Port of Seattle
Lora Lake Apartments Site

2024 Annual Compliance Monitoring Report

Prepared for

Port of Seattle
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2024 Annual Compliance Monitoring Report

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Table of Contents

List of Tables

List of Figures

List of Appendices

List of Abbreviations

Abbreviation	Definition
ARL	Analytical Resources, LLC
CAP	Cleanup Action Plan
CD	Consent Decree
CMP	Compliance Monitoring Plan
DMCA	1982 Dredged Material Containment Area
Ecology	Washington State Department of Ecology
µg/L	Micrograms per liter

Abbreviation	Definition
pg/g	Picograms per gram
pg/L	Picograms per liter
Port	Port of Seattle
Site	Lora Lake Apartments Site
TEQ	Toxic equivalent
UCL	Upper confidence limit
USEPA	U.S. Environmental Protection Agency
WSDOT	Washington State Department of Transportation

1.0 Introduction

This Annual Compliance Monitoring Report was prepared by Floyd|Snider on behalf of the Port of Seattle (Port) to document the compliance monitoring events conducted in 2024 at the Lora Lake Apartments Site (Site) in Burien, Washington. Compliance monitoring activities were conducted in accordance with the 2015 Compliance Monitoring Plan (CMP), as revised and finalized in 2022 (Floyd|Snider 2022).

The objective of this report is to describe the compliance monitoring program activities performed from January through December 2024. This report includes the results from compliance monitoring activities, which comprises groundwater compliance monitoring, sediment remedy confirmation monitoring, and wildlife barrier and cap performance inspections at the Site. The cumulative data from these events are used in the first 5-year periodic review to confirm the effectiveness of the remedial action and identify when site-wide compliance with groundwater cleanup standards have been achieved for the Site. The first 5-year periodic review additionally assesses the appropriate monitoring frequency for the next 5 years. A sediment remedy compliance evaluation is included in this report.

1.1 BACKGROUND

1.1.1 Site Description

The Site is located at 15001 Des Moines Memorial Drive South in Burien, Washington, and straddles the boundary between the City of Burien (Burien) and City of SeaTac (SeaTac), Washington (refer to Figure 1.1). The Site, as defined by Washington Administrative Code 173-340-200, is made up of three areas: the Lora Lake Apartments Parcel, and areas within the Lora Lake Parcel and 1982 Dredged Material Containment Area (DMCA) where contamination has come to be located. Historical operations at the Lora Lake Apartments Parcel included barrel-washing and auto-wrecking operations, which, along with site regrading, led to soil and groundwater contamination throughout the Site. The Site is owned by the Port and is located within the security fencing for the Seattle-Tacoma International Airport except for the portion of the Lora Lake Apartments Parcel owned by the Washington State Department of Transportation (WSDOT), described below. Descriptions of the Site areas are as follows:

- The Lora Lake Apartments Parcel is located on the west side of Des Moines Memorial Drive in Burien and consists of approximately 8.3 acres of previously vacant land. A portion of the Lora Lake Apartments Parcel in the northeast corner was sold to WSDOT in May 2017 for the construction of State Route 518 off-ramp. This area is retained within the Site boundary although no longer owned by the Port. To the south of the Lora Lake Apartments Parcel is the former Seattle City Light Sunnydale Substation Parcel, which was purchased by the Port in 2011. Contamination has come to be located on a portion of the former Sunnydale Substation Parcel and this area therefore falls within the Site boundary.

- The Lora Lake Parcel is located on the east side of Des Moines Memorial Drive in SeaTac and consists of approximately 7.1 acres of land, including the former approximately 3-acre Lora Lake and a Port-constructed wetland habitat mitigation area.
- The DMCA is an approximately 2.75-acre area located adjacent to the Lora Lake Parcel, to the northeast. The DMCA was constructed in 1982 when King County dredged approximately 4 feet of Lora Lake sediments and placed the dredged material in a specifically constructed facility, now referred to as the DMCA.

The Port and the Washington State Department of Ecology (Ecology) entered a Consent Decree (CD) in September 2015 under the mutual objective of providing remedial action at the Site. The CD required the Port to perform a final cleanup action and associated compliance monitoring at the Site, as described in the Cleanup Action Plan (CAP; State of Washington 2015).

1.1.2 Remedial Actions Implemented

As described in the CAP, the remedial actions at the Site were determined for each parcel.

- The Lora Lake Apartments Parcel remedial actions taken include excavation of soils with a dioxin/furan toxic equivalent (TEQ) greater than 100 picograms per gram (pg/g), construction of a temporary clean soil cap, and future implementation of a constructed engineered surface to contain remaining soils with concentrations greater than the dioxin/furan TEQ cleanup level of 13 pg/g at the time of future site redevelopment. The final engineered surface shall be installed by October 31, 2026, as approved by Ecology via email on September 8, 2021. The excavation and temporary clean soil cap were completed in 2018.
- The Lora Lake Parcel remedial actions taken include construction of a sand cap, followed by site restoration into an intermittent scrub/shrub wetland. The sand cap was completed in 2019, and the wetland restoration was completed in early 2020.
- DMCA remedial actions completed include construction of a wildlife barrier. Restrictive Covenants limiting future site uses have been implemented for all parcels to protect from contact with contamination remaining in place. Restrictive Covenants for the Lora Lake Apartments Parcel, Lora Lake Parcel, DMCA, and the former Sunnydale Substation Parcel were filed with King County on January 28, 2022, after receipt of Ecology signatures. Compliance monitoring of the remedial actions is being conducted under the CMP (Floyd|Snider 2022).

1.1.3 Compliance Monitoring Requirements

In accordance with Washington Administrative Code 173-340-410, compliance monitoring of site groundwater is required to confirm that human health and the environment are adequately protected, the remedial action has achieved the cleanup standards, and the cleanup action remains protective after cleanup standards have been met.

The Ecology-approved CMP includes requirements for each of the Site's three parcels. Requirements for the Lora Lake Apartments Parcel include analysis of groundwater for arsenic, pentachlorophenol, and dioxins/furans, and four consecutive events with concentrations less than the established cleanup levels throughout the monitoring network prior to termination of sampling. The CMP also includes annual inspections of the soil cap to identify and document general condition, as well as any areas of exposed underlying soil, loss of barrier material, or substantial plant growth that may impact the functionality of the cap. Once constructed, annual monitoring of the permanent cap (redeveloped surface) will also be required to ensure integrity of the cap.

The Lora Lake Parcel requirements include annual analysis of groundwater for arsenic and dioxins/furans. Groundwater data is subject to a 5-year periodic review to assess appropriate monitoring frequency for the next 5 years, and subsequent 5-year reviews will set the frequency for the following 5-year period. Additionally, as described in the CMP, sediment remedy compliance is also evaluated every 5 years through a statistical comparison of Lora Lake Parcel groundwater quality to site vicinity groundwater quality, for assessment of the sediment cap performance and containment of contamination in the now-contained subsurface sediment beneath the restored wetland. The first 5-year periodic review and sediment remedy compliance evaluation is presented in this report.

Compliance monitoring requirements at the DMCA include annual wildlife barrier physical inspections to identify and document general condition, as well as any areas of exposed underlying soil, loss of barrier material, or substantial plant growth that may impact the functionality of the wildlife barrier.

2.0 Lora Lake Apartments Parcel

2.1 COMPLIANCE MONITORING PLAN ACTIVITIES COMPLETED

2.1.1 Groundwater Monitoring Program

Compliance monitoring at the Lora Lake Apartments Parcel began in December 2018. Four consecutive quarters of groundwater samples with pentachlorophenol and dioxin/furan concentrations less than cleanup levels were collected at MW-C1, MW-C2, and MW-C3 during the December 2018, March 2019, June 2019, and September 2019 monitoring events. With Ecology's approval, sampling for pentachlorophenol and dioxin/furan analysis was terminated after the September 2019 event. Sampling for dissolved arsenic continues as discussed below.

Groundwater samples, as described in this report, were collected from the full monitoring network (MW-C1, MW-C2, MW-C3, and MW-C4) on March 30, 2020, and June 20, 2020. In August 2020, Floyd|Snider submitted the *Evaluation of Arsenic in Groundwater at the Lora Lake Apartments Site* memorandum (hereafter referred to as the Arsenic Evaluation Memorandum; Floyd|Snider 2020) to Ecology on behalf of the Port to describe outlier arsenic data trends observed at MW-C2 and propose a change in the monitoring approach.

As described in the Arsenic Evaluation Memorandum, seasonal exceedances of arsenic concentrations correlated with elevated pH and high groundwater table elevation, likely associated with the crushed concrete fill placed after the demolition of the Lora Lake Apartments buildings and excavation of underlying impacted soil. Even though this recycled concrete was placed above the historical high water table elevation it may be impacting pH and arsenic in groundwater during the wet season. Because the pattern observed at MW-C2 is unique to the location and not observed within the rest of the monitoring network, the Port requested termination of quarterly sampling of the full monitoring network. The Port proposed annual sampling of MW-C2 and downgradient location MW-C3 during the wet season to continue to confirm that elevated arsenic concentrations are not migrating off-site.

On September 21, 2020, Ecology approved the proposed approach of terminating quarterly sampling at the Lora Lake Apartments Parcel and coordinating annual sampling of MW-C2 and the downgradient location, MW-C3, concurrent with Lora Lake annual monitoring each spring (refer to Appendix A of the 2020 Annual Compliance Monitoring Report [Floyd|Snider 2021]). Annual monitoring of MW-C2 and MW-C3 will monitor trends and confirm arsenic-impacted waters are not migrating off-property. The 2024 annual monitoring is described in this report.

2.2 GROUNDWATER COMPLIANCE MONITORING SUMMARY

MW-C2 and MW-C3 were sampled on March 20, 2024. The groundwater monitoring network is presented in Figure 2.1.

Groundwater samples were collected using standard low-flow sampling methods. The collected samples were generally clear, with no apparent odor. Purge water was collected and placed in

an on-site, labeled, 55-gallon drum. All samples were submitted to Analytical Resources, LLC (ARL) under chain-of-custody procedures for analysis of arsenic. Groundwater sample collection forms for the event are included in Appendix A.

2.3 GROUNDWATER ANALYTICAL SUMMARY

This section summarizes the analytical results for arsenic. Analytical results are presented in Figure 2.1 and Table 2.1, and laboratory reports and data validation summaries are included in Appendix B.

2.3.1 Arsenic

In the sample collected from MW-C3, arsenic was detected at an estimated concentration of 0.15 micrograms per liter (µg/L), less than the Site cleanup level of 5 µg/L. The arsenic concentration in the sample collected from MW-C2 was 42 µg/L, exceeding the Site cleanup level.

The elevated arsenic concentration on March 20, 2024, is consistent with the trend observed between 2019 and 2023. The likely cause of elevated arsenic at MW-C2 was evaluated and described in Section 2.1.1 and in the Arsenic Evaluation Memorandum (Floyd|Snider 2020).

2.3.2 Data Validation

A Compliance Screening (USEPA Stage 2B) data quality review was performed on metals data resulting from laboratory analysis by U.S. Environmental Protection Agency (USEPA) Methods 6020B. The analytical data were validated by Floyd|Snider in accordance with the USEPA *National Functional Guidelines for Inorganic Superfund Methods Data Review* (USEPA 2020).

Field and laboratory quality control parameters for all samples met project criteria. At some monitoring well locations, arsenic results were detected at concentrations less than the method reporting limit; these results were qualified by the laboratory as estimated concentrations. No additional qualifiers were added to the analytical results for metals based on the data quality review. Metals data are determined to be of acceptable quality for use as reported by the laboratory.

2.4 TEMPORARY SOIL CAP INSPECTION

On March 20, 2024, a cap inspection was conducted to document the integrity of the temporary soil cap that was installed at the Lora Lake Apartments Parcel in October 2017. The cap inspection was conducted in accordance with the CMP. During the cap inspection, the following items were noted for maintenance: (1) areas in need of vegetation replacement along the southern property boundaries near the entrance and near the biofiltration swale and (2) some animal burrowing. Appendix C includes field observations and photographs taken during the temporary soil cap inspection.

Instruction for required maintenance of the temporary soil cap was provided to the Port as part of required landscape operations and maintenance. Placement of topsoil and reseeding of areas

where mowing activities had impacted the soil barrier as noted in Table C.1 was conducted in October 2024. Mowing was also conducted throughout the year. No additional maintenance was required or conducted in 2024. Appendix D includes photographs of post-maintenance site conditions.

3.0 Lora Lake Parcel

3.1 COMPLIANCE MONITORING PLAN ACTIVITIES COMPLETED

3.1.1 Groundwater Monitoring Completed

Previously reported annual monitoring was completed at the Lora Lake Parcel in October 2020, March 2021, March 2022, and April 2023. The fifth round of annual monitoring occurred on April 24, 2024, and is described in this report. In accordance with the CMP, on-site and vicinity well locations were sampled for arsenic and dioxins/furans. The full monitoring network includes on-site well locations MW-CP1, MW-CP2, MW-CP3, MW-CP4, MW-CP5, MW-CP6, and MW-CP-7, as well as vicinity well locations MW-C1/VB1, MW-VB2, MW-VB3, and HCOO-B312 (Figure 3.1).

3.1.2 Maintenance Activities Completed

No maintenance actions were identified for the Lora Lake Parcel, and no maintenance activities were conducted during the year.

3.2 GROUNDWATER COMPLIANCE MONITORING SUMMARY

This section summarizes the compliance monitoring events at the Lora Lake Parcel in 2024. The monitoring network is presented in Figure 3.1, and the groundwater sample collection forms are in Appendix A.

The full monitoring network (MW-CP1, MW-CP2, MW-CP3, MW-CP4, MW-CP5, MW-CP6, MW-CP-7, MW-C1/VB1, MW-VB2, MW-VB3, and HCOO-B312) was sampled on April 24, 2024. Groundwater samples were collected using standard low-flow groundwater sampling methods. Duplicate samples were collected at MW-C1/VB1 and MW-CP1 for laboratory quality control. Samples were generally clear with no visible turbidity and no apparent odor. Purge water was collected and placed in an on-site, labeled, 55-gallon drum for future disposal by the Port. All samples were submitted to ARL under chain-of-custody procedures for analysis of arsenic and dioxins/furans.

3.3 GROUNDWATER ANALYTICAL SUMMARY

This section summarizes the analytical results for arsenic and dioxins/furans. Analytical results are presented in Figure 3.1 and Table 3.1, and laboratory reports and data validation summaries are included in Appendix B.

3.3.1 Arsenic

Arsenic concentrations in samples collected from all on-site wells and all vicinity wells were less than the Site cleanup level of 5 µg/L, with the exception of MW-CP5, which exceeded the Site cleanup level with a concentration of 9.8 µg/L.

The CUL exceedance at MW-CP5 is the first exceedance observed at the Lora Lake Parcel since monitoring began in October 2020. Prior concentrations of arsenic in MW-CP5 have ranged from 1.2 µg/L to 3.7 µg/L, which are typically greater than arsenic concentrations in other on-site wells. The 5-year periodic review of analytical data relative to sediment cap performance is presented in Section 5.1.

3.3.2 Dioxins/Furans

The Site groundwater cleanup level for dioxin/furan TEQ is 6.7 picograms per liter (pg/L). Dioxin/furan TEQ was not detected in any on-site wells or vicinity wells.

3.3.3 Data Validation

A Compliance Screening (USEPA Stage 2B) data quality review was performed on metals data resulting from laboratory analysis by USEPA Method 6020B. The analytical data were validated by Floyd|Snider in accordance with the USEPA *National Functional Guidelines for Inorganic Superfund Methods Data Review* (USEPA 2020). A full data validation (USEPA Stage 4) was performed on dioxin/furan data resulting from laboratory analysis by USEPA Method 1613B. The dioxin/furan data were validated by EcoChem, Inc. EcoChem data validation reports are included in Appendix B.

Field and laboratory quality control parameters for samples met project criteria. All data are determined to be of acceptable quality for use as reported or qualified.

3.3.4 Sediment Remedy Confirmation Monitoring

As detailed in the CMP, the sediment cap is designed to achieve compliance with surface water quality criteria at the cap surface. The surface water quality criterion of 0.005 pg/L dioxin/furan TEQ is significantly less than current laboratory practical quantitation limits. As described in the CMP, statistical comparison of groundwater confirmation samples collected within and downgradient of the former Lora Lake cleanup area to site vicinity background groundwater samples was conducted for confirmation of the sediment remedy performance. This statistical comparison method for confirmation monitoring samples provides a measurable method to determine if quality of groundwater samples collected immediately above the sediment cap are different than samples collected from site vicinity background locations. This statistical analysis is presented in Section 5.1. Statistical comparison has been conducted in accordance with the procedures described in the CMP.

4.0 1982 Dredged Material Containment Area

4.1 WILDLIFE BARRIER INSPECTION

The DMCA wildlife barrier was inspected on March 20, 2024. Dust and organic debris associated with a large deciduous tree were documented at the southwest corner (station DMCA 09) of the DMCA area during the inspection. The DMCA was swept in the second quarter of 2024 by Port Field Crews, as part of regular maintenance to address dust and debris as noted during the inspection. Overall, the general integrity and condition of the pervious pavement was in good condition. Signs of potential material loss at the surface previously noted at DMCA 05 during the 2023 inspection appeared stable and unchanged. Although the potential material loss does not appear to impact the barrier's ability to restrict contact with underlying soils, continued monitoring of this location is recommended. The wildlife barrier inspection log and photographs are included in Appendix C.

5.0 Sediment Remedy Confirmation Monitoring Evaluation

As previously described, a 5-year periodic review is required to be completed in 2024 at the Lora Lake Parcel to evaluate sediment cap performance through a statistical comparison of Lora Lake Parcel groundwater quality in the confirmation monitoring wells to site vicinity groundwater quality. Results of this evaluation support assessment of the appropriate monitoring frequency for the next 5 years and are described below.

5.1 DETERMINATION OF SITE VICINITY BACKGROUND CONCENTRATIONS

The site vicinity background concentrations for arsenic and dioxin/furan TEQ were calculated using the statistical software ProUCL (USEPA 2022) according to Section 4.3.3.2 and Figure 12 of the *Statistical Guidance for Ecology Site Managers* (Ecology Statistical Guidance; Ecology 1992). All ProUCL outputs are provided in Appendix E. Site vicinity wells include MW-C1/VB1, MW-VB2, MW-VB3, and HCOO-B312 (Figure 3.1).

A goodness-of-fit test was conducted in ProUCL to determine the statistical distribution of arsenic and dioxins/furans in the site vicinity wells dataset using a significance level of 5% ($p<0.05$). The arsenic site vicinity dataset was determined to be normally distributed, and the dioxin/furan TEQ site vicinity dataset was determined to be gamma distributed. Based on the data distribution, the 90th percentile values and median were calculated. Ecology Statistical Guidance requires the background concentration to be set to the lesser value of either the 90th percentile value or 4 times the median (Ecology 1992).

For both arsenic and dioxin/furan TEQ, the 90th percentile was determined to be less than 4 times the median and selected for use as the site vicinity background concentration. The site vicinity background concentration for arsenic is 0.43 µg/L and for dioxin/furan TEQ is 3.11 pg/L. Summary statistics for the arsenic and dioxin/furan TEQ datasets are presented in Table 5.1.

5.2 COMPARISON OF SITE DATA TO BACKGROUND CONCENTRATIONS

To compare the confirmation monitoring well dataset to the site vicinity background concentration, the 95% upper confidence limit (UCL) of the true mean of the compliance monitoring well dataset was calculated. Confirmation monitoring wells include MW-CP1 through MW-CP7 (Figure 3.1). The resulting 95% UCL recommended by ProUCL for arsenic is 1.6 µg/L (greater than site vicinity background concentration) and for dioxin/furan TEQ is 1.25 pg/L (less than site vicinity background concentration).

As described in the CMP and Ecology Statistical Guidance, if more than 20% of the sample results exceed the site vicinity background concentration, or a detected result exceeds 2 times the site vicinity background concentration, the sediment cap confirmation monitoring groundwater data will be considered to exceed the site vicinity background.

5.2.1 Arsenic

For arsenic, greater than 50% of the confirmation monitoring dataset exceeds the site vicinity background concentration, and 11 of the 35 sampling results were greater than 2 times the site vicinity background concentration in MW-CP3, MW-CP4, MW-CP5, and MW-CP6. Therefore, for arsenic, the sediment cap confirmation groundwater monitoring data are considered to exceed the site vicinity background.

To further evaluate arsenic groundwater concentrations at the Lora Lake Parcel, time-series plots of arsenic concentrations in each monitoring well are presented in Figure 5.1. A review of both the site vicinity background and compliance monitoring wells do not indicate any concentration trends over time; concentrations at all locations appear variable over time and increasing trends are not observed.

Of the 35 samples collected, only 1 indicates an arsenic concentration greater than the Site CUL of 5 µg/L (MW-CP5 in 2024 at a concentration of 9.8 µg/L). The greatest concentrations in the compliance monitoring well network have consistently been observed at this location, with prior concentrations ranging from 1.2 µg/L to 3.7 µg/L. It is unclear based on the existing dataset if the Site CUL exceedance in 2024 was anomalous or indicative of an actual change in groundwater quality; additional data are required for further evaluation. Notably, when MW-CP5 is excluded from the compliance monitoring well dataset to assess compliance within this individual well location, the resulting 95% UCL for the compliance monitoring well dataset is less than 2 times the site vicinity background concentration (refer to Table 5.1).

5.2.2 Dioxin/Furan TEQ

For dioxins/furans, only one sample result exceeded the site vicinity background concentration at MW-CP5 in 2023. This exceedance is non-detect at a reporting limit of 3.86 pg/L, less than 1.5 times the site vicinity background concentration. Therefore, for dioxin/furan TEQ, the sediment cap confirmation monitoring data are not considered to exceed the site vicinity background concentration and the sediment cap remedy has been effective.

6.0 Recommendations

In accordance with the CMP, the first 5-year periodic review assesses the appropriate monitoring frequency for the next 5 years, and subsequent 5-year periodic reviews will set the frequency for the following 5-year periods. Based on the 5 consecutive years of compliance monitoring and the sediment remedy confirmation monitoring evaluation, the Port recommends the following to commence in the 2025 compliance monitoring event:

- *Termination of groundwater compliance monitoring at the Lora Lake Apartments Parcel.* The 5 years of groundwater monitoring for arsenic confirms that the elevated arsenic concentrations detected at MW-C2 due to the placement of crushed concrete during the remedial action are isolated to MW-C2 and are not migrating off-site. At MW-C3, the monitoring well downgradient of MW-C2, arsenic has consistently been detected at levels well below the Site CUL of 5 µg/L, with a maximum concentration of 0.26 µg/L in 2019. With the termination of groundwater compliance monitoring, MW-C2 and MW-C3 would be decommissioned.
- *Continuation of Lora Lake Apartments Parcel temporary soil cap annual inspections.* The Lora Lake Apartments Parcel temporary soil cap continues to be intact but minor repairs are periodically required, as described in prior compliance monitoring reports. The Port therefore recommends continued annual inspections.
- *Continuation of Lora Lake Parcel sediment cap confirmation groundwater monitoring for arsenic.* As described in the CMP, if the sediment cap confirmation monitoring groundwater data exceeds the site vicinity background, the Port, in coordination with and at the direction of Ecology, will determine what contingency actions may be necessary and appropriate. The arsenic confirmational monitoring 95% UCL exceeds the calculated site vicinity background; however, no concentration trend is present in the monitoring data and individual well location MW-CP5 is a substantial driver in the 95% UCL value. Consistent with the CMP, the proposed contingency action after the first 5 years of monitoring is to continue annual monitoring of arsenic for 3 additional years to increase the size of the dataset and therefore, the power of statistical comparison.

  The statistical evaluation and concentration trends will be updated in future compliance monitoring reports. If arsenic concentrations continue to exceed the Site CUL or increasing concentrations of arsenic are observed, the spatial extent of arsenic will be evaluated and additional continency actions may be required. Any potential continency actions would be identified in coordination with Ecology. As described in the CMP, in the evaluation of potential contingency actions, Ecology will consider the net environmental benefit of the contingency action relative to disturbance of a wetland mitigation area.
- *Termination of Lora Lake Parcel sediment cap confirmation groundwater monitoring for dioxins/furans.* Dioxin/furan TEQ results in groundwater collected within the sediment cap area do not exceed the site vicinity background concentration and

therefore no contingency actions are warranted. Because dioxin/furan TEQ concentrations are in compliance with CULs, and do not exceed the site vicinity background concentration, the Port recommends the termination of sediment cap confirmation monitoring for dioxins/furans at the Lora Lake Parcel.

- *Continuation of DMCA wildlife barrier annual inspections.* The DMCA wildlife barrier continues to be intact but minor repairs and maintenance are periodically required, as described in prior monitoring reports. The Port therefore recommends continued annual inspections.

7.0 References

Floyd|Snider. 2020. *Evaluation of Arsenic in Groundwater at the Lora Lake Apartments Site.* Memorandum from Adia Jumper, Mark Jusayan, and Megan King, Floyd|Snider, to Sunny Becker, Washington State Department of Ecology. 17 August.

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Lora Lake Apartments Site

2024 Annual Compliance Monitoring Report

Tables

Table 2.1
Lora Lake Apartments Parcel Groundwater Analytical Data

Location Name				MW-C1													
Sample ID				MW-C1-121218	MW-C1-121218-D	MW-C1-031519	MW-C1-031519-D	MW-C1-062119	MW-C1-062119-D	MW-C1-092019	MW-C1-092019-D	MW-C1-121819	MW-C1-121819-D	MW-C1-033020	MW-C1-033020-D	MW-C1-061720	MW-C1-061720D
Sample Date				12/12/2018	12/12/2018	3/15/2019	3/15/2019	6/21/2019	6/21/2019	9/20/2019	9/20/2019	12/18/2019	12/18/2019	3/30/2020	3/30/2020	6/17/2020	6/17/2020
Analyte	**CAS No.**	**Site CUL**	**Units**														
Field Parameters																	
Turbidity	--	--	ntu														
Dissolved Metals by USEPA 200.8																	
Arsenic	7440-38-2	5	µg/L	0.11 JQ	0.11 JQ	0.11 JQ	0.096 JQ	0.15 JQ	0.12 JQ	0.16 JQ	0.15 JQ	0.10 JQ	0.091 JQ	0.12 JQ	0.13 JQ	0.14 JQ	0.14 JQ
Phenols by USEPA 8041A																	
Pentachlorophenol	87-86-5	1	µg/L	0.025 U	0.025 U	0.025 U	0.025 U	0.025	0.025	0.025 U	0.025 U						
Dioxins/Furans by USEPA 1613B																	
2,3,7,8-TCDD	1746-01-6	--	pg/L	0.520 U	0.290 U	2.68 U	1.65 U	1.01 U	0.860 U	2.11 U	1.53 U						
1,2,3,7,8-PeCDD	40321-76-4	--	pg/L	0.490 U	0.350 U	3.25 U	1.64 U	1.02 U	0.990 U	1.17 U	1.48 U						
1,2,3,4,7,8-HxCDD	39227-28-6	--	pg/L	0.470 U	0.330 U	3.02 U	1.71 U	0.850 U	0.920 U	1.28 U	1.83 U						
1,2,3,6,7,8-HxCDD	57653-85-7	--	pg/L	0.430 U	0.320 U	2.95 U	1.72 U	0.790 U	0.860 U	1.11 U	1.68 U						
1,2,3,7,8,9-HxCDD	19408-74-3	--	pg/L	0.470 U	0.340 U	3.11 U	1.79 U	0.850 U	0.920 U	1.22 U	1.80 U						
1,2,3,4,6,7,8-HpCDD	35822-46-9	--	pg/L	1.48 U	0.980 U	11.0 U	2.11 UJ	1.54 UJ	1.24 UJ	2.04 U	1.60 U						
OCDD	3268-87-9	--	pg/L	3.37 J	5.71 J	148 J	9.90 J	4.65 UJ	5.59 UJ	7.48 UJ	15.5 U						
2,3,7,8-TCDF	51207-31-9	--	pg/L	0.380 U	0.340 U	2.64 U	1.67 U	1.32 U	1.10 U	1.95 U	1.45 U						
1,2,3,7,8-PeCDF	57117-41-6	--	pg/L	0.450 U	0.310 U	3.47 U	1.71 U	1.89 UJ	1.50 U	1.16 U	1.42 U						
2,3,4,7,8-PeCDF	57117-31-4	--	pg/L	0.410 U	0.280 U	3.14 U	1.53 U	1.43 U	1.24 U	0.930 U	1.15 U						
1,2,3,4,7,8-HxCDF	70648-26-9	--	pg/L	0.260 U	0.240 U	1.80 U	1.01 U	0.470 UJ	0.430 U	0.980 U	1.34 U						
1,2,3,6,7,8-HxCDF	57117-44-9	--	pg/L	0.260 U	0.250 U	1.86 U	1.01 U	0.500 UJ	0.450 UJ	0.960 U	1.42 U						
1,2,3,7,8,9-HxCDF	72918-21-9	--	pg/L	0.280 U	0.650 U	2.10 U	1.11 U	0.530 UJ	0.460 U	1.04 U	1.45 U						
2,3,4,6,7,8-HxCDF	60851-34-5	--	pg/L	0.260 U	0.240 U	1.66 U	0.960 U	0.450 UJ	0.410 UJ	0.980 U	1.34 U						
1,2,3,4,6,7,8-HpCDF	67562-39-4	--	pg/L	0.270 U	0.290 U	1.74 U	1.20 U	0.420 UJ	0.580 UJ	1.02 U	0.720 U						
1,2,3,4,7,8,9-HpCDF	55673-89-7	--	pg/L	0.370 U	0.250 U	2.36 U	1.70 UJ	0.600 UJ	0.860 UJ	1.69 U	1.06 U						
OCDF	39001-02-0	--	pg/L	1.22 UJ	0.860 UJ	11.2 UJ	4.23 UJ	1.53 UJ	1.99 UJ	2.65 UJ	2.15 U						
Dioxin/furan TEQ	--	6.7	pg/L	0.726 J	0.512 J	4.57 J	2.48 J	1.56 UJ	1.43 UJ	2.30 UJ	2.33 U						

Notes:

Blank cells are intentional.

-- Not available.

BOLD/RED Analyte detected at a concentration greater than the site cleanup level.

1 In 2018, location MW-C4 was found to be filled with sand and was not sampled in December 2018, March 2019, or June 2019. Following coordination with Ecology, this well was abandoned and a replacement well was installed within a few feet of the original well location in August 2019.

Abbreviations:

CAS Chemical Abstracts Service
CUL Cleanup level
Ecology Washington State Department of Ecology
HpCDD Heptachlorodibenzo-*p*-dioxin
HpCDF Heptachlorodibenzofuran
HxCDD Hexachlorodibenzo-*p*-dioxin
HxCDF Hexachlorodibenzofuran
µg/L Micrograms per liter
ntu Nephelometric turbidity units
OCDD Octachlorodibenzodioxin
OCDF Octachlorodibenzofuran
PeCDD Pentachlorodibenzo-*p*-dioxin
PeCDF Pentachlorodibenzofuran
pg/L Picograms per liter
TCDD Tetrachlorodibenzo-*p*-dioxin
TCDF Tetrachlorodibenzofuran
TEQ Toxic equivalent
USEPA U.S. Environmental Protection Agency

Qualifiers:

J Analyte was detected; concentration is considered to be an estimate.
JQ Analyte was detected between the method detection limit and reporting limit; concentration is considered to be an estimate.
U Analyte was not detected at the given reporting limit.
UJ Analyte was not detected; concentration given is the reporting limit, which is considered to be an estimate.

Table 2.1
Lora Lake Apartments Parcel Groundwater Analytical Data

			Location Name	MW-C2											
			Sample ID	MW-C2-121218	MW-C2-031519	MW-C2-062119	MW-C2-092019	MW-C2-121819	MW-C2-033020	MW-C2-061720	MW-C2-102820	MW-C2-031621	MW-C2-032422	MW-C2-041423	MW-C2-032024
			Sample Date	12/12/2018	3/15/2019	6/21/2019	9/20/2019	12/18/2019	3/30/2020	6/17/2020	10/28/2020	3/16/2021	3/24/2022	4/14/2023	3/20/2024
Analyte	**CAS No.**	**Site CUL**	**Units**												
Field Parameters															
Turbidity	--	--	ntu								0.80	1.90		3.57	1.78
Dissolved Metals by USEPA 200.8															
Arsenic	7440-38-2	5	µg/L	2.6	**14**	3.7	2.1	1.9	**27**	**11**	3.1	**22**	**24**	**55**	**42**
Phenols by USEPA 8041A															
Pentachlorophenol	87-86-5	1	µg/L	0.062	0.69	0.051	0.031								
Dioxins/Furans by USEPA 1613B															
2,3,7,8-TCDD	1746-01-6	--	pg/L	0.370 U	2.41 U	1.94 U	1.95 U								
1,2,3,7,8-PeCDD	40321-76-4	--	pg/L	0.440 U	3.25 U	1.82 U	1.17 U								
1,2,3,4,7,8-HxCDD	39227-28-6	--	pg/L	0.530 U	3.69 U	1.20 U	1.50 U								
1,2,3,6,7,8-HxCDD	57653-85-7	--	pg/L	0.900 U	4.96 J	1.11 U	1.29 U								
1,2,3,7,8,9-HxCDD	19408-74-3	--	pg/L	0.550 U	3.65 U	1.19 U	1.42 U								
1,2,3,4,6,7,8-HpCDD	35822-46-9	--	pg/L	22.5	86.5	47.8	14.8								
OCDD	3268-87-9	--	pg/L	232 J	553	515 J	126 J								
2,3,7,8-TCDF	51207-31-9	--	pg/L	0.450 U	3.49 U	1.87 U	1.69 U								
1,2,3,7,8-PeCDF	57117-41-6	--	pg/L	0.670 U	2.62 U	1.67 U	1.42 U								
2,3,4,7,8-PeCDF	57117-31-4	--	pg/L	0.400 U	2.35 U	1.42 U	1.10 U								
1,2,3,4,7,8-HxCDF	70648-26-9	--	pg/L	0.550 J	1.87 U	1.26 U	1.11 U								
1,2,3,6,7,8-HxCDF	57117-44-9	--	pg/L	0.450 U	1.89 U	1.27 U	1.12 U								
1,2,3,7,8,9-HxCDF	72918-21-9	--	pg/L	0.330 U	2.08 U	1.31 U	1.25 U								
2,3,4,6,7,8-HxCDF	60851-34-5	--	pg/L	0.530 J	1.70 U	1.15 U	1.10 U								
1,2,3,4,6,7,8-HpCDF	67562-39-4	--	pg/L	4.71 J	13.8	12.0 U	3.60 U								
1,2,3,4,7,8,9-HpCDF	55673-89-7	--	pg/L	0.580 U	2.03 U	1.84 U	0.740 U								
OCDF	39001-02-0	--	pg/L	21.2 J	40.5	45.2 J	13.8 J								
Dioxin/furan TEQ	--	6.7	pg/L	1.09 J	5.83 J	3.35 J	2.48 J								

Notes:

Blank cells are intentional.

-- Not available.

BOLD/RED Analyte detected at a concentration greater than the site cleanup level.

1 In 2018, location MW-C4 was found to be filled with sand and was not sampled in December 2018, March 2019, or June 2019. Following coordination with Ecology, this well was abandoned and a replacement well was installed within a few feet of the original well location in August 2019.

Abbreviations:

CAS Chemical Abstracts Service
CUL Cleanup level
Ecology Washington State Department of Ecology
HpCDD Heptachlorodibenzo-*p*-dioxin
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µg/L Micrograms per liter
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OCDD Octachlorodibenzodioxin
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PeCDD Pentachlorodibenzo-*p*-dioxin
PeCDF Pentachlorodibenzofuran
pg/L Picograms per liter
TCDD Tetrachlorodibenzo-*p*-dioxin
TCDF Tetrachlorodibenzofuran
TEQ Toxic equivalent
USEPA U.S. Environmental Protection Agency

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JQ Analyte was detected between the method detection limit and reporting limit; concentration is considered to be an estimate.
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Table 2.1
Lora Lake Apartments Parcel Groundwater Analytical Data

Location Name				MW-C3													MW-C4 [1]			
Sample ID				MW-C3-121218	MW-C3-031519	MW-C3-062119	MW-C3-092019	MW-C3-121819	MW-C3-033020	MW-C3-061720	MW-C3-102820	MW-C3-031621	MW-C3-031621-D	MW-C3-032422	MW-C3-041423	MW-C3-032024	MW-C4-092019	MW-C4-121819	MW-C4-033020	MW-C4-061720
Sample Date				12/12/2018	3/15/2019	6/21/2019	9/20/2019	12/18/2019	3/30/2020	6/17/2020	10/28/2020	3/16/2021	3/16/2021	3/24/2022	4/14/2023	3/20/2024	9/20/2019	12/18/2019	3/30/2020	6/17/2020
Analyte	**CAS No.**	**Site CUL**	**Units**																	
Field Parameters																				
Turbidity	--	--	ntu								1.93	2.57			1.64	1.66				
Dissolved Metals by USEPA 200.8																				
Arsenic	7440-38-2	5	µg/L	0.24	0.26	0.20 JQ	0.22	0.22	0.25	0.22	0.22	0.19 JQ	0.21	0.19 JQ	0.18 J	0.15 J	0.47	0.42	0.37	0.49
Phenols by USEPA 8041A																				
Pentachlorophenol	87-86-5	1	µg/L	0.025 U	0.025 U	0.025	0.025 U										0.025 U			
Dioxins/Furans by USEPA 1613B																				
2,3,7,8-TCDD	1746-01-6	--	pg/L	0.350 U	0.650 U	2.01 U	1.71 U										1.73 U			
1,2,3,7,8-PeCDD	40321-76-4	--	pg/L	0.330 U	0.670 U	1.14 U	1.34 U										0.980 U			
1,2,3,4,7,8-HxCDD	39227-28-6	--	pg/L	0.390 U	0.770 U	1.02 U	1.55 UJ										0.960 U			
1,2,3,6,7,8-HxCDD	57653-85-7	--	pg/L	0.380 U	0.730 U	0.940 U	1.39 U										0.870 U			
1,2,3,7,8,9-HxCDD	19408-74-3	--	pg/L	0.400 U	0.780 U	1.01 U	1.50 U										0.930 U			
1,2,3,4,6,7,8-HpCDD	35822-46-9	--	pg/L	0.520 U	1.03 U	1.45 U	1.60 U										1.45 U			
OCDD	3268-87-9	--	pg/L	3.23 J	9.11 J	4.34 J	4.98 UJ										10.7 U			
2,3,7,8-TCDF	51207-31-9	--	pg/L	0.310 U	0.710 U	1.49 U	1.92 U										1.82 U			
1,2,3,7,8-PeCDF	57117-41-6	--	pg/L	0.310 U	0.820 U	1.23 U	1.19 U										1.03 U			
2,3,4,7,8-PeCDF	57117-31-4	--	pg/L	0.290 U	0.750 U	1.00 U	0.960 U										0.850 U			
1,2,3,4,7,8-HxCDF	70648-26-9	--	pg/L	0.180 U	0.540 U	0.800 U	0.750 U										0.720 U			
1,2,3,6,7,8-HxCDF	57117-44-9	--	pg/L	0.180 U	0.510 U	0.830 U	0.720 U										0.700 U			
1,2,3,7,8,9-HxCDF	72918-21-9	--	pg/L	0.520 U	0.540 U	0.870 U	0.830 U										0.750 U			
2,3,4,6,7,8-HxCDF	60851-34-5	--	pg/L	0.180 U	0.500 U	0.760 U	0.740 U										0.700 U			
1,2,3,4,6,7,8-HpCDF	67562-39-4	--	pg/L	0.140 U	0.330 U	0.580 U	0.550 U										0.590 U			
1,2,3,4,7,8,9-HpCDF	55673-89-7	--	pg/L	0.180 U	0.440 U	0.750 UJ	0.810 U										0.860 U			
OCDF	39001-02-0	--	pg/L	0.690 UJ	1.02 U	2.82 UJ	2.76 UJ										2.80 U			
Dioxin/furan TEQ	--	6.7	pg/L	0.520 J	1.05 J	2.15 J	2.17 UJ										1.89 U			

Notes:

Blank cells are intentional.

-- Not available.

BOLD/RED Analyte detected at a concentration greater than the site cleanup level.

1 In 2018, location MW-C4 was found to be filled with sand and was not sampled in December 2018, March 2019, or June 2019. Following coordination with Ecology, this well was abandoned and a replacement well was installed within a few feet of the original well location in August 2019.

Abbreviations:

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µg/L Micrograms per liter
ntu Nephelometric turbidity units
OCDD Octachlorodibenzodioxin
OCDF Octachlorodibenzofuran
PeCDD Pentachlorodibenzo-*p*-dioxin
PeCDF Pentachlorodibenzofuran
pg/L Picograms per liter
TCDD Tetrachlorodibenzo-*p*-dioxin
TCDF Tetrachlorodibenzofuran
TEQ Toxic equivalent
USEPA U.S. Environmental Protection Agency

Qualifiers:

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JQ Analyte was detected between the method detection limit and reporting limit; concentration is considered to be an estimate.
U Analyte was not detected at the given reporting limit.
UJ Analyte was not detected; concentration given is the reporting limit, which is considered to be an estimate.

