concentration	Volume Applied	Application Rate		Area	Conditions/Notes [1]
				%	gallons	gal/acre	lb COD/acre	acres	
19 JUL	10:00	10:11	[redacted]	17	900	441		2B-3	
	12:21	12:32	[redacted]	17	900	441		3	
20 JUL	7:32	7:42	[redacted]	16	900	468		3	
	9:00	9:11	[redacted]	17	900	441		3	
	9:58	10:10	[redacted]	18	900	416		3	
	11:32	11:42	[redacted]	17	900	441		3	
21 JUL	6:42	6:53	[redacted]	18	900	416		3	
	7:21	7:32	[redacted]	17	900	441		3	
	8:09	8:21	[redacted]	17	900	441		3	
	9:00	9:11	[redacted]	17	900	441		2A	
	11:00	11:11	[redacted]	17	900	441		2A	
	11:57	12:08	[redacted]	19	900	394		2A	
22 JUL	7:22	7:32	[redacted]	17	900	441		2A	
	8:17	8:27	[redacted]	16	900	468		2A	
	9:11	9:22	[redacted]	17	900	441		2A	
25 JUL	6:32	6:44	[redacted]	16	900	468		1	
	7:32	7:43	[redacted]	16	900	468		1	
	8:32	8:32	[redacted]	17	900	441		1	
	9:11	9:22	[redacted]	17	900	441		1	
	11:11	11:22	[redacted]	16	900	468		1	
	12:09	12:20	[redacted]	15	900	500		2A-1	
26 JUL	6:32	6:43	[redacted]	16	900	468		1	
	7:22	7:32	[redacted]	18	900	416		1	
	8:16	8:27	[redacted]	17	900	441		1	
	10:24	10:35	[redacted]	17	900	441		1	
	11:11	11:22	[redacted]	17	900	441		1	
	12:10	12:21	[redacted]	17	900	441		1	
27 JUL	7:11	7:22	[redacted]	18	900	416		2B	
	8:10	8:21	[redacted]	16	900	468		2B	
	9:00	9:11	[redacted]	17	900	441		2B	
	10:59	11:11	[redacted]	17	900	441		3	
Total					0				

Comments: No spray on 6 May 20, Rain all day

1. Description of weather, site conditions, problems, results of application, runoff, or other observations related to the sites, water quality, and deicer land application.

Table 14. Recovered Deicer Land Application Reporting Form - Daily Log

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4. Complete this form and return to the airport each week, even if no operation occurred.
5. Email the completed form to mattb@spokaneairports.net

Date	Time Started	Time Stopped	Driver Initials	Glycol Concentration	Volume Applied	Application Rate		Area	Conditions/Notes [1]
				%	gallons	gal/acre	lb COD/acre	acres	
27 JUL	11:55	12:06	[illegible]	17	900	441		3	
28 JUL	6:42	6:53	[illegible]	16	900	468		2B-3	
	7:32	7:43	[illegible]	16	900	468		2B	
	8:22	8:33	[illegible]	16	900	468		2B	
	9:19	9:30	[illegible]	17	900	441		2B-3	
	11:00	11:11	[illegible]	18	900	416		2B-3	
	11:55	12:06	[illegible]	17	900	441		2B-3	
3 AUG	6:32	6:43	[illegible]	16	900	468		2B-3	
	7:21	7:32	[illegible]	17	900	441		1	
	8:16	8:27	[illegible]	17	900	441		1	
	9:11	9:22	[illegible]	17	900	441		1	
	11:16	11:22	[illegible]	17	900	441		1	
	12:26	12:37	[illegible]	17	900	441		1	
4 AUG	7:32	7:44	[illegible]	16	900	468		1	
	8:27	8:38	[illegible]	17	900	441		1-2A	
	11:54	12:05	[illegible]	17	900	441		2A	
5 AUG	7:22	7:11	[illegible]	16	900	468		2A	
	7:53	8:05	[illegible]	16	900	468		2A	
	9:00	9:11	[illegible]	16	900	468		2A	
	9:50	10:01	[illegible]	18	900	416		2A	
	11:11	11:22	[illegible]	18	900	416		2A	
	12:04	12:15	[illegible]	18	900	416		2A	
8 AUG	7:16	7:27	[illegible]	16	900	468		2B-3	
	8:07	8:18	[illegible]	16	900	468		2B-3	
	9:00	9:11	[illegible]	17	900	441		2B-3	
	9:53	10:05	[illegible]	17	900	441		2B-3	
	11:11	11:22	[illegible]	17	900	441		2B-3	
	12:05	12:16	[illegible]	19	900	394		2B-3	
9 AUG	6:42	6:54	[illegible]	17	900	441		2B	
	7:32	7:42	[illegible]	16	900	468		2B-3	
	8:22	8:33	[illegible]	17	900	441		2B	
Total »					0				

Comments: No spray on 6 May 20, Rain all day

9:22 - 9:33 [illegible] 17 900 441 2B

1. Description of weather, site conditions, problems, results of application, runoff, or other observations related to the sites, water quality, and deicer land application.

11:00 11:11 [illegible] 17 900 441 2B

11:56 12:06 [illegible] 17 900 441 2B-3

7:23 7:32 [illegible] 700 441 2B

Cascade Fuels c...

Spokane International A...

Appendix C.

Soils Field Notes and Laboratory Report – 2022

Report Date: May 9, 2022

Report No: 86746

Client: Valley Science and Engineering-Spokane

Sampler: Sara Rodriguez

Project: *AECOM-SIA*

Field: *Soil 1*

P.N.: 2018230022-002-201

Sampled: 4/28/2022

KTL KUOTESTING LABS
A Matrix Sciences Company

SOIL ANALYSIS REPORT

Lab #	Depth Inches Start	Depth Inches End	Field ID	Sample ID	NO3-N #/A	NO3-N ppm	NH4-N #/A	NH4-N ppm	P Bicarb ppm	K Am. Acet. ppm	SO4-S ppm	OM %	pH	ECE mmho/cm	Ca Meq/100g	Mg Meq/100g	Na Meq/100g	Efferve-scence	H2O %	Total Soilds %	Total Bases Meq/100g	TKN %	Total Nitrogen %
921	0	6	**Soil 1**		7	3.4	7	3.3	22	478	16	2.55	6.0	0.31	4.6	0.7	0.16	None	18.50	81.50	6.74	0.079	0.079
922	6	12	**Soil 1**		6	3.1	4	2.0	11	377	8	1.79	6.5	0.21	5.4	0.8	0.13	None	14.55	85.45	7.34	0.044	0.044
923	12	18	**Soil 1**		8	4.0	3	1.7	10	297	8	1.77	6.6	0.20	5.2	0.9	0.11	None	14.10	85.90	6.95	0.022	0.022
924	18	36	**Soil 1**		13	2.1	9	1.5	8	151	9	0.54	6.8	0.20	4.2	1.2	0.07	None	8.37	91.63	5.83	0.017	0.017
925	36	60	**Soil 1**		18	2.2	10	1.3	9	115	6	0.36	6.8	0.23	3.4	0.9	0.04	None	6.84	93.16	4.68	0.023	0.023

Main Office: 119 E Main St., Othello, WA 99344
Oregon Office: 1300 Sixth St., Suite J, Umatilla, OR 97882
Pasco Office: 1320 E Spokane St., Pasco, WA 99301
(509) 488-0112 **info@kuotestinglabs.com**

Report Date: May 9, 2022

Report No: 86746

Client: Valley Science and Engineering-Spokane

Sampler: Sara Rodriguez

Project: *AECOM-SIA*

Field: *Soil 2*

P.N.: 2018230022-002-201

Sampled: 4/28/2022

KTL KUOTESTING LABS
A Matrix Sciences Company

SOIL ANALYSIS REPORT

Lab #	Depth Inches Start	Depth Inches End	Field ID	Sample ID	NO3-N #/A	NO3-N ppm	NH4-N #/A	NH4-N ppm	P Bicarb ppm	K Am. Acet. ppm	SO4-S ppm	OM %	pH	ECE mmho/cm	Ca Meq/100g	Mg Meq/100g	Na Meq/100g	Efferve-scence	H2O %	Total Soilds %	Total Bases Meq/100g	TKN %	Total Nitrogen %
926	0	6	**Soil 2**		10	5.1	6	3.2	12	561	11	3.32	6.9	0.55	8.1	1.3	0.27	None	16.85	83.15	11.06	0.061	0.062
927	6	12	**Soil 2**		10	4.8	5	2.5	10	367	8	2.79	7.3	0.58	10.3	1.8	0.35	Medium	18.58	81.42	13.43	0.037	0.037
928	12	18	**Soil 2**		11	5.3	4	2.1	10	269	10	1.57	7.4	0.64	9.3	1.9	0.26	Medium	16.82	83.18	12.10	0.061	0.062
929	18	36	**Soil 2**		13	2.2	10	1.7	9	188	9	0.90	7.5	0.49	7.0	1.9	0.16	Slight	15.17	84.83	9.62	0.010	0.010
930	36	60	**Soil 2**		5	0.6	11	1.4	6	77	4	0.54	8.1	0.31	6.0	1.6	0.37	Slight	11.54	88.46	8.10	0.036	0.036

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Report Date: May 9, 2022

Report No: 86746

Client: Valley Science and Engineering-Spokane

Sampler: Sara Rodriguez

Project: *AECOM-SIA*

Field: *Soil 3*

P.N.: 2018230022-002-201

Sampled: 4/28/2022

KTL KUOTESTING LABS
A Matrix Sciences Company

SOIL ANALYSIS REPORT

Lab #	Depth Inches Start	Depth Inches End	Field ID	Sample ID	NO3-N #/A	NO3-N ppm	NH4-N #/A	NH4-N ppm	P Bicarb ppm	K Am. Acet. ppm	SO4-S ppm	OM %	pH	ECE mmho/cm	Ca Meq/100g	Mg Meq/100g	Na Meq/100g	Efferve-scence	H2O %	Total Soilds %	Total Bases Meq/100g	TKN %	Total Nitrogen %
931	0	6	**Soil 3**		12	6.2	6	3.2	11	553	8	3.47	7.2	0.66	11.5	1.2	0.16	Medium	17.53	82.47	14.31	0.095	0.096
932	6	12	**Soil 3**		13	6.3	4	2.1	10	474	10	2.57	7.5	0.62	10.6	1.5	0.26	Medium	20.13	79.87	13.65	0.071	0.072
933	12	18	**Soil 3**		11	5.5	3	1.7	9	337	8	1.79	7.9	0.65	10.7	2.2	0.46	Medium	20.83	79.17	14.25	0.035	0.036
934	18	36	**Soil 3**		16	2.6	10	1.7	8	143	6	1.01	8.3	0.81	8.8	1.9	0.64	Slight	16.95	83.05	11.70	0.031	0.031
935	36	60	**Soil 3**		16	2.0	10	1.2	7	69	6	0.27	8.3	0.37	4.7	1.5	0.36	None	8.69	91.31	6.75	0.009	0.009

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Appendix D.

