RECEIVED
JUL 01 2024
Department of Ecology
Eastern Washington Office

HALEY ALDRICH

www.haleyaldrich.com

REPORT ON

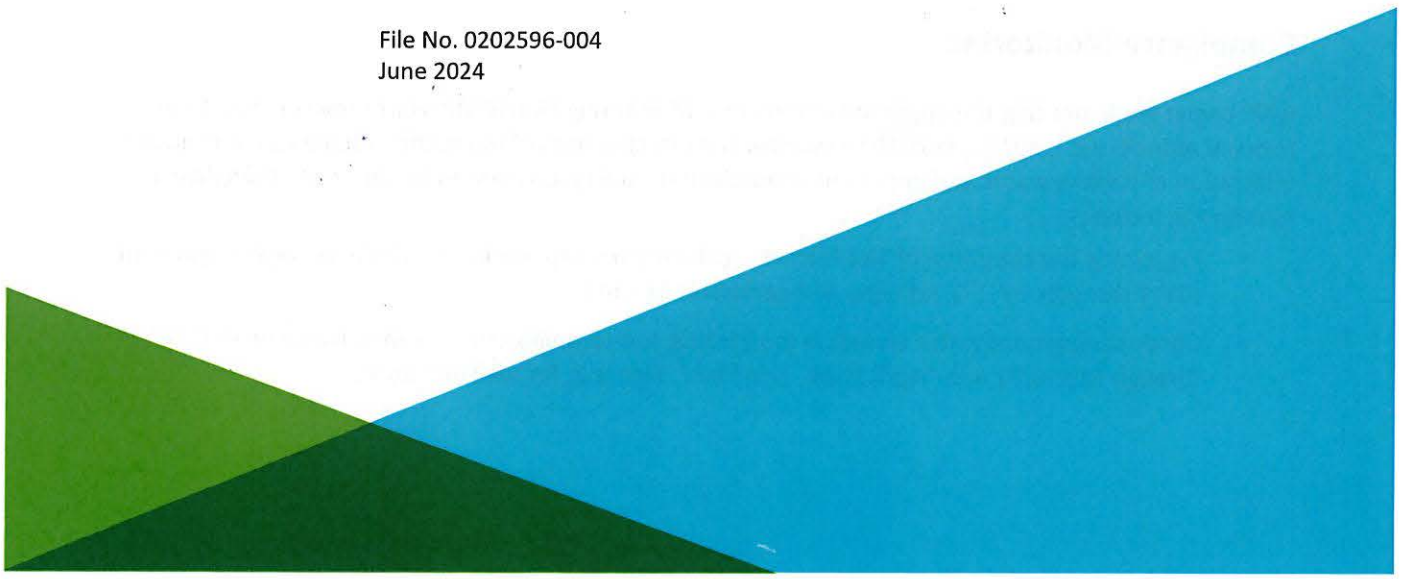
HEGLAR KRONQUIST LANDFILL
QUARTERLY COMPLIANCE MONITORING – APRIL 2024
MEAD, WASHINGTON

by
Haley & Aldrich, Inc.
Spokane, Washington

Prepared for
Kaiser Aluminum Investments Company (KAIC)

for
Washington State Department of Ecology
Spokane, Washington

File No. 0202596-004
June 2024



HALEY & ALDRICH, INC.
505 W. Riverside Avenue
Suite 450
Spokane, WA 99201
509.960.7447

27 June 2024
File No. 0202596-004

Washington State Department of Ecology
4601 North Monroe
Spokane, Washington 99205

Attention: Kailey Schrum
Toxics Cleanup Program- Site Manager
Washington State Department of Ecology, Eastern Regional Office

Subject: Heglar Kronquist Landfill
Cleanup Site ID Number 1135
Facility Site ID Number 645
Annual Compliance Monitoring - April 2024
Mead, Washington

Dear Kailey Schrum:

This report summarizes the results of the April 2024 quarterly compliance monitoring event conducted at the Heglar Kronquist Landfill (Site) near Mead, Washington; the Site location is shown on "Vicinity Map", Figure 1. The purpose of compliance monitoring is to evaluate the effectiveness of the Final Cleanup Action Plan (FCAP; Washington State Department of Ecology [Ecology], 2012) implemented at the Site in 2014. This work is being completed for Kaiser Aluminum Investments Company (formally known as DCO Management, LLC [DCO]) as a subsidiary of Kaiser Aluminum Investments Company (KAIC), pursuant to the Final Consent Decree between DCO and Ecology dated 6 June 2013 (Ecology, 2013).

Compliance Monitoring

KAIC began implementing the approved Compliance Monitoring Plan (CMP; Hart Crowser, Inc. [now Haley & Aldrich, Inc.], 2013a) in 2015 to monitor the effectiveness of the reconstructed cap at reducing infiltration of surface water and improving groundwater quality as required by the FCAP. Compliance monitoring includes:

- Inspecting the condition of Site features including the cap, perimeter drainage swales, gas vents (GV-1 through GV-17), signage, and perimeter fencing.
- Conducting groundwater elevation monitoring and sampling from six monitoring wells (MW-1 through MW-6/7); see "April 2024 - Site Plan", Figure 2, for well locations.

- Sampling surface water from up to four surface water sample locations (SW-1 through SW-3 and SW-5) (note: SW-5 appears to originate from a series of seeps that include SW-1, -2, -and 3).
- Measuring *in-situ* water quality parameters (temperature, pH, conductivity, oxidative reduction potential [ORP], turbidity, and dissolved oxygen [DO]) from groundwater and surface water (see "Groundwater and Surface Water Elevations and Field Parameters", Table 1).
- Submitting water samples to a Washington-accredited chemical analytical laboratory for contaminants of concern (COC) analyses (chloride, nitrate plus nitrite as nitrogen [nitrate/nitrite], total and dissolved sodium, and total dissolved solids [TDS]) in groundwater and surface water ("Groundwater Chemical Analytical Results" and "Surface Water Chemical Analytical Results", Tables 2 and 3, respectively).
- Summarizing the findings from each event in a compliance monitoring report.

At the end of the five-year monitoring period required by the Consent Decree Number 13202067 (Consent Decree), Ecology reviewed the compliance monitoring data and concluded that although COC concentrations had declined since installation of the enhanced cap, cleanup standards for chloride and nitrate/nitrite at select locations were not in compliance and annual monitoring should continue for an additional five years. Ecology requested KAIC to conduct annual monitoring events during the spring when precipitation and snow melt typically are at seasonal highs.

After reviewing the April 2023 compliance monitoring report, Ecology sent a letter to KAIC, dated 28 September 2023, expressing concerns over recent (during April 2022) elevated concentrations of chloride and nitrate/nitrite in groundwater and surface water hydraulically downgradient of the Site. Ecology also indicated that "reported trends of chloride and nitrate concentrations are not protective of human health or the environment under Washington State's Model Toxics Control Act (MTCA)". Based on these concerns, Ecology requested KAIC complete a supplemental site characterization to evaluate whether the institutional controls (detailed in the Institutional Control Plan) were in place and working properly, and to provide a plan and schedule to resume quarterly compliance monitoring in 2024. Subsequently, KAIC and Haley & Aldrich, Inc. (Haley & Aldrich) reviewed compliance monitoring data collected to date, the Remedial Investigation (RI) and the Feasibility Study (FS), and prepared an Assessment Plan (Haley & Aldrich, 2023b) to help guide 2024 compliance monitoring.

Assessment Plan

The objectives outlined in the Assessment Plan include:

- Reviewing geology, hydrogeology, and analytical data for the Site and updating the conceptual site model (CSM) completed during the RI/FS.
- Reviewing and updating the CMP analytical suite.
- Conducting quarterly compliance monitoring in 2024 to further assess Site conditions post-cap enhancement.
- Assessing groundwater and surface water upgradient and/or cross-gradient of the Site to better establish background conditions.

- Collecting additional hydrogeologic data to better understand fluctuations and flow directions of groundwater and update the CSM with additional data, as appropriate.
- Preparing quarterly compliance monitoring reports, submitting reports to Ecology, and uploading analytical data collected to Ecology's Environmental Information Management System.

Based on data and details outlined in the Assessment Plan, Ecology, KAIC, and Haley & Aldrich agreed to continue the 2024 compliance monitoring events with the following modifications to the CMP:

- Remove monitoring wells MW-2, -5, and -7, and seep SW-1 from the future compliance sampling protocols based on historical data and updates to the CSM. These monitoring locations appear to have little, if any, hydraulic connection to the landfill and/or represent groundwater and surface water conditions likely independent of the landfill.
- Collect upgradient and/or cross-gradient groundwater and/or surface water data from the Site to assess potential regional sources of nitrates/nitrites, chlorides, and TDS and/or background water quality data.
- Install pressure transducers in select monitoring wells to better understand groundwater flow direction, seasonal fluctuations, and potential downgradient receptors.
- Collect three gas vent samples from GV-9, -11, and -12 (shown in "Contaminant Concentrations April 2024", Figure 3) to document current ammonia concentrations and compare to historical data.

In January of 2024, KAIC and Haley & Aldrich implemented the Assessment Plan and quarterly monitoring. Monitoring activities for April 2024 are detailed in the sections below.

April 2024 Compliance Monitoring Field Activities

Haley & Aldrich inspected the security controls, conditions of the cap, passive gas venting system, and monitoring wells, and conducted groundwater and surface water sampling on 24 April 2024. We measured depths to groundwater and collected groundwater samples from MW-1, -3, and -4, using low-flow/low-stress techniques. In addition, we collected surface water (SW) samples from one seep and one stream near the Site (SW-3 and -5, respectively). Monitoring well and surface water sample locations are shown on Figures 2 and 3.

Additionally, between January and April 2024, KAIC and Haley & Aldrich negotiated access agreements to collect background water data with three upgradient landowners. On 29 April 2024, we collected groundwater samples from upgradient domestic wells (DW) located at 13111 East Kronquist Road and 13320 North Darknell Road, Spokane, Washington (DW-1 and -2, respectively); and one upgradient surface water sample (SW-Upgradient) located northeast of DW-2. These additional sample locations are shown on, "Upgradient Locations – Contaminant Concentrations April 2024", Figure 4.

Field activities were conducted in accordance with the "Final Sampling and Analysis Plan and Quality Assurance Project Plan" (Hart Crowser, 2013c) with the following exceptions:

- Surface water location SW-2 is no longer sampled because it is adjacent to SW-3 and monitoring data was similar for both locations, making this location redundant.
- Sampling locations MW-2, -5, -6/7, and SW-1 are no longer sampled based on Ecology's approval (via electronic mail communication on 9 January 2024) to the modified sampling plan listed in the 2023 Assessment Plan.
- Background sample locations DW-1, -2, and SW-Upgradient are added as monitoring points going forward.

A summary of monitoring activities and findings from the event are presented below.

CONDITION OF SITE FEATURES

Conditions of the monitoring wells and the landfill cap and surface features are discussed below.

Security Controls

Haley & Aldrich inspected the perimeter fence, gates, and locks. Security control features are intact and posted signage was still present and visible along the perimeter fence.

Condition of the Cap

During our Site visit, Haley & Aldrich observed a small animal burrow in the general area of the burrow area first identified in October 2018, near the eastern end of the landfill. The new burrow hole did not appear to expose the high-density polyethylene cap liner.

Subsequently, on 10 June 2024, Haley & Aldrich dispersed an animal repellent around and within the burrow to repel any animals occupying the burrow location. After we confirmed that no animals were present, we placed topsoil within the burrow and surrounding area, seeded the disturbed area with an Ecology-approved seed mix (refer to the Cleanup Action Construction Completion Report [Hart Crowser, 2015]), and then watered the newly seeded area. Haley & Aldrich then installed approximately 400 square feet of wire mesh over the area to discourage further burrowing within the newly seeded area. The filled burrow and newly seeded area are shown in "April 2024 Animal Burrow Repair", Appendix A. Haley & Aldrich will continue to assess the area during future monitoring events. KAIC also maintains a contract with a local pest control company to assess animal activity at and immediately around the cap area and to implement protective measures, as needed.

Condition of the Passive Gas Venting System

Haley & Aldrich inspected the overall integrity of the passive gas venting system stacks. The stacks are upright, in good condition, with the top screens intact, and appear to be operating as designed.

Monitoring Wells

Haley & Aldrich inspected the overall integrity and security of the monitoring well features including monuments, surface seals, and protective bollards and rails. Excluding MW-2, monitoring well features are in good condition and do not require maintenance or repairs at this time. KAIC is considering potential remedies to address the blockage in MW-2 or abandoning MW-2 from the groundwater monitoring network.

GROUNDWATER ELEVATIONS

Haley & Aldrich measured depths to groundwater in wells MW-1, MW-3, and MW-4, and used transducer data at MW-5 and-6/7, to calculate depths to groundwater. Depth to groundwater measurements were referenced to the top of casing (TOC) in each well, which in turn, are referenced to the North American Vertical Datum of 1988 (NAVD 88). During the event, depth to groundwater ranged between 34.33 and 58.91 feet below TOC in MW-5 and MW-1, respectively (see Table 1). This range in measurements generally correlates with seasonal variations in groundwater elevations observed during previous monitoring events.

Haley & Aldrich calculated groundwater elevations (at MW-1, -3, and -4) by subtracting the depth to water in each well from the corresponding TOC elevation. Calculated groundwater elevations ranged between 2,121.28 and 2,194.53 feet (NAVD 88) in MW-3 and MW-4, respectively. Groundwater elevations calculated for each monitoring well are summarized in Table 1 and are shown on Figure 2.

Groundwater elevations indicate that there is likely a hydraulic gradient sloping generally from east to west downgradient of the landfill as shown in, "Cross Section A-A", Figure 5. Based on the 2023 Assessment Report, historical literature (e.g., RI/FS) suggests that there may be components of groundwater flow from the landfill to the north and south. However, after re-assessing the CSM, historical groundwater elevation data, and data collected from the January and April 2024 compliance monitoring event, groundwater elevation data indicates groundwater generally flows from the east (upgradient of the landfill) to the west (downgradient of the landfill). Based on the data, the groundwater also appears to have minimal vertical gradient between monitoring well MW-3, seeps SW-2 and SW-3, and likely monitoring well MW-2 (see "Cross Section B-B'", Figure 6).

Pressure Transducer Elevation Data

Haley & Aldrich collected data from In Situ Rugge Troll 100 pressure transducer (transducers) at MW-1, -3, -4, -5, and MW-7, and the In Situ BaroTROLL logger data from the top of the well monument at MW-1. We used the barometric data recorded to correct groundwater elevation data from each transducer. Haley & Aldrich reviewed and compared groundwater elevation data collected during the deployment between 31 January and 24 April 2024 (monitoring period). The groundwater elevations (collected by the transducers) are shown on "Hydrographs-Site Monitoring Wells" and "Hydrographs-Cross Gradient Monitoring Wells", Figures 7 and 8, respectively.

Groundwater elevation data indicates that during the monitoring period, groundwater generally increased by approximately 2 feet at MW-1, MW-3, and MW-7; and groundwater generally increased by approximately 0.5 feet at MW-4 and MW-5. Figure 7 indicates that groundwater elevations in monitoring wells MW-1, MW-3, and MW-7 ranged between approximately 2,123 and 2,125 feet (MW-1); 2,126 and 2,128 feet (MW-3); and 2,119 and 2,121 feet (MW-7) relative to NAVD 88. The highest groundwater elevations in these wells were observed during April 2024 (spring freshet) and the lowest groundwater elevations were observed during February 2024 (late winter).

According to Figure 8, the groundwater elevations at the cross-gradient monitoring wells ranged between approximately 2,194 and 2,195 feet (MW-4), and remained at approximately 2,194 feet NAVD88 at MW-5. Generally, the highest groundwater elevations at MW-4 and MW-5 during the monitoring period were observed approximately one month earlier (March 2024) when compared to monitoring wells MW-1, MW-3, and MW-7; the lowest elevations in monitoring wells MW-4 and MW-5 were observed during January 2024.

Based on the data collected during the April 2024 monitoring event, it appears that groundwater elevations likely did not intersect the approximate bottom elevation of the landfill during the monitoring period. The bottom elevation of landfill is approximately 10 feet higher than the highest groundwater elevation during the monitoring period (see boring D-4 on Figure 5).

GROUNDWATER SAMPLING

Haley & Aldrich purged and sampled monitoring wells MW-1, -3, and -4, using a submersible pump, dedicated sample tubing, and low-flow/low-stress sampling techniques. The monitoring wells were sampled when water quality parameters had stabilized. Haley & Aldrich measured temperature, pH, specific conductivity, turbidity, ORP, and DO (water quality parameters) during the purging process and collected groundwater samples when measured values fluctuated less than 10 percent between readings one minute apart. Water quality measurements recorded at stabilization are summarized in Table 1.

Haley & Aldrich collected groundwater samples by pumping the samples directly into containers provided by the laboratory. Haley & Aldrich field filtered groundwater samples collected for dissolved sodium using a 0.45-micron, in-line filter. Following sample collection, we then placed the samples in a cooler with ice until submitted to the laboratory for chemical analyses under chain of custody procedures.

SURFACE WATER SAMPLING

Surface water sample locations SW-3 and -5 were running freely during the sampling event; therefore, no purging or pumping was required to collect samples. Haley & Aldrich measured and recorded water quality parameters from each surface water sampling location prior to collecting samples; water quality measurements are summarized in Table 1. Haley & Aldrich collected surface water samples by placing a laboratory-supplied sample container directly into the flow of each source, and then placed the samples

in a cooler with ice until delivery to the laboratory for chemical analyses under chain of custody procedures.

UPGRADIENT WATER SAMPLING

On 29 April 2024, Haley & Aldrich collected samples DW-1 and -2 from external, potable water supply faucets at the residences upgradient of the Site. Prior to collecting samples, we purged the plumbing system for several minutes. We then measured water quality parameters (see Table 1) and collected water samples by allowing the water from each faucet to freely-flow directly into containers provided by the laboratory. Haley & Aldrich also collected a surface water sample from the SW-Upgradient sample location (see Figure 4) by placing a laboratory-supplied sample container directly into the flow of the unnamed stream source fed by a series of small upgradient seeps. The samples were placed in a cooler with ice until submitted to the laboratory for chemical analyses under chain of custody procedures. Dissolved sodium samples collected at the upgradient sample locations were filtered by the laboratory.

GAS VENT MONITORING

KAIC and Haley & Aldrich assessed ammonia concentrations from GV-9, -11, and -12 during the April 2024 compliance monitoring event. Haley & Aldrich monitored ammonia concentrations from the gas vents using a MultiRAE Series PGM 6228 calibrated (by the vendor, Pine Environmental), to measure ammonia concentrations between 0 and 99 parts per million (ppm). We measured ammonia concentrations at GV-9, -11, and -12 by placing the MultiRAE intake near the opening of each vent and recording measurements every six seconds for about one minute (10 readings total). Recorded measurements indicated ammonia concentrations ranged between 0 and 1 ppm at GV-11, 0 ppm at GV-12, and 1 to 2 ppm at GV-9 (see Figure 3).

Chemical Analytical Results

Haley & Aldrich submitted groundwater and surface water samples to Eurofins Environment Testing Northwest, LLC (Eurofins) in Spokane Valley, Washington, for chemical analyses. Groundwater and surface water analytical results are summarized in Tables 2 and 3, respectively. The analytical results also are shown in Figures 3 and 4, and the laboratory report is included with our data quality review in Appendix B, Quality Assurance Review and Analytical Laboratory Report.

Haley & Aldrich compared analytical results to the cleanup standards for chloride and nitrates established in the FCAP, which are as follows:

- 250 milligrams per liter (mg/L) for chloride based on the federal and state drinking water secondary maximum contaminant level; and
- 14 mg/L for nitrate based on background concentrations in nearby wells.

Chloride and nitrate cleanup levels in surface water are based on standards to protect human health based on an assumed drinking water beneficial use; Ecology has not established cleanup levels for these constituents for ecological receptors.

GROUNDWATER ANALYTICAL RESULTS

Eurofins analyzed groundwater samples collected from MW-1, -3, -4, DW-1, and -2 for the following COCs using the methods indicated:

- chloride (U.S. Environmental Protection Agency (EPA) Method 300.0);
- nitrate/nitrite as nitrogen (EPA Method 353.2);
- dissolved sodium (EPA Method 6010D); and
- TDS (Standard Method [SM] 2540C).

Chloride was detected in each of the groundwater sample locations sampled during the April 2024 sampling event. Chloride detections ranged between 19 mg/L in DW-1, and 540 mg/L in MW 3 (see Table 2); chloride concentrations only exceeded the cleanup standard in MW-3 and have decreased since the January 2024 monitoring event. Chloride concentrations over time for each groundwater sample location are shown in "Groundwater Chloride Concentrations Versus Time", Figure 9.