Table 3.1
Lora Lake Parcel Groundwater Analytical Data

			Location Group	On-Site Wells														
			Location Name	MW-CP1								MW-CP2						
			Sample ID	MW-CP1-102720	MW-CP1-031721	MW-CP1-032322	MW-CP1-032322-D	MW-CP1-041323	MW-CP1-041323-D	MW-CP1-042424	MW-CP1-042424-D	MW-CP2-102720	MW-CP2-102720-D	MW-CP2-031721	MW-CP2-031721-D	MW-CP2-032322	MW-CP2-041323	MW-CP2-042424
			Sample Date	10/27/2020	3/17/2021	3/23/2022	3/23/2022	4/13/2023	4/13/2023	4/24/2024	4/24/2024	10/27/2020	10/27/2020	3/17/2021	3/17/2021	3/23/2022	4/13/2023	4/24/2024
Analyte	**CAS No.**	**Site CUL**	**Unit**															
Field Parameters																		
Turbidity	--	--	ntu	0.6	0.58					0.44		1.34		1.36				0.99
Dissolved Metals by USEPA 200.8																		
Arsenic	7440-38-2	5	µg/L	0.46	0.46	0.55	0.51	0.49	0.49	0.48	0.42	0.21	0.24	0.21	0.21	0.33	0.39	0.36
Dioxins/Furans by USEPA 1613B																		
2,3,7,8-TCDD	1746-01-6	--	pg/L	1.05 U	0.580 U	1.38 U	1.19 U	1.05 U	0.730 U	1.49 U	1.53 U	0.960 U	0.800 U	0.630 U	0.450 U	1.44 U	0.780 U	1.01 U
1,2,3,7,8-PeCDD	40321-76-4	--	pg/L	0.870 U	0.720 U	1.60 U	1.43 U	1.11 U	1.02 U	2.28 U	2.25 U	0.950 U	0.620 U	0.760 U	0.500 U	1.93 U	1.44 U	1.45 U
1,2,3,4,7,8-HxCDD	39227-28-6	--	pg/L	1.37 U	0.780 U	1.74 U	1.44 U	0.980 U	0.700 U	4.24 U	2.92 U	1.06 U	0.780 U	0.700 U	0.660 U	1.69 U	0.820 U	1.96 U
1,2,3,6,7,8-HxCDD	57653-85-7	--	pg/L	1.20 U	0.710 U	1.65 U	1.23 U	0.900 U	0.670 U	4.12 U	2.93 U	0.900 U	0.650 U	0.650 U	0.670 U	1.65 U	0.760 U	1.87 U
1,2,3,7,8,9-HxCDD	19408-74-3	--	pg/L	1.43 U	0.770 U	1.83 U	1.36 U	1.03 U	0.750 U	4.53 U	3.18 U	1.09 U	0.790 U	0.690 U	0.710 U	1.80 U	0.870 U	2.14 U
1,2,3,4,6,7,8-HpCDD	35822-46-9	--	pg/L	9.24 U	0.990 U	1.79 J	3.19 U	2.83 U	1.91 U	4.33 U	3.00 U	1.68 U	1.26 U	0.820 U	0.620 U	1.64 U	11.2 U	2.26 U
OCDD	3268-87-9	--	pg/L	165 J	6.64 U	17.3 U	15.7 U	7.62 U	5.58 U	6.25 U	4.45 U	27.0 UJ	21.3 UJ	6.64 U	3.10 U	3.60 U	72.9 U	3.04 U
2,3,7,8-TCDF	51207-31-9	--	pg/L	1.16 U	0.640 U	1.11 U	0.780 U	1.13 U	0.960 U	1.72 U	1.49 U	1.15 U	0.800 U	0.620 U	0.530 U	0.940 U	1.03 U	1.77 U
1,2,3,7,8-PeCDF	57117-41-6	--	pg/L	1.64 U	0.700 U	1.08 U	1.60 U	1.33 U	1.02 U	2.02 U	1.66 U	1.39 U	1.11 U	0.820 U	0.940 U	1.14 U	1.24 U	1.12 U
2,3,4,7,8-PeCDF	57117-31-4	--	pg/L	1.51 U	0.630 U	1.01 U	0.750 U	1.20 U	0.930 U	2.03 U	1.70 U	1.26 U	0.990 U	0.750 U	0.690 U	1.04 U	1.16 U	1.19 U
1,2,3,4,7,8-HxCDF	70648-26-9	--	pg/L	0.850 U	0.640 U	1.30 U	1.85 U	1.13 U	0.660 U	1.92 U	1.44 U	0.610 U	0.440 U	0.660 U	0.620 U	1.36 U	0.620 U	1.02 U
1,2,3,6,7,8-HxCDF	57117-44-9	--	pg/L	0.880 U	0.660 U	1.35 U	1.83 J	0.880 U	0.650 U	1.88 U	1.39 U	0.570 U	0.430 U	0.670 U	0.630 U	1.39 U	0.620 U	1.00 U
1,2,3,7,8,9-HxCDF	72918-21-9	--	pg/L	1.25 U	0.740 U	1.60 U	1.15 U	0.950 U	0.750 U	2.66 U	1.95 U	0.900 U	0.630 U	0.770 U	0.710 U	1.66 U	0.710 U	1.57 U
2,3,4,6,7,8-HxCDF	60851-34-5	--	pg/L	0.900 U	0.620 U	1.33 U	0.990 U	0.890 U	0.690 U	2.00 U	1.59 U	0.600 U	0.460 U	0.640 U	0.610 U	1.39 U	0.640 U	1.10 U
1,2,3,4,6,7,8-HpCDF	67562-39-4	--	pg/L	2.35 U	0.620 U	1.18 U	0.900 U	1.14 U	0.830 U	2.24 U	1.71 U	0.560 U	0.550 U	0.550 U	0.940 U	1.15 U	5.84 J	1.07 U
1,2,3,4,7,8,9-HpCDF	55673-89-7	--	pg/L	1.23 U	0.790 U	1.72 U	1.20 U	1.63 U	1.21 U	4.06 U	2.82 U	0.840 U	0.790 U	0.720 U	0.690 U	1.59 U	1.37 U	1.98 U
OCDF	39001-02-0	--	pg/L	20.2 UJ	18.8 U	2.71 U	1.70 U	2.12 U	2.27 U	4.70 U	3.73 U	3.08 UJ	2.88 UJ	12.0 U	6.36 U	2.86 U	29.3	3.32 U
Dioxin/furan TEQ	--	6.7	pg/L	1.78 J	0.720 U	2.29 J	2.35 J	1.11 U	1.02 U	2.28 U	2.25 U	0.480 UJ	1.14 UJ	0.760 U	0.500 U	1.93 U	1.75 J	1.45 U

Notes:

-- Not available.

BOLD/RED Analyte detected at a concentration greater than the site cleanup level.

1 On October 28, 2020, MW-VB2 was dry and samples were unable to be collected.

Abbreviations:

CAS Chemical Abstracts Service
CUL Cleanup level
HpCDD Heptachlorodibenzo-*p* -dioxin
HpCDF Heptachlorodibenzofuran
HxCDD Hexachlorodibenzo-*p* -dioxin
HxCDF Hexachlorodibenzofuran
µg/L Micrograms per liter
NS Not sampled
ntu Nephelometric turbidity units
OCDD Octachlorodibenzodioxin
OCDF Octachlorodibenzofuran
PeCDD Pentachlorodibenzo-*p* -dioxin
PeCDF Pentachlorodibenzofuran
pg/L Picograms per liter
TCDD Tetrachlorodibenzo-*p* -dioxin
TCDF Tetrachlorodibenzofuran
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Table 3.1
Lora Lake Parcel Groundwater Analytical Data

Location Group				On-Site Wells (cont.)					Vicinity Wells									
Location Name				MW-CP3					MW-CP4					MW-CP5				
Sample ID				MW-CP3-102720	MW-CP3-031721	MW-CP3-032322	MW-CP3-041323	MW-CP3-042424	MW-CP4-102720	MW-CP4-031621	MW-CP4-032322	MW-CP4-041323	MW-CP4-042424	MW-CP5-102720	MW-CP5-031621	MW-CP5-032322	MW-CP5-041323	MW-CP5-042424
Sample Date				10/27/2020	3/17/2021	3/23/2022	4/13/2023	4/24/2024	10/27/2020	3/16/2021	3/23/2022	4/13/2023	4/24/2024	10/27/2020	3/16/2021	3/23/2022	4/13/2023	4/24/2024
Analyte	**CAS No.**	**Site CUL**	**Unit**															
Field Parameters																		
Turbidity	--	--	ntu	0.74	0.91			0.82	0.95	0.55			0.81	17.1	9.38			4.5
Dissolved Metals by USEPA 200.8																		
Arsenic	7440-38-2	5	µg/L	0.41	0.33	0.97	0.11 J	2.9	0.098 JQ	0.14 JQ	0.093 JQ	1.6	0.13 J	3.2	2.1	3.7	1.2	**9.8**
Dioxin/Furans by USEPA 1613B																		
2,3,7,8-TCDD	1746-01-6	--	pg/L	1.03 U	0.800 U	1.31 U	0.860 U	1.31 U	1.05 U	0.630 U	1.22 U	1.27 U	1.23 U	0.780 U	0.690 U	1.38 U	3.86 UJ	1.01 U
1,2,3,7,8-PeCDD	40321-76-4	--	pg/L	0.840 U	0.730 U	1.53 U	1.36 U	2.03 U	0.940 U	0.950 U	1.31 U	1.27 U	1.82 U	0.670 U	0.930 U	1.66 U	3.30 UJ	1.81 U
1,2,3,4,7,8-HxCDD	39227-28-6	--	pg/L	1.36 U	0.650 U	1.75 U	1.05 U	2.15 U	1.41 U	0.960 U	1.53 U	0.980 U	2.23 U	0.670 U	0.720 U	1.55 U	1.72 UJ	1.69 U
1,2,3,6,7,8-HxCDD	57653-85-7	--	pg/L	1.18 U	0.620 U	1.67 U	1.01 U	2.16 U	1.21 U	0.930 U	1.54 U	0.920 U	2.14 U	0.630 UJ	0.720 U	1.44 U	1.61 UJ	1.61 U
1,2,3,7,8,9-HxCDD	19408-74-3	--	pg/L	1.41 U	0.650 U	1.24 U	1.13 U	2.41 U	1.46 U	0.970 U	1.66 U	1.04 U	2.44 U	0.720 U	0.740 U	1.61 U	1.83 UJ	1.84 U
1,2,3,4,6,7,8-HpCDD	35822-46-9	--	pg/L	2.03 U	0.700 U	1.78 U	1.49 U	2.23 U	2.57 U	1.74 U	1.47 U	1.38 U	2.14 U	2.18 J	2.12 U	1.74 U	3.33 UJ	2.04 U
OCDD	3268-87-9	--	pg/L	33.0 UJ	9.26 U	3.54 U	6.58 U	3.36 U	54.1 UJ	5.92 U	5.33 U	5.61 U	3.38 U	23.8 UJ	10.6 U	4.65 U	17.0 UJ	3.06 U
2,3,7,8-TCDF	51207-31-9	--	pg/L	1.39 U	0.710 U	0.950 U	1.32 U	1.90 U	1.23 U	0.550 U	0.890 U	1.49 U	1.97 U	0.780 U	0.680 U	0.950 U	5.23 UJ	1.96 U
1,2,3,7,8-PeCDF	57117-41-6	--	pg/L	1.29 U	0.900 U	1.02 U	1.73 U	1.64 U	1.83 U	0.850 U	1.20 U	1.38 U	1.57 U	1.32 U	1.07 U	1.09 U	3.53 UJ	1.37 U
2,3,4,7,8-PeCDF	57117-31-4	--	pg/L	1.17 U	0.860 U	0.960 U	1.19 U	1.71 U	1.65 U	0.770 U	1.12 U	1.25 U	1.64 U	1.18 U	0.780 U	1.07 U	3.18 UJ	1.41 U
1,2,3,4,7,8-HxCDF	70648-26-9	--	pg/L	0.790 U	0.590 U	1.31 U	0.820 U	1.09 U	0.720 U	0.660 U	1.06 U	0.790 U	1.09 U	0.590 U	0.640 U	1.10 U	1.58 UJ	0.920 U
1,2,3,6,7,8-HxCDF	57117-44-9	--	pg/L	0.740 U	0.590 U	1.30 U	0.790 U	1.05 U	0.650 U	0.630 U	1.07 U	0.820 U	1.02 U	0.570 U	0.670 U	1.07 U	1.46 UJ	0.890 U
1,2,3,7,8,9-HxCDF	72918-21-9	--	pg/L	1.20 U	0.700 U	1.69 U	0.970 U	1.67 U	1.05 U	0.810 U	1.33 U	0.890 U	1.56 U	0.760 U	0.750 U	1.35 U	1.83 UJ	1.38 U
2,3,4,6,7,8-HxCDF	60851-34-5	--	pg/L	0.820 U	0.590 U	1.33 U	0.860 U	1.21 U	0.770 U	0.660 U	1.06 U	0.800 U	1.14 U	0.560 U	0.630 U	1.04 U	1.56 UJ	0.990 U
1,2,3,4,6,7,8-HpCDF	67562-39-4	--	pg/L	0.880 U	1.13 U	1.25 U	0.960 U	1.19 U	0.600 U	1.07 U	1.06 U	1.08 U	0.920 U	0.680 U	1.26 U	1.25 U	2.17 UJ	0.910 U
1,2,3,4,7,8,9-HpCDF	55673-89-7	--	pg/L	1.14 U	0.690 U	1.71 U	1.43 U	2.02 U	0.960 U	1.49 U	1.58 U	1.60 U	1.70 U	0.760 U	0.710 U	1.68 U	3.01 UJ	1.68 U
OCDF	39001-02-0	--	pg/L	2.84 UJ	24.3 U	2.66 U	3.09 U	3.43 U	5.93 J	18.2 U	2.10 U	2.23 U	2.95 U	4.01 UJ	24.8 U	2.40 U	3.35 UJ	2.25 U
Dioxin/furan TEQ	--	6.7	pg/L	0.515 UJ	0.800 U	2.23 U	1.36 U	2.03 U	1.73 J	0.950 U	1.98 U	1.27 U	1.82 U	1.22 J	0.930 U	2.23 U	3.86 UJ	1.81 U

Notes:

-- Not available.

BOLD/RED Analyte detected at a concentration greater than the site cleanup level.

1 On October 28, 2020, MW-VB2 was dry and samples were unable to be collected.

Abbreviations:

CAS Chemical Abstracts Service
CUL Cleanup level
HpCDD Heptachlorodibenzo-*p* -dioxin
HpCDF Heptachlorodibenzofuran
HxCDD Hexachlorodibenzo-*p* -dioxin
HxCDF Hexachlorodibenzofuran
µg/L Micrograms per liter
NS Not sampled
ntu Nephelometric turbidity units
OCDD Octachlorodibenzodioxin
OCDF Octachlorodibenzofuran
PeCDD Pentachlorodibenzo-*p* -dioxin
PeCDF Pentachlorodibenzofuran
pg/L Picograms per liter
TCDD Tetrachlorodibenzo-*p* -dioxin
TCDF Tetrachlorodibenzofuran
TEQ Toxic equivalent
USEPA U.S. Environmental Protection Agency

Qualifiers:

J Analyte was detected; concentration is considered to be an estimate.
JQ Analyte was detected between the method detection limit and reporting limit; concentration is considered to be an estimate.
U Analyte was not detected at the given reporting limit.
UJ Analyte was not detected; concentration given is the reporting limit, which is considered to be an estimate.

Table 3.1
Lora Lake Parcel Groundwater Analytical Data

Location Group				Vicinity Wells (cont.)															
Location Name				MW-CP6					MW-CP7					HCOO-B312				
Sample ID				MW-CP6-102720	MW-CP6-031621	MW-CP6-032322	MW-CP6-041323	MW-CP6-042424	MW-CP7-102720	MW-CP7-031621	MW-CP7-032322	MW-CP7-041323	MW-CP7-042424	HCOO-B312-102820	HCOO-B312-031621	HCOO-B312-032322	HCOO-B312-041323	HCOO-B312-042424
Sample Date				10/27/2020	3/16/2021	3/23/2022	4/13/2023	4/24/2024	10/27/2020	3/16/2021	3/23/2022	4/13/2023	4/24/2024	10/28/2020	3/16/2021	3/23/2022	4/13/2023	4/24/2024
Analyte	**CAS No.**	**Site CUL**	**Unit**															
Field Parameters																		
Turbidity	--	--	ntu	1.15	3.73			5.52	2.08	1.05			1.14	0.73	1.8			1.69
Dissolved Metals by USEPA 200.8																		
Arsenic	7440-38-2	5	µg/L	1.1	1.1	0.85	0.68	0.92	0.42	0.43	0.37	0.38	0.32	0.17 JQ	0.17 JQ	0.17 JQ	0.15 J	0.18 J
Dioxin/Furans by USEPA 1613B																		
2,3,7,8-TCDD	1746-01-6	--	pg/L	0.930 U	1.33 U	0.980 U	1.76 U	1.07 U	0.670 U	1.15 U	1.01 U	0.830 U	1.13 U	0.870 U	2.89 UJ	1.11 U	0.710 U	1.32 U
1,2,3,7,8-PeCDD	40321-76-4	--	pg/L	0.920 UJ	2.26 U	1.41 U	0.960 U	1.80 U	0.660 U	1.08 U	1.29 U	1.26 U	1.68 U	0.910 U	3.16 UJ	1.48 U	1.17 U	2.46 U
1,2,3,4,7,8-HxCDD	39227-28-6	--	pg/L	1.40 U	1.95 U	1.50 U	0.760 U	2.01 U	0.810 U	1.36 U	0.940 U	1.15 U	1.94 U	1.08 U	3.33 U	1.33 U	0.890 U	3.49 U
1,2,3,6,7,8-HxCDD	57653-85-7	--	pg/L	1.20 U	1.93 U	1.44 U	0.720 U	1.93 U	0.680 U	1.29 U	0.890 U	1.09 U	1.87 U	1.00 U	3.21 U	1.31 U	0.840 U	3.47 U
1,2,3,7,8,9-HxCDD	19408-74-3	--	pg/L	1.44 U	2.00 U	1.59 U	0.810 U	2.20 U	0.830 U	1.36 U	0.980 U	1.23 U	2.13 U	1.16 U	3.36 U	1.43 U	0.950 U	3.77 U
1,2,3,4,6,7,8-HpCDD	35822-46-9	--	pg/L	1.32 U	1.77 U	2.46 J	0.950 U	2.45 U	3.02 J	1.85 U	1.44 U	1.42 U	2.08 U	1.10 U	6.85 UJ	3.78 J	1.41 U	3.68 U
OCDD	3268-87-9	--	pg/L	28.6 UJ	2.46 U	34.6 U	6.55 U	3.74 U	36.1 UJ	10.5 U	3.28 U	9.81 U	3.35 U	10.2 UJ	16.4 UJ	23.3 U	5.86 U	5.45 U
2,3,7,8-TCDF	51207-31-9	--	pg/L	0.990 U	1.34 U	0.970 U	2.09 U	1.89 U	0.740 U	1.20 U	0.790 U	1.11 U	1.73 U	0.870 U	4.22 UJ	0.640 U	1.04 U	1.85 U
1,2,3,7,8-PeCDF	57117-41-6	--	pg/L	1.53 UJ	1.83 U	1.05 U	0.980 U	1.34 U	1.14 U	1.04 U	1.15 U	1.21 U	1.49 U	1.19 U	4.27 UJ	0.950 U	1.43 U	1.94 U
2,3,4,7,8-PeCDF	57117-31-4	--	pg/L	1.42 UJ	1.73 U	0.970 U	0.890 U	1.35 U	1.01 U	0.950 U	0.910 U	1.09 U	1.50 U	1.07 U	4.39 UJ	1.70 U	1.30 U	1.99 U
1,2,3,4,7,8-HxCDF	70648-26-9	--	pg/L	0.700 U	1.59 U	1.18 U	0.520 U	1.22 U	0.540 U	1.25 U	0.940 U	0.740 U	1.01 U	0.600 U	2.67 U	0.920 U	0.730 U	1.75 U
1,2,3,6,7,8-HxCDF	57117-44-9	--	pg/L	0.690 U	1.63 U	1.22 U	0.520 U	1.09 U	0.500 U	1.25 U	0.960 U	0.740 U	0.960 U	0.570 U	2.67 U	0.970 U	0.730 U	1.68 U
1,2,3,7,8,9-HxCDF	72918-21-9	--	pg/L	1.09 U	2.04 U	1.55 U	0.640 U	1.96 U	0.790 U	1.55 U	1.27 U	0.870 U	1.50 U	0.850 U	6.79 UJ	1.21 U	0.890 U	2.29 U
2,3,4,6,7,8-HxCDF	60851-34-5	--	pg/L	0.720 U	1.81 U	1.20 U	0.520 U	1.25 U	0.570 U	1.25 U	0.960 U	0.790 U	1.09 U	0.640 U	5.20 UJ	1.07 J	0.750 U	1.74 U
1,2,3,4,6,7,8-HpCDF	67562-39-4	--	pg/L	0.660 U	1.02 U	1.12 U	0.630 U	1.15 U	0.510 U	1.43 U	0.760 U	1.12 U	1.13 U	0.590 U	4.44 J	1.28 U	0.970 U	1.65 U
1,2,3,4,7,8,9-HpCDF	55673-89-7	--	pg/L	1.06 U	1.44 U	1.63 U	0.900 U	2.24 U	0.730 U	1.96 U	1.11 U	1.65 U	2.00 U	0.820 U	6.37 UJ	1.89 U	1.51 U	3.08 U
OCDF	39001-02-0	--	pg/L	3.20 UJ	15.3 U	2.08 U	1.63 U	2.94 U	5.16 UJ	25.4 U	2.03 U	3.32 U	3.13 U	2.09 UJ	117 UJ	2.82 U	2.49 U	5.07 U
Dioxin/furan TEQ	--	6.7	pg/L	0.465 UJ	2.26 U	1.94 J	1.76 U	1.80 U	1.15 J	1.15 U	1.73 U	1.26 U	1.68 U	0.455 UJ	5.45 J	2.43 J	1.17 U	2.46 U

Notes:

-- Not available.

BOLD/RED Analyte detected at a concentration greater than the site cleanup level.

1 On October 28, 2020, MW-VB2 was dry and samples were unable to be collected.

Abbreviations:

CAS Chemical Abstracts Service
CUL Cleanup level
HpCDD Heptachlorodibenzo-*p*-dioxin
HpCDF Heptachlorodibenzofuran
HxCDD Hexachlorodibenzo-*p*-dioxin
HxCDF Hexachlorodibenzofuran
µg/L Micrograms per liter
NS Not sampled
ntu Nephelometric turbidity units
OCDD Octachlorodibenzodioxin
OCDF Octachlorodibenzofuran
PeCDD Pentachlorodibenzo-*p*-dioxin
PeCDF Pentachlorodibenzofuran
pg/L Picograms per liter
TCDD Tetrachlorodibenzo-*p*-dioxin
TCDF Tetrachlorodibenzofuran
TEQ Toxic equivalent
USEPA U.S. Environmental Protection Agency

Qualifiers:

J Analyte was detected; concentration is considered to be an estimate.
JQ Analyte was detected between the method detection limit and reporting limit; concentration is considered to be an estimate.
U Analyte was not detected at the given reporting limit.
UJ Analyte was not detected; concentration given is the reporting limit, which is considered to be an estimate.

Table 3.1
Lora Lake Parcel Groundwater Analytical Data

Location Group				Vicinity Wells (cont.)												
Location Name				MW-C1/VB1									MW-VB2			
Sample ID				MW-C1/VB1-102820	MW-C101-102820	MW-C1/VB1-031721	MW-C1/VB1-032422	MW-C1/VB1-032422-D	MW-VB1-041423	MW-VB1-041423-D	MW-C1-VB1-042424	MW-C1-VB1-042424-D	--	MW-VB2-031721	MW-VB2-032422	MW-VB2-041423	MW-VB2-042424
Sample Date				10/28/2020	10/28/2020	3/17/2021	3/24/2022	3/24/2022	4/14/2023	4/14/2023	4/24/2024	4/24/2024	10/28/2020 [1]	3/17/2021	3/24/2022	4/14/2023	4/24/2024
Analyte	**CAS No.**	**Site CUL**	**Unit**														
Field Parameters																	
Turbidity	--	--	ntu	0.36		1.01						0.81		6.88			2.57
Dissolved Metals by USEPA 200.8																	
Arsenic	7440-38-2	5	µg/L	0.16 JQ	0.16 JQ	0.11 JQ	0.077 JQ	0.090 JQ	0.11 J	0.10 J	0.11 J	0.11 J	NS	0.47	0.35	0.37	0.40
Dioxin/Furans by USEPA 1613B																	
2,3,7,8-TCDD	1746-01-6	--	pg/L	0.750 U	0.860 U	0.460 U	1.12 U	1.11 U	0.670 U	0.710 U	0.870 U	1.05 U	NS	0.750 U	1.09 U	0.670 U	1.16 U
1,2,3,7,8-PeCDD	40321-76-4	--	pg/L	0.900 U	0.820 UJ	0.560 U	1.55 U	1.49 U	1.31 U	1.10 U	1.67 U	2.05 U	NS	1.00 U	1.41 U	1.13 U	2.52 U
1,2,3,4,7,8-HxCDD	39227-28-6	--	pg/L	1.03 U	0.990 U	1.08 U	1.91 U	1.47 U	0.950 U	0.690 U	2.14 U	2.60 U	NS	0.900 U	1.24 U	0.980 U	2.87 U
1,2,3,6,7,8-HxCDD	57653-85-7	--	pg/L	0.920 U	0.840 U	1.03 U	1.79 U	1.42 U	0.900 U	0.670 U	2.13 U	2.56 U	NS	0.860 U	1.19 U	0.940 U	2.84 U
1,2,3,7,8,9-HxCDD	19408-74-3	--	pg/L	1.08 U	1.02 U	1.08 U	1.99 U	1.56 U	1.02 U	0.750 U	2.32 U	2.80 U	NS	0.910 U	1.31 U	1.05 U	3.10 U
1,2,3,4,6,7,8-HpCDD	35822-46-9	--	pg/L	1.76 U	1.42 U	2.16 U	1.53 U	2.91 U	1.42 U	3.61 J	2.37 U	2.66 U	NS	1.32 U	2.02 U	1.93 U	3.45 U
OCDD	3268-87-9	--	pg/L	49.1 UJ	66.5 UJ	10.8 U	3.18 U	5.59 U	2.02 U	9.88 U	5.10 U	4.44 U	NS	7.27 U	8.71 U	8.10 U	4.81 U
2,3,7,8-TCDF	51207-31-9	--	pg/L	1.11 U	0.810 U	0.470 U	0.730 U	0.880 U	1.12 U	1.08 U	1.27 U	1.44 U	NS	0.680 U	0.770 U	0.970 U	1.60 U
1,2,3,7,8-PeCDF	57117-41-6	--	pg/L	1.41 U	1.29 U	0.660 U	1.09 U	0.910 U	1.34 U	1.13 U	1.52 U	1.85 U	NS	0.800 U	0.830 J	1.14 U	1.96 U
2,3,4,7,8-PeCDF	57117-31-4	--	pg/L	1.36 U	1.18 UJ	0.490 U	1.03 U	0.880 U	1.22 U	1.04 U	1.53 U	1.94 U	NS	0.730 U	0.900 U	1.01 U	1.96 U
1,2,3,4,7,8-HxCDF	70648-26-9	--	pg/L	0.710 U	0.650 U	0.620 U	1.15 U	1.19 U	0.830 U	0.690 U	1.00 U	1.27 U	NS	0.940 U	1.17 U	0.640 U	1.70 U
1,2,3,6,7,8-HxCDF	57117-44-9	--	pg/L	0.730 U	0.590 U	0.590 U	1.17 U	1.18 U	0.870 U	0.690 U	1.03 U	1.25 U	NS	0.890 U	1.15 U	0.690 U	1.67 U
1,2,3,7,8,9-HxCDF	72918-21-9	--	pg/L	1.11 U	0.940 U	0.710 U	1.55 U	1.58 U	0.940 U	0.780 U	1.41 U	1.70 U	NS	1.13 U	1.48 U	0.730 U	2.17 U
2,3,4,6,7,8-HxCDF	60851-34-5	--	pg/L	0.750 U	0.690 U	0.600 U	1.17 U	1.22 U	0.910 U	0.740 U	1.05 U	1.45 U	NS	1.30 J	1.14 U	0.690 U	1.75 U
1,2,3,4,6,7,8-HpCDF	67562-39-4	--	pg/L	0.660 U	0.770 U	0.550 U	1.01 U	1.18 U	1.11 U	0.930 U	1.27 U	1.31 U	NS	0.820 U	0.840 U	0.940 U	2.37 U
1,2,3,4,7,8,9-HpCDF	55673-89-7	--	pg/L	0.940 U	1.25 U	0.700 U	1.52 U	1.64 U	1.55 U	1.36 U	2.26 U	2.32 U	NS	1.16 U	1.23 U	1.37 U	4.20 U
OCDF	39001-02-0	--	pg/L	5.84 UJ	10.2 J	28.9 U	1.96 U	2.36 U	2.20 U	2.37 U	2.82 U	3.86 U	NS	9.61 U	2.61 U	2.52 U	4.68 U
Dioxin/furan TEQ	--	6.7	pg/L	0.450 UJ	1.39 J	0.560 U	2.10 U	2.15 U	1.31 U	1.43 J	1.67 U	2.05 U	NS	1.46 J	1.91 J	1.13 U	2.52 U

Notes:

-- Not available.

BOLD/RED Analyte detected at a concentration greater than the site cleanup level.

1 On October 28, 2020, MW-VB2 was dry and samples were unable to be collected.

Abbreviations:

CAS Chemical Abstracts Service
CUL Cleanup level
HpCDD Heptachlorodibenzo-*p* -dioxin
HpCDF Heptachlorodibenzofuran
HxCDD Hexachlorodibenzo-*p* -dioxin
HxCDF Hexachlorodibenzofuran
µg/L Micrograms per liter
NS Not sampled
ntu Nephelometric turbidity units
OCDD Octachlorodibenzodioxin
OCDF Octachlorodibenzofuran
PeCDD Pentachlorodibenzo-*p* -dioxin
PeCDF Pentachlorodibenzofuran
pg/L Picograms per liter
TCDD Tetrachlorodibenzo-*p* -dioxin
TCDF Tetrachlorodibenzofuran
TEQ Toxic equivalent
USEPA U.S. Environmental Protection Agency

Qualifiers:

J Analyte was detected; concentration is considered to be an estimate.
JQ Analyte was detected between the method detection limit and reporting limit; concentration is considered to be an estimate.
U Analyte was not detected at the given reporting limit.
UJ Analyte was not detected; concentration given is the reporting limit, which is considered to be an estimate.

Table 3.1
Lora Lake Parcel Groundwater Analytical Data

			Location Group	Vicinity Wells (cont.)				
			Location Name	MW-VB3				
			Sample ID	MW-VB3-102720	MW-VB3-031621	MW-VB3-032322	MW-VB3-041323	MW-VB3-042424
			Sample Date	10/27/2020	3/16/2021	3/23/2022	4/13/2023	4/24/2024
Analyte	**CAS No.**	**Site CUL**	**Unit**					
Field Parameters								
Turbidity	--	--	ntu	4.79	2.33			1.36
Dissolved Metals by USEPA 200.8								
Arsenic	7440-38-2	5	µg/L	0.45	0.39	0.38	0.38	0.30
Dioxin/Furans by USEPA 1613B								
2,3,7,8-TCDD	1746-01-6	--	pg/L	1.10 U	0.550 U	1.09 U	0.810 U	1.51 U
1,2,3,7,8-PeCDD	40321-76-4	--	pg/L	0.910 U	0.510 U	1.72 U	1.11 U	3.30 U
1,2,3,4,7,8-HxCDD	39227-28-6	--	pg/L	1.07 U	0.590 U	1.56 U	1.02 U	4.13 U
1,2,3,6,7,8-HxCDD	57653-85-7	--	pg/L	0.960 U	0.580 U	1.43 U	0.950 U	4.21 U
1,2,3,7,8,9-HxCDD	19408-74-3	--	pg/L	1.13 U	0.600 U	1.61 U	1.08 U	4.53 U
1,2,3,4,6,7,8-HpCDD	35822-46-9	--	pg/L	1.74 U	1.25 U	3.18 U	1.67 U	4.61 U
OCDD	3268-87-9	--	pg/L	35.3 UJ	9.72 U	23.9 U	8.28 U	6.29 U
2,3,7,8-TCDF	51207-31-9	--	pg/L	1.29 U	0.660 U	0.980 U	1.15 U	1.87 U
1,2,3,7,8-PeCDF	57117-41-6	--	pg/L	1.63 U	0.680 U	1.04 U	1.20 U	2.14 U
2,3,4,7,8-PeCDF	57117-31-4	--	pg/L	1.47 U	0.620 U	1.03 U	1.08 U	2.12 U
1,2,3,4,7,8-HxCDF	70648-26-9	--	pg/L	0.780 U	0.460 U	1.28 U	0.840 U	1.95 U
1,2,3,6,7,8-HxCDF	57117-44-9	--	pg/L	0.690 U	0.450 U	1.29 U	0.810 U	1.90 U
1,2,3,7,8,9-HxCDF	72918-21-9	--	pg/L	1.15 U	0.570 U	1.65 U	0.990 U	2.64 U
2,3,4,6,7,8-HxCDF	60851-34-5	--	pg/L	0.820 U	0.450 U	1.38 U	0.900 U	2.17 U
1,2,3,4,6,7,8-HpCDF	67562-39-4	--	pg/L	1.35 U	1.24 U	2.17 U	0.930 U	2.09 U
1,2,3,4,7,8,9-HpCDF	55673-89-7	--	pg/L	1.30 U	0.680 U	2.03 U	1.25 U	4.23 U
OCDF	39001-02-0	--	pg/L	5.29 J	23.3 U	2.50 U	2.98 U	5.17 U
Dioxin/furan TEQ	--	6.7	pg/L	1.67 J	0.550 U	2.21 U	1.11 U	3.30 U

Notes:

-- Not available.

BOLD/RED Analyte detected at a concentration greater than the site cleanup level.

1 On October 28, 2020, MW-VB2 was dry and samples were unable to be collected.

Abbreviations:

CAS Chemical Abstracts Service
CUL Cleanup level
HpCDD Heptachlorodibenzo-*p*-dioxin
HpCDF Heptachlorodibenzofuran
HxCDD Hexachlorodibenzo-*p*-dioxin
HxCDF Hexachlorodibenzofuran
µg/L Micrograms per liter
NS Not sampled
ntu Nephelometric turbidity units
OCDD Octachlorodibenzodioxin
OCDF Octachlorodibenzofuran
PeCDD Pentachlorodibenzo-*p*-dioxin
PeCDF Pentachlorodibenzofuran
pg/L Picograms per liter
TCDD Tetrachlorodibenzo-*p*-dioxin
TCDF Tetrachlorodibenzofuran
TEQ Toxic equivalent
USEPA U.S. Environmental Protection Agency

Qualifiers:

J Analyte was detected; concentration is considered to be an estimate.
JQ Analyte was detected between the method detection limit and reporting limit; concentration is considered to be an estimate.
U Analyte was not detected at the given reporting limit.
UJ Analyte was not detected; concentration given is the reporting limit, which is considered to be an estimate.

Table 5.1
Summary Statistics

	Site Vicinity Wells [1]	Compliance Monitoring Wells [2]	Compliance Monitoring Wells Excluding MW-CP5
Arsenic			
Sample Count [3]	19	35	30
Data Distribution	Normal (p=0.01)	Lognormal (p=0.10)	Lognormal (p=0.10)
Minimum (Detects Only)	0.09	0.093	0.093
Median (Detects Only)	0.18	0.46	0.42
Maximum (Detects Only)	0.47	9.8	2.9
Coefficient of Variation	0.51	1.6	0.98
Site Vicinity Background Concentration [4]	0.43	--	--
ProUCL Recommended 95% UCL Method	--	H Statistic	H Statistic
95% UCL	--	1.6	0.82
Percent of Results Exceeding Site Vicinity Background	--	54%	46%
Dioxin/Furan TEQ			
Sample Count [3]	19	35	--
Data Distribution	Gamma (p<0.05)	Normal (p<0.01)	--
Minimum (Detects Only)	1.39	1.15	--
Median (Detects Only)	1.91	1.78	--
Maximum (Detects Only)	5.45	2.35	--
Coefficient of Variation	0.826	0.671	--
Site Vicinity Background Concentration [4]	3.11	--	--
ProUCL Recommended 95% UCL Method	--	Kaplan–Meier (t)	--
95% UCL	--	1.25	--
Percent of Results Exceeding Site Vicinity Background	--	3%	--

Notes:

-- Not applicable

1 Includes wells MW-C1/VB1, MW-VB2, MW-VB3, and HCOO-B312. MW-VB2 was not sampled in the October 2020 monitoring event because the monitoring well was dry.

2 Includes wells MW-CP1, MW-CP2, MW-CP3, MW-CP4, MW-CP5, MW-CP6, and MW-CP7.

3 Field sample duplicate pairs were reduced to the maximum detected result between the two results. If both results were non-detect, the result with the lower method detection limit was used in this analysis.

4 Determined as the 90th percentile of site vicinity wells.

Abbreviations:

TEQ Toxic equivalent

UCL Upper confidence limit

Lora Lake Apartments Site

2024 Annual Compliance Monitoring Report

Figures

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2024 Annual Compliance Monitoring Report
Lora Lake Apartments Site
Burien, Washington

Figure 1.1
Site Map

I:\GIS\Projects\POS_LLA\MXD\Task8140\Annual Compliance Monitoring Report\2024\Figure 1.1 Site Map.mxd
11/20/2024

Legend

- Groundwater Confirmation Monitoring Location
- Sediment Cap Performance Monitoring Location
- Sediment Cap Performance Site Vicinity Monitoring Location
- City Boundary
- Tax Parcel Boundary

Label Key

MW-C3
As:
0.18 J

← Location Name
← Arsenic Result (µg/L)

Notes:
1. Per the *Evaluation of Arsenic in Groundwater at the Lora Lake Apartments Site* memorandum (Floyd|Snider 2020) and subsequent Ecology approval, monitoring at MW-C1 and MW-C4 is no longer required for the Lora Lake Apartments Parcel. However, MW-C1 was renamed MW-C1/VB1 in 2020 and monitoring is ongoing because it serves as a vicinity well for the Lora Lake Parcel. Data are presented on Figure 3.1.

· Results shown in **RED BOLD** exceed the site cleanup level for arsenic of 5 µg/L.
· All results are from samples collected on 3/20/2024.
· Analytical results for duplicate samples are not presented.
· Tax parcel boundaries based on King County tax parcel data.
· City boundary data provided by King County.
· Orthoimagery obtained from Nearmap, 2023.

Abbreviations:
As = Arsenic
Ecology = Washington State Department of Ecology
µg/L = Micrograms per liter
WSDOT = Washington State Department of Transportation

Qualifier:
J = Analyte was detected; concentration is considered to be an estimate.

0 100 200
Scale in Feet

N

SR 518
CITY OF BURIEN
CITY OF SEATAC
WSDOT PROPERTY
MW-C1/VB1(1)
LORA LAKE APARTMENTS PARCEL
MW-C2
As:
42
DES MOINES MEMORIAL DRIVE SOUTH
MW-VB2
MW-C3
As:
0.15 J
FORMER SEATTLE CITY LIGHT SUNNYDALE SUBSTATION
MW-C4(1)
MW-CP1
Former Lora Lake
MW-CP2
PORT OF SEATTLE PROPERTY
MW-CP3

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2024 Annual Compliance Monitoring Report
Lora Lake Apartments Site
Burien, Washington

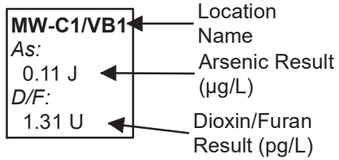
Figure 2.1
Lora Lake Apartments Parcel
2024 Groundwater Analytical Results

I:\GIS\Projects\POS_LLA\MXD\Task8140\Annual Compliance Monitoring Report\2024\Figure 2.1 Lora Lake Apartments Parcel 2023 Groundwater Analytical Results.mxd
11/20/2024

Legend

- Groundwater Confirmation Monitoring Location
- Sediment Cap Performance Monitoring Location
- Sediment Cap Performance Site Vicinity Monitoring Location
- City Boundary
- Tax Parcel Boundary

Label Key



Notes:
- Cleanup levels for arsenic and dioxins/furans are 5 µg/L and 6.7 pg/L, respectively.
- All results are from samples collected on 4/24/2024.
- Analytical results for duplicate samples are not presented.
- Tax parcel boundaries based on King County tax parcel data.
- City boundary data provided by King County.
- Orthoimagery obtained from Nearmap, 2023.

Abbreviation:
As = Arsenic
D/F = Dioxins/Furans
µg/L = Micrograms per liter
pg/L = Picograms per liter
WSDOT = Washington State Department of Transportation

Qualifiers:
J = Analyte was detected; concentration is considered to be an estimate.
U = Analyte was not detected at the given reporting limit.
UJ = Analyte was not detected; concentration given is the reporting limit, which is considered to be an estimate.

0 150 300
Scale in Feet
N

SR 518
CITY OF BURIEN
CITY OF SEATAC
WSDOT PROPERTY
LORA LAKE APARTMENTS PARCEL
1982 DREDGED MATERIAL CONTAINMENT AREA
PORT OF SEATTLE PROPERTY
FORMER SEATTLE CITY LIGHT SUNNYDALE SUBSTATION
PORT OF SEATTLE PROPERTY
Former Lora Lake
LORA LAKE PARCEL
SEATTLE-TACOMA INTERNATIONAL AIRPORT 3RD RUNWAY APPROACH LIGHTING SYSTEM
8TH AVE SOUTH
DES MOINES MEMORIAL DRIVE SOUTH

MW-C1/VB1 As: 0.11 J D/F: 2.05 U
MW-VB2 As: 0.40 D/F: 2.52 U
MW-C2
MW-C3
MW-C4
HCOO-B312 As: 0.18 J D/F: 2.46 U
MW-CP1 As: 0.42 D/F: 2.25 U
MW-CP2 As: 0.36 D/F: 1.45 U
MW-CP3 As: 2.9 D/F: 2.03 U
MW-CP4 As: 0.13 J D/F: 1.82 U
MW-CP5 As: 9.8 D/F: 1.81 U
MW-CP6 As: 0.92 D/F: 1.80 U
MW-CP7 As: 0.32 D/F: 1.68 U
MW-VB3 As: 0.30 D/F: 3.30 U

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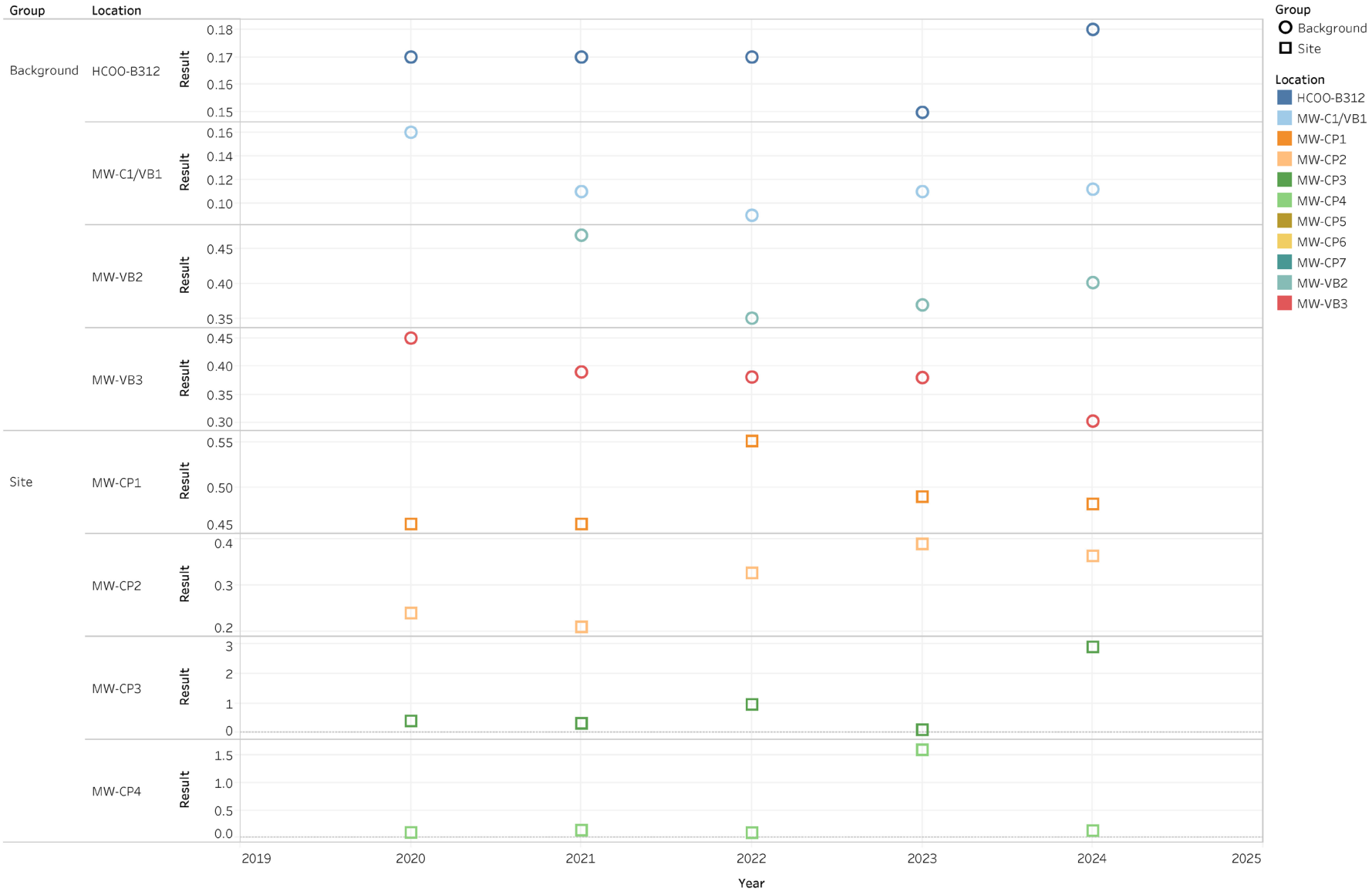
Lora Lake Apartments Site
Burien, Washington

Figure 3.1
Lora Lake Parcel
2024 Groundwater Analytical Results

I:\GIS\Projects\POS_LLA\MXD\Task8140\Annual Compliance Monitoring Report\2024\Figure 3.1 Lora Lake Parcel 2024 Groundwater Analytical Results.mxd
11/20/2024



Year vs. Result broken down by Group and Location. Color shows details about Location. Shape shows details about Group.