Groundwater Field Notes and Laboratory Reports – 2022

SAMPLE COLLECTION DATA

Sample ID	**MW-8**
Date	4-5-22
Time	1245
Project	**SIA Land Treatment Site GW Monitoring**
Sample Matrix	**water**
Collection Method	**low flow (0.2 - 0.3 L/min)**
Sample Location	**dedicated tube**
Weather	
Sampling Personnel	JH DVR

FIELD INSTRUMENTS

pH	**Oakton pH/Con 10**
Conductivity	**Oakton pH/Con 10**
Temperature	**Oakton pH/Con 10**
Oxidation Reduction Potential	**Oakton ORPTestr 10**
Dissolved Oxygen	**YSI 550A (El. 2350')**

PARAMETERS

Time	pH	Conductivity	Temperature	Oxidation Reduction Potential	Dissolved Oxygen	Comments
	su	uS/cm	°C	mV	mg/L	
12:50pm	6.70	404.8	10.2	174.0	6.0	
12:57 pm	6.98	415.3	10.5	158.0	4.9	
1:05 pm	6.98	418.4	10.7	140.0	5.1	
1:13	7.01	414.4	10.6	143.0	4.9	

GENERAL NOTES

Static Water Level: 121

Sample time: 1:18 pm

NEGATIVE mV

SAMPLE COLLECTION DATA

Sample ID	MW-9
Date	4/5/22
Time	9:33 am
Project	SIA Land Treatment Site GW Monitoring
Sample Matrix	water
Collection Method	low flow (0.2 - 0.3 L/min)
Sample Location	dedicated tube
Weather	
Sampling Personnel	

FIELD INSTRUMENTS

pH	Oakton pH/Con 10
Conductivity	Oakton pH/Con 10
Temperature	Oakton pH/Con 10
Oxidation Reduction Potential	Oakton ORPTestr 10
Dissolved Oxygen	YSI 550A

PARAMETERS

Time	pH	Conductivity	Temperature	Oxidation Reduction Potential	Dissolved Oxygen	Comments
	su	uS/cm	°C	mV	mg/L	
9:48 am	7.61	177.8	6.5	170.0	7.3	
9:48 am	7.56	176.6	6.7	140.0	6.3	
9:56 am	7.47	176.9	6.6	131.0	7.3	
10:08 am	7.50	175.3	7.6	144.0	7.0	

GENERAL NOTES

Static Water Level: 12.55

- Sample time: 10:20am
- Negative a, a

SAMPLE COLLECTION DATA

Sample ID	**MW-10**
Date	4/5/22
Time	10:30am
Project	**SIA Land Treatment Site GW Monitoring**
Sample Matrix	**water**
Collection Method	**low flow (0.2 - 0.3 L/min)**
Sample Location	**dedicated tube**
Weather	
Sampling Personnel	

FIELD INSTRUMENTS

pH	**Oakton pH/Con 10**
Conductivity	**Oakton pH/Con 10**
Temperature	**Oakton pH/Con 10**
Oxidation Reduction Potential	**Oakton ORPTestr 10**
Dissolved Oxygen	**YSI 550A**

PARAMETERS

Time	pH	Conductivity	Temperature	Oxidation Reduction Potential	Dissolved Oxygen	Comments
	su	uS/cm	°C	mV	mg/L	
10:39 am	7.54	231.5	7.6	179.0	6.2	
10:46 am	7.56	232.0	8.3	153.0	5.7	
10:52 am	7.51	230.0	7.9	132.6	5.9	
11:01 am	7.50	230.0	8.2	136.0	5.9	

GENERAL NOTES

Static Water Level: Depth - 10.55 ft

Sample time : 11:12 am

NEGATIVE al-q

SAMPLE COLLECTION DATA

Sample ID	**MW-11**
Date	4/5/22
Time	1115
Project	**SIA Land Treatment Site GW Monitoring**
Sample Matrix	**water**
Collection Method	**low flow (0.2 - 0.3 L/min)**
Sample Location	**dedicated tube**
Weather	
Sampling Personnel	JH DVR

FIELD INSTRUMENTS

pH	**Oakton pH/Con 10**
Conductivity	**Oakton pH/Con 10**
Temperature	**Oakton pH/Con 10**
Oxidation Reduction Potential	**Oakton ORPTestr 10**
Dissolved Oxygen	**YSI 550A**

PARAMETERS

Time	pH	Conductivity	Temperature	Oxidation Reduction Potential	Dissolved Oxygen	Comments
	su	uS/cm	°C	mV	mg/L	
11:35	7.11	154.6	8.0	167	5.4	
11:45	7.20	151.1	8.5	166	5.5	
11:51	7.15	149.7	8.5	162	5.3	
11:58	7.13	152.9	8.2	167	5.3	

GENERAL NOTES

Static Water Level: Well depth: 11.75 ft

SAMPLE TAKEN 1206

NEGATIVE a-a

SAMPLE COLLECTION DATA

Sample ID	**MW-12**
Date	4/5/22
Time	8:44 am
Project	**SIA Land Treatment Site GW Monitoring**
Sample Matrix	**water**
Collection Method	**low flow (0.2 - 0.3 L/min)**
Sample Location	**dedicated tube**
Weather	
Sampling Personnel	JRH & DJR

FIELD INSTRUMENTS

pH	**Oakton pH/Con 10**
Conductivity	**Oakton pH/Con 10**
Temperature	**Oakton pH/Con 10**
Oxidation Reduction Potential	**Oakton ORPTestr 10**
Dissolved Oxygen	**YSI 550A**

PARAMETERS

Time	pH	Conductivity	Temperature	Oxidation Reduction Potential	Dissolved Oxygen	Comments
	su	uS/cm	°C	mV	mg/L	
8:53 am	7.20	376.4	5.6	207.0	8.0	
8:54 am	7.31	368.0	6.2	172.0	7.8	
9:04 am	7.15	367.9	6.3	141.0	7.2	
9:10 am	7.24	372.0	6.1	124.0	7.2	

GENERAL NOTES

Static Water Level: 13.3 ft

9:19 AM

NEGATIVE
A.A., DIP

Valley Science and Engineering
12720 E Nora Avenue, Suite A | Spokane Valley, WA 99216 | (509) 921-0290 | FAX (509) 921-1788

SIA

Instrument Calibration Form

Date: 4-5-22 **Time:** 715 AM
Personnel NR **Instrument** OAKTON PC45

Calibration Standards Used	Reading After Calibration	Comments
7.00	7.01	pH NOT HOLDING BOTH CALIBRATIONS
10.01	9.80	HELD TO 7.00 BECAUSE IT IS CLOSEST TO EXPECTED FIELD VALUES
1413	1414	

Date: **Time:**
Personnel **Instrument**

Calibration Standards Used	Reading After Calibration	Comments

Date: **Time:**
Personnel **Instrument**

Calibration Standards Used	Reading After Calibration	Comments

eurofins | Environment Testing America

ANALYTICAL REPORT

Eurofins Spokane
11922 East 1st Ave
Spokane, WA 99206
Tel: (509)924-9200

Laboratory Job ID: 590-17237-1
Client Project/Site: SIA/2018230022-002-201

For:
Valley Science and Engineering
12720 E Nora Ave
Spokane, Washington 99216

Attn: Sara Rodriguez

Randee Arrington

Authorized for release by:
4/19/2022 4:25:50 PM

Randee Arrington, Lab Director
(509)924-9200
Randee.Arrington@et.eurofinsus.com

Table of Contents

Case Narrative

Client: Valley Science and Engineering
Project/Site: SIA/2018230022-002-201

Job ID: 590-17237-1

Job ID: 590-17237-1

Laboratory: Eurofins Spokane

Narrative

Receipt
The samples were received on 4/5/2022 2:00 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 9.9º C.

Receipt Exceptions
The following samples were received at the laboratory outside the required temperature criteria: MW-8 (590-17237-1), MW-9 (590-17237-2), MW-10 (590-17237-3), MW-11 (590-17237-4) and MW-12 (590-17237-5). The samples are considered acceptable since they were collected and submitted to the laboratory on the same day and there is evidence that the chilling process has begun.

GC Semi VOA
Method 300.0: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for analytical batch 590-35626 were outside control limits. Sample matrix interference is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Method 300.0: The native sample, matrix spike, and matrix spike duplicate (MS/MSD) associated with analytical batch 590-35627 were performed at the same dilution. Due to the additional level of analyte present in the spiked samples, the concentration of Chloride in the MS/MSD was above the instrument calibration range. The data have been reported and qualified.

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

Metals
Method 200.7 Rev 4.4: The method blank for preparation batch 590-35695 and analytical batch 590-35726 contained Sodium above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

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

General Chemistry
Method SM 2320B: The method blank for analytical batch 590-35741 contained Bicarbonate Alkalinity as CaCO3 at the method detection limit (MDL) but below the reporting limit (RL). Associated sample(s) were not re-extracted and/or re-analyzed because results were greater than 10X the value found in the method blank.

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

Sample Summary

Client: Valley Science and Engineering
Project/Site: SIA/2018230022-002-201

Job ID: 590-17237-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
590-17237-1	MW-8	Water	04/05/22 13:18	04/05/22 14:00
590-17237-2	MW-9	Water	04/05/22 12:55	04/05/22 14:00
590-17237-3	MW-10	Water	04/05/22 10:55	04/05/22 14:00
590-17237-4	MW-11	Water	04/05/22 12:06	04/05/22 14:00
590-17237-5	MW-12	Water	04/05/22 09:19	04/05/22 14:00

Definitions/Glossary

Client: Valley Science and Engineering
Project/Site: SIA/2018230022-002-201

Job ID: 590-17237-1

Qualifiers

HPLC/IC

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
E	Result exceeded calibration range.
F1	MS and/or MSD recovery exceeds control limits.

Metals

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

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

Client Sample ID: MW-8

Lab Sample ID: 590-17237-1
Matrix: Water
Date Collected: 04/05/22 13:18
Date Received: 04/05/22 14:00

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	82		8.0	4.2	mg/L			04/07/22 12:51	10
Nitrate as N	3.5		0.20	0.057	mg/L			04/06/22 10:13	1
Nitrite as N	ND	F1	0.20	0.069	mg/L			04/06/22 10:13	1
Sulfate	8.5		0.50	0.13	mg/L			04/06/22 10:13	1

Method: 200.7 Rev 4.4 - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	49		1.0	0.20	mg/L		04/12/22 15:47	04/14/22 11:07	1
Magnesium	13		0.50	0.13	mg/L		04/12/22 15:47	04/14/22 11:07	1
Potassium	5.1		1.0	0.29	mg/L		04/12/22 15:47	04/14/22 11:07	1
Sodium	10	B	0.50	0.20	mg/L		04/12/22 15:47	04/14/22 11:07	1

Method: 200.8 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0015		0.0010	0.00020	mg/L		04/13/22 18:29	04/14/22 14:00	1
Iron	0.054	J	0.10	0.013	mg/L		04/13/22 18:29	04/14/22 14:00	1
Manganese	ND		0.0020	0.00046	mg/L		04/13/22 18:29	04/14/22 14:00	1

Method: 200.8 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0015		0.0010	0.00020	mg/L		04/13/22 18:58	04/14/22 15:29	1
Iron	0.039	J	0.10	0.013	mg/L		04/13/22 18:58	04/14/22 15:29	1
Manganese	ND		0.0020	0.00046	mg/L		04/13/22 18:58	04/14/22 15:29	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bicarbonate Alkalinity as CaCO3	95	B	20	5.0	mg/L			04/18/22 08:56	1
Total Dissolved Solids	220		25	13	mg/L			04/11/22 11:54	1
Chemical Oxygen Demand	ND		10	5.9	mg/L		04/08/22 16:45	04/08/22 20:56	1

Client Sample ID: MW-9

Lab Sample ID: 590-17237-2
Matrix: Water
Date Collected: 04/05/22 12:55
Date Received: 04/05/22 14:00

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	3.7		0.80	0.42	mg/L			04/06/22 11:16	1
Nitrate as N	2.6		0.20	0.057	mg/L			04/06/22 11:16	1
Nitrite as N	ND		0.20	0.069	mg/L			04/06/22 11:16	1
Sulfate	4.0		0.50	0.13	mg/L			04/06/22 11:16	1

Method: 200.7 Rev 4.4 - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	15		1.0	0.20	mg/L		04/12/22 15:47	04/14/22 11:11	1
Magnesium	4.7		0.50	0.13	mg/L		04/12/22 15:47	04/14/22 11:11	1
Potassium	2.6		1.0	0.29	mg/L		04/12/22 15:47	04/14/22 11:11	1
Sodium	11	B	0.50	0.20	mg/L		04/12/22 15:47	04/14/22 11:11	1

Method: 200.8 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0042		0.0010	0.00020	mg/L		04/13/22 18:29	04/14/22 14:23	1

Client Sample ID: MW-9

Date Collected: 04/05/22 12:55
Date Received: 04/05/22 14:00

Lab Sample ID: 590-17237-2
Matrix: Water

Method: 200.8 - Metals (ICP/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.030	J	0.10	0.013	mg/L		04/13/22 18:29	04/14/22 14:23	1
Manganese	0.0015	J	0.0020	0.00046	mg/L		04/13/22 18:29	04/14/22 14:23	1