Nitrate/nitrite was detected in each of the groundwater sample locations sampled during the April 2024 sampling event. Nitrate/nitrite detections ranged between 15 mg/L in DW-1, and 25 mg/L in MW-4. Nitrate/nitrite concentrations exceeded the cleanup standard in each of the groundwater sampling locations, including the upgradient sample locations DW-1 and -2. Nitrate/nitrite concentrations increased in each monitoring well compared to concentrations detected during the January 2024 sampling event. Nitrate/nitrite concentrations for each groundwater location are shown on "Groundwater Nitrate/Nitrite Concentrations Versus Time", Figure 10.

Concentration trend plots for chloride and nitrate/nitrite for MW-1, MW-3, and MW-4 are shown on Figures 9 and 10, respectively. Figures 9 and 10 also show the groundwater elevation trend plots for MW-3, which represent seasonal groundwater elevation fluctuations for the Site. Plotted groundwater elevations indicate that seasonal groundwater elevations measured during monitoring events generally have been declining since April 2018, with an increase in groundwater elevation occurring during the April 2024 monitoring event.

Dissolved sodium and TDS were also analyzed and compared against previous sampling results but are not used to determine compliance with cleanup standards. Dissolved sodium and TDS were detected above the method reporting limits in each of the groundwater samples. Analytical results for monitoring wells indicate that concentrations are similar to results collected during recent spring sampling events (Table 2).

SURFACE WATER ANALYTICAL RESULTS

Eurofins analyzed surface water samples collected from SW-3, -5, and SW-Upgradient for the same COCs and used the same analytical methods described above. However, surface water samples were not field filtered and were analyzed for total sodium (EPA Method 6010C) instead of dissolved sodium.

Chloride was detected in each surface water monitoring locations, concentrations ranged between 5.5 and 230 mg/L at SW-Upgradient and SW-3, respectively. Analytical results indicate that surface water samples do not exceed the 250 mg/L cleanup standard and have decreased at SW-3, and -5 since the January 2024 monitoring event.

Nitrate/nitrite was detected in each surface water sample. Concentrations at SW-3 and -5 increased from the January 2024 sampling event, with concentrations of 15 and 5.2 mg/L, respectively. Nitrate/nitrite concentrations remained under the cleanup standard in SW-5; however, concentrations at SW-3 and SW-Upgradient exceeded the cleanup standard of 14 mg/L.

Concentration trend plots for chloride and nitrate/nitrite in surface water locations are shown on "Surface Water Chloride Concentrations Versus Time" and "Surface Water Nitrate/Nitrite Concentrations Versus Time", Figures 11 and 12, respectively. Figures 11 and 12 also show the groundwater elevation trend plot for monitoring well MW-3.

Dissolved sodium and TDS were detected above method reporting limits in each of the three surface water sample locations (Table 3). Analytical results indicate that concentrations in each of the surface water samples are similar to those observed during the previous winter sampling event.

Findings

As noted earlier in this report, on 10 June 2024, KAIC and Haley & Aldrich filled and repaired the burrow location at the east end of the landfill. The repairs included applying animal repellent and confirming that no animals were present within the burrow area. We then backfilled the burrow area with topsoil, planted an Ecology-approved seed mix, and wetted the newly seeded area to encourage vegetation growth. We then placed wire mesh on and around the burrow location to prevent further animal disturbance around the area.

Groundwater elevations indicate that the direction of groundwater flow is generally west to southwest as described in the Assessment Plan and the 2024 January Compliance Monitoring Report. Additionally, transducer data collected between January and April 2024 indicate that groundwater elevations at MW-1, -3, and 7 increased approximately 2 feet, while the groundwater elevations at the cross-gradient monitoring network (MW-4 and -5) increased approximately 0.5 feet during the monitoring period. Based on this, it appears that groundwater elevations at MW-1, -3, and -7 fluctuate a greater amount seasonally when compared to MW-4 and -5. This difference in seasonal elevations could indicate hydraulic mounding downgradient of the landfill potentially caused by varying permeability and/or slope of the Latah Formation sediments (see Figure 5).

The groundwater data collected by the transducers also indicate that the highest groundwater elevation during the monitoring period occurred at MW-4 (approximately 2,195 feet) and did not reach the bottom of the landfill elevation of approximately 2,205 feet (NAVD88). This indicates that there was an approximate vertical buffer of 10 feet between the bottom of the landfill and groundwater between January and April 2024.

Chemical analytical data indicate the sample collected from MW-3 was the only groundwater sample that exceeded the chloride cleanup standard of 250 mg/L (see Figure 9). Historically, chloride concentrations generally have fluctuated between the reconstruction of the cap and April 2024 compliance monitoring. When compared to recorded groundwater elevations at MW-3, it does not appear that recent changes in chloride concentrations are caused by changes in groundwater elevation (see Figure 9). Analytical data from the upgradient locations DW-1 and -2 indicate that chloride concentrations were less than the cleanup standard.

Chloride concentrations decreased in SW-3 and -5 between January and April 2024, and were less than cleanup standards during the April 2024 monitoring event (see Figure 11). Chloride concentrations at the background location SW-Upgradient were lower when compared to SW-3, and -5 concentrations.

Chemical analytical data indicate that nitrate/nitrite concentrations in MW-1, MW-3, and MW-4 increased to concentrations greater than cleanup standards compared to the previous monitoring event (Figure 10). Additionally, nitrate/nitrite concentrations in DW-1, and -2 samples exceeded cleanup standards. Chemical analytical data indicate that nitrate/nitrite concentrations increased in SW-3, and -5 between January and April 2024 (see Figure 12), and both SW-3 and SW-Upgradient samples contained concentrations greater than the cleanup standard.

Sincerely yours,
HALEY & ALDRICH, INC.

Ward McDonald, L.G.
Project Manager, Environmental Geologist

John Haney, P.E.
Senior Environmental Engineer

Attachments:

References

Table 1 – Groundwater Elevations and Field Parameters
Table 2 – Groundwater Chemical Analytical Results
Table 3 – Surface Water Chemical Analytical Results

Figure 1 – Vicinity Map
Figure 2 – April 2024 - Site Plan
Figure 3 – Contaminant Concentrations April 2024
Figure 4 – Upgradient Locations - Contaminant Concentrations April 2024
Figure 5 – Cross Section A-A'
Figure 6 – Cross Section B-B'
Figure 7 – Hydrographs- Site Monitoring Wells
Figure 8 – Hydrographs- Cross gradient Monitoring Wells
Figure 9 – Groundwater Chloride Concentrations Versus Time
Figure 10 – Groundwater Nitrate/Nitrite Concentrations Versus Time

References

1. Haley & Aldrich, Inc. (Haley & Aldrich), 2023a. Heglar Kronquist Landfill Annual Compliance Monitoring Report. 7 July.

2. Haley & Aldrich, 2023b. Heglar-Kronquist Landfill Mead Washington Assessment Plan. December.

3. Hart Crowser, Inc. (Hart Crowser), 2013a. Final Compliance Monitoring Plan Heglar Kronquist Site. 12 August.

4. Hart Crowser, 2013b. Final Institutional Controls Plan Heglar Kronquist Site. 12 August.

5. Hart Crowser, 2013c. Final Sampling and Analysis Plan and Quality Assurance Project Plan. 12 August.

6. Hart Crowser, 2015. Cleanup Action Construction Completion Report Heglar Kronquist Landfill. 4 August.

7. Washington State Department of Ecology (Ecology), 2012. Final Cleanup Action Plan Heglar Kronquist Site. October.

8. Ecology, 2013. Consent Decree No. 13202067-4.

TABLES

TABLE 1
GROUNDWATER AND SURFACE WATER ELEVATIONS AND FIELD PARAMETERS
HEGLAR KRONQUIST LANDFILL COMPLIANCE MONITORING
0202596-001
MEAD, WASHINGTON

Sample Location	Date of Measurement	Top of Casing Elevation in feet (NAVD88)	Depth to Water in feet btoc	Groundwater & Surface Water Elevation in feet above msl	Temperature [°C]	pH	Conductivity [µS/cm]	ORP [mV]	Turbidity [NTU]	DO [mg/L]
Monitoring Wells										
MW-1	30-Sep-10	*2,183.49*	--	--	--	--	*847*	--	--	--
	24-Jan-11	--	*58.76*	*2,124.73*	--	--	--	--	*5.17*	--
	25-Apr-11	--	*54.80*	*2,128.69*	*10.74*	*6.93*	*2,010*	--	*5.09*	--
	28-Oct-15	--	60.96	2,122.53	12.13	6.97	570	187	342	8.71
	26-Jan-16	--	60.35	2,123.14	8.76	6.99	565	113	35.0	8.76
	22-Apr-16	--	58.04	2,125.45	11.56	7.05	428	103	60.1	9.00
	26-Jul-16	--	58.40	2,125.09	11.72	7.42	616	47	1.40	8.98
	21-Oct-16	--	59.70	2,123.79	11.52	7.88	1,197	96	34.6	8.89
	24-Jan-17	--	59.38	2,124.11	10.57	6.94	567	257	3.70	8.59
	24-Apr-17	--	44.86	2,138.63	12.52	6.86	2,397	151	2.20	9.24
	20-Jul-17	--	47.05	2,136.44	13.14	6.58	1,965	243	3.40	9.05
	10-Jan-18	--	52.80	2,130.69	10.20	6.94	837	224	0.94	9.36
	19-Apr-18	--	46.42	2,137.07	12.33	6.95	1,024	175	23.1	9.09
	12-Oct-18	--	52.84	2,130.65	11.70	7.14	864	218	0.72	8.79
	12-Apr-19	--	53.69	2,129.80	11.19	7.06	802	85	0.00	8.40
	23-Oct-19	--	56.51	2,126.98	11.42	6.84	780	216	3.37	8.79
	4-May-20	--	56.42	2,127.07	11.30	6.85	1,120	205	0.83	8.78
	15-Oct-20	--	57.35	2,126.14	11.26	6.93	801	164	0.00	9.28
	21-Apr-21	--	57.65	2,125.84	12.60	7.15	654	88	1.09	8.73
	21-Apr-22	--	59.27	2,124.22	10.80	6.91	561	79	2.51	8.90
	26-Apr-23	--	59.56	2,123.93	11.90	7.06	777	135	3.38	8.73
	31-Jan-24	--	60.83	2,122.66	10.90	6.91	778	185	19.98	8.87
	24-Apr-24	--	58.91	2,124.58	11.10	7.00	535	163	4.78	8.86
MW-2	30-Sep-10	*2,186.19*	--	--	--	--	*1,129*	--	--	--
	24-Jan-11	--	*65.80*	*2,120.39*	*7.60*	*7.03*	*590*	--	*41.6*	--
	25-Apr-11	--	*61.52*	*2,124.67*	*10.59*	*7.15*	*906*	--	*3.45*	--
	28-Oct-15	--	67.04	2,119.15	11.08	7.07	749	197	24.7	8.25
	26-Jan-16	--	67.27	2,118.92	10.94	7.07	675	104	0.100	7.42
	22-Apr-16	--	64.52	2,121.67	11.15	7.27	1,649	125	20.1	8.44
	26-Jul-16	--	64.86	2,121.33	12.03	7.40	666	40	12.3	7.81
	24-Oct-16	--	66.21	2,119.98	11.39	7.23	714	117	1.60	8.22
	24-Jan-17	--	65.95	2,120.24	10.61	7.11	1,131	178	7.00	8.11
	24-Apr-17	--	56.46	2,129.73	11.89	7.01	1,536	151	62.2	8.58
	20-Jul-17	--	57.99	2,128.20	12.20	6.63	2,209	142	7.40	8.33
	10-Jan-18	--	60.52	2,125.67	--	--	--	--	--	--
	19-Apr-18	2186.38	56.50	2,129.88	12.07	7.04	1,012	178	38.4	8.95
	12-Oct-18	--	60.43	2,125.95	11.97	7.10	1,092	197	629	8.39
	12-Apr-19	--	60.89	2,125.49	11.45	7.12	885	78	6.31	8.33
	23-Oct-19	--	62.64	2,123.74	10.88	7.15	990	212	2.65	8.33
	4-May-20	--	62.60	2,123.78	11.09	6.97	1,190	110	1.66	8.71
	15-Oct-20	--	63.55	2,122.83	10.89	7.00	953	155	0	8.81
	21-Apr-21	--	63.83	2,122.55	10.80	7.13	684	76	1.98	7.53
	21-Apr-22	--	65.57	2,120.81	10.70	6.96	634	161	3.67	8.11
	26-Apr-23	--	65.94	2,120.44	11.10	7.12	884	135	2.26	7.95
	Currently unuseable due to blockage at approximately 65.5 feet below top of casing observed during January 2024. Discontinued sampling based on 2023 Assessment Report.									
MW-3	1-Oct-10	*2,176.18*	--	--	--	--	*2,965*	--	--	--
	25-Jan-11	--	*55.21*	*2,120.97*	--	--	--	--	*4.30*	--
	26-Apr-11	--	*51.03*	*2,125.15*	*10.25*	*7.78*	*2,787*	--	*4.81*	--
	28-Oct-15	--	56.69	2,119.49	11.47	6.91	2,067	187	33.5	7.62
	26-Jan-16	--	56.84	2,119.34	10.98	6.62	2,051	132	12.6	7.54
	22-Apr-16	--	54.07	2,122.11	11.88	7.11	5,492	135	18.4	8.18
	26-Jul-16	--	54.35	2,121.83	11.66	6.93	2,030	54	10.3	7.83
	21-Oct-16	--	55.77	2,120.41	12.04	8.27	2,660	91	41.3	7.73
	24-Jan-17	--	55.54	2,120.64	10.74	6.74	1,963	199	7.20	7.67
	24-Apr-17	--	45.01	2,131.17	11.94	6.75	3,321	159	6.00	9.33
	20-Jul-17	--	46.49	2,129.69	12.98	6.67	3,305	254	7.80	7.77
	10-Jan-18	--	49.70	2,126.48	10.45	6.87	2,325	230	17.9	8.26
	19-Apr-18	--	45.19	2,130.99	11.93	6.60	2,305	210	12.2	7.99
	12-Oct-18	--	49.55	2,126.63	11.70	6.86	2,113	222	15.0	7.54
	12-Apr-19	--	50.14	2,126.04	11.28	6.66	2,103	117	3.50	7.48
	23-Oct-19	--	52.05	2,124.13	11.55	6.91	2,140	211	185	7.57
	4-May-20	--	52.03	2,124.15	11.35	6.80	2,650	250	3.50	7.80
	15-Oct-20	--	52.98	2,123.20	11.43	6.75	2,129	173	0.00	7.96
	21-Apr-21	--	53.29	2,122.89	11.40	7.14	1,612	93	2.32	7.79
	21-Apr-22	--	55.08	2,121.10	11.00	6.67	1,617	195	2.21	7.97
	26-Apr-23	--	55.45	2,120.73	12.30	6.84	2,162	146	6.80	7.77
	31-Jan-24	--	56.90	2,119.28	10.40	6.65	2,397	182	5.85	7.59
	24-Apr-24	--	54.90	2,121.28	11.50	6.80	1,457	135	9.58	7.96
MW-4	30-Sep-10	*2,247.25*	--	--	--	--	*1,411*	--	--	--
	24-Jan-11	--	*51.98*	*2,195.27*	--	--	--	--	*13.3*	--
	26-Apr-11	--	*51.13*	*2,196.12*	*10.48*	*7.33*	*3,914*	--	*2.74*	--
	28-Oct-15	--	53.90	2,193.35	11.45	6.92	830	167	3.20	0.13
	26-Jan-16	--	52.56	2,194.69	11.14	6.81	810	122	13.4	0.06
	22-Apr-16	--	52.39	2,194.86	11.47	6.85	1,491	145	15.4	0.25
	26-Jul-16	--	52.60	2,194.65	11.73	7.06	1,172	45	5.10	0.02
	21-Oct-16	--	52.99	2,194.26	11.30	7.52	1,514	96	5.40	0.11

Please see notes on the last page.

TABLE 1
GROUNDWATER AND SURFACE WATER ELEVATIONS AND FIELD PARAMETERS
HEGLAR KRONQUIST LANDFILL COMPLIANCE MONITORING
0202596-001
MEAD, WASHINGTON

Sample Location	Date of Measurement	Top of Casing Elevation in feet (NAVD88)	Depth to Water in feet btoc	Groundwater & Surface Water Elevation in feet above msl	Temperature [°C]	pH	Conductivity [µS/cm]	ORP [mV]	Turbidity [NTU]	DO [mg/L]
Monitoring Wells										
Monitoring Wells (Continued)										
MW-4 Continued	24-Jan-17	*2,247.25*	52.58	2,194.67	10.80	6.83	1,128	203	7.50	0.13
	24-Apr-17	--	47.99	2,199.26	11.83	6.72	1,759	153	14.7	0.66
	20-Jul-17	--	50.00	2,197.25	12.25	6.73	2,248	182	2.70	0.64
	10-Jan-18	--	50.59	2,196.66	10.55	6.90	991	220	1.40	0.59
	19-Apr-18	--	48.62	2,198.63	10.11	6.94	763	248	8.70	9.47
	12-Oct-18	--	51.48	2,195.77	11.45	6.83	940	215	8.70	0.29
	12-Apr-19	--	51.17	2,196.08	11.53	6.91	809	67	0.00	0.20
	23-Oct-19	--	52.39	2,194.86	11.16	6.84	820	230	11.2	0.50
	4-May-20	--	52.14	2,195.11	11.30	6.64	1,000	210.7	0.26	0.10
	15-Oct-20	--	52.54	2,194.71	11.17	6.83	810	169.1	0.00	0.15
	21-Apr-21	--	52.41	2,194.84	13.50	6.95	623	60.1	5.68	8.32
	21-Apr-22	--	53.54	2,193.71	11.00	6.61	558	185.3	7.27	0.63
	26-Apr-23	--	53.11	2,194.14	11.20	6.86	783	145.1	2.40	0.00
	31-Jan-24	--	53.08	2,194.17	10.30	6.84	780	107.8	14.74	0.70
	24-Apr-24	--	52.72	2,194.53	11.50	6.73	507	111.7	4.06	0.01
MW-5	29-Sep-10	*2,228.26*	--	--	--	--	*778*	--	--	--
	23-Jan-11	--	*33.96*	*2,194.30*	*8.50*	*7.40*	*694*	--	*3.07*	--
	25-Apr-11	--	*33.58*	*2,194.68*	*9.86*	*6.99*	*780*	--	*3.67*	--
	28-Oct-15	--	35.36	2,192.90	10.35	7.31	569	176	65.3	9.07
	26-Jan-16	--	34.27	2,193.99	9.96	7.20	538	133	5.30	9.11
	22-Apr-16	--	34.17	2,194.09	10.45	7.21	1,216	163	8.20	9.60
	26-Jul-16	--	34.40	2,193.86	11.01	7.21	533	69	6.70	9.02
	21-Oct-16	--	34.66	2,193.60	10.52	10.69	559	75	7.20	9.04
	24-Jan-17	--	34.35	2,193.91	9.98	7.21	1,016	147	11.4	8.90
	24-Apr-17	--	32.69	2,195.57	10.13	7.09	1,449	230	4.10	10.2
	10-Jan-18	--	33.40	2,194.86	9.34	7.34	860	231	3.60	9.66
	19-Apr-18	--	32.73	2,195.53	10.11	6.94	763	248	8.70	9.47
	12-Oct-18	--	33.86	2,194.40	9.95	7.17	848	236	13.6	8.80
	12-Apr-19	--	33.57	2,194.69	10.12	7.26	750	149	0.00	9.10
	23-Oct-19	--	34.19	2,194.07	9.91	7.31	800	227	1.59	9.01
	4-May-20	--	34.06	2,194.20	10.08	7.04	950	237	2.28	9.41
	15-Oct-20	--	34.28	2,193.98	9.91	7.12	766	193	0.00	9.58
	21-Apr-21	--	34.19	2,194.07	9.90	6.83	541	91	4.29	8.30
	21-Apr-22	--	34.98	2,193.28	9.40	7.14	520	161	5.70	9.46
	26-Apr-23	--	34.63	2,193.63	10.1	7.17	775	160	3.05	9.31
	31-Jan-24	--	34.69	2,193.57	**Discontinued sampling based on 2023 Assessment Report**					
	24-Apr-24**	--	34.33	2,193.93						
MW-6	26-Jan-16	--	--	--	--	--	--	--	--	--
	22-Apr-16	--	--	--	--	--	--	--	--	--
	Well damaged, decomissioned, and replaced with MW-7.									
MW-7	26-Jul-16	2166.67*	44.99	2,121.68	10.60	7.20	420	54	22.00	9.97
	21-Oct-16	--	46.38	2,120.29	10.46	10.46	427	72	15.80	9.50
	24-Jan-17	--	46.13	2,120.54	9.75	7.00	402	150	25.00	8.79
	24-Apr-17	--	36.01	2,130.66	9.21	7.08	1,335	177	4.80	9.16
	10-Jan-18	--	40.55	2,126.12	9.56	7.14	696	228	3.80	8.52
	19-Apr-18	--	38.18	2,128.49	8.76	7.10	609	211	0.47	8.60
	12-Oct-18	--	40.45	2,126.22	9.58	7.05	726	226	16.50	7.71
	12-Apr-19	--	40.88	2,125.79	10.11	7.09	634	99	8.35	8.09
	23-Oct-19	--	42.64	2,124.03	9.71	7.11	670	221	12.34	8.05
	4-May-20	--	42.60	2,124.07	9.94	6.81	780	173	2.01	8.73
	15-Oct-20	--	43.59	2,123.08	9.76	6.41	641	179	0.00	8.46
	21-Apr-21	--	43.88	2,122.79	11.60	7.21	468	80	6.82	7.95
	21-Apr-22	--	45.65	2,121.02	9.60	6.85	452	180	5.94	8.44
	26-Apr-23	--	46.02	2,120.65	9.7	6.99	668	153	5.27	8.18
	31-Jan-24	--	47.48	2,119.19	**Discontinued sampling based on 2023 Assessment Report**					
	24-Apr-24**	--	45.44	2,121.23						
Domestic Wells										
DW-1	29-Apr-24	--	--	--	10.10	7.30	709	209	0.51	10.03
DW-2	29-Apr-24	--	--	--	10.60	7.06	770	218	18.87	8.74
Surface Springs										
SW-1	14-May-10	--	--		--	--	*694*	--	--	--
	28-Oct-15	--	--		9.73	7.11	1,194	183	10.4	8.51
	26-Jan-16	--	--		8.46	7.35	444	94	0.00	7.87
	22-Apr-16	--	--		11.12	7.56	2,023	128	1.10	7.89
	26-Jul-16	--	--		14.29	7.30	479	38	0.00	7.06
	21-Oct-16	--	--		10.21	9.80	472	140	0.80	8.73
	24-Jan-17	--	--		7.21	7.68	394	207	0.00	11.77
	24-Apr-17	--	--		9.24	7.24	1,370	171	0.90	9.03
	10-Jan-18	--	--	2149.69	7.87	7.32	713	241	0.80	10.35
	19-Apr-18	--	--		9.44	7.09	615	220	0.64	8.64
	12-Oct-18	--	--		9.57	6.99	694	249	10.5	8.74
	12-Apr-19	--	--		9.54	7.23	595	93	3.38	8.34
	23-Oct-19	--	--		8.77	7.19	650	230	0.00	9.11
	4-May-20	--	--		11.95	7.77	690	233	0.01	8.81
	15-Oct-20	--	--		8.32	7.18	635	176	0.00	10.14
	21-Apr-21	--	--		6.90	7.29	420	80	0.00	7.92
	21-Apr-22	--	--		7.60	7.12	422	195	0.00	11.07
	26-Apr-23	--	--		8.7	7.29	671	123	0.46	9.67
		--	--							
SW-3	14-May-10	--	--		--	--	*1,577*	--	--	--
	28-Oct-15	--	--		9.68	7.14	1,207	182	0.90	8.49
	26-Jan-16	--	--	2,116.48	9.14	6.85	1,275	116	0.00	7.96
	22-Apr-16	--	--		12.62	7.45	4,119	135	41.3	8.08
	26-Jul-16	--	--		9.73	7.69	1,219	36	7.40	7.75
	21-Oct-16	--	--		9.77	7.36	880	122	0.00	8.63