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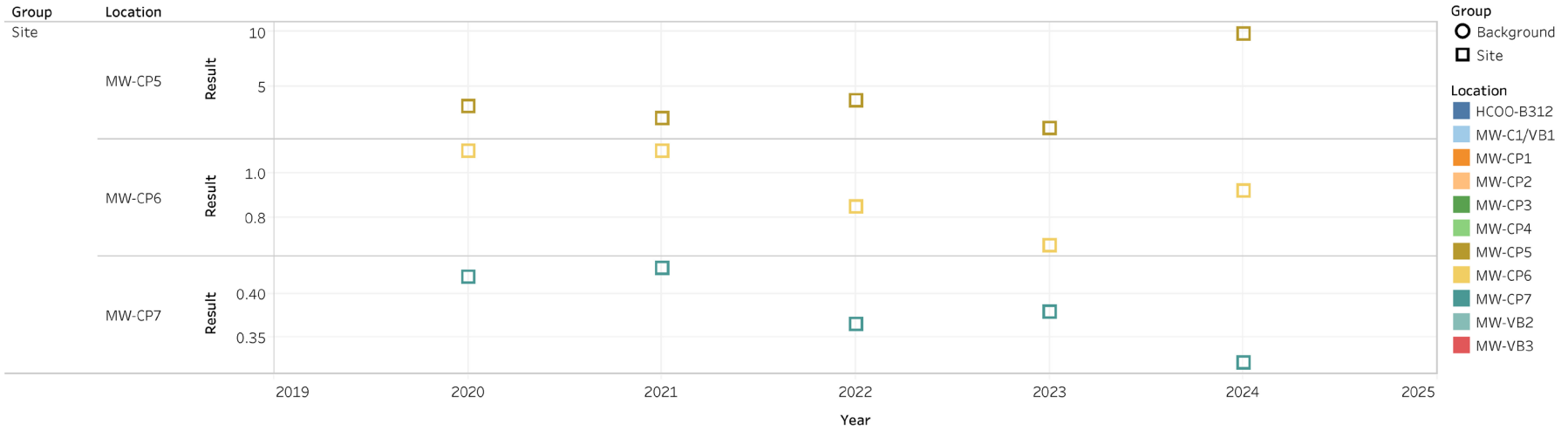
Lora Lake Apartments Site
Burien, Washington

Figure 5.1
Arsenic Concentrations Time-Series Plots
(Sheet 1 of 2)



Year vs. Result broken down by Group and Location. Color shows details about Location. Shape shows details about Group.

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2024 Annual Compliance Monitoring Report
Lora Lake Apartments Site
Burien, Washington

Figure 5.1
Arsenic Concentrations Time-Series Plots
(Sheet 2 of 2)

Lora Lake Apartments Site

2024 Annual Compliance Monitoring Report

Appendix A
Groundwater Sample Collection Forms

GROUNDWATER OR SURFACE WATER SAMPLE COLLECTION FORM

Project: POS-LLA Date of Collection: 3/20/24

Task: _____ Field Personnel: AJ + MM

Purge Data

Well ID: MW-C2 Secure: ☑ Yes ☐ No Ecology Tag #: _____ Casing Type/Diameter/Screened Interval _____

Replacement Required: ☐ Monument ☐ Lid ☐ Lock ☐ Bolts: Missing (#) ____ Stripped (#) ____ Other Damage: _____

Depth Sounder decontaminated Prior to Placement in Well: ☐ Yes ☐ No One Casing Volume (gal): _____

Depth of water (from TOC): 14.78' Time: 1237

Total Depth (from log or field measurement): _____

After 5 minutes of purging (from top of casing): _____

Begin purge (time): 12:40 End purge (time): _____

Volume purged: _____ Purge water disposal method _____

Volume of Schedule 40 PVC Pipe

Diameter	O.D.	I.D.	Volume (Gal/Linear Ft.)	Weight of Water (Lbs/Lineal Ft.)
1 ¼"	1.660"	1.380"	0.08	0.64
2"	2.375"	2.067"	0.17	1.45
3"	3.500"	3.068"	0.38	3.2
4"	4.500"	4.026"	0.66	5.51
6"	6.625"	6.065"	1.5	12.5

Time	Depth to Water (ft)	Vol. Purged (L)	pH (s u.)	DO (mg/L)	Specific Conductivity (µs/cm)	Turbidity (NTU)	Temp (°C)	ORP (mV)	Comments
1250	15.03	1	11.51	0.60	612	1.86	11.8	-249.7	
1255	15.05	2	11.51	0.42	654	1.92	11.8	-270.1	
1300	15.05	3	11.50	0.36	665	1.78	11.8	-278.6	

Sampling Data

Sample No: MW-C2-032024 Location and Depth: _____

Date Collected (mo/dy/yr): 3/20/24 Time Collected: 1305 Weather: Cloudy & 58

Type: ☑ Ground Water ☐ Surface Water Other: _____ Sample: ☐ Filtered ☐ Unfiltered Filter Type: _____

Sample Collected with: ☐ Bailer ☑ Pump Other: _____ Type: ☑ Peristaltic ☐ Bladder ☐ Submersible Other: _____

Water Quality Instrument Data Collected with: Type: ☑ YSI ProDSS ☑ Turbidity Meter ☐ Other: _____

Sample Decon Procedure: Sample collected with: ☐ decontaminated all tubing; ☐ disposable tubing ☑ dedicated silicon and poly tubing; ☐ dedicated tubing replaced

Sample Description (Color, Turbidity, Odor, Other): _____

Sample Analyses

Analyte	Analysis Method	Sample Container	Quantity	Preservative	Notes

QC samples

Duplicate Sample No: _____ Duplicate Time: _____ MS/MSD: ☐ Yes ☐ No

Signature: _____ **Date:** _____

GROUNDWATER OR SURFACE WATER SAMPLE COLLECTION FORM

Project: PCS-LLA

Date of Collection: 3/20/2024

Task: GW monitoring

Field Personnel: MM

Purge Data

Well ID: MW-03 Secure: ☒ Yes ☐ No Ecology Tag #: _____ Casing Type/Diameter/Screened Interval 2" PVC

Replacement Required: ☐ Monument ☐ Lid ☐ Lock ☐ Bolts: Missing (#) ____ Stripped (#) ____ Other Damage: _____

Depth Sounder decontaminated Prior to Placement in Well: ☒ Yes ☐ No One Casing Volume (gal): _____

Depth of water (from TOC): 16.69' Time: 12:33

Total Depth (from log or field measurement): _____

After 5 minutes of purging (from top of casing): 16.72'

Begin purge (time): 12:33 End purge (time): 13:09

Volume purged: ~7L Purge water disposal method drum

Volume of Schedule 40 PVC Pipe

Diameter	O.D.	I.D.	Volume (Gal/Linear Ft.)	Weight of Water (Lbs/Lineal Ft.)
1 ¼"	1.660"	1.380"	0.08	0.64
2"	2.375"	2.067"	0.17	1.45
3"	3.500"	3.068"	0.38	3.2
4"	4.500"	4.026"	0.66	5.51
6"	6.625"	6.065"	1.5	12.5

Time	Depth to Water (ft)	Vol. Purged (L)	pH (s.u.)	DO (mg/L)	Specific Conductivity (µs/cm)	Turbidity (NTU)	Temp (°C)	ORP (mV)	Comments
1240	16.73	1.25L	5.81	8.73	179.2	2.84	11.3	136.0	
12:45	16.73	2	6.17	8.62	87.8	2.35	11.3	145.5	
12:50	16.73	3	6.23	8.63	81.2	2.07	11.3	152.1	
12:55	16.73	4	6.26	8.66	80.8	1.77	11.3	156.4	
13:00	16.74	5	6.28	8.75	83.6	1.68	11.3	159.4	
13:05	16.74	6	6.29	8.78	84.6	1.66	11.3	160.3	

Sampling Data

Sample No: MW-03-032024 Location and Depth: _____

Date Collected (mo/dy/yr): 03/20/24 Time Collected: 13:08 Weather: cloudy, low 50s

Type: ☒ Ground Water ☐ Surface Water Other: _____ Sample: ☐ Filtered ☒ Unfiltered Filter Type: _____

Sample Collected with: ☐ Bailer ☒ Pump Other: _____ Type: ☒ Peristaltic ☐ Bladder ☐ Submersible Other: _____

Water Quality Instrument Data Collected with: Type: ☒ YSI ProDSS ☒ Turbidity Meter ☐ Other: _____

Sample Decon Procedure: Sample collected with: ☐ decontaminated all tubing; ☐ disposable tubing ☒ dedicated silicon and poly tubing; ☐ dedicated tubing replaced

Sample Description (Color, Turbidity, Odor, Other): clear, no odor

Sample Analyses

Analyte	Analysis Method	Sample Container	Quantity	Preservative	Notes

QC samples

Duplicate Sample No: — Duplicate Time: — MS/MSD: ☐ Yes ☒ No

Signature: _____ **Date:** 03/20/2024

GROUNDWATER OR SURFACE WATER SAMPLE COLLECTION FORM

Project: Lora Lake Date of Collection: 4/24/24

Task: Field Personnel: M. Steenis

Purge Data

Well ID: MW-C1-VB1 Secure: ☒ Yes ☐ No Ecology Tag #: BEA 343 Casing Type/Diameter/Screened Interval 2" PVC

Replacement Required: ☐ Monument ☐ Lid ☐ Lock ☐ Bolts: Missing (#) ____ Stripped (#) ____ Other Damage: ____

Depth Sounder decontaminated Prior to Placement in Well: ☒ Yes ☐ No One Casing Volume (gal): ____

Depth of water (from TOC): 8.85 Time: 10:33

Total Depth (from log or field measurement): ____

After 5 minutes of purging (from top of casing): 8.98

Begin purge (time): 10:34 End purge (time): ____

Volume purged: ____ Purge water disposal method drum

Volume of Schedule 40 PVC Pipe

Diameter	O.D.	I.D.	Volume (Gal/Linear Ft.)	Weight of Water (Lbs/Lineal Ft.)
1 ¼"	1.660"	1.380"	0.08	0.64
2"	2.375"	2.067"	0.17	1.45
3"	3.500"	3.068"	0.38	3.2
4"	4.500"	4.026"	0.66	5.51
6"	6.625"	6.065"	1.5	12.5

Time	Depth to Water (ft)	Vol. Purged (L)	pH (s.u.)	DO (mg/L)	Specific Conductivity (µs/cm)	Turbidity (NTU)	Temp (°C)	ORP (mV)	Comments
10:41	9.01	0.75	6.64	5.46	252.9	1.06	11.0	69.2	
10:46	9.03	2.0	6.26	4.44	247.7	0.81	11.0	96.7	
10:51	9.04	2.75	6.20	4.45	243.1	0.79	11.1	104.5	
10:56	9.03	3.9L	6.16	4.53	240.1	0.85	11.1	111.4	
11:01	9.03	5L	6.15	4.57	238.4	0.76	11.1	116.5	
11:06	9.03	6L	6.14	4.56	237.5	0.80	11.1	120.3	
11:11	9.04	72L	6.14	4.56	237.3	0.81	11.1	125.0	

Sampling Data

Sample No: MW-C1-VB1-042424 Location and Depth: ____

Date Collected (mo/dy/yr): 4/24/24 Time Collected: 1120 Weather: cloudy, low 50's

Type: ☒ Ground Water ☐ Surface Water Other: ____ Sample: ☐ Filtered ☒ Unfiltered Filter Type: ____

Sample Collected with: ☐ Bailer ☒ Pump Other: ____ Type: ☒ Peristaltic ☐ Bladder ☐ Submersible Other: ____

Water Quality Instrument Data Collected with: Type: ☒ YSI ProDSS ☒ Turbidity Meter ☐ Other: ____

Sample Decon Procedure: Sample collected with: ☐ decontaminated all tubing; ☐ disposable tubing ☒ dedicated silicon and poly tubing; ☐ dedicated tubing replaced

Sample Description (Color, Turbidity, Odor, Other): clear, no sheen, no odor

Sample Analyses

Analyte	Analysis Method	Sample Container	Quantity	Preservative	Notes

QC samples

Duplicate Sample No: MW-C1-VB1-042424-D Duplicate Time: 1135 MS/MSD: ☐ Yes ☒ No

Signature: Madelyn Stee Date: 04/24/24

GROUNDWATER OR SURFACE WATER SAMPLE COLLECTION FORM

Project: Lord Lake Date of Collection: 4/24/24

Task: _____ Field Personnel: DG

Purge Data

Well ID: MW-VB2 Secure: ☑ Yes ☐ No Ecology Tag #: _____ Casing Type/Diameter/Screened Interval _____

Replacement Required: ☐ Monument ☐ Lid ☐ Lock ☐ Bolts: Missing (#) ____ Stripped (#) ____ Other Damage: _____

Depth Sounder decontaminated Prior to Placement in Well: ☑ Yes ☐ No One Casing Volume (gal): _____

Depth of water (from TOC): 9.99 Time: 10:25

Total Depth (from log or field measurement): _____

After 5 minutes of purging (from top of casing): 10.00

Begin purge (time): 10:30 End purge (time): 11:09

Volume purged: 4.5L Purge water disposal method: Drum

Volume of Schedule 40 PVC Pipe

Diameter	O.D.	I.D.	Volume (Gal/Linear Ft.)	Weight of Water (Lbs/Lineal Ft.)
1 ¼"	1.660"	1.380"	0.08	0.64
2"	2.375"	2.067"	0.17	1.45
3"	3.500"	3.068"	0.38	3.2
4"	4.500"	4.026"	0.66	5.51
6"	6.625"	6.065"	1.5	12.5

Time	Depth to Water (ft)	Vol. Purged (L)	pH (s.u.)	DO (mg/L)	Specific Conductivity (µs/cm)	Turbidity (NTU)	Temp (°C)	ORP (mV)	Comments
10:35	10.00	0	6.08	2.46	209.3	4.18	11.2	110.7	
10:40	10.00	1.0	6.02	0.66	178.7	4.31	11.4	126.0	
10:45	10.00	1.5	6.02	0.55	176.6	2.18	11.3	129.0	
10:50	10.01	2.0	6.02	0.42	175.7	2.36	11.3	130.9	
10:55	10.01	3.0	6.02	0.36	175.2	2.57	11.4	131.8	

Sampling Data

Sample No: MW-VB2-042424 Location and Depth: MW-VB2 @ 13'

Date Collected (mo/dy/yr): 04/24/24 Time Collected: 11:00 Weather: Overcast, cool + breezy

Type: ☑ Ground Water ☐ Surface Water Other: _____ Sample: ☐ Filtered ☑ Unfiltered Filter Type: _____

Sample Collected with: ☐ Bailer ☑ Pump Other: _____ Type: ☑ Peristaltic ☐ Bladder ☐ Submersible Other: _____

Water Quality Instrument Data Collected with: Type: ☑ YSI ProDSS ☑ Turbidity Meter ☐ Other: _____

Sample Decon Procedure: Sample collected with: ☐ decontaminated all tubing; ☐ disposable tubing ☑ dedicated silicon and poly tubing; ☐ dedicated tubing replaced

Sample Description (Color, Turbidity, Odor, Other): Clear w/some orange particulates, yellow tint

Sample Analyses

Analyte	Analysis Method	Sample Container	Quantity	Preservative	Notes

QC samples

Duplicate Sample No: _____ Duplicate Time: — MS/MSD: ☐ Yes ☑ No

Signature: _____ **Date:** 4/24/24

GROUNDWATER OR SURFACE WATER SAMPLE COLLECTION FORM

Project: Lead Lake Date of Collection: 4/24/24

Task: _____ Field Personnel: MS / DG

Purge Data

Well ID: MW-VB3 Secure: ☑ Yes ☐ No Ecology Tag #: _____ Casing Type/Diameter/Screened Interval _____

Replacement Required: ☐ Monument ☐ Lid ☐ Lock ☐ Bolts: Missing (#) ____ Stripped (#) ____ Other Damage: _____

Depth Sounder decontaminated Prior to Placement in Well: ☑ Yes ☐ No One Casing Volume (gal): _____

Depth of water (from TOC): 10.83 Time: 12:03

Total Depth (from log or field measurement): 10.88

After 5 minutes of purging (from top of casing): _____

Begin purge (time): 12:09 End purge (time): _____

Volume purged: 4.5 L Purge water disposal method: Drum

Volume of Schedule 40 PVC Pipe

Diameter	O.D.	I.D.	Volume (Gal/Linear Ft.)	Weight of Water (Lbs/Lineal Ft.)
1 ¼"	1.660"	1.380"	0.08	0.64
2"	2.375"	2.067"	0.17	1.45
3"	3.500"	3.068"	0.38	3.2
4"	4.500"	4.026"	0.66	5.51
6"	6.625"	6.065"	1.5	12.5

Time	Depth to Water (ft)	Vol. Purged (L)	pH (s.u.)	DO (mg/L)	Specific Conductivity (µs/cm)	Turbidity (NTU)	Temp (°C)	ORP (mV)	Comments
12:07	10.88	0	5.86	2.43	216.3	4.07	11.8	194.1	
12:11	10.88	1.0	5.83	0.70	217.5	2.50	11.8	195.6	
12:15	10.89	2.0	5.84	0.57	219.0	2.06	11.8	194.6	
12:19	10.89	3.0	5.84	0.48	219.2	2.14	11.7	192.9	
12:23	10.89	4.0	5.84	0.41	219.2	1.36	11.7	191.2	

Sampling Data

Sample No: MW-VB3-042424 Location and Depth: MW-VB3 C

Date Collected (mo/dy/yr): 04/24/24 Time Collected: 12:30 Weather: Overcast

Type: ☑ Ground Water ☐ Surface Water Other: _____ Sample: ☐ Filtered ☐ Unfiltered Filter Type: _____

Sample Collected with: ☐ Bailer ☑ Pump Other: _____ Type: ☑ Peristaltic ☐ Bladder ☐ Submersible Other: _____

Water Quality Instrument Data Collected with: Type: ☑ YSI ProDSS ☑ Turbidity Meter ☐ Other: _____

Sample Decon Procedure: Sample collected with: ☐ decontaminated all tubing; ☐ disposable tubing ☑ dedicated silicon and poly tubing; ☐ dedicated tubing replaced

Sample Description (Color, Turbidity, Odor, Other): Clear

Sample Analyses

Analyte	Analysis Method	Sample Container	Quantity	Preservative	Notes

QC samples

Duplicate Sample No: — Duplicate Time: — MS/MSD: ☐ Yes ☒ No

Signature: [signature] **Date:** 4/24/24

GROUNDWATER OR SURFACE WATER SAMPLE COLLECTION FORM

Project: LoraLake Date of Collection: 4/24/24

Task: _____ Field Personnel: JL + MS

Purge Data

Well ID: HC00-B312 Secure: ☒ Yes ☐ No Ecology Tag #: _____ Casing Type/Diameter/Screened Interval _____

Replacement Required: ☐ Monument ☐ Lid ☐ Lock ☐ Bolts: Missing (#) ____ Stripped (#) ____ Other Damage: _____

Depth Sounder decontaminated Prior to Placement in Well: ☐ Yes ☐ No One Casing Volume (gal): _____

Depth of water (from TOC): 12.41 Time: 13:10

Total Depth (from log or field measurement): _____

After 5 minutes of purging (from top of casing): 12.41

Begin purge (time): 13:11 End purge (time): _____

Volume purged: _____ Purge water disposal method _____

Volume of Schedule 40 PVC Pipe

Diameter	O.D.	I.D.	Volume (Gal/Linear Ft.)	Weight of Water (Lbs/Lineal Ft.)
1 ¼"	1.660"	1.380"	0.08	0.64
2"	2.375"	2.067"	0.17	1.45
3"	3.500"	3.068"	0.38	3.2
4"	4.500"	4.026"	0.66	5.51
6"	6.625"	6.065"	1.5	12.5

Time	Depth to Water (ft)	Vol. Purged (____)	pH (s.u.)	DO (mg/L)	Specific Conductivity (µs/cm)	Turbidity (NTU)	Temp (°C)	ORP (mV)	Comments
13:17	12.41	1L	5.87	1.05	172.3	3.79	11.3	218.2	
13:22	12.41	2.0L	5.85	0.51	172.2	3.27	11.2	216.0	
13:26	12.41	2.4L	5.85	0.44	172.2	2.95	11.2	214.1	
13:30	12.41	3.4L	5.85	0.39	172.0	2.37	11.2	211.6	
13:34	12.41	4.0L	5.85	0.37	172.2	2.67	11.2	209.4	
13:38	12.41	4.6L	5.85	0.34	173.4	1.69	11.2	206.2	

Sampling Data

Sample No: HC00-B312-042424 Location and Depth: _____

Date Collected (mo/dy/yr): 4/24/24 Time Collected: 1345 Weather: scattered rain, mid 50s

Type: ☒ Ground Water ☐ Surface Water Other: _____ Sample: ☐ Filtered ☒ Unfiltered Filter Type: _____

Sample Collected with: ☐ Bailer ☒ Pump Other: _____ Type: ☒ Peristaltic ☐ Bladder ☐ Submersible Other: _____

Water Quality Instrument Data Collected with: Type: ☒ YSI ProDSS ☒ Turbidity Meter ☐ Other: _____

Sample Decon Procedure: Sample collected with: ☐ decontaminated all tubing; ☐ disposable tubing; ☒ dedicated silicon and poly tubing; ☐ dedicated tubing replaced

Sample Description (Color, Turbidity, Odor, Other): clear no sheen no odor

Sample Analyses

Analyte	Analysis Method	Sample Container	Quantity	Preservative	Notes

QC samples

Duplicate Sample No: — Duplicate Time: — MS/MSD: ☐ Yes ☒ No

Signature: Maddy [illegible] **Date:** 04/24/24

GROUNDWATER OR SURFACE WATER SAMPLE COLLECTION FORM

Project: Lord Lake Date of Collection: 4/24/24

Task: Field Personnel: DG/AJ

Purge Data

Well ID: MW-CP1 Secure: ☑ Yes ☐ No Ecology Tag #: Casing Type/Diameter/Screened Interval

Replacement Required: ☐ Monument ☐ Lid ☐ Lock ☐ Bolts: Missing (#) Stripped (#) Other Damage:

Depth Sounder decontaminated Prior to Placement in Well: ☑ Yes ☐ No One Casing Volume (gal):

Depth of water (from TOC): 2.50 Time: 16:15

Total Depth (from log or field measurement):

After 5 minutes of purging (from top of casing): 2.51

Begin purge (time): 16:18 End purge (time):

Volume purged: Purge water disposal method Drum

Volume of Schedule 40 PVC Pipe

Diameter	O.D.	I.D.	Volume (Gal/Linear Ft.)	Weight of Water (Lbs/Lineal Ft.)
1 ¼"	1.660"	1.380"	0.08	0.64
2"	2.375"	2.067"	0.17	1.45
3"	3.500"	3.068"	0.38	3.2
4"	4.500"	4.026"	0.66	5.51
6"	6.625"	6.065"	1.5	12.5

Time	Depth to Water (ft)	Vol. Purged (L)	pH (s.u.)	DO (mg/L)	Specific Conductivity (µs/cm)	Turbidity (NTU)	Temp (°C)	ORP (mV)	Comments
16:20	2.51	0.5	6.69	4.75	182.1	1.78	10.9	31.6	
16:25	2.51	1.5	6.60	1.46	187.9	1.10	10.8	41.6	
16:28	2.51	2.5	6.56	0.85	188.7	1.34	10.7	47.8	
16:31	2.51	3.5	6.55	0.66	188.1	0.58	10.7	52.2	
16:34	2.52	4.5	6.54	0.56	188.0	0.44	10.7	56.1	

Sampling Data

Sample No: MW-CP1-042424 Location and Depth: MW-CP1 @

Date Collected (mo/dy/yr): 04/24/24 Time Collected: 16:40 Weather: Raining

Type: ☑ Ground Water ☐ Surface Water Other: Sample: ☐ Filtered ☐ Unfiltered Filter Type:

Sample Collected with: ☐ Bailer ☑ Pump Other: Type: ☑ Peristaltic ☐ Bladder ☐ Submersible Other:

Water Quality Instrument Data Collected with: Type: ☑ YSI ProDSS ☑ Turbidity Meter ☐ Other:

Sample Decon Procedure: Sample collected with: ☐ decontaminated all tubing; ☐ disposable tubing ☑ dedicated silicon and poly tubing; ☐ dedicated tubing replaced

Sample Description (Color, Turbidity, Odor, Other): Clear w/ black particulate chunks

Sample Analyses

Analyte	Analysis Method	Sample Container	Quantity	Preservative	Notes

QC samples

Duplicate Sample No: MW-CP1-042424-D Duplicate Time: 16:50 MS/MSD: ☐ Yes ☑ No

Signature: **Date:** 4/24/24

GROUNDWATER OR SURFACE WATER SAMPLE COLLECTION FORM

Project: Lora Lake Date of Collection: 4/24/24

Task: Field Personnel: JL + MS

Purge Data

Well ID: MW-CP2 Secure: ☐ Yes ☐ No Ecology Tag #: Casing Type/Diameter/Screened Interval 2" PCV

Replacement Required: ☐ Monument ☐ Lid ☐ Lock ☐ Bolts: Missing (#) Stripped (#) Other Damage:

Depth Sounder decontaminated Prior to Placement in Well: ☐ Yes ☐ No One Casing Volume (gal):

Depth of water (from TOC): 3.03 Time: 1637

Total Depth (from log or field measurement):

After 5 minutes of purging (from top of casing): 3.05

Begin purge (time): 1638 End purge (time):

Volume purged: Purge water disposal method drum

Volume of Schedule 40 PVC Pipe

Diameter	O.D.	I.D.	Volume (Gal/Linear Ft.)	Weight of Water (Lbs/Lineal Ft.)
1 ¼"	1.660"	1.380"	0.08	0.64
2"	2.375"	2.067"	0.17	1.45
3"	3.500"	3.068"	0.38	3.2
4"	4.500"	4.026"	0.66	5.51
6"	6.625"	6.065"	1.5	12.5

Time	Depth to Water (ft)	Vol. Purged ( )	pH (s.u.)	DO (mg/L)	Specific Conductivity (µs/cm)	Turbidity (NTU)	Temp (°C)	ORP (mV)	Comments
1644	3.026	1.5L	6.52	1.86	115.4	1.92	10.6	203.3	
1648	3.05	3L	6.44	1.04	118.2	0.99	10.6	208.7	
1652	3.05	4.5L	6.44	1.05	118.0	0.79	10.6	207.7	
1656	3.05	6.0L	6.44	1.03	118.5	0.99	10.6	206.7	
1700									

Sampling Data

Sample No: MW-CP2-042424 Location and Depth:

Date Collected (mo/dy/yr): 4/24/24 Time Collected: 17:10 Weather: Calm

Type: ☒ Ground Water ☐ Surface Water Other: Sample: ☐ Filtered ☒ Unfiltered Filter Type:

Sample Collected with: ☐ Bailer ☒ Pump Other: Type: ☒ Peristaltic ☐ Bladder ☐ Submersible Other:

Water Quality Instrument Data Collected with: Type: ☒ YSI ProDSS ☒ Turbidity Meter ☐ Other:

Sample Decon Procedure: Sample collected with: ☐ decontaminated all tubing; ☐ disposable tubing ☒ dedicated silicon and poly tubing; ☐ dedicated tubing replaced

Sample Description (Color, Turbidity, Odor, Other): clear no sheen no odor

Sample Analyses

Analyte	Analysis Method	Sample Container	Quantity	Preservative	Notes

QC samples

Duplicate Sample No: — Duplicate Time: — MS/MSD: ☐ Yes ☒ No

Signature: Madelyn Stein Date: 04/24/24

GROUNDWATER OR SURFACE WATER SAMPLE COLLECTION FORM

Project: Lora Lake Date of Collection: 4/24/24

Task: _____ Field Personnel: DG / AJ

Purge Data

Well ID: MW-CP3 Secure: ☑ Yes ☐ No Ecology Tag #: _____ Casing Type/Diameter/Screened Interval _____

Replacement Required: ☐ Monument ☐ Lid ☐ Lock ☐ Bolts: Missing (#) ____ Stripped (#) ____ Other Damage: _____

Depth Sounder decontaminated Prior to Placement in Well: ☑ Yes ☐ No One Casing Volume (gal): _____

Depth of water (from TOC): 2.41 Time: 13:19

Total Depth (from log or field measurement): _____

After 5 minutes of purging (from top of casing): _____

Begin purge (time): 13:21 End purge (time): _____

Volume purged: 45 L Purge water disposal method Drum

Volume of Schedule 40 PVC Pipe

Diameter	O.D.	I.D.	Volume (Gal/Linear Ft.)	Weight of Water (Lbs/Lineal Ft.)
1 ¼"	1.660"	1.380"	0.08	0.64
2"	2.375"	2.067"	0.17	1.45
3"	3.500"	3.068"	0.38	3.2
4"	4.500"	4.026"	0.66	5.51
6"	6.625"	6.065"	1.5	12.5

Time	Depth to Water (ft)	Vol. Purged (L)	pH (s.u.)	DO (mg/L)	Specific Conductivity (µs/cm)	Turbidity (NTU)	Temp (°C)	ORP (mV)	Comments
13:25	2.42	0.5	6.77	3.13	178.1	1.95	10.3	31.7	
13:30	2.41	1.0	6.71	1.16	183.3	2.12	10.2	4.8	
13:35	2.42	2.0	6.70	0.78	183.8	1.41	10.2	4.9	
13:40	2.43	2.5	6.69	0.62	183.7	0.77	10.2	4.1	
13:45	2.44	3.5	6.69	0.52	184.1	0.82	10.2	5.6	

Sampling Data

Sample No: MW-CP3-042424 Location and Depth: MW-CP3

Date Collected (mo/dy/yr): 04/24/24 Time Collected: 13:53 Weather: Overcast

Type: ☑ Ground Water ☐ Surface Water Other: _____ Sample: ☐ Filtered ☐ Unfiltered Filter Type: _____

Sample Collected with: ☐ Bailer ☑ Pump Other: _____ Type: ☑ Peristaltic ☐ Bladder ☐ Submersible Other: _____

Water Quality Instrument Data Collected with: Type: ☑ YSI ProDSS ☑ Turbidity Meter ☐ Other: _____

Sample Decon Procedure: Sample collected with: ☐ decontaminated all tubing; ☐ disposable tubing ☑ dedicated silicon and poly tubing; ☐ dedicated tubing replaced

Sample Description (Color, Turbidity, Odor, Other): _____

Sample Analyses

Analyte	Analysis Method	Sample Container	Quantity	Preservative	Notes

QC samples

Duplicate Sample No: — Duplicate Time: — MS/MSD: ☐ Yes ☒ No

Signature: Donna Addis **Date:** 4/24/24

GROUNDWATER OR SURFACE WATER SAMPLE COLLECTION FORM

Project: Lora Lake Date of Collection: 4/24/24

Task: Field Personnel: M Steenis + JL

Purge Data

Well ID: MW-CP4 Secure: ☒ Yes ☐ No Ecology Tag #: Unknown Casing Type/Diameter/Screened Interval 2" PVC

Replacement Required: ☐ Monument ☐ Lid ☐ Lock ☐ Bolts: Missing (#) ____ Stripped (#) ____ Other Damage: ____

Depth Sounder decontaminated Prior to Placement in Well: ☐ Yes ☐ No One Casing Volume (gal): ____

Depth of water (from TOC): 1.33 Time: 1454

Total Depth (from log or field measurement): ____

After 5 minutes of purging (from top of casing): 1.33

Begin purge (time): 1455 End purge (time): ____

Volume purged: ____ Purge water disposal method ____

Volume of Schedule 40 PVC Pipe

Diameter	O.D.	I.D.	Volume (Gal/Linear Ft.)	Weight of Water (Lbs/Lineal Ft.)
1 ¼"	1.660"	1.380"	0.08	0.64
2"	2.375"	2.067"	0.17	1.45
3"	3.500"	3.068"	0.38	3.2
4"	4.500"	4.026"	0.66	5.51
6"	6.625"	6.065"	1.5	12.5

Time	Depth to Water (ft)	Vol. Purged (____)	pH (s.u.)	DO (mg/L)	Specific Conductivity (µs/cm)	Turbidity (NTU)	Temp (°C)	ORP (mV)	Comments
1500	1.33	1L	6.48	2.39	182.1	1.17	11.0	224.3	
1504	1.34	3L	6.46	0.64	183.6	1.43	10.5	220.4	
1508	1.33	4.2L	6.46	0.58	184.3	0.66	10.9	218.6	
1512	1.33	4.8L	6.46	0.52	184.9	0.87	10.8	216.2	

Sampling Data

Sample No: MW-CP4-042424 Location and Depth: ____

Date Collected (mo/dy/yr): 4/24/24 Time Collected: 1520 Weather: Cloudy mid 50's

Type: ☒ Ground Water ☐ Surface Water Other: ____ Sample: ☐ Filtered ☒ Unfiltered Filter Type: ____

Sample Collected with: ☐ Bailer ☒ Pump Other: ____ Type: ☒ Peristaltic ☐ Bladder ☐ Submersible Other: ____

Water Quality Instrument Data Collected with: Type: ☒ YSI ProDSS ☒ Turbidity Meter ☐ Other: ____

Sample Decon Procedure: Sample collected with: ☐ decontaminated all tubing; ☐ disposable tubing ☒ dedicated silicon and poly tubing; ☐ dedicated tubing replaced

Sample Description (Color, Turbidity, Odor, Other): Clear, no Sheen, no Odor

Sample Analyses

Analyte	Analysis Method	Sample Container	Quantity	Preservative	Notes

QC samples

Duplicate Sample No: — Duplicate Time: — MS/MSD: ☐ Yes ☒ No

Signature: ____ **Date:** ____

GROUNDWATER OR SURFACE WATER SAMPLE COLLECTION FORM

Project: Lora Lake Date of Collection: 4/24/24

Task: _____ Field Personnel: DG/AJ

Purge Data

Well ID: MW-CP5 Secure: ☑ Yes ☐ No Ecology Tag #: _____ Casing Type/Diameter/Screened Interval _____

Replacement Required: ☐ Monument ☐ Lid ☐ Lock ☐ Bolts: Missing (#) ____ Stripped (#) ____ Other Damage: _____

Depth Sounder decontaminated Prior to Placement in Well: ☑ Yes ☐ No One Casing Volume (gal): _____

Depth of water (from TOC): 2.63 Time: 14:20

Total Depth (from log or field measurement): _____

After 5 minutes of purging (from top of casing): 3.07

Begin purge (time): 14:22 End purge (time): _____

Volume purged: 4.0L Purge water disposal method Drum

Volume of Schedule 40 PVC Pipe

Diameter	O.D.	I.D.	Volume (Gal/Linear Ft.)	Weight of Water (Lbs/Lineal Ft.)
1 ¼"	1.660"	1.380"	0.08	0.64
2"	2.375"	2.067"	0.17	1.45
3"	3.500"	3.068"	0.38	3.2
4"	4.500"	4.026"	0.66	5.51
6"	6.625"	6.065"	1.5	12.5

Time	Depth to Water (ft)	Vol. Purged (L)	pH (s.u.)	DO (mg/L)	Specific Conductivity (µs/cm)	Turbidity (NTU)	Temp (°C)	ORP (mV)	Comments
14:25	3.07	0.5	6.46	2.10	298.4	2.27	10.0	-24.7	
14:30	3.15	1.0	6.41	1.42	296.9	4.36	9.9	-32.6	
14:35	3.18	1.5	6.40	1.24	296.6	2.25	9.9	-36.5	
14:38	3.23	2.0	6.39	1.19	296.5	4.30	9.9	-40.2	
14:41	3.26	2.5	6.38	1.24	296.7	4.50	9.9	-42.9	

Sampling Data

Sample No: MW-CP5-042424 Location and Depth: MW-CP5 @

Date Collected (mo/dy/yr): 04/24/24 Time Collected: 14:45 Weather: Overcast

Type: ☑ Ground Water ☐ Surface Water Other: _____ Sample: ☐ Filtered ☑ Unfiltered Filter Type: _____

Sample Collected with: ☐ Bailer ☑ Pump Other: _____ Type: ☑ Peristaltic ☐ Bladder ☐ Submersible Other: _____

Water Quality Instrument Data Collected with: Type: ☑ YSI ProDSS ☑ Turbidity Meter ☐ Other: _____

Sample Decon Procedure: Sample collected with: ☐ decontaminated all tubing; ☐ disposable tubing ☑ dedicated silicon and poly tubing; ☐ dedicated tubing replaced

Sample Description (Color, Turbidity, Odor, Other): Clear, some chunks of turbidity

Sample Analyses

Analyte	Analysis Method	Sample Container	Quantity	Preservative	Notes

QC samples

Duplicate Sample No: — Duplicate Time: — MS/MSD: ☐ Yes ☒ No

Signature: _____ **Date:** 4/24/24

GROUNDWATER OR SURFACE WATER SAMPLE COLLECTION FORM

Project: Lora Lake Date of Collection: 4/24/24

Task: _____ Field Personnel: DG/AJ

Purge Data

Well ID: MW-CP6 Secure: ☑ Yes ☐ No Ecology Tag #: _____ Casing Type/Diameter/Screened Interval _____

Replacement Required: ☐ Monument ☐ Lid ☐ Lock ☐ Bolts: Missing (#) ____ Stripped (#) ____ Other Damage: _____

Depth Sounder decontaminated Prior to Placement in Well: ☑ Yes ☐ No One Casing Volume (gal): _____

Depth of water (from TOC): 3.10 Time: 15:10

Total Depth (from log or field measurement): _____

After 5 minutes of purging (from top of casing): 3.11

Begin purge (time): 15:11 End purge (time): _____

Volume purged: _____ Purge water disposal method _____

Volume of Schedule 40 PVC Pipe

Diameter	O.D.	I.D.	Volume (Gal/Linear Ft.)	Weight of Water (Lbs/Lineal Ft.)
1 ¼"	1.660"	1.380"	0.08	0.64
2"	2.375"	2.067"	0.17	1.45
3"	3.500"	3.068"	0.38	3.2
4"	4.500"	4.026"	0.66	5.51
6"	6.625"	6.065"	1.5	12.5

Time	Depth to Water (ft)	Vol. Purged (L)	pH (s.u.)	DO (mg/L)	Specific Conductivity (µs/cm)	Turbidity (NTU)	Temp (°C)	ORP (mV)	Comments
15:15	3.11	0.5	6.75	2.05	123.1	10.63	10.9	-18.3	
15:18	3.10	1.0	6.66	0.88	126.6	—	10.9	-12.9	
15:21	3.08	2.0	6.61	0.55	126.4	6.64	10.8	-8.4	
15:24	3.09	3.0	6.59	0.50	126.2	5.38	10.8	-7.0	
15:27	3.10	3.5	6.58	0.46	125.8	5.52	10.8	-5.9	

Sampling Data

Sample No: MW-CP6-042424 Location and Depth: MW-CP6 @

Date Collected (mo/dy/yr): 04/24/24 Time Collected: 15:30 Weather: Overcast / Drizzly

Type: ☑ Ground Water ☐ Surface Water Other: _____ Sample: ☐ Filtered ☑ Unfiltered Filter Type: _____

Sample Collected with: ☐ Bailer ☑ Pump Other: _____ Type: ☑ Peristaltic ☐ Bladder ☐ Submersible Other: _____

Water Quality Instrument Data Collected with: Type: ☑ YSI ProDSS ☑ Turbidity Meter ☐ Other: _____

Sample Decon Procedure: Sample collected with: ☐ decontaminated all tubing; ☐ disposable tubing ☑ dedicated silicon and poly tubing; ☐ dedicated tubing replaced

Sample Description (Color, Turbidity, Odor, Other): Clear

Sample Analyses

Analyte	Analysis Method	Sample Container	Quantity	Preservative	Notes

QC samples

Duplicate Sample No: — Duplicate Time: — MS/MSD: ☐ Yes ☒ No

Signature: _____ **Date:** 4/24/24

GROUNDWATER OR SURFACE WATER SAMPLE COLLECTION FORM

Project: Lora Lake Date of Collection: 4/24/24

Task: Field Personnel: MS + JL

Purge Data

Well ID: MW-CP7 Secure: ☐ Yes ☐ No Ecology Tag #: Casing Type/Diameter/Screened Interval 2" PVC

Replacement Required: ☐ Monument ☐ Lid ☐ Lock ☐ Bolts: Missing (#) Stripped (#) Other Damage:

Depth Sounder decontaminated Prior to Placement in Well: ☐ Yes ☐ No One Casing Volume (gal):

Depth of water (from TOC): 4.31 Time: 1540

Total Depth (from log or field measurement):

After 5 minutes of purging (from top of casing): 4.33

Begin purge (time): 1542 End purge (time):

Volume purged: Purge water disposal method drum

Volume of Schedule 40 PVC Pipe

Diameter	O.D.	I.D.	Volume (Gal/Linear Ft.)	Weight of Water (Lbs/Lineal Ft.)
1 ¼"	1.660"	1.380"	0.08	0.64
2"	2.375"	2.067"	0.17	1.45
3"	3.500"	3.068"	0.38	3.2
4"	4.500"	4.026"	0.66	5.51
6"	6.625"	6.065"	1.5	12.5

Time	Depth to Water (ft)	Vol. Purged (L)	pH (s.u.)	DO (mg/L)	Specific Conductivity (µs/cm)	Turbidity (NTU)	Temp (°C)	ORP (mV)	Comments
1546	4.34	1L	6.05	1.47	177.1	0.73	11.9	213.1	
1550	4.35	2L	6.03	1.04	177.3	0.96	12.0	213.9	
1554	4.35	3L	6.02	0.91	177.5	0.84	12.0	213.4	
1558	4.35	4L	6.02	0.83	177.8	0.98	12.0	212.6	
1602	4.36	5L	6.02	0.81	1750	1.14	12.1	211.6	

Sampling Data

Sample No: MW-CP7-042424 Location and Depth: under all the blackberries

Date Collected (mo/dy/yr): 4/24/24 Time Collected: 1615 Weather: scattered showers mid 50s

Type: ☒ Ground Water ☐ Surface Water Other: Sample: ☐ Filtered ☒ Unfiltered Filter Type:

Sample Collected with: ☒ Bailer ☒ Pump Other: Type: ☒ Peristaltic ☐ Bladder ☐ Submersible Other:

Water Quality Instrument Data Collected with: Type: ☐ YSI ProDSS ☐ Turbidity Meter ☐ Other:

Sample Decon Procedure: Sample collected with: ☐ decontaminated all tubing; ☐ disposable tubing ☒ dedicated silicon and poly tubing; ☐ dedicated tubing replaced

Sample Description (Color, Turbidity, Odor, Other): clear, no sheen, no odor

Sample Analyses

Analyte	Analysis Method	Sample Container	Quantity	Preservative	Notes

QC samples

Duplicate Sample No: — Duplicate Time: — MS/MSD: ☐ Yes ☒ No

Signature: Madelyn Stein **Date:** 04/24/24

Lora Lake Apartments Site

2024 Annual Compliance Monitoring Report

Appendix B
Laboratory Reports and Data Validation Summaries

Analytical Resources, LLC
Analytical Chemists and Consultants
Tukwila, WA

11 April 2024

Adia Jumper
Floyd - Snider
601 Union Street Two Union Square, Suite 600
Seattle, WA 98101-2341

RE: Lora Lake 2024 (POS - WA 8140)

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

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

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

Associated Work Order(s)	Associated SDG ID(s)
24C0462	N/A

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

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

Analytical Resources, LLC

Kelly Bottem, Client Services Manager

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

ACCREDITED IN ACCORDANCE WITH nelac
Cert# 100006-012

24C0462

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number:	Turn-around Requested: Standard	Page: 1 of 1	
ARI Client Company: Floyd | Snider	Phone: 206-292-2078	Date: 3/20/24	Ice Present? Y
Client Contact: Amanda.McKay@floydsnider.com		No. of Coolers: 1	Cooler Temps: 5.4°C
Client Project Name: POS-CL			
Client Project #: POS-CLA 8140	Samplers: Adria Jumper & Meg McCann		

Analytical Resources, LLC
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: Dissolved As	Notes/Comments
MW-C2-032024	3/20/24	1305	GW	1	X	Lab filtered
MW-C3-032024	3/20/24	1308	GW	1	X	

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: Adria Jumper	Printed Name: Meg McCann	Printed Name:	Printed Name:
	Company: Floyd | Snider	Company: ARI	Company:	Company:
	Date & Time: 3/20/24 14:27	Date & Time: 03/20/24 1427	Date & Time:	Date & Time:

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

Floyd - Snider	Project: Lora Lake 2024	
601 Union Street Two Union Square, Suite 600	Project Number: POS - WA 8140	**Reported:**
Seattle WA, 98101-2341	Project Manager: Adia Jumper	11-Apr-2024 14:50

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-C2-032024	24C0462-01	Water	20-Mar-2024 13:05	20-Mar-2024 14:27
MW-C3-032024	24C0462-02	Water	20-Mar-2024 13:08	20-Mar-2024 14:27

Floyd - Snider	Project: Lora Lake 2024	
601 Union Street Two Union Square, Suite 600	Project Number: POS - WA 8140	**Reported:**
Seattle WA, 98101-2341	Project Manager: Adia Jumper	11-Apr-2024 14:50

Work Order Case Narrative

Dissolved Metals - EPA Method 6020B

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

Initial and continuing calibrations were within method requirements.