Method: 200.8 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0040		0.0010	0.00020	mg/L		04/13/22 18:58	04/14/22 15:25	1
Iron	0.025	J	0.10	0.013	mg/L		04/13/22 18:58	04/14/22 15:25	1
Manganese	ND		0.0020	0.00046	mg/L		04/13/22 18:58	04/14/22 15:25	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bicarbonate Alkalinity as CaCO3	75	B	20	5.0	mg/L			04/18/22 08:56	1
Total Dissolved Solids	100		25	13	mg/L			04/11/22 11:54	1
Chemical Oxygen Demand	ND		10	5.9	mg/L		04/08/22 16:45	04/08/22 20:56	1

Client Sample ID: MW-10

Date Collected: 04/05/22 10:55
Date Received: 04/05/22 14:00

Lab Sample ID: 590-17237-3
Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	20		0.80	0.42	mg/L			04/06/22 11:31	1
Nitrate as N	8.5		0.20	0.057	mg/L			04/06/22 11:31	1
Nitrite as N	ND		0.20	0.069	mg/L			04/06/22 11:31	1
Sulfate	12		0.50	0.13	mg/L			04/06/22 11:31	1

Method: 200.7 Rev 4.4 - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	20		1.0	0.20	mg/L		04/12/22 15:47	04/14/22 11:15	1
Magnesium	5.7		0.50	0.13	mg/L		04/12/22 15:47	04/14/22 11:15	1
Potassium	2.1		1.0	0.29	mg/L		04/12/22 15:47	04/14/22 11:15	1
Sodium	13	B	0.50	0.20	mg/L		04/12/22 15:47	04/14/22 11:15	1

Method: 200.8 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0013		0.0010	0.00020	mg/L		04/13/22 18:29	04/14/22 14:27	1
Iron	0.077	J	0.10	0.013	mg/L		04/13/22 18:29	04/14/22 14:27	1
Manganese	0.0042		0.0020	0.00046	mg/L		04/13/22 18:29	04/14/22 14:27	1

Method: 200.8 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0013		0.0010	0.00020	mg/L		04/13/22 18:58	04/14/22 16:12	1
Iron	0.032	J	0.10	0.013	mg/L		04/13/22 18:58	04/14/22 16:12	1
Manganese	0.00059	J	0.0020	0.00046	mg/L		04/13/22 18:58	04/14/22 16:12	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bicarbonate Alkalinity as CaCO3	50	B	20	5.0	mg/L			04/18/22 08:56	1
Total Dissolved Solids	170		25	13	mg/L			04/11/22 11:54	1
Chemical Oxygen Demand	ND		10	5.9	mg/L		04/08/22 16:45	04/08/22 20:56	1

Client Sample ID: MW-11

Date Collected: 04/05/22 12:06
Date Received: 04/05/22 14:00

Lab Sample ID: 590-17237-4
Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	7.2		0.80	0.42	mg/L			04/06/22 11:47	1
Nitrate as N	6.2		0.20	0.057	mg/L			04/06/22 11:47	1
Nitrite as N	ND		0.20	0.069	mg/L			04/06/22 11:47	1
Sulfate	4.4		0.50	0.13	mg/L			04/06/22 11:47	1

Method: 200.7 Rev 4.4 - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	13		1.0	0.20	mg/L		04/12/22 15:47	04/14/22 11:31	1
Magnesium	4.2		0.50	0.13	mg/L		04/12/22 15:47	04/14/22 11:31	1
Potassium	3.2		1.0	0.29	mg/L		04/12/22 15:47	04/14/22 11:31	1
Sodium	5.4	B	0.50	0.20	mg/L		04/12/22 15:47	04/14/22 11:31	1

Method: 200.8 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0017		0.0010	0.00020	mg/L		04/13/22 18:29	04/14/22 14:31	1
Iron	0.026	J	0.10	0.013	mg/L		04/13/22 18:29	04/14/22 14:31	1
Manganese	ND		0.0020	0.00046	mg/L		04/13/22 18:29	04/14/22 14:31	1

Method: 200.8 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0016		0.0010	0.00020	mg/L		04/13/22 18:58	04/14/22 16:16	1
Iron	0.020	J	0.10	0.013	mg/L		04/13/22 18:58	04/14/22 16:16	1
Manganese	0.0020		0.0020	0.00046	mg/L		04/13/22 18:58	04/14/22 16:16	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bicarbonate Alkalinity as CaCO3	50	B	20	5.0	mg/L			04/18/22 08:56	1
Total Dissolved Solids	170		25	13	mg/L			04/11/22 11:54	1
Chemical Oxygen Demand	ND		10	5.9	mg/L		04/08/22 16:45	04/08/22 20:56	1

Client Sample ID: MW-12

Date Collected: 04/05/22 09:19
Date Received: 04/05/22 14:00

Lab Sample ID: 590-17237-5
Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	47		0.80	0.42	mg/L			04/06/22 12:02	1
Nitrate as N	2.4		0.20	0.057	mg/L			04/06/22 12:02	1
Nitrite as N	ND		0.20	0.069	mg/L			04/06/22 12:02	1
Sulfate	14		0.50	0.13	mg/L			04/06/22 12:02	1

Method: 200.7 Rev 4.4 - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	37		1.0	0.20	mg/L		04/12/22 15:47	04/14/22 11:35	1
Magnesium	11		0.50	0.13	mg/L		04/12/22 15:47	04/14/22 11:35	1
Potassium	3.0		1.0	0.29	mg/L		04/12/22 15:47	04/14/22 11:35	1
Sodium	17	B	0.50	0.20	mg/L		04/12/22 15:47	04/14/22 11:35	1

Method: 200.8 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0028		0.0010	0.00020	mg/L		04/13/22 18:29	04/14/22 14:35	1

Client: Valley Science and Engineering
Project/Site: SIA/2018230022-002-201

Job ID: 590-17237-1

Client Sample ID: MW-12

Date Collected: 04/05/22 09:19
Date Received: 04/05/22 14:00

Lab Sample ID: 590-17237-5

Matrix: Water

Method: 200.8 - Metals (ICP/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	**0.036**	**J**	0.10	0.013	mg/L		04/13/22 18:29	04/14/22 14:35	1
Manganese	ND		0.0020	0.00046	mg/L		04/13/22 18:29	04/14/22 14:35	1

Method: 200.8 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.0026**		0.0010	0.00020	mg/L		04/13/22 18:58	04/14/22 16:20	1
Iron	**0.032**	**J**	0.10	0.013	mg/L		04/13/22 18:58	04/14/22 16:20	1
Manganese	ND		0.0020	0.00046	mg/L		04/13/22 18:58	04/14/22 16:20	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bicarbonate Alkalinity as CaCO3	**110**	**B**	20	5.0	mg/L			04/18/22 08:56	1
Total Dissolved Solids	**210**		25	13	mg/L			04/11/22 11:54	1
Chemical Oxygen Demand	**6.6**	**J**	10	5.9	mg/L		04/08/22 16:45	04/08/22 20:56	1

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 590-35626/1003
Matrix: Water
Analysis Batch: 35626

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		0.20	0.057	mg/L			04/06/22 09:42	1
Nitrite as N	ND		0.20	0.069	mg/L			04/06/22 09:42	1

Lab Sample ID: LCS 590-35626/1004
Matrix: Water
Analysis Batch: 35626

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Nitrate as N			2.50	2.40		mg/L		96	90 - 110		
Nitrite as N			2.50	2.40		mg/L		96	90 - 110		

Lab Sample ID: 590-17237-1 MS
Matrix: Water
Analysis Batch: 35626

Client Sample ID: MW-8
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Nitrate as N	3.5		4.55	7.56		mg/L		88	80 - 120		
Nitrite as N	ND	F1	4.55	3.22	F1	mg/L		71	80 - 120		

Lab Sample ID: 590-17237-1 MSD
Matrix: Water
Analysis Batch: 35626

Client Sample ID: MW-8
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Nitrate as N	3.5		4.55	7.50		mg/L		87	80 - 120	1	12.1
Nitrite as N	ND	F1	4.55	3.24	F1	mg/L		71	80 - 120	1	10

Lab Sample ID: 590-17237-1 DU
Matrix: Water
Analysis Batch: 35626

Client Sample ID: MW-8
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Nitrate as N	3.5			3.52		mg/L				0.5	13.1
Nitrite as N	ND	F1		ND		mg/L				NC	10

Lab Sample ID: MB 590-35627/1003
Matrix: Water
Analysis Batch: 35627

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.80	0.42	mg/L			04/06/22 09:42	1
Sulfate	ND		0.50	0.13	mg/L			04/06/22 09:42	1

Lab Sample ID: LCS 590-35627/1004
Matrix: Water
Analysis Batch: 35627

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			6.25	5.98		mg/L		96	90 - 110		
Sulfate			6.25	6.22		mg/L		100	90 - 110		

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: 590-17237-1 MS
Matrix: Water
Analysis Batch: 35627

Client Sample ID: MW-8
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	80	E	11.4	77.9	E 4	mg/L		-16	80 - 120
Sulfate	8.5		11.4	18.8		mg/L		91	80 - 120

Lab Sample ID: 590-17237-1 MSD
Matrix: Water
Analysis Batch: 35627

Client Sample ID: MW-8
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	80	E	11.4	77.1	E 4	mg/L		-23	80 - 120	1	10
Sulfate	8.5		11.4	18.3		mg/L		86	80 - 120	3	10

Lab Sample ID: 590-17237-1 DU
Matrix: Water
Analysis Batch: 35627

Client Sample ID: MW-8
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Chloride	80	E	78.9	E	mg/L		1	18.8
Sulfate	8.5		8.82		mg/L		4	15.7

Lab Sample ID: MB 590-35651/1003
Matrix: Water
Analysis Batch: 35651

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.80	0.42	mg/L			04/07/22 10:00	1
Sulfate	ND		0.50	0.13	mg/L			04/07/22 10:00	1

Lab Sample ID: LCS 590-35651/1004
Matrix: Water
Analysis Batch: 35651

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	12.5	12.3		mg/L		98	90 - 110
Sulfate	12.5	12.3		mg/L		99	90 - 110

Method: 200.7 Rev 4.4 - Metals (ICP)

Lab Sample ID: MB 590-35695/2-A
Matrix: Water
Analysis Batch: 35726

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 35695

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	ND		1.0	0.20	mg/L		04/12/22 15:47	04/13/22 19:05	1
Magnesium	ND		0.50	0.13	mg/L		04/12/22 15:47	04/13/22 19:05	1
Potassium	ND		1.0	0.29	mg/L		04/12/22 15:47	04/13/22 19:05	1
Sodium	0.252	J	0.50	0.20	mg/L		04/12/22 15:47	04/13/22 19:05	1

Method: 200.7 Rev 4.4 - Metals (ICP) (Continued)

Lab Sample ID: LCS 590-35695/1-A
Matrix: Water
Analysis Batch: 35726

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 35695

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Calcium	50.0	51.2		mg/L		102	85 - 115
Magnesium	50.0	50.6		mg/L		101	85 - 115
Potassium	50.0	50.8		mg/L		102	85 - 115
Sodium	50.0	50.8		mg/L		102	85 - 115

Method: 200.8 - Metals (ICP/MS)

Lab Sample ID: MB 580-387395/26-A
Matrix: Water
Analysis Batch: 387559

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 387395

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0010	0.00020	mg/L		04/13/22 18:37	04/14/22 12:30	1
Iron	ND		0.10	0.013	mg/L		04/13/22 18:37	04/14/22 12:30	1
Manganese	ND		0.0020	0.00046	mg/L		04/13/22 18:37	04/14/22 12:30	1

Lab Sample ID: LCS 580-387395/27-A
Matrix: Water
Analysis Batch: 387559

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 387395

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	1.00	0.989		mg/L		99	85 - 115
Iron	20.0	20.9		mg/L		105	85 - 115
Manganese	1.00	1.03		mg/L		103	85 - 115

Lab Sample ID: LCSD 580-387395/28-A
Matrix: Water
Analysis Batch: 387559

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 387395

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Arsenic	1.00	0.990		mg/L		99	85 - 115	0	20
Iron	20.0	20.8		mg/L		104	85 - 115	1	20
Manganese	1.00	1.03		mg/L		103	85 - 115	0	20

Lab Sample ID: MB 580-387401/14-A
Matrix: Water
Analysis Batch: 387559

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 387401

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0010	0.00020	mg/L		04/13/22 18:58	04/14/22 15:21	1
Iron	ND		0.10	0.013	mg/L		04/13/22 18:58	04/14/22 15:21	1
Manganese	ND		0.0020	0.00046	mg/L		04/13/22 18:58	04/14/22 15:21	1