Please see notes on the last page.

TABLE 1
GROUNDWATER AND SURFACE WATER ELEVATIONS AND FIELD PARAMETERS
HEGLAR KRONQUIST LANDFILL COMPLIANCE MONITORING
0202596-001
MEAD, WASHINGTON

Sample Location	Date of Measurement	Top of Casing Elevation in feet (NAVD88)	Depth to Water in feet btoc	Groundwater & Surface Water Elevation in feet above msl	Temperature [°C]	pH	Conductivity [µS/cm]	ORP [mV]	Turbidity [NTU]	DO [mg/L]
Monitoring Wells										
Surface Springs (Continued)										
SW-3 Continued	24-Jan-17	--	--	2,116.48	9.22	7.39	1,452	271	0.00	11.06
	24-Apr-17	--	--		10.39	7.22	2,179	169	1.20	8.51
	10-Jan-18	--	--		9.80	7.10	1,407	232	0.70	8.04
	19-Apr-18	--	--		10.99	6.73	1,225	231	13.9	7.53
	12-Oct-18	--	--		11.20	7.04	1,317	233	31.0	7.11
	12-Apr-19	--	--		11.14	7.10	1,071	94	0.00	7.63
	23-Oct-19	--	--		9.56	7.11	1,200	201	0.00	8.49
	4-May-20	--	--		10.23	7.21	1,380	205	0.00	8.79
	15-Oct-20	--	--		9.64	7.06	1,173	176	0.00	8.89
	21-Apr-21	--	--		9.70	7.42	839	83	4.02	6.63
	21-Apr-22	--	--		9.60	7.05	889	190	204.62	9.18
	26-Apr-23	--	--		9.70	7.23	493	134	16.44	9.03
	31-Jan-24	--	--		9.60	7.03	711	185	49.09	8.94
	24-Apr-24	--	--		9.70	6.98	833	270	162.27	8.59
SW-5	14-May-10	--	--	2,058.38	--	--	*1,403*	--	--	--
	28-Oct-15	--	--		--	--	--	--	--	--
	26-Jan-16	--	--		--	--	--	--	--	--
	22-Apr-16	--	--		--	--	--	--	--	--
	26-Jul-16	--	--		--	--	--	--	--	--
	21-Oct-16	--	--		--	--	--	--	--	--
	24-Jan-17	--	--		1.68	7.56	1,214	323	33.0	9.90
	24-Apr-17	--	--		16.30	7.76	1,424	172	4.30	8.90
	10-Jan-18	--	--		3.60	7.82	1,163	240	4.80	10.49
	19-Apr-18	--	--		19.74	8.14	876	160	26.4	8.45
	12-Oct-18	--	--		11.70	7.76	823	242	63.0	8.23
	12-Apr-19	--	--		11.78	7.87	1,021	74	9.61	7.97
	23-Oct-19	--	--		8.51	7.86	1,140	188	0.00	9.45
	4-May-20	--	--		13.93	7.79	1,530	208	4.55	8.68
	15-Oct-20	--	--		7.89	7.64	1,061	143	0.00	10.08
	21-Apr-21	--	--		15.50	7.48	954	63	5.20	11.47
	21-Apr-22	--	--		7.30	7.55	823	193	109.40	192.80
	26-Apr-23	--	--		14.80	7.91	611	142	31.24	9.76
	31-Jan-24	--	--		1.60	7.76	864	119	396.76	12.04
	24-Apr-24	--	--		9.70	6.98	864	119	396.76	12.04
SW-Upgradient	29-Apr-24	--	--	--	10.40	7.56	578	190	68.66	10.21

Notes:
Top of casing elevation measured from the top of inner PVC casing (Survey completed in 2010 by Exponent).
Italicized parameters are from Exponent's Final Remedial Investigation Report (September 9, 2011) and Final Feasibility Study (May 4, 2012), prior to implementation of the Final Cleanup Action Plan.
** = Casing elevation determined by measuring the difference in casing elevations between MW-6 and MW-7 during installation of MW-7 on June 16, 2016.*
-- = Not applicable for surface water locations/water quality parameters not measured during sampling event.

2023 Assessment Report refers to "Heglar-Kronquist Landfill Assessment Report" dated December 2023.
*** = The groundwater elevation is an average of four daily measurements collected by the transducer at each monitoring well. The depth to water measurement was calculated by subtracting the top of casing elevation from the daily average groundwater elevation.*

°C = degrees Celsius
µ S/cm = microsiemens per centimeter
btoc = below top of casing
NAVD88 = North American Vertical Datum of 1988.
DO = dissolved oxygen
mg/L = milligrams per liter
mV = millivolts
msl = mean sea level
NTU = nephelometric turbidity units
ORP = oxidation-reduction potential

TABLE 2
GROUNDWATER CHEMICAL ANALYTICAL RESULTS
HEGLAR KRONQUIST LANDFILL COMPLIANCE MONITORING
0202596-001
MEAD, WASHINGTON

Sample Location	Date	Chloride	Dissolved Sodium	Nitrate/ Nitrite as Nitrogen*	Total Dissolved Solids
Monitoring Wells		**Concentrations in mg/L**			
MW-1	*30-Sep-10*	***77.2***	***84.2***	***17.70***	***489***
	24-Jan-11	***70.7***	***85.5***	***17.90***	***532***
	25-Apr-11	***425***	***166***	***31.50***	***1,190***
	28-Oct-15	44.1	83.9	14.70	507
	26-Jan-16	52.6	84.6	17.00	487
	22-Apr-16	77.1	93.1	19.20	529
	26-Jul-16	85.6	90.2	21.30 J	650 J
	21-Oct-16	74.6	81.0	21.80	596
	24-Jan-17	81.2	91.3	20.10	576
	24-Apr-17	316	185	44.90	1,140
	20-Jul-17	118	123	33.10	726
	10-Jan-18	50.6	88.9	23.90	600
	19-Apr-18	86.9	106	31.60	637
	12-Oct-18	34.8	81.6	22.10	491
	12-Apr-19	42.9	84.6	24.70	504
	23-Oct-19	35.3	75.3	19.60	484
	4-May-20	77.0	82.5	23.50	585
	15-Oct-20	50.6	72.3	23.90	539
	21-Apr-21	75.0	75.0	1.40	410
	21-Apr-22	59	63	22	50
	26-Apr-23	52	67	4.4	490
	31-Jan-24	50	64	1.3	500
	24-Apr-24	60	65	19	490
MW-2	*30-Sep-10*	***155***	***29.0***	***8.97***	***657***
	24-Jan-11	***55.6***	***24.3***	***9.36***	***457***
	25-Apr-11	***83.5***	***28.3***	***8.13***	***552***
	28-Oct-15	99.5	25.6	10.4	640
	26-Jan-16	85.0	26.0	9.12	549
	22-Apr-16	57.9	29.1	7.81	499
	26-Jul-16	82.7	25.5	10.1 J	737 J
	24-Oct-16	89.9	24.0	13.00	592
	24-Jan-17	91.1	23.8	11.90	600
	24-Apr-17	48.8	27.9	8.65	494
	20-Jul-17	94.2	30.2	8.50	585
	10-Jan-18	--	--	--	--
	19-Apr-18	93.5	30.5	13.20	600
	12-Oct-18	85.5	31.0	15.90	631
	12-Apr-19	80.5	32.4	14.50	589
	23-Oct-19	67.0	37.9	15.40	630
	4-May-20	67.9	27.4	14.60	641
	15-Oct-20	65.1	26.8	16.60	617
	21-Apr-21	77.0	26.0	1.10	520
	21-Apr-22	76	23	14.00	560
	26-Apr-23	67	27	2.0	460
	Discontinued sampling based on 2023 Assessment Report				

Please see notes on the last page.

TABLE 2
GROUNDWATER CHEMICAL ANALYTICAL RESULTS
HEGLAR KRONQUIST LANDFILL COMPLIANCE MONITORING
0202596-001
MEAD, WASHINGTON

Sample Location	Date	Chloride	Dissolved Sodium	Nitrate/ Nitrite as Nitrogen*	Total Dissolved Solids
Monitoring Wells		Concentrations in mg/L			
MW-3	*1-Oct-10*	*788*	*235.0*	*31.40*	*1,980*
	25-Jan-11	*656*	*258.0*	--	*1,600 J*
	26-Apr-11	*741*	*274.0*	*31.10*	*1,710*
	28-Oct-15	671	299.0	23.7	1,670
	26-Jan-16	679	295.0	24.4	1,680
	22-Apr-16	607	276.0	21.5	1,530
	26-Jul-16	615	266.0	22.1 J	1,700 J
	21-Oct-16	578	272.0	24.90	1,410
	24-Jan-17	561	259.0	23.90	1,360
	24-Apr-17	678	272.0	38.80	1,590
	20-Jul-17	525	231.0	37.70	1,420
	10-Jan-18	462	215.0	0.66	1,370
	19-Apr-18	493	228.0	36.20	1,320
	12-Oct-18	381	196.0	30.60	1,140
	12-Apr-19	475	227.0	26.00	1,160
	23-Oct-19	444	222.0	24.40	1,210
	4-May-20	480	226.0	21.70	1,310
	15-Oct-20	458	215.0	23.40	1,300
	21-Apr-21	590	230.0	1.90	1,200
	21-Apr-22	710	210	22	1,200
	23-Apr-23	540	220	3.4	1,200
	31-Jan-24	620	210	1.3	1,200
	24-Apr-24	540	200	18	1,200
MW-4	*30-Sep-10*	*175*	*82.3*	*42.00*	*883*
	24-Jan-11	*445*	*154*	*53.80*	*1,550*
	26-Apr-11	*943*	*254*	*76.30*	*2,210*
	28-Oct-15	97.2	81.4	36.3	717
	26-Jan-16	97.0	76.1	35.3	679
	22-Apr-16	124	85.5	43	804
	26-Jul-16	121	78.4	43.9 J	1,050 J
	21-Oct-16	90.6	68.3	46.40	754
	24-Jan-17	76.1	71.8	40.70	765
	24-Apr-17	44.7	64.7	38.90	671
	20-Jul-17	40.6	60.8	37.50	653
	10-Jan-18	33.5	58.1	35.60	655
	19-Apr-18	32.0	57.2	22.10	529
	12-Oct-18	28.8	59.2	33.70	647
	12-Apr-19	24.1	57.6	36.40	593
	23-Oct-19	19.0	45.8	28.40	615
	4-May-20	21.4	48.7	25.00	558
	15-Oct-20	30.3	49.0	29.80	579
	21-Apr-21	29.0	43.0	5.90	510
	21-Apr-22	26	34	29	510
	23-Apr-23	26	49	5.4	670
	31-Jan-24	28	45	1.5	660
	24-Apr-24	24	38	25	670

Please see notes on the last page.

TABLE 2
GROUNDWATER CHEMICAL ANALYTICAL RESULTS
HEGLAR KRONQUIST LANDFILL COMPLIANCE MONITORING
0202596-001
MEAD, WASHINGTON

Sample Location	Date	Chloride	Dissolved Sodium	Nitrate/ Nitrite as Nitrogen*	Total Dissolved Solids
Monitoring Wells		**Concentrations in mg/L**			
MW-4 Field Duplicate (MW-400)	28-Oct-15	94.8	78.8	36.5	709
	26-Jan-16	70.7	74.4	35	697
	22-Apr-16	122	85.9	43.3	824
	26-Jul-16	116	80.8	42.9	1,050
	21-Oct-16	91.0	70.1	46.90	753
	24-Jan-17	74.5	70.2	40.90	709
	24-Apr-17	43.6	67.6	39.10	649
	20-Jul-17	39.9	60.4	36.60	648
	10-Jan-18	34.2	59.0	35.80	656
	19-Apr-18	31.8	57.9	21.30	526
	12-Oct-18	27.9	61.2	32.40	612
	12-Apr-19	24.8	59.8	36.50	592
	23-Oct-19	20.1	45.2	28.70	569
	4-May-20	21.9	48.8	24.90	561
	15-Oct-20	24.5	48.7	30.40	588
	21-Apr-21	23.0	43.0	5.90	490
	21-Apr-22	26	35	29	530
	26-Apr-23	25	47	6.3	500
	31-Jan-24	28	45	1.2	510
	24-Apr-24	24	41	25	500
MW-5	*29-Sep-10*	*19.4*	*32.1*	*14.40*	*496*
	23-Jan-11	*17.9*	*31.8*	*14.20*	*500*
	25-Apr-11	*18.9*	*32.2*	*13.20*	*488*
	28-Oct-15	17.2	37.3	13	504
	26-Jan-16	15.3	33.4	13.4	491
	22-Apr-16	19.1	33.3	12.4	508
	26-Jul-16	20.9	33.3	13.4 J	573 J
	21-Oct-16	18.9	33.2	14.90	503
	24-Jan-17	18.6	33.8	13.70	481
	24-Apr-17	19.9	31.6	11.40	462
	20-Jul-17	19.4	31.4	12.10	481
	10-Jan-18	19.3	31.4	13.20	508
	19-Apr-18	18.7	31.1	12.50	475
	12-Oct-18	18.0	33.0	13.30	472
	12-Apr-19	18.7	34.1	13.30	459
	23-Oct-19	17.6	34.2	13.90	512
	4-May-20	18.5	34.1	12.40	503
	15-Oct-20	17.5	33.1	14.40	528
	21-Apr-21	20.0	32.0	1.70	450
	21-Apr-22	19	31	15	540
	26-Apr-23	19	33	2.6	350
	Discontinued sampling based on 2023 Assessment Report				

Please see notes on the last page.

TABLE 2
GROUNDWATER CHEMICAL ANALYTICAL RESULTS
HEGLAR KRONQUIST LANDFILL COMPLIANCE MONITORING
0202596-001
MEAD, WASHINGTON

Sample Location	Date	Chloride	Dissolved Sodium	Nitrate/ Nitrite as Nitrogen*	Total Dissolved Solids
Monitoring Wells		**Concentrations in mg/L**			
MW-6	*29-Sep-10*	***15.6***	***18.6***	***4.95***	***545***
	23-Jan-11	***19.0***	***23.6***	***7.04***	***425***
	25-Apr-11	***19.3***	***24.2***	***7.65***	***430***
	28-Oct-15	Well damaged, no sample collected.			
	26-Jun-16	Well decommissioned.			
MW-7	26-Jul-16	**19.3**	**25.0**	**7.01**	**521**
	21-Oct-16	**17.6**	**23.1**	**7.30**	**394**
	24-Jan-17	**19.8**	**26.0**	**7.56**	**397**
	24-Apr-17	**19.4**	**24.4**	**7.06**	**403**
	20-Jul-17	**20.7**	**25.7**	**7.88**	**423**
	10-Jan-18	**20.8**	**25.0**	**8.58**	**429**
	19-Apr-18	**17.3**	**24.8**	**6.19**	**383**
	12-Oct-18	**19.5**	**26.2**	**8.20**	**424**
	12-Apr-19	**19.6**	**27.5**	**8.61**	**408**
	23-Oct-19	**18.8**	**26.5**	**8.42**	**417**
	4-May-20	**19.2**	**26.1**	**7.91**	**433**
	15-Oct-20	**26.2**	**25.2**	**9.20**	**418**
	21-Apr-21	**23.0**	**25.0**	**1.10**	**490**
	21-Apr-22	**24**	**24**	**10**	**460**
	26-Apr-23	**22**	**28**	**1.8**	**360**
	Discontinued sampling based on 2023 Assessment Report				
Domestic Wells					
DW-1	29-Apr-24	**19.0**	**33.0**	**15.0**	**290**
DW-2	29-Apr-24	**26.0**	**29.0**	**19.0**	**280**
Federal or State Cleanup Standard		250	--	14.0	--

Notes:

Bold *denotes a detected concentration.*

Italicized values are from Exponent's Final Remedial Investigation Report (September 9, 2011) and Final Feasibility Study (May 4, 2012), prior to implementation of the Final Cleanup Action Plan.

Shaded cell denotes concentrations that meet or exceed the cleanup standard. The exceeded cleanup standard is also shaded.

Chloride cleanup level based on federal and state drinking water secondary maximum contaminant level based on taste and odor concerns.

Nitrite cleanup level based on background concentrations in groundwater.

EPA's recommended range for sodium for most individuals is 30,000 to 60,000 micrograms per liter (µg/L) based on aesthetic effects (taste). The EPA recommended level for sodium-sensitive consumers is 20,000 µg/L (see WAC 246-290-310(3)(a)). The upper limit of EPA's recommended range for most individuals of 60,000 µg/L is used for comparison.

2023 Assessment Report refers to "Heglar-Kronquist Landfill Assessment Report" dated December 2023.

** = results beginning October 2015 are nitrate and nitrite as nitrogen.*

-- = not analyzed for or not available.

J = estimated value.

mg/L = milligrams per liter.