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

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

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

Analytical Resources, LLC
Analytical Chemists and Consultants

Printed: 3/20/2024 4:28:24PM

WORK ORDER

24C0462

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

Client: Floyd - Snider
Project: Lora Lake 2024

Project Manager: Kelly Bottem
Project Number: POS - WA 8140

Report To:
Floyd - Snider
Adia Jumper
601 Union Street Two Union Square, Suite 600
Seattle, WA 98101-2341
Phone: (206) 292-2078
Fax: -

Invoice To:
Floyd - Snider
Adia Jumper
601 Union Street Two Union Square, Suite 600
Seattle, WA 98101-2341
Phone :(206) 292-2078
Fax: -

Date Due: 03-Apr-2024 18:00 (10 day TAT)
Received By: Matthew Daniel
Logged In By: Vy Dang
Date Received: 20-Mar-2024 14:27
Date Logged In: 20-Mar-2024 16:15

Samples Received at: **5.4°C**

Intact, properly signed and dated custody seals attached to outside of cooler(s)	No	Custody papers included with the cooler	Yes
Custody papers properly filled out (ink, signed, analyses requested, etc)	Yes	Was a temperature blank included in the cooler	No
Was sufficient ice used (if appropriate)	Yes	All bottles sealed in individual plastic bags	No
All bottles arrived in good condition (unbroken)	Yes	All bottle labels complete and legible	Yes
Number of containers listed on COC match number received	Yes	Bottle labels and tags agree with COC	Yes
Correct bottles used for the requested analyses	Yes	All VOC vials free of air bubbles	No
Analyses/bottles require preservation (attach preservation sheet excluding VOC)	Yes	Sufficient amount of sample sent in each bottle	Yes
Sample split at ARI	No		

24C0462-01 MW-C2-032024 [Water] Sampled 20-Mar-2024 13:05

Filter 0.45 micron	04/03/2024	10	3/21/2024	LAB FILTERED
Met Diss 6020B - As UCT	04/03/2024	10	9/16/2024	LAB FILTERED
Metals Prep ICPMS	04/03/2024	10	3/20/2025	LAB FILTERED

24C0462-02 MW-C3-032024 [Water] Sampled 20-Mar-2024 13:08

Filter 0.45 micron	04/03/2024	10	3/21/2024	LAB FILTERED
Met Diss 6020B - As UCT	04/03/2024	10	9/16/2024	LAB FILTERED
Metals Prep ICPMS	04/03/2024	10	3/20/2025	LAB FILTERED

Preservation Confirmation

Container ID	Container Type	pH
24C0462-01 A	HDPE NM, 500 mL	12 Fair
24C0462-02 A	HDPE NM, 500 mL	12 Fair

VD
Preservation Confirmed By

04/20/2024
Date

Reviewed By

Date

Analytical Resources, LLC
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Floyd Snider
Project Name: POS-LC
COC No(s): NA
Delivered by: Fed-Ex UPS Courier Hand Delivered Other:
Assigned ARI Job No: 24C0462
Tracking No: NA

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of the cooler? YES NO
Were custody papers included with the cooler? YES NO
Were custody papers properly filled out (ink, signed, etc.) YES NO
Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry) 5.4°C
Time 1427
If cooler temperature is out of compliance fill out form 00070F
Temp Gun ID#: JC09708
Cooler Accepted by: MD Date: 03/20/24 Time: 1427

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler? YES NO
What kind of packing material was used? Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other:
Was sufficient ice used (if appropriate)? NA YES NO
How were bottles sealed in plastic bags? Individually Grouped Not
Did all bottles arrive in good condition (unbroken)? YES NO
Were all bottle labels complete and legible? YES NO
Did the number of containers listed on COC match with the number of containers received? YES NO
Did all bottle labels and tags agree with custody papers? YES NO
Were all bottles used correct for the requested analyses? YES NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs) NA YES NO
Were all VOC vials free of air bubbles? NA YES NO
Was sufficient amount of sample sent in each bottle? YES NO
Date VOC Trip Blank was made at ARI NA
Were the sample(s) split by ARI? NA YES Date/Time: Equipment: Split by:

Samples Logged by: VD Date: 03/20/2024 Time: 16:15 Labels checked by: MD

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

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

Additional Notes, Discrepancies, & Resolutions:

By: Date:

Analytical Resources, LLC
Analytical Chemists and Consultants

Printed: 3/20/2024 4:28:24PM

WORK ORDER

24C0462

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

Client: Floyd - Snider
Project: Lora Lake 2024

Project Manager: Kelly Bottem
Project Number: POS - WA 8140

Report To:
Floyd - Snider
Adia Jumper
601 Union Street Two Union Square, Suite 600
Seattle, WA 98101-2341
Phone: (206) 292-2078
Fax: -

Invoice To:
Floyd - Snider
Adia Jumper
601 Union Street Two Union Square, Suite 600
Seattle, WA 98101-2341
Phone :(206) 292-2078
Fax: -

Date Due: 03-Apr-2024 18:00 (10 day TAT)
Received By: Matthew Daniel
Date Received: 20-Mar-2024 14:27
Logged In By: Vy Dang
Date Logged In: 20-Mar-2024 16:15

Samples Received at **5.4°C**

Intact, properly signed and dated custody seals attached to outside of cooler(s)	No	Custody papers included with the cooler	Yes
Custody papers properly filled out(in, signed, analyses requested etc)	Yes	Was a temperature blank included in the cooler	No
Was sufficient ice used (if appropriate)	Yes	All bottles sealed in individual plastic bags	No
All bottles arrived in good condition(unbroken)	Yes	All bottle labels complete and legible	Yes
Number of containers listed on COC match number received	Yes	Bottle labels and tags agree with COC	Yes
Correct bottles used for the requested analyses	Yes	All VOC vials free of air bubbles	No
Analyses/bottles require preservation (attach preservation sheet excluding VOC)	Yes	Sufficient amount of sample sent in each bottle	Yes
Sample split at ARI	No		

24C0462-01 MW-C2-032024 [Water] Sampled 20-Mar-2024 13:05

Filter 0.45 micron	04/03/2024	10	3/21/2024	LAB FILTERED
Met Diss 6020B - As UCT	04/03/2024	10	9/16/2024	LAB FILTERED
Metals Prep ICPMS	04/03/2024	10	3/20/2025	LAB FILTERED

24C0462-02 MW-C3-032024 [Water] Sampled 20-Mar-2024 13:08

Filter 0.45 micron	04/03/2024	10	3/21/2024	LAB FILTERED
Met Diss 6020B - As UCT	04/03/2024	10	9/16/2024	LAB FILTERED
Metals Prep ICPMS	04/03/2024	10	3/20/2025	LAB FILTERED

Preservation Confirmation

Container ID	Container Type	pH
24C0462-01 A	HDPE NM, 500 mL	72 fair (1)
24C0462-02 A	HDPE NM, 500 mL	72 fair (1)

VD
Preservation Confirmed By

04/20/2024
Date

(1) filtered at 0.45µm and preserved to pH<2 with 0.5mL concentrated HNO_3. (M2678)
03/21/24 AS

Reviewed By

Date

Floyd - Snider	Project: Lora Lake 2024	
601 Union Street Two Union Square, Suite 600	Project Number: POS - WA 8140	**Reported:**
Seattle WA, 98101-2341	Project Manager: Adia Jumper	11-Apr-2024 14:50

MW-C2-032024

24C0462-01 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED — Sampled: 03/20/2024 13:05

Instrument: ICPMS1 Analyst: MCB — Analyzed: 04/04/2024 20:13

Sample Preparation: Preparation Method: REN - EPA 3010A M — Extract ID: 24C0462-01 A 02

Preparation Batch: BMC0645 — Sample Size: 25 mL — Filtration Batch: BMC0559

Prepared: 03/25/2024 — Final Volume: 25 mL — Filtration Date: 03/21/2024 09:19

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	2	0.0746	0.400	42.0	ug/L	D

Floyd - Snider	Project: Lora Lake 2024	
601 Union Street Two Union Square, Suite 600	Project Number: POS - WA 8140	**Reported:**
Seattle WA, 98101-2341	Project Manager: Adia Jumper	11-Apr-2024 14:50

MW-C3-032024

24C0462-02 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED — Sampled: 03/20/2024 13:08

Instrument: ICPMS1 Analyst: MCB — Analyzed: 04/04/2024 20:12

Sample Preparation: Preparation Method: REN - EPA 3010A M — Extract ID: 24C0462-02 A 02

Preparation Batch: BMC0645 — Sample Size: 25 mL — Filtration Batch: BMC0559

Prepared: 03/25/2024 — Final Volume: 25 mL — Filtration Date: 03/21/2024 09:19

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0373	0.200	0.150	ug/L	J

Floyd - Snider	Project: Lora Lake 2024	
601 Union Street Two Union Square, Suite 600	Project Number: POS - WA 8140	**Reported:**
Seattle WA, 98101-2341	Project Manager: Adia Jumper	11-Apr-2024 14:50

Analysis by: Analytical Resources, LLC

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BMC0645 - EPA 6020B UCT-KED

Instrument: ICPMS1 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BMC0645-BLK1)						Prepared: 25-Mar-2024 Analyzed: 29-Mar-2024 14:57						
Arsenic, Dissolved	75a	ND	0.0373	0.200	ug/L							U
LCS (BMC0645-BS1)						Prepared: 25-Mar-2024 Analyzed: 29-Mar-2024 15:01						
Arsenic, Dissolved	75a	25.7	0.0373	0.200	ug/L	25.0		103	80-120			
Duplicate (BMC0645-DUP1)			**Source: 24C0462-01**			Prepared: 25-Mar-2024 Analyzed: 04-Apr-2024 20:15						
Arsenic, Dissolved	75a	41.7	0.0746	0.400	ug/L		42.0			0.75	20	D
Matrix Spike (BMC0645-MS1)			**Source: 24C0462-01**			Prepared: 25-Mar-2024 Analyzed: 04-Apr-2024 20:16						
Arsenic, Dissolved	75a	69.3	0.0746	0.400	ug/L	25.0	42.0	109	75-125			D
Recovery limits for target analytes in MS/MSD QC samples are advisory only.												
Matrix Spike Dup (BMC0645-MSD1)			**Source: 24C0462-01**			Prepared: 25-Mar-2024 Analyzed: 04-Apr-2024 20:17						
Arsenic, Dissolved	75a	67.9	0.0746	0.400	ug/L	25.0	42.0	103	75-125	2.13	20	D
Recovery limits for target analytes in MS/MSD QC samples are advisory only.												

Floyd - Snider	Project: Lora Lake 2024	
601 Union Street Two Union Square, Suite 600	Project Number: POS - WA 8140	**Reported:**
Seattle WA, 98101-2341	Project Manager: Adia Jumper	11-Apr-2024 14:50

Certified Analyses included in this Report

Analyte	Certifications
EPA 6020B UCT-KED in Water	
Arsenic-75a	NELAP,WADOE,DoD-ELAP,ADEC

Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	17-015	03/28/2025
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program, PJLA Testing	66169	02/28/2025
NELAP	ORELAP - Oregon Laboratory Accreditation Program	WA100006-012	05/12/2024
WADOE	WA Dept of Ecology	C558	06/30/2024
WA-DW	Ecology - Drinking Water	C558	06/30/2024

Floyd - Snider	Project: Lora Lake 2024	
601 Union Street Two Union Square, Suite 600	Project Number: POS - WA 8140	**Reported:**
Seattle WA, 98101-2341	Project Manager: Adia Jumper	11-Apr-2024 14:50

Notes and Definitions

D	The reported value is from a dilution
J	Estimated concentration value detected below the reporting limit.
U	This analyte is not detected above the reporting limit (RL) or if noted, not detected above the limit of detection (LOD).
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
[2C]	Indicates this result was quantified on the second column on a dual column analysis.

Analytical Resources, LLC
Analytical Chemists and Consultants
Tukwila, WA

29 May 2024

Amanda McKay
Floyd - Snider
601 Union Street Two Union Square, Suite 600
Seattle, WA 98101-2341

RE: Lora Lake 2024 (POS - LLA)

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

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

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

Associated Work Order(s)	Associated SDG ID(s)
24D0567	N/A

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

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

Analytical Resources, LLC

Kelly Bottem, Client Services Manager

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ACCREDITED IN ACCORDANCE WITH nelac
Cert# 100006-012

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 24D0567	Turn-around Requested:	Page: 1 of 2	
ARI Client Company: Floyd|Snider	Phone: 206-292-2078	Date: 4/24/24	Ice Present?
Client Contact: Amanda McKay		No. of Coolers:	Cooler Temps:
Client Project Name: POS - CCA			
Client Project #:	Samplers: A. JUMPER M. STEENS		

Analytical Resources, LLC
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: Dissolved As	Analysis Requested: Dioxin/Furans	Notes/Comments
MW-C1-VB1-042424	4/24/24	1120	GW	3	X	X	As sample to be lab filtered
MW-C1-VB1-042424-D		1135		3	X	X	
MW-VB2-042424		1100		3	X	X	
MW-VB3-042424		1230		3	X	X	
HCOO-B312-042424		1345		3	X	X	
MW-CP1-042424		1640		3	X	X	
MW-CP1-042424-D		1650		3	X	X	
MW-CP2-042424		1710		3	X	X	Sample time: 1710
MW-CP3-042424		1350		3	X	X	
MW-CP4-042424		1580		3	X	X	

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: Adia Jumper	Printed Name: Roman A.	Printed Name:	Printed Name:
	Company: Floyd|Snider	Company: ARI	Company:	Company:
	Date & Time: 4/25/24 0935	Date & Time: 4/25/24 0935	Date & Time:	Date & Time:

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 24D0567	Turn-around Requested:	Page: 2 of 2	
ARI Client Company: Floyd|Snider	Phone: 206-292-2078	Date: 4/24/24	Ice Present?
Client Contact: Amanda McKay		No. of Coolers:	Cooler Temps:
Client Project Name: POS-CCA			
Client Project #:	Samplers: A. JUMPER M. STEGNIS		

Analytical Resources, LLC
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: Dissolved As	Analysis Requested: Dioxin / furan	Notes/Comments
MW-CP5-042924	4/24/24	1445	GW	3	X	X	As sample to be lab filtered
MW-CP6-042424	"	1530	"	3	X	X	
MW-CP7-042424	"	1540	"	3	X	X	

Comments/Special Instructions	Relinquished by: (Signature)	Printed Name:	Company:	Date & Time:	Received by: (Signature)	Printed Name:	Company:	Date & Time:	Relinquished by: (Signature)	Printed Name:	Company:	Date & Time:	Received by: (Signature)	Printed Name:	Company:	Date & Time:
		Adria Jumper	Floyd|Snider	4/25/24 0935		Ronan A.	ARI	0935 4/25/24								

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

Floyd - Snider	Project: Lora Lake 2024	
601 Union Street Two Union Square, Suite 600	Project Number: POS - LLA	**Reported:**
Seattle WA, 98101-2341	Project Manager: Amanda McKay	29-May-2024 13:46

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-C1-VB1-042424	24D0567-01	Water	24-Apr-2024 11:20	25-Apr-2024 09:35
MW-C1-VB1-042424-D	24D0567-02	Water	24-Apr-2024 11:35	25-Apr-2024 09:35
MW-VB2-042424	24D0567-03	Water	24-Apr-2024 11:00	25-Apr-2024 09:35
MW-VB3-042424	24D0567-04	Water	24-Apr-2024 12:30	25-Apr-2024 09:35
HCOO-B312-042424	24D0567-05	Water	24-Apr-2024 13:45	25-Apr-2024 09:35
MW-CP1-042424	24D0567-06	Water	24-Apr-2024 16:40	25-Apr-2024 09:35
MW-CP1-042424-D	24D0567-07	Water	24-Apr-2024 16:50	25-Apr-2024 09:35
MW-CP2-042424	24D0567-08	Water	24-Apr-2024 17:10	25-Apr-2024 09:35
MW-CP3-042424	24D0567-09	Water	24-Apr-2024 13:50	25-Apr-2024 09:35
MW-CP4-042424	24D0567-10	Water	24-Apr-2024 15:20	25-Apr-2024 09:35
MW-CP5-042424	24D0567-11	Water	24-Apr-2024 14:45	25-Apr-2024 09:35
MW-CP6-042424	24D0567-12	Water	24-Apr-2024 15:30	25-Apr-2024 09:35
MW-CP7-042424	24D0567-13	Water	24-Apr-2024 15:40	25-Apr-2024 09:35

Floyd - Snider	Project: Lora Lake 2024	
601 Union Street Two Union Square, Suite 600	Project Number: POS - LLA	**Reported:**
Seattle WA, 98101-2341	Project Manager: Amanda McKay	29-May-2024 13:46

Work Order Case Narrative

Dioxin/Furans - EPA Method 1613

The sample(s) were extracted and analyzed within the recommended holding times. Analysis was performed using an application specific column developed by Restek. The RTX-Dioxin2 column has unique isomer separation for the 2378-TCDF, eliminating the need for confirmation analysis.

Initial and continuing calibrations were within method requirements.

Labeled internal standard areas were within limits with the exception of labels flagged on the associated forms.

The cleanup surrogate percent recoveries were within control limits.

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

The OPR (Ongoing Precision and Recovery) standard percent recoveries were within control limits.

Dissolved Metals - EPA Method 6020B

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

Initial and continuing calibrations including interference checks were within method requirements for reported elements.

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

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

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

Analytical Resources, LLC
Analytical Chemists and Consultants

Printed: 4/25/2024 11:22:45AM

WORK ORDER

24D0567

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

Client: Floyd - Snider | **Project Manager:** Kelly Bottem

Project: Lora Lake 2024 | **Project Number:** POS - LLA

Preservation Confirmation

Container ID	Container Type	pH
24D0567-01 A	Glass NM, Amber, 1000 mL	
24D0567-01 B	Glass NM, Amber, 1000 mL	
24D0567-01 C	HDPE NM, 500 mL	>2 fail
24D0567-02 A	Glass NM, Amber, 1000 mL	
24D0567-02 B	Glass NM, Amber, 1000 mL	
24D0567-02 C	HDPE NM, 500 mL	>2 fail
24D0567-03 A	Glass NM, Amber, 1000 mL	
24D0567-03 B	Glass NM, Amber, 1000 mL	
24D0567-03 C	HDPE NM, 500 mL	>2 fail
24D0567-04 A	Glass NM, Amber, 1000 mL	
24D0567-04 B	Glass NM, Amber, 1000 mL	
24D0567-04 C	HDPE NM, 500 mL	>2 fail
24D0567-05 A	Glass NM, Amber, 1000 mL	
24D0567-05 B	Glass NM, Amber, 1000 mL	
24D0567-05 C	HDPE NM, 500 mL	>2 fail
24D0567-06 A	Glass NM, Amber, 1000 mL	
24D0567-06 B	Glass NM, Amber, 1000 mL	
24D0567-06 C	HDPE NM, 500 mL	>2 fail
24D0567-07 A	Glass NM, Amber, 1000 mL	
24D0567-07 B	Glass NM, Amber, 1000 mL	
24D0567-07 C	HDPE NM, 500 mL	>2 fail
24D0567-08 A	Glass NM, Amber, 1000 mL	
24D0567-08 B	Glass NM, Amber, 1000 mL	
24D0567-08 C	HDPE NM, 500 mL	>2 fail
24D0567-09 A	Glass NM, Amber, 1000 mL	
24D0567-09 B	Glass NM, Amber, 1000 mL	
24D0567-09 C	HDPE NM, 500 mL	>2 fail
24D0567-10 A	Glass NM, Amber, 1000 mL	
24D0567-10 B	Glass NM, Amber, 1000 mL	
24D0567-10 C	HDPE NM, 500 mL	>2 fail
24D0567-11 A	Glass NM, Amber, 1000 mL	
24D0567-11 B	Glass NM, Amber, 1000 mL	
24D0567-11 C	HDPE NM, 500 mL	>2 fail
24D0567-12 A	Glass NM, Amber, 1000 mL	

Reviewed By _____ Date _____

WORK ORDER

24D0567

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

Client: Floyd - Snider **Project Manager: Kelly Bottem**

Project: Lora Lake 2024 **Project Number: POS - LLA**

24D0567-12 B	Glass NM, Amber, 1000 mL	
24D0567-12 C	HDPE NM, 500 mL	>2 Fail
24D0567-13 A	Glass NM, Amber, 1000 mL	
24D0567-13 B	Glass NM, Amber, 1000 mL	
24D0567-13 C	HDPE NM, 500 mL	>2 fail

GD
Preservation Confirmed By

4/25/24
Date

Reviewed By

Date

Analytical Resources, LLC
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Floyd|Snider Project Name: POS LLA

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

Assigned ARI Job No: 24D0567 Tracking No: NA

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of the cooler? YES NO

Were custody papers included with the cooler? YES NO

Were custody papers properly filled out (ink, signed, etc.) YES NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry) 5.8 3.3 5.3

Time 0935

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: 9708

Cooler Accepted by: Date: 4/25/24 Time: 0955

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler? YES NO

What kind of packing material was used? Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other:

Was sufficient ice used (if appropriate)? NA YES NO

How were bottles sealed in plastic bags? Individually Grouped Not

Did all bottles arrive in good condition (unbroken)? YES NO

Were all bottle labels complete and legible? YES NO

Did the number of containers listed on COC match with the number of containers received? YES NO

Did all bottle labels and tags agree with custody papers? YES NO

Were all bottles used correct for the requested analyses? YES NO

Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs) NA YES NO

Were all VOC vials free of air bubbles? NA YES NO

Was sufficient amount of sample sent in each bottle? YES NO

Date VOC Trip Blank was made at ARI NA

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

Samples Logged by: GD Date: 4/25/24 Time: 1040 Labels checked by:

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

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

Additional Notes, Discrepancies, & Resolutions:

By: Date:

WORK ORDER

24D0567

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

Client: Floyd - Snider | Project Manager: Kelly Bottem

Project: Lora Lake 2024 | Project Number: POS - LLA

Preservation Confirmation

Container ID	Container Type	pH	
24D0567-01 A	Glass NM, Amber, 1000 mL		
24D0567-01 B	Glass NM, Amber, 1000 mL		
24D0567-01 C	HDPE NM, 500 mL	>2 fail	(1)
24D0567-02 A	Glass NM, Amber, 1000 mL		
24D0567-02 B	Glass NM, Amber, 1000 mL		
24D0567-02 C	HDPE NM, 500 mL	>2 fail	(1)
24D0567-03 A	Glass NM, Amber, 1000 mL		
24D0567-03 B	Glass NM, Amber, 1000 mL		
24D0567-03 C	HDPE NM, 500 mL	>2 fail	(1)
24D0567-04 A	Glass NM, Amber, 1000 mL		
24D0567-04 B	Glass NM, Amber, 1000 mL		
24D0567-04 C	HDPE NM, 500 mL	>2 fail	(1)
24D0567-05 A	Glass NM, Amber, 1000 mL		
24D0567-05 B	Glass NM, Amber, 1000 mL		
24D0567-05 C	HDPE NM, 500 mL	>2 fail	(1)
24D0567-06 A	Glass NM, Amber, 1000 mL		
24D0567-06 B	Glass NM, Amber, 1000 mL		
24D0567-06 C	HDPE NM, 500 mL	>2 fail	(1)
24D0567-07 A	Glass NM, Amber, 1000 mL		
24D0567-07 B	Glass NM, Amber, 1000 mL		
24D0567-07 C	HDPE NM, 500 mL	>2 fail	(1)
24D0567-08 A	Glass NM, Amber, 1000 mL		
24D0567-08 B	Glass NM, Amber, 1000 mL		
24D0567-08 C	HDPE NM, 500 mL	>2 fail	(1)
24D0567-09 A	Glass NM, Amber, 1000 mL		
24D0567-09 B	Glass NM, Amber, 1000 mL		
24D0567-09 C	HDPE NM, 500 mL	>2 fail	(1)
24D0567-10 A	Glass NM, Amber, 1000 mL		
24D0567-10 B	Glass NM, Amber, 1000 mL		
24D0567-10 C	HDPE NM, 500 mL	>2 fail	(1)
24D0567-11 A	Glass NM, Amber, 1000 mL		
24D0567-11 B	Glass NM, Amber, 1000 mL		
24D0567-11 C	HDPE NM, 500 mL	>2 fail	(1)
24D0567-12 A	Glass NM, Amber, 1000 mL		

Reviewed By _____ Date _____

Analytical Resources, LLC
Analytical Chemists and Consultants

Printed: 4/25/2024 11:22:45AM

WORK ORDER

24D0567

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

Client: Floyd - Snider | **Project Manager:** Kelly Bottem

Project: Lora Lake 2024 | **Project Number:** POS - LLA

24D0567-12 B	Glass NM, Amber, 1000 mL			
24D0567-12 C	HDPE NM, 500 mL	>2	Fe'l	(1)
24D0567-13 A	Glass NM, Amber, 1000 mL			
24D0567-13 B	Glass NM, Amber, 1000 mL			
24D0567-13 C	HDPE NM, 500 mL	>2	Fe'l	(1)

GD
Preservation Confirmed By

4/25/24
Date

(1) filtered at 0.45µm and preserved to pH<2 with 0.5ml concentrated HNO3. (MA618) 4/25/24 AS

Reviewed By

Date

Floyd - Snider	Project: Lora Lake 2024	
601 Union Street Two Union Square, Suite 600	Project Number: POS - LLA	**Reported:**
Seattle WA, 98101-2341	Project Manager: Amanda McKay	29-May-2024 13:46

MW-C1-VB1-042424
24D0567-01 (Water)

Dioxins/Furans

Method: EPA 1613B — Sampled: 04/24/2024 11:20
Instrument: AUTOSPEC01 Analyst: pk — Analyzed: 05/22/2024 03:46

Sample Preparation:	Preparation Method: EPA 1613		Extract ID: 24D0567-01 A 01
	Preparation Batch: BME0078	Sample Size: 1060 mL	
	Prepared: 05/03/2024	Final Volume: 20 uL	
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 24D0567-01 A 01
	Cleanup Batch: CME0052	Initial Volume: 20 uL	
	Cleaned: 06-May-2024	Final Volume: 20 uL	
Sample Cleanup:	Cleanup Method: Florisil		Extract ID:24D0567-01 A 01
	Cleanup Batch: CME0053	Initial Volume: 20 uL	
	Cleaned: 06-May-2024	Final Volume: 20 uL	

Analyte	DF/Split	Ion Ratio	Ratio Limits	EDL	Reporting Limit	Result	Units	Notes
2,3,7,8-TCDF			0.655-0.886	1.27	9.43	ND	pg/L	U
2,3,7,8-TCDD			0.655-0.886	0.87	9.43	ND	pg/L	U
1,2,3,7,8-PeCDF			1.318-1.783	1.52	9.43	ND	pg/L	U
2,3,4,7,8-PeCDF			1.318-1.783	1.53	9.43	ND	pg/L	U
1,2,3,7,8-PeCDD			1.318-1.783	1.67	9.43	ND	pg/L	U
1,2,3,4,7,8-HxCDF			1.054-1.426	1.00	9.43	ND	pg/L	U
1,2,3,6,7,8-HxCDF			1.054-1.426	1.03	9.43	ND	pg/L	U
2,3,4,6,7,8-HxCDF			1.054-1.426	1.05	9.43	ND	pg/L	U
1,2,3,7,8,9-HxCDF			1.054-1.426	1.41	9.43	ND	pg/L	U
1,2,3,4,7,8-HxCDD			1.054-1.426	2.14	9.43	ND	pg/L	U
1,2,3,6,7,8-HxCDD			1.054-1.426	2.13	9.43	ND	pg/L	U
1,2,3,7,8,9-HxCDD			1.054-1.426	2.32	9.43	ND	pg/L	U
1,2,3,4,6,7,8-HpCDF			0.893-1.208	1.27	18.9	ND	pg/L	U
1,2,3,4,7,8,9-HpCDF			0.893-1.208	2.26	9.43	ND	pg/L	U
1,2,3,4,6,7,8-HpCDD			0.893-1.208	2.37	9.43	ND	pg/L	U
OCDF			0.757-1.024	2.82	18.9	ND	pg/L	U
OCDD		1.031	0.757-1.024	3.64	47.2	**5.10**	pg/L	EMPC, J
Homologue groups								
Total TCDF					9.43	ND	pg/L	U
Total TCDD					9.43	ND	pg/L	U
Total PeCDF					9.43	ND	pg/L	U
Total PeCDD					9.43	ND	pg/L	U
Total HxCDF					9.43	ND	pg/L	U
Total HxCDD					9.43	ND	pg/L	U
Total HpCDF					9.43	ND	pg/L	U
Total HpCDD					9.43	ND	pg/L	U

Floyd - Snider	Project: Lora Lake 2024	
601 Union Street Two Union Square, Suite 600	Project Number: POS - LLA	**Reported:**
Seattle WA, 98101-2341	Project Manager: Amanda McKay	29-May-2024 13:46

MW-C1-VB1-042424

24D0567-01 (Water)

Dioxins/Furans

Method: EPA 1613B — Sampled: 04/24/2024 11:20

Instrument: AUTOSPEC01 Analyst: pk — Analyzed: 05/22/2024 03:46

Analyte	DF/Split	Ion Ratio	Ratio Limits	Reporting Limit	Result	Units	Notes
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC):					2.17		
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC):					0.00		
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, EMPC = ND):					2.17		
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, EMPC = ND):					0.00		

Floyd - Snider	Project: Lora Lake 2024	
601 Union Street Two Union Square, Suite 600	Project Number: POS - LLA	**Reported:**
Seattle WA, 98101-2341	Project Manager: Amanda McKay	29-May-2024 13:46

MW-C1-VB1-042424

24D0567-01 (Water)

Dioxins/Furans

Method: EPA 1613B — Sampled: 04/24/2024 11:20

Instrument: AUTOSPEC01 Analyst: pk — Analyzed: 05/22/2024 03:46

Analyte	DF/Split	Ion Ratio	Ratio Limits	Reporting Limit	Result	Units	Notes
Labeled compounds							
13C12-2,3,7,8-TCDF		*0.692*	*0.655-0.886*	*24-169 %*	*85.8*	*%*	
13C12-2,3,7,8-TCDD		*0.778*	*0.655-0.886*	*25-164 %*	*99.7*	*%*	
13C12-1,2,3,7,8-PeCDF		*1.570*	*1.318-1.783*	*24-185 %*	*95.1*	*%*	
13C12-2,3,4,7,8-PeCDF		*1.550*	*1.318-1.783*	*21-178 %*	*92.8*	*%*	
13C12-1,2,3,7,8-PeCDD		*1.716*	*1.318-1.783*	*25-181 %*	*99.8*	*%*	
13C12-1,2,3,4,7,8-HxCDF		*0.521*	*0.434-0.587*	*26-152 %*	*130*	*%*	
13C12-1,2,3,6,7,8-HxCDF		*0.507*	*0.434-0.587*	*26-123 %*	*118*	*%*	
13C12-2,3,4,6,7,8-HxCDF		*0.518*	*0.434-0.587*	*28-136 %*	*119*	*%*	
13C12-1,2,3,7,8,9-HxCDF		*0.553*	*0.434-0.587*	*29-147 %*	*125*	*%*	
13C12-1,2,3,4,7,8-HxCDD		*1.254*	*1.054-1.426*	*32-141 %*	*106*	*%*	
13C12-1,2,3,6,7,8-HxCDD		*1.225*	*1.054-1.426*	*28-130 %*	*109*	*%*	
13C12-1,2,3,4,6,7,8-HpCDF		*0.418*	*0.374-0.506*	*28-143 %*	*114*	*%*	
13C12-1,2,3,4,7,8,9-HpCDF		*0.466*	*0.374-0.506*	*26-138 %*	*115*	*%*	
13C12-1,2,3,4,6,7,8-HpCDD		*1.035*	*0.893-1.208*	*23-140 %*	*122*	*%*	
13C12-OCDD		*0.928*	*0.757-1.024*	*17-157 %*	*110*	*%*	
37Cl4-2,3,7,8-TCDD				*35-197 %*	*99.0*	*%*	

Floyd - Snider	Project: Lora Lake 2024	
601 Union Street Two Union Square, Suite 600	Project Number: POS - LLA	**Reported:**
Seattle WA, 98101-2341	Project Manager: Amanda McKay	29-May-2024 13:46

MW-C1-VB1-042424

24D0567-01 (Water)

Dioxins/Furans

Method: EPA 1613B — Sampled: 04/24/2024 11:20

Instrument: AUTOSPEC01 Analyst: pk — Analyzed: 05/22/2024 03:46

Analyte	DF/Split	Ion Ratio	Ratio Limits	EDL	Reporting Limit	Result	Units	Notes

MW-C1-VB1-042424

24D0567-01 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED — Sampled: 04/24/2024 11:20

Instrument: ICPMS2 Analyst: DOE — Analyzed: 05/01/2024 22:02

Sample Preparation: Preparation Method: REN - EPA 3010A M — Extract ID: 24D0567-01 C 02

Preparation Batch: BMD0764 — Sample Size: 25 mL — Filtration Batch: BMD0643

Prepared: 04/28/2024 — Final Volume: 25 mL — Filtration Date: 04/25/2024 15:10

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0373	0.200	0.112	ug/L	J

Floyd - Snider	Project: Lora Lake 2024	
601 Union Street Two Union Square, Suite 600	Project Number: POS - LLA	**Reported:**
Seattle WA, 98101-2341	Project Manager: Amanda McKay	29-May-2024 13:46

MW-C1-VB1-042424-D

24D0567-02 (Water)

Dioxins/Furans

Method: EPA 1613B — Sampled: 04/24/2024 11:35

Instrument: AUTOSPEC01 Analyst: pk — Analyzed: 05/22/2024 04:35

Sample Preparation:	Preparation Method: EPA 1613		Extract ID: 24D0567-02 A 01
	Preparation Batch: BME0078	Sample Size: 950 mL	
	Prepared: 05/03/2024	Final Volume: 20 uL	
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 24D0567-02 A 01
	Cleanup Batch: CME0052	Initial Volume: 20 uL	
	Cleaned: 06-May-2024	Final Volume: 20 uL	
Sample Cleanup:	Cleanup Method: Florisil		Extract ID:24D0567-02 A 01
	Cleanup Batch: CME0053	Initial Volume: 20 uL	
	Cleaned: 06-May-2024	Final Volume: 20 uL	

Analyte	DF/Split	Ion Ratio	Ratio Limits	EDL	Reporting Limit	Result	Units	Notes
2,3,7,8-TCDF			0.655-0.886	1.44	10.5	ND	pg/L	U
2,3,7,8-TCDD			0.655-0.886	1.05	10.5	ND	pg/L	U
1,2,3,7,8-PeCDF			1.318-1.783	1.85	10.5	ND	pg/L	U
2,3,4,7,8-PeCDF			1.318-1.783	1.94	10.5	ND	pg/L	U
1,2,3,7,8-PeCDD			1.318-1.783	2.05	10.5	ND	pg/L	U
1,2,3,4,7,8-HxCDF			1.054-1.426	1.27	10.5	ND	pg/L	U
1,2,3,6,7,8-HxCDF			1.054-1.426	1.25	10.5	ND	pg/L	U
2,3,4,6,7,8-HxCDF			1.054-1.426	1.45	10.5	ND	pg/L	U
1,2,3,7,8,9-HxCDF			1.054-1.426	1.70	10.5	ND	pg/L	U
1,2,3,4,7,8-HxCDD			1.054-1.426	2.60	10.5	ND	pg/L	U
1,2,3,6,7,8-HxCDD			1.054-1.426	2.56	10.5	ND	pg/L	U
1,2,3,7,8,9-HxCDD			1.054-1.426	2.80	10.5	ND	pg/L	U
1,2,3,4,6,7,8-HpCDF			0.893-1.208	1.31	21.1	ND	pg/L	U
1,2,3,4,7,8,9-HpCDF			0.893-1.208	2.32	10.5	ND	pg/L	U
1,2,3,4,6,7,8-HpCDD			0.893-1.208	2.66	10.5	ND	pg/L	U
OCDF			0.757-1.024	3.86	21.1	ND	pg/L	U
OCDD			0.757-1.024	4.44	52.6	ND	pg/L	U
Homologue groups								
Total TCDF					10.5	ND	pg/L	U
Total TCDD					10.5	ND	pg/L	U
Total PeCDF					10.5	ND	pg/L	U
Total PeCDD					10.5	ND	pg/L	U
Total HxCDF					10.5	ND	pg/L	U
Total HxCDD					10.5	ND	pg/L	U
Total HpCDF					10.5	ND	pg/L	U
Total HpCDD					10.5	ND	pg/L	U

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC):	2.65
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC):	0.00
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, EMPC = ND):	2.65
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, EMPC = ND):	0.00

Floyd - Snider	Project: Lora Lake 2024	
601 Union Street Two Union Square, Suite 600	Project Number: POS - LLA	**Reported:**
Seattle WA, 98101-2341	Project Manager: Amanda McKay	29-May-2024 13:46

MW-C1-VB1-042424-D

24D0567-02 (Water)

Dioxins/Furans

Method: EPA 1613B — Sampled: 04/24/2024 11:35

Instrument: AUTOSPEC01 Analyst: pk — Analyzed: 05/22/2024 04:35

Analyte	DF/Split	Ion Ratio	Ratio Limits	Reporting Limit	Result	Units	Notes
Labeled compounds							
13C12-2,3,7,8-TCDF		*0.712*	*0.655-0.886*	*24-169 %*	*88.0*	*%*	
13C12-2,3,7,8-TCDD		*0.781*	*0.655-0.886*	*25-164 %*	*101*	*%*	
13C12-1,2,3,7,8-PeCDF		*1.561*	*1.318-1.783*	*24-185 %*	*96.0*	*%*	
13C12-2,3,4,7,8-PeCDF		*1.531*	*1.318-1.783*	*21-178 %*	*91.4*	*%*	
13C12-1,2,3,7,8-PeCDD		*1.617*	*1.318-1.783*	*25-181 %*	*93.2*	*%*	
13C12-1,2,3,4,7,8-HxCDF		*0.540*	*0.434-0.587*	*26-152 %*	*145*	*%*	
13C12-1,2,3,6,7,8-HxCDF		*0.512*	*0.434-0.587*	*26-123 %*	*141*	*%*	*
13C12-2,3,4,6,7,8-HxCDF		*0.566*	*0.434-0.587*	*28-136 %*	*132*	*%*	
13C12-1,2,3,7,8,9-HxCDF		*0.567*	*0.434-0.587*	*29-147 %*	*143*	*%*	
13C12-1,2,3,4,7,8-HxCDD		*1.256*	*1.054-1.426*	*32-141 %*	*116*	*%*	
13C12-1,2,3,6,7,8-HxCDD		*1.251*	*1.054-1.426*	*28-130 %*	*121*	*%*	
13C12-1,2,3,4,6,7,8-HpCDF		*0.445*	*0.374-0.506*	*28-143 %*	*128*	*%*	
13C12-1,2,3,4,7,8,9-HpCDF		*0.446*	*0.374-0.506*	*26-138 %*	*116*	*%*	
13C12-1,2,3,4,6,7,8-HpCDD		*0.956*	*0.893-1.208*	*23-140 %*	*131*	*%*	
13C12-OCDD		*0.988*	*0.757-1.024*	*17-157 %*	*126*	*%*	
37Cl4-2,3,7,8-TCDD				*35-197 %*	*99.1*	*%*	

Floyd - Snider	Project: Lora Lake 2024	
601 Union Street Two Union Square, Suite 600	Project Number: POS - LLA	**Reported:**
Seattle WA, 98101-2341	Project Manager: Amanda McKay	29-May-2024 13:46

MW-C1-VB1-042424-D
24D0567-02 (Water)

Dioxins/Furans

Method: EPA 1613B — Sampled: 04/24/2024 11:35
Instrument: AUTOSPEC01 Analyst: pk — Analyzed: 05/22/2024 04:35

Analyte	DF/Split	Ion Ratio	Ratio Limits	EDL	Reporting Limit	Result	Units	Notes

MW-C1-VB1-042424-D
24D0567-02 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED — Sampled: 04/24/2024 11:35
Instrument: ICPMS2 Analyst: DOE — Analyzed: 05/01/2024 21:54

Sample Preparation: Preparation Method: REN - EPA 3010A M — Extract ID: 24D0567-02 C 02
Preparation Batch: BMD0764 — Sample Size: 25 mL — Filtration Batch: BMD0643
Prepared: 04/28/2024 — Final Volume: 25 mL — Filtration Date: 04/25/2024 15:10

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0373	0.200	0.105	ug/L	J

Floyd - Snider	Project: Lora Lake 2024	
601 Union Street Two Union Square, Suite 600	Project Number: POS - LLA	**Reported:**
Seattle WA, 98101-2341	Project Manager: Amanda McKay	29-May-2024 13:46

MW-VB2-042424

24D0567-03 (Water)

Dioxins/Furans

Method: EPA 1613B — Sampled: 04/24/2024 11:00
Instrument: AUTOSPEC01 Analyst: pk — Analyzed: 05/22/2024 05:24