Lab Sample ID: LCS 580-387401/15-A
Matrix: Water
Analysis Batch: 387559

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 387401

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	1.00	0.983		mg/L		98	85 - 115
Iron	20.0	20.5		mg/L		102	85 - 115

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 580-387401/15-A
Matrix: Water
Analysis Batch: 387559

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 387401

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Manganese			1.00	1.03		mg/L		103	85 - 115		

Lab Sample ID: LCSD 580-387401/16-A
Matrix: Water
Analysis Batch: 387559

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 387401

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Arsenic			1.00	0.990		mg/L		99	85 - 115	1	20
Iron			20.0	21.3		mg/L		107	85 - 115	4	20
Manganese			1.00	1.05		mg/L		105	85 - 115	2	20

Lab Sample ID: 590-17237-1 MS
Matrix: Water
Analysis Batch: 387559

Client Sample ID: MW-8
Prep Type: Dissolved
Prep Batch: 387401

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Arsenic	0.0015		1.00	0.987		mg/L		99	70 - 130		
Iron	0.039	J	20.0	20.9		mg/L		104	70 - 130		
Manganese	ND		1.00	1.05		mg/L		105	70 - 130		

Lab Sample ID: 590-17237-1 MSD
Matrix: Water
Analysis Batch: 387559

Client Sample ID: MW-8
Prep Type: Dissolved
Prep Batch: 387401

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Arsenic	0.0015		1.00	1.00		mg/L		100	70 - 130	1	20
Iron	0.039	J	20.0	21.3		mg/L		106	70 - 130	2	20
Manganese	ND		1.00	1.07		mg/L		107	70 - 130	2	20

Lab Sample ID: 590-17237-1 DU
Matrix: Water
Analysis Batch: 387559

Client Sample ID: MW-8
Prep Type: Dissolved
Prep Batch: 387401

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Arsenic	0.0015			0.00145		mg/L				5	20
Iron	0.039	J		0.0365	J	mg/L				8	20
Manganese	ND			ND		mg/L				NC	20

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 590-35741/1
Matrix: Water
Analysis Batch: 35741

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bicarbonate Alkalinity as CaCO3	5.00	J	20	5.0	mg/L			04/18/22 08:56	1

Method: SM 2320B - Alkalinity (Continued)

Lab Sample ID: LCS 590-35741/2
Matrix: Water
Analysis Batch: 35741

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Bicarbonate Alkalinity as CaCO3	501	500		mg/L		100	90 - 110

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 590-35674/1
Matrix: Water
Analysis Batch: 35674

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		25	13	mg/L			04/11/22 11:53	1

Lab Sample ID: LCS 590-35674/2
Matrix: Water
Analysis Batch: 35674

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	504	499		mg/L		99	80 - 120

Method: SM 5220D - COD

Lab Sample ID: MB 580-386918/3-A
Matrix: Water
Analysis Batch: 386954

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 386918

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chemical Oxygen Demand	ND		10	5.9	mg/L		04/08/22 16:44	04/08/22 20:56	1

Lab Sample ID: LCS 580-386918/4-A
Matrix: Water
Analysis Batch: 386954

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 386918

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chemical Oxygen Demand	75.0	71.7		mg/L		96	80 - 120

Lab Sample ID: LCSD 580-386918/5-A
Matrix: Water
Analysis Batch: 386954

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 386918

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chemical Oxygen Demand	75.0	72.1		mg/L		96	80 - 120	0	20

Lab Sample ID: 590-17237-5 MS
Matrix: Water
Analysis Batch: 386954

Client Sample ID: MW-12
Prep Type: Total/NA
Prep Batch: 386918

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chemical Oxygen Demand	6.6	J	25.0	28.7		mg/L		88	75 - 125

Method: SM 5220D - COD (Continued)

Lab Sample ID: 590-17237-5 DU
Matrix: Water
Analysis Batch: 386954

Client Sample ID: MW-12
Prep Type: Total/NA
Prep Batch: 386918

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Chemical Oxygen Demand	6.6	J		6.95	J	mg/L				5	20

Lab Chronicle

Client: Valley Science and Engineering
Project/Site: SIA/2018230022-002-201

Job ID: 590-17237-1

Client Sample ID: MW-8

Date Collected: 04/05/22 13:18
Date Received: 04/05/22 14:00

Lab Sample ID: 590-17237-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1			35626	04/06/22 10:13	NMI	TAL SPK
Total/NA	Analysis	300.0		1			35627	04/06/22 10:13	NMI	TAL SPK
Total/NA	Analysis	300.0		10			35651	04/07/22 12:51	NMI	TAL SPK
Total/NA	Prep	200.7			50 mL	50 mL	35695	04/12/22 15:47	AMB	TAL SPK
Total/NA	Analysis	200.7 Rev 4.4		1			35744	04/14/22 11:07	AMB	TAL SPK
Dissolved	Prep	200.8			50 mL	50 mL	387401	04/13/22 18:58	TMH	FGS SEA
Dissolved	Analysis	200.8		1	50 mL	50 mL	387559	04/14/22 15:29	FCW	FGS SEA
Total/NA	Prep	200.8			50 mL	50 mL	387395	04/13/22 18:29	JLS	FGS SEA
Total/NA	Analysis	200.8		1	50 mL	50 mL	387559	04/14/22 14:00	FCW	FGS SEA
Total/NA	Analysis	SM 2320B		1	100 mL	100 mL	35741	04/18/22 08:56	AMB	TAL SPK
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	35674	04/11/22 11:54	AMB	TAL SPK
Total/NA	Prep	SM 5220			2 mL	2 mL	386918	04/08/22 16:45	MLT	FGS SEA
Total/NA	Analysis	SM 5220D		1	2 mL	2 mL	386954	04/08/22 20:56	MLT	FGS SEA

Client Sample ID: MW-9

Date Collected: 04/05/22 12:55
Date Received: 04/05/22 14:00

Lab Sample ID: 590-17237-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1			35626	04/06/22 11:16	NMI	TAL SPK
Total/NA	Analysis	300.0		1			35627	04/06/22 11:16	NMI	TAL SPK
Total/NA	Prep	200.7			50 mL	50 mL	35695	04/12/22 15:47	AMB	TAL SPK
Total/NA	Analysis	200.7 Rev 4.4		1			35744	04/14/22 11:11	AMB	TAL SPK
Dissolved	Prep	200.8			50 mL	50 mL	387401	04/13/22 18:58	TMH	FGS SEA
Dissolved	Analysis	200.8		1	50 mL	50 mL	387559	04/14/22 15:25	FCW	FGS SEA
Total/NA	Prep	200.8			50 mL	50 mL	387395	04/13/22 18:29	JLS	FGS SEA
Total/NA	Analysis	200.8		1	50 mL	50 mL	387559	04/14/22 14:23	FCW	FGS SEA
Total/NA	Analysis	SM 2320B		1	100 mL	100 mL	35741	04/18/22 08:56	AMB	TAL SPK
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	35674	04/11/22 11:54	AMB	TAL SPK
Total/NA	Prep	SM 5220			2 mL	2 mL	386918	04/08/22 16:45	MLT	FGS SEA
Total/NA	Analysis	SM 5220D		1	2 mL	2 mL	386954	04/08/22 20:56	MLT	FGS SEA

Client Sample ID: MW-10

Date Collected: 04/05/22 10:55
Date Received: 04/05/22 14:00

Lab Sample ID: 590-17237-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1			35626	04/06/22 11:31	NMI	TAL SPK
Total/NA	Analysis	300.0		1			35627	04/06/22 11:31	NMI	TAL SPK
Total/NA	Prep	200.7			50 mL	50 mL	35695	04/12/22 15:47	AMB	TAL SPK
Total/NA	Analysis	200.7 Rev 4.4		1			35744	04/14/22 11:15	AMB	TAL SPK
Dissolved	Prep	200.8			50 mL	50 mL	387401	04/13/22 18:58	TMH	FGS SEA
Dissolved	Analysis	200.8		1	50 mL	50 mL	387559	04/14/22 16:12	FCW	FGS SEA

Lab Chronicle

Client: Valley Science and Engineering
Project/Site: SIA/2018230022-002-201

Job ID: 590-17237-1

Client Sample ID: MW-10
Date Collected: 04/05/22 10:55
Date Received: 04/05/22 14:00

Lab Sample ID: 590-17237-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	200.8			50 mL	50 mL	387395	04/13/22 18:29	JLS	FGS SEA
Total/NA	Analysis	200.8		1	50 mL	50 mL	387559	04/14/22 14:27	FCW	FGS SEA
Total/NA	Analysis	SM 2320B		1	100 mL	100 mL	35741	04/18/22 08:56	AMB	TAL SPK
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	35674	04/11/22 11:54	AMB	TAL SPK
Total/NA	Prep	SM 5220			2 mL	2 mL	386918	04/08/22 16:45	MLT	FGS SEA
Total/NA	Analysis	SM 5220D		1	2 mL	2 mL	386954	04/08/22 20:56	MLT	FGS SEA

Client Sample ID: MW-11
Date Collected: 04/05/22 12:06
Date Received: 04/05/22 14:00

Lab Sample ID: 590-17237-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1			35626	04/06/22 11:47	NMI	TAL SPK
Total/NA	Analysis	300.0		1			35627	04/06/22 11:47	NMI	TAL SPK
Total/NA	Prep	200.7			50 mL	50 mL	35695	04/12/22 15:47	AMB	TAL SPK
Total/NA	Analysis	200.7 Rev 4.4		1			35744	04/14/22 11:31	AMB	TAL SPK
Dissolved	Prep	200.8			50 mL	50 mL	387401	04/13/22 18:58	TMH	FGS SEA
Dissolved	Analysis	200.8		1	50 mL	50 mL	387559	04/14/22 16:16	FCW	FGS SEA
Total/NA	Prep	200.8			50 mL	50 mL	387395	04/13/22 18:29	JLS	FGS SEA
Total/NA	Analysis	200.8		1	50 mL	50 mL	387559	04/14/22 14:31	FCW	FGS SEA
Total/NA	Analysis	SM 2320B		1	100 mL	100 mL	35741	04/18/22 08:56	AMB	TAL SPK
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	35674	04/11/22 11:54	AMB	TAL SPK
Total/NA	Prep	SM 5220			2 mL	2 mL	386918	04/08/22 16:45	MLT	FGS SEA
Total/NA	Analysis	SM 5220D		1	2 mL	2 mL	386954	04/08/22 20:56	MLT	FGS SEA

Client Sample ID: MW-12
Date Collected: 04/05/22 09:19
Date Received: 04/05/22 14:00

Lab Sample ID: 590-17237-5
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1			35626	04/06/22 12:02	NMI	TAL SPK
Total/NA	Analysis	300.0		1			35627	04/06/22 12:02	NMI	TAL SPK
Total/NA	Prep	200.7			50 mL	50 mL	35695	04/12/22 15:47	AMB	TAL SPK
Total/NA	Analysis	200.7 Rev 4.4		1			35744	04/14/22 11:35	AMB	TAL SPK
Dissolved	Prep	200.8			50 mL	50 mL	387401	04/13/22 18:58	TMH	FGS SEA
Dissolved	Analysis	200.8		1	50 mL	50 mL	387559	04/14/22 16:20	FCW	FGS SEA
Total/NA	Prep	200.8			50 mL	50 mL	387395	04/13/22 18:29	JLS	FGS SEA
Total/NA	Analysis	200.8		1	50 mL	50 mL	387559	04/14/22 14:35	FCW	FGS SEA
Total/NA	Analysis	SM 2320B		1	100 mL	100 mL	35741	04/18/22 08:56	AMB	TAL SPK
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	35674	04/11/22 11:54	AMB	TAL SPK
Total/NA	Prep	SM 5220			2 mL	2 mL	386918	04/08/22 16:45	MLT	FGS SEA
Total/NA	Analysis	SM 5220D		1	2 mL	2 mL	386954	04/08/22 20:56	MLT	FGS SEA

Lab Chronicle

Client: Valley Science and Engineering
Project/Site: SIA/2018230022-002-201

Job ID: 590-17237-1

Laboratory References:

FGS SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

TAL SPK = Eurofins Spokane, 11922 East 1st Ave, Spokane, WA 99206, TEL (509)924-9200

Accreditation/Certification Summary

Client: Valley Science and Engineering
Project/Site: SIA/2018230022-002-201

Job ID: 590-17237-1

Laboratory: Eurofins Spokane

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Washington	State	C569	01-06-23

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
SM 2320B		Water	Bicarbonate Alkalinity as CaCO3

Laboratory: Eurofins Seattle

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Washington	State	C788	07-13-22

Method Summary

Client: Valley Science and Engineering
Project/Site: SIA/2018230022-002-201

Job ID: 590-17237-1

Method	Method Description	Protocol	Laboratory
300.0	Anions, Ion Chromatography	MCAWW	TAL SPK
200.7 Rev 4.4	Metals (ICP)	EPA	TAL SPK
200.8	Metals (ICP/MS)	EPA	FGS SEA
SM 2320B	Alkalinity	SM	TAL SPK
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL SPK
SM 5220D	COD	SM	FGS SEA
200.7	Preparation, Total Metals	EPA	TAL SPK
200.8	Preparation, Total Metals	EPA	FGS SEA
SM 5220	COD	SM	FGS SEA

Protocol References:

EPA = US Environmental Protection Agency

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"

Laboratory References:

FGS SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

TAL SPK = Eurofins Spokane, 11922 East 1st Ave, Spokane, WA 99206, TEL (509)924-9200

TestAmerica Spokane
11922 E. 1st Ave.