TABLE 3
SURFACE WATER CHEMICAL ANALYTICAL RESULTS
HEGLAR KRONQUIST LANDFILL COMPLIANCE MONITORING
0202596-001
MEAD, WASHINGTON

Sample Location	Date	Chloride	Total Sodium	Nitrate/ Nitrite as Nitrogen*	Total Dissolved Solids
Surface Spring		**Concentrations in mg/L**			
SW-2	*14-May-10*	***21.7***	***27.5***	***9.9 J***	***408***
SW-1	28-Oct-15	*SW-2 dry during sampling event. Relocate sample location to SW-1.*			
	26-Jan-16	20.7	25.5	9.0	419
	22-Apr-16	20.0	26.4	8.4	431
	26-Jul-16	21.6	25.7	8.3 J	576 J
	21-Oct-16	20.6	27.0	10.0	443
	24-Jan-17	21.7	27.0	9.5	422
	24-Apr-17	20.0	27.6	8.1	413
	20-Jul-17	20.9	25.4	7.1	410
	10-Jan-18	21.1	25.1	8.4	428
	19-Apr-18	17.6	24.6	7.69	387
	12-Oct-18	19.0	25.7	7.58	407
	12-Apr-19	19.9	27.1	9.02	401
	23-Oct-19	19.2	26.6	9.04	422
	4-May-20	20.5	26.5	8.68	415
	15-Oct-20	20.0	25.9	9.9	420
	21-Apr-21	24.0	25.0	1.3	380
	21-Apr-22	24	23	11	460
	26-Apr-23	23	24	2.0	280
	Discontinued sampling based on 2023 Assessment Report				
SW-3	*14-May-10*	***301***	***111.0***	***18.0 J***	***821***
	28-Oct-15	272	130.0	15.3	932
	26-Jan-16	269	116.0	15.7	925
	22-Apr-16	256	118.0	14.4	860
	26-Jul-16	251	112.0	15.0 J	1,110 J
	21-Oct-16	259	115.0	16.7	848
	24-Jan-17	258	120.0	15.3	825
	24-Apr-17	261	119.0	16.6	878
	20-Jul-17	283	126.0	20.1	907
	10-Jan-18	200	103.0	17.8	842
	19-Apr-18	182	98.2	16.5	698
	12-Oct-18	181	103.0	16.6	728
	12-Apr-19	168	97.1	16.5	701
	23-Oct-19	146	91.2	14.5	700
	4-May-20	157	89.1	13.1	681
	15-Oct-20	158	90.4	15.5	702
	21-Apr-21	190	95.0	2.4	650
	21-Apr-22	290	88	17	670
	26-Apr-23	240	100	2.9	600
	31-Jan-24	260	94	0.9	590
	24-Apr-24	240	91	15	600
SW-3 Field Duplicate	28-Oct-15	265	121.0	15.1	887
	26-Jan-16	273	116.0	15.7	912
	22-Apr-16	247	115.0	14.4	881
	26-Jul-16	250	111.0	15.0 J	1,090 J
	21-Oct-16	250	117.0	16.6	862
	24-Jan-17	253	119.0	15.3	826

Please see notes on the last page.

TABLE 3
SURFACE WATER CHEMICAL ANALYTICAL RESULTS
HEGLAR KRONQUIST LANDFILL COMPLIANCE MONITORING
0202596-001
MEAD, WASHINGTON

Sample Location	Date	Chloride	Total Sodium	Nitrate/ Nitrite as Nitrogen*	Total Dissolved Solids
Surface Spring		**Concentrations in mg/L**			
SW-3 Field Duplicate (continued)	24-Apr-17	**251**	**119.0**	**16.6**	**869**
	20-Jul-17	**283**	**124.0**	**19.7**	**926**
	10-Jan-18	**194**	**102.0**	**17.8**	**854**
	19-Apr-18	**183**	**94.7**	**15.6**	**744**
	12-Oct-18	**187**	**96.4**	**13.5**	**748**
	12-Apr-19	**168**	**96.5**	**16.4**	**694**
	23-Oct-19	**90**	**89.6**	**14.8**	**711**
	4-May-20	**153**	**87.9**	**13.3**	**722**
	15-Oct-20	**163**	**88.7**	**15.4**	**714**
	21-Apr-21	**200**	**98.0**	**3.0**	**670**
	21-Apr-22	**250**	**88**	**16**	**660**
	26-Apr-23	**220**	**94**	**2.6**	**880**
	31-Jan-24	**260**	**93**	**1.0**	**900**
	24-Apr-24	**230**	**91.0**	**15**	**870**
SW-5	*14-May-10*	***252***	***96.1***	***14.8***	***739***
	28-Oct-15 22-Apr-16 26-Jul-16 21-Oct-16	Spring Dry During Sampling Event			
	24-Jan-17	**228**	**106.0**	**1.1**	**752**
	24-Apr-17	**121**	**67.3**	**7.5**	**563**
	20-Jul-17	**191**	**96.6**	**3.7**	**746**
	10-Jan-18	**145**	**77.6**	**8.2**	**694**
	19-Apr-18	**93.6**	**63.3**	**5.89**	**501**
	12-Oct-18	**167**	**82.9**	**5.38**	**696**
	12-Apr-19	**136**	**80.5**	**7.08**	**568**
	23-Oct-19	**141**	**85.0**	**3.78**	**684**
	4-May-20	**149**	**82.6**	**1.79**	**661**
	15-Oct-20	**142**	**80.4**	**6.6**	**676**
	21-Apr-21	**200**	**88.0**	**0.2**	**640**
	21-Apr-22	**280**	**87**	**3.2**	**680**
	26-Apr-23	**230**	**92**	**0.3**	**700**
	31-Jan-24	**250**	**84**	**0.25**	**690**
	24-Apr-24	**220**	**91**	**5.2**	**710**
SW-Upgradient	29-Apr-24	**5.5**	**18.0**	**14.0**	**460**
Federal or State Cleanup Standard		250	--	14	--

Notes:

Bold *denotes a detected concentration.*

Italicized values are from Exponent's Final Remedial Investigation Report (September 9, 2011) and Final Feasibility Study (May 4, 2012), prior to implementation of the Final Cleanup Action Plan.

Shaded cell denotes concentrations that meet or exceed the cleanup standard. The exceeded cleanup standard is also shaded.

Chloride cleanup level based on federal and state drinking water secondary maximum contaminant level based on taste and odor concerns.

Nitrite cleanup level based on background concentrations in groundwater.

EPA's recommended range for sodium for most individuals is 30,000 to 60,000 micrograms per liter (µg/L) based on aesthetic effects (taste). The EPA recommended level for sodium-sensitive consumers is 20,000 µg/L (see WAC 246-290-310(3)(a)). The upper limit of EPA's recommended range for most individuals of 60,000 µg/L is used for comparison.

2023 Assessment Report refers to "Heglar-Kronquist Landfill Assessment Report" dated December 2023.

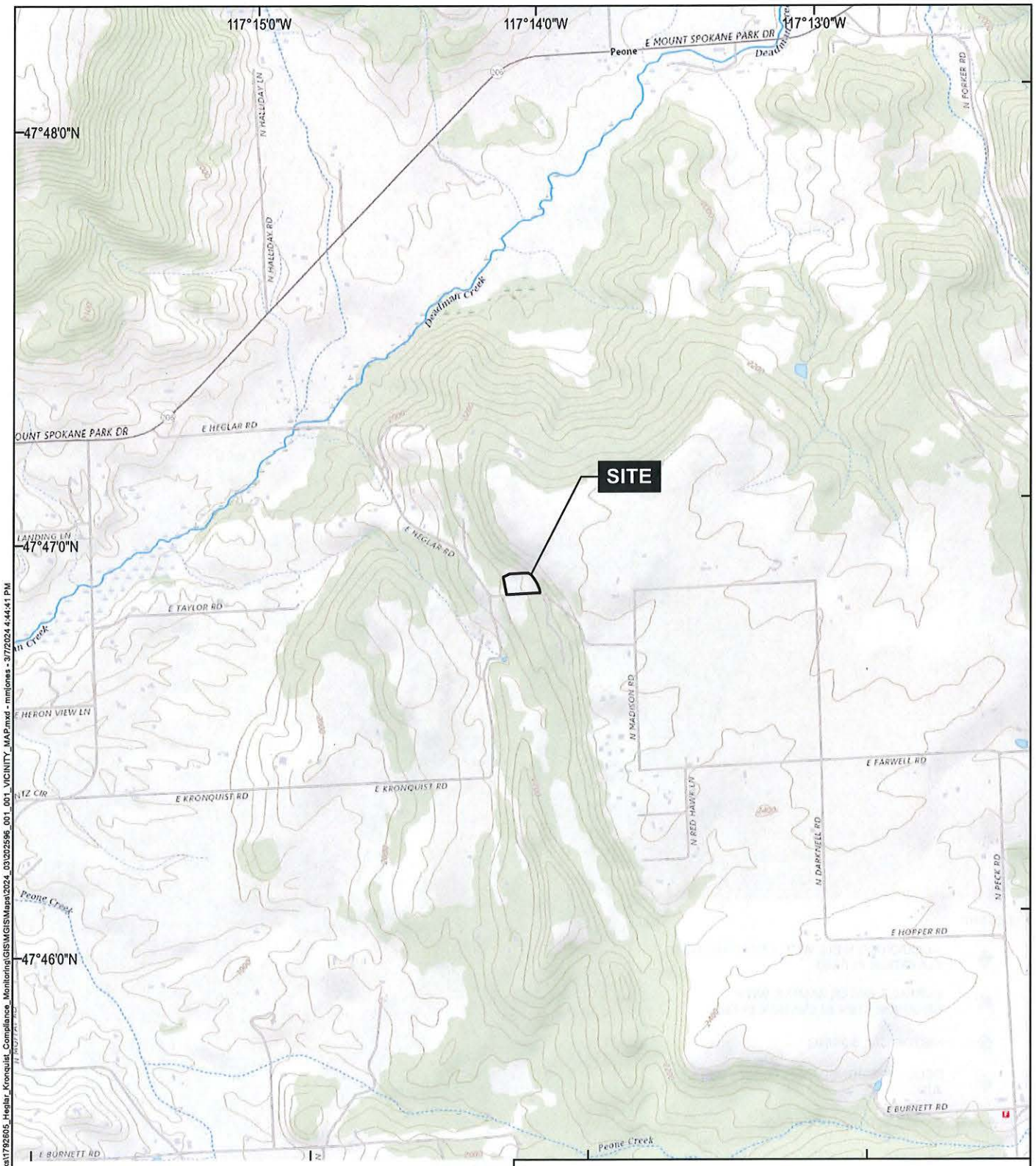
** = results beginning October 2015 are nitrate and nitrite as nitrogen.*

-- = not analyzed for or not available.

J = estimated value.

mg/L = milligrams per liter.

FIGURES



HALEY ALDRICH

HEGLAR KRONQUIST SITE
MEAD, WASHINGTON

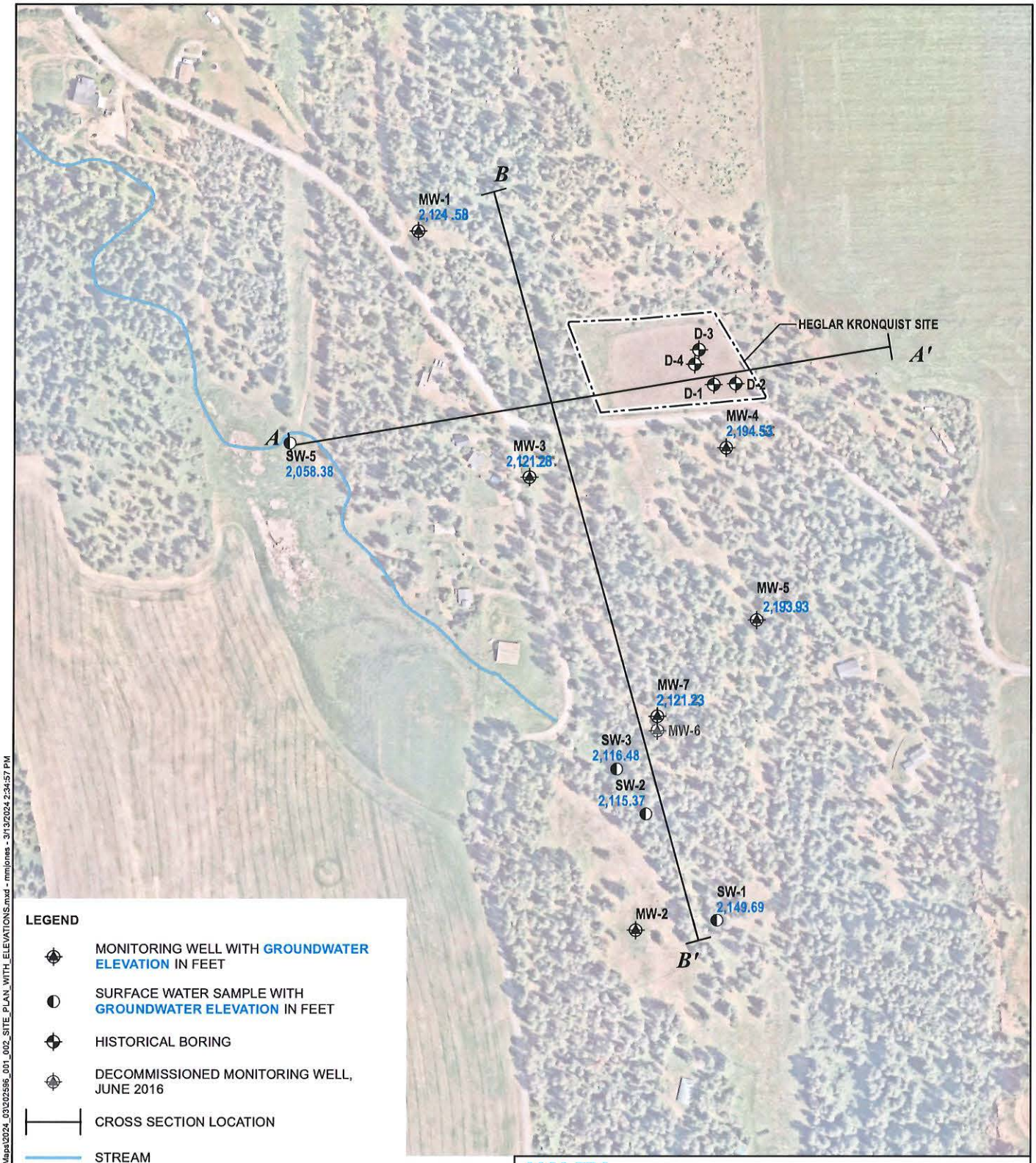
VICINITY MAP

MAP SOURCE: USGS
SITE COORDINATES: 47°46'51"N, 117°14'09"W

APPROXIMATE SCALE: 1 IN = 2000 FT
JUNE 2024

FIGURE 1

GIS: \\haleyaldrich.com\share\sea_projects\Notebooks\117926\05_Heglar_Kronquist_Compliance_Monitoring\GIS\MGIS\Maps\2024_032202596_001_001_VICINITY_MAP.mxd - mnlones - 3/7/2024 4:44:41 PM



LEGEND

- MONITORING WELL WITH **GROUNDWATER ELEVATION** IN FEET
- SURFACE WATER SAMPLE WITH **GROUNDWATER ELEVATION** IN FEET
- HISTORICAL BORING
- DECOMMISSIONED MONITORING WELL, JUNE 2016
- CROSS SECTION LOCATION
- STREAM

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. MONITORING WELL AND SURFACE WATER SAMPLING LOCATIONS SURVEYED BY ADAMS AND CLARK, INC. 2011; REFERENCED TO NAD 83 WASHINGTON STATE PLANE NORTH (US FEET) AND NAVD 88.
3. AERIAL IMAGERY SOURCE: NEARMAP, 21 MAY 2023
4. THE GROUNDWATER ELEVATION FOR MW-5 AND MW-7 WAS CALUCLATED BY AVERAGING FOUR DAILY MEASUREMENTS COLLECTED BY THE TRANSDUCER AT EACH MONITORING WELL. THE DEPTH TO WATER MEASUREMENT WAS CALCULATED BASED ON THE AVERAGE GROUNDWATER DATA FOR THE DATE OF MEASUREMENT.

N

0 200 400
SCALE IN FEET

HALEY ALDRICH

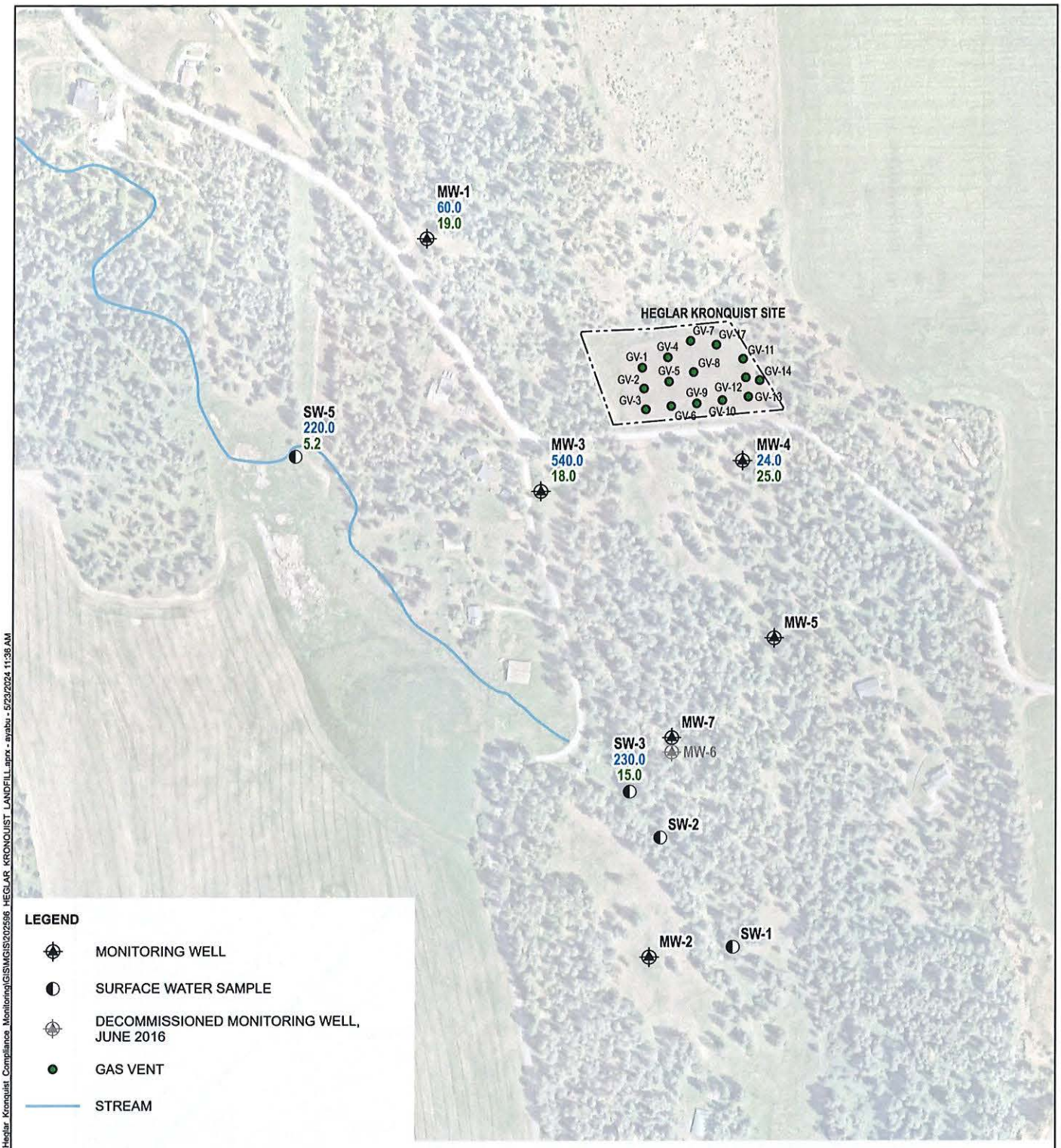
HEGLAR KRONQUIST SITE
MEAD, WASHINGTON

APRIL 2024 - SITE PLAN

JUNE 2024

FIGURE 2

GIS: \\haleyaldrich\share\CF\Projects\02025961\GIS\Maps\2024_03\202596_001_002_SITE_PLAN_WITH_ELEVATIONS.mxd - mmiones - 3/13/2024 2:34:57 PM