Sample Preparation:	Preparation Method: EPA 1613		Extract ID: 24D0567-03 A 01
	Preparation Batch: BME0078	Sample Size: 1040 mL	
	Prepared: 05/03/2024	Final Volume: 20 uL	
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 24D0567-03 A 01
	Cleanup Batch: CME0052	Initial Volume: 20 uL	
	Cleaned: 06-May-2024	Final Volume: 20 uL	
Sample Cleanup:	Cleanup Method: Florisil		Extract ID:24D0567-03 A 01
	Cleanup Batch: CME0053	Initial Volume: 20 uL	
	Cleaned: 06-May-2024	Final Volume: 20 uL	

Analyte	DF/Split	Ion Ratio	Ratio Limits	EDL	Reporting Limit	Result	Units	Notes
2,3,7,8-TCDF			0.655-0.886	1.60	9.62	ND	pg/L	U
2,3,7,8-TCDD			0.655-0.886	1.16	9.62	ND	pg/L	U
1,2,3,7,8-PeCDF			1.318-1.783	1.96	9.62	ND	pg/L	U
2,3,4,7,8-PeCDF			1.318-1.783	1.96	9.62	ND	pg/L	U
1,2,3,7,8-PeCDD			1.318-1.783	2.52	9.62	ND	pg/L	U
1,2,3,4,7,8-HxCDF			1.054-1.426	1.70	9.62	ND	pg/L	U
1,2,3,6,7,8-HxCDF			1.054-1.426	1.67	9.62	ND	pg/L	U
2,3,4,6,7,8-HxCDF			1.054-1.426	1.75	9.62	ND	pg/L	U
1,2,3,7,8,9-HxCDF			1.054-1.426	2.17	9.62	ND	pg/L	U
1,2,3,4,7,8-HxCDD			1.054-1.426	2.87	9.62	ND	pg/L	U
1,2,3,6,7,8-HxCDD			1.054-1.426	2.84	9.62	ND	pg/L	U
1,2,3,7,8,9-HxCDD			1.054-1.426	3.10	9.62	ND	pg/L	U
1,2,3,4,6,7,8-HpCDF			0.893-1.208	2.37	19.2	ND	pg/L	U
1,2,3,4,7,8,9-HpCDF			0.893-1.208	4.20	9.62	ND	pg/L	U
1,2,3,4,6,7,8-HpCDD			0.893-1.208	3.45	9.62	ND	pg/L	U
OCDF			0.757-1.024	4.68	19.2	ND	pg/L	U
OCDD			0.757-1.024	4.81	48.1	ND	pg/L	U
Homologue groups								
Total TCDF					9.62	ND	pg/L	U
Total TCDD					9.62	ND	pg/L	U
Total PeCDF					9.62	ND	pg/L	U
Total PeCDD					9.62	ND	pg/L	U
Total HxCDF					9.62	ND	pg/L	U
Total HxCDD					9.62	ND	pg/L	U
Total HpCDF					9.62	ND	pg/L	U
Total HpCDD					9.62	ND	pg/L	U

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC):	3.10
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC):	0.00
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, EMPC = ND):	3.10
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, EMPC = ND):	0.00

Floyd - Snider	Project: Lora Lake 2024	
601 Union Street Two Union Square, Suite 600	Project Number: POS - LLA	**Reported:**
Seattle WA, 98101-2341	Project Manager: Amanda McKay	29-May-2024 13:46

MW-VB2-042424

24D0567-03 (Water)

Dioxins/Furans

Method: EPA 1613B — Sampled: 04/24/2024 11:00

Instrument: AUTOSPEC01 Analyst: pk — Analyzed: 05/22/2024 05:24

Analyte	DF/Split	Ion Ratio	Ratio Limits	Reporting Limit	Result	Units	Notes
Labeled compounds							
13C12-2,3,7,8-TCDF		*0.710*	*0.655-0.886*	*24-169 %*	*83.2*	*%*	
13C12-2,3,7,8-TCDD		*0.788*	*0.655-0.886*	*25-164 %*	*98.2*	*%*	
13C12-1,2,3,7,8-PeCDF		*1.528*	*1.318-1.783*	*24-185 %*	*90.3*	*%*	
13C12-2,3,4,7,8-PeCDF		*1.541*	*1.318-1.783*	*21-178 %*	*86.9*	*%*	
13C12-1,2,3,7,8-PeCDD		*1.627*	*1.318-1.783*	*25-181 %*	*84.5*	*%*	
13C12-1,2,3,4,7,8-HxCDF		*0.542*	*0.434-0.587*	*26-152 %*	*130*	*%*	
13C12-1,2,3,6,7,8-HxCDF		*0.518*	*0.434-0.587*	*26-123 %*	*123*	*%*	
13C12-2,3,4,6,7,8-HxCDF		*0.536*	*0.434-0.587*	*28-136 %*	*127*	*%*	
13C12-1,2,3,7,8,9-HxCDF		*0.539*	*0.434-0.587*	*29-147 %*	*138*	*%*	
13C12-1,2,3,4,7,8-HxCDD		*1.240*	*1.054-1.426*	*32-141 %*	*108*	*%*	
13C12-1,2,3,6,7,8-HxCDD		*1.244*	*1.054-1.426*	*28-130 %*	*119*	*%*	
13C12-1,2,3,4,6,7,8-HpCDF		*0.475*	*0.374-0.506*	*28-143 %*	*114*	*%*	
13C12-1,2,3,4,7,8,9-HpCDF		*0.477*	*0.374-0.506*	*26-138 %*	*108*	*%*	
13C12-1,2,3,4,6,7,8-HpCDD		*0.932*	*0.893-1.208*	*23-140 %*	*126*	*%*	
13C12-OCDD		*0.836*	*0.757-1.024*	*17-157 %*	*123*	*%*	
37Cl4-2,3,7,8-TCDD				*35-197 %*	*93.1*	*%*	

Floyd - Snider	Project: Lora Lake 2024	
601 Union Street Two Union Square, Suite 600	Project Number: POS - LLA	**Reported:**
Seattle WA, 98101-2341	Project Manager: Amanda McKay	29-May-2024 13:46

MW-VB2-042424
24D0567-03 (Water)

Dioxins/Furans

Method: EPA 1613B — Sampled: 04/24/2024 11:00
Instrument: AUTOSPEC01 Analyst: pk — Analyzed: 05/22/2024 05:24

Analyte	DF/Split	Ion Ratio	Ratio Limits	EDL	Reporting Limit	Result	Units	Notes

MW-VB2-042424
24D0567-03 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED — Sampled: 04/24/2024 11:00
Instrument: ICPMS2 Analyst: DOE — Analyzed: 05/01/2024 21:55

Sample Preparation: Preparation Method: REN - EPA 3010A M — Extract ID: 24D0567-03 C 02
Preparation Batch: BMD0764 — Sample Size: 25 mL — Filtration Batch: BMD0643
Prepared: 04/28/2024 — Final Volume: 25 mL — Filtration Date: 04/25/2024 15:10

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0373	0.200	0.402	ug/L	

Floyd - Snider	Project: Lora Lake 2024	
601 Union Street Two Union Square, Suite 600	Project Number: POS - LLA	**Reported:**
Seattle WA, 98101-2341	Project Manager: Amanda McKay	29-May-2024 13:46

MW-VB3-042424

24D0567-04 (Water)

Dioxins/Furans

Method: EPA 1613B — Sampled: 04/24/2024 12:30

Instrument: AUTOSPEC01 Analyst: pk — Analyzed: 05/22/2024 06:13

Sample Preparation:	Preparation Method: EPA 1613		Extract ID: 24D0567-04 A 01
	Preparation Batch: BME0078	Sample Size: 1020 mL	
	Prepared: 05/03/2024	Final Volume: 20 uL	
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 24D0567-04 A 01
	Cleanup Batch: CME0052	Initial Volume: 20 uL	
	Cleaned: 06-May-2024	Final Volume: 20 uL	
Sample Cleanup:	Cleanup Method: Florisil		Extract ID:24D0567-04 A 01
	Cleanup Batch: CME0053	Initial Volume: 20 uL	
	Cleaned: 06-May-2024	Final Volume: 20 uL	

Analyte	DF/Split	Ion Ratio	Ratio Limits	EDL	Reporting Limit	Result	Units	Notes
2,3,7,8-TCDF			0.655-0.886	1.87	9.80	ND	pg/L	U
2,3,7,8-TCDD			0.655-0.886	1.51	9.80	ND	pg/L	U
1,2,3,7,8-PeCDF			1.318-1.783	2.14	9.80	ND	pg/L	U
2,3,4,7,8-PeCDF			1.318-1.783	2.12	9.80	ND	pg/L	U
1,2,3,7,8-PeCDD			1.318-1.783	3.30	9.80	ND	pg/L	U
1,2,3,4,7,8-HxCDF			1.054-1.426	1.95	9.80	ND	pg/L	U
1,2,3,6,7,8-HxCDF			1.054-1.426	1.90	9.80	ND	pg/L	U
2,3,4,6,7,8-HxCDF			1.054-1.426	2.17	9.80	ND	pg/L	U
1,2,3,7,8,9-HxCDF			1.054-1.426	2.64	9.80	ND	pg/L	U
1,2,3,4,7,8-HxCDD			1.054-1.426	4.13	9.80	ND	pg/L	U
1,2,3,6,7,8-HxCDD			1.054-1.426	4.21	9.80	ND	pg/L	U
1,2,3,7,8,9-HxCDD			1.054-1.426	4.53	9.80	ND	pg/L	U
1,2,3,4,6,7,8-HpCDF			0.893-1.208	2.09	19.6	ND	pg/L	U
1,2,3,4,7,8,9-HpCDF			0.893-1.208	4.23	9.80	ND	pg/L	U
1,2,3,4,6,7,8-HpCDD			0.893-1.208	4.61	9.80	ND	pg/L	U
OCDF			0.757-1.024	5.17	19.6	ND	pg/L	U
OCDD			0.757-1.024	6.29	49.0	ND	pg/L	U
Homologue groups								
Total TCDF					9.80	ND	pg/L	U
Total TCDD					9.80	ND	pg/L	U
Total PeCDF					9.80	ND	pg/L	U
Total PeCDD					9.80	ND	pg/L	U
Total HxCDF					9.80	ND	pg/L	U
Total HxCDD					9.80	ND	pg/L	U
Total HpCDF					9.80	ND	pg/L	U
Total HpCDD					9.80	ND	pg/L	U

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC):	3.98
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC):	0.00
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, EMPC = ND):	3.98
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, EMPC = ND):	0.00

Floyd - Snider	Project: Lora Lake 2024	
601 Union Street Two Union Square, Suite 600	Project Number: POS - LLA	**Reported:**
Seattle WA, 98101-2341	Project Manager: Amanda McKay	29-May-2024 13:46

MW-VB3-042424

24D0567-04 (Water)

Dioxins/Furans

Method: EPA 1613B — Sampled: 04/24/2024 12:30

Instrument: AUTOSPEC01 Analyst: pk — Analyzed: 05/22/2024 06:13

Analyte	DF/Split	Ion Ratio	Ratio Limits	Reporting Limit	Result	Units	Notes
Labeled compounds							
13C12-2,3,7,8-TCDF		*0.715*	*0.655-0.886*	*24-169 %*	*79.0*	*%*	
13C12-2,3,7,8-TCDD		*0.771*	*0.655-0.886*	*25-164 %*	*91.3*	*%*	
13C12-1,2,3,7,8-PeCDF		*1.544*	*1.318-1.783*	*24-185 %*	*81.3*	*%*	
13C12-2,3,4,7,8-PeCDF		*1.533*	*1.318-1.783*	*21-178 %*	*80.8*	*%*	
13C12-1,2,3,7,8-PeCDD		*1.733*	*1.318-1.783*	*25-181 %*	*84.3*	*%*	
13C12-1,2,3,4,7,8-HxCDF		*0.530*	*0.434-0.587*	*26-152 %*	*132*	*%*	
13C12-1,2,3,6,7,8-HxCDF		*0.532*	*0.434-0.587*	*26-123 %*	*126*	*%*	*
13C12-2,3,4,6,7,8-HxCDF		*0.548*	*0.434-0.587*	*28-136 %*	*120*	*%*	
13C12-1,2,3,7,8,9-HxCDF		*0.533*	*0.434-0.587*	*29-147 %*	*129*	*%*	
13C12-1,2,3,4,7,8-HxCDD		*1.248*	*1.054-1.426*	*32-141 %*	*108*	*%*	
13C12-1,2,3,6,7,8-HxCDD		*1.321*	*1.054-1.426*	*28-130 %*	*112*	*%*	
13C12-1,2,3,4,6,7,8-HpCDF		*0.417*	*0.374-0.506*	*28-143 %*	*119*	*%*	
13C12-1,2,3,4,7,8,9-HpCDF		*0.442*	*0.374-0.506*	*26-138 %*	*91.6*	*%*	
13C12-1,2,3,4,6,7,8-HpCDD		*1.148*	*0.893-1.208*	*23-140 %*	*109*	*%*	
13C12-OCDD		*0.869*	*0.757-1.024*	*17-157 %*	*111*	*%*	
37Cl4-2,3,7,8-TCDD				*35-197 %*	*87.7*	*%*	

Floyd - Snider	Project: Lora Lake 2024	
601 Union Street Two Union Square, Suite 600	Project Number: POS - LLA	**Reported:**
Seattle WA, 98101-2341	Project Manager: Amanda McKay	29-May-2024 13:46

MW-VB3-042424

24D0567-04 (Water)

Dioxins/Furans

Method: EPA 1613B — Sampled: 04/24/2024 12:30

Instrument: AUTOSPEC01 Analyst: pk — Analyzed: 05/22/2024 06:13

Analyte	DF/Split	Ion Ratio	Ratio Limits	EDL	Reporting Limit	Result	Units	Notes

MW-VB3-042424

24D0567-04 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED — Sampled: 04/24/2024 12:30

Instrument: ICPMS2 Analyst: DOE — Analyzed: 05/01/2024 21:57

Sample Preparation: Preparation Method: REN - EPA 3010A M — Extract ID: 24D0567-04 C 02

Preparation Batch: BMD0764 — Sample Size: 25 mL — Filtration Batch: BMD0643

Prepared: 04/28/2024 — Final Volume: 25 mL — Filtration Date: 04/25/2024 15:10

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0373	0.200	0.303	ug/L	

Floyd - Snider	Project: Lora Lake 2024	
601 Union Street Two Union Square, Suite 600	Project Number: POS - LLA	**Reported:**
Seattle WA, 98101-2341	Project Manager: Amanda McKay	29-May-2024 13:46

HCOO-B312-042424

24D0567-05 (Water)

Dioxins/Furans

Method: EPA 1613B — Sampled: 04/24/2024 13:45
Instrument: AUTOSPEC01 Analyst: pk — Analyzed: 05/22/2024 07:02

Sample Preparation:	Preparation Method: EPA 1613		Extract ID: 24D0567-05 A 01
	Preparation Batch: BME0078	Sample Size: 1040 mL	
	Prepared: 05/03/2024	Final Volume: 20 uL	
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 24D0567-05 A 01
	Cleanup Batch: CME0052	Initial Volume: 20 uL	
	Cleaned: 06-May-2024	Final Volume: 20 uL	
Sample Cleanup:	Cleanup Method: Florisil		Extract ID:24D0567-05 A 01
	Cleanup Batch: CME0053	Initial Volume: 20 uL	
	Cleaned: 06-May-2024	Final Volume: 20 uL	

Analyte	DF/Split	Ion Ratio	Ratio Limits	EDL	Reporting Limit	Result	Units	Notes
2,3,7,8-TCDF			0.655-0.886	1.85	9.62	ND	pg/L	U
2,3,7,8-TCDD			0.655-0.886	1.32	9.62	ND	pg/L	U
1,2,3,7,8-PeCDF			1.318-1.783	1.94	9.62	ND	pg/L	U
2,3,4,7,8-PeCDF			1.318-1.783	1.99	9.62	ND	pg/L	U
1,2,3,7,8-PeCDD			1.318-1.783	2.46	9.62	ND	pg/L	U
1,2,3,4,7,8-HxCDF			1.054-1.426	1.75	9.62	ND	pg/L	U
1,2,3,6,7,8-HxCDF			1.054-1.426	1.68	9.62	ND	pg/L	U
2,3,4,6,7,8-HxCDF			1.054-1.426	1.74	9.62	ND	pg/L	U
1,2,3,7,8,9-HxCDF			1.054-1.426	2.29	9.62	ND	pg/L	U
1,2,3,4,7,8-HxCDD			1.054-1.426	3.49	9.62	ND	pg/L	U
1,2,3,6,7,8-HxCDD			1.054-1.426	3.47	9.62	ND	pg/L	U
1,2,3,7,8,9-HxCDD			1.054-1.426	3.77	9.62	ND	pg/L	U
1,2,3,4,6,7,8-HpCDF			0.893-1.208	1.65	19.2	ND	pg/L	U
1,2,3,4,7,8,9-HpCDF			0.893-1.208	3.08	9.62	ND	pg/L	U
1,2,3,4,6,7,8-HpCDD			0.893-1.208	3.68	9.62	ND	pg/L	U
OCDF			0.757-1.024	5.07	19.2	ND	pg/L	U
OCDD			0.757-1.024	5.45	48.1	ND	pg/L	U
Homologue groups								
Total TCDF					9.62	ND	pg/L	U
Total TCDD					9.62	ND	pg/L	U
Total PeCDF					9.62	ND	pg/L	U
Total PeCDD					9.62	ND	pg/L	U
Total HxCDF					9.62	ND	pg/L	U
Total HxCDD					9.62	ND	pg/L	U
Total HpCDF					9.62	ND	pg/L	U
Total HpCDD					9.62	ND	pg/L	U

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC):	3.26
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC):	0.00
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, EMPC = ND):	3.26
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, EMPC = ND):	0.00

Floyd - Snider	Project: Lora Lake 2024	
601 Union Street Two Union Square, Suite 600	Project Number: POS - LLA	**Reported:**
Seattle WA, 98101-2341	Project Manager: Amanda McKay	29-May-2024 13:46

HCOO-B312-042424

24D0567-05 (Water)

Dioxins/Furans

Method: EPA 1613B — Sampled: 04/24/2024 13:45

Instrument: AUTOSPEC01 Analyst: pk — Analyzed: 05/22/2024 07:02

Analyte	DF/Split	Ion Ratio	Ratio Limits	Reporting Limit	Result	Units	Notes
Labeled compounds							
13C12-2,3,7,8-TCDF		*0.724*	*0.655-0.886*	*24-169 %*	*79.8*	*%*	
13C12-2,3,7,8-TCDD		*0.788*	*0.655-0.886*	*25-164 %*	*88.3*	*%*	
13C12-1,2,3,7,8-PeCDF		*1.493*	*1.318-1.783*	*24-185 %*	*84.5*	*%*	
13C12-2,3,4,7,8-PeCDF		*1.519*	*1.318-1.783*	*21-178 %*	*80.3*	*%*	
13C12-1,2,3,7,8-PeCDD		*1.636*	*1.318-1.783*	*25-181 %*	*81.2*	*%*	
13C12-1,2,3,4,7,8-HxCDF		*0.534*	*0.434-0.587*	*26-152 %*	*121*	*%*	
13C12-1,2,3,6,7,8-HxCDF		*0.547*	*0.434-0.587*	*26-123 %*	*117*	*%*	
13C12-2,3,4,6,7,8-HxCDF		*0.516*	*0.434-0.587*	*28-136 %*	*113*	*%*	
13C12-1,2,3,7,8,9-HxCDF		*0.504*	*0.434-0.587*	*29-147 %*	*116*	*%*	
13C12-1,2,3,4,7,8-HxCDD		*1.276*	*1.054-1.426*	*32-141 %*	*99.4*	*%*	
13C12-1,2,3,6,7,8-HxCDD		*1.242*	*1.054-1.426*	*28-130 %*	*105*	*%*	
13C12-1,2,3,4,6,7,8-HpCDF		*0.414*	*0.374-0.506*	*28-143 %*	*109*	*%*	
13C12-1,2,3,4,7,8,9-HpCDF		*0.406*	*0.374-0.506*	*26-138 %*	*98.5*	*%*	
13C12-1,2,3,4,6,7,8-HpCDD		*1.010*	*0.893-1.208*	*23-140 %*	*108*	*%*	
13C12-OCDD		*0.859*	*0.757-1.024*	*17-157 %*	*97.4*	*%*	
37Cl4-2,3,7,8-TCDD				*35-197 %*	*85.6*	*%*	

Floyd - Snider	Project: Lora Lake 2024	
601 Union Street Two Union Square, Suite 600	Project Number: POS - LLA	**Reported:**
Seattle WA, 98101-2341	Project Manager: Amanda McKay	29-May-2024 13:46

HCOO-B312-042424

24D0567-05 (Water)

Dioxins/Furans

Method: EPA 1613B — Sampled: 04/24/2024 13:45

Instrument: AUTOSPEC01 Analyst: pk — Analyzed: 05/22/2024 07:02

Analyte	DF/Split	Ion Ratio	Ratio Limits	EDL	Reporting Limit	Result	Units	Notes

HCOO-B312-042424

24D0567-05 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED — Sampled: 04/24/2024 13:45

Instrument: ICPMS2 Analyst: DOE — Analyzed: 05/01/2024 21:58

Sample Preparation: Preparation Method: REN - EPA 3010A M — Extract ID: 24D0567-05 C 02

Preparation Batch: BMD0764 — Sample Size: 25 mL — Filtration Batch: BMD0643

Prepared: 04/28/2024 — Final Volume: 25 mL — Filtration Date: 04/25/2024 15:10

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0373	0.200	0.180	ug/L	J

Floyd - Snider	Project: Lora Lake 2024	
601 Union Street Two Union Square, Suite 600	Project Number: POS - LLA	**Reported:**
Seattle WA, 98101-2341	Project Manager: Amanda McKay	29-May-2024 13:46

MW-CP1-042424

24D0567-06 (Water)

Dioxins/Furans

Method: EPA 1613B — Sampled: 04/24/2024 16:40
Instrument: AUTOSPEC01 Analyst: pk — Analyzed: 05/22/2024 07:51

Sample Preparation:	Preparation Method: EPA 1613		Extract ID: 24D0567-06 A 01
	Preparation Batch: BME0078	Sample Size: 1020 mL	
	Prepared: 05/03/2024	Final Volume: 20 uL	
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 24D0567-06 A 01
	Cleanup Batch: CME0052	Initial Volume: 20 uL	
	Cleaned: 06-May-2024	Final Volume: 20 uL	
Sample Cleanup:	Cleanup Method: Florisil		Extract ID:24D0567-06 A 01
	Cleanup Batch: CME0053	Initial Volume: 20 uL	
	Cleaned: 06-May-2024	Final Volume: 20 uL	

Analyte	DF/Split	Ion Ratio	Ratio Limits	EDL	Reporting Limit	Result	Units	Notes
2,3,7,8-TCDF			0.655-0.886	1.72	9.80	ND	pg/L	U
2,3,7,8-TCDD			0.655-0.886	1.49	9.80	ND	pg/L	U
1,2,3,7,8-PeCDF			1.318-1.783	2.02	9.80	ND	pg/L	U
2,3,4,7,8-PeCDF			1.318-1.783	2.03	9.80	ND	pg/L	U
1,2,3,7,8-PeCDD			1.318-1.783	2.28	9.80	ND	pg/L	U
1,2,3,4,7,8-HxCDF			1.054-1.426	1.92	9.80	ND	pg/L	U
1,2,3,6,7,8-HxCDF			1.054-1.426	1.88	9.80	ND	pg/L	U
2,3,4,6,7,8-HxCDF			1.054-1.426	2.00	9.80	ND	pg/L	U
1,2,3,7,8,9-HxCDF			1.054-1.426	2.66	9.80	ND	pg/L	U
1,2,3,4,7,8-HxCDD			1.054-1.426	4.24	9.80	ND	pg/L	U
1,2,3,6,7,8-HxCDD			1.054-1.426	4.12	9.80	ND	pg/L	U
1,2,3,7,8,9-HxCDD			1.054-1.426	4.53	9.80	ND	pg/L	U
1,2,3,4,6,7,8-HpCDF			0.893-1.208	2.24	19.6	ND	pg/L	U
1,2,3,4,7,8,9-HpCDF			0.893-1.208	4.06	9.80	ND	pg/L	U
1,2,3,4,6,7,8-HpCDD			0.893-1.208	4.33	9.80	ND	pg/L	U
OCDF			0.757-1.024	4.70	19.6	ND	pg/L	U
OCDD			0.757-1.024	6.25	49.0	ND	pg/L	U
Homologue groups								
Total TCDF					9.80	ND	pg/L	U
Total TCDD					9.80	ND	pg/L	U
Total PeCDF					9.80	ND	pg/L	U
Total PeCDD					9.80	ND	pg/L	U
Total HxCDF					9.80	ND	pg/L	U
Total HxCDD					9.80	ND	pg/L	U
Total HpCDF					9.80	ND	pg/L	U
Total HpCDD					9.80	ND	pg/L	U

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC):	3.43
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC):	0.00
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, EMPC = ND):	3.43
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, EMPC = ND):	0.00

Floyd - Snider	Project: Lora Lake 2024	
601 Union Street Two Union Square, Suite 600	Project Number: POS - LLA	**Reported:**
Seattle WA, 98101-2341	Project Manager: Amanda McKay	29-May-2024 13:46

MW-CP1-042424

24D0567-06 (Water)

Dioxins/Furans

Method: EPA 1613B — Sampled: 04/24/2024 16:40

Instrument: AUTOSPEC01 Analyst: pk — Analyzed: 05/22/2024 07:51

Analyte	DF/Split	Ion Ratio	Ratio Limits	Reporting Limit	Result	Units	Notes
Labeled compounds							
13C12-2,3,7,8-TCDF		*0.703*	*0.655-0.886*	*24-169 %*	*78.6*	*%*	
13C12-2,3,7,8-TCDD		*0.840*	*0.655-0.886*	*25-164 %*	*94.7*	*%*	
13C12-1,2,3,7,8-PeCDF		*1.509*	*1.318-1.783*	*24-185 %*	*86.0*	*%*	
13C12-2,3,4,7,8-PeCDF		*1.603*	*1.318-1.783*	*21-178 %*	*84.6*	*%*	
13C12-1,2,3,7,8-PeCDD		*1.539*	*1.318-1.783*	*25-181 %*	*83.2*	*%*	
13C12-1,2,3,4,7,8-HxCDF		*0.549*	*0.434-0.587*	*26-152 %*	*117*	*%*	
13C12-1,2,3,6,7,8-HxCDF		*0.573*	*0.434-0.587*	*26-123 %*	*116*	*%*	
13C12-2,3,4,6,7,8-HxCDF		*0.546*	*0.434-0.587*	*28-136 %*	*111*	*%*	
13C12-1,2,3,7,8,9-HxCDF		*0.550*	*0.434-0.587*	*29-147 %*	*119*	*%*	
13C12-1,2,3,4,7,8-HxCDD		*1.276*	*1.054-1.426*	*32-141 %*	*96.9*	*%*	
13C12-1,2,3,6,7,8-HxCDD		*1.242*	*1.054-1.426*	*28-130 %*	*107*	*%*	
13C12-1,2,3,4,6,7,8-HpCDF		*0.484*	*0.374-0.506*	*28-143 %*	*105*	*%*	
13C12-1,2,3,4,7,8,9-HpCDF		*0.476*	*0.374-0.506*	*26-138 %*	*88.1*	*%*	
13C12-1,2,3,4,6,7,8-HpCDD		*1.130*	*0.893-1.208*	*23-140 %*	*109*	*%*	
13C12-OCDD		*0.831*	*0.757-1.024*	*17-157 %*	*102*	*%*	
37Cl4-2,3,7,8-TCDD				*35-197 %*	*88.0*	*%*	

Floyd - Snider	Project: Lora Lake 2024	
601 Union Street Two Union Square, Suite 600	Project Number: POS - LLA	**Reported:**
Seattle WA, 98101-2341	Project Manager: Amanda McKay	29-May-2024 13:46

MW-CP1-042424

24D0567-06 (Water)

Dioxins/Furans

Method: EPA 1613B — Sampled: 04/24/2024 16:40

Instrument: AUTOSPEC01 Analyst: pk — Analyzed: 05/22/2024 07:51

Analyte	DF/Split	Ion Ratio	Ratio Limits	EDL	Reporting Limit	Result	Units	Notes

MW-CP1-042424

24D0567-06 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED — Sampled: 04/24/2024 16:40

Instrument: ICPMS2 Analyst: DOE — Analyzed: 05/01/2024 21:59

Sample Preparation: Preparation Method: REN - EPA 3010A M — Extract ID: 24D0567-06 C 02

Preparation Batch: BMD0764 — Sample Size: 25 mL — Filtration Batch: BMD0643

Prepared: 04/28/2024 — Final Volume: 25 mL — Filtration Date: 04/25/2024 15:10

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0373	0.200	0.482	ug/L	

Floyd - Snider	Project: Lora Lake 2024	
601 Union Street Two Union Square, Suite 600	Project Number: POS - LLA	**Reported:**
Seattle WA, 98101-2341	Project Manager: Amanda McKay	29-May-2024 13:46

MW-CP1-042424-D

24D0567-07 (Water)

Dioxins/Furans

Method: EPA 1613B — Sampled: 04/24/2024 16:50

Instrument: AUTOSPEC01 Analyst: pk — Analyzed: 05/22/2024 08:40

Sample Preparation:	Preparation Method: EPA 1613		Extract ID: 24D0567-07 A 01
	Preparation Batch: BME0078	Sample Size: 1020 mL	
	Prepared: 05/03/2024	Final Volume: 20 uL	
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 24D0567-07 A 01
	Cleanup Batch: CME0052	Initial Volume: 20 uL	
	Cleaned: 06-May-2024	Final Volume: 20 uL	
Sample Cleanup:	Cleanup Method: Florisil		Extract ID:24D0567-07 A 01
	Cleanup Batch: CME0053	Initial Volume: 20 uL	
	Cleaned: 06-May-2024	Final Volume: 20 uL	

Analyte	DF/Split	Ion Ratio	Ratio Limits	EDL	Reporting Limit	Result	Units	Notes
2,3,7,8-TCDF			0.655-0.886	1.49	9.80	ND	pg/L	U
2,3,7,8-TCDD			0.655-0.886	1.53	9.80	ND	pg/L	U
1,2,3,7,8-PeCDF			1.318-1.783	1.66	9.80	ND	pg/L	U
2,3,4,7,8-PeCDF			1.318-1.783	1.70	9.80	ND	pg/L	U
1,2,3,7,8-PeCDD			1.318-1.783	2.25	9.80	ND	pg/L	U
1,2,3,4,7,8-HxCDF			1.054-1.426	1.44	9.80	ND	pg/L	U
1,2,3,6,7,8-HxCDF			1.054-1.426	1.39	9.80	ND	pg/L	U
2,3,4,6,7,8-HxCDF			1.054-1.426	1.59	9.80	ND	pg/L	U
1,2,3,7,8,9-HxCDF			1.054-1.426	1.95	9.80	ND	pg/L	U
1,2,3,4,7,8-HxCDD			1.054-1.426	2.92	9.80	ND	pg/L	U
1,2,3,6,7,8-HxCDD			1.054-1.426	2.93	9.80	ND	pg/L	U
1,2,3,7,8,9-HxCDD			1.054-1.426	3.18	9.80	ND	pg/L	U
1,2,3,4,6,7,8-HpCDF			0.893-1.208	1.71	19.6	ND	pg/L	U
1,2,3,4,7,8,9-HpCDF			0.893-1.208	2.82	9.80	ND	pg/L	U
1,2,3,4,6,7,8-HpCDD			0.893-1.208	3.00	9.80	ND	pg/L	U
OCDF			0.757-1.024	3.73	19.6	ND	pg/L	U
OCDD			0.757-1.024	4.45	49.0	ND	pg/L	U
Homologue groups								
Total TCDF					9.80	ND	pg/L	U
Total TCDD					9.80	ND	pg/L	U
Total PeCDF					9.80	ND	pg/L	U
Total PeCDD					9.80	ND	pg/L	U
Total HxCDF					9.80	ND	pg/L	U
Total HxCDD					9.80	ND	pg/L	U
Total HpCDF					9.80	ND	pg/L	U
Total HpCDD					9.80	ND	pg/L	U

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC):	3.05
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC):	0.00
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, EMPC = ND):	3.05
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, EMPC = ND):	0.00

Floyd - Snider	Project: Lora Lake 2024	
601 Union Street Two Union Square, Suite 600	Project Number: POS - LLA	**Reported:**
Seattle WA, 98101-2341	Project Manager: Amanda McKay	29-May-2024 13:46

MW-CP1-042424-D

24D0567-07 (Water)

Dioxins/Furans

Method: EPA 1613B — Sampled: 04/24/2024 16:50

Instrument: AUTOSPEC01 Analyst: pk — Analyzed: 05/22/2024 08:40

Analyte	DF/Split	Ion Ratio	Ratio Limits	Reporting Limit	Result	Units	Notes
Labeled compounds							
13C12-2,3,7,8-TCDF		*0.702*	*0.655-0.886*	*24-169 %*	*88.2*	*%*	
13C12-2,3,7,8-TCDD		*0.782*	*0.655-0.886*	*25-164 %*	*98.1*	*%*	
13C12-1,2,3,7,8-PeCDF		*1.576*	*1.318-1.783*	*24-185 %*	*99.7*	*%*	
13C12-2,3,4,7,8-PeCDF		*1.515*	*1.318-1.783*	*21-178 %*	*92.4*	*%*	
13C12-1,2,3,7,8-PeCDD		*1.497*	*1.318-1.783*	*25-181 %*	*99.5*	*%*	
13C12-1,2,3,4,7,8-HxCDF		*0.533*	*0.434-0.587*	*26-152 %*	*128*	*%*	
13C12-1,2,3,6,7,8-HxCDF		*0.538*	*0.434-0.587*	*26-123 %*	*125*	*%*	*
13C12-2,3,4,6,7,8-HxCDF		*0.553*	*0.434-0.587*	*28-136 %*	*117*	*%*	
13C12-1,2,3,7,8,9-HxCDF		*0.530*	*0.434-0.587*	*29-147 %*	*128*	*%*	
13C12-1,2,3,4,7,8-HxCDD		*1.227*	*1.054-1.426*	*32-141 %*	*103*	*%*	
13C12-1,2,3,6,7,8-HxCDD		*1.227*	*1.054-1.426*	*28-130 %*	*109*	*%*	
13C12-1,2,3,4,6,7,8-HpCDF		*0.444*	*0.374-0.506*	*28-143 %*	*107*	*%*	
13C12-1,2,3,4,7,8,9-HpCDF		*0.417*	*0.374-0.506*	*26-138 %*	*102*	*%*	
13C12-1,2,3,4,6,7,8-HpCDD		*1.108*	*0.893-1.208*	*23-140 %*	*120*	*%*	
13C12-OCDD		*0.845*	*0.757-1.024*	*17-157 %*	*98.5*	*%*	
37Cl4-2,3,7,8-TCDD				*35-197 %*	*99.0*	*%*	

Floyd - Snider	Project: Lora Lake 2024	
601 Union Street Two Union Square, Suite 600	Project Number: POS - LLA	**Reported:**
Seattle WA, 98101-2341	Project Manager: Amanda McKay	29-May-2024 13:46

MW-CP1-042424-D
24D0567-07 (Water)

Dioxins/Furans

Method: EPA 1613B — Sampled: 04/24/2024 16:50
Instrument: AUTOSPEC01 Analyst: pk — Analyzed: 05/22/2024 08:40

Analyte	DF/Split	Ion Ratio	Ratio Limits	EDL	Reporting Limit	Result	Units	Notes

MW-CP1-042424-D
24D0567-07 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED — Sampled: 04/24/2024 16:50
Instrument: ICPMS2 Analyst: DOE — Analyzed: 05/01/2024 22:01

Sample Preparation: Preparation Method: REN - EPA 3010A M — Extract ID: 24D0567-07 C 02
Preparation Batch: BMD0764 — Sample Size: 25 mL — Filtration Batch: BMD0643
Prepared: 04/28/2024 — Final Volume: 25 mL — Filtration Date: 04/25/2024 15:10

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0373	0.200	0.421	ug/L	

Floyd - Snider	Project: Lora Lake 2024	
601 Union Street Two Union Square, Suite 600	Project Number: POS - LLA	**Reported:**
Seattle WA, 98101-2341	Project Manager: Amanda McKay	29-May-2024 13:46

MW-CP2-042424

24D0567-08 (Water)

Dioxins/Furans

Method: EPA 1613B — Sampled: 04/24/2024 17:10
Instrument: AUTOSPEC01 Analyst: pk — Analyzed: 05/28/2024 16:13

Sample Preparation: Preparation Method: EPA 1613 — Extract ID: 24D0567-08 A 01
Preparation Batch: BME0312 — Sample Size: 1060 mL
Prepared: 05/13/2024 — Final Volume: 20 uL

Sample Cleanup: Cleanup Method: Silica Gel — Extract ID: 24D0567-08 A 01
Cleanup Batch: CME0114 — Initial Volume: 20 uL
Cleaned: 14-May-2024 — Final Volume: 20 uL

Sample Cleanup: Cleanup Method: Florisil — Extract ID:24D0567-08 A 01
Cleanup Batch: CME0115 — Initial Volume: 20 uL
Cleaned: 14-May-2024 — Final Volume: 20 uL

Analyte	DF/Split	Ion Ratio	Ratio Limits	EDL	Reporting Limit	Result	Units	Notes
2,3,7,8-TCDF			0.655-0.886	1.77	9.43	ND	pg/L	U
2,3,7,8-TCDD			0.655-0.886	1.01	9.43	ND	pg/L	U
1,2,3,7,8-PeCDF			1.318-1.783	1.12	9.43	ND	pg/L	U
2,3,4,7,8-PeCDF			1.318-1.783	1.19	9.43	ND	pg/L	U
1,2,3,7,8-PeCDD			1.318-1.783	1.45	9.43	ND	pg/L	U
1,2,3,4,7,8-HxCDF			1.054-1.426	1.02	9.43	ND	pg/L	U
1,2,3,6,7,8-HxCDF			1.054-1.426	1.00	9.43	ND	pg/L	U
2,3,4,6,7,8-HxCDF			1.054-1.426	1.10	9.43	ND	pg/L	U
1,2,3,7,8,9-HxCDF			1.054-1.426	1.57	9.43	ND	pg/L	U
1,2,3,4,7,8-HxCDD			1.054-1.426	1.96	9.43	ND	pg/L	U
1,2,3,6,7,8-HxCDD			1.054-1.426	1.87	9.43	ND	pg/L	U
1,2,3,7,8,9-HxCDD			1.054-1.426	2.14	9.43	ND	pg/L	U
1,2,3,4,6,7,8-HpCDF			0.893-1.208	1.07	18.9	ND	pg/L	U
1,2,3,4,7,8,9-HpCDF			0.893-1.208	1.98	9.43	ND	pg/L	U
1,2,3,4,6,7,8-HpCDD			0.893-1.208	2.26	9.43	ND	pg/L	U
OCDF			0.757-1.024	3.32	18.9	ND	pg/L	U
OCDD			0.757-1.024	3.04	47.2	ND	pg/L	U
Homologue groups								
Total TCDF					9.43	ND	pg/L	U
Total TCDD					9.43	ND	pg/L	U
Total PeCDF					9.43	ND	pg/L	U
Total PeCDD					9.43	ND	pg/L	U
Total HxCDF					9.43	ND	pg/L	U
Total HxCDD					9.43	ND	pg/L	U
Total HpCDF					9.43	ND	pg/L	U
Total HpCDD					9.43	ND	pg/L	U

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC):	2.07
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC):	0.00
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, EMPC = ND):	2.07
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, EMPC = ND):	0.00

Floyd - Snider	Project: Lora Lake 2024	
601 Union Street Two Union Square, Suite 600	Project Number: POS - LLA	**Reported:**
Seattle WA, 98101-2341	Project Manager: Amanda McKay	29-May-2024 13:46

MW-CP2-042424

24D0567-08 (Water)

Dioxins/Furans

Method: EPA 1613B — Sampled: 04/24/2024 17:10

Instrument: AUTOSPEC01 Analyst: pk — Analyzed: 05/28/2024 16:13

Analyte	DF/Split	Ion Ratio	Ratio Limits	Reporting Limit	Result	Units	Notes
Labeled compounds							
13C12-2,3,7,8-TCDF		*0.746*	*0.655-0.886*	*24-169 %*	*91.9*	*%*	
13C12-2,3,7,8-TCDD		*0.799*	*0.655-0.886*	*25-164 %*	*100*	*%*	
13C12-1,2,3,7,8-PeCDF		*1.546*	*1.318-1.783*	*24-185 %*	*102*	*%*	
13C12-2,3,4,7,8-PeCDF		*1.541*	*1.318-1.783*	*21-178 %*	*98.5*	*%*	
13C12-1,2,3,7,8-PeCDD		*1.690*	*1.318-1.783*	*25-181 %*	*92.6*	*%*	
13C12-1,2,3,4,7,8-HxCDF		*0.537*	*0.434-0.587*	*26-152 %*	*127*	*%*	
13C12-1,2,3,6,7,8-HxCDF		*0.546*	*0.434-0.587*	*26-123 %*	*124*	*%*	*
13C12-2,3,4,6,7,8-HxCDF		*0.532*	*0.434-0.587*	*28-136 %*	*120*	*%*	
13C12-1,2,3,7,8,9-HxCDF		*0.561*	*0.434-0.587*	*29-147 %*	*112*	*%*	
13C12-1,2,3,4,7,8-HxCDD		*1.247*	*1.054-1.426*	*32-141 %*	*102*	*%*	
13C12-1,2,3,6,7,8-HxCDD		*1.248*	*1.054-1.426*	*28-130 %*	*107*	*%*	
13C12-1,2,3,4,6,7,8-HpCDF		*0.464*	*0.374-0.506*	*28-143 %*	*111*	*%*	
13C12-1,2,3,4,7,8,9-HpCDF		*0.471*	*0.374-0.506*	*26-138 %*	*102*	*%*	
13C12-1,2,3,4,6,7,8-HpCDD		*1.022*	*0.893-1.208*	*23-140 %*	*116*	*%*	
13C12-OCDD		*0.935*	*0.757-1.024*	*17-157 %*	*119*	*%*	
37Cl4-2,3,7,8-TCDD				*35-197 %*	*101*	*%*	

Floyd - Snider	Project: Lora Lake 2024	
601 Union Street Two Union Square, Suite 600	Project Number: POS - LLA	**Reported:**
Seattle WA, 98101-2341	Project Manager: Amanda McKay	29-May-2024 13:46

MW-CP2-042424

24D0567-08 (Water)

Dioxins/Furans

Method: EPA 1613B — Sampled: 04/24/2024 17:10

Instrument: AUTOSPEC01 Analyst: pk — Analyzed: 05/28/2024 16:13

Analyte	DF/Split	Ion Ratio	Ratio Limits	EDL	Reporting Limit	Result	Units	Notes

MW-CP2-042424

24D0567-08 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED — Sampled: 04/24/2024 17:10

Instrument: ICPMS2 Analyst: DOE — Analyzed: 05/01/2024 22:13

Sample Preparation: Preparation Method: REN - EPA 3010A M — Extract ID: 24D0567-08 C 02

Preparation Batch: BMD0764 — Sample Size: 25 mL — Filtration Batch: BMD0643

Prepared: 04/28/2024 — Final Volume: 25 mL — Filtration Date: 04/25/2024 15:10

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0373	0.200	0.364	ug/L	

Floyd - Snider	Project: Lora Lake 2024	
601 Union Street Two Union Square, Suite 600	Project Number: POS - LLA	**Reported:**
Seattle WA, 98101-2341	Project Manager: Amanda McKay	29-May-2024 13:46

MW-CP3-042424

24D0567-09 (Water)

Dioxins/Furans

Method: EPA 1613B — Sampled: 04/24/2024 13:50
Instrument: AUTOSPEC01 Analyst: pk — Analyzed: 05/28/2024 17:02

Sample Preparation:	Preparation Method: EPA 1613		Extract ID: 24D0567-09 A 01
	Preparation Batch: BME0312	Sample Size: 1030 mL	
	Prepared: 05/13/2024	Final Volume: 20 uL	
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 24D0567-09 A 01
	Cleanup Batch: CME0114	Initial Volume: 20 uL	
	Cleaned: 14-May-2024	Final Volume: 20 uL	
Sample Cleanup:	Cleanup Method: Florisil		Extract ID:24D0567-09 A 01
	Cleanup Batch: CME0115	Initial Volume: 20 uL	
	Cleaned: 14-May-2024	Final Volume: 20 uL	

Analyte	DF/Split	Ion Ratio	Ratio Limits	EDL	Reporting Limit	Result	Units	Notes
2,3,7,8-TCDF			0.655-0.886	1.90	9.71	ND	pg/L	U
2,3,7,8-TCDD			0.655-0.886	1.31	9.71	ND	pg/L	U
1,2,3,7,8-PeCDF			1.318-1.783	1.64	9.71	ND	pg/L	U
2,3,4,7,8-PeCDF			1.318-1.783	1.71	9.71	ND	pg/L	U
1,2,3,7,8-PeCDD			1.318-1.783	2.03	9.71	ND	pg/L	U
1,2,3,4,7,8-HxCDF			1.054-1.426	1.09	9.71	ND	pg/L	U
1,2,3,6,7,8-HxCDF			1.054-1.426	1.05	9.71	ND	pg/L	U
2,3,4,6,7,8-HxCDF			1.054-1.426	1.21	9.71	ND	pg/L	U
1,2,3,7,8,9-HxCDF			1.054-1.426	1.67	9.71	ND	pg/L	U
1,2,3,4,7,8-HxCDD			1.054-1.426	2.15	9.71	ND	pg/L	U
1,2,3,6,7,8-HxCDD			1.054-1.426	2.16	9.71	ND	pg/L	U
1,2,3,7,8,9-HxCDD			1.054-1.426	2.41	9.71	ND	pg/L	U
1,2,3,4,6,7,8-HpCDF			0.893-1.208	1.19	19.4	ND	pg/L	U
1,2,3,4,7,8,9-HpCDF			0.893-1.208	2.02	9.71	ND	pg/L	U
1,2,3,4,6,7,8-HpCDD			0.893-1.208	2.23	9.71	ND	pg/L	U
OCDF			0.757-1.024	3.43	19.4	ND	pg/L	U
OCDD			0.757-1.024	3.36	48.5	ND	pg/L	U
Homologue groups								
Total TCDF					9.71	ND	pg/L	U
Total TCDD					9.71	ND	pg/L	U
Total PeCDF					9.71	ND	pg/L	U
Total PeCDD					9.71	ND	pg/L	U
Total HxCDF					9.71	ND	pg/L	U
Total HxCDD					9.71	ND	pg/L	U
Total HpCDF					9.71	ND	pg/L	U
Total HpCDD					9.71	ND	pg/L	U

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC):	2.66
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC):	0.00
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, EMPC = ND):	2.66
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, EMPC = ND):	0.00

Floyd - Snider	Project: Lora Lake 2024	
601 Union Street Two Union Square, Suite 600	Project Number: POS - LLA	**Reported:**
Seattle WA, 98101-2341	Project Manager: Amanda McKay	29-May-2024 13:46

MW-CP3-042424

24D0567-09 (Water)

Dioxins/Furans

Method: EPA 1613B — Sampled: 04/24/2024 13:50

Instrument: AUTOSPEC01 Analyst: pk — Analyzed: 05/28/2024 17:02

Analyte	DF/Split	Ion Ratio	Ratio Limits	Reporting Limit	Result	Units	Notes
Labeled compounds							
13C12-2,3,7,8-TCDF		*0.729*	*0.655-0.886*	*24-169 %*	*86.0*	*%*	
13C12-2,3,7,8-TCDD		*0.797*	*0.655-0.886*	*25-164 %*	*96.0*	*%*	
13C12-1,2,3,7,8-PeCDF		*1.520*	*1.318-1.783*	*24-185 %*	*99.6*	*%*	
13C12-2,3,4,7,8-PeCDF		*1.598*	*1.318-1.783*	*21-178 %*	*97.2*	*%*	
13C12-1,2,3,7,8-PeCDD		*1.774*	*1.318-1.783*	*25-181 %*	*94.5*	*%*	
13C12-1,2,3,4,7,8-HxCDF		*0.528*	*0.434-0.587*	*26-152 %*	*124*	*%*	
13C12-1,2,3,6,7,8-HxCDF		*0.513*	*0.434-0.587*	*26-123 %*	*125*	*%*	*
13C12-2,3,4,6,7,8-HxCDF		*0.560*	*0.434-0.587*	*28-136 %*	*115*	*%*	
13C12-1,2,3,7,8,9-HxCDF		*0.565*	*0.434-0.587*	*29-147 %*	*112*	*%*	
13C12-1,2,3,4,7,8-HxCDD		*1.250*	*1.054-1.426*	*32-141 %*	*96.5*	*%*	
13C12-1,2,3,6,7,8-HxCDD		*1.288*	*1.054-1.426*	*28-130 %*	*104*	*%*	
13C12-1,2,3,4,6,7,8-HpCDF		*0.463*	*0.374-0.506*	*28-143 %*	*108*	*%*	
13C12-1,2,3,4,7,8,9-HpCDF		*0.442*	*0.374-0.506*	*26-138 %*	*105*	*%*	
13C12-1,2,3,4,6,7,8-HpCDD		*1.065*	*0.893-1.208*	*23-140 %*	*122*	*%*	
13C12-OCDD		*1.001*	*0.757-1.024*	*17-157 %*	*107*	*%*	
37Cl4-2,3,7,8-TCDD				*35-197 %*	*98.1*	*%*	

Floyd - Snider	Project: Lora Lake 2024	
601 Union Street Two Union Square, Suite 600	Project Number: POS - LLA	**Reported:**
Seattle WA, 98101-2341	Project Manager: Amanda McKay	29-May-2024 13:46

MW-CP3-042424

24D0567-09 (Water)

Dioxins/Furans

Method: EPA 1613B — Sampled: 04/24/2024 13:50

Instrument: AUTOSPEC01 Analyst: pk — Analyzed: 05/28/2024 17:02

Analyte	DF/Split	Ion Ratio	Ratio Limits	EDL	Reporting Limit	Result	Units	Notes

MW-CP3-042424

24D0567-09 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED — Sampled: 04/24/2024 13:50

Instrument: ICPMS2 Analyst: DOE — Analyzed: 05/01/2024 22:14

Sample Preparation: Preparation Method: REN - EPA 3010A M — Extract ID: 24D0567-09 C 02

Preparation Batch: BMD0764 — Sample Size: 25 mL — Filtration Batch: BMD0643

Prepared: 04/28/2024 — Final Volume: 25 mL — Filtration Date: 04/25/2024 15:10

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0373	0.200	2.91	ug/L	

Floyd - Snider	Project: Lora Lake 2024	
601 Union Street Two Union Square, Suite 600	Project Number: POS - LLA	**Reported:**
Seattle WA, 98101-2341	Project Manager: Amanda McKay	29-May-2024 13:46

MW-CP4-042424

24D0567-10 (Water)

Dioxins/Furans

Method: EPA 1613B — Sampled: 04/24/2024 15:20

Instrument: AUTOSPEC01 Analyst: pk — Analyzed: 05/28/2024 17:51

Sample Preparation:	Preparation Method: EPA 1613		Extract ID: 24D0567-10 A 01
	Preparation Batch: BME0312	Sample Size: 1060 mL	
	Prepared: 05/13/2024	Final Volume: 20 uL	
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 24D0567-10 A 01
	Cleanup Batch: CME0114	Initial Volume: 20 uL	
	Cleaned: 14-May-2024	Final Volume: 20 uL	
Sample Cleanup:	Cleanup Method: Florisil		Extract ID:24D0567-10 A 01
	Cleanup Batch: CME0115	Initial Volume: 20 uL	
	Cleaned: 14-May-2024	Final Volume: 20 uL	

Analyte	DF/Split	Ion Ratio	Ratio Limits	EDL	Reporting Limit	Result	Units	Notes
2,3,7,8-TCDF			0.655-0.886	1.97	9.43	ND	pg/L	U
2,3,7,8-TCDD			0.655-0.886	1.23	9.43	ND	pg/L	U
1,2,3,7,8-PeCDF			1.318-1.783	1.57	9.43	ND	pg/L	U
2,3,4,7,8-PeCDF			1.318-1.783	1.64	9.43	ND	pg/L	U
1,2,3,7,8-PeCDD			1.318-1.783	1.82	9.43	ND	pg/L	U
1,2,3,4,7,8-HxCDF			1.054-1.426	1.09	9.43	ND	pg/L	U
1,2,3,6,7,8-HxCDF			1.054-1.426	1.02	9.43	ND	pg/L	U
2,3,4,6,7,8-HxCDF			1.054-1.426	1.14	9.43	ND	pg/L	U
1,2,3,7,8,9-HxCDF			1.054-1.426	1.56	9.43	ND	pg/L	U
1,2,3,4,7,8-HxCDD			1.054-1.426	2.23	9.43	ND	pg/L	U
1,2,3,6,7,8-HxCDD			1.054-1.426	2.14	9.43	ND	pg/L	U
1,2,3,7,8,9-HxCDD			1.054-1.426	2.44	9.43	ND	pg/L	U
1,2,3,4,6,7,8-HpCDF			0.893-1.208	0.92	18.9	ND	pg/L	U
1,2,3,4,7,8,9-HpCDF			0.893-1.208	1.70	9.43	ND	pg/L	U
1,2,3,4,6,7,8-HpCDD			0.893-1.208	2.14	9.43	ND	pg/L	U
OCDF			0.757-1.024	2.95	18.9	ND	pg/L	U
OCDD			0.757-1.024	3.38	47.2	ND	pg/L	U
Homologue groups								
Total TCDF					9.43	ND	pg/L	U
Total TCDD					9.43	ND	pg/L	U
Total PeCDF					9.43	ND	pg/L	U
Total PeCDD					9.43	ND	pg/L	U
Total HxCDF					9.43	ND	pg/L	U
Total HxCDD					9.43	ND	pg/L	U
Total HpCDF					9.43	ND	pg/L	U
Total HpCDD					9.43	ND	pg/L	U

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC):	2.50
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC):	0.00
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, EMPC = ND):	2.50
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, EMPC = ND):	0.00

Floyd - Snider	Project: Lora Lake 2024	
601 Union Street Two Union Square, Suite 600	Project Number: POS - LLA	**Reported:**
Seattle WA, 98101-2341	Project Manager: Amanda McKay	29-May-2024 13:46

MW-CP4-042424

24D0567-10 (Water)

Dioxins/Furans

Method: EPA 1613B — Sampled: 04/24/2024 15:20

Instrument: AUTOSPEC01 Analyst: pk — Analyzed: 05/28/2024 17:51

Analyte	DF/Split	Ion Ratio	Ratio Limits	Reporting Limit	Result	Units	Notes
Labeled compounds							
13C12-2,3,7,8-TCDF		*0.727*	*0.655-0.886*	*24-169 %*	*79.5*	*%*	
13C12-2,3,7,8-TCDD		*0.785*	*0.655-0.886*	*25-164 %*	*86.9*	*%*	
13C12-1,2,3,7,8-PeCDF		*1.509*	*1.318-1.783*	*24-185 %*	*92.6*	*%*	
13C12-2,3,4,7,8-PeCDF		*1.608*	*1.318-1.783*	*21-178 %*	*88.9*	*%*	
13C12-1,2,3,7,8-PeCDD		*1.654*	*1.318-1.783*	*25-181 %*	*81.7*	*%*	
13C12-1,2,3,4,7,8-HxCDF		*0.532*	*0.434-0.587*	*26-152 %*	*116*	*%*	
13C12-1,2,3,6,7,8-HxCDF		*0.540*	*0.434-0.587*	*26-123 %*	*120*	*%*	
13C12-2,3,4,6,7,8-HxCDF		*0.528*	*0.434-0.587*	*28-136 %*	*110*	*%*	
13C12-1,2,3,7,8,9-HxCDF		*0.519*	*0.434-0.587*	*29-147 %*	*113*	*%*	
13C12-1,2,3,4,7,8-HxCDD		*1.275*	*1.054-1.426*	*32-141 %*	*91.1*	*%*	
13C12-1,2,3,6,7,8-HxCDD		*1.254*	*1.054-1.426*	*28-130 %*	*101*	*%*	
13C12-1,2,3,4,6,7,8-HpCDF		*0.451*	*0.374-0.506*	*28-143 %*	*104*	*%*	
13C12-1,2,3,4,7,8,9-HpCDF		*0.444*	*0.374-0.506*	*26-138 %*	*98.6*	*%*	
13C12-1,2,3,4,6,7,8-HpCDD		*1.012*	*0.893-1.208*	*23-140 %*	*115*	*%*	
13C12-OCDD		*0.880*	*0.757-1.024*	*17-157 %*	*113*	*%*	
37Cl4-2,3,7,8-TCDD				*35-197 %*	*90.9*	*%*	

Floyd - Snider	Project: Lora Lake 2024	
601 Union Street Two Union Square, Suite 600	Project Number: POS - LLA	**Reported:**
Seattle WA, 98101-2341	Project Manager: Amanda McKay	29-May-2024 13:46

MW-CP4-042424

24D0567-10 (Water)

Dioxins/Furans

Method: EPA 1613B — Sampled: 04/24/2024 15:20

Instrument: AUTOSPEC01 Analyst: pk — Analyzed: 05/28/2024 17:51

Analyte	DF/Split	Ion Ratio	Ratio Limits	EDL	Reporting Limit	Result	Units	Notes

MW-CP4-042424

24D0567-10 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED — Sampled: 04/24/2024 15:20

Instrument: ICPMS2 Analyst: DOE — Analyzed: 05/01/2024 22:15

Sample Preparation: Preparation Method: REN - EPA 3010A M — Extract ID: 24D0567-10 C 02

Preparation Batch: BMD0764 — Sample Size: 25 mL — Filtration Batch: BMD0643

Prepared: 04/28/2024 — Final Volume: 25 mL — Filtration Date: 04/25/2024 15:10

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0373	0.200	0.130	ug/L	J

Floyd - Snider	Project: Lora Lake 2024	
601 Union Street Two Union Square, Suite 600	Project Number: POS - LLA	**Reported:**
Seattle WA, 98101-2341	Project Manager: Amanda McKay	29-May-2024 13:46

MW-CP5-042424

24D0567-11 (Water)

Dioxins/Furans

Method: EPA 1613B — Sampled: 04/24/2024 14:45
Instrument: AUTOSPEC01 Analyst: pk — Analyzed: 05/28/2024 18:40

Sample Preparation:	Preparation Method: EPA 1613		Extract ID: 24D0567-11 A 01
	Preparation Batch: BME0312	Sample Size: 990 mL	
	Prepared: 05/13/2024	Final Volume: 20 uL	
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 24D0567-11 A 01
	Cleanup Batch: CME0114	Initial Volume: 20 uL	
	Cleaned: 14-May-2024	Final Volume: 20 uL	
Sample Cleanup:	Cleanup Method: Florisil		Extract ID:24D0567-11 A 01
	Cleanup Batch: CME0115	Initial Volume: 20 uL	
	Cleaned: 14-May-2024	Final Volume: 20 uL	

Analyte	DF/Split	Ion Ratio	Ratio Limits	EDL	Reporting Limit	Result	Units	Notes
2,3,7,8-TCDF			0.655-0.886	1.96	10.1	ND	pg/L	U
2,3,7,8-TCDD			0.655-0.886	1.01	10.1	ND	pg/L	U
1,2,3,7,8-PeCDF			1.318-1.783	1.37	10.1	ND	pg/L	U
2,3,4,7,8-PeCDF			1.318-1.783	1.41	10.1	ND	pg/L	U
1,2,3,7,8-PeCDD			1.318-1.783	1.81	10.1	ND	pg/L	U
1,2,3,4,7,8-HxCDF			1.054-1.426	0.92	10.1	ND	pg/L	U
1,2,3,6,7,8-HxCDF			1.054-1.426	0.89	10.1	ND	pg/L	U
2,3,4,6,7,8-HxCDF			1.054-1.426	0.99	10.1	ND	pg/L	U
1,2,3,7,8,9-HxCDF			1.054-1.426	1.38	10.1	ND	pg/L	U
1,2,3,4,7,8-HxCDD			1.054-1.426	1.69	10.1	ND	pg/L	U
1,2,3,6,7,8-HxCDD			1.054-1.426	1.61	10.1	ND	pg/L	U
1,2,3,7,8,9-HxCDD			1.054-1.426	1.84	10.1	ND	pg/L	U
1,2,3,4,6,7,8-HpCDF			0.893-1.208	0.91	20.2	ND	pg/L	U
1,2,3,4,7,8,9-HpCDF			0.893-1.208	1.68	10.1	ND	pg/L	U
1,2,3,4,6,7,8-HpCDD			0.893-1.208	2.04	10.1	ND	pg/L	U
OCDF			0.757-1.024	2.25	20.2	ND	pg/L	U
OCDD			0.757-1.024	3.06	50.5	ND	pg/L	U
Homologue groups								
Total TCDF					10.1	ND	pg/L	U
Total TCDD					10.1	ND	pg/L	U
Total PeCDF					10.1	ND	pg/L	U
Total PeCDD					10.1	ND	pg/L	U
Total HxCDF					10.1	ND	pg/L	U
Total HxCDD					10.1	ND	pg/L	U
Total HpCDF					10.1	ND	pg/L	U
Total HpCDD					10.1	ND	pg/L	U

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC):	2.23
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC):	0.00
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, EMPC = ND):	2.23
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, EMPC = ND):	0.00

Floyd - Snider	Project: Lora Lake 2024	
601 Union Street Two Union Square, Suite 600	Project Number: POS - LLA	**Reported:**
Seattle WA, 98101-2341	Project Manager: Amanda McKay	29-May-2024 13:46

MW-CP5-042424

24D0567-11 (Water)

Dioxins/Furans

Method: EPA 1613B — Sampled: 04/24/2024 14:45

Instrument: AUTOSPEC01 Analyst: pk — Analyzed: 05/28/2024 18:40

Analyte	DF/Split	Ion Ratio	Ratio Limits	Reporting Limit	Result	Units	Notes
Labeled compounds							
13C12-2,3,7,8-TCDF		*0.786*	*0.655-0.886*	*24-169 %*	*87.7*	*%*	
13C12-2,3,7,8-TCDD		*0.799*	*0.655-0.886*	*25-164 %*	*93.6*	*%*	
13C12-1,2,3,7,8-PeCDF		*1.548*	*1.318-1.783*	*24-185 %*	*101*	*%*	
13C12-2,3,4,7,8-PeCDF		*1.592*	*1.318-1.783*	*21-178 %*	*99.9*	*%*	
13C12-1,2,3,7,8-PeCDD		*1.669*	*1.318-1.783*	*25-181 %*	*89.7*	*%*	
13C12-1,2,3,4,7,8-HxCDF		*0.543*	*0.434-0.587*	*26-152 %*	*124*	*%*	
13C12-1,2,3,6,7,8-HxCDF		*0.538*	*0.434-0.587*	*26-123 %*	*127*	*%*	*
13C12-2,3,4,6,7,8-HxCDF		*0.525*	*0.434-0.587*	*28-136 %*	*121*	*%*	
13C12-1,2,3,7,8,9-HxCDF		*0.555*	*0.434-0.587*	*29-147 %*	*119*	*%*	
13C12-1,2,3,4,7,8-HxCDD		*1.282*	*1.054-1.426*	*32-141 %*	*96.6*	*%*	
13C12-1,2,3,6,7,8-HxCDD		*1.247*	*1.054-1.426*	*28-130 %*	*107*	*%*	
13C12-1,2,3,4,6,7,8-HpCDF		*0.438*	*0.374-0.506*	*28-143 %*	*110*	*%*	
13C12-1,2,3,4,7,8,9-HpCDF		*0.442*	*0.374-0.506*	*26-138 %*	*100*	*%*	
13C12-1,2,3,4,6,7,8-HpCDD		*1.035*	*0.893-1.208*	*23-140 %*	*114*	*%*	
13C12-OCDD		*0.759*	*0.757-1.024*	*17-157 %*	*116*	*%*	
37Cl4-2,3,7,8-TCDD				*35-197 %*	*103*	*%*	

Floyd - Snider	Project: Lora Lake 2024	
601 Union Street Two Union Square, Suite 600	Project Number: POS - LLA	**Reported:**
Seattle WA, 98101-2341	Project Manager: Amanda McKay	29-May-2024 13:46

MW-CP5-042424
24D0567-11 (Water)

Dioxins/Furans

Method: EPA 1613B — Sampled: 04/24/2024 14:45
Instrument: AUTOSPEC01 Analyst: pk — Analyzed: 05/28/2024 18:40

Analyte	DF/Split	Ion Ratio	Ratio Limits	EDL	Reporting Limit	Result	Units	Notes

MW-CP5-042424
24D0567-11 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED — Sampled: 04/24/2024 14:45
Instrument: ICPMS2 Analyst: DOE — Analyzed: 05/01/2024 22:17

Sample Preparation: Preparation Method: REN - EPA 3010A M — Extract ID: 24D0567-11 C 02
Preparation Batch: BMD0764 — Sample Size: 25 mL — Filtration Batch: BMD0643
Prepared: 04/28/2024 — Final Volume: 25 mL — Filtration Date: 04/25/2024 15:10

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0373	0.200	9.79	ug/L	

Floyd - Snider	Project: Lora Lake 2024	
601 Union Street Two Union Square, Suite 600	Project Number: POS - LLA	**Reported:**
Seattle WA, 98101-2341	Project Manager: Amanda McKay	29-May-2024 13:46

MW-CP6-042424

24D0567-12 (Water)

Dioxins/Furans

Method: EPA 1613B — Sampled: 04/24/2024 15:30
Instrument: AUTOSPEC01 Analyst: pk — Analyzed: 05/28/2024 21:14

Sample Preparation:	Preparation Method: EPA 1613		Extract ID: 24D0567-12 A 01
	Preparation Batch: BME0312	Sample Size: 1060 mL	
	Prepared: 05/13/2024	Final Volume: 20 uL	
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 24D0567-12 A 01
	Cleanup Batch: CME0114	Initial Volume: 20 uL	
	Cleaned: 14-May-2024	Final Volume: 20 uL	
Sample Cleanup:	Cleanup Method: Florisil		Extract ID:24D0567-12 A 01
	Cleanup Batch: CME0115	Initial Volume: 20 uL	
	Cleaned: 14-May-2024	Final Volume: 20 uL	

Analyte	DF/Split	Ion Ratio	Ratio Limits	EDL	Reporting Limit	Result	Units	Notes
2,3,7,8-TCDF			0.655-0.886	1.89	9.43	ND	pg/L	U
2,3,7,8-TCDD			0.655-0.886	1.07	9.43	ND	pg/L	U
1,2,3,7,8-PeCDF			1.318-1.783	1.34	9.43	ND	pg/L	U
2,3,4,7,8-PeCDF			1.318-1.783	1.35	9.43	ND	pg/L	U
1,2,3,7,8-PeCDD			1.318-1.783	1.80	9.43	ND	pg/L	U
1,2,3,4,7,8-HxCDF			1.054-1.426	1.22	9.43	ND	pg/L	U
1,2,3,6,7,8-HxCDF			1.054-1.426	1.09	9.43	ND	pg/L	U
2,3,4,6,7,8-HxCDF			1.054-1.426	1.25	9.43	ND	pg/L	U
1,2,3,7,8,9-HxCDF			1.054-1.426	1.96	9.43	ND	pg/L	U
1,2,3,4,7,8-HxCDD			1.054-1.426	2.01	9.43	ND	pg/L	U
1,2,3,6,7,8-HxCDD			1.054-1.426	1.93	9.43	ND	pg/L	U
1,2,3,7,8,9-HxCDD			1.054-1.426	2.20	9.43	ND	pg/L	U
1,2,3,4,6,7,8-HpCDF			0.893-1.208	1.15	18.9	ND	pg/L	U
1,2,3,4,7,8,9-HpCDF			0.893-1.208	2.24	9.43	ND	pg/L	U
1,2,3,4,6,7,8-HpCDD			0.893-1.208	2.45	9.43	ND	pg/L	U
OCDF			0.757-1.024	2.94	18.9	ND	pg/L	U
OCDD		0.594	0.757-1.024	4.38	47.2	**3.74**	pg/L	EMPC, J
Homologue groups								
Total TCDF					9.43	ND	pg/L	U
Total TCDD					9.43	ND	pg/L	U
Total PeCDF					9.43	ND	pg/L	U
Total PeCDD					9.43	ND	pg/L	U
Total HxCDF					9.43	ND	pg/L	U
Total HxCDD					9.43	ND	pg/L	U
Total HpCDF					9.43	ND	pg/L	U
Total HpCDD					9.43	ND	pg/L	U

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC):	2.37
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC):	0.00
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, EMPC = ND):	2.37
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, EMPC = ND):	0.00

Floyd - Snider	Project: Lora Lake 2024	
601 Union Street Two Union Square, Suite 600	Project Number: POS - LLA	**Reported:**
Seattle WA, 98101-2341	Project Manager: Amanda McKay	29-May-2024 13:46

MW-CP6-042424

24D0567-12 (Water)

Dioxins/Furans

Method: EPA 1613B — Sampled: 04/24/2024 15:30

Instrument: AUTOSPEC01 Analyst: pk — Analyzed: 05/28/2024 21:14

Analyte	DF/Split	Ion Ratio	Ratio Limits	Reporting Limit	Result	Units	Notes
Labeled compounds							
13C12-2,3,7,8-TCDF		*0.707*	*0.655-0.886*	*24-169 %*	*84.5*	*%*	
13C12-2,3,7,8-TCDD		*0.776*	*0.655-0.886*	*25-164 %*	*90.3*	*%*	
13C12-1,2,3,7,8-PeCDF		*1.594*	*1.318-1.783*	*24-185 %*	*93.0*	*%*	
13C12-2,3,4,7,8-PeCDF		*1.567*	*1.318-1.783*	*21-178 %*	*89.5*	*%*	
13C12-1,2,3,7,8-PeCDD		*1.660*	*1.318-1.783*	*25-181 %*	*82.4*	*%*	
13C12-1,2,3,4,7,8-HxCDF		*0.555*	*0.434-0.587*	*26-152 %*	*137*	*%*	
13C12-1,2,3,6,7,8-HxCDF		*0.533*	*0.434-0.587*	*26-123 %*	*148*	*%*	*
13C12-2,3,4,6,7,8-HxCDF		*0.516*	*0.434-0.587*	*28-136 %*	*134*	*%*	
13C12-1,2,3,7,8,9-HxCDF		*0.560*	*0.434-0.587*	*29-147 %*	*117*	*%*	
13C12-1,2,3,4,7,8-HxCDD		*1.275*	*1.054-1.426*	*32-141 %*	*105*	*%*	
13C12-1,2,3,6,7,8-HxCDD		*1.261*	*1.054-1.426*	*28-130 %*	*121*	*%*	
13C12-1,2,3,4,6,7,8-HpCDF		*0.467*	*0.374-0.506*	*28-143 %*	*118*	*%*	
13C12-1,2,3,4,7,8,9-HpCDF		*0.499*	*0.374-0.506*	*26-138 %*	*99.0*	*%*	
13C12-1,2,3,4,6,7,8-HpCDD		*1.041*	*0.893-1.208*	*23-140 %*	*117*	*%*	
13C12-OCDD		*0.848*	*0.757-1.024*	*17-157 %*	*121*	*%*	
37Cl4-2,3,7,8-TCDD				*35-197 %*	*102*	*%*	

Floyd - Snider	Project: Lora Lake 2024	
601 Union Street Two Union Square, Suite 600	Project Number: POS - LLA	**Reported:**
Seattle WA, 98101-2341	Project Manager: Amanda McKay	29-May-2024 13:46

MW-CP6-042424

24D0567-12 (Water)

Dioxins/Furans

Method: EPA 1613B — Sampled: 04/24/2024 15:30

Instrument: AUTOSPEC01 Analyst: pk — Analyzed: 05/28/2024 21:14

Analyte	DF/Split	Ion Ratio	Ratio Limits	EDL	Reporting Limit	Result	Units	Notes

MW-CP6-042424

24D0567-12 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED — Sampled: 04/24/2024 15:30

Instrument: ICPMS2 Analyst: DOE — Analyzed: 05/01/2024 22:18

Sample Preparation: Preparation Method: REN - EPA 3010A M — Extract ID: 24D0567-12 C 02

Preparation Batch: BMD0764 — Sample Size: 25 mL — Filtration Batch: BMD0643

Prepared: 04/28/2024 — Final Volume: 25 mL — Filtration Date: 04/25/2024 15:10

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0373	0.200	0.923	ug/L	

Floyd - Snider	Project: Lora Lake 2024	
601 Union Street Two Union Square, Suite 600	Project Number: POS - LLA	**Reported:**
Seattle WA, 98101-2341	Project Manager: Amanda McKay	29-May-2024 13:46

MW-CP7-042424

24D0567-13 (Water)

Dioxins/Furans

Method: EPA 1613B — Sampled: 04/24/2024 15:40
Instrument: AUTOSPEC01 Analyst: pk — Analyzed: 05/28/2024 22:03

Sample Preparation:	Preparation Method: EPA 1613		Extract ID: 24D0567-13 A 01
	Preparation Batch: BME0312	Sample Size: 990 mL	
	Prepared: 05/13/2024	Final Volume: 20 uL	
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 24D0567-13 A 01
	Cleanup Batch: CME0114	Initial Volume: 20 uL	
	Cleaned: 14-May-2024	Final Volume: 20 uL	
Sample Cleanup:	Cleanup Method: Florisil		Extract ID:24D0567-13 A 01
	Cleanup Batch: CME0115	Initial Volume: 20 uL	
	Cleaned: 14-May-2024	Final Volume: 20 uL	

Analyte	DF/Split	Ion Ratio	Ratio Limits	EDL	Reporting Limit	Result	Units	Notes
2,3,7,8-TCDF			0.655-0.886	1.73	10.1	ND	pg/L	U
2,3,7,8-TCDD			0.655-0.886	1.13	10.1	ND	pg/L	U
1,2,3,7,8-PeCDF			1.318-1.783	1.49	10.1	ND	pg/L	U
2,3,4,7,8-PeCDF			1.318-1.783	1.50	10.1	ND	pg/L	U
1,2,3,7,8-PeCDD			1.318-1.783	1.68	10.1	ND	pg/L	U
1,2,3,4,7,8-HxCDF			1.054-1.426	1.01	10.1	ND	pg/L	U
1,2,3,6,7,8-HxCDF			1.054-1.426	0.96	10.1	ND	pg/L	U
2,3,4,6,7,8-HxCDF			1.054-1.426	1.09	10.1	ND	pg/L	U
1,2,3,7,8,9-HxCDF			1.054-1.426	1.50	10.1	ND	pg/L	U
1,2,3,4,7,8-HxCDD			1.054-1.426	1.94	10.1	ND	pg/L	U
1,2,3,6,7,8-HxCDD			1.054-1.426	1.87	10.1	ND	pg/L	U
1,2,3,7,8,9-HxCDD			1.054-1.426	2.13	10.1	ND	pg/L	U
1,2,3,4,6,7,8-HpCDF			0.893-1.208	1.13	20.2	ND	pg/L	U
1,2,3,4,7,8,9-HpCDF			0.893-1.208	2.00	10.1	ND	pg/L	U
1,2,3,4,6,7,8-HpCDD			0.893-1.208	2.08	10.1	ND	pg/L	U
OCDF			0.757-1.024	3.13	20.2	ND	pg/L	U
OCDD			0.757-1.024	3.35	50.5	ND	pg/L	U
Homologue groups								
Total TCDF					10.1	ND	pg/L	U
Total TCDD					10.1	ND	pg/L	U
Total PeCDF					10.1	ND	pg/L	U
Total PeCDD					10.1	ND	pg/L	U
Total HxCDF					10.1	ND	pg/L	U
Total HxCDD					10.1	ND	pg/L	U
Total HpCDF					10.1	ND	pg/L	U
Total HpCDD					10.1	ND	pg/L	U

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC):	2.29
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC):	0.00
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, EMPC = ND):	2.29
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, EMPC = ND):	0.00

Floyd - Snider	Project: Lora Lake 2024	
601 Union Street Two Union Square, Suite 600	Project Number: POS - LLA	**Reported:**
Seattle WA, 98101-2341	Project Manager: Amanda McKay	29-May-2024 13:46

MW-CP7-042424

24D0567-13 (Water)

Dioxins/Furans

Method: EPA 1613B — Sampled: 04/24/2024 15:40

Instrument: AUTOSPEC01 Analyst: pk — Analyzed: 05/28/2024 22:03

Analyte	DF/Split	Ion Ratio	Ratio Limits	Reporting Limit	Result	Units	Notes
Labeled compounds							
13C12-2,3,7,8-TCDF		*0.720*	*0.655-0.886*	*24-169 %*	*84.8*	*%*	
13C12-2,3,7,8-TCDD		*0.803*	*0.655-0.886*	*25-164 %*	*93.4*	*%*	
13C12-1,2,3,7,8-PeCDF		*1.568*	*1.318-1.783*	*24-185 %*	*96.6*	*%*	
13C12-2,3,4,7,8-PeCDF		*1.639*	*1.318-1.783*	*21-178 %*	*93.5*	*%*	
13C12-1,2,3,7,8-PeCDD		*1.676*	*1.318-1.783*	*25-181 %*	*90.0*	*%*	
13C12-1,2,3,4,7,8-HxCDF		*0.554*	*0.434-0.587*	*26-152 %*	*127*	*%*	
13C12-1,2,3,6,7,8-HxCDF		*0.550*	*0.434-0.587*	*26-123 %*	*137*	*%*	*
13C12-2,3,4,6,7,8-HxCDF		*0.544*	*0.434-0.587*	*28-136 %*	*124*	*%*	
13C12-1,2,3,7,8,9-HxCDF		*0.508*	*0.434-0.587*	*29-147 %*	*125*	*%*	
13C12-1,2,3,4,7,8-HxCDD		*1.258*	*1.054-1.426*	*32-141 %*	*96.1*	*%*	
13C12-1,2,3,6,7,8-HxCDD		*1.247*	*1.054-1.426*	*28-130 %*	*110*	*%*	
13C12-1,2,3,4,6,7,8-HpCDF		*0.495*	*0.374-0.506*	*28-143 %*	*116*	*%*	
13C12-1,2,3,4,7,8,9-HpCDF		*0.423*	*0.374-0.506*	*26-138 %*	*102*	*%*	
13C12-1,2,3,4,6,7,8-HpCDD		*1.133*	*0.893-1.208*	*23-140 %*	*110*	*%*	
13C12-OCDD		*0.968*	*0.757-1.024*	*17-157 %*	*107*	*%*	
37Cl4-2,3,7,8-TCDD				*35-197 %*	*96.1*	*%*	

Floyd - Snider	Project: Lora Lake 2024	
601 Union Street Two Union Square, Suite 600	Project Number: POS - LLA	**Reported:**
Seattle WA, 98101-2341	Project Manager: Amanda McKay	29-May-2024 13:46

MW-CP7-042424

24D0567-13 (Water)

Dioxins/Furans

Method: EPA 1613B — Sampled: 04/24/2024 15:40

Instrument: AUTOSPEC01 Analyst: pk — Analyzed: 05/28/2024 22:03

Analyte	DF/Split	Ion Ratio	Ratio Limits	EDL	Reporting Limit	Result	Units	Notes

MW-CP7-042424

24D0567-13 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED — Sampled: 04/24/2024 15:40

Instrument: ICPMS2 Analyst: DOE — Analyzed: 05/01/2024 22:19

Sample Preparation: Preparation Method: REN - EPA 3010A M — Extract ID: 24D0567-13 C 02

Preparation Batch: BMD0764 — Sample Size: 25 mL — Filtration Batch: BMD0643

Prepared: 04/28/2024 — Final Volume: 25 mL — Filtration Date: 04/25/2024 15:10

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0373	0.200	0.322	ug/L	

Floyd - Snider	Project: Lora Lake 2024	
601 Union Street Two Union Square, Suite 600	Project Number: POS - LLA	**Reported:**
Seattle WA, 98101-2341	Project Manager: Amanda McKay	29-May-2024 13:46

Analysis by: Analytical Resources, LLC

Dioxins/Furans - Quality Control

Batch BME0078 - EPA 1613B

Instrument: AUTOSPEC01 Analyst: pl

QC Sample/Analyte	Ion Ratio	Ratio Limits	EDL	Reporting Limit	Result	Units	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BME0078-BLK2)				Prepared: 03-May-2024 Analyzed: 21-May-2024 17:52							
2,3,7,8-TCDF		0.655-0.886	1.71	10.0	ND	pg/L					U
2,3,7,8-TCDD		0.655-0.886	1.13	10.0	ND	pg/L					U
1,2,3,7,8-PeCDF		1.318-1.783	1.55	10.0	ND	pg/L					U
2,3,4,7,8-PeCDF		1.318-1.783	1.58	10.0	ND	pg/L					U
1,2,3,7,8-PeCDD		1.318-1.783	1.83	10.0	ND	pg/L					U
1,2,3,4,7,8-HxCDF		1.054-1.426	1.18	10.0	ND	pg/L					U
1,2,3,6,7,8-HxCDF		1.054-1.426	1.13	10.0	ND	pg/L					U
2,3,4,6,7,8-HxCDF		1.054-1.426	1.25	10.0	ND	pg/L					U
1,2,3,7,8,9-HxCDF		1.054-1.426	1.70	10.0	ND	pg/L					U
1,2,3,4,7,8-HxCDD		1.054-1.426	2.56	10.0	ND	pg/L					U
1,2,3,6,7,8-HxCDD		1.054-1.426	2.55	10.0	ND	pg/L					U
1,2,3,7,8,9-HxCDD		1.054-1.426	2.77	10.0	ND	pg/L					U
1,2,3,4,6,7,8-HpCDF		0.893-1.208	1.38	20.0	ND	pg/L					U
1,2,3,4,7,8,9-HpCDF		0.893-1.208	2.20	10.0	ND	pg/L					U
1,2,3,4,6,7,8-HpCDD		0.893-1.208	2.89	10.0	ND	pg/L					U
OCDF		0.757-1.024	3.57	20.0	ND	pg/L					U
OCDD		0.757-1.024	4.28	50.0	ND	pg/L					U
Homologue group											
Total TCDF				10.0	ND	pg/L					U
Total TCDD				10.0	ND	pg/L					U
Total PeCDF				10.0	ND	pg/L					U
Total PeCDD				10.0	ND	pg/L					U
Total HxCDF				10.0	ND	pg/L					U
Total HxCDD				10.0	ND	pg/L					U
Total HpCDF				10.0	ND	pg/L					U
Total HpCDD				10.0	ND	pg/L					U

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC):	0.13
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC):	0.00
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, EMPC=ND):	0.13
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0 EDL, EMPC=ND):	0.00

Labeled compounds				
13C12-2,3,7,8-TCDF	*0.725*	*0.655-0.886*	*90.0*	*24-169 %*
13C12-2,3,7,8-TCDD	*0.811*	*0.655-0.886*	*100*	*25-164 %*

Floyd - Snider	Project: Lora Lake 2024	
601 Union Street Two Union Square, Suite 600	Project Number: POS - LLA	**Reported:**
Seattle WA, 98101-2341	Project Manager: Amanda McKay	29-May-2024 13:46

Analysis by: Analytical Resources, LLC

Dioxins/Furans - Quality Control

Batch BME0078 - EPA 1613B

Instrument: AUTOSPEC01 Analyst: pl

QC Sample/Analyte	Ion Ratio	Ratio Limits	EDL	Reporting Limit	Result	Units	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BME0078-BLK2)				Prepared: 03-May-2024 Analyzed: 21-May-2024 17:52							
13C12-1,2,3,7,8-PeCDF	*1.558*	*1.318-1.783*					*97.0*			*24-185 %*	
13C12-2,3,4,7,8-PeCDF	*1.533*	*1.318-1.783*					*94.3*			*21-178 %*	
13C12-1,2,3,7,8-PeCDD	*1.762*	*1.318-1.783*					*101*			*25-181 %*	
13C12-1,2,3,4,7,8-HxCDF	*0.530*	*0.434-0.587*					*130*			*26-152 %*	
13C12-1,2,3,6,7,8-HxCDF	*0.511*	*0.434-0.587*					*127*			*26-123 %*	*
13C12-2,3,4,6,7,8-HxCDF	*0.546*	*0.434-0.587*					*122*			*28-136 %*	
13C12-1,2,3,7,8,9-HxCDF	*0.564*	*0.434-0.587*					*134*			*29-147 %*	
13C12-1,2,3,4,7,8-HxCDD	*1.250*	*1.054-1.426*					*104*			*32-141 %*	
13C12-1,2,3,6,7,8-HxCDD	*1.225*	*1.054-1.426*					*113*			*28-130 %*	
13C12-1,2,3,4,6,7,8-HpCDF	*0.484*	*0.374-0.506*					*116*			*28-143 %*	
13C12-1,2,3,4,7,8,9-HpCDF	*0.416*	*0.374-0.506*					*116*			*26-138 %*	
13C12-1,2,3,4,6,7,8-HpCDD	*1.052*	*0.893-1.208*					*112*			*23-140 %*	
13C12-OCDD	*0.934*	*0.757-1.024*					*108*			*17-157 %*	
37Cl4-2,3,7,8-TCDD							*98.3*			*35-197 %*	

Floyd - Snider	Project: Lora Lake 2024	
601 Union Street Two Union Square, Suite 600	Project Number: POS - LLA	**Reported:**
Seattle WA, 98101-2341	Project Manager: Amanda McKay	29-May-2024 13:46

Analysis by: Analytical Resources, LLC

Dioxins/Furans - Quality Control

Batch BME0078 - EPA 1613B

Instrument: AUTOSPEC01 Analyst: pl

QC Sample/Analyte	Ion Ratio	Ratio Limits	EDL	Reporting Limit	Result	Units	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BME0078-BS2)				Prepared: 03-May-2024	Analyzed: 21-May-2024 18:41						
2,3,7,8-TCDF	0.794	0.655-0.886		10.0	198	pg/L	98.9	75-158 %			
2,3,7,8-TCDD	0.752	0.655-0.886		10.0	195	pg/L	97.5	67-158 %			
1,2,3,7,8-PeCDF	1.535	1.318-1.783		10.0	956	pg/L	95.6	80-134 %			
2,3,4,7,8-PeCDF	1.577	1.318-1.783		10.0	969	pg/L	96.9	68-160 %			
1,2,3,7,8-PeCDD	1.732	1.318-1.783		10.0	967	pg/L	96.7	70-142 %			
1,2,3,4,7,8-HxCDF	1.239	1.054-1.426		10.0	990	pg/L	99.0	72-134 %			
1,2,3,6,7,8-HxCDF	1.210	1.054-1.426		10.0	1180	pg/L	118	84-130 %			
2,3,4,6,7,8-HxCDF	1.232	1.054-1.426		10.0	1180	pg/L	118	70-156 %			
1,2,3,7,8,9-HxCDF	1.232	1.054-1.426		10.0	1080	pg/L	108	78-130 %			
1,2,3,4,7,8-HxCDD	1.228	1.054-1.426		10.0	1120	pg/L	112	70-164 %			
1,2,3,6,7,8-HxCDD	1.201	1.054-1.426		10.0	1110	pg/L	111	76-134 %			
1,2,3,7,8,9-HxCDD	1.235	1.054-1.426		10.0	1230	pg/L	123	64-162 %			
1,2,3,4,6,7,8-HpCDF	1.101	0.893-1.208		20.0	930	pg/L	93.0	82-122 %			
1,2,3,4,7,8,9-HpCDF	1.021	0.893-1.208		10.0	1040	pg/L	104	78-138 %			
1,2,3,4,6,7,8-HpCDD	0.966	0.893-1.208		10.0	967	pg/L	96.7	70-140 %			
OCDF	0.897	0.757-1.024		20.0	1660	pg/L	83.1	63-170 %			
OCDD	0.823	0.757-1.024		50.0	1720	pg/L	85.9	78-144 %			
Labeled compounds											
13C12-2,3,7,8-TCDF	*0.737*	*0.655-0.886*			*89.7*			*24-169 %*			
13C12-2,3,7,8-TCDD	*0.805*	*0.655-0.886*			*99.8*			*25-164 %*			
13C12-1,2,3,7,8-PeCDF	*1.569*	*1.318-1.783*			*99.3*			*24-185 %*			
13C12-2,3,4,7,8-PeCDF	*1.602*	*1.318-1.783*			*96.9*			*21-178 %*			
13C12-1,2,3,7,8-PeCDD	*1.725*	*1.318-1.783*			*105*			*25-181 %*			
13C12-1,2,3,4,7,8-HxCDF	*0.530*	*0.434-0.587*			*138*			*26-152 %*			
13C12-1,2,3,6,7,8-HxCDF	*0.538*	*0.434-0.587*			*131*			*26-123 %*			*
13C12-2,3,4,6,7,8-HxCDF	*0.546*	*0.434-0.587*			*127*			*28-136 %*			
13C12-1,2,3,7,8,9-HxCDF	*0.540*	*0.434-0.587*			*146*			*29-147 %*			
13C12-1,2,3,4,7,8-HxCDD	*1.263*	*1.054-1.426*			*113*			*32-141 %*			

Floyd - Snider	Project: Lora Lake 2024	
601 Union Street Two Union Square, Suite 600	Project Number: POS - LLA	**Reported:**
Seattle WA, 98101-2341	Project Manager: Amanda McKay	29-May-2024 13:46

Analysis by: Analytical Resources, LLC

Dioxins/Furans - Quality Control

Batch BME0078 - EPA 1613B

Instrument: AUTOSPEC01 Analyst: pl

QC Sample/Analyte	Ion Ratio	Ratio Limits	EDL	Reporting Limit	Result	Units	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BME0078-BS2)				Prepared: 03-May-2024 Analyzed: 21-May-2024 18:41							
13C12-1,2,3,6,7,8-HxCDD	*1.201*	*1.054-1.426*				*119*		*28-130 %*			
13C12-1,2,3,4,6,7,8-HpCDF	*0.421*	*0.374-0.506*				*137*		*28-143 %*			
13C12-1,2,3,4,7,8,9-HpCDF	*0.424*	*0.374-0.506*				*122*		*26-138 %*			
13C12-1,2,3,4,6,7,8-HpCDD	*1.156*	*0.893-1.208*				*136*		*23-140 %*			
13C12-OCDD	*0.960*	*0.757-1.024*				*136*		*17-157 %*			
37Cl4-2,3,7,8-TCDD						*102*		*35-197 %*			

Floyd - Snider	Project: Lora Lake 2024	
601 Union Street Two Union Square, Suite 600	Project Number: POS - LLA	**Reported:**
Seattle WA, 98101-2341	Project Manager: Amanda McKay	29-May-2024 13:46

Dioxins/Furans - Quality Control

Batch BME0312 - EPA 1613B

Instrument: AUTOSPEC01 Analyst: pl

QC Sample/Analyte	Ion Ratio	Ratio Limits	EDL	Reporting Limit	Result	Units	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BME0312-BLK1)				Prepared: 13-May-2024 Analyzed: 28-May-2024 13:40							
2,3,7,8-TCDF		0.655-0.886	1.58	10.0	ND	pg/L					U
2,3,7,8-TCDD		0.655-0.886	1.22	10.0	ND	pg/L					U
1,2,3,7,8-PeCDF		1.318-1.783	1.52	10.0	ND	pg/L					U
2,3,4,7,8-PeCDF		1.318-1.783	1.50	10.0	ND	pg/L					U
1,2,3,7,8-PeCDD		1.318-1.783	1.60	10.0	ND	pg/L					U
1,2,3,4,7,8-HxCDF		1.054-1.426	1.09	10.0	ND	pg/L					U
1,2,3,6,7,8-HxCDF		1.054-1.426	1.06	10.0	ND	pg/L					U
2,3,4,6,7,8-HxCDF		1.054-1.426	1.17	10.0	ND	pg/L					U
1,2,3,7,8,9-HxCDF		1.054-1.426	1.68	10.0	ND	pg/L					U
1,2,3,4,7,8-HxCDD		1.054-1.426	1.93	10.0	ND	pg/L					U
1,2,3,6,7,8-HxCDD		1.054-1.426	1.87	10.0	ND	pg/L					U
1,2,3,7,8,9-HxCDD		1.054-1.426	2.12	10.0	ND	pg/L					U
1,2,3,4,6,7,8-HpCDF		0.893-1.208	1.24	20.0	ND	pg/L					U
1,2,3,4,7,8,9-HpCDF		0.893-1.208	2.07	10.0	ND	pg/L					U
1,2,3,4,6,7,8-HpCDD		0.893-1.208	2.24	10.0	ND	pg/L					U
OCDF		0.757-1.024	3.16	20.0	ND	pg/L					U
OCDD		0.757-1.024	3.50	50.0	ND	pg/L					U
Homologue group											
Total TCDF				10.0	ND	pg/L					U
Total TCDD				10.0	ND	pg/L					U
Total PeCDF				10.0	ND	pg/L					U
Total PeCDD				10.0	ND	pg/L					U
Total HxCDF				10.0	ND	pg/L					U
Total HxCDD				10.0	ND	pg/L					U
Total HpCDF				10.0	ND	pg/L					U
Total HpCDD				10.0	ND	pg/L					U

Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, Including EMPC):	0.12
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0, Including EMPC):	0.00
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=1/2 EDL, EMPC=ND):	0.12
Total 2,3,7,8-TCDD Equivalence (WHO2005, ND=0 EDL, EMPC=ND):	0.00

Labeled compounds				
13C12-2,3,7,8-TCDF	*0.762*	*0.655-0.886*	*101*	*24-169 %*
13C12-2,3,7,8-TCDD	*0.777*	*0.655-0.886*	*105*	*25-164 %*
13C12-1,2,3,7,8-PeCDF	*1.582*	*1.318-1.783*	*109*	*24-185 %*
13C12-2,3,4,7,8-PeCDF	*1.529*	*1.318-1.783*	*107*	*21-178 %*

Floyd - Snider	Project: Lora Lake 2024	
601 Union Street Two Union Square, Suite 600	Project Number: POS - LLA	**Reported:**
Seattle WA, 98101-2341	Project Manager: Amanda McKay	29-May-2024 13:46

Analysis by: Analytical Resources, LLC

Dioxins/Furans - Quality Control

Batch BME0312 - EPA 1613B

Instrument: AUTOSPEC01 Analyst: pl

QC Sample/Analyte	Ion Ratio	Ratio Limits	EDL	Reporting Limit	Result	Units	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BME0312-BLK1)				Prepared: 13-May-2024	Analyzed: 28-May-2024 13:40						
13C12-1,2,3,7,8-PeCDD	*1.626*	*1.318-1.783*				*103*				*25-181 %*	
13C12-1,2,3,4,7,8-HxCDF	*0.538*	*0.434-0.587*				*146*				*26-152 %*	
13C12-1,2,3,6,7,8-HxCDF	*0.543*	*0.434-0.587*				*146*				*26-123 %*	*
13C12-2,3,4,6,7,8-HxCDF	*0.545*	*0.434-0.587*				*139*				*28-136 %*	*
13C12-1,2,3,7,8,9-HxCDF	*0.550*	*0.434-0.587*				*129*				*29-147 %*	
13C12-1,2,3,4,7,8-HxCDD	*1.298*	*1.054-1.426*				*113*				*32-141 %*	
13C12-1,2,3,6,7,8-HxCDD	*1.209*	*1.054-1.426*				*121*				*28-130 %*	
13C12-1,2,3,4,6,7,8-HpCDF	*0.452*	*0.374-0.506*				*130*				*28-143 %*	
13C12-1,2,3,4,7,8,9-HpCDF	*0.406*	*0.374-0.506*				*120*				*26-138 %*	
13C12-1,2,3,4,6,7,8-HpCDD	*1.091*	*0.893-1.208*				*128*				*23-140 %*	
13C12-OCDD	*0.917*	*0.757-1.024*				*136*				*17-157 %*	
37Cl4-2,3,7,8-TCDD						*102*				*35-197 %*	

Floyd - Snider	Project: Lora Lake 2024	
601 Union Street Two Union Square, Suite 600	Project Number: POS - LLA	**Reported:**
Seattle WA, 98101-2341	Project Manager: Amanda McKay	29-May-2024 13:46

Analysis by: Analytical Resources, LLC

Dioxins/Furans - Quality Control

Batch BME0312 - EPA 1613B

Instrument: AUTOSPEC01 Analyst: pl

QC Sample/Analyte	Ion Ratio	Ratio Limits	EDL	Reporting Limit	Result	Units	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BME0312-BS1)				Prepared: 13-May-2024	Analyzed: 28-May-2024 14:36						
2,3,7,8-TCDF	0.802	0.655-0.886		10.0	197	pg/L	98.6	75-158 %			
2,3,7,8-TCDD	0.770	0.655-0.886		10.0	186	pg/L	93.0	67-158 %			
1,2,3,7,8-PeCDF	1.546	1.318-1.783		10.0	948	pg/L	94.8	80-134 %			
2,3,4,7,8-PeCDF	1.715	1.318-1.783		10.0	1060	pg/L	106	68-160 %			
1,2,3,7,8-PeCDD	1.612	1.318-1.783		10.0	1010	pg/L	101	70-142 %			
1,2,3,4,7,8-HxCDF	1.275	1.054-1.426		10.0	1010	pg/L	101	72-134 %			
1,2,3,6,7,8-HxCDF	1.325	1.054-1.426		10.0	1020	pg/L	102	84-130 %			
2,3,4,6,7,8-HxCDF	1.381	1.054-1.426		10.0	1070	pg/L	107	70-156 %			
1,2,3,7,8,9-HxCDF	1.308	1.054-1.426		10.0	1130	pg/L	113	78-130 %			
1,2,3,4,7,8-HxCDD	1.256	1.054-1.426		10.0	1140	pg/L	114	70-164 %			
1,2,3,6,7,8-HxCDD	1.192	1.054-1.426		10.0	1040	pg/L	104	76-134 %			
1,2,3,7,8,9-HxCDD	1.255	1.054-1.426		10.0	1130	pg/L	113	64-162 %			
1,2,3,4,6,7,8-HpCDF	0.959	0.893-1.208		20.0	948	pg/L	94.8	82-122 %			
1,2,3,4,7,8,9-HpCDF	1.114	0.893-1.208		10.0	1030	pg/L	103	78-138 %			
1,2,3,4,6,7,8-HpCDD	1.064	0.893-1.208		10.0	995	pg/L	99.5	70-140 %			
OCDF	0.985	0.757-1.024		20.0	1920	pg/L	96.0	63-170 %			
OCDD	0.952	0.757-1.024		50.0	1840	pg/L	92.2	78-144 %			
Labeled compounds											
13C12-2,3,7,8-TCDF	*0.732*	*0.655-0.886*			*91.6*			*24-169 %*			
13C12-2,3,7,8-TCDD	*0.812*	*0.655-0.886*			*100*			*25-164 %*			
13C12-1,2,3,7,8-PeCDF	*1.533*	*1.318-1.783*			*103*			*24-185 %*			
13C12-2,3,4,7,8-PeCDF	*1.548*	*1.318-1.783*			*99.6*			*21-178 %*			
13C12-1,2,3,7,8-PeCDD	*1.712*	*1.318-1.783*			*98.8*			*25-181 %*			
13C12-1,2,3,4,7,8-HxCDF	*0.560*	*0.434-0.587*			*123*			*26-152 %*			
13C12-1,2,3,6,7,8-HxCDF	*0.535*	*0.434-0.587*			*125*			*26-123 %*			*
13C12-2,3,4,6,7,8-HxCDF	*0.544*	*0.434-0.587*			*119*			*28-136 %*			
13C12-1,2,3,7,8,9-HxCDF	*0.527*	*0.434-0.587*			*116*			*29-147 %*			
13C12-1,2,3,4,7,8-HxCDD	*1.266*	*1.054-1.426*			*99.7*			*32-141 %*			

Floyd - Snider	Project: Lora Lake 2024	
601 Union Street Two Union Square, Suite 600	Project Number: POS - LLA	**Reported:**
Seattle WA, 98101-2341	Project Manager: Amanda McKay	29-May-2024 13:46

Analysis by: Analytical Resources, LLC

Dioxins/Furans - Quality Control

Batch BME0312 - EPA 1613B

Instrument: AUTOSPEC01 Analyst: pl

QC Sample/Analyte	Ion Ratio	Ratio Limits	EDL	Reporting Limit	Result	Units	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BME0312-BS1)				Prepared: 13-May-2024	Analyzed: 28-May-2024 14:36						
13C12-1,2,3,6,7,8-HxCDD	*1.224*	*1.054-1.426*				*107*		*28-130 %*			
13C12-1,2,3,4,6,7,8-HpCDF	*0.399*	*0.374-0.506*				*120*		*28-143 %*			
13C12-1,2,3,4,7,8,9-HpCDF	*0.397*	*0.374-0.506*				*106*		*26-138 %*			
13C12-1,2,3,4,6,7,8-HpCDD	*1.096*	*0.893-1.208*				*113*		*23-140 %*			
13C12-OCDD	*0.968*	*0.757-1.024*				*110*		*17-157 %*			
37Cl4-2,3,7,8-TCDD						*100*		*35-197 %*			

Floyd - Snider	Project: Lora Lake 2024	
601 Union Street Two Union Square, Suite 600	Project Number: POS - LLA	**Reported:**
Seattle WA, 98101-2341	Project Manager: Amanda McKay	29-May-2024 13:46

Analysis by: Analytical Resources, LLC

Dioxins/Furans - Quality Control

Batch BME0312 - EPA 1613B

Instrument: AUTOSPEC01 Analyst: pl

QC Sample/Analyte	Ion Ratio	Ratio Limits	EDL	Reporting Limit	Result	Units	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BME0312-BSD1)				Prepared: 13-May-2024	Analyzed: 28-May-2024 15:25						
2,3,7,8-TCDF	0.802	0.655-0.886		10.0	204	pg/L	102	75-158 %	3.14	25	
2,3,7,8-TCDD	0.761	0.655-0.886		10.0	188	pg/L	94.2	67-158 %	1.31	25	
1,2,3,7,8-PeCDF	1.598	1.318-1.783		10.0	1000	pg/L	100	80-134 %	5.38	25	
2,3,4,7,8-PeCDF	1.551	1.318-1.783		10.0	1060	pg/L	106	68-160 %	0.43	25	
1,2,3,7,8-PeCDD	1.583	1.318-1.783		10.0	997	pg/L	99.7	70-142 %	1.25	25	
1,2,3,4,7,8-HxCDF	1.284	1.054-1.426		10.0	992	pg/L	99.2	72-134 %	1.48	25	
1,2,3,6,7,8-HxCDF	1.202	1.054-1.426		10.0	1040	pg/L	104	84-130 %	1.31	25	
2,3,4,6,7,8-HxCDF	1.188	1.054-1.426		10.0	1040	pg/L	104	70-156 %	2.35	25	
1,2,3,7,8,9-HxCDF	1.387	1.054-1.426		10.0	1120	pg/L	112	78-130 %	0.36	25	
1,2,3,4,7,8-HxCDD	1.259	1.054-1.426		10.0	1140	pg/L	114	70-164 %	0.76	25	
1,2,3,6,7,8-HxCDD	1.279	1.054-1.426		10.0	1080	pg/L	108	76-134 %	4.33	25	
1,2,3,7,8,9-HxCDD	1.240	1.054-1.426		10.0	1100	pg/L	110	64-162 %	2.71	25	
1,2,3,4,6,7,8-HpCDF	1.014	0.893-1.208		20.0	978	pg/L	97.8	82-122 %	3.10	25	
1,2,3,4,7,8,9-HpCDF	1.015	0.893-1.208		10.0	1030	pg/L	103	78-138 %	0.45	25	
1,2,3,4,6,7,8-HpCDD	1.163	0.893-1.208		10.0	999	pg/L	99.9	70-140 %	0.44	25	
OCDF	0.934	0.757-1.024		20.0	1950	pg/L	97.3	63-170 %	1.38	25	
OCDD	0.856	0.757-1.024		50.0	2130	pg/L	106	78-144 %	14.20	25	
Labeled compounds											
13C12-2,3,7,8-TCDF	*0.745*	*0.655-0.886*			*85.5*			*24-169 %*			
13C12-2,3,7,8-TCDD	*0.782*	*0.655-0.886*			*93.5*			*25-164 %*			
13C12-1,2,3,7,8-PeCDF	*1.550*	*1.318-1.783*			*93.5*			*24-185 %*			
13C12-2,3,4,7,8-PeCDF	*1.590*	*1.318-1.783*			*93.5*			*21-178 %*			
13C12-1,2,3,7,8-PeCDD	*1.716*	*1.318-1.783*			*91.2*			*25-181 %*			
13C12-1,2,3,4,7,8-HxCDF	*0.537*	*0.434-0.587*			*130*			*26-152 %*			
13C12-1,2,3,6,7,8-HxCDF	*0.551*	*0.434-0.587*			*129*			*26-123 %*			*
13C12-2,3,4,6,7,8-HxCDF	*0.545*	*0.434-0.587*			*124*			*28-136 %*			
13C12-1,2,3,7,8,9-HxCDF	*0.524*	*0.434-0.587*			*116*			*29-147 %*			
13C12-1,2,3,4,7,8-HxCDD	*1.238*	*1.054-1.426*			*104*			*32-141 %*			

Floyd - Snider	Project: Lora Lake 2024	
601 Union Street Two Union Square, Suite 600	Project Number: POS - LLA	**Reported:**
Seattle WA, 98101-2341	Project Manager: Amanda McKay	29-May-2024 13:46

Analysis by: Analytical Resources, LLC

Dioxins/Furans - Quality Control

Batch BME0312 - EPA 1613B

Instrument: AUTOSPEC01 Analyst: pl

QC Sample/Analyte	Ion Ratio	Ratio Limits	EDL	Reporting Limit	Result	Units	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BME0312-BSD1)				Prepared: 13-May-2024	Analyzed: 28-May-2024 15:25						
13C12-1,2,3,6,7,8-HxCDD	*1.224*	*1.054-1.426*					*109*			*28-130 %*	
13C12-1,2,3,4,6,7,8-HpCDF	*0.491*	*0.374-0.506*					*114*			*28-143 %*	
13C12-1,2,3,4,7,8,9-HpCDF	*0.405*	*0.374-0.506*					*104*			*26-138 %*	
13C12-1,2,3,4,6,7,8-HpCDD	*1.146*	*0.893-1.208*					*116*			*23-140 %*	
13C12-OCDD	*0.941*	*0.757-1.024*					*109*			*17-157 %*	
37Cl4-2,3,7,8-TCDD							*96.3*			*35-197 %*	

Floyd - Snider	Project: Lora Lake 2024	
601 Union Street Two Union Square, Suite 600	Project Number: POS - LLA	**Reported:**
Seattle WA, 98101-2341	Project Manager: Amanda McKay	29-May-2024 13:46

Analysis by: Analytical Resources, LLC

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BMD0764 - EPA 6020B UCT-KED

Instrument: ICPMS2 Analyst: DOE

QC Sample/Analyte	Isotope	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BMD0764-BLK1)						Prepared: 28-Apr-2024 Analyzed: 01-May-2024 15:32						
Arsenic, Dissolved	75a	ND	0.0373	0.200	ug/L							U
LCS (BMD0764-BS1)						Prepared: 28-Apr-2024 Analyzed: 01-May-2024 15:33						
Arsenic, Dissolved	75a	27.0	0.0373	0.200	ug/L	25.0		108	80-120			
Duplicate (BMD0764-DUP1)			**Source: 24D0567-01**			Prepared: 28-Apr-2024 Analyzed: 01-May-2024 22:03						
Arsenic, Dissolved	75a	0.0940	0.0373	0.200	ug/L		0.112			17.50	20	J
Matrix Spike (BMD0764-MS1)			**Source: 24D0567-01**			Prepared: 28-Apr-2024 Analyzed: 01-May-2024 22:05						
Arsenic, Dissolved	75a	26.8	0.0373	0.200	ug/L	25.0	0.112	107	75-125			

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

Floyd - Snider	Project: Lora Lake 2024	
601 Union Street Two Union Square, Suite 600	Project Number: POS - LLA	**Reported:**
Seattle WA, 98101-2341	Project Manager: Amanda McKay	29-May-2024 13:46

Certified Analyses included in this Report

Analyte	Certifications
EPA 1613B in Water	
2,3,7,8-TCDF	DoD-ELAP,NELAP,WADOE
2,3,7,8-TCDD	DoD-ELAP,NELAP,WADOE
1,2,3,7,8-PeCDF	DoD-ELAP,NELAP,WADOE
2,3,4,7,8-PeCDF	DoD-ELAP,NELAP,WADOE
1,2,3,7,8-PeCDD	DoD-ELAP,NELAP,WADOE
1,2,3,4,7,8-HxCDF	DoD-ELAP,NELAP,WADOE
1,2,3,6,7,8-HxCDF	DoD-ELAP,NELAP,WADOE
2,3,4,6,7,8-HxCDF	DoD-ELAP,NELAP,WADOE
1,2,3,7,8,9-HxCDF	DoD-ELAP,NELAP,WADOE
1,2,3,4,7,8-HxCDD	DoD-ELAP,NELAP,WADOE
1,2,3,6,7,8-HxCDD	DoD-ELAP,NELAP,WADOE
1,2,3,7,8,9-HxCDD	DoD-ELAP,NELAP,WADOE
1,2,3,4,6,7,8-HpCDF	DoD-ELAP,NELAP,WADOE
1,2,3,4,7,8,9-HpCDF	DoD-ELAP,NELAP,WADOE
1,2,3,4,6,7,8-HpCDD	DoD-ELAP,NELAP,WADOE
OCDF	DoD-ELAP,NELAP,WADOE
OCDD	DoD-ELAP,NELAP,WADOE
Total TCDF	DoD-ELAP,NELAP
Total TCDD	DoD-ELAP,NELAP
Total PeCDF	DoD-ELAP,NELAP
Total PeCDD	DoD-ELAP,NELAP
Total HxCDF	DoD-ELAP,NELAP
Total HxCDD	DoD-ELAP,NELAP
Total HpCDF	DoD-ELAP,NELAP
Total HpCDD	DoD-ELAP,NELAP
13C12-2,3,7,8-TCDF	DoD-ELAP
13C12-2,3,7,8-TCDD	DoD-ELAP
13C12-1,2,3,7,8-PeCDF	DoD-ELAP
13C12-2,3,4,7,8-PeCDF	DoD-ELAP
13C12-1,2,3,7,8-PeCDD	DoD-ELAP

Floyd - Snider	Project: Lora Lake 2024	
601 Union Street Two Union Square, Suite 600	Project Number: POS - LLA	**Reported:**
Seattle WA, 98101-2341	Project Manager: Amanda McKay	29-May-2024 13:46

13C12-1,2,3,4,7,8-HxCDF	DoD-ELAP
13C12-1,2,3,6,7,8-HxCDF	DoD-ELAP
13C12-2,3,4,6,7,8-HxCDF	DoD-ELAP
13C12-1,2,3,7,8,9-HxCDF	DoD-ELAP
13C12-1,2,3,4,7,8-HxCDD	DoD-ELAP
13C12-1,2,3,6,7,8-HxCDD	DoD-ELAP
13C12-1,2,3,4,6,7,8-HpCDF	DoD-ELAP
13C12-1,2,3,4,7,8,9-HpCDF	DoD-ELAP
13C12-1,2,3,4,6,7,8-HpCDD	DoD-ELAP
13C12-OCDD	DoD-ELAP
37Cl4-2,3,7,8-TCDD	DoD-ELAP

EPA 6020B UCT-KED in Water

Arsenic-75a	NELAP,WADOE,DoD-ELAP,ADEC

Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	17-015	03/28/2025
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program, PJLA Testing	66169	02/28/2025
NELAP	ORELAP - Oregon Laboratory Accreditation Program	WA100006-012	05/12/2024
WADOE	WA Dept of Ecology	C558	06/30/2024
WA-DW	Ecology - Drinking Water	C558	06/30/2024

Floyd - Snider	Project: Lora Lake 2024	
601 Union Street Two Union Square, Suite 600	Project Number: POS - LLA	**Reported:**
Seattle WA, 98101-2341	Project Manager: Amanda McKay	29-May-2024 13:46

Notes and Definitions

*	Flagged value is not within established control limits.
D	The reported value is from a dilution
EMPC	Estimated Maximum Possible Concentration qualifier for HRGCMS Dioxin
J	Estimated concentration value detected below the reporting limit.
U	This analyte is not detected above the reporting limit (RL) or if noted, not detected above the limit of detection (LOD).
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
[2C]	Indicates this result was quantified on the second column on a dual column analysis.

FLOYD | SNIDER
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Data Validation Summary

Prepared by:	Chell Black
Date:	June 11, 2024
Project ID:	POS-LLA Lora Lake Apartments Investigation & Site Remediation
Sample Event(s):	2024 Annual Monitoring
Sample Delivery Group(s):	24C0462 and 24D0567
Sample Media:	Groundwater

A Compliance Screening (USEPA Stage 2A) data quality review was performed on dissolved arsenic data resulting from laboratory analysis. The data were reviewed using guidance and quality control (QC) criteria documented in Appendix B of the 2010 Remedial Investigation/Feasibility Study for the Lora Lake Apartments Site (Floyd|Snider 2010), *Test Methods for Evaluating Solid Waste: Physical/Chemical Methods* (USEPA 1986) and the *National Functional Guidelines for Inorganic Superfund Methods Data Review* (USEPA 2020).

A total of 13 groundwater samples and 2 field duplicate samples were submitted to Analytical Resources, LLC (ARL) in Tukwila, Washington, for chemical analysis by U.S. Environmental Protection Agency (USEPA) Method 6020B. The laboratory reported results under two sample delivery groups: 24C0462 and 24D0567.

DATA QUALITY REVIEW

Field and laboratory QC parameters for all samples met project criteria.

DATA QUALITY SUMMARY

All data are determined to be of acceptable quality for use as reported.

REFERENCES

Floyd|Snider. 2010. *Sampling and Analysis Plan and Quality Assurance Project Plan, Remedial Investigation/Feasibility Study for the Lora Lake Apartments Site.* 30 July.

U.S. Environmental Protection Agency (USEPA). 1986. *Test Methods for Evaluating Solid Waste: Physical/Chemical Methods.* U.S. Prepared by the Office of Solid Waste and Emergency Response. EPA-530/SW-846.

_____. 2020. *National Functional Guidelines for Inorganic Superfund Methods Data Review.* Prepared by the Office of Superfund Remediation and Technology Innovation. EPA-542-R-20-006/OLEM 9240.1-66. November.

DATA VALIDATION REPORT

LORA LAKE - ANNUAL LAKESIDE GW MONITORING 2024

Prepared for:

Floyd | Snider
601 Union Street, Suite 600
Seattle, WA 98101

Prepared by:

EcoChem, Inc.
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EcoChem Project: C15231-5

June 11, 2024

Approved for Release:

Christine Ransom
Senior Project Chemist
EcoChem, Inc.

PROJECT NARRATIVE

Basis for the Data Validation

This report summarizes the results of data validation performed on groundwater and quality control (QC) sample data for the Lora Lake Lakeside GW Monitoring project. The dioxin data received full validation (EPA Stage 4). A complete list of samples is provided in the Sample Index.

Analytical Resources in Tukwila, WA performed the analyses. The analytical method and EcoChem project chemists are listed in the table below.

ANALYSIS	METHOD	PRIMARY REVIEW	SECONDARY REVIEW
Dioxins	EPA 1613B	E. Clayton	C. Ransom

The data were reviewed using guidance and quality control criteria documented in the analytical methods; *Port of Seattle Lora Lake Parcel, Remedial Investigation/Feasibility Study Work Plan* (Floyd Snider February 11, 2011); *National Functional Guidelines for Chlorinated Dibenzo-p-Dioxins (CDDs) and Chlorinated Dibenzofurans (CDFs) Data Review* (USEPA, September 2011); *National Functional Guidelines for High Resolution Superfund Methods Data Review* (USEPA, April 2016, 2020).

EcoChem's goal in assigning data assessment qualifiers is to assist in proper data interpretation. If values are estimated (J or UJ), data may be used for site evaluation and risk assessment purposes but reasons for data qualification should be taken into consideration when interpreting sample concentrations. If values are assigned an R or DNR, the data should not be used for any site evaluation purposes. If values have no data qualifier assigned, then the data meet the data quality objectives as stated in the documents and methods referenced above.

Data qualifier definitions, reason codes, and validation criteria are included as Appendix A. A Qualified Data Summary Table is included in Appendix B. Data Validation Worksheets will be kept on file at EcoChem, Inc. A qualified laboratory electronic data deliverable (EDD) is also submitted with this report.

Sample Index
Lora Lake - Annual Lakeside GW Monitoring 2024

SDG	SAMPLE ID	LAB ID	1613B Dioxins
24D0567	MW-C1-VB1-042424	24D0567-01	✓
24D0567	MW-C1-VB1-042424-D	24D0567-02	✓
24D0567	MW-VB2-042424	24D0567-03	✓
24D0567	MW-VB3-042424	24D0567-04	✓
24D0567	HCOO-B312-042424	24D0567-05	✓
24D0567	MW-CP1-042424	24D0567-06	✓
24D0567	MW-CP1-042424-D	24D0567-07	✓
24D0567	MW-CP2-042424	24D0567-08	✓
24D0567	MW-CP3-042424	24D0567-09	✓
24D0567	MW-CP4-042424	24D0567-10	✓
24D0567	MW-CP5-042424	24D0567-11	✓
24D0567	MW-CP6-042424	24D0567-12	✓
24D0567	MW-CP7-042424	24D0567-13	✓

DATA VALIDATION REPORT
Lora Lake - Annual Lakeside GW Monitoring 2024
Dioxin/Furan Compounds by Method 1613B

This report documents the review of analytical data from the analysis of groundwater samples and the associated laboratory and field quality control (QC) samples. Samples were analyzed by Analytical Resources, Inc., Tukwila, Washington. Refer to the SAMPLE INDEX for a complete list of samples.

SDG	NUMBER OF SAMPLES	VALIDATION LEVEL
24D0567	13 Groundwater	EPA Stage 4

DATA PACKAGE COMPLETENESS

The laboratory submitted all required deliverables. The laboratory followed adequate corrective action processes and all anomalies were discussed in the case narrative.

EDD TO HARDCOPY VERIFICATION

Sample results and related quality control data were received as an electronic data deliverable (EDD) and laboratory report. The EDD was verified against the laboratory report (10%). The following discrepancies were noted:

TECHNICAL DATA VALIDATION

The quality control (QC) requirements reviewed are summarized in the following table:

✓	Sample Receipt, Preservation, and Holding Times	✓	Ongoing Precision and Recovery (OPR)
✓	System Performance and Resolution Checks	1	Field Duplicates
✓	Initial Calibration (ICAL)	✓	Target Analyte List
✓	Calibration Verification	✓	Reported Results
1	Blanks (Laboratory and Field)	2	Compound Identification
1	Labeled Compounds	1	Calculation Verification

✓ ***Stated method quality objectives (MQO) and QC criteria have been met. No outliers are noted or discussed.***
1 ***Quality control results are discussed below, but no data were qualified.***
2 ***Quality control outliers that impact the reported data were noted. Data qualifiers were issued as discussed below.***

Blanks

No field blanks were submitted.

Labeled Compound Recovery

Isotope-stable labeled compounds were added to each field and QC sample. With the following exceptions, percent recovery (%R) values for the field samples were within the project specific criteria of 70%-130%. No action is taken for outliers associated with QC samples.

The recoveries for the labeled compound 13C-1,2,3,6,7,8-HxCDF were greater than the upper control limit of 130% in samples MW-C1-VB1-042424-D, MW-CP6-042424, and MW-CP7-042424. The native compound 1,2,3,6,7,8-HxCDF was not detected in these samples; no data were qualified.

Field Duplicates

The RPD control limit is 35% for results greater than 5x the reporting limit (RL). For results less than 5x the RL, the difference between the sample and duplicate must be less than the RL.

Two sets of field duplicates were submitted: MW-C1-VB1-042424 & MW-C1-VB1-042424-D and MW-CP1-042424 &. MW-CP1-042424 -D. Field precision was acceptable.

Compound Identification

The method requires the confirmation of 2,3,7,8-TCDF using an alternate GC column as the DB5 column that is typically used cannot fully separate 2,3,7,8-TCDF from closely eluting non-target TCDF isomers. The laboratory uses an RTX-Dioxin2 column which provides adequate resolution of the TCDF isomers as indicated by the acceptable peak to valley ratios. Since the 2,3,7,8-TCDF resolution was acceptable, no confirmation was necessary.

The laboratory assigned an "EMPC" flag to indicate that the ion ratio criterion for positive identification was not met. Since the ion abundance ratio is the primary identification criterion for high resolution mass spectroscopy, an outlier indicates that the reported result may be a false positive. These "EMPC" flagged results were qualified as not detected (U-25) at the reported concentration to stay consistent with historical treatment of EMPCs for this project.

Calculation Verification

Several results were verified by recalculation from the raw data. No calculation or transcription errors were found.

OVERALL ASSESSMENT

As determined by this evaluation, the laboratory followed the specified analytical method. With the exceptions noted above, accuracy was acceptable as demonstrated by the labeled compound and on-going precision and recovery (OPR)/OPR Duplicate recoveries and precision was acceptable as demonstrated by the OPR/OPR Dup and field duplicate RPD values.

Detection limits were elevated based on ion ratio outliers.

All data, as qualified, are acceptable for use.

ECOCHEM
Data Quality

APPENDIX A

DATA QUALIFIER DEFINITIONS
REASON CODES
AND CRITERIA TABLES

DATA VALIDATION QUALIFIER CODES
Based on National Functional Guidelines

The following definitions provide brief explanations of the qualifiers assigned to results in the data review process.

U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents the approximate concentration.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
R	The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

The following is an EcoChem qualifier that may also be assigned during the data review process:

DNR	Do not report; a more appropriate result is reported from another analysis or dilution.

DATA QUALIFIER REASON CODES

Group	Code	Reason for Qualification
Sample Handling	1	Improper Sample Handling or Sample Preservation (i.e., headspace, cooler temperature, pH, summa canister pressure); Exceeded Holding Times
Instrument Performance	24	Instrument Performance (i.e., tune, resolution, retention time window, endrin breakdown, lock-mass)
	5A	Initial Calibration (RF, %RSD, r^2)
	5B	Calibration Verification (CCV, CCAL; RF, %D, %R) Use bias flags (H,L)[1] where appropriate
	5C	Initial Calibration Verification (ICV %D, %R) Use bias flags (H,L)[1] where appropriate
Blank Contamination	6	Field Blank Contamination (Equipment Rinsate, Trip Blank, etc.)
	7	Lab Blank Contamination (i.e., method blank, instrument blank, etc.) Use low bias flag (L)[1] for negative instrument blanks
Precision and Accuracy	8	Matrix Spike (MS and/or MSD) Recoveries Use bias flags (H,L)[1] where appropriate
	9A	Precision (Lab QC replicates: LCS/LCSD, MS/MSD, Lab Replicate)
	9B	Precision (Field QC replicates)
	10	Laboratory Control Sample Recoveries (a.k.a. Blank Spikes) Use bias flags (H,L)[1] where appropriate
	12	Reference Material Use bias flags (H,L)[1] where appropriate
	13	Surrogate Spike Recoveries (a.k.a. labeled compounds, recovery standards) Use bias flags (H,L)[1] where appropriate
Interferences	16	ICP/ICP-MS Serial Dilution Percent Difference
	17	ICP/ICP-MS Interference Check Standard Recovery Use bias flags (H,L)[1] where appropriate
	19	Internal Standard Performance (i.e., area, retention time, recovery)
	22	Elevated Detection Limit due to Interference (i.e., chemical and/or matrix)
	23	Bias from Matrix Interference (i.e. diphenyl ether, PCB/pesticides)
Identification and Quantitation	2	Chromatographic pattern in sample does not match pattern of calibration standard
	3	2nd column confirmation (RPD or %D)
	4	Tentatively Identified Compound (TIC) (associated with NJ only)
	20	Calibration Range or Linear Range Exceeded
	25	Compound Identification (i.e., ion ratio, retention time, relative abundance, etc.)
	27	Alkylated PAH compound not calibrated (C1-C4 homologs) - calculated using response from parent compounds
	28	Multiple PCB Aroclors reported in sample (overlapping patterns)
Miscellaneous	11	A more appropriate result is reported (multiple reported analyses i.e., dilutions, re-extractions, etc. Associated with "R" and "DNR" only)
	14	Other (See DV report for details)

[1] **H = high bias indicated**
L = low bias indicated

Draft Dioxin/Furan Analysis by HRMS
(Based on Dioxin NFG 2016, 2020 and Methods EPA 1613B and SW-846 8290)

QC Element	Acceptance Criteria	Source of Criteria	Action for Non-Conformance	Reason Code	Discussion and Comments
Sample Handling					
Cooler/Storage Temperature Preservation	Waters/Solids ≤ 6°C & in the dark Tissues <-10°C & in the dark **Preservation Aqueous:** If Cl_2 is present Thiosulfate must be added and if pH > 9 it must be adjusted to 7 - 9	NFG [1] Method[2,3]	J(pos)/R(ND) if thiosulfate not added if Cl_2 present; J(pos)/UJ(ND) if pH not adjusted J(pos)/UJ(ND) if temp > 20°C	1	**EcoChem PJ, see TM-05**
Holding Time	**If properly stored, 1 year or:** **Extraction (all matrices):** 30 days from collection **Analysis (all matrices)**: 45 days from extraction	NFG [1] Method[2,3]	If not properly stored or HT exceedance: J(pos)/UJ(ND)	1	**EcoChem PJ, see TM-05** Gross exceedance = > 1 year 2011 NFG **Note:** Under CWA, SDWA, and RCRA the HT for H2O is 7 days.
Instrument Performance					
Mass Resolution (PFK)(Tuning)	PFK (Perfluorokerosene) Analyzed prior to ICAL and at the beginning and end of each 12 hr. shift. ≥10,000 resolving power at m/z low and high mass (e.g. 304.9824 and 380.9760) Lock-mass for each descriptot w/in 5 ppm of theoretical value	NFG [1] Method [2,3]	R(pos/ND) all analytes in all samples associated with the tune	24	Notify PM
Windows Defining Mix (WDM)	Peaks for first and last eluters must be within established retention time windows for each selector group (chlorination level)	NFG [1] Method [2,3]	If peaks are not completely within windows (clipped): If natives are ok, J(pos)/UJ(ND) homologs (Totals) If natives are affected, R all results for that selector group	24	Notify PM

Draft Dioxin/Furan Analysis by HRMS
(Based on Dioxin NFG 2016, 2020 and Methods EPA 1613B and SW-846 8290)

QC Element	Acceptance Criteria	Source of Criteria	Action for Non-Conformance	Reason Code	Discussion and Comments
AND Isomer Specificity Check (ISC)	Both mixes must be analyzed before ICAL and CCAL Valley < 25% (valley = (x/y)*100%) where x = ht. of TCDD (or TCDF) & y = baseline to bottom of valley For all isomers eluting near the 2378-TCDD (TCDF) peak (TCDD only for 8290)	NFG [1] Method [2,3]	J(pos) if valley > 25%	24	**EcoChem PJ, see TM-05, Rev. 2**; Note: TCDF is evaluated only if second column confirmation is performed
OR Column Performance Solution (CPS) (combined WDM and ISC)	Peaks for first and last eluters must be within established retention time windows for each selector group (chlorination level) Both mixes must be analyzed before ICAL and CCAL Valley < 25% (valley = (x/y)*100%) where x = ht. of TCDD (or TCDF) & y = baseline to bottom of valley For all isomers eluting near the 2378-TCDD (TCDF) peak (TCDD only for 8290)	NFG [1] Method [2,3]	If peaks are not completely within windows (clipped): If natives are ok, J(pos)/UJ(ND) homologs (Totals) If natives are affected, R all results for that selector group J(pos) if valley > 25%	24	**Notify PM** **EcoChem PJ, see TM-05, Rev. 2**; Note: TCDF is evaluated only if second column confirmation is performed
Initial Calibration **Sensitivity**	S/N ratio > 10 for all native and labeled compounds in CS1 std.	NFG [1] Method [2,3]	If <10, elevate Det. Limit or R(ND)	5A	
Initial Calibration **Selectivity**	Ion Abundance ratios within QC limits (Table 8 of method 8290) (Table 9 of method 1613B)	NFG [1] Method [2,3]	If 2 or more ion ratios are out for one compound in ICAL, J(pos)	5A	**EcoChem PJ, see TM-05, Rev. 2**
Initial Calibration (Minimum 5 stds.) **Stability**	%RSD < 20% for native compounds %RSD <30% for labeled compounds (%RSD < 35% for labeled compounds under 1613b)	NFG [1] Method [2,3]	J(pos) natives if %RSD > 20%	5A	
	Absolute RT of $^{13}C_{12}$-1234-TCDD >25 min on DB5 & >15 min on DB-225	NFG [1] Method [2,3]	Narrate, no action		**EcoChem PJ, see TM-05, Rev. 2**

Draft Dioxin/Furan Analysis by HRMS
(Based on Dioxin NFG 2016, 2020 and Methods EPA 1613B and SW-846 8290)

QC Element	Acceptance Criteria	Source of Criteria	Action for Non-Conformance	Reason Code	Discussion and Comments
Continuing Calibration (Prior to each 12 hr. shift) **Sensitivity**	S/N ratio for CS3 standard > 10	NFG [1] Method [2,3]	If <10, elevate Det. Limit or R(ND)	5B	
Continuing Calibration (Prior to each 12 hr. shift) **Selectivity**	Ion Abundance ratios within QC limits (Table 8 of method 8290) (Tables 8 and 9 of method 1613B)	NFG [1] Method [2,3]	For congener with ion ratio outlier, J(pos) natives in all samples associated with CCAL. No action for labeled congener ion ratio outliers.	25	**EcoChem PJ, see TM-05**
Continuing Calibration (Prior to each 12 hr. shift) **Stability**	%D+/-20% for native compounds %D +/-30% for labeled compounds **(Must meet limits in Table 6, Method 1613B)** If %D in the closing CCAL are within 25%/35%, the mean RF from the two CCAL may be used to calculate samples **(Section 8.3.2.4 of 8290**).	NFG [1] Method [2,3]	**Labeled compounds:** Narrate, no action. **Native compounds:** 1613: J(pos)/UJ(ND)if %D is outside Table 6 limits J(pos)/R(ND) if %D is +/-75% of Table 6 limits 8290: J(pos)/UJ(ND) if %D = 20% - 75% J(pos)/R(ND) if %D > 75%	5B (H,L)[4]	
	Absolute RT of $^{13}C_{12}$-1234-TCDD and $^{13}C_{12}$-123789-HxCDD should be +/- 15 seconds of ICAL RRT for all other compounds must meet criteria listed in Table 2 Method 1316.	NFG [1] Method [2,3]	Narrate, no action	5B	**EcoChem PJ, see TM-05**
Blank Contamination					
Method Blank (MB)	MB: One per matrix per batch of (of ≤ 20 samples) No detected compounds > RL	NFG [1] Method [2,3]	U(pos) if result is < 5X action level.	7	**Hierarchy of blank review:** **#1 - Review MB, qualify as needed** **#2 - Review FB , qualify as needed**
Field Blank (FB)	FB: frequency as per QAPP No detected compounds > RL		U(pos) if result is < 5X action level.	6	

Draft Dioxin/Furan Analysis by HRMS
(Based on Dioxin NFG 2016, 2020 and Methods EPA 1613B and SW-846 8290)

QC Element	Acceptance Criteria	Source of Criteria	Action for Non-Conformance	Reason Code	Discussion and Comments
Precision and Accuracy					
MS/MSD (recovery)	**MS/MSD not typically required for HRMS analyses.** If lab analyzes MS/MSD then one set per matrix per batch (of ≤ 20 samples) Use most current laboratory control limits	EcoChem standard policy	J(pos) if both %R > UCL - high bias J(pos)/UJ(ND) if both %R < LCL - low bias J(pos)/R(ND) if both %R < 10% - very low bias J(pos)/UJ(ND) if one > UCL & one < LCL, with no bias **PJ if only one %R outlier**	8 (H,L)[4]	No action if only one spike %R is outside criteria. No action if parent concentration is >4x the amount spiked. Qualify parent sample only unless other QC indicates systematic problems.
MS/MSD (RPD)	**MS/MSD not typically required for HRMS analyses.** If lab analyzes MS/MSD then one set per matrix per batch (of ≤ 20 samples) Use most current laboratory control limits	EcoChem standard policy	J(pos) in parent sample if RPD > CL	9	Qualify parent sample only.
LCS (or OPR)	One per lab batch (of ≤ 20 samples) Use most current laboratory control limits **or** Limits from Table 6 of 1613B	NFG (1) Method (2,3)	J(pos) if %R > UCL - high bias J(pos)/UJ(ND) if %R < LCL - low bias J(pos)/R(ND) if %R < 10% - very low bias	10 (H,L)[4]	No action if only one spike %R is outside criteria, when LCSD is analyzed. Qualify all associated samples.
LCS/LCSD (RPD)	**LCSD not typically required for HRMS analyses.** One set per matrix and batch of 20 samples RPD < 35%	Method (2,3) Ecochem standard policy	J(pos) assoc. compound in all samples if RPD > CL	9	Qualify all associated samples.
Lab Duplicate (RPD)	**Lab Dup not typically required for HRMS analyses.** One per lab batch (of ≤ 20 samples) Use most current laboratory control limits	EcoChem standard policy	J(pos)/UJ(ND) if RPD > CL	9	
Precision and Accuracy (continued)					
Labeled Compounds (Internal Standards and cleanup standards)	Added to all samples %R = 40% - 135% in all samples 8290 %R must meet limits in Table 7 Method 1613B	NFG (1) Method (2,3)	J(pos) if %R > UCL - high bias J(pos)/UJ(ND) if %R < LCL - low bias J(pos)/R(ND) if %R < 10% - very low bias	13 (H,L)[4]	
	Ion Abundance Ratio Method 1613B: Table 8 (required m/z to monitor) Table 9 (QC limits) Method 8290A: Table 8				

Draft Dioxin/Furan Analysis by HRMS
(Based on Dioxin NFG 2016, 2020 and Methods EPA 1613B and SW-846 8290)

QC Element	Acceptance Criteria	Source of Criteria	Action for Non-Conformance	Reason Code	Discussion and Comments
Field Duplicates	Solids: RPD <50% OR difference < 2X RL (for results < 5X RL) Aqueous: RPD <35% OR difference < 1X RL (for results < 5X RL)	EcoChem standard policy and default criteria	Narrate and qualify (J/UJ) if required by project	9	**QAPP may have other specified control limits Control limit for this project is 75%**
Compound ID and Calculation					
Quantitation/ Identification	All ions for each isomer must maximize within +/- 2 seconds. S/N ratio >2.5 Ion ratios must meet criteria listed in Table 8 Method 8290, or Table 9 of 1613B; RRTs w/in limits in Table 2 of 1613B	NFG (1) Method (2,3)	Narrate in report; qualify if necessary U(pos) for retention time outliers. J(pos) for ion ratio outliers.	25	**EcoChem PJ, see TM-05**
EMPC (estimated maximum possible concentration)	If quantitation identification criteria are not met, laboratory should report an EMPC value.	NFG (1) Method (2,3)	If laboratory correctly reported an EMPC value, qualify the native compound J(pos) to indicate that the value is a detection limit and qualify total homolog groups J (pos)	25	**Projec SAP/QAPP may require EMPCS to be considered ND; in that csae U-25 natives, J-25 Totals professional judgment See TM-18**
Interferences	Interferences from chlorodiphenyl ether compounds	NFG (1) Method (2,3)	J(pos)/UJ(ND) if present	23	**See TM-16**
	Lock masses must not deviate +/- 20% from values in Table 8 of 1613B	Method (2,3)	J(pos)/UJ(ND) if present	24	**See TM-17**
Second Column Confirmation	All 2,3,7,8-TCDF hits must be confirmed on a DB-225 (or equiv) column. All QC criteria must also be met for the confirmation analysis.	NFG (1) Method (2,3)	Report the DB-225 value. If not performed use PJ.		DNR-11 DB5 result if both results from both columns are reported. **EcoChem PJ, see TM-05**

Draft Dioxin/Furan Analysis by HRMS
(Based on Dioxin NFG 2016, 2020 and Methods EPA 1613B and SW-846 8290)

QC Element	Acceptance Criteria	Source of Criteria	Action for Non-Conformance	Reason Code	Discussion and Comments
Calculation Check	Check 10% of field & QC sample results	EcoChem standard policy	Contact laboratory for resolution and/or corrective action	na	Full data validation only.
Electronic Data Deliverable (EDD)					
Verification of EDD to hardcopy data	EcoChem verify @ 10% unless problems noted; then increase level up to 100% for next several packages.		Depending on scope of problem, correct at EcoChem (minor issues) to resubmittal by laboratory (major issues).	na	EcoChem Project Manager and/or Database Administrator will work with lab to provide long-term corrective action.
Dilutions, Re-extractions and/or Reanalyses	Report only one result per analyte	Standard reporting policy	Use "DNR" to flag results that will not be reported.	11	

(pos) - positive (detected) results; (ND) - not detected results

[1] National Functional Guidelines for Chlorinated Dibenzo-p-Dioxins (CDDs) & Chlorinated Dibenzofurans (CDFs) Data Review, September 2011
National Functional Guidelines for High Resolution Superfunds Methods Data Review, April 2016
National Functional Guidelines for High Resolution Superfunds Methods Data Review, November 2020

[2] Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS), USEPA SW-846, Method 8290

[2] EPA Method 1613, Rev.B, Tetra-through Octa-Chlorinated Dioxins and Furans by Isotope Dilution HRGS/HRMS, October 1994

[3] NFG suggests using "+ / -" to indicate bias; EcoChem has chosen "H" = high bias indicated; "L" = low bias indicated.

[4] SICPs = Selected Ion Current Profiles

[5] x = height from valley of least resolved adjacent isomer to baseline; y = peak height of the shorter fo the adjacent peaks

ECOCHEM
Data Quality

APPENDIX B

QUALIFIED DATA SUMMARY TABLE

Qualified Data Summary Table
Lora Lake - Annual Lakeside GW Monitoring 2024

SAMPLE ID	LAB ID	METHOD	ANALYTE	RESULT	UNITS	LAB QUAL	DV QUAL	DV CODE
MW-C1-VB1-042424	24D0567-01	EPA 1613	OCDD	5.1	Wet	EMPC, J	U	25
MW-CP6-042424	24D0567-12	EPA 1613	OCDD	3.74	Wet	EMPC, J	U	25

Lora Lake Apartments Site

2024 Annual Compliance Monitoring Report

Appendix C
Soil Cap and Wildlife Barrier Inspection Logs and Photographs

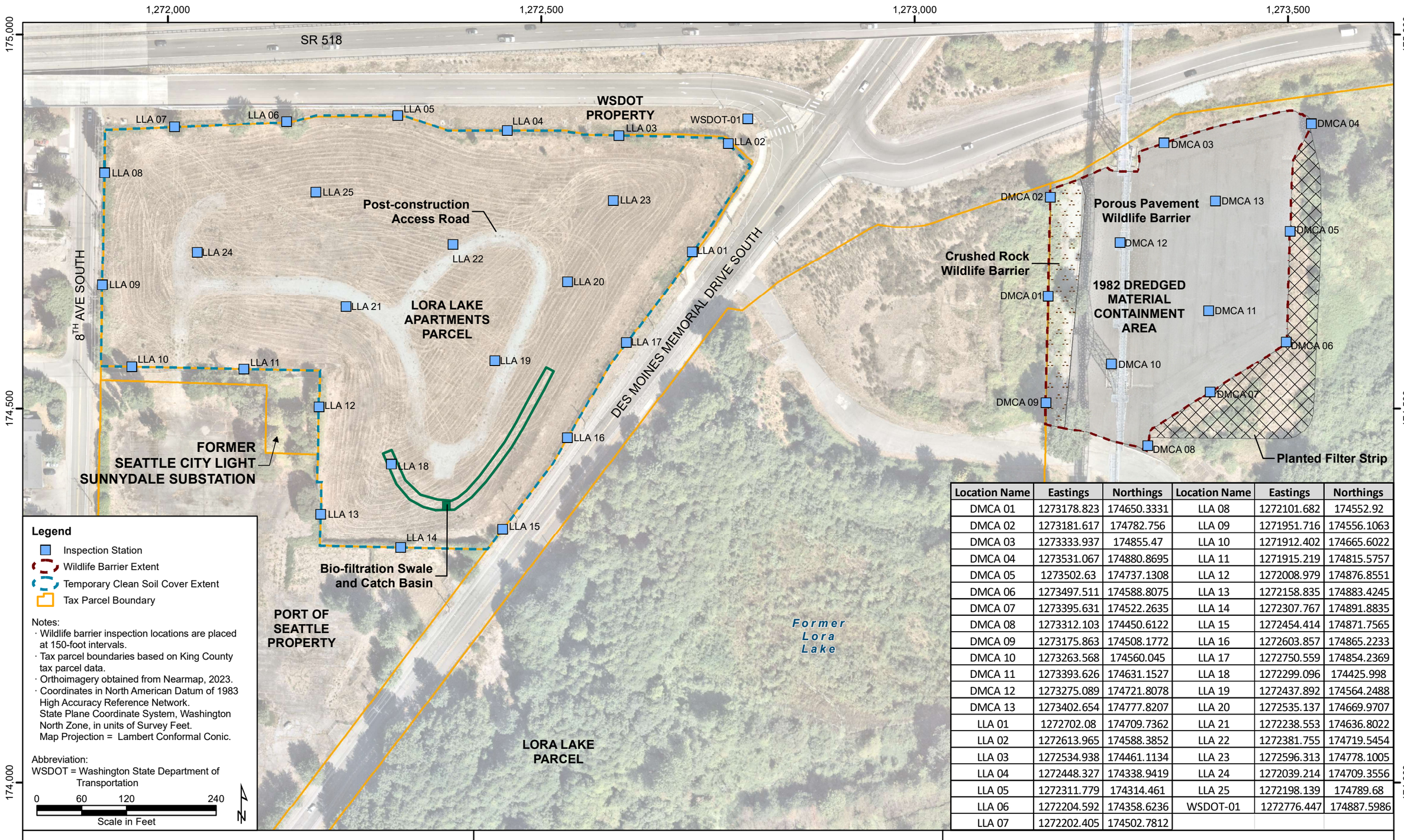
Table of Contents

Lora Lake Apartments Site

2024 Annual Compliance Monitoring Report

Appendix C
Soil Cap and Wildlife Barrier Inspection Logs and Photographs

Figure



Legend

- Inspection Station
- Wildlife Barrier Extent
- Temporary Clean Soil Cover Extent
- Tax Parcel Boundary

Notes:

- Wildlife barrier inspection locations are placed at 150-foot intervals.
- Tax parcel boundaries based on King County tax parcel data.
- Orthoimagery obtained from Nearmap, 2023.
- Coordinates in North American Datum of 1983 High Accuracy Reference Network. State Plane Coordinate System, Washington North Zone, in units of Survey Feet. Map Projection = Lambert Conformal Conic.

Abbreviation:
WSDOT = Washington State Department of Transportation

0 60 120 240
Scale in Feet

N

Location Name	Eastings	Northings	Location Name	Eastings	Northings
DMCA 01	1273178.823	174650.3331	LLA 08	1272101.682	174552.92
DMCA 02	1273181.617	174782.756	LLA 09	1271951.716	174556.1063
DMCA 03	1273333.937	174855.47	LLA 10	1271912.402	174665.6022
DMCA 04	1273531.067	174880.8695	LLA 11	1271915.219	174815.5757
DMCA 05	1273502.63	174737.1308	LLA 12	1272008.979	174876.8551
DMCA 06	1273497.511	174588.8075	LLA 13	1272158.835	174883.4245
DMCA 07	1273395.631	174522.2635	LLA 14	1272307.767	174891.8835
DMCA 08	1273312.103	174450.6122	LLA 15	1272454.414	174871.7565
DMCA 09	1273175.863	174508.1772	LLA 16	1272603.857	174865.2233
DMCA 10	1273263.568	174560.045	LLA 17	1272750.559	174854.2369
DMCA 11	1273393.626	174631.1527	LLA 18	1272299.096	174425.998
DMCA 12	1273275.089	174721.8078	LLA 19	1272437.892	174564.2488
DMCA 13	1273402.654	174777.8207	LLA 20	1272535.137	174669.9707
LLA 01	1272702.08	174709.7362	LLA 21	1272238.553	174636.8022
LLA 02	1272613.965	174588.3852	LLA 22	1272381.755	174719.5454
LLA 03	1272534.938	174461.1134	LLA 23	1272596.313	174778.1005
LLA 04	1272448.327	174338.9419	LLA 24	1272039.214	174709.3556
LLA 05	1272311.779	174314.461	LLA 25	1272198.139	174789.68
LLA 06	1272204.592	174358.6236	WSDOT-01	1272776.447	174887.5986
LLA 07	1272202.405	174502.7812			

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2024 Annual Compliance Monitoring Report
Lora Lake Apartments Site
Burien, Washington

Figure C.1
Wildlife Barrier Inspection Locations

I:\GIS\Projects\POS_LLA\MXD\Task8140\Annual Compliance Monitoring Report\2023\Appendix C\Figure C.1 Wildlife Barrier Inspection Locations.mxd
10/11/2023

Lora Lake Apartments Site

2024 Annual Compliance Monitoring Report

Appendix C
Soil Cap and Wildlife Barrier Inspection Logs and Photographs

Attachment C.1
Lora Lake Apartments Parcel Inspection Log and Photographs

Lora Lake Apartments Temporary Cap Inspection Form

Monitoring Station	Photo Number	Check all that apply						Overall Condition of Barrier			Repair Needed		Comments/Observations
		Engineered surface characteristics condition compromised	Exposed underlying soil	Loss of barrier material	Down-slope movement of barrier material	Presence of debris on barrier surface	Substantial plant growth	Good	Fair	Poor	Yes	No	
LLA 01	L1							X				X	
LLA 02								X				X	
LLA 03	L2							X				X	
LLA 04	L2							X				X	
LLA 05	L2							X				X	
LLA 06								X				X	
LLA 07	L3							X				X	
LLA 08	L3							X				X	
LLA 09	L3							X				X	
LLA 10	L3							X				X	
LLA 11	L4			X					X			X	Some loss of barrier material (plant coverage) similar to
LLA 12	L4, L5			X					X			X	2023. Appears to be related to maintenance and
LLA 13	L4			X					X			X	maintenance vehicles or minor erosion. Should resolve
LLA 14	L6			X					X			X	with regular maintenance/planting.
LLA 15	L6							X				X	
LLA 16	L7		X						X			X	Exposed soil due to animal burrowing
LLA 17	L1							X				X	
LLA 18								X				X	
LLA 19								X				X	
LLA 20	L1							X				X	
LLA 21								X				X	
LLA 22								X				X	
LLA 23	L1							X				X	
LLA 24								X				X	
LLA 25								X				X	
LLA 26								X				X	
LLA 27								X				X	
WSDOT 01								X				X	

Photograph L1. Stations LLA 01, LLA 17, LLA 20, and LLA 23 in good condition.

Photograph L2. Stations LLA 03, LLA 04, and LLA 05 in good condition.

Photograph L3. Stations LLA 07, LLA 08, LLA 09, and LLA 10 in good condition.

Photograph L4. Stations LLA 11, LLA 12, and LLA 13. Loss of barrier material.

Photograph L5. Station LLA 12. Loss of barrier material.

Photograph L6. Station LLA 14 with some loss of barrier material and LLA 15 in good condition.

Photograph L7. Station LLA 16 with exposed soil due to animal burrowing.

Lora Lake Apartments Site

2024 Annual Compliance Monitoring Report

Appendix C
Soil Cap and Wildlife Barrier Inspection Logs and Photographs

Attachment C.2
DMCA Inspection Log and Photographs

DMCA Wildlife Barrier Inspection Form

Monitoring Station	Photo Number	Check all that apply						Overall Condition of Barrier			Repair Needed		Comments/Observations
		Engineered surface characteristics condition compromised	Exposed underlying soil	Loss of barrier material	Down-slope movement of barrier material	Presence of debris on barrier surface	Substantial plant growth	Good	Fair	Poor	Yes	No	
DMCA 01	D1					X		X				X	
DMCA 02	D2							X				X	
DMCA 03								X				X	
DMCA 04								X				X	
DMCA 05	D3							X				X	Potential material loss area previously noted in 2023 is stable.
DMCA 06	D4							X				X	
DMCA 07								X				X	
DMCA 08								X				X	
DMCA 09	D5					X		X				X	Dust and organic debris associated with large deciduous tree.
DMCA 10	D6							X				X	
DMCA 11								X				X	
DMCA 12								X				X	
DMCA 13								X				X	

Photograph D1. Station DMCA 01 in good condition.

Photograph D2. Stations DMCA 02 and 03 in good condition.

Photograph D3. Previously noted area of potential material loss between DMC 04 and DMCA 05 is stable.

Photograph D4. Stations DMCA 06, 07, and 08. Previously noted area of potential material loss is stable in DMCA 06 and 07.

Photograph D5. Stations DMCA 09. Presence of debris on barrier surface.

Photograph D6. Stations DMCA 10, 11, and 12 in good condition.

Lora Lake Apartments Site

2024 Annual Compliance Monitoring Report

Appendix D
Post-Maintenance Photographs

Photograph 1. Reseeded slope near Stations LLA 12 and LLA 13 at the Lora Lake Apartments Parcel looking southwest. The area previously showed minor loss of barrier material.

Photograph 2. Reseeded slope near Stations LLA 11 and LLA 12 at the Lora Lake Apartments Parcel looking south.

Photograph 3. Reseeded slope near stations LLA 11 and LLA 12 at the Lora Lake Apartments Parcel looking east.

Photograph 4. Reseeded area near Station LLA 14 at the Lora Lake Apartments Parcel looking east. The area previously showed signs of loss of barrier material.

Photograph 5. Reseeded area near Stations LLA 15 and LLA 16 at the Lora Lake Apartments Parcel looking northeast.

Photograph 6. Reseeded area near Station LLA 16 at the Lora Lake Apartments Parcel looking north. The area previously showed signs of exposed underlying soil, animal burrowing, and loss of barrier material.

Lora Lake Apartments Site

2024 Annual Compliance Monitoring Report

Appendix E
ProUCL Outputs

Background Statistics for Data Sets with Non-Detects

User Selected Options

Date/Time of Computation	ProUCL 5.2 8/2/2024 9:59:39 AM
From File	Background.xls
Full Precision	OFF
Confidence Coefficient	95%
Coverage	95%
Different or Future K Observations	1
Number of Bootstrap Operations	2000

Result

General Statistics

Total Number of Observations	19	Number of Missing Observations	0
Number of Distinct Observations	18		
Number of Detects	9	Number of Non-Detects	10
Number of Distinct Detects	9	Number of Distinct Non-Detects	10
Minimum Detect	1.39	Minimum Non-Detect	0.455
Maximum Detect	5.45	Maximum Non-Detect	3.3
Variance Detected	1.596	Percent Non-Detects	52.63%
Mean Detected	2.233	SD Detected	1.263
Mean of Detected Logged Data	0.707	SD of Detected Logged Data	0.424

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.423	d2max (for USL)	2.531

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.663	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.764	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.327	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.316	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	1.434	KM SD	1.185
95% UTL95% Coverage	4.304	95% KM UPL (t)	3.541
90% KM Percentile (z)	2.952	95% KM Percentile (z)	3.382
99% KM Percentile (z)	4.19	95% KM USL	4.432

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	1.451	SD	1.187
95% UTL95% Coverage	4.327	95% UPL (t)	3.563
90% Percentile (z)	2.972	95% Percentile (z)	3.403
99% Percentile (z)	4.213	95% USL	4.456

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.843	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.723	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.255	**Kolmogorov-Smirnov GOF**
5% K-S Critical Value	0.28	Detected data appear Gamma Distributed at 5% Significance Level

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	5.369	k star (bias corrected MLE)	3.653
Theta hat (MLE)	0.416	Theta star (bias corrected MLE)	0.611
nu hat (MLE)	96.63	nu star (bias corrected)	65.76
MLE Mean (bias corrected)	2.233		
MLE Sd (bias corrected)	1.168	95% Percentile of Chisquare (2kstar)	14.51

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.0174	Mean	1.233
Maximum	5.45	Median	0.944
SD	1.325	CV	1.074
k hat (MLE)	0.521	k star (bias corrected MLE)	0.474
Theta hat (MLE)	2.367	Theta star (bias corrected MLE)	2.603
nu hat (MLE)	19.8	nu star (bias corrected)	18.01
MLE Mean (bias corrected)	1.233	MLE Sd (bias corrected)	1.792
95% Percentile of Chisquare (2kstar)	3.711	90% Percentile	3.374
95% Percentile	4.829	99% Percentile	8.427

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	8.466	11	95% Approx. Gamma UPL	5.183	6.093
95% Gamma USL	9.126	12.05			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	1.434	SD (KM)	1.185
Variance (KM)	1.403	SE of Mean (KM)	0.3
k hat (KM)	1.465	k star (KM)	1.268
nu hat (KM)	55.65	nu star (KM)	48.2
theta hat (KM)	0.979	theta star (KM)	1.13
80% gamma percentile (KM)	2.258	90% gamma percentile (KM)	3.113
95% gamma percentile (KM)	3.953	99% gamma percentile (KM)	5.872

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	5.18	5.465	95% Approx. Gamma UPL	3.73	3.815
95% KM Gamma Percentile	3.467	3.525	95% Gamma USL	5.455	5.787

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.816	**Shapiro Wilk GOF Test**	
10% Shapiro Wilk Critical Value	0.859	Data Not Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.224	**Lilliefors GOF Test**	
10% Lilliefors Critical Value	0.252	Detected Data appear Lognormal at 10% Significance Level	

Detected Data appear Approximate Lognormal at 10% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	1.547	Mean in Log Scale	0.284
SD in Original Scale	1.087	SD in Log Scale	0.525

95% UTL95% Coverage	4.736	95% BCA UTL95% Coverage	5.45
95% Bootstrap (%) UTL95% Coverage	5.45	95% UPL (t)	3.378
90% Percentile (z)	2.602	95% Percentile (z)	3.149
99% Percentile (z)	4.502	95% USL	5.013

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	0.0602	95% KM UTL (Lognormal)95% Coverage	6.993
KM SD of Logged Data	0.778	95% KM UPL (Lognormal)	4.238
95% KM Percentile Lognormal (z)	3.818	95% KM USL (Lognormal)	7.607

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	1.451	Mean in Log Scale	0.0729
SD in Original Scale	1.187	SD in Log Scale	0.839
95% UTL95% Coverage	8.205	95% UPL (t)	4.782
90% Percentile (z)	3.151	95% Percentile (z)	4.273
99% Percentile (z)	7.566	95% USL	8.984

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	19	95% UTL with95% Coverage	5.45
Approx, f used to compute achieved CC	1	Approximate Actual Confidence Coefficient achieved by UTL	0.623
Approximate Sample Size needed to achieve specified CC	59	95% UPL	5.45
95% USL	5.45	95% KM Chebyshev UPL	6.732

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20. Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.

The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

General Statistics on Uncensored Data

Date/Time of Computation	ProUCL 5.2 8/2/2024 10:03:23 AM
User Selected Options	
From File	Background.xls
Full Precision	OFF

From File: Background.xls

General Statistics for Censored Datasets (with NDs) using Kaplan Meier Method

Variable	NumObs	# Missing	Num Ds	NumNDs	% NDs	Min ND	Max ND	KM Mean	KM Var	KM SD	KM CV
Result	19	0	9	10	52.63%	0.455	3.3	1.434	1.403	1.185	0.826

General Statistics for Raw Dataset using Detected Data Only

Variable	NumObs	# Missing	Minimum	Maximum	Mean	Median	Var	SD	MAD/0.675	Skewness	CV
Result	9	0	1.39	5.45	2.233	1.91	1.596	1.263	0.667	2.51	0.566

Percentiles using all Detects (Ds) and Non-Detects (NDs)

Variable	NumObs	# Missing	10%ile	20%ile	25%ile(Q1)	50%ile(Q2)	75%ile(Q3)	80%ile	90%ile	95%ile	99%ile
Result	19	0	0.558	1.122	1.15	1.67	2.32	2.442	2.676	3.515	5.063

General Statistics on Uncensored Data

Date/Time of Computation	ProUCL 5.2 8/5/2024 11:51:23 AM
User Selected Options	
From File	Site.xls
Full Precision	OFF

From File: Site.xls

General Statistics for Censored Datasets (with NDs) using Kaplan Meier Method

Variable	NumObs	# Missing	Num Ds	NumNDs	% NDs	Min ND	Max ND	KM Mean	KM Var	KM SD	KM CV
Result	35	0	11	24	68.57%	0.465	3.86	1.014	0.464	0.681	0.672

General Statistics for Raw Dataset using Detected Data Only

Variable	NumObs	# Missing	Minimum	Maximum	Mean	Median	Var	SD	MAD/0.675	Skewness	CV
Result	11	0	1.15	2.35	1.826	1.78	0.149	0.386	0.297	-0.542	0.211

Percentiles using all Detects (Ds) and Non-Detects (NDs)

Variable	NumObs	# Missing	10%ile	20%ile	25%ile(Q1)	50%ile(Q2)	75%ile(Q3)	80%ile	90%ile	95%ile	99%ile
Result	35	0	0.597	0.946	1.085	1.73	1.935	1.99	2.242	2.287	3.347

UCL Statistics for Data Sets with Non-Detects

User Selected Options	
Date/Time of Computation	ProUCL 5.2 8/5/2024 10:17:32 AM
From File	Site.xls
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Result

General Statistics

Total Number of Observations	35	Number of Distinct Observations	32
Number of Detects	11	Number of Non-Detects	24
Number of Distinct Detects	9	Number of Distinct Non-Detects	24
Minimum Detect	1.15	Minimum Non-Detect	0.465
Maximum Detect	2.35	Maximum Non-Detect	3.86
Variance Detects	0.149	Percent Non-Detects	68.57%
Mean Detects	1.826	SD Detects	0.386
Median Detects	1.78	CV Detects	0.211
Skewness Detects	-0.542	Kurtosis Detects	-0.246
Mean of Logged Detects	0.58	SD of Logged Detects	0.231

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.918	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.792	Detected Data appear Normal at 1% Significance Level
Lilliefors Test Statistic	0.22	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.291	Detected Data appear Normal at 1% Significance Level

Detected Data appear Normal at 1% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

KM Mean	1.014	KM Standard Error of Mean	0.138
90KM SD	0.681	95% KM (BCA) UCL	1.246
95% KM (t) UCL	1.247	95% KM (Percentile Bootstrap) UCL	1.248
95% KM (z) UCL	1.241	95% KM Bootstrap t UCL	1.264
90% KM Chebyshev UCL	1.427	95% KM Chebyshev UCL	1.615
97.5% KM Chebyshev UCL	1.875	99% KM Chebyshev UCL	2.385

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.542	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.729	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.246	**Kolmogorov-Smirnov GOF**
5% K-S Critical Value	0.255	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	22.14	k star (bias corrected MLE)	16.16
Theta hat (MLE)	0.0825	Theta star (bias corrected MLE)	0.113
nu hat (MLE)	487	nu star (bias corrected)	355.5
Mean (detects)	1.826		

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.966	Mean	1.302
Maximum	2.35	Median	1.148
SD	0.424	CV	0.326
k hat (MLE)	11.65	k star (bias corrected MLE)	10.67
Theta hat (MLE)	0.112	Theta star (bias corrected MLE)	0.122
nu hat (MLE)	815.3	nu star (bias corrected)	746.7
Adjusted Level of Significance (β)	0.0425		
Approximate Chi Square Value (746.75, α)	684.3	Adjusted Chi Square Value (746.75, β)	681.5
95% Gamma Approximate UCL	1.421	95% Gamma Adjusted UCL	1.427

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	1.014	SD (KM)	0.681
Variance (KM)	0.464	SE of Mean (KM)	0.138
k hat (KM)	2.216	k star (KM)	2.045
nu hat (KM)	155.1	nu star (KM)	143.1
theta hat (KM)	0.458	theta star (KM)	0.496
80% gamma percentile (KM)	1.514	90% gamma percentile (KM)	1.962
95% gamma percentile (KM)	2.388	99% gamma percentile (KM)	3.333

Gamma Kaplan-Meier (KM) Statistics

Approximate Chi Square Value (143.13, α)	116.5	Adjusted Chi Square Value (143.13, β)	115.3
95% KM Approximate Gamma UCL	1.246	95% KM Adjusted Gamma UCL	1.258

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.878	**Shapiro Wilk GOF Test**	
10% Shapiro Wilk Critical Value	0.876	Detected Data appear Lognormal at 10% Significance Level	
Lilliefors Test Statistic	0.264	**Lilliefors GOF Test**	
10% Lilliefors Critical Value	0.231	Detected Data Not Lognormal at 10% Significance Level	

Detected Data appear Approximate Lognormal at 10% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	1.326	Mean in Log Scale	0.243
SD in Original Scale	0.408	SD in Log Scale	0.269
95% t UCL (assumes normality of ROS data)	1.442	95% Percentile Bootstrap UCL	1.445
95% BCA Bootstrap UCL	1.458	95% Bootstrap t UCL	1.473
95% H-UCL (Log ROS)	1.436		

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean (logged)	-0.209	KM Geo Mean	0.811
KM SD (logged)	0.659	95% Critical H Value (KM-Log)	2.083
KM Standard Error of Mean (logged)	0.138	95% H-UCL (KM -Log)	1.275
KM SD (logged)	0.659	95% Critical H Value (KM-Log)	2.083
KM Standard Error of Mean (logged)	0.138		

DL/2 Statistics

DL/2 Normal		**DL/2 Log-Transformed**	
Mean in Original Scale	1.061	Mean in Log Scale	-0.151
SD in Original Scale	0.649	SD in Log Scale	0.694
95% t UCL (Assumes normality)	1.246	95% H-Stat UCL	1.407

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Normal Distributed at 1% Significance Level

Suggested UCL to Use

95% KM (t) UCL 1.247

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

Recommendations are based upon data size, data distribution, and skewness using results from simulation studies.

However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Background Statistics for Data Sets with Non-Detects

User Selected Options

Date/Time of Computation	ProUCL 5.2 8/5/2024 11:54:38 AM
From File	Background.xls
Full Precision	OFF
Confidence Coefficient	95%
Coverage	95%
Different or Future K Observations	1
Number of Bootstrap Operations	2000

Result

General Statistics

Total Number of Observations	19	Number of Distinct Observations	16
Minimum	0.09	First Quartile	0.155
Second Largest	0.45	Median	0.18
Maximum	0.47	Third Quartile	0.381
Mean	0.259	SD	0.133
Coefficient of Variation	0.513	Skewness	0.211
Mean of logged Data	-1.492	SD of logged Data	0.561

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.423	d2max (for USL)	2.531

Normal GOF Test

Shapiro Wilk Test Statistic	0.867	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.863	Data appear Normal at 1% Significance Level
Lilliefors Test Statistic	0.25	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.229	Data Not Normal at 1% Significance Level

Data appear Approximate Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	0.581	90% Percentile (z)	0.429
95% UPL (t)	0.495	95% Percentile (z)	0.477
95% USL	0.595	99% Percentile (z)	0.568

Gamma GOF Test

A-D Test Statistic	1.052	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.746	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.211	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.199	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	3.715	k star (bias corrected MLE)	3.164
Theta hat (MLE)	0.0697	Theta star (bias corrected MLE)	0.0818
nu hat (MLE)	141.2	nu star (bias corrected)	120.2
MLE Mean (bias corrected)	0.259	MLE Sd (bias corrected)	0.146

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.552	90% Percentile	0.454
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.563	95% Percentile	0.535
95% WH Approx. Gamma UTL with 95% Coverage	0.713	99% Percentile	0.71
95% HW Approx. Gamma UTL with 95% Coverage	0.743		
95% WH USL	0.743	95% HW USL	0.777

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.883	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.917	Data Not Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.207	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.18	Data Not Lognormal at 10% Significance Level

Data Not Lognormal at 10% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with	95% Coverage	0.876	90% Percentile (z)	0.462
	95% UPL (t)	0.61	95% Percentile (z)	0.566
	95% USL	0.931	99% Percentile (z)	0.83

Nonparametric Distribution Free Background Statistics

Data appear Approximate Normal at 1% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, order		19	95% UTL with	95% Coverage	0.47
Approx, f used to compute achieved CC		1	Approximate Actual Confidence Coefficient achieved by UTL		0.623
			Approximate Sample Size needed to achieve specified CC		59
95% Percentile Bootstrap UTL with	95% Coverage	0.47	95% BCA Bootstrap UTL with	95% Coverage	0.47
	95% UPL	0.47		90% Percentile	0.412
	90% Chebyshev UPL	0.667		95% Percentile	0.452
	95% Chebyshev UPL	0.852		99% Percentile	0.466
	95% USL	0.47			

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

General Statistics on Uncensored Data

Date/Time of Computation	ProUCL 5.2 8/5/2024 11:56:22 AM
User Selected Options	
From File	Background.xls
Full Precision	OFF

From File: Background.xls

General Statistics for Censored Datasets (with NDs) using Kaplan Meier Method

Variable	NumObs	# Missing	Num Ds	NumNDs	% NDs	Min ND	Max ND	KM Mean	KM Var	KM SD	KM CV
Result	19	0	19	0	0.00%	N/A	N/A	0.259	0.0176	0.133	0.513

General Statistics for Raw Dataset using Detected Data Only

Variable	NumObs	# Missing	Minimum	Maximum	Mean	Median	Var	SD	MAD/0.675	Skewness	CV
Result	19	0	0.09	0.47	0.259	0.18	0.0176	0.133	0.133	0.211	0.513

Percentiles using all Detects (Ds) and Non-Detects (NDs)

Variable	NumObs	# Missing	10%ile	20%ile	25%ile(Q1)	50%ile(Q2)	75%ile(Q3)	80%ile	90%ile	95%ile	99%ile
Result	19	0	0.11	0.135	0.155	0.18	0.381	0.385	0.412	0.452	0.466

General Statistics on Uncensored Data

Date/Time of Computation	ProUCL 5.2 8/5/2024 4:26:03 PM
User Selected Options	
From File	Site.xls
Full Precision	OFF

From File: Site.xls

General Statistics for Censored Datasets (with NDs) using Kaplan Meier Method

Variable	NumObs	# Missing	Num Ds	NumNDs	% NDs	Min ND	Max ND	KM Mean	KM Var	KM SD	KM CV
Result	35	0	35	0	0.00%	N/A	N/A	1.067	3.094	1.759	1.648

General Statistics for Raw Dataset using Detected Data Only

Variable	NumObs	# Missing	Minimum	Maximum	Mean	Median	Var	SD	MAD/0.675	Skewness	CV
Result	35	0	0.093	9.79	1.067	0.46	3.094	1.759	0.371	3.955	1.648

Percentiles using all Detects (Ds) and Non-Detects (NDs)

Variable	NumObs	# Missing	10%ile	20%ile	25%ile(Q1)	50%ile(Q2)	75%ile(Q3)	80%ile	90%ile	95%ile	99%ile
Result	35	0	0.134	0.306	0.329	0.46	1.034	1.12	2.586	3.359	7.73

UCL Statistics for Data Sets with Non-Detects

User Selected Options	
Date/Time of Computation	ProUCL 5.2 8/5/2024 3:03:12 PM
From File	Site.xls
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Result

General Statistics

Total Number of Observations	35	Number of Distinct Observations	33
		Number of Missing Observations	0
Minimum	0.093	Mean	1.067
Maximum	9.79	Median	0.46
SD	1.759	Std. Error of Mean	0.297
Coefficient of Variation	1.648	Skewness	3.955

Normal GOF Test

Shapiro Wilk Test Statistic	0.529	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.91	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.299	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.172	Data Not Normal at 1% Significance Level

Data Not Normal at 1% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	1.57	95% Adjusted-CLT UCL (Chen-1995)	1.769
		95% Modified-t UCL (Johnson-1978)	1.603

Gamma GOF Test

A-D Test Statistic	1.679	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.781	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.21	**Kolmogorov-Smirnov Gamma GOF Test**
5% K-S Critical Value	0.154	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.894	k star (bias corrected MLE)	0.837
Theta hat (MLE)	1.194	Theta star (bias corrected MLE)	1.276
nu hat (MLE)	62.59	nu star (bias corrected)	58.56
MLE Mean (bias corrected)	1.067	MLE Sd (bias corrected)	1.167
		Approximate Chi Square Value (0.05)	41.96
Adjusted Level of Significance	0.0425	Adjusted Chi Square Value	41.3

Assuming Gamma Distribution

95% Approximate Gamma UCL	1.489	95% Adjusted Gamma UCL	1.513

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.958	**Shapiro Wilk Lognormal GOF Test**
10% Shapiro Wilk Critical Value	0.944	Data appear Lognormal at 10% Significance Level
Lilliefors Test Statistic	0.146	**Lilliefors Lognormal GOF Test**
10% Lilliefors Critical Value	0.136	Data Not Lognormal at 10% Significance Level

Data appear Approximate Lognormal at 10% Significance Level

Lognormal Statistics

Minimum of Logged Data	-2.375	Mean of logged Data	-0.589
Maximum of Logged Data	2.281	SD of logged Data	1.073

Assuming Lognormal Distribution

95% H-UCL	1.577	90% Chebyshev (MVUE) UCL	1.579
95% Chebyshev (MVUE) UCL	1.859	97.5% Chebyshev (MVUE) UCL	2.247
99% Chebyshev (MVUE) UCL	3.008		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution

Nonparametric Distribution Free UCLs

95% CLT UCL	1.556	95% BCA Bootstrap UCL	1.753
95% Standard Bootstrap UCL	1.538	95% Bootstrap-t UCL	2.15
95% Hall's Bootstrap UCL	3.37	95% Percentile Bootstrap UCL	1.563
90% Chebyshev(Mean, Sd) UCL	1.959	95% Chebyshev(Mean, Sd) UCL	2.363
97.5% Chebyshev(Mean, Sd) UCL	2.924	99% Chebyshev(Mean, Sd) UCL	4.025

Suggested UCL to Use

95% H-UCL	1.577

The calculated UCLs are based on assumptions that the data were collected in a random and unbiased manner.

Please verify the data were collected from random locations.

If the data were collected using judgmental or other non-random methods,

then contact a statistician to correctly calculate UCLs.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

Recommendations are based upon data size, data distribution, and skewness using results from simulation studies.

However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

t-Test Sample 1 vs Sample 2 Comparison for Uncensored Full Data Sets without NDs

User Selected Options	
Date/Time of Computation	ProUCL 5.2 8/6/2024 4:06:21 PM
From File	AllBasedata.xls
Full Precision	OFF
Confidence Coefficient	95%
Substantial Difference (S)	0.000
Selected Null Hypothesis	Sample 1 Mean <= Sample 2 Mean (Form 1)
Alternative Hypothesis	Sample 1 Mean > the Sample 2 Mean

Sample 1 Data: Result(site)

Sample 2 Data: Result(background)

Raw Statistics

	Sample 1	Sample 2
Number of Valid Observations	35	19
Number of Distinct Observations	33	16
Minimum	0.093	0.09
Maximum	9.79	0.47
Mean	1.067	0.259
Median	0.46	0.18
SD	1.759	0.133
SE of Mean	0.297	0.0305

Sample 1 vs Sample 2 Two-Sample t-Test

H0: Mean of Sample 1 - Mean of Sample 2 <= 0

Method	DF	t-Test Value	Critical t (0.05)	P-Value
Pooled (Equal Variance)	52	1.992	1.675	0.026
Welch-Satterthwaite (Unequal Varian	34.7	2.705	1.690	0.005

Pooled SD 1.424

Conclusion with Alpha = 0.050

Student t (Pooled) Test: Reject H0, Conclude Sample 1 > Sample 2

Welch-Satterthwaite Test: Reject H0, Conclude Sample 1 > Sample 2

Test of Equality of Variances

Variance of Sample 1	3.094
Variance of Sample 2	0.0176

Numerator DF	Denominator DF	F-Test Value	P-Value
34	18	175.596	0.000

Conclusion with Alpha = 0.05

Two variances are not equal

Wilcoxon-Mann-Whitney Sample 1 vs Sample 2 Comparison Test for Data Sets with Non-Detects

User Selected Options	
Date/Time of Computation	ProUCL 5.2 8/6/2024 4:08:45 PM
From File	AllBasedata.xls
Full Precision	OFF
Confidence Coefficient	95%
Selected Null Hypothesis	Sample 1 Mean/Median <= Sample 2 Mean/Median (Form 1)
Alternative Hypothesis	Sample 1 Mean/Median > Sample 2 Mean/Median

Sample 1 Data: Result(site)

Sample 2 Data: Result(background)

Raw Statistics

	Sample 1	Sample 2
Number of Valid Data	35	19
Number of Non-Detects	0	0
Number of Detect Data	35	19
Minimum Non-Detect	N/A	N/A
Maximum Non-Detect	N/A	N/A
Percent Non-detects	0.00%	0.00%
Minimum Detect	0.093	0.09
Maximum Detect	9.79	0.47
Mean of Detects	1.067	0.259
Median of Detects	0.46	0.18
SD of Detects	1.759	0.133

Wilcoxon-Mann-Whitney (WMW) Test

H0: Mean/Median of Sample 1 <= Mean/Median of Sample 2

Sample 1 Rank Sum W-Stat	1139
Standardized WMW U-Stat	3.189
Mean (U)	332.5
SD(U) - Adj ties	55.2
Approximate U-Stat Critical Value (0.05)	1.645
P-Value (Adjusted for Ties)	7.1463E-4

Conclusion with Alpha = 0.05

Reject H0, Conclude Sample 1 > Sample 2

P-Value < alpha (0.05)