Spokane, WA 99206
phone 509.924.9200 fax

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Regulatory Program ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Sara Rodriguez	Site Contact:	Date	COC No:
Valley Science and Engineering	Tel/Fax: (509) 703-2679	Lab Contact:	Carrier:	____ of ____ COCs
12720 E Nora Ave Ste A	Analysis Turnaround Time			Sampler:
Spokane, WA 99216	☐ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
(509) 921-0290 Phone	TAT if different from Below ____			Walk-in Client:
(509) 921-1788 FAX	☐ 2 weeks			Lab Sampling:
Spokane Airport	☐ 1 week			
Spokane Washington	☐ 2 days			Job / SDG No.
PO # 2018230022-002-201	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	EPA 200.8 Total As, Fe and Mn	EPA 200.8 Dissolved As, Fe and Mn	NO2-N, NO3-N	TDS	Calcium	Magnesium	Sodium	Potassium		COD	Bicarbonate alkalinity	Chloride	Sulfate					Sample Specific Notes:
MW-8	4/5/22	1:18 PM	G	H_2O				X	X	X	X	X	X	X	X		X	X	X	X					
MW-9		1255	G	H_2O				X	X	X	X	X	X	X	X		X	X	X	X					
MW-10		1055	G	H_2O				X	X	X	X	X	X	X	X		X	X	X	X					use method with lowest detection limits for COD
MW-11		1206	G	H_2O				X	X	X	X	X	X	X	X		X	X	X	X					
MW-12		919	G	H_2O				X	X	X	X	X	X	X	X		X	X	X	X					

590-17237 Chain of Custody

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other ____

Possible Hazard Identification
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return to Client ☐ Disposal by Lab ☐ Archive for ____ Months

Special Instructions/QC Requirements & Comments. Please report results down to the MDL.

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.	Cooler Temp. (°C): Obs'd: 9.7 Corr'd: 9.9	Therm ID No.: IR006

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
[signature]	Valley SE	4/5/22 1530	[signature]	ETS SPO	4/5/22 1900
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Form No. CA-C-WI-002, Rev. 4.3, dated 12/05/2013

Eurofins Spokane
11922 East 1st Ave
Spokane, WA 99206
Phone: 509-924-9200 Fax: 509-924-9290

Chain of Custody Record

eurofins | Environment Testing America

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Arrington, Randee E	Carrier Tracking No(s):	COC No: 590-6737.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Randee.Arrington@et.eurofinsus.com	State of Origin: Washington	Page: Page 1 of 1
Company: Eurofins Environment Testing Northwest,		Accreditations Required (See note): State - Washington; State Program - Washington		Job #: 590-17237-1
Address: 5755 8th Street East, ,	Due Date Requested: 4/18/2022			
City: Tacoma	TAT Requested (days):			
State, Zip: WA, 98424				
Phone: 253-922-2310(Tel)	PO #:			
Email:	WO #:			
Project Name: SIA/2018230022-002-201	Project #: 59001988			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

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

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	410.2/410.2_Prep	200.8_CWA/200.8_P_TOT Total As, Fe & Mn	200.8_CWA/FIELD_FLTRD Diss As, Fe & Mn	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
MW-8 (590-17237-1)	4/5/22	13:18 Pacific		Water			X	X	X	3	
MW-9 (590-17237-2)	4/5/22	12:55 Pacific		Water			X	X	X	3	
MW-10 (590-17237-3)	4/5/22	10:55 Pacific		Water			X	X	X	3	
MW-11 (590-17237-4)	4/5/22	12:06 Pacific		Water			X	X	X	3	
MW-12 (590-17237-5)	4/5/22	09:19 Pacific		Water			X	X	X	3	

Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing Northwest, LLC places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing Northwest, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing Northwest, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins Environment Testing Northwest, LLC.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

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

	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	4/6/22 14:00	EOTSPO		4/7/22 1010	EEC8
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: IR9 1.5/1.9

Login Sample Receipt Checklist

Client: Valley Science and Engineering

Job Number: 590-17237-1

Login Number: 17237
List Number: 1
Creator: Vaughan, Madison 1

List Source: Eurofins Spokane

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
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 containers received 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	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Valley Science and Engineering

Job Number: 590-17237-1

Login Number: 17237
List Number: 2
Creator: Greene, Ashton R

List Source: Eurofins Seattle
List Creation: 04/07/22 04:57 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are 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	IR9 1.5 / 1.9
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 containers received 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	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

SAMPLE COLLECTION DATA

Sample ID	**MW-8**
Date	10-18-22
Time	1:00 pm
Project	**SIA Land Treatment Site GW Monitoring**
Sample Matrix	**water**
Collection Method	**low flow (0.2 - 0.3 L/min)**
Sample Location	**dedicated tube**
Weather	70°
Sampling Personnel	JRH

FIELD INSTRUMENTS

pH	**Oakton pH/Con 10**
Conductivity	**Oakton pH/Con 10**
Temperature	**Oakton pH/Con 10**
Oxidation Reduction Potential	**Oakton ORPTestr 10**
Dissolved Oxygen	**YSI 550A (El. 2350')**

PARAMETERS

Time	pH	Conductivity	Temperature	Oxidation Reduction Potential	Dissolved Oxygen	Comments
	su	uS/cm	°C	mV	mg/L	
1:05	7.42	345.4	14.7	64	3.8	
~~1:00~~ 1:10	7.15	338.1	14.3	72	3.4	
1:15	7.19	341.8	14.7	99	3.9	
1:20	7.15	339.0	14.5	98	3.6	

GENERAL NOTES

Static Water Level: 13.53ft - Before Sampling
13.53ft After Sampling
1:25pm - Pulled sample

SAMPLE COLLECTION DATA

Sample ID	**MW-9**
Date	10-18-22
Time	10:15
Project	**SIA Land Treatment Site GW Monitoring**
Sample Matrix	**water**
Collection Method	**low flow (0.2 - 0.3 L/min)**
Sample Location	**dedicated tube**
Weather	65°
Sampling Personnel	JRH

FIELD INSTRUMENTS

pH	**Oakton pH/Con 10**
Conductivity	**Oakton pH/Con 10**
Temperature	**Oakton pH/Con 10**
Oxidation Reduction Potential	**Oakton ORPTestr 10**
Dissolved Oxygen	**YSI 550A**

PARAMETERS

Time	pH	Conductivity	Temperature	Oxidation Reduction Potential	Dissolved Oxygen	Comments
	su	uS/cm	°C	mV	mg/L	
10:20	7.69	181.5	13.2	105	4.7	
10:25	7.51	163.7	13.5	102	4.4	
10:30	7.66	151.1	13.9	116	4.7	
10:35	7.52	149.8	13.2	123	4.9	

GENERAL NOTES

Static Water Level: 12.48ft - Before sampling
12.49ft - After sampling

10:40am - pulled sample

SAMPLE COLLECTION DATA

Sample ID	**MW-10**
Date	10/18/22
Time	9:20am
Project	**SIA Land Treatment Site GW Monitoring**
Sample Matrix	**water**
Collection Method	**low flow (0.2 - 0.3 L/min)**
Sample Location	**dedicated tube**
Weather	60°
Sampling Personnel	JBH

FIELD INSTRUMENTS

pH	**Oakton pH/Con 10**
Conductivity	**Oakton pH/Con 10**
Temperature	**Oakton pH/Con 10**
Oxidation Reduction Potential	**Oakton ORPTestr 10**
Dissolved Oxygen	**YSI 550A**

PARAMETERS

Time	pH	Conductivity	Temperature	Oxidation Reduction Potential	Dissolved Oxygen	Comments
	su	uS/cm	°C	mV	mg/L	
9:30	7.14	189.1	11.9	34	5.8	
9:35	7.12	184.2	12.2	54	4.5	
9:40	7.35	182.9	12.2	73	4.5	
9:45	7.38	183.0	12.2	76	4.5	

GENERAL NOTES

Static Water Level: 12.40ft - Before sampling
14.15ft - After sampling
9:50 am - pulled sample
- Flow rate (200-300mL/min)

SAMPLE COLLECTION DATA

Sample ID	**MW-11**
Date	10-18-22
Time	11:50
Project	**SIA Land Treatment Site GW Monitoring**
Sample Matrix	**water**
Collection Method	**low flow (0.2 - 0.3 L/min)**
Sample Location	**dedicated tube**
Weather	70°
Sampling Personnel	JRH

FIELD INSTRUMENTS

pH	**Oakton pH/Con 10**
Conductivity	**Oakton pH/Con 10**
Temperature	**Oakton pH/Con 10**
Oxidation Reduction Potential	**Oakton ORPTestr 10**
Dissolved Oxygen	**YSI 550A**

PARAMETERS

Time	pH	Conductivity	Temperature	Oxidation Reduction Potential	Dissolved Oxygen	Comments
	su	uS/cm	°C	mV	mg/L	
11:55	7.63	178.7	14.0	97	4.6	
12:00	7.15	177.7	14.2	106	4.3	
12:05	6.98	179.9	14.3	115	3.7	
12:10	6.92	177.5	13.9	120	3.9	

GENERAL NOTES

Static Water Level: 12.52ft - Before sampling
12.50ft - After sampling
12:15 - Pulled sample

SAMPLE COLLECTION DATA

Sample ID	**MW-12**
Date	10-18-22
Time	11:00 am
Project	**SIA Land Treatment Site GW Monitoring**
Sample Matrix	**water**
Collection Method	**low flow (0.2 - 0.3 L/min)**
Sample Location	**dedicated tube**
Weather	79°
Sampling Personnel	JRH

FIELD INSTRUMENTS

pH	**Oakton pH/Con 10**
Conductivity	**Oakton pH/Con 10**
Temperature	**Oakton pH/Con 10**
Oxidation Reduction Potential	**Oakton ORPTestr 10**
Dissolved Oxygen	**YSI 550A**

PARAMETERS

Time	pH	Conductivity	Temperature	Oxidation Reduction Potential	Dissolved Oxygen	Comments
	su	uS/cm	°C	mV	mg/L	
11:05	7.44	349.5	13.5	96	4.8	
11:10	7.13	346.3	13.7	100	5.0	
11:15	7.36	346.9	13.4	108	5.0	
11:20	7.29	346.3	13.5	104	4.4	

GENERAL NOTES

Static Water Level: 14.57ft - Before sampling
14.55ft - After sampling
11:25 - Pulled sample

Valley Science and Engineering
12720 E Nora Avenue, Suite A | Spokane Valley, WA 99216 | (509) 921-0290 | FAX (509) 921-1788

Instrument Calibration Form

Date: 10/18/22 **Time:** 9:12 am
Personnel JBH **Instrument** Oakton

Calibration Standards Used	Reading After Calibration	Comments
1413	1413	
pH 7	7.00	
pH 10	10.01	

Date: _____ **Time:** _____
Personnel _____ **Instrument** _____

Calibration Standards Used	Reading After Calibration	Comments

Date: _____ **Time:** _____
Personnel _____ **Instrument** _____

Calibration Standards Used	Reading After Calibration	Comments

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ANALYTICAL REPORT

Eurofins Spokane
11922 East 1st Ave
Spokane, WA 99206
Tel: (509)924-9200

Laboratory Job ID: 590-18996-1
Client Project/Site: SIA/2018230022-002-201

For:
Valley Science and Engineering
12720 E Nora Ave
Spokane, Washington 99216

Attn: Sara Rodriguez

Authorized for release by:
11/1/2022 3:13:33 PM

Randee Arrington, Lab Director
(509)924-9200
Randee.Arrington@et.eurofinsus.com

Table of Contents

Case Narrative

Client: Valley Science and Engineering
Project/Site: SIA/2018230022-002-201

Job ID: 590-18996-1

Job ID: 590-18996-1

Laboratory: Eurofins Spokane

Narrative

Receipt
The samples were received on 10/18/2022 3:20 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 3.3º C.