LEGEND

- MONITORING WELL
- SURFACE WATER SAMPLE
- DECOMMISSIONED MONITORING WELL, JUNE 2016
- GAS VENT
- STREAM

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. MG/L = MILLIGRAMS PER LITER
3. CHLORIDE CONCENTRATION (MG/L)
4. NITRATE/NITRITE CONCENTRATION (MG/L)
5. MONITORING WELL AND SURFACE WATER SAMPLING LOCATIONS SURVEYED BY ADAMS AND CLARK, INC. 2011; REFERENCED TO NAD 83 WASHINGTON STATE PLANE NORTH (US FEET) AND NAVD 88.
6. AERIAL IMAGERY SOURCE: NEARMAP, 21 MAY 2023

N

0 200 400
SCALE IN FEET

HALEY ALDRICH

HEGLAR KRONQUIST SITE
MEAD, WASHINGTON

CONTAMINANT CONCENTRATIONS APRIL 2024

JUNE 2024

FIGURE 3

GIS: \\haleyaldrich.com\share\area_projects\Notebooks\1792605_Heglar_Kronquist_Compliance_Monitoring\GIS\MXD\SI\202596_HEGLAR_KRONQUIST_LANDFILL.aprx - ayabu - 5/23/2024 11:36 AM

LEGEND

- MONITORING WELL
- SURFACE WATER SAMPLE
- SITE BOUNDARY

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. mg/L = MILLIGRAMS PER LITER
3. CHLORIDE CONCENTRATION (mg/L)
4. NITRATE/NITRITE CONCENTRATION (mg/L)
5. AERIAL IMAGERY SOURCE: GOOGLE

0 700 1,400
SCALE IN FEET

HALEY ALDRICH

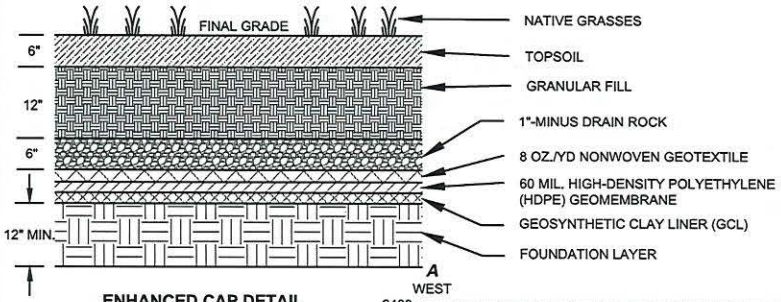
HEGLAR KRONQUIST SITE
MEAD, WASHINGTON

UPGRADIENT LOCATIONS - CONTAMINANT CONCENTRATIONS APRIL 2024

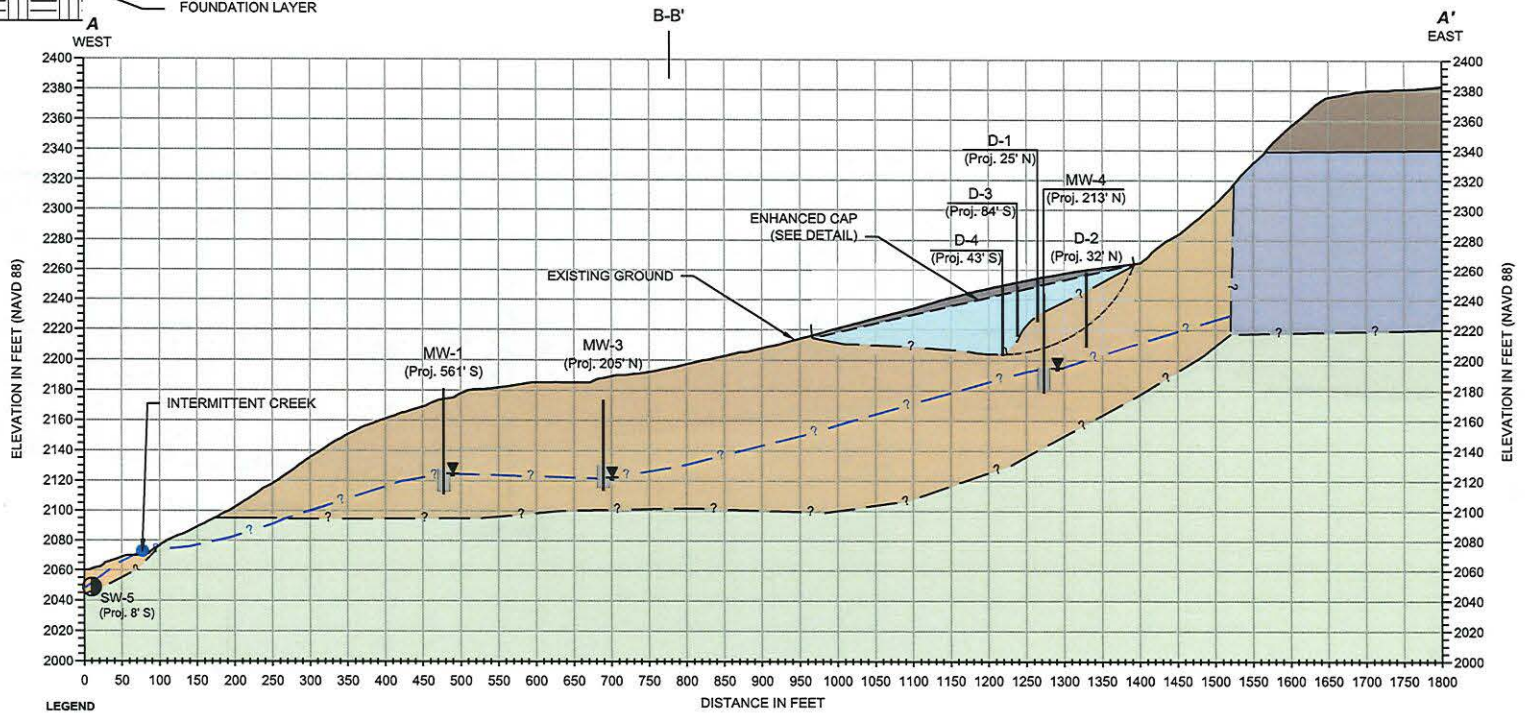
JUNE 2024

FIGURE 4

GIS FILE PATH: \\haleyaldrich.com\share\sea_projects\Notebooks\1792605_Heglar_Kronquist_Compliance_Monitoring\GIS\MGIS\202505_HEGLAR_KRONQUIST_LANDFILL.aprx - USER: aysbu - LAST SAVED: 5/22/2024 4:14 PM



ENHANCED CAP DETAIL



LEGEND

- APPROXIMATE BOTTOM OF LANDFILL
- APPROXIMATE GROUNDWATER LEVEL
- ESU 1: LANDSLIDE BLOCK
- ESU 2: LATAH FORMATION
- ESU 3: PALOUSE FORMATION
- ESU 4: BASALT
- ESU 5: ALLUVIUM
- ESU 6: DROSS

LEGEND

BORING NAME WITH OFFSET — MW-1 (Proj. 11' SW)

BORING LOCATION

WELL SCREEN — GROUNDWATER TABLE

NOTES

1. ALL LOCATIONS ARE APPROXIMATE
2. EXISTING GROUND SOURCE: UNITED STATES GEOLOGICAL SURVEY (USGS), 2019.
3. SUBSURFACE INFORMATION SOURCED FROM THE FINAL REMEDIAL INVESTIGATION REPORT (EXPONENT, 2011).
4. GROUNDWATER DATA BASED ON DEPTH TO WATER MEASUREMENTS COLLECTED ON APRIL 24TH 2024 BY HALEY & ALDRICH.
5. ENHANCED CAP DETAIL SOURCED FROM CLEANUP ACTION CONSTRUCTION COMPLETION REPORT, HART CROWSER, 2015

HORIZ. 0 160 320
VERT. 0 80 160
SCALE IN FEET

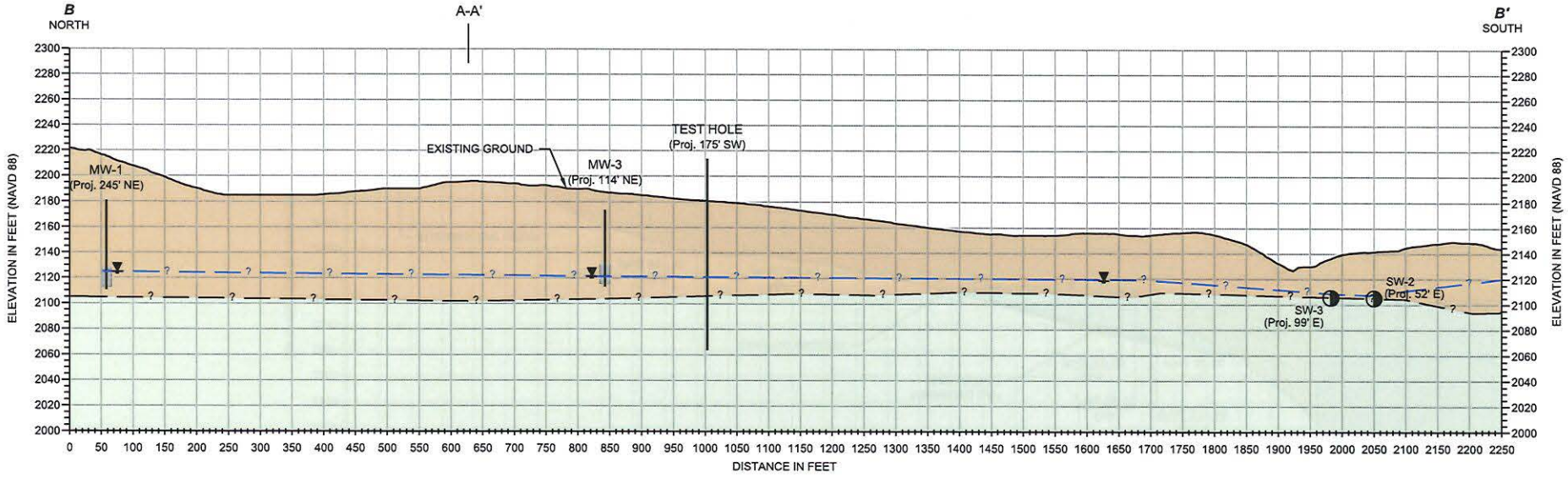
HALEY ALDRICH

HELGAR KRONQUIST SITE
MEAD, WASHINGTON

CROSS SECTION A-A'

JUNE 2024

FIGURE 5



LEGEND

BORING NAME WITH OFFSET — MW-1 (Proj. 11' SW)

BORING LOCATION

WELL SCREEN — GROUNDWATER TABLE

LEGEND

APPROXIMATE GROUNDWATER LEVEL

SURFACE WATER SAMPLE

ESU 1: LANDSLIDE BLOCK

ESU 2: LATAH FORMATION

NOTES

1. ALL LOCATIONS ARE APPROXIMATE
2. EXISTING GROUND SOURCE: UNITED STATES GEOLOGICAL SURVEY (USGS). 2019,
3. SUBSURFACE INFORMATION SOURCED FROM THE FINAL REMEDIAL INVESTIGATION REPORT (EXPONENT, 2011).
4. GROUNDWATER DATA BASED ON DEPTH TO WATER MEASURMENTS COLLECTED ON APRIL 24TH 2024 BY HALEY & ALDRICH.

HORIZ. 0 140 280

VERT. 0 70 140

SCALE IN FEET

HALEY ALDRICH

HELGAR KRONQUIST SITE
MEAD, WASHINGTON

CROSS SECTION B-B'

JUNE 2024

FIGURE 6

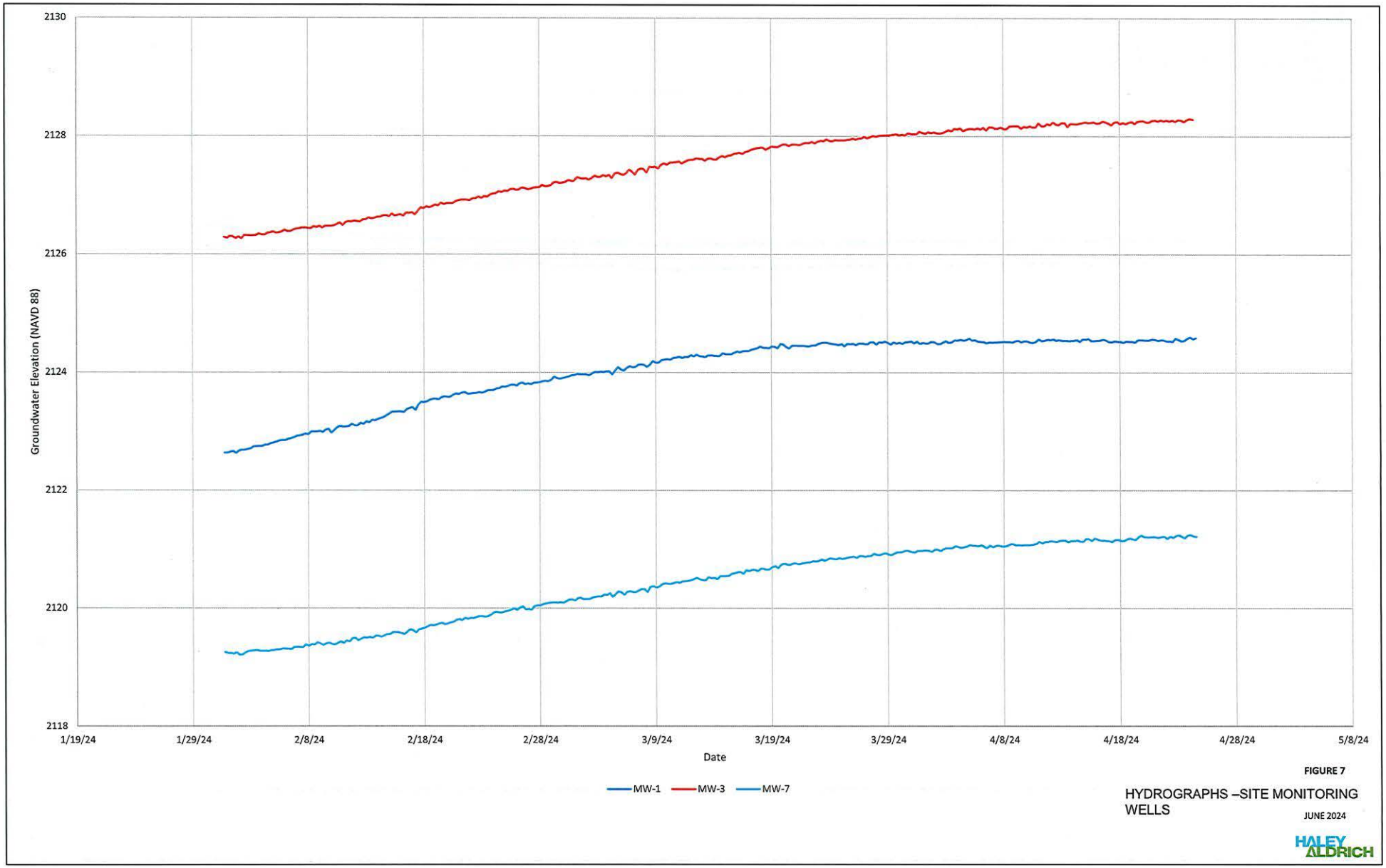


FIGURE 7

HYDROGRAPHS –SITE MONITORING WELLS

JUNE 2024

HALEY ALDRICH

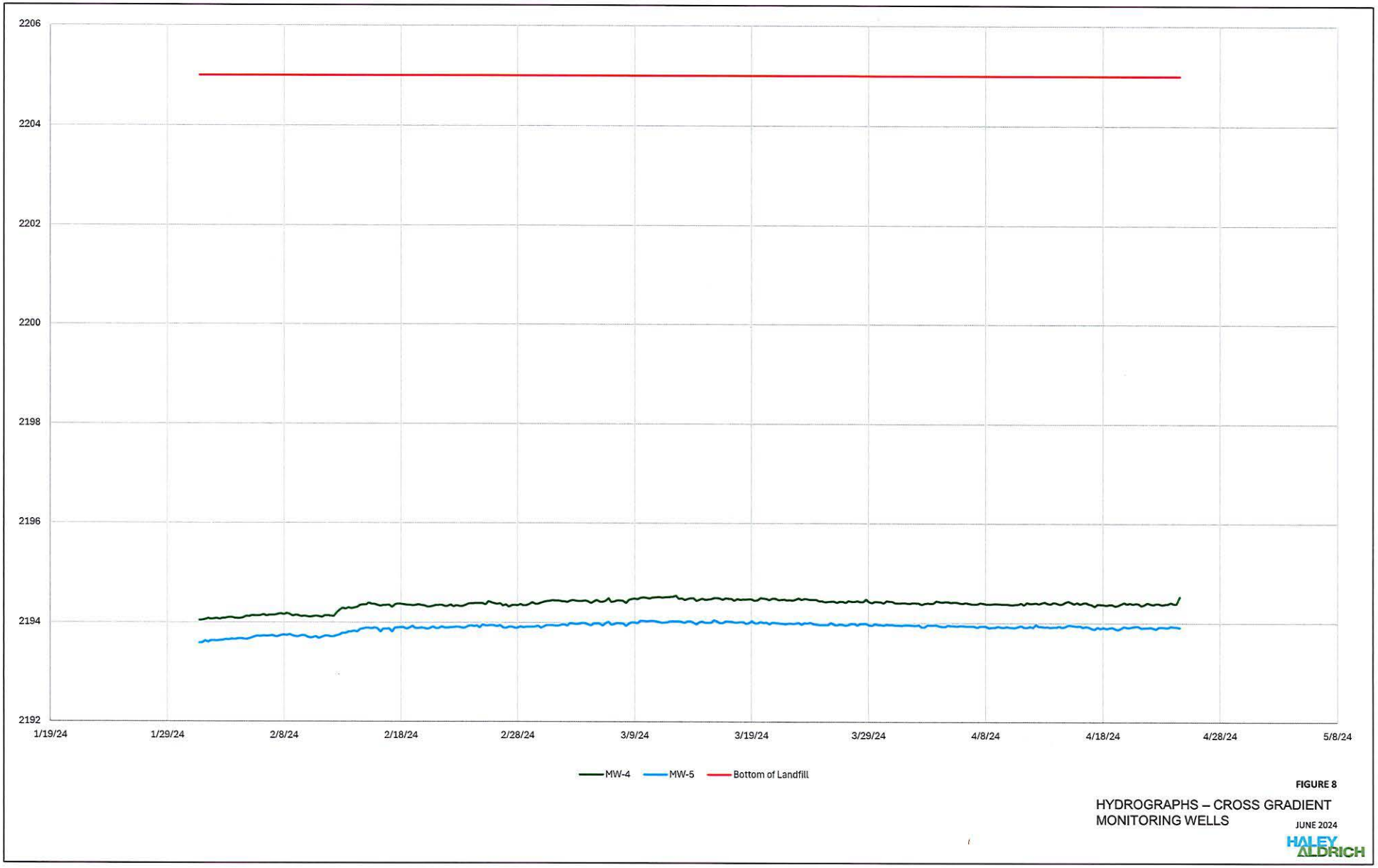
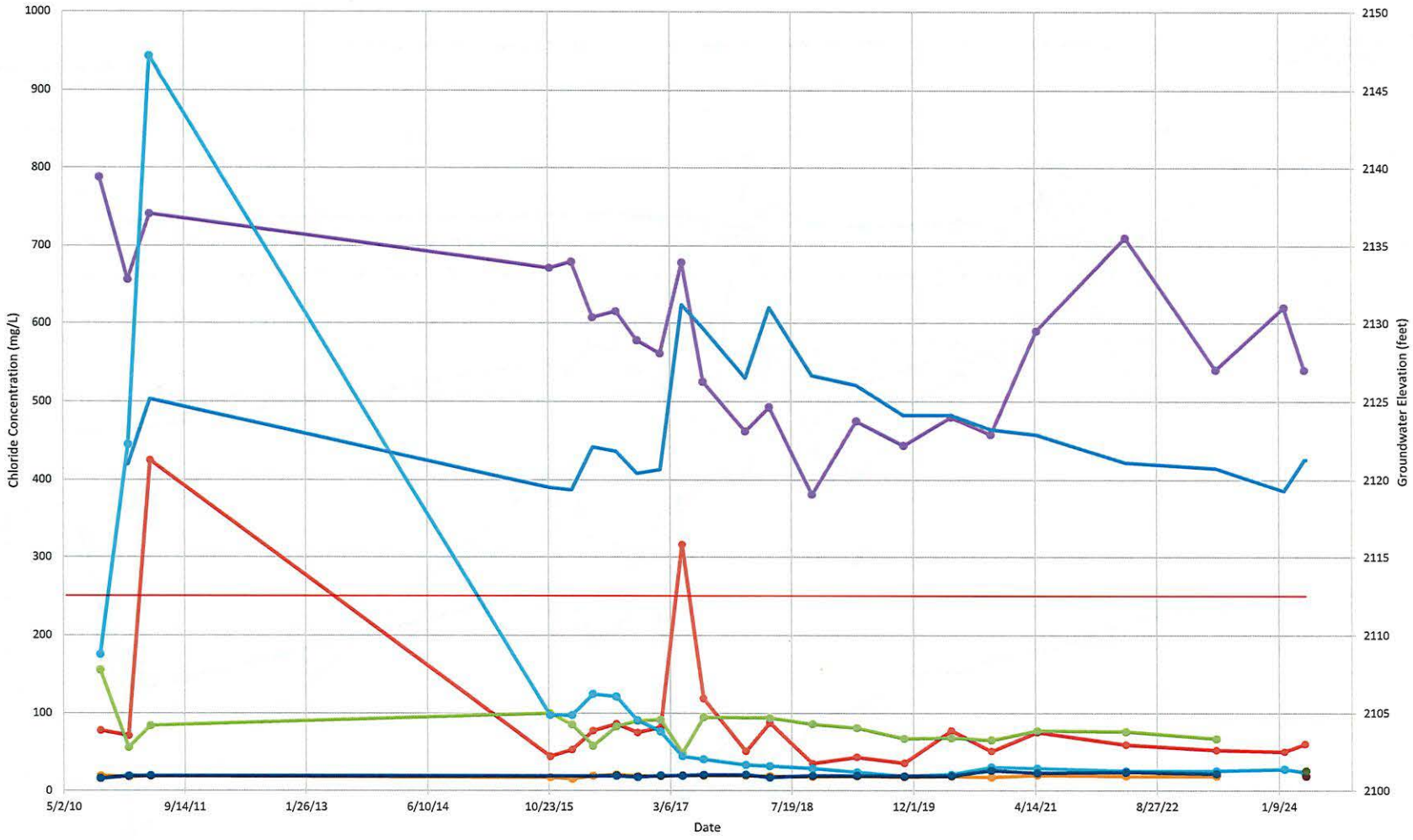