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

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

General Chemistry
Method SM 2320B: The method blank for analytical batch 590-38711 contained Bicarbonate Alkalinity as CaCO3 above the method detection limit (MDL). Associated samples were not re-analyzed because results were less than the reporting limit (RL) OR practical quantitation limit (PQL).

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

Sample Summary

Client: Valley Science and Engineering
Project/Site: SIA/2018230022-002-201

Job ID: 590-18996-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
590-18996-1	MW-8	Water	10/18/22 13:25	10/18/22 15:20
590-18996-2	MW-9	Water	10/18/22 10:40	10/18/22 15:20
590-18996-3	MW-10	Water	10/18/22 09:50	10/18/22 15:20
590-18996-4	MW-11	Water	10/18/22 12:15	10/18/22 15:20
590-18996-5	MW-12	Water	10/18/22 11:25	10/18/22 15:20

Definitions/Glossary

Client: Valley Science and Engineering
Project/Site: SIA/2018230022-002-201

Job ID: 590-18996-1

Qualifiers

Metals

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
L	A negative instrument reading had an absolute value greater than the reporting limit

General Chemistry

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

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

Client Sample ID: MW-8

Lab Sample ID: 590-18996-1

Date Collected: 10/18/22 13:25

Matrix: Water

Date Received: 10/18/22 15:20

Method: MCAWW 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	62		0.80	0.42	mg/L			10/18/22 20:11	1
Nitrate as N	3.3		0.20	0.057	mg/L			10/18/22 20:11	1
Nitrite as N	ND		0.20	0.069	mg/L			10/18/22 20:11	1
Sulfate	8.1		0.50	0.13	mg/L			10/18/22 20:11	1

Method: EPA 200.7 Rev 4.4 - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	43		1.0	0.20	mg/L		10/24/22 10:17	10/24/22 20:12	1
Magnesium	12		0.50	0.13	mg/L		10/24/22 10:17	10/24/22 20:12	1
Potassium	4.8		1.0	0.29	mg/L		10/24/22 10:17	10/24/22 20:12	1
Sodium	10		0.50	0.20	mg/L		10/24/22 10:17	10/24/22 20:12	1

Method: EPA 200.8 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0020		0.0010	0.00020	mg/L		10/24/22 19:11	10/27/22 04:02	1
Iron	0.058	J	0.10	0.013	mg/L		10/24/22 19:11	10/27/22 04:02	1
Manganese	0.00051	J	0.0020	0.00046	mg/L		10/24/22 19:11	10/27/22 04:02	1

Method: EPA 200.8 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0020		0.0010	0.00020	mg/L		10/25/22 19:19	10/27/22 01:26	1
Iron	0.046	J	0.10	0.013	mg/L		10/25/22 19:19	10/27/22 01:26	1
Manganese	0.00096	J	0.0020	0.00046	mg/L		10/25/22 19:19	10/27/22 01:26	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chemical Oxygen Demand (MCAWW 410.4)	ND		10	5.0	mg/L			10/27/22 22:00	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	95	B	20	5.0	mg/L			10/21/22 14:13	1
Total Dissolved Solids (SM 2540C)	210		25	13	mg/L			10/24/22 13:12	1

Client Sample ID: MW-9

Lab Sample ID: 590-18996-2

Date Collected: 10/18/22 10:40

Matrix: Water

Date Received: 10/18/22 15:20

Method: MCAWW 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	3.9		0.80	0.42	mg/L			10/18/22 20:24	1
Nitrate as N	4.6		0.20	0.057	mg/L			10/18/22 20:24	1
Nitrite as N	ND		0.20	0.069	mg/L			10/18/22 20:24	1
Sulfate	5.9		0.50	0.13	mg/L			10/18/22 20:24	1

Method: EPA 200.7 Rev 4.4 - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	15		1.0	0.20	mg/L		10/24/22 10:17	10/24/22 20:16	1
Magnesium	4.4		0.50	0.13	mg/L		10/24/22 10:17	10/24/22 20:16	1
Potassium	2.4		1.0	0.29	mg/L		10/24/22 10:17	10/24/22 20:16	1
Sodium	10		0.50	0.20	mg/L		10/24/22 10:17	10/24/22 20:16	1

Client Sample ID: MW-9

Date Collected: 10/18/22 10:40
Date Received: 10/18/22 15:20

Lab Sample ID: 590-18996-2
Matrix: Water

Method: EPA 200.8 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0046		0.0010	0.00020	mg/L		10/24/22 19:11	10/27/22 04:05	1
Iron	0.039	J	0.10	0.013	mg/L		10/24/22 19:11	10/27/22 04:05	1
Manganese	0.0011	J	0.0020	0.00046	mg/L		10/24/22 19:11	10/27/22 04:05	1

Method: EPA 200.8 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0047		0.0010	0.00020	mg/L		10/25/22 19:19	10/27/22 01:29	1
Iron	0.018	J	0.10	0.013	mg/L		10/25/22 19:19	10/27/22 01:29	1
Manganese	ND		0.0020	0.00046	mg/L		10/25/22 19:19	10/27/22 01:29	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chemical Oxygen Demand (MCAWW 410.4)	ND		10	5.0	mg/L			10/27/22 22:00	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	80	B	20	5.0	mg/L			10/21/22 14:13	1
Total Dissolved Solids (SM 2540C)	97		25	13	mg/L			10/24/22 13:12	1

Client Sample ID: MW-10

Date Collected: 10/18/22 09:50
Date Received: 10/18/22 15:20

Lab Sample ID: 590-18996-3
Matrix: Water

Method: MCAWW 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	20		0.80	0.42	mg/L			10/18/22 20:36	1
Nitrate as N	5.6		0.20	0.057	mg/L			10/18/22 20:36	1
Nitrite as N	ND		0.20	0.069	mg/L			10/18/22 20:36	1
Sulfate	5.9		0.50	0.13	mg/L			10/18/22 20:36	1

Method: EPA 200.7 Rev 4.4 - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	17		1.0	0.20	mg/L		10/24/22 10:17	10/24/22 20:20	1
Magnesium	5.3		0.50	0.13	mg/L		10/24/22 10:17	10/24/22 20:20	1
Potassium	2.4		1.0	0.29	mg/L		10/24/22 10:17	10/24/22 20:20	1
Sodium	12		0.50	0.20	mg/L		10/24/22 10:17	10/24/22 20:20	1

Method: EPA 200.8 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0017		0.0010	0.00020	mg/L		10/24/22 19:11	10/27/22 04:08	1
Iron	0.043	J	0.10	0.013	mg/L		10/24/22 19:11	10/27/22 04:08	1
Manganese	0.00072	J	0.0020	0.00046	mg/L		10/24/22 19:11	10/27/22 04:08	1

Method: EPA 200.8 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0017		0.0010	0.00020	mg/L		10/25/22 19:19	10/27/22 01:32	1
Iron	0.020	J	0.10	0.013	mg/L		10/25/22 19:19	10/27/22 01:32	1
Manganese	ND		0.0020	0.00046	mg/L		10/25/22 19:19	10/27/22 01:32	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chemical Oxygen Demand (MCAWW 410.4)	ND		10	5.0	mg/L			10/27/22 22:00	1

Client Sample ID: MW-10

Lab Sample ID: 590-18996-3
Matrix: Water
Date Collected: 10/18/22 09:50
Date Received: 10/18/22 15:20

General Chemistry (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	60	B	20	5.0	mg/L			10/21/22 14:13	1
Total Dissolved Solids (SM 2540C)	160		25	13	mg/L			10/24/22 13:12	1

Client Sample ID: MW-11

Lab Sample ID: 590-18996-4
Matrix: Water
Date Collected: 10/18/22 12:15
Date Received: 10/18/22 15:20

Method: MCAWW 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	13		0.80	0.42	mg/L			10/18/22 20:49	1
Nitrate as N	4.8		0.20	0.057	mg/L			10/18/22 20:49	1
Nitrite as N	ND		0.20	0.069	mg/L			10/18/22 20:49	1
Sulfate	5.7		0.50	0.13	mg/L			10/18/22 20:49	1

Method: EPA 200.7 Rev 4.4 - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	19		1.0	0.20	mg/L		10/24/22 10:17	10/24/22 20:24	1
Magnesium	6.4		0.50	0.13	mg/L		10/24/22 10:17	10/24/22 20:24	1
Potassium	3.7		1.0	0.29	mg/L		10/24/22 10:17	10/24/22 20:24	1
Sodium	6.3		0.50	0.20	mg/L		10/24/22 10:17	10/24/22 20:24	1

Method: EPA 200.8 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0019		0.0010	0.00020	mg/L		10/24/22 19:11	10/27/22 04:11	1
Iron	0.029	J	0.10	0.013	mg/L		10/24/22 19:11	10/27/22 04:11	1
Manganese	ND		0.0020	0.00046	mg/L		10/24/22 19:11	10/27/22 04:11	1

Method: EPA 200.8 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0019		0.0010	0.00020	mg/L		10/25/22 19:19	10/27/22 01:35	1
Iron	0.023	J	0.10	0.013	mg/L		10/25/22 19:19	10/27/22 01:35	1
Manganese	ND		0.0020	0.00046	mg/L		10/25/22 19:19	10/27/22 01:35	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chemical Oxygen Demand (MCAWW 410.4)	ND		10	5.0	mg/L			10/27/22 22:00	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	50	B	20	5.0	mg/L			10/21/22 14:13	1
Total Dissolved Solids (SM 2540C)	160		25	13	mg/L			10/24/22 13:12	1

Client Sample ID: MW-12

Lab Sample ID: 590-18996-5
Matrix: Water
Date Collected: 10/18/22 11:25
Date Received: 10/18/22 15:20

Method: MCAWW 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	44		0.80	0.42	mg/L			10/18/22 21:02	1
Nitrate as N	2.4		0.20	0.057	mg/L			10/18/22 21:02	1
Nitrite as N	ND		0.20	0.069	mg/L			10/18/22 21:02	1
Sulfate	15		0.50	0.13	mg/L			10/18/22 21:02	1

Client Sample Results

Client: Valley Science and Engineering
Project/Site: SIA/2018230022-002-201

Job ID: 590-18996-1

Client Sample ID: MW-12

Date Collected: 10/18/22 11:25
Date Received: 10/18/22 15:20

Lab Sample ID: 590-18996-5

Matrix: Water

Method: EPA 200.7 Rev 4.4 - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	40		1.0	0.20	mg/L		10/24/22 10:17	10/24/22 20:28	1
Magnesium	12		0.50	0.13	mg/L		10/24/22 10:17	10/24/22 20:28	1
Potassium	3.1		1.0	0.29	mg/L		10/24/22 10:17	10/24/22 20:28	1
Sodium	19		0.50	0.20	mg/L		10/24/22 10:17	10/24/22 20:28	1

Method: EPA 200.8 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0030		0.0010	0.00020	mg/L		10/24/22 19:11	10/27/22 04:14	1
Iron	0.17		0.10	0.013	mg/L		10/24/22 19:11	10/27/22 04:14	1
Manganese	0.0030		0.0020	0.00046	mg/L		10/24/22 19:11	10/27/22 04:14	1

Method: EPA 200.8 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0031		0.0010	0.00020	mg/L		10/25/22 19:19	10/27/22 01:38	1
Iron	0.041	J	0.10	0.013	mg/L		10/25/22 19:19	10/27/22 01:38	1
Manganese	ND		0.0020	0.00046	mg/L		10/25/22 19:19	10/27/22 01:38	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chemical Oxygen Demand (MCAWW 410.4)	ND		10	5.0	mg/L			10/27/22 22:00	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	120	B	20	5.0	mg/L			10/21/22 14:13	1
Total Dissolved Solids (SM 2540C)	200		25	13	mg/L			10/24/22 13:12	1

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 590-38661/1003
Matrix: Water
Analysis Batch: 38661

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	ND		0.20	0.057	mg/L			10/18/22 17:01	1
Nitrite as N	ND		0.20	0.069	mg/L			10/18/22 17:01	1

Lab Sample ID: LCS 590-38661/1004
Matrix: Water
Analysis Batch: 38661

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrate as N	5.00	5.16		mg/L		103	90 - 110
Nitrite as N	5.00	4.93		mg/L		99	90 - 110

Lab Sample ID: MB 590-38662/1003
Matrix: Water
Analysis Batch: 38662

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.80	0.42	mg/L			10/18/22 17:01	1
Sulfate	ND		0.50	0.13	mg/L			10/18/22 17:01	1

Lab Sample ID: LCS 590-38662/1004
Matrix: Water
Analysis Batch: 38662

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	12.5	12.7		mg/L		101	90 - 110
Sulfate	12.5	12.8		mg/L		102	90 - 110

Method: 200.7 Rev 4.4 - Metals (ICP)

Lab Sample ID: MB 590-38730/2-A
Matrix: Water
Analysis Batch: 38739

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 38730

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	ND		1.0	0.20	mg/L		10/24/22 10:17	10/24/22 16:11	1
Magnesium	ND		0.50	0.13	mg/L		10/24/22 10:17	10/24/22 16:11	1
Potassium	ND		1.0	0.29	mg/L		10/24/22 10:17	10/24/22 16:11	1
Sodium	ND	L	0.50	0.20	mg/L		10/24/22 10:17	10/24/22 16:11	1

Lab Sample ID: LCS 590-38730/1-A
Matrix: Water
Analysis Batch: 38739

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 38730

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Calcium	50.0	48.4		mg/L		97	85 - 115
Magnesium	50.0	49.7		mg/L		99	85 - 115
Potassium	50.0	46.9		mg/L		94	85 - 115
Sodium	50.0	47.6		mg/L		95	85 - 115

Method: 200.8 - Metals (ICP/MS)

Lab Sample ID: MB 580-407820/26-A
Matrix: Water
Analysis Batch: 408193

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 407820

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0010	0.00020	mg/L		10/24/22 19:11	10/27/22 02:38	1
Iron	ND		0.10	0.013	mg/L		10/24/22 19:11	10/27/22 02:38	1
Manganese	ND		0.0020	0.00046	mg/L		10/24/22 19:11	10/27/22 02:38	1

Lab Sample ID: LCS 580-407820/27-A
Matrix: Water
Analysis Batch: 408193

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 407820

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	1.00	0.998		mg/L		100	85 - 115
Iron	20.0	19.6		mg/L		98	85 - 115
Manganese	1.00	1.01		mg/L		101	85 - 115

Lab Sample ID: LCSD 580-407820/28-A
Matrix: Water
Analysis Batch: 408193

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 407820

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Arsenic	1.00	1.02		mg/L		102	85 - 115	2	20
Iron	20.0	20.0		mg/L		100	85 - 115	2	20
Manganese	1.00	1.02		mg/L		102	85 - 115	0	20

Lab Sample ID: MB 580-407912/14-A
Matrix: Water
Analysis Batch: 408193

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 407912

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0010	0.00020	mg/L		10/25/22 19:19	10/27/22 00:38	1
Iron	ND		0.10	0.013	mg/L		10/25/22 19:19	10/27/22 00:38	1
Manganese	ND		0.0020	0.00046	mg/L		10/25/22 19:19	10/27/22 00:38	1

Lab Sample ID: LCS 580-407912/15-A
Matrix: Water
Analysis Batch: 408193

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 407912

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	1.00	1.00		mg/L		100	85 - 115
Iron	20.0	19.9		mg/L		99	85 - 115
Manganese	1.00	1.02		mg/L		102	85 - 115

Lab Sample ID: LCSD 580-407912/16-A
Matrix: Water
Analysis Batch: 408193

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 407912

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Arsenic	1.00	1.01		mg/L		101	85 - 115	1	20
Iron	20.0	20.3		mg/L		101	85 - 115	2	20
Manganese	1.00	0.997		mg/L		100	85 - 115	2	20

Method: 410.4 - COD

Lab Sample ID: MB 480-647438/75
Matrix: Water
Analysis Batch: 647438

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chemical Oxygen Demand	ND		10	5.0	mg/L			10/27/22 22:00	1

Lab Sample ID: LCS 480-647438/76
Matrix: Water
Analysis Batch: 647438

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chemical Oxygen Demand	25.0	25.7		mg/L		103	90 - 110

Lab Sample ID: 590-18996-4 MS
Matrix: Water
Analysis Batch: 647438

Client Sample ID: MW-11
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chemical Oxygen Demand	ND		50.0	45.8		mg/L		92	75 - 125

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 590-38711/1
Matrix: Water
Analysis Batch: 38711

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bicarbonate Alkalinity as CaCO3	5.00	J	20	5.0	mg/L			10/21/22 14:13	1

Lab Sample ID: LCS 590-38711/2
Matrix: Water
Analysis Batch: 38711

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Bicarbonate Alkalinity as CaCO3	501	505		mg/L		101	90 - 110

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 590-38780/1
Matrix: Water
Analysis Batch: 38780

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		25	13	mg/L			10/24/22 13:12	1

Lab Sample ID: LCS 590-38780/2
Matrix: Water
Analysis Batch: 38780

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	504	503		mg/L		100	80 - 120

Lab Chronicle

Client: Valley Science and Engineering
Project/Site: SIA/2018230022-002-201

Job ID: 590-18996-1

Client Sample ID: MW-8

Date Collected: 10/18/22 13:25
Date Received: 10/18/22 15:20

Lab Sample ID: 590-18996-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	5 mL	5 mL	38661	10/18/22 20:11	NMI	EET SPK
Total/NA	Analysis	300.0		1	5 mL	5 mL	38662	10/18/22 20:11	NMI	EET SPK
Total/NA	Prep	200.7			50 mL	50 mL	38730	10/24/22 10:17	AMB	EET SPK
Total/NA	Analysis	200.7 Rev 4.4		1			38739	10/24/22 20:12	AMB	EET SPK
Dissolved	Prep	200.8			50 mL	50 mL	407912	10/25/22 19:19	TMH	EET SEA
Dissolved	Analysis	200.8		1	50 mL	50 mL	408193	10/27/22 01:26	FCW	EET SEA
Total/NA	Prep	200.8			50 mL	50 mL	407820	10/24/22 19:11	TMH	EET SEA
Total/NA	Analysis	200.8		1	50 mL	50 mL	408193	10/27/22 04:02	FCW	EET SEA
Total/NA	Analysis	410.4		1	2 mL	2 mL	647438	10/27/22 22:00	CSS	EET BUF
Total/NA	Analysis	SM 2320B		1	100 mL	100 mL	38711	10/21/22 14:13	AMB	EET SPK
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	38780	10/24/22 13:12	AMB	EET SPK

Client Sample ID: MW-9

Date Collected: 10/18/22 10:40
Date Received: 10/18/22 15:20

Lab Sample ID: 590-18996-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	5 mL	5 mL	38661	10/18/22 20:24	NMI	EET SPK
Total/NA	Analysis	300.0		1	5 mL	5 mL	38662	10/18/22 20:24	NMI	EET SPK
Total/NA	Prep	200.7			50 mL	50 mL	38730	10/24/22 10:17	AMB	EET SPK
Total/NA	Analysis	200.7 Rev 4.4		1			38739	10/24/22 20:16	AMB	EET SPK
Dissolved	Prep	200.8			50 mL	50 mL	407912	10/25/22 19:19	TMH	EET SEA
Dissolved	Analysis	200.8		1	50 mL	50 mL	408193	10/27/22 01:29	FCW	EET SEA
Total/NA	Prep	200.8			50 mL	50 mL	407820	10/24/22 19:11	TMH	EET SEA
Total/NA	Analysis	200.8		1	50 mL	50 mL	408193	10/27/22 04:05	FCW	EET SEA
Total/NA	Analysis	410.4		1	2 mL	2 mL	647438	10/27/22 22:00	CSS	EET BUF
Total/NA	Analysis	SM 2320B		1	100 mL	100 mL	38711	10/21/22 14:13	AMB	EET SPK
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	38780	10/24/22 13:12	AMB	EET SPK

Client Sample ID: MW-10

Date Collected: 10/18/22 09:50
Date Received: 10/18/22 15:20

Lab Sample ID: 590-18996-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	5 mL	5 mL	38661	10/18/22 20:36	NMI	EET SPK
Total/NA	Analysis	300.0		1	5 mL	5 mL	38662	10/18/22 20:36	NMI	EET SPK
Total/NA	Prep	200.7			50 mL	50 mL	38730	10/24/22 10:17	AMB	EET SPK
Total/NA	Analysis	200.7 Rev 4.4		1			38739	10/24/22 20:20	AMB	EET SPK
Dissolved	Prep	200.8			50 mL	50 mL	407912	10/25/22 19:19	TMH	EET SEA
Dissolved	Analysis	200.8		1	50 mL	50 mL	408193	10/27/22 01:32	FCW	EET SEA
Total/NA	Prep	200.8			50 mL	50 mL	407820	10/24/22 19:11	TMH	EET SEA
Total/NA	Analysis	200.8		1	50 mL	50 mL	408193	10/27/22 04:08	FCW	EET SEA
Total/NA	Analysis	410.4		1	2 mL	2 mL	647438	10/27/22 22:00	CSS	EET BUF

Lab Chronicle

Client: Valley Science and Engineering
Project/Site: SIA/2018230022-002-201

Job ID: 590-18996-1

Client Sample ID: MW-10

Date Collected: 10/18/22 09:50
Date Received: 10/18/22 15:20

Lab Sample ID: 590-18996-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2320B		1	100 mL	100 mL	38711	10/21/22 14:13	AMB	EET SPK
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	38780	10/24/22 13:12	AMB	EET SPK

Client Sample ID: MW-11

Date Collected: 10/18/22 12:15
Date Received: 10/18/22 15:20

Lab Sample ID: 590-18996-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	5 mL	5 mL	38661	10/18/22 20:49	NMI	EET SPK
Total/NA	Analysis	300.0		1	5 mL	5 mL	38662	10/18/22 20:49	NMI	EET SPK
Total/NA	Prep	200.7			50 mL	50 mL	38730	10/24/22 10:17	AMB	EET SPK
Total/NA	Analysis	200.7 Rev 4.4		1			38739	10/24/22 20:24	AMB	EET SPK
Dissolved	Prep	200.8			50 mL	50 mL	407912	10/25/22 19:19	TMH	EET SEA
Dissolved	Analysis	200.8		1	50 mL	50 mL	408193	10/27/22 01:35	FCW	EET SEA
Total/NA	Prep	200.8			50 mL	50 mL	407820	10/24/22 19:11	TMH	EET SEA
Total/NA	Analysis	200.8		1	50 mL	50 mL	408193	10/27/22 04:11	FCW	EET SEA
Total/NA	Analysis	410.4		1	2 mL	2 mL	647438	10/27/22 22:00	CSS	EET BUF
Total/NA	Analysis	SM 2320B		1	100 mL	100 mL	38711	10/21/22 14:13	AMB	EET SPK
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	38780	10/24/22 13:12	AMB	EET SPK