FIGURE 8

HYDROGRAPHS – CROSS GRADIENT MONITORING WELLS

JUNE 2024

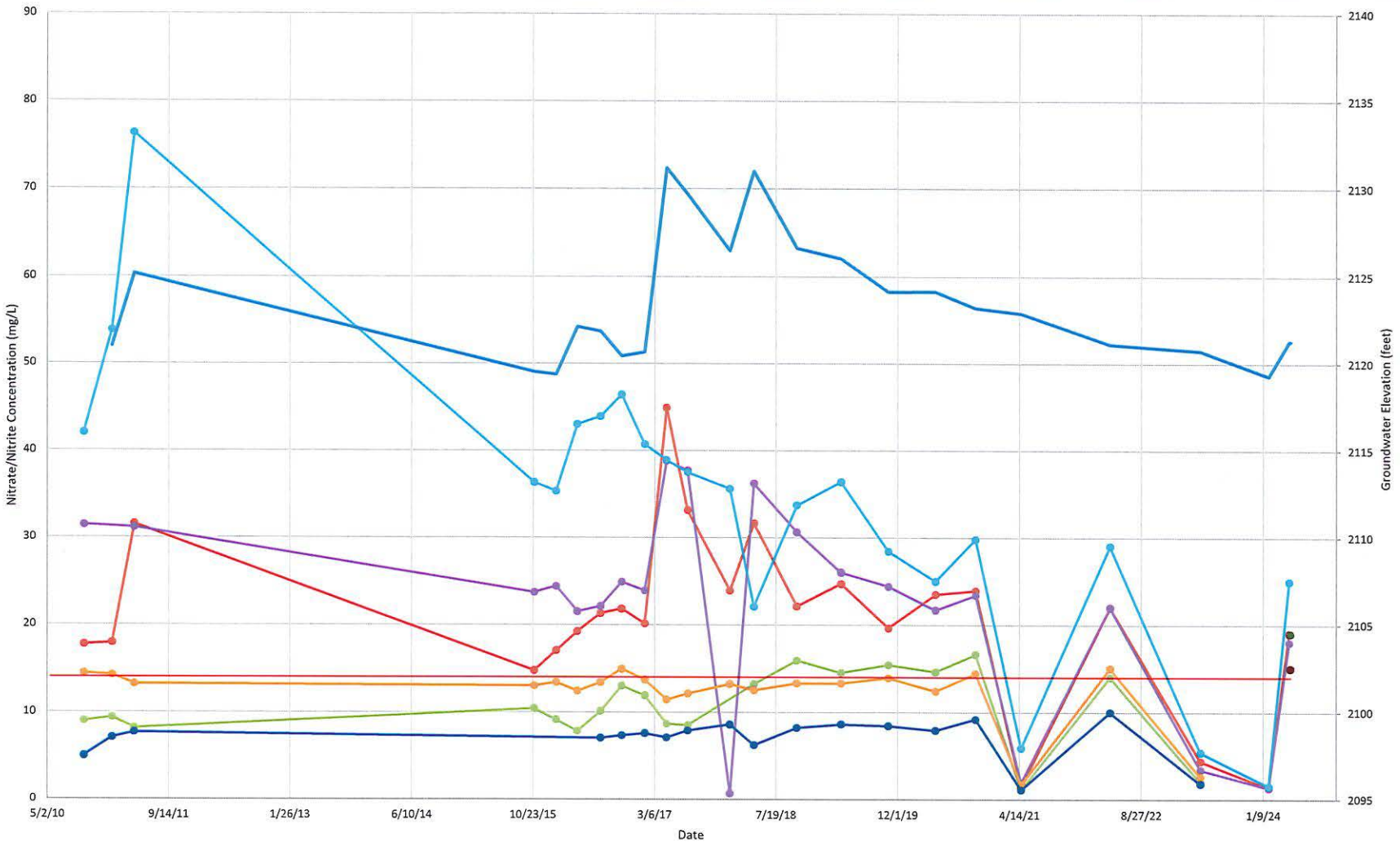
HALEY ALDRICH



Note:
- *Sampling discontinued at locations MW-2, 5, and 6/7 based on 2023 Assessment Report, Dated December 2023.*

FIGURE 9
GROUNDWATER CHLORIDE CONCENTRATIONS VERSUS TIME
JUNE 2024

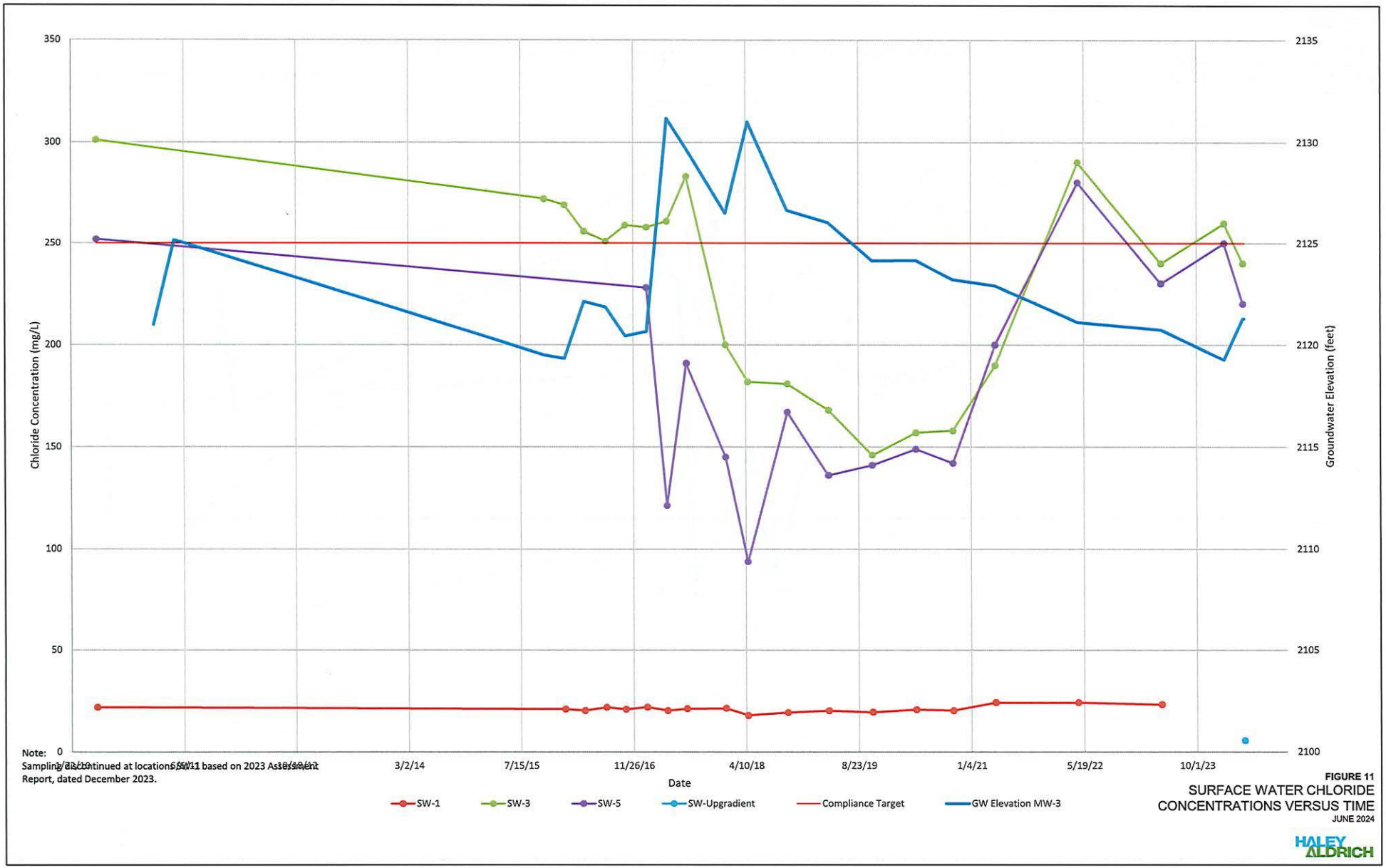
HALEY ALDRICH



Note:
Sampling discontinued at locations MW-2, 5, and 6/7 based on 2023 Assessment Report, Dated December 2023.

FIGURE 10
GROUNDWATER NITRATE/NITRITE CONCENTRATIONS VERSUS TIME
JUNE 2024

HALEY ALDRICH



Note:
Sampling discontinued at locations SW-11 based on 2023 Assessment Report, dated December 2023.

FIGURE 11
SURFACE WATER CHLORIDE CONCENTRATIONS VERSUS TIME
JUNE 2024

HALEY ALDRICH

Note:
Sampling discontinued at locations SW-1 based on 2023 Assessment Report, dated December 2023.

FIGURE 12
SURFACE WATER NITRATE/NITRITE CONCENTRATIONS VERSUS TIME
JUNE 2024

HALEY ALDRICH

APPENDIX A
April 2024 Animal Burrow Repair

Heglar Kronquist Landfill
Mead, Washington
File No. 0202596-001
Date Photographs Taken: 10 June 2024

Photo 1: View east at April 2024 animal burrow repair.

APPENDIX B
Quality Assurance Review and Analytical Laboratory Report

Data Usability Summary Report

Project Name: Heglar Kronquist

Project Description: Groundwater and Surface Water Samples

Sample Date(s): 24 through 29 April 2024

Analytical Laboratory: Eurofins Test America Laboratories – Spokane, WA

Validation Performed by: Gabrielle Davis

Validation Reviewed by: Kristina Ilina

Validation Date: 29 May 2024

Haley & Aldrich, Inc. prepared this Data Usability Summary Report (DUSR) to summarize the review and validation of the analytical results for Sample Delivery Group(s) (SDGs) listed. This DUSR is organized into the following sections:

1. **Sample Delivery Group Numbers 590-24460-1 and 590-24521-1**
2. **Explanations**
3. **Glossary**
4. **Abbreviations**
5. **Qualifiers**

References

This data validation and usability assessment was performed per the guidance and requirements established by the United States Environmental Protection Agency (USEPA) using the following reference materials:

- National Functional Guidelines (NFG) for Inorganic Data Review.
- The project-specific Quality Assurance Project Plan (QAPP), herein referred to as the specified limits (see references section). Written in 2013, the QAPP referenced the NFG written at the time. Data in this report has been reviewed against the most recent NFG.

Data reported in this sampling event were reported to the laboratory reporting limit (RL).

Sample data were qualified in accordance with the laboratory's standard operating procedures (SOPs). The results presented in each laboratory report were found to be compliant with the data quality objectives (DQOs) for the project and are therefore usable; any exceptions are noted in the following pages.

1. Sample Delivery Group Numbers 590-24460-1 and 590-24521-1

1.1 SAMPLE MANAGEMENT

This DUSR summarizes the review of SDG numbers:

- 590-24460-1, dated 9 May 2024; and
- 590-24521-1, dated 13 May 2024.

Samples were collected, preserved, and shipped following standard chain of custody (COC) protocols.

- Samples for E353.2 analysis were subcontracted to Eurofins Seattle – Tacoma, WA.

Samples were also received appropriately, identified correctly, and analyzed according to the COC. Issues noted with sample management are listed below:

- Sample IDs were appended with the sample date to differentiate them in the database.
- The client requested that the sample IDs for Well 1, Well 2, and SW-6 be updated to DW-1, DW-2, and SW-Upgradient, respectively.

Analyses were performed on the following samples:

Sample ID	Sample Type	Lab ID	Sample Date	Matrix	Methods
MW-3-042424	N	590-24460-1	04/24/2024	WG	A, B, C, D
MW-1-042424	N	590-24460-2	04/24/2024	WG	A, B, C, D
SW-5-042424	N	590-24460-3	04/24/2024	WS	A, B, C, D
SW-3-042424	N	590-24460-4	04/24/2024	WS	A, B, C, D
SW-300-042424	FD	590-24460-5	04/24/2024	WS	A, B, C, D
MW-4-042424	N	590-24460-6	04/24/2024	WG	A, B, C, D
MW-400-042424	FD	590-24460-7	04/24/2024	WG	A, B, C, D
DW-1-042924	N	590-24521-1	04/29/2024	WG	A, B, C, D
DW-2-042924	N	590-24521-2	04/29/2024	WG	A, B, C, D
SW-UPGRADIENT-042924	N	590-24521-3	04/29/2024	WS	A, B, C, D

Method Holding Times			
A.	E300	Chloride	28 days for liquid, unpreserved
B.	E353.2	Nitrogen, Nitrate-Nitrite	28 days for liquid, unpreserved
C.	SM2540C	Total Dissolved Solids	7 days for liquid, unpreserved
D.	SW6010D	Total and Dissolved Sodium	180 days for liquid, preserved

1.2 CASE NARRATIVE

The laboratory report case narrative lists various additional quality control issues, such as low-level initial calibration verification (ICVL). Since these additional quality control issues were not required as per the QAPP, these quality control issues were not reviewed.

1.3 HOLDING TIMES/PRESERVATION

The samples arrived at the laboratory at the proper temperature and were prepared and analyzed within the holding time and preservation criteria specified per method protocol, with the following exceptions:

- The temperature of the coolers at the time of receipt was 9.3°C and 7.9°C. Samples were received by the laboratory on the same day as sample collection. No additional qualification of the reported results is recommended.

1.4 REPORTING LIMITS AND SAMPLE DILUTIONS

All sample dilutions were reviewed and found to be justified. Only detected analytes were reported from a sample dilution analysis.

1.5 LABORATORY CONTROL SAMPLES

Refer to Section E 1.3. Compounds associated with the laboratory control sample/laboratory control sample duplicate (LCS/LCSD) analyses associated with client samples exhibited recoveries and relative percent differences (RPDs) within the specified limits.

1.6 MATRIX SPIKE SAMPLES

Refer to Section E 1.4. The sample(s) below were used for matrix spike/matrix spike duplicate (MS/MSD):

Lab Sample Number	Matrix Spike/Matrix Spike Duplicate Sample Client ID	Method(s)
590-24460-1	MW-3-042424	SW6010D, E353.2
590-24521-1	DW-1-042924	E353.2
590-24521-1	DW-2-042924	E353.2

The MS/MSD recoveries and the relative percent difference (RPD) between the MS and MSD results were within the specified limits, with the following exceptions:

- In cases where the native sample results were ≥ 4x the spike added; data was not qualified.

Sample Type	Method	Parent Sample	Analyte	%R/RPD	Qualifier	Affected Samples
MS/MSD	SW6010D	MW-3-042424	Sodium	37%/35%	NA	None, native sample ≥ 4x the spike added
MS	E353.2	MW-3-042424	Nitrite/Nitrate	43%	J-/UJ	MW-1-042424, MW-3-042424, MW-400-042424, MW-4-042424

1.7 BLANK SAMPLE ANALYSIS

Refer to Section E 1.5. Method blank samples had no detections, indicating that no contamination from laboratory activities occurred.

1.8 DUPLICATE SAMPLE ANALYSIS

Refer to Section E 1.6. The following sample(s) were used for laboratory duplicate analysis and the RPDs were all below 20 percent (or the absolute difference rule was satisfied if detects were less than 5 times the RL):

Lab Sample Number	Laboratory Duplicate Sample Client ID	Method(s)
590-24460-1	MW-3-042424	SW6010D, E353.2
590-24521-1	DW-1-042924	E353.2

The following samples were used for field duplicate analysis. RPDs were all below 35 percent for water (or the absolute difference rule was satisfied if detects were less than 5 times the RL). Any exceptions are noted below and qualified.

Primary Sample ID	Duplicate Sample ID	Method(s)
MW-4-042424	MW-400-042424	E300, E353.2, SM2540C, SW6010D
SW-3-042424	SW-300-042424	E300, E353.2, SM2540C, SW6010D

Field Duplicate RPD Calculations:

Method: SM2540C				
Analyte (mg/L)	Primary Sample ID SW-3-042424	Duplicate Sample ID SW-300-042424	% RPD	Qualification
Total Dissolved Solids (TDS)	600	870	37	J/UJ, RPD>35

1.9 PRECISION AND ACCURACY

Refer to Section E 1.7. Where required by the method, some measurement of analytical accuracy and precision was reported for each method with the site samples.

1.10 SYSTEM PERFORMANCE AND OVERALL ASSESSMENT

The results presented in this report were found to comply with the DQOs for the project and the guidelines specified by the analytical method. Based on the review of this report, the data are useable and acceptable as no data was rejected. The qualifiers applied to this dataset are summarized in the table on the following page.

Sample ID	Analyte	Reported Result	Validated Result	Reason for Qualifier
MW-1-042424	Nitrite/Nitrate	19	19 J-	MSD
MW-3-042424	Nitrite/Nitrate	18	18 J-	MSD
MW-400-042424	Nitrite/Nitrate	25	25 J-	MSD
MW-4-042424	Nitrite/Nitrate	25	25 J-	MSD
SW-300-042424	Total Dissolved Solids (TDS)	870	870 J	FDP
SW-3-042424	Total Dissolved Solids (TDS)	600	600 J	FDP

2. Explanations

The following explanations include more detailed information regarding each of the sections in the DUSR above. Not all sections in the Explanations are represented:

- E 1.3 Laboratory Control Samples
  - The laboratory control sample/laboratory control sample duplicate (LCS/LCSD) analyses are used to assess the precision and accuracy of the analytical method independent of matrix interferences.
- E 1.4 Matrix Spike Samples
  - Matrix spike/matrix spike duplicate (MS/MSD) data are used to assess the precision and accuracy of the analytical method and evaluate the effects of the sample matrix on the sample preparation procedures and measurement methodologies.
  - For inorganic methods, when a matrix spike recovery falls outside of the control limits and the sample result is less than four times the spike added, a post-digestion spike (PDS) is performed.
- E 1.5 Blank Sample Analysis
  - Method blanks are prepared by the analytical laboratory and analyzed concurrently with the project samples to assess possible laboratory contamination.
- E 1.6 Laboratory and Field Duplicate Sample Analysis
  - The laboratory duplicate sample analysis is used by the laboratory at the time of the analysis to demonstrate acceptable method precision. The RPD or absolute difference was evaluated for each duplicate sample pair to monitor the reproducibility of the data.
  - The field duplicate sample analysis is used to assess the precision of the field sampling procedures and analytical method. The relative percent difference (RPD) or absolute difference was evaluated for each duplicate sample pair to monitor the reproducibility of the data.
- E 1.7 Precision and Accuracy
  - Precision measures the reproducibility of repetitive measurements. In a laboratory environment, this will be measured by determining the relative percent difference (RPD) found between a primary and a duplicate sample. This can be an LCS/LCSD pair, a MS/MSD pair, a laboratory duplicate performed on a site sample, or a field duplicate collected and analyzed concurrently with a site sample.
  - Accuracy is a statistical measurement of the correctness of a measured value and includes components of random error (variability caused by imprecision) and systematic error. In a laboratory environment, this will be measured by determining the percent recovery (%R) of certain spiked compounds. This can be assessed using LCS, blank spike (BS), MS, and/or surrogate recoveries.

3. Glossary

Not all of the following symbols, acronyms, or qualifiers occur in this document.

- Sample Types:
  - EB — Equipment Blank Sample
  - FB — Field Blank Sample
  - FD — Field Duplicate Sample
  - N — Primary Sample
  - TB — Trip Blank Sample
- Units:
  - µg/kg — micrograms per kilogram
  - µg/L — micrograms per liter
  - µg/m^3 — micrograms per cubic meter
  - mg/kg — milligrams per kilogram
  - mg/L — milligrams per liter
  - ppb v/v — parts per billion volume/volume
  - pCi/L — picocuries per liter
  - pg/g — picograms per gram
  - pg/L — picograms per liter
- Matrices:
  - AA — Ambient Air
  - GS — Soil Gas
  - GW/WG — Groundwater
  - QW — Water Quality
  - IA — Indoor Air
  - SE — Sediment
  - SO — Soil
  - SSV — Sub-slab Vapor
  - WQ — Water Quality control matrix
  - WS — Surface Water
- Table Footnotes:
  - NA — Not applicable
  - ND — Non-detect
  - NR — Not reported
- Common Symbols:
  - % — percent
  - < — less than
  - ≤ — less than or equal to
  - > — greater than
  - ≥ — greater than or equal to
  - = — equal
  - °C — degrees Celsius
  - ± — plus or minus
  - ~ — approximately
  - x — times (multiplier)

- Fractions:
  - N Normal (method cannot be filtered)
  - D Dissolved (filtered)
  - T Total (unfiltered)

4. Abbreviations

%D	Percent Difference
%R	Percent Recovery
%RSD	Percent Relative Standard Deviation
%v/v	Percent volume by volume
2s	2 sigma
4,4-DDT	4 4-dichlorodiphenyltrichloroethane
Abs Diff	Absolute Difference
amu	atomic mass unit
BPJ	Best Professional Judgement
BS	Blank Spike
CCB	Continuing Calibration Blank
CCV	Continuing Calibration Verification
CCVL	Continuing Calibration Verification Low
COC	Chain of Custody
COM	Combined Isotope Calculation
Cr (VI)	Hexavalent Chromium
CRI	Collision Reaction Interface
DoD	Department of Defense
DQO	data quality objective
DUSR	Data Usability Summary Report
EIS	Extraction Internal Standard
EMPC	Estimated Maximum Possible Concentration
FBK	Field Blank Contamination
FDP	Field Duplicate
GC	Gas Chromatograph
GC/MS	Gas Chromatography/Mass Spectrometry
GPC	Gel Permeation Chromatography
H_2	Hydrogen gas
HCl	Hydrochloric Acid
ICAL	Initial Calibration
ICB	Initial Calibration Blank
ICP/MS	Inductively Coupled Plasma/Mass Spectrometry
ICV	Initial Calibration Verification
ICVL	Initial Calibration Verification Low
IPA	Isopropyl Alcohol
LC	Laboratory Control
LCS/LCSD	Laboratory Control Sample/Laboratory Control Sample Duplicate
MBK	Method Blank Contamination
MDC	Minimum Detectable Concentration
MDL	Laboratory Method Detection Limit
MS/MSD	Matrix Spike/Matrix Spike Duplicate
NA	not applicable
ND	Non-Detect
NFG	National Functional Guidelines
NH_3	Ammonia
NYSDEC	New York State Department of Environmental Conservation
PAH	Polycyclic Aromatic Hydrocarbon
PCB	Polychlorinated Biphenyl
PDS	Post-Digestion Spike
PEM	Performance Evaluation Mixture
PFAS	Per- and Polyfluoroalkyl Substances
PFBA	Perfluorbutanoic Acid
PFD	Perfluorodecalin
PFOA	Perfluorooctanoic Acid
PFOS	Perfluorooctane sulfonate
PFPeA	Perfluoropentanoic Acid
QAPP	Quality Assurance Project Plan
QC	Quality Control
QSM	Quality Systems Manual
R^2	R-squared value
Ra-226	Radium-226
Ra-228	Radium-228
RESC	Resolution Check Measure
RL	Laboratory Reporting Limit
RPD	Relative Percent Difference
RRF	Relative Response Factor
RT	Retention Time
SAP	Sampling Analysis Plan
SDG	Sample Delivery Group
SIM	Selected ion monitoring
SOP	Standard Operating Procedure
SPE	Solid-Phase Extraction
SVOC	Semi-Volatile Organic Compound
TCLP	Toxicity Characteristic Leaching Procedure
TIC	Tentatively Identified Compound
TKN	Total Kjeldahl Nitrogen
TPH	Total Petroleum Hydrocarbon
TPU	Total Propagated Uncertainty
USEPA	U.S. Environmental Protection Agency
VOC	Volatile Organic Compound
WP	Work Plan

5. Qualifiers

The qualifiers below are from the USEPA National Functional Guidelines and the data in the DUSR may contain these qualifiers:

- Concentration (C) Qualifiers:

  U — The compound was analyzed for but not detected. The associated value is either the compound quantitation limit if not detected by the analytical instrument or could be the reported or blank concentration if qualified by blank contamination. This can also be displayed as less than the associated compound quantitation limit (<RL or <MDL), or "ND".

  B — The compound was found in the sample and its associated blank. Its presence in the sample may be suspect.

- Quantitation (Q) Qualifiers:

  E — The compound was quantitated above the calibration range.

  D — The concentration is based on a diluted sample analysis.

- Validation Qualifiers:

  J — The compound was positively identified; however, the associated numerical value is an estimated concentration only.

  J+ — The result is an estimated quantity, but the result may be biased high.

  J- — The result is an estimated quantity, but the result may be biased low.

  J/UJ — as listed in exception tables J applies to detected data and UJ applies to non-detected data as reported by the laboratory.

  UJ — The compound was not detected. The reported sample quantitation limit is approximate.

  NJ — The analysis indicated the presence of a compound for which there is presumptive evidence to make a tentative identification; the associated numerical value is an estimated concentration only.

  R — The sample results were rejected as unusable; the compound may or may not be present in the sample.

  S — Result is suspect. See DUSR for details.

References

1. Hart Crowser, 2013. Sampling and Analysis Plan and Quality Assurance Project Plan. Heglar Kronquist Site. Mead Washington. August.
2. United States Environmental Protection Agency, 2020. National Functional Guidelines for Inorganic Superfund Methods Data Review. EPA-542-R-20-006. November.

eurofins | Environment Testing

1 2 3 4 5 6 7 8 9 10 11 12

ANALYTICAL REPORT

PREPARED FOR

Attn: Ward McDonald
Haley & Aldrich, Inc.
505 W Riverside Ave
Suite 205
Spokane, Washington 99201

Generated 5/9/2024 5:57:58 PM

JOB DESCRIPTION

Heglar/Kronquist

JOB NUMBER

590-24460-1

Eurofins Spokane
11922 East 1st Ave
Spokane WA 99206

See page two for job notes and contact information.

my EOL

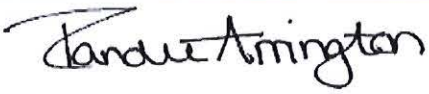
Eurofins Spokane

Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing Northwest, LLC Project Manager.

Authorization



Generated
5/9/2024 5:57:58 PM

Authorized for release by
Randee Arrington, Business Unit Manager
Randee.Arrington@et.eurofinsus.com
(509)924-9200

Table of Contents

Job Narrative
590-24460-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

- Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt
The samples were received on 4/24/2024 3:43 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 time was 9.3°C.

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

Metals
Method 6010D - Dissolved: The low level initial calibration verification (ICVL) associated with batch 590-47244 recovered above the upper control limit for Sodium. The samples associated with this ICV were either 10x the spike amount, have a hit below the RL, or non-detects for the affected analytes; therefore, the data have been reported.

Method 6010D - Dissolved: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 590-47225 and analytical batch 590-47254 were outside control limits. Sample matrix interference is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Method 6010D - Dissolved: The low level initial calibration verification (ICVL) associated with batch 590-47254 recovered above the upper control limit for Sodium. The samples associated with this ICV were either 10x the spike amount, have hits below the RL, or non-detects for the affected analytes; therefore, the data have been reported.

Method 6010D - Total Recoverable: The low level initial calibration verification (ICVL) associated with batch 590-47254 recovered above the upper control limit for Sodium. The samples associated with this ICV were either 10x the spike amount, have hits below the RL, or non-detects for the affected analytes; therefore, the data have been reported.

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

General Chemistry
Method 353.2: Due to the high concentration of Nitrate Nitrite as N, the matrix spike / matrix spike duplicate (MS/MSD) for analytical batch 580-458107 could not be evaluated for accuracy and precision. 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: Haley & Aldrich, Inc.
Project/Site: Heglar/Kronquist

Job ID: 590-24460-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
590-24460-1	MW-3	Water	04/24/24 12:25	04/24/24 15:43
590-24460-2	MW-1	Water	04/24/24 13:48	04/24/24 15:43
590-24460-3	SW-5	Water	04/24/24 14:20	04/24/24 15:43
590-24460-4	SW-3	Water	04/24/24 11:20	04/24/24 15:43
590-24460-5	SW-300	Water	04/24/24 11:50	04/24/24 15:43
590-24460-6	MW-4	Water	04/24/24 10:40	04/24/24 15:43
590-24460-7	MW-400	Water	04/24/24 11:10	04/24/24 15:43

Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Heglar/Kronquist

Job ID: 590-24460-1

Qualifiers

Metals

Qualifier	Qualifier Description
^1+	Initial Calibration Verification (ICV) is outside acceptance limits, high biased.
E	Result exceeded calibration range.
F1	MS and/or MSD recovery exceeds control limits.

General Chemistry

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.
F1	MS and/or MSD recovery exceeds control limits.

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-3

Lab Sample ID: 590-24460-1
Matrix: Water
Date Collected: 04/24/24 12:25
Date Received: 04/24/24 15:43

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	540		8.0		mg/L			05/01/24 14:32	10

Method: SW846 6010D - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sodium	200	F1 ^1+	0.50		mg/L		05/07/24 11:15	05/07/24 20:16	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N (EPA 353.2)	18	F1	0.15		mg/L			04/30/24 23:36	1
Total Dissolved Solids (SM 2540C)	1200		25		mg/L			05/01/24 16:31	1

Client Sample ID: MW-1

Lab Sample ID: 590-24460-2
Matrix: Water
Date Collected: 04/24/24 13:48
Date Received: 04/24/24 15:43

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	60		0.80		mg/L			05/01/24 12:42	1

Method: SW846 6010D - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sodium	65	^1+	0.50		mg/L		05/07/24 11:15	05/07/24 17:18	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N (EPA 353.2)	19		0.15		mg/L			04/30/24 23:43	1
Total Dissolved Solids (SM 2540C)	490		25		mg/L			05/01/24 16:31	1

Client Sample ID: SW-5

Lab Sample ID: 590-24460-3
Matrix: Water
Date Collected: 04/24/24 14:20
Date Received: 04/24/24 15:43

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	220		8.0		mg/L			05/01/24 14:42	10

Method: SW846 6010D - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sodium	91	^1+	0.50		mg/L		05/07/24 11:09	05/07/24 18:44	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N (EPA 353.2)	5.2		0.15		mg/L			04/30/24 23:45	1
Total Dissolved Solids (SM 2540C)	710		25		mg/L			05/01/24 16:31	1

Client Sample ID: SW-3

Lab Sample ID: 590-24460-4
Matrix: Water
Date Collected: 04/24/24 11:20
Date Received: 04/24/24 15:43

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	240		8.0		mg/L			05/01/24 14:52	10

Client Sample ID: SW-3

Lab Sample ID: 590-24460-4
Matrix: Water
Date Collected: 04/24/24 11:20
Date Received: 04/24/24 15:43

Method: SW846 6010D - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sodium	91	^1+	0.50		mg/L		05/07/24 11:09	05/07/24 18:49	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N (EPA 353.2)	15		0.15		mg/L			04/30/24 23:46	1
Total Dissolved Solids (SM 2540C)	600		25		mg/L			05/01/24 16:31	1

Client Sample ID: SW-300

Lab Sample ID: 590-24460-5
Matrix: Water
Date Collected: 04/24/24 11:50
Date Received: 04/24/24 15:43

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	230		8.0		mg/L			05/01/24 15:02	10

Method: SW846 6010D - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sodium	91	^1+	0.50		mg/L		05/07/24 11:09	05/07/24 18:53	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N (EPA 353.2)	15		0.15		mg/L			04/30/24 23:47	1
Total Dissolved Solids (SM 2540C)	870		25		mg/L			05/01/24 16:31	1

Client Sample ID: MW-4

Lab Sample ID: 590-24460-6
Matrix: Water
Date Collected: 04/24/24 10:40
Date Received: 04/24/24 15:43

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	24		0.80		mg/L			05/01/24 13:22	1

Method: SW846 6010D - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sodium	38	^1+	0.50		mg/L		05/07/24 11:15	05/07/24 20:44	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N (EPA 353.2)	25		0.15		mg/L			04/30/24 23:48	1
Total Dissolved Solids (SM 2540C)	670		25		mg/L			05/01/24 16:31	1

Client Sample ID: MW-400

Lab Sample ID: 590-24460-7
Matrix: Water
Date Collected: 04/24/24 11:10
Date Received: 04/24/24 15:43

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	24		0.80		mg/L			05/01/24 13:32	1

Method: SW846 6010D - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sodium	41	^1+	0.50		mg/L		05/07/24 11:15	05/07/24 20:49	1

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Heglar/Kronquist

Job ID: 590-24460-1

Client Sample ID: MW-400
Date Collected: 04/24/24 11:10
Date Received: 04/24/24 15:43

Lab Sample ID: 590-24460-7
Matrix: Water

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N (EPA 353.2)	25		0.15		mg/L			04/30/24 23:48	1
Total Dissolved Solids (SM 2540C)	500		25		mg/L			05/01/24 16:31	1

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 590-47130/1003
Matrix: Water
Analysis Batch: 47130

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		mg/L			05/01/24 09:22	1

Lab Sample ID: LCS 590-47130/1004
Matrix: Water
Analysis Batch: 47130

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	12.1		mg/L		97	90 - 110

Method: 6010D - Metals (ICP)

Lab Sample ID: MB 590-47223/2-A
Matrix: Water
Analysis Batch: 47254

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 47223

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sodium	ND	^1+	0.50		mg/L		05/07/24 11:08	05/07/24 17:39	1

Lab Sample ID: LCS 590-47223/1-A
Matrix: Water
Analysis Batch: 47254

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 47223

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sodium	50.0	48.3	^1+	mg/L		97	80 - 154

Lab Sample ID: MB 590-47224/2-B
Matrix: Water
Analysis Batch: 47254

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 47225

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sodium	ND	^1+	0.50		mg/L		05/07/24 11:15	05/07/24 19:30	1

Lab Sample ID: LCS 590-47224/1-B
Matrix: Water
Analysis Batch: 47254

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 47225

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sodium	50.0	46.0	^1+	mg/L		92	80 - 154

Lab Sample ID: 590-24460-1 MS
Matrix: Water
Analysis Batch: 47254

Client Sample ID: MW-3
Prep Type: Dissolved
Prep Batch: 47225

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Sodium	200	F1 ^1+	50.0	216	E F1 ^1+	mg/L		37	75 - 125

Method: 6010D - Metals (ICP) (Continued)

Lab Sample ID: 590-24460-1 MSD
Matrix: Water
Analysis Batch: 47254

Client Sample ID: MW-3
Prep Type: Dissolved
Prep Batch: 47225

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sodium	200	F1 ^1+	50.0	215	E F1 ^1+	mg/L		35	75 - 125	0	20

Lab Sample ID: 590-24460-1 DU
Matrix: Water
Analysis Batch: 47254

Client Sample ID: MW-3
Prep Type: Dissolved
Prep Batch: 47225

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Sodium	200	F1 ^1+	193	^1+	mg/L		2	20

Method: 353.2 - Nitrogen, Nitrate-Nitrite

Lab Sample ID: MB 580-458107/14
Matrix: Water
Analysis Batch: 458107

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	ND		0.15		mg/L			04/30/24 22:37	1

Lab Sample ID: LCS 580-458107/15
Matrix: Water
Analysis Batch: 458107

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrate Nitrite as N	2.50	2.45		mg/L		98	90 - 110

Lab Sample ID: LCSD 580-458107/16
Matrix: Water
Analysis Batch: 458107

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
Nitrate Nitrite as N	2.50	2.35		mg/L		94	90 - 110	4	20

Lab Sample ID: 590-24460-1 MS
Matrix: Water
Analysis Batch: 458107

Client Sample ID: MW-3
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrate Nitrite as N	18	F1	5.00	20.4	F1	mg/L		43	90 - 110

Lab Sample ID: 590-24460-1 MSD
Matrix: Water
Analysis Batch: 458107

Client Sample ID: MW-3
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Nitrate Nitrite as N	18	F1	2.50	20.4	4	mg/L		85	90 - 110	0	20

Method: 353.2 - Nitrogen, Nitrate-Nitrite (Continued)

Lab Sample ID: 590-24460-1 DU
Matrix: Water
Analysis Batch: 458107

Client Sample ID: MW-3
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Nitrate Nitrite as N	18	F1		18.6		mg/L				1	20

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 590-47237/1
Matrix: Water
Analysis Batch: 47237

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		mg/L			05/01/24 16:31	1

Lab Sample ID: LCS 590-47237/2
Matrix: Water
Analysis Batch: 47237

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			503	501		mg/L		100	80 - 120		

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Heglar/Kronquist

Job ID: 590-24460-1

Client Sample ID: MW-3

Date Collected: 04/24/24 12:25
Date Received: 04/24/24 15:43

Lab Sample ID: 590-24460-1
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		10	5 mL	5 mL	47130	05/01/24 14:32	NMI	EET SPK
Dissolved	Prep	3005A			50 mL	50 mL	47225	05/07/24 11:15	AMB	EET SPK
Dissolved	Analysis	6010D		1			47254	05/07/24 20:16	AMB	EET SPK
Total/NA	Analysis	353.2		1	50 mL	50 mL	458107	04/30/24 23:36	FCG	EET SEA
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	47237	05/01/24 16:31	AMB	EET SPK

Client Sample ID: MW-1

Date Collected: 04/24/24 13:48
Date Received: 04/24/24 15:43

Lab Sample ID: 590-24460-2
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	47130	05/01/24 12:42	NMI	EET SPK
Dissolved	Prep	3005A			50 mL	50 mL	47225	05/07/24 11:15	AMB	EET SPK
Dissolved	Analysis	6010D		1			47244	05/07/24 17:18	AMB	EET SPK
Total/NA	Analysis	353.2		1	50 mL	50 mL	458107	04/30/24 23:43	FCG	EET SEA
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	47237	05/01/24 16:31	AMB	EET SPK

Client Sample ID: SW-5

Date Collected: 04/24/24 14:20
Date Received: 04/24/24 15:43

Lab Sample ID: 590-24460-3
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		10	5 mL	5 mL	47130	05/01/24 14:42	NMI	EET SPK
Total Recoverable	Prep	3005A			50 mL	50 mL	47223	05/07/24 11:09	AMB	EET SPK
Total Recoverable	Analysis	6010D		1			47254	05/07/24 18:44	AMB	EET SPK
Total/NA	Analysis	353.2		1	50 mL	50 mL	458107	04/30/24 23:45	FCG	EET SEA
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	47237	05/01/24 16:31	AMB	EET SPK

Client Sample ID: SW-3

Date Collected: 04/24/24 11:20
Date Received: 04/24/24 15:43

Lab Sample ID: 590-24460-4
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		10	5 mL	5 mL	47130	05/01/24 14:52	NMI	EET SPK
Total Recoverable	Prep	3005A			50 mL	50 mL	47223	05/07/24 11:09	AMB	EET SPK
Total Recoverable	Analysis	6010D		1			47254	05/07/24 18:49	AMB	EET SPK
Total/NA	Analysis	353.2		1	50 mL	50 mL	458107	04/30/24 23:46	FCG	EET SEA
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	47237	05/01/24 16:31	AMB	EET SPK

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Heglar/Kronquist

Job ID: 590-24460-1

Client Sample ID: SW-300

Date Collected: 04/24/24 11:50
Date Received: 04/24/24 15:43

Lab Sample ID: 590-24460-5
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		10	5 mL	5 mL	47130	05/01/24 15:02	NMI	EET SPK
Total Recoverable	Prep	3005A			50 mL	50 mL	47223	05/07/24 11:09	AMB	EET SPK
Total Recoverable	Analysis	6010D		1			47254	05/07/24 18:53	AMB	EET SPK
Total/NA	Analysis	353.2		1	50 mL	50 mL	458107	04/30/24 23:47	FCG	EET SEA
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	47237	05/01/24 16:31	AMB	EET SPK

Client Sample ID: MW-4

Date Collected: 04/24/24 10:40
Date Received: 04/24/24 15:43

Lab Sample ID: 590-24460-6
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	47130	05/01/24 13:22	NMI	EET SPK
Dissolved	Prep	3005A			50 mL	50 mL	47225	05/07/24 11:15	AMB	EET SPK
Dissolved	Analysis	6010D		1			47254	05/07/24 20:44	AMB	EET SPK
Total/NA	Analysis	353.2		1	50 mL	50 mL	458107	04/30/24 23:48	FCG	EET SEA
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	47237	05/01/24 16:31	AMB	EET SPK

Client Sample ID: MW-400

Date Collected: 04/24/24 11:10
Date Received: 04/24/24 15:43

Lab Sample ID: 590-24460-7
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	47130	05/01/24 13:32	NMI	EET SPK
Dissolved	Prep	3005A			50 mL	50 mL	47225	05/07/24 11:15	AMB	EET SPK
Dissolved	Analysis	6010D		1			47254	05/07/24 20:49	AMB	EET SPK
Total/NA	Analysis	353.2		1	50 mL	50 mL	458107	04/30/24 23:48	FCG	EET SEA
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	47237	05/01/24 16:31	AMB	EET SPK

Laboratory References:

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: Haley & Aldrich, Inc.
Project/Site: Heglar/Kronquist

Job ID: 590-24460-1

Laboratory: Eurofins Spokane

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

Authority	Program	Identification Number	Expiration Date
Washington	State	C569	01-07-25

Laboratory: Eurofins Seattle

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

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	20-004	02-19-25
ANAB	Dept. of Defense ELAP	L2236	01-19-25
ANAB	Dept. of Energy	L2236	01-19-25
ANAB	ISO/IEC 17025	L2236	01-19-25
California	State	2954	07-07-24
Florida	NELAP	E87575	06-30-24
Louisiana (All)	NELAP	03073	07-01-24
Maine	State	WA01273	05-02-24
Montana (UST)	State	NA	04-14-27
New Jersey	NELAP	WA014	06-30-24
New York	NELAP	11662	04-01-25
Oregon	NELAP	4167	07-07-24
US Fish & Wildlife	US Federal Programs	A20571	06-30-24
USDA	US Federal Programs	525-23-4-22573	01-04-26
Washington	State	C788	07-13-24
Wisconsin	State	399133460	08-31-24

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Heglar/Kronquist

Job ID: 590-24460-1

Method	Method Description	Protocol	Laboratory
300.0	Anions, Ion Chromatography	EPA	EET SPK
6010D	Metals (ICP)	SW846	EET SPK
353.2	Nitrogen, Nitrate-Nitrite	EPA	EET SEA
SM 2540C	Solids, Total Dissolved (TDS)	SM	EET SPK
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	EET SPK

Protocol References:

EPA = US Environmental Protection Agency

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

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

Laboratory References:

EET 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

Eurofins Spokane
11922 E 1st Avenue

Spokane, WA 99206-5302
phone 509.924.9200 fax 509.924.9290

Chain of Custody Record

eurofins | Environment Testing America

Regulatory Program ☐DW ☐NPDES ☐RCRA ☐Other

Eurofins Environment Testing America

Client Contact	Project Manager: Ward McDonald	Site Contact:	Date: 4/24/24	COC No: 1 of 1 COCs
Your Company Name here: I+A	Email:	Lab Contact:	Carrier:	TALS Project #:
Address: 505 W Riverside Ave	Tel/Fax:			Sampler: MC / KH
City/State/Zip: Spokane, WA 99201	Analysis Turnaround Time ☐CALENDAR DAYS ☐WORKING DAYS			For Lab Use Only Walk-in Client: Lab Sampling:
(xxx) xxx-xxxx Phone: 509-544-3344	TAT if different from Below ☐ 2 weeks ☐ 1 week ☐ 2 days ☐ 1 day			
(xxx) xxx-xxxx FAX				
Project Name: Regular / Ironguard				
Site				Job / SDG No.
PO# 0202554-002				

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y / N)	Chloride (epa 300)	Nitrate/Nitrite (epa 353.2)	TDS (epa 160.1)	Dissolved Sodium (metals)	Total Sodium (metals)	Sample Specific Notes
MW-3	4/24	12:25	~~H20~~	H2O	3	N		X	X	X	X		
* MW-1	4/24	13:48	—	H2O	3	N		X	X	X	X		* = could not get filter to work, IC unpreserved is for dissolved sodium analysis that requires filtering.
SW-5	4/24	14:20	—	H2O	3	N		X	X	X		X	
SW-3	4/24	11:20	—	H2O	3	N		X	X	X		X	
SW-300	4/24	11:50	—	H2O	3			X	X	X		X	
MW-4	4/24	10:40	—	H2O	3	Y		X	X	X	X		
MW-400	4/24	11:10	—	H2O	3	Y		X	X	X	X		

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

590-24460 Chain of Custody

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

Special Instructions/QC Requirements & Comments: two samples require filtering

Custody Seals Intact: ☐Yes ☐No	Custody Seal No.	Cooler Temp. (°C): Obs'd: 9.2 Corr'd: 9.3	Therm ID No.: IR0006
Relinquished by: McKenzie Clare	Company: I+A	Date/Time: 4/24 3:43	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time	Received in Laboratory by:	Company: ESS	Date/Time: 4/24/24 15:43

5/9/2024

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 590-24460-1

Login Number: 24460
List Number: 1
Creator: Morris, Mackenzie 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.	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: Haley & Aldrich, Inc.

Job Number: 590-24460-1

Login Number: 24460
List Number: 2
Creator: Martinez, Lanea

List Source: Eurofins Seattle
List Creation: 04/26/24 12:13 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	
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	

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Ward McDonald
Haley & Aldrich, Inc.
505 W Riverside Ave
Suite 205
Spokane, Washington 99201

Generated 5/13/2024 3:46:26 PM

JOB DESCRIPTION

Heglar Kronquist Landfill

JOB NUMBER

590-24521-1

Eurofins Spokane
11922 East 1st Ave
Spokane WA 99206

See page two for job notes and contact information.

my EOL

Eurofins Spokane

Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing Northwest, LLC Project Manager.

Authorization

Generated
5/13/2024 3:46:26 PM

Authorized for release by
Randee Arrington, Business Unit Manager
Randee.Arrington@et.eurofinsus.com
(509)924-9200

Table of Contents

Job Narrative
590-24521-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

- Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt
The samples were received on 4/29/2024 12:20 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 time was 7.9°C.

Receipt Exceptions
Client contacted us on the 30th of April asking to change the sample names from Well 1 Well 2 SW-6 to DW-1, DW-2, and SW-Upgradient

DW-1 (590-24521-1), DW-2 (590-24521-2) and SW-Upgradient (590-24521-3)

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

Metals
Method 6010D - Dissolved: The low level initial calibration verification (ICVL) associated with batch 590-47254 recovered above the upper control limit for Sodium. The samples associated with this ICV were either 10x the spike amount, have hits below the RL, or non-detects for the affected analytes; therefore, the data have been reported.

Method 6010D - Total Recoverable: The low level initial calibration verification (ICVL) associated with batch 590-47254 recovered above the upper control limit for Sodium. The samples associated with this ICV were either 10x the spike amount, have hits below the RL, or non-detects for the affected analytes; therefore, the data have been reported.

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

General Chemistry
Method 353.2: Due to the high concentration of Nitrate Nitrite as N the matrix spike / matrix spike duplicate (MS/MSD) for analytical batch 580-459015 could not be evaluated for accuracy and precision. 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: Haley & Aldrich, Inc.
Project/Site: Heglar Kronquist Landfill

Job ID: 590-24521-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
590-24521-1	DW-1	Water	04/29/24 09:42	04/29/24 12:20
590-24521-2	DW-2	Water	04/29/24 10:20	04/29/24 12:20
590-24521-3	SW-Upgradient	Water	04/29/24 10:30	04/29/24 12:20

Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Heglar Kronquist Landfill

Job ID: 590-24521-1

Qualifiers

Metals

Qualifier	Qualifier Description
^1+	Initial Calibration Verification (ICV) is outside acceptance limits, high biased.

General Chemistry

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.

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: Haley & Aldrich, Inc.
Project/Site: Heglar Kronquist Landfill

Job ID: 590-24521-1

Client Sample ID: DW-1

Lab Sample ID: 590-24521-1
Matrix: Water
Date Collected: 04/29/24 09:42
Date Received: 04/29/24 12:20

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	19		0.80		mg/L			05/01/24 13:42	1

Method: SW846 6010D - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sodium	33	^1+	0.50		mg/L		05/07/24 11:15	05/07/24 20:53	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N (EPA 353.2)	15		0.15		mg/L			05/09/24 18:52	1
Total Dissolved Solids (SM 2540C)	290		25		mg/L			05/06/24 15:13	1

Client Sample ID: DW-2

Lab Sample ID: 590-24521-2
Matrix: Water
Date Collected: 04/29/24 10:20
Date Received: 04/29/24 12:20

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	26		0.80		mg/L			05/01/24 13:52	1

Method: SW846 6010D - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sodium	29	^1+	0.50		mg/L		05/07/24 11:15	05/07/24 20:40	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N (EPA 353.2)	19		0.15		mg/L			05/09/24 22:01	1
Total Dissolved Solids (SM 2540C)	280		25		mg/L			05/06/24 15:13	1

Client Sample ID: SW-Upgradient

Lab Sample ID: 590-24521-3
Matrix: Water
Date Collected: 04/29/24 10:30
Date Received: 04/29/24 12:20

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	5.5		0.80		mg/L			05/01/24 14:02	1

Method: SW846 6010D - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sodium	18	^1+	0.50		mg/L		05/07/24 11:09	05/07/24 18:57	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N (EPA 353.2)	14		0.15		mg/L			05/09/24 19:59	1
Total Dissolved Solids (SM 2540C)	460		25		mg/L			05/06/24 15:13	1

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 590-47130/1003
Matrix: Water
Analysis Batch: 47130

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		mg/L			05/01/24 09:22	1

Lab Sample ID: LCS 590-47130/1004
Matrix: Water
Analysis Batch: 47130

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	12.1		mg/L		97	90 - 110

Method: 6010D - Metals (ICP)

Lab Sample ID: MB 590-47223/2-A
Matrix: Water
Analysis Batch: 47254

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 47223

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sodium	ND	^1+	0.50		mg/L		05/07/24 11:08	05/07/24 17:39	1

Lab Sample ID: LCS 590-47223/1-A
Matrix: Water
Analysis Batch: 47254

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 47223

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sodium	50.0	48.3	^1+	mg/L		97	80 - 154

Lab Sample ID: MB 590-47224/2-B
Matrix: Water
Analysis Batch: 47254

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 47225

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sodium	ND	^1+	0.50		mg/L		05/07/24 11:15	05/07/24 19:30	1

Lab Sample ID: LCS 590-47224/1-B
Matrix: Water
Analysis Batch: 47254

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 47225

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sodium	50.0	46.0	^1+	mg/L		92	80 - 154

Method: 353.2 - Nitrogen, Nitrate-Nitrite

Lab Sample ID: MB 580-459015/14
Matrix: Water
Analysis Batch: 459015

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	ND		0.15		mg/L			05/09/24 17:19	1

Method: 353.2 - Nitrogen, Nitrate-Nitrite (Continued)

Lab Sample ID: LCS 580-459015/15
Matrix: Water
Analysis Batch: 459015

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Nitrate Nitrite as N			2.50	2.46		mg/L		98	90 - 110		

Lab Sample ID: LCSD 580-459015/16
Matrix: Water
Analysis Batch: 459015

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
Nitrate Nitrite as N			2.50	2.46		mg/L		99	90 - 110	0	20

Lab Sample ID: 590-24521-1 MS
Matrix: Water
Analysis Batch: 459015

Client Sample ID: DW-1
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Nitrate Nitrite as N	15		2.50	18.5	4	mg/L		130	90 - 110		

Lab Sample ID: 590-24521-1 MSD
Matrix: Water
Analysis Batch: 459015

Client Sample ID: DW-1
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Nitrate Nitrite as N	15		2.50	19.3	4	mg/L		161	90 - 110	4	20

Lab Sample ID: 590-24521-2 MS
Matrix: Water
Analysis Batch: 459015

Client Sample ID: DW-2
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Nitrate Nitrite as N	19		2.50	21.6	4	mg/L		107	90 - 110		

Lab Sample ID: 590-24521-2 MSD
Matrix: Water
Analysis Batch: 459015

Client Sample ID: DW-2
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Nitrate Nitrite as N	19		2.50	21.0	4	mg/L		82	90 - 110	3	20

Lab Sample ID: 590-24521-1 DU
Matrix: Water
Analysis Batch: 459015

Client Sample ID: DW-1
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Nitrate Nitrite as N	15			16.9		mg/L				10	20

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 590-47238/1
Matrix: Water
Analysis Batch: 47238

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		mg/L			05/06/24 15:13	1

Lab Sample ID: LCS 590-47238/2
Matrix: Water
Analysis Batch: 47238

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	503	499		mg/L		99	80 - 120

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Heglar Kronquist Landfill

Job ID: 590-24521-1

Client Sample ID: DW-1

Lab Sample ID: 590-24521-1
Matrix: Water
Date Collected: 04/29/24 09:42
Date Received: 04/29/24 12:20

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	47130	05/01/24 13:42	NMI	EET SPK
Dissolved	Prep	3005A			50 mL	50 mL	47225	05/07/24 11:15	AMB	EET SPK
Dissolved	Analysis	6010D		1			47254	05/07/24 20:53	AMB	EET SPK
Total/NA	Analysis	353.2		1	50 mL	50 mL	459015	05/09/24 18:52	FCG	EET SEA
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	47238	05/06/24 15:13	AMB	EET SPK

Client Sample ID: DW-2

Lab Sample ID: 590-24521-2
Matrix: Water
Date Collected: 04/29/24 10:20
Date Received: 04/29/24 12:20

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	47130	05/01/24 13:52	NMI	EET SPK
Dissolved	Prep	3005A			50 mL	50 mL	47225	05/07/24 11:15	AMB	EET SPK
Dissolved	Analysis	6010D		1			47254	05/07/24 20:40	AMB	EET SPK
Total/NA	Analysis	353.2		1	50 mL	50 mL	459015	05/09/24 22:01	FCG	EET SEA
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	47238	05/06/24 15:13	AMB	EET SPK

Client Sample ID: SW-Upgradient

Lab Sample ID: 590-24521-3
Matrix: Water
Date Collected: 04/29/24 10:30
Date Received: 04/29/24 12:20

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	47130	05/01/24 14:02	NMI	EET SPK
Total Recoverable	Prep	3005A			50 mL	50 mL	47223	05/07/24 11:09	AMB	EET SPK
Total Recoverable	Analysis	6010D		1			47254	05/07/24 18:57	AMB	EET SPK
Total/NA	Analysis	353.2		1	50 mL	50 mL	459015	05/09/24 19:59	FCG	EET SEA
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	47238	05/06/24 15:13	AMB	EET SPK

Laboratory References:

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: Haley & Aldrich, Inc.
Project/Site: Heglar Kronquist Landfill

Job ID: 590-24521-1

Laboratory: Eurofins Spokane

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

Authority	Program	Identification Number	Expiration Date
Washington	State	C569	01-07-25

Laboratory: Eurofins Seattle

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

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	20-004	02-19-25
ANAB	Dept. of Defense ELAP	L2236	01-19-25
ANAB	Dept. of Energy	L2236	01-19-25
ANAB	ISO/IEC 17025	L2236	01-19-25
California	State	2954	07-07-24
Florida	NELAP	E87575	06-30-24
Louisiana (All)	NELAP	03073	07-01-24
Montana (UST)	State	NA	04-14-27
New Jersey	NELAP	WA014	06-30-24
New York	NELAP	11662	04-01-25
Oregon	NELAP	4167	07-07-24
US Fish & Wildlife	US Federal Programs	A20571	06-30-24
USDA	US Federal Programs	525-23-4-22573	01-04-26
Washington	State	C788	07-13-24
Wisconsin	State	399133460	08-31-24

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Heglar Kronquist Landfill

Job ID: 590-24521-1

Method	Method Description	Protocol	Laboratory
300.0	Anions, Ion Chromatography	EPA	EET SPK
6010D	Metals (ICP)	SW846	EET SPK
353.2	Nitrogen, Nitrate-Nitrite	EPA	EET SEA
SM 2540C	Solids, Total Dissolved (TDS)	SM	EET SPK
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	EET SPK

Protocol References:

EPA = US Environmental Protection Agency

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

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

Laboratory References:

EET 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

HALEY ALDRICH

Haley & Aldrich, Inc.
505 W Riverside,
Suite 205,
Spokane WA, 99212

CHAIN OF CUSTODY RECORD

Page 1 of 1

H&A FILE NO.	0202596-001	LABORATORY	Eurofins
PROJECT NAME	Heglar Kreyquist Landfill	ADDRESS	
H&A CONTACT	Ward McDonald	CONTACT	Randee
DELIVERY DATE	4/29/24		
TURNAROUND TIME	Standard		
PROJECT MANAGER	Ward McDonald		

Sample No.	Date	Time	Depth	Type	Analysis Requested: Chloride	Chloride (EPA 300.0)	NO3, NO2	EPA 353.2	TDS EPA 160.1	D. Sodium EPA 6010C	T. Sodium 6010C			Number of Containers	Comments (special instructions, precautions, additional method numbers, etc.)
Well 1	4/29/24	9:42		Water	X		X		X	X					Laboratory to use applicable DEP CAM methods, unless otherwise directed.
Well 2	1	10:20		1	X		X		X	X					Samples Well 1 and Well 2.
SW-6	1	10:30		1	X		X		X		X				extra volume needs filtering for dissolved sodium.

Sampled and Relinquished by	Received by
Sign	Sign
Print Cameron Lucky	Print Jeremy Pavia
Firm H+A	Firm GTA Spokane
Date 4/29/24 Time 12:19	Date 4/29/24 Time 1220
Relinquished by	**Received by**
Sign	Sign
Print	Print
Firm	Firm
Date Time	Date Time
Relinquished by	**Received by**
Sign	Sign
Print	Print
Firm	Firm
Date Time	Date Time

LIQUID	SOLID
VOA Vial	VOA Vial
Amber Glass	Amber Glass
Plastic Bottle	Clear Glass
Preservative	Preservative
Volume	Volume

PRESERVATION KEY

A Sample chilled C NaOH E H_2SO_4 G Methanol
B Sample filtered D HNO_3 F HCL H Water/NaHSO4 (circle)

Sampling Comments

7.8°C 7.5°C IR006

590-24521 Chain of Custody

Presumptive Certainty Data Package (Laboratory to use applicable DEP CAM methods)

If Presumptive Certainty Data Package is needed, initial all sections:

_____ The required minimum field QC samples, as designated in BWSC CAM-VII have been or will be collected, as appropriate, to meet the requirements of Presumptive Certainty.

_____ Matrix Spike (MS) samples for MCP Metals and/or Cyanide are included and identified herein.

_____ This Chain of Custody Record (specify) _____ includes _____ does not include samples defined as Drinking Water Samples.

_____ If this Chain of Custody Record identifies samples defined as Drinking Water Samples, Trip Blanks and Field Duplicates are included and identified and analysis of TICs are required, as appropriate. Laboratory should (specify if applicable) _____ analyze

Required Reporting Limits and Data Quality Objectives

☐ RC-S1 ☐ S1 ☐ GW1
☐ RC-S2 ☐ S2 ☐ GW2
☐ RC-GW1 ☐ S3 ☐ GW3
☐ RC-GW2

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 590-24521-1

Login Number: 24521
List Number: 1
Creator: Morris, Mackenzie 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.	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: Haley & Aldrich, Inc.

Job Number: 590-24521-1

Login Number: 24521
List Number: 2
Creator: Martinez, Lanea

List Source: Eurofins Seattle
List Creation: 05/03/24 10:39 AM

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	IR11 2.3/1.8 c
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	