Client Sample ID: MW-12

Date Collected: 10/18/22 11:25
Date Received: 10/18/22 15:20

Lab Sample ID: 590-18996-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	5 mL	5 mL	38661	10/18/22 21:02	NMI	EET SPK
Total/NA	Analysis	300.0		1	5 mL	5 mL	38662	10/18/22 21:02	NMI	EET SPK
Total/NA	Prep	200.7			50 mL	50 mL	38730	10/24/22 10:17	AMB	EET SPK
Total/NA	Analysis	200.7 Rev 4.4		1			38739	10/24/22 20:28	AMB	EET SPK
Dissolved	Prep	200.8			50 mL	50 mL	407912	10/25/22 19:19	TMH	EET SEA
Dissolved	Analysis	200.8		1	50 mL	50 mL	408193	10/27/22 01:38	FCW	EET SEA
Total/NA	Prep	200.8			50 mL	50 mL	407820	10/24/22 19:11	TMH	EET SEA
Total/NA	Analysis	200.8		1	50 mL	50 mL	408193	10/27/22 04:14	FCW	EET SEA
Total/NA	Analysis	410.4		1	2 mL	2 mL	647438	10/27/22 22:00	CSS	EET BUF
Total/NA	Analysis	SM 2320B		1	100 mL	100 mL	38711	10/21/22 14:13	AMB	EET SPK
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	38780	10/24/22 13:12	AMB	EET SPK

Laboratory References:

EET BUF = Eurofins Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600
EET SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310
EET SPK = Eurofins Spokane, 11922 East 1st Ave, Spokane, WA 99206, TEL (509)924-9200

Accreditation/Certification Summary

Client: Valley Science and Engineering
Project/Site: SIA/2018230022-002-201

Job ID: 590-18996-1

Laboratory: Eurofins Spokane

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Washington	State	C569	01-06-23

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
SM 2320B		Water	Bicarbonate Alkalinity as CaCO3

Laboratory: Eurofins Buffalo

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Washington	State	C784	02-10-23

Laboratory: Eurofins Seattle

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Washington	State	C788	07-13-23

Method Summary

Client: Valley Science and Engineering
Project/Site: SIA/2018230022-002-201

Job ID: 590-18996-1

Method	Method Description	Protocol	Laboratory
300.0	Anions, Ion Chromatography	MCAWW	EET SPK
200.7 Rev 4.4	Metals (ICP)	EPA	EET SPK
200.8	Metals (ICP/MS)	EPA	EET SEA
410.4	COD	MCAWW	EET BUF
SM 2320B	Alkalinity	SM	EET SPK
SM 2540C	Solids, Total Dissolved (TDS)	SM	EET SPK
200.7	Preparation, Total Metals	EPA	EET SPK
200.8	Preparation, Total Metals	EPA	EET SEA

Protocol References:

EPA = US Environmental Protection Agency

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"

Laboratory References:

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

EET SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

EET SPK = Eurofins Spokane, 11922 East 1st Ave, Spokane, WA 99206, TEL (509)924-9200

TestAmerica Spokane
11922 E. 1st Ave.

Spokane, WA 99206
phone 509.924.9200 fax

Chain of Custody Record

TestAmerica — THE LEADER IN ENVIRONMENTAL TESTING

Regulatory Program ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Sara Rodriguez	Site Contact:	Date	COC No:
Valley Science and Engineering	Tel/Fax: (509) 703-2679	Lab Contact:	Carrier:	____ of ____ COCs
12720 E Nora Ave Ste A	Analysis Turnaround Time			Sampler:
Spokane, WA 99216	☐ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
(509) 921-0290 Phone	TAT if different from Below ____			Walk-in Client:
(509) 921 1788 FAX	☐ 2 weeks			Lab Sampling:
Spokane Airport	☐ 1 week			
Spokane Washington	☐ 2 days			Job / SDG No.
PO # 2018230022-002-201	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	EPA 200.8 Total As, Fe and Mn	EPA 200.8 Dissolved As, Fe and Mn	NO2-N, NO3-N	TDS	Calcium	Magnesium	Sodium	Potassium		COD	Bicarbonate alkalinity	Chloride	Sulfate	Sample Specific Notes:
MW-8	10-18-22	10:25	G	H_2O				X	X	X	X	X	X	X	X		X	X	X	X	
MW-9		10:40	G	H_2O				X	X	X	X	X	X	X	X		X	X	X	X	
MW-10		9:50	G	H_2O				X	X	X	X	X	X	X	X		X	X	X	X	use method with lowest detection limits for COD
MW-11		12:15	G	H_2O				X	X	X	X	X	X	X	X		X	X	X	X	
MW-12		11:25	G	H_2O				X	X	X	X	X	X	X	X		X	X	X	X	

590-18996 Chain of Custody

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other ____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return to Client ☐ Disposal by Lab ☐ Archive for ____ Months

Special Instructions/QC Requirements & Comments Please report results down to the MDL.

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.		Cooler Temp. (°C): Obs'd: 3.2 Corr'd: 3.3		Therm ID No.: 1L005
Relinquished by: Josh Hudgins, secure location	Company: Valley	Date/Time: 10-18-22 2:45	Received by: Jennifer Kuch	Company: Valley	Date/Time: 10/18/22 3:10 pm
Relinquished by: Jennifer Kuch	Company: Valley	Date/Time: 10/18/22 3:20 pm	Received by: [signature]	Company: EETSPO	Date/Time: 10/18/22 1520
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time

Form No. CA-C-WI-002, Rev 4.3, dated 12/05/2013

Eurofins Spokane
11922 East 1st Ave
Spokane, WA 99206
Phone: 509-924-9200 Fax: 509-924-9290

Chain of Custody Record

eurofins | Environment Testing America

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Arrington, Randee E	Carrier Tracking No(s):	COC No: 590-7266.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Randee.Arrington@et.eurofinsus.com	State of Origin: Washington	Page: Page 1 of 1
Company: Eurofins Environment Testing Northeast,		Accreditations Required (See note): State - Washington; State Program - Washington		Job #: 590-18996-1
Address: 10 Hazelwood Drive, ,	Due Date Requested: 10/31/2022			
City: Amherst	TAT Requested (days):			
State, Zip: NY, 14228-2298				
Phone: 716-691-2600(Tel) 716-691-7991(Fax)	PO #:			
Email:	WO #:			
Project Name: SIA/2018230022-002-201	Project #: 59000246			
Site: CES - SIA	SSOW#:			

Analysis Requested

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

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	410.4/ COD	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
MW-8 (590-18996-1)	10/18/22	13:25 Pacific		Water			X	1	
MW-9 (590-18996-2)	10/18/22	10:40 Pacific		Water			X	1	
MW-10 (590-18996-3)	10/18/22	09:50 Pacific		Water			X	1	
MW-11 (590-18996-4)	10/18/22	12:15 Pacific		Water			X	1	
MW-12 (590-18996-5)	10/18/22	11:25 Pacific		Water			X	1	

Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing Northwest, LLC places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing Northwest, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing Northwest, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins Environment Testing Northwest, LLC.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:
Relinquished by:	Date/Time: 10/20 15:00	Company EES SRC	Received by: Date/Time: 10/21/22 1000 Company TA
Relinquished by:	Date/Time:	Company	Received by: Date/Time: Company
Relinquished by:	Date/Time:	Company	Received by: Date/Time: Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 313 # 1+1.2

Ver: 06/08/2021

Eurofins Spokane
11922 East 1st Ave
Spokane, WA 99206
Phone: 509-924-9200 Fax: 509-924-9290

Chain of Custody Record

eurofins | Environment Testing America

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Arrington, Randee E	Carrier Tracking No(s):	COC No: 590-7272.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Randee.Arrington@et.eurofinsus.com	State of Origin: Washington	Page: Page 1 of 1
Company: Eurofins Environment Testing Northwest,		Accreditations Required (See note): State - Washington; State Program - Washington		Job #: 590-18996-1
Address: 5755 8th Street East, ,	Due Date Requested: 10/31/2022			
City: Tacoma	TAT Requested (days):			
State, Zip: WA, 98424				
Phone: 253-922-2310(Tel)	PO #:			
Email:	WO #:			
Project Name: SIA/2018230022-002-201	Project #: 59000246			
Site: CES - SIA	SSOW#:			

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

Analysis Requested

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	200.8_CWA/200.8_P_TOT Total As, Fe & Mn	200.8_CWA/FIELD_FLTRD Diss As, Fe & Mn	Total Number of containers	Special Instructions/Note:
			Preservation Code:							
MW-8 (590-18996-1)	10/18/22	13:25 Pacific		Water			X	X	2	
MW-9 (590-18996-2)	10/18/22	10:40 Pacific		Water			X	X	2	
MW-10 (590-18996-3)	10/18/22	09:50 Pacific		Water			X	X	2	
MW-11 (590-18996-4)	10/18/22	12:15 Pacific		Water			X	X	2	
MW-12 (590-18996-5)	10/18/22	11:25 Pacific		Water			X	X	2	
										RIV= 9.1/9.3

Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing Northwest, LLC places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing Northwest, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing Northwest, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing Northwest, LLC.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For ____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:		Date:	Time:		Method of Shipment:	
Relinquished by:	Date/Time: 10/21	Company	Received by:	Date/Time: 10/22/22 1015	Company EEN	
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company	
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company	

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

Login Sample Receipt Checklist

Client: Valley Science and Engineering

Job Number: 590-18996-1

Login Number: 18996
List Number: 1
Creator: Fettig, Riley

List Source: Eurofins Spokane

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
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 containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Valley Science and Engineering

Job Number: 590-18996-1

Login Number: 18996
List Number: 3
Creator: Kolb, Chris M

List Source: Eurofins Buffalo
List Creation: 10/24/22 10:13 AM

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	3.3 ir gun #1 ice
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time (Excluding tests with immediate HTs)..	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	True	
Chlorine Residual checked.	True	

Login Sample Receipt Checklist

Client: Valley Science and Engineering

Job Number: 590-18996-1

Login Number: 18996
List Number: 2
Creator: Vallelunga, Diana L

List Source: Eurofins Seattle
List Creation: 10/22/22 02:15 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
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 containers received 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	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Appendix E.

Stormwater-Containing Glycol Land Application Reporting Form – Daily Log

Stormwater-Containing Glycol Land Application Reporting Form - Daily Log

Instructions:
1. Measure and record the glycol concentration, total volume applied, application rates.
2. Report total acreage covered, date, and time.
3. Record conditions, any problems, solutions, observations.
4. Complete this form and return to the airport each week, even if no operation occurred.
5. Email the completed form to sara.rodriguez@valmont.com.

Date	Time		Driver Initials	Glycol Concentratio	Volume Applied	Application Rate		Area	Conditions/Notes [1]
	Start	Stop		%	gallons	gal/acre	lb COD/acre		
Total					**0**				
Comments:									

1 Description of weather, site conditions, problems, results of application, runoff, or other observations related to the sites, water quality, and deicer land application.

Appendix F.

Stormwater-Containing Glycol Sampling Field Sheet

SAMPLE COLLECTION DATA

Sample ID	**Stormwater-Containing Glycol**
Date	
Time	
Project	**SIA Land Treatment Site Monitoring**
Sample Matrix	**Liquid**
Collection Method	**Grab**
Sample Location	**Land Application Tank**
Weather	
Sampling Personnel	

FIELD INSTRUMENTS

pH	Oakton pH/Con 10
Conductivity	Oakton pH/Con 10
Temperature	Oakton pH/Con 10
Glycol	Misco Palm Abby 220 (SIA owned)

PARAMETERS

Time	pH s.u.	Conductivity µS/cm	Temp °C	Glycol %	Comments

GENERAL NOTES

Appendix G.

Land Treatment Site Groundwater Sampling Field Sheet

SAMPLE COLLECTION DATA

Sample ID	
Date	
Time	
Project	**SIA Land Treatment Site GW Monitoring**
Sample Matrix	**Water**
Collection Method	**low flow (0.2 - 0.3 L/min)**
Sample Location	**dedicated tube**
Weather	
Sampling Personnel	

FIELD INSTRUMENTS

pH	**Oakton pH/Con 10**
Conductivity	**Oakton pH/Con 10**
Temperature	**Oakton pH/Con 10**
Oxidation Reduction Potential	**Oakton ORPTestr 10**
Dissolved Oxygen	**YSI 550A (El. 2350')**

PARAMETERS

Time	pH	Conductivity	Temperature	Oxidation Reduction Potential	Dissolved Oxygen	Comments
	s.u.	µS/cm	°C	mV	mg/L	

GENERAL NOTES

Static Water Level: