File: 12-6300-HBD-30

March 31, 2026

Tim Antill
Reclamation Manager
Ministry of Mining and Critical Minerals
VIA MINESPACE

Dear Mr. Antill:

RE: ANNUAL RECLAMATION REPORT FOR 2025 - HB MINES TAILINGS STORAGE FACILITY, PERMIT M-218

The Regional District of Central Kootenay is pleased to enclose the report titled Annual Reclamation Report for 2025 for the HB Mine Tailings Storage Facility in accordance with Permit M-218. This report has been prepared to document reclamation activities, repair works, and environmental monitoring work performed during 2025.

2025		
Company:	**Regional District of Central Kootenay**	
Mine Name:	**HB Mine Tailings Facility**	
***Mines Act* Permit #:**	**M-218 (amended March 5, 2025)**	
	Previous Report (2024)	**Current Report (2025)**
Total Disturbance Area (ha)	**38.75**	**38.75**
Total Reclaimed Area (ha)	**0**	**0**
Total Revegetated Area (ha)	**0**[1]	**25.7**
Total Exempt Area (ha)	**2.95 (permanent access)**	**2.95 (permanent access)**
Mining Production (annual total)	**0**	**0**
Milling Production (annual total)	**0**	**0**
Total Liability Estimate*	**$4,364,018**	**$3,659,627**
Date for next Five Year Mine Plan and Reclamation Plan update (if required)	**March 31, 2027**	

Nelson Office: Box 590, 202 Lakeside Drive, Nelson, BC. V1L 5R4
Phone: 250.352.6665 | Toll Free: 1.800.268.7325 (BC) | Email: info@rdck.ca | Fax: 250.352.9300

Note 1: The 2024 Annual Reclamation Report cover letter had 35.2 ha listed as revegetated, however, this was the area that was seeded and it did not yet meet the Ministry's requirement of supporting vegetation that will lead to the designated land use objective for at least one year. The value in the table has been corrected for 2024. The 2025 value of 25.7 ha revegetated is correct, and is based recommendation from the RDCK's Qualified Environmental Professional on completion of the 2025 revegetation monitoring program, and the submitted spatial data.

If you have any questions or comments, please contact the undersigned.

Sincerely,

Amy Wilson
RDCK Mine Manager and Environmental Site Manager

Attachments: Annual Reclamation Report for 2025 – HB Mine Tailings Facility Permit M-218

cc: Uli Wolf, RDCK Alternate Mine Manager and Environmental Site Manager
Alayne Hamilton, TSF Qualified Person

REGIONAL DISTRICT OF CENTRAL KOOTENAY

Annual Reclamation Report for 2025

Mines Act Permit Number: M-218

HB Mine Tailings Storage Facility

Amy Wilson
Mine Manager
Environmental Site Manager
(250) 352-8168

Alayne Hamilton
TSF Qualified Person

March 31, 2026

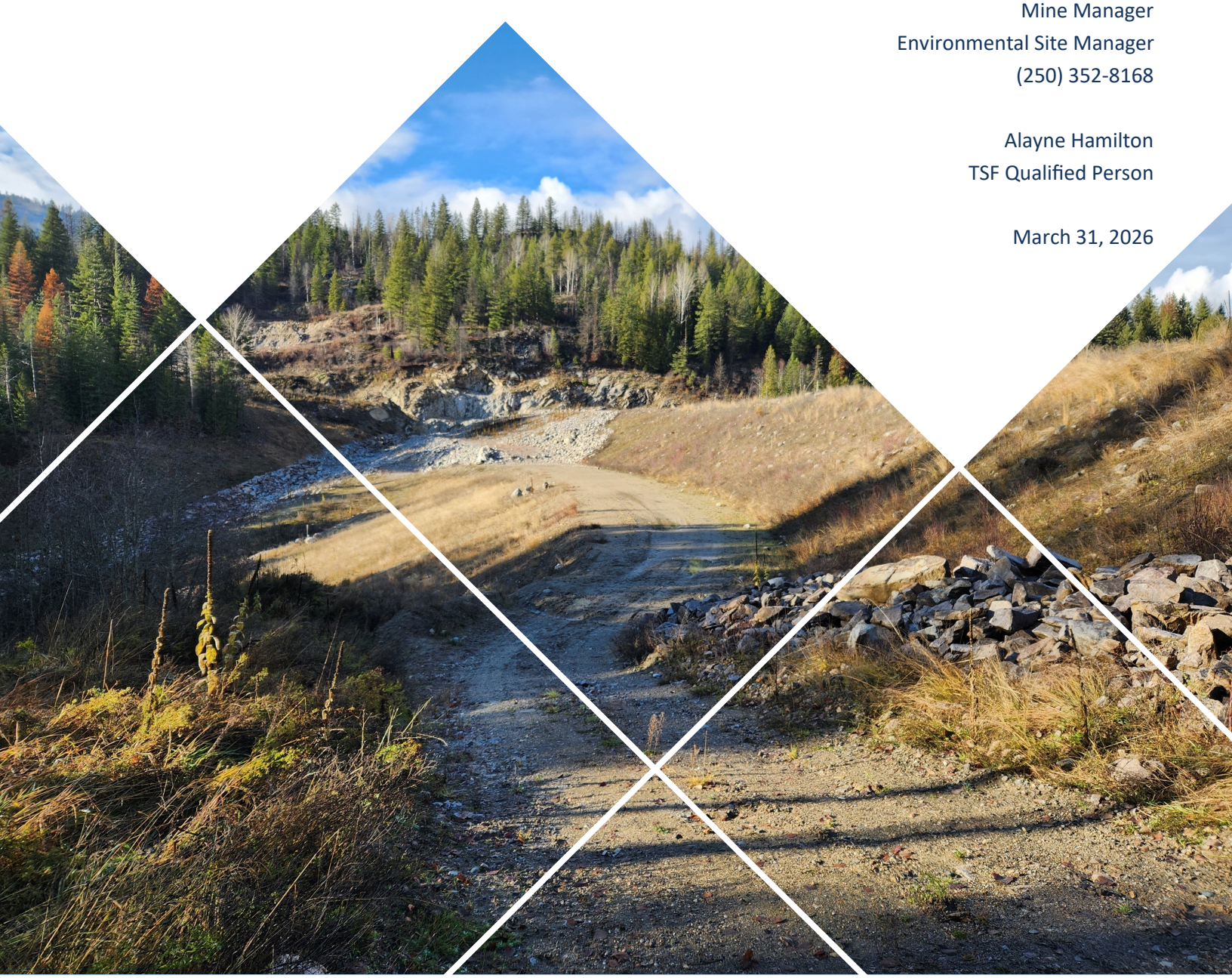


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EXECUTIVE SUMMARY

This report for the HB Mine Tailings Storage Facility (Facility or Site) was prepared by the Regional District of Central Kootenay (RDCK) as required in accordance with amended *Mines Act* Permit M-218 (Permit) and the Health, Safety and Reclamation Code for Mines in British Columbia (Code).

In May 2021, the RDCK received an amended *Mines Act* permit to transition the Facility to passive-closure, as defined by the Canadian Dam Association. The closure construction works, and environmental and land use objectives, were outlined in the 2020 HB Mine Tailings Facility Remediation and Closure Plan (2020 RCP). The RDCK commenced the closure construction works on June 3, 2021, and the work was completed on September 14, 2022. Monitoring completed in 2025 forms part of the post-closure monitoring plan outlined in the 2020 RCP, intended to achieve reclamation, environmental, and end land use objectives.

In 2025, four standalone environmental monitoring inspections were completed, and no non-compliance events occurred. One opportunistic Acid Rock Drainage sampling event was completed in the sand and gravel borrow, and results indicate that acid generation from the outcrop is not present at this time (SLR, 2025c).

Quarterly water quality monitoring activities were completed as outlined in the Water Quality Management and Monitoring Plan. Surface water quality at the down-gradient property boundary is evaluated at the Outlet Ditch. The Outlet Ditch met all the Contaminated Sites Regulation (CSR) Criteria and all the Freshwater Aquatic Life (FWAL) water quality guidelines (WQG), with the exception of the long-term chronic FWAL WQG for dissolved zinc in March (Masse, 2026). Samples collected at background location SW5-19 exceeded the acute FWAL guideline for dissolved zinc in May (Masse, 2026).

Groundwater quality near the down-gradient property boundary is assessed in monitoring well MW99-1 which has screened intervals in the overburden (shallow) and bedrock (deep). The shallow samples met all applicable CSR Criteria except for the Drinking Water (DW) standards for total iron and total lithium, and the CSR Irrigation (IW) standards for dissolved iron and dissolved manganese (Masse, 2026). In the deep samples, total lithium exceeded the CSR DW standard in all four sampling events, and in March, total tungsten exceeded the CSR DW standard (Masse, 2026); however, the 2024 Hydrogeology and Hydrology Characterization Report did note that total metals concentrations in groundwater may be biased by elevated turbidity (GHD, 2024). In March and May dissolved copper exceeded the hardness-dependent CSR aquatic life standard and in March it also exceeded the CSR IW and Livestock Watering standards (Masse, 2026).

The wildlife monitoring program recorded a total of 26 species, contributing to a cumulative total of 46 unique species observed over four years of monitoring (SLR, 2025b). The 2025 count represents a slight decline from the 36 species observed in 2024 (SLR, 2025b).

Under the Reclamation Research Program, SLR (2025e) notes that revegetation monitoring completed in 2025 at the 26 monitoring locations indicated that the vegetative cover on the Facility increased from 69% in 2024 to 164%, which is an increase of 135% across all plots since 2023, and that revegetation objectives outlined in the 2020 RCP have been achieved (SLR, 2025e). Reclamation Research Program test plot monitoring also showed average percent cover in all research plots increased 140% between 2024 and 2025 (69% to 166%) (SLR, 2025e). As such, these plots showed marked increase in plant growth and percent cover following two years of added seed growth (SLR, 2025e). The Facility's Qualified Environmental Professional recommended a decrease in revegetation monitoring frequencies.

1 INTRODUCTION

This report for the HB Mine Tailings Storage Facility (Facility or Site) was prepared by the Regional District of Central Kootenay (RDCK) as required in accordance with the 2024 Health, Safety, and Reclamation Code for Mines in British Columbia (Code) and amended *Mines Act* Permit M-218 (Permit) dated March 5, 2025, included in Appendix A-1. The previous version of amended *Mines Act* Permit M-218 dated May 18, 2021, is included in Appendix A-2. The report documents reclamation activities, dam repairs, and environmental monitoring work performed at the Facility during 2025, and includes reports, information, and appendices prepared by SRK Consulting (Canada) Inc. (SRK), SLR Consulting (Canada) Ltd. (SLR), and Masse Environmental Consultants Ltd (Masse). All supporting reports are signed off by the appropriate qualified professional, and are included in the appendices.

1.1 SITE HISTORY

The Facility was used to store tailings from the nearby HB Mine operations under the management of Cominco Limited's (Teck Resources Limited) from 1955 to 1978. Commodities produced were primarily lead and zinc but also included silver, cadmium, copper, gold, and talc. The ore was hosted in limestone. A tailings flume line was used to join the HB Mine to the Facility. An earthen dam was initially constructed in 1955 using borrow material placed behind a timber crib retaining wall to a height of approximately 12 meters (m). Behind the dam, the tailings area occupied the middle to bottom of a hanging valley at the base of the west slope of Iron Mountain. The water level in the tailings pond was controlled by two decant structures and drains. In 1964, a portion of the timber crib wall failed and was reconstructed approximately 3 to 5 m downstream, resulting in the placement of drains and a toe berm to stabilize the slough. Dam raisings continued by the downstream method until operations were suspended permanently in 1978.

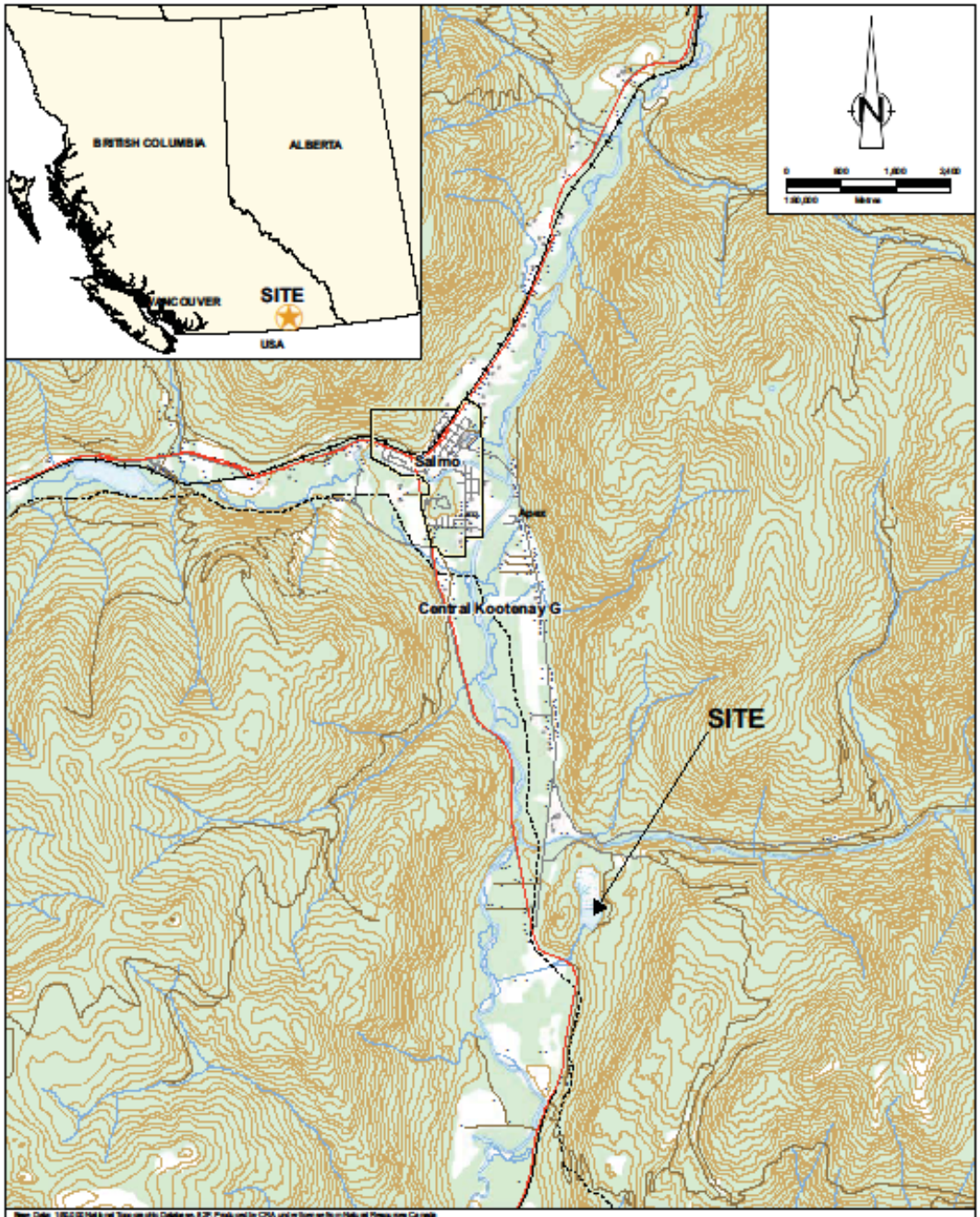
The Facility was purchased in 1998 by the RDCK and forms part of the buffer zone for the RDCK's adjacent Central Landfill operations. The Facility currently consists of an earthen dam, tailings deposition area, surface water management systems, a sand and gravel borrow, a till borrow, and a quarry. Final closure works of the Central Landfill were completed in the spring of 2016, and final reclamation and closure works of the HB Mine Tailings Storage Facility were completed in 2021 and 2022.

Additional information surrounding site development between the RDCK purchase in 1998 and December 31, 2025 can be found in Section 2.

1.2 GENERAL LOCATION

The Facility is located approximately 6 kilometres (km) south of the Village of Salmo, British Columbia (BC) at an approximate latitude of 49°08' N and longitude of 117°15' W, as presented on Figure 1 on the following Page. The Facility is approximately 500 metres (m) east of Provincial Highway 3 and the RDCK's Central Landfill is located to the northeast. The Salmo River is located approximately 1.5 km west of the Facility. The Facility is contained within the Central Landfill boundary and Central Landfill Outer Property boundary defined by Parcel "A" (Explanatory Plan 88745I) of District Lot 1236, Sub-lot 36, Kootenay District Plan X69 (Except (1) Parts Included in Plans 8646, 14234, and (2) Part Included in SRW Plan 14948).

FIGURE 1: SITE LOCATION MAP



July 17, 2013

1.3 BASELINE ECOLOGICAL CONDITIONS

SLR completed a Baseline Wildlife Study Report in September, 2020. The Site is located within the Interior Cedar Hemlock (ICH) Biogeoclimatic Ecosystem Classification (BEC) zone (SLR, 2020). The ICH BEC zone is characterized by a relatively high species diversity owing to productive forests and its location along the lower slopes and valley bottoms (Meidinger and Pojar 1991). The cool, long, snowy winters, warm, dry summers and the dense coniferous forests that characterize the ICH BEC zone are important ecological factors that influence wildlife species use of this zone (Meidinger and Pojar 1991).

SLR's (2020) background review identified 98 terrestrial wildlife species of conservation concern potentially occurring in the region; however, most of these species are not expected to occur specifically at the Site since some records found in databases are extralimital occurrences, they include seasonal presence (i.e., present only sporadically during winter), or there is no suitable habitat present at the Facility. Only three species of conservation concern were observed within Facility during the various surveys including numerous western toad tadpoles at two sites and incidental observations of three painted turtles and grizzly bear sign (SLR, 2020).

SLR completed baseline surveys at the Site in June, 2020. A total of 18 bird species were detected with no bird species of conservation concern observed (SLR, 2020). Two amphibian species were detected including the Columbia spotted frog and western toad, with the western toad being identified as a species of conservation concern listed by Committee on the Status of Endangered Wildlife in Canada and *Species at Risk Act* as Special Concern and included on Schedule 1 of SARA; however, in BC, the western toad is listed as Yellow and not at risk (SLR, 2020). One snake was observed during the survey including a western terrestrial garter snake and a common garter snake was incidentally observed within the study area; neither are species of conservation concern (SLR, 2020).

A waterfowl survey was conducted at four wetland features within the study area. A total of 42 water birds consisting of 9 species were observed and no species of conservation concern were observed (SLR, 2020).

Overall, the species present at the Facility are typical of the ICH BEC zone (SLR, 2020). Information obtained during the Wildlife Baseline Assessment was utilized in the development of Wildlife permit applications, to develop amphibian salvage and nesting bird survey programs for the construction period, and for comparison to the post-construction wildlife surveys.

1.4 RECLAMATION OBJECTIVES

Reclamation and remediation of the tailings deposition area will result in approximately 26 hectares of grassland for wildlife/future industrial use. The reclaimed dam face will result in approximately 2 hectares of grass area for wildlife use. Productivity and capability objectives for wildlife habitat include the following goals (RDCK, 2020):

- The re-establishment of a vegetation mat (food source, cover, hide, etc.) and self-sustaining native vegetation without continued dependence on fertilizer or reseeding.

- The establishment of a vegetative cover with sufficient density and species diversity to stabilize the surface against the effects of long-term erosion.
- The establishment of plant material that does not show environmentally significant uptake of metals.

The approved end land-use considerations for the Facility in the 2020 Remediation and Closure Plan (RCP) included the following features:

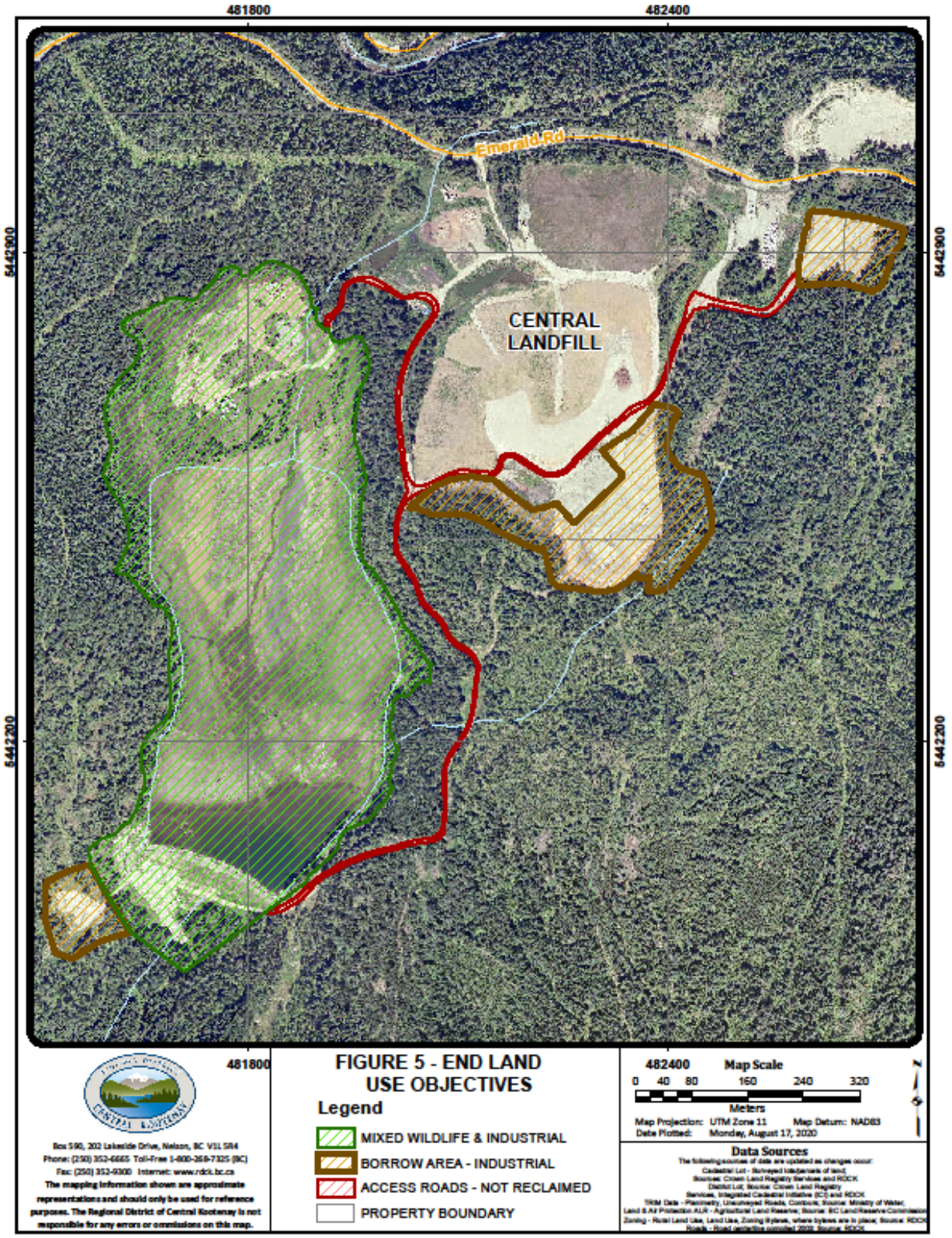
- Tailings Deposition Area and Tailings Pond: mixed land use including wildlife habitat and industrial, with rationale detailed in the report "Contaminant Attenuation Zone Evaluation: Southern Groundwater Flow Path" (CRA, 2005).
- Site roads: permanent (no reclamation) and closed to the public.
- Borrow areas and quarry: industrial use.

Productivity and capability objectives for industrial land-use at the tailings deposition area include groundwater quality that does not degrade below applicable regulatory criteria/guidelines at the property boundary.

An industrial end land use is approved for the Till Borrow Area located immediately south of the Central Landfill as this area is the site of an organics composting facility, and compost curing and storage areas. The composting facility is not located within the permitted mine area (PMA).

A figure showing the approved end land uses is included on the following page.

FIGURE 2: APPROVED END LAND USES



1.5 RECLAMATION ACTIVITIES CONDUCTED AT THE SITE

In June 2018, SRK produced a Closure and Remediation Preliminary Design Report which summarized the general works required to complete the passive-closure of the dam. This 2018 Preliminary Design Report was provided to the Ministry of Mining and Critical Minerals (MCM) for review to obtain direction on the required contents of a formal Reclamation and Closure Plan that would support a permit amendment application for the closure works.

In a collaborative effort, SRK, SLR, and the RDCK finalized the HB Mine Tailings Facility RCP in July 2019, to support a *Mines Act* permit amendment application for the passive-closure of the dam, and final reclamation and long-term monitoring for the site. The 2019 RCP was revised to incorporate screening comments from First Nations, BC Ministry of Environment and Climate Change Strategy (ENV), (former) Ministry of Forests, Lands, Naturals Resource Operations and Rural Development, and MCM and an updated RCP was finalized in August 2020 (2020 RCP).

Reclamation works outlined in the 2020 RCP include the installation of lined surface water diversion channels, capping and revegetation of the tailings deposition area, and revegetation of the dam and borrow areas. The main focus of the construction works was to ensure the long-term physical and chemical stability of the facility, remediate and control tailings erosion and transport, maintain acceptable water quality, protect public health and safety, minimize environmental risk of the escape of fine tailings contamination, and restore productive end land use.

The works outlined in the RCP were started on June 3, 2021 and were halted on November 23, 2021 due to severe weather and rapidly deteriorating site conditions. Works were resumed on July 4, 2022, and the project was completed on September 14, 2022. Further details regarding the construction works are described in Section 2, while additional details on the reclamation program are described in Section 4.

Final reclamation of the site included fertilizing, hydroseeding and broadcast seeding all disturbed areas, following the seed and fertilizer prescriptions outlined in the 2020 RCP.

After the closure project was completed, the post-closure monitoring period began, and increased vegetation, wildlife, water quality, and dam monitoring began. In 2025, no formal reclamation activities were completed, and only monitoring of previous reclamation activities was undertaken. MCM Table 1, Summary of Areas Disturbed and Reclaimed, is included on the following page.

MCM TABLE 1:
SUMMARY OF AREAS DISTURBED AND RECLAIMED TO DECEMBER 31, 2025
COMPANY: Regional District of Central Kootenay PERMIT NO.: M-218

DISTURBANCE	MINING		RECLAMATION								
	AREA DISTURBED (ha)		AREA RECONTOURED (ha)		AREA SEEDED/PLANTED (ha)		AREA FERTILIZED (ha)		AREA REVEGETATED* (ha)		LAND USE OBJECTIVES**
	2025	TOTAL***	2025	TOTAL***	2025	TOTAL***	2025	TOTAL***	2025	TOTAL***	
WASTE DUMPS	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
TAILINGS STORAGE FACILITIES	N/A	27.78	N/A	21.2	N/A	26.4	N/A	26.4	25.7	25.7	Wildlife Habitat, Industrial
PLANT SITE	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
ROADS	N/A	2.95	N/A	N/A	N/A	0.05	N/A	0.05	N/A	N/A	Permanent access. Closed to public
ADMINISTRATION	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
PIT (*Borrows Areas*)	N/A	7.31	N/A	6.93	N/A	5.55	N/A	5.55	N/A	N/A	Industrial
STOCKPILES (*Quarry*)	N/A	0.71	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Industrial
LINEAR	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
OTHER	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
TOTAL	0	38.75	0	28.13	0	32.0	0	32.0	0	25.7	

AREAS EXEMPT FROM REVEGETATION e.g., pit high walls	2.95 (roads)	ha	Please specify what the revegetation exempt areas are (with maps) in the body of the annual reclamation report including rationale as to why they are considered exempt. This number should already be included in the total disturbed ha
AREAS EXEMPT FROM RECLAMATION	2.95 (roads)	ha	Please specify what the exempt areas are (with maps) in the body of the annual reclamation report including rationale as to why they are considered exempt. This number should already be included in the total disturbed ha

1.6 PROGRESSIVE AND ONGOING RECLAMATION

As the closure project undertaken in 2021 and 2022 was designed to be the final reclamation of the disturbed (non-exempt) areas in the PMA, reclamation is no longer considered to be progressive, and all activities in 2025 were to support post-closure monitoring and maintenance of the final reclamation works.

2 MINING PROGRAM AND SURFACE DEVELOPMENT

The RDCK's landfill operations commenced in 1981 within the landfill site boundary portion of the property, to the northeast of the tailings deposition area. In 1998, the RDCK purchased the tailings deposition area and surrounding land to provide additional buffer and attenuation zones for landfill site operations. *Mines Act* permit M-218 was issued to the RDCK by the Deputy Chief Inspector of Mines on April 10, 2002, to the RDCK approving the HB Mine Tailings Pond and Dyke Decommissioning Plan (Decommissioning Plan) (BGC, 2002). Decommissioning works were completed during the summer of 2005 in accordance with the Decommissioning Plan to bring the operation of the Facility to the standards at the time for a low consequence classification dam. Works included the placement of upstream erosion protection, closure of the decant drain located north of the east abutment, construction of an open channel spillway, and construction of a toe berm.

The tailings deposition area currently covers an area of 26 hectares (ha) and is relatively flat at the surface. The elevations of the northeast and southwest corners of the tailings deposition area are 715 and 712 meters above sea level (MASL), respectively. A tailings pond was located in the southern extremity of the tailings deposition area and was retained by the earthen dam. Prior to the Slough Event, described below, the tailings pond occupied an approximate area of 6 ha with the spillway inlet in the southwest corner designed 1.7 m below the crest elevation of 711 MASL (BGC, 2002).

In July 2012, the Facility's earthen dam suffered a large slough on the downstream slope. The cause of slough was attributed to heavy rainfall and the presence of two sinkholes on the toe of the upstream face of the dam. The sinkholes were discovered during the emergency response process while lowering the pond level to relieve hydraulic pressure on the dam. The dam was repaired and an intensive monitoring program developed. The repair works involved repairing the dam's low permeability zone, the access road, and the sinkholes, and installing a shear key and coarse rock blanket for stability. Following the Slough Event, in the fall/winter of 2012, the pond size was decreased to 2.65 ha by lowering the spillway inlet to 3.15 m below the crest elevation, and a v-notch weir was installed at the toe of the dam to measure seepage rates.

In 2014, a Dam Safety Review was completed and the consequence classification of the dam was changed from Significant (formerly Low) to Very High, largely due to economic losses associated with Provincial Highway 3 being located in the inundation zone. After this change, the spillway was no longer considered adequate to pass the appropriate design flood. In 2015 the spillway size was increased to pass a flood event 2/3 of the way between the 1 in 1000-year flood and the probable maximum flood, as per CDA guidelines.

In 2021, the RDCK started closure construction works, as outlined in the 2020 RCP and the Facility's amended *Mines Act* permit. SRK's 2021 Dam Safety Inspection (DSI) report summarized the 2021 construction activities that occurred on the site between June and November 2021. SRK (2022a) outlines that this work included:

- Expansion of the HB Dam toe berm to improve seismic stability and mitigate the risk of liquefaction of the original dam fill.
- Construction of an expanded spillway at the western abutment that is able to convey the probable maximum flood.
- De-watering of the tailings pond and backfilling of the pond to eliminate the ability for water to pond upstream of the dam and mitigate the risk of internal erosion and piping.
- Construction of a tailings cover to prevent the erosion, escape, and migration of the tailings from the facility, remove the direct contact exposure pathway for human and most ecological receptors, and to provide a final surface that will aid in revegetation.
- Tailings affected soils from a downstream property were imported to the site and placed in an engineered landform in the northwest corner of the Facility.

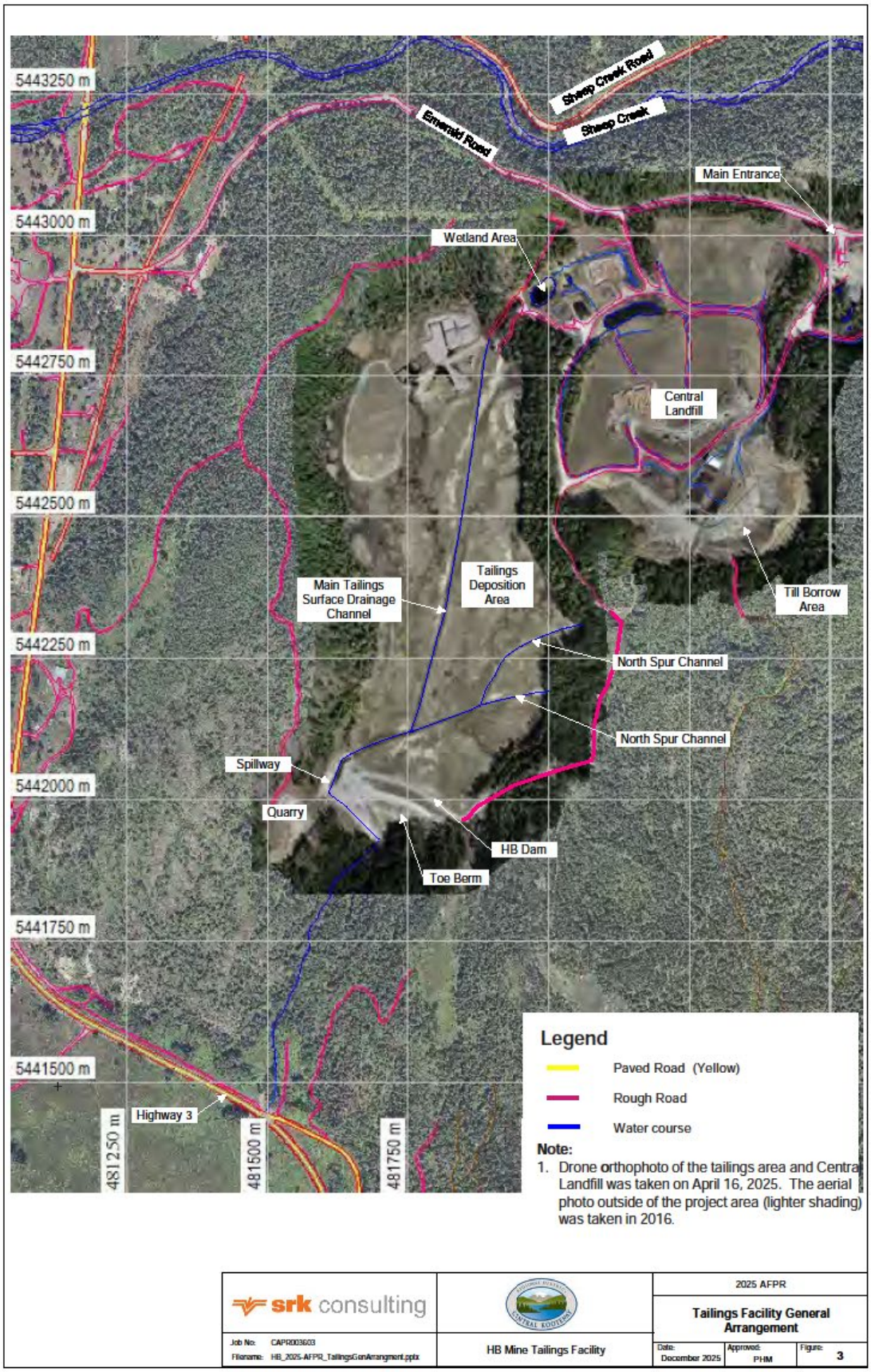
Construction was halted on November 23, 2021, due to wet weather conditions resulting in non-trafficable conditions within the tailings impoundment. At the time of the 2021 shutdown, approximately 95% of the tailings cover and pond backfill soils were placed with approximately 20,000 m^3 remaining, and approximately 15,000 m^3 of tailings affected soil was remaining to be placed in the engineered landform and subsequently covered (SRK, 2022a).

SRK's 2022 DSI report (SRK, 2023a) summarized the 2022 construction activities that occurred on the site between July and September 2022 to complete the closure and remediation of the site as described in the 2020 RCP. SRK (2023a) outlines that this work included:

- Completion of the tailings cover and backfilling of the tailings pond to eliminate ponding upstream of the HB Dam.
- Construction of lined channels over the tailings cover to convey surface drainage to the spillway.
- Decommissioning of the site borrow areas, including spreading of soils that were temporarily stockpiled.
- Revegetation of all disturbed areas.

Construction was completed on September 14, 2022. Additional details on the 2022 Construction Activities can be found in 2022 DSI Report. The general arrangement of the tailings facility post-closure can be found on Figure 3 on the following page.

FIGURE 3: POST-CLOSURE TAILINGS FACILITY GENERAL ARRANGEMENT



In April 2023, some ditching around the site and the lower part of the spillway was damaged in an extreme weather event. The damage was worsened by the lack of established vegetation on the site due to seeding in the fall of 2022 on completion of the HB Remediation and Closure project. Repair works were undertaken in April, May, and August 2023, and inspections throughout 2024 and 2025 show that the repairs were successful. Additional seed was applied to areas with poor vegetation establishment in May and August 2024, including the toe berm, lower spillway area, portions of the two borrow areas, and repair areas in the conveyance channels.

In June 2024, ditching in the Till Borrow was modified to direct water away from an easily erodible clay layer that was exposed in the borrow, which was leading to turbidity issues in surface water during extreme weather events in 2023. The work took place in an area of existing disturbance that had been hydroseeded previously but did not yet meet MCM's definition of revegetated. When the work was complete, the new ditches were covered with coco matting, and the disturbed area was hydroseeded with the approved seed mix outlined in the 2020 RCP. Coarse woody debris was spread across the regraded areas outside of the ditches. Select areas of the tailings cover with poor vegetation establishment were also hydroseeded in June 2024.

In 2025, no surface development occurred. A small area of the toe berm where erosion rills had formed was hand seeded. New instrumentation was installed at the dam area. This work was completed within the PMA, and did not take place in any area that had been reclaimed. No Departures from Approval were required in 2025.

There is currently no new surface development projected in the next five years.

3 ENVIRONMENTAL PROTECTION PROGRAM

3.1 ENVIRONMENTAL MANAGEMENT PLANS

3.1.1 WATER QUALITY MANAGEMENT AND MONITORING PLAN

Under Condition C.4.a of the Facility's 2021 *Mines Act* permit, the RDCK was required to develop a Water Quality Management and Monitoring Plan (WQMMP) which detailed the water quality monitoring outlined in the from the 2020 RCP. The WQMMP is intended to outline monitoring, reporting and quality assurance and quality control programs for water resources (e.g. surface water, tailings porewater, seepage and groundwater) at the Facility following remediation and closure (SLR, 2022d). The goal of the WQMMP is to ensure the works constructed as part of the 2020 RCP are performing as intended and that there are no adverse effects on the environment or human health (SLR, 2022d). The WQMMP was revised in March and August 2022, based on comments received from MCM.

When Permit M-218 was updated in March 2025, it included a new condition around annual review and sign-off of the WQMMP by a Qualified Professional. Subsequently, the WQMMP was updated in draft in May 2025 to incorporate the new requirements, and the document was finalized in September. The WQMMP was

shared with First Nations in October, with a note that any comments received on the WQMMP could be incorporated into an early 2026 update. At the end of 2025, no comments had been received from First Nations. The 2025 WQMMP can be found in Appendix B-1. The Annual Document Review Tracker within Table 1 of the WQMMP outlines the 2025 review comments and updates that were completed.

In early 2026, the RDCK will proceed with additional updates to the WQMMP, including incorporating acid rock drainage (ARD) sampling standard operating procedures, and the 2025 ARD sampling information into the document. A revised WQMMP will be submitted with an updated Reclamation and Closure Plan (2027 RCP), which is to be submitted to MCM in March, 2027.

3.1.2 CONSTRUCTION ENVIRONMENTAL MONITORING PLAN

The Construction Environmental Management Plan (CEMP) was developed by SLR for the construction and post-closure period and was approved under the 2020 RCP and the amended *Mines Act* permit. The CEMP can be found in Appendix B-2. The CEMP outlines construction environmental monitoring and weather event-driven inspections activities outside of the routine post-closure environmental monitoring as described in the RCP.

Under the CEMP, in 2025 SLR completed two inspections in April, one inspection during the drilling and instrumentation installation program in August, and one inspection in October. SLR completed a 2025 Environmental Monitoring Summary report which includes the activities completed under the CEMP during 2025. That report can be found in Appendix C.

3.1.3 ENVIRONMENTAL MANAGEMENT SYSTEM

An Environmental Management System (EMS) was developed by SLR in 2021. The EMS provides the framework for identifying environmental adverse effects and ensures adequate controls are implemented to effectively manage health and safety and environmental risk (SLR, 2025a). The EMS references relevant policies and establishes proactive procedures to provide direction for effective operational management and monitoring on-site.

As required under Permit M-218 condition C.1, the EMS is reviewed and updated annually. SLR completed the 2025 EMS Update on February 19, 2025, which can be found in Appendix B-3. The EMS contains an Annual Document Review Tracker, in Table 1, which documents the revisions that were completed in the most recent update.

The next EMS update is currently scheduled to be completed in the first quarter of 2026, and throughout 2026 if warranted due to changes to site conditions, regulations, best practices, or RDCK processes and procedures.

3.2 ML/ARD CHARACTERIZATION

In 2021 and 2022, the existing Landfill Sand and Gravel Borrow area was developed by Teck to supply clean material for completion of the HB Ditch Restoration Project on the downstream private properties. A bedrock unit that can be potentially acid generating (PAG), was exposed as part of this work in 2022.

As a result of this exposure, in October 2022, a geochemist from SRK completed a Metal Leaching and Acid Rock Drainage (ML/ARD) assessment which included mapping and sampling of the rock exposure in the Landfill Sand and Gravel Borrow area. SRK prepared a Technical Memo with results, interpretations, and recommendations.

In relation to PAG rock in the sand and gravel borrow, SRK (2023e) outlined that the geological and geochemical characterization of the exposed bedrock indicated the following:

- A narrow horizon of gossanous phyllite identified at the contact of phyllite and granite. Samples collected from this horizon were classified as PAG though generally had low sulphide content (up to 0.17%).
- Shake flask extraction test results of the gossanous phyllite show this material had acidic pH and have potential to leach constituents including sulphate, cadmium, cobalt, copper, iron, lead, manganese, nickel, and zinc.

Overall, most of the outcropping bedrock in the sand and gravel borrow area were characterized as having low risk for ML/ARD expect for the narrow horizon of gossanous phyllite (SRK, 2023e).

As a result of the small exposure of the gossanous phyllite unit, SRK recommended that the RDCK implement an opportunistic spring and fall monitoring program. SRK prepared a standard operating procedure (SOP) for the collection and analysis of the sample from a ditch below the gossanous phyllite exposure in the borrow area. The RDCK initiated a contract for the spring and fall sampling program starting in the fall 2023, based on the SOP developed by SRK; however, prior to the spring of 2025, no flowing or standing water had been observed in the ditch during any of the environmental monitoring site visits. On April 11, 2025, SLR was able to complete opportunistic sampling of surface water flow immediately downgradient of the exposure of the gossanous phyllite unit. SLR prepared a technical memorandum titled HB Tailings Management Facility – ARD Surface Water Sampling Results, included in Appendix D, which summarizes the findings.

SLR (2025c) outlines that results from the sampling suggest that acid generation from the exposed gossanous phyllite bedrock is not occurring at this time; however, continued monitoring of the bedrock and observations of the changes in extent of weathering should continue together with opportunistic water quality monitoring (SLR, 2025c). SLR is not proposing any mitigation measures for 2026, and will be completing the 2026 update to the WQMMP to include ARD sampling procedures and results, and reference to development of a database to track ARD sampling results.

The RDCK and SLR will continue to monitor the borrow for flows that could be sampled throughout 2026. Ongoing opportunistic sampling of flows in the borrow will be added to the 2027 Reclamation and Closure Plan update.

MCM Table 2
QUANTITIES OF WASTE ROCK, TAILINGS, LOW GRADE ORE, COARSE REJECT AND OTHER MINE WASTE AS OF DECEMBER 31, 2025

Name of Waste Pile or Pond	Acid Generating Waste		Potentially Acid Generating Waste		Non-Acid Generating Waste	
Waste Dumps	2025	Total	2025	Total	2025	Total
Total	0	0	0	0	0	0
Tailings Ponds						
Total	0	0	0	0	0	Estimated at 6,300,000
Low Grade Ore/Coarse Reject/Other Mine Waste						
Total	0	0	0	0	0	0

MCM Tables 3, 4, and 5 do not apply to the Facility as no mining occurs. MCM Table 6 does not apply as there were no substantial changes in 2025.

3.3 SURFACE WATER QUALITY AND QUANTITY

3.3.1 QUARTERLY SURFACE WATER MONITORING

The objective of the routine (quarterly) surface water quality assessment is to assess water quality on and discharging from the Facility, evaluate the attenuation performance of the Site, and to identify any offsite impacts.

Masse has prepared a standalone routine surface water and groundwater monitoring report, which is included in Appendix E. Within the report in Appendix E, Section 2.4 relates to the quarterly surface water monitoring, while surface water trend graphs are included in the appendices of the report.

The quarterly surface water sampling program as outlined in the WQMMP is expected to continue at the Facility through 2026. As part of the 2027 RCP development, the RDCK and the Facility's Qualified Environmental Professional (QEP) will be assessing if water quality trends would support changes to the frequency and/or locations of the surface water monitoring program, and if those changes should be proposed in the 2027 RCP.

3.3.2 EVENT-DRIVEN SURFACE WATER MONITORING

The CEMP and the amended *Mines Act* permit outline that the RDCK shall ensure the characterization of unauthorized discharges of sediment-laden run-off includes flow, total suspended solids, turbidity, pH,

conductivity, temperature, dissolved oxygen and total and dissolved metals of both the effluent and the receiving water, and that any run-off must comply with the BC Working Water Quality Guidelines and the BC Approved Water Quality Guidelines.

SLR's 2025 EM Summary (2026) outlines that surface water was monitored at the Facility by SLR during the EM inspections and included field inspection of surface water inputs, site drainage, conveyance channels, and the downstream channel. Event-driven surface water monitoring was completed by SLR under the CEMP on April 11 and 25. Field monitoring results (turbidity readings) indicate the surface water leaving the site at the spillway outlet meets section 7.2 of the CEMP and was compliant, so laboratory samples were not obtained (SLR, 2026).

In 2026, post-closure event-driven surface water monitoring will be completed following the requirements outlined in the CEMP.

Additional details on water quality from all event-driven sampling events are included in Appendix C in SLR's 2025 Environmental Monitoring Summary. Also included in this memo are the results on the 2025 downstream channel and former flume line inspection.

3.4 GROUNDWATER QUALITY AND QUANTITY

3.4.1 QUARTERLY GROUNDWATER QUALITY MONITORING

Masse has prepared a standalone routine (quarterly) surface water and groundwater monitoring report, which is included in Appendix E. Within the report in Appendix E, Section 2.3 relates to the quarterly groundwater monitoring, while groundwater trend graphs are included in the appendices of the report.

The quarterly groundwater sampling program as outlined in the WQMMP is expected to continue at the Facility through 2026. The RDCK and the Facility's QEP will be assessing if water quality trends would support proposing changes to the frequency and/or locations of the groundwater monitoring program in the 2027 RCP.

3.4.2 POREWATER MONITORING PROGRAM

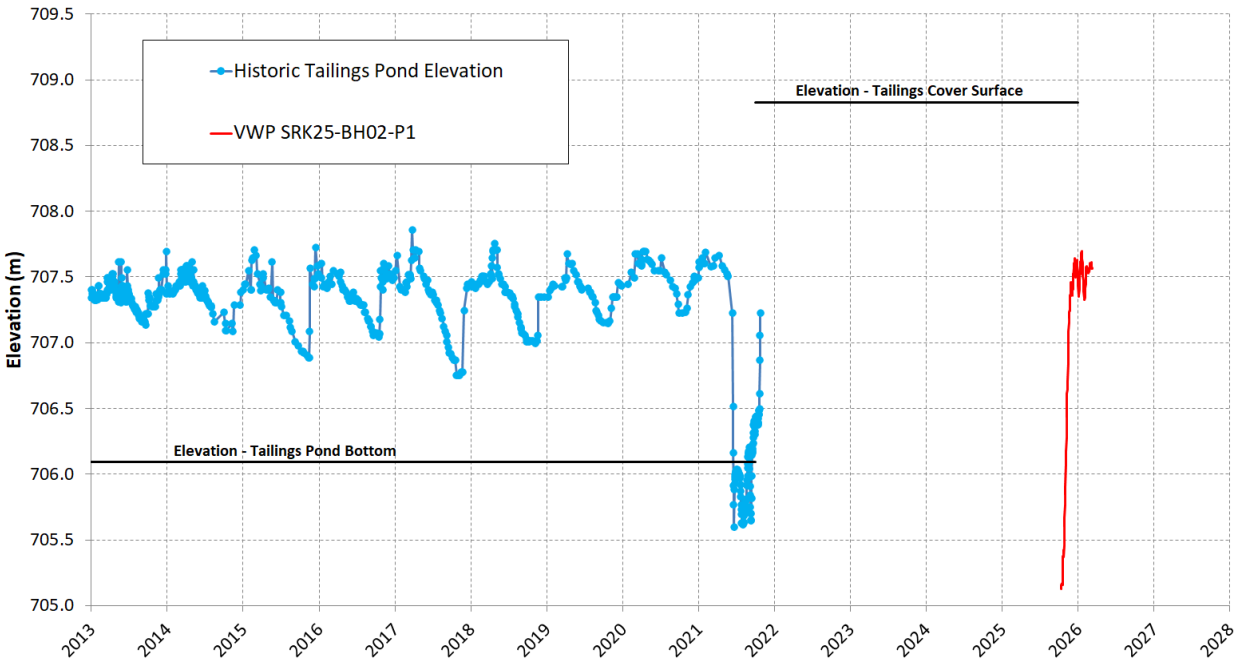
A porewater sampling program was developed to evaluate potential effects of the tailings cover placement and lowering of the spillway invert elevation and subsequent potential lowering of the groundwater table on the tailings geochemistry (SLR, 2022d). Details of the porewater sampling program including sampling locations and methodology are included in the WQMMP in Appendix B-1, with the porewater sampling locations shown on Drawing 7 of the WQMMP.

In 2021, porewater samples from the three designated monitoring locations were collected from near the tailings pond prior to construction.

Under the sampling frequency outlined in the WQMMP, post-construction porewater samples were meant to be collected in June 2023; however, these samples were not collected as there was no evidence that water levels had lowered within the tailings due to the construction (SRK, 2024b). SRK prepared a Tailings Geochemistry Monitoring Program – 2023 Update which was submitted to MCM in March, 2024. Under Condition C.5(a)(v) of the 2021 M-218 Permit, this report was meant to outline a schedule for reporting subsequent tailings geochemistry monitoring and assessment results. With respect to a schedule for reporting, SRK (2024b) outlined in the report that:

- water levels will be reviewed annually after the fall sampling event to evaluate the need for additional porewater sampling.
- Additional samples will be collected if water levels in the tailings impoundment have lowered by at least 0.3 m in order to be able to collect enough porewater samples from the newly unsaturated tailings.
- The samples are to be collected the following June to be consistent with the preconstruction sampling program.

As part of a separate project, in 2025 additional piezometric instrumentation was installed at the HB Dam, including a new piezometer installed in the tailings upstream of the dam. This piezometer will be used to evaluate the water table at the south end of the tailings facility. The few months of data from this piezometer are shown in the graph below, prepared by SRK, as compared to the tailings pond level, prior to backfilling of the area. Preliminary data from the new piezometer shows a similar groundwater elevation to the former pond water elevation. The piezometer data will continue to be monitored throughout 2026 as part of the inspection requirements under the Operations, Maintenance and Surveillance Manual.



Due to no evidence of water level elevation change in the tailings in the fall 2024 review of water levels no porewater samples were collected in June 2025. No water level elevation change was noted in the fall 2025

review, so sampling will not proceed in June 2026. Water level elevation within the tailings will continue to be monitored and will determine if sampling is warranted in future years.

3.5 WATER QUALITY PREDICTION

A water and load balance model was prepared by SRK was presented in the 2020 RCP. A simple Excel based water and load balance was used to evaluate the effectiveness of a tailings cover for compliance with BC Water Quality Guidelines and Contaminated Sites Regulations (SRK, 2019). Screening of monitoring data at the Outlet Ditch, downstream of the Facility, was used to identify Contaminants of Potential Concern. Water quality predictions were developed for these parameters. SRK (2019) outlined that based on the water quality modelling exercise, the following conclusions can be made:

Sources:

- The primary source of sulphate, cadmium, iron, lead and zinc is the tailings material and the cover is predicted to reduce concentrations of these parameters at the Outlet Ditch. The primary source of chromium, copper, manganese and sulphide is background catchment runoff.
- The primary source of aluminum is the cover material; however, this could be an artifact of source term development based on total metals, which includes both the dissolved and suspended fractions. The suspended fraction will not act conservatively as water flows through the facility.

Predicted Water Quality Trends:

- For sulphate, iron, lead and manganese, the cover is predicted to improve water quality. The estimate of current conditions used to compare predicting are below the BC WQG and the cover aids in further reducing concentrations of this parameter. For cadmium and zinc, the cover is predicted to improve water quality. However, the reduction in load from covering the tailings is insufficient to reduce the amount of cadmium and zinc loadings to the Outlet Ditch, and these parameters are predicted to exceed BC WQG after the cover is in place. However, conclusions from the Human Health and Ecological Risk Assessment (SLR, 2019) rank these risks as low.
- For chromium, the tailings are not a significant source, and the addition of cover material will increase concentrations to the Outlet Ditch.
- For aluminum, the cover material is a significant source and applying the cover to the TSF will increase concentrations at the Outlet Ditch.
- For copper and sulphide, the presence of a cover makes no difference in the water quality predictions at the Outlet Ditch.

The following parameters are predicted to exceed either the BC WQG (approved or working) or the lowest CSR: aluminum, cadmium, chromium, sulphide and zinc (SRK, 2019).

The 2025 water quality at the Outlet ditch is outlined Section 2.4 of Masse's 2025 Annual Reclamation (Water Quality) Monitoring Program Report in Appendix E. From Masse (2025) the following is noted about the Outlet Ditch sampling and results in 2025:

- The Outlet Ditch was dry during two of the four sampling events in 2025.

- The Outlet Ditch met all of the Contaminated Sites Regulation *Criteria*.
- Water quality at the Outlet Ditch also met all of the BC Water Quality Guidelines (WQG) for Freshwater Aquatic Life Criteria, with the exception of the long-term chronic WQG for dissolved zinc in March.

Zinc concentrations in the Outlet Ditch were lower in both 2025 sampling events than was predicted in the 2019 model.

The RDCK is required to update and refine the water quality prediction model by March 31, 2027, as outlined in Permit M-218 condition C.4(c)(i). As the model assesses stabilized post-closure conditions, a formal comparison to the predicted water quality in the model has not yet been completed.

The draft updated water quality model is expected to be completed in April 2026 and will be used to inform water quality monitoring plans in the 2027 RCP.

3.6 WATER MANAGEMENT

The current configuration of water management conveyance structures is described in Section 2 of the WQMMP. There were no modifications to water management at the Facility in 2025, and there are no changes expected to the configuration in the future.

3.7 EROSION AND SEDIMENT CONTROL

Erosion and Sediment Control (ESC) measures were inspected during the routine dam inspections and environmental site inspections. As per the Facility's CEMP, inspections of ESC measures are also completed after significant rain events. These CEMP-driven inspections are documented in Appendix C – 2025 Environmental Monitoring Summary. Within the 2025 Environmental Monitoring Summary, SLR (2026) notes that in 2025, improved water quality at the site was observed following implementation of strategic ESC measures in the till borrow in 2024, as well as continued establishment of vegetation cover at the Facility. Details of the 2024 borrow pit ditching work are included in Section 2 of this report.

In 2025, opportunistic visual inspections for signs of erosion, scour, sediment transport and/or exposed tailings were also completed by SLR throughout the site and within each revegetation plot during the annual revegetation monitoring program. Notes from these visual inspections completed during the revegetation monitoring program can be found in Appendix G – Reclamation Research Program 2025 Summary. No signs of erosion were observed during the 2025 revegetation monitoring program (SLR, 2025e).

In 2025, the check dams in site ditches were cleaned out post-freshet. No other repair or maintenance work to site ESC measures was required in 2025. In 2026, monitoring of ESC measures will continue under the CEMP, and the Facility's Operations, Maintenance and Surveillance Manual. A full cover inspection to look for signs of erosion is completed annually as part of the Annual Facility Performance Inspection, and a drone survey of the tailings cover is completed annually each spring once the site is snow-free (SRK, 2026b). On recommendation of the QEP, revegetation monitoring is not proposed in 2026, so the opportunistic visual inspections for signs of erosion on the cover will not occur in 2026; however, the 2025 revegetation

monitoring results for the tailings cover show that the vegetative cover has sufficient density to stabilize the surface against the effects of long-term erosion (SLR, 2025e).

It is expected that a reduction in the ESC inspections will be proposed in the 2027 updated RCP, due to self-sustaining vegetation being established across the site, as well as improved surface water quality noted in 2025 during event-driven monitoring.

3.8 VEGETATION MANAGEMENT

3.8.1 INVASIVE PLANT SPECIES PROGRAM

The Central Kootenay Invasive Species Society (CKISS) has coordinated the RDCK's invasive plant management program at all RDCK waste facilities since 2019. CKISS staff and contractors continued to conduct invasive plant inventories at the HB Facility in 2025.

CKISS (2025) outlines that data was collected digitally using mobile devices and spatial data collection software, and all survey and chemical treatment data was uploaded to the Ministry of Forests' Invasives BC (IBC) database by October 28th, 2025 (CKISS, 2025). CKISS's observation and treatment data were collected in accordance with the IBC Reference Guide and treatment methods and recommendations followed current best practices (CKISS, 2025).

In 2025, invasive plant management activities completed by CKISS were focused on monitoring and controlling previously identified invasive plant infestations. Specific activities included surveys, inventories, chemical treatment, and treatment monitoring. Herbicide treatments were conducted by qualified herbicide contractors (CKISS, 2025). Two invasive plant species were surveyed and managed within the Facility. Scentless chamomile is a priority to contain and was found outside of containment, and spotted knapweed is a priority to strategically control; both species are listed as "Noxious Weeds" under the *BC Weed Control Act* (CKISS, 2025). On July 13th, herbicide contractors chemically treated scentless chamomile and spotted knapweed using a handgun applicator, and herbicide was applied to a 500 m^2 area (CKISS, 2025).

As part of the 2025 revegetation monitoring program, detailed in Appendix G, SLR identified four invasive plant species in three of the 26 revegetation monitoring plots. This included oxeye daisy, field bindweed, perennial sow thistle, and cleavers (SLR, 2025e). Oxeye daisy, field bindweed, perennial sow thistle are identified in the Lower Arrow / Pend D'Orielle Invasive Plant Management Area (IPMA) with a Priority 4 - Strategic Control ranking (SLR, 2025e). Field bindweed is also listed as regionally noxious in Schedule A of the BC Weed Control Regulation, while perennial sow thistle is listed as provincially noxious within the regulation (SLR, 2025e). Cleavers is listed as regionally noxious in the BC Weed Control Regulation, but not in the IPMA (SLR, 2025e). This information, along with plot locations and coordinates where these invasives were identified was forwarded to CKISS for possible inclusion in the 2026 invasives program.

In 2026, the CKISS invasive plant management program will continue at the Facility. The monitoring and treatment of invasive plants will continue annually until populations are no longer present on site, then the program will transition to a smaller monitoring program.

3.8.2 VEGETATION METALS UPTAKE

In 2024, the monitoring of uptake of metals by vegetation was completed by SLR and consisted of collection and analysis of representative plant species from the areas that have been seeded and replanted. The 2024 calculated sample-specific bioaccumulation factors indicate limited localized bioaccumulation of cadmium and zinc in the vegetation growing on the Facility; however, SLR notes that sample and data variability may be a factor in the interpretation of the 2024 results (SLR, 2025d). The preliminary food chain model showed that no unacceptable risks exist at the Facility (SLR, 2025d). SLR did not recommend any vegetation metals uptake sampling in 2025 or 2026, while additional sampling is recommended in 2027, which will inform if woody vegetation should be allowed to establish on the Facility. The RDCK will proceed with this sampling in 2027.

The 2024 Post-Closure Vegetation Metals Uptake Study results memo can be found in the Facility's 2024 Annual Reclamation Report.

3.9 WILDLIFE PROTECTION

Site access is restricted to authorized personnel only. In 2023, a wildlife identification section was added to the routine dam inspection forms, and staff on site have been asked to document any wildlife sightings including noting species, number, sex, location, direction of travel, age (adult/juvenile), if any are known.

In 2025, elk, deer, coyotes, and black bears have been observed at a distance at the Facility by personnel, while tracks of wolves, cougar, and grizzly bear were also observed. Due to the frequency of signs of wolf activity since 2022, the RDCK implemented an increased safety requirement, and staff no longer visit the site alone with check-ins to the fire department. Staff are now required to travel the Site in pairs.

No wildlife interactions were reported in 2025.

The 2025 Post-Construction Wildlife Monitoring Summary in Appendix F provides a summary of wildlife observations collected and includes data from (SLR, 2025b):

- Four wildlife cameras deployed between October 12, 2024, and October 3, 2025;
- Incidental wildlife observations and inspections documented during the June 24th and 25th, and October 3rd, 2025, wildlife monitoring events.
- General observations documented during Environmental Monitoring at the Facility on April 11th, and August 8th, 2025.

Between October 12, 2024 and October 3, 2025, monitoring surveys documented nine mammal species, 17 bird species, and two amphibian species (SLR, 2025b). Species of conservation concern recorded during this monitoring period included grizzly bear (*Ursus arctos*), killdeer (*Charadrius vociferus*), and western toad

(*Anaxyrus boreas*) (SLR, 2025b). Since the initiation of post-construction monitoring in 2022, 46 species have been observed or otherwise detected within the project area (SLR, 2025b).

A total of 26 species were recorded in 2025, which represents a slight decrease relative to the 36 species documented in 2024 (SLR, 2025b). Twenty-nine species were identified in 2023 and 16 species were identified in 2022 (SLR, 2025b). SLR (2025b) states that the cumulative increase in species richness, along with repeated detections of key species, supports the effectiveness of post-construction mitigation and habitat enhancement efforts.

For full details on the 2025 wildlife monitoring program, including wildlife photos, refer to the 2025 Post-Construction Wildlife Monitoring Summary, included in Appendix F.

SLR recommends continuation with annual wildlife inspections supported by biennial maintenance in 2026 to maintain monitoring consistency while continuing to capture meaningful data. Wildlife monitoring event frequency for 2027 and beyond will be defined in the 2027 RCP.

3.10 ARCHAEOLOGICAL RESOURCES

No archaeological or heritage sites have been identified on the Site. In 2018, the RDCK contracted Tipi Mountain Eco-Cultural Services Ltd. to complete a desktop Archaeological Overview Assessment of the project area, which found the Project could proceed without resulting in negative impacts to precontact archaeological resources (Tipi-Mountain, 2018). During any project-related disturbance, the RDCK and its contractors have Chance Find Procedures in place. There was no new disturbance in 2025, and no disturbance is planned in the next five years.

4 RECLAMATION PROGRAM

4.1 END LAND USE

The approved end land uses are discussed in Section 1.4 Reclamation Objectives. The approved end land uses are expected to stay the same in the 2027 RCP update.

4.2 LONG-TERM STABILITY

Routine dam inspections were conducted by RDCK staff monthly throughout the year with additional inspections completed in response to seasonal conditions or after significant weather events.

As part of the construction works in 2021, twelve new survey hubs were installed along the dam crest and on the downstream slope. The survey hub locations are designed to monitor potential movement related to long-term decay/rotting of the timber crib within the dam (RDCK, 2020). The survey hubs will be measured until a stable trend line is observed, and will be reported on in the Annual Facility Performance Report. Five sets of survey hub readings were collected in 2025 between April and September (SRK, 2026a). In 2024, the RDCK also began completing drone surveys of the site, to check for differential settlement across the Facility. In 2025, the drone survey procedure for the site was updated to include completion of the survey after snow

melt and prior to vegetation growth to try to reduce survey interference from new vegetation. Comparison between previous years surveys and new surveys is completed by RDCK staff, and the Facility's Engineer of Record, and is documented in the Annual Facility Performance Report.

A Dam Safety Review (DSR) was initiated in January 2024. A site inspection was completed on May 14, 2024 and the report was finalized and submitted by March 31, 2025.

In August 2025, a drilling program was completed to install ten new vibrating wire piezometers (VWPs) and slope inclinometer casing in four of the boreholes to improve the understanding of the hydrogeological regime through the dam and to allow for the evaluation of lateral displacements through the dam (SRK, 2026a). The five existing standpipe piezometers were also retrofitted with VWP's.

In September 2025, minor repairs were completed on the toe berm crest near the east abutment to address a small sinkhole that likely formed as a result of settlement of till fill into an underlying weighted filter layer (SRK, 2026a). A small swale was also excavated into the toe berm crest to direct water away from the toe berm slope (SRK, 2026a). Instructions for the sinkhole repair and the toe berm swale were developed by the Engineer of Record.

In October 2025 new reading procedures for the VWPs were developed by the Engineer of Record. Finalized reading procedures for the VWPs and Slope Inclinometers were incorporated into an updated Operations, Maintenance, and Surveillance Manual which finalized in February 2026.

On November 13, 2025, the Engineer of Record, Tailings Facility Qualified Person, two RDCK staff that complete routine inspections, and three Emergency Program Coordinators (staff that coordinate the RDCK's Emergency Operations Center) met at the Facility to review the 2025 Emergency Preparedness and Response Plan (EPRP). This included reviewing sections around the response flow process and activation of the RDCK's Emergency Operations Center, how the Site monitoring is completed, how initial notification of an incident would likely proceed, access routes for vehicles and equipment, possible failure modes, materials storage areas (till, wood chips, sand, riprap), pump set and discharge point locations, and culvert crossings on accesses and possible wash-out points.

The EPRP was again updated in early 2026 to incorporate comments that came from the November 2025 Site discussion, as well as revising the notification and response flow charts to meet the five-step Dam Emergency Plan process recommended by the *Instructions, Guide, and Templates for Preparing a Dam Emergency Plan in British Columbia.* This revised 2026 EPRP will be used in a larger tabletop exercise later in 2026 with Emergency Operations Center and Duty Officer staff. The plan will be updated with any feedback that results from the tabletop exercise, and then a facilitated test will be coordinated for 2027.

4.3 REVEGETATION

Native grass and legume species most suited for reclamation at the site, including species that provide good to excellent erosion control, were used for revegetation from 2022 to 2025 and have been sourced from a seed-supplier specializing in native plant production. The approved seed mix consists of a 50-50 mix of Blends 1 and 2 and be applied at a rate of 100 kg/ha (RDCK, 2020).

Common Name	Scientific Name	Seed Mix Proportion (%)	Notes
Slender Wheatgrass	*Elymus trachycaulus*	14%	Blend 1
Pubescent wheatgrass	*Thinopyrum intermedium*	8%	
Perennial Ryegrass	*Lolium perenne*	16%	
Alfalfa	*Medicago sativa*	9%	
Sheep fescue	*Festuca ovina*	11%	
Creeping Red fescue	*Festuca rubra*	10%	
Canada Bluegrass	*Poa compressa*	16%	
Redtop	*Agrostis gigantea*	16%	
Coated Fringed Brome	*Bromus ciliatus*	8%	Blend 2
Annual ryegrass	*Lolium multiflorum*	13%	
Coated Tufted Hairgrass	*Deschampsia cespitosa*	19%	
Slender Wheatgrass	*Elymus trachycaulus*	7%	
American Slough grass	*Beckmannia syzigachne*	29%	
June grass	*Koeleria macrantha*	24%	

Revegetation efforts at the end of the closure project in 2022 also included soil preparation, where possible if the risk of tailings boils was low, and amendments to maximize the probability of establishment. Amendments included the onetime addition and incorporation of nitrogen, phosphorus, and potassium at the time of seeding at the following recommended application rates:

- Nitrogen (N) at 56 kg/ha
- Phosphorus (P2O5) at 200 kg/ha
- Potassium (K2O) at 50 kg/ha

Broadcast and hydroseeding of the site, including borrows, access roads, and the tailings facility, occurred in early September 2022. Additional areas with low vegetation establishment after 2022 seeding were broadcast or hydroseeded in 2023 and 2024 using the same seed blend. A small area (5m^2) of the toe berm was hand seeded in 2025 to prevent further development of erosion rills. SLR also developed an experimental seed blend, Blend 3, for seeding four 10 x 10 m reclamation test plots which is discussed in detail in Section 4.5.

Coarse woody debris was spread in the landfill sand and gravel borrow in 2022, and Till Borrow in 2024, but could not be spread on the tailings surface due to poor trafficability and the development of tailings boils through the cover material if additional equipment trafficked the surface when not necessary.

The 2025 revegetation monitoring results are summarized in SLR's Reclamation Research 2025 Summary (Appendix G). Revegetation monitoring is completed at twenty-six 1 x 1 m monitoring plots across the Site, as shown on Figure 2 of Appendix G. As outlined in the 2020 RCP, revegetated status requires establishment of a self-sufficient vegetative cover achieving at least 80% survival of germinated seeds (SLR, 2025e). Vegetation cover increased from an average of 29% in 2023, to 69% in 2024, and to 164% (monitoring plots)

and 166% (research plots) in 2025 (SLR, 2025e). With the exception of research plot 24, all plots exceeded the 80% cover target, indicating that the Facility is adequately revegetated (SLR, 2025e).

By 2025, following three growing seasons, both vegetation cover and species diversity had increased, with litter presence indicating ongoing successional annual growth (SLR, 2025e). At least two of the species from the 2020 RCP approved seed blend were present within the monitoring plots, while non-invasive volunteer species, particularly nitrogen-fixing pea family species (e.g., red clover), were more dominant and contributed to soil stabilization and nutrient input (SLR, 2025e).

Only seven of the 15 species included in Blends 1, 2, and 3 were observed over the monitoring period, suggesting some species may be unsuitable for reclamation at the Site (SLR, 2025e). Although the Facility is now considered to be revegetated, as there is potential for additional species to establish at the Site, SLR recommended additional revegetation monitoring will be completed in Years 5 and 10 post-seeding (2027 and 2032).

As the requirements outlined in the 2020 RCP for revegetation have been achieved for the covered tailings deposition area, this has resulted in an area of 25.7 hectares transitioning from 'ongoing' reclamation status to 'revegetated,' within the submitted spatial data. The downstream slope of the dam still has an 'ongoing' reclamation status and is not yet considered revegetated. The RDCK does not intend to proceed with revegetation monitoring in 2026 but will complete a smaller assessment in 2027 and 2030. A Notice of Departure self-assessment surrounding the reduction in revegetation monitoring was submitted to MCM in March 2026 for review.

Full results and discussion of the revegetation monitoring event are included in the Reclamation Research Program 2025 Summary in Appendix G.

4.4 ROAD RECLAMATION

The Site access roads were initially constructed during the early development of the tailings facility in 1955 and have remained unchanged since the RDCK established the Central Landfill in 1983. Existing permanent Facility access roads have been maintained through 2025, along with existing drainage controls such as ditches, culverts, etc. As outlined in the 2020 RCP, these features will remain in place as permanent access but will remain closed to the public. The total area of the permanent access roads that are exempt from reclamation is 2.95 Ha.

No access roads were developed or reclaimed during 2025. No changes are expected in 2026.

4.5 RECLAMATION RESEARCH

Under Condition C.13 of the 2021 amended Permit M-218 (Appendix A-2,) a Reclamation Research Program was developed and submitted to MCM by March 31, 2022. The Reclamation Research Program included the development of test plots on the tailings surface to test seed mix varieties, application scheduling, tilling, as well as cover performance assessments, viability of native species, and metals uptake studies (SLR, 2022e).

The Reclamation Research Program 2025 Summary (Appendix G) outlines details of the program implementation, test plots treatments, and revegetation observations, and makes recommendation for application schedules and a seed mix for future reclamation works.

In June 2023, SLR implemented the Reclamation Research Program with the establishment of nine 10 x 10 m test plots across the tailings surface. Four test plots received an additional seed application with the seed blend that was approved in the 2020 RCP, shown as Blend 1 & 2 in Section 4.3 Revegetation, which was used to hydroseed the closure project area (SLR, 2025e). Four test plots were seeded with the experimental seed blend shown below, as Blend 3, and one test plot was left bare as a control.

1	Rocky Mountain Fescue	*Festuca saximontana*	Native Grass	35	Blend 3 Experimental Blend
2	Slender Wheatgrass	*Elymus trachycaulus*	Native Grass	15	
3	June grass	*Koeleria macrantha*	Native Grass	35	
4	Fireweed	*Chamerion angustifolium ssp. angustifolium*	Native Forb	6	
5	Western Yarrow	*Achillea millefolium*	Native Forb	6	
6	Tall Oregon Grape	*Mahonia aquifolium*	Native Shrub*	3	

Monitoring of the research plots commenced in Year 2 (2024), following one year of growth and establishment, and continued into Year 3 (2025). Assessments across the eight seeded research plots focused on germination success of species included in seed blends 1 and 2, as well as the establishment of additional native species introduced in experimental seed blend 3 (SLR, 2025e). Average vegetation cover increased substantially between 2024 and 2025, from 69% in 2024 to 162% in plots seeded with blends 1 and 2, and 166% in plots with seed blend 3, which shows strong vegetation growth on the tailings cover over two growing seasons (SLR, 2025e).

Species composition across all research plots was comparable to that observed in 1 × 1 m revegetation monitoring plots (SLR, 2025e). Coated tufted hairgrass, included in seed blends 1 and 2, remained the dominant species and was present across all research plots (SLR, 2025e). Yarrow was recorded in three of four seed blend 3 plots in 2025 and was absent elsewhere, indicating establishment associated with blend 3 (SLR, 2025e). Seed blend 3 was designed to enhance habitat and to facilitate growth of traditionally important plants, and monitoring results confirm achievement of these objectives, as evidenced by wildlife activity and the establishment of five of the six targeted plant species (SLR, 2025e).

Plots re-seeded in 2023 with seed blends 1 and 2 (four plots) did not demonstrate increased vegetation cover relative to single-pass hydroseeding (SLR, 2025e). These plots supported limited species diversity, typically one to two species (primarily slender wheatgrass and coated tufted hairgrass), and exhibited fewer volunteer species compared to revegetation monitoring plots (SLR, 2025e). In contrast, the four plots re-seeded with experimental seed blend 3 showed improved germination success and greater volunteer species presence relative to plots treated with only blends 1 and 2 (SLR, 2025e).

Based on these findings, SLR recommends that future revegetation efforts within the Facility prioritize a single application of an optimized seed blend, composed of the species that had the highest success rate, opposed to multiple hydroseed applications of the seed mix (blend 1 and 2) approved in the 2020 RCP (SLR, 2025e).

The seed blend proposed by SLR (2025e) is:

Common Name	Scientific Name
Slender Wheatgrass	Elymus trachycaulus
Perennial Ryegrass	*Lolium perenne*
Annual Ryegrass	*Lolium multiflorum*
Alfalfa	*Medicago sativa*
Coated Tufted Hairgrass	*Deschampsia cespitosa*
June Grass	*Koeleria macrantha*
Rocky Mountain Fescue	*Festuca saximontana*
Fireweed	*Chamerion angustifolium ssp. Angustifolium*
Western Yarrow	*Achillea millefolium*

This seed blend will be incorporated into the 2027 RCP update to seek approval for the new blend for any future site revegetation activities.

4.6 5 YEAR RECLAMATION PLAN

An updated Reclamation Plan was incorporated into the 2020 RCP which was approved under an amended *Mines Act* permit. The remaining reclamation components of the plan include completion of:

- invasive plant annual assessments and treatment as required
- water quality monitoring four times per year in 2026, with possible reductions being proposed in 2027 RCP
- water and load balance development for post-closure conditions
- post-closure maintenance as required
- revegetation monitoring in 2027 and 2030
- wildlife monitoring
- a second post-closure metals uptake study in 2027

Under Condition D.8 of the 2025 amended Permit M-218, an updated Reclamation and Closure Plan will be submitted to MCM by March 31, 2027, and will include the following:

- the current status of the reclamation obligations based on the approved end land use;
- a compilation and interpretation of all monitoring for life of mine, including ML/ARD prediction, water quality and quantity, modelling predictions, metal uptake studies, soil, vegetation and reclamation programs;
- detailed closure and maintenance activities;
- a compilation and interpretation of any research program used to inform closure planning strategies;
- detailed contingency/remediation plans;

- detailed schedule for completion of reclamation/closure works:
- a Closure Management Manual that details monitoring and maintenance activities for post closure; and,
- a breakdown of outstanding liabilities and associated costs including activities detailed for remediation and post closure.

5 RECLAMATION LIABILITY COST ESTIMATES

As a Local Government, the RDCK is required to follow Public Sector Accounting Standard PS 3260 (Liability for Contaminated Sites) for the Facility. The RDCK has booked the appropriate liability for this Facility, and goes through a formal independent financial audit process annually.

In 2025, the RDCK's independent auditor reviewed the liability cost estimate for the Site under PS 3260. The current liability estimate for the Facility is $3,659,627.

As part of the 2027 RCP update process, the RDCK will be providing an updated liability cost estimate, following the Major Mine Reclamation Liability Cost Estimate Guidance (2024).

6 NOTICE OF DEPARTURES

No notice of departures were submitted in 2025. A notice of departure to reduce the revegetation monitoring frequency, as recommended by the Facility's QEP, was submitted to MCM in March, 2026. The RDCK intends to complete revegetation monitoring in 2027 and 2032, but not in 2026.

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APPENDIX A-1: MINES ACT PERMIT NUMBER M-218, DATED MARCH 5, 2025

PROVINCE OF BRITISH COLUMBIA
MINISTRY OF MINING AND CRITICAL MINERALS

PERMIT

APPROVING MINE PLAN AND RECLAMATION PROGRAM

(Issued pursuant to Section 10 of the *Mines Act* R.S.B.C. 1996, c. 293)

Permit: **M-218** Mine No: **0500032**

Issued to: **Regional District of Central Kootenay**
Box 590, 202 Lakeside Drive
Nelson, British Columbia
V1L 5R4

for work located at the:

HB Mine Tailings

Issue Date

April 22, 2002 Approving Mine Plan and Reclamation Program

This Permit supersedes and amends all previous versions of Permit M-218 issued pursuant to Part 10 of the *Mines Act*. (All previously approved works systems are hereby transferred under this Permit.)

Amended at Victoria, British Columbia this 5th day of March in the year 2025.

Sean Shaw, Ph.D., P.Geo.
Deputy Chief Permitting Officer
Major Mines Office

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PREAMBLE

The *Mines Act* Permit application, and applications for changes to approved works and conditions to Permit M-218, have been submitted to the Chief Permitting Officer, in accordance with Section 10(1) and/or 10(6) of the *Mines Act*, and Sections 10.2.1 and 10.2.9 of the Health, Safety and Reclamation Code for Mines in British Columbia (Code).

Where more than one version of information exists in the application, the most recent version shall be considered the approved version unless otherwise stated or determined by the Chief Permitting Officer.

1. Approving the Work System and Reclamation Program (Issued April 22, 2002)

1.1 Application entitled, '*Tailings Pond and Dyke Decommissioning Plan*', dated March 18, 2002.
1.2 Report entitled, '*H.B. Mine Tailings Pond and Dyke Decommissioning Plan Final Report*', prepared by BGC Engineering Inc., dated Feb 5, 2002.

2. Approving Surface Water Diversion Channel (Issued June 29, 2012)

2.1 Application entitled, '*HB Mines Tailing Surface Water Diversion Ditch*', prepared by Regional District East Kootenay, dated June 1, 2012.
2.2 Technical Drawing entitled, '*Proposed Stormwater Diversion Ditch at HB Mine Site, RDEK Salmo Landfill design drawings (11-044-Ditch)*', prepared by Ward Engineering and Land Survey Ltd., dated June 2012.

3. Approving Reclamation and Closure Plan (Issued February 24, 2021)

3.1 Application entitled, '*HB Mine Tailings Facility Remediation and Closure Plan*', prepared by Regional District of Central Kootenay, dated August 2020.
3.2 Memorandum entitled, '*HB Dam Stability Analysis Update*', prepared by SRK Consulting (Canada) Inc., dated January 9, 2020,
3.3 Memorandum entitled, '*Response to Geotechnical Review of HB Dam Stability Analysis Update (ISSUE ID's 139 to 148, 40, 52, 54, and 55)*', prepared by SRK Consulting (Canada) Inc., dated February 24, 2020.
3.4 Memorandum entitled, '*Issue ID #131 ITRB Comments and Recommendations*', prepared by SRK Consulting (Canada) Inc., dated December 13, 2019.
3.5 Letter entitled, '*Issue ID #37 – Detailed Engineering Design*', prepared by SRK Consulting (Canada) Inc., dated December 13, 2019.
3.6 Report entitled, '*Technical Specifications – HB Mine Tailings Facility Closure and Remediation – Revision 01*', prepared by SRK Consulting (Canada) Inc., dated October 2019.

3.7 Drawing entitled, '*Surface Water and Groundwater Monitoring Locations*', prepared by prepared by SLR Consulting (Canada) Ltd., dated February 28, 2020.

3.8 Drawing entitled, '*Metals Uptake, Re-Vegetation and Wildlife Monitoring Locations*', prepared by prepared by SLR Consulting (Canada) Ltd., dated February 28, 2020.

3.9 Report entitled, '*HB Mine Tailings Facility – 2016 Tailings Characterization Factual Report*', prepared by SRK Consulting (Canada) Inc., dated May 2017.

4. Approving Milestone Date Extension (Issued March 5, 2025)

4.1 Application entitled, '*Permit Milestone Extension Request*', prepared by Regional District of Central Kootenay, dated February 26, 2024.

This Permit contains the requirements of the Ministry of Mining and Critical Minerals. Nothing in this Permit limits the authority of other provincial ministries to set other conditions, or to act independently, under their respective permits and legislation.

The Mine is located within the consultative territory of the Ktunaxa National Council, Shuswap Indian Band, Okanagan Indian Band, Okanagan National Alliance, Lower Similkameen Indian Band, Penticton Indian Band, and Upper Nicola Indian Band.

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CONDITIONS

The Chief Permitting Officer hereby approves the Mine Plan and Reclamation Program as submitted in the Application(s), subject to compliance with the following conditions:

A. General

1. Compliance with *Mines Act* and Code

The Permittee must ensure that all work is in compliance with all sections and parts of the *Mines Act* and the Health, Safety and Reclamation Code for Mines in B.C. (Code), and the Permittee must obey all Orders issued by the Chief Inspector of Mines (Chief Inspector) or their delegate.

2. Departure from Approval

The Permittee must notify the Chief Permitting Officer in writing of any intention to depart from the Mine Plan and Reclamation Program approved under this *Mines Act* Permit (M-218) to any substantial degree, and must not proceed to implement the proposed changes without the written authorization of the Chief Permitting Officer.

3. Permit Approval

The Permittee is authorized under this Permit (M-218) for development, including surface disturbance and works, within the area encompassing approximately 64.3 Ha (Figure 1 – Permitted Mine Area), which includes management buffers around the approved disturbance area.

4. Permit

This Permit is non-transferable or assignable.

5. Maintenance of Mine

The Permittee must maintain mine facilities and infrastructure in a manner to meet design objectives, environmental protection requirements and reclamation requirements.

6. Authentication by a Qualified Professional

Unless otherwise approved in writing by the Chief Permitting Officer or Chief Inspector, the Permittee must ensure that all reports required to be submitted under this permit are authenticated by a qualified professional with applicable experience and registered in the province of British Columbia.

7. First Nations Information Sharing

Unless otherwise requested by the Chief Permitting Officer or Chief Inspector, the Permittee must provide to the Ktunaxa National Council, Shuswap Indian Band, Okanagan Indian Band, Okanagan National Alliance, Lower Similkameen Indian Band, Penticton Indian Band and Upper Nicola Indian Band all material reports and plans required to be submitted under this Permit, including annual monitoring reports, results of research programs, and the Reclamation and Closure Plan. The Permittee must provide these documents at the same time they are submitted to the Chief Permitting Officer or the Chief Inspector.

8. Compliance Status Report

(a) The Permittee must track the compliance status of all permit conditions and inspection orders in a form acceptable to the Chief Inspector. The Permittee must maintain an up-to-date tracking table on site. The Permittee must ensure that the tracking table is always available at the mine site and to a Mines Inspector upon request. The Permittee must prepare and submit an annual Compliance Status report to the Chief Inspector by March 31 and must include a summary of outstanding non-compliance issues and an action plan, for the Chief Inspector, for achieving compliance.

(b) By March 31, 2027, the Permittee must submit a report outlining compliance with the schedule of post-closure monitoring in Document 3.1 (Appendix K) to the Chief Inspector. The Permittee must ensure the report includes the following post-closure monitoring:

(i) Annual groundwater and surface water quality monitoring;
(ii) Annual geotechnical monitoring;
(iii) Minimum of one Dam Safety Review; and
(iv) Minimum of three years of revegetation monitoring.

B. Geotechnical

1. General

(a) The Permittee must ensure that all geotechnical designs, specifications, monitoring requirements, plans and reports required under Section (B) are:

(i) Authenticated by a Professional Engineer (unless otherwise specified); and
(ii) Maintained on site and are available to any Inspector of Mines upon request.

(b) The Permittee must ensure construction is completed under the supervision of a Professional Engineer.

(c) The Permittee must ensure that field reviews have been conducted by a Professional Engineer to ensure that facilities are built in general conformance with the design and accepted standards of practice.

(d) The Permittee must ensure written recommendations by a Professional Engineer, relating to geotechnical stability, affecting health and safety, environmental protection, or reclamation, are followed, unless a suitable alternative course of action is approved in writing by a Professional Engineer.

(e) The Permittee must submit an Advice of Geotechnical Incident form for any geotechnical incident that is classified as a Reportable Incident or any other incident described in the MCM Advice of Geotechnical Incident form to the Chief Inspector within one week of the incident.

2. Tailings Storage Facility

(a) The Permittee must ensure that minimum freeboard is defined by the Engineer of Record and included in the Quantifiable Performance Objectives (QPOs) and Trigger Action Response Plans (TARP).

3. Soil, Overburden and Rock Ore Stockpiles

The Permittee must ensure that all soil, overburden and rock stockpiles are constructed in accordance with designs prepared by a Professional Engineer and are constructed and inspected to ensure stability and erosion control is maintained, unless exempt in writing from the Chief Inspector.

4. Borrow Pits and Quarry Excavations

(a) The Permittee must ensure that borrow pit and quarry excavations are constructed and operated in accordance with designs and recommendations prepared by a Professional Engineer.

(b) The Permittee must ensure that borrow pit and quarry excavations are constructed and inspected to ensure stability and erosion control is maintained.

C. Protection of Land and Watercourses

1. Environmental Management System

The Permittee must develop and implement an Environmental Management System (EMS) consisting of Environmental Management Plans (EMPs) and Standard Operating Procedures (SOPs). The Permittee must ensure the EMS references relevant policies and establishes proactive procedures to provide direction for effective operational management and monitoring on-site. The Permittee must submit the EMS and plans by May 31, 2021, to the satisfaction of the Chief Inspector.

(a) The Permittee must ensure the EMS is reviewed annually, revised as soon and as often as required, and always made available at the mine site and to an Inspector of Mines upon request. The findings of the annual review of the EMS must be reported in the Annual Reclamation Report.

(b) The Permittee must ensure that mine site employees and contractors are knowledgeable and accountable to act consistently with the requirements of the EMPs and SOPs that form the EMS.

2. Environmental Site Management

The Permittee must ensure that a qualified Environmental Site Manager is assigned. The Environmental Site Manager must have the authority to implement remedial actions as may be necessary to ensure maintenance of environmental standards and permit requirements. If suspension of construction or operations occurs due to environmental concerns, the Permittee must immediately notify the Chief Inspector.

3. Metal Leaching (ML) and Acid Rock Drainage (ARD)

(a) General

(i) The Permittee must ensure that all materials with the potential to generate ML/ARD are placed in a manner that minimizes the production and release of metals and contaminants to levels that are protective of environmental quality.

(b) Definition of Potentially ARD Generating (PAG) and Metal Leaching (ML) Materials

(i) The Permittee must define tailings, overburden, and construction materials as Potentially Acid Generating (PAG) if they have a Neutralization Potential (NP) Ratio (NP/Acid Potential [AP]) < 2, where AP is calculated using total sulphur and NP is determined using the modified Sobek NP method.

(ii) The Permittee must define tailings, overburden, and construction materials containing soluble metal concentrations (as determined by shake flask extraction) higher than the receiving water objectives as having a potential for metal leaching.

(iii) The Permittee must define overburden and construction materials as acid generating (AG) if they have a paste pH < 6.5 or a rinse pH < 5.0.

(c) ML/ARD Management

(i) The Permittee must maintain a ML/ARD Management Plan, including SOPs and a quality assurance / quality control (QA/QC) program. The Permittee must ensure that:

(a) ML/ARD management is reviewed by a Qualified Professional on an annual basis;

(b) The ML/ARD Management Plan is reviewed and signed off by a Qualified Professional on an annual basis; and

(c)

(d) All recommended changes arising from the reviews, referred to in Conditions C.3(c)(i)(a) and C.3(c)(i)(b), are documented in the Annual Reclamation Report and updated ML/ARD Management Plans are submitted to the Chief Inspector, by March 31 annually.

(ii) The Permittee must ensure that for each ML/ARD sample, the location and geological description are recorded, including lithology and oxidation type if applicable to the sample. The Permittee must also ensure that any other diagnostic features significant to ML/ARD are recorded, if observable, including but not limited to carbonate and sulphide mineralogy and abundance, alteration, significant structural features, and texture.

(iii) Construction Materials

(a) The Permittee must not use AG or PAG materials for construction purposes.

(b) The Permittee must not use ML material for construction purposes, except in locations where contact water is collected and conveyed directly to the tailings storage facility (TSF), or an operating water treatment plant and in accordance with the recommendations of a Professional Engineer.

(c) The Permittee must ensure that no PAG overburden or construction materials are stored on surface after December 31, 2021.

(iv) Waste Rock

(a) The Permittee must ensure that no PAG rock is stored on surface after December 31, 2021.

(d) ML/ARD Monitoring

(i) The Permittee must implement an ML/ARD monitoring program. The Permittee must ensure that the monitoring program includes the characterization of excavated materials to determine ML/ARD generating potential, validate pre-construction predictions, guide material management decisions, and confirm effectiveness of material handling procedures.

(ii) The Permittee must ensure all solid-phase samples referred to in Condition C.3.(d)(i) are analyzed at an independently operated laboratory facility for acid-base accounting tests including, but not limited to, paste pH, total sulphur, sulphate sulphur, carbonate content, modified Sobek NP, mineralogical analysis for identification and quantification of carbonate and sulphide bearing minerals, and total elemental analyses including major cations and trace elements by ICP-MS after strong acid digestion.

(e) ML/ARD Reporting

(i) The Permittee must maintain a materials inventory of all mined materials, including waste rock, tailings products, and construction materials that includes the geochemical characteristics, quantities, storage locations, and exposure times for PAG or ML materials deposited in the TSF. The Permittee must include the materials inventory in the Annual Reclamation Report by March 31 annually.

(ii) The Permittee must submit a summary of any geochemical analyses conducted and an assessment of the results, including QA/QC results and identification of significant changes and trends, in the Annual Reclamation Report by March 31 annually.

4. Surface and Groundwater

(a) Surface Water and Groundwater Management

(i) The Permittee must maintain a Surface Water and Groundwater Management Plan, including SOPs and a QA/QC program. The Permittee must ensure that:

(a) The Surface Water and Groundwater Management Plan includes:

(i) Description and schematics of overall site water management processes and infrastructure;
(ii) Description of existing water management infrastructure;
(iii) Detailed monitoring and maintenance procedures, including schedules, for all site water management infrastructure;
(iv) Contingency plans for maintenance of a water cover in the TSF under variable scenarios; and
(v) Contingency plans for storage and management of effluent on the mine site that is unable to be discharged to the environment.

(b) Site-wide surface and groundwater management is reviewed by a Qualified Professional on an annual basis;

(c) The Surface Water and Groundwater Management Plan is reviewed and signed off by a Qualified Professional on an annual basis; and

(d) All recommended changes arising from the reviews referred to in Conditions C.4.(a)(i)(b) and C.4.(a)(i)(c), including but not limited to source term refinement, water quality mitigations, and adaptive management, are documented in the Annual Reclamation Report.

(ii) The Permittee must maintain a system of drainage diversion and collection ditches to minimize contaminant loadings from areas of disturbance or waste disposal.

(b) Surface Water and Groundwater Monitoring

(i) The Permittee must track changes to surface water, seepage, and groundwater quality and quantity on the mine site. The Permittee must ensure that the program is capable of providing early warning about the onset of ARD or an increase in contaminant loading.

(ii) The Permittee must keep monitoring results of surface water, groundwater, and seepage quality and quantity up to date in a dedicated database.

(iii) For all surface water monitoring locations, the Permittee must ensure that sampling is conducted per the most recent version of the British Columbia Field Sampling Manual.

(iv) The Permittee must ensure that surface water and groundwater monitoring includes, at a minimum, the following:

(a) Water quantity and quality monitoring locations, monitoring frequencies, and parameters for the following:

(i) Surface water;
(ii) Tailings porewater;
(iii) Seepage; and
(iv) Groundwater.

(v) The Permittee must ensure that an effective QA/QC program for the surface water and groundwater monitoring program is implemented as part of the Surface Water and Groundwater monitoring program. The Permittee must ensure that this includes detection limits, performance criteria that define acceptable levels of precision and accuracy and reporting of any missed sampling events.

(c) Surface Water and Groundwater Modelling and Mitigation Planning

(i) The Permittee must update the site-wide water quality model and submit a Surface Water Quality Model Report every five years, beginning March 31, 2027, as part of the Mine Plan and Reclamation Program Update, or more frequently if site water management or source terms significantly change. The Permittee must ensure that the model updates and the report include, but are not limited to, the following:

(a) Documentation of the incorporation of the most recent updated numerical groundwater model;
(b) Documentation of the incorporation of the most recent reconciled site-wide water balance;
(c) Recent monitoring data for groundwater, tailings porewater, and surface water quality, groundwater levels, surface water quantity, and geochemical source terms;
(d) Description and results of model calibration or validation; and
(e) A comparison of surface water quality predictions to applicable provincial water quality standards or guidelines.

(ii) Based on the results of the updated surface water and groundwater models, the Permittee must determine additional source control and/or water quality mitigation measures required to achieve applicable provincial water quality standards throughout the life of mine and end land use and productivity objectives. The Permittee must submit a report documenting the determination every five years, beginning March 31, 2027, as part of the Mine Plan and Reclamation Program Update.

(d) Tailings Geochemistry Monitoring and Assessment

(i) The Permittee must develop and implement a Tailings Geochemistry Monitoring and Assessment Report and must submit the report to the Chief Inspector by March 31, 2024. The Permittee must ensure that the report includes, but is not limited to, the following:

(a) A summary of pre-covered and post-covered tailings porewater quality, and unsaturated zone monitoring results;
(b) A post-covered tailings sampling and characterization program, which includes total solid-phase concentrations, bulk mineralogy and the presence of authigenic phases;
(c) Comparisons of pre-covered and post-covered tailings porewater, solid-phase composition, and geochemical modelling results;
(d) An updated assessment of the long-term geochemical stability of the tailings; and
(e) A schedule for reporting subsequent tailings geochemistry monitoring and assessment results.

(e) Surface Water and Groundwater Annual Reporting

(i) The Permittee must report results of surface water and groundwater monitoring, including QA/QC results, in the Annual Reclamation Report. The Permittee must ensure that the results are compared to applicable provincial water quality standards and guidelines. The Permittee must assess significant changes or trends in water quality or quantity and include discussion of that assessment in the report.

(ii) The Permittee must include a quantitative comparison of relevant surface water, groundwater, and ML/ARD monitoring data to source terms used in water quality predictions and results of surface water and groundwater models in the Annual Reclamation Report. If there are substantive discrepancies, the Permittee must include a discussion of proposed source term revisions prepared by a Qualified Professional in the Annual Reclamation Report.

5. Pre-Construction Ecosystems and Habitats Surveys

The Permittee must ensure that pre-disturbance field surveys are conducted by a Qualified Professional prior to any new disturbance within the Permitted Mine Area (Figure 1) to document habitat types, specific habitat features (mineral licks, dens for furbearers, ungulate wallows, raptor nests, bat hibernacula and maternity roosts, wildlife movement corridors), wetlands, rare plants and ecosystems, and other features of interest. The Permittee must ensure that results are mapped and used to evaluate impacts, develop mitigation plans, and update management plans. The Permittee must use the results to prepare the Construction Environmental Management Plans.

6. Construction Environmental Management

The Permittee must implement the Construction Environmental Management Plan. The Permittee must ensure that construction activities are overseen by a qualified and trained construction environmental monitor on site. The construction environmental monitor must have the authority to implement remedial actions as may be necessary to ensure maintenance of environmental standards and permit requirements. If the environmental monitor suspends works for any reason, the Permittee must ensure that the Chief Inspector is notified.

7. Erosion and Sediment Control

(a) During the construction period, the Permittee must ensure inspections are conducted daily during rain events and the snowmelt period on the mine site. The Permittee must implement immediate remedial action where excessive sediment-laden runoff is observed.

(b) The Permittee must appropriately characterize any significant releases of sediment-laden water from the mine boundary, defined as an unauthorized discharge to the receiving environment, with respect to extent and loading, and report the occurrence to the Chief Inspector with recommendations for improvement to the water management system, if required.

(c) The Permittee must ensure the characterization of unauthorized discharges of sediment-laden runoff includes, at a minimum, flow, total suspended solids, turbidity, pH, conductivity, temperature, dissolved oxygen, and total and dissolved metals, of both the effluent and the receiving water.

(d) Sediment control and water management structures shall be constructed and operational prior to soil disturbance, which has the potential to result in sediment release.

(e) The Permittee shall initiate progressive reclamation where possible to control erosion around the tailings area.

8. Soil Salvage and Stockpiling

(a) The Permittee must salvage and stockpile topsoil, overburden, and organic material including large woody debris for use in reclamation.

(b) The Permittee must ensure that a qualified professional monitor directs soil sampling, salvage, segregation, and stockpiling activities on-site.

(c) The Permittee must ensure that materials salvaged for use in reclamation are segregated based on salvage origin and measured suitability for reclamation purposes. Prior to mixing with other sources and/or applying on-site, the Permittee must characterize and evaluate the suitability for reclamation of any materials with the potential to be contaminated.

(d) The Permittee must maintain an inventory of stockpiles of salvaged soil, overburden and organic matter including large wood debris specifying the locations, origins, and quantities of material. The Permittee must report this information in the Annual Reclamation Report.

(e) The Permittee must protect stockpiles from erosion, degradation, and contamination through revegetation and/or other practices.

(f) The Permittee must ensure that stockpiles are clearly marked to ensure that they are protected during construction and mine operations.

(g) The Permittee must not use soil suitable for use in reclamation as fill.

9. Vegetation Management

(a) The Permittee must limit disturbance to vegetation to those areas approved by this Permit.

(b) The Permittee must manage and control weeds that establish on the site and must ensure that weeds do not migrate from the site to adjacent areas. The Permittee must consider using non-toxic means for weed control. The Permittee must ensure that all seed used on-site is certified weed free.

10. Archaeological Resources

(a) Prior to beginning any mechanized surface disturbance on undisturbed lands, the Permittee must conduct field surveys consistent with archaeological and cultural heritage resources management procedures and the provisions of the *BC Heritage Conservation Act.*

(b) For those sites that cannot be avoided, the Permittee must contact the Archaeology Branch, Integrated Resource Operations Division, Ministry of Forests, and make arrangements to scientifically excavate and record findings.

(c) The Permittee must ensure that archaeological and heritage sites that are identified during field archaeological studies are clearly marked and avoided, where possible, during construction activity. For identified heritage sites, the Permittee must make reasonable efforts to engage with potentially affected First Nations on the evaluation of site significance, management, and protection measures.

11. Ongoing Reclamation Research

(a) The Permittee must implement the Reclamation Research Program that includes details for achieving the research requirements outlined in this Permit with a schedule for implementation and a description for how results will be utilized and reported. The Permittee must ensure that the Reclamation Research Program includes a TSF cover performance assessment for achieving the end land use objective.

(b) The Permittee must ensure a detailed summary of all research being conducted under this section is provided in the Annual Reclamation Report, including description of research activities, results, and outcomes.

(c) The Permittee must conduct research to determine the viability of revegetation with native plant species, including culturally important species. This includes vegetation metal uptake studies to determine if allowing woody vegetation to establish is an acceptable risk.

(d) The Permittee must establish test plots that will be used to evaluate the reclamation approaches and prescriptions applied to confirm that ecological trajectories consistent with the land use and capability targets are being achieved.

(e) The Permittee must develop and implement a monitoring program designed to evaluate the success of revegetation, habitat restoration, soil development and erosion control. The Permittee must include in this program ecosystem-specific sampling parameters and performance criteria.

(f) The Permittee must develop and implement a monitoring program for evaluating metal uptake in exposed terrestrial and aquatic ecosystems, which specifies sampling requirements and performance criteria. Where harmful levels are found, the Permittee must take any corrective action necessary to mitigate to ensure levels are safe for plant and animal life.

D. Reclamation and Closure Program

1. Reclamation Security

   (a) The reclamation liability under this permit (M-218) is Two Million Seven Hundred Sixty Nine Thousand Four Hundred Seventy Nine ($2,769,479.00) dollars.

   (b) The Permittee is responsible for covering all closure and reclamation costs associated with reclamation and environmental protection.

2. Land Use

   (a) The Permittee must ensure that the land surface is reclaimed with the intent of re-establishing average pre-mining capability to the end land use objectives of Wildlife Habitat and Industrial.

   (b) The Permittee must ensure that borrowed pits and quarries are reclaimed to the approved end land use once no longer required.

3. Erosion Control

   The Permittee must achieve reduction of erosion through landform configuration, development of maintenance-free vegetation covers, and the development of stable, self-sustaining drainage control features and watercourses.

4. Re-vegetation

   The Permittee must ensure the land is revegetated to a self-sustaining state using appropriate and/or native plant species including culturally important native species.

5. Growth Medium

   (a) The Permittee must monitor soil replacement operations to ensure the minimum depths are achieved. The Permittee must develop a confirmation sampling plan to ensure the quality of soil used for reclamation purposes will achieve end land use objectives. The Permittee must report all results in the Annual Reclamation Report.

   (b) The Permittee must ensure that areas to be reclaimed are decompacted to the minimum depth required to adequately address the severity of compaction prior to placement of soil and or vegetation, in a manner intended to achieve end land use objectives and erosion control, with the exception of areas where closure plans require compaction prior to placement of growth medium in order to reduce infiltration and contact water.

6. Surface Water Management Ponds and Channels

The Permittee must reclaim all surface water management ponds and water diversions once no longer required to satisfy stability and erosion control requirements and the approved end land use.

7. Mine Roads

(a) The Permittee must ensure all mine roads are reclaimed, in accordance with recommendations of a qualified professional, to satisfy the approved end land use objectives, including all reasonable efforts to fully re-configure to conform to the adjacent landscape where long-term stability is not compromised, unless permanent access is required.

(b) Individual mine roads may be exempted from the requirement for total reclamation under Condition D.7.(a) if:

(i) The Permittee demonstrates that an agency of the Crown has explicitly accepted responsibility for the operation, maintenance and ultimate deactivation and abandonment of the road, or

(ii) The Permittee demonstrates that another private party has explicitly agreed to accept responsibility for the operation, maintenance and ultimate deactivation and abandonment of the road and has, in this regard, agreed to comply with all the terms and conditions, including bonding provisions, of this reclamation permit, and with all other relevant provincial government (and federal government) regulatory requirements.

8. Reclamation Program and Closure Plan Update

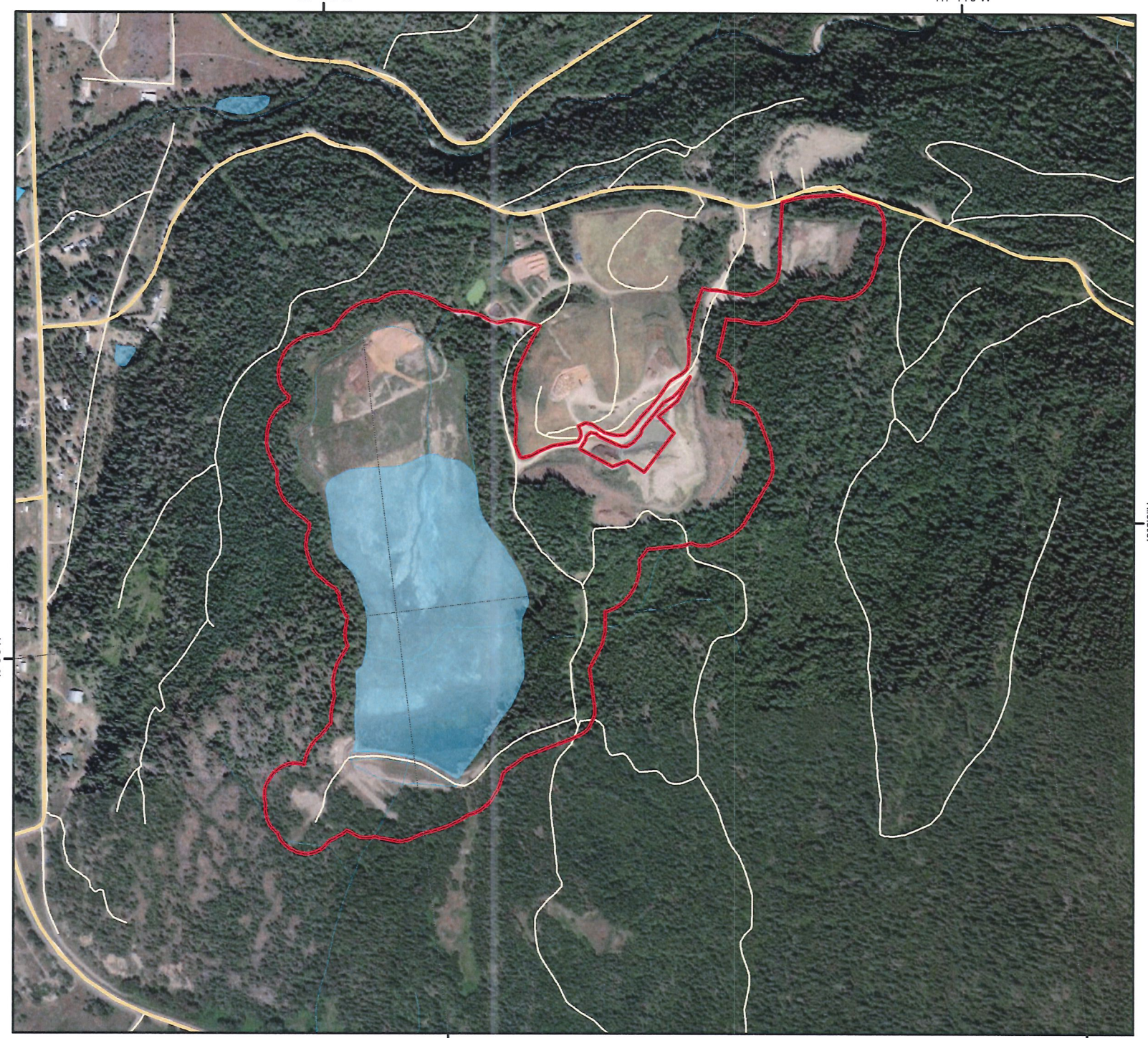
By March 31, 2027, the Permittee must develop and submit an updated Reclamation and Closure Plan to the Chief Permitting Office for approval. The Permittee must ensure that the plan includes, but is not limited to, the following information:

(a) The current status of the reclamation obligations based on the approved end land use;
(b) A compilation and interpretation of all monitoring for life of mine, including ML/ARD prediction, water quality and quantity, modelling predictions, metal uptake studies, soil, vegetation and reclamation programs;
(c) Detailed closure and maintenance activities;
(d) A compilation and interpretation of any research program used to inform closure planning strategies;
(e) Detailed contingency/remediation plans;
(f) Detailed schedule for completion of reclamation/closure works;

(g) Closure Management Manual that details monitoring and maintenance activities for post closure; and

(h) A breakdown of outstanding liabilities and associated costs including activities detailed for remediation and post closure.

Figure 1 – Permitted Mine Area



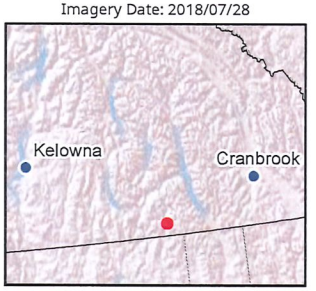
BRITISH COLUMBIA
www.gov.bc.ca

HB Tailings Landfill
M-218

Figure 1
Draft Permitted Mine Area

Permitted Mine *64.3*

Imagery Date: 2018/07/28



0 100 200 300
Meters

N

Base Data:
BC Geographic Warehouse & ESRI Imagery
NAD 1983 BC Environment Albers
Date: 2021/03/30 10:08:16 AM
Prepared By: NHEIDECK

Document Path: W:\em\mmd\Workarea\Victoria\Reclamation & Permitting\MajorMine\M-10 Kitsault\Figure1_PermitAmendment\mxds\Figure1_M_218_HBMine_PMAAmendment_2021Mar30_8_5x11.mxd

APPENDIX A-2: MINES ACT PERMIT NUMBER M-218, DATED MAY 18, 2021

PERMIT AMENDMENT

APPROVING HB MINE TAILINGS FACILITY RECLAMATION AND CLOSURE PLAN

Permit: **M-218** Mine No: **1101163**

Issued to: **Regional District of Central Kootenay**
Box 590, 202 Lakeside Drive
Nelson, British Columbia
V1L 5R4

for work located at the:

HB Mine Tailings

Amended at Victoria, British Columbia this 18th day of May in the year 2021.

J. Lowell Constable, P.Eng.
Deputy Chief Permitting Officer
Major Mines Office

PREAMBLE

An application entitled "*HB Mine Tailings Facility Remediation and Closure Plan*" prepared by the Regional District of Central Kootenay (RDCK) (Document 1) was filed with the Chief Permitting Officer on July 22, 2019, in accordance with Section 10(6) of the *Mines Act* and forms the application permitted under this *Mines Act* M-218 permit amendment. The version of Document 1 approved by this permit is dated August 2020.

Additional documents were submitted to the Chief Permitting Officer, and also form part of the application, including:

- Memo entitled "*HB Dam Stability Analysis Update*" dated January 9, 2020, prepared by SRK Consulting (Canada) Inc. (Document 2)
- Memo entitled "*Response to Geotechnical Review of HB Dam Stability Analysis Update (ISSUE ID's 139 to 148, 40, 52, 54, and 55)*" dated February 24, 2020, prepared by SRK Consulting (Canada) Inc. (Document 3)
- Memo entitled "*Issue ID #131 ITRB Comments and Recommendations*" dated December 13, 2019, prepared by SRK Consulting (Canada) Inc. (Document 4)
- Letter entitled "*Issue ID #37 – Detailed Engineering Design*" dated December 13, 2019, prepared by SRK Consulting (Canada) Inc. (Document 5)
- Report entitled "*Technical Specifications – HB Mine Tailings Facility Closure and Remediation – Revision 01*" dated October 2019, prepared by SRK Consulting (Canada) Inc. (Document 6)
- Drawings 1 and 2 entitled "*Surface Water and Groundwater Monitoring Locations*" and "*Metals Uptake, Re-Vegetation and Wildlife Monitoring Locations*", respectively, dated February 28, 2020, prepared by SLR Consulting (Canada) Ltd. (Document 7)
- Report entitled "*HB Mine Tailings Facility – 2016 Tailings Characterization Factual Report*" dated May 2017, prepared by SRK Consulting (Canada) Inc. (Document 8)

This permit contains the requirements of the Ministry of Energy, Mines and Low Carbon Innovation. It is also compatible, to the extent possible, with the requirements of other provincial ministries. However, nothing in this permit limits the authority of other provincial ministries to set other condition, or to act independently, under their respective permits and legislation.

The mine is located within the consultative territory of the Ktunaxa National Council, Shuswap Indian Band, Okanogan Indian Band, Okanogan National Alliance, Lower Similkameen Indian Band, Penticton Indian Band and Upper Nicola Indian Band.

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CONDITIONS

The Chief Permitting Officer hereby approves the application subject to compliance with the following conditions:

A. General

1. Compliance with *Mines Act* and Code

The Permittee shall ensure that all work is in compliance with all sections and parts of the *Mines Act* and the Health, Safety and Reclamation Code for Mines in B.C. (Code), and the Permittee shall obey all orders issued by the Chief Inspector of Mines (Chief Inspector) or the Chief Inspector's delegate.

2. Departure from Approval

The Permittee shall notify the Chief Permitting Officer in writing of any intention to depart from the Mine Plan and Reclamation Program approved under this *Mines Act* permit (M-218) to any substantial degree, and shall not proceed to implement the proposed changes without the written authorization of the Chief Inspector.

3. Permit Approval

The Permittee is authorized under this permit (M-218) for development and works outlined in Document 1, within the area encompassing approximately 62.6 Ha (Figure 1 – Permitted Mine Area), including a management buffer around the approved disturbance area. This permit does not approve borrow sources located outside of the Permitted Mine Area.

4. Permit

This Permit is non-transferable of assignable.

5. Maintenance of Mine

The Permittee shall maintain mine facilities and infrastructure in a manner to meet design objectives, environmental protection requirements and reclamation requirements.

6. Sign-off by a Qualified Professional

Unless otherwise approved in writing by the Chief Inspector, the Permittee shall ensure that all reports required to be submitted under this permit are signed by a qualified professional with applicable experience and registered in the province of British Columbia.

7. First Nations Information Sharing

Unless otherwise requested by the Chief Inspector, the Permittee shall provide to the Ktunaxa National Council, Shuswap Indian Band, Okanogan Indian Band, Okanogan National Alliance, Lower Similkameen Indian Band, Penticton Indian Band and Upper Nicola Indian Band all material reports and plans required to be submitted under this permit, including annual monitoring reports.

8. Compliance Status Report

The Permittee shall track compliance status of all permit conditions and inspection orders in a form acceptable to the Chief Inspector. The Permittee shall maintain an up-to-date tracking table. The Permittee shall ensure that the tracking table is available at the mine site at all times and to a Mines Inspector upon request. The Permittee shall prepare and submit an annual Compliance Status report to the Chief Inspector by March 31st and shall include a summary of outstanding non-compliance issues and an action plan, to the satisfaction of the Chief Inspector, for achieving compliance.

B. Geotechnical

1. General

(a) The Permittee shall ensure that all geotechnical designs, specification, work plans, monitoring requirements and reports required to be prepared under section (B) are completed to the satisfaction of the Chief Inspector, are maintained on site during construction and are made available to any Inspector of Mines, upon request.

(b) The Permittee shall ensure construction is completed under the supervision of a Professional Engineer and that sufficient field reviews have been conducted to ensure that all facilities are built in general conformance of the design, accepted engineering practices, and the Code.

(c) The Permittee shall ensure recommendations by a Professional Engineer, relating to health and safety, geotechnical stability or environmental protection are followed, unless a suitable alternative course of action is approved in writing by a Professional Engineer.

(d) The Permittee shall submit an Advice of Geotechnical Incident form to the Chief Inspector for any geotechnical incident that is classified as a dangerous occurrence or any other incident as described in the current EMPR Advice of Geotechnical Incident form.

2. Tailings Storage Facility

(a) The Permittee shall ensure that the Tailings Storage Facility (TSF) Operations, Maintenance and Surveillance (OMS) manual includes quantitative performance objectives (QPOs) and Trigger-Action Response Plans (TARPs). The Permittee shall ensure that QPOs and TARPs are developed in consultation with the Engineer of Record.

(b) The Permittee shall ensure that a minimum freeboard in the TSF is defined by the Engineer of Record and included in the QPOs.

(c) The Permittee shall prepare and implement a Safe Work Procedure (SWP) for all work conducted on or around the tailings surface including, but not limited to, upstream riprap excavation, fill placement and liner installation. The Permittee shall ensure the SWP is developed in consultation with the TSF Engineer of Record and is submitted to the Chief Inspector at least 30 days prior to start of construction.

(d) The Permittee shall ensure a TSF construction monitoring plan is prepared by the Engineer of Record, is implemented, and is submitted to the Chief Inspector at least 30 days prior to commencing construction activities at the TSF. The Permittee shall ensure that the TSF construction monitoring plan includes, but is not limited to, monitoring frequencies and thresholds to be implemented during the following works:

(i) Foundation preparation;
(ii) Upstream riprap excavation;
(iii) Fill placement;
(iv) Liner installation; and
(v) Spillway construction.

3. Soil, Overburden and Rock Ore Stockpiles

The Permittee shall ensure that all soil, overburden and rock stockpiles are constructed in accordance with designs prepared by a Professional Engineer and are constructed and inspected to ensure stability and erosion control is maintained, unless exempt in writing from the Chief Inspector.

4. Borrow Pits and Quarry Excavations

The Permittee shall ensure that all borrow pits and quarry excavations are constructed in accordance with designs prepared by a Professional Engineer, and are constructed and inspected to ensure stability and erosion control is maintained.

C. Protection of Land and Watercourses

1. Environmental Management System

(a) The Permittee shall develop and implement an Environmental Management System (EMS) consisting of Environmental Management Plans (EMPs) and Standard Operating Procedures (SOPs). The Permittee shall ensure the EMS references relevant policies and establishes proactive procedures to provide direction for effective operational management and monitoring on-site. The Permittee shall submit the EMS and plans by May 31, 2021, to the satisfaction of the Chief Inspector.

(b) The Permittee shall ensure the EMS is reviewed annually, revised as soon and as often as required, and made available at the mine site at all times and to an Inspector of Mines upon request. The findings of the annual review of the EMS shall be reported in the Annual Reclamation Report.

(c) The Permittee shall ensure that mine site employees and contractors are knowledgeable and accountable to act consistently with the requirements of the EMPs and SOPs that form the EMS.

2. Environmental Site Management

The Permittee shall ensure that a qualified Environmental Site Manager is assigned. The Environmental Site Manager shall have the authority to implement remedial actions as may be necessary to ensure maintenance of environmental standards and permit requirements. If suspension of construction or operations occurs due to environmental concerns, the Permittee shall immediately notify the Chief Inspector.

3. Metal Leaching (ML) and Acid Rock Drainage (ARD)

(a) General

(i) The Permittee shall ensure that all materials with the potential to generate ML/ARD are placed in a manner that minimizes the production and release of metals and contaminants to levels that are protective of environmental quality.

(ii) The Permittee shall ensure that, unless otherwise approved, all plans for the prediction, prevention, mitigation and management of metal leaching and acid rock drainage are prepared in accordance with the *Guidelines for Metal Leaching and Acid Rock Drainage at Minesites in British Columbia* (1998).

(iii) The Permittee shall not make changes to the criteria for ML/ARD definition in C.3(b), waste handling procedures, mitigation strategies, or the materials monitoring program without the written approval of the Chief Inspector.

(iv) Concurrent with remediation and closure activities, the Permittee shall characterize excavated materials to determine ML/ARD generating potential, validate pre-construction predictions, guide material management decisions and confirm effectiveness of material handling procedures.

(v) The Permittee shall maintain an inventory of rock and overburden material, including information on composition, volume, source, history of excavation and geochemical monitoring data.

(vi) The Permittee shall not use PAG materials for construction purposes.

(vii) The Permittee shall ensure that no PAG rock is stored on surface after December 31, 2021.

(b) Definition of Potentially ARD Generating (PAG) and Metal Leaching (ML) Materials

(i) Tailings, overburden and construction materials are defined as PAG if NP/AP is < 2:1, where acid potential (AP) is calculated using total sulphur and neutralization potential (NP) is determined by the modified Sobek NP method.

(ii) Tailings, overburden and construction materials containing soluble metal concentrations (as determined by shake flask extraction) higher than the receiving water objectives are defined as having a potential for metal leaching.

(c) Analytical Requirements

The Permittee shall ensure that all water quality and solid material samples are analyzed by a certified off-site laboratory.

(d) ML/ARD Reporting

The Permittee shall ensure results of the ML/ARD analytical testwork be reported and assessed in the Annual Reclamation Report and any significant changes or trends shall be discussed, and implications for materials handling shall be identified.

4. Surface and Ground Water Management and Monitoring

(a) The Permittee shall develop and submit a Water Management and Monitoring Plan by May 31, 2021 to the satisfaction of the Chief Inspector. The Permittee shall ensure the plan includes, but is not limited to, surface water, tailings porewater, seepage, and groundwater quality and quantity monitoring locations, frequencies and parameters. The Permittee shall ensure that an effective QA/QC program for the surface water, groundwater and seepage monitoring programs is included and implemented.

(b) The Permittee shall ensure that water quality monitoring results, including interpretation of results, are reported and assessed in the Annual Reclamation Report. The Permittee shall ensure that any significant changes or trends in water quality or quantity are discussed, and those that require additional evaluation and management are identified in the report.

(c) The Permittee shall include a comparison of water quality monitoring results to source term concentrations in the Annual Reclamation Report. The Permittee shall ensure that the implications of the results to source term refinement, water quality mitigation, source control and adaptive management are discussed in the report.

5. Tailings Geochemistry Monitoring and Assessment

(a) The Permittee shall develop and implement a Tailings Geochemistry Monitoring and Assessment Report, and shall submit to the Chief Inspector by March 31, 2024. The Permittee shall ensure that the report includes, but is not limited to, the following:

(i) A summary of pre-covered and post-covered tailings porewater quality, and unsaturated zone monitoring results;

(ii) A post-covered tailings sampling and characterization program, which includes total solid-phase concentrations, bulk mineralogy and the presence of authigenic phases;

(iii) Comparisons of pre-covered and post-covered tailings porewater, solid-phase composition, and geochemical modelling results;

(iv) An updated assessment of the long-term geochemical stability of the tailings; and

(v) A schedule for reporting subsequent tailings geochemistry monitoring and assessment results.

6. Model Validation and Updated Water Quality Predictions

(a) The Permittee shall track water quality and flow monitoring data to enable updating and refinement of water quality predictions based on site-specific monitoring and cover performance information.

(b) The Permittee shall submit to the Chief Inspector by October 31, 2025, for review and approval, an updated Water Quality Prediction Model. The Permittee shall ensure that the updated model incorporates updated groundwater modelling, the mine water balance, and the results of the tailings geochemical assessment. In addition, the Permittee shall clearly describe all changes that are applied to the updated model.

(c) The Permittee shall update the water quality model every five years, beginning October 31, 2025, as part of the Reclamation and Closure Plan update, or more frequently as necessary to inform reclamation and closure planning and mitigation design and engineering.

7. Construction Environmental Management

The Permittee shall implement the Construction Environmental Management Plan (CEMP) (Document 1). The Permittee shall ensure that construction activities are overseen by a qualified and trained construction environmental monitor on site. The construction environmental monitor shall have the authority to implement remedial actions as may be necessary to ensure maintenance of environmental standards and permit requirements. If the environmental monitor suspends works for any reason, the Permittee shall ensure that the Chief Inspector is notified.

8. Erosion and Sediment Control

(a) During the construction period, the Permittee shall ensure inspections are conducted daily during rain events and the snowmelt period on the mine site. The Permittee shall implement immediate remedial action where excessive sediment-laden runoff is observed.

(b) The Permittee shall appropriately characterize any significant releases of sediment-laden water from the mine boundary, defined as an unauthorized discharge to the receiving environment, with respect to extent and loading, and report the occurrence to the Chief Inspector with recommendations for improvement to the water management system, if required.

(c) The Permittee shall ensure the characterization of unauthorized discharges of sediment-laden runoff includes, at a minimum, flow, total suspended solids, turbidity, pH, conductivity, temperature, dissolved oxygen, and total and dissolved metals, of both the effluent and the receiving water.

9. Soil Salvage and Stockpiling

(a) The Permittee shall salvage and stockpile topsoil, overburden, and organic material including large woody debris for use in reclamation.

(b) The Permittee shall ensure that a qualified professional monitor directs soil sampling, salvage, segregation, and stockpiling activities on-site.

(c) The Permittee shall ensure that materials salvaged for use in reclamation are segregated based on salvage origin and measured suitability for reclamation purposes. Prior to mixing with other sources and/or applying on-site, the Permittee shall characterize and evaluate the suitability for reclamation any materials with the potential to be contaminated.

(d) The Permittee shall maintain an inventory of stockpiles of salvaged soil, overburden and organic matter including large woody debris specifying the locations, origins, and quantities of material. The Permittee shall report this information in the Annual Reclamation Report.

(e) The Permittee shall protect stockpiles from erosion, degradation, and contamination through revegetation and/or other practices.

(f) The Permittee shall ensure that stockpiles are clearly marked to ensure that they are protected during construction and mine operations.

(g) The Permittee shall not use soil suitable for use in reclamation as fill.

10. Vegetation Management

(a) The Permittee shall limit disturbance to vegetation to those areas approved by this permit.

(b) The Permittee shall manage and control weeds that establish on the site and shall ensure that weeds do not migrate from the site to adjacent areas. The Permittee shall consider using non-toxic means for weed control. The Permittee shall ensure that all seed used on-site is certified weed free.

11. Wildlife Protection

(a) Pursuant to Part 1.6.9 of the Code, the Permittee shall incorporate in the mine safety program, a no hunting and shooting policy for the mine permit area (Figure 1).

(b) The Permittee shall implement a policy of no fishing and hunting for all employees and contractors while on company business or while commuting to and from the mine.

12. Archaeological Resources

(a) Prior to beginning any mechanized surface disturbance on undisturbed lands, the Permittee shall conduct field surveys consistent with archaeological and cultural heritage resources management procedures consistent with the provisions of the BC Heritage Conservation Act.

(b) For those sites that cannot be avoided, the Permittee shall contact the Archaeology Branch of the Ministry of Forests, Lands and Natural Resource Operations and Rural Development and make arrangements to scientifically excavate and record findings.

13. Ongoing Reclamation Research

(a) The Permittee shall submit to the Chief Inspector by March 31, 2022, a Reclamation Research Program that includes details for achieving the research requirements outlined in this permit with a schedule for implementation and a description for how results will be utilized and reported. The Permittee shall ensure that the Reclamation Research Program includes a TSF cover performance assessment for achieving the end land use objective.

(b) The Permittee shall ensure a detailed summary of all research being conducted under this section is provided in the Annual Reclamation Report, including description of research activities, results, and outcomes.

(c) The Permittee shall conduct research to determine the viability of revegetation with native plant species, including culturally important species. This includes vegetation metal uptake studies to determine if allowing woody vegetation to establish is an acceptable risk.

(d) The Permittee shall establish test plots that will be used to evaluate the reclamation approaches and prescriptions applied to confirm that ecological trajectories consistent with the land use and capability targets are being achieved.

(e) The Permittee shall develop and implement a monitoring program designed to evaluate the success of revegetation, habitat restoration, soil development and erosion control. The Permittee shall include in this program ecosystem-specific sampling parameters and performance criteria.

(f) The Permittee shall develop and implement a monitoring program for evaluating metal uptake in exposed terrestrial and aquatic ecosystems, which specifies sampling requirements and performance criteria. Where harmful levels are found, the Permittee shall take any corrective action necessary to mitigate to ensure levels are safe for plant and animal life.

D. Reclamation and Closure Program

1. Reclamation Security

(a) The Permittee shall cause to be deposited with the Minister of Finance security in the amount of Two Million Seven Hundred Sixty Nine Thousand Four Hundred Seventy Nine ($2,769,479.00) dollars. The security shall be posted in accordance with the schedule shown below. The security will be held by the Minister of Finance for the proper performance of the approved program and all conditions of the M-218 permit in a manner satisfactory to the Chief Permitting Officer.

Date	Amount
December 31, 2025	$2,769,000.00

(b) The Permittee shall submit to the Chief Permitting Officer a report outlining compliance with the schedule of Post-Closure monitoring identified in Document 1 (Appendix K) by March 31, 2025, to the satisfaction of the Chief Permitting Officer. The Permittee shall ensure the report includes the following Post-Closure monitoring:

(i) Annual groundwater and surface water quality monitoring
(ii) Annual geotechnical monitoring
(iii) Minimum of one Dam Safety Review
(iv) Minimum of three years of revegetation monitoring

(c) Following the submission of the report required in condition D.1(b), with the approval of the Chief Permitting Officer in writing, the Permittee will not be required to post the security required in condition D.1(a).

(d) Notwithstanding the security posted as a condition of this Permit, the Permittee remains responsible for covering all closure and reclamation costs associated with reclamation and environmental protection.

2. Land Use

(a) The Permittee shall ensure that the land surface is reclaimed with the intent of re-establishing average pre-mining capability to the end land use objectives of Wildlife Habitat and Industrial.

(b) The Permittee shall ensure that borrow pits and quarries are reclaimed to the approved end land use once no longer required.

3. Erosion Control

The Permittee shall achieve reduction of erosion through landform configuration, development of maintenance-free vegetation covers, and the development of stable, self-sustaining drainage control features and watercourses.

4. Re-vegetation

The Permittee shall ensure the land is revegetated to a self-sustaining state using appropriate and/or native plant species including culturally important native species.

5. Growth Medium

(a) The Permittee shall monitor soil replacement operations to ensure the minimum depths are achieved. The Permittee shall develop a confirmation sampling plan to ensure quality of soil used for reclamation purposes will achieve end land use objectives. The Permittee shall report all results in the Annual Reclamation Report.

(b) The Permittee shall ensure that areas to be reclaimed are decompacted to the minimum depth required to adequately address the severity of compaction prior to placement of soil and or vegetation, in a manner intended to achieve end land use objectives and erosion control, with the exception of areas where closure plans require compaction prior to placement of growth medium in order to reduce infiltration and contact water.

6. Surface Water Management Ponds and Channels

(a) The Permittee shall reclaim all surface water management ponds and water diversions once no longer required to satisfy stability and erosion control requirements and the approved end land use.

7. Mine Roads

(a) The Permittee shall ensure all mine roads are reclaimed, in accordance with recommendations of a qualified professional, to satisfy the approved end land use objectives, including all reasonable efforts to fully re-configure to conform to the adjacent landscape where long-term stability is not compromised, unless permanent access is required.

(b) Individual mine roads may be exempted from the requirement for total reclamation under condition (a) if:

(i) The Permittee demonstrates that an agency of the Crown has explicitly accepted responsibility for the operation, maintenance and ultimate deactivation and abandonment of the road, or

(ii) The Permittee demonstrates that another private party has explicitly agreed to accept responsibility for the operation, maintenance and ultimate deactivation and abandonment of the road and has, in this regard, agreed to comply with all the terms and conditions, including bonding provisions, of this reclamation permit, and with all other relevant provincial government (and federal government) regulatory requirements.

8. Reclamation Program and Closure Plan Update

The Permittee shall develop and submit an updated Reclamation and Closure Plan to the satisfaction of the Chief Inspector by March 31, 2025, which includes, but is not limited to, the following information:

(a) The current status of the reclamation obligations based on the approved end land use;

(b) A compilation and interpretation of all monitoring for life of mine, including ML/ARD prediction, water quality and quantity, modelling predictions, metal uptake studies, soil, vegetation and reclamation programs;

(c) Detailed closure and maintenance activities;

(d) A compilation and interpretation of any research program used to inform closure planning strategies;

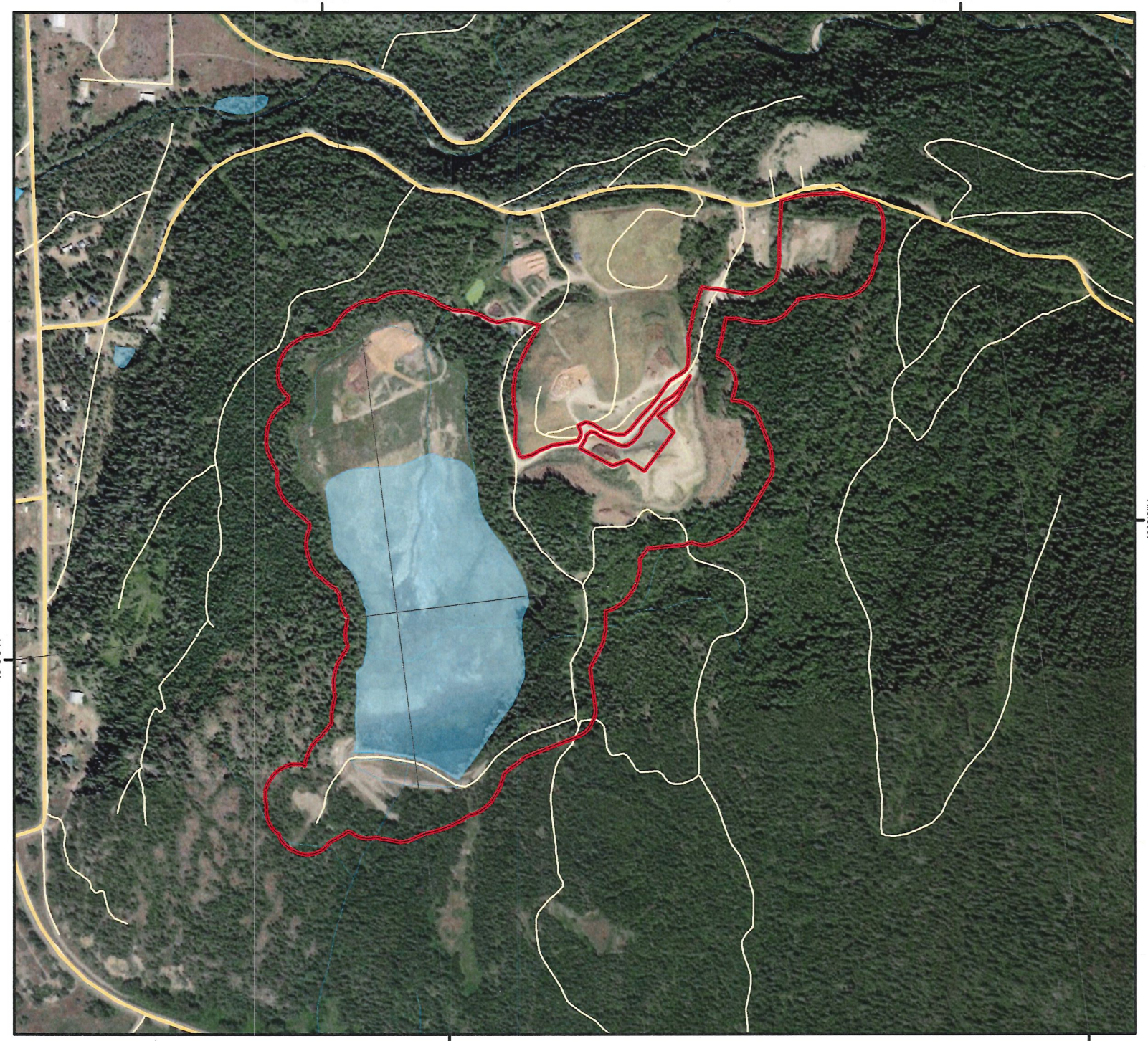
(e) Detailed contingency/remediation plans;

(f) Detailed schedule for completion of reclamation/closure works;

(g) Closure Management Manual that details monitoring and maintenance activities for post closure; and

(h) A breakdown of outstanding liabilities and associated costs including activities detailed for remediation and post closure.

Figure 1 – Permitted Mine Area



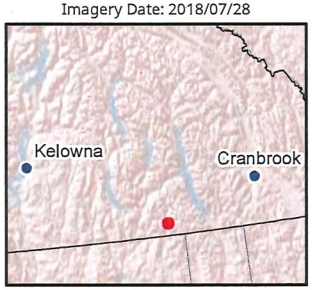
BRITISH COLUMBIA
www.gov.bc.ca

HB Tailings Landfill
M-218

Figure 1
Draft Permitted Mine Area

Permitted Mine *64.3*

Imagery Date: 2018/07/28



0 100 200 300
Meters

N

Base Data:
BC Geographic Warehouse & ESRI Imagery
NAD 1983 BC Environment Albers
Date: 2021/03/30 10:08:16 AM
Prepared By: NHEIDECK

Document Path: W:\em\mmd\Workarea\Victoria\Reclamation & Permitting\MajorMine\M-10 Kitsault\Figure1_PermitAmendment\mxds\Figure1_M_218_HBMine_PMAAmendment_2021Mar30_8_5x11.mxd

APPENDIX B-1: WATER QUALITY MANAGEMENT AND MONITORING PLAN

Water Quality Management and Monitoring Plan 2025 Update

HB Tailings Management Facility
Salmo, British Columbia

Regional District of Central Kootenay

Box 590, 202 Lakeside Drive, Nelson, BC V1L 5R4

Prepared by:

SLR Consulting (Canada) Ltd.

8 St. Paul Street W, Kamloops, BC V2C 1G1

SLR Project No.: 204.03242.00011

September 11, 2025

Revision: 1

Revision Record

Revision	Date	Prepared By	Checked By	Authorized By
0	March 31, 2025	B. Foulger	M. Venhuis	M. Venhuis
1	September 11, 2025	B. Foulger	M. Venhuis	M. Venhuis

Statement of Limitations

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Any findings, conclusions, recommendations, or designs provided in this report are based on conditions and criteria that existed at the time work was completed and the assumptions and qualifications set forth herein.

This report may contain data or information provided by third party sources on which SLR is entitled to rely without verification and SLR does not warranty the accuracy of any such data or information.

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Acronyms and Abbreviations

AWF	Aquatic Life Freshwater
ARD	acid rock drainage
BC	British Columbia
BFD	blind field duplicate
BMP	best management practice
CALA	Canadian Association for Laboratory Accreditation
CCME	Canadian Council of Ministers of the Environment
CDA	Canadian Dam Association
CEMP	Construction Environmental Management Plan
CEPA	*Canadian Environmental Protection Act*
COPCs	contaminants of potential concern
COSEWIC	Committee on the Status of Endangered Wildlife in Canada
CSR	Contaminated Sites Regulation
DOC	dissolved organic carbon
DSR	Dam Safety Review
DW	Drinking Water
EM	Environmental Monitoring
EMA	*Environmental Management Act*
EMP	Environmental Management Plan
EMR	Environmental Monitoring Record
EMS	Environmental Management System
ENV	BC Ministry of Environment and Parks
EPRP	Emergency Preparedness and Response Plan
HADD	harmful alteration, disruption or destruction
HWR	Hazardous Waste Regulation formerly Special Waste Regulation
IW	Irrigation
km	kilometre
LW	Livestock
m	metre
MBCA	*Migratory Birds Convention Act*
ML	metal leaching
MMCM	Ministry of Mining and Critical Minerals
OMS	Operations, Maintenance, and Surveillance
QEP	Qualified Environmental Professional

QP	Qualified Professional
RCP	Remediation and Closure Plan
RDCK	Regional District of Central Kootenay
RPD	relative per cent difference
SAR	Species at Risk
SARA	*Species at Risk Act*
SLR	SLR Consulting (Canada) Ltd.
SLR	SLR Consulting (Canada) Ltd.
SOP	Standard Operating Procedure
SRK	SRK Consulting (Global) Ltd.
Teck	Teck Resources Ltd.
the Code	Health, Safety and Reclamation Code for Mines in BC
TMF	Tailings Management Facility
TRV	toxicity reference value
TSS	Total suspended solids
WL	Wildlife
WLR	wildlands (reverted) land use
WQGs	Working Water Quality Guidelines
WQMMP	Water Quality Management and Monitoring Plan
WSA	*Water Sustainability Act*

1.0 Introduction

This report presents the 2025 Water Quality Management and Monitoring Plan (WQMMP) for the HB Tailings Management Facility (TMF), also referred to as "the site" located approximately six kilometres (km) south of the Village of Salmo, British Columbia (BC). The TMF stores tailings from Cominco Limited's (Teck Resources Ltd.) historic operations at the nearby HB Mine. The TMF has been under the care of the Regional District of Central Kootenay (RDCK) since 1998. The site location is provided on Figure 1.

A comprehensive Remediation and Closure Plan (RCP) for the HB TMF was prepared by the RDCK with the most recent version submitted to the Ministry of Mines and Critical Minerals (MMCM), formerly the Ministry of Energy, Mines and Low Carbon Innovation in August, 2020. The RCP was prepared in accordance with Section 10 of the *Mines Act* and the Health, Safety and Reclamation Code for Mines in British Columbia (the Code), and was designed to meet the requirements of all applicable provincial and federal legislation. The RCP was prepared as part of an application to amend *Mines Act* Permit M-218, in which the RDCK applied to complete closure construction works, remediate and reclaim the areas formerly disturbed by historical tailings storage operations, and transition the facility through active-care phase to the passive-closure phase, as defined by the Canadian Dam Association (CDA). The focus of the RCP was to ensure the long-term physical and chemical stability of the facility, remediate and control tailings erosion and transport, maintain acceptable water quality, protect public health and safety, minimize environmental risk of the escape of fine tailings contamination, and restore productive end land use.

Permit M-218 was amended on May 18, 2021 to approve the HB TMF RCP. As part of the amendment, MMCM stipulated that "*the Permittee shall develop and submit a Water Management and Monitoring Plan by May 31, 2021 to the satisfaction of the Chief Inspector"* (EMLI 2021).

A WQMMP was prepared and submitted to Ministry of Energy, Mine and Low Carbon Initiative (EMLI) in 2021 (SLR 2021a), and an updated WQMMP was prepared and submitted to EMLI in 2022 (SLR 2022). The updated 2022 WQMMP included additional porewater monitoring and sampling details and was reviewed and approved by EMLI in March 2023. Permit M-218 was most recently amended in 2025 to reflect updates to the Code including a new requirement for annual review and sign off of the WQMMP by a Qualified Professional (QP). This current report presents the 2025 WQMMP (i.e., updated 2023 WQMMP) developed to satisfy EMLI Permit M-218 amendment and applies to the site conditions post-construction.

The environmental media considered in the 2021 and 2022 – WQMMP were limited to surface water and groundwater. Amendments to Permit M-218 requires characterization of surface water, tailings porewater, seepage and groundwater; therefore, tailings porewater and seepage were added to the environmental media considered in the 2025 WQMMP.

Site closure works completed in 2021 included dewatering and backfilling of the tailings pond, lowering and rebuilding the spillway, construction of the dam toe berm and upstream beach, placement of surface cover and landform stockpiling. Water quality monitoring and sampling completed during discharge of tailing pond water and during the construction environmental monitoring is documented under separate cover (SLR 2021b). Additional closure works completed in 2022 included dewatering of the remaining portions of the tailings pond, completion of the tailing surface and landform cover placement, construction of the surface water conveyance channels as well as hydroseeding areas of exposed soils in the tailings, dam and borrow pit areas. Facility closure construction objectives were completed in 2022.

Post construction monitoring including environmental monitoring of sediment and erosion control measures, facility construction repairs, borrow pit construction, surface water diversions and event-driven surface water monitoring and sampling was conducted in 2023 and 2024.

1.1 Objectives

The 2025 WQMMP is intended to outline the monitoring, reporting, and quality assurance and quality control (QA/QC) program for water resources (e.g., surface water, tailings porewater, seepage and groundwater) at the HB TMF following remediation and closure. The goal of the WQMMP will be to ensure the works constructed as part of the remediation and closure plan are performing as intended and that there are no adverse effects on the environment or human health at the TMF and downstream receptors.

1.2 Annual Document Review Tracker

This current report provides an update to the 2023 WQMMP (SLR 2023). Table 1, presented after the text, provides a log of the changes made to the original text, tables and/or figures.

2.0 Key Site Characteristics

The following sections describe the key characteristic of the TMF as they pertain to water resources. The information presented below is sourced from the HB TMF RCP, prepared by the RDCK (RDCK 2020).

2.1 Site Components

The site components that comprise the facility post closure include: the tailings deposition area the former tailings pond, the tailings dam, spillway, downstream channel, associated access roads, granite rock quarry, and borrow areas. These elements and their history are depicted on Figure 5 and discussed in detail in Section 3.0 of the HB TMF RCP (RDCK 2020).

The pre-remediation and closure tailings deposition area measured approximately 30 hectares and occupied the mid to low portion of a hanging valley that drains to the south. The tailings pond was drained, and the pond was backfilled with fill from the borrow pit in 2021 and 2022 as part of closure works. Surface water conveyance channels as well as application of remaining surface and vegetation cover were completed in 2022.

Post closure site repair works and spillway inlet and conveyance channel repairs were completed in 2023 and borrow pit surface water diversions, culvert replacement and ditching were completed in 2024.

2.2 Topography and Surface Drainage Features

The site is located between the Nelson and Bonnington Ranges of the Selkirk Mountains and at the base of the western slope of Iron Mountain. Figure 2 illustrates the catchment area that reports to the TMF as well as the significant surface drainage features under current closure conditions.

The major drainage in the area is the Salmo River, located in the floodplain area west of the site. A bedrock ridge trending north-south separates the Salmo River floodplain from the TMF. Sheep Creek is located north of the site and flows westward to the Salmo River. The Central Landfill and Iron Mountain are located east of the site on moderate well-treed slopes.

The tailings deposition area measures approximately 30 hectares and occupies the mid to low portion of a hanging valley that drains to the south. Surface water is directed towards the dam spillway through a series of conveyance channels and spillway before it discharges into a natural drainage channel located in a narrow valley below the dam (Figure 5). Drainage then crosses beneath Highway 3 at the Outlet Ditch via a culvert and flows through a man-made ditch system on the Salmo River floodplain to the Salmo River (RDCK 2020). The ditch system was rebuilt during remedial works completed on the downstream property by Teck Resources Ltd. (Teck) in 2021.

2.3 Climate

The climate for the region is characterized by warm, dry to moderately moist summers and cool, snowy winters. Snowfall typically starts accumulating in November with maximum accumulation occurring in March. Snow melt at the facility generally occurs in late March and April. Meteorological parameters are not measured at the HB TMF (elevation 710 metres (m)). The closest active station to the facility is Castlegar Airport, BC (Climate ID: 1141455), located approximately 36 km northwest of the Facility in an adjacent valley at an elevation of 495 m.

Historically, an Environment Canada climate data station was located in Salmo, BC (Climate ID: 1146944) that operated from 1972 to 1980. The comparison of the climate data indicates that precipitation in Salmo (elevation 670 m), is slightly higher and temperatures generally cooler than in Castlegar, BC. Based on the Castlegar Airport climate normal data, the site is expected to be snow covered an average of 90 days per year. In addition, temperatures at the site are zero degrees Celsius or below for an average of 120 days per year.

A hydrological analysis of the site was undertaken as part of the HB TMF RCP to develop inputs to the hydraulic designs of the spillway and other conveyance structures at the facility. A regional analysis was implemented that included data from 22 climate stations within 150 km to establish a long-term synthetic period of record for air temperature, precipitation, wind speed, and snowmelt. Probabilistic climate change modelling was incorporated into the analysis to address climate change trends and effects that may occur at the facility in the future. The complete analysis is provided in Appendix C-1 of the RCP (RDCK 2020).

2.4 Groundwater Hydrogeology

Groundwater monitoring data from the landfill and tailings areas indicate that groundwater flow occurs primarily within the overburden granular/sandy soils that overly generally competent and less permeable bedrock. Bedrock generally consists of phyllite, schist, micaceous quartzite, with minor limestone. An outcropping of granite is observed in the southwestern portion of the site at the west abutment of the tailings dam. The depth to bedrock varies across the Site and ranges from 0 to 29m below ground surface (GHD 2024). Much of the overburden at the site is composed of relatively permeable sands and sandy gravels. Discontinuous layers of low-permeability silts and silty clays are also evident.

Ridges east and west of the facility represent groundwater recharge areas and the former tailings pond is an area of groundwater discharge. An east-west bedrock ridge underlies the landfill footprint and provides the northern boundary of the groundwater catchment. Groundwater flows primarily towards the south beneath the tailings, within the valley axis towards the valley bottom aquifer (AMEC 2014). Between the landfill and the tailings area, evaluation through single-well response tests indicate that the hydraulic conductivity of the overburden is about $1.8x10^{-5}$ m/s, which is typical of silty sand (CRA 2005).

The calculated groundwater velocity within the tailings area is estimated at around 5.4 m/year due to the lower hydraulic gradient through the tailings deposition area and the lower hydraulic conductivity of the tailings (GHD 2024).

Groundwater is typically encountered less than 1.0 m below the ground surface within the tailings deposition area and approximately 4.0 m below ground surface downgradient of the dam (RDCK 2020). The interpreted groundwater elevation contours in the Central Landfill and tailings areas are provided in Figure 3.

2.5 Closure Measures

The post closure project area consists of the existing facility as well as the expansion of the toe berm, spillway, rock quarry, and two existing borrow areas located on the south and east sides of the Central Landfill. Closure measures were completed in 2022 with construction of the surface water channels, final tailings surface cover placement and cover seed application. Closure measures are discussed in detail in Section 6.0 of the RCP (RDCK 2020).

The resulting closure components of the remediation consist of the following features:

- Dam upgrades: toe berm expansion and upstream till beach.
- Lowered spillway and elimination of the pond upstream of the dam.
- Tailings cover placement and seeding to promote vegetation establishment.
- Lined surface water channel construction over the tailings facility.

The post closure site components pertaining to surface water are further described below.

Lined surface water channels were built over the tailings cover system to convey flows from the Central Landfill (Main Channel) and from two small ephemeral streams that enter the tailings deposition area (North Spur Channel and South Spur Channel, which are depicted on Figure 4.

Flows from the three surface water conveyance drainage channels are connected to the spillway at the west abutment of the Dam and are discharged into a natural drainage channel before a culvert crossing beneath the highway and flowing through a man-made ditch system to the Salmo River. The lower channel was re-constructed by Teck in 2022 to remove blockages and establish surface water flow downgradient of the Highway 6 culvert.

Vegetation growth has established in the channels as a stand-along erosion protection measure to minimize long-term maintenance requirements. The surface drainage channels are described in Appendix C-6 of the HB TMF RCP (RDCK 2020).

3.0 Regulatory Framework

The BC Ministry of Environment and Parks (ENV) is the lead provincial environmental regulatory agency responsible for the administration of contaminated sites policy and management. The Ministry of Mining and Critical Minerals (MMCM) is responsible for regulating mining in BC.

Key provincial acts and regulations include the following:

- *Environmental Management Act (*EMA*)*, Province of BC, 2003 with amendments to March 24, 2021.
- Contaminated Sites Regulation (CSR), Province of BC, 1997, with amendments to March 11, 2021.
- Hazardous Waste Regulation (HWR; formerly Special Waste Regulation), Province of BC, 1988, with amendments to November 1, 2017.
- Mines Act. Province of BC, 1996 with amendments to July 2025.

This section presents an overview of the regulatory framework, monitoring requirements, and environmental guidelines and standards in the context of the receiving environment.

3.1 Permit M-218 Requirements

The remediation and closure activities at the site are permitted under Permit M-218 most recently amended in 2025. The following conditions apply under Permit M-218 to surface and groundwater management and monitoring:

4. Surface and Ground Water

(a) Surface Water and Groundwater Management

(i) The Permittee must maintain a Surface Water and Groundwater Management Plan, including standard operating procedures (SOPs) and a QA/QC program. The Permittee must ensure that:

(a) The Surface Water and Groundwater Management Plan includes:

(i) Description and schematics of overall site water management processes and infrastructure;

(ii) Description of existing water management infrastructure;

(iii) Detailed monitoring and maintenance procedures, including schedules, for all site water management infrastructure;

(iv) Contingency plans for maintenance of a water cover in the TSF under variable scenarios; and

(v) Contingency plans for storage and management of effluent on the mine site that is unable to be discharged to the environment.

(b) Site-wide surface and groundwater management is reviewed by a Qualified Professional on an annual basis;

(c) The Surface Water and Groundwater Management Plan is reviewed and signed off by a Qualified Professional on an annual basis; and

(d) All recommended changes arising from the reviews referred to in Conditions C.4 (a)(i)(b) and C.4(a)(i)(c), including but not limited to source term refinement, water quality mitigations, and adaptive management, are documented in the Annual Reclamation Report.

(ii) The Permittee must maintain a system of drainage diversion and collection ditches to minimize contaminant loadings from areas of disturbance or waste disposal.

(b) Surface Water and Groundwater Monitoring

(i) The Permittee must track changes to surface water, seepage, and groundwater quality and quantity on the mine site. The Permittee must ensure that the program is capable of providing early warning about the onset of ARD or an increase in contaminant loading.

(ii) The Permittee must keep monitoring results of surface water, groundwater, and seepage quality and quantity up to date in a dedicated database.

(iii) For all surface water monitoring locations, the Permittee must ensure that sampling is conducted per the most recent version of the British Columbia Field Sampling Manual.

(iv) The Permittee must ensure that surface water and groundwater monitoring includes, at a minimum, the following:

(a) Water quantity and quality monitoring locations, monitoring frequencies, and parameters for the following:

(i) Surface water;
(ii) Tailings porewater;
(iii) Seepage; and
(iv) Groundwater.

(v) The Permittee must ensure that an effective QA/QC program for the surface water and groundwater monitoring program is implemented as part of the Surface Water and Groundwater monitoring program. The Permittee must ensure that this includes detection limits, performance criteria that define acceptable levels of precision and accuracy and reporting of any missed sampling events.

(c) Surface Water and Groundwater Modelling and Mitigation Planning.

(i) The Permittee must update the site-wide water quality model and submit a Surface Water Quality Model Report every five years, beginning March 31, 2027, as part of the Mine Plan and Reclamation Program Update, or more frequently if site water management or source terms significantly change. The Permittee must ensure that the model updates and the report include, but are not limited to, the following:

(a) Documentation of the incorporation of the most recent updated numerical groundwater model;

(b) Documentation of the incorporation of the most recent reconciled site-wide water balance;

(c) Recent monitoring data for groundwater, tailings porewater, and surface water quality, groundwater levels, surface water quantity, and geochemical source terms;

(d) Description and results of model calibration or validation; and

(e) A comparison of surface water quality predictions to applicable provincial water quality standards or guidelines.

(ii) Based on the results of the updated surface water and groundwater models, the Permittee must determine additional source control and/or water quality mitigation measures required to achieve applicable provincial water quality standards throughout the life of mine and end land use and productivity objectives. The Permittee must submit a report documenting the determination every five years, beginning March 31, 2027, as part of the Mine Plan and Reclamation Program Update.

(iii) Tailings Geochemistry Monitoring and Assessment

(a)The Permittee must develop and implement a Tailings Geochemistry Monitoring and Assessment Report and must submit the report to the Chief Inspector by March 31, 2024. The Permittee must ensure that the report includes, but is not limited to, the following:

(i) A summary of pre-covered and post-covered tailings porewater quality, and unsaturated zone monitoring results;

(ii) A post-covered tailings sampling and characterization program, which includes total solid-phase concentrations, bulk mineralogy and the presence of authigenic phases;

(iii) Comparisons of pre-covered and post-covered tailings porewater, solid-phase composition, and geochemical modelling results;

(iv) An updated assessment of the long-term geochemical stability of the tailings; and

(v) A schedule for reporting subsequent tailings geochemistry monitoring and assessment results.

(d) Surface Water and Groundwater Annual Reporting

(i) The Permittee must report results of surface water and groundwater monitoring, including QA/QC results, in the Annual Reclamation Report. The Permittee must ensure that the results are compared to applicable provincial water quality standards and guidelines. The Permittee must assess significant changes or trends in water quality or quantity and include discussion of that assessment in the report.

(ii) The Permittee must include a quantitative comparison of relevant surface water, groundwater, and ML/ARD monitoring data to source terms used in water quality predictions and results of surface water and groundwater models in the Annual Reclamation Report. If there are substantive discrepancies, the Permittee must include a discussion of proposed source term revisions prepared by a QP in the Annual Reclamation Report.

3.2 Contaminated Sites Regulation

The CSR under *the Environmental Management Act* (EMA) is the principal regulatory document defining requirements for contaminated sites management in BC. The CSR came into effect on April 1, 1997 and was amended most recently on March 3, 2023. Under section 63.1 of the EMA, the director's interim standards are legally binding. Protocols under section 64 specify additional legal obligations. The Hazardous Waste Regulation (HWR) may also apply where contaminated media are transported and managed or disposed of off-site.

The EMA and CSR have provisions for incorporating numerical and risk-based standards approaches to managing site contamination.

The legislation outlines site assessment procedures, remediation requirements, and application processes for environmental closure for a property. Numerical standards are an essential component of CSR requirements, as they define whether a site is contaminated or has been satisfactorily remediated when using the numerical standards approach.

Technical Guidance, Administrative Guidance, Procedure and Policy documents issued by the BC ENV clarify the interpretation of regulatory standards and requirements and provide information regarding their application. Provisions in these documents are not legally binding but indicate the expectations of the ENV.

3.3 Guidelines and Standards

The following sections present the working water quality guidelines (WQGs) and standards that will be used to assess surface and groundwater quality as part of the WQMMP. There are no guidelines for porewater quality. However, any metals that are mobilized from porewater are likely to report to groundwater or potentially surface water and would; therefore, be assessed against groundwater and/or surface water quality guidelines.

3.3.1 Surface Water

The BC Approved WQGs (ENV 2025) and Working WQGs (BC Ministry of Water, Land and Resource Stewardship [(BC WLRS) 2024] will be the preferred source of guidelines for the evaluation of surface water quality, including seepage. Specifically, the surface water quality on-site will be compared to WQG for the protection of the following water uses:

- Freshwater aquatic life (AWF - long-term chronic and short-term acute values;) and,
- Wildlife.

The surface water quality in the receiving environment (Salmo River) will be compared to WQGs for the protection of the following water uses:

- Freshwater aquatic life (AWF - long-term chronic and short-term acute values);
- Drinking Water (DW);
- Livestock Watering (LW);
- Wildlife (WL); and,
- Irrigation (IW).

In the absence of BC ENV Approved and Working WQGs, the Canadian Council of Ministers of the Environment (CCME) WQGs will be used to evaluate the surface water quality.

In addition, to the above WQGs and standards, toxicity reference values (TRVs) were derived as part of the Human Health and Ecological Risk Assessment (HHERA) report (SLR 2019: Section 3.4; Appendix E) and to support the dewatering of the tailings pond (SLR 2020).

The TRVs will also be used to evaluate the results of the surface water samples (see Section 0 of this current report).

3.3.2 Groundwater

The following CSR standards are applicable to the groundwater at the site:

- BC CSR Schedule 3.2 Generic Numerical Water Standards for freshwater aquatic life (AWF);
- BC CSR Schedule 3.2 Generic Numerical Water Standards for drinking water (DW).
- BC CSR Schedule 3.2 Generic Numerical Water Standards for irrigation watering (IW).

BC CSR Schedule 3.2 Generic Numerical Water Standards for livestock watering (LW).
For parameters not regulated under the CSR, the BC Approved and Working WQGs for AWF multiplied by a factor of ten (to account for dilution along the groundwater flow path prior to discharge to surface water) (10 x BC WWQG AWF) will be applied to groundwater.

4.0 Water Monitoring

Post-construction water quality monitoring was conducted in 2023 and 2024 by Masse Environmental and will continue in 2025 to ensure the constructed works are performing as intended and that there are no adverse effects on the environment or human health.

This section provides a summary of water quality pre-construction, and post-construction as well as predicted water quality.

As indicated in the introduction, the surface, groundwater and porewater monitoring programs presented in this section generally follows and builds upon the existing environmental monitoring program, which is detailed in the site's Annual Reclamation Report (RDCK 2019).

4.1 Surface Water Monitoring

4.1.1 Summary of Surface Water Quality Conditions

4.1.1.1 Pre-construction Surface Water Quality Conditions (Pre 2021)

Surface water quality has been monitored as part of the reclamation monitoring program in the tailings area in the spring and fall of each year since 2002. Surface water samples have been collected from six locations: SW1-07, SW2-07, SW3-07, SW4-07, Spillway Outlet, and Outlet Ditch as depicted on Figure 5.

Locations SW2-07 and SW3-07 are located upgradient of the tailings storage facility and to the south of the landfill and have been used to characterize background water quality for TMF.

In October 2018 an additional sample location - seepage area upstream of the v-notch weir below the dam (Seepage Weir, Figure 5) was added to the program. In addition, in April and October 2019, three surface water samples (Tailings Pond East, Tailings Pond SE and Tailings Pond West) were collected from within the tailings pond at different depths to characterize the water quality in the tailings pond (SLR 2020).

The samples were analyzed by ALS Canada Ltd. and Bureau Veritas, both Canadian Association for Laboratory Accreditation (CALA) certified laboratories located in Burnaby, BC. The samples were analyzed for general parameters, anions, nutrients, and total and dissolved metals. The results were compared to the guidelines listed in Section 3.3 of this current report.

Metals and nutrients including aluminum, cadmium, copper, iron, lead, manganese, selenium, uranium, zinc and nitrate (as N) have been detected in surface water at the site above the applicable guidelines since 2016 (RDCK 2020; SLR 2020).

In May 2021, a Baseline Water Quality Program was implemented by SLR to characterize surface water quality prior to draining the tailings pond. Three tailings pond water samples, and one tailings pond outlet sample were collected to determine concentrations prior to the tailings pond dewatering. The results were compared to the limits specified in ENV Authorization (Number 110450 – ENV 2021) to drain the pond. Concentrations were less than the authorized limits. Two samples were also collected in the Salmo River samples (upstream and downstream of the drainage ditch discharge). The results were compared to the guidelines listed in Section 0 of this current report. Parameters were less that the WQGs AWF except for dissolved copper.

4.1.1.2 Summary of Post-Construction Surface Water Quality Conditions

Post-construction water quality is defined in this report as water quality obtained in 2023 and 2024 after the construction works at the TMF were completed including surface water conveyance channels and application of surface cover. As such, post-construction water quality is representative of current conditions.

Surface water samples were obtained by Masse from eight locations in 2023 and 2024. Samples were obtained in March, May, August or September, and November to capture seasonal variation. Table A, on the next page, summarizes the 2023/2024 water quality monitoring locations and sampling dates. The former sampling locations SW4-07 and Tailings Pond Outlet were removed from the 2023/2024 sampling program.

SW4-07 no longer exists as surface water was re-directed around the tailings field. The Spillway Inlet and Outlet locations replace the former Tailings Pond Outlet.

Table A: 2023/2024 Post-Construction Surface Water Sampling Locations and Sampling Dates

Sampling ID	Location Description	Sampling Frequency							
		Mar-23	May-23	Sept-23	Nov-23	Mar-24	May-24	Aug 24	Nov-24
SW2-07	Background - Upgradient and east of tailings	Sampled	Sampled	Dry	Sampled	Sampled	Dry	Dry	Dry
SW3-07	Background	Sampled	Sampled	Dry	Dry	Sampled	Sampled	Dry	Dry
SW5-19	Background	Sampled	Sampled	Dry	Dry	Sampled	Sampled	Dry	Sampled
SW1-07	Central Landfill Outflow	Sampled	Sampled	Dry	Sampled	Sampled	Sampled	Dry	Dry
Seepage Weir	Downgradient along southern flow path	Sampled	Sampled	Sampled	Sampled	Sampled	Sampled	Sampled	Sampled
Spillway Inlet	Downgradient along southern flow path	Sampled	Sampled	Dry	Sampled	Sampled	Sampled	Dry	Sampled
Spillway Outlet	Downgradient along southern flow path	Sampled	Sampled	Sampled	Sampled	Sampled	Sampled	Sampled	Sampled
Outlet Ditch	Downgradient property boundary	Sampled	Sampled	Dry	Sampled	Sampled	Dry	Dry	Sampled
Source: Masse Environmental Consultants Ltd., 2023 and 2024									

An overview of the 2023/2024 Post-Construction Water Quality Monitoring Program results is provided in Table B.

Several parameters exceeded the WQGs at the background locations.

Total aluminum exceeded the WQG AWF in one or more samples at all three background locations indicating total aluminum likely occur naturally in elevated concentrations. Total aluminum did not exceed the WQG AWF at the landfill outflow or along the southern flow path.

Dissolved zinc exceeded the WQG AWF in one sample obtained at background location SW3-07 and SW5-19.

Uranium exceeded the WQG AWF and IW at several samples obtained from SW2-07. In addition, the sample obtained at SW2-07 had beryllium, chromium, cobalt, iron, lead and silver exceeding the WQGs AWF. These metals did not exceed the WQGs at any other locations or dates during the 2023 and 2024 surface water monitoring events.

At the landfill outflow monitoring location (SW1-07), exceedances of the BC WQGs were observed for sulfide (as H_2S), dissolved zinc, total manganese, and total uranium.

Downgradient along the southern flow path exceedances of the BC WQGs were observed for total manganese, total uranium and dissolved copper and zinc. Total manganese only exceeded the WQG IW at the Spillway Inlet and Spillway Outlet locations and at the Seepage Weir location but did not exceed the WQG AWF. There were no exceedances for total manganese observed at the Outlet Ditch.

Total uranium exceeded the WQG AWF and/or IW in one or more samples at all locations along the southern flow path. Dissolved zinc exceedances were only observed in March 2023 at the Spillway Inlet and Spillway Outlet locations and in May 2023 at the Outlet Ditch. There were no dissolved zinc exceedances along the southern flow path in 2024. Dissolved copper only exceeded the WQG AWF in November 2024 at the Spillway Inlet and Seepage Weir locations.

Table B: 2023/2024 Post-Construction Surface Water Sampling Results Summary

Sampling Date	Background Locations			Landfill Outflow	Along Southern Flow Path			
	SW3-07	SW5-19	SW2-07	SW1-07	Spillway Inlet	Spillway Outlet	Seepage Weir	Outlet Ditch
March 2023	aluminium (AWF)	aluminium (AWF)	aluminium (AWF, IW, LW), beryllium (AWF), chromium (IW),cobalt (AWF),iron (AWF, IW),lead (DW),silver (AWF)	sulfide (AWF)	manganese (IW) diss. zinc (AWF)	diss. zinc (AWF)	manganese (IW)	diss. zinc (AWF)
May 2023			aluminium (AWF)	sulfide (AWF) manganese (IW) uranium (AWF)			uranium (AWF, IW)	diss. zinc (AWF)
Sept. 2023						manganese (IW)	manganese (IW)	
Nov. 2023			aluminium (AWF) uranium (AWF, IW)		uranium (AWF, IW)	uranium (AWF, IW)	manganese (IW)	uranium (AWF, IW)
March 2024			aluminium (AWF) uranium (AWF, IW)	diss. zinc (AWF)			manganese (IW) uranium (AWF)	
May 2024	diss. zinc (AWF)			uranium (AWF, IW)			manganese (IW)	
August 2024					manganese (IW)	sulphide (AWF)		
Nov. 2024		diss. zinc (AWF)		uranium (AWF)	diss. copper (AFW) uranium (AWF)	manganese (IW)	diss. copper (AFW)	uranium (AWF)

Metals are total unless specified
AWF – Water Quality Guideline for the Protection of Freshwater Aquatic Life
IW - Water Quality Guideline for the Protection of Irrigation Water
LW - Water Quality Guideline for the Protection of Livestock Watering

4.1.2 Summary of Predicted Water Quality Conditions

SRK Consulting (SRK) used a water and load balance model to predict water quality concentrations for the drainage ditch downstream of the tailings pond under post-closure conditions. Full details of the water and load balance are provided in Appendix I of the RCP (RDCK 2020). A summary of the results of the predictive modelling for post-closure conditions is provided below.

The model considered inputs from the upland landfill, runoff from upstream catchments, direct precipitation onto the facility, and outflows through the spillway and downstream seepage. The water balance made use of annual precipitation inputs and of the average monthly discharge distributions from the Salmo River to model volumetric flow rates from upstream catchment areas to the TMF. The model was calibrated by comparing the calculated flows with observed flows from select monitoring stations. The water quality parameters that are monitored seasonally (spring and fall) were further applied in the calculations of mass-balance loadings.

The mass balance accounted for loading sources within the model domain, as well as fluxes in and out of the model domain. Loading rates were estimated by assigning source water quality concentrations to the inflows for the corresponding sub-catchments estimated in the water balance. Parameter concentrations at each model node was determined by summing the parameter load reporting to that node and dividing by the total volume at that node. For most parameters, loadings were assumed to be conservative (i.e., not attenuated). Aluminum, iron, manganese, and zinc were overestimated using this approach, and estimates of attenuation, developed based on calibration with monitoring data, were applied for these parameters.

The model was set up and calibrated for existing conditions. The calibrated inputs were then applied to the current TMF configuration using average hydrological conditions and average source terms including attenuation estimates for some parameters (Current Condition), and to the post-closure TMF configuration including covered tailings. The model's assumptions were evaluated with sensitivity analyses for infiltration rates, source terms, attenuation factors, and hydrological conditions.

Water quality predictions were developed for aluminum, cadmium, chromium, copper, iron, lead, manganese, sulphate, sulphide, and zinc based on the fact that these parameters have been observed to exceed the applicable WQGs for the protection of aquatic life. The following conclusions were made by SRK based on the water quality modelling exercise regarding the sources:

- The tailings material is the primary source of sulphate, cadmium, iron, lead, and zinc; the cover is predicted to reduce concentrations of these parameters at the outlet ditch.
- The background catchment runoff is the primary source of chromium, copper, manganese and sulphide.
- The cover material is the primary source of aluminum; however, this could be an artifact of source-term development based on total metals, which includes both the dissolved and suspended fractions. The suspended fraction will not act conservatively as water flows through the facility.

The water quality prediction model indicates that the tailings closure and remediation will results in reduced concentrations of sulphate, iron, lead and manganese in surface water. These parameters are predicted to be below the applicable WQGs post closure.



Concentrations of aluminum, cadmium, copper and zinc in surface water are predicted to still exceed the applicable WQG for the protection of aquatic life post closure; although the cover will result in decreases in cadmium, copper and zinc concentrations.

Water quality guidelines are conservative benchmarks used to evaluate water quality and inform the need for further study. Guidelines exceedances do not mean that adverse effects are occurring. For this reason, scientific-based methods are in place to inform site remediation. One such tool is risk assessment. A risk assessment was completed to evaluate the significance of the surface water exceedances (SLR 2019). The risk assessment indicated that the risks associated with the WQG exceedances would be low and would not warrant active water treatment. The WQMMP subject of this current report will confirm the risk assessment findings.

As outlined in Permit M-218, an updated Surface Water Quality Report for the site must be submitted to EMLI every five years or more frequently if site water management or source terms significantly change (beginning March 31, 2027) as part of the Mine Plan and Reclamation Program Update. The report must include updated site wide water balance and groundwater models as well as review of recent groundwater, tailings porewater and surface water quality and quantity results compared to current provincial standards and/or guidelines. Based on the results recommendations for additional source control and/or water quality mitigations measures to meet water quality objectives are to be included in the five-year report.

4.1.3 Surface Water Monitoring Program

The following sections present the locations, frequency and parameters analyzed as part of the surface water monitoring program. The surface water sampling program also includes monitoring and sampling of facility seepage from v-notch weir (Seepage Weir) located at the toe of Dam slope.

4.1.3.1 Surface Water Sampling Locations

Where possible, the recommended surface water sampling locations have been selected to correspond to previous sampling locations; this allows for comparisons of water quality with pre-construction values and for trends analysis. Figure 6 provides the surface water sampling locations and Table C provides location descriptions.

Table C: Surface Water Sampling Locations and Rationale for Selection

Sampling ID	EMS Number	Location Description	Rationale
TMF Surface Water Sampling Locations			
SW1-07	E303730	Central Landfill outflow collected immediately upstream of the tailings facility in the Main Channel	Characterize background surface water quality before it drains over the reclaimed TMF and account for landfill influences.
SW2-07	E303731	Collected from the seasonal stream located upstream of the North and South Spur Channels	Characterize background surface water quality before it drains over the reclaimed TMF.
SW5-19	E335949	Background sample collected from the seasonal North Spur Channel upstream of the TMF.	Characterize background surface water quality in the North Spur Channel before it drains over the reclaimed TMF.
SW3-07	E303732	Background sample collected from the seasonal South Spur Channel upstream of the TMF.	Characterize background surface water quality in the South Spur Channel before it drains over the reclaimed TMF.
Spillway Inlet	E335951	Collected in the spillway inlet area at a location downstream of the TMF (~30 m upstream of the former Tailing Pond Outlet)	Characterize surface water quality draining from the reclaimed TMF.
Seepage Weir	E335950	At the inlet to the v-notch weir pond installed at the toe of the Facility's earthen dam to measure seepage rates	Provide information about the downgradient water quality when the Outlet Ditch
Spillway Outlet	E335952	Collected downstream of the confluence of the Seepage Weir discharge and the Spillway discharge	Characterize surface water quality draining from the reclaimed TMF downstream from the spillway.
Outlet Ditch	E252603	Collected upstream of the culvert crossing Highway 3.	Characterize surface water quality draining from the property onto the Salmo River floodplain.

It is recommended that if surface water PCOC exceedances are identified in the Outlet Ditch samples then Salmo River samples should be collected upgradient and downgradient of the point of discharge into the receiving environment.

4.1.3.2 Sampling Frequency

The post closure sampling program for the TMF locations consist of quarterly monitoring to capture seasonal variation and high and flows (March, May, August/September and November/December). The drainage channel flows will vary seasonally, and the channel may be dry in the summer and frozen in the winter; thus sampling in the winter and summer will depend on available flows. The discharge channel is also ephemeral and flows generally only reach the Salmo River during freshet. For this reason, the locations in the Salmo River, upstream and downstream of the discharge, will only be sampled when water in the discharge channel significantly exceeds the applicable guidelines and/or standards or in the event of a non-compliance turbidity event. The monitoring frequencies will be reviewed as part of the annual report and are expected to be reduced to an annual frequency in the long-term, once it can be demonstrated that the facility is physical and chemically stable.

4.1.3.3 Surface Water Sampling Methodology

Surface water sampling will be conducted by an RDCK-contracted environmental technician. Standardized procedures should be used for surface water sampling to maintain consistency in data collection and to prevent cross-contamination. Surface water sampling should be carried out in accordance with the procedures described in the "British Columbia Field Sampling Manual, 2013 Edition", or most recent edition updated May 2024, or by procedures accepted by BC ENV. The following procedure summary is recommended based on generally accepted environmental practices and ENV guidance for surface water monitoring. Scientifically defensible modifications to the procedures outlined below may be acceptable but should be supported by appropriate rationale.

Prior to sampling, *in situ* parameters (pH and temperature) at the point of sampling should be measured (field pH and temperature along with laboratory analyzed dissolved organic carbon (DOC) and hardness should be used to calculate the WQG for some metals such as dissolved copper). Surface water samples should be collected directly from the waterbodies. Laboratory prepared sample bottles should be attached to a pole sampler, if required, then lowered directly into the water and allowed to fill. Preservatives should be added as required. The samples should be labelled and stored in ice filled coolers. The samples along with completed chain of custody forms should be transported to an accredited laboratory for analysis within the acceptable holding times.



4.1.3.4 Surface Water Quality Analyses

The parameters for laboratory and field analyses of water quality samples are summarized in Table D. In addition to the parameters listed below, flow measurements utilizing a flow meter (L/s) and water depth should be recorded at all locations.

Table D: Surface Water Samples Analytes

Parameter Group	Analytes
Physical Parameters	Field temperature, dissolved oxygen, conductivity* hardness (as CaCO3), turbidity*, total suspended solids (TSS) and pH*
Anions and Nutrients	Total alkalinity, ammonia, bromide, chloride, fluoride, nitrate, nitrite, phosphorus (P)-total, sulphate, un-ionized sulfide
Organic Carbon	Total organic carbon (TOC), dissolved organic carbon (DOC)
Total and Dissolved Metals	Total and dissolved metals including mercury
Note: *in situ and laboratory analytes.	

4.1.3.5 Surface Water Quality Evaluation and Reporting

Comprehensive annual reports are to be included in the Annual Reclamation Report for submission to MMCM including description of sampling activities, tables of analytical results compared against applicable provincial water quality standards/guidelines, QA/QC results, site plans and laboratory reports. The report should also include an assessment of significant changes or trends in water quality.

In addition, as per requirement of Permit M-218, the annual surface water quality report should also include "*a quantitative comparison of relevant surface water monitoring data to source terms used in water quality predictions and results of surface water models in the Annual Reclamation Report*. If there are substantive discrepancies a discussion of proposed source term revision prepared by a QP must be included in the Annual Reclamation Report.

4.2 Groundwater Monitoring

4.2.1 Summary of Water Quality Conditions

4.2.1.1 Pre-construction Groundwater Quality Conditions (Pre 2021)

Groundwater quality has been monitored as part of the reclamation monitoring program in the tailings area since 2005. Recent monitoring has included collection of groundwater samples from 12 monitoring wells; MW99-1(S) and(D), MW99-2(S) and (D), MW-05-01, MW-01-2004(S) and (D), MW-02-2004(S) and (D), MW-02A-01, MW-03A-01 and MW-06-01. These wells are screened in both overburden/tailings and bedrock. Water quality from wells MW-02A-01, MW-03A-01 and MW-05-01 represent background water quality. A residential well located at 8102 Hwy 3 was part of the annual reclamation monitoring; however, no recent sampling has been completed at this location.

Sampling was completed in May, September, and December of each year by Masse Environmental Consultants Ltd. Samples were generally submitted for analysis of general chemistry parameters (including total dissolved solids), nutrients (including orthophosphate), sulfide, and total and dissolved metals.

The results were compared to the guidelines listed in Section 3.3.2 of this current report.

Concentrations of metals were below applicable guideline values in background wells with the exception of lithium and manganese. Within the tailings, concentrations of sulfate, magnesium, cobalt, manganese, and zinc have been detected above the applicable guideline values.

Concentrations are below criteria in downgradient wells with the exception of iron, lithium and manganese in the overburden wells and lithium in the bedrock wells.

4.2.1.2 Summary of Post-Construction Groundwater Quality Conditions

Similar to surface water, post-construction groundwater quality is defined in this report as groundwater quality obtained in 2023 and 2024 after the construction works at the TMF were completed. An overview of the 2023 and 2024 Post-Construction Groundwater Quality Monitoring Program results is provided in Table E (2023) and

Table F (2024). Groundwater samples were obtained by Masse in 2023 and 2024 in March, May, August or September, and November to capture seasonal variation. In 2023, samples were collected from MW99-1(S) and(D), MW99-2(S) and (D), MW-05-01, MW-01-2004(S) and (D), MW-02-2004(S) and (D), MW-02A-01 (May only), MW-03A-01 (May only) and MW-06-01 (May only).

For 2024, the sampling program included MW99-1(S) and(D), MW99-2(S) and (D), MW-01-2004(S) and (D), MW-04S-05, MW-05-01, MW-06-01, S-MW-2 and S-MW-1.

Groundwater monitoring at MW-02A-01 was in place to monitor background chemistry; however, it was determined that due to the proximity of the well to Sheep Creek there may was a risk for surface water influence that would suggest the location was not the ideal background well location. Monitoring had also historically been completed at MW-02-2004 (S) and (D); however, due to the proximity of these wells to MW99-1 (S) and (D), these wells were removed from the monitoring program for 2024.

In 2023, with the exception of fluoride in one sample, concentrations of all analyzed parameters were below BC CSR values in background locations. However, in 2024, cobalt, iron, lead, lithium and manganese concentrations were typically found to exceed the BC CSR DW standards, suggesting naturally elevated concentrations of these constituents.

Groundwater at the source location within the tailings (MW-06-01) exhibited elevated concentrations of sulphate and sulphide in both 2023 and 2024, with cadmium, cobalt, iron lead and manganese also typically elevated in 2024.

Flow from the landfill towards the TMF is monitored at S-MW02, and was noted to have exceedances of Aluminum, Arsenic, Cobalt, Iron, Lead, Lithium, Manganese, Nickel, and Vanadium in the August and November 2024 sampling events.

In downgradient locations, cobalt, iron, lead, lithium and manganese were detected at concentrations exceeding the BC CSR standards at a number of locations during 2023. Additionally, arsenic exceeded the guideline value at MW-01-2004 (S), MW99-2(S) and iron exceeded at MW-01-2004 (S), MW99-1(S) and MW99-2(S).

As part of the 2024 sampling, water quality at downgradient locations had elevated concentrations of cobalt, iron, lead, lithium and manganese similar to that found in groundwater at background well locations, with arsenic also detected above BC CSR standards in MW99-2(S) and copper, molybdenum and tungsten also detected in the November 2024 sample at MW99-1(D).

Exceedances noted in 2024 may be the result of construction activities completed in 2022 and continued monitoring of groundwater will provide further indication on whether these exceedances are a long-term concern of impacts to groundwater.

Table E: 2023 Post-Construction Groundwater Sampling Results Summary

Sampling ID	March 2023	May 2023	September 2023	November 2023
Background Overburden Wells				
MW-02A-01	**		**	**
MW-03A-01	**	Fluoride	**	**
MW-05-01				

Sampling ID	March 2023	May 2023	September 2023	November 2023
Background Overburden Wells				
Downgradient Overburden				
MW-01-2004 (S)	Cobalt, Manganese	Cobalt, Manganese	Arsenic, Chromium, Cobalt, Iron, Manganese, Molybdenum	Cobalt, Manganese
MW99-1 (S)	Iron, Lithium, Manganese	Iron, Lithium, Manganese	Iron, Lithium, Manganese	Iron, Lithium, Manganese
MW-02-2004 (S)				
Downgradient Bedrock				
MW99-2 (S)	Cobalt, Iron, Manganese	Cobalt, Manganese	Arsenic, Cobalt, Iron, Manganese	Arsenic, Cobalt, Iron, Manganese
MW-01-2004 (D)	Lithium	Lithium	Lithium	Lithium
MW99-1 (D)	Lithium	Lithium	Lithium, Manganese	Lithium
MW99-2 (D)				
MW-02-2004 (D)	Lithium	Lithium, Manganese	Lithium, Manganese	Lithium, Manganese
Source Wells				
MW-06-01	**	Sulphate, Sulphide	**	**
** - Not Sampled				

Table F: 2024 Post-Construction Groundwater Sampling Results Summary

Sampling ID	March 2024	May 2024	August 2024	November 2024
Background Overburden Wells				
MW-02A-01	**	Fluoride, Lithium, Manganese	**	**
MW-05-01		Cobalt, Iron, Lead, Lithium		Cobalt, Iron, Lead, Lithium, Vanadium
S-MW-1	Cobalt, Manganese	Cobalt, Manganese, Uranium	Cobalt, Manganese	
Downgradient Overburden				
S-MW-2		Cobalt	Aluminum, Arsenic, Cobalt, Iron, Lead, Lithium, Manganese, Nickel, Vanadium	Aluminum, Arsenic, Chromium, Cobalt, Iron, Lead, Lithium, Vanadium
MW-04S-05	Manganese (Diss)	Manganese, Sulphide, Lead	Sulphide, Lead	Sulphide, Lead
MW-01-2004 (S)	Manganese	Aluminum, Arsenic, Cobalt, Iron, Lead, Lithium, Manganese, Vanadium	Cobalt, Manganese	Cobalt, Manganese
MW99-1 (S)	Iron, Lithium, Manganese	Iron, Lithium, Manganese	Iron, Lithium, Manganese	Iron, Lithium, Manganese
Downgradient Bedrock				
MW99-2 (S)	Cobalt, Manganese	Cobalt, Manganese	Arsenic, Cobalt, Manganese	Arsenic, Cobalt, Iron, Manganese
MW-01-2004 (D)	Lithium	Lithium	Lithium	Lithium
MW99-1 (D)	Lithium	Lithium	Lithium	Lithium, Copper, Molybdenum, Tungsten,
MW99-2 (D)				

Sampling ID	March 2024	May 2024	August 2024	November 2024
Source Wells				
MW-06-01	Sulphate, Sulphide, Cobalt, Iron, Lead, Manganese	Sulphate, Sulphide, Cadmium, Cobalt, Iron, Lead, Manganese	Sulphate, Sulphide, Arsenic, Cadmium, Iron, Lead, Manganese	Sulphate, Sulphide, Arsenic, Cadmium, Iron, Lead, Manganese
** - Not Sampled				

4.2.2 Groundwater Monitoring Program

4.2.2.1 Groundwater Monitoring Locations

The groundwater sampling locations for continued post-construction monitoring have been selected to correspond to previous sampling locations to allow for water quality comparisons to be made to pre-construction values. Groundwater sampling locations are shown in Figure 7 and with Table G providing sample location descriptions and rationale.

Table G: Groundwater Sampling Locations and Rationale for Selection

Sampling ID	Location Description	Rationale
MW99-1 (S) and (D)	Approximately 150m downgradient/south of the tailings facility. The shallow well (S) is screened in overburden, and the deep well (D) is screened in bedrock.	Characterize groundwater quality as it flows downgradient from the TMF.
MW-01-2004 (S) and (D)	Downgradient/south of the tailings facility, approximately 150 m north of Highway 3. The shallow well (S) is screened in overburden, and the deep well (D) is screened in bedrock.	Characterize groundwater quality as it flows downgradient from the TMF and prior to reaching the property boundary.
MW99-2 (S) and (D)	Immediately west of the tailings area and downgradient along the western flow path. Both wells (S) and (D) are screened in bedrock.	Characterize groundwater quality as it flows westward in the northern portion of the Site.
E221703/S-MW-2	Located between Landfill and Tailings, screened in overburden.	Characterize groundwater quality originating from the landfill and flowing towards the TMF.
MW-04S-05	Towards the southern portion of tailing facility, screened in overburden/tailings	Evaluate changes in groundwater quality within the tailings after cover construction.

Sampling ID	Location Description	Rationale
MW-06-01	Within northern portion of tailing facility, screened in overburden/tailings	Evaluate changes in groundwater quality within the tailings after cover construction.
MW-05-01	Background well is screened in overburden located approximately 200 m east of the current tailings pond.	Characterize background groundwater quality in overburden.
E221702/S-MW-1	Background well is screened in both overburden and bedrock, and is located east of landfill	Characterize background groundwater quality in overburden.

The source well location had elevated concentrations of sulphate, which is suggestive of historical acid rock drainage (ARD) impact from the tailings. However, no other exceedances of sulphate was noted in any of the other wells. Therefore, ARD impact does not appear to be evident downgradient of the TMF.

As indicated above, monitoring at MW-02-2004 (S) and (D) Is not included as part of the continued program. Although exceedances of iron, Lithium, Manganese were noted at MW99-1, these parameters were also noted to exceed criteria in background locations. However, should future results suggest groundwater impact downgradient of the tailings facility, monitoring at these locations can be re-instated at that time.

Both monitoring wells MW99-2 (S) and (D) located along the western boundary of the TMF are screened in bedrock. AEMC (2014) suggested that there may be a component of groundwater flow towards the west at this location; however (GHD 2024) suggested that groundwater flow was to the east. However, there is limited data to confirm groundwater flow near MW99-2S/D. Based on the WQG exceedances of arsenic, cobalt and manganese (in addition to elevated concentrations of iron and lithium also seen at background wells), consideration should be given to installing another well downgradient from this location and screened with the shallow bedrock to assess shallow groundwater flow and quality in this area of the facility. However, it is noted that upward groundwater gradients are generally observed at this location.

4.2.2.2 Groundwater Monitoring Frequency

The post closure groundwater sampling program will initially consist of quarterly monitoring in March/April (freshet), May/June, September, November/December. The monitoring frequencies will be reviewed as part of the annual report and are expected to be reduced to an annual frequency in the long-term, once it can be demonstrated that the facility is physically and chemically stable.

4.2.2.3 Groundwater Sampling Methodology

Groundwater sampling will be completed by an RDCK-contracted environmental technicians. Standardized procedures should be developed and used for groundwater sampling to maintain consistency in data collection and to prevent cross-contamination. Sampling should be carried out in accordance with the procedures described in the "British Columbia Field Sampling Manual, 2013 Edition", or most recent edition updated to May 2024, or by procedures accepted by BC ENV.



The following procedure summary is recommended based on generally accepted environmental practices and BC ENV guidance for groundwater monitoring. Scientifically defensible modifications to the procedures outlined below may be acceptable but should be documented and supported by appropriate rationale. Prior to sampling, the water level in the well should be measured relative to either the top of pipe or ground surface.

The objective of sampling is to obtain groundwater samples that are representative of formation conditions. In order for the sample to be representative, any standing water within the monitoring well casing and surrounding annulus should be purged from the well.

There are two basic methods for establishing that well purging has been sufficiently completed. The first method is based on the removal of three to five standing well volumes.

The second method is based on the stabilization of specific physical parameters (such as pH, conductivity, and turbidity) that are periodically assessed during purging.

Groundwater samples should be collected using either positive pressure submersible pumps, negative pressure peristaltic pumps, inertial displacement pumps or bailers. Whatever method is selected, it should remain consistent over time where possible. Prior to collecting each sample, field parameters should be measured on separate un-preserved and un-filtered sub-samples.

Samples for dissolved metals analysis should be filtered in the field. Samples should be collected in laboratory prepared sample bottles. Preservatives should be added as required. The samples should be labelled and stored in ice filled coolers. The samples along with completed chain of custody forms should be transported to an accredited laboratory for analysis within the acceptable holding times.

4.2.2.4 Groundwater Quality Analyses

The parameters for laboratory and field analyses of water quality samples are summarized in Table H. In addition to the collection of field parameters of temperature, pH, conductivity, dissolved oxygen (DO) and sulphide, water levels should be collected in all wells prior to sampling. Laboratory analyses should also include both total and dissolved metals in any wells identified as having potential upward gradients however any wells with definitive downward gradients will only be analyzed for dissolved metals. The list of parameters will be reviewed regularly, and changes made, based on analysis and interpretation of monitoring results.

Table H: Groundwater Samples Analytes

Groundwater Analyses	• pH • Total dissolved solids (TDS) • Sulphate • Total and/or dissolved metals (by ICP-MS, sufficient to meet BC Aquatic Life criteria) • Temperature • Conductivity • Dissolved oxygen • Sulphide • Water elevation

4.2.2.5 Groundwater Quality Evaluation and Reporting

Reporting for the groundwater monitoring will include comprehensive annual reports prepared for submission to EMLI. Reports will include description of sampling activities, locations, summary of methodologies and tabulation of analytical results.

The focus of the analytical review should be on exceedances of the applicable standards/guidelines and any trends that might suggest an increase in contaminate loadings to groundwater. If significant negative trends are clearly evident at any time, taking into account seasonal variability, the data should be reviewed by a qualified geochemist. The parameters and plot types used to evaluate temporal variance will be chosen to comply with EMLI Annual Reclamation Report Format Requirements. If a significant increase in contaminants concentrations or in frequency of exceedances is observed, additional investigations will be implemented (e.g. additional environmental sampling and remedial activities).

4.3 Tailings Porewater Monitoring Program

Section 4, C, (iii) of Permit No. M-218 required the development of a Tailings Geochemistry Monitoring and Assessment program, with a report provided to the Chief Inspector by March 31, 2024. The purpose of this assessment is to evaluate potential effects of the tailings cover placement and lowering of the spillway invert elevation and subsequent potential lowering of the groundwater table on the tailings geochemistry.

4.3.1 Porewater Monitoring Locations

Three porewater sampling locations have been selected near the former tailings pond that are predicted to be most affected by the lowering of the spillway and cover placement.

The monitoring locations are shown in Drawing 7 and listed in Table I. The three locations were selected as they are close to the pre-construction water table, near the spillway and north of the tailings pond backfill area to make post-construction sample collection easier.

Table I: Porewater Sampling Locations

Sampling ID	Northing (M)	Easting (M)	Location Description
PW-1	5,442,150	481,780	Approximately 60m upstream of the spillway immediate to the north of the Main Tailings Surface Drainage Channel.
PW-2	5,442,115	481,700	Approximately 150 m upstream of the spillway near the centre of the tailings impoundment north of the former tailings pond.
PW-3	5,442,190	481,945	Approximately 30 m east of the South Spur Channel Inlet.

4.3.2 Porewater Monitoring Frequency

Pre-construction porewater samples were collected on June 6 and 10, 2021 and submitted to the laboratory for analysis. Post-construction porewater samples were not collected as monitoring results collected after construction indicated that there has been no evidence that water levels within the tailings were lowered due to construction (SRK 2024). Water levels within the tailings will continue to be monitored and samples will be collected, if required as outlined in section 4.3.3 of this report.

4.3.3 Porewater Sampling Methodology

Tailings porewater samples are to be collected by SRK. A 2-inch soil corer is to be used to core down through the tailings and collect samples at 0.3 m intervals. For the post-construction samples, the holes will be dug through the till cover prior to advancing the soil corer. If the tailings are dry, multiple cores are to be advanced to obtained sufficient porewater for laboratory testing. If the samples are unable to be retained within the soil corer, hand-dug samples are to be collected.

Each hole is to be logged to indicate the following:

- Changes in water content (dry, moist, wet).
- Changes in colour (orange, yellow, brown, grey).
- Texture (loose, cemented, platy, etc.).

Each sample is to be labelled and sealed in a manner to be air-tight with as little air as possible within the container (either the soil core tube, or zip-lock bag). Samples are to be stored in a cooler and kept cool or frozen. Particular care is to be made to prevent contamination between samples. Collection devices (shovel, soil corer, etc.) are to be cleaned and rinsed with distilled water between locations. Samples are to be sent to a laboratory equipped with a Porewater Piston Squeezer that will be used to extract the tailings porewater from each sample.



4.3.4 Porewater Laboratory Analyses

Following porewater extraction, laboratory analyses are to be completed for the parameters listed in Table J.

Table J: Tailings Samples Analytes

Porewater Analyses	• pH • Conductivity • Alkalinity • Sulphate • Dissolved metals by ICP-MS • Nitrate/nitrite • Phosphate
Tailings Solid Analyses	• Total Sulphate • Sulfide • Total Carbonate • Modified acid base accounting, neutralization potential • Trace elements by aqua regia

4.3.5 Porewater Quality Evaluation and Reporting

Following receipt of the post-construction laboratory test results, an evaluation will be completed to compare the pre-construction and post-construction tailings porewater and solid-phase compositions. The results will also be compared to the SRK (2017) document “Prediction of Geochemical Performance of HB Tailings Under Proposed Remediation Conditions and, and if required, an update of the geochemical model (SRK 2017) will be prepared along with an updated assessment of the long-term geochemical stability of the tailings. The report will also include recommendations for additional tailings geochemistry monitoring if required.

4.4 Surface and Groundwater Management

Surface water management infrastructure including surface water diversion, culverts and ditching, conveyance channels, and spillway are inspected quarterly as well as during event driven (>25mm in 24/hour) precipitation events. Routing site infrastructure inspections are conducted monthly and visual site inspections are also conducted weekly.

The downstream channel is inspected semi-annually for signs of tailing transport, blockages and erosion. Maintenance of the surface water management infrastructure is conducted on an as needed bases based on recommendations of the site inspections.

Further details regarding facility surface water maintenance are outlined in Section 7.4 of the RCP.

4.4.1 Contingency Plans

As per Permit M-218, contingency plans must be included in the Surface and Groundwater Management Plan. Specifically, these should include:

- Contingency plans for maintenance of a water cover in the TSF under variable scenarios; and
- Contingency plans for storage and management of effluent on the mine site that is unable to be discharged to the environment.

4.5 Surface Water and Groundwater Reporting

Results of the surface water, groundwater and seepage monitoring will be added to a dedicated database and reviewed annually by a QP in order to screen data for the presence of ARD and/or contaminant loading potential. Data will include monitoring, analytical and QA/QC results compared to applicable provincial standards and guidelines, source terms used in water quality prediction models and are to be included in the Annual Reclamation Report.

The results will be reviewed to assess significant changes or trends in water quality or quantity and include discussion of that assessment in the report.

As per the Permit, a quantitative comparison of relevant surface water, groundwater, and metal leaching (ML)/ARD monitoring data to source terms used in water quality predictions and results of surface water and groundwater models will also be included in the Annual Reclamation Report. If there are substantive discrepancies, a discussion of proposed source term revisions prepared by a QP will be included in the Annual Reclamation Report.

5.0 Quality Assurance/ Quality Control

A quality assurance and quality control program should be followed to confirm that the sampling and analytical data are meaningful and reproducible. Two stages of QA/QC should be completed, with one stage completed by the laboratory and one stage completed as part of the field procedures.

In situ meters and water quality probe should be calibrated as per manufacture instructions. At minimum, calibrations should be completed daily and documented in field notes. Monitoring equipment should be clean, in good working order, and maintained as per manufacture instructions. Equipment should be cleaned between each sample collection to prevent cross-contamination.

Samples should be submitted for analyses to laboratories accredited by the Standards Council of Canada in cooperation with CALA. As an internal quality control, these laboratories routinely report the results of laboratory spikes and duplicate analyses and report the results of the laboratory QA/QC in the laboratory certificates. The laboratory QA/QC results should be reviewed and flags followed up on.

Laboratory detection limits should be confirmed with the lab and be suitable to compare surface water, groundwater and pore water quality results to appropriate water quality criteria.

To verify the reproducibility of the laboratory analyses and to demonstrate that the field sampling techniques utilized by field personnel are capable of yielding reproducible results, blind field duplicate (BFD) samples of surface water and groundwater should be collected at a frequency of approximately one in ten samples and submit to the laboratory for analyses.

The relative per cent difference (RPD) between the original sample and its duplicate should be calculated for each parameter. RPD is defined as the difference of the absolute between the two results (original sample and duplicate) divided by the average of the two results expressed as a percentage. Analytical error increases near the method detection limit; therefore, the RPDs should not be calculated if results of the original sample and/or its duplicate are greater than five times the method detection limit.

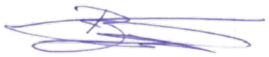
The RPDs should be compared to recommended alert limits to evaluate the sample result variability. The recommended alert limits for field duplicate RPDs are based on a factor of 1.5x the RPD for laboratory duplicate samples. The RPDs for laboratory duplicate samples are provided in the BC Environmental Laboratory Manual.

6.0 Closure

SLR prepared this report on behalf of the RDCK in preparation for submission to MMCM as outlined in the HB TMF RCP. This report is updated annually following completion of the annual monitoring program at the HB TMF. It is anticipated that post closure monitoring of the HB TMF will continue through 2025 until such time that the water quality has stabilized at the site.

Regards,

SLR Consulting (Canada) Ltd.



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The Association of Professional Engineers and Geoscientists of the Province of British Columbia
SLR Consulting (Canada) Ltd. Permit to Practice #1001562

7.0 References

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Table

Water Quality Management and Monitoring Plan 2025 Update

HB Tailings Management Facility Salmo, British Columbia

Regional District of Central Kootenay

SLR Project No.: 204.03242.00011

September 11, 2025

TABLE 1: ANNUAL DOCUMENT REVIEW TRACKER

Report Section		Issue ID or Explanation for Addition	Description of Revision
1.0	Introduction	Legal description not required in introduction section of report. 2024 permit M-218 updates and post-closure scope of work not included.	Remove legal description from first paragraph. Updates with 2024 Permit M-218 amendments and 2023/2024 post-closure monitoring ecofeminist of Energy, Mines and Low Carbon Innovation changed to Ministry of Mines and Critical Minerals.
2.1	Site Components	Post-closure repair works and upgrades not specified.	Post-closure repair works and upgrades added to Section 2.1.
2.5	Closure Measures	Post-closure seeding and Teck channel upgrades not discussed.	Post-closure seeding and Teck channel construction details added to Section 2.5.
3.0	Regulatory Framework	BC Ministry of Environment and Climate Change Policy name changed in 2025.	Updated name BC Ministry of Environment and Parks and added Mines Act reference.
3.1	Permit M-218 Requirements	Previous version of Permit M-218 referenced.	Updated with 2024 Permit M-218 amendments and references.
3.3.2	Groundwater	Previous version only referenced BC CSR DW and AWF groundwater standards.	Updated section with addition of CSR IW and LW groundwater standards.
4.0	Water Monitoring	2023/2024 post-closure monitoring details not included.	Updated with 2023/2024 post-closure monitoring details.
4.1.1.2	Summary of Post Constriction Water Quality Conditions	Section referenced 2021/2022 construction water quality results.	Section updated with 2023/2024 post-construction water quality results. Table B - 2023/2024 Post-Construction Surface Water Sampling Results Summary added to report.
4.1.2	Summary of Predicted Water Quality Conditions	Previous version of Permit M-218 referenced.	Updated with 2024 Permit M-218 amendments and references.
4.1.3	Surface Water Monitoring Program	Missing seepage weir reference.	Updated with seepage weir reference.
4.1.3.1	Surface Water Sampling Locations	Section referenced 2021/2022 surface water sample locations SW9, SW10, and SW11 that were recommended to be samples only in year 1/2 post construction.	SW9, SW10 and SW11 removed from Table C as sampling locations are no longer required in year 3/4 post-construction.
4.1.3.4	Surface Water Quality Analysis	Select parameters no longer required to be analyzed as results have been less than the analytical detection limit for 2 years post construction.	Total kjeldahl nitrogen and speciated chromium removed from parameter list in Table E.
4.2	Groundwater Monitoring	Section referenced previous hydrogeology and Hydrology report.	Section updated to reflect 2024 GHD HHCR report results.
4.2.1.2	Summary of Post Construction Groundwater Quality Conditions	Section references 2021/2022 results.	Section updated to reflect 2023/2024 results summarized in Table D and E.
4.2.2.1	Groundwater Monitoring Locations	Revisions to groundwater monitoring locations.	MW-02A-01 removed from sampling locations in report text and Table F as location is no longer required for groundwater monitoring program.
4.2.2.4	Groundwater Quality Analysis	Select parameters no longer required to be analyzed.	ammonia, nitrate/nitrite, orthophosphate removed from parameter list in Table G.
4.3	Tailings Porewater Monitoring Program	Previous Permit M-218 section referenced.	Updated with 2024 Permit M-218 Section 4, C, (111) reference and post construction monitoring results.
4.4	Surface Water and Groundwater Management	Reporting section not included in previous report.	Section 4.4 added to report.
4.4.1	Contingency Plans	Section not included in previous report.	Section 4.4.1 added to report.
4.5	Surface Water and Groundwater Reporting	Reporting section not included in previous report.	Section 4.5 added to report.
7.0	Closure	Closure text missing from report.	Closure text added to report.
8.0	References	Reference not current for all documents.	Updated reference list. Added 2024 GHD HHCR reference.
Attachments:			
Tables		Annual document review tracker not updated in report.	Updated Table 1 to included 2025 edits. Table C updated to include revised EMS numbers and removal of Salmo River sample locations. Table F sample (S-MW-1) moved from background bedrock to background overburden location.
Figures		Figures on outdated SLR template.	Figures updated to reflect current SLR template and ariel base photo

Figures

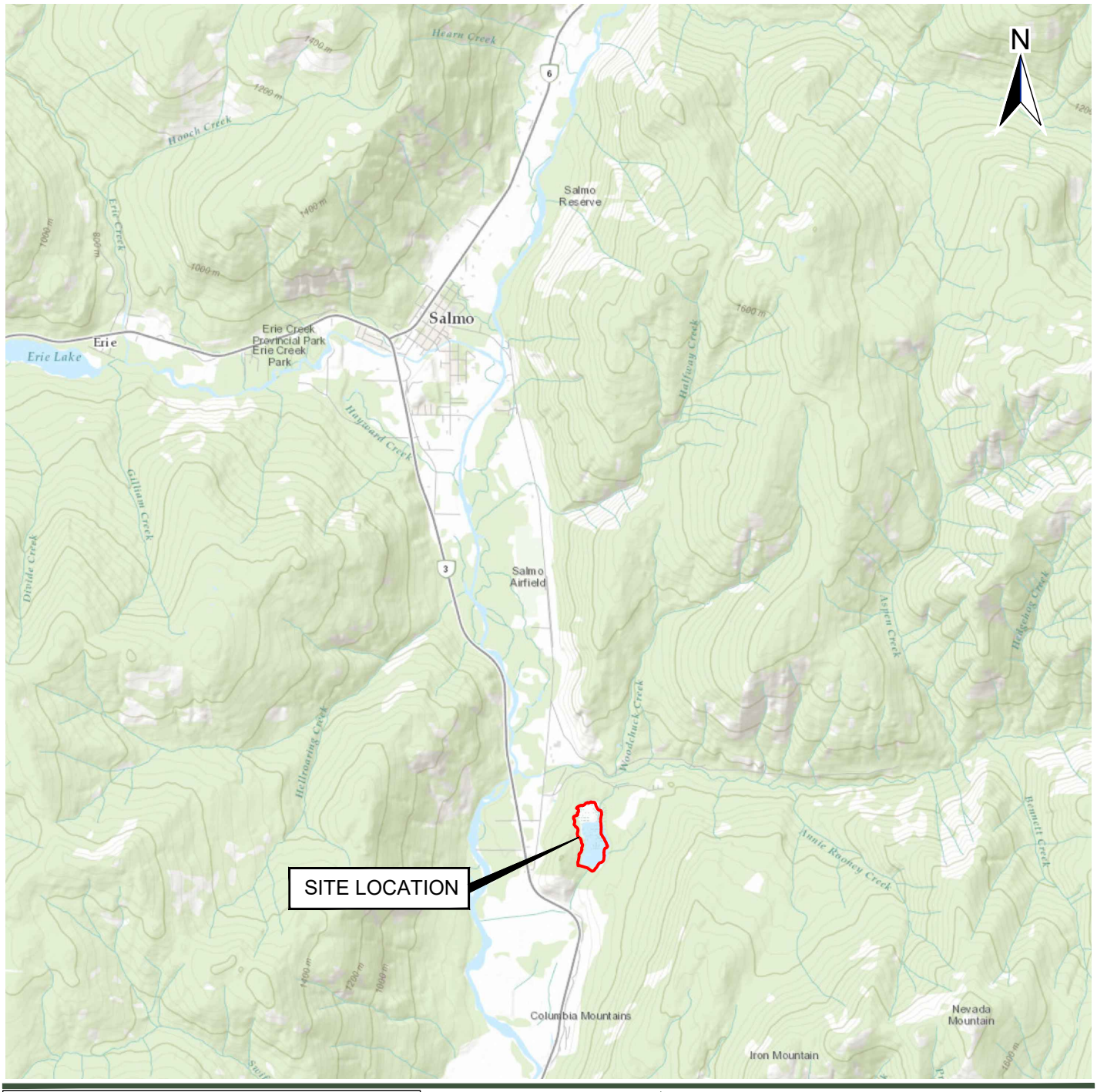
Water Quality Management and Monitoring Plan 2025 Update

HB Tailings Management Facility Salmo, British Columbia

Regional District of Central Kootenay

SLR Project No.: 204.03242.00011

September 11, 2025





BASEDATA:
ESRI, HERE, GARMIN, INTERMAP, INCREMENT P CORP., GEBCO, USGS, FAO, NPS, NRCAN, GEOBASE, IGN, KADASTER NL, ORDNANCE SURVEY, ESRI JAPAN, METI, ESRI CHINA (HONG KONG), © OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY

0 0.5 1 2 3 4 km

SCALE 1:75,000
WHEN PLOTTED CORRECTLY ON A 11 x 17 PAGE LAYOUT
NAD 1983 UTM Zone 11U

REGIONAL DISTRICT OF CENTRAL KOOTENAY
HB TAILINGS MAINTENANCE FACILITY
SALMO, BC

WATER QUALITY MANAGEMENT AND MONITORING PLAN

SITE LOCATION

SLR

FIGURE NO:
1

DATE: March 10, 2025

PROJECT NO: 204.03242.00011

Cadfile name: S_204-03242-00011-A1.dwg



LEGEND:

- CATCHMENT AREA
- TAILINGS DEPOSITION AREA

NOTES:

NOT A LEGAL SURVEY. DO NOT USE FOR CONSTRUCTION.

REFERENCED FROM SRK FILE: *FIG01_SURFACEDRAINAGE.PPTX* (APRIL, 2019).
ArcGIS Imagery: ESRI, MAXAR, EARTHSTAR GEOGRAPHICS, AND THE GIS USER COMMUNITY (IMAGE DATE: 2022)

0 50 100 200 300 400 m

SCALE 1:7,500
WHEN PLOTTED CORRECTLY ON A 11 x 17 PAGE LAYOUT
NAD 1983 UTM Zone 11U

REGIONAL DISTRICT OF CENTRAL KOOTENAY
HB TAILINGS MAINTENANCE FACILITY
SALMO, BC

WATER QUALITY MANAGEMENT AND MONITORING PLAN

CATCHMENT AREA REPORTING TO THE TMF

SLR

FIGURE NO: **2**

DATE: March 10, 2025

PROJECT NO: 204.03242.00011

Cadfile name: S_204-03242-00011-A1.dwg



LEGEND:

TAILINGS DEPOSITION AREA

GROUNDWATER MONITORING RESULTS

690 INFERRED GROUNDWATER ELEVATION CONTOUR (INTERVAL 10 m)

NOTES:

NOT A LEGAL SURVEY. DO NOT USE FOR CONSTRUCTION.

REFERENCED FROM SRK FILE: *FIG01_SURFACEDRAINAGE.PPTX* (APRIL, 2019).
ArcGIS Imagery: ESRI, MAXAR, EARTHSTAR GEOGRAPHICS, AND THE GIS USER COMMUNITY (IMAGE DATE: 2022)

ALL GROUNDWATER ELEVATIONS RELATIVE TO GEODETIC DATUM (MEAN SEA LEVEL)

0 50 100 200 300 400 m

SCALE 1:7,500
WHEN PLOTTED CORRECTLY ON A 11 x 17 PAGE LAYOUT
NAD 1983 UTM Zone 11U

REGIONAL DISTRICT OF CENTRAL KOOTENAY
HB TAILINGS MAINTENANCE FACILITY
SALMO, BC

WAITER QUALITY MANAGEMENT AND MONITORING PLAN

CENTRAL LANDFILL AND TAILINGS AREAS GROUNDWATER ELEVATION CONTOURS

SLR

FIGURE NO: **3**

DATE: March 10, 2025

PROJECT NO: 204.03242.00011

Cadfile name: S_204-03242-00011-A1.dwg



LEGEND:

- TAILINGS DEPOSITION AREA
- TAILINGS POND
- SURFICIAL CHANNEL

NOTES:

NOT A LEGAL SURVEY. DO NOT USE FOR CONSTRUCTION.

REFERENCED FROM SRK FILE: *FIG01_SURFACEDRAINAGE.PPTX* (APRIL, 2019).
ArcGIS Imagery: ESRI, MAXAR, EARTHSTAR GEOGRAPHICS, AND THE GIS USER COMMUNITY (IMAGE DATE: 2022)

0 25 50 100 150 200 250 m

SCALE 1:4,000
WHEN PLOTTED CORRECTLY ON A 11 x 17 PAGE LAYOUT
NAD 1983 UTM Zone 11U

REGIONAL DISTRICT OF CENTRAL KOOTENAY
HB TAILINGS MAINTENANCE FACILITY
SALMO, BC

WATER QUALITY MANAGEMENT AND MONITORING PLAN

TMF DRAINAGE CHANNELS

SLR

FIGURE NO:
4

DATE: March 10, 2025

PROJECT NO: 204.03242.00011

Cadfile name: S_204-03242-00011-A1.dwg



LEGEND:

- TAILINGS DEPOSITION AREA
- TAILINGS POND
- SURFACE WATER SAMPLE

NOTES:

NOT A LEGAL SURVEY. DO NOT USE FOR CONSTRUCTION.

REFERENCED FROM SRK FILE: *FIG01_SURFACEDRAINAGE.PPTX* (APRIL, 2019).
ArcGIS Imagery: ESRI, MAXAR, EARTHSTAR GEOGRAPHICS, AND THE GIS USER COMMUNITY (IMAGE DATE: 2022)

0 50 100 200 300 400 m

SCALE 1:7,500
WHEN PLOTTED CORRECTLY ON A 11 x 17 PAGE LAYOUT
NAD 1983 UTM Zone 11U

REGIONAL DISTRICT OF CENTRAL KOOTENAY
HB TAILINGS MAINTENANCE FACILITY
SALMO, BC

WATER QUALITY MANAGEMENT AND MONITORING PLAN

PRE-REMEDIATION AND CLOSURE SURFACE WATER SAMPLING LOCATIONS

SLR

FIGURE NO: **5**

DATE: March 10, 2025

PROJECT NO: 204.03242.00011

Cadfile name: S_204-03242-00011-A1.dwg



LEGEND:

- TAILINGS DEPOSITION AREA
- TAILINGS POND
- SURFICIAL CHANNEL
- SURFACE WATER SAMPLE

NOTES:

NOT A LEGAL SURVEY. DO NOT USE FOR CONSTRUCTION.

REFERENCED FROM SRK FILE: *FIG01_SURFACEDRAINAGE.PPTX* (APRIL, 2019).
ArcGIS Imagery: ESRI, MAXAR, EARTHSTAR GEOGRAPHICS, AND THE GIS USER COMMUNITY (IMAGE DATE: 2022)

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SCALE 1:7,500
WHEN PLOTTED CORRECTLY ON A 11 x 17 PAGE LAYOUT
NAD 1983 UTM Zone 11U

REGIONAL DISTRICT OF CENTRAL KOOTENAY
HB TAILINGS MAINTENANCE FACILITY
SALMO, BC

WATER QUALITY MANAGEMENT AND MONITORING PLAN

POST-REMEDIATION AND CLOSURE SURFACE WATER SAMPLING LOCATIONS

SLR

FIGURE NO: **6**

DATE: March 10, 2025

PROJECT NO: 204.03242.00011

Cadfile name: S_204-03242-00011-A1.dwg



LEGEND:

- TAILINGS DEPOSITION AREA
- MONITORING WELL

NOTES:

NOT A LEGAL SURVEY. DO NOT USE FOR CONSTRUCTION.

REFERENCED FROM SRK FILE: *FIG01_SURFACEDRAINAGE.PPTX* (APRIL, 2019).
ArcGIS Imagery: ESRI, MAXAR, EARTHSTAR GEOGRAPHICS, AND THE GIS USER COMMUNITY (IMAGE DATE: 2022)

0 50 100 200 300 400 m

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HB TAILINGS MAINTENANCE FACILITY
SALMO, BC

WATER QUALITY MANAGEMENT AND MONITORING PLAN

POST-REMEDIATION AND CLOSURE GROUNDWATER SAMPLING LOCATIONS

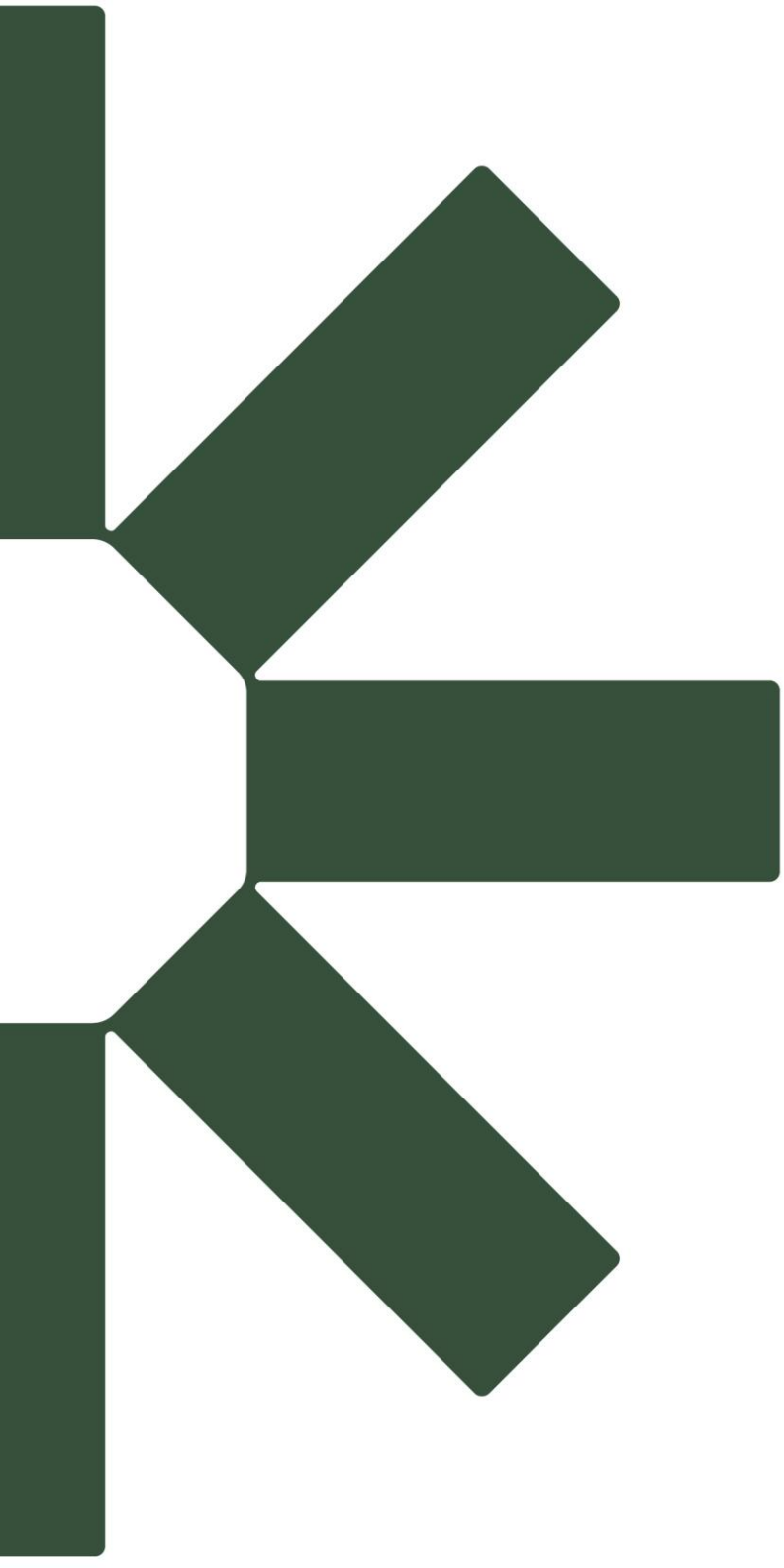
SLR

FIGURE NO: **7**

DATE: March 10, 2025

PROJECT NO: 204.03242.00011

Cadfile name: S_204-03242-00011-A1.dwg



Making Sustainability Happen

APPENDIX B-2: CONSTRUCTION ENVIRONMENTAL MONITORING PLAN

Construction Environmental Management Plan
HB Tailings Mangement Facility

Regional District of Central Kootenay

SLR Project No: 204.03242.00006

May 2021



Construction Environmental Management Plan HB Tailings Mangement Facility

HB Tailings Management Facility

Salmo, British Columbia

SLR Project No: 204.03242.00006

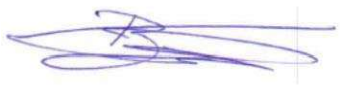
Prepared by
SLR Consulting (Canada) Ltd.
8 West St. Paul Street
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for

Regional District of Central Kootenay
Box 590, 202 Lakeside Drive
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25 May 2021

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CONFIDENTIAL

Distribution: 1 copy – Regional District of Central Kootenay
1 copy – SLR Consulting (Canada) Ltd.

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1.0 INTRODUCTION

The HB Mine Tailings Management Facility (TMF) is located approximately six kilometers (km) south of the Village of Salmo, British Columbia (BC). The TMF stores tailings from Cominco Limited's (Teck Resources Limited) historic operations at the nearby HB Mine. The TMF has been under the care of the Regional District of Central Kootenay (RDCK) since 1998. The TMF is located within Parcel "A" (Explanatory Plan 88745I) of District Lot 1236, Sub-lot 36, Kootenay District Plan X69 (Except (1) Parts Included in Plans 8646, 14234, and (2) Part Included in SRW Plan14948).

The site details and location are provided on Drawings 1 and 2.

The mine is located within the consultative territories of the Ktunaxa National Council, Shuswap Indian Band, Okanogan Indian Band, Okanogan National Alliance, Lower Similkameen Indian Band, Penticton Indian Band and Upper Nicola Indian Band.

A comprehensive Remediation and Closure Plan for the HB Mine TMF was prepared by the RDCK (RDCK 2020) and submitted to the Ministry of Energy, Mines and Low Carbon Innovation (MEMLCI). The HB Mine TMF Remediation and Closure Plan was prepared in accordance with Section 10 of the *Mines Act* and the Health, Safety and Reclamation Code for Mines in BC, and was designed to meet the requirements of all applicable provincial and federal legislation. The HB Mine TMF Remediation and Closure Plan was prepared as part of an application to amend Permit No. M-218, in which the RDCK applied to complete closure construction works, remediate and reclaim the areas formerly disturbed by historical tailings storage operations, and transition the facility through the closure active-care phase to the passive-closure phase, as defined by the Canadian Dam Association (CDA). The focus of the Remediation and Closure Plan was to ensure the long-term physical and chemical stability of the facility, remediate and control tailings erosion and transport, maintain acceptable water quality, protect public health and safety, minimize environmental risk of the escape of fine tailings contamination, and restore productive end land use. Permit No. M-128 was amended on February 24, 2021 to approve the HB Mine TMF Remediation and Closure Plan.

In support of this work, this Construction Environmental Management Plan (CEMP) has been developed to serve as a guide to ensure compliance with environmental protection and mitigation requirements during this work. Specifically, this CEMP will:

- Identify any elements of the work that could present a risk to the environment;
- Describe the work procedures to be undertaken to minimize and mitigate adverse impacts to the environment resulting from the implementation of this project; and
- Describe work procedures to be undertaken to contain and limit impacts to the environment in the event of an incident.

This CEMP is intended as a living document and subject to change as required and in accordance with alteration to the scope of work.

1.1 Scope of Work

The closure components in the design mitigate risk and provide long-term stability and containment of tailings to ensure protection of the environment and of human health. The resulting closure components of the remediation consist of the following features (SRK 2020)[1] :

- Dam upgrades.
  - Toe berm expansion to improve stability during seismic events and in the event that liquefaction occurs within the original dam fill, and
  - Upstream till beach to mitigate the risk of internal erosion and piping.
- Lowered spillway and elimination of the pond upstream of the dam.
- Tailings cover and lined water channels over the tailings facility to convey surface drainage over the tailings facility and to prevent the erosion, escape, and migration of the fine tailings from the tailings facility, remove the direct contact exposure pathway for human and most ecological receptors, and to provide a final surface that will aid in revegetation

1.2 Changes to Scope of Work

Any changes to the work by Integrated Sustainability or others shall be brought to the attention of the Environmental Monitor (EM) and the RDCK in advance of the work. The EM shall update this CEMP to reflect the changes in the work plan and schedule and recommend appropriate environmental protection measures.

1.3 Project Contacts and Responsibilities

1.3.1 Permittee or Project Owner

The RDCK carries the ultimate responsibility for environmental management, both in terms of statutory compliance and will direct, instruct, and approve the execution of such management for the Project.

1.3.2 Environmental Site Manager

The RDCK will appoint an Environmental Site Manager who shall have the authority to implement remedial actions, as may be necessary, to ensure maintenance of environmental standards and permit requirements.

1.3.3 Project Engineer (SRK)

SRK will be the Engineer of Record for the construction works and will also be responsible for environmental compliance.

1.3.4 Construction Supervisor

The Contractor, Integrated Sustainability, will assign a Construction Supervisor, who will be responsible for all agents, employees, and subcontractors retained throughout the Project, and will ensure environmental protection measures outlined in the EMPs are in place and working effectively.

[1] Regional District of Central Kootenay (RDCK). 2020. HB Mine Tailings Facility Remediation and Closure Plan. Prepared for BC Ministry of Energy, Mines and Petroleum Resources. August 2020. 82 p. + appendices.

1.3.5 Construction Environmental Professional

The Contractor will retain an appropriately skilled environmental professional (EP) or Qualified Environmental Professional (QEP) to develop site-specific Environmental Protection Plans (EPPs) and provide input and guidance to Integrated Sustainability to confirm that construction activities follow environmental management measures and controls in accordance with regulatory documents, environmental components of the contract requirements, including the Environmental Management System (EMS), CEMP and Environmental Protection Plans (EPPs).

1.3.6 Environmental Consultant

SLR Consulting (Canada) Ltd. (SLR) is the client representative environmental consultant and will be the EM on-site during construction, on behalf of the RDCK. The EM will inspect the work site to ensure compliance with the EMS and EMPs and relevant BMPs. The EM will complete inspections of construction activities and provide recommendations and environmental support in the event of an environmental incident during all project activities, at an appropriate frequency to facilitate environmental protection and compliance.

SLR responsibilities will also be to conduct the fish and amphibian salvage under an approved General Wildlife Permit and Scientific Fish Collection Permit and effluent discharge monitoring during tailing pond dewatering under a waste discharge approval #110450.

Table 1-1 provides an emergency contact list that shall always be visible and shall be posted by Integrated Sustainability in a suitable location prior to the start of work.

Table 1-1:
Project Contacts, Responsibilities and Contact Information

Name	Company/ Association	Title	Telephone	Email	Responsibility
Alayne Hamilton	RDCK	Environmental Technologist	250-352-1519	ahamilton@rdck.bc.ca	Provide project oversight and management for the RDCK.
Amy Wilson	RDCK	Resource Recovery Manager	250-352-8178	awilson@rdck.bc.ca	Provide project oversight and management for the RDCK.
TBD	RDCK	Environmental Site Manager	TBD	TBD	Ensure adherence to the EMS and EMPs, maintenance of environmental standards and permit requirements
Peter Mikes	SRK Consulting	Senior Consultant	604-601-8489	pmikes@srk.com	Provide updates to the detailed closure and remediation plan, as applicable.
Gary Smolik	Integrated Sustainability	Construction Supervisor	TBD	TBD	Complete project activities in compliance with this CEMP.
TBD	Integrated Sustainability	Site Supervisor	TBD	TBD	Provide support for the completion of project activities in compliance with this CEMP.
TBD	Integrated Sustainability	Construction EP	TBD	TBD	Serve as Integrated Sustainability EP to develop and implement EPP's and review project activities to ensure in compliance with this CEMP.
Ben Foulger	SLR	RDCK EM	250-777-4144	bfoulger@slrconsulting.com	Serve as the client representative primary EM and will ensure compliance with this CEMP.

Valerie Schmidt	SLR	Alternate RDCK EM	778-694-0469	vschmidt@slrconsulting.com	Serve as the client representative secondary EM and will ensure compliance with this CEMP.
David McKeown	SLR	QEP	250-661-2220	dmckeown@slrconsulting.com	Provide general oversight to Environmental Site Manager and EM's.

2.0 ENVIRONMENTAL MONITORING

SLR Consulting (Canada) Ltd. (SLR) is the client representative Environmental Consultant and will be the EM on-site during construction, on behalf RDCK. The EM's experience shall include sediment and erosion control, construction monitoring, waste management, contaminated soil and water management and spill response. The EMs will be identified as a Qualified Environmental Professional (QEP) or will work under the direct supervision of a QEP meeting the following requirements:

- Being registered and in good standing in BC with an appropriate professional organization;
- Having relevant expertise related to the project's environmental requirements; and
- Acting within that individual's area of expertise.

The EM shall perform site inspections and provide Integrated Sustainability instructions or guidelines to implement appropriate mitigation measures. The EM will discuss and outline the approach to environmental monitoring activities with Integrated Sustainability before construction begins. This will include a review of high-risk environmental activities and the frequency of EM site visits. The EM will be available throughout the duration of the Project and will also visit the site in keeping with the following:

- A minimum of two site visits per week are expected;
- Prior to vegetation clearing activities, to complete a pre-clearing survey to identify and provide protective measures for wildlife and wildlife habitat features;
- When Project activities occur near areas with high erosion potential;
- Immediately upon notification of any environmental incidents;
- During work within 30 m of a waterbody;
- During installation of sediment control measures;
- During all environmentally sensitive work (e.g., working in special management areas);
- At all times during periods of heavy rainfall (i.e., greater than 25 mm of rain in a 24-hour period); and
- Prior to demobilization from site following completion of activities, The EM will conduct a final site visit and sign-off stating the site meets all the requirements of the CEMP. The sign-off must be included in the site's daily inspection report.

Note that the EM has the authority to provide stop-work notice should any activities result in known or potential impacts to the environment. The EM will first report this recommendation to the RDCK prior to implementation.

The Contractor, Integrated Sustainability, will retain an appropriately skilled EP or QEP to prepare site-specific EMPs, EPPs such as an Erosion and Sediment Control Plan (ESCP) and provide oversight of contractor activities to ensure that Integrated Sustainability's environmental management measures are in compliance with the contract requirements, EMS and EMPs. A QEP is an individual that is registered and in good standing in British Columbia with the appropriate professional association constituted under an Act for the individual's profession (e.g., RPBio, P.Ag.). A QEP can be reasonably relied on to provide advice within their area of expertise, within the scope of professional practice for the individual's profession, and under the code of ethics of the appropriate professional association and is subject to disciplinary action by that professional association.

The EMPs (e.g., ESCP) will be prepared prior to the start of construction for the Contractor's component of the work for submission to and approval by the RDCK Environmental Site Manager. The Contractor will

acknowledge and allow for and support as required the execution of responsibilities of the RDCK Environmental Site Manager and their Environmental Consultant.

2.1 Monitoring and Reporting

All workers are required to report all incidents of potential environmental impairment to the EM or other appropriate representative. In the case of a spill and as required, environmental professionals will need to be retained to ensure all spill-impacted soil is removed and that the incident is documented appropriately.

Inspections of all work areas will be conducted by the EM during all phases of the Project to identify and rectify any potential sources of environmental impairment. Inspections will include all waste (e.g., hazardous, construction materials, and domestic refuse) storage areas, all hazardous materials storage areas, vehicle refueling/maintenance/storage areas, general equipment inspections, and inspections of all active work areas. Inspections should also include inspections of erosion and sediment control devices and areas of exposed soil. Records of all inspections will be filed on-site, and any potential sources of environmental impairment or appropriate actions taken will be immediately reported to the RDCK Environmental Site Manager and the Construction Supervisor.

A final environmental completion report will be prepared following the conclusion of Project activities describing compliance with the CEMP and any reportable environmental incidents, including responses to incidents that may have occurred during the Project.

2.1.1 Environmental Monitoring Reports

Environmental monitoring reports will be submitted daily summarizing construction activities and mitigation measures. These reports will include the following:

- Date;
- Project name/geographic location;
- Prime contractor firm name/contact;
- Environmental monitor name/contact;
- Summary of Project activities during the reporting period;
- Summary of environmental issues encountered during the reporting period;
- Summary of mitigation measures implemented during the reporting period;
- Summary of planned corrective measures to address site deficiencies that arose during the reporting period;
- Summary of any incident reports during the reporting period;
- Representative site photographs taken during the reporting period; and
- Schedule of planned activities for the next reporting period.

Additional reporting elements will be included as needed:

- Results from any water or soil chemical analyses; and
- Communications required with any regulatory agencies.

During inspections, the EM may recommend improvements or changes to the RDCK Environmental Site Manager and the Construction Supervisor. These recommendations will be included on the monitoring forms. A template for the daily environmental monitoring report form is presented in Appendix A.

2.1.2 Environmental Incident Reporting

2.1.2.1 Spill Response

A spill is an unauthorized discharge or release of a material or substance into the environment that is equal to or exceeds the regulated amount for that deleterious substance. Spill management is designed to reduce the risk of a harmful exposure to individuals and the surrounding environment. Requirements for reporting spills are defined in the Federal *Transportation of Dangerous Goods Act*[2] and *Canadian Environmental Protection Act*[3].

2.1.2.2 Emergency Spill Response

All emergency spill response plans and activities on the site should follow the BC Guidelines for Industry Emergency Response Plans[4]. A more detailed spill response plan is provided in Appendix B. Key spill response activities include:

- Report the Spill – Applicable parties, including, but not limited to the EM and the RDCK Environmental Site Manager. In the case of a reportable spill, Integrated Sustainability will call the 24-hour Emergency Management BC hotline at 1-800-663-3456. A reportable spill is any volume of a substance spilled that exceeds the quantities outlined in Schedule 1 of the BC Spill Reporting Regulation;
- Stop the Source, if possible – If it is safe to proceed, the Construction Manager or the EM will direct preventative measures to remove or immobilize the source of the spill;
- Contain Spill Material – If it is safe to proceed, the Construction Manager will direct spill containment methods and identify the spill material, spill volume, and the potential hazards to people and the environment;
- Protect Area – Spill containment measures will remain in place until the spilled material is removed from the Site and no longer poses a risk to people or the surrounding environment. The site Supervisor will ensure that spill kits are restocked as required with material for future use;
- Remove material to an approved location for storage and/or disposal – It is advised an independent contractor to be used for spill clean-up. All contaminated soil and clean up material shall be managed according to the *BC Environmental Management Act*[5] and Contaminated Sites Regulation[6] (CSR). Waste should be transported only by a licensed hazardous waste hauler and disposed of only at an approved waste facility; and
- Prepare a Spill Report – Integrated Sustainability will complete an Environmental Incident Report for any on-site spill (Appendix C).

3.0 ENVIRONMENTAL TRAINING AND ORIENTATION

The purpose of the Environmental Training/Orientation Program is for all personnel associated with the Project to be knowledgeable about environmental issues related to the Project, appropriately trained, and

[2] *Transportation of Dangerous Goods Act*, includes SOR.2011-210 (Amendment 10) and SOR/2011-239 (Amendment 8).

[3] *Canadian Environmental Protection Act*, 1999, includes SOR/2009-197 and SOR/2011-90.

[4] BC Ministry of Environment, 1992, including amendments up to 2002. BC Guidelines for Industry Emergency Response Plans.

[5] BC *Environmental Management Act*, 2003, including amendments up to 2016.

[6] British Columbia Contaminated Sites Regulation, 1997, including amendments up to B.C. Reg. 6/2013, May 2013.

competent to identify and implement potential environmental requirements to minimize environmental impacts associated with and resulting from the Project. This will be achieved through general environmental training and site orientation. At the end of orientation, personnel will receive a hard hat sticker for quick identification in the field that all personnel have attended the orientation. Environmental considerations and issues will be included as a component of the Project kick-off, site coordination and regular tailboard meetings.

On-site environmental orientation will be conducted by Integrated Sustainability on a per request basis and also take place at the Project kick-off meeting. All Integrated Sustainability employees and subcontractors are required to participate in environmental training before commencing work. Environmental training will be provided to the crews during pre-work orientation so that they are made aware of the regulatory permits-conditions and environmental standards and requirements for their scope of work. All training received will be documented and will be signed and dated by the trainee. The Integrated Sustainability will provide on-going communication of the principles and procedures throughout the duration of the Project activities.

3.1 Environmental Orientation

Prior to mobilization and the initiation of construction activities, all on-site personnel must review and sign an Environmental Orientation Record (EOR). Integrated Sustainability is responsible for delivering the environmental orientation, ensuring that the Project environmental risks and protection requirements related to the work is reviewed and that a record of the discussion is documented in the EOR. By signing the EOR all on-site personnel indicate that they are aware of and understand the environmental requirements of the contract and the required protection measures. Additional EORs must be completed if there is a significant change in scope, a new phase of work commences, or if new subcontractors mobilize to site.

3.2 Training

As required, Integrated Sustainability will provide direction for construction staff in the use of environmental protection practices. Integrated Sustainability shall ensure that their staff and associated sub-contractors have the training and materials to assist them on-site and have completed the EOR and any required training prior to beginning work.

Environmental direction may include the following environmental considerations:

- Environmental orientation and training;
- Environmental impact awareness during construction;
- Fundamentals of environmental impact management;
- Construction impacts, including sediment and erosion control and soil handling;
- Waste management;
- Spill response and incident reporting;
- Fuel and hazardous materials management; and
- Compliance assessments and follow-up reporting.

4.0 EROSION AND SEDIMENT CONTROL

The EM will work with the RDCK Environmental Site Manager and the Construction Supervisor to manage soil and water effectively and implement several key Erosion and Sediment Control (ESC) measures to

reduce erosion and sediment generation at the site. ESC measures are developed following guidance within Ministry of Transportation and Infrastructure (MOTI's) Best Management Practices (BMP) Section 6.1[7] and Land Development Guidelines for Protection of Aquatic Habitat[8] and include:

- Retaining existing vegetation and ground cover where possible;
- Restricting vehicle access to sensitive areas of the site;
- Slope texturing on exposed soils;
- Installing and maintaining filter fabric bags inside any catch basins, as applicable, collecting runoff from the site;
- Ensure a contingency supply of erosion and sediment control supplies is on hand and available for deployment as required;
- Installing sediment fencing to ensure no sediment laden runoff enters any waterbodies. A buffer zone should be maintained by placing the sediment barrier upslope of existing vegetation. Sediment fencing must be installed as outlined as described in Van Osch Innovations Ltd.9;
- Sediment fencing should be removed at project completion only if the risk of erosion and/or sediment release has been eliminated through re-vegetation or the application of other appropriate ground cover at the site;
- Excavated soil must be staged on 10 mil poly and when inactive, completely cover and secure with 10 mil poly;
- Do not stockpile soil within 30 m of any watercourse, riparian area or wetland;
- Application of water can be used for dust suppression;
- ESC measures will be inspected within 24-hours after heavy rainfall events (greater than 15 mm of rain in a 24-hour period) and maintained/repaired as necessary;
- No storage of fuels or fueling of equipment within 30 m of any watercourse;
- Fell trees away from any watercourse;
- Avoid the use of ground-based machinery within 15 m of the top-of-bank of any watercourse;
- Direct runoff and stormwater away from construction areas, wherever possible;
- Prohibit siting access roads or temporary laydowns within riparian areas; and
- If sediment fencing is used on-site it must be inspected and maintained. On a regular basis, sediment fencing should be:
  - Inspected daily and following each rain event;
  - Immediately repaired and replaced if fabric has fallen or been torn or degraded and support posts broken; and
  - Accumulated sediment must be removed and disposed of in a location where it cannot be re-entrained, when depth is half the height of the fence or 0.2 m high.

[7]

[8] Fisheries and Oceans Canada. 1993. Land Development Guidelines for Protection of Aquatic Habitat. 129 pp.

[9] Van Osch Innovations Ltd., 2009. Erosion and Sediment Control Participant's Manual, Vancouver

Island University, Natural Resources Extension Program.

4.1 Erosion and Sediment Control Monitoring

During the construction period, monitoring for erosion and sediment at the site will be conducted daily during the following activities to ensure preventive measures for silts and debris entering waterbodies are in place:

- Filling the tailings pond;
- Constructing surface drainage ditches above the tailings that are lined to divert flow away from the tailings;
- Dewatering of the tailings pond;
- Improvements to the dam structure, including excavating the base of the dam and armouring the channel with erosion control measures; and
- rain events and the snowmelt period on the mine site. The EM on-site will ensure preventive measures are in place in the event of heavy rainfall events (>15 mm of rain in a 24-hour period) and maintained/repaired as necessary.

The following rainfall shutdown guidelines will be utilized during all ground-based Project activities:

- Delay 24-hours following a rainfall event of 45 mm in 24 hours;
- For lower slope positions return to work is based on rainfall recovery of 15 mm in a 24-hour period;
- For middle slope positions return to work is based on rainfall recovery of 30 mm in a 24-hour period; and
- Work will remain suspended until the accumulated rainfall minus the recovery is below 45 mm in 24-hours.

Integrated Sustainability shall implement immediate remedial action where excessive sediment-laden runoff is observed in consultation with the Contractors EP, RDCKs Environmental Site Manager and RDCK's EM.

4.1.1 Sampling and Characterization

The RDCK Environmental Site Manager and the EM shall ensure the characterization of unauthorized discharges of sediment-laden runoff includes, at a minimum, flow, total suspended solids, turbidity, pH, conductivity, temperature, dissolved oxygen, and total and dissolved metals, of both the effluent and the receiving water.

Any water discharged, or rainfall run-off from Project works that flow into the environment (e.g., watercourse) must comply with the criteria outlined in the waste discharge approval and/or the BC Working Water Quality Guidelines and the BC Approved Water Quality Guidelines:

- Turbidity-related water quality change associated with the Project in discharge watercourse/ waterbody can vary from background of no more than 8 Nephelometric Turbidity Units (NTUs) at any one time for a duration of 24-hours in all waters during clear flows or in clear waters;
- Turbidity-related water quality change associated with a Project in discharge watercourse/ waterbody can vary from background of no more than 5 NTUs at any time when background is 8 NTUs - 50 NTUs during high flows or in turbid waters;
- Turbidity measurements will be included in daily environmental monitoring reports;
- pH of discharged water must be between 6.5 and 9 units;

For any release of sediment-laden water from the mine boundary that does not comply with the criteria outlined above, defined as an unauthorized discharge to the receiving environment, with respect to extent and loading, must be reported to the Chief Inspector with recommendations for improvement to the water management system, if required.

5.0 WASTE AND HAZARDOUS MATERIALS MANAGEMENT

All work areas will be maintained and kept clean and free from debris and construction materials. The following measures will be employed to ensure good housekeeping:

- Equipment laydown and material storage areas will be designated on-site and have the following equipment available:
  - Spill kits in all equipment;
  - Larger spill kits are to be located within the project office trailers and hazardous materials storage locations;
  - Solid waste bin storage;
  - Lay down and storage of cables, storm and sewer components, beams, footings, structural steel, building materials etc.;
  - Recycling for construction and industrial materials; and
  - Parking area for non-essential vehicles and equipment.
- Authorization from EM is required if additional items are brought to the work site or if additional laydown areas are required.

5.1 General Waste

General waste accumulated throughout the Project area will be stored at a designated location prior to removal. Measures to ensure that appropriate care is given to general waste are as follows:

- Remove surplus construction material and waste from work sites, and dispose of in appropriately authorized facility;
- Decommission erosion and sediment control materials and features if no longer required and where it is appropriate to do so and dispose of properly;
- Monitor access and the work site to determine if there are areas of invasive plant introduction and overall site stabilization;
- Contractor shall arrange for appropriate disposal of sanitary facilities. During use, these facilities will be secured as to prevent toppling and will be placed at least 30-m from any watercourse;
- No waste shall be stored at temporary access points; and,
- All waste material (i.e., wood, cardboard, steel, concrete) shall be separated into individual steel containment bins and taken off-site to a certified disposal facility or recycling facility.

5.2 Hazardous Materials Management

Hazardous waste will be managed to prevent contamination of soils or waterways from accidental spills and to prevent uncontrolled or accidental fires. Hazardous materials include "Dangerous goods and "Controlled products", these include but are not limited to fuels, oils, solvents, paints, greases, asbestos, Polychlorinated Biphenyl (PCB) oils, and batteries.

Hazardous materials used during Project activities will be stored and handled in accordance with all applicable legislation and best management practices, including the *Transportation of Dangerous Goods Act* and product-specific Safety Data Sheets (SDS).

General storage, handling and disposal requirements for hazardous waste include:

- SDSs for any hazardous materials used during the Project will be provided to the RDCK Environmental Site Manager at the start of the Project;
- Integrated Sustainability will ensure that all staff and subcontractors are adequately trained in handling and transportation of any hazardous materials they encounter during their job activities;
- Storage and handling of hazardous materials will be conducted to avoid loss and provide containment in the event of a spill;
- Transfer and temporary storage of hazardous materials and wastes will occur only in an area designated for this purpose. The designated area will be clearly labelled and controlled using barriers, anchored tarps, and/or separate storage containers;
- All containers used for storage or transfer will be labelled, handled and transported in accordance with the *Transportation of Dangerous Goods Act*;
- Disposal of hazardous wastes during the course of the Project will be in compliance with *Environmental Management Act*, the *Transportation of Dangerous Goods Act* and the *Hazardous Waste Regulation*. Hazardous wastes include asbestos materials, grease, lubricants, solvents, batteries, PCBs, paints, bitumen, dust suppressants, waste fuel, filters, spill clean-up materials, and oil destined for recycling or waste. It is understood that new insulating oil is not a regulated product and does not require a *Transportation of Dangerous Goods Act* shipping document or a waste manifest; and
- Integrated Sustainability will maintain records for all hazardous waste/materials including: Inventories of types and quantities of waste generated, stored or removed; Hazardous Waste Manifests identifying licensed waste haulers and disposal destinations; and disposal certification documents.

5.2.1 Fuel, Oil and Coolant Handling and Storage

SDSs should be provided for all chemicals, lubricants and other controlled substances brought to site and should always be available to workers.

Integrated Sustainability will adhere to the following procedures for dealing with waste at the site. Measures to ensure proper fuel, oil and coolant handling and storage include:

- All large construction equipment (i.e., excavators, bobcats), which remain static for at least two hours must have secondary containment (drip trays) placed under the engine compartment;
- Secondary containment is to be covered with a tarp, equipped with a roof, or with a "rain-drain" or equivalent hydrocarbon filter when not in use;

- Secondary containment must be used at the staging area as well as when parked at all temporary access points;
- All heavy equipment will be equipped with a spill kit containing:
  - 20 – Absorbent pads (oil);
  - 2 – 3" x 4' Absorbent socks (oil);
  - 1 – Epoxy putty stick (i.e. JB weld steelstik putty);
  - 2 – Heavy Duty Hazmat bags;
  - 1 – 8'x8' 6 mil poly sheet;
  - 2 – 5-gallon buckets;
  - 1 – bucket lid; and
  - 1 – Label stating "Emergency Spill Kit" in a bright contrasting colour.
- Oily and/or solvent soaked rags, if generated, should be stored in metal drums with secure fitting lids and should be disposed of at an appropriate location by a qualified waste disposal company;
- Recyclable and non-recyclable waste should be separated and stored in appropriately labelled, covered, waterproof containers for storage and transport;
- All waste material should be removed from site in a timely manner on an as needed basis and at a minimum at the completion of the project;
- Recyclable materials should be removed from site by an approved waste management company and taken to the appropriate facilities;
- Disposal plans for equipment and materials will be removed from site should consider decontamination for hydrocarbons or solvents, identify lead paint and prioritized recycling where appropriate;
- The fuel storage and handling facility shall comply with A Field Guide to Fuel Handling, Transportation and Storage[10];
- Fuel containers are to be placed in spill containment bins or other such spill containment devices;
- Locate fuel containers, re-fueling, equipment maintenance and repair sites on flat, stable ground, >30 m away from environmentally sensitive areas or ditches;
- Store all tanks, barrels and containers >23 L containing hydrocarbon products within impermeable containment area designated to contain 110% of the volume of the largest container. Surround the storage area with barricades to prevent damage from delivery trucks;
- Vehicles and equipment, including their hydraulic fittings, shall be inspected daily to ensure that they are in good condition and free of leaks;
- Operate storage areas so that containment systems are effective during wet weather;
- All fuel supply trucks, stationary fuel tanks and vehicle tidy tanks shall be clean and well maintained at all times. All fuel or grease spills occurring from their use or operation is to be cleaned immediately. Poorly maintained fuel storage tanks will be taken off-site immediately and replaced with a new clean tank;

[10]https://www2.gov.bc.ca/assets/gov/environment/waste-management/industrial-waste/industrial-waste/oilandgas/fuel_handle_guide.pdf

- A Spill Prevention and Response Plan will be readily available and visible on-site with the required specifications and will include the names of those to be contacted;
- Containers shall not leak, and shall be sealed with a proper fitting cap or lid;
- Containers >23 L, including 205 L drums must be transported upright and secured to prevent shifting and toppling;
- If fuels are pumped to storage tanks through pipes or hoses from road accessible locations, all piping shall be adequately supported, and properly joined to prevent displacement and leakage. The piping shall be pressure tested in accordance with applicable legislation;
- The fluid transfer system shall contain an accepted overflow preventer which will cut off fuel delivery prior to the tank becoming completely full. Absorbent pads shall be kept available at all areas where fueling occurs;
- Inspect all temporary and permanent oil storage tanks to ensure there are no potential leaks prior to, during and after filling;
- Wrap hose connections with absorbent material to catch any leaks and drips during oil transfer to/from the storage tanks;
- If leak is observed from any equipment while on-site, stop the equipment and place drip trays and/or sorbent matting under the leak immediately. A sign stating the following will be placed above the leaking area: “Repair the Leak, or Replace the Tank, Hose or Connector Assembly”;
- Do not fill tanks to the top. Leave adequate head-space to ensure that overfilling does not occur;
- Temporary on-site storage of oil tanks or oil shall be stored in designated areas with oil containment provided or temporary storage areas constructed with heavy grade, ultra-violet resistant polyethylene liner adequately bermed at the sides to provide containment;
- Containment areas shall be covered by a tarp to avoid rainwater accumulation. All containment basins shall be inspected daily for leaks and wear points;
- Containment basins shall be cleaned regularly, and any accumulated waters removed;
- Where leaks or wear points are found, they shall be repaired promptly to restore full containment; and
- Additional major spill kits are to be located in Project office trailers or at a common mobilization site.

5.2.2 Construction-related Wastes

Construction wastes (i.e., lumber, shrink wrapping, welding rods, cut-off wheels, empty product containers, etc.) will be recycled where possible or disposed of in an environmentally acceptable manner (i.e., permitted landfill). Construction debris and other waste will not be deposited in waterbodies or storm drains or discarded to the environment.

5.3 Source Material

Designated material source locations have been identified as per SRK (2020) for construction works and the Integrated Sustainability shall keep with the following:

- Riprap material may be sourced from the spillway excavation or from the quarry located southwest of the west abutment of the HB Dam. Riprap from the existing spillway and from the upstream slope of the dam may also be used where suitable.
- Drainage material for the toe berm expansion will be sourced from undersized material from the riprap quarry, the spillway rock excavation, or will be sourced off-site.
- General fill for the toe berm expansion and upstream beach may be sourced from the spillway excavation or from the Till Borrow Area located at the Central Landfill.
- Tailings cover material will be sourced from the Till Borrow Area.

No alternative locations may be used for source material without the written consent from the RDCK Environmental Site Manager.

6.0 SOIL MANAGEMENT PLAN

The following sections provide a general overview of the soil management environmental requirements associated with Project activities.

6.1 Temporary Storage

Soil management is considered a primary environmental concern; therefore, the following procedures have been designed to ensure environmental compliance:

- All soil stockpiles must be located to avoid slumping or erosion of the material into ditches, drains, culverts and all other waterbodies;
- Excavated soil must not be placed closer than 4.0 m from the edge of a slope and will have a maximum height of 2.0 m;
- Excavated soils must be stockpiled 15 m away from any drainage features and 30 m away from any waterbody or watercourse;
- Excavated soil must be staged on 10 mil poly and when inactive covered with 10 mil poly, weighted down to secure the cover; and
- If there is any indication that soil is contaminated then soil must be placed on and completely covered by polyethylene sheets and the EM contacted immediately.

Soil and material stockpiles left on the site for more than 24-hours or during or prior to inclement weather shall be covered with plastic, which shall be securely fastened in place. Should material piles become a source of siltation, the Construction Supervisor shall immediately remedy the situation as necessary. Materials must not be stockpiled on roadways without appropriate authorization.

6.1.1 Sampling and Characterization

Any surplus soil that has indication of contamination requires off-site disposal must be chemically characterized prior to leaving the site. Any soil that is excavated from the tailing surface has the potential to be contaminated with metals and should be handled accordantly. Prior to any soil leaving it site must be tested and characterized with regards to federal *Transportation of Dangerous Goods Act*[2], and the BC Contaminated Sites Regulation[5] and Hazardous Waste Regulation[11].

If contamination is encountered during the Project, as identified by odours, staining, buried debris or sheen on groundwater infiltration, Integrated Sustainability shall suspend work and contact the EM immediately. If there is potential for contaminated soils at the site, Integrated Sustainability must segregate these soils from un-contaminated soil during excavation and separately stockpile them on top of and covered by polyethylene sheeting. Soil samples must be taken from suspected contaminated stockpiles by SLR's EM and submitted to an accredited laboratory in order to properly classify soil for disposal purposes. Soil testing should be completed for BC CSR Soil Metals, Light Extractable Petroleum Hydrocarbons, Heavy Extractable Petroleum Hydrocarbons PCBs. Further analysis of other parameters may be required if other contaminants are suspected.

6.1.1.1 Soil Disposal

Surplus soil must only be disposed of at a pre-approved licensed receiving facility authorized under Municipal, Provincial or Federal legislation to accept the material being delivered. The following procedures must be followed before any soil leaves the site:

- Care will be taken to ensure that truck access to areas with contaminated or suspected contaminated material is limited. If required, a decontamination facility should be constructed on-site to eliminate the unwanted transfer of contaminated material off-site;
- Soil that has indication of contamination should not leave the site until laboratory analysis has been conducted and results have been reviewed by EM and the RDCK Environmental Site Manager;
- Surplus soils removed from the site need to be accompanied by material designation paperwork;
- The EM is responsible for completing soil waybill, soil manifest documents or both; and
- If off-site disposal of contaminated soil is required a Notification of Independent Remediation may be required to be submitted to BC ENV.

[11] British Columbia Hazardous Waste Regulation, 1988, including amendments up to B.C. Reg. 63/2009, April 1, 2009.

7.0 CONSTRUCTION WATER MANAGEMENT

7.1 Groundwater

If groundwater seeps into an excavation, the EM will be notified as it is understood that samples may need to be collected and submitted for chemical analysis prior to disposal or discharge into the environment. This requirement will be determined on a case by case basis and will be highly dependent on location. Depending on results of chemical analysis, a temporary water-storage tank or settling pond may need to be retained on-site to collect the contaminated groundwater during dewatering.

Upon confirmation that groundwater quality is acceptable, should testing be required, Integrated Sustainability may remove accumulated excavation water for discharge to an appropriate area within the site boundary. It should be noted that discharge should occur at least 30 m from the perimeter of the work area and excavation water is not to be discharged off property. Additional measures include:

- Any water discharge points must include appropriate ESC;
- No water shall be discharged near the top of a slope;
- No water shall be discharged directly into any waterbody;
- If groundwater is highly turbid, an on-site retention or infiltration pond may be required to hold water for a sufficient length of time to allow sediment to settle out prior to discharge. Any stored water should be tested prior to discharge. RDCK should contact the EM prior to the implementation of any water retention activities; and
- Implement a construction water monitoring program as per Section 7.4.

7.2 Surface Water

The following considerations for surface water will be adhered to:

- Drainage channels constructed over the tailings cover directing surface run-off from the tailings cover will be inspected to ensure fine tailings are not escaping and migrating downstream;
- ESC measures will be inspected daily during rainfall events and the snowmelt period and maintained/repaired as necessary;
- Any water discharged, or rainfall run-off from Project works that flow into the environment (e.g., watercourse) must comply with the criteria outlined in the waste discharge approval and/or the BC Working Water Quality Guidelines and the BC Approved Water Quality Guidelines;
- Turbidity-related water quality change associated with the Project in discharge watercourse/ waterbody can vary from background of no more than 8 Nephelometric Turbidity Units (NTUs) at any one time for a duration of 24-hours in all waters during clear flows or in clear waters;
- Turbidity-related water quality change associated with a Project in discharge watercourse/ waterbody can vary from background of no more than 5 NTUs at any time when background is 8 NTUs - 50 NTUs during high flows or in turbid waters;
- Turbidity measurements will be included in daily environmental monitoring reports;
- pH of discharged water must be between 6.5 and 9 units;
- Any water discharged from the Project site is to be managed for the full duration of the execution of the work. Discharges include those to the environment (e.g., waterbody, watercourse) and to managed watercourses;

- Any artesian conditions (e.g., flowing groundwater) encountered during construction must be immediately reported to the EM, who will provide direction on site-specific mitigation. Discharge of water will comply with all applicable drainage/sewer use bylaws, permits or surface water protection regulations;
- Perform construction activities in a manner that prevents the release of oil, fuel, coolant, waste and other pollutants into soil, groundwater, manholes, ditches, rivers, streams, lakes or other watercourses (flowing or dry). Waste and other pollutants include, but are not limited to, refuse, garbage, sewage effluent, contaminated soil, sediment, site run-off (if it exceeds the BC Approved and Working Water Quality Guidelines), hydrocarbon or coolant spills, construction waste and chemicals;
- Sediment control systems including ditches, retention ponds and settling ponds shall be designed by a QEP. Erosion and sediment control structures (e.g., straw bales, vegetation matting) shall be certified weed-free;
- If discharge because of utilizing pumps is required, discharge points shall be discussed with the EM prior to these activities occurring: and
- Implement a construction water monitoring program as detailed in Section 7.4.

7.3 Tailings Pond Dewatering

As noted in SRK (2020) a major component of the project will be the dewatering of the existing tailings pond through a direct pipe method into the Salmo River, which will be completed under a waste discharge approval. Many of the mitigation measures described in Section 7.2 and 7.3 will apply to this activity. Specific sampling parameters and monitoring frequency for the tailings pond dewatering are outlined in the waste discharge approval #110450. The waste discharge approval is only be applicable to the tailings pond dewatering.

7.4 Surface Water Monitoring

Water quality monitoring will occur prior to and during construction following dewatering of the tailings pond to ensure the constructed works are performing as intended and that there are no detectable adverse effects on the environment or human health and will include both surface and groundwater sampling. The frequency of monitoring events following the tailings pond dewatering will occur on a weekly basis however, during rain events and the snowmelt period or failure of erosion and sediment control mitigation daily monitoring events will occur. A baseline upgradient water quality sample will be collected during the effluent discharge prior to the start of construction and samples will be analyzed field monitored for pH and turbidity at a pre-determined location. Additional sampling parameters may be included following review of upgradient baseline concentrations.

8.0 WILDLIFE MANAGEMENT AND PROTECTION PLAN

Integrated Sustainability will conduct activities in a manner that is sensitive to wildlife and wildlife habitat. General measures to mitigate wildlife impacts include:

- No fishing, hunting or shooting for all employee and contractors while on company business or while commuting to and from the mine site;
- Do not feed, attract or harass wildlife;
- Food waste and garbage will be disposed of immediately in bear-proof containers;
- Nuisance bears within the Project area will be reported to the EM and through the 24-hour Report All Poachers and Polluters (RAPP) hotline at 1-877-952-7277;
- Firearms will not be allowed on-site; however, bear spray is permitted;
- All staff and subcontractors will be educated about safety procedures and precautions for working in bear and other wildlife habitat;
- All staff and subcontractors will adhere to maximum highway speed limits and be alert while driving to avoid potential wildlife-vehicle collisions;
- Select project activities are expected to occur within the general nesting periods (early-April to mid-August) for most migratory birds that are protected under the *Migratory Birds Convention Act*; however, vegetation stripping and tree removal will occur in the winter prior to the start of the bird nesting window. In the event that a bird nest is identified the EM will be notified and all protection will be afforded to the nest. Should any vegetation (including grasses) trimming or removal be required between early-April to mid-August, a scientifically sound bird nest assessment must be undertaken no earlier than three days prior to the required clearing. In the event that a bird nest is identified, a bird nest assessment protocol will be developed in accordance with recommendations from Environment Canada;
- Raptor nests are protected year-round and are not to be disturbed. If a raptor nest is identified additional strategies for nest management may also be required at the direction of the EM;
- If species-at-risk or provincially rare species are observed on the site, the EM will be notified immediately;
- No interaction with the animal shall occur unless required and under appropriate Provincial or Federal permit;
- No chemicals are permitted for use on access roads or site (e.g., dust suppressants);
- Lighting will be limited to only essential work areas and night work will be avoided whenever possible;
- The EM will work to complete pre-clearing surveys in advance of vegetation clearing activities. During these pre-clearing surveys the proposed areas to be cleared, and a 50 to 100-m buffer, will be visually searched for the presence of wildlife and wildlife habitat features. The presence of other environmentally sensitive features (i.e., watercourses) will also be noted. These features will be marked in the field with flagging tape and UTM coordinates taken. No clearing of vegetation will occur prior to the completion of pre-clearing activities;
- Implement Best Management Practices for Raptor Conservation during Urban and Rural Land Development in BC[12]. This will include completing pre-clearing surveys for the presence of raptor

[12] http://www.env.gov.bc.ca/wld/documents/bmp/raptor_conservation_guidelines_2013.pdf

nests. Any identified raptor nests will be protected from disturbance utilizing buffers as described in Best Management Practices for Raptor Conservation during Urban and Rural Land Development in BC. A raptor nest search will be completed within five-days of clearing activities. Should clearing not occur within that time frame the pre-clearing survey will be required to be redone;

- Amphibian salvage operations will be timed so that detectability and capture rate is optimized and will occur at minimum one-week before project works. The extensive salvage operation will allow for the animals to be relocated to a new site within an appropriate time frame. Appropriate equipment (e.g., funnel traps, dip netting) and techniques (e.g., visual encounter surveys with hand capture, dewatering with dip netting) will be used to maximize capture efficiency. Repeated salvage sampling will ensure that all animals are captured. Relocation areas will be comprised to suitable habitat for the captured species. Exclusion fencing will be employed to prevent entry of individuals to the salvage area;
- Western painted turtle (*Chrysemys picta*) salvage operations will be timed so that detectability and capture rate is optimized. The extensive salvage operation will allow for the animals to be relocated to a new site within an appropriate time frame (e.g., before overwintering activity occurs). Appropriate equipment (e.g., baited hoop traps, seine netting) and techniques (e.g., hand captures) will be used to maximize capture efficiency. Repeated salvage sampling will ensure that all animals are captured. Relocation areas will be comprised of suitable habitat for western painted turtle. Exclusion fencing will be employed to prevent entry of individuals to the salvage area;
- Rubber boa (*Charina bottae*) salvage operations (in the quarry area and other appropriate locations) will be timed so that detectability and capture rate is optimized and will occur at minimum one-week before project works occur. The extensive salvage operation will allow for the animals to be relocated to a new site within an appropriate time frame (e.g. before overwintering activity occurs). Appropriate equipment (e.g., pit fall traps, coverboards) and techniques (e.g., hand captures, visual surveys, searching under potential cover) will be used to maximize capture efficiency. Trained and skilled searches will be used to ensure no individuals are overlooked. Repeated salvage sampling will ensure that all animals are captured. Relocation areas will be comprised of suitable habitat for rubber boa. Exclusion fencing will be employed to prevent entry of individuals to the salvage area;
- All salvage activities will be completed under an approved permit under the BC *Wildlife Act*;
- Minimize the use and ensure proper storage of potential wildlife attractants such as food, garbage, petroleum products or other materials with strong odours;
- Conduct construction activities in a manner that is sensitive to the wildlife and wildlife habitat;
- Notify the appropriate authorities; should any active denning sites or burrows be identified within the Project area;
- Domestic pets (i.e., dogs) are not allowed on the Project;
- Any wildlife sightings will be recorded in an incidental wildlife log and included in the daily EM report. The Construction Supervisor shall keep a log of all incidental observations, which will be passed on to the EM;
- To prevent wildlife entrapment, excavations must be fenced (in addition to any safety related actions) if left unattended;
- The Construction Supervisor shall inform workers of all issues associated with working in bear, cougar and wolf country to reduce potential conflicts. No interaction with any wildlife is permitted. All observations of these species will be noted;

- Construction activities should be restricted to daylight hours as much as possible. Artificial lighting should not be used;
- Use existing old road surfaces and disturbed areas or areas of low habitat value as much as possible for temporary construction access roads and laydown and storage areas, where applicable; and
- Clearly limits will be strictly adhered to ensure that disturbance to vegetation is minimized.

9.0 FISH AND FISH HABITAT MANAGEMENT PLAN

The following measures will be employed to protect fish and fish habitat (herein defined as all rivers, streams, ditches and ephemeral crossings). These features are primarily associated with the tailings pond and downstream watercourses:

- Follow all of Fisheries and Oceans Canada's Measures to Avoid Causing Harm to Fish and Fish Habitat[13];
- Follow the Ministry of Environment's A User's Guide to Working In and Around Water http://www.env.gov.bc.ca/wsd/water_rights/cabinet/working_around_water.pdf;
- Sufficient vegetation to ensure bank stability, maintain ground cover and prevent erosion must be retained within 30 m of the high water mark (HWM) of any watercourse;
- All selective clearing of trees and shrubs within 30 m of watercourses must be completed utilizing hand tools, where practical;
- Where possible, root masses and stumps should be left in place within 30 m of any watercourse to ensure slope integrity;
- No debris, soil or other deleterious material will be allowed to enter any watercourse;
- No machinery crossing (fording) of any watercourse will be permitted;
- Clearly flag or otherwise delineate riparian areas throughout all phases of construction. When working during periods of heavy or prolonged rainfall, isolate the area of work and install appropriate ESC to prevent the release of sediment-laden water or any other deleterious substances into surface water;
- Isolate work area from any flowing water that may be present. Temporarily divert flows around the work area;
- Operate machinery on land above the HWM to minimize disturbance to the banks and bed of any watercourse;
- Do not remove coarse woody debris from any watercourse;
- Prevent the transport of sediment through the installation of appropriate ESC when work involves the disturbance of soils or the use of erodible materials (e.g., sands, topsoil);
- No equipment fueling nor fuel storage is to occur within 30 m of any watercourse; and
- Use existing old road surfaces and disturbed areas or areas of low habitat value as much as possible for temporary construction access roads and laydown and storage areas.

[13] http://www.dfo-mpo.gc.ca/pnw-ppe/measures-mesures/index-eng.html;

10.0 VEGETATION AND RARE PLANT MANAGEMENT PLAN

The following measures are provided to limit the impact of Project activities on vegetation:

- Clearing limits will be strictly adhered to ensure that disturbance to vegetation is minimized;
- Manage and control noxious or invasive weeds known to occur within the Kootenay Region, including blueweed (*Echium vulgare*), common bugloss (*Anchusa officinalis*), common tansy (*Tanacetum vulgare*), field scabious (*Knautia arvensis*), Orange hawkweed (*Hieracium aurantiacum*), hoary alyssum (*Berteroa incana*), perennial pepperweed (*Lepidium latifolium*), several knapweed species (*Centaurea* spp.) and plumeless thistle (*Carduus acanthoides*). Several other invasive species are also known to occur.
- Ensure that noxious or invasive weeds do not migrate from the site to adjacent areas using non-toxic means;
- All equipment will arrive on-site, clean and free of noxious or invasive weeds;
- Prior to moving to new sites, all equipment will be inspected for all weeds and suspect plants will be removed from equipment and vehicles to prevent spread of invasive species;
- All vegetation will be removed and transported to an approved disposal area at the discretion of the RDCK;
- Cleared material containing invasive/noxious species will be separate from other cleared material with the invasive species containing material disposal of at an appropriate transfer facility;
- Loads will be covered during transport to help prevent spores or seeds from falling out of the vehicle;
- Conduct an inspection of any fill material source to identify any potential invasive species issues;
- Machinery will keep to designated routes and access roads to reduce damage to surrounding vegetation;
- Limit stripping of vegetation and soils to those areas required for Project activities;
- Ensure excavated material, construction waste, stockpiles or materials are positioned to limit the impact to vegetation;
- Machinery will not be parked within the drip line of trees;
- Restore bare soil as quickly as possible after disturbance using certified weed free seed;
- Use existing old road surfaces and disturbed areas or areas of low habitat value as much as possible for temporary construction access roads and laydown and storage areas.

11.0 INVASIVE PLANT MANAGEMENT PLAN

In addition to the measures as detailed in Section 10.0, the following considerations will be made to limit the spread of weeds within the Project area:

- Prior to moving to new sites, all equipment will be inspected for all weeds and suspect plants will be removed from equipment and vehicles to prevent spread of invasive species. These plants will be properly disposed of at an appropriate transfer facility;
- Cleared material containing invasive or noxious species will be separate from other cleared material with the invasive species containing material disposal of at an appropriate transfer facility;
- Loads will be covered during transport to help prevent spores or seeds from falling out of the vehicle; and

- Use existing old road surfaces and disturbed areas or areas of low habitat value as much as possible for temporary construction access roads and laydown and storage areas.

12.0 HERITAGE MANAGEMENT PLAN

The Construction Supervisor shall protect and preserve the remains or items of geological or archaeological interest or value encountered on-site and must take all reasonable precautions to prevent damage or unauthorized removal of items by any personnel. All construction activities involving surface or sub-surface disturbance should not commence until the RDCK conducts field surveys consistent with archaeological and cultural heritage resources management procedures consistent with the provisions of the *Heritage Conservation Act*[14].

In the event that sites or artifacts of heritage or archaeological importance are discovered, Integrated Sustainability shall stop work immediately and contact The EM and the RDCK Environmental Site Manager. If evidence of cultural artifacts is found (i.e., human bones, stone tools, and shell deposits) the following procedures are to be followed:

- Immediately stop work in the vicinity of the suspected archaeological find and notify the EM and the RDCK Environmental Site Manager as soon as possible.
- Contact the Archaeology Branch of the Ministry of Forests, Lands and Natural Resource operations and Rural Development and make arrangements to scientifically excavate and record findings.
- Ensure no one touches any suspected archaeological, paleontological or cultural artifact.
- Do not undertake any further work that could disturb the site. Do not move soil from the vicinity of the site. Do not move or collect the artifacts.
- Secure the area and mark it as a "No-Activity-Area" by staking or flagging off the affected location to prevent additional disturbances.

If human remains are encountered on-site, the following procedures are to be followed:

- Immediately stop work within the vicinity of the suspected archaeological find and notify the EM and the RDCK Environmental Site Manager.
- Do not disturb the site.
- Treat the remains will full dignity and respect. Cover any bones with plastic sheeting, blankets or other clean coverings until the RCMP arrive.
- Assign an employee to maintain watch over the remains until the RCMP arrive.
- Do NOT backfill the area.

[14] *Heritage Conservation Act*, [RSBC 1996] CHAPTER 187.

13.0 NOISE MANAGEMENT PLAN

All work should comply with local noise bylaws unless exemptions have been obtained prior to commencing any site works. The site should be developed with care and in compliance with the Environmental Guidelines for Urban and Rural Land Development in British Columbia[15]. The following noise control measures should be implemented during construction:

- Equipment should be maintained in good working condition. Fleet vehicles should be maintained according to manufacturer's guidelines. Vehicles and equipment should be inspected on a regular basis and maintained as required;
- Standard practices and use of "Best Available Control Technologies" should be implemented to control equipment, including hand-held, and vehicle noise. Noise levels will be managed using standard noise reduction mufflers. Mufflers are to be maintained in good working condition to meet their warranted operating efficiency;
- All personnel, contractors and suppliers will adhere to a maximum of 30 km/hour for all vehicles at all times along unpaved roads to reduce noise and potential collisions with wildlife;
- The Construction Supervisor shall comply with any applicable local noise bylaws, or exemptions and must obtained prior to the start of any work (e.g. blasting);
- Avoid unnecessary engine revving and use of engine brakes and minimize vehicle idling to the extent feasible;
- Blasting should be scheduled, where possible, to avoid the general raptor breeding season with care taken to ensure no physical damage occurs to vegetation and key habitat features. Blasting is of particular concern during courtship and egg-laying periods (broadly January 5 to July 20). If blasting must occur at this time, a minimum 1,000 m (1 km) buffer from the nest site should be maintained[16].

[15] Develop with Care 2014: Environmental Guidelines for Urban and Rural Land Development in British Columbia, 2014. Ministry of Environment, Ecosystems Branch.

[16] BC Ministry of Forests. 2013. Guidelines for Raptor Conservation during Urban and Rural Land Development in British Columbia. 151 pp.

14.0 AIR QUALITY MANAGEMENT PLAN

Air quality may be affected by construction activities. Construction equipment and vehicles may temporarily emit greenhouse gases and deleterious substances and will emit particulate matter. To minimize the potential impacts to air quality, the following measures should be implemented:

- Control of blast dust through the use of using appropriate blast hole patterns and stemming to prevent venting;
- All personnel, contractors and suppliers will adhere to a maximum of 30 km/hour for all vehicles at all times along unpaved roads to reduce dust generation;
- Apply water to dry soils, access roads, lay down areas, work areas and disposal areas during periods of high wind and/or dry weather if there is evidence that wind erosion is a problem (e.g., drifting of topsoil or stockpiles) or if dust control is required. When using water, caution shall be used to prevent run-off into adjacent watercourses;
- Do not use oils or other dust suppressants;
- Ensure that all equipment is maintained in good working order and has properly functioning emission controls;
- Minimize engine idling;
- Implement speed limits for all equipment;
- Use modern machinery and commercially available low sulphur fuels;
- Soil stockpiles should be covered with 10 mil polyethylene sheets;
- Adhere to all posted speed limits;
- Cover loads when hauling; and
- Load trucks so that loads do not spill during movement.

14.1 Idle Reduction Strategies

To minimize greenhouse gas emissions during construction activities, the following practices should be implemented:

- Ensure that all equipment is maintained in good working order and has properly functioning emission controls;
- Locate operating vehicles away from sensitive receptors;
- Minimize vehicle idling to the extent feasible; and
- Establish a staging zone for trucks that are waiting to load or unload material in the Project area, away from sensitive receptors.

15.0 TRAFFIC AND ACCESS MANAGEMENT PLAN

Traffic should be managed during construction to ensure safe access near the HB Mine Tailings Facility. The following traffic control measures should be implemented during construction:

- Train staff and conduct tailgate meetings prior to commencing Project activities to review access and traffic management, specifically road access to and from the site;
- Vehicle traffic should be limited to designated "roads" as much as practical;
- Install safety signs and flashing lights to notify highway traffic of construction works and associated dangers of construction vehicles entering and leaving the site;
- Prior to leaving site, vehicles and equipment that were in contact with the tailing surface should be decontaminated to avoid transport of contaminants off-site, and
- Prior to transporting any decommissioned equipment off- site, calculate the equipment height to determine the appropriate truck required for transport, determine the best transportation route, and check with municipal permits for potential over-height restrictions.

16.0 SITE RESTORATION

The following measures will be employed to support site restoration and to minimize impacts:

- Minimize activities that cause soil compaction and rutting (e.g., minimize vehicle traffic and use of equipment on exposed soils, use existing roadways or disturbed areas to travel within site, use equipment of low bearing weight or low-pressure tires or tracked vehicles within sensitive areas etc.);
- Compacted soils must be rehabilitated similar to existing site conditions;
- Decommission and remove temporary structures used during construction within the construction season when they are deemed to be no longer required;
- Upon completion of construction activities, remove surplus materials and wastes from the work sites and dispose of at appropriate facilities;
- Install and maintain appropriate sediment control measures until such time that natural vegetation becomes established;
- Prior to hydroseeding the containment cover surface will be loosened via harrowing.
- Hydroseed areas disturbed during work to a stable vegetated condition prior to the onset of winter, a tackifier will be used on dam slopes;
- Seed mixtures (certified weed free) and associated application rates must be confirmed by a QEP prior to application;
- Upon completion of restoration activities, remove all remaining ESC measures, unless they are necessary to protect areas where vegetation is naturally establishing; and
- Remove all equipment, supplies and materials associated with the work.

NE/kw

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DRAWINGS

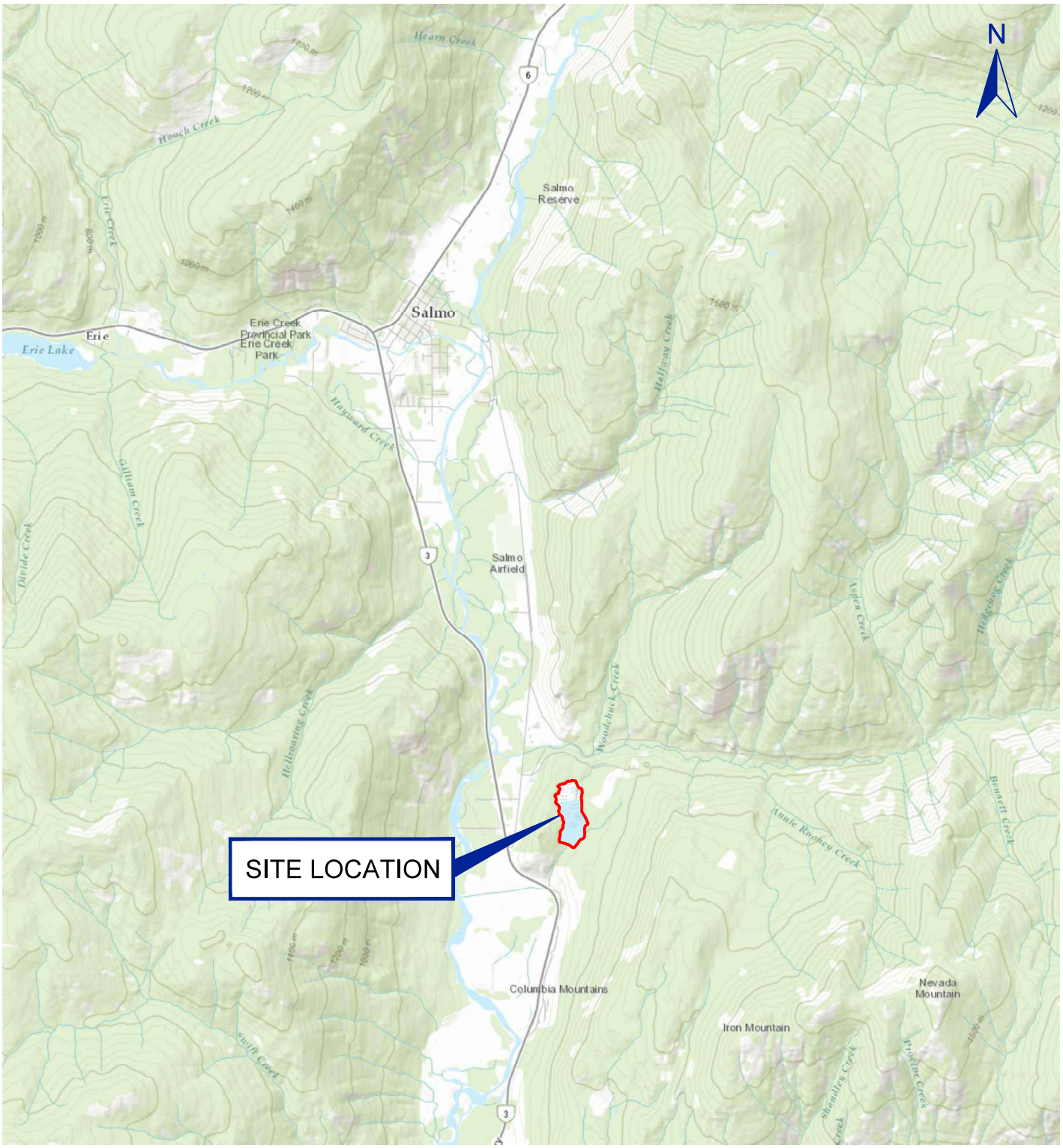
Construction Environmental Management Plan HB Tailings Mangement Facility

Regional District of Central Kootenay

HB TAILINGS MANAGEMENT FACILITY

SALMO, BRITISH COLUMBIA

SLR Project No: 204.03242.00006



Basemap sources: Esri, DeLorme, HERE, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, and the GIS User Community

0 0.5 1 2 3 4 km

SCALE 1:75,000
WHEN PLOTTED CORRECTLY ON A 11 x 17 PAGE LAYOUT
NAD 1983 UTM Zone 11U

THIS DRAWING IS FOR CONCEPTUAL PURPOSES ONLY. ACTUAL LOCATIONS MAY VARY AND NOT ALL STRUCTURES ARE SHOWN.

REGIONAL DISTRICT OF CENTRAL KOOTENAY
HB TAILINGS MAINTENANCE FACILITY
SALMO, BC

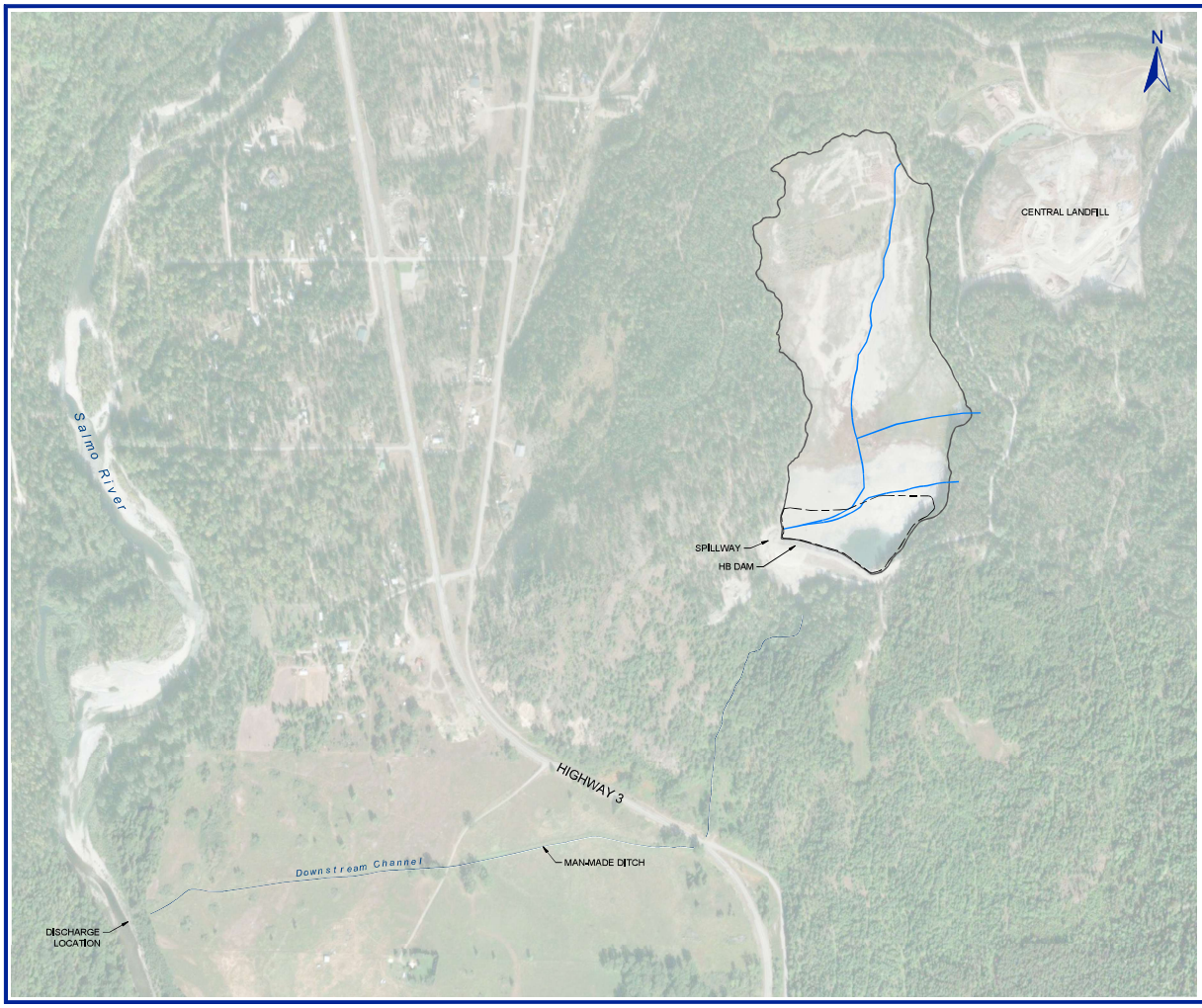
CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN

SITE LOCATION

Date: April 30, 2021
Project No. 204.03242.00006

Drawing No. 1

Cadfile name: N:\Vancouver\CAD\Project Drawings\204\204.03242\204.03242.00006\S_204-03242-00006-A2.dwg



NOTES:
IMAGERY © 2021 ESRI, DIGITALGLOBE, GEOEYE, I-CUBED, USDA FSA, USGS, AEX, GETMAPPING, AEROGRID, IGN, IGP, SWISSTOPO, AND THE GIS USER COMMUNITY. IMAGE DATE: 2016.

LEGEND:

- TAILINGS DEPOSITION AREA
- TAILINGS POND
- SURFICIAL CHANNEL

0 50 100 200 300 400 m

SCALE 1:7,500
WHEN PLOTTED CORRECTLY ON A 11 x 17 PAGE LAYOUT
NAD 1983 UTM Zone 11U

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REGIONAL DISTRICT OF CENTRAL KOOTENAY
HB TAILINGS MAINTENANCE FACILITY
SALMO, BC

CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN

SITE PLAN

Date: April 30, 2021	Drawing No. 2
Project No. 204.03242.00006	

SLR

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APPENDIX A

ENVIRONMENTAL MONITORING REPORT FORM

Construction Environmental Management Plan HB Tailings Mangement Facility

Regional District of Central Kootenay

HB TAILINGS MANAGEMENT FACILITY

SALMO, BRITISH COLUMBIA

SLR Project No: 204.03242.00006

DAILY Environmental Monitoring Report:
HB Mine Tailings Facility 204.03242

Date		
Environmental Monitor/Company/Contact #		
Start and End Times		
Construction Phase		
Activities Conducted		
Weather		
Potential for rain or snow?		
Did it rain or snow overnight?		
Sensitive Habitat	Work near Sensitive Habitat?	
	Distance from Work (m)	
	Description	
Wildlife Observed		
Sediment and Erosion Control	Silt laden runoff visible on site?	
	Silt laden runoff discharging to sensitive habitat?	
	Stockpiled material or steep slopes eroding?	
	Coverage of piles or steep slopes required?	
	Silt fencing required?	
	Measures Implemented	
	Discussed with:	
	Corrective Actions	
Construction Equipment Inspection	Type(s)	
	Leaks?	
	Weeds?	
	Spill kits available?	
	Other	

DAILY Environmental Monitoring Report:
HB Mine Tailings Facility 204.03242

Spill	Spill/ Stain/ Fluid observed?	
	Type?	
	Cleanup Measures Requested by EM*	
	Discussed with:	
	Contractor has cleanup supplies?	
	Machinery Repair requested by EM*	
	Corrective Actions	

Other Notes:

APPENDIX B
SPILL RESPONSE PLAN

Construction Environmental Management Plan HB Tailings Mangement Facility

Regional District of Central Kootenay

HB TAILINGS MANAGEMENT FACILITY

SALMO, BRITISH COLUMBIA

SLR Project No: 204.03242.00006

Emergency Spill Response Plan

In the event of any release of fuel, lubricant, sludge, or other industrial chemical (including gases), Construction Company shall adhere to the following spill response procedures. Construction Company shall be responsible for ensuring personnel are competent to adequately respond to a spill. Construction Company shall report any spill **immediately** to the RDCK.

Spill Response Procedures:

1. Ensure safety.
2. Stop the flow (when possible).
3. Secure the area.
4. Contain the spill.
5. Notify/report.
6. Clean-up.

All spills, regardless of volume, and other environmental incidents, shall be reported to SLR's EM. Construction Company is responsible for ensuring personnel know when to contact the Provincial Emergency Program (PEP) and/or Fisheries and Oceans Canada (DFO).

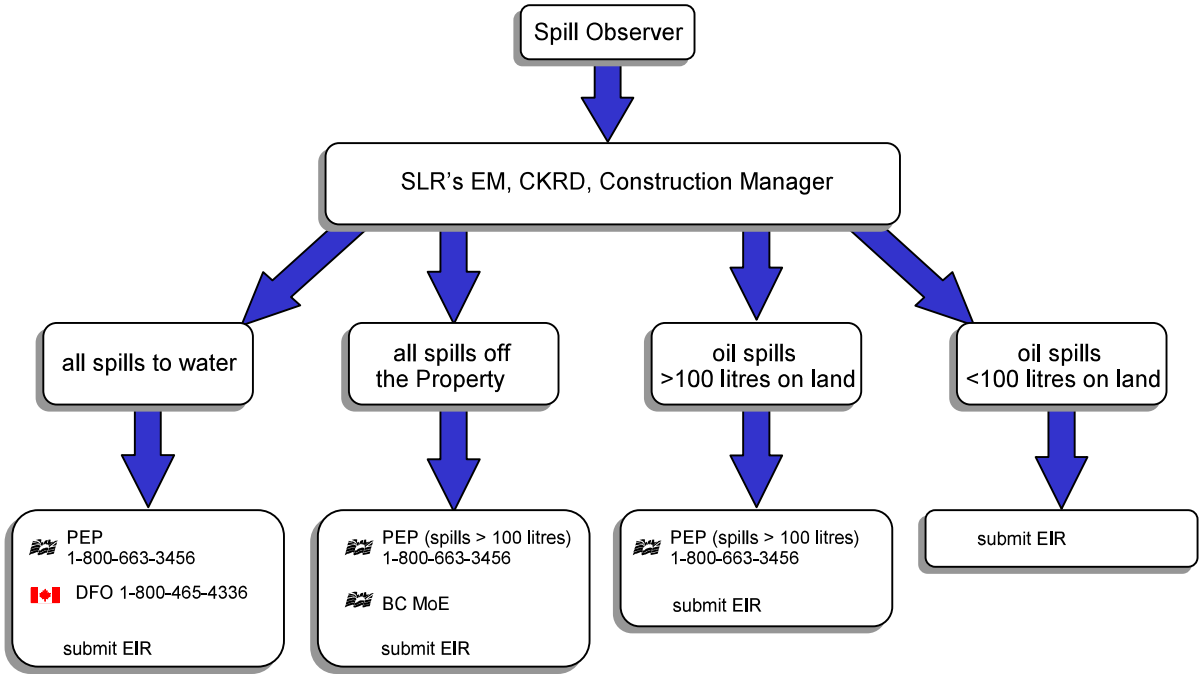
It is the responsibility of Construction Company to report spills in excess of the quantities included in the table below to the appropriate environmental agency.

Reportable Spill Quantity List *
(**list of externally reportable quantities for commonly used** substances)

Product	**Quantity**
Class 2.1 - flammable gas (e.g. propane)	10 kg or 10 min.
Class 2.2 - non-flammable gas (e.g. SF6, CO2)	10 kg or 10 min.
Class 3 - flammable liquids	100 litres
Class 8 - corrosive liquid acids and caustics (e.g. battery acid)	5 kg or 5 litres
Class 9 - environmentally hazardous (e.g. used ethylene glycol)	25 kg or 25 litres
Class 9 - environmentally hazardous (friable asbestos)	25 kg or 25 litres (for transportation purposes), else 50 kg
Oil, 2 or more ppm PCBs from in-service equipment	containing 1 g pure PCB
Oil, 2 or more ppm PCBs from NOT in-service equipment	any quantity
Solids, 50 or more ppm PCBs, NOT from in-service equipment	any quantity
Oil and Waste Oil	100 litres
Leachable toxic waste (e.g. abrasive blasting material)	25 kg or 25 litres
Other Substances (e.g. wash water)	200 kg or 200 litres
Pesticides and Herbicides	5 kg or 5 litres

* Quantities are subject to change. Refer to Regulations for latest figures

ALL SPILLS TO WATER ARE REPORTABLE



Key spill response activities include:

- **Report the Spill** – Applicable parties, including, but not limited to, SLR's EM and Construction Manager will be contacted as soon as it is safe to do so. Any reportable spill should be **immediately** reported to the EM, who will then notify BC Ministry of Environment, as required under the BC Spill Reporting Regulation[1]. A reportable spill is any volume of a substance spilled that exceeds the quantities outlined in Schedule 1 of the BC Spill Reporting Regulation;

- **Stop the source, if possible** – If it is safe to proceed, the Site Construction Manager and/or SLRs EM will direct preventative measures to remove or immobilize the source of the spill;

- **Contain Spill Material** – If it is safe to proceed, the Site Construction Manager will direct spill containment methods and identify the spill material, spill volume, and the potential hazards to people and the environment;

- **Protect Area** – Spill containment measures will remain in place until the spilled material is removed from the Site and no longer poses a risk to people or the surrounding environment. The Site Supervisor will ensure that spill kits are restocked as required with material for future use;

- **Remove material to an approved location for storage and/or disposal** – It is advised an independent contractor be used for spill clean-up. All contaminated soil and clean up

[1] British Columbia Spill Reporting Regulation, 1990, includes amendments up to B.C. Reg. 976/2008, December 9, 2008.

material shall be managed according to the BC *Environmental Management Act*[2] and Contaminated Sites Regulation[3]. Waste should be transported only by a licensed hazardous waste hauler and disposed of only at an approved waste facility; and

- **Prepare a Spill Report –** Construction Company will complete an Environmental Incident Report form for ANY onsite spill.

[2] British Columbia Environmental Management Act, SBC 2003.

[3] British Columbia Contaminated Sites Regulation, 1997, including amendments up to B.C. Reg. 6/2013, May 2013.

APPENDIX C
ENVIRONMENTAL INCIDENT REPORT FORM

Construction Environmental Management Plan HB Tailings Mangement Facility

Regional District of Central Kootenay

HBTAILINGS MANAGEMENT FACILITY

SALMO, BRITISH COLUMBIA

SLR Project No: 204.03242.00006

ENVIRONMENTAL INCIDENT REPORT FORM

Incident Date:	Incident Time:
Project:	Client:

Incident Information:

Incident Location:
Incident Description:
Immediate Corrective Actions Taken:
Future Mitigation Actions Required:
Weather Conditions:

Equipment Type:	Material Released:
Area of Impact: ☐ Air ☐ Asphalt ☐ Surface Water or Ditch ☐ Soil ☐ Drainage System ☐ Watercourse	Was the incident reported to an external agency? ☐ YES ☐ NO
NOTES:	



APPENDIX B-3: ENVIRONMENTAL MANAGEMENT SYSTEM

Environmental Management System 2025 Update

HB Tailings Management Facility

Regional District of Central Kootenay

Box 590, 202 Lakeside Drive Nelson, BC V1L 5R4

Prepared by:

SLR Consulting (Canada) Ltd.

8 St. Paul Street W, Kamloops, BC V2C 1G1

SLR Project No.: 204.03242.00011

February 19, 2025

Revision: 0

Revision Record

Revision	Date	Prepared By	Checked By	Authorized By
0	February 19, 2025	Benjamin Foulger	David McKeown	David McKeown

Statement of Limitations

This report has been prepared by SLR Consulting (Canada) Ltd. (SLR) for the Regional District of Central Kootenay (Client) in accordance with the scope of work and all other terms and conditions of the agreement between such parties. SLR acknowledges and agrees that the Client may provide this report to government agencies, interest holders, and/or Indigenous communities as part of project planning or regulatory approval processes. Copying or distribution of this report, in whole or in part, for any other purpose other than as aforementioned is not permitted without the prior written consent of SLR.

Any findings, conclusions, recommendations, or designs provided in this report are based on conditions and criteria that existed at the time work was completed and the assumptions and qualifications set forth herein.

This report may contain data or information provided by third party sources on which SLR is entitled to rely without verification and SLR does not warranty the accuracy of any such data or information.

Nothing in this report constitutes a legal opinion nor does SLR make any representation as to compliance with any laws, rules, regulations, or policies established by federal, provincial territorial, or local government bodies, other than as specifically set forth in this report. Revisions to legislative or regulatory standards referred to in this report may be expected over time and, as a result, modifications to the findings, conclusions, or recommendations may be necessary.

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Acronyms and Abbreviations

AW	Aquatic Life
ENV	BC Ministry of Environment and Parks
BMP	best management practice
BC	British Columbia
CDA	Canadian Dam Association
CEPA	*Canadian Environmental Protection Act*
COSEWIC	Committee on the Status of Endangered Wildlife in Canada
CEMP	Construction Environmental Management Plan
COPCs	contaminants of potential concern
CSR	Contaminated Sites Regulation
DSR	Dam Safety Review
DW	Drinking Water
EPRP	Emergency Preparedness and Response Plan
EM	Environmental Monitoring
EMA	*Environmental Management Act*
EMP	Environmental Management Plan
EMR	Environmental Monitoring Record
EMS	Environmental Management System
HADD	harmful alteration, disruption or destruction
the Code	Health, Safety and Reclamation Code for Mines in BC
IW	Irrigation
km	kilometres
LW	Livestock
ARD	Metal Leaching (ML) and Acid Rock Drainage
MBCA	*Migratory Birds Convention Act*
MMCM	Ministry of Mining and Critical Minerals
OMS	Operations, Maintenance, and Surveillance
QEP	Qualified Environmental Professional
QP	Qualified Professional
RDCK	Regional District of Central Kootenay
RCP	Remediation and Closure Plan
SLR	SLR Consulting (Canada) Ltd.
SAR	Species at Risk

SARA	*Species at Risk Act ()*
SRK	SRK Consulting (Global) Ltd.
SOP	Standard Operating Procedure
TMF	Tailings Management Facility
TSS	Total suspended solids
WQMMP	Water Quality Management and Monitoring Plan
WSA	*Water Sustainability Act*
WLR	wildlands (reverted) land use
WQGs	Working Water Quality Guidelines

1.0 Background

The HB Tailings Management Facility (TMF) is located approximately six kilometres (km) south of the Village of Salmo, British Columbia (BC). The TMF stores tailings from Cominco Limited's (Teck Resources Limited) historic operations at the nearby HB Mine. The TMF has been under the care of the Regional District of Central Kootenay (RDCK) since 1998. The TMF is located within Parcel "A" (Explanatory Plan 88745I) of District Lot 1236, Sub-lot 36, Kootenay District Plan X69 (Except (1) Parts Included in Plans 8646, 14234, and (2) Part Included in Statutory Right of Way (SRW) Plan 14948). The site details and location are provided on Figures 1 and 2.

The TMF is located within the consultative territories of the Ktunaxa Nation Council (includes ʔakisq̓nuk First Nation, Yaq̓it ʔa·knuqƛiˀit – Tobacco Plains Indian Band, ʔaq̓am – St. Mary's, and Yaqan Nuʔkiy – Lower Kootenay Band), Okanagan Nation Alliance (includes Upper Nicola Indian Band, Okanagan Indian Band, Penticton Indian Band, Osoyoos Indian Band, Lower Similkameen Indian Band), the Sinixt Confederacy, and Shuswap Band.

A comprehensive Remediation and Closure Plan (RCP) for the TMF was prepared by the RDCK (RDCK 2020a) and submitted to the Ministry of Mining and Critical Minerals (MMCM), formerly Ministry of Energy, Mines and Low Carbon Innovation in August 2020. The TMF RCP was prepared in accordance with Section 10 of the *Mines Act* and the Health, Safety and Reclamation Code for Mines in BC, and was designed to meet the requirements of applicable provincial and federal legislation. The TMF RCP was prepared as part of an application to amend *Mines Act* Permit No. M-218, in which the RDCK applied to complete closure construction works, remediate and reclaim the areas formerly disturbed by historical tailings storage operations, and transition the facility through the closure active care phase to the passive-closure phase, as defined by the Canadian Dam Association (CDA). Permit M-218 was most recently amended on April 29, 2024, to approve the TMF RCP. The focus of the RCP was to ensure the long-term physical and chemical stability of the facility, remediate and control tailings erosion and transport, maintain acceptable water quality, protect public health and safety, minimize environmental risk of the escape of fine tailings contamination, and restore productive end land use.

Site construction works occurred at the TMF from 2021 through 2022 to support closure of the facility. Construction works completed in 2021 included lowering and rebuilding the spillway, construction of the dam toe berm and upstream beach, placement of surface cover, landform stockpiling, as well as dewatering and backfilling of the tailings pond. Construction works completed in 2022 included dewatering of the remaining portions of the tailings pond, tailings surface and landform cover placement, construction of the surface water conveyance channels, and hydroseeding areas of exposed soils in the tailings, dam, and borrow pit areas.

Facility closure construction objectives were completed in late 2022 and post-construction environmental monitoring (EM) commenced in 2023 and continued through 2024. Post-construction EM included monitoring of sediment and erosion control measures, facility repair construction works, and monitoring and sampling of surface water discharges. Surface water management and erosion control measures were installed in the till borrow pit and facility repairs were made to the spillway and conveyance channels in 2023. EM of construction activity in the till borrow pit directed by SRK Consulting (Global) Ltd. (SRK) was conducted in 2024, including installation of surface water management upgrades and replacement of several culverts that direct surface water flow from the till borrow pit area to the TMF.

2.0 Environmental Management System (EMS) Objectives

The EMS provides the framework for identifying potential environmental adverse effects and verifies adequate controls are implemented to effectively manage health and safety and environmental risk. The EMS references relevant policies and establishes proactive procedures to provide direction for effective operational management and monitoring on-site. The EMS is reviewed annually, revised as soon and as often as required, and always made available at the mine site and to an Inspector of Mines upon request. The findings of the annual review of the EMS are reported in the Annual Reclamation Report. Permit M-218 outlines the following related to EMS:

- The Permittee must develop and implement an EMS consisting of Environmental Management Plans (EMPs) and Standard Operating Procedures (SOPs). The Permittee must ensure the EMS references relevant policies and establishes proactive procedures to provide direction for effective operational management and monitoring on-site. Permit M-218 required the submission of the EMS and plans by May 31, 2021, to the satisfaction of the Chief Inspector.
- The Permittee must ensure the EMS is reviewed annually, revised as soon and as often as required, and made available at the mine site at all times and to an Inspector of Mines upon request. The findings of the annual review of the EMS must be reported in the Annual Reclamation Report.
- The Permittee must ensure that mine site employees and contractors are knowledgeable and accountable to act consistently with the requirements of the EMPs and SOPs that form the EMS.

3.0 RDCK Environmental Statement

The RDCK is committed to completing the closure and long-term management of the facility in a financially responsible way, while also protecting public safety and the natural environment.

To ensure the facility is operated in an environmentally responsible manner, the RDCK will strive to:

- Meet post-closure monitoring requirements outlined in the RCP.
- Maintain high environmental standards at the site and continually manage the facility in a manner that will reduce potential adverse environmental effects.
- Conduct regular audits of environmental plans to identify revisions or improvements to current practices to minimize environmental impacts and verify compliance with permit conditions, standards, laws, and regulations.
- Complete regular reviews of the environmental performance of the facility and strive for continual improvement through the completion of appropriate investigations and applying appropriate technologies.
- Educate onsite and associated employees, contractors, and consultants in environmental matters and responsibilities relating to performance of their assigned tasks and the performance of the facility.
- Manage the facility with a watershed/ecosystem-based planning approach that includes consideration of the land and water while also engaging all people and parties involved.

- Report on the environmental performance of the facility annually to the Board of Directors.
- Allocate sufficient financial resources to meet the environmental commitments set out in the RCP.

4.0 Roles and Responsibilities

4.1 Permittee or Project Owner

The RDCK carries the ultimate responsibility for environmental management and statutory compliance and will direct, instruct, and approve the execution of such management for site closure works through the active care and passive care phases as defined by the CDA.

The RDCK will appoint an Environmental Site Manager for the project, and will ensure that an effective EMS is developed, applied, and monitored.

4.2 Environmental Site Manager

The RDCK Environmental Site Manager shall have the authority to implement remedial actions, as may be necessary, to ensure maintenance of environmental standards and permit requirements. If suspension of operations occurs due to environmental concerns, the RDCK Environmental Site Manager shall immediately notify the MMCM Chief Inspector or the Chief Inspector's delegate. The RDCK Environmental Site Manager shall ensure that mine site employees and contractors are knowledgeable and accountable to act consistently with the requirements of the EMPs and SOPs that form the EMS.

4.3 Project Engineer

SRK was retained by the RDCK to provide Engineer-of-Record services for the HB TMF, with Peter Mikes, P.Eng. serving as Engineer of Record. SRK holds professional responsibility for the facility design as well as adherence to applicable standards, criteria, and guidelines.

4.4 Environmental Consultant

SLR Consulting (Canada) Ltd. (SLR) is the client representative Environmental Consultant and is the EM on-site during post-closure facility monitoring on behalf of the RDCK. The RDCK EM will inspect the work site to verify compliance with the EMS and EMPs and relevant best management practices (BMPs). The RDCK EM will complete inspections at an appropriate frequency to facilitate environmental protection and compliance as well as during facility repair works. The RDCK EM will also provide environmental support in the event of an environmental incident.

The RDCK EM has written authority to modify and/or halt any construction activity if deemed necessary for the protection of the environment or to meet conditions of Permit M-218, the EMS, or the EMPs. A site representative will be appointed by the RDCK for long-term monitoring and transition of the project from active care phase through passive care phase as defined by the CDA.

Inspections of the facility will be conducted by the RDCK EM and will include, but may not be limited to, inspections of sediment and erosion control measures and surface water management.

Workers are required to report all incidents that involve a potential for environmental impacts to the RDCK EM, the RDCK Environmental Site Manager, or other appropriate representative. Records of all inspections will be filed onsite with electronic copies retained by SLR, and any potential sources of environmental impairment and appropriate corrective actions taken will be immediately reported to the RDCK Environmental Site Manager.

5.0 Regulatory Standards

5.1 Applicable Regulatory Guidelines and Standards

Mining activities in BC are subject to a variety of different provincial and federal regulations including the *Mines Act* and the *Environmental Management Act* (EMA). The HB TMF site is Regional District owned land presently under permit (Permit M-218) by the MMCM.

Permit M-218 was developed in accordance with Section 10 of the *Mines Act* and the Health, Safety and Reclamation Code for Mines in BC and was most recently updated on April 29, 2024.

5.1.1 BC Mines Act

The *Mines Act* and the accompanying Health, Safety and Reclamation Code for Mines in BC (the Code) protect workers, the public, and the environment through provisions for minimizing the health, safety, and environmental risks related to mining activities.

The purpose of the Code is to:

- Protect employees and all other persons from undue risks to their health and safety arising out of or in connection with activities at mines.
- Safeguard the public from risks arising out of or in connection with activities at mines.
- Protect and reclaim the land and watercourses affected by mining.
- Monitor the extraction of mineral and coal resources and ensure maximum extraction with a minimum of environmental disturbance, taking into account sound engineering practice and prevailing economic conditions.

Permits issued by MMCM under the provisions of the *Mines Act* are required for the approval of mine plans and closure and reclamation programs.

5.1.2 BC *Environmental Management Act* and Contaminated Sites Regulation

The Contaminated Sites Regulation (CSR) and the EMA contain the principal regulatory requirements for contaminated site management in BC. The CSR came into effect on April 1, 1997, and was most recently amended on March 1, 2023.

The EMA and CSR have provisions for identifying contaminated sites and incorporating numerical standards and risk-based standards approaches to managing site contamination. Numerical standards define whether a site is contaminated or has been satisfactorily remediated when using the numerical standards approach. Risk-based standards protect both human health and the environment by establishing acceptable risk levels for exposure to substances at contaminated sites. The legislation provides the framework for technical and regulatory aspects of site assessment, remediation, and applications for environmental closure for a property. Protocols are technical and administrative procedures legally required under EMA Section 64. The Hazardous Waste Regulation (HWR) may also apply where contaminated media are transported, managed, or disposed of offsite.

Technical Guidance and Procedure documents issued by the BC Ministry of Environment and Parks (formerly the Ministry of Environment and Climate Change Strategy; (ENV)) and direction provided on the site remediation website clarify the interpretation of regulatory standards and requirements and provide information regarding their application. Provisions in these documents and information on the website are not legally binding but indicate ENV's expectations.

5.1.2.1 Soil

The CSR presents numerical standards for investigating and remediating soils in Schedule 3.1, divided into matrix standards and generic numerical standards. The CSR soil standards for wildlands (reverted) land use (WL_R) are applicable to soil and subsurface tailings material at the site based on the expected post-closure conditions. Standards applied to all soil data at the site include:

- Matrix Numerical Soil Standards for the mandatory site-specific factors: human intake of contaminated soil; and toxicity to soil invertebrates and plants (CSR Schedule 3.1, Part 1);
- Matrix Numerical Soil Standards for the site-specific factors: groundwater used for drinking water and groundwater flow to surface water used by freshwater aquatic life (CSR Schedule 3.1 Part 1); and
- Generic Numerical Soil Standards (CSR Schedule 3.1) to protect human health (Part 2) and ecological health (Part 3).

In addition, the BC CSR Protocol 4 Table 1: Regional estimates for background concentrations in soil for inorganic substances (Region 4 Kootenay) were compared to soil results at the site.

5.1.2.2 Groundwater

The CSR presents numerical standards for substances in water in Schedule 3.2. It references the numerical standards for four classes of water use: Aquatic Life (AW), Irrigation (IW), Livestock (LW), and Drinking Water (DW).

ENV Protocol 21 (ENV 2017a) specifies that AW, DW, IW, and LW standards generally apply for evaluating groundwater quality where receiving waters are used by aquatic life, surface water intakes are present on the site or within 500 m, or where groundwater is used for livestock watering or irrigation for agricultural purposes. Essential aspects of applying water use standards are noted below. Still, other considerations may be relevant and associated ENV guidance should also be consulted (e.g., for preferential groundwater flow corridors, water management plans, or bedrock aquifers).

If water is used on a site or within 500 m for drinking water, DW standards are used to evaluate water quality. If the groundwater flow direction has been reliably determined using approved methods, then nearby current uses may be limited to include drinking water wells or surface water intakes 100 m upgradient and 500 m downgradient of the outer extent of the contamination source. To protect future potable water consumption, DW use also applies if there is an aquifer below the site with a hydraulic conductivity greater than or equal to 1×10^{-6} m/s and a yield greater than or equal to 1.3 L/min. The presence of underlying regional aquifers meeting these conditions must also be assessed unless a natural confining barrier has been confirmed following the requirements of Protocol 21.

If a surface water body with aquatic life water use is within 500 m of a site, AW standards apply to evaluate water quality. If substances in groundwater are present at concentrations exceeding AW standards and may migrate to within 500 m of an aquatic life receptor, AW standards also apply to the site. In Table 1 of ENV's Technical Guidance 15 (ENV 2017b), AW standards apply to groundwater at a point 10 m inland from the high water mark of a receiving environment, but not at a distance less than 10 m from the high water mark; BC water quality guidelines apply below the high water mark.

Aquatic life water use standards do not apply at a site if approved methods are used to determine that groundwater at the site flows to a more distant surface water body.

Irrigation and livestock watering uses and the IW and LW standards apply at a site where groundwater or surface water within 500 m of the site is used for irrigation or livestock watering, unless the groundwater has been reliably determined to flow away from such purposes. Nearby current uses may then be limited to include only irrigation or livestock water wells or surface water intakes within 100 m upgradient and 500 m downgradient of the furthest extent of the contamination source.

Although the site-specific soil matrix standards for irrigation and livestock watering uses in Schedule 3.1 apply only to specific land uses, the IW and LW water standards in Schedule 3.2 apply to all land uses where appropriate. Four aspects of the site in relation to surface water and groundwater are important for determining potentially applicable standards.

- Ephemeral surface waterbodies including surficial drainage channels on the tailings area, the spillway and the natural drainage ditch are expected to be present on-site post closure. In addition, a constructed pond is located approximately 80 m northeast of the site and is used for landfill surface water management. In this case, the AW (freshwater) standards apply.
- The ENV groundwater database well search and other information indicates two water supply wells are located within 500 m of the subject site. In this case, DW standards apply.
- ENV considers DW standards to be applicable at the site in relation to future groundwater use unless:
    - Site conditions meet DW exemption requirements outlined in Protocol 21; or
    - ENV has approved a site-specific exemption from the DW standards.
- Irrigation and livestock watering use may occur downgradient of the site as agricultural land is located 700 m southwest of the tailings area.
- All requirements outlined in Protocol 21 are not met; therefore, DW standards are considered to apply. Groundwater analytical results have been compared to the CSR AW (freshwater), DW, IW and LW standards.

5.1.2.3 Surface Water

The BC Approved and Working Water Quality Guidelines (WQGs) are substance concentrations considered protective of aquatic life in receiving environments. The Approved WQGs have been endorsed by ENV for use in BC. In contrast, the Working WQGs provide references for compounds that have not yet been fully assessed in BC's environmental conditions. They include guidelines for microbiological, chemical, and physical parameters as they apply to Freshwater Aquatic Life, Marine & Estuarine Aquatic Life, Wildlife, Livestock, Irrigation, Drinking Water, and Recreational uses.

CSR Schedule 3.2 aquatic life water standards apply to surface water within a maintained watercourse. Wherever possible, WQGs should be met where a watercourse is abandoned, ceases to be maintained, or its surface water enters an aquatic receiving environment.

The following guidelines or standards have been applied to surface water at the site based on identified water uses.

- The BC WQGs for drinking water were used to identify contaminants of potential concern (COPCs) for human health.
- The Approved BC WQGs were applied for the protection of freshwater aquatic life (AWF) (long-term value). Where BC Approved WQGs were unavailable, the BC Working WQGs, CSR Generic Numerical Water Standards (Schedule 3) Aquatic Life (freshwater) (AWF) divided by 10 or the Canadian WQGs for the Protection of Aquatic Life were used.

The BC Approved and Working WQGs for the protection of wildlife are applicable for the protection of wildlife receptors using the surface water in channels as a source of drinking water. In the absence of guidelines specific to wildlife, the BC WQG and the BC CSR, Schedule 3.2, Generic Numerical Water Standards for the protection of livestock (LW) were used to identify COPCs. Where wildlife or livestock values were not available, the BC WQGs for drinking water were conservatively selected to identify COPCs for wildlife.

5.1.2.4 Sediment

Due to the presence of waterbodies on-site, CSR Schedule 3.4 Generic Numerical Sediment Standards for the protection of freshwater environments are considered to apply at the site.

5.1.3 BC Wildlife Act

The BC *Wildlife Act* regulates the management of wildlife in the province. It restricts the harvest of individuals and prohibits the killing, capture, and harassment of wildlife, except by permit or regulation. The BC *Wildlife Act* also provides protection for active bird nests, including specific measures for raptors and their habitats. Section 34 of the *Act* specifically prohibits the disturbance or destruction of any bird, its active nest, or its eggs. It also protects the nest of any eagle, peregrine falcon, gyrfalcon, osprey, heron, or burrowing owl, regardless of whether it is actively used.

The *Act* includes prohibitions and regulations for the management and protection of terrestrial and aquatic wildlife and their habitats. A General Wildlife Permit (including animal care form) is required for the collection and relocation of amphibians, reptiles, and other wildlife that may be incidentally encountered. A Scientific Fish Collection Permit is also required to complete fish salvage work within aquatic habitats prior to initiation of work activities.

5.1.4 BC Water Sustainability Act

The BC *Water Sustainability Act* (WSA) and the Water Sustainability Regulation provide important and powerful rules and guidance for issuing water licenses and approvals and directing the allocation of surface water and groundwater within the province (Ministry of Forests and Ministry of Water, Land and Resource Stewardship). Under Section 11 of the WSA, Notifications and Approvals are required to make “changes in and about a stream”.

Notifications are typically used for project works that do not involve any permanent diversion of water, may be completed within a short period of time and will have minimal impact on the environment or third parties.

The information specified in the Notification Form must be submitted to the Provincial Habitat Officer at least 45 days prior to commencing work.

The Change Approval (Section 11, WSA) is a written authorization for changes in and about a stream that are of a complex nature. For example, works requiring an approval include, but are not limited to:

- Watercourse or channel realignment.
- Retaining wall or bank protection installation.
- Dredging.
- Construction of a sediment sump.
- Other significant works.

A Water Use Approval (Section 10, WSA) allows the diversion and use of water from a stream or an aquifer, and the temporary construction of works on the stream or aquifer, for a period of up to 24 months. Section 10 Use Approvals are related to dewatering operations, when water infiltrates excavation limits and requires active pumping to divert water from the area.

5.2 Key Federal Legislation

5.2.1 Fisheries Act

In Canada, the legislation for the conservation and management of fisheries and fish habitat is the *Fisheries Act*. Section 35 (1) of the Federal *Fisheries Act* states that “No person shall carry on any work, undertaking or activity that results in the harmful alteration, disruption or destruction [HADD] of fish habitat”.

Subsection 35 (2) of the *Fisheries Act*, outlines conditions under which proponents may carry on any work, undertaking or activity without contravening subsection (1).

The *Fisheries Act* also includes subsections for the prevention of pollution and identifies standards and codes of practice to avoid death to fish, HADD of fish habitat, and to facilitate conservation and protection of fish and fish habitat.

5.2.2 Migratory Birds Convention Act

The *Migratory Birds Convention Act* (MBCA) protects all migratory birds and their nests regardless of where they are located. According to Section 6 of the Migratory Birds Regulations no person shall ‘disturb, destroy or take a nest, egg, nest shelter, eider duck shelter or duck box of a migratory bird’. In practice, adherence to this section of the Regulations involves avoiding activities that disturb migratory birds during sensitive breeding and nesting periods through a combination of temporal and spatial avoidance of nesting areas for these species.

In 2022, revisions to the Migratory Birds Regulations included additional protection to the nests of 18 species listed in Schedule 1 of the regulations whose nests are reused by migratory birds. These nests are protected year-round, unless they are shown to be abandoned.

5.2.3 Species at Risk Act

The *Species at Risk Act* (SARA) was proclaimed in June 2003 and is one part of a three-part Government of Canada strategy for the protection of wildlife species at risk (SAR).

The *Act* recognizes that the protection of wildlife species is a joint responsibility among federal and provincial jurisdictions and that all Canadians play a role in the protection of wildlife. It applies to federal lands in Canada, wildlife species listed as being at risk, and their critical habitat.

Species designated extirpated, endangered, threatened, and of special concern are listed in Schedule 1 of the SARA. General prohibitions for species in this schedule, with the exception of special concern, specify that: “No person shall damage or destroy the residence of one or more individuals of a wildlife species that is listed as an endangered species or a threatened species, or that is listed as an extirpated species if a recovery strategy has recommended the reintroduction of the species into the wild in Canada.” Species listed in Schedules 2 and 3 of the SARA are designated by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) and are reassessed before addition to Schedule 1.

5.2.4 Canadian Environmental Protection Act

The *Canadian Environmental Protection Act* (CEPA) 1999 aims to contribute to sustainable development through pollution prevention and to protect the environment, human life and health from the risks associated with toxic substances. It covers a diversity of activities that can affect human health and the environment and acts to address pollution issues not covered by other federal laws. As such, CEPA 1999 is a "catch all" piece of legislation that ensures potentially toxic substances are not inadvertently exempt from federal oversight as a result of unforeseen legislative loopholes.

6.0 Environmental Management System

6.1 Environmental Management System Summary

The EMS provides a supporting framework for a series of EMPs for the project and long-term monitoring through active and passive care phases as defined by the CDA that will facilitate compliance with both regulatory requirements and environmental protection goals. The EMS allows for a process of continuous improvement and adaptive management if additional risks or changes to legislation, best practices, changes in project scope or design elements are identified as the project progresses. If there is a discrepancy or conflict between the EMS and the provisions of any legislation, regulations, or municipal bylaws, the more stringent requirement shall apply resulting in the greater protection of the environment and safety.

6.1.1 Identification of Risk and Effects

The focus of the RCP (RDCK 2020a) is to ensure the long-term physical and chemical stability of the facility, remediate and control tailings erosion and transport, maintain acceptable water quality, protect public health and safety, minimize environmental risk of the escape of fine tailings contamination, and restore productive end land use (RDCK 2020a).

A closure options assessment determined that moving the facility into passive closure appropriately addresses the environmental risks of the facility and is the lowest-cost option for long-term management. The RDCK Board of Directors elected to proceed with the passive closure of the dam and for remediation of the surrounding areas as environmental improvement.

Site issues and concerns related to the performance of the dam and closure components in the design that mitigate environmental risk and provide long-term stability and containment of the tailings to ensure protection of the environment and of human health are provided in Table A (RDCK 2020a).

Table A: Pre-Construction Site Issues and Completed Design Mitigations

Site Component	Pre-Construction Issue	Completed Design Mitigations
Dam	The water level in the tailings pond under normal conditions is higher than the top of the filter blanket, resulting in the potential risk of internal erosion of the 'select impervious fill'.	Removal of the tailings pond. Lowering of the spillway invert elevation such that the long-term groundwater level against the dam is lower than the top of the filter.
	The portions of 'select impervious fill' not protected by the filter may be susceptible to cracking and the development of a preferential seepage path (Thurber 2016).	Same as above.
	The original dam fill placed between 1955 and 1965 is a loose, silty sand material that may be susceptible to liquefaction in the event of an earthquake.	Assume the entire original dam fill and tailings liquefy and therefore expansion of the toe berm was completed to withstand this conservative scenario.
	Granular foundation soils near the west abutment are thought to be a potential preferential seepage pathway and a contributing factor to the 2012 slough event (EBA 2012). These soils were exposed but not removed during foundation preparation in 1975 and 1977. This area is near the feature noted during the 2015 dam inspection as potentially indicative of piping erosion (TTEBA 2016). An armouring gravel/cobble layer was placed on the upstream slope of the dam and was subsequently buried. The two sinkholes that were observed during the 2012 slough event appeared to be in contact with the armouring gravel/cobble layer, which is believed to provide a conduit to the granular foundation layer (EBA 2012). This situation could increase the potential, under high seepage gradients, for further development of sinkholes through the tailings to the armouring gravel/cobble layer.	Removal of the tailings pond. Construction of an upstream beach over the tailings such that there is no direct contact between any temporarily stored water during large flood events and the potential preferential seepage pathways on the upstream slope of the dam.
	The methods used to decommission the West and East Decant structures are unclear (EBA, 2012).	Removal of the tailings pond. Construction of the tailings pond backfill over the east and west decant structures were graded to ensure surface water will not pool in these areas.
	The dam construction history is not fully understood. It is possible that additional piping or other structures that have not yet been identified are present within the dam or impoundment that could lead to future instability.	Removal of the tailings pond. Construction of an upstream till beach over the tailings such that there is no direct contact between any temporary stored water during large flood events and any unidentified seepage pathways.

Site Component	Pre-Construction Issue	Completed Design Mitigations
Dam	Timber crib may deteriorate with time if the crib extends above the water surface.	Deformation analysis was completed that concluded that under the worst-case scenario, where the timber completely rots, the potential for settlement along the dam crest is considered negligible.
Tailings	Surface water runs directly over the tailings facility resulting in erosion of the tailings and suspended solids downstream.	Construction of lined surface-water channels to convey water over the tailings to reduce Total suspended solids (TSS) and prevent erosion. Covering of the tailings to prevent erosion.
	Although water quality data show very low metals levels, there is a concern that metals could be mobilized if the tailings are moved or if the water level in the impoundment changes significantly.	A tailings characterization program was undertaken in December 2016 (SRK 2017). The geochemical performance of the tailings due to lowering the water table was predicted and concluded that the pore water would not be substantially altered.
Water Quality	TSS levels increase due to surface water flow over the tailings, as well as through the outlet ditch between the spillway and Highway 3. There have been instances noted by RDCK monitoring where TSS levels measured at the outlet ditch exceed those measured at the tailings pond outlet.	Construction of lined surface-water channels to convey water over the tailings to reduce TSS and prevent erosion. Covering of the tailings to prevent erosion.
Note: Adapted from HB Mine Tailings Facility Remediation and Closure Plan (RDCK 2020a)		

6.1.2 Emergency Preparedness and Response Plan

The Emergency Preparedness and Response Plan (EPRP) pertains to the HB TMF. An EPRP has been prepared to define the potential for accidents, describe the actions required in the event of an emergency, and prevent/mitigate environmental and safety impacts associated with emergency situations.

The level of detail within the EPRP is reflective of the classification of the HB TMF as a Very High Consequence classification rating based on CDA definitions and degree of potential impact, as determined in the 2014 Dam Safety Review (DSR) of the facility. The EPRP was developed to reduce the potential for environmental and property damage, and loss of life and infrastructure in the areas downstream of the Facility (RDCK EPRP, 2024).

6.1.3 Post Closure Monitoring and Review

Post construction routine inspections, monitoring, and maintenance are to follow the current schedule and procedures that are documented in the latest Operations, Maintenance, and Surveillance (OMS) Manual and EMPs (RDCK 2020b).

The details of the monitoring and review program are provided in the HB Mine TMF RCP (RDCK 2020a) and summarized in the following sections. The frequency of monitoring and inspection will be regularly reviewed as part of the dam safety inspections; following a demonstration of physical and chemical stability at the site, it may be reduced at the discretion of the Engineer of Record (RDCK 2020b).

6.1.3.1 Facility Inspections

Visual Inspections

RDCK staff or an appointed representative will carry out weekly visual inspections during freshet site conditions and monthly inspections, thereafter, taking note of settlement, pooling of water within the impoundment, spillway blockages, signs of seepage and turbidity, or vandalism to instrumentation. Visual inspections for sediment accumulation at the head of the downstream channel are also completed. Records of these inspections must be documented on the visual inspection form and inspection for evidence of erosion of the tailings cover is to be completed annually after snowmelt has occurred, or after a severe weather or seismic event.

Annual Dam Safety Inspections

Annually, the Engineer of Record for the facility will undertake physical inspection of the dam. The inspection must be carried out in snow-free conditions and must culminate in a detailed Annual Facility Performance Report prepared as per MMCM guidelines (EMLCI 2013). The report must include findings and recommendations on the dam performance considering the personal inspection observations, interviews with RDCK staff, as well as a review and analysis of detailed monitoring data for the dam (RDCK 2020b).

Dam Instrumentation

The design for the monitoring instrumentation is to maintain or replace the existing piezometer instrumentation present at the facility, to continue monitoring of the v-notch weir at the base of the dam, and to establish new survey monitoring points to monitor long-term deformation that may occur as a result of rotting of the wooden features in the dam.

In addition to the current dam piezometers, monitoring of the water elevations in monitoring well MW-03S-05 (located to the north of the existing tailings pond) is proposed to evaluate variations in water elevation within the TMF.

Downstream Channel Inspections

Semi-annual inspections of the downstream channel between the HB Dam and the Outlet Ditch Culvert at Highway 3 as well as the flume line inspection are to be completed by RDCK staff or an appointed representative to inspect for signs of natural erosion and sedimentation, as well as channel migration and blockages.

Inspections are to be completed post-freshet in the spring and during the dry season prior to the onset of winter in the summer or fall. If significant sediment deposition is observed, the RDCK will seek a Qualified Environmental Professional (QEP) to evaluate if sediment sampling is required. If other issues are noted during the inspections, the RDCK will engage a Qualified Professional (QP) to assess the channel.



6.1.3.2 Metal Leaching (ML) and Acid Rock Drainage (ARD)

The site will be assessed for the presence of material with the potential to generate ML/ARD by a QP. An ML/ARD Management Plan will be developed and reviewed by a QP on an annual basis and will include characterisation, management, monitoring, usage, storage, and reporting of ML/ARD material according to requirements outlined in Permit M-218.

6.1.3.3 Water Quality

Results of the annual surface water and groundwater quality monitoring and sampling program will be compared to applicable water quality standards and guidelines and included in the Annual Reclamation Report for the site. Results will also be reviewed annually as part of the Water Quality Management and Monitoring Plan (WQMMP), including surface water, tailings porewater, seepage and groundwater, surface and groundwater models (to be updated every five years), and reporting as outlined in Permit M-218.

Surface Water

Surface water leaving the work site will be compared with the generic numerical water standards of Schedule 3.2 of the CSR for all water uses and to the BCWQG for AWF.

Post-construction, detailed water quality monitoring will be required to verify the constructed works are performing as intended and that there are no adverse effects on the environment or human health. The post-construction monitoring program details are outlined in the WQMMP (SLR 2023), which is reviewed and signed off annually by a QP. Water quality results shall be reviewed annually as part of both the annual dam safety inspection and annual reclamation report to evaluate the chemical stability of the tailings. The surface water results will be compared with the generic numerical water standards of Schedule 3.2 of the CSR for all water uses and to the BCWQG (AWF) as well as the toxicity reference values (TRVs) selected as part of the Human Health and Ecological Risk Assessment (SLR 2019).

For the surface water samples, the focus of the analytical review should be on exceedances of the applicable standards/guidelines/TRVs and any trends (e.g. temporal variance) that suggest an increase in contaminant loadings between the inflows and outflows of the TMF.

For the groundwater samples, the focus of the analytical review will be on exceedances of the applicable standards/guidelines and any trends that might suggest an increase in contaminant loadings. If significant negative trends are detected at any time, considering seasonal variability, the data should be reviewed by a qualified geochemist. The parameters and plot types used to evaluate temporal variance will be chosen to comply with MMCM's Annual Reclamation Report format requirements.

If a significant increase in contaminant concentrations or frequency of exceedances is observed, additional investigations will be implemented (e.g., additional environmental sampling and remedial activities).

Receiving Environment Monitoring

The Salmo River receiving environment will be monitored and sampled post-closure by RDCKs EM. The post-closure assessment will include collection of samples upstream and downstream of the point of discharge where the drainage channel intersects the Salmo River. The samples will be analyzed for COPCs associated with the HB TMF (RDCK 2020a) as outlined in the WQMMP (SLR 2023).

Groundwater Monitoring

The groundwater sampling locations have been selected to correspond to previous sampling locations to allow for water quality comparisons with pre-construction values. Details of the groundwater sampling program are outlined in the WQMMP (SLR 2023).

6.1.3.4 Vegetation Metal Uptake

The results of a pre-construction vegetation metals uptake investigation conducted in 2018 indicated that arsenic, cadmium, lead, and zinc were found in higher concentrations in plant tissue samples obtained from the facility than from reference locations. Tissue lead and zinc concentrations also appeared to demonstrate a reasonable correlation with soil levels (RDCK 2020a).

Results of 2024 post-construction vegetation metals uptake assessment (completed in Year 2 following construction) indicated that the calculated sample-specific bioaccumulation factors showed limited localized bioaccumulation of cadmium and zinc in the vegetation growing on the TMF; however, additional metals uptake data are required to further identify potential risk at the site. Monitoring of vegetation within the TMF will continue in 2026/2027 (Year 4-5 post-construction) as further monitoring will help determine long-term metals uptake results.

Consistency in sample selection (i.e., species selection, plant parts, etc.) should be maintained to allow for more direct comparison of data among study years. Additional vegetation monitoring and sampling should be completed at representative reference locations and target species growing at the site as vegetation cover and native plant species become more established within the TMF. The results of the vegetation metals uptake monitoring will be used to determine if woody vegetation should be allowed to establish through succession and inclusion of woody vegetation should be added to future monitoring programs (RDCK 2020a).

6.1.3.5 Revegetation Monitoring

To assess the survival, vigour, and diversity of grasses within the reclaimed areas, permanent sample plots were established and monitored by the RDCK EM at a rate of approximately one per hectare, for a total of 26 plots. These sample plots were marked with labelled wooden stakes to enable annual remeasurements. During each annual monitoring event, targeted for Summer of each year (starting in Year 1 post-closure and continuing until adequate vegetation is established), a 1 x 1 m plot square was placed at each plot location. An observer recorded species and percent cover for all plant species within each plot.

Each plant was also assessed visually for vigour and level of browse and given a numerical vigour score (1 to 4) and a browse value (1 to 3). Photographs of each plot were taken during each monitoring event. Additional sampling included biomass sampling and vegetation surveys, including collection of plant height and plant diversity metrics to assess vegetation viability through quantifying above-ground net primary productivity. This monitoring was also used to document the occurrence of invasive species.

Vegetation monitoring was completed at post-closure Year 1 (2023) and Year 2 (2024). Monitoring will continue annually until adequate vegetation has been established and the vegetative cover is considered self-sufficient (80% survival and a minimum average of 80% cover). If revegetation monitoring identifies inadequate vegetation in an area, the RDCK will proceed with topdressing, seeding, scarifying, and/or fertilizing areas that require treatment. To support the enumeration of natural regeneration of trees and shrubs, observers recorded species and percent cover for all shrubs and trees within the plot and assessed visually for vigour and level of browse.
A photographic record of each plot was also collected.

After it is determined that adequate vegetation has established across the site (>80%), no additional revegetation monitoring will be completed. To ensure potential future impacts on vegetation from climate change are appropriately identified once revegetation monitoring is finished, EMs completing water quality monitoring will provide an update on general vegetation cover around the monitoring wells across the tailings surface which will provide indication if further revegetation assessments are required.

Additionally, an ongoing reclamation research program was developed to adhere to Permit M-218 and includes details regarding data, schedule, and reporting that will be used to monitor TMF surface cover performance to achieve the mixed end land use (wildlife habitat and industrial) objectives.

6.1.3.6 Reclamation Research

A post-closure reclamation research program was developed to achieve the research requirements outlined in Permit M-218 and included a TMF cover performance assessment for achieving the end land use objective. The reclamation research program was implemented in post-closure Year 1 (2023) and continued through Year 2 (2024). The research component was reviewed to determine the viability of revegetation with native plant species, including culturally important species. Vegetation metal uptake study results will also be assessed to determine if allowing woody vegetation to establish is appropriate and within acceptable risk tolerances for the site. The research program will continue until adequate vegetation cover has been established at the TMF.

6.1.3.7 Wildlife Monitoring

Post-closure monitoring was completed in post-closure Year 1 (2023) and Year 2 (2024) and will continue annually to quantify the use of the area by wildlife. During seasonal monitoring events, observers will enumerate the presence of several species and species groups following provincial Resource Inventory Standards Committee (RISC) protocols. These surveys will occur concurrent with revegetation monitoring events and will focus on the occurrence of SAR (i.e., western toad, western screech owl, and great blue heron) but will also include general surveys for birds, amphibians, reptiles, and mammals.

Ecological observations will also be made during weekly visual inspections of the facility by the RDCK representative as well as the RDCK EM during revegetation monitoring events in which wildlife seen and/or heard will be recorded on standardized wildlife sighting forms. Observations will be used to identify patterns of habitat use and occurrences of SAR.

Wildlife observations will be documented on the inspection forms and will be reported annually in the facility's Annual Reclamation Report. Four Reconyx HyperFire 2 Professional HP2X digital infrared cameras will also be deployed across the project area.

Two cameras will be deployed targeting furbearers (e.g., American badger, American black bear, coyote) with cameras deployed at approximately 50 cm above the ground and will be placed in areas that are attractive for furbearer movement (e.g., along old roads and trails).

Two cameras will be deployed targeting ungulates and will be placed in areas that are attractive for ungulate movement (e.g., wildlife trails, roads, and important habitat features). Cameras will be attached to the trunks of trees or on fence posts with the surrounding vegetation cleared such that branches or leaves will not obscure the camera's field of view and prevent inadvertent triggering of the camera.

6.1.3.8 Invasive Plant Management

Invasive species currently identified on site will be monitored annually, and treatment will be completed as required. Monitoring for these species will occur during the revegetation monitoring (RDCK 2020a).

6.1.3.9 Monitoring Frequencies

The monitoring objectives include collection and interpretation of monitoring data to assess the post-closure conditions of dam safety, wildlife, vegetation, and water quality at the facility. Initial monitoring frequencies to be implemented post-construction are presented in Table B.

The monitoring frequencies will be reviewed as part of the annual dam safety inspections and are expected to be reduced to an annual frequency in the long-term, once it can be demonstrated that the facility is physically and chemically stable.

Environmental monitoring data will be reviewed at the frequency outlined in Table B by the appropriate environmental professional and will be summarized within the Annual Reports for the facility submitted to MMCM and ENV annually by March 31. Monitoring data will be made available on request.

Table B: Monitoring Frequency

Item	Frequency
Dam Instrumentation	
Piezometers	Weekly during freshet, otherwise monthly
V-Notch Measurement Wier	Weekly during freshet, otherwise monthly
Survey hubs	Annually until stable trend line is observed, every five years thereafter.
Wildlife	
Wildlife Ecology Inspection	Weekly
Wildlife Monitoring	Annually
Wildlife Cameras	Year-round, semi-annual maintenance
Revegetation and Invasive Species	Annually
Revegetation Sample Plots	Annually (Summer)
Water Quality	
TMF Surface Water	Quarterly
Salmo River Surface Water	Quarterly
Groundwater	Quarterly
Water and Load Balance Review	Post-closure every five years[1]
Inspections	
Visual Inspections	Weekly during freshet and monthly thereafter
Routine Inspections	Monthly

Item	Frequency
Dam Safety Inspections	Annually
Downstream Channel Inspections	Semi-annually
Dam Safety Review	Every five years as per HSRC [2] requirements.
Vegetation	
Vegetation Tissue Sampling	Two years and four years after closure
Note: Adapted from RDCK 2020a 1 A review of the water and load balance update frequency starting March 31, 2027.. 2 Health, Safety and Reclamation Code for Mines in British Columbia.	

6.1.3.10 Effectiveness Monitoring

Post-closure monitoring of TMF surface water quality, Salmo River surface water quality, groundwater quality, wildlife, vegetation, and metals uptake will include effectiveness monitoring with quantitative sampling targets. The water and load balance will be periodically updated to validate the risk assessment results. The specific targets for each monitoring aspect will be developed during the monitoring program to allow for adaptive management and interpretation of measured results.

6.1.3.11 Reporting

Unless otherwise requested by the Chief Inspector, the RDCK shall provide to the Ktunaxa Nation Council, Shuswap Band, Okanagan Nation Alliance, Okanagan Indian Band, Lower Similkameen Indian Band, Penticton Indian Band and Upper Nicola Indian Band the material reports and plans required to be submitted under Permit M-218, including annual monitoring reports, results of the Research Programs, and the RCP.

All reports required under Permit M-218 must be authenticated by a QP with applicable experience and registered in the province of BC.

6.2 Environmental Management Plans

Site-specific EMPs shall identify expectations for the delivery of mitigation to avoid adverse effects to the environment. The EMPs are individual documents that identify the following:

- Environmental responsibilities.
- Regulatory obligations.
- Environmental protection requirements, including environmental mitigation and monitoring.
- Environmental reporting requirements, including incident reporting.

If there is a discrepancy or conflict between the EMPs and the provisions of any legislation, regulations, or municipal bylaws, the more stringent requirement shall apply resulting in the greater protection of the environment and safety.

6.3 Standard Operating Procedures

The RDCKs EM will conduct all works according to SOPs during construction and long-term monitoring following transition of the site to passive care phase as defined by the CDA, including but not limited to the following:

- Water and Air Baseline Monitoring Guidance Document for Mine Proponents and Operators (BC MOE 2016).
- The British Columbia Ministry of Environment and Climate Change Strategy - Field Sampling Manual. Part E Water and Wastewater Sampling (BC MOE 2013).
- British Columbia Working Water Quality Guidelines: Aquatic Life, Wildlife & Agriculture (BC ENV 2019).
- SLR Consulting (Canada) Ltd. - Standard Field Procedure Manual.

RDCKs EM will have site specific SOPs readily available and will be able to provide them (if requested by an inspector).

7.0 Closure

SLR developed the HB TMF EMS on behalf of the RDCK. The EMS provides the framework for identifying potential environmental adverse effects and promotes implementation of adequate controls to effectively manage health and safety and environmental risk. The EMS references relevant policies and establishes proactive procedures to provide direction for effective operational management and monitoring onsite and is reviewed annually.

Regards,

SLR Consulting (Canada) Ltd.



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8.0 References

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Tables

Environmental Management System 2025 Update

HB Tailings Management Facility

Regional District of Central Kootenay

SLR Project No.: 204.03242.00011

February 18, 2025

Table 1: Annual Document Review Tracker

Report Section	Issue ID or Explanation for Addition	Description of Revision
1.0 Background	Outdated *Mines Act* Permit M-218 details and Ministry of Mines reference. 2024 post construction monitoring scope of work not included. First Nations territory list does not reflect current results.	Removed Permit M-218 amendment section. Updated 2024 post construction monitoring scope details. Ministry of Energy, Mines and Low Carbon Innovation changed to Ministry of Mines and Critical Minerals. Updated First Nations territory list.
2.0 EMS Objectives	EMS objectives not listed in Section 2.0.	EMS objectives from permit M-218 added to Section 2.0.
5.1 Applicable Regulatory Guidelines and Standards	Outdated *Mines Act* and Health and Safety and Reclamation Code reference.	Updated *Mines Act* Code reference updated to April 2024.
5.1.2 BC *Environmental Management Act* (EMA) and Contaminated Sites Regulation (CSR)	Revisions to BC Contaminated Site Regulation (CSR) occurred in 2024.	Section of report replaced to include CSR updates including name change to BC Ministry of Environment and Parks (formerly Ministry of Environment and Climate Change Strategy).
6.1.3.1 Facility Inspections	Facility inspection schedule is not current. Outdated Dam Safety Inspection Report title. Flume line inspection not included in report.	Section 6.1.3.1 updated to reflect current weekly and monthly inspection schedule. Report title changed to Annual Facility Performance Report. Flume line inspection added to report.
6.1.3.2 Metal Leaching (ML) and Acid Rock Drainage (ARD)	ML/ARD section missing from EMS and included in Permit M-218 revisions.	Section 6.1.3.2 ML/ARD added.
6.1.3.3 Water Quality	Water quality section missing reference to Water Quality Management and Monitoring Plan (WQMMP.)	Water Quality Section 6.1.3.3 updated.
6.1.3.3 Surface Water	New requirement for annual review and sign off of WQMMP by Qualified Professional (QP).	Requirement for QP review and sign off updated.
6.1.3.4 Vegetation Metals Uptake	2024 Post construction vegetation metals uptake details not included in scope of work.	Section updated with 2024 vegetation metals uptake study.
6.1.3.5 Revegetation Monitoring	2024 revegetation monitoring not included in scope of work.	Section updated with 2024 revegetation monitoring.
6.1.3.6 Reclamation Research	Reclamation Research section missing from EMS and included in Permit M-218 revisions.	Section 6.1.3.6 Reclamation Research added.
6.1.3.7 Wildlife Monitoring	2024 wildlife monitoring not included in scope of work.	Section updated with 2024 wildlife monitoring.
6.1.3.11 Reporting	Section not updated with Permit M-218 updates.	Section updated with Permit M-218 reporting requirements.
Attachments:		
Tables	Annual document review tracker not updated in report. Table A reflects pre-construction site conditions. Table B Monitoring Frequencies outdated.	Updated Table 1 to included 2023 edits. Table A updated to reflect post-construction site conditions. Table B Monitoring Frequencies updated to current schedule.
Figures	None	None

Figures

Environmental Management System 2025 Update

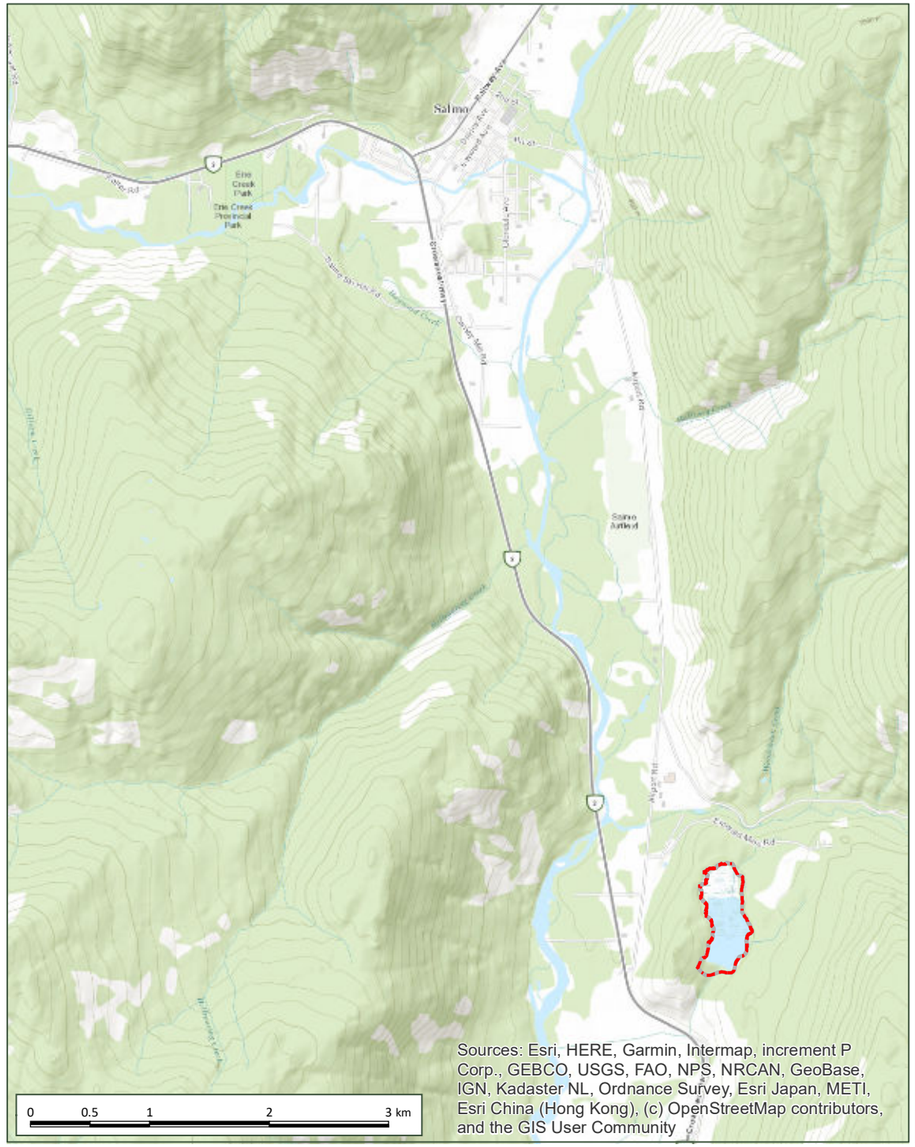
HB Tailings Management Facility

Regional District of Central Kootenay

SLR Project No.: 204.03242.00011

February 18, 2025

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Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community



Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community



NOTES:
1. SATELLITE IMAGERY - 20 SEPTEMBER 2022, MAXAR
2. PARCEL BOUNDARIES FROM BC PARCEL MAP FABRIC, LTSA

LEGEND:

- SITE BOUNDARY - HB TAILINGS MANAGEMENT FACILITY
- PARCEL BOUNDARY
- BORROW PIT

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PAGE SIZE 11 x 17
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REGIONAL DISTRICT OF CENTRAL KOOTENAY
HB MINE TAILINGS MANAGEMENT FACILITY
SALMO, BC

ENVIRONMENTAL MANAGEMENT SYSTEM

SITE LOCATION

SLR

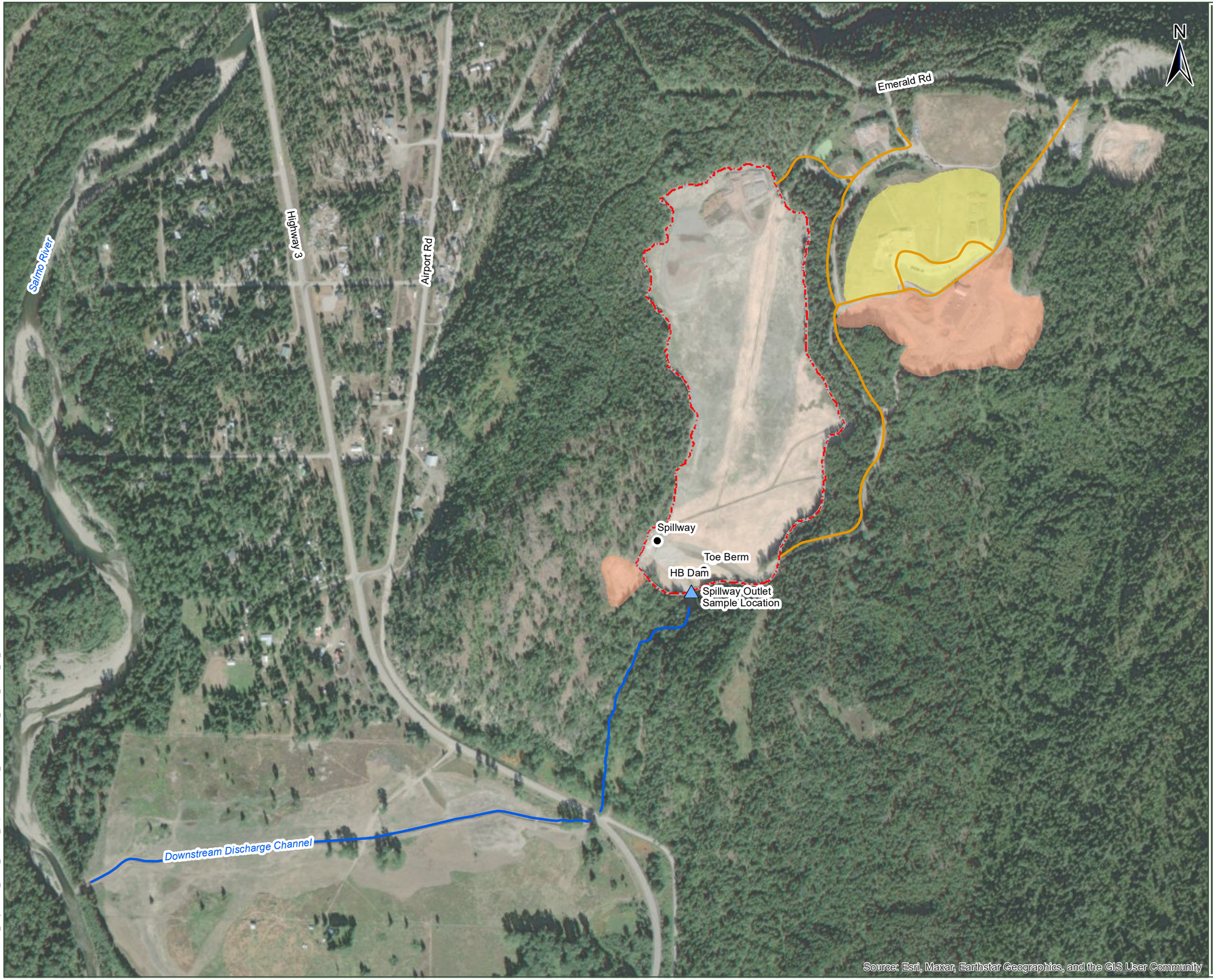
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PROJECT NO: 204.03242.00009

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LEGEND:

- SITE FEATURE
- SURFACE WATER SAMPLE
- ACCESS ROAD
- DOWNSTREAM DRAINAGE CHANNEL
- CENTRAL LANDFILL
- SITE BOUNDARY - HB TAILINGS MANAGEMENT FACILITY
- BORROW PIT

NOTES:
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REGIONAL DISTRICT OF CENTRAL KOOTENAY
HB MINE TAILINGS MANAGEMENT FACILITY
SALMO, BC

ENVIRONMENTAL MANAGEMENT SYSTEM

SITE PLAN

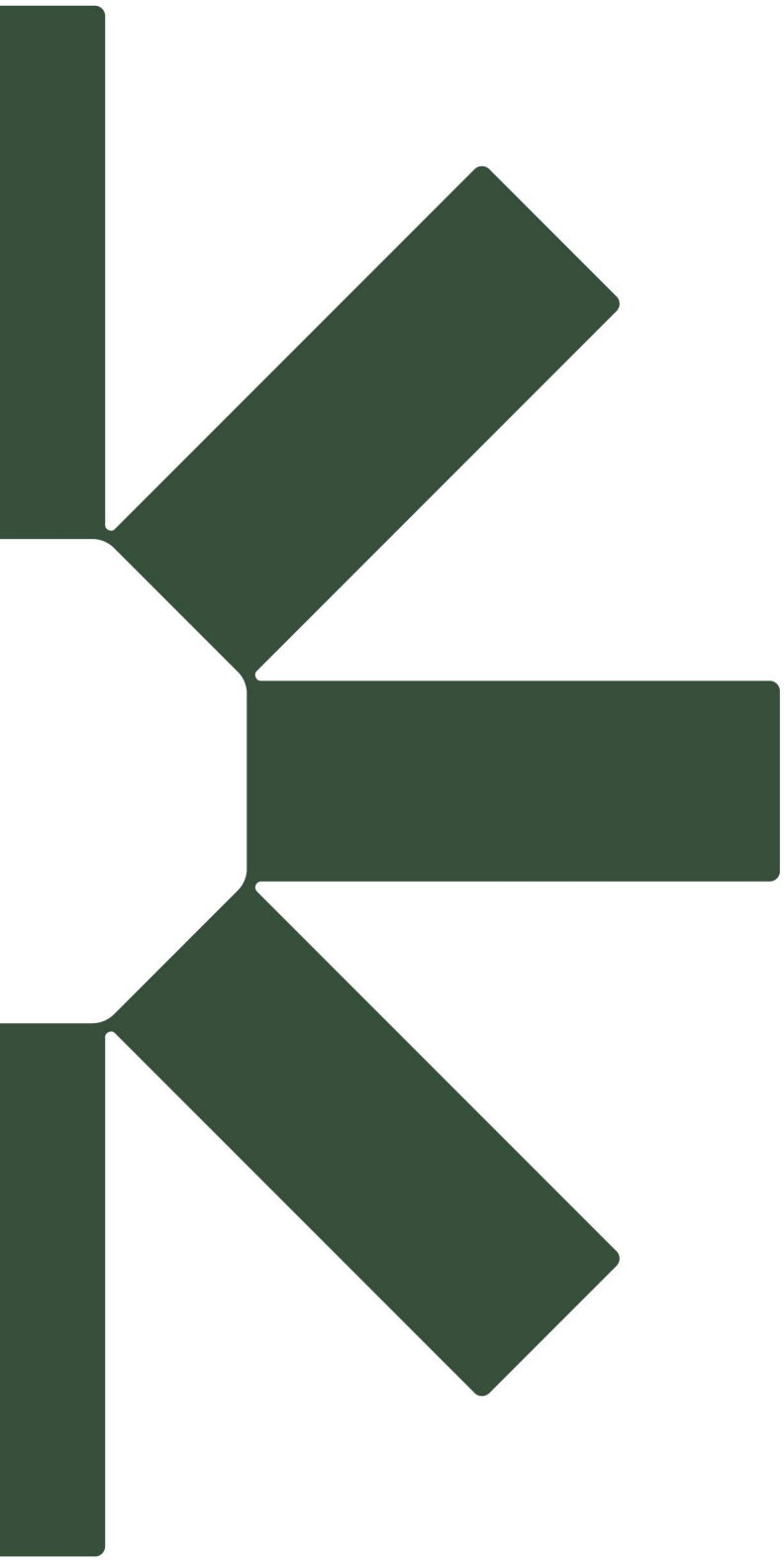
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DATE: January 8, 2024

PROJECT NO: 204.03242.00009

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Making Sustainability Happen

APPENDIX C: 2025 ENVIRONMENTAL MONITORING SUMMARY

2025 Environmental Monitoring Summary

HB Tailings Management Facility, Salmo, BC

Regional District of Central Kootenay

202 Lakeside Drive Nelson, BC V1L 6B9

Prepared by:

SLR Consulting (Canada) Ltd.

8 St. Paul Street W, Kamloops, BC V2C 1G1

SLR Project No.: 204.03242.000011

February 10, 2026

Revision: 0

Revision Record

Revision	Date	Prepared By	Checked By	Authorized By
0	February 10, 2026	B. Foulger	D. McKeown	D. McKeown

Statement of Limitations

This report has been prepared by SLR Consulting (Canada) Ltd. (SLR) for the Regional District of Central Kootenay (Client) in accordance with the scope of work and all other terms and conditions of the agreement between such parties. SLR acknowledges and agrees that the Client may provide this report to government agencies, interest holders, and/or Indigenous communities as part of project planning or regulatory approval processes. Copying or distribution of this report, in whole or in part, for any other purpose other than as aforementioned is not permitted without the prior written consent of SLR.

Any findings, conclusions, recommendations, or designs provided in this report are based on conditions and criteria that existed at the time work was completed and the assumptions and qualifications set forth herein.

This report may contain data or information provided by third party sources on which SLR is entitled to rely without verification and SLR does not warranty the accuracy of any such data or information.

Nothing in this report constitutes a legal opinion nor does SLR make any representation as to compliance with any laws, rules, regulations, or policies established by federal, provincial territorial, or local government bodies, other than as specifically set forth in this report. Revisions to legislative or regulatory standards referred to in this report may be expected over time and, as a result, modifications to the findings, conclusions, or recommendations may be necessary.



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2.0 Objective **1**
3.0 Scope of Work **1**
4.0 Construction Environmental Management Plan Requirements **1**
5.0 Environmental Monitoring **2**
5.1 Surface Water Quality Monitoring 2
5.2 2025 Drilling Program 2
5.3 Environmental Monitoring Summary 2
6.0 Summary of Compliance and Recommendations **5**
7.0 Closure **5**
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Appended Figures

Figure 1: Site Location
Figure 2: Site Plan

Appendices

Appendix A Daily Environmental Monitoring Reports
Appendix B Site Photographs

Acronyms and Abbreviations

BC	British Columbia
CDA	Canadian Dam Association
CEMP	Construction Environmental Management Plan
EM	Environmental Monitor
EMR	Environmental Monitoring Reports
QEP	Qualified Environmental Professional
RCP	Remediation and Closure Plan
RDCK	Regional District of Central Kootenay
SLR	SLR Consulting (Canada) Ltd.
SRK	SRK Consulting (Global) Ltd.
TMF	Tailings Management Facility

1.0 Introduction

SLR Consulting (Canada) Ltd. (SLR) was retained by the Regional District of Central Kootenay (RDCK) to complete environmental monitoring during transition of the HB Tailings Management Facility (TMF) to passive closure under *Mines Act* Permit M-218 (Permit M-218). The TMF is located approximately six kilometres south of the Village of Salmo, British Columbia (BC) (Figure 1).

A Remediation and Closure Plan (RCP) was prepared in 2020 as part of an application to amend Permit M-218, in which the RDCK applied to complete closure construction works, remediate and reclaim the areas formerly disturbed by historical tailings storage operations, and transition the facility through the closure active-care phase to the passive-closure phase, as defined by the Canadian Dam Association (CDA). Permit M-218 was most recently amended on April 29, 2024, to approve the TMF RCP.

In support of this work, a Construction Environmental Management Plan (CEMP) was developed by SLR in May 2021 (SLR 2021). SLR monitored active construction closure works at the TMF from 2021 through 2022 and conducted post-construction monitoring from 2023 through 2025.

2.0 Objective

The objective of this report is to summarize the post-construction environmental monitoring conducted at the site in 2025 to fulfill requirements of the CEMP and Permit M-218.

3.0 Scope of Work

SLR conducted post-construction environmental monitoring and provided guidance and recommendations to RDCK in 2025 during the activities outlined below:

- Event-driven monitoring of sediment and erosion control and surface water management measures.
- Event-driven field monitoring to characterize surface water leaving the facility and within the receiving environment.
- Environmental Monitor (EM) inspection during drilling program supervised by SRK Consulting (Global) Ltd. (SRK) in August 2025.
- EM inspection of the flume line and downstream channel in April 2025.
- Monitoring of the sediment and erosion control and surface water management measures installed in the till borrow pit area.

4.0 Construction Environmental Management Plan Requirements

The CEMP was developed to serve as a guide to verify compliance with environmental protection and mitigation requirements including the following:

- Identify elements of the work that could present a risk to the environment.
- Describe the work procedures to be undertaken to minimize and mitigate potential adverse impacts to the environment resulting from the implementation of the project.

- Describe work procedures to be undertaken to contain and limit impacts to the environment in the event of an incident.

SLR was the EM during post-construction monitoring, on behalf of RDCK. The EM's responsibilities included monitoring and inspection of sediment and erosion control features, construction activities and drilling programs, contaminated soil and water management, and spill prevention and response measures to verify compliance with the CEMP and best management practices. The EM acted as the Qualified Environmental Professional (QEP) for the project.

5.0 Environmental Monitoring

SLR conducted post-construction environmental monitoring of the TMF in 2025, including monitoring of sediment and erosion control measures and surface water quality. SLR also monitored a drilling program directed by SRK, including advancement of boreholes and installation of groundwater monitoring wells at the TMF.

Details of these monitoring efforts are outlined in the following sections and results are appended to the Daily Environmental Monitoring Reports (EMR) included in Appendix A for reference.

5.1 Surface Water Quality Monitoring

Surface water was monitored at the TMF by SLR during the EM inspections and included field inspection of surface water inputs, site drainage, conveyance channels, and the downstream channel.

Field monitoring results are appended to the Daily EMRs included in Appendix A for reference.

5.2 2025 Drilling Program

SLR's EM conducted monitoring during the August 2025 drilling program and provided recommendations and guidance to SRK and the RDCK to implement appropriate mitigation measures and/or apply corrective actions where necessary. Drilling was completed during dry site conditions resulting in no observed sediment or tailings transport from drill cuttings.

SLR recommended that the drilling contractor follow guidance within the CEMP including:

- Storage and fueling of equipment away from areas of surface water.
- Drum drill cuttings in the active work area and in a timely manner to avoid transport of sediment and potentially metals-contaminated soil during periods of inclement weather as well as air transport during wind events.
- Disposal of cuttings material away from areas of surface water within the landform stockpile.

5.3 Environmental Monitoring Summary

SLR conducted post-construction environmental monitoring to assess site conditions, confirm construction and drilling works were performed in accordance with the CEMP and applicable legislation and regulations, and verify site conditions were acceptable following project completion.

A summary of SLR's observations and recommendations are outlined in Table A.

Daily EMRs and site photographs are provided in Appendices A and B, respectively.

Table A: Summary of 2025 Environmental Inspections and Recommendations

Inspection Date	Compliance	Construction Stage	Observations and Results	Mitigation Strategies and Recommendations
April 11, 2025	Yes	Post - Construction	The spillway outlet was inspected, and clear surface water flows were observed in the spillway inlet and downstream channel. Field monitoring results indicated surface water leaving the site met Section 7.2 of the CEMP and was compliant.	Till borrow pit surface water management upgrades completed in 2024, including installation of a soil cap and shallow swale to direct water around exposed clay layer appear to have improved water quality at the site and reduced turbidity levels in surface water inputs to the conveyance and downstream channels in 2025. Repairs to the conveyance channel and spillway cutbank completed in 2023, including conveyance channel hippo repair and spillway bank erosion repairs appear to be effective and no additional erosion or sediment deposition was observed during inspections conducted in 2025. SLR recommended continued monitoring of areas of pooling surface water on the TMF and removal of sediment deposits in the sand and gravel borrow check dams.
April 25, 2025	Yes	Post - Construction	Flume line and channel inspections completed. The spillway outlet was inspected, and clear surface water flows were observed in the spillway inlet and downstream channel. Field monitoring results indicated surface water leaving the site met Section 7.2 of the CEMP and was compliant.	Flume Line Inspection: The historical flume line was inspected and there were no signs of erosion, sediment and tailings transport, or recent surface water flow. The remnants of the flume line are still present; however, the flume line is no longer in use and has become overgrown with vegetation. Downstream Channel Inspection: The entire length of the downstream channel was inspected from the Highway 3 culvert to the spillway inlet. No significant signs of sedimentation, channel migration, or blockages were observed. Field observations indicated there was one area with recent bank erosion and recent sloughing; however, there was no blockage of channel flow observed. SLR recommended continued monitoring of the subject area and the downstream channel for sloughing and erosion as this may be contributing to sediment transport and deposits observed in the downstream channel and Highway 6 culvert plunge pool.

Inspection Date	Compliance	Construction Stage	Observations and Results	Mitigation Strategies and Recommendations
August 8, 2025	Yes	Post-Construction	EM inspection completed during drilling program under supervision by SRK. Dry conditions were observed at the site with minimal surface water flow observed in the borrow pit and conveyance channels. The spillway inlet and outlet were inspected and there was no surface water flow observed in the downstream channel at the highway culvert.	Sediment control measures were installed in the lower till borrow pit, including installation of rip rap on the surface water direction swales and ditch lines. Dam toe berm repairs and surface water ditching were observed as well as remediation of exposed tailings on the TMF surface. SLR recommended that the drilling contractor follow guidance in the CEMP, including measures for fuelling and equipment storage and drill cuttings management and disposal.
October 3, 2025	Yes	Post-Construction	Dry conditions were observed at the site with minimal surface water flow observed in the borrow pit and conveyance channels. The spillway inlet and outlet were inspected and there was no surface water flow observed in the downstream channel at the Highway 6 culvert.	SLR recommended the plunge pool located at the downstream channel highway culvert outflow should be cleaned out by Teck with silt, sediment, sand, and gravel deposits removed while there is no surface water flow in the downstream channel. Check dams in the sand and gravel borrow pit should also have the sediment deposits cleaned out during dry conditions at the site with no surface water flow in the channels SLR recommended that woody vegetation growth (i.e., young alders, cottonwood, etc.) in the spillway should be removed to avoid restriction in flows. Vegetation removal was recommended to be conducted outside the bird nesting window and while there is no surface water flow in the spillway channel. The woody vegetation growth was removed by RDCK on October 10, 2025.



6.0 Summary of Compliance and Recommendations

SLR conducted post-construction environmental monitoring at the TMF in 2025, including inspections of sediment and erosion control measures, construction works, drilling program, and monitoring of site surface water discharge. During EM inspections, surface water leaving the site met applicable guidelines and standards and there were no non-compliant events observed at the TMF in 2025. Improved post-closure water quality at the site was observed in 2025 following implementation of strategic erosion and sediment control measures in the upper and lower borrow pits in late 2024, as well as continued establishment of vegetation cover at the TMF.

Revegetation monitoring results from 2025 indicated that the TMF site meets targeted vegetation cover percentages outlined in Permit M-218 (minimum average of 80% cover across the TMF) and is considered adequately vegetated (SLR 2025).

SLR recommends continued EM inspections during freshet conditions and during significant inclement weather events and will provide recommendations for implementation of additional sediment and erosion control measures, as required.

7.0 Closure

SLR prepared this report on behalf of the RDCK as outlined in the HB TMF RCP to fulfill requirements of Permit M-218. This report is updated annually following completion of the EM inspections at the HB TMF which will continue through 2026.

Regards,

SLR Consulting (Canada) Ltd.



Benjamin Foulger, P.Ag.
Senior Environmental Scientist



David McKeown, B.Sc., R.P.Bio
Senior Project Manager

8.0 References

SLR. 2021. Construction Environmental Management Plan – HB Tailings Management Facility. SLR Consulting (Canada) Ltd. May 2021.

SLR. 2025. HB Tailings Management Facility Reclamation Research Program – 2025 Summary. SLR Consulting (Canada) Ltd. December 2025.

Figures

2025 Environmental Monitoring Summary

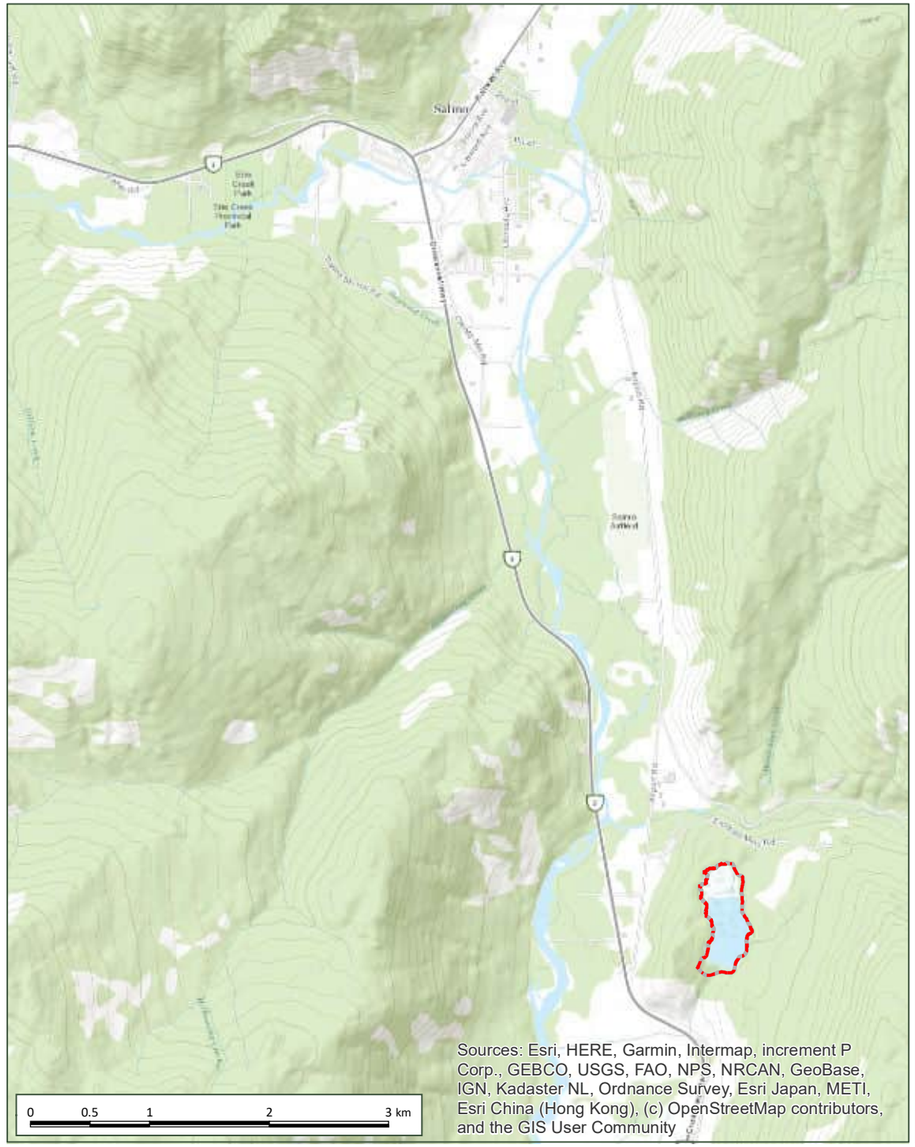
HB Tailings Management Facility, Salmo, BC

Regional District of Central Kootenay

SLR Project No.: 204.03242.000011

February 10, 2026

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Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community



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NOTES:
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LEGEND:

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- PARCEL BOUNDARY
- BORROW PIT

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NAD 1983 UTM Zone 11N

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REGIONAL DISTRICT OF CENTRAL KOOTENAY
HB MINE TAILINGS MANAGEMENT FACILITY
SALMO, BC

2025 ENVIRONMENTAL MONITORING SUMMARY REPORT

SITE LOCATION

SLR

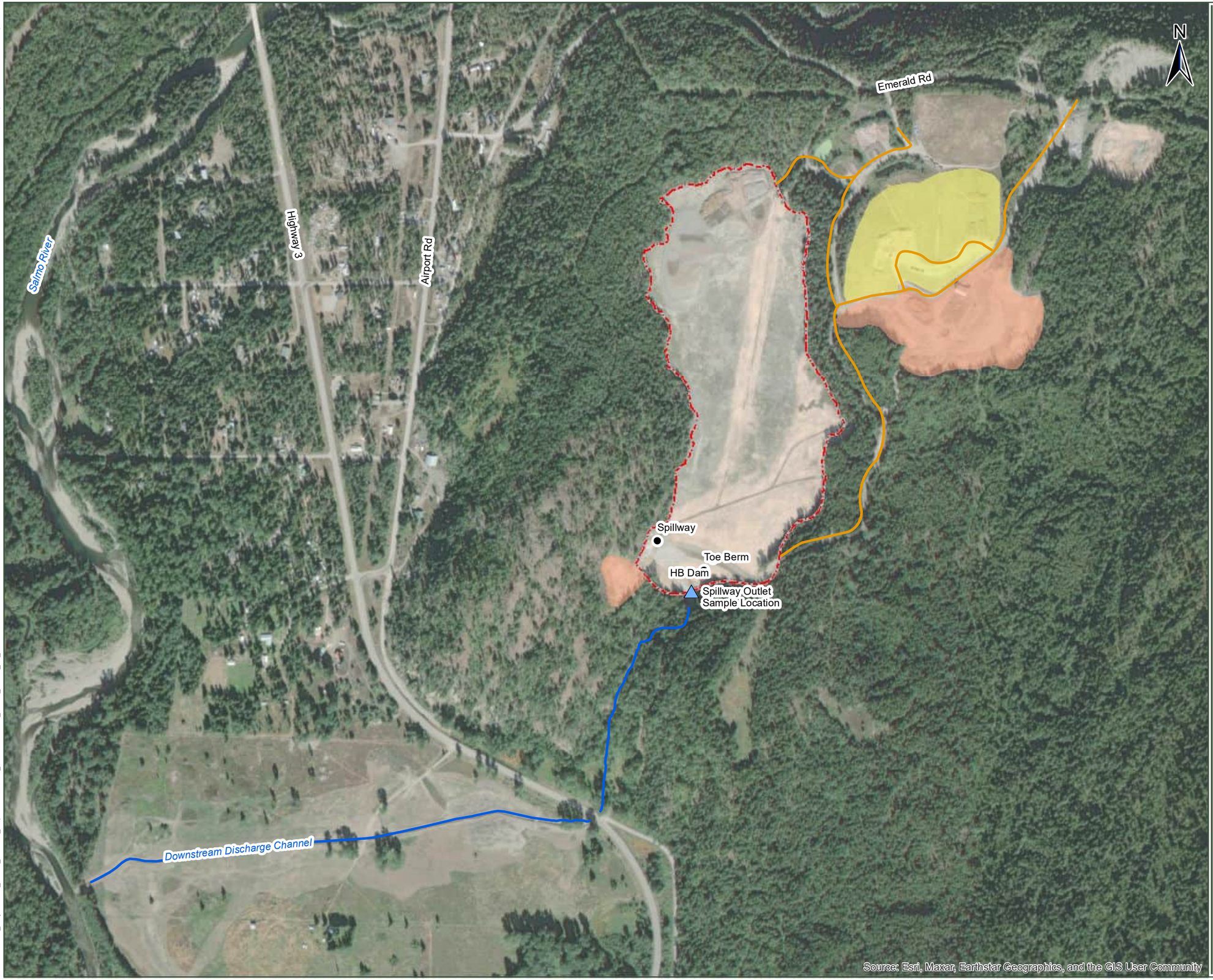
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LEGEND:

- SITE FEATURE
- SURFACE WATER SAMPLE
- ACCESS ROAD
- DOWNSTREAM DRAINAGE CHANNEL
- CENTRAL LANDFILL
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- BORROW PIT

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REGIONAL DISTRICT OF CENTRAL KOOTENAY
HB MINE TAILINGS MANAGEMENT FACILITY
SALMO, BC

2025 ENVIRONMENTAL MONITORING SUMMARY REPORT

SITE PLAN

SLR

FIGURE NO: **2**

DATE: January 8, 2026

PROJECT NO: 204.03242.00011

GIS PATH: G:_Projects\204_03242_RDCK\1_Maps\RPT\202401_EMSR2023\204_03242_EMSR_02_SitePlan.mxd

Appendix A Daily Environmental Monitoring Reports

2025 Environmental Monitoring Summary

HB Tailings Management Facility, Salmo, BC

Regional District of Central Kootenay

SLR Project No.: 204.03242.000011

February 10, 2026

Daily Environmental Monitoring Report:
HB Mine Tailings Facility 204.03242

Environmental Monitor/Company/Contact #		Benjamin Foulger / SLR Consulting (Canada) Ltd. / 250-777-4144
Date		April/11/2025
Construction Phase		Post construction. No construction personnel or equipment onsite.
Activities Conducted		Environmental monitoring of site access roads, sediment control measures, drainage and embankments. Monitoring surface water flow in conveyance channels, and spillway. Field monitoring and collection of ARD water sample.
Weather		8 degrees Celsius.
Potential for rain or snow?		No
Did it rain or snow overnight?		Yes <5mm
Sensitive Habitat	Work near Sensitive Habitat?	None - no active construction
	Distance from Work (m)	< 50 m
	Description	Downstream channel and Salmo River.
Wildlife Observed		White Tailed deer and turkeys. Bear, elk and wolf tracks.
Sediment and Erosion Control	Silt laden runoff visible on site?	No
	Silt laden runoff discharging to sensitive habitat?	None - clear flows were observed in surface water in the conveyance channels, spillway inlet/outlet and downstream channel at the highway culvert that were within the permitted field parameters.
	Stockpiled material or steep slopes eroding?	No
	Coverage of piles or steep slopes required?	No
	Silt fencing required?	No
	Measures Implemented	N/A
	Discussed with:	N/A
	Corrective Actions	N/A
Construction Equipment Inspection	Type(s)	None. No equipment onsite.
	Leaks?	N/A
	Weeds?	N/A
	Spill kits available?	N/A

Daily Environmental Monitoring Report:
HB Mine Tailings Facility 204.03242

Spill	Spill/ Stain/ Fluid observed?	None observed.
	Type?	N/A
	Cleanup Measures Requested by EM*	None
	Discussed with:	N/A
	Contractor has cleanup supplies?	N/A
	Machinery Repair requested by EM*	None
	Corrective Actions	N/A

Other Notes:

Warm temperatures, snow melt and increased surface water flow from recent precipitation events indicate that freshet conditions are occurring at the site and surrounding area. The spillway inlet and outlet were inspected, and effluent in the downstream channel was clear with turbidity levels within permitted values. Turbidity readings in surface water in the downstream channel and receiving environment are as follows:

Field Turbidity Monitoring Results

Location	Date	Results (NTU)
Spillway Outlet	April 11, 2025	0.98
Culvert Inlet	April 11, 2025	1.03 (Highway 3 culvert inlet)

Field monitoring results (turbidity readings) indicate the surface water leaving the site at the spillway outlet meets section 7.2 of the Construction Environmental Management Plan (CEMP) and is compliant.

Comments and Recommendations

1) The ditch lines and check dams in the till borrow pit are in good shape with minimal sediment build up.

2) Till borrow pit surface water management upgrades completed in 2024 in the upper till borrow pit including (installation of a soil cap and shallow swale to direct water around exposed clay layer) appear to have improved water quality at the site and reduced turbidity levels in surface water inputs to the tailings conveyance and downstream channels.

3) Repairs completed to the conveyance channel and spillway cutbank completed in 2023 including (conveyance channel hippo repair and spillway bank erosion repairs) appear to be effective and no additional erosion or sediment deposition was observed in these areas.

4) RDCK has applied additional seed by hand broadcasting exposed soil areas in advance of Spring growing seasons at the site. The establishment of additional vegetation will reduce surface soil erosion in key areas of the site.

5) Surface water ponding and small erosion channels were observed across the tailing surface in various areas likely due to the recent snow melt and precipitation. It is recommended that these areas be monitored during routine inspections for signs of surface cap erosion and exposure of tailings.

6) The ditch lines and upper check dams in the sand and gravel borrow pit are filled with sediment and will require the sediment to be removed to remain effective.

Daily Environmental Monitoring Report:
HB Mine Tailings Facility 204.03242

Environmental Monitor/Company/Contact #		Benjamin Foulger / SLR Consulting (Canada) Ltd. / 250-777-4144
Date		April/25/2025
Construction Phase		Post construction. No construction personnel or equipment onsite.
Activities Conducted		Environmental monitoring of site access roads, sediment control measures, drainage and embankments. Monitoring surface water flow in conveyance channels, and spillway. Downstream channel and flume line inspections completed.
Weather		10 degrees Celsius.
Potential for rain or snow?		No
Did it rain or snow overnight?		No
Sensitive Habitat	Work near Sensitive Habitat?	None - no active construction
	Distance from Work (m)	< 50 m
	Description	Downstream channel and Salmo River.
Wildlife Observed		Deer, Bear, Wolf tracks.
Sediment and Erosion Control	Silt laden runoff visible on site?	None
	Silt laden runoff discharging to sensitive habitat?	None - clear flows were observed in surface water in the conveyance channels, spillway inlet/outlet and downstream channel at the highway culvert that were within the permitted field parameters.
	Stockpiled material or steep slopes eroding?	None
	Coverage of piles or steep slopes required?	No
	Silt fencing required?	No
	Measures Implemented	N/A
	Discussed with:	N/A
	Corrective Actions	N/A
Construction Equipment Inspection	Type(s)	None. No equipment onsite.
	Leaks?	N/A
	Weeds?	N/A
	Spill kits available?	N/A

Daily Environmental Monitoring Report:
HB Mine Tailings Facility 204.03242

Spill	Spill/ Stain/ Fluid observed?	None observed.
	Type?	N/A
	Cleanup Measures Requested by EM*	None
	Discussed with:	N/A
	Contractor has cleanup supplies?	N/A
	Machinery Repair requested by EM*	None
	Corrective Actions	N/A

Other Notes:

The spillway inlet and outlet were inspected, and effluent in the downstream channel was clear with turbidity levels within permitted values.

Comments and Recommendations

1) Recent sloughing and bank erosion in one area of the downstream channel was observed during the channel inspection that could potentially result in blockage of surface water flow if further sloughing occurred. SLR recommends this area be monitored for continued sloughing and erosion as this may be contributing to sediment transport and deposits observed in the downstream channel and highway culvert plunge pool.

Flume Line Inspection - The historical flume line was inspected and there were no signs of erosion, sediment and tailings transport or recent surface water flow. The remnants of the flume line are still present however the flume line no longer in use and has overgrown with vegetation.

Downstream Channel Inspection - The entire length of the downstream channel was inspected from the Hwy 3 culvert to the spillway inlet. No significant signs of sedimentation, channel migration or blockages were observed. Field observations indicate that there was one area with recent bank erosion and recent sloughing however there was no current blockage of channel flow observed.

Daily Environmental Monitoring Report:
HB Mine Tailings Facility 204.03242

Environmental Monitor/Company/Contact #		Benjamin Foulger / SLR Consulting (Canada) Ltd. / 250-777-4144
Date		August 08, 2025
Construction Phase		Post construction. Drillwell drilling contractor onsite to advance boreholes.
Activities Conducted		Environmental monitoring of site access roads, sediment control measures, drainage and embankments. Monitoring surface water flow in conveyance channels, and spillway. EM inspection of drilling on the dam crest.
Weather		18 degrees Celsius.
Potential for rain or snow?		No
Did it rain or snow overnight?		Yes - <5mm
Sensitive Habitat	Work near Sensitive Habitat?	Yes - drilling on dam crest.
	Distance from Work (m)	< 50 m
	Description	Downstream channel and Salmo River.
Wildlife Observed		Deer and Elk, tracks. Turkeys.
Sediment and Erosion Control	Silt laden runoff visible on site?	None
	Silt laden runoff discharging to sensitive habitat?	None - No surface flow observed in at the spillway inlet, conveyance channels or Highway Culvert.
	Stockpiled material or steep slopes eroding?	None
	Coverage of piles or steep slopes required?	No
	Silt fencing required?	No
	Measures Implemented	N/A
	Discussed with:	N/A
	Corrective Actions	N/A
Construction Equipment Inspection	Type(s)	Track mounted drill rig and support vehicles.
	Leaks?	None observed.
	Weeds?	None.
	Spill kits available?	Yes, 2 on drill rig and additional spill kits located in support vehicle.

Daily Environmental Monitoring Report:
HB Mine Tailings Facility 204.03242

Spill	Spill/ Stain/ Fluid observed?	None observed.
	Type?	N/A
	Cleanup Measures Requested by EM*	None
	Discussed with:	N/A
	Contractor has cleanup supplies?	N/A
	Machinery Repair requested by EM*	None
	Corrective Actions	N/A

Other Notes:

SLR conducted an EM inspection during drilling of boreholes on the dam crest. 'The spillway inlet and outlet were inspected, and there was no surface water flow observed in the spillway inlet, downstream channel or Highway 6 culvert.

Comments and Recommendations

It is recommended that the contractor follow guidance within the Construction Environmental Management Plan (CEMP) including storage and fueling of equipment away from areas of surface water as well as drumming cuttings material in the active work area to avoid transport sediment and metals contamination during periods of inclement weather. Cuttings material should be disposed of away from areas of surface water within the landform stockpile.

Sediment control measures have recently been installed in the lower till borrow pit including installation of rip rap on the surface water direction swales and ditch lines.

Repairs to the sink hole and additional surface water ditching adjacent to the dam were observed as well as remediation of exposed tailings on the TMF surface. The excavated tailings were placed in the landform stockpile and the excavated areas were backfilled with sand and gravel cover material.

Daily Environmental Monitoring Report:
HB Mine Tailings Facility 204.03242

Environmental Monitor/Company/Contact #		Benjamin Foulger / SLR Consulting (Canada) Ltd. / 250-777-4144
Date		October 03, 2025
Construction Phase		Post construction. No construction personnel or equipment onsite.
Activities Conducted		Environmental monitoring of site access roads, sediment control measures, drainage and embankments including monitoring of conveyance channels, and spillway. Wildlife monitoring inspection completed.
Weather		6 degrees Celsius.
Potential for rain or snow?		No
Did it rain or snow overnight?		No
Sensitive Habitat	Work near Sensitive Habitat?	None - no active construction.
	Distance from Work (m)	< 50 m
	Description	Downstream channel and Salmo River.
Wildlife Observed		Bear, deer, elk, wolf and coyote tracks. Deer and turkeys observed at TMF.
Sediment and Erosion Control	Silt laden runoff visible on site?	None.
	Silt laden runoff discharging to sensitive habitat?	None - The spillway inlet/outlet and downstream channel at the highway culvert were dry with no surface water flow observed.
	Stockpiled material or steep slopes eroding?	None.
	Coverage of piles or steep slopes required?	No
	Silt fencing required?	No
	Measures Implemented	N/A
	Discussed with:	N/A
	Corrective Actions	N/A
Construction Equipment Inspection	Type(s)	None. No equipment onsite.
	Leaks?	N/A
	Weeds?	N/A
	Spill kits available?	N/A

Daily Environmental Monitoring Report:
HB Mine Tailings Facility 204.03242

Spill	Spill/ Stain/ Fluid observed?	None observed.
	Type?	N/A
	Cleanup Measures Requested by EM*	None
	Discussed with:	N/A
	Contractor has cleanup supplies?	N/A
	Machinery Repair requested by EM*	None
	Corrective Actions	N/A

Other Notes:

Dry conditions were observed at the site with minimal surface water flow observed in the borrow pit and conveyance channels. There was no surface water flow observed at the spillway inlet, spillway outlet and at the downstream channel highway culvert.

Comments and Recommendations

1) The plunge pool located at the downstream channel highway culvert outflow should be cleaned out and silt, sediment and sand and gravel deposits removed while there is no surface water flow in the downstream channel.

2) Check dams in the sand and gravel borrow pit should have the sediment deposits cleaned out while there are dry conditions at the site and no surface water flow in the channels.

3) Woody vegetation growth (Alders, cottonwood etc.) in the spillway should be removed while outside the bird nesting window and while there is no surface water flow in the spillway channel.

Appendix B Site Photographs

2025 Environmental Monitoring Summary

HB Tailings Management Facility, Salmo, BC

Regional District of Central Kootenay

SLR Project No.: 204.03242.000011

February 10, 2026

HB TMF - Environmental Monitoring Inspection Photos

Photo 1: Upper till borrow soil cap with hydroseed and woody debris (April 11, 2025)



Photo 2: Upper till borrow surface water diversion (April 11, 2025)



Photo 3: Lower till borrow surface water diversion channel (April 11, 2025)



Photo 4: Sand and gravel borrow potential ARD leachate (April 11, 2025)



HB TMF - Environmental Monitoring Inspection Photos

Photo 5: Flume line remnants observed with overgrown vegetation (April 25, 2025)



Photo 6: Surface water flow observed in the downstream channel (April 25, 2025)



Photo 7: Erosion and sloughing observed in the downstream channel (April 25, 2025)



Photo 8: Surface water flow observed in the downstream channel (April 25, 2025)



HB TMF - Environmental Monitoring Inspection Photos

Photo 9: Remediated areas of exposed tailings on the TMF surface (August 8, 2025)



Photo 10: Dry site conditions observed at the spillway inlet (August 8, 2025)



Photo 11: Borehole drilling on the dam crest (August 8, 2025)



Photo 12: Repairs and surface water diversion on the dam toe berm (August 8, 2025)



HB TMF - Environmental Monitoring Inspection Photos

Photo 13: No surface water flow at the spillway inlet (October 3, 2025)



Photo 14: Riprap armored spillway looking west (October 3, 2025)

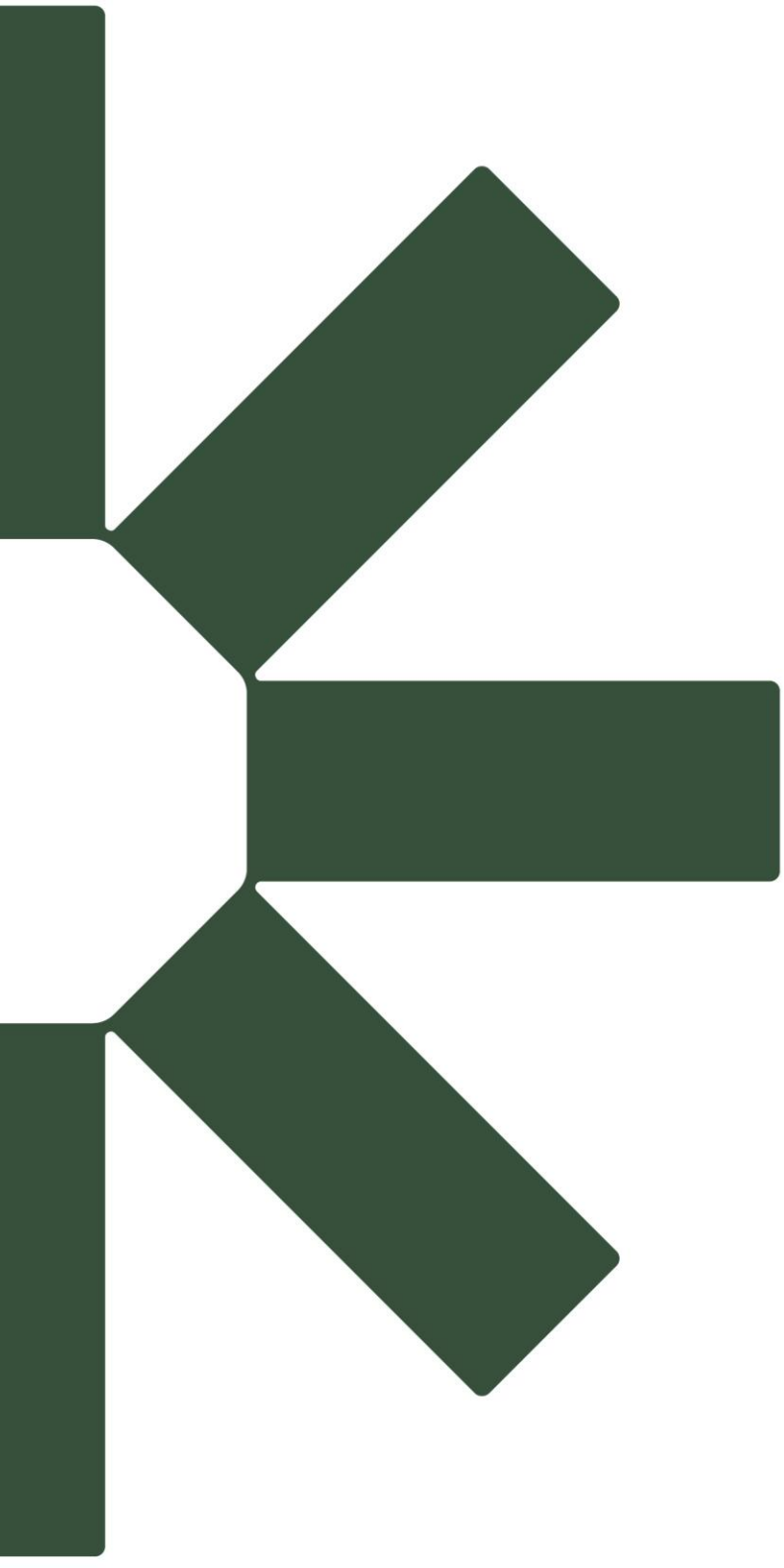


Photo 15: Dry site conditions and conveyance channels (October 3, 2025)



Photo 16: Dry sediment deposits at the highway culvert plunge pool (October 3, 2025)





Making Sustainability Happen

APPENDIX D: 2025 ML/ARD SAMPLING TECHNICAL MEMO

Technical Memorandum

To:	Alayne Hamilton, Environmental Projects Lead	**From:**	Benjamin Foulger, P.Ag. Senior Environmental Scientist
Company:	Regional District of Central Kootenay	**SLR Consulting (Canada) Ltd.**	
cc:		**Date:**	April 25, 2025
		Project No.	204.03242.00011
		Revision	0

RE: HB Tailings Management Facility – ARD Surface Water Sampling Results

SLR Consulting (Canada) Ltd. (SLR) on behalf or the Regional District of Central Kootenay (RDCK) has prepared this technical memorandum to provide analytical results from the April 2025 acid rock drainage (ARD) monitoring and sampling program completed at the RDCK HB Tailings Management Facility (TMF) near Salmo, British Columbia (BC).

The purpose of the investigation was to complete a Spring surface water Metal Leaching (ML)/ ARD monitoring and sampling of the exposed gossanous phyllite bedrock in the sand and gravel borrow area as outlined in the SRK's Standard Operating Procedure (SOP) for *ML/ARD Monitoring at Exposed Face in the Sand and Gravel Borrow Pit at the HB Mine,* dated June 8, 2023.

ARD Monitoring and Sampling Results

The April 2025 ARD surface water monitoring and sampling program is summarized in the sections below:

Surface Water Observations

On April 11, 2025, SLR inspected the exposed gossanous phyllite bedrock in the sand and gravel borrow area and monitored the surface water flow immediately downgradient of the exposed bedrock as follows:

- A small volume (<1.0L per minute) of surface water flow was observed flowing over the exposed bedrock.
- There were no visual indications of staining or precipitates and the bedrock did not appear to be significantly weathered.
- Field measurements indicated the following surface water field parameters:
  - pH - 8.36
  - temp - 2.2 degrees Celsius
  - conductivity – 62 uS/cm

Surface Water Analytical Results

On April 11, 2025, SLR collected a representative surface water sample downgradient of the exposed gossanous phyllite bedrock in the sand and gravel borrow area.

The surface water chemistry data is provided on Tables 1 – 4 and the laboratory analytical report is provided after the text for reference.

Concentrations of trace elements in the drainage were compared to 10X applicable BC Water Quality Guidelines to account for dilution between the source and receiver. A summary of the results is as follows:

- One surface water sample and one blind field duplicate (ARD-1 / DUPA) were collected and submitted for analysis of select parameters (pH, Conductivity, Acidity, Alkalinity, Sulphate, Chloride, total metals, dissolved metals, and DOC).
- Total metals results in samples ARD-1 and DUPA indicated that concentration of aluminum parameters exceeded the applicable screening BC WQGs.
- Dissolved metals results in sample ARD-1 indicated that concentration of one or more of the copper, nickel and zinc parameters exceeded the applicable screening BC WQGs. The biotic ligand model (BLM) calculations were applied for dissolved copper.
- Sulphate concentrations were low with neutral pH.

Interpretation of Results

The water quality results indicate that acid generation from the outcrop does not appear to be present at this time, as pH levels in the drainage were neutral. Additionally, concentrations of iron and sulphate, typical products of the ARD process, were low in the drainage. The bedrock did not appear to have significant changes in weathering from previous inspections.

Although some metals exceeded the screening criteria of 10X BC WQGs, the results are consistent with that noted in SRK (2023). Seepage from the area is not in the vicinity of any natural receiver, and drainage flows towards the TMF where water quality monitoring programs are in place.

Summary and Recommendations

Results from the sampling suggest that acid generation from the exposed gossanous phyllite bedrock is not occurring at this time. However, continued monitoring of the bedrock and observations of the changes in extent of weathering should continue together with opportunistic water quality monitoring of seepage from the exposure.

No mitigation measures are proposed at this time. However, the results of the current sampling should be compiled in a database, with any future sampling results added to allow for evaluation of changing water quality.

Statement of Limitations

This report has been prepared by SLR Consulting (Canada) Ltd. (SLR) for Regional District of Central Kootenay (Client) in accordance with the scope of work and all other terms and conditions of the agreement between such parties. SLR acknowledges and agrees that the Client may provide this report to government agencies, interest holders, and/or Indigenous communities as part of project planning or regulatory approval processes. Copying or distribution of this report, in whole or in part, for any other purpose other than as aforementioned is not permitted without the prior written consent of SLR.

Any findings, conclusions, recommendations, or designs provided in this report are based on conditions and criteria that existed at the time work was completed and the assumptions and qualifications set forth herein.

This report may contain data or information provided by third party sources on which SLR is entitled to rely without verification and SLR does not warranty the accuracy of any such data or information.

Nothing in this report constitutes a legal opinion nor does SLR make any representation as to compliance with any laws, rules, regulations, or policies established by federal, provincial territorial, or local government bodies, other than as specifically set forth in this report. Revisions to legislative or regulatory standards referred to in this report may be expected over time and, as a result, modifications to the findings, conclusions, or recommendations may be necessary.

Closure

The ARD monitoring and sampling program summarized above was completed to determine if any additional mitigations or management is required for inclusion in the HB TMF Annual Reclamation Report (ARR) and to develop recommendations for future monitoring and sampling, if applicable. If you have any questions, please contact a member of our team below.

Regards,

SLR Consulting (Canada) Ltd.



Benjamin Foulger, P.Ag.
Senior Environmental Scientist

Michael Venhuis, M.Sc., P.Geo.
Senior Hydrogeochemist

The Association of Professional Engineers and Geoscientists of the Province of British Columbia
SLR Consulting (Canada) Ltd. Permit to Practice #1001562

Attachments Tables 1 – 4
A - Photoplate 1
B - Analytical Laboratory Report (C531532V1)

Tables

ARD Surface Water Sampling Results

HB Tailings Management Facility

Regional District of Central Kootenay

SLR Project No.: 204.03242.00011

April 25, 2025

Table 1: Total Metals in Surface Water

																																					Metals (Total)	
	pH (lab) (total)	hardness as CaCO3 (total)	aluminum (total)	antimony (total)	arsenic (total)	barium (total)	beryllium (total)	bismuth (total)	boron (total)	cadmium (total)	calcium (total)	chromium (III+VI) (total)	cobalt (total)	copper (total)	iron (total)	lead (total)	lithium (total)	magnesium (total)	manganese (total)	molybdenum (total)	nickel (total)	potassium (total)	selenium (total)	silver (total)	sodium (total)	strontium (total)	thallium (total)	tin (total)	titanium (total)	tungsten (total)	uranium (total)	vanadium (total)	zinc (total)	zirconium (total)	
RDL		**0.50**	**3.0**	**0.50**	**0.10**	**1.0**	**0.10**	**1.0**	**50**	**0.010**	**0.050**	**1.0**	**0.20**	**0.50**	**10**	**0.20**	**2.0**	**0.050**	**1.0**	**1.0**	**1.0**	**50**	**0.10**	**0.020**	**0.050**	**1.0**	**0.010**	**5.0**	**5.0**	**1.0**	**0.10**	**5.0**	**5.0**	**0.10**	
	pH	**mg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**mg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**mg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**mg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**
BC WQG (Approved) AWF, Long-term	6.5-9	ns	1.8	74	5	ns	ns	ns	1200	ns	ns	ns	4	ns	ns	ns	ns	ns	770-781	7600	ns	ns	2	0.12	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
BC WQG (Approved) AWF, Short-term	6.5-9	ns	ns	250	ns	ns	ns	ns	ns	ns	ns	ns	110	ns	1000	ns	ns	ns	952-980	46000	ns	ns	2	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
BC WQG (Working) AWF, Long-term	ns	ns	ns	9	ns	1000	0.13	ns	ns	ns	ns	2.5	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	0.03	ns	ns	ns	7.5	60	ns	ns
BC WQG (Working) AWF, Short-term	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	16.5	ns	ns	ns
Screening 10 x BC WQG	-	-	18	-	-	-	-	-	-	-	-	-	40	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Location Groups	Sample Location	Sample Date	Sample Type	Sample Name																																
Locations	ARD	2025-Apr-11	N	ARD-1	6.96	38.4	133	< 0.50	0.64	11.3	0.18	< 1.0	< 50	0.365	11.4	< 1.0	4.07***	4.15	80	0.67	< 2.0	2.38	353	< 1.0	17.7	628	< 0.10	< 0.020	1.14	75.9	< 0.010	< 5.0	< 5.0	< 1.0	0.41	< 5.0	36.7	< 0.10
			FD	DUP A	-	37.4	129	< 0.50	0.63	10.9	0.14	< 1.0	< 50	0.357	11.2	< 1.0	3.94	3.98	84	0.66	< 2.0	2.30	346	< 1.0	17.2	604	< 0.10	< 0.020	1.09	73.7	< 0.010	< 5.0	< 5.0	< 1.0	0.39	< 5.0	35.6	< 0.10

Notes:

•	samples collected at the same location and date are blind field duplicate/parent pairs
'-'	sample not analyzed for parameter indicated
<	less than reported detection limit
m	metres
µg/L	microgram per litre
mg/L	milligram per litre
pH	potential of hydrogen
ns	no standard listed
BC WQG (Approved) AWF, Long-term	BC Approved Water Quality Guidelines, Freshwater Aquatic Life, Long-term
BC WQG (Approved) AWF, Short-term	BC Approved Water Quality Guidelines, Freshwater Aquatic Life, Short-term
BC WQG (Working) AWF, Long-term	BC Working Water Quality Guidelines, Freshwater Aquatic Life, Long-term
BC WQG (Working) AWF, Short-term	BC Working Water Quality Guidelines, Freshwater Aquatic Life, Short-term
*** Screening BCWQGs	Concentration less than 10 x BC WQG

Table 2: Dissolved Metals in Surface Water

	Carbon	Metals (Dissolved)																																		Metals (Total)
	dissolved organic carbon	hardness as CaCO3 (dissolved)	aluminum (dissolved)	antimony (dissolved)	arsenic (dissolved)	barium (dissolved)	beryllium (dissolved)	bismuth (dissolved)	boron (dissolved)	cadmium (dissolved)	calcium (dissolved)	chromium (III+VI) (dissolved)	cobalt (dissolved)	copper (dissolved)	iron (dissolved)	lead (dissolved)	lithium (dissolved)	magnesium (dissolved)	manganese (dissolved)	molybdenum (dissolved)	nickel (dissolved)	phosphorus (dissolved)	potassium (dissolved)	selenium (dissolved)	silver (dissolved)	sodium (dissolved)	strontium (dissolved)	thallium (dissolved)	tin (dissolved)	titanium (dissolved)	tungsten (dissolved)	uranium (dissolved)	vanadium (dissolved)	zinc (dissolved)	zirconium (dissolved)	pH (lab) (total)
RDL	0.50	0.50	3.0	0.50	0.10	1.0	0.10	1.0	50	0.010	0.050	1.0	0.20	0.20	5.0	0.20	2.0	0.050	1.0	1.0	1.0	10	50	0.10	0.020	0.050	1.0	0.010	5.0	5.0	1.0	0.10	5.0	5.0	0.10	
	mg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	pH
BC WQG (Approved) AWF, Long-term	ns	ns	ns	ns	ns	ns	ns	ns	ns	0.108	ns	ns	ns	0.3**	ns	0.75	ns	ns	ns	ns	0.2	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	3.1	ns	6.5-9
BC WQG (Approved) AWF, Short-term	ns	ns	ns	ns	ns	ns	ns	ns	ns	0.228	ns	ns	ns	1.7**	350	ns	ns	ns	ns	ns	5.8	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	5.6	ns	6.5-9
BC WQG (Working) AWF, Long-term	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	1250	ns	ns	ns	ns	ns	ns	ns	ns
Screening 10 x BC WQG	-	-	-	-	-	-	-	-	-	1.08	-	-	-	3	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	31	-	-

Location Groups	Sample Location	Sample Date	Sample Type	Sample Name																																
Locations	ARD	2025-Apr-11	N	ARD-1	2.0	39.9	72.6	< 0.50	0.51	10.4	0.12	< 1.0	< 50	0.350***	11.9	< 1.0	3.89	3.30	23.7	0.27	2.2	2.48	331	< 1.0	16.9	< 10	601	< 0.10	< 0.020	1.14	74.3	< 0.010	< 5.0	< 5.0	< 1.0	0.38	< 5.0	33.8	< 0.10	6.96

Notes:

•	samples collected at the same location and date are blind field duplicate/parent pairs
'-'	sample not analyzed for parameter indicated
<	less than reported detection limit
m	metres
µg/L	microgram per litre
mg/L	milligram per litre
pH	potential of hydrogen
ns	no standard listed
BC WQG (Approved) AWF, Long-term	BC Approved Water Quality Guidelines, Freshwater Aquatic Life, Long-term
BC WQG (Approved) AWF, Short-term	BC Approved Water Quality Guidelines, Freshwater Aquatic Life, Short-term
BC WQG (Working) AWF, Long-term	BC Working Water Quality Guidelines, Freshwater Aquatic Life, Long-term

** biotic ligand model (BLM) calculations applied to dissolved copper
*** Screening BCWQGs Concentration less than 10 x BC WQG

Table 3: General Parameters in Surface Water

					General Parameters				
					acidity (pH 4.5)	acidity (pH 8.3)	alkalinity (carbonate)	alkalinity (bicarbonate)	alkalinity (PP as CACO3)	alkalinity (total as CaCO3)	electrical conductivity (lab)
				RDL	1.0	1.0	1.0	1.0	1.0	1.0	2.0
					mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	µS/cm
				BC WQG (Working) AWF, Long-term	ns	ns	ns	ns	ns	20	ns
				Screening 10 x BC WQG	-	-	-	-	-	200	-
Location Groups	**Sample Location**	**Sample Date**	**Sample Type**	**Sample Name**							
Locations	ARD	2025-Apr-11	N	ARD-1	< 1.0	2.4	< 1.0	29	< 1.0	24***	98

Notes:

•	samples collected at the same location and date are blind field duplicate/parent pairs
'-'	sample not analyzed for parameter indicated
<	less than reported detection limit
m	metres
µS/cm	microsiemens per centimetre
mg/L	milligram per litre
ns	no standard listed
BC WQG (Working) AWF, Long-term	BC Working Water Quality Guidelines, Freshwater Aquatic Life, Long-term
*** Screening BCWQGs	Concentration less than 10 x BC WQG

Table 4: Inorganics and Ions in Surface Water

					Inorganics							Major Ions										
					chloride ion	hydroxide	silicon	silicon	sulphate	sulphur	sulphur	calcium (total)	calcium (dissolved)	magnesium (total)	magnesium (dissolved)	sodium (total)	sodium (dissolved)	potassium (total)	potassium (dissolved)	hydroxide (CO)	chloride	sulphate
			Filtered or Total		F	T	F	T	F	F	T	T	F	T	F	T	F	T	F	T	F	F
			RDL		1.0	1.0	100	100	1.0	3.0	3.0	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	1.0	1.0	1.0
					mg/L	mg/L	µg/L	µg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
			BC WQG (Approved) AWF, Long-term		150	ns	ns	ns	218	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	150	218
			BC WQG (Approved) AWF, Short-term		600	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	600	ns
Location Groups	**Sample Location**	**Sample Date**	**Sample Type**	**Sample Name**																		
Locations	ARD	2025-Apr-11	N	ARD-1	< 1.0	< 1.0	6160	6040	20	6.3	6.7	11.4	11.9	2.38	2.48	1.14	1.14	0.628	0.601	< 1.0	< 1.0	20
			FD	DUP A	-	-	-	5830	-	-	6.6	11.2	-	2.30	-	1.09	-	0.604	-	-	-	-

Notes:

•	samples collected at the same location and date are blind field duplicate/parent pairs
'-'	sample not analyzed for parameter indicated
<	less than reported detection limit
m	metres
µg/L	microgram per litre
mg/L	milligram per litre
ns	no standard listed
BC WQG (Approved) AWF, Long-term	BC Approved Water Quality Guidelines, Freshwater Aquatic Life, Long-term
BC WQG (Approved) AWF, Short-term	BC Approved Water Quality Guidelines, Freshwater Aquatic Life, Short-term

Supplemental Notes for Tables 1 to 4

BC WQG (Approved) AWF, Long-term	BC Approved Water Quality Guidelines, Freshwater Aquatic Life, Long-term
aluminum (total) (T)	If exceeds most stringent value of 1.8 µg/L, use the following equation: WGQ=e{[0.645*ln(DOC)]+[2.255*ln(hardness]+[1.995*pH]+[-0.284*(ln(hardness)*pH)]-9.898}/3
cadmium (dissolved) (F)	exp(0.736*LN(HARDNESS)-4.943)
copper (dissolved) (F)	If exceeds the most stringent value of 0.2 µg/L, use the BC Biotic Ligand Model (BLM) to determine the applicable guideline
lead (dissolved) (F)	If exceeds the most stringent value of 0.75 µg/L, use of the guideline equation: exp(0.514[ln(DOC)] + 0.214[ln(Hardness)] + 0.4354)
manganese (total) (T)	(0.0044*HARDNESS)+0.605
nickel (dissolved) (F)	If exceeds the most stringent guideline of 0.2 µg/L, use the BC Biotic Ligand Model (BLM) to determine the applicable guideline
	sulphate (F)
	128mg/L @ H<= 30mg/L
	218mg/L @ H=30<=75mg/L
	309mg/L @ H=75<=180mg/L
	429mg/L @ H=180<=240mg/L
zinc (dissolved) (F)	If exceeds the most stringent value of 3.1 µg/L, use the following equation: WGQ=exp(0.947[ln(hardness)] - 0.815[pH] + 0.398[ln(DOC)] + 4.625)/2
BC WQG (Approved) AWF, Short-term	BC Approved Water Quality Guidelines, Freshwater Aquatic Life, Short-term
cadmium (dissolved) (F)	exp(1.03*LN(HARDNESS)-5.274)
copper (dissolved) (F)	If exceeds the most stringent value of 0.2 µg/L, use the BC Biotic Ligand Model (BLM) to determine the applicable guideline
manganese (total) (T)	(0.01102*HARDNESS)+0.54
nickel (dissolved) (F)	If exceeds the most stringent value of 5.8 µg/L, use the BC Biotic Ligand Model (BLM) to determine the applicable guideline
zinc (dissolved) (F)	If exceeds the most stringent value of 5.6 µg/L, use the following equation: WGQ=exp(0.833[ln(hardness)] + 0.240[ln(DOC)] + 0.526)/2
BC WQG (Working) AWF, Long-term	BC Working Water Quality Guidelines, Freshwater Aquatic Life, Long-term
alkalinity (total as CaCO3) (T)	20 mg/L or more as CaCO3, except where natural concentrations are less
chromium (III+VI) (total) (T)	Guideline is for Cr(VI), speciated results supersede total chromium results
BC WQG (Working) AWF, Short-term	BC Working Water Quality Guidelines, Freshwater Aquatic Life, Short-term

Attachment A Photoplate 1

ARD Surface Water Sampling Results

HB Tailings Management Facility

Regional District of Central Kootenay

SLR Project No.: 204.03242.00011

April 25, 2025

Attachment A Photoplate

Photo 1: Sand and gravel borrow pit (April 11, 2025)



Photo 2: Surface water flow from exposed bedrock (April 11, 2025)



Photo 3: Exposed gossanous phyllite bedrock 1 (April 11, 2025)



Photo 4: Exposed gossanous phyllite bedrock 2 (April 11, 2025)



Attachment B Analytical Report (C531532V1)

ARD Surface Water Sampling Results

HB Tailings Management Facility

Regional District of Central Kootenay

SLR Project No.: 204.03242.00011

April 25, 2025

Your P.O. #: KAM5465
Your Project #: 204.03242.00009
Site Location: H TMF
Your C.O.C. #: 716927-01-01

Attention: Ben Foulger

SLR CONSULTING (CANADA) LTD
8 WEST ST. PAUL STREET
KAMLOOPS, BC
Canada V2C 1G1

Report Date: 2025/04/21
Report #: R3650183
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C531532
Received: 2025/04/15, 08:36

Sample Matrix: Water
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Acidity pH 4.5 & pH 8.3 (as CaCO3)	1	N/A	2025/04/15	BBY6SOP-00037	SM 24 2310 B m
Alkalinity @25C (pp, total), CO3,HCO3,OH	1	N/A	2025/04/15	BBY6SOP-00026	SM 24 2320 B m
Chloride/Sulphate by Auto Colourimetry	1	N/A	2025/04/16	BBY6SOP-00011 / BBY6SOP-00017	SM24-4500-Cl/SO4-E m
Carbon (DOC) (1)	1	N/A	2025/04/17	BBY6SOP-00053	SM 24 5310 B m
Conductivity @25C	1	N/A	2025/04/15	BBY6SOP-00026	SM 24 2510 B m
Hardness Total (calculated as CaCO3) (2)	2	N/A	2025/04/16	BBY WI-00033	Auto Calc
Hardness (calculated as CaCO3)	1	N/A	2025/04/16	BBY WI-00033	Auto Calc
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	1	N/A	2025/04/16	BBY WI-00033	Auto Calc
Elements by CRC ICPMS (dissolved) (3)	1	N/A	2025/04/15	BBY7SOP-00002	EPA 6020b R2 m
Na, K, Ca, Mg, S by CRC ICPMS (total)	2	2025/04/15	2025/04/16	BBY WI-00033	Auto Calc
Elements by CRC ICPMS (total)	2	2025/04/15	2025/04/15	BBY7SOP-00003 / BBY7SOP-00002	EPA 6020b R2 m
pH @25°C (4)	1	N/A	2025/04/15	BBY6SOP-00026	SM 24 4500-H+ B m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, EPA, APHA or the Quebec Ministry of Environment.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.

Your P.O. #: KAM5465
Your Project #: 204.03242.00009
Site Location: H TMF
Your C.O.C. #: 716927-01-01

Attention: Ben Foulger

SLR CONSULTING (CANADA) LTD
8 WEST ST. PAUL STREET
KAMLOOPS, BC
Canada V2C 1G1

Report Date: 2025/04/21
Report #: R3650183
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C531532
Received: 2025/04/15, 08:36

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) DOC present in the sample should be considered as non-purgeable DOC. Dissolved > Total Imbalance: When applicable, Dissolved and Total results were reviewed and data quality meets acceptable levels unless otherwise noted.
(2) "Total Hardness" was calculated from Total Ca and Mg concentrations and may be biased high (Hardness, or Dissolved Hardness, calculated from Dissolved Ca and Mg, should be used for compliance if available).
(3) Dissolved > Total Imbalance: When applicable, Dissolved and Total results were reviewed and data quality meets acceptable levels unless otherwise noted.
(4) The CCME method requires pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the CCME holding time. Bureau Veritas endeavours to analyze samples as soon as possible after receipt.

Encryption Key

AUTHORIZED REPORT
RAPPORT AUTORISÉ

Bureau Veritas
21 Apr 2025 17:09:00

Please direct all questions regarding this Certificate of Analysis to:
Nahed Amer, Key Account Specialist
Email: Nahed.AMER@bureauveritas.com
Phone# (604) 734 7276

==========

This report has been generated and distributed using a secure automated process.
Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Raphael Kwan, General Manager, BC and Yukon Regions responsible for British Columbia Environmental laboratory operations.

Bureau Veritas Job #: C531532
Report Date: 2025/04/21

SLR CONSULTING (CANADA) LTD
Client Project #: 204.03242.00009
Site Location: H TMF
Your P.O. #: KAM5465
Sampler Initials: BF

RESULTS OF CHEMICAL ANALYSES OF WATER

Bureau Veritas ID		DIA330			DIA331		
Sampling Date		2025/04/11 10:00			2025/04/11 10:00		
COC Number		716927-01-01			716927-01-01		
	UNITS	**ARD-1**	**RDL**	**QC Batch**	**DUP A**	**RDL**	**QC Batch**
Calculated Parameters							
Total Hardness (CaCO3)	mg/L	38.4	0.50	B754438	37.4	0.50	B754438
Dissolved Hardness (CaCO3)	mg/L	39.9	0.50	B754440			
Misc. Inorganics							
Conductivity	uS/cm	98	2.0	B755227			
Dissolved Organic Carbon (C)	mg/L	2.0	0.50	B757562			
pH	pH	6.96	N/A	B755223			
Acidity (pH 4.5)	mg/L	<1.0	1.0	B754895			
Acidity (pH 8.3)	mg/L	2.4	1.0	B754895			
Anions							
Alkalinity (PP as CaCO3)	mg/L	<1.0	1.0	B755226			
Alkalinity (Total as CaCO3)	mg/L	24	1.0	B755226			
Bicarbonate (HCO3)	mg/L	29	1.0	B755226			
Carbonate (CO3)	mg/L	<1.0	1.0	B755226			
Hydroxide (OH)	mg/L	<1.0	1.0	B755226			
Chloride (Cl)	mg/L	<1.0	1.0	B755233			
Sulphate (SO4)	mg/L	20	1.0	B755233			

RDL = Reportable Detection Limit
N/A = Not Applicable

Bureau Veritas Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

SLR CONSULTING (CANADA) LTD
Client Project #: 204.03242.00009
Site Location: H TMF
Your P.O. #: KAM5465
Sampler Initials: BF

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID		DIA330			DIA331		
Sampling Date		2025/04/11 10:00			2025/04/11 10:00		
COC Number		716927-01-01			716927-01-01		
	UNITS	**ARD-1**	**RDL**	**QC Batch**	**DUP A**	**RDL**	**QC Batch**
Dissolved Metals by ICPMS							
Dissolved Aluminum (Al)	ug/L	72.6	3.0	B754708			
Dissolved Antimony (Sb)	ug/L	<0.50	0.50	B754708			
Dissolved Arsenic (As)	ug/L	0.51	0.10	B754708			
Dissolved Barium (Ba)	ug/L	10.4	1.0	B754708			
Dissolved Beryllium (Be)	ug/L	0.12	0.10	B754708			
Dissolved Bismuth (Bi)	ug/L	<1.0	1.0	B754708			
Dissolved Boron (B)	ug/L	<50	50	B754708			
Dissolved Cadmium (Cd)	ug/L	0.350	0.010	B754708			
Dissolved Chromium (Cr)	ug/L	<1.0	1.0	B754708			
Dissolved Cobalt (Co)	ug/L	3.89	0.20	B754708			
Dissolved Copper (Cu)	ug/L	3.30	0.20	B754708			
Dissolved Iron (Fe)	ug/L	23.7	5.0	B754708			
Dissolved Lead (Pb)	ug/L	0.27	0.20	B754708			
Dissolved Lithium (Li)	ug/L	2.2	2.0	B754708			
Dissolved Manganese (Mn)	ug/L	331	1.0	B754708			
Dissolved Molybdenum (Mo)	ug/L	<1.0	1.0	B754708			
Dissolved Nickel (Ni)	ug/L	16.9	1.0	B754708			
Dissolved Phosphorus (P)	ug/L	<10	10	B754708			
Dissolved Selenium (Se)	ug/L	<0.10	0.10	B754708			
Dissolved Silicon (Si)	ug/L	6160	100	B754708			
Dissolved Silver (Ag)	ug/L	<0.020	0.020	B754708			
Dissolved Strontium (Sr)	ug/L	74.3	1.0	B754708			
Dissolved Thallium (Tl)	ug/L	<0.010	0.010	B754708			
Dissolved Tin (Sn)	ug/L	<5.0	5.0	B754708			
Dissolved Titanium (Ti)	ug/L	<5.0	5.0	B754708			
Dissolved Tungsten (W)	ug/L	<1.0	1.0	B754708			
Dissolved Uranium (U)	ug/L	0.38	0.10	B754708			
Dissolved Vanadium (V)	ug/L	<5.0	5.0	B754708			
Dissolved Zinc (Zn)	ug/L	33.8	5.0	B754708			
Dissolved Zirconium (Zr)	ug/L	<0.10	0.10	B754708			
Dissolved Calcium (Ca)	mg/L	11.9	0.050	B754445			
RDL = Reportable Detection Limit							

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SLR CONSULTING (CANADA) LTD
Client Project #: 204.03242.00009
Site Location: H TMF
Your P.O. #: KAM5465
Sampler Initials: BF

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID		DIA330			DIA331		
Sampling Date		2025/04/11 10:00			2025/04/11 10:00		
COC Number		716927-01-01			716927-01-01		
	UNITS	**ARD-1**	**RDL**	**QC Batch**	**DUP A**	**RDL**	**QC Batch**
Dissolved Magnesium (Mg)	mg/L	2.48	0.050	B754445			
Dissolved Potassium (K)	mg/L	0.601	0.050	B754445			
Dissolved Sodium (Na)	mg/L	1.14	0.050	B754445			
Dissolved Sulphur (S)	mg/L	6.3	3.0	B754445			
Total Metals by ICPMS							
Total Aluminum (Al)	ug/L	133	3.0	B754699	129	3.0	B754699
Total Antimony (Sb)	ug/L	<0.50	0.50	B754699	<0.50	0.50	B754699
Total Arsenic (As)	ug/L	0.64	0.10	B754699	0.63	0.10	B754699
Total Barium (Ba)	ug/L	11.3	1.0	B754699	10.9	1.0	B754699
Total Beryllium (Be)	ug/L	0.18	0.10	B754699	0.14	0.10	B754699
Total Bismuth (Bi)	ug/L	<1.0	1.0	B754699	<1.0	1.0	B754699
Total Boron (B)	ug/L	<50	50	B754699	<50	50	B754699
Total Cadmium (Cd)	ug/L	0.365	0.010	B754699	0.357	0.010	B754699
Total Chromium (Cr)	ug/L	<1.0	1.0	B754699	<1.0	1.0	B754699
Total Cobalt (Co)	ug/L	4.07	0.20	B754699	3.94	0.20	B754699
Total Copper (Cu)	ug/L	4.15	0.50	B754699	3.98	0.50	B754699
Total Iron (Fe)	ug/L	80	10	B754699	84	10	B754699
Total Lead (Pb)	ug/L	0.67	0.20	B754699	0.66	0.20	B754699
Total Lithium (Li)	ug/L	<2.0	2.0	B754699	<2.0	2.0	B754699
Total Manganese (Mn)	ug/L	353	1.0	B754699	346	1.0	B754699
Total Molybdenum (Mo)	ug/L	<1.0	1.0	B754699	<1.0	1.0	B754699
Total Nickel (Ni)	ug/L	17.7	1.0	B754699	17.2	1.0	B754699
Total Selenium (Se)	ug/L	<0.10	0.10	B754699	<0.10	0.10	B754699
Total Silicon (Si)	ug/L	6040	100	B754699	5830	100	B754699
Total Silver (Ag)	ug/L	<0.020	0.020	B754699	<0.020	0.020	B754699
Total Strontium (Sr)	ug/L	75.9	1.0	B754699	73.7	1.0	B754699
Total Thallium (Tl)	ug/L	<0.010	0.010	B754699	<0.010	0.010	B754699
Total Tin (Sn)	ug/L	<5.0	5.0	B754699	<5.0	5.0	B754699
Total Titanium (Ti)	ug/L	<5.0	5.0	B754699	<5.0	5.0	B754699
Total Tungsten (W)	ug/L	<1.0	1.0	B754699	<1.0	1.0	B754699
Total Uranium (U)	ug/L	0.41	0.10	B754699	0.39	0.10	B754699
Total Vanadium (V)	ug/L	<5.0	5.0	B754699	<5.0	5.0	B754699
RDL = Reportable Detection Limit							

Bureau Veritas Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

SLR CONSULTING (CANADA) LTD
Client Project #: 204.03242.00009
Site Location: H TMF
Your P.O. #: KAM5465
Sampler Initials: BF

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID		DIA330			DIA331		
Sampling Date		2025/04/11 10:00			2025/04/11 10:00		
COC Number		716927-01-01			716927-01-01		
	UNITS	**ARD-1**	**RDL**	**QC Batch**	**DUP A**	**RDL**	**QC Batch**
Total Zinc (Zn)	ug/L	36.7	5.0	B754699	35.6	5.0	B754699
Total Zirconium (Zr)	ug/L	<0.10	0.10	B754699	<0.10	0.10	B754699
Total Calcium (Ca)	mg/L	11.4	0.050	B754566	11.2	0.050	B754566
Total Magnesium (Mg)	mg/L	2.38	0.050	B754566	2.30	0.050	B754566
Total Potassium (K)	mg/L	0.628	0.050	B754566	0.604	0.050	B754566
Total Sodium (Na)	mg/L	1.14	0.050	B754566	1.09	0.050	B754566
Total Sulphur (S)	mg/L	6.7	3.0	B754566	6.6	3.0	B754566
RDL = Reportable Detection Limit							

Bureau Veritas Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	1.7°C

Results relate only to the items tested.

Bureau Veritas Burnaby: 4606 Canada Way V5G 1K5 Telephone(604) 734-7276 Fax(604) 731-2386

QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
B754699	Total Aluminum (Al)	2025/04/15	103	80 - 120	101	80 - 120	<3.0	ug/L		
B754699	Total Antimony (Sb)	2025/04/15	104	80 - 120	102	80 - 120	<0.50	ug/L		
B754699	Total Arsenic (As)	2025/04/15	106	80 - 120	105	80 - 120	<0.10	ug/L		
B754699	Total Barium (Ba)	2025/04/15	104	80 - 120	103	80 - 120	<1.0	ug/L		
B754699	Total Beryllium (Be)	2025/04/15	103	80 - 120	100	80 - 120	<0.10	ug/L		
B754699	Total Bismuth (Bi)	2025/04/15	97	80 - 120	98	80 - 120	<1.0	ug/L		
B754699	Total Boron (B)	2025/04/15	100	80 - 120	101	80 - 120	<50	ug/L		
B754699	Total Cadmium (Cd)	2025/04/15	104	80 - 120	104	80 - 120	<0.010	ug/L		
B754699	Total Chromium (Cr)	2025/04/15	105	80 - 120	102	80 - 120	<1.0	ug/L		
B754699	Total Cobalt (Co)	2025/04/15	100	80 - 120	98	80 - 120	<0.20	ug/L		
B754699	Total Copper (Cu)	2025/04/15	101	80 - 120	100	80 - 120	<0.50	ug/L		
B754699	Total Iron (Fe)	2025/04/15	99	80 - 120	101	80 - 120	<10	ug/L		
B754699	Total Lead (Pb)	2025/04/15	100	80 - 120	100	80 - 120	<0.20	ug/L	NC	20
B754699	Total Lithium (Li)	2025/04/15	96	80 - 120	93	80 - 120	<2.0	ug/L		
B754699	Total Manganese (Mn)	2025/04/15	104	80 - 120	102	80 - 120	<1.0	ug/L		
B754699	Total Molybdenum (Mo)	2025/04/15	104	80 - 120	102	80 - 120	<1.0	ug/L		
B754699	Total Nickel (Ni)	2025/04/15	102	80 - 120	101	80 - 120	<1.0	ug/L		
B754699	Total Selenium (Se)	2025/04/15	103	80 - 120	102	80 - 120	<0.10	ug/L		
B754699	Total Silicon (Si)	2025/04/15	101	80 - 120	101	80 - 120	<100	ug/L		
B754699	Total Silver (Ag)	2025/04/15	103	80 - 120	102	80 - 120	<0.020	ug/L		
B754699	Total Strontium (Sr)	2025/04/15	104	80 - 120	103	80 - 120	<1.0	ug/L		
B754699	Total Thallium (Tl)	2025/04/15	99	80 - 120	99	80 - 120	<0.010	ug/L		
B754699	Total Tin (Sn)	2025/04/15	102	80 - 120	103	80 - 120	<5.0	ug/L		
B754699	Total Titanium (Ti)	2025/04/15	105	80 - 120	103	80 - 120	<5.0	ug/L		
B754699	Total Tungsten (W)	2025/04/15	104	80 - 120	104	80 - 120	<1.0	ug/L		
B754699	Total Uranium (U)	2025/04/15	101	80 - 120	103	80 - 120	<0.10	ug/L		
B754699	Total Vanadium (V)	2025/04/15	105	80 - 120	103	80 - 120	<5.0	ug/L		
B754699	Total Zinc (Zn)	2025/04/15	102	80 - 120	102	80 - 120	<5.0	ug/L		
B754699	Total Zirconium (Zr)	2025/04/15	104	80 - 120	104	80 - 120	<0.10	ug/L		
B754708	Dissolved Aluminum (Al)	2025/04/15	99	80 - 120	101	80 - 120	<3.0	ug/L	NC	20
B754708	Dissolved Antimony (Sb)	2025/04/15	112	80 - 120	103	80 - 120	<0.50	ug/L	NC	20

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QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
B754708	Dissolved Arsenic (As)	2025/04/15	108	80 - 120	102	80 - 120	<0.10	ug/L	NC	20
B754708	Dissolved Barium (Ba)	2025/04/15	98	80 - 120	100	80 - 120	<1.0	ug/L	NC	20
B754708	Dissolved Beryllium (Be)	2025/04/15	91	80 - 120	92	80 - 120	<0.10	ug/L	NC	20
B754708	Dissolved Bismuth (Bi)	2025/04/15	95	80 - 120	95	80 - 120	<1.0	ug/L	NC	20
B754708	Dissolved Boron (B)	2025/04/15	NC	80 - 120	93	80 - 120	<50	ug/L	0.34	20
B754708	Dissolved Cadmium (Cd)	2025/04/15	98	80 - 120	101	80 - 120	<0.010	ug/L	1.1	20
B754708	Dissolved Chromium (Cr)	2025/04/15	97	80 - 120	102	80 - 120	<1.0	ug/L	NC	20
B754708	Dissolved Cobalt (Co)	2025/04/15	94	80 - 120	99	80 - 120	<0.20	ug/L	3.7	20
B754708	Dissolved Copper (Cu)	2025/04/15	94	80 - 120	101	80 - 120	<0.20	ug/L	3.4	20
B754708	Dissolved Iron (Fe)	2025/04/15	NC	80 - 120	105	80 - 120	<5.0	ug/L	4.0	20
B754708	Dissolved Lead (Pb)	2025/04/15	98	80 - 120	103	80 - 120	<0.20	ug/L	NC	20
B754708	Dissolved Lithium (Li)	2025/04/15	NC	80 - 120	96	80 - 120	<2.0	ug/L	0.40	20
B754708	Dissolved Manganese (Mn)	2025/04/15	NC	80 - 120	100	80 - 120	<1.0	ug/L	1.8	20
B754708	Dissolved Molybdenum (Mo)	2025/04/15	121 (1)	80 - 120	102	80 - 120	<1.0	ug/L	NC	20
B754708	Dissolved Nickel (Ni)	2025/04/15	96	80 - 120	101	80 - 120	<1.0	ug/L	0.34	20
B754708	Dissolved Phosphorus (P)	2025/04/15	104	80 - 120	99	80 - 120	<10	ug/L	NC	20
B754708	Dissolved Selenium (Se)	2025/04/15	114	80 - 120	106	80 - 120	<0.10	ug/L	NC	20
B754708	Dissolved Silicon (Si)	2025/04/15	92	80 - 120	95	80 - 120	<100	ug/L	3.0	20
B754708	Dissolved Silver (Ag)	2025/04/15	98	80 - 120	100	80 - 120	<0.020	ug/L	NC	20
B754708	Dissolved Strontium (Sr)	2025/04/15	NC	80 - 120	96	80 - 120	<1.0	ug/L	0.80	20
B754708	Dissolved Thallium (Tl)	2025/04/15	97	80 - 120	97	80 - 120	<0.010	ug/L	NC	20
B754708	Dissolved Tin (Sn)	2025/04/15	99	80 - 120	102	80 - 120	<5.0	ug/L	NC	20
B754708	Dissolved Titanium (Ti)	2025/04/15	99	80 - 120	99	80 - 120	<5.0	ug/L	NC	20
B754708	Dissolved Tungsten (W)	2025/04/15	105	80 - 120	105	80 - 120	<1.0	ug/L		
B754708	Dissolved Uranium (U)	2025/04/15	93	80 - 120	94	80 - 120	<0.10	ug/L	NC	20
B754708	Dissolved Vanadium (V)	2025/04/15	106	80 - 120	104	80 - 120	<5.0	ug/L	NC	20
B754708	Dissolved Zinc (Zn)	2025/04/15	NC	80 - 120	105	80 - 120	<5.0	ug/L	NC	20
B754708	Dissolved Zirconium (Zr)	2025/04/15	73 (1)	80 - 120	97	80 - 120	<0.10	ug/L	NC	20
B754895	Acidity (pH 4.5)	2025/04/15					<1.0	mg/L	NC	20
B754895	Acidity (pH 8.3)	2025/04/15			100	80 - 120	<1.0	mg/L	10	20
B755223	pH	2025/04/15			100	97 - 103			0.27	N/A

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
B755226	Alkalinity (PP as CaCO3)	2025/04/15					<1.0	mg/L	NC	20
B755226	Alkalinity (Total as CaCO3)	2025/04/15			95	80 - 120	<1.0	mg/L	0.48	20
B755226	Bicarbonate (HCO3)	2025/04/15					<1.0	mg/L	0.48	20
B755226	Carbonate (CO3)	2025/04/15					<1.0	mg/L	NC	20
B755226	Hydroxide (OH)	2025/04/15					<1.0	mg/L	NC	20
B755227	Conductivity	2025/04/15			100	90 - 110	<2.0	uS/cm	0.82	10
B755233	Chloride (Cl)	2025/04/16	NC	80 - 120	94	80 - 120	<1.0	mg/L		
B755233	Sulphate (SO4)	2025/04/16	105	80 - 120	102	80 - 120	<1.0	mg/L	7.1	20
B757562	Dissolved Organic Carbon (C)	2025/04/17	105	80 - 120	100	80 - 120	<0.50	mg/L	0.31	20

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

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Bureau Veritas Job #: C531532
Report Date: 2025/04/21

SLR CONSULTING (CANADA) LTD
Client Project #: 204.03242.00009
Site Location: H TMF
Your P.O. #: KAM5465
Sampler Initials: BF

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

David Huang, M.Sc., P.Chem., QP, Scientific Services Manager

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Chain Of Custody Record

INVOICE TO:		Report Information		Project Information		Laboratory Use Only	
Company Name	#1772 SLR CONSULTING (CANADA) LTD	Company Name	SLR CONSULTING (CANADA) LTD.	Quotation #	C31787	Bureau Veritas Job #	Bottle Order #:
Contact Name	Ben Foulger	Contact Name	Ben Foulger	P.O. #	~~KAM5465~~ Kam6020		716927
Address	8 WEST ST. PAUL STREET KAMLOOPS BC V2C 1G1	Address		Project #	204.03242.0000 01.0001	Chain Of Custody Record	Project Manager
Phone	(250) 777-4144 Fax: (250) 374-8656	Phone	Fax:	Project Name	HB TMF	C#716927-01-01	Nahed Amer
Email	bfoulger@slrconsulting.com, ESdatEDD@slrconsulting.	Email		Site #			
				Sampled By	B. Foulger		

Regulatory Criteria: CSR DW; CCME; BC Water Quality; Other

Special Instructions

Turnaround Time (TAT) Required:

Please provide advance notice for rush projects

Regular (Standard) TAT: (will be applied if Rush TAT is not specified): Standard TAT = 5-7 Working days for most tests.. Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details. ☒

Job Specific Rush TAT (if applies to entire submission)
1 DAY ☐ 2 Day ☐ 3 Day ☐ Date Required: _____ ☐
Rush Confirmation Number: _____ (call lab for #)

SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Metals Field Filtered ? (Y / N)	CSR D. Metals (No CV-Hg)-Diss	CSR Total Metals (No CV-Hg) in Water	Carbon (DOC)	Total Suspended Solids (NFR)	pH	Conductivity	Acidity	Alkalinity	Sulphate	Chloride	# of Bottles	Comments
1		ARD-1	APRIL 11, 2025	10:00 am	H_2O	Y	X	X	X		X	X	X	X	X	X	4	
2		DUP A	APRIL 11, 2025	10:00 am	H_2O			X									1	
3																		
4																		
5																		
6																		
7																		
8																		
9																		
10																		

MVAN-2025-04-1158

* RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted	Lab Use Only: Time Sensitive	Temperature (°C) on Receipt	Custody Seal Intact on Cooler?
B. Foulger	25/04/11	4:00pm	Maria Zamora	2025/04/15	08:36		☐	3 | 1 | 1	☐ Yes ☒ No

* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BUREAU VERITAS'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.BVNA.COM/ENVIRONMENTAL-LABORATORIES/RESOURCES/COC-TERMS-AND-CONDITIONS.

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Making Sustainability Happen

APPENDIX E: 2025 ANNUAL RECLAMATION (WATER QUALITY) MONITORING REPORT

Annual Reclamation Monitoring Program
HB Mine Tailings Storage Facility

Prepared for:

Regional District of Central Kootenay (RDCK)

202 Lakeside Drive

Nelson, BC, V1L 6B9

March 17, 2026

Prepared by:
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812 Vernon Street
Nelson, BC, V1L 4G4

Project Number 2016-503

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1 INTRODUCTION

The HB Mine Tailings Storage Facility (the Facility) stores tailings from historic operations (ceased in 1978) at the nearby HB (Horton and Benson) Mine and currently forms part of the buffer zone for the Regional District of Central Kootenay's (RDCK's) Central Landfill operations. The Facility has been under the care of the RDCK since 1998. Surface and ground water quality monitoring at the Facility is a requirement of the *Mines Act* Permit M-218.

1.1 2025 Environmental Monitoring Program

The RDCK follows an environmental monitoring program (EMP) developed for the Facility by qualified professionals. The environmental monitoring program for 2025 (provided in Appendix 1) was consistent with that implemented in 2024, which was based on the most recent Water Quality Management and Monitoring Plan – 2023 Update, developed by SLR Consulting (Canada) Ltd. (SLR 2023). This plan included the following changes from the previous EMP:

- Five new groundwater sampling locations were added: MW-02A-01, S-MW-1, S-MW-2, MW-04S-05, and MW-06-01. All five of these wells were previously sampled annually (in April or May) as part of the Central Landfill EMP. The water quality monitoring frequency was increased to quarterly for all of these wells except for MW-02A-01, which continues to be sampled annually in May. The sampling parameters for these wells were updated to include parameters routinely sampled for the Facility.
- Wells MW-02-2004(S) and MW-02-2004(D) were removed from the EMP.

Deviations from the EMP include:

- Monitoring of the Salmo-Upstream and Salmo-Downstream surface water sampling locations was not completed in 2025 due to an access agreement not yet being established with the private landowner.

Quarterly monitoring for all of the locations was conducted in March/April, May, September, and November by Masse Environmental Consultants Ltd. During each monitoring event, the appropriate field data (e.g. water levels, water flow, purging information, and field parameters) were recorded by the environmental technician. Water quality samples were submitted under Chain of Custody (COC) protocol for analytical analysis. Analytical services were provided by ALS Environmental of Burnaby, BC.

All samples were analyzed for general chemistry parameters (including total suspended solids and total dissolved solids), total organic carbon, nutrients (including Total Kjeldhal Nitrogen and orthophosphate),

sulfide (as S and as H_2S), and total and dissolved metals. Surface water samples were also analyzed for dissolved organic carbon.

The results of the 2025 water quality monitoring program were evaluated relative to the water quality results over the past five years, and in consideration of the current understanding of the hydrogeological/hydrological site conditions, applicable regulatory criteria, background conditions, assessment parameters indicative of historical tailings chemistry and landfill impacts, as well as temporal trends.

1.2 Site Overview

1.2.1 Surface Water Flow and Site Drainage

The major drainage feature in the area surrounding the Facility is the southward flowing Salmo River, which occupies a floodplain to the west of the Facility. Between the Salmo River floodplain and the Facility is a bedrock ridge trending north-south, which rises steeply above the Facility to the west and northwest. Surface water flows from uphill of the Facility toward the tailings impoundment area (approximately 30 hectares), which is located in the middle to bottom of a hanging valley on Iron Mountain. At the southern extremity of the hanging valley, a tailings pond used to be retained by an earthen embankment dam. Water retention in the tailings area was altered in 2021 as part of the HB Mine Tailings Facility remediation activities, and the tailings pond was infilled. Remedial works to lower the amount of water retained in the tailings area included blasting bedrock to widen the spillway and lower the inlet elevation.

Water collected within the tailings impoundment area discharges through the spillway toward the south and into a narrow valley. This valley discharges to the Outlet Ditch, which crosses Highway 3 through a culvert, and flows through a man-made ditch system to the Salmo River. The Salmo River is located approximately 1 km west of the Facility. Flows along the Outlet Ditch are ephemeral and surface water infiltrates to the ground before reaching the culvert during low flow conditions. A site map is provided in Appendix 2.

1.2.2 Groundwater Flow

Within the tailings impoundment area, groundwater flow in the overburden unit is generally towards the south/southwest. Groundwater flow in the bedrock unit is assumed to flow in a similar direction; however, the situation may be complicated by the presence of two known faults underneath the Facility and by the presence of fractured bedrock (Wood 2020).

1.3 Water Quality Assessment

The objective of the water quality assessment is to assess water quality on and discharging from the Facility, evaluate the attenuation performance of the Site, and to identify any offsite impacts. The following contaminant sources were identified as being relevant to the water quality assessment in the Hydrogeology Reviews of the Facility and the Central Landfill (AMEC 2014 and Wood 2020):

- Municipal solid waste leachate derived from the Central Landfill located to the northeast of the Facility.
- Tailings leachate originating from the tailings impoundment area of the Facility.

Additionally, infiltration of raw septage from the active Central Landfill liquid septage disposal site is a potential contaminant of concern.

1.4 Applicable Water Quality Standards

Analytical results presented in Appendix 3 are compared to the Schedule 3.2 generic numerical water standards of the *British Columbia Contaminated Sites Regulation (CSR)* (BC 2025), which includes standards for drinking water (DW), aquatic life (AW), irrigation (IW), and livestock (LW) uses. The CSR standards are designed for application to groundwater data and are legally enforceable under the *BC Environmental Management Act*.

The surface water results are also compared to the British Columbia Approved Water Quality Guidelines and Working Water Quality Guidelines (BCWQG) for freshwater aquatic life (FWAL) receptors (BC MWLRS 2025a and 2025b). These guidelines have been applied due to the presence of downgradient aquatic receiving environments, including the “Spillway” stream, the “Outlet Ditch”, and the Salmo River. It should be noted that a number of the exceedances in Appendix 3 refer to chronic FWAL *Criteria* which usually apply to the average of samples collected over five weeks. Water quality data for this EMP were collected at most four-times annually, and sometimes only once due to the ephemeral nature of some of the watercourses.

These standards and guidelines are collectively referred to as the *Criteria*.

2 RESULTS AND ASSESSMENT

2.1 Field Monitoring

2.1.1 Groundwater Monitoring

Water levels in the monitoring wells were measured quarterly in 2025. The underlying groundwater elevations with respect to metres above mean sea level (m AMSL) and the depth to groundwater in metres below top of riser (m BTOR) are presented in Appendix 4. The 2025 water levels for wells instrumented in the overburden unit varied from 0.00 m BTOR (MW-04S-05) to 13.56 m BTOR (MW99-1(S)). Water levels for wells instrumented in the bedrock unit ranged from 0.00 m BTOR (MW99-2(D)) to 9.15 m BTOR (MW99-1(D)). Groundwater level fluctuations observed during the year ranged from 0.58 m (MW-01-2004(D)) to 2.29 m (MW-05-01).

Groundwater levels in wells MW-06-01, MW-01-2004(S), S-MW-1, MW99-1(D), and MW99-2(D) were all measured at historical lows in September. The groundwater level in well MW-05-01 was measured at a historical low in November.

2.1.2 Surface Water Monitoring

Not all the surface water locations could be sampled during each event. In May, SW2-07 was dry and could not be sampled. In September, SW1-07, SW2-07, SW3-07, SW5-19, the Outlet Ditch, and the Spillway Inlet were all dry and could not be sampled. In November SW1-07, SW2-07, SW3-07, SW5-19, and the Outlet Ditch remained dry. The remainder of the samples were collected quarterly in March/April, May, September, and November.

2.2 Quality Assurance/Quality Control Results

To ensure adequate quality control for water quality monitoring samples, the following field quality assurance/quality control (QA/QC) practices were employed:

- Field sampling activities were performed by qualified and trained personnel.
- Laboratory supplied clean bottles were used for sample collection.
- QA/QC sampling included field duplicates and field blanks.
- Standardised COC forms were used for sample submission.

Four duplicate samples were collected from the Facility during each of the four sampling events (March/April, May, September, and November) completed for the 2025 sampling program. Duplicate samples provide an estimate of the overall precision of field sampling and laboratory analysis. The similarity of field duplicates was evaluated by calculating the relative percent differences (% RPDs) for

each parameter pair. An RDP of <20% is considered acceptable. The % RPD is calculated as follows, where v_1 and v_2 are the results for a parameter:

$$\% \text{ RPD} = |v_1 - v_2| / ((v_1 + v_2)/2) \times 100$$

Table 1: % RPD Summary for 2025

Total No. of Parameters	No. of % RPDs Calculated	No. of % RPDs > 20 %
396	266	39

A total of 396 parameters pairs were considered for calculation of % RPDs. However, only results for 266 of the parameter pairs were quantified at or above the RDL. Where both values were less than the RDL, the results were considered to be the same. Of the 266 parameter pairs for which the % RPD was calculated, 39 exceeded the 20 % acceptable level:

- Twenty of these elevated % RPDs occurred for parameter pairs where either both of the results were quantified within five times the RDL, or where one result was quantified within five times the RDL and the other below the RDL. In these situations, the 20 % acceptable standard is too stringent and % RPDs often exceed 20 %.
- Another nine of the elevated % RPDs occurred for TSS and the total metals analysis on the duplicate pair sampled at MW99-1(S) in May. As evidenced by the high % RPD calculated for TSS (24 %) and the fact that the dissolved metals analyses met the acceptable standards, the total metal results were influenced by the difference in sediment between the two duplicate samples. Since the total metal results reported for MW99-1(S) in May used the sample with higher TSS and total metals, the results provide a conservative representation of the water quality.
- The remainder of the high % RPD results are discussed in Appendix 3.

Field blanks assess for contamination in the field and document the effectiveness of cleaning and decontamination procedures for field equipment between samples. Field blanks were collected at a rate of one blank sample per sampling event using laboratory-supplied de-ionized water that was exposed to the sampling environment and handled in the same manner as all other field samples, including a pass through the same equipment used to collect field samples.

Table 2: Field Blank Summary for 2025

Total No. of Parameters	No. of Parameters >DL	No. of Parameters <5x DL	Remainder
392	72	48	24

Of the 392 parameters measured, 72 (18 %) parameters were measured at a level greater than the detection limit. ALS uses very low detection limits, and many dissolved metals detected at or near the detection limits are not necessarily representative of sample contamination from field procedures. Where parameters were measured at levels less than 5x the detection limit (48 parameters), no further discussion was deemed necessary. Where field blank parameters were measured at levels greater than 5x the detection limit, the potential for cross-contamination was investigated (refer to Appendix 3).

Twenty-four parameters (6 %), generally from the third and fourth quarterly sampling events conducted in September and November, were measured at levels greater than 5x the detection limit in the field blanks. These elevated parameters do not affect interpretation of the results as they were all lower than the relevant *Criteria*; however, where the field blank parameters are measured at levels greater than those observed in the groundwater samples, there is concern that:

- Field blank procedural collection issues are resulting in low levels of contamination in the field blanks.
- Low levels of contaminants may be present in the DI water used to collect the field blanks.

These possibilities will be investigated in 2026.

The QA/QC samples collected during the 2025 sampling program provide assurance that field techniques were adequate to produce results that can be reliably compared to the *Criteria*.

2.3 Groundwater

2.3.1 Background Groundwater Quality

Background water quality for the overburden and bedrock units are evaluated in this report. Background overburden groundwater quality within the vicinity of the Facility was characterized using the 2025 analytical results for MW-02A-01, MW-05-01, and S-MW-2. Background monitoring location MW-02A-01 is located on the northern side of Sheep Creek and represents groundwater quality from a groundwater discharge zone within the vicinity of the Site and the Salmo River watershed. MW-05-01 is located upgradient and to the east of the tailings pond. S-MW-2 is located upgradient and to the northeast of the Facility, but it is located downgradient of the landfill. Background bedrock groundwater quality within the vicinity of the Facility was characterized using the 2025 analytical results for S-MW-1, which is located east of the landfill.

Analytical results for groundwater collected at MW-02A-01, MW-05-01, S-MW-2, and S-MW-1, as compared to the *Criteria* are presented in Appendix 3.

Groundwater analytical results reported for the background monitoring wells indicate background water quality is generally below *Criteria*. Exceptions include:

- In MW-05-01, total cobalt exceeded the CSR DW standard in November.
- In MW-02A-01 (analyzed in May), fluoride exceeded the CSR IW and LW standards, total lithium exceeded the CSR DW standard, and dissolved boron and dissolved manganese exceeded the respective CSR IW standards.
- In S-MW-1, the sample from September exceeded the CSR DW standard for total lithium and the CSR IW standard for dissolved uranium.
- The samples collected from S-MW-2 exceeded the CSR DW standard for total cobalt in all four quarters. In November, samples also exceeded the CSR DW standards for total arsenic, iron, lead, lithium, manganese, and vanadium.

2.3.2 Groundwater Quality at the Source

Tailings source concentration well MW-06-01 is located on the north side of the tailings area and is used to evaluate the groundwater quality within the tailings. Wells MW99-2(S/D) and MW-04S-05 are also located within the Facility and are used to evaluate groundwater quality as it flows through the tailings. Analytical results for groundwater collected at MW-06-01, MW99-S(S/D), and MW-04S-05, as compared to the *Criteria* are presented in Appendix 3.

In the source contaminant wells, the following was observed:

- Samples collected from MW-06-01 exceeded the CSR DW standards for sulfate, total iron, and total lead, and the CSR IW standards for dissolved iron and dissolved manganese in all four sampling events. In April and May, the samples exceeded the CSR DW standards for total cadmium and total cobalt; and the CSR DW and LW standards for total and dissolved zinc, respectively. The sample collected from MW-06-01 in April also exceeded the CSR AW standard for dissolved zinc. In MW-06-01 samples exceeded the BC CSR AW standard for un-ionized sulfide (as H_2S) in April, May, and November; and the BC CSR DW standard in April and May.
- Samples from the deep bedrock well, MW99-2(D), met the applicable *Criteria* for all parameters in for all four sampling events.
- Samples collected from MW99-2(S) exceeded the CSR DW standards for total cobalt and total manganese and the CSR IW standard for dissolved manganese in all four samples collected. They also exceeded the CSR DW standard for total arsenic in May, September, and November; the CSR DW standard for total iron in September and November; and, the CSR IW standard for dissolved iron in November.

- Samples collected from MW-04S-05 exceeded the CSR IW standard for dissolved manganese in April, May, and November; the CSR DW standards for total cobalt, total iron, and total lead in September and November; and, the CSR DW standards for total arsenic and total cadmium in November. In MW-04S-05, un-ionized sulfide (as H_2S) exceeded the CSR AW standard in November. Un-ionised sulfide in samples from May and September in MW-04S-05 may have exceeded the CSR AW and DW standards as the reported detection limits for these samples was higher than these standards.

Historical tailings chemistry results indicate that the tailings solids are characterized by elevated levels of arsenic, cadmium, copper, lead, and zinc (AMEC 2014). More recent sampling confirmed high concentrations of iron, lead, and zinc sulphide with trace amounts of cadmium and abundant calcium and magnesium (Wood 2020).

2.3.3 Downgradient Groundwater Quality

In the downgradient overburden wells, the following exceedances were observed:

- In well MW-01-2004(S), total and dissolved manganese and total cobalt exceeded the respective CSR DW and IW standards for all four sampling events. Additionally, the CSR DW standards for total aluminum, arsenic, barium, cadmium, chromium, iron, lead, lithium, nickel, uranium, and vanadium were exceeded during the November sampling event and the CSR DW standards for total iron and vanadium were also exceeded in September. The large number of total metal exceedances in November (and to a lesser extent those in September) can be attributed to the high TSS of the sample as the corresponding dissolved metals results were more consistent with those observed in March and May, meeting the acceptable dissolved criteria for all parameters except for manganese.
- In well MW99-1(S), total iron and total lithium exceeded the CSR DW standards and dissolved manganese exceeded the CSR IW standard for all four sampling events. The CSR IW standard for dissolved iron was exceeded in May, September, and November. Further discussion is provided in Section 2.3.5.

In the downgradient bedrock wells, the following exceedances were observed:

- Wells MW-01-2004(D) and MW99-1(D) both exceeded the CSR DW standard for total lithium for all four sampling events. Lithium in MW99-1(D) is evaluated in Section 2.3.5.
- In November, the samples collected from MW-01-2004(D) also exceeded the CSR DW standard for total lead.

- Samples collected from MW99-1(D) also exceeded the CSR AW standard for dissolved copper in March and May, the CSR IW and LW standards for dissolved copper in March, and the CSR DW standard for total tungsten in March.

2.3.4 Temporal Variance

Historical analytical data were considered to determine temporal variance and evaluate potential groundwater quality changes caused by the tailings deposition. Historical concentration versus time plots were prepared for the background wells and downgradient wells (Appendix 5). The data presented in the figures is from 2021-2025. This period includes three years post remediation. Site closure works and remediation occurred from 2021-2022. The following parameters were graphed for each set of wells:

- General chemistry: total alkalinity, pH, chloride, sulphate;
- Nutrients: ammonia;
- Base cations (dissolved): calcium, potassium, sodium; and
- Major metals (dissolved): arsenic, cadmium, iron, lead, manganese, and zinc.

These parameters were chosen for temporal plots to comply with the *Mine's Act* Permit Annual Reclamation Report Format Requirements (updated January 2021) and historical reporting for this Facility. The increased sampling frequency beginning in 2023 shows some seasonal variation that is generally consistent with historical data. Parameters that were not consistent with the historical temporal trends are discussed.

Background groundwater quality has been consistent over the past five years, with the following exceptions:

- pH appears to be decreasing slowly in S-MW-2; however, historically the pH has been consistent around 7 since sampling began in 2006.
- Chloride appears to be increasing in S-MW-2; however, concentrations remain generally lower than they were prior to 2016, since concentrations in S-MW-2 have been decreasing consistently since sampling began in 2006.
- Sodium and chloride are slowly increasing in MW-02A-01; however, concentrations remain generally lower than they were prior to 2016.
- Arsenic and iron are slowly increasing in MW-02A-01.
- Cadmium and zinc are decreasing in S-MW-2.
- Manganese is slowly decreasing in MW-02A-01.
- The spike in the S-MW-2 manganese concentration in 2024, appears to be an anomaly as historical concentrations have remained below 300 µg/L.

Downgradient groundwater quality has been generally consistent over the past five years, with the following exceptions:

- Alkalinity is increasing in MW99-2(S) and slowly decreasing in MW-04S-05.
- A slight decreasing trend appears to be developing for pH for most of the downgradient wells.
- Ammonia appears to be increasing in MW99-1(D); however, concentrations are consistent with historical (pre-remediation) concentrations.
- Ammonia is variable in MW-06-01.
- Chloride in MW-06-01 increased in 2025; however, concentrations are consistent with historical (pre-remediation) concentrations.
- Chloride and sulfate are increasing in MW-04S-05.
- Calcium and sulfate are decreasing in MW-06-01; however, concentrations are consistent with historical (pre-remediation) concentrations.
- Potassium appears to be decreasing in MW-06-01; however, concentrations are actually approaching historical concentrations (prior to 2016) of approximately 7 mg/L.
- Sodium is increasing in MW-06-01 and may be beginning to increase in MW-04S-05.
- Sodium appears to be slowly increasing in MW-01-2004(S) and MW99-2(S); however, concentrations are remaining consistent historical (pre-remediation) concentrations.
- Arsenic is increasing in MW99-2(S) and is variable in MW-06-01.
- Iron is increasing in MW99-1(S) and an increasing trend may be developing in MW99-2(S).
- Iron appears to be increasing in MW99-2(D); however, concentrations are consistent with historical (pre-remediation) concentrations.
- Iron concentrations are variable in MW-04S-05. Note that the high concentration observed in November 2025 is consistent with elevated concentrations seen historically in June 2011.
- Manganese appears to be decreasing in MW-04S-05 and MW-06-01; however, concentrations are consistent with historical (pre-remediation) concentrations.
- Manganese is increasing MW99-2(S).
- Zinc has decreased in MW-06-01.

2.3.5 Groundwater Compliance

Section 4.1 of the Landfill Criteria for Municipal Solid Waste states that: “At a minimum, the appropriate water quality criteria must be satisfied at and beyond the landfill site boundary, or 150 m from the landfill footprint, whichever is closer” (BC MoE 2016).

Groundwater quality near the down-gradient property boundary is evaluated using results from MW99-1(S/D).

- MW99-1(S), met all the *Criteria* except for the CSR DW standards for total iron and total lithium, and the CSR IW standards for dissolved iron and dissolved manganese. These four parameters exceeded the noted standards for all four sampling events, with the exception of dissolved iron, which was just below the CSR IW standard in March. Dissolved iron is increasing in MW99-1(S) (Figure 1-2). Iron and lithium concentrations in MW99-1(S) are higher than those in the background wells (Figure 1 & 3), but dissolved manganese concentrations are lower than those in background well MW-02A-01 (Figure 2).
- MW99-1(D) met all the *Criteria* except for the CSR DW standard for total lithium, which was exceeded for all four sampling events. In March, total tungsten exceeded the CSR DW standard. In March and May dissolved copper exceeded the hardness-dependent CSR AW standard and in March it also exceeded the CSR IW and LW standards. Lithium concentrations are much higher in MW99-1(D) than in any other well, including the background wells (Figure 3), and the wells nearest to the source (MW-06-01 and MW-04S-05). The copper and tungsten exceedances in 2025 are part of an anomalous increase in both these metals from November 2024 to May 2025. The most recent data for copper and tungsten from September and November 2025, is consistent with historical data and below the *Criteria*.

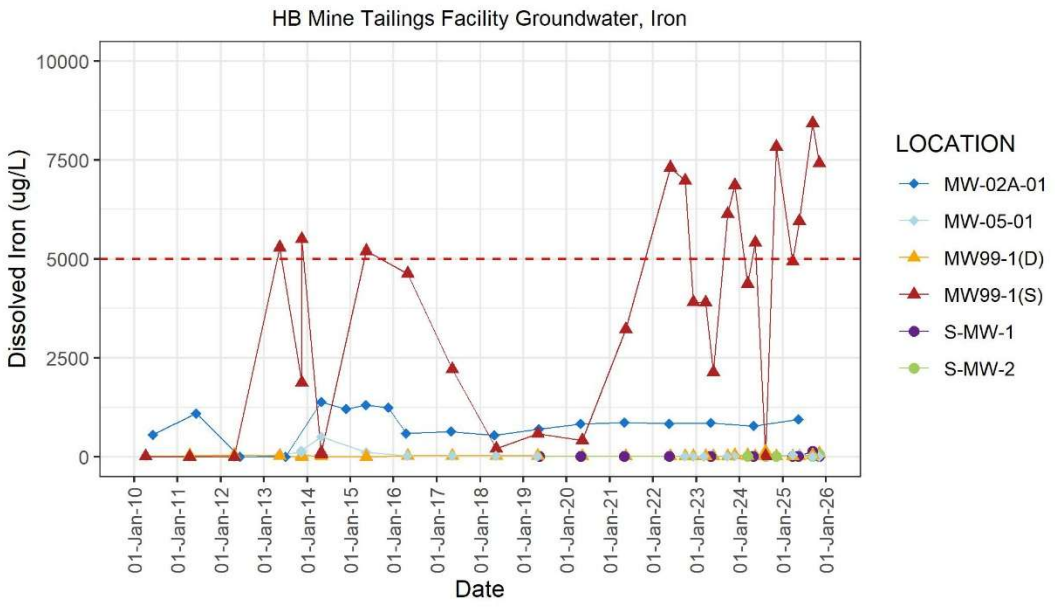


Figure 1. Dissolved iron concentrations over time (2010-2025). The dashed red line corresponds to the BC CSR IW standard of 5,000 µg/L.

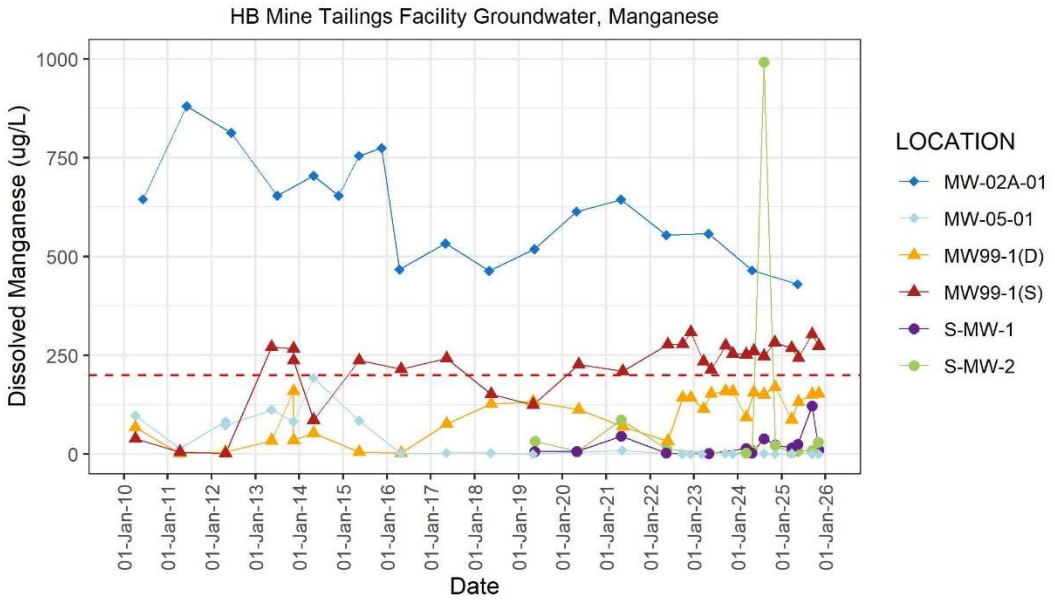


Figure 2. Dissolved manganese concentrations over time (2010-2025). The dashed red line corresponds to the BC CSR IW standard of 200 µg/L.

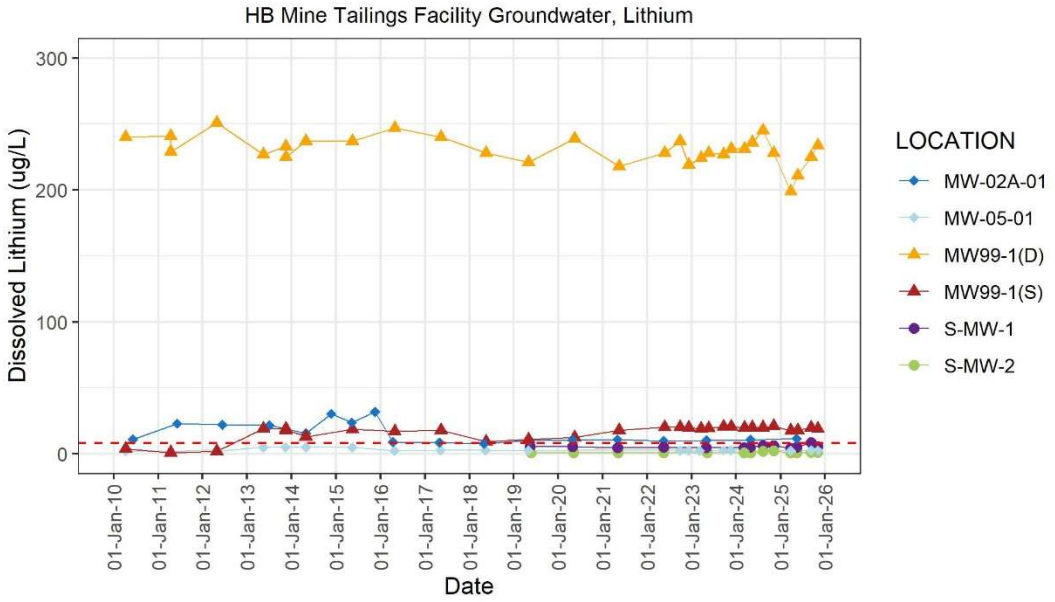


Figure 3. Dissolved lithium concentrations over time (2010-2025). The dashed red line corresponds to the BC CSR DW standard of 8 µg/L. The BC CSR IW and LW standards are 2,500 µg/L and 5,000 µg/L, respectively. Dissolved lithium has been graphed, as opposed to total lithium, as it is more representative of in-situ aquifer conditions; and since there is more available historical data. Total metals have only been sampled since 2022.

2.4 Surface Water

2.4.1 Background Surface Water Quality

Surface water locations SW3-07 and SW5-19 are located along seasonal surface water drainage pathways to the east of the tailings deposition area and south of the landfill. Analytical results from these locations are used to characterize background water quality for the Facility. These results are presented in Appendix 3.

Water samples collected from SW3-07 and SW5-19 were only obtained in March and May as the locations were dry during the other two sampling events. Samples collected from SW3-07 met the applicable *Criteria*. Samples collected at SW5-19 exceeded the acute FWAL guideline for dissolved zinc in May. The reported detection limits for total sulfide (as H_2S) from both samples collected in May were too high to determine if un-ionised sulfide was less than the chronic FWAL guideline.

2.4.2 Surface Water Quality Nearest to the Source

The major contaminant source for surface water onsite and downstream receptors is the tailings. The historical 'source concentration' surface water location, SW4-07, was previously located within the tailings deposition area of the Facility; however, remedial works altered the flow of water through the tailings Facility in 2021, and this surface water sampling location no longer exists. Historical analytical results from this location routinely exceeded the *Criteria* for cadmium, lead, and zinc, which are the main metals of concern for the ore type that the HB tailings contain (SRK 2017).

Another contaminant source for surface water onsite is the Central Landfill. Surface water locations SW1-07 and SW2-07 are located downstream of the Central Landfill and upstream of the tailings deposition area. Analytical results for these surface water locations were compared to the generic numerical water standards of Schedule 3.2 of the CSR and to the FWAL BCWQGs in Appendix 3.

Only one sample was collected from SW2-07 in 2025 as the storm water runoff ditch was dry during three of the four sampling events. In March, SW2-07 exceeded the chronic FWAL guidelines for total aluminum, beryllium, chromium, cobalt, and thallium; the acute FWAL guideline for total iron; and the BC CSR DW standard for total cobalt. It is likely that these total metal exceedances are due to sediment in the sample as field turbidity was noted to be >100 NTU and since the dissolved metal results were much lower than the total metal results, often below detection limits.

The samples collected from SW1-07 were only obtained in April and May as the ditch was dry during the other two sampling events. Both samples exceeded the chronic FWAL guideline for un-ionized sulfide (as

H_2S) and the sample collected in May also exceeded the BC CSR AW standard for un-ionized sulfide (as H_2S). In April, the sample exceeded the chronic FWAL guideline for dissolved zinc. In May, the sample exceeded the chronic FWAL guidelines for total arsenic, dissolved cobalt and total manganese; the acute FWAL guideline for total iron; the CSR DW standards for total cobalt and total lead; and the CSR IW and DW standards for total manganese.

2.4.3 Downgradient Surface Water Quality

Downgradient surface water quality samples were collected at the Spillway Inlet in March, May, and November. The location was dry in September. In March, the sample met all *Criteria*. In November, it exceeded the acute FWAL guideline and the CSR IW and DW standards for total uranium; and the chronic FWAL guideline for sulfate. In May, the sample collected from the Spillway Inlet exceeded the chronic FWAL guideline for total aluminum, the BC CSR DW guideline for total cobalt, the acute FWAL guideline for total iron, and the BC CSR IW guideline for total manganese.

Surface water at the Spillway Outlet was collected for all four quarters. It met all *Criteria* in May. In March, the Spillway Outlet sample exceeded the chronic FWAL guideline for total aluminum. In September, it exceeded the BC CSR IW and DW standards for total manganese. In November, it exceeded the chronic FWAL guideline and the CSR IW standard for total uranium.

Downgradient water quality is monitored at the Seepage Weir Pond and samples were collected in all four quarters. Surface water samples from the Seepage Weir Pond exceeded the BC CSR IW standard for total manganese in May, September, and November; the chronic FWAL guideline for total uranium in March, May, and November; and, the BC CSR IW standard for total uranium in March. The chronic FWAL guideline for un-ionized sulfide (as H_2S) was exceeded in September and the calculated detection limit for un-ionized sulfide (as H_2S) was above the chronic FWAL guideline in May and November.

Downgradient surface water quality at the Outlet Ditch was discussed in Section 2.4.5.

2.4.4 Temporal Variance

Historical concentration versus time plots were prepared for the surface water monitoring locations (Appendix 5). The data represented in the figures is from 2021-2025. This period includes three years post remediation. Site closure works and remediation occurred from 2021-2022. The parameters plotted are the same general chemistry parameters, nutrients, base cations, and major metals that were plotted for groundwater.

Background and downgradient surface water quality has been consistent over the past five years, with the following exceptions:

- pH is increasing slowly in SW1-07.
- Chloride concentrations are variable at SW1-07.
- Ammonia concentrations spiked in 2022 at SW1-07, but they are stable overall.
- At SW1-07, total arsenic, cadmium, iron, lead, manganese, and zinc spiked in May 2025, but the concentrations observed are consistent with historical concentrations at this location.
- At SW2-07, all of the total metal concentrations were elevated from May 2022 to March 2023. This may be associated with the reclamation activities or impacts to the access road.
- Similarly, at the spillway outlet, the total metal concentrations for arsenic, cadmium, and zinc have decreased relative to those in 2022 and early 2023 (when sampling at these locations began post-remediation).
- Cadmium and zinc are decreasing at the outlet ditch; however, concentrations are consistent with historical (pre-remediation) concentrations.
- Arsenic, iron, and manganese are decreasing at the seepage weir, while sodium appears to be slowly increasing.
- Cadmium, lead, and zinc concentrations spiked in September 2025 at the seepage weir.
- Zinc concentrations have spiked at SW5-19 in November in 2024 and 2025.

2.4.5 Surface Water Compliance

Water quality at the down-gradient property boundary is evaluated at the Outlet Ditch.

- The Outlet Ditch met all of the CSR *Criteria*.
- Water quality at the Outlet Ditch also met all of the FWAL guidelines, with the exception of the long-term chronic WQG for dissolved zinc in March.

These results are consistent with historical data. Elevated zinc concentrations have also been observed in SW5-19 (background surface water location).

2.4.6 Surface Water Quality in the Receiving Environment

Water quality in the receiving environment is intended to be monitored in the Salmo River, approximately 1 km west of the site at locations upstream and downstream of the man-made ditch that conveys surface water discharged from the Facility to the Salmo River via privately-owned property. Water quality

monitoring in the Salmo River was not completed in 2025 due to an access agreement not yet being established with the private landowner.

2.5 Recommendations

Recommended changes to, or considerations for the EMP include:

- Re-evaluating the use of well MW-02A-01 as a background well as it is not upgradient of the Facility.
- Improving access to the following wells and/or the ground conditions around these wells:
    - Wells MW-04S-05 and MW99-2(S/D) are inundated for most of the year, complicating access and sampling.
    - Wells MW-01-2004(S/D) are accessed through a drainage feature and along an overgrown historical road that is partially blocked by fallen trees. The wells are located in a very overgrown, low wet area, also complicating sampling.

3 CLOSURE

This report was prepared by Jennifer Ross and Ico de Zwart of Masse Environmental Consultants Ltd. on March 17, 2026, for the Regional District of Central Kootenay. Both Jennifer and Ico are registered in good standing with the Association of the Chemical Profession of British Columbia (ACPBC). Ico is also a Registered Professional Biologist in good standing with the College of Applied Biology.

We trust the information provided in this report meets your current requirements. If you have any questions or require any further information do not hesitate to contact the undersigned.

Sincerely,



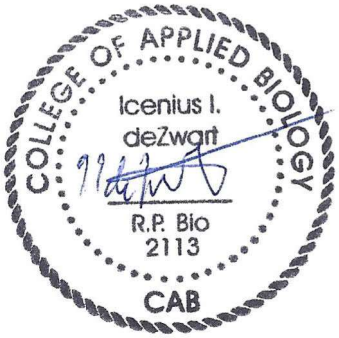
Jennifer Ross, M.Sc., P.Chem.



and



Ico de Zwart, Ph.D., P.Chem., R.P.Bio.



4 REFERENCES

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APPENDIX 1. 2025 EMP SUMMARY

ENVIRONMENTAL MONITORING PROGRAM

HB TAILINGS STORAGE FACILITY

			Quarterly			
EMS Number	Location ID	Area	General/ Organics/ Anions/ Nutrients	Dissolved Metals	Total Metals	NOTES
GROUNDWATER						
E275563	MW99-1(S)	Down-gradient	x	x	x	
E240501	MW99-1(D)	Down-gradient	x	x	x	
E275543	MW99-2(S)	Source (TSF)	x	x	x	
E240502	MW99-2(D)	Source (TSF)	x	x	x	
E252593	MW-05-01	Background	x	x	x	
E303722	MW-01-2004(S)	Down-gradient	x	x	x	
E303723	MW-01-2004(D)	Down-gradient	x	x	x	
E252594	MW-06-01	Source (TSF)	x	x	x	Sampled as part of landfill EMP in Q2
E221702	E221702/S-MW-1	Background	x	x	x	Sampled as part of landfill EMP in Q2
E252591	MW-02A-01	Background				Sampled as part of landfill EMP in Q2
E221703	E221703/S-MW-2	Background (Landfill SCAZ)	x	x	x	Sampled as part of landfill EMP in Q2
E266349	MW-04S-05	Source (TSF)	x	x	x	Sampled as part of landfill EMP in Q2
SURFACE WATER						
E303730	SW1-07	Landfill outflow	x	x	x	
E303731	SW2-07	Landfill outflow	x	x	x	
E303732	SW3-07	Background	x	x	x	
E335949	SW5-19	Background	x	x	x	
E335950	Seepage Weir	Downstream	x	x	x	
E335951	Spillway Inlet	Downstream	x	x	x	
E335952	Spillway Outlet	Downstream	x	x	x	
E252603	Outlet Ditch	Downstream	x	x	x	
E335953	Salmo-Upstream	Downstream	x	x	x	Requires Teck approval to access
E335954	Salmo-Downstream	Downstream	x	x	x	Requires Teck approval to access

Field measurements must be collected during each sampling event

Field Measurements
pH
temperature
conductivity
DO
ORP
turbidity
hydraulic levels
flow

General
lab pH
hardness (as CaCO3, from metals)
conductivity
total suspended solids (TSS)
total dissolved solids (TDS)
alkalinity
Organics
dissolved organic carbon (DOC)*
total organic carbon (TOC)
Anions/Nutrients
ammonia
bromide
chloride
fluoride
nitrate
nitrite
total Kjeldahl nitrogen (TKN)
sulphate
sulfide (as S and as H2S)
un-ionized sulfide (as H2S)
orthophosphate

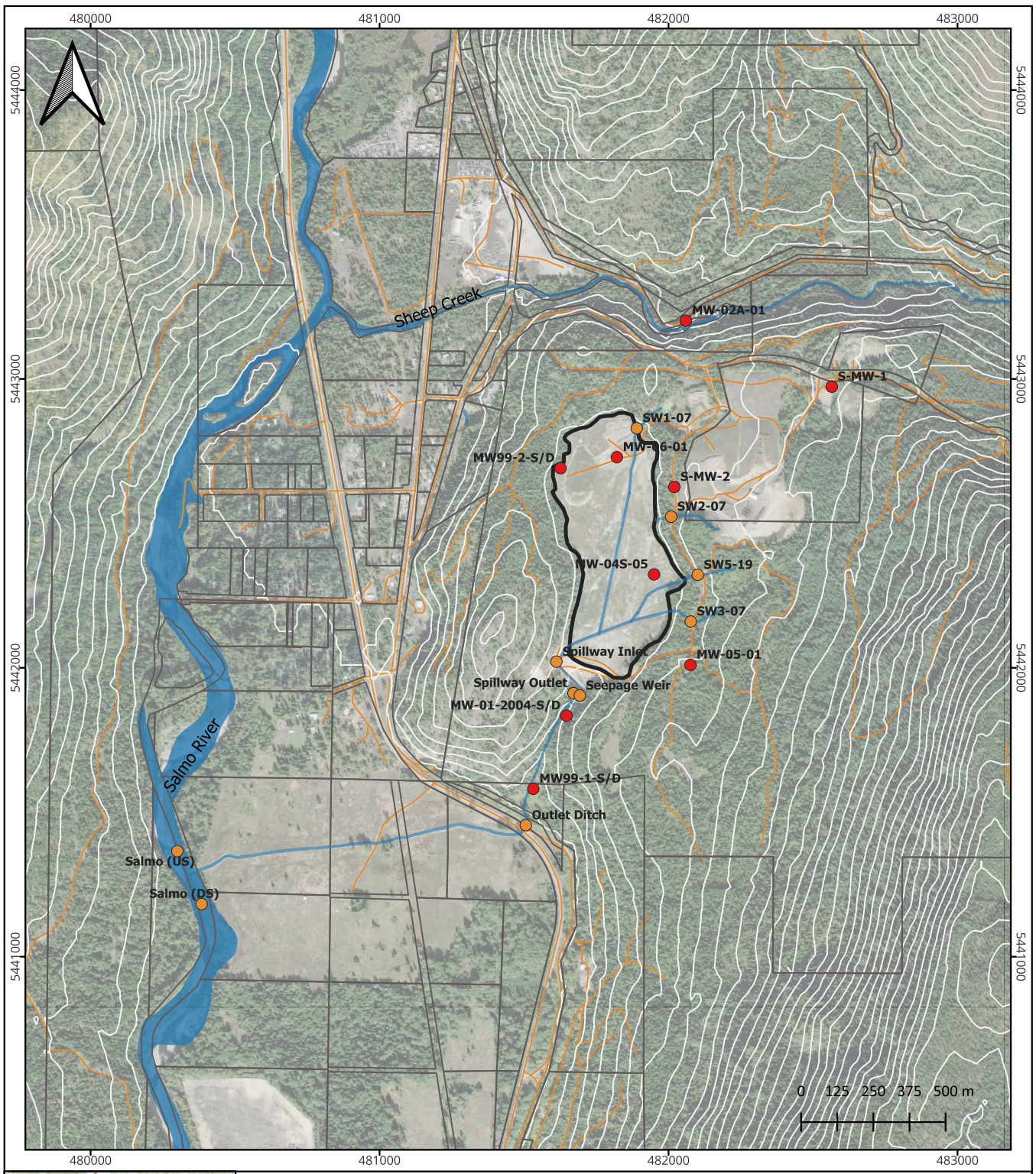
*SW only

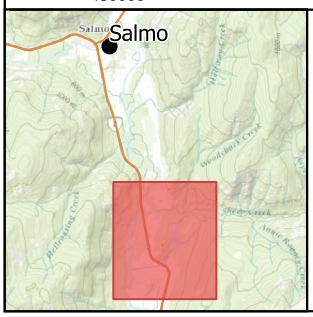
ICP-MS Metals
aluminum
antimony
arsenic
barium
beryllium
bismuth
boron
cadmium
calcium
cesium
chromium
cobalt
copper
iron
lead
lithium
magnesium
manganese
mercury
molybdenum
nickel
phosphorus
potassium
rubidium
selenium
silicon
silver
sodium
strontium
sulfur
tellurium
thallium
thorium
tin
titanium
tungsten
uranium
vanadium
zinc
zirconium

VOCs
Benzene
Bromodichloromethane
Bromoform
Carbon Tetrachloride
Chlorobenzene
Dibromochloromethane
Chloroethane
Chloroform (trichloromethane)
Chloromethane (methyl chloride)
1,2-Dichlorobenzene
1,3-Dichlorobenzene
1,4-Dichlorobenzene
1,1-Dichloroethane
1,2-Dichloroethane
1,1-Dichloroethylene
cis-1,2-Dichloroethylene
trans-1,2-Dichloroethylene
Dichloromethane (methylene chloride)
1,2-Dichloropropane
cis-1,3-Dichloropropylene
trans-1,3-Dichloropropylene
1,3-Dichloropropene (cis & trans)
Ethylbenzene
Methyl t-butyl ether (MTBE)
Styrene
1,1,1,2-Tetrachloroethane
1,1,2,2-Tetrachloroethane
Tetrachloroethylene
Toluene
1,1,1-Trichloroethane
1,1,2-Trichloroethane
Trichloroethylene
Trichlorofluoromethane
Vinyl Chloride
ortho-Xylene
meta- & para-Xylene
Xylenes
4-Bromofluorobenzene (SS)
1,4-Difluorobenzene (SS)

PAHs
Acenaphthene
Acenaphthylene
Acridine
Anthracene
Benz(a)anthracene
Benzo(a)pyrene
Benzo(b&j)fluoranthene
Benzo(b+j+k)fluoranthene
Benzo(g,h,i)perylene
Benzo(k)fluoranthene
Chrysene
Dibenz(a,h)anthracene
Fluoranthene
Fluorene
Indeno(1,2,3-c,d)pyrene
1-Methylnaphthalene
2-Methylnaphthalene
Methylnaphthalene, 1+2-
Naphthalene
Phenanthrene
Pyrene
Quinoline
Chrysene d12
Naphthalene d8
Phenanthrene d10

APPENDIX 2. SITE MAP





HB Tailings Facility
Environmental Monitoring Site Plan

- Tailings Deposition Area
- Property boundaries
- Streams
- Roads
- Contours (20m)

Sampling locations

- Well
- Surface Water

MASSE ENVIRONMENTAL

Map Date: 2026-03-16
Projection: NAD83 / UTM zone 11N
Project #: 2016-503 HB
Main Map Scale: 1:20000
Overview Map Scale: 1:250000

APPENDIX 3. FIELD MONITORING SUMMARY

Water Quality Monitoring Program Event Summary
Annual Reclamation Report for 2025

Sampling Location					Sampling Frequency and Analysis			
EMS Number	Field Designation	Unit	Purpose	Hydraulic Monitoring	Mar/Apr-25	May-25	Sep-25	Nov-25
Groundwater								
E252591	MW-02A-01	OB	Background north of Sheep Creek	A	-	✔	-	-
E221702	S-MW-1	BR	Background east of landfill	Q	✔	✔	✔	✔
E221703	S-MW-2	OB	Between landfill and tailings area	Q	✔	✔	✔	✔
E275543	MW99-2S	BR	West side of tailings	Q	✔	✔	✔	✔
E240502	MW99-2D	BR - Artesian	West side of tailings	Q	✔	✔	✔	✔
E252594	MW-06-01	OB/T	Source Concentration	Q	✔	✔	✔	✔
E266349	MW-045-05	OB/T	Downgradient along southern flowpath	Q	✔	✔	✔	✔
E252593	MW-05-01	OB	Background east of tailings pond	Q	✔	✔	✔	✔
E303723	MW-01-2004 (D)	BR	Downgradient along southern flowpath	Q	✔	✔	✔	✔
E303722	MW-01-2004 (S)	OB	Downgradient along southern flowpath	Q	✔	✔	✔	✔
E275563	MW99-1S	OB	Downgradient along southern flowpath	Q	✔	✔	✔	✔
E240501	MW99-1D	BR	Downgradient along southern flowpath	Q	✔	✔	✔	✔
Surface Water								
E303732	SW3-07	Surface Water	Background	Q	✔	✔	DRY	DRY
E335949	SW5-19	Surface Water	Background	Q	✔	✔	DRY	DRY
E303731	SW2-07	Surface Water	Background	Q	✔	DRY	DRY	DRY
E303730	SW1-07	Surface Water	Central Landfill Outflow	Q	✔	✔	DRY	DRY
E335951	Spillway Inlet	Surface Water	Downgradient along southern flowpath	Q	✔	✔	DRY	✔
E335950	Seepage Weir	Surface Water	Downgradient along southern flowpath	Q	✔	✔	✔	✔
E335952	Spillway Outlet	Surface Water	Downgradient along southern flowpath	Q	✔	✔	✔	✔
E252603	Outlet Ditch	Surface Water	Downgradient property boundary	Q	✔	✔	DRY	DRY
E335953	Salmo - Upstream	Surface Water	Receiving Area (Background)	Q	-	-	-	-
E335954	Salmo - Downstream	Surface Water	Receiving Area	Q	-	-	-	-

Notes:

OB	Overburden
BR	Bedrock
T	Tailings
Q	Quarterly Sampling
✔	Monitoring Completed
-	Sampling Not Required

Hydraulic Monitoring Summary - Groundwater
Annual Reclamation Report for 2025

Sampling Location				Sampling Event														
EMS Number	Field Designation	Main Stratigraphy Unit of Screened Interval	Reference Elevation (m BTOR)[1]	May-21	May-22	Sep-22	Dec-22	Mar-23	May-23	Sep-23	Nov-23	Mar-24	Apr/May-24	Aug-24	Nov-24	Mar/Apr-25	May-25	Sep-25	Nov-25
Overburden Unit																			
E252591	MW-02A-01	Sand and Gravel/ Clayey Gravel	680.66[3]	676.473	676.48	-	-	676.67	-	-	-	-	676.199	-	-	-	676.420	-	-
E221703	S-MW-2	Gravelly Sand/ Gravelly Silty Sand	729.55[3]	721.476	721.43	-	-	722.26	-	-	-	722.390	721.342	720.885	721.290	722.690	721.500	720.990	720.850
E252594	MW-06-01	Tailings	714.36[3]	713.225	713.95	-	-	713.77	-	-	-	713.860	713.747	712.540	712.430	713.870	713.660	712.190	712.290
E266349	MW-045-05	Tailings	713.24[3]	712.377	712.89	-	-	713.19	-	-	-	713.240	713.195	712.930	713.140	713.240	713.240	713.240	713.240
E252593	MW-05-01	Sand/Silty Clay	741.64[2]	739.920	740.028	738.675	738.558	739.820	740.005	738.640	739.592	738.920	740.290	739.005	738.350	740.130	739.910	738.240	737.840
E303722	MW-01-2004 (S)	Sandy Gravel	682.71	679.342	679.59	678.908	678.984	679.288	679.625	678.971	679.360	679.770	679.425	678.960	679.340	680.140	679.490	678.840	679.210
E275563	MW99-1S	Sand and Gravel/Silty Gravel	645.21	633.255	632.591	631.935	631.284	633.228	633.466	632.105	632.449	633.320	633.250	632.110	632.170	634.240	633.280	631.650	632.260
Bedrock Unit																			
E221702	S-MW-1	Bedrock	765.46[3]	761.7	761.71	-	-	761.72	-	-	-	761.750	761.692	761.630	761.440	761.870	761.600	761.250	761.450
E275543	MW99-2S	Shallow Bedrock	714.55[2]	713.900	714.45	713.281	713.700	714.400	714.525	713.316	714.300	714.300	714.270	714.020	713.790	714.300	714.270	713.150	713.590
E240502	MW99-2D	Bedrock	714.55[2]	714.450	714.540	713.737	714.025	714.500	714.545	713.773	714.520	714.530	714.530	713.585	714.140	714.550	714.550	712.000	713.930
E303723	MW-01-2004 (D)	Bedrock	682.75	679.788	679.933	679.314	679.375	679.626	679.801	679.350	679.606	679.870	679.629	679.349	679.540	679.820	679.770	679.240	679.480
E240501	MW99-1D	Bedrock	645.21	637.089	637.077	DNR	636.142	636.845	637.186	636.230	636.482	637.220	637.090	636.400	636.240	637.300	637.130	636.060	636.240

Notes:

EMS	Environmental Monitoring System
m AMSL	metres above mean sea level
m BTOR	metres below top of riser (reference point)
(1)	Reference elevation estimated based on stratigraphy log information, except where noted.
(2)	Reference elevation approximated by estimating ground surface and adding stick-up from stratigraphy log information. Survey required.
(3)	Reference elevation from Central Landfill reports.
DNR	Did not record
-	Not Sampled

Hydraulic Monitoring Summary - Surface Water
Annual Reclamation Report for 2025

		Field Designation (EMS Number)												
	Date	SW1-07 (E303730)	SW2-07 (E303731)	SW3-07 (E303732)	SW4-07 (E303733)	SW5-19 (E335949)	Salmo- Upstream (E335953)	Salmo-Downstream (E335954)	Tailings Pond Outlet (E252602)	Outlet Ditch (E252603)	Seepage Weir (E335950)	Spillway Inlet (E335951)	Spillway Outlet (E335952)	Observations
Flow[1] (L/s)	18-May-21	0.4	Minimal Flow	1.7	DRY				20	1.7	0.4			
	16-Dec-21	0.4	0.1	4.0	Obscured				Not Measured	Not Measured	Not Measured			Monitored later in year than normal due to remediation activities.
	20-Jan-22	Not Measured	Not Measured	Not Measured	Obscured				> 10	> 10	0.4			
	09-May-22	2	0.7	12	DNE	4	Not Measured	Not Measured	DNE	> 20	0.02	> 20	> 20	
	26/27-Sept-22	Minimal Flow	Dry	Dry	DNE	Dry	> 2000	> 2000	DNE	Dry	Stagnant	Dry	< 1	
	05-Dec-22	Frozen	Dry	Dry	DNE	Dry	Not Measured	Not Measured	DNE	Dry	Stagnant	Dry	< 1	
	07-Mar-23	4	4	Minimal Flow	DNE	Minimal Flow	Not Measured	Not Measured	DNE	>10	Stagnant	>10	Minimal Flow	
	03-May-23	2	0.15	5	DNE	12	Not Measured	Not Measured	DNE	>10	Stagnant	>10	15	See Note (2)
	19-Sep-23	DRY	DRY	DRY	DNE	DRY	Not Measured	Not Measured	DNE	DRY	0.5	DRY	0.5	
	20-Nov-23	0.2	0.38	DRY	DNE	DRY	Not Measured	Not Measured	DNE	4	0.2	5.5	7	
	08/09-Mar-24	5	<1	20	DNE	20	Not Measured	Not Measured	DNE	46	0.5	44	44.5	
	13/14-May-24	0.04	DRY	0.14	DNE	0.11	Not Measured	Not Measured	DNE	DRY	0.25	1.7	0.41	
	07-Aug-24	DRY	DRY	DRY	DNE	DRY	Not Measured	Not Measured	DNE	DRY	0.18	DRY	0.08	
	05/06-Nov-24	DRY	DRY	DRY	DNE	0.36	Not Measured	Not Measured	DNE	<1	0.31	3.0	3.0	
	25-Mar-25	2.4	2.6	3.7	DNE	7.4	Not Measured	Not Measured	DNE	0.1	1.2	0.1	5.1	
	12-May-25	0.10	DRY	0.2	DNE	0.4	Not Measured	Not Measured	DNE	0.01	0.40	Minimal Flow	1.20	
	08-Sep-25	DRY	DRY	DRY	DNE	DRY	Not Measured	Not Measured	DNE	DRY	0.2	DRY	Minimal Flow	
	03-Nov-25	DRY	DRY	DRY	DNE	DRY	Not Measured	Not Measured	DNE	DRY	0.2	Minimal Flow	0.2	

Notes:
EMS Environmental Monitoring System
DNE Does Not Exist (Removed or replaced following remediation)

(1) Flows approximated in the field where flow rate provided.
(2) Following the HB Tailings Facility remediation project completed in the fall of 2021, several of the culverts under the HB Dam access road were damaged. These culverts were crushed and broken but surface water is still making it through. In 2023, flow characteristics in surface water sampling locations SW3-07, SW2-07, and SW5-19 were notably altered as surface water was not flowing through the culverts in March, but emerging 2-3 m downstream. In May flows were coming through the culverts.

Regional District of Central Kootenay
Field Notes - 2025
HB Mine Tailings Storage Facility, Salmo, BC
First Quarter

Project	HB Facility	
Personnel	Christopher Stephanou	
Weather	March 25-26	5°C - Cloudy with sunshine
	April 1	15°C - Cloudy with sunshine

Date (DD/MM/YYYY)	EMS	Site ID	Sampled	Depth to Water (m BTOR)	Well Depth (m)	Sampling Device	Purge Volume (L)	T (°C)	pH	Cond.	DO (mg/L)	ORP (mV)	Turb (NTU)[1]	Description	Comment
Monitoring Wells															
2025/03/26	E252593	MW-05-01	Y	1.51	4.17	Pump	9	5.1	7.17	161.0	4.07	50.0	>100	Clear, Colourless, Odourless	
2025/03/26	E221702	S-MW-1	Y	3.59	5.07	Bailer	14	5.6	7.89	239.9	5.76	63.4	8.18	Clear, Colourless, Odourless	
2025/03/26	E221703	S-MW-2	Y	6.86	10.19	Pump	12	7.4	6.06	394.6	1.97	106.8	>100	Turbid, Brown, Odourless	
2025/03/26	E303722	MW-01-2004(S)	Y	2.57	5.99	Bailer	20	5.2	6.69	110.6	6.98	73.0	>100	Turbid, Brown, Odourless	
2025/03/26	E303723	MW-01-2004(D)	Y	2.93	16.00	Bailer	10	5.5	7.67	307.9	6.75	56.2	7.1	Clear, Colourless, Odourless	
2025/03/26	E275563	MW99-1(S)	Y	10.97	17.15	Bailer	15	6.9	7.34	626.0	0.94	120.2	>100	Turbid, Brown, Odourless	
2025/03/26	E240501	MW99-1(D)	Y	7.91	29.71	Bailer	20	7.4	6.76	204.2	0.56	-100.8	>100	Clear, Colourless, Odourless	
2025/04/01	E240502	MW99-2(D)	Y	0.00	24	Pump	30	7.8	7.37	504.0	3.37	-51.3	6.69	Clear, Colourless, Odourless	
2025/04/01	E275543	MW99-2(S)	Y	0.25	4.32	Pump	30	5.8	6.54	564.0	3.77	-15.2	2.99	Clear, Colourless, Odourless	
2025/04/01	E266349	MW-04S-05	Y	Artesian	18.0	Bailer	40	8.8	7.15	484.4	6.52	-22.4	2.25	Turbid, Colourless, Odourless	Large orange particles floating in bailer
2025/04/01	E252594	MW-06-01	Y	0.49	4.03	Pump	20	6.0	6.82	1471.0	1.84	-94.1	17.2	Turbid, Grey, Odourless	
2025/03/26	E252593DUP	GW Duplicate	Y	1.51	4.03	Pump	20	5.1	7.17	161.0	4.07	50.0	>100	Clear, Colourless, Odourless	Collected at MW-05-01
2025/04/01	NA	Field Blank	Y			Pump									

Date (DD/MM/YYYY)	EMS	Site ID	Sampled	Flow (L/s)			T (°C)	pH	Cond.	DO (mg/L)	ORP (mV)	Turb (NTU)	Description	Comment
Surface Water														
2025/04/01	E303730	SW1-07	Y	2.40		Grab	6.6	7.45	420.6	14.24	106.8	3.9	Turbid, Brown, Odourless	flow = (4/1.66)
2025/03/25	E303731	SW2-07	Y	2.64		Grab	2.1	7.93	41.2	11.49	47.5	>100	Turbid, Grey, Odourless	flow = (4/1.51)
2025/03/25	E303732	SW3-07	Y	3.67		Grab	3.6	7.88	65.6	11.23	51.5	10.65	Clear, Colourless, Odourless	flow = (4/1.09)
2025/03/25	E335949	SW5-19	Y	7.40		Grab	4.0	7.72	100.3	10.66	55.6	7.1	Clear, Colourless, Odourless	flow = (4/0.54)
2025/03/25	E335950	Seepage Weir	Y	1.23		Grab	5.5	7.48	428.8	10.64	63.4	3.3	Clear, Colourless, Odourless	flow = (4/3.26)
2025/03/25	E335951	Spillway Inlet	Y	0.14		Grab	4.9	8.27	169.4	8.96	52.6	5.93	Clear, Colourless, Odourless	Swoffer
2025/03/25	E335952	Spillway Outlet	Y	5.12		Grab	4.7	8.05	159.1	11.17	65.7	37.8	Clear, Colourless, Odourless	flow = (4/0.78)
2025/03/25	E252603	Outlet Ditch	Y	0.10		Grab	3.3	7.90	152.6	4.35	43.3	>100	Clear, Colourless, Odourless	Swoffer
	E335953	Salmo-Upstream												
	E335954	Salmo-Downstream												

[1]LaMotte 2020i reports turbidity over 40 ntu as overange

Comments

No issues

Regional District of Central Kootenay
Field Notes - 2025
HB Mine Tailings Storage Facility, Salmo, BC
Second Quarter

Project HB Facility
Personnel Christopher Stephanou Jacob deZwart

Weather 12 - May: 16°C with clouds and rain
13 - May: 18°C with clouds and sunshine

Date (DD/MM/YYYY)	EMS	Site ID	Sampled	Depth to Water (m BTOR)	Well Depth (m)	Sampling Device	Purge Volume (L)	T (°C)	pH	Cond.	DO (mg/L)	ORP (mV)	Turb (NTU)	Description	Comment
Monitoring Wells															
2025/05/13	E221702	S-MW-1	Y	3.86	5.07	Bailer	9	7.9	7.87	267	5.98	10.3	4.2	Clear, colourless, odourless	
2025/05/13	E252591	MW-02A-01	Y	4.24	9	Pump	30	5.2	7.58	307.6	1.55	-142.6	8.55	Clear, colourless, sulphuric	
2025/05/13	E221703	S-MW-2	Y	8.05	10.19	Pump	12	7.3	6.05	409	1.05	77.7	27.5	Translucent, colourless, odourless	
2025/05/13	E266349	MW-04S-05	Y	Artesian	18.01	Bailer	40	9.5	6.96	493	1.06	28.7	1.9	Turbid, colourless, sulphuric	
2025/05/13	E252594	MW-06-01	Y	0.70	4.03	Pump	20	8.1	6.91	1419	0.52	-104.8	28	Clear, colourless, sulphuric	
2025/05/21	E275563	MW99-1(S)	Y	11.93	17.15	Pump	15	6.5	6.74	211	0.67	-60.0	149.0	Translucent, yellow, odourless	
2025/05/21	E275563DUP	GW Duplicate	Y	11.93	4.03	Pump	15	6.5	6.74	211	0.67	-60.0	149.0	Translucent, yellow, odourless	Taken at MW99-1(S)
2025/05/21	E240501	MW99-1(D)	Y	8.08	29.71	Pump	20	7.4	7.37	643	0.16	141.0	7.1	Clear, colourless, odourless	
2025/05/21	E303722	MW-01-2004(S)	Y	3.22	5.99	Bailer	20	5.7	6.68	111	1.72	156.0	128.3	Translucent, Grey, Odourless	
2025/05/21	E303723	MW-01-2004(D)	Y	2.98	16.00	Bailer	10	6.4	7.53	374	4.32	142.0	14.5	Clear, colourless, odourless	
2025/05/21	E252593	MW-05-01	Y	1.73	4.17	Pump	9	5.8	7.01	166	9.80	174.0	9.2	Clear, colourless, odourless	
2025/05/21	E275543	MW99-2(S)	Y	0.28	4.32	Bailer	30	7.9	6.58	473	1.45	31.0	2.4	Clear, colourless, odourless	
2025/05/21	E240502	MW99-2(D)	Y	0.00	24.00	Bailer	30	8.3	7.36	507	2.48	-40.0	9.8	Clear, colourless, odourless	
2025/05/21		Field blank	Y			Bailer									

Date (DD/MM/YYYY)	EMS	Site ID	Sampled	Flow (L/s)			T (°C)	pH	Cond.	DO (mg/L)	ORP (mV)	Turb (NTU)	Description	Comment
Surface Water														
2025/05/12	E252603	Outlet Ditch	Y	0.01		Grab	10.1	8.40	298	12.68	3.5	2.52	Clear, colourless, odourless	Discharge measured at culvert outlet
2025/05/12	E335951	Spillway Inlet	Y	<0.01		Grab	10.8	8.19	345	11.89	28.5	16.40	Turbid, colourless, odourless	too shallow and too much vegetation to measure water velocity
2025/05/12	E335952	Spillway Outlet	Y	1.24		Grab	10.3	8.13	337	10.99	20.4	2.36	Clear, colourless, odourless	4ltr / 3.22 seconds
2025/05/12	E335950	Seepage Weir	Y	0.36		Grab	9.4	7.32	564	9.13	39.4	2.58	Turbid, colourless, odourless	4ltr / 11.24 seconds
2025/05/12	E303732	SW3-07	Y	0.16		Grab	7.7	7.70	97	11.22	43.5	2.36	Clear, colourless, odourless	1ltr / 6.17 seconds
2025/05/12	E335949	SW5-19	Y	0.41		Grab	7.1	7.68	100	11.22	39.2	0.76	Clear, colourless, odourless	1ltr / 2.42 seconds
2025/05/12	E303731	SW2-07	Y	Dry										
2025/05/12	E303730	SW1-07	Y	0.10		Grab	9.9	7.15	648	5.83	29.9	8.48	Opaque, colourless, odourles	1ltr / 9.66 seconds
	E335953	Salmo-Upstream												No access
	E335954	Salmo-Downstream												No Access

Comments

No issues

Regional District of Central Kootenay
Field Notes - 2025
HB Mine Tailings Storage Facility, Salmo, BC
Third Quarter

Personnel Christopher Stephanou
Weather 8-10 Sep - 26°C to 28°C - Sunshine with broken clouds

Date (DD/MM/YYYY)	EMS	Site ID	Sampled	Depth to Water (m BTOR)	Well Depth (m)	Sampling Device	Purge Volume (L)	T (°C)	pH	Cond.	DO (mg/L)	ORP (mV)	Turb (NTU)	Description	Comment
Monitoring Wells															
09/09/2025	E252593	MW-05-01	Y	3.40	4.71	Pump	20	8.3	7.50	169	3.34	131.5	4.3	Clear, Colourless, Odourless	
10/09/2025	E221702	S-MW-1	Y	4.21	5.07	Bailer	12	13.0	7.70	310	8.18	166.5	2.4	Clear, Colourless, Odourless	
09/09/2025	E221703	S-MW-2	Y	8.56	10.19	Pump	13	10.2	6.43	109	3.73	110.1	51.5	Clear, Colourless, Odourless	
09/09/2025	E303722	MW-01-2004(S)	Y	3.87	5.99	Bailer	20	8.3	6.71	157	2.93	187.0	73.1	Turbid, Yellow, Odourless	
09/09/2025	E303723	MW-01-2004(D)	Y	3.51	16.00	Bailer	10	7.4	7.72	386	4.61	141.7	0.9	Clear, Colourless, Odourless	
09/09/2025	E275563	MW99-1(S)	Y	13.56	17.15	Pump	15	9.9	6.97	244	0.79	-114.2	2.4	Clear, Colourless, Odourless	
09/09/2025	E240501	MW99-1(D)	Y	9.15	29.71	Pump	30	9.3	7.55	669	0.46	27.7	2.0	Clear, Colourless, Odourless	
10/09/2025	E240502	MW99-2(D)	Y	2.55	24.00	Bailer	30	11.4	6.57	599	3.74	-13.5	2.6	Clear, Colourless, Odourless	
10/09/2025	E275543	MW99-2(S)	Y	1.4	4.32	Bailer	30	8.8	7.45	512	3.40	-68.9	1.7	Clear, Colourless, Odourless	
10/09/2025	E266349	MW-04S-05	Y	Artesian	18.01	Bailer		15.6	7.04	630	2.14	-29.3	16.1	Translucent, Gray, Sulphuric	
10/09/2025	E266349DUP	GW Duplicate	Y		18.01	Bailer		15.6	7.04	630	2.14	-29.3	16.1	Translucent, Gray, Sulphuric	Collected at MW-04S-05
10/09/2025	E252594	MW-06-01	Y	2.17	4.03	Pump	20	15.8	7.28	1519	1.08	-120.4	21.1	Translucent, Gray, Sulphuric	
10/09/2025		Field blank	Y			Pump									

Date (DD/MM/YYYY)	EMS	Site ID	Sampled	Flow (L/s)	T (°C)	pH	Cond.	DO (mg/L)	ORP (mV)	Turb (NTU)	Description	Comment
Surface Water												
08/09/2025	E303730	SW1-07	N									dry
08/09/2025	E303731	SW2-07	N									dry
08/09/2025	E303732	SW3-07	N									dry
08/09/2025	E335949	SW5-19	N									dry
08/09/2025	E335950	Seepage Weir	Y	0.17	11.7	7.37	789	10	161.1	5.19	Turbid, Colourless, Odourless	
08/09/2025	E335951	Spillway Inlet	N									dry
08/09/2025	E335952	Spillway Outlet	Y	Minimal	12.6	7.98	764	11.7	185.7	8.71	Clear, Colourless, Odourless	water levels too low to collect flow measurement
08/09/2025	E252603	Outlet Ditch	N									dry
	E335953	Salmo-Upstream										
	E335954	Salmo-Downstream										

Comments

No issues

Regional District of Central Kootenay
Field Notes - 2025
HB Mine Tailings Storage Facility, Salmo, BC
Fourth Quarter

Personnel Christopher Stephanou / Phillip Lemire
Weather 3rd - 6°C cloudy, 4th - 9°C sunny

Date (DD/MM/YYYY)	Time	EMS	Site ID	Sampled	Depth to Water (m BTOR)	Well Depth (m)	Sampling Device	Purge Volume (L)	T (°C)	pH	Cond.	DO (mg/L)	ORP (mV)	Turb (NTU)	Description	Comment
Monitoring Wells																
03/11/2025	14:24	E252593	MW-05-01	Y	3.8	4.71	Pump	20	8.7	7.51	195.7	1.16	100.9	26	clear, colourless, odourless	
04/11/2025	15:55	E221702	S-MW-1	Y	4.01	5.07	Bailer	8	11.0	7.21	286.9	0.73	99.2	6.1	clear, colourless, odourless	Pre bailed 8 L the morning prior, well depth 4.2 m
03/11/2025	15:40	E221703	S-MW-2	Y	8.70	10.19	Pump	15	7.9	6.28	251.8	1.08	156.2	118.0	opaque, brown, odourless	
04/11/2025	09:30	E275563	MW-99-1(S)	Y	12.95	17.15	Pump	15	7.8	6.78	219.2	2.72	-126.9	76	opaque, brown, odourless	
04/11/2025	10:40	E240501	MW-99-1(D)	Y	8.97	29.71	Pump	30	8.5	7.38	1055	1.15	-30.1	5.7	clear, colourless, odourless	
04/11/2025	11:50	E303722	MW-01-2004(S)	Y	3.50	5.99	Foot pump	20	8.3	6.73	126.3	1.04	138.8	3703au	opaque, black, odourless	
04/11/2025	12:10	E303723	MW-01-2004(D)	Y	3.27	16	Foot pump	10	7.3	6.73	384.3	1.05	118.4	14.9	clear, colourless, odourless	
04/11/2025	13:57	E240502	MW-99-2(D)	Y	0.62	24	Foot pump	30	9.4	7.50	518	0.93	-9.6	18.2	clear, colourless, odourless	
04/11/2025	13:43	E275543	MW-99-2(S)	Y	0.96	4.32	Foot pump	30	10.6	6.54	678	0.89	4.4	15.1	clear, colourless, odourless	
04/11/2025	14:24	E266349	MW-04S-05	Y	Artesian	18.01	Bailer		10.0	7.25	599	0.87	-105.4	78.0	turbid, red, odourless	
04/11/2025	15:15	E252594	MW-06-01	Y	2.07	4.03	Pump	20	12.1	6.83	1491	0.69	-103.8	39.5	opaque, grey, petrolium smell	This sample smelled like petroleum
04/11/2025	15:15	E252594DUP	Duplicate	Y		4.03	Pump	20	12.1	6.83	1491	0.69	-103.8	39.5	opaque, grey, petrolium smell	Collected at MW-06-01
04/11/2025	15:30		Field Bank	Y												

Date (DD/MM/YYYY)	Time	EMS	Site ID	Sampled	Flow (L/s)			T (°C)	pH	Cond.	DO (mg/L)	ORP (mV)	Turb (NTU)	Description	Comment
Surface Water															
03/11/2025	10:15	E252603	Outlet Ditch	N	Dry										
03/11/2025	10:50	E335951	Spillway Inlet	Y	Minimal Flow		Grab	4.6	8.16	811	5.36	117.7	2.65	clear, colourless, odourless	water level too low to collect water flow
03/11/2025	11:45	E335952	Spillway Outlet	Y	0.19		Grab	6.1	8.23	632	2.38	98.2	1.13	clear, colourless, odourless	
03/11/2025	11:53	E335950	Seepage Weir	Y	0.23		Grab	9.6	7.72	673	1.67	112.5	1.29	clear, colourless, odourless	
03/11/2025	12:50	E303732	SW3-07	N	Dry										
03/11/2025	12:55	E335949	SW5-19	N	Dry										
03/11/2025	13:00	E303731	SW2-07	N	Dry										
03/11/2025	13:12	E303730	SW1-07	N	Dry										
		E335953	Salmo-Upstream												
		E335954	Salmo-Downstream												

Comments

No issues

APPENDIX 4. ANALYTICAL RESULTS SUMMARY

Regional District of Central Kootenay
Groundwater Quality Summary - 2025
HB Mine Tailings Storage Facility, Salmo, BC

Parameter	Lowest Detection Limit	Units	BC CSR AW	BC CSR IW	BC CSR LW	BC CSR DW	Background Overburden							
Client Sample ID							MW-05-01 (E252593)	MW-05-01 (E252593)	MW-05-01 (E252593)	MW-05-01 (E252593)	MW-02A-01 (E252591)	S-MW-2 (E221703)	S-MW-2 (E221703)	S-MW-2 (E221703)	S-MW-2 (E221703)
Date Sampled							26-Mar-2025	21-May-2025	09-Sep-2025	03-Nov-2025	13-May-2025	26-Mar-2025	13-May-2025	09-Sep-2025	03-Nov-2025
Time Sampled							09:50	13:40	09:21	14:24	11:20	13:11	12:40	13:30	15:40
ALS Sample ID							VA25A6884-004	VA25B2060-005	VA25C3911-005	VA25C9760-005	VA25B1325-003	VA25A6884-008	VA25B1325-004	VA25C3911-011	VA25C9760-011
							Sub-Matrix: Groundwater	Sub-Matrix: Groundwater	Sub-Matrix: Groundwater	Sub-Matrix: Groundwater	Sub-Matrix: Groundwater	Sub-Matrix: Groundwater	Sub-Matrix: Groundwater	Sub-Matrix: Groundwater	Sub-Matrix: Groundwater
Physical Tests (Matrix: Water)															
Conductivity	2.0	µS/cm					211	206	234	234	360	487	524	618	674
Alkalinity, total (as CaCO3)	1.0	mg/L					108	106	114	115	163	198	217	273	305
Hardness (as CaCO3), dissolved	0.50	mg/L					106	97.2	113	115	45.4	240	252	316	342
Hardness (as CaCO3), from total Ca/Mg	0.50	mg/L					110	101	116	128	47.8	257	282	318	423
Solids, total dissolved [TDS]	10	mg/L					147	149	167	169	200	348	290	431	512
Solids, total suspended [TSS]	3.0	mg/L					3.9	37.5	69.6	96.3	8.4	78.9	51.0	54.8	375
pH	0.10	pH units					7.96	7.78	8.01	7.78	8.03	6.69	6.65	7.43	7.19
Anions and Nutrients (Matrix: Water)															
Ammonia, total (as N)	0.0050	mg/L	pH dep.				<0.0050	<0.0050	<0.0050	<0.0050	0.0096	0.005	<0.0050	0.02	0.0062
Bromide	0.050	mg/L					<0.050	<0.050	<0.050	<0.050	0.065	<0.050	<0.050	<0.050	<0.250
Chloride	0.50	mg/L	1500	100	600	250	<0.50	<0.50	<0.50	<0.50	15.8	7.29	8.29	8.52	9.45
Fluoride	0.020	mg/L	hardness dep.	1	1	1.5	0.193	0.173	0.266	0.266	1.45	0.038	0.040	0.049	<0.100
Kjeldahl nitrogen, total [TKN]	0.050	mg/L					0.055	0.118	<0.050	<0.050	<0.050	0.617	0.540	0.513	0.677
Nitrate (as N)	0.0050	mg/L	400		100	10	0.0111	<0.0050	0.0123	0.0189	<0.0050	4.91	3.12	2.88	2.99
Nitrite (as N)	0.0010	mg/L	chloride dep.		10	1	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0050
Phosphate, ortho-, dissolved (as P)	0.0010	mg/L					0.0068	0.0073	0.0074	0.0088	0.0183	0.0217	0.0182	0.012	0.0152
Sulfate (as SO4)	0.30	mg/L	hardness dep.		1000	500	10.4	9.04	13.2	14.2	5.38	36.8	44.6	44.8	47.7
Organic / Inorganic Carbon (Matrix: Water)															
Carbon, total organic [TOC]	0.50	mg/L					1.67	2.52	0.52	<0.50	0.75	8.1	7.64	6.61	9.24
Total Sulfides (Matrix: Water)															
sulfide, total (as S)	0.0015	mg/L					<0.0015	<0.010	<0.010	<0.010	<0.010	0.0021	<0.010	<0.010	<0.010
sulfide, total (as H2S)	0.0016	mg/L					<0.0016	<0.011	<0.011	<0.011	<0.011	0.0022	<0.011	<0.011	<0.011
sulfide, un-ionized (as H2S), calculated[1]	0.0016	mg/L	0.02			0.05	<0.0009	<0.0069	<0.0037	<0.0036	<0.0035	0.0021	<0.0103	<0.0093	<0.0098
Total Metals (Matrix: Water)															
Aluminum (Al)-Total	3.0	µg/L				9500	382	717	923	1890	337	1350	1220	1270	9500
Antimony (Sb)-Total	0.10	µg/L				6	<0.1	0.12	0.1	0.14	0.15	0.45	0.33	0.31	0.99
Arsenic (As)-Total	0.10	µg/L				10	0.65	0.71	1.26	2.13	5.83	6.58	3.95	3.9	**19.2**
Barium (Ba)-Total	0.10	µg/L				1000	21.1	24.4	31.4	40.6	72.4	187	162	164	301
Beryllium (Be)-Total	0.020	µg/L				8	<0.02	<0.100	<0.100	<0.100	<0.100	0.127	<0.100	<0.100	0.515
Bismuth (Bi)-Total	0.050	µg/L					<0.05	<0.050	<0.050	<0.050	<0.050	<0.05	<0.050	<0.050	0.137
Boron (B)-Total	10	µg/L				5000	<10	<10	<10	<10	570	125	112	107	111
Cadmium (Cd)-Total	0.0050	µg/L				5	0.0267	0.0635	0.0514	0.0901	0.0540	1.33	0.864	0.8320	3.06
Calcium (Ca)-Total	50	µg/L					30300	26700	31500	35700	14400	74700	82100	88400	117000
Cesium (Cs)-Total	0.010	µg/L					0.061	0.131	0.193	0.482	0.059	0.2	0.147	0.151	1.04
Chromium (Cr)-Total	0.50	µg/L				50[2]	1.95	2.58	2.33	6.59	0.74	18.1	27.7	6.44	38.7
Cobalt (Co)-Total	0.10	µg/L				1	0.31	0.72	0.80	**1.87**	0.44	**3.08**	**1.62**	**2.08**	**11.8**
Copper (Cu)-Total	0.50	µg/L				1500	2.01	3.28	2.46	4.94	1.06	9.63	5.99	6.51	26.2
Iron (Fe)-Total	10	µg/L				6500	447	837	1210	2820	1870	4370	2210	2630	**16400**
Lead (Pb)-Total	0.050	µg/L				10	0.46	0.776	1.54	3.3	0.730	3.24	1.52	1.94	**11.9**
Lithium (Li)-Total	1.0	µg/L				8	2.9	2.9	3.6	5.1	**12.3**	3.1	2.5	2.6	**12.1**
Magnesium (Mg)-Total	5.0	µg/L					8230	8340	9020	9340	2880	17100	18700	23500	31700
Manganese (Mn)-Total	0.10	µg/L				1500	22.9	70.5	45.7	99.3	446	1090	469	572	**2470**
Mercury (Hg)-Total	0.0050	µg/L				1	<0.005	<0.0050	<0.0050	<0.0050	<0.0050	0.0242	<0.0050	0.0079	0.0351
Molybdenum (Mo)-Total	0.050	µg/L				250	0.665	0.642	0.751	1.01	0.824	1.13	1.11	0.571	2.36
Nickel (Ni)-Total	0.50	µg/L				80	0.89	1.96	2.05	5.42	1.03	16.3	16.3	8.77	37.2
Phosphorus (P)-Total	50	µg/L					<50	64	120	163	279	249	140	160	712
Potassium (K)-Total	50	µg/L					1050	1080	1460	1700	914	5010	4820	4960	6310
Rubidium (Rb)-Total	0.20	µg/L					0.59	1.01	1.58	3.45	0.63	1.95	1.50	1.77	9.89
Selenium (Se)-Total	0.050	µg/L				10	0.182	0.205	0.173	0.164	0.207	0.15	0.149	0.117	0.255
Silicon (Si)-Total	100	µg/L					8910	10600	9910	11000	7390	11600	12000	11600	23100
Silver (Ag)-Total	0.010	µg/L				20	<0.01	0.020	0.014	0.023	<0.010	0.092	0.027	0.036	0.142
Sodium (Na)-Total	50	µg/L				200000	4560	4680	5340	4770	67800	8260	8490	9650	9370
Strontium (Sr)-Total	0.20	µg/L				2500	294	277	338	343	99.4	484	485	491	559
Sulfur (S)-Total	500	µg/L					3260	3440	4940	5160	2050	13200	16400	17700	17300
Tellurium (Te)-Total	0.20	µg/L					<0.2	<0.20	<0.20	<0.20	<0.20	<0.2	<0.20	<0.20	<0.20
Thallium (Tl)-Total	0.010	µg/L					<0.01	0.011	<0.010	0.028	<0.010	0.053	0.021	0.022	0.147
Thorium (Th)-Total	0.10	µg/L					0.13	<0.30	0.48	0.99	0.16	0.65	0.40	0.39	3.01
Tin (Sn)-Total	0.10	µg/L				2500	<0.1	<0.10	<0.10	0.12	<0.10	0.23	<0.10	0.16	0.31
Titanium (Ti)-Total	0.30	µg/L					15.2	28.1	44.7	100	10.4	42.9	50.9	46.1	340
Tungsten (W)-Total	0.10	µg/L				3	<0.1	<0.10	<0.10	0.1	1.31	<0.1	<0.10	<0.10	0.2
Uranium (U)-Total	0.010	µg/L				20	1.75	1.27	1.89	2.1	0.280	2.67	2.06	2.38	4.46
Vanadium (V)-Total	0.50	µg/L				20	1.65	2.33	3.49	7.02	1.94	11	8.41	6.66	**33.1**
Zinc (Zn)-Total	3.0	µg/L				3000	27.8	8.3	7.7	15.5	3.3	17.1	11.0	14.2	69.3
Zirconium (Zr)-Total	0.20	µg/L					<0.2	<0.20	<0.20	0.22	<0.20	0.93	0.53	0.67	1.44
Dissolved Metals (Matrix: Water)															
Aluminum (Al)-Dissolved	1.0	µg/L		5000	5000		53.9	87.7	4.5	2.8	4.0	1.6	2.0	3.6	44.9
Antimony (Sb)-Dissolved	0.10	µg/L	90				<0.1	<0.10	<0.10	<0.10	0.15	0.19	0.20	0.18	0.19
Arsenic (As)-Dissolved	0.10	µg/L	50	100	25		0.4	0.34	0.65	0.62	4.61	0.77	0.82	0.48	0.67
Barium (Ba)-Dissolved	0.10	µg/L	10000				16.3	15.7	19.2	18.5	54.8	132	129	135.0	138
Beryllium (Be)-Dissolved	0.020	µg/L	1.5	100	100		<0.02	<0.100	<0.100	<0.100	<0.100	<0.02	<0.100	<0.100	<0.100
Bismuth (Bi)-Dissolved	0.050	µg/L					<0.05	<0.050	<0.050	<0.050	<0.050	<0.05	<0.050	<0.050	<0.050
Boron (B)-Dissolved	10	µg/L	12000	500	5000		<10	<10	<10	<10	622	101	110	103	105
Cadmium (Cd)-Dissolved	0.0050	µg/L	hardness dep.	5	80		0.0128	0.0142	0.0068	0.0076	<0.0050	0.204	0.204	0.113	0.153
Calcium (Ca)-Dissolved	50	µg/L			1000000		28800	25600	31500	33400	13600	68700	73500	89400	97500
Cesium (Cs)-Dissolved	0.010	µg/L					<0.01	<0.010	<0.010	<0.010	<0.010	<0.01	<0.010	<0.010	<0.010
Chromium (Cr)-Dissolved	0.50	µg/L	10[2]	5[3]	50[2]		1.14	1.24	0.73	0.65	<0.50	<0.5	0.51	<0.50	<0.50
Cobalt (Co)-Dissolved	0.10	µg/L	40	50	1000		<0.1	<0.10	<0.10	<0.10	0.16	0.12	0.14	0.13	0.16
Copper (Cu)-Dissolved	0.20	µg/L	hardness dep.	200	300		1.2	1.54	0.3	0.26	<0.20	1.94	1.55	1.96	1.92
Iron (Fe)-Dissolved	10	µg/L		5000			47	70	<10	<10	952	<10	<10	<10	67
Lead (Pb)-Dissolved	0.050	µg/L	hardness dep.	200	100		<0.05	0.086	<0.050	<0.050	<0.050	<0.05	<0.050	<0.050	0.086
Lithium (Li)-Dissolved	1.0	µg/L		2500	5000		2.2	2.2	2.6	2.5	11.6	<1	<1.0	1.1	1.1
Magnesium (Mg)-Dissolved	5.0	µg/L					8320	8070	8380	7710	2780	16600	16600	22500	23900
Manganese (Mn)-Dissolved	0.10	µg/L		200			1.34	4.16	0.45	0.62	**430**	3.73	7.64	8.74	30.4
Mercury (Hg)-Dissolved	0.0050	µg/L	0.25	1	2		<0.005	<0.0050	<0.0050	<0.0050	<0.0050	<0.005	<0.0050	<0.0050	<0.0050
Molybdenum (Mo)-Dissolved	0.050	µg/L	10000	10	50		0.643	0.579	0.789	0.926	0.827	0.184	0.264	0.156	0.253
Nickel (Ni)-Dissolved	0.50	µg/L	hardness dep.	200	1000		<0.5	<0.50	<0.50	<0.50	<0.50	1.93	3.11	2.38	2.17
Phosphorus (P)-Dissolved	50	µg/L					<50	<50	<50	<50	146	<50	<50	<50	<50
Potassium (K)-Dissolved	50	µg/L					1000	946	1270	1390	939	4700	5090	4980	5010
Rubidium (Rb)-Dissolved	0.20	µg/L					<0.2	<0.20	<0.20	<0.20	<0.20	<0.2	<0.20	0.25	0.23
Selenium (Se)-Dissolved	0.050	µg/L	20	20	30		0.143	0.141	0.189	0.168	0.172	0.107	0.121	0.104	0.103
Silicon (Si)-Dissolved	50	µg/L					8320	8970	8070	8170	6940	9380	9940	9470	9390
Silver (Ag)-Dissolved	0.010	µg/L	hardness dep.				<0.01	<0.010	<0.010	<0.010	<0.010	<0.01	<0.010	<0.010	<0.010
Sodium (Na)-Dissolved	50	µg/L					4250	4560	5020	5020	67100	8330	8520	9720	9480
Strontium (Sr)-Dissolved	0.20	µg/L					275	258	335	338	98.2	434	499	490	518
Sulfur (S)-Dissolved	500	µg/L					3310	2950	4490	4650	1740	12700	15200	16600	16800
Tellurium (Te)-Dissolved	0.20	µg/L					<0.2	<0.20	<0.20	<0.20	<0.20	<0.2	<0.20	<0.20	<0.20
Thallium (Tl)-Dissolved	0.010	µg/L	3				<0.01	<0.010	<0.010	<0.010	<0.010	<0.01	<0.010	<0.010	<0.010
Thorium (Th)-Dissolved	0.10	µg/L					<0.1	<0.10	<0.10	<0.10	<0.10	<0.1	<0.10	<0.10	<0.10
Tin (Sn)-Dissolved	0.10	µg/L					<0.1	<0.10	<0.10	<0.10	<0.10	<0.1	<0.10	<0.10	<0.10
Titanium (Ti)-Dissolved	0.30	µg/L	1000				1.57	2.72	<0.30	<0.30	<0.30	<0.3	<0.30	<0.30	1.34
Tungsten (W)-Dissolved	0.10	µg/L					<0.1	<0.10	<0.10	<0.10	1.18	<0.1	<0.10	<0.10	<0.10
Uranium (U)-Dissolved	0.010	µg/L	85	10	200		1.58	1.22	1.78	1.97	0.263	1.84	1.65	2.02	2.46
Vanadium (V)-Dissolved	0.50	µg/L		100	100		0.57	0.71	0.64	0.67	<0.50	3.64	3.74	1.56	1.17
Zinc (Zn)-Dissolved	1.0	µg/L	hardness dep.	pH dep.	2000		1.5	2.9	<1.0	<1.0	<1.0	2.7	2.9	3.1	2.9
Zirconium (Zr)-Dissolved	0.30	µg/L					<0.3	<0.20	<0.20	<0.20	<0.20	<0.3	<0.20	<0.20	<0.20
Dissolved Mercury Filtration Location							Field	Field	Field	Field	Field	Field	Field	Field	Field
Dissolved Metals Filtration Location							Field	Field	Field	Field	Field	Field	Field	Field	Field

NOTES:

CSR standards for heavy metals, metalloids and inorganic ions applied to groundwater are designed for the dissolved substance concentrations with the exception of the drinking water standards, which are designed for unfiltered samples obtained at the point of consumption (total substance concentrations) (B.C. Reg. 375/96, current to January 13, 2026, Schedule 3.2).

[1] Calculated from the dissolved sulphide concentration [S^{2-}], pH, and the dissociation constant (pK) which is dependent on the sample water temperature, using the equation [H$_2$S]=[S^{2-}][1/(1+(10^(pH-pK)))] (BC WLRS 2025b).

[2] Cr (VI) generic numerical water standard (B.C. Reg. 375/96, current to January 13, 2026, Schedule 3.2).

[3] Cr (III) generic numerical water standard (B.C. Reg. 375/96, current to January 13, 2026, Schedule 3.2).

LEGEND:

- Parameter higher than the BC CSR water quality standard to protect aquatic life (AW).
- Parameter higher than the BC CSR water quality standard to protect water supplied for irrigation (IW).
- Parameter higher than the BC CSR water quality standard to protect water supplied for livestock (LW).
- Parameter higher than the BC CSR water quality standard to protect water used for drinking water (DW).
- Parameter higher than more than one of the BC CSR water quality standards.

Regional District of Central Kootenay
Groundwater Quality Summary - 2025
HB Mine Tailings Storage Facility, Salmo, BC

			BC CSR AW	BC CSR IW	BC CSR LW	BC CSR DW	Overburden Source							
Client Sample ID							MW-06-01 (E252594)	MW-06-01 (E252594)	MW-06-01 (E252594)	MW-06-01 (E252594)	MW-04S-05 (E266349)	MW-04S-05(S) (E266349)	MW-04S-05(S) (E266349)	MW-04S-05 (E266349)
Date Sampled							01-Apr-2025	13-May-2025	10-Sep-2025	04-Nov-2025	01-Apr-2025	13-May-2025	10-Sep-2025	04-Nov-2025
Time Sampled							14:50	14:40	12:04	15:15	13:52	14:00	11:10	14:24
ALS Sample ID							VA25A7369-004	VA25B1325-001	VA25C3911-009	VA25C9760-009	VA25A7369-005	VA25B1325-005	VA25C3911-008	VA25C9760-008
							Sub-Matrix: Water	Sub-Matrix: Groundwater	Sub-Matrix: Groundwater	Sub-Matrix: Groundwater	Sub-Matrix: Water	Sub-Matrix: Groundwater	Sub-Matrix: Groundwater	Sub-Matrix: Groundwater
Parameter	Lowest Detection Limit	Units												
Physical Tests (Matrix: Water)														
Conductivity	2.0	µS/cm					1930	1680	1590	1720	590	602	630	657
Alkalinity, total (as CaCO3)	1.0	mg/L					287	267	258	266	256	260	240	235
Hardness (as CaCO3), dissolved	0.50	mg/L					1190	990	956	910	288	298	322	342
Hardness (as CaCO3), from total Ca/Mg	0.50	mg/L					1160	1160	943	1040	279	324	328	356
Solids, total dissolved [TDS]	10	mg/L					1730	1230	1450	1500	385	340	454	460
Solids, total suspended [TSS]	3.0	mg/L					68.7	110	31	34.3	<3.0	4.0	14.2	143
pH	0.10	pH units					7.46	7.13	7.65	7.2	8.14	7.82	7.95	7.49
Anions and Nutrients (Matrix: Water)														
Ammonia, total (as N)	0.0050	mg/L	pH dep.				1.18	1.16	1.05	1.19	0.089	0.0676	0.029	0.0328
Bromide	0.050	mg/L					<1.00	<0.500	<0.500	<0.500	0.118	0.093	0.107	0.081
Chloride	0.50	mg/L	1500	100	600	250	<10.0	10.5	19.6	18.2	15.2	16.8	19.40	20.6
Fluoride	0.020	mg/L	hardness dep.	1	1	1.5	<0.400	<0.200	0.226	0.204	0.034	0.040	0.033	0.038
Kjeldahl nitrogen, total [TKN]	0.050	mg/L					2.54	2.11	1.65	2.03	0.137	0.104	0.082	1.48
Nitrate (as N)	0.0050	mg/L	400		100	10	<0.100	<0.0500	<0.0500	<0.0500	<0.0050	0.0092	<0.0050	<0.0050
Nitrite (as N)	0.0010	mg/L	chloride dep.		10	1	<0.0200	<0.0100	<0.0100	<0.0100	<0.0010	0.0017	<0.0010	<0.0010
Phosphate, ortho-, dissolved (as P)	0.0010	mg/L					<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Sulfate (as SO4)	0.30	mg/L	hardness dep.		1000	500	**913**	**809**	**720**	**775**	46.5	52.3	80.9	102
Organic / Inorganic Carbon (Matrix: Water)														
Carbon, total organic [TOC]	0.50	mg/L					15.1	15.6	8.19	7.37	1.4	1.44	1.5	3.36
Total Sulfides (Matrix: Water)														
sulfide, total (as S)	0.0015	mg/L					0.252	0.224	0.026	0.03	0.024	<0.100	<1.00	0.047
sulfide, total (as H2S)	0.0016	mg/L					0.268	0.238	0.028	0.032	0.026	<0.106	<1.06	0.050
sulfide, un-ionized (as H2S), calculated[1]	0.0016	mg/L	0.02			0.05	**0.193**	**0.153**	<0.0103	**0.0208**	0.0136	**<0.0552**	**<0.546**	**0.0222**
Total Metals (Matrix: Water)														
Aluminum (Al)-Total	3.0	µg/L				9500	91.2	221	10	14.6	35.5	9.5	29.1	961
Antimony (Sb)-Total	0.10	µg/L				6	0.51	0.76	0.16	<0.20	0.11	<0.10	0.17	4.17
Arsenic (As)-Total	0.10	µg/L				10	6.78	9.25	5.08	5.39	0.89	0.82	1.73	**15.5**
Barium (Ba)-Total	0.10	µg/L				1000	20.4	57.2	20.4	18.9	51.2	54.3	61.2	88.2
Beryllium (Be)-Total	0.020	µg/L				8	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
Bismuth (Bi)-Total	0.050	µg/L					<0.100	<0.100	<0.050	<0.100	<0.050	<0.050	<0.050	<0.050
Boron (B)-Total	10	µg/L				5000	214	194	300	311	<10	<10	<10	<10
Cadmium (Cd)-Total	0.0050	µg/L				5	**9.7**	**11.1**	1.1400	0.886	0.48	0.355	1.4200	**11.8**
Calcium (Ca)-Total	50	µg/L					380000	388000	301000	337000	89000	103000	103000	113000
Cesium (Cs)-Total	0.010	µg/L					0.889	1.06	0.892	0.931	0.012	<0.010	0.011	0.242
Chromium (Cr)-Total	0.50	µg/L				50[2]	<1.00	1.99	<0.50	<1.00	<0.50	<0.50	1.23	2.2
Cobalt (Co)-Total	0.10	µg/L				1	**2.33**	**2.80**	0.23	<0.20	0.44	0.55	**2.64**	**2.22**
Copper (Cu)-Total	0.50	µg/L				1500	3.81	5.23	0.94	<1.00	0.54	<0.50	5.18	12.1
Iron (Fe)-Total	10	µg/L				6500	**33200**	**34200**	**17700**	**18100**	675	974	**11500**	**52200**
Lead (Pb)-Total	0.050	µg/L				10	**125**	**238**	**24.2**	**12.2**	8.13	2.15	**14.5**	**974**
Lithium (Li)-Total	1.0	µg/L				8	2.8	3.0	3.6	4.2	1.1	1.3	1.2	2.5
Magnesium (Mg)-Total	5.0	µg/L					50400	46600	46500	48600	13800	16200	17100	17900
Manganese (Mn)-Total	0.10	µg/L				1500	712	601	413	412	748	621	154	335
Mercury (Hg)-Total	0.0050	µg/L				1	<0.0050	0.0106	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Molybdenum (Mo)-Total	0.050	µg/L				250	0.67	0.818	1.3	1.07	0.546	0.551	1.06	1.73
Nickel (Ni)-Total	0.50	µg/L				80	9.93	11.7	1.99	2.05	3	4.17	20	14.3
Phosphorus (P)-Total	50	µg/L					<100	<100	<50	<100	<50	<50	<50	257
Potassium (K)-Total	50	µg/L					8110	6840	10400	10200	2740	3010	3190	3520
Rubidium (Rb)-Total	0.20	µg/L					23.4	18.6	36.4	34.6	0.8	0.90	0.95	2.63
Selenium (Se)-Total	0.050	µg/L				10	<0.100	0.125	<0.050	<0.100	<0.050	0.062	<0.050	1.68
Silicon (Si)-Total	100	µg/L					6090	6230	8380	7660	8000	8800	8970	11800
Silver (Ag)-Total	0.010	µg/L				20	0.111	0.256	0.013	<0.020	<0.010	<0.010	<0.010	0.059
Sodium (Na)-Total	50	µg/L				200000	12000	11300	18200	17400	5960	6780	6960	6680
Strontium (Sr)-Total	0.20	µg/L				2500	439	399	452	474	468	482	512	521
Sulfur (S)-Total	500	µg/L					332000	299000	298000	291000	16000	19100	30800	37500
Tellurium (Te)-Total	0.20	µg/L					<0.40	<0.40	<0.20	<0.40	<0.20	<0.20	<0.20	<0.20
Thallium (Tl)-Total	0.010	µg/L					0.305	0.403	0.083	0.072	0.025	0.030	0.166	0.368
Thorium (Th)-Total	0.10	µg/L					<0.20	<0.20	<0.10	<0.20	<0.10	<0.10	<0.10	0.87
Tin (Sn)-Total	0.10	µg/L				2500	<0.20	<0.20	<0.10	<0.20	0.17	0.23	0.22	0.96
Titanium (Ti)-Total	0.30	µg/L					<5.40	14.9	0.48	<0.60	1.23	0.39	0.79	28.6
Tungsten (W)-Total	0.10	µg/L				3	<0.20	<0.20	<0.10	<0.20	0.23	<0.10	<0.10	<0.10
Uranium (U)-Total	0.010	µg/L				20	6.11	7.20	3.03	3.38	6.18	6.69	6.69	12.4
Vanadium (V)-Total	0.50	µg/L				20	<1.00	1.64	<0.50	<1.00	<0.50	<0.50	0.79	6.43
Zinc (Zn)-Total	3.0	µg/L				3000	**3160**	**3540**	281	343	11.3	10.8	14.6	175
Zirconium (Zr)-Total	0.20	µg/L					<0.40	<0.40	<0.20	<0.40	<0.20	<0.20	<0.20	<0.20
Dissolved Metals (Matrix: Water)														
Aluminum (Al)-Dissolved	1.0	µg/L		5000	5000		3.2	3.0	<1.0	<1.0	<1.0	1.1	<1.0	1
Antimony (Sb)-Dissolved	0.10	µg/L	90				<0.20	0.20	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Arsenic (As)-Dissolved	0.10	µg/L	50	100	25		5.95	7.53	3.91	2.64	0.79	0.63	0.54	0.77
Barium (Ba)-Dissolved	0.10	µg/L	10000				17.5	49.0	17.6	17.3	50.2	53.2	59.9	53.9
Beryllium (Be)-Dissolved	0.020	µg/L	1.5	100	100		<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
Bismuth (Bi)-Dissolved	0.050	µg/L					<0.100	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Boron (B)-Dissolved	10	µg/L	12000	500	5000		210	180	280	271	<10	<10	<10	<10
Cadmium (Cd)-Dissolved	0.0050	µg/L	hardness dep.	5	80		0.0415	0.0383	0.0054	<0.0050	0.0784	0.0696	0.006	0.0305
Calcium (Ca)-Dissolved	50	µg/L			1000000		393000	336000	305000	283000	91100	95200	101000	109000
Cesium (Cs)-Dissolved	0.010	µg/L					0.829	0.904	0.874	0.774	<0.010	<0.010	<0.010	<0.010
Chromium (Cr)-Dissolved	0.50	µg/L	10[2]	5[3]	50[2]		<1.00	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Cobalt (Co)-Dissolved	0.10	µg/L	40	50	1000		2.05	2.23	0.19	0.15	0.34	0.36	0.68	0.49
Copper (Cu)-Dissolved	0.20	µg/L	hardness dep.	200	300		0.72	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Iron (Fe)-Dissolved	10	µg/L		5000			**32400**	**30000**	**15300**	**11900**	376	270	1300	4270
Lead (Pb)-Dissolved	0.050	µg/L	hardness dep.	200	100		1.25	1.94	0.093	0.12	0.133	0.199	<0.050	0.487
Lithium (Li)-Dissolved	1.0	µg/L		2500	5000		2.6	2.1	3.6	3.3	1	1.1	1.1	1.2
Magnesium (Mg)-Dissolved	5.0	µg/L					50400	36700	47200	49300	14600	14700	17000	17000
Manganese (Mn)-Dissolved	0.10	µg/L		200			**699**	**569**	**400**	**448**	**742**	**616**	128	**305**
Mercury (Hg)-Dissolved	0.0050	µg/L	0.25	1	2		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Molybdenum (Mo)-Dissolved	0.050	µg/L	10000	10	50		0.669	0.633	1.24	1.1	0.554	0.467	0.636	0.393
Nickel (Ni)-Dissolved	0.50	µg/L	hardness dep.	200	1000		7.08	7.26	1.71	1.53	2.4	2.53	4.56	4.27
Phosphorus (P)-Dissolved	50	µg/L					<100	<50	<50	<50	<50	<50	<50	<50
Potassium (K)-Dissolved	50	µg/L					8250	7290	10000	10300	2890	3280	3250	3630
Rubidium (Rb)-Dissolved	0.20	µg/L					23	19.4	36.1	36.4	0.8	0.75	0.84	0.79
Selenium (Se)-Dissolved	0.050	µg/L	20	20	30		<0.100	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.06
Silicon (Si)-Dissolved	50	µg/L					6350	5830	7420	7470	8300	8750	8640	8330
Silver (Ag)-Dissolved	0.010	µg/L	hardness dep.				<0.020	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Sodium (Na)-Dissolved	50	µg/L					12500	10900	17600	18900	6310	6660	6720	7670
Strontium (Sr)-Dissolved	0.20	µg/L					454	399	411	420	476	472	517	518
Sulfur (S)-Dissolved	500	µg/L					353000	271000	265000	245000	17500	17200	29800	36100
Tellurium (Te)-Dissolved	0.20	µg/L					<0.40	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Thallium (Tl)-Dissolved	0.010	µg/L	3				0.143	0.181	0.069	0.05	<0.010	<0.010	<0.010	0.018
Thorium (Th)-Dissolved	0.10	µg/L					<0.20	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Tin (Sn)-Dissolved	0.10	µg/L					<0.20	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.49
Titanium (Ti)-Dissolved	0.30	µg/L	1000				<0.60	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	0.41
Tungsten (W)-Dissolved	0.10	µg/L					<0.20	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Uranium (U)-Dissolved	0.010	µg/L	85	10	200		6.36	6.66	2.95	2.75	6.3	6.19	6.000	7.69
Vanadium (V)-Dissolved	0.50	µg/L		100	100		<1.00	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Zinc (Zn)-Dissolved	1.0	µg/L	hardness dep.	pH dep.	2000		**2660**	**2280**	198	175	1.8	2.5	2.7	6.6
Zirconium (Zr)-Dissolved	0.30	µg/L					<0.40	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Dissolved Mercury Filtration Location							Field	Field	Field	Field	Field	Field	Field	Field
Dissolved Metals Filtration Location							Field	Field	Field	Field	Field	Field	Field	Field

NOTES:

CSR standards for heavy metals, metalloids and inorganic ions applied to groundwater are designed for the dissolved substance concentrations with the exception of the drinking water standards, which are designed for unfiltered samples obtained at the point of consumption (total substance concentrations) (B.C. Reg. 375/96, current to January 13, 2026, Schedule 3.2).

[1] Calculated from the dissolved sulphide concentration [S^{2-}], pH, and the dissociation constant (pK) which is dependent on the sample water temperature, using the equation [H_2S]=[S^{2-}][1/(1+(10^(pH-pK)))] (BC WLRS 2025b).

[2] Cr (VI) generic numerical water standard (B.C. Reg. 375/96, current to January 13, 2026, Schedule 3.2).

[3] Cr (III) generic numerical water standard (B.C. Reg. 375/96, current to January 13, 2026, Schedule 3.2).

LEGEND:

- Parameter higher than the BC CSR water quality standard to protect aquatic life (AW).
- Parameter higher than the BC CSR water quality standard to protect water supplied for
- Parameter higher than the BC CSR water quality standard to protect water supplied for
- Parameter higher than the BC CSR water quality standard to protect water used for dri
- Parameter higher than more than one of the BC CSR water quality standards.

Regional District of Central Kootenay
Groundwater Quality Summary - 2025
HB Mine Tailings Storage Facility, Salmo, BC

			BC CSR AW	BC CSR IW	BC CSR LW	BC CSR DW	Downgradient Overburden							
Client Sample ID							MW-01-2004(S)	MW-01-2004(S)	MW-01-2004(S)	MW-01-2004(S)	MW99-1(S)	MW99-1(S)	MW99-1(S)	MW99-1(S)
Date Sampled							26-Mar-2025	21-May-2025	09-Sep-2025	04-Nov-2025	26-Mar-2025	21-May-2025	09-Sep-2025	04-Nov-2025
Time Sampled							11:15	11:32	11:48	11:50	14:47	10:07	15:17	09:30
ALS Sample ID							VA25A6884-005 Sub-Matrix: Groundwater	VA25B2060-006 Sub-Matrix: Groundwater	VA25C3911-006 Sub-Matrix: Groundwater	VA25C9760-006 Sub-Matrix: Groundwater	VA25A6884-002 Sub-Matrix: Groundwater	VA25B2060-001 Sub-Matrix: Groundwater	VA25C3911-001 Sub-Matrix: Groundwater	VA25C9760-001 Sub-Matrix: Groundwater
Parameter	Lowest Detection Limit	Units												
Physical Tests (Matrix: Water)														
Conductivity	2.0	µS/cm					145	137	184	152	255	243	260	248
Alkalinity, total (as CaCO3)	1.0	mg/L					74.8	70.0	93.1	81.4	88.9	92.1	91.7	92.9
Hardness (as CaCO3), dissolved	0.50	mg/L					64.5	62.9	83.8	69.2	119	117	126	115
Hardness (as CaCO3), from total Ca/Mg	0.50	mg/L					73.2	66.4	92.5	367	129	125	124	131
Solids, total dissolved [TDS]	10	mg/L					113	109	150	149	190	192	200	188
Solids, total suspended [TSS]	3.0	mg/L					63.3	73.9	139.0	771	120	103	16.6	51.7
pH	0.10	pH units					7.49	7.49	7.69	6.82	7.37	7.32	7.64	7.04
Anions and Nutrients (Matrix: Water)														
Ammonia, total (as N)	0.0050	mg/L	pH dep.				0.211	0.192	0.28	0.34	0.382	0.267	0.452	0.478
Bromide	0.050	mg/L					<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chloride	0.50	mg/L	1500	100	600	250	<0.50	<0.50	<0.50	<0.50	1.62	1.50	1.69	1.36
Fluoride	0.020	mg/L	hardness dep.	1	1	1.5	0.157	0.173	0.190	0.162	0.111	0.148	0.112	0.114
Kjeldahl nitrogen, total [TKN]	0.050	mg/L					0.286	0.298	0.41	1.14	0.476	0.478	0.468	0.542
Nitrate (as N)	0.0050	mg/L	400		100	10	0.0376	0.0379	0.0458	0.232	0.0076	0.0413	<0.0050	<0.0050
Nitrite (as N)	0.0010	mg/L	chloride dep.		10	1	<0.0010	<0.0010	0.0107	0.0093	<0.0010	<0.0010	<0.0010	<0.0010
Phosphate, ortho-, dissolved (as P)	0.0010	mg/L					0.0635	0.0662	0.0782	0.0751	0.092	0.0343	0.003	0.0123
Sulfate (as SO4)	0.30	mg/L	hardness dep.		1000	500	2.86	3.47	6.2	1.77	44.4	38.0	41.8	37.1
Organic / Inorganic Carbon (Matrix: Water)														
Carbon, total organic [TOC]	0.50	mg/L					2.28	2.00	2.92	15.8	3.04	3.42	1.26	2.05
Total Sulfides (Matrix: Water)														
sulfide, total (as S)	0.0015	mg/L					<0.0015	<0.010	<0.010	<0.010	0.0022	<0.010	<0.010	<0.010
sulfide, total (as H2S)	0.0016	mg/L					<0.0016	<0.011	<0.011	<0.011	0.0023	<0.011	<0.011	<0.011
sulfide, un-ionized (as H2S), calculated[1]	0.0016	mg/L	0.02			0.05	<0.0013	<0.0086	<0.0083	<0.0082	0.0010	<0.0083	<0.0067	<0.0080
Total Metals (Matrix: Water)														
Aluminum (Al)-Total	3.0	µg/L				9500	2270	2750	5130	**124000**	24.8	49.1	27.6	31.1
Antimony (Sb)-Total	0.10	µg/L				6	0.22	0.25	<0.50	<2.00	0.11	0.31	<0.10	0.12
Arsenic (As)-Total	0.10	µg/L				10	6.43	7.37	9.61	**68.3**	1.96	1.50	0.49	0.97
Barium (Ba)-Total	0.10	µg/L				1000	52.8	67.9	164	**2520**	730	712	138	455
Beryllium (Be)-Total	0.020	µg/L				8	0.098	0.138	0.197	6.7	0.052	<0.100	<0.100	<0.100
Bismuth (Bi)-Total	0.050	µg/L					<0.1	<0.100	<0.250	3.94	<0.05	<0.050	<0.050	<0.050
Boron (B)-Total	10	µg/L				5000	<20	<20	<50	<200	25	28	32	30
Cadmium (Cd)-Total	0.0050	µg/L				5	0.419	0.652	1.01	**13.2**	0.0247	0.0720	0.0059	0.0317
Calcium (Ca)-Total	50	µg/L					20000	18000	25000	60600	37400	35700	34400	38600
Cesium (Cs)-Total	0.010	µg/L					0.3	0.398	0.622	18.3	0.017	0.027	0.019	0.025
Chromium (Cr)-Total	0.50	µg/L				50[2]	4	4.96	9.38	**269**	5.58	2.84	<0.50	1.49
Cobalt (Co)-Total	0.10	µg/L				1	**1.94**	**2.26**	**6.32**	**119**	0.15	0.16	0.11	0.13
Copper (Cu)-Total	0.50	µg/L				1500	6.68	8.79	16.2	468	27	7.34	1.29	2.7
Iron (Fe)-Total	10	µg/L				6500	3120	4120	**7290**	**168000**	**43800**	**37100**	**9680**	**21700**
Lead (Pb)-Total	0.050	µg/L				10	3.98	5.52	9.66	**232**	0.234	0.738	0.07	0.369
Lithium (Li)-Total	1.0	µg/L				8	3.5	3.6	6.1	**167**	**19**	**18.0**	**20.6**	**20.2**
Magnesium (Mg)-Total	5.0	µg/L					5640	5210	7310	52300	8720	8650	9190	8400
Manganese (Mn)-Total	0.10	µg/L				1500	**5740**	**6870**	**12700**	**62300**	358	374	303	318
Mercury (Hg)-Total	0.0050	µg/L				1	<0.005	<0.0050	0.0054	0.0307	<0.005	<0.0050	<0.0050	<0.0050
Molybdenum (Mo)-Total	0.050	µg/L				250	9.94	13.1	15.4	20.7	0.72	0.436	0.171	0.241
Nickel (Ni)-Total	0.50	µg/L				80	4.55	5.87	9.41	**252**	2.56	1.14	<0.50	0.63
Phosphorus (P)-Total	50	µg/L					238	278	502	13200	11900	9080	1970	5660
Potassium (K)-Total	50	µg/L					1330	1420	1980	16400	1030	1080	1140	1070
Rubidium (Rb)-Total	0.20	µg/L					3	3.66	7.09	154	0.47	0.54	0.6	0.54
Selenium (Se)-Total	0.050	µg/L				10	<0.1	0.115	<0.250	1.53	0.083	0.091	<0.050	<0.050
Silicon (Si)-Total	100	µg/L					17100	16800	21200	112000	16100	16800	18200	17100
Silver (Ag)-Total	0.010	µg/L				20	0.082	0.118	0.211	2.88	0.011	0.015	<0.010	0.016
Sodium (Na)-Total	50	µg/L				200000	2860	2720	3460	4950	4340	4460	4970	4390
Strontium (Sr)-Total	0.20	µg/L				2500	129	130	172	484	291	298	229	270
Sulfur (S)-Total	500	µg/L					<1000	1230	<2500	<10000	15100	14600	15900	13000
Tellurium (Te)-Total	0.20	µg/L					<0.4	<0.40	<1.00	<4.00	<0.2	<0.20	<0.20	<0.20
Thallium (Tl)-Total	0.010	µg/L					0.021	0.032	0.056	1.32	<0.01	<0.010	<0.010	<0.010
Thorium (Th)-Total	0.10	µg/L					1.09	<1.50	2.13	59.4	<0.1	<0.10	<0.10	<0.10
Tin (Sn)-Total	0.10	µg/L				2500	0.46	0.42	0.59	5.33	<0.1	0.12	<0.10	<0.10
Titanium (Ti)-Total	0.30	µg/L					63.8	82.3	148	2580	2.06	2.88	1.64	1.99
Tungsten (W)-Total	0.10	µg/L				3	<0.2	<0.20	<0.50	<2.00	1.07	1.08	0.5	0.76
Uranium (U)-Total	0.010	µg/L				20	1.48	1.70	3.65	**56.6**	0.098	0.339	0.034	0.315
Vanadium (V)-Total	0.50	µg/L				20	10.4	13.8	**26.8**	**541**	3.16	4.56	0.67	2.94
Zinc (Zn)-Total	3.0	µg/L				3000	27.6	31.3	51	1270	4.2	8.3	<3.0	5
Zirconium (Zr)-Total	0.20	µg/L					<0.4	<0.40	<1.00	<4.00	0.24	0.26	<0.20	<0.20
Dissolved Metals (Matrix: Water)														
Aluminum (Al)-Dissolved	1.0	µg/L		5000	5000		10.4	8.4	4.1	17.8	3.2	1.4	2.1	1.3
Antimony (Sb)-Dissolved	0.10	µg/L	90				<0.1	<0.10	<0.10	<0.10	<0.1	0.14	<0.10	<0.10
Arsenic (As)-Dissolved	0.10	µg/L	50	100	25		0.96	0.96	1.05	0.93	0.3	0.33	0.39	0.42
Barium (Ba)-Dissolved	0.10	µg/L	10000				8.03	6.03	9.76	13.2	65.5	66.1	103	82.8
Beryllium (Be)-Dissolved	0.020	µg/L	1.5	100	100		<0.02	<0.100	<0.100	<0.100	<0.02	<0.100	<0.100	<0.100
Bismuth (Bi)-Dissolved	0.050	µg/L					<0.05	<0.050	<0.050	<0.050	<0.05	<0.050	<0.050	<0.050
Boron (B)-Dissolved	10	µg/L	12000	500	5000		<10	<10	<10	<10	23	25	29	29
Cadmium (Cd)-Dissolved	0.0050	µg/L	hardness dep.	5	80		0.25	0.302	0.36	0.403	<0.005	0.0105	0.0055	<0.0050
Calcium (Ca)-Dissolved	50	µg/L			1000000		18100	17700	24200	20200	33000	32900	35600	33100
Cesium (Cs)-Dissolved	0.010	µg/L					<0.01	<0.010	<0.010	<0.010	0.014	0.016	0.018	0.021
Chromium (Cr)-Dissolved	0.50	µg/L	10[2]	5[3]	50[2]		<0.5	<0.50	<0.50	<0.50	<0.5	<0.50	<0.50	<0.50
Cobalt (Co)-Dissolved	0.10	µg/L	40	50	1000		0.1	<0.10	0.11	0.18	<0.1	<0.10	<0.10	<0.10
Copper (Cu)-Dissolved	0.20	µg/L	hardness dep.	200	300		0.96	0.92	1.18	1.37	0.44	0.25	0.38	<0.20
Iron (Fe)-Dissolved	10	µg/L		5000			10	<10	<10	31	4930	**5960**	**8430**	**7420**
Lead (Pb)-Dissolved	0.050	µg/L	hardness dep.	200	100		<0.05	<0.050	<0.050	0.121	<0.05	<0.050	<0.050	<0.050
Lithium (Li)-Dissolved	1.0	µg/L		2500	5000		<1	<1.0	1	<1.0	17.7	17.9	19.8	19.2
Magnesium (Mg)-Dissolved	5.0	µg/L					4680	4540	5680	4560	8830	8370	9040	7950
Manganese (Mn)-Dissolved	0.10	µg/L		200			**3690**	**3000**	**4310**	**3210**	**268**	**243**	**303**	**274**
Mercury (Hg)-Dissolved	0.0050	µg/L	0.25	1	2		<0.005	<0.0050	<0.0050	<0.0050	<0.005	<0.0050	<0.0050	<0.0050
Molybdenum (Mo)-Dissolved	0.050	µg/L	10000	10	50		5.8	5.66	8.04	5.43	0.22	0.240	0.159	0.185
Nickel (Ni)-Dissolved	0.50	µg/L	hardness dep.	200	1000		<0.5	<0.50	0.53	0.57	<0.5	<0.50	<0.50	<0.50
Phosphorus (P)-Dissolved	50	µg/L					73	65	82	76	763	1080	1580	1590
Potassium (K)-Dissolved	50	µg/L					940	944	1170	1170	1040	1080	1170	1200
Rubidium (Rb)-Dissolved	0.20	µg/L					<0.2	<0.20	0.25	0.26	0.44	0.41	0.54	0.51
Selenium (Se)-Dissolved	0.050	µg/L	20	20	30		<0.05	0.092	<0.050	<0.050	<0.05	<0.050	<0.050	<0.050
Silicon (Si)-Dissolved	50	µg/L					12000	11800	12800	13400	15100	15500	16900	16600
Silver (Ag)-Dissolved	0.010	µg/L	hardness dep.				<0.01	<0.010	<0.010	<0.010	<0.01	<0.010	<0.010	<0.010
Sodium (Na)-Dissolved	50	µg/L					2550	2490	2900	2750	4400	4430	4970	4820
Strontium (Sr)-Dissolved	0.20	µg/L					112	112	155	134	193	206	222	215
Sulfur (S)-Dissolved	500	µg/L					880	960	2300	<500	13700	13600	14400	11800
Tellurium (Te)-Dissolved	0.20	µg/L					<0.2	<0.20	<0.20	<0.20	<0.2	<0.20	<0.20	<0.20
Thallium (Tl)-Dissolved	0.010	µg/L	3				<0.01	<0.010	<0.010	<0.010	<0.01	<0.010	<0.010	<0.010
Thorium (Th)-Dissolved	0.10	µg/L					<0.1	<0.10	<0.10	<0.10	<0.1	<0.10	<0.10	<0.10
Tin (Sn)-Dissolved	0.10	µg/L					<0.1	<0.10	<0.10	0.16	<0.1	<0.10	<0.10	<0.10
Titanium (Ti)-Dissolved	0.30	µg/L	1000				<0.3	<0.30	<0.30	0.66	<0.3	<0.30	<0.30	<0.30
Tungsten (W)-Dissolved	0.10	µg/L					<0.1	<0.10	<0.10	<0.10	0.38	0.36	0.47	0.47
Uranium (U)-Dissolved	0.010	µg/L	85	10	200		0.664	0.648	1.39	0.683	0.019	0.030	0.025	0.024
Vanadium (V)-Dissolved	0.50	µg/L		100	100		1.15	1.18	1.54	1.9	<0.5	<0.50	<0.50	<0.50
Zinc (Zn)-Dissolved	1.0	µg/L	hardness dep.	pH dep.	2000		6.8	4.3	6.6	2.6	1.5	1.3	1.1	<1.0
Zirconium (Zr)-Dissolved	0.30	µg/L					<0.3	<0.20	<0.20	<0.20	<0.3	<0.20	<0.20	<0.20
Dissolved Mercury Filtration Location							Field	Field	Field	Field	Field	Field	Field	Field
Dissolved Metals Filtration Location							Field	Field	Field	Field	Field	Field	Field	Field

NOTES:

CSR standards for heavy metals, metalloids and inorganic ions applied to groundwater are designed for the dissolved substance concentrations with the exception of the drinking water standards, which are designed for unfiltered samples obtained at the point of consumption (total substance concentrations) (B.C. Reg. 375/96, current to January 13, 2026, Schedule 3.2).

[1] Calculated from the dissolved sulphide concentration [S^{2-}], pH, and the dissociation constant (pK) which is dependent on the sample water temperature, using the equation [H_2S]=[S^{2-}][1/(1+(10^(pH-pK)))] (BC WLRS 2025b).

[2] Cr (VI) generic numerical water standard (B.C. Reg. 375/96, current to January 13, 2026, Schedule 3.2).

[3] Cr (III) generic numerical water standard (B.C. Reg. 375/96, current to January 13, 2026, Schedule 3.2).

LEGEND:

- Parameter higher than the BC CSR water quality standard to protect aquatic life (AW).
- Parameter higher than the BC CSR water quality standard to protect water supplied for
- Parameter higher than the BC CSR water quality standard to protect water supplied for
- Parameter higher than the BC CSR water quality standard to protect water used for dri
- Parameter higher than more than one of the BC CSR water quality standards.

Regional District of Central Kootenay
Groundwater Quality Summary - 2025
HB Mine Tailings Storage Facility, Salmo, BC

			BC CSR AW	BC CSR IW	BC CSR LW	BC CSR DW	Background Bedrock				Shallow Bedrock Source				Deep Bedrock Source			
Client Sample ID							S-MW-1	S-MW-1	S-MW-1	S-MW-1	MW99-2(S)	MW99-2(S)	MW99-2(S)	MW99-2(S)	MW99-2(D)	MW99-2(D)	MW99-2(D)	MW99-2(D)
Date Sampled							(E221702)	(E221702)	(E221702)	(E221702)	(E275543)	(E275543)	(E275543)	(E275543)	(E240502)	(E240502)	(E240502)	(E240502)
Time Sampled							26-Mar-2025	13-May-2025	10-Sep-2025	04-Nov-2025	01-Apr-2025	21-May-2025	10-Sep-2025	04-Nov-2025	01-Apr-2025	21-May-2025	10-Sep-2025	04-Nov-2025
ALS Sample ID							14:00	10:06	09:21	15:55	11:34	14:50	10:12	13:43	11:59	15:15	10:35	13:57
							VA25A6884-007	VA25B1325-002	VA25C3911-010	VA25C9760-010	VA25A7369-002	VA25B2060-003	VA25C3911-003	VA25C9760-003	VA25A7369-003	VA25B2060-004	VA25C3911-004	VA25C9760-004
Parameter	Lowest Detection Limit	Units					Sub-Matrix: Groundwater	Sub-Matrix: Groundwater	Sub-Matrix: Groundwater	Sub-Matrix: Groundwater	Sub-Matrix: Water	Sub-Matrix: Groundwater	Sub-Matrix: Groundwater	Sub-Matrix: Groundwater	Sub-Matrix: Water	Sub-Matrix: Groundwater	Sub-Matrix: Groundwater	Sub-Matrix: Groundwater
Physical Tests (Matrix: Water)																		
Conductivity	2.0	µS/cm					309	331	335	333	725	574	697	779	621	604	619	617
Alkalinity, total (as CaCO3)	1.0	mg/L					161	167	174	167	228	198	277	306	288	285	289	285
Hardness (as CaCO3), dissolved	0.50	mg/L					166	168	171	168	375	300	366	413	328	327	340	336
Hardness (as CaCO3), from total Ca/Mg	0.50	mg/L					168	180	176	183	394	280	372	442	338	327	347	355
Solids, total dissolved [TDS]	10	mg/L					194	174	226	198	524	444	510	553	404	426	425	409
Solids, total suspended [TSS]	3.0	mg/L					3.1	3.8	4	3.9	3.3	6.1	11	20.5	7.5	8.9	8.2	7.3
pH	0.10	pH units					8.29	8.17	8.21	7.97	7.68	7.38	7.36	7.01	8.23	8.10	8.09	7.89
Anions and Nutrients (Matrix: Water)																		
Ammonia, total (as N)	0.0050	mg/L	pH dep.				<0.0050	<0.0050	0.0317	<0.0050	0.0533	0.0244	0.0556	0.0618	0.0202	0.0173	0.0254	0.0308
Bromide	0.050	mg/L					<0.050	<0.050	<0.050	<0.050	<0.250	<0.050	<0.250	<0.250	<0.050	<0.050	<0.050	<0.050
Chloride	0.50	mg/L	1500	100	600	250	0.57	0.60	0.68	0.63	<2.50	0.60	<2.50	<2.50	<0.50	<0.50	<0.50	<0.50
Fluoride	0.020	mg/L	hardness dep.	1	1	1.5	0.094	0.102	0.112	0.104	<0.100	0.054	<0.100	<0.100	0.144	0.145	0.178	0.168
Kjeldahl nitrogen, total [TKN]	0.050	mg/L					<0.050	<0.050	<0.050	<0.050	0.178	0.171	0.172	0.198	<0.050	0.087	0.056	0.084
Nitrate (as N)	0.0050	mg/L	400		100	10	<0.0050	0.0070	0.0061	0.0069	<0.0250	<0.0050	<0.0250	<0.0250	<0.0050	<0.0050	<0.0050	0.0575
Nitrite (as N)	0.0010	mg/L	chloride dep.		10	1	<0.0010	<0.0010	<0.0010	<0.0010	<0.0050	<0.0010	<0.0050	<0.0050	<0.0010	<0.0010	<0.0010	<0.0010
Phosphate, ortho-, dissolved (as P)	0.0010	mg/L					<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0016
Sulfate (as SO4)	0.30	mg/L	hardness dep.		1000	500	13	14.1	14.2	15	175	116	116	134	70.3	65.3	69.8	72.6
Organic / Inorganic Carbon (Matrix: Water)																		
Carbon, total organic [TOC]	0.50	mg/L					<0.50	<0.50	<0.50	<0.50	3.84	4.28	4.49	4.42	<0.50	0.79	0.77	0.68
Total Sulfides (Matrix: Water)																		
sulfide, total (as S)	0.0015	mg/L					<0.0015	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
sulfide, total (as H2S)	0.0016	mg/L					<0.0016	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011
sulfide, un-ionized (as H2S), calculated[1]	0.0016	mg/L	0.02			0.05	<0.0003	<0.0019	<0.0023	<0.0051	<0.0092	<0.0088	<0.0038	<0.0088	<0.0045	<0.0044	<0.0086	<0.0035
Total Metals (Matrix: Water)																		
Aluminum (Al)-Total	3.0	µg/L				9500	112	142	159	56.6	10.9	12.4	20	33.9	38.6	68.4	55.3	36.3
Antimony (Sb)-Total	0.10	µg/L				6	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.20	<0.10	<0.10	<0.10	<0.10
Arsenic (As)-Total	0.10	µg/L				10	0.27	0.30	0.37	0.29	9.99	**10.2**	**16.40**	**17.6**	0.8	1.07	0.87	1.73
Barium (Ba)-Total	0.10	µg/L				1000	21.3	22.4	32.0	25.5	48.8	40.0	59.7	88	54.2	57.2	58.4	58.7
Beryllium (Be)-Total	0.020	µg/L				8	<0.02	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
Bismuth (Bi)-Total	0.050	µg/L					<0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.100	<0.050	<0.050	<0.050	<0.050
Boron (B)-Total	10	µg/L				5000	<10	<10	<10	<10	<10	<10	<10	<20	<10	<10	<10	<10
Cadmium (Cd)-Total	0.0050	µg/L				5	0.0068	0.0066	0.017	0.0132	0.0178	0.0202	0.024	0.0881	0.0236	0.0710	0.0371	0.0245
Calcium (Ca)-Total	50	µg/L					44700	48800	45900	50100	124000	84900	115000	138000	78200	72700	77700	84300
Cesium (Cs)-Total	0.010	µg/L					0.408	0.487	0.687	0.6	0.094	0.090	0.126	0.134	1.07	0.969	0.752	0.83
Chromium (Cr)-Total	0.50	µg/L				50[2]	<0.5	<0.50	0.58	<0.50	<0.50	<0.50	<0.50	<1.00	<0.50	<0.50	<0.50	<0.50
Cobalt (Co)-Total	0.10	µg/L				1	0.16	0.14	0.31	0.15	**6.95**	**5.16**	**7.07**	**13.6**	0.19	0.22	0.26	0.2
Copper (Cu)-Total	0.50	µg/L				1500	<0.5	<0.50	0.85	<0.50	<0.50	<0.50	<0.50	<1.00	0.69	0.86	0.7	0.63
Iron (Fe)-Total	10	µg/L				6500	177	236	336	118	5200	4070	**6800**	**8360**	1650	2060	1830	3030
Lead (Pb)-Total	0.050	µg/L				10	0.161	0.205	0.361	0.427	0.433	0.426	0.663	3.02	0.456	2.04	1.060	0.741
Lithium (Li)-Total	1.0	µg/L				8	5.0	5.5	**8.8**	6.5	1.3	1.1	1.6	2	6.8	6.6	6.9	7.1
Magnesium (Mg)-Total	5.0	µg/L					13800	14100	14800	14000	20400	16600	20500	23600	34800	35300	37100	35100
Manganese (Mn)-Total	0.10	µg/L				1500	122	79.2	378	194	**4620**	**3890**	**4970**	**6730**	108	132	151	95.8
Mercury (Hg)-Total	0.0050	µg/L				1	<0.005	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Molybdenum (Mo)-Total	0.050	µg/L				250	2.59	2.82	3.06	3.04	0.668	0.717	0.847	1.21	0.379	0.338	0.298	0.27
Nickel (Ni)-Total	0.50	µg/L				80	<0.5	<0.50	1.08	0.62	4.96	4.22	4.96	7	<0.50	0.55	<0.50	<0.50
Phosphorus (P)-Total	50	µg/L					<50	<50	<50	<50	55	53	82	<100	64	92	68	111
Potassium (K)-Total	50	µg/L					1100	1190	1520	1400	2130	2080	2760	2810	1070	1140	1200	1100
Rubidium (Rb)-Total	0.20	µg/L					1.65	1.93	2.55	2.12	1.05	1.06	1.4	1.3	1.93	2.18	2.15	2
Selenium (Se)-Total	0.050	µg/L				10	0.127	0.536	0.387	0.464	<0.050	0.050	<0.050	<0.100	<0.050	<0.050	<0.050	<0.050
Silicon (Si)-Total	100	µg/L					6980	7550	8930	8150	7730	8100	10500	10000	11000	11800	12300	11600
Silver (Ag)-Total	0.010	µg/L				20	<0.01	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.020	<0.010	<0.010	<0.010	<0.010
Sodium (Na)-Total	50	µg/L				200000	3140	3270	5120	3430	3510	3280	4020	3990	7470	7140	7590	6710
Strontium (Sr)-Total	0.20	µg/L				2500	284	300	324	328	440	351	425	452	631	619	602	602
Sulfur (S)-Total	500	µg/L					4590	4970	5280	5410	62700	45400	46000	46100	26100	26400	28000	26500
Tellurium (Te)-Total	0.20	µg/L					<0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.40	<0.20	<0.20	<0.20	<0.20
Thallium (Tl)-Total	0.010	µg/L					<0.01	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.020	<0.010	<0.010	<0.010	<0.010
Thorium (Th)-Total	0.10	µg/L					<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.20	<0.10	<0.10	<0.10	<0.10
Tin (Sn)-Total	0.10	µg/L				2500	0.43	0.35	0.37	0.35	0.14	0.10	0.17	<0.20	0.66	0.90	0.56	0.48
Titanium (Ti)-Total	0.30	µg/L					4.15	5.56	6.02	2.2	0.45	0.42	0.88	1.65	1.67	2.63	2.42	2.99
Tungsten (W)-Total	0.10	µg/L				3	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.20	0.12	0.11	0.11	0.11
Uranium (U)-Total	0.010	µg/L				20	9.61	9.67	10.7	9.84	3.49	2.21	4.02	5.73	2	2.01	1.960	1.95
Vanadium (V)-Total	0.50	µg/L				20	0.55	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<1.00	<0.50	<0.50	<0.50	0.76
Zinc (Zn)-Total	3.0	µg/L				3000	4.8	8.1	3.8	4.6	12.5	6.5	11.4	13.6	9	18.9	9.3	8.6
Zirconium (Zr)-Total	0.20	µg/L					<0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.40	<0.20	<0.20	<0.20	<0.20
Dissolved Metals (Matrix: Water)																		
Aluminum (Al)-Dissolved	1.0	µg/L		5000	5000		1	1.4	76.4	<1.0	1.9	5.8	3.5	<2.0	<1.0	1.2	<1.0	<1.0
Antimony (Sb)-Dissolved	0.10	µg/L	90				<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.20	<0.10	<0.10	<0.10	<0.10
Arsenic (As)-Dissolved	0.10	µg/L	50	100	25		0.15	0.15	0.28	0.18	9.64	9.44	13.3	13.8	0.36	0.33	0.43	0.39
Barium (Ba)-Dissolved	0.10	µg/L	10000				17.9	20.1	27.4	22.9	47.1	40.4	58.2	67.1	52	52.0	56.5	54
Beryllium (Be)-Dissolved	0.020	µg/L	1.5	100	100		<0.02	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
Bismuth (Bi)-Dissolved	0.050	µg/L					<0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.100	<0.050	<0.050	<0.050	<0.050
Boron (B)-Dissolved	10	µg/L	12000	500	5000		<10	<10	<10	<10	<10	<10	<10	<20	<10	<10	<10	<10
Cadmium (Cd)-Dissolved	0.0050	µg/L	hardness dep.	5	80		<0.005	<0.0050	0.0096	<0.0050	0.0069	<0.0050	0.0065	0.0114	0.0053	0.0076	0.0053	0.0069
Calcium (Ca)-Dissolved	50	µg/L			1000000		43000	44900	45400	45300	117000	92100	113000	130000	74200	73400	78200	78200
Cesium (Cs)-Dissolved	0.010	µg/L					0.353	0.417	0.645	0.531	0.089	0.086	0.118	0.119	0.993	0.902	0.698	0.765
Chromium (Cr)-Dissolved	0.50	µg/L	10[2]	5[3]	50[2]		<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<1.00	<0.50	<0.50	<0.50	<0.50
Cobalt (Co)-Dissolved	0.10	µg/L	40	50	1000		<0.1	<0.10	0.1	<0.10	6.68	5.27	6.36	9.34	0.16	0.16	0.2	0.14
Copper (Cu)-Dissolved	0.20	µg/L	hardness dep.	200	300		<0.2	<0.20	0.57	<0.20	<0.20	<0.20	<0.20	<0.40	<0.20	<0.20	<0.20	<0.20
Iron (Fe)-Dissolved	10	µg/L		5000			<10	<10	138	<10	4660	3620	4670	**5140**	846	823	885	436
Lead (Pb)-Dissolved	0.050	µg/L	hardness dep.	200	100		<0.05	<0.050	0.162	<0.050	<0.050	<0.050	<0.050	<0.100	<0.050	<0.050	<0.050	<0.050
Lithium (Li)-Dissolved	1.0	µg/L		2500	5000		4.5	5.0	8.5	5.5	1.3	1.1	1.5	<2.0	6.7	6.4	6.6	6.2
Magnesium (Mg)-Dissolved	5.0	µg/L					14300	13500	14100	13400	20200	16900	20500	21400	34700	35000	35200	34200
Manganese (Mn)-Dissolved	0.10	µg/L		200			15.8	24.6	122	11	**4660**	**3960**	**4740**	**5750**	98.2	106	126	83.7
Mercury (Hg)-Dissolved	0.0050	µg/L	0.25	1	2		<0.005	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Molybdenum (Mo)-Dissolved	0.050	µg/L	10000	10	50		2.51	2.52	1.92	2.78	0.726	0.668	0.712	0.855	0.359	0.289	0.271	0.257
Nickel (Ni)-Dissolved	0.50	µg/L	hardness dep.	200	1000		<0.5	<0.50	0.59	<0.50	4.72	4.32	4.76	5.34	<0.50	<0.50	<0.50	<0.50
Phosphorus (P)-Dissolved	50	µg/L					<50	<50	<50	<50	<50	<50	<50	<100	<50	<50	<50	<50
Potassium (K)-Dissolved	50	µg/L					1150	1270	1530	1510	2100	2240	2810	3010	1080	1170	1160	1240
Rubidium (Rb)-Dissolved	0.20	µg/L					1.53	1.65	2.56	2.02	0.87	0.96	1.26	1.27	1.78	1.94	2.07	1.97
Selenium (Se)-Dissolved	0.050	µg/L	20	20	30		0.11	0.370	0.349	0.57	<0.050	<0.050	<0.050	<0.100	<0.050	<0.050	<0.050	<0.050
Silicon (Si)-Dissolved	50	µg/L					6890	7240	8460	8260	7570	7810	9850	9900	11200	11100	11700	11400
Silver (Ag)-Dissolved	0.010	µg/L	hardness dep.				<0.01	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.020	<0.010	<0.010	<0.010	<0.010
Sodium (Na)-Dissolved	50	µg/L					3170	3290	5030	3620	3430	3220	3940	4170	7540	7270	7170	7130
Strontium (Sr)-Dissolved	0.20	µg/L					273	294	323	309	430	336	432	462	623	601	606	602
Sulfur (S)-Dissolved	500	µg/L					4360	4460	4850	4830	63000	41100	41200	44700	26900	23700	26200	24800
Tellurium (Te)-Dissolved	0.20	µg/L					<0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.40	<0.20	<0.20	<0.20	<0.20
Thallium (Tl)-Dissolved	0.010	µg/L	3				<0.01	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.020	<0.010	<0.010	<0.010	<0.010
Thorium (Th)-Dissolved	0.10	µg/L					<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.20	<0.10	<0.10	<0.10	<0.10
Tin (Sn)-Dissolved	0.10	µg/L					0.18	0.18	0.22	<0.10	<0.10	<0.10	<0.10	<0.20	<0.10	<0.10	<0.10	<0.10
Titanium (Ti)-Dissolved	0.30	µg/L	1000				<0.3	<0.30	2.9	<0.30	<0.30	<0.30	<0.30	<0.60	<0.30	<0.30	<0.30	<0.30
Tungsten (W)-Dissolved	0.10	µg/L					<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.20	<0.10	<0.10	<0.10	<0.10
Uranium (U)-Dissolved	0.010	µg/L	85	10	200		8.92	9.32	**10.4**	9.47	3.42	2.14	3.92	5.33	1.97	1.91	1.91	1.93
Vanadium (V)-Dissolved	0.50	µg/L		100	100		<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<1.00	<0.50	<0.50	<0.50	<0.50
Zinc (Zn)-Dissolved	1.0	µg/L	hardness dep.	pH dep.	2000		3.6	2.8	2.3	2.1	10.5	4.7	8.7	3.6	5.6	8.6	4.4	1.1
Zirconium (Zr)-Dissolved	0.30	µg/L					<0.3	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.40	<0.20	<0.20	<0.20	<0.20
Dissolved Mercury Filtration Location							Field	Field	Field	Field	Field	Field	Field	Field	Field	Field	Field	Field
Dissolved Metals Filtration Location							Field	Field	Field	Field	Field	Field	Field	Field	Field	Field	Field	Field

NOTES:

CSR standards for heavy metals, metalloids and inorganic ions applied to groundwater are designed for the dissolved substance concentrations with the exception of the drinking water standards, which are designed for unfiltered samples obtained at the point of consumption (total substance concentrations) (B.C. Reg. 375/96, current to January 13, 2026, Schedule 3.2).

[1] Calculated from the dissolved sulphide concentration [S^{2-}], pH, and the dissociation constant (pK) which is dependent on the sample water temperature, using the equation [H_2S]=[S^{2-}][1/(1+(10^(pH-pK)))] (BC WLRS 2025b).

[2] Cr (VI) generic numerical water standard (B.C. Reg. 375/96, current to January 13, 2026, Schedule 3.2).

[3] Cr (III) generic numerical water standard (B.C. Reg. 375/96, current to January 13, 2026, Schedule 3.2).

LEGEND:

- Parameter higher than the BC CSR water quality standard to protect aquatic life (AW).
- Parameter higher than the BC CSR water quality standard to protect water supplied for
- Parameter higher than the BC CSR water quality standard to protect water supplied for
- Parameter higher than the BC CSR water quality standard to protect water used for dri
- Parameter higher than more than one of the BC CSR water quality standards.

Regional District of Central Kootenay
Groundwater Quality Summary - 2025
HB Mine Tailings Storage Facility, Salmo, BC

Parameter	Lowest Detection Limit	Units	BC CSR AW	BC CSR IW	BC CSR LW	BC CSR DW	Downgradient Bedrock							
Client Sample ID							MW-01-2004(D) (E303723)	MW-01-2004(D) (E303723)	MW-01-2004(D) (E303723)	MW-01-2004(D) (E303723)	MW99-1(D) (E240501)	MW99-1(D) (E240501)	MW99-1(D) (E240501)	MW99-1(D) (E240501)
Date Sampled							26-Mar-2025	21-May-2025	09-Sep-2025	04-Nov-2025	26-Mar-2025	21-May-2025	09-Sep-2025	04-Nov-2025
Time Sampled							11:30	11:46	11:25	17:10	15:27	10:34	15:50	10:40
ALS Sample ID							VA25A6884-006 Sub-Matrix: Groundwater	VA25B2060-007 Sub-Matrix: Groundwater	VA25C3911-007 Sub-Matrix: Groundwater	VA25C9760-007 Sub-Matrix: Groundwater	VA25A6884-003 Sub-Matrix: Groundwater	VA25B2060-002 Sub-Matrix: Groundwater	VA25C3911-002 Sub-Matrix: Groundwater	VA25C9760-002 Sub-Matrix: Groundwater
Physical Tests (Matrix: Water)														
Conductivity	2.0	µS/cm					478	477	485	492	779	772	787	817
Alkalinity, total (as CaCO3)	1.0	mg/L					161	162	162	160	388	397	399	387
Hardness (as CaCO3), dissolved	0.50	mg/L					222	223	225	224	177	174	177	185
Hardness (as CaCO3), from total Ca/Mg	0.50	mg/L					223	224	230	239	186	177	181	191
Solids, total dissolved [TDS]	10	mg/L					335	352	348	342	501	515	526	495
Solids, total suspended [TSS]	3.0	mg/L					<3.0	4.9	5.6	8.1	5.7	25.9	29.8	6.1
pH	0.10	pH units					8.22	8.15	8.13	7.87	8.31	7.91	8.12	7.9
Anions and Nutrients (Matrix: Water)														
Ammonia, total (as N)	0.0050	mg/L	pH dep.				<0.0050	<0.0050	<0.0050	<0.0050	1.24	1.48	1.53	1.65
Bromide	0.050	mg/L					<0.050	<0.050	<0.050	<0.050	<0.250	<0.250	<0.250	<0.250
Chloride	0.50	mg/L	1500	100	600	250	2.74	2.54	2.76	2.68	7.59	7.27	7.93	7.52
Fluoride	0.020	mg/L	hardness dep.	1	1	1.5	0.21	0.205	0.228	0.202	0.538	0.548	0.538	0.512
Kjeldahl nitrogen, total [TKN]	0.050	mg/L					<0.050	0.062	0.051	0.132	1.34	1.61	1.58	1.67
Nitrate (as N)	0.0050	mg/L	400		100	10	0.106	0.0791	0.0882	0.104	0.218	0.0851	0.0644	<0.0250
Nitrite (as N)	0.0010	mg/L	chloride dep.		10	1	<0.0010	<0.0010	<0.0010	<0.0010	0.021	<0.0050	<0.0050	<0.0050
Phosphate, ortho-, dissolved (as P)	0.0010	mg/L					0.0316	0.0320	0.0268	0.0241	0.0757	0.0967	0.0908	0.0844
Sulfate (as SO4)	0.30	mg/L	hardness dep.		1000	500	95.4	91.7	94.6	97.8	41.9	40.3	41.2	44
Organic / Inorganic Carbon (Matrix: Water)														
Carbon, total organic [TOC]	0.50	mg/L					0.79	1.01	0.99	1.25	1.18	0.61	0.76	<0.50
Total Sulfides (Matrix: Water)														
sulfide, total (as S)	0.0015	mg/L					<0.0015	<0.010	<0.010	<0.010	0.0017	<0.010	<0.010	<0.010
sulfide, total (as H2S)	0.0016	mg/L					<0.0016	<0.011	<0.011	<0.011	0.0018	<0.011	<0.011	<0.011
sulfide, un-ionized (as H2S), calculated[1]	0.0016	mg/L	0.02			0.05	<0.0004	<0.0036	<0.0026	<0.0082	0.0013	<0.0044	<0.0032	<0.0042
Total Metals (Matrix: Water)														
Aluminum (Al)-Total	3.0	µg/L				9500	16.7	23.3	46.7	38.1	42.8	593	366	98.9
Antimony (Sb)-Total	0.10	µg/L				6	<0.1	<0.10	<0.10	0.97	0.72	0.76	1	0.54
Arsenic (As)-Total	0.10	µg/L				10	1.13	2.08	1.82	3.65	0.33	0.41	0.45	0.37
Barium (Ba)-Total	0.10	µg/L				1000	142	141	156	170	75.7	80.8	79.9	75.5
Beryllium (Be)-Total	0.020	µg/L				8	<0.02	<0.100	<0.100	<0.100	0.905	0.208	0.128	<0.100
Bismuth (Bi)-Total	0.050	µg/L					<0.05	<0.050	<0.050	<0.050	<0.05	<0.050	<0.050	<0.050
Boron (B)-Total	10	µg/L				5000	<10	<10	<10	<10	167	156	161	154
Cadmium (Cd)-Total	0.0050	µg/L				5	0.0106	0.0877	0.0276	0.0317	<0.035	0.0360	0.013	0.0149
Calcium (Ca)-Total	50	µg/L					66000	65900	66900	71700	52300	47600	48800	53600
Cesium (Cs)-Total	0.010	µg/L					0.479	0.478	0.497	0.435	4.48	5.12	4.82	4.75
Chromium (Cr)-Total	0.50	µg/L				50[2]	<0.5	<0.50	<0.50	0.64	4.86	2.15	3.09	2.62
Cobalt (Co)-Total	0.10	µg/L				1	<0.1	<0.10	<0.10	0.1	0.26	0.25	0.28	0.2
Copper (Cu)-Total	0.50	µg/L				1500	0.56	0.89	1.32	2.49	1030	209	51.5	15.4
Iron (Fe)-Total	10	µg/L				6500	145	794	585	1750	311	427	396	266
Lead (Pb)-Total	0.050	µg/L				10	0.435	2.58	1.24	**127**	1.65	0.798	0.559	0.193
Lithium (Li)-Total	1.0	µg/L				8	**21.1**	**20.0**	**21.8**	**19.4**	**222**	**220**	**232**	**227**
Magnesium (Mg)-Total	5.0	µg/L					14200	14500	15400	14600	13600	14100	14300	13800
Manganese (Mn)-Total	0.10	µg/L				1500	28.4	123	59.5	275	90.1	153	161	147
Mercury (Hg)-Total	0.0050	µg/L				1	<0.005	<0.0050	<0.0050	<0.0050	<0.005	<0.0050	<0.0050	<0.0050
Molybdenum (Mo)-Total	0.050	µg/L				250	1.88	1.99	1.92	1.58	36.6	6.12	1.98	0.786
Nickel (Ni)-Total	0.50	µg/L				80	<0.5	<0.50	<0.50	1.27	2.75	1.51	1.88	1.77
Phosphorus (P)-Total	50	µg/L					79	150	134	204	142	149	167	152
Potassium (K)-Total	50	µg/L					2300	2380	2490	2290	4050	4060	4220	3920
Rubidium (Rb)-Total	0.20	µg/L					1.52	1.55	1.67	1.5	8.64	9.73	10.1	8.55
Selenium (Se)-Total	0.050	µg/L				10	<0.05	<0.050	<0.050	<0.050	<0.05	<0.050	<0.050	<0.050
Silicon (Si)-Total	100	µg/L					9960	10500	10600	10200	8760	11000	10100	8630
Silver (Ag)-Total	0.010	µg/L				20	<0.01	<0.010	<0.010	0.012	0.17	0.027	<0.020	<0.010
Sodium (Na)-Total	50	µg/L				200000	15400	14900	17000	13500	116000	119000	127000	111000
Strontium (Sr)-Total	0.20	µg/L				2500	377	377	383	383	720	760	746	734
Sulfur (S)-Total	500	µg/L					33500	36400	36500	36300	15800	17000	17100	16300
Tellurium (Te)-Total	0.20	µg/L					<0.2	<0.20	<0.20	<0.20	<0.2	<0.20	<0.20	<0.20
Thallium (Tl)-Total	0.010	µg/L					<0.01	<0.010	<0.010	<0.010	<0.01	<0.010	<0.010	<0.010
Thorium (Th)-Total	0.10	µg/L					<0.1	<0.10	<0.10	<0.10	<0.1	<0.80	0.68	0.12
Tin (Sn)-Total	0.10	µg/L				2500	0.56	0.53	0.84	0.58	2.18	0.27	0.14	<0.10
Titanium (Ti)-Total	0.30	µg/L					0.98	1.54	2.52	2.96	1.6	8.46	6.41	2.66
Tungsten (W)-Total	0.10	µg/L				3	<0.1	<0.10	<0.10	<0.10	**13**	2.52	1.03	0.79
Uranium (U)-Total	0.010	µg/L				20	2.42	2.36	2.31	2.38	0.604	0.722	0.744	0.568
Vanadium (V)-Total	0.50	µg/L				20	<0.5	<0.50	<0.50	0.51	<0.5	<0.50	<0.50	0.54
Zinc (Zn)-Total	3.0	µg/L				3000	8.3	14.2	12.5	8.3	29.6	9.9	6.7	3
Zirconium (Zr)-Total	0.20	µg/L					<0.2	<0.20	<0.20	<0.20	<0.2	0.67	0.46	<0.20
Dissolved Metals (Matrix: Water)														
Aluminum (Al)-Dissolved	1.0	µg/L		5000	5000		1.6	1.0	<1.0	<1.0	1.9	1.0	7.2	<1.0
Antimony (Sb)-Dissolved	0.10	µg/L	90				<0.1	<0.10	<0.10	0.23	0.38	0.45	0.79	0.37
Arsenic (As)-Dissolved	0.10	µg/L	50	100	25		0.92	0.85	0.87	0.79	0.21	0.31	0.36	0.28
Barium (Ba)-Dissolved	0.10	µg/L	10000				141	137	143.0	148	73.8	75.4	79.2	76.8
Beryllium (Be)-Dissolved	0.020	µg/L	1.5	100	100		<0.02	<0.100	<0.100	<0.100	0.051	<0.100	<0.100	<0.100
Bismuth (Bi)-Dissolved	0.050	µg/L					<0.05	<0.050	<0.050	<0.050	<0.05	<0.050	<0.050	<0.050
Boron (B)-Dissolved	10	µg/L	12000	500	5000		<10	<10	<10	<10	134	154	148	163
Cadmium (Cd)-Dissolved	0.0050	µg/L	hardness dep.	5	80		<0.005	0.0120	0.0073	0.0051	0.0174	0.0247	0.0148	0.0088
Calcium (Ca)-Dissolved	50	µg/L			1000000		64900	65200	66400	66800	47300	47100	48400	51500
Cesium (Cs)-Dissolved	0.010	µg/L					0.457	0.468	0.485	0.402	4.33	4.72	4.69	4.58
Chromium (Cr)-Dissolved	0.50	µg/L	10[2]	5[3]	50[2]		<0.5	<0.50	<0.50	<0.50	<0.5	<0.50	<0.50	<0.50
Cobalt (Co)-Dissolved	0.10	µg/L	40	50	1000		<0.1	<0.10	<0.10	<0.10	0.12	0.12	0.18	0.18
Copper (Cu)-Dissolved	0.20	µg/L	hardness dep.	200	300		0.28	0.23	0.46	0.85	**438**	**137**	33.5	6.66
Iron (Fe)-Dissolved	10	µg/L		5000			<10	<10	<10	<10	<10	10	38	86
Lead (Pb)-Dissolved	0.050	µg/L	hardness dep.	200	100		<0.05	0.065	<0.050	2.87	<0.05	<0.050	<0.050	<0.050
Lithium (Li)-Dissolved	1.0	µg/L		2500	5000		19.8	19.1	21	17.3	199	211	225	234
Magnesium (Mg)-Dissolved	5.0	µg/L					14600	14600	14300	13800	14400	13700	13600	13600
Manganese (Mn)-Dissolved	0.10	µg/L		200			2.18	5.50	3.59	1.77	87.5	132	151	153
Mercury (Hg)-Dissolved	0.0050	µg/L	0.25	1	2		<0.005	<0.0050	<0.0050	<0.0050	<0.005	<0.0050	<0.0050	<0.0050
Molybdenum (Mo)-Dissolved	0.050	µg/L	10000	10	50		1.83	1.93	1.9	1.84	9.36	3.12	1.5	0.606
Nickel (Ni)-Dissolved	0.50	µg/L	hardness dep.	200	1000		<0.5	<0.50	<0.50	<0.50	0.81	<0.50	0.55	0.5
Phosphorus (P)-Dissolved	50	µg/L					<50	<50	<50	<50	87	90	156	129
Potassium (K)-Dissolved	50	µg/L					2380	2450	2380	2540	4050	4160	4170	4360
Rubidium (Rb)-Dissolved	0.20	µg/L					1.42	1.59	1.72	1.47	8.78	9.35	9.67	9.17
Selenium (Se)-Dissolved	0.050	µg/L	20	20	30		<0.05	<0.050	<0.050	<0.050	<0.05	<0.050	<0.050	<0.050
Silicon (Si)-Dissolved	50	µg/L					10200	9660	10300	10500	8620	8260	8650	8690
Silver (Ag)-Dissolved	0.010	µg/L	hardness dep.				<0.01	<0.010	<0.010	<0.010	<0.01	<0.010	<0.010	<0.010
Sodium (Na)-Dissolved	50	µg/L					14700	14800	16000	14600	116000	118000	121000	124000
Strontium (Sr)-Dissolved	0.20	µg/L					332	366	393	362	672	717	763	746
Sulfur (S)-Dissolved	500	µg/L					32300	32500	35100	34600	15200	15200	15900	15800
Tellurium (Te)-Dissolved	0.20	µg/L					<0.2	<0.20	<0.20	<0.20	<0.2	<0.20	<0.20	<0.20
Thallium (Tl)-Dissolved	0.010	µg/L	3				<0.01	<0.010	<0.010	<0.010	<0.01	<0.010	<0.010	<0.010
Thorium (Th)-Dissolved	0.10	µg/L					<0.1	<0.10	<0.10	<0.10	<0.1	<0.10	<0.20	<0.10
Tin (Sn)-Dissolved	0.10	µg/L					<0.1	<0.10	<0.10	<0.10	<0.1	<0.10	<0.10	<0.10
Titanium (Ti)-Dissolved	0.30	µg/L	1000				<0.3	<0.30	<0.30	<0.30	<0.3	<0.30	<0.30	<0.30
Tungsten (W)-Dissolved	0.10	µg/L					<0.1	<0.10	<0.10	<0.10	3.12	1.37	0.91	0.69
Uranium (U)-Dissolved	0.010	µg/L	85	10	200		2.21	2.25	2.24	2.25	0.55	0.523	0.543	0.517
Vanadium (V)-Dissolved	0.50	µg/L		100	100		<0.5	<0.50	<0.50	<0.50	<0.5	<0.50	<0.50	<0.50
Zinc (Zn)-Dissolved	1.0	µg/L	hardness dep.	pH dep.	2000		4.7	4.6	7.3	1.7	16.5	7.1	5.3	2.5
Zirconium (Zr)-Dissolved	0.30	µg/L					<0.3	<0.20	<0.20	<0.20	<0.3	<0.20	<0.20	<0.20
Dissolved Mercury Filtration Location							Field	Field	Field	Field	Field	Field	Field	Field
Dissolved Metals Filtration Location							Field	Field	Field	Field	Field	Field	Field	Field

NOTES:

CSR standards for heavy metals, metalloids and inorganic ions applied to groundwater are designed for the dissolved substance concentrations with the exception of the drinking water standards, which are designed for unfiltered samples obtained at the point of consumption (total substance concentrations) (B.C. Reg. 375/96, current to January 13, 2026, Schedule 3.2).

[1] Calculated from the dissolved sulphide concentration [S^{2-}], pH, and the dissociation constant (pK) which is dependent on the sample water temperature, using the equation [H_2S]=[S^{2-}][1/(1+(10^(pH-pK)))] (BC WLRS 2025b).

[2] Cr (VI) generic numerical water standard (B.C. Reg. 375/96, current to January 13, 2026, Schedule 3.2).

[3] Cr (III) generic numerical water standard (B.C. Reg. 375/96, current to January 13, 2026, Schedule 3.2).

LEGEND:

- Parameter higher than the BC CSR water quality standard to protect aquatic life (AW).
- Parameter higher than the BC CSR water quality standard to protect water supplied for
- Parameter higher than the BC CSR water quality standard to protect water supplied for
- Parameter higher than the BC CSR water quality standard to protect water used for dri
- Parameter higher than more than one of the BC CSR water quality standards.

Regional District of Central Kootenay
Surface Water Quality Summary - 2025
HB Mine Tailings Storage Facility, Salmo, BC

			BC MoE	BC MoE	BC CSR	BC CSR	BC CSR	BC CSR	Background				Landfill Outflow		
			FWAL (Chronic)	FWAL (Acute)	AW	IW	LW	DW							
Client Sample ID									SW3-07 (E303732)	SW3-07 (E303732)	SW5-19 (E335949)	SW5-19 (E335949)	SW2-07 (E303731)	SW1-07 (E303730)	SW1-07 (E303730)
Date Sampled									25-Mar-2025	12-May-2025	25-Mar-2025	12-May-2025	25-Mar-2025	01-Apr-2025	12-May-2025
Time Sampled									13:55	12:07	14:05	12:33	14:17	09:54	13:22
ALS Sample ID									VA25A6875-002	VA25B1332-003	VA25A6875-003	VA25B1332-004	VA25A6875-001	VA25A7383-001	VA25B1332-001
									Sub-Matrix: Surface Water	Sub-Matrix: Surface Water	Sub-Matrix: Surface Water	Sub-Matrix: Surface Water	Sub-Matrix: Surface Water	Sub-Matrix: Groundwater	Sub-Matrix: Surface Water
Parameter	Lowest Detection Limit	Units													
Physical Tests (Matrix: Water)															
Conductivity	2.0	µS/cm							93.3	124	138	131	64.8	539	762
Alkalinity, total (as CaCO3)	1.0	mg/L	background dep.						41.6	55.2	55.6	59.1	32.1	184	314
Hardness (as CaCO3), dissolved	500	mg/L							42.3	58.0	58.2	61.3	29.9	225	356
Hardness (as CaCO3), from total Ca/Mg	0.50	mg/L							44.1	59.9	57.5	64.7	35.1	231	363
Solids, total dissolved [TDS]	10	mg/L							63	72	90	93	112	371	478
Solids, total suspended [TSS]	3.0	mg/L	background dep.	background dep.					<3.0	3.5	<3.0	<3.0	29.7	4.9	29.7
pH	0.10	pH units	6.5 - 9.0	6.5 - 9.0					7.79	7.98	7.88	7.90	7.65	8.22	8.23
Anions and Nutrients (Matrix: Water)															
Ammonia, total (as N)	0.0050	mg/L	pH & temp. dep.	pH & temp. dep.	pH dep.				0.0070	<0.0050	0.0112	<0.0050	0.0134	0.489	0.0478
Bromide	0.050	mg/L							<0.050	<0.050	<0.050	<0.050	<0.050	0.096	<0.250
Chloride	0.50	mg/L	150	600	1500	100	600	250	<0.50	<0.50	3.18	<0.50	0.50	19.9	39.1
Fluoride	0.020	mg/L		hardness dep.	hardness dep.	1	1	1.5	0.046	0.041	0.052	0.039	0.122	0.074	<0.100
Kjeldahl nitrogen, total [TKN]	0.050	mg/L							0.092	0.062	0.505	0.060	0.164	2.55	1.78
Nitrate (as N)	0.0050	mg/L	3.0	32.8	400		100	10	<0.0050	<0.0050	0.107	<0.0050	0.0549	0.677	0.120
Nitrite (as N)	0.0010	mg/L	chloride dep.	chloride dep.	chloride dep.		10	1	<0.0010	<0.0010	0.0011	<0.0010	<0.0010	0.0819	<0.0050
Phosphate, ortho-, dissolved (as P)	0.0010	mg/L							<0.0010	<0.0010	0.0127	<0.0010	0.0572	0.0211	0.0249
Sulfate (as SO4)	0.30	mg/L	hardness dep.		hardness dep.		1000	500	6.72	8.28	9.06	8.22	1.59	62.0	49.4
Organic / Inorganic Carbon (Matrix: Water)															
Carbon, dissolved organic [DOC]	0.50	mg/L							2.61	1.59	5.36	1.17	2.87	16.0	19.7
Carbon, total organic [TOC]	0.50	mg/L	background dep.						2.32	2.80	5.46	1.29	3.76	17.6	22.4
Total Sulfides (Matrix: Water)															
Sulfide, total (as S)	0.0015	mg/L							0.0019	<0.010	0.0023	<0.010	<0.0015	0.024	0.044
Sulfide, total (as H2S)	0.0016	mg/L							0.0020	<0.011	0.0024	<0.011	<0.0016	0.0260	0.047
sulfide, un-ionized (as H2S), calculated[1]	0.0016	mg/L	0.002		0.02			0.05	0.0004	**<0.0027**	0.0006	**<0.0028**	<0.0003	**0.0095**	**0.0236**
Total Metals (Matrix: Water)															
Aluminum (Al)-Total	3.0	µg/L	calculated[2]			5000	5000	9500	91.1	70.4	146	23.7	**4540**	97.2	319
Antimony (Sb)-Total	0.10	µg/L	74	250	90			6	<0.10	<0.10	<0.10	<0.10	0.12	0.32	0.27
Arsenic (As)-Total	0.10	µg/L	5		50	100	25	10	0.23	0.19	0.64	0.16	2.96	2.46	**5.99**
Barium (Ba)-Total	0.10	µg/L	1000		10000			1000	7.90	10.5	19.7	10.1	84.2	61.7	105
Beryllium (Be)-Total	0.020	µg/L	0.13		1.5	100	100	8	<0.020	<0.100	<0.020	<0.100	**0.256**	<0.100	<0.100
Bismuth (Bi)-Total	0.050	µg/L							<0.050	<0.050	<0.050	<0.050	0.065	<0.050	<0.050
Boron (B)-Total	10	µg/L	1200		12000	500	5000	5000	<10	<10	<10	<10	<10	98	173
Cadmium (Cd)-Total	0.0050	µg/L			hardness dep.	5	80	5	0.0102	0.0158	0.0292	0.0116	0.0984	0.399	0.666
Calcium (Ca)-Total	50	µg/L					1000000		13600	18700	17400	20900	9630	64100	96900
Cesium (Cs)-Total	0.010	µg/L							0.023	0.019	0.018	<0.010	0.77	0.016	0.054
Chromium (Cr)-Total	0.50	µg/L	2.5[3]		10[3]	5*	50	50[3]	<0.50	1.69	<0.50	<0.50	**4.69**	1.35	2.16
Cobalt (Co)-Total	0.10	µg/L			40	50	1000	1	<0.10	<0.10	<0.10	<0.10	**1.40**	0.54	**2.55**
Copper (Cu)-Total	0.50	µg/L			hardness dep.	200	300	1500	0.59	0.52	2.16	<0.50	5.83	7.49	5.39
Iron (Fe)-Total	10	µg/L		1000		5000		6500	76	87	123	20	**4350**	362	**4140**
Lead (Pb)-Total	0.050	µg/L			hardness dep.	200	100	10	0.109	0.221	0.340	0.085	4.74	2.43	**33.0**
Lithium (Li)-Total	1.0	µg/L				2500	5000	8	<1.0	<1.0	<1.0	<1.0	3.4	1.6	2.1
Magnesium (Mg)-Total	5.0	µg/L							2460	3200	3410	3040	2690	17300	29500
Manganese (Mn)-Total	0.10	µg/L	hardness dep.	hardness dep.		200		1500	2.48	4.88	2.81	1.96	103	174	**2380**
Mercury (Hg)-Total	0.0050	µg/L	0.02*		0.25	1	2	1	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0051	0.0066
Molybdenum (Mo)-Total	0.050	µg/L	7600	46000	10000	10	50	250	0.160	0.282	0.333	0.105	0.621	0.880	0.714
Nickel (Ni)-Total	0.50	µg/L			hardness dep.	200	1000	80	<0.50	<0.50	0.52	<0.50	4.50	3.42	5.99
Phosphorus (P)-Total	50	µg/L							<50	<50	<50	<50	180	146	480
Potassium (K)-Total	50	µg/L							1020	1170	5040	1190	2120	11800	7680
Rubidium (Rb)-Total	0.20	µg/L							0.59	0.63	1.24	0.48	7.74	4.28	2.31
Selenium (Se)-Total	0.050	µg/L	2		20	20	30	10	0.089	0.052	0.076	<0.050	0.122	0.125	0.177
Silicon (Si)-Total	100	µg/L							6060	6470	5700	6660	12900	4810	5860
Silver (Ag)-Total	0.010	µg/L	0.12		hardness dep.			20	<0.010	<0.010	<0.010	<0.010	0.033	0.027	0.041
Sodium (Na)-Total	50	µg/L						200000	1260	1430	2770	1440	1760	11600	29300
Strontium (Sr)-Total	0.20	µg/L						2500	71.4	92.1	96.7	99.3	62.7	349	495
Sulfur (S)-Total	500	µg/L							1970	2510	3030	2500	<500	23000	19400
Tellurium (Te)-Total	0.20	µg/L							<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Thallium (Tl)-Total	0.010	µg/L	0.03		3				<0.010	<0.010	<0.010	<0.010	**0.046**	<0.010	<0.010
Thorium (Th)-Total	0.10	µg/L							<0.10	<0.10	<0.10	<0.10	3.94	<0.10	0.12
Tin (Sn)-Total	0.10	µg/L						2500	<0.10	<0.10	<0.10	<0.10	<0.10	0.16	<0.10
Titanium (Ti)-Total	0.30	µg/L			1000				3.06	2.43	4.11	0.58	92.0	3.37	13.0
Tungsten (W)-Total	0.10	µg/L						3	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.14
Uranium (U)-Total	0.010	µg/L	7.5	16.5	85	10	200	20	0.131	0.187	0.340	0.107	1.56	4.33	7.48
Vanadium (V)-Total	0.50	µg/L	60			100	100	20	0.59	0.52	0.66	<0.50	6.71	0.76	3.16
Zinc (Zn)-Total	3.0	µg/L			hardness dep.	pH dep.	2000	3000	8.8	3.1	4.9	48.8	24.7	100	77.4
Zirconium (Zr)-Total	0.20	µg/L							<0.20	<0.20	<0.20	0.88	0.3	<0.20	0.33
Dissolved Metals (Matrix:Water)															
Aluminum (Al)-Dissolved	1.0	µg/L							22.2	9.6	49.6	2.0	87.4	30.2	7.6
Antimony (Sb)-Dissolved	0.10	µg/L							<0.10	<0.10	<0.10	<0.10	<0.10	0.3	0.20
Arsenic (As)-Dissolved	0.10	µg/L							0.18	0.16	0.53	0.14	0.75	2.27	2.45
Barium (Ba)-Dissolved	0.10	µg/L							6.97	9.80	18.5	9.99	10.7	59.2	58.8
Beryllium (Be)-Dissolved	0.020	µg/L							<0.020	<0.100	<0.020	<0.100	<0.020	<0.100	<0.100
Bismuth (Bi)-Dissolved	0.050	µg/L							<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Boron (B)-Dissolved	10	µg/L							<10	<10	<10	<10	<10	94	166
Cadmium (Cd)-Dissolved	0.0050	µg/L	hardness dep.	hardness dep.					0.0088	0.0102	0.0238	0.0106	0.0086	0.308	0.0843
Calcium (Ca)-Dissolved	50	µg/L							13000	18600	17900	20000	9240	60200	96200
Cesium (Cs)-Dissolved	0.010	µg/L							<0.010	<0.010	<0.010	<0.010	0.01	<0.010	<0.010
Chromium (Cr)-Dissolved	0.50	µg/L							<0.50	<0.50	<0.50	<0.50	<0.50	1.23	0.93
Cobalt (Co)-Dissolved	0.10	µg/L	hardness dep.						<0.10	<0.10	<0.10	<0.10	<0.10	0.54	**1.12**
Copper (Cu)-Dissolved	0.20	µg/L	calculated[2]	calculated[2]					0.48	0.44	1.74	0.26	0.68	6.52	1.10
Iron (Fe)-Dissolved	10	µg/L		350					13	14	45	<10	47	258	266
Lead (Pb)-Dissolved	0.050	µg/L	calculated[2]						<0.050	<0.050	0.182	<0.050	0.066	1.6	1.29
Lithium (Li)-Dissolved	1.0	µg/L							<1.0	<1.0	<1.0	<1.0	<1.0	1.5	2.0
Magnesium (Mg)-Dissolved	5.0	µg/L							2390	2820	3280	2760	1660	18100	28200
Manganese (Mn)-Dissolved	0.10	µg/L							0.59	2.48	1.04	1.40	4.84	171	1080
Mercury (Hg)-Dissolved	0.0050	µg/L							<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Molybdenum (Mo)-Dissolved	0.050	µg/L							0.148	0.171	0.338	0.099	0.586	0.875	0.580
Nickel (Ni)-Dissolved	0.50	µg/L	calculated[2]	calculated[2]					<0.50	<0.50	<0.50	<0.50	<0.50	3.22	4.65
Phosphorus (P)-Dissolved	50	µg/L							<50	<50	<50	<50	56	64	<50
Potassium (K)-Dissolved	50	µg/L							1020	1090	4920	1130	772	12200	7570
Rubidium (Rb)-Dissolved	0.20	µg/L							0.46	0.53	1.04	0.42	0.27	4.2	1.90
Selenium (Se)-Dissolved	0.050	µg/L							0.065	0.056	0.081	0.070	0.09	0.131	0.126
Silicon (Si)-Dissolved	50	µg/L							6000	6590	5530	6600	5320	4500	5390
Silver (Ag)-Dissolved	0.010	µg/L							<0.010	<0.010	<0.010	<0.010	<0.010	0.016	<0.010
Sodium (Na)-Dissolved	50	µg/L							1220	1340	2680	1350	1200	12200	27200
Strontium (Sr)-Dissolved	0.20	µg/L	1250						66	90.9	99.5	94.1	54.9	335	450
Sulfur (S)-Dissolved	500	µg/L							2020	2670	2830	2770	<500	21800	18200
Tellurium (Te)-Dissolved	0.20	µg/L							<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Thallium (Tl)-Dissolved	0.010	µg/L							<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Thorium (Th)-Dissolved	0.10	µg/L							<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Tin (Sn)-Dissolved	0.10	µg/L							<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Titanium (Ti)-Dissolved	0.30	µg/L							0.5	<0.30	1.31	<0.30	1.7	1.34	0.70
Tungsten (W)-Dissolved	0.10	µg/L							<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Uranium (U)-Dissolved	0.010	µg/L							0.116	0.159	0.311	0.092	0.834	4.25	6.37
Vanadium (V)-Dissolved	0.50	µg/L							<0.50	<0.50	<0.50	<0.50	0.68	0.67	0.76
Zinc (Zn)-Dissolved	1.0	µg/L	calculated[2]	calculated[2]					1.2	2.7	3.6	**51.2**	1.5	**92.2**	19.1
Zirconium (Zr)-Dissolved	0.30	µg/L							<0.30	<0.20	<0.30	<0.20	<0.30	<0.20	0.21
Dissolved Mercury Filtration Location									Field	Field	Field	Field	Field	Field	Field
Dissolved Metals Filtration Location									Field	Field	Field	Field	Field	Field	Field

NOTES:

The CSR standards for heavy metals, metalloids and inorganic ions applied to surface water and drinking water are designed for total substance concentrations (B.C. Reg. 375/96, current to January 13, 2026, Schedule 3.2).

[1] Calculated from the dissolved sulphide concentration [S^{2-}], pH, and the dissociation constant (pK) which is dependent on the sample water temperature, using the equation [H_2S]+[HS^-]/(1+10^(pH-pK)))] (BC WLRS 2025b).

[2] New site-specific FWAL guidelines were calculated using a multiple linear regression (MLR) approach available online (BC MWLRS 2023a, 2023b, 2024a) which requires the pH (aluminum and zinc only), dissolved organic carbon (mg/L), and hardness (mg/L) of the water body. Where water chemistry parameters (eg: hardness, pH, and/or DOC) are outside of the bounds of the ranges of data used to derive the MLR, the inputs are automatically rounded to the upper or lower limits for the WQG calculation.

[3] Cr (VI) working water quality guideline (BC MWLRS 2025b) and generic numerical water standards (B.C. Reg. 375/96, current to January 13, 2026, Schedule 3.2).

* Cr (III) working water quality guideline (BC MWLRS 2025b) and generic numerical water standards (B.C. Reg. 375/96, current to January 13, 2026, Schedule 3.2).

[5] New site-specific FWAL guidelines were calculated using a simplified version of the BC Cu and BC Ni Biotic Ligand Model available online (BC MoECCS 2019, BC MWLRS 2024b) which requires the temperature (nickel only), pH, dissolved organic carbon (mg/L), and hardness (mg/L) of the water body. Where water chemistry parameters (eg: temperature, hardness, DOC, and/or pH) are outside of the bounds that the protectiveness of the WQGs calculated by the BC BLM are proven, the minimum or maximum water chemistry parameters are used.

* Assumes that methylmercury constitues less than or equal to 0.5 % of the total mercury concentration (BC MWLRS 2025a).

LEGEND:

- Parameter higher than the BC MoE chronic (or 30-day average) water quality guideline for the protection freshwater aquatic life.
- Parameter higher than both the BC MoE chronic (or 30-day average) and the BC MoE acute (or short-term maximum) water quality guidelines for the protection freshwater aquatic life.
- Parameter higher than the BC CSR water quality standard to protect aquatic life (AW). Generally a parameter than exceeds the BC CSR standard also exceeds the BC MoE chronic and acute guidelines for freshwater aquatic life.
- Parameter higher than the BC CSR water quality standard to protect water supplied for irrigation (IW).
- Parameter higher than the BC CSR water quality standard to protect water supplied for livestock (LW).
- Parameter higher than the BC CSR water quality standard to protect water used for drinking water (DW).
- Parameter higher than the BC FWAL Chronic guideline and the lowest BC CSR standard.
- Parameter higher than the BC FWAL Acute guideline and the lowest BC CSR standard.
- Parameter higher than multiple standards or guidelines (FWAL and CSR).

Regional District of Central Kootenay
Surface Water Quality Summary - 2025
HB Mine Tailings Storage Facility, Salmo, BC

			BC MoE FWAL (Chronic)	BC MoE FWAL (Acute)	BC CSR AW	BC CSR IW	BC CSR LW	BC CSR DW	Downgradient Along Southern Flowpath									
Client Sample ID									Spillway Inlet (E335951)	Spillway Inlet (E335951)	Spillway Inlet (E335951)	Spillway Outlet (E335952)	Spillway Outlet (E335952)	Spillway Outlet (E335952)	Spillway Outlet (E335952)	Seepage Weir (E335950)	Seepage Weir (E335950)	Seepage Weir (E335950)	Outlet Ditch (E252603)	Outlet Ditch (E252603)
Date Sampled									25-Mar-2025	12-May-2025	03-Nov-2025	25-Mar-2025	12-May-2025	8-Sep-2025	03-Nov-2025	25-Mar-2025	12-May-2025	08-Sep-2025	03-Nov-2025	25-Mar-2025	12-May-2025
Time Sampled									12:20	10:43	10:50	12:15	11:23	11:10	11:45	13:00	11:28	11:15	11:53	10:30	10:09
ALS Sample ID									VA25A6875-005	VA25B1332-006	VA25C9773-002	VA25A6875-006	VA25B1332-007	VA25C3911-015	VA25C9773-003	VA25A6875-004	VA25B1332-005	VA25C3911-014	VA25C9773-001	VA25A6875-007	VA25B1332-008
									Sub-Matrix: Surface Water	Sub-Matrix: Surface Water	Sub-Matrix: Surface Water	Sub-Matrix: Surface Water	Sub-Matrix: Surface Water	Sub-Matrix: Surface Water	Sub-Matrix: Surface Water	Sub-Matrix: Surface Water	Sub-Matrix: Surface Water	Sub-Matrix: Surface Water	Sub-Matrix: Surface Water	Sub-Matrix: Surface Water	Sub-Matrix: Surface Water
Parameter	Lowest Detection Limit	Units																			
Physical Tests (Matrix: Water)																					
Conductivity	2.0	µS/cm							211	404	1120	212	407	862	858	559	884	816	842	215	354
Alkalinity, total (as CaCO3)	1.0	mg/L	background dep.						76.7	111	140	75.1	112	282	151	165	264	274	253	75.4	101
Hardness (as CaCO3), dissolved	500	mg/L							98.3	192	597	100	196	461	431	279	483	446	420	96.5	166
Hardness (as CaCO3), from total Ca/Mg	0.50	mg/L							101	197	634	103	199	463	451	293	499	450	447	102	170
Solids, total dissolved [TDS]	10	mg/L							134	255	974	141	263	680	693	340	642	626	625	138	225
Solids, total suspended [TSS]	3.0	mg/L	background dep.	background dep.					<3.0	29.9	<3.0	24.10	6.5	6.8	<3.0	<3.0	<3.0	12.8	<3.0	12.7	4.1
pH	0.10	pH units	6.5 - 9.0	6.5 - 9.0					8.18	8.21	8.06	8.12	8.23	7.98	8.18	8.14	8.20	8.31	8.09	8.12	8.25
Anions and Nutrients (Matrix: Water)																					
Ammonia, total (as N)	0.0050	mg/L	pH & temp. dep.	pH & temp. dep.	pH dep.				0.0299	0.0086	0.0095	0.0205	0.0054	0.0348	0.009	0.0120	0.0430	0.0059	0.0101	0.0443	0.0064
Bromide	0.050	mg/L							<0.050	<0.050	<0.250	<0.050	<0.050	0.088	<0.250	<0.050	<0.250	<0.250	<0.250	<0.050	<0.050
Chloride	0.50	mg/L	150	600	1500	100	600	250	3.19	6.07	6.88	2.88	5.36	3.02	4.17	1.08	2.92	3.16	2.75	3.07	4.19
Fluoride	0.020	mg/L		hardness dep.	hardness dep.	1	1	1.5	0.058	0.081	<0.100	0.062	0.073	0.146	<0.100	0.131	0.115	0.137	0.14	0.058	0.070
Kjeldahl nitrogen, total [TKN]	0.050	mg/L							0.288	0.630	0.566	0.344	0.231	0.154	0.231	0.100	0.180	0.125	0.161	0.330	0.215
Nitrate (as N)	0.0050	mg/L	3.0	32.8	400		100	10	0.243	<0.0050	<0.0250	0.232	0.0930	0.185	0.204	0.509	0.311	0.284	0.519	0.260	0.0838
Nitrite (as N)	0.0010	mg/L	chloride dep.	chloride dep.	chloride dep.		10	1	0.0038	<0.0010	<0.0050	0.0045	<0.0010	0.0093	<0.0050	0.0016	0.0068	<0.0050	<0.0050	0.0046	<0.0010
Phosphate, ortho-, dissolved (as P)	0.0010	mg/L							0.0041	0.0010	0.0032	0.0037	0.0084	<0.0010	0.0093	0.0072	<0.0010	0.0178	0.0018	0.0060	0.0134
Sulfate (as SO4)	0.30	mg/L	hardness dep.		hardness dep.		1000	500	27.5	88.6	**483**	29.8	90.9	206	304	138	237	196	205	29.0	74.7
Organic / Inorganic Carbon (Matrix: Water)																					
Carbon, dissolved organic [DOC]	0.50	mg/L							5.30	5.42	8.26	5.00	3.73	3.44	4.14	1.81	3.00	3.07	2.81	4.95	3.44
Carbon, total organic [TOC]	0.50	mg/L	background dep.						4.95	6.40	8.47	5.30	3.84	3.98	4.33	1.94	2.98	3.94	2.9	5.23	3.31
Total Sulfides (Matrix: Water)																					
Sulfide, total (as S)	0.0015	mg/L							0.0035	<0.010	<0.010	0.0034	<0.010	<0.010	<0.010	<0.0015	<0.010	<0.010	<0.010	0.0041	<0.010
Sulfide, total (as H2S)	0.0016	mg/L							0.0037	<0.011	<0.011	0.0036	<0.011	<0.011	<0.011	<0.0016	<0.011	0.011	<0.011	0.0044	<0.011
sulfide, un-ionized (as H2S), calculated[1]	0.0016	mg/L	0.002		0.02			0.05	0.0003	<0.0009	<0.0012	0.0005	<0.0011	<0.0013	<0.0010	<0.0006	**<0.0045**	**0.0040**	**<0.0024**	0.0009	<0.0006
Total Metals (Matrix: Water)																					
Aluminum (Al)-Total	3.0	µg/L	calculated[2]			5000	5000	9500	111	**1540**	38.4	**435**	104	148	7.7	45.7	9.4	225	5.2	388	77.1
Antimony (Sb)-Total	0.10	µg/L	74	250	90			6	0.1	0.11	0.16	0.13	<0.10	<0.10	0.14	0.14	0.11	0.3	<0.10	0.15	0.17
Arsenic (As)-Total	0.10	µg/L	5		50	100	25	10	0.82	1.98	0.90	1.06	0.74	0.41	0.68	0.60	0.52	0.92	0.34	0.94	0.76
Barium (Ba)-Total	0.10	µg/L	1000		10000			1000	20.4	52.8	50.9	24.4	29.3	53.9	52.0	31.2	46.0	49.5	38.3	23.8	26.8
Beryllium (Be)-Total	0.020	µg/L	0.13		1.5	100	100	8	<0.020	<0.100	<0.100	0.022	<0.100	<0.100	<0.100	<0.020	<0.100	<0.100	<0.100	<0.020	<0.100
Bismuth (Bi)-Total	0.050	µg/L							<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Boron (B)-Total	10	µg/L	1200		12000	500	5000	5000	19	26	11	18	22	21	14	10	19	20	21	19	17
Cadmium (Cd)-Total	0.0050	µg/L			hardness dep.	5	80	5	0.0339	0.189	0.0628	0.0532	0.0379	0.0626	0.0746	0.0313	0.0354	0.212	0.0160	0.0843	0.0710
Calcium (Ca)-Total	50	µg/L					1000000		29700	56000	184000	29900	58200	118000	130000	81300	133000	116000	118000	29800	49700
Cesium (Cs)-Total	0.010	µg/L							0.019	0.399	0.011	0.112	0.145	0.122	0.109	0.051	0.072	0.12	0.051	0.086	0.065
Chromium (Cr)-Total	0.50	µg/L	2.5[3]		10[3]	5*	50	50[3]	<0.50	2.45	<0.50	0.92	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.91	<0.50
Cobalt (Co)-Total	0.10	µg/L			40	50	1000	1	<0.10	**1.36**	0.15	0.28	0.12	0.30	<0.10	<0.10	0.16	0.28	<0.10	0.27	0.10
Copper (Cu)-Total	0.50	µg/L			hardness dep.	200	300	1500	1.79	3.07	3.57	3.35	1.06	0.61	2.25	<0.50	<0.50	4.76	<0.50	3.58	2.31
Iron (Fe)-Total	10	µg/L		1000		5000		6500	154	**2180**	43	569	139	303	40	88	203	357	44	484	108
Lead (Pb)-Total	0.050	µg/L			hardness dep.	200	100	10	0.383	5.67	0.149	0.925	0.313	0.234	<0.050	0.052	<0.050	1.44	<0.050	1.39	0.528
Lithium (Li)-Total	1.0	µg/L				2500	5000	8	<1.0	2.0	1.9	<1.0	<1.0	1.4	1.5	<1.0	1.0	1.4	1.4	<1.0	<1.0
Magnesium (Mg)-Total	5.0	µg/L							6530	14000	42500	6790	13000	40800	30700	21900	40900	38900	36900	6760	11200
Manganese (Mn)-Total	0.10	µg/L	hardness dep.	hardness dep.		200		1500	9.55	**585**	7.95	21.6	37.7	**2070**	83.6	193	**1160**	**379**	**428**	18.8	8.77
Mercury (Hg)-Total	0.0050	µg/L	0.02*		0.25	1	2	1	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Molybdenum (Mo)-Total	0.050	µg/L	7600	46000	10000	10	50	250	0.423	0.947	1.21	0.475	0.822	3.05	1.53	2.78	2.90	2.30	2.72	0.465	0.784
Nickel (Ni)-Total	0.50	µg/L			hardness dep.	200	1000	80	0.74	3.48	1.10	1.26	0.96	1.00	0.72	<0.50	0.52	0.98	<0.50	1.31	0.84
Phosphorus (P)-Total	50	µg/L							<50	116	67	<50	<50	<50	<50	<50	<50	72	<50	<50	<50
Potassium (K)-Total	50	µg/L							2830	2650	7100	2720	2270	4620	5010	2730	4290	4480	4200	2660	2240
Rubidium (Rb)-Total	0.20	µg/L							0.96	3.84	1.06	1.36	1.10	3.03	2.03	1.2	2.27	2.94	1.97	1.37	1.02
Selenium (Se)-Total	0.050	µg/L	2		20	20	30	10	0.077	0.094	0.558	0.100	0.094	0.081	0.542	0.728	0.201	0.158	0.403	0.106	0.121
Silicon (Si)-Total	100	µg/L							5270	8340	5520	5510	6210	10200	6390	5850	8170	10400	8910	5640	6360
Silver (Ag)-Total	0.010	µg/L	0.12		hardness dep.			20	<0.010	0.020	<0.010	0.013	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.012	<0.010
Sodium (Na)-Total	50	µg/L						200000	3270	6980	10400	3120	6530	11900	7640	7570	10500	11900	10300	3140	5420
Strontium (Sr)-Total	0.20	µg/L						2500	143	241	579	137	248	560	476	332	548	534	500	139	219
Sulfur (S)-Total	500	µg/L							9450	31400	181000	10100	32300	82000	113000	51000	85200	75200	77100	10100	25800
Tellurium (Te)-Total	0.20	µg/L							<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Thallium (Tl)-Total	0.010	µg/L	0.03		3				<0.010	0.020	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Thorium (Th)-Total	0.10	µg/L							<0.10	0.69	<0.10	0.23	<0.10	<0.10	<0.10	<0.10	<0.10	0.15	<0.10	0.14	<0.10
Tin (Sn)-Total	0.10	µg/L						2500	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Titanium (Ti)-Total	0.30	µg/L			1000				3.40	43.7	0.94	13.1	3.24	4.29	<0.30	<1.50	<0.30	8.84	<0.30	13.6	2.98
Tungsten (W)-Total	0.10	µg/L						3	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Uranium (U)-Total	0.010	µg/L	7.5	16.5	85	10	200	20	1.67	3.42	**20.8**	1.87	3.60	5.69	**11.7**	**10.4**	**8.85**	6.67	**7.56**	1.81	2.91
Vanadium (V)-Total	0.50	µg/L	60			100	100	20	0.71	3.34	0.71	1.48	0.59	<0.50	0.72	0.51	<0.50	1.11	0.55	1.66	0.79
Zinc (Zn)-Total	3.0	µg/L			hardness dep.	pH dep.	2000	3000	9.4	46.6	10.0	12.2	12.0	8.0	21.7	4.1	5.1	31.9	<3.0	19.9	13.2
Zirconium (Zr)-Total	0.20	µg/L							<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Dissolved Metals (Matrix:Water)																					
Aluminum (Al)-Dissolved	1.0	µg/L							24.2	10.2	5	30.7	6.3	1.9	<1.0	4.5	1.4	1.4	1.5	29	5.9
Antimony (Sb)-Dissolved	0.10	µg/L							<0.10	<0.10	0.12	0.1000	<0.10	<0.10	0.1	0.13	0.10	0.25	<0.10	0.13	0.16
Arsenic (As)-Dissolved	0.10	µg/L							0.72	0.85	0.77	0.78	0.69	0.3	0.62	0.53	0.45	0.64	0.29	0.67	0.65
Barium (Ba)-Dissolved	0.10	µg/L							18.8	25.4	51.5	19	28.4	50.7	52.8	30.6	43.7	44.5	40.4	19.3	24.9
Beryllium (Be)-Dissolved	0.020	µg/L							<0.020	<0.100	<0.100	<0.020	<0.100	<0.100	<0.100	<0.020	<0.100	<0.100	<0.100	<0.020	<0.100
Bismuth (Bi)-Dissolved	0.050	µg/L							<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Boron (B)-Dissolved	10	µg/L							18	25	<10	17	21	22	12	<10	18	21	18	18	16
Cadmium (Cd)-Dissolved	0.0050	µg/L	hardness dep.	hardness dep.					0.0217	0.0217	0.0584	0.0287	0.0231	0.0477	0.0755	0.0274	0.0341	0.0718	0.0135	0.0363	0.0520
Calcium (Ca)-Dissolved	50	µg/L							28800	55000	173000	29500	57400	118000	124000	77400	130000	116000	111000	28200	48800
Cesium (Cs)-Dissolved	0.010	µg/L							<0.010	<0.010	<0.010	0.0260	0.110	0.083	0.112	0.043	0.065	0.074	0.05	0.029	0.044
Chromium (Cr)-Dissolved	0.50	µg/L							<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Cobalt (Co)-Dissolved	0.10	µg/L	hardness dep.						<0.10	0.11	0.14	<0.10	<0.10	0.19	<0.10	<0.10	0.14	<0.10	0.100	<0.10	<0.10
Copper (Cu)-Dissolved	0.20	µg/L	calculated[4]	calculated[4]					1.46	0.63	3.46	2.20	0.78	0.26	2.27	0.41	0.24	2.14	0.35	1.92	1.70
Iron (Fe)-Dissolved	10	µg/L		350					62	44	<10	68	19	53	23	33	63	<10	16	69	<10
Lead (Pb)-Dissolved	0.050	µg/L	calculated[4]						0.217	0.107	<0.050	0.227	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.285	<0.050
Lithium (Li)-Dissolved	1.0	µg/L							<1.0	<1.0	1.4	<1.0	<1.0	1.2	1	<1.0	1.2	1.2	<1.0	<1.0	<1.0
Magnesium (Mg)-Dissolved	5.0	µg/L							6400	13200	40100	6520	12900	40500	29400	20800	38500	38100	34800	6330	10800
Manganese (Mn)-Dissolved	0.10	µg/L							6.06	138	3.35	5.43	22.1	2030	75.6	178	1100	11.5	411	4.68	1.71
Mercury (Hg)-Dissolved	0.0050	µg/L							<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Molybdenum (Mo)-Dissolved	0.050	µg/L							0.388	0.864	1.11	0.423	0.809	2.97	1.52	2.7	2.83	2.4	2.66	0.42	0.775
Nickel (Ni)-Dissolved	0.50	µg/L	calculated[4]	calculated[4]					0.60	0.90	1.01	0.66	0.70	0.74	0.66	<0.50	<0.50	<0.50	<0.50	0.69	0.58
Phosphorus (P)-Dissolved	50	µg/L							<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Potassium (K)-Dissolved	50	µg/L							2870	2140	6940	2730	2220	4720	4920	2660	4090	4450	4520	2610	2080
Rubidium (Rb)-Dissolved	0.20	µg/L							0.77	0.96	0.99	0.84	0.91	2.9	1.93	1.07	2.31	2.75	2.05	0.78	0.92
Selenium (Se)-Dissolved	0.050	µg/L							0.07	0.079	0.604	0.091	0.089	0.097	0.599	0.78	0.178	0.147	0.404	0.084	0.083
Silicon (Si)-Dissolved	50	µg/L							4830	5800	5550	4790	5940	9380	6160	5500	8270	9710	8790	4880	6210
Silver (Ag)-Dissolved	0.010	µg/L							<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Sodium (Na)-Dissolved	50	µg/L							3100	6720	10800	2960	5970	12000	7930	6990	10100	11500	11200	2990	4960
Strontium (Sr)-Dissolved	0.20	µg/L	1250						136	218	559	131	238	579	479	324	514	545	494	131	207
Sulfur (S)-Dissolved	500	µg/L							9170	29200	173000	9660	29300	74400	106000	48300	82000	71400	71200	9740	24700
Tellurium (Te)-Dissolved	0.20	µg/L							<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Thallium (Tl)-Dissolved	0.010	µg/L							<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Thorium (Th)-Dissolved	0.10	µg/L							<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Tin (Sn)-Dissolved	0.10	µg/L							<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Titanium (Ti)-Dissolved	0.30	µg/L							0.72	<0.30	<0.30	0.92	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	0.84	<0.30
Tungsten (W)-Dissolved	0.10	µg/L							<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Uranium (U)-Dissolved	0.010	µg/L							1.58	2.89	21	1.73	3.23	5.54	11.4	9.78	8.00	6.46	7.39	1.64	2.51
Vanadium (V)-Dissolved	0.50	µg/L							<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.5200	0.50
Zinc (Zn)-Dissolved	1.0	µg/L	calculated[4]	calculated[4]					7.4	3.7	8.4	7.1	8.8	5.9	20.2	3.7	4.9	8.1	1.9	**10.7**	9.0
Zirconium (Zr)-Dissolved	0.30	µg/L							<0.30	<0.20	<0.20	<0.30	<0.20	<0.20	<0.20	<0.30	<0.20	<0.20	<0.20	<0.30	<0.20
Dissolved Mercury Filtration Location									Field	Field	Field	Field	Field	Field	Field	Field	Field	Field	Field	Field	Field
Dissolved Metals Filtration Location									Field	Field	Field	Field	Field	Field	Field	Field	Field	Field	Field	Field	Field

NOTES:

The CSR standards for heavy metals, metalloids and inorganic ions applied to surface water and drinking water are designed for total substance concentrations (B.C. Reg. 375/96, current to January 13, 2026, Schedule 3.2).

[1] Calculated from the dissolved sulphide concentration [S^{2-}], pH, and the dissociation constant (pK) which is dependent on the sample water temperature, using the equation [H_2S]+[S^{2-}]/(1+10^(pK-pK))]) (BC WLRS 2025b).

[2] New site-specific FWAL guidelines were calculated using a multiple linear regression (MLR) approach available online (BC MWLRS 2023a, 2023b, 2024a) which requires the pH (aluminum and zinc only), dissolved organic carbon (mg/L), and hardness (mg/L) of the water body. Where water chemistry parameters (eg: hardness, pH, and/or DOC) are outside of the bounds of the ranges of data used to derive the MLR, the inputs are automatically rounded to the upper or lower limits for the WQG calculation.

[3] Cr (VI) working water quality guideline (BC MWLRS 2025b) and generic numerical water standards (B.C. Reg. 375/96, current to January 13, 2026, S

[4] Cr (III) working water quality guideline (BC MWLRS 2025b) and generic numerical water standards (B.C. Reg. 375/96, current to January 13, 2026, S

[5] New site-specific FWAL guidelines were calculated using a simplified version of the BC Cu and BC Ni Biotic Ligand Model available online (BC MoECCS 2019, BC MWLRS 2024b) which requires the temperature (nickel only), pH, dissolved organic carbon (mg/L), and hardness (mg/L) of the water body. Where water chemistry parameters (eg: temperature, hardness, DOC, and/or pH) are outside of the bounds that the protectiveness of the WQGs calculated by the BC BLM are proven, the minimum or maximum water chemistry parameters are used.

* Assumes that methylmercury constitues less than or equal to 0.5 % of the total mercury concentration (BC MWLRS 2025a).

LEGEND:

- Parameter higher than the BC MoE chronic (or 30-day average) water quality guideline for the protection freshwater aquatic life
- Parameter higher than both the BC MoE chronic (or 30-day average) and the BC MoE acute (or short-term maximum) water qu
- Parameter higher than the BC CSR water quality standard to protect aquatic life (AW). Generally a parameter than exceeds the
- Parameter higher than the BC CSR water quality standard to protect water supplied for irrigation (IW).
- Parameter higher than the BC CSR water quality standard to protect water supplied for livestock (LW).
- Parameter higher than the BC CSR water quality standard to protect water used for drinking water (DW).
- Parameter higher than the BC FWAL Chronic guideline and the lowest BC CSR standard.
- Parameter higher than the BC FWAL Acute guideline and the lowest BC CSR standard.
- Parameter higher than multiple standards or guidelines (FWAL and CSR).

Regional District of Central Kootenay
Quality Assurance - Quality Control Summary - Duplicates 2025
HB Mine Tailings Storage Facility, Salmo, BC

			First Quarter				Second Quarter				Third Quarter				Fourth Quarter			
Client Sample ID			MW-05-01	GW Duplicate	% RPD		MW99-1(S) (E275563)	GW Duplicate	% RPD		MW-04S-05(S) (E266349)	GW Duplicate	% RPD		MW-06-01 (E252594)	GW Duplicate	% RPD	
Date Sampled			26-Mar-2025	26-Mar-2025			21-May-2025	21-May-2025			10-Sep-2025	10-Sep-2025			04-Nov-2025	04-Nov-2025		
Time Sampled			09:50	09:50			10:07	10:07			11:10	11:10			15:15	15:15		
ALS Sample ID			VA25A6884-004	VA25A6884-001			VA25B2060-001	VA25B2060-008			VA25C3911-008	VA25C3911-012			VA25C9760-009	VA25C9784-001		
Parameter	Lowest Detection Limit	Units																
Physical Tests (Matrix: Water)																		
Conductivity	2	µS/cm	211	217	2.8		243	245	0.8		630	628	0.3		1720	1680	2.4	
Alkalinity, total (as CaCO3)	1	mg/L	108	107	0.9		92.1	91.5	0.7		240	240	0.0		266	279	4.8	
Hardness (as CaCO3), dissolved	0.6	mg/L	106	106	0.0		117	117	0.0		322	324	0.6		910	903	0.8	
Hardness (as CaCO3), from total Ca/Mg	0.5	mg/L	110	107	2.8		125	122	2.4		328	324	1.2		1040	1040	0.0	
Solids, total dissolved [TDS]	10	mg/L	147	149	1.4		192	206	7.0		454	458	0.9		1500	1440	4.1	
Solids, total suspended [TSS]	3	mg/L	3.9	6.5	50.0	1	103	80.9	24.0	3	14.2	9.6	38.7	1	34.3	34.9	1.7	
pH	0.1	pH units	7.96	7.96	0.0		7.32	7.34	0.3		7.95	7.90	0.6		7.20	6.99	3.0	
Anions and Nutrients (Matrix: Water)																		
Ammonia, total (as N)	0.005	mg/L	<0.0050	<0.0050			0.267	0.353	27.7	*	0.0290	0.0236	20.5	2	1.19	1.26	5.7	
Bromide	0.05	mg/L	<0.050	<0.050			<0.050	<0.050			0.107	0.096	10.8		<0.500	<0.500		
Chloride	0.5	mg/L	<0.50	<0.50			1.50	1.43	4.8		19.4	19.5	0.5		18.2	18.8	3.2	
Fluoride	0.02	mg/L	0.193	0.195	1.0		0.148	0.12	20.9	*	0.033	0.033	0.0		0.204	<0.200	2.0	
Kjeldahl nitrogen, total [TKN]	0.05	mg/L	0.055	<0.050	9.5		0.478	0.487	1.9		0.082	0.072	13.0		2.03	1.90	6.6	
Nitrate (as N)	0.005	mg/L	0.0111	0.0093	17.6		0.0413	0.0353	15.7		<0.0050	0.0063	23.0	1	<0.0500	<0.0500		
Nitrite (as N)	0.001	mg/L	<0.0010	<0.0010			<0.0010	<0.0010			<0.0010	<0.0010			<0.0100	<0.0100		
Phosphate, ortho-, dissolved (as P)	0.001	mg/L	0.0068	0.0068	0.0		0.0343	0.0348	1.4		<0.0010	<0.0010			<0.0010	<0.0010		
Sulfate (as SO4)	0.3	mg/L	10.4	10.5	1.0		38.0	38.4	1.0		80.9	80.8	0.1		775	787	1.5	
Organic / Inorganic Carbon (Matrix: Water)																		
Carbon, total organic [TOC]	0.5	mg/L	1.67	1.46	13.4		3.42	2.77	21.0	3	1.50	1.36	9.8		7.37	7.34	0.4	
Total Sulfides (Matrix: Water)																		
Sulfide, total (as S)	0.0015	mg/L	<0.0015	0.0018	18.2		<0.010	<0.010			<1.00	1.74	54.0	1	0.030	0.034	12.5	
Sulfide, total (as H2S)	0.0016	mg/L	<0.0016	0.0019	17.1		<0.011	<0.011			<1.06	1.85	54.3	1	0.032	0.036	11.8	
Total Metals (Matrix: Water)																		
Aluminum, total	3	µg/L	382	422	10.0		49.1	40.4	19.4		29.1	24.1	18.8		14.6	8.7	50.6	1
Antimony, total	0.1	µg/L	<0.1	0.10	0.0		0.31	0.26	17.5		0.17	0.16	6.1		<0.20	<0.20		
Arsenic, total	0.1	µg/L	0.65	0.68	4.5		1.50	1.28	15.8		1.73	1.73	0.0		5.39	5.33	1.1	
Barium, total	0.1	µg/L	21.1	21.7	2.8		712	570	22.2	*	61.2	62.0	1.3		18.9	18.3	3.2	
Beryllium, total	0.1	µg/L	<0.02	<0.02			<0.100	<0.100			<0.100	<0.100			<0.100	<0.100		
Bismuth, total	0.05	µg/L	<0.05	<0.05			<0.050	<0.050			<0.050	<0.050			<0.100	<0.100		
Boron, total	10	µg/L	<10	<10			28	25	11.3		<10	<10			311	307	1.3	
Cadmium, total	0.005	µg/L	0.0267	0.0330	21.1	*	0.0720	0.0402	56.7	*	1.42	1.41	0.7		0.886	1.23	32.5	*
Calcium, total	50	µg/L	30300	29000	4.4		35700	34900	2.3		103000	101000	2.0		337000	339000	0.6	
Cesium, total	0.01	µg/L	0.061	0.077	23.2	2	0.027	0.022	20.4	1	0.011	0.011	0.0		0.931	0.913	2.0	
Chromium, total	0.5	µg/L	1.95	1.99	2.0		2.84	2.07	31.4	2	1.23	0.88	33.2	1	<1.00	<1.00		
Cobalt, total	0.1	µg/L	0.31	0.35	12.1		0.16	0.14	13.3		2.64	2.73	3.4		<0.20	<0.20		
Copper, total	0.5	µg/L	2.01	2.11	4.9		7.34	5.81	23.3	*	5.18	5.84	12.0		<1.00	<1.00		
Iron, total	10	µg/L	447	490	9.2		37100	30100	20.8	*	11500	11100	3.5		18100	17700	2.2	
Lead, total	0.05	µg/L	0.46	0.491	6.5		0.738	0.493	39.8	*	14.5	14.2	2.1		12.2	14.2	15.2	
Lithium, total	1	µg/L	2.9	2.7	7.1		18	18	0.0		1.2	1.2	0.0		4.2	4.0	4.9	
Magnesium, total	5	µg/L	8230	8430	2.4		8650	8400	2.9		17100	17500	2.3		48600	47200	2.9	
Manganese, total	0.1	µg/L	22.9	25.7	11.5		374	347	7.5		154	155	0.6		412	407	1.2	
Mercury, total	0.005	µg/L	<0.005	<0.005			<0.0050	<0.0050			<0.0050	<0.0050			<0.0050	<0.0050		
Molybdenum, total	0.05	µg/L	0.665	0.659	0.9		0.436	0.383	12.9		1.06	0.986	7.2		1.07	0.945	12.4	
Nickel, total	0.5	µg/L	0.89	0.97	8.6		1.14	0.95	18.2		20	21.4	6.8		2.05	2.12	3.4	
Phosphorus, total	50	µg/L	<50	<50			9080	7430	20.0		<50	<50			<100	<100		
Potassium, total	50	µg/L	1050	1060	0.9		1080	1050	2.8		3190	3250	1.9		10200	9500	7.1	
Rubidium, total	0.2	µg/L	0.59	0.58	1.7		0.54	0.44	20.4	1	0.95	0.93	2.1		34.6	33.7	2.6	
Selenium, total	0.05	µg/L	0.182	0.171	6.2		0.091	0.058	44.3	1	<0.050	<0.050			<0.100	<0.100		
Silicon, total	100	µg/L	8910	8900	0.1		16800	16500	1.8		8970	8950	0.2		7660	7380	3.7	
Silver, total	0.01	µg/L	<0.01	<0.01			0.015	<0.010	40.0	1	<0.010	<0.010			<0.020	<0.020		
Sodium, total	50	µg/L	4560	4480	1.8		4460	4390	1.6		6960	7070	1.6		17400	16900	2.9	
Strontium, total	0.2	µg/L	294	302	2.7		298	282	5.5		512	526	2.7		474	467	1.5	
Sulfur, total	500	µg/L	3260	3490	6.8		14600	14000	4.2		30800	31600	2.6		291000	278000	4.6	
Tellurium, total	0.2	µg/L	<0.2	<0.2			<0.20	<0.20			<0.20	<0.20			<0.40	<0.40		
Thallium, total	0.01	µg/L	<0.01	<0.01			<0.010	<0.010			0.166	0.174	4.7		0.072	0.076	5.4	
Thorium, total	0.1	µg/L	0.13	0.16	20.7	1	<0.10	<0.10			<0.10	<0.10			<0.20	<0.20		
Tin, total	0.1	µg/L	<0.1	0.20	66.7	1	0.12	<0.10	18.2		0.22	0.21	4.7		<0.20	<0.20		
Titanium, total	0.3	µg/L	15.2	17.0	11.2		2.88	2.36	19.8		0.79	0.75	5.2		<0.60	<0.60		
Tungsten, total	0.1	µg/L	<0.1	<0.1			1.08	0.95	12.8		<0.10	<0.10			<0.20	<0.20		
Uranium, total	0.01	µg/L	1.75	1.69	3.5		0.339	0.264	24.9	*	6.69	6.72	0.4		3.38	3.32	1.8	
Vanadium, total	0.5	µg/L	1.65	1.76	6.5		4.56	3.71	20.6	*	0.79	0.74	6.5		<1.00	<1.00		
Zinc, total	3	µg/L	27.8	24.8	11.4		8.3	6.5	24.3	1	14.6	15.3	4.7		343	355	3.4	
Zirconium, total	0.2	µg/L	<0.2	<0.2			0.26	<0.20	26.1	1	<0.20	<0.20			<0.40	<0.40		
Dissolved Metals (Matrix: Water)																		
Aluminum, dissolved	1	µg/L	53.9	51.7	4.2		1.4	1.3	7.4		<1.0	<1.0			<1.0	2.9	97.4	1
Antimony, dissolved	0.1	µg/L	<0.1	<0.1			0.14	0.12	15.4		<0.10	<0.10			<0.10	<0.20		
Arsenic, dissolved	0.1	µg/L	0.40	0.43	7.2		0.33	0.33	0.0		0.54	0.55	1.8		2.64	2.27	15.1	
Barium, dissolved	0.1	µg/L	16.3	16.6	1.8		66.1	67.2	1.7		59.9	59.4	0.8		17.3	16.2	6.6	
Beryllium, dissolved	0.1	µg/L	<0.02	<0.02			<0.100	<0.100			<0.100	<0.100			<0.100	<0.100		
Bismuth, dissolved	0.05	µg/L	<0.05	<0.05			<0.050	<0.050			<0.050	<0.050			<0.050	<0.100		
Boron, dissolved	10	µg/L	<10	<10			25	25	0.0		<10	<10			271	275	1.5	
Cadmium, dissolved	0.005	µg/L	0.0128	0.0127	0.8		0.0105	0.0067	44.2	1	0.0060	0.0076	23.5	1	<0.0050	<0.0100		
Calcium, dissolved	50	µg/L	28800	29000	0.7		32900	32900	0.0		101000	102000	1.0		283000	284000	0.4	
Cesium, dissolved	0.01	µg/L	<0.01	<0.01			0.016	0.020	22.2	1	<0.010	<0.010			0.774	0.785	1.4	
Chromium, dissolved	0.5	µg/L	1.14	1.24	8.4		<0.50	<0.50			<0.50	<0.50			<0.50	<1.00		
Cobalt, dissolved	0.1	µg/L	<0.1	<0.1			<0.10	<0.10			0.68	0.69	1.5		0.15	<0.20	28.6	1
Copper, dissolved	0.2	µg/L	1.20	1.16	3.4		0.25	<0.20	22.2	1	<0.20	<0.20			<0.20	<0.40		
Iron, dissolved	10	µg/L	47	39	18.6		5960	5820	2.4		1300	1290	0.8		11900	11800	0.8	
Lead, dissolved	0.05	µg/L	<0.05	<0.05			<0.050	<0.050			<0.050	<0.050			0.120	0.113	6.0	
Lithium, dissolved	1	µg/L	2.2	2.2	0.0		17.9	18.0	0.6		1.1	1.2	8.7		3.3	3.9	16.7	
Magnesium, dissolved	5	µg/L	8320	8260	0.7		8370	8410	0.5		17000	16800	1.2		49300	47100	4.6	
Manganese, dissolved	0.1	µg/L	1.34	1.38	2.9		243	249	2.4		128	126	1.6		448	407	9.6	
Mercury, dissolved	0.005	µg/L	<0.005	<0.005			<0.0050	<0.0050			<0.0050	<0.0050			<0.0050	<0.0050		
Molybdenum, dissolved	0.05	µg/L	0.643	0.614	4.6		0.240	0.252	4.9		0.636	0.613	3.7		1.10	1.15	4.4	
Nickel, dissolved	0.5	µg/L	<0.5	<0.5			<0.50	<0.50			4.56	4.47	2.0		1.53	1.59	3.8	
Phosphorus, dissolved	50	µg/L	<50	<50			1080	1020	5.7		<50	<50			<50	<100		
Potassium, dissolved	50	µg/L	1000	1020	2.0		1080	1060	1.9		3250	3240	0.3		10300	9690	6.1	
Rubidium, dissolved	0.2	µg/L	<0.2	<0.2			0.41	0.47	13.6		0.84	0.84	0.0		36.4	33.4	8.6	
Selenium, dissolved	0.05	µg/L	0.143	0.162	12.5		<0.050	<0.050			<0.050	<0.050			<0.050	<0.100		
Silicon, dissolved	50	µg/L	8320	8360	0.5		15500	15300	1.3		8640	8440	2.3		7470	7400	0.9	
Silver, dissolved	0.01	µg/L	<0.01	<0.01			<0.010	<0.010			<0.010	<0.010			<0.010	<0.020		
Sodium, dissolved	50	µg/L	4250	4340	2.1		4430	4270	3.7		6720	6820	1.5		18900	17600	7.1	
Strontium, dissolved	0.2	µg/L	275	274	0.4		206	216	4.7		517	520	0.6		420	453	7.6	
Sulfur, dissolved	500	µg/L	3310	3230	2.4		13600	12800	6.1		29800	29300	1.7		245000	239000	2.5	
Tellurium, dissolved	0.2	µg/L	<0.2	<0.2			<0.20	<0.20			<0.20	<0.20			<0.20	<0.40		
Thallium, dissolved	0.01	µg/L	<0.01	<0.01			<0.010	<0.010			<0.010	<0.010			0.050	0.051	2.0	
Thorium, dissolved	0.1	µg/L	<0.1	<0.1			<0.10	<0.10			<0.10	<0.10			<0.10	<0.20		
Tin, dissolved	0.1	µg/L	<0.1	<0.1			<0.10	<0.10			<0.10	<0.10			<0.10	<0.20		
Titanium, dissolved	0.3	µg/L	1.57	1.39	12.2		<0.30	<0.30			<0.30	<0.30			<0.30	<0.60		
Tungsten, dissolved	0.1	µg/L	<0.1	<0.1			0.36	0.39	8.0		<0.10	<0.10			<0.10	<0.20		
Uranium, dissolved	0.01	µg/L	1.58	1.6	1.3		0.03	0.028	6.9		6.00	6.07	1.2		2.75	2.79	1.4	
Vanadium, dissolved	0.5	µg/L	0.57	0.54	5.4		<0.50	<0.50			<0.50	<0.50			<0.50	<1.00		
Zinc, dissolved	1	µg/L	1.5	1.6	6.5		1.3	<1.0	26.1	1	2.7	5.6	69.9	2	175	158	10.2	
Zirconium, dissolved	0.2	µg/L	<0.3	<0.3			<0.20	<0.20			<0.20	<0.20			<0.20	<0.40		
Dissolved mercury filtration location			Field	Field			Field	Field			Field	Field			Field	Field		
Dissolved metals filtration location			Field	Field			Field	Field			Field	Field			Field	Field		

Total Parameters	**396**	RPD Parameters	67		RPD Parameters	73		RPD Parameters	65		RPD Parameters	61				
Total RPD Parameters	**266**	RPD >20 %	5	3 are both <5*DL	RPD >20 %	22	10 are both <5*DL	RPD >20 %	8	6 are both <5*DL	RPD >20 %	4	3 are both <5*DL			
Total RPD >20 %	**39**	RPD >25 %	2	both <5*DL	RPD >25 %	9	5 are both <5*DL	RPD >25 %	5	4 are both <5*DL	RPD >25 %	4	3 are both <5*DL			
Total RPD >25 %	**20**															

[1] Acceptable, one or both result(s) within 5x the detection limit, or one result below the detection limit and the other result within 5x the detection limit.
[2] Acceptable, one of two results is within 5x the detection limit and both of the results are at least one order of magnitude below the applicable CSR standards. For the Q2 duplicate the CSR DW standard for chromium is 50 µg/L. For the Q3 duplicate, the CSR AW standard for ammonia is 11.3 mg/L and the CSR standards for zinc range from 2000-5000 µg/L.
[3] Acceptable, these high % RPD duplicate results do not affect interpretation of the results since there are no relevant guidelines or standards for TSS, TOC, and cesium.
[4] Acceptable, these high % RPD duplicate results do not affect interpretation of the results since all of the results are well below the applicable CSR standard.

- For the Q1 duplicate, both results are greater than two orders of magnitude less than the CSR DW standard for total cadmium of 5 µg/L.
- For the Q2 duplicate:
  - both results are greater than one order of magnitude less than the pH-dependent CSR AW standard for ammonia of 18.5 mg/L.
  - both results are less than all of the CSR standards for fluoride, which range from 1 to 3 mg/L.
  - both results are less the the CSR DW standard for total barium of 1000 µg/L.
  - both results are greater than one order of magnitude less the the CSR DW standard for total cadmium of 5 µg/L.
  - both results are greater than two orders of magnitude less the the CSR DW standard for total copper of 1500 µg/L.
  - both results are less the the CSR DW standard for total iron of 6500 µg/L.
  - both results are greater than one order of magnitude less the the CSR DW standard for total lead of 10 µg/L.
  - both results are greater than one order of magnitude less the the CSR DW standard for total uranium of 20 µg/L.
  - both results are less the the CSR DW standard for total vanadium of 20 µg/L.
- For the Q4 duplicate, both results are less than the CSR DW standard for total cadmium of 5 µg/L.

Regional District of Central Kootenay
Quality Assurance - Quality Control Summary - Blanks 2025
HB Mine Tailings Storage Facility, Salmo, BC

			First Quarter		Second Quarter		Third Quarter		Fourth Quarter	
Client Sample ID			Field Blank		Field Blank		Field Blank		Field Blank	
Date Sampled			01-Apr-2025		22-May-2025		10-Sep-2025		04-Nov-2025	
Time Sampled			15:15		15:50		12:30		15:30	
ALS Sample ID			VA25A7369-001		VA25B2060-009		VA25C3911-013		VA25C9784-002	
Parameter	Lowest Detection Limit	Units								
Physical Tests (Matrix: Water)										
Conductivity	2	µS/cm	<2.0		<2.0		2.4	1	2.9	1
Alkalinity, total (as CaCO3)	1	mg/L	<1.0		<1.0		1.0	1	<1.0	
Hardness (as CaCO3), dissolved	0.6	mg/L	<0.60		<0.60		<0.60		0.79	1
Hardness (as CaCO3), from total Ca/Mg	0.6	mg/L	<0.60		<0.60		0.80	1	0.97	1
Solids, total dissolved [TDS]	10	mg/L	<10		<10		<10		<10	
Solids, total suspended [TSS]	3	mg/L	<3.0		<3.0		<3.0		3.3	1
pH	0.1	pH units	5.35		5.74		6.26		6.07	
Anions and Nutrients (Matrix: Water)										
Ammonia, total (as N)	0.005	mg/L	<0.0050		<0.0050		<0.0050		<0.0050	
Bromide	0.05	mg/L	<0.050		<0.050		<0.050		<0.050	
Chloride	0.5	mg/L	<0.50		<0.50		<0.50		<0.50	
Fluoride	0.02	mg/L	<0.020		<0.020		<0.020		<0.020	
Kjeldahl nitrogen, total [TKN]	0.05	mg/L	<0.050		<0.050		<0.050		<0.050	
Nitrate (as N)	0.005	mg/L	<0.0050		<0.0050		<0.0050		<0.0050	
Nitrite (as N)	0.001	mg/L	<0.0010		<0.0010		<0.0010		<0.0010	
Phosphate, ortho-, dissolved (as P)	0.001	mg/L	<0.0010		<0.0010		<0.0010		<0.0010	
Sulfate (as SO4)	0.3	mg/L	<0.30		<0.30		<0.30		<0.30	
Organic / Inorganic Carbon (Matrix: Water)										
Carbon, total organic [TOC]	0.5	mg/L	<0.50		<0.50		<0.50		<0.50	
Total Sulfides (Matrix: Water)										
Sulfide, total (as S)	0.01	mg/L	<0.010		<0.010		<0.010		<0.010	
Sulfide, total (as H2S)	0.011	mg/L	<0.011		<0.011		<0.011		<0.011	
Total Metals (Matrix: Water)										
Aluminum, total	3	µg/L	<3.0		<3.0		16.2	2	20.5	2
Antimony, total	0.1	µg/L	<0.10		<0.10		<0.10		<0.10	
Arsenic, total	0.1	µg/L	<0.10		<0.10		<0.10		0.11	1
Barium, total	0.1	µg/L	<0.10		0.20	1	0.65	3	0.95	3
Beryllium, total	0.1	µg/L	<0.100		<0.100		<0.100		<0.100	
Bismuth, total	0.05	µg/L	<0.050		<0.050		<0.050		<0.050	
Boron, total	10	µg/L	<10		<10		<10		<10	
Cadmium, total	0.005	µg/L	<0.0050		<0.0050		0.0546	4	0.0842	4
Calcium, total	50	µg/L	<50		<50		238	1	270	1
Cesium, total	0.01	µg/L	<0.010		<0.010		<0.010		<0.010	
Chromium, total	0.5	µg/L	<0.50		<0.50		<0.50		1.85	1
Cobalt, total	0.1	µg/L	<0.10		<0.10		<0.10		<0.10	
Copper, total	0.5	µg/L	<0.50		<0.50		3.93	5	0.94	1
Iron, total	10	µg/L	<10		<10		33	1	57	3
Lead, total	0.05	µg/L	<0.050		0.142	1	1.03	6	0.652	6
Lithium, total	1	µg/L	<1.0		<1.0		<1.0		<1.0	
Magnesium, total	5	µg/L	<5.0		13.9	1	49.1	3	72.0	3
Manganese, total	0.1	µg/L	<0.10		0.36	1	0.99	3	7.02	3
Mercury, total	0.005	µg/L	<0.0050		<0.0050		<0.0050		<0.0050	
Molybdenum, total	0.05	µg/L	<0.050		<0.050		<0.050		0.06	1
Nickel, total	0.5	µg/L	<0.50		<0.50		<0.50		0.95	1
Phosphorus, total	50	µg/L	<50		<50		<50		<50	
Potassium, total	50	µg/L	<50		<50		<50		51	1
Rubidium, total	0.2	µg/L	<0.20		<0.20		<0.20		<0.20	
Selenium, total	0.05	µg/L	<0.050		<0.050		<0.050		<0.050	
Silicon, total	100	µg/L	<100		<100		<100		120	1
Silver, total	0.01	µg/L	<0.010		<0.010		<0.010		<0.010	
Sodium, total	50	µg/L	<50		<50		82	1	106	1
Strontium, total	0.2	µg/L	<0.20		0.29	1	1.1	3	1.13	3
Sulfur, total	500	µg/L	<500		<500		<500		<500	
Tellurium, total	0.2	µg/L	<0.20		<0.20		<0.20		<0.20	
Thallium, total	0.01	µg/L	<0.010		<0.010		<0.010		<0.010	
Thorium, total	0.1	µg/L	<0.10		<0.10		<0.10		<0.10	
Tin, total	0.1	µg/L	<0.10		2.31	7	<0.10		0.13	1
Titanium, total	0.3	µg/L	<0.30		<0.30		0.61	1	1.15	1
Tungsten, total	0.1	µg/L	<0.10		<0.10		<0.10		<0.10	
Uranium, total	0.01	µg/L	<0.010		<0.010		<0.010		<0.010	
Vanadium, total	0.5	µg/L	<0.50		<0.50		<0.50		<0.50	
Zinc, total	3	µg/L	<3.0		<3.0		5.9	1	4.5	1
Zirconium, total	0.2	µg/L	<0.20		<0.20		<0.20		<0.20	
Dissolved Metals (Matrix: Water)										
Aluminum, dissolved	1	µg/L	<1.0		1.1	1	1.4	1	1.1	1
Antimony, dissolved	0.1	µg/L	<0.10		<0.10		<0.10		<0.10	
Arsenic, dissolved	0.1	µg/L	<0.10		<0.10		<0.10		<0.10	
Barium, dissolved	0.1	µg/L	<0.10		0.15	1	0.36	3	0.52	8
Beryllium, dissolved	0.1	µg/L	<0.100		<0.100		<0.100		<0.100	
Bismuth, dissolved	0.05	µg/L	<0.050		<0.050		<0.050		<0.050	
Boron, dissolved	10	µg/L	<10		<10		<10		<10	
Cadmium, dissolved	0.005	µg/L	<0.0050		<0.0050		<0.0050		0.0070	1
Calcium, dissolved	50	µg/L	<50		<50		171	1	242	1
Cesium, dissolved	0.01	µg/L	<0.010		<0.010		<0.010		<0.010	
Chromium, dissolved	0.5	µg/L	<0.50		<0.50		<0.50		<0.50	
Cobalt, dissolved	0.1	µg/L	<0.10		<0.10		<0.10		<0.10	
Copper, dissolved	0.2	µg/L	<0.20		<0.20		0.75	1	0.47	1
Iron, dissolved	10	µg/L	<10		<10		<10		<10	
Lead, dissolved	0.05	µg/L	<0.050		<0.050		<0.050		<0.050	
Lithium, dissolved	1	µg/L	<1.0		<1.0		<1.0		<1.0	
Magnesium, dissolved	5	µg/L	<5.0		11.5	1	27.3	8	44.1	8
Manganese, dissolved	0.1	µg/L	<0.10		0.22	1	0.46	1	2.50	1,8
Mercury, dissolved	0.005	µg/L	<0.0050		<0.0050		<0.0050		<0.0050	
Molybdenum, dissolved	0.05	µg/L	<0.050		<0.050		<0.050		<0.050	
Nickel, dissolved	0.5	µg/L	<0.50		<0.50		<0.50		<0.50	
Phosphorus, dissolved	50	µg/L	<50		<50		<50		<50	
Potassium, dissolved	50	µg/L	<50		<50		<50		<50	
Rubidium, dissolved	0.2	µg/L	<0.20		<0.20		<0.20		<0.20	
Selenium, dissolved	0.05	µg/L	<0.050		<0.050		<0.050		<0.050	
Silicon, dissolved	50	µg/L	<50		<50		<50		51	1
Silver, dissolved	0.01	µg/L	<0.010		<0.010		<0.010		<0.010	
Sodium, dissolved	50	µg/L	<50		<50		78	1	91	1
Strontium, dissolved	0.2	µg/L	<0.20		0.26	1	0.98	1	1.01	8
Sulfur, dissolved	500	µg/L	<500		<500		<500		<500	
Tellurium, dissolved	0.2	µg/L	<0.20		<0.20		<0.20		<0.20	
Thallium, dissolved	0.01	µg/L	<0.010		<0.010		<0.010		<0.010	
Thorium, dissolved	0.1	µg/L	<0.10		<0.10		<0.10		<0.10	
Tin, dissolved	0.1	µg/L	<0.10		2.13	7	<0.10		<0.10	
Titanium, dissolved	0.3	µg/L	<0.30		<0.30		<0.30		<0.30	
Tungsten, dissolved	0.1	µg/L	<0.10		<0.10		<0.10		<0.10	
Uranium, dissolved	0.01	µg/L	<0.010		<0.010		<0.010		<0.010	
Vanadium, dissolved	0.5	µg/L	<0.50		<0.50		<0.50		<0.50	
Zinc, dissolved	1	µg/L	<1.0		<1.0		2.0	1	1.6	1
Zirconium, dissolved	0.2	µg/L	<0.20		<0.20		<0.20		<0.20	
Dissolved mercury filtration location			Field		Field		Field		Field	
Dissolved metals filtration location			Field		Field		Field		Field	

Total Parameters	**392**					
Number >DL	**72**	18%	0	12	25	35
Number <5 x DL	**48**	12%	NA	10[1]	16[1]	22[1]
Remainder	**24**	6%				

[1] Acceptable, the result is within 5x the detection limit.

[2] The Q3 and Q4 groundwater Field Blank results for total aluminum were greater than that quantified at MW-06-01 in both quarters. The slightly high field blank parameters (within 6x and 7x the detection limit, respectively) should not affect the overall interpretation of the results as total aluminum in both field blanks is still more than two orders of magnitude lower than the CSR DW standard (9500 µg/L).

[3] The Q3 and Q4 groundwater Field Blanks showed elevated results for total barium, total calcium (Q4 only), total iron (Q4 only), total magnesium, total manganese, and total strontium (within 6x to 15x the detection limit, the exception being total manganese in the Q4 field blank, which was 70x the detection limit). These high blank parameters do not affect the overall interpretation of the results as all groundwater samples quantified each total metal at least one order of magnitude higher, and often two orders of magnitude higher than the blank results. The only exception was total iron in the Q4 field blank as it was only two times higher S-MW-1 and MW-99-1(D). In all cases the field blank results were greater than two orders of magnitude (and often three orders of magnitude) lower than the CSR DW standard for these total metals (Ba=1000 µg/L, Fe=9500 µg/L, Mn=1500 µg/L, and Sr=2500 µg/L). There are no DSR standards for total calcium and total magnesium.

[4] The Q3 and Q4 groundwater Field Blank results for total cadmium were greater than those quantified at more than half of the HB wells in Q3 and at approximately half of the HB wells in Q4. The high field blank parameters (within 11x and 17x the detection limits, respectively) should not affect the overall interpretation of the results as total cadmium in both field blanks is still more than one order of magnitude lower than the CSR DW standard (5 µg/L).

[5] The Q3 groundwater Field Blank result for total copper was greater than that quantified at more than half of the HB wells in Q3. This slightly high field blank parameter (within 8x the detection limit) should not affect the overall interpretation of the results as total copper in the field blank was still more than two orders of magnitude lower than the CSR DW standard (1500 µg/L).

[6] The Q3 and Q4 groundwater Field Blank results for total lead were greater than those quantified at wells S-MW-1 and MW99-1(S/D) in both quarters, and also greater than that quantified in well MW99-2(S) in Q3 only. The high field blank parameters (within 21x and 13x the detection limits, respectively) should not affect the overall interpretation of the results as total lead in the Q3 field blank is approximately one order of magnitude lower than the CSR DW standard and total lead in the Q4 field blank is greater than one order of magnitude lower than the CSR DW standard (10 µg/L).

[7] The Q2 groundwater Field Blank results for total and dissolved tin were greater than the results quantified at all of the HB wells in Q2. These high field blank parameters (23x and 21x the detection limits, respectively) should not affect the overall interpretation of the results as the total tin results are still more than three orders of magnitude lower than CSR DW standard (2500 µg/L). There is no CSR standard for dissolved tin.

[8] The Q4 groundwater Field Blank showed elevated results for dissolved barium and dissolved strontium (within 6x the detection limit). These slightly high blank parameters do not affect the overall interpretation of the results as all groundwater samples quantified dissolved barium and dissolved strontium at least one order of magnitude higher than the blank results. Additionally, dissolved barium was greater than four orders of magnitude lower than the CSR AW standard (10,000 µg/L). There are no CSR standards for dissolved strontium.

[9] The Q3 and Q4 groundwater Field Blanks showed elevated results for dissolved magnesium (within 6x and 9x the detection limits, respectively). These slightly high blank parameters do not affect the overall interpretation of the results as all groundwater samples quantified dissolved magnesium at least two orders of magnitude higher than the blank results. Additionally, there is no CSR standard for dissolved magnesium.

[10] The Q4 groundwater Field Blank result for dissolved manganese was greater than that quantified at wells MW-05-01 and MW-01-2004(D) in Q4. This high field blank parameter (25x the detection limit) should not affect the overall interpretation of the results as dissolved manganese in the field blank was still approximately two orders of magnitude lower than the CSR IW standard (200 µg/L).

APPENDIX 5. TREND GRAPHS

Figure A5-1

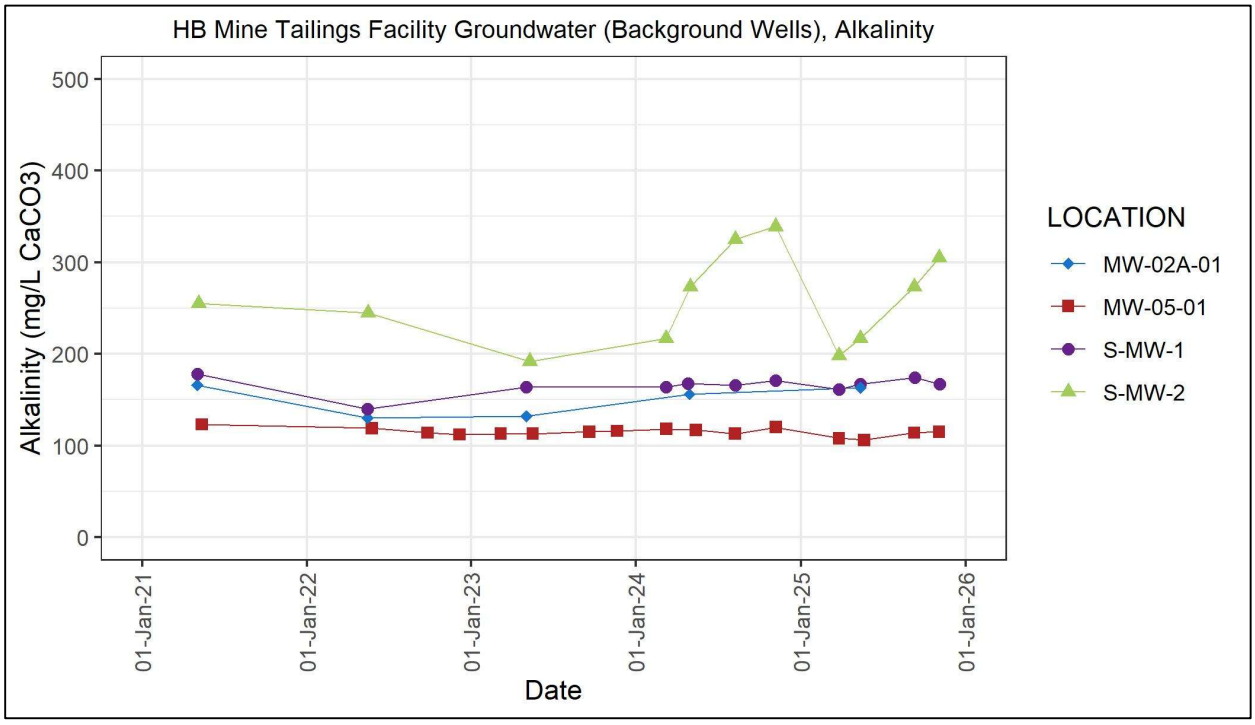


Figure A5-2

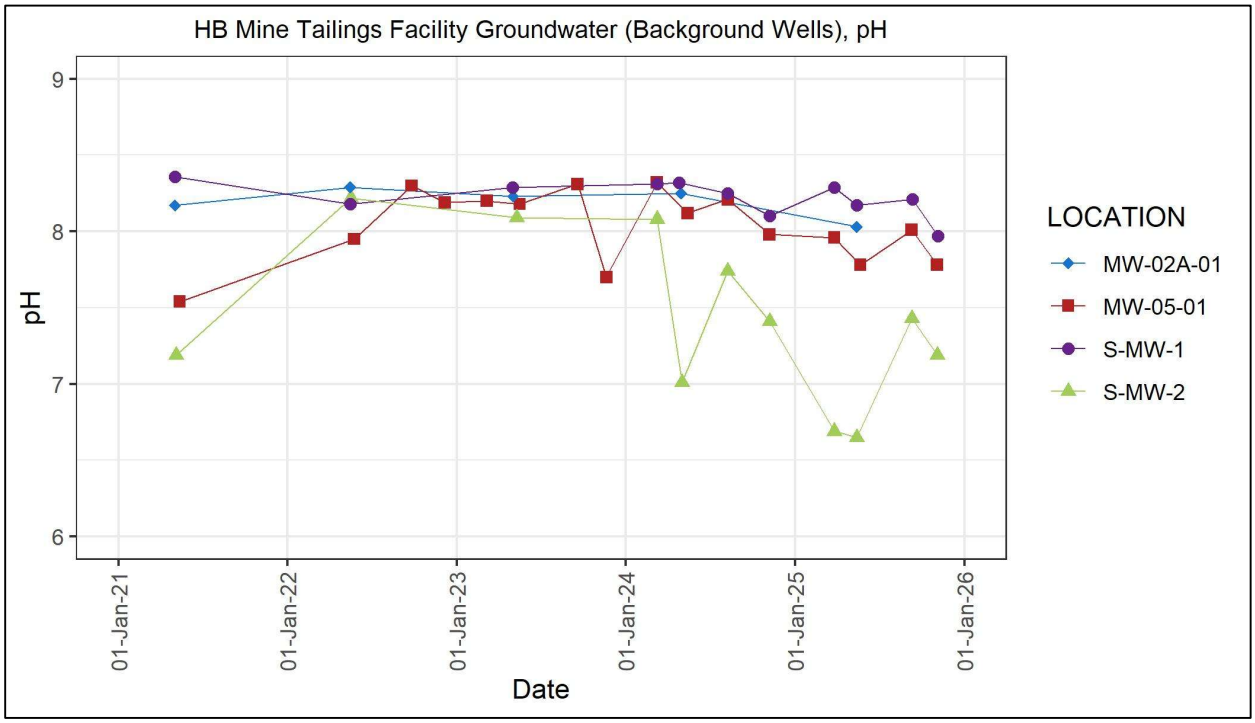


Figure A5-3

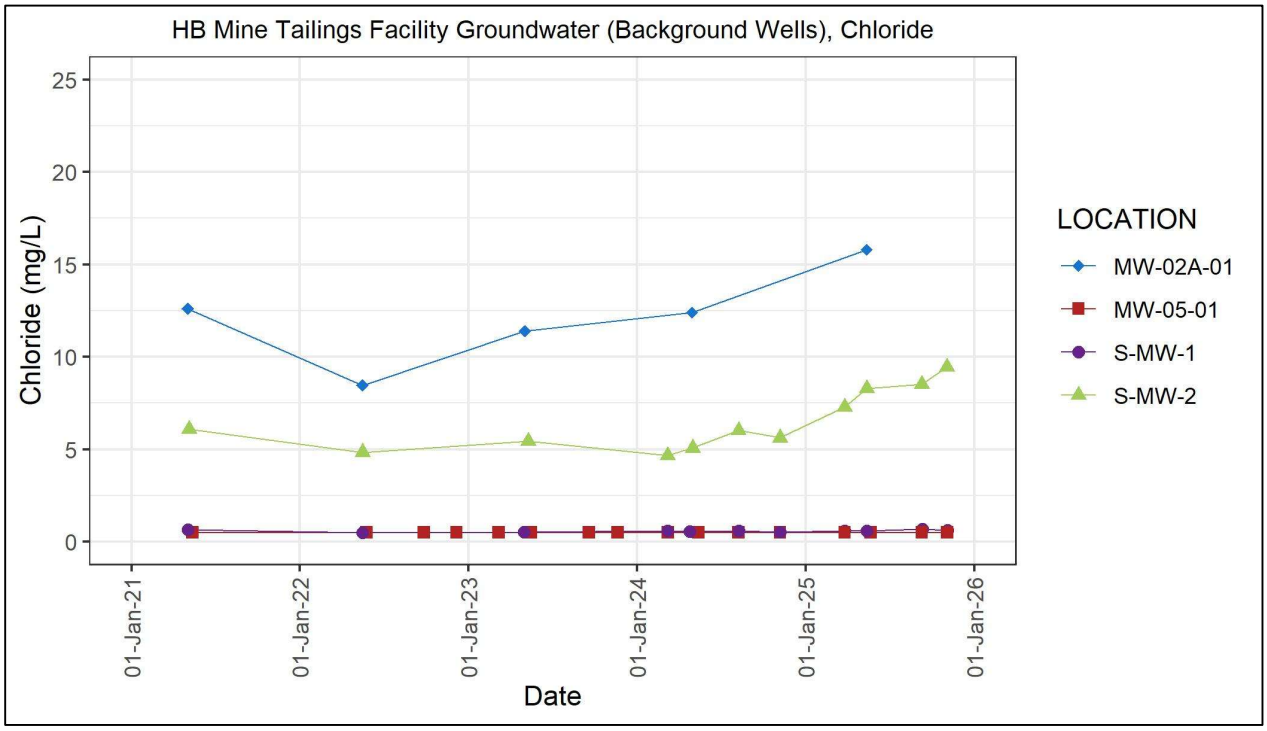


Figure A5-4

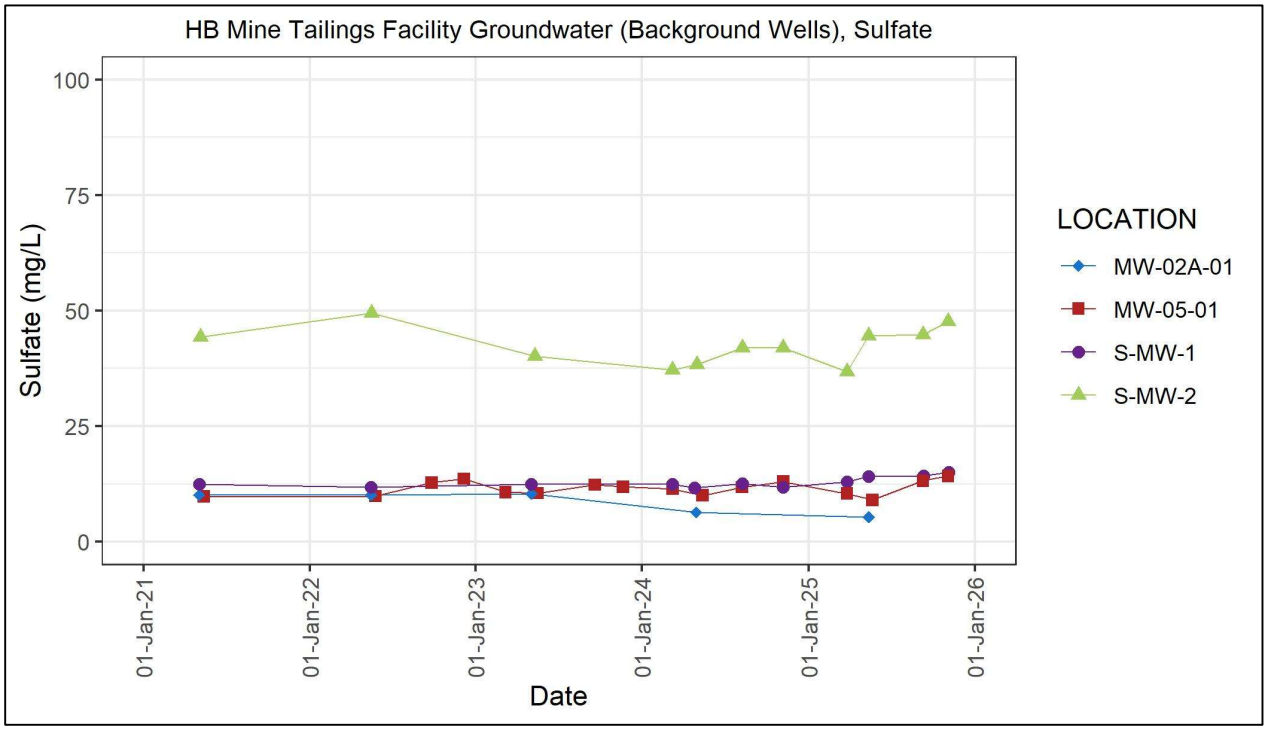


Figure A5-5

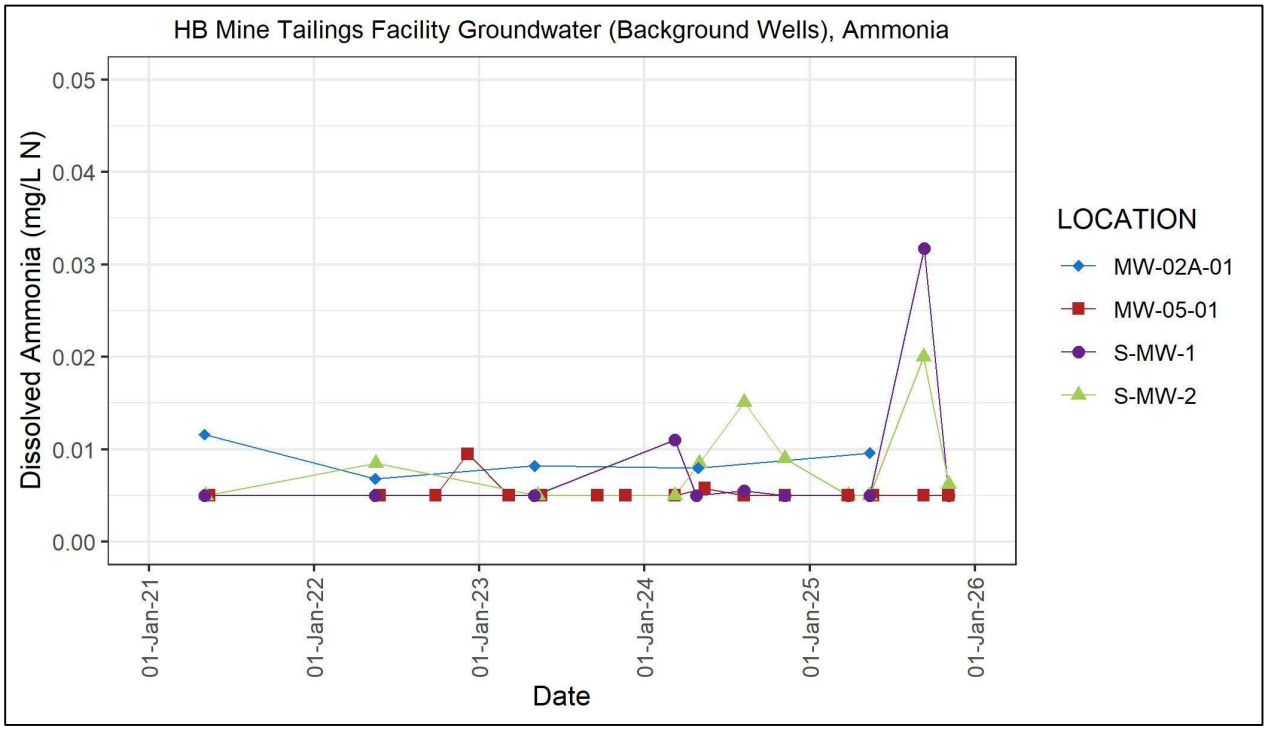


Figure A5-6

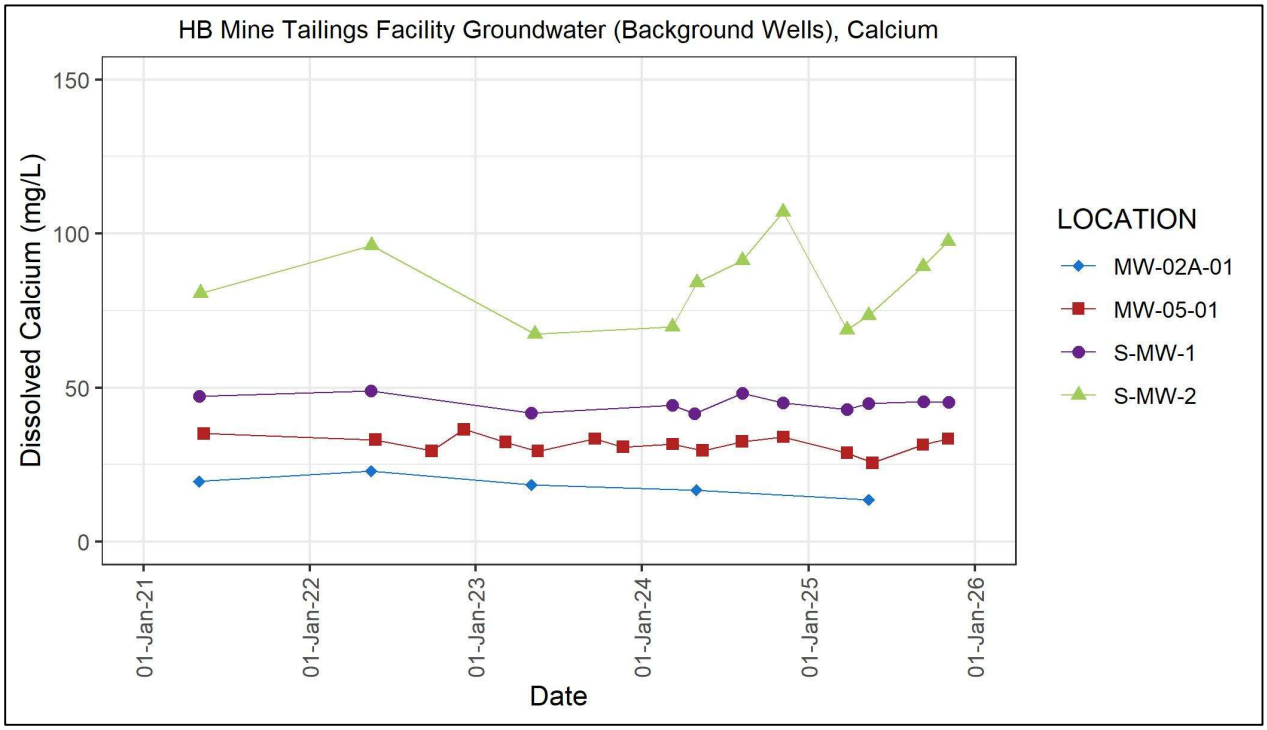


Figure A5-7

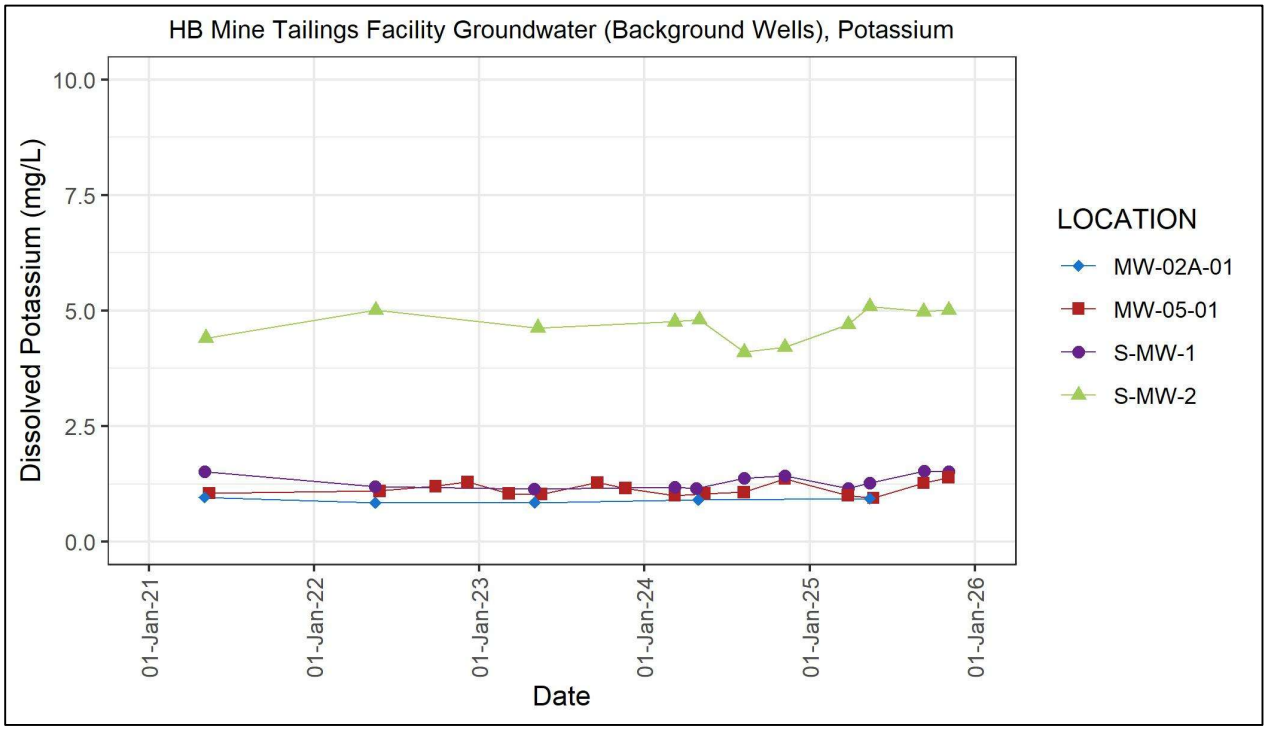


Figure A5-8

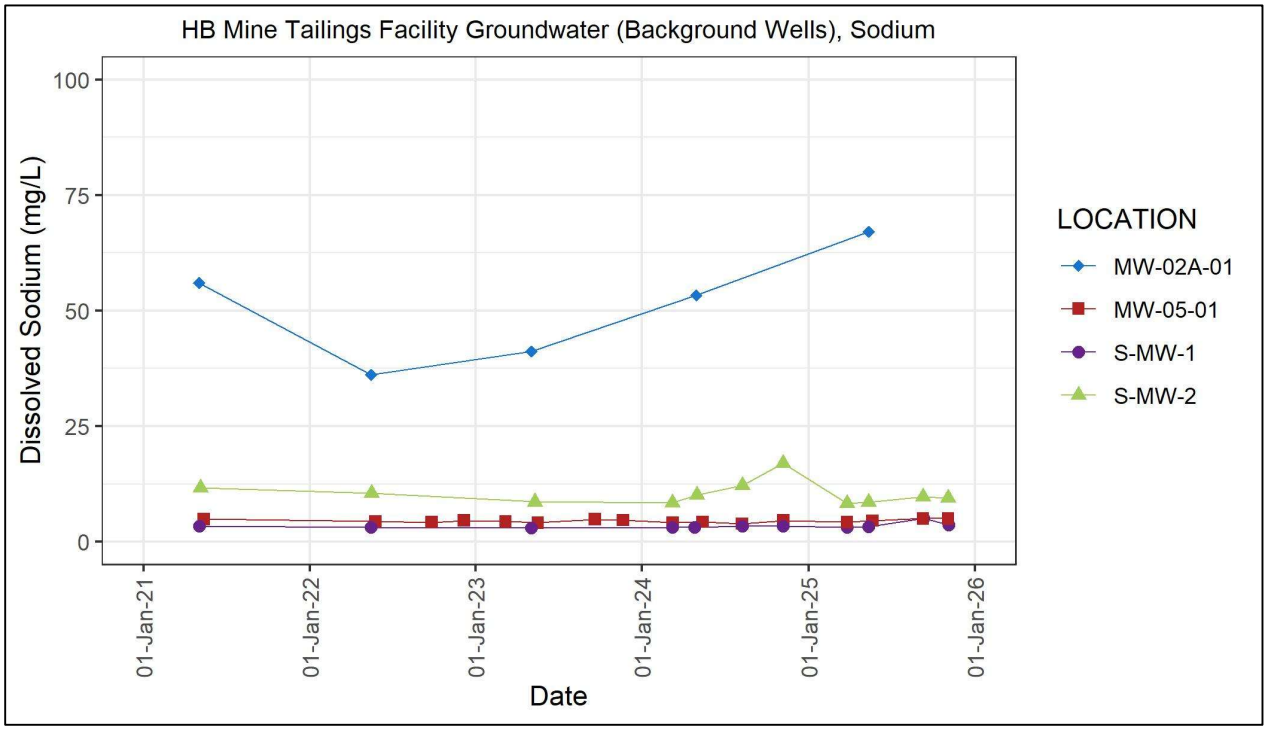


Figure A5-9

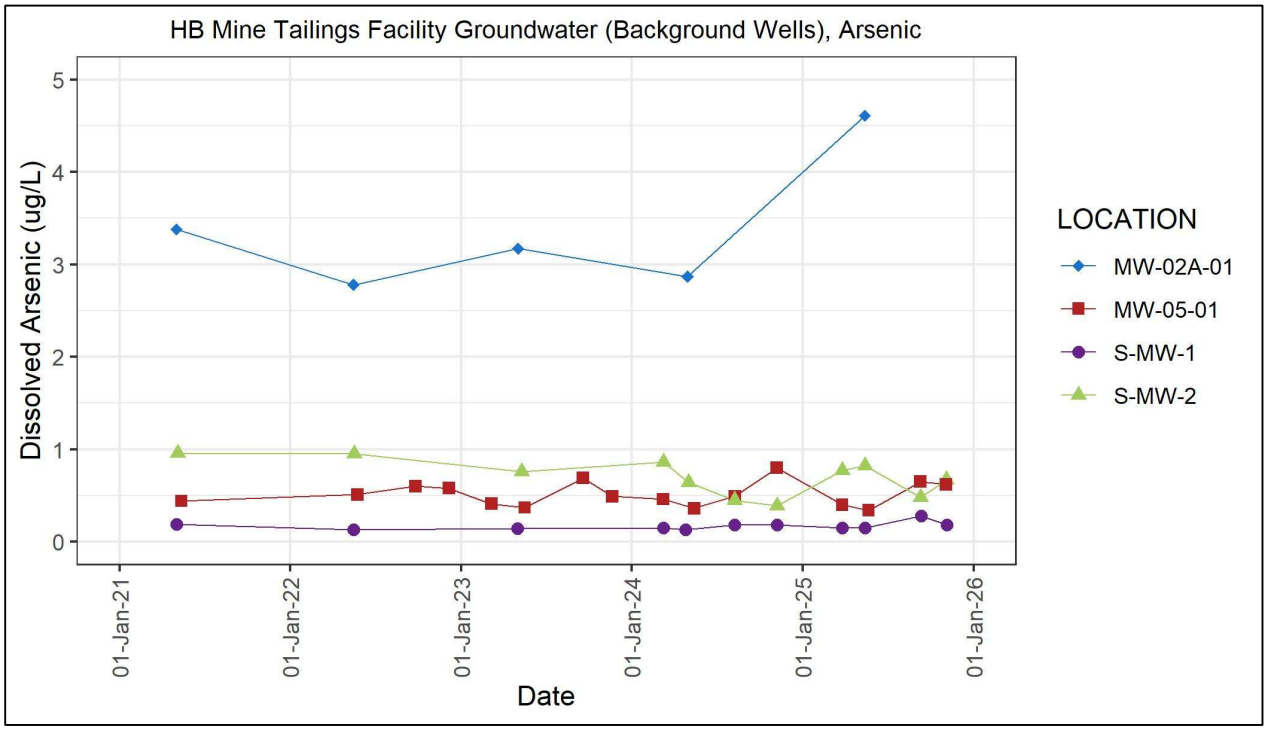


Figure A5-10

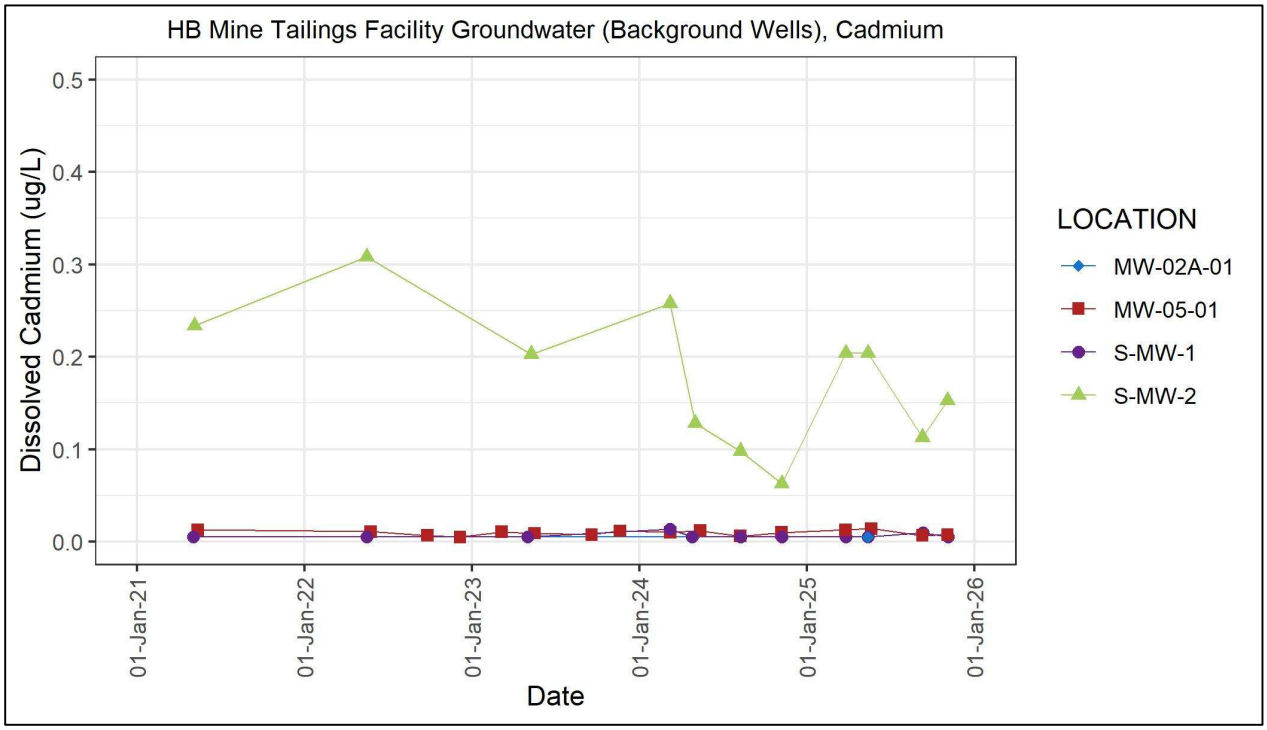


Figure A5-11

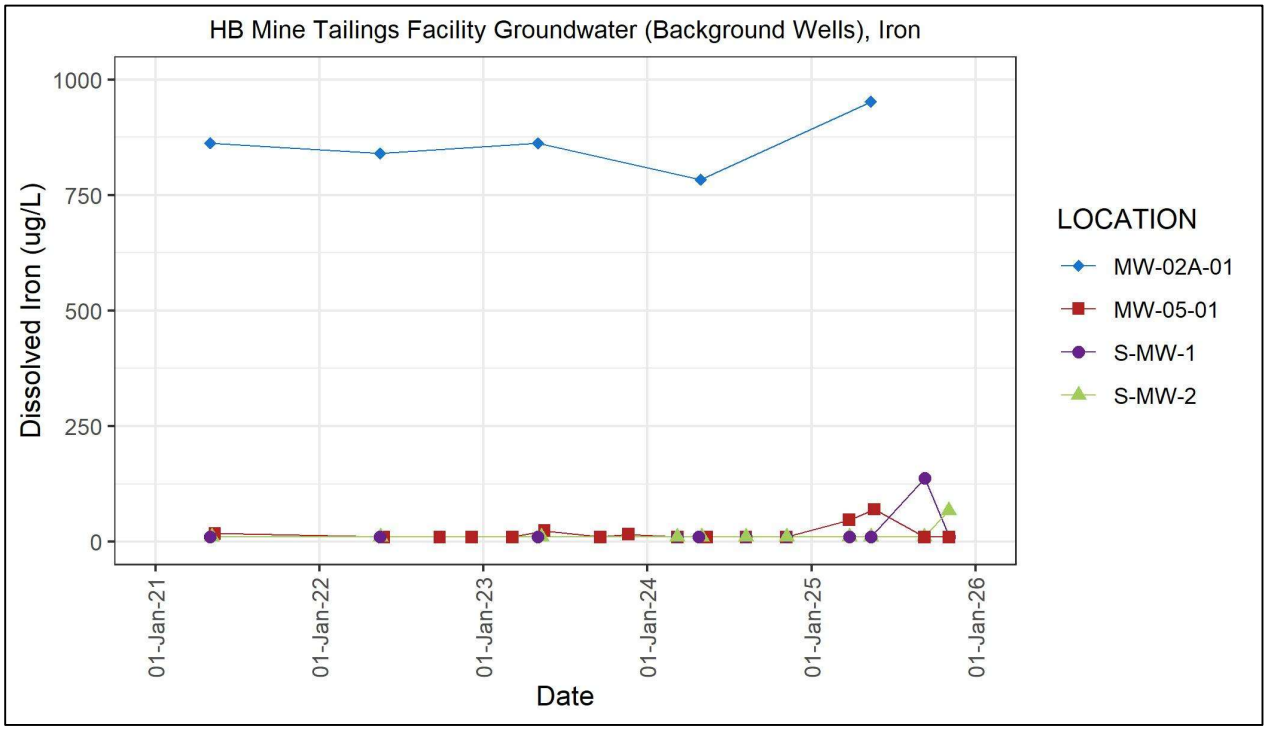


Figure A5-12

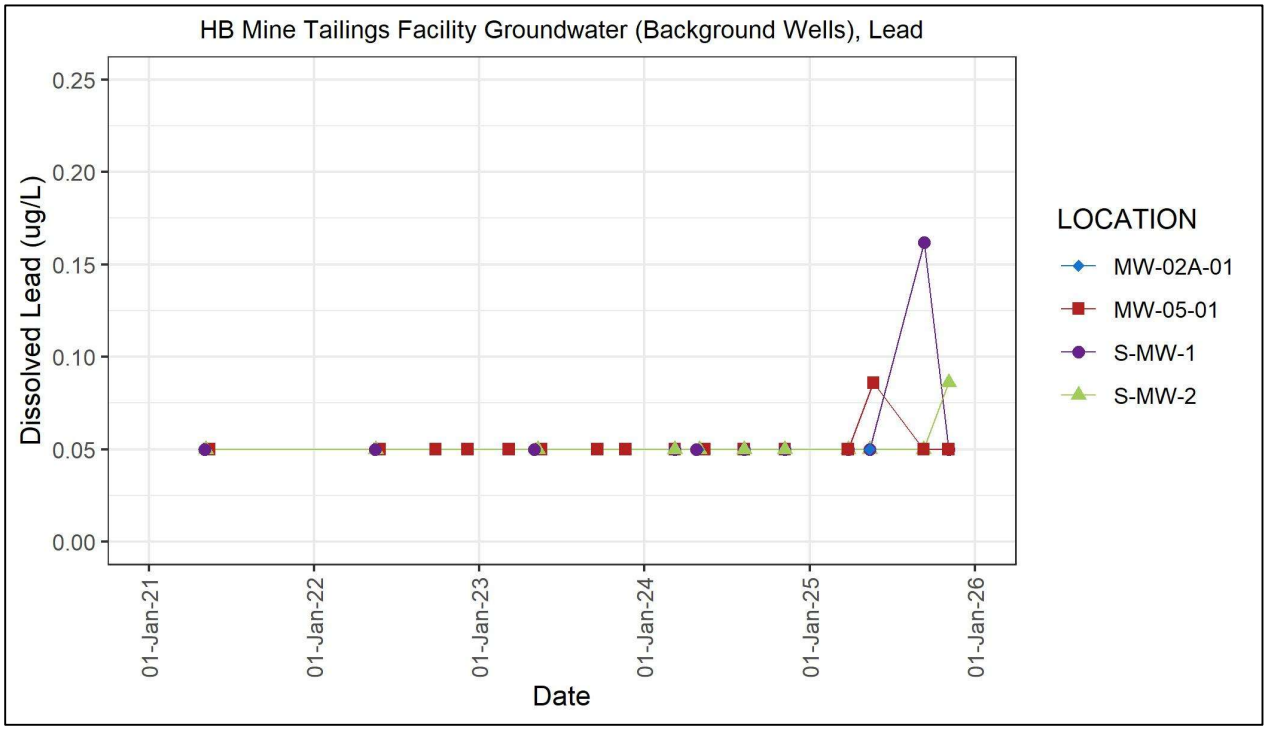


Figure A5-13

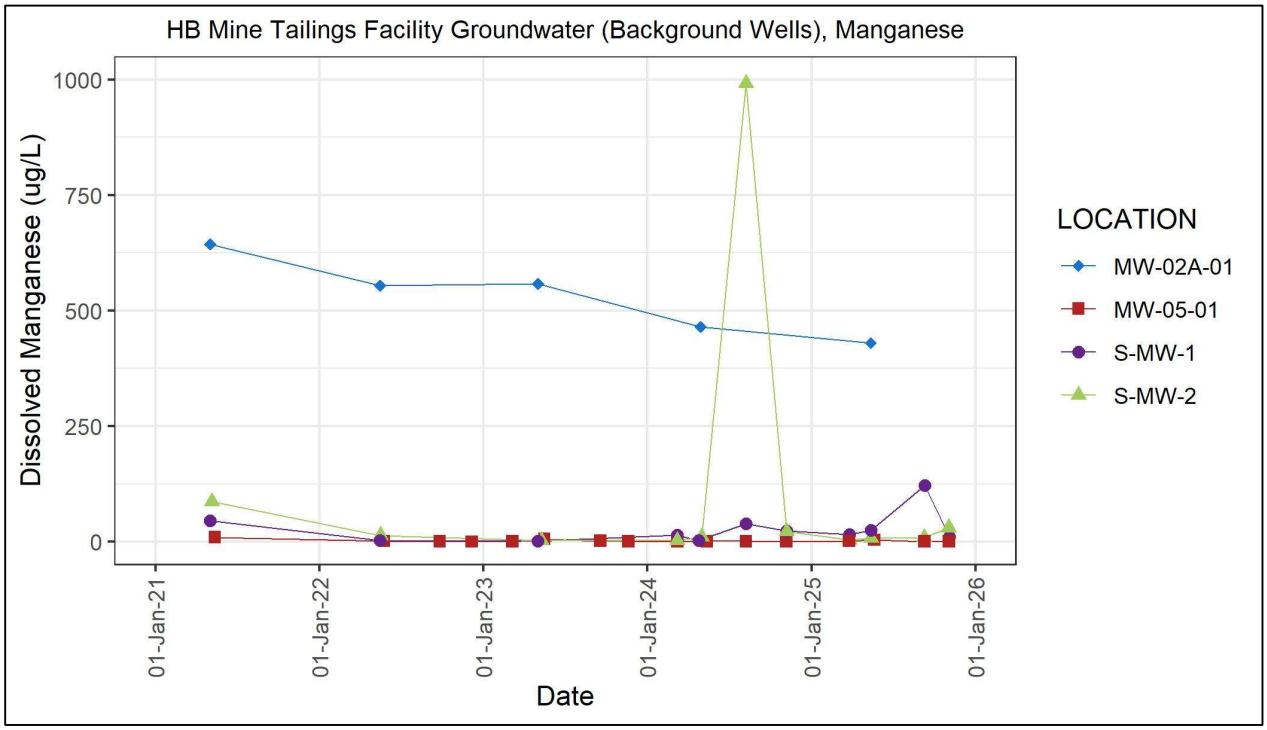


Figure A5-14

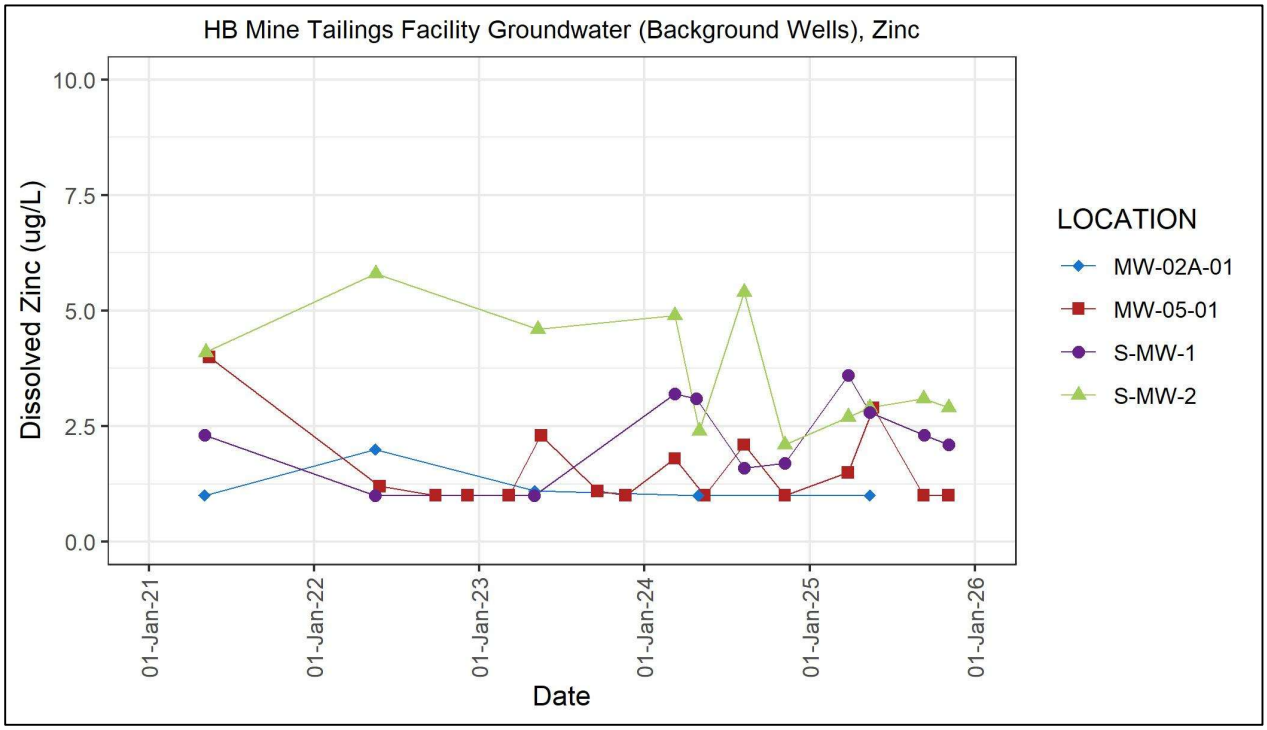


Figure A5-15

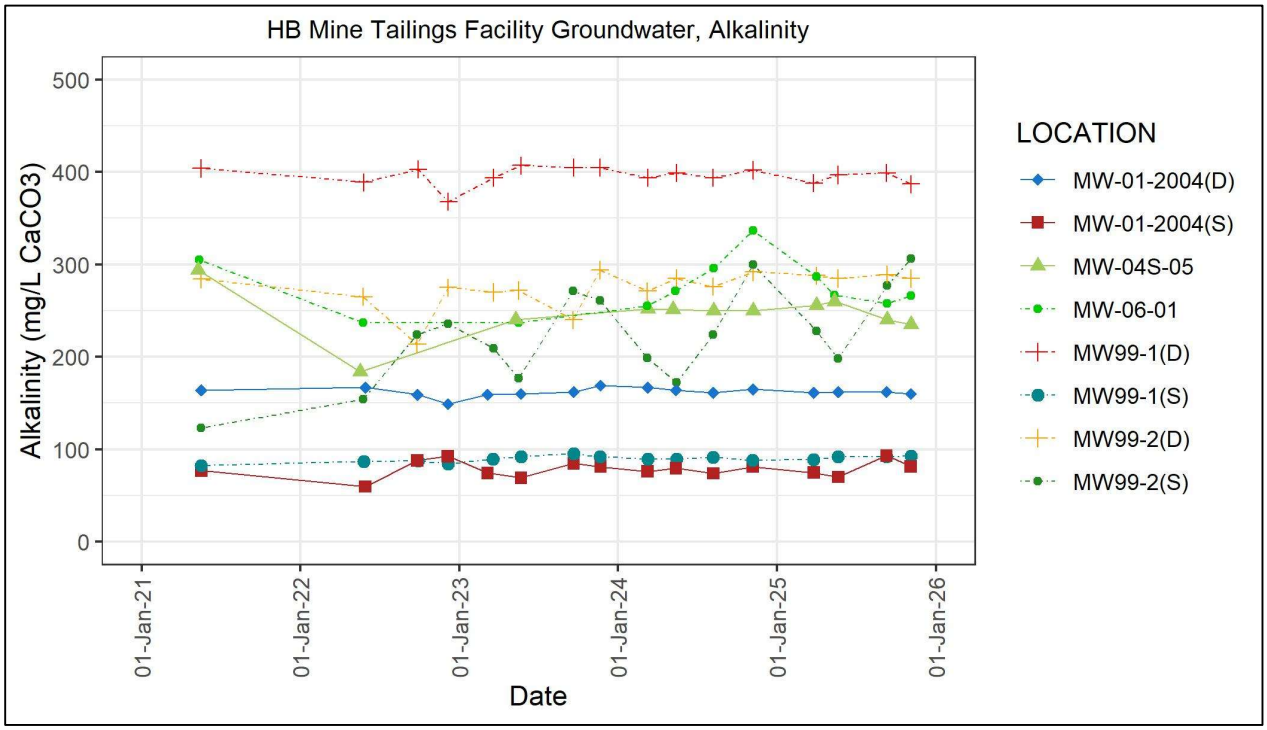


Figure A5-16

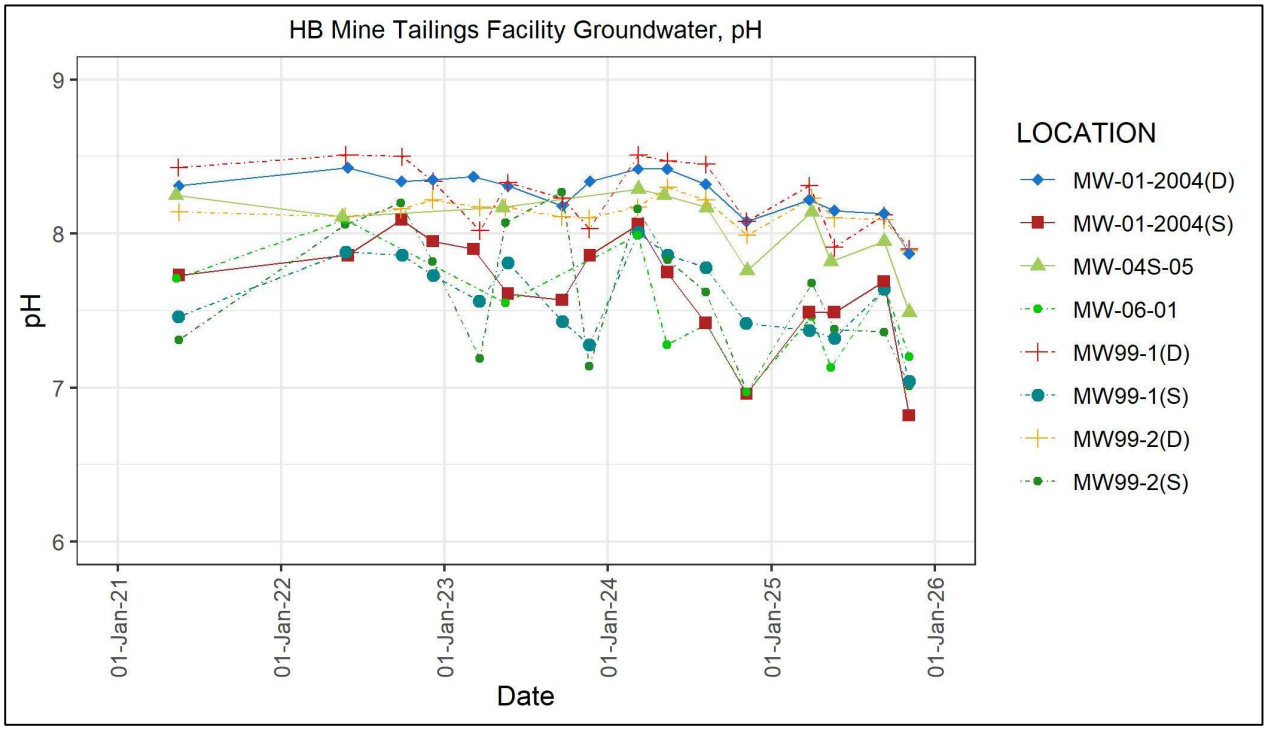


Figure A5-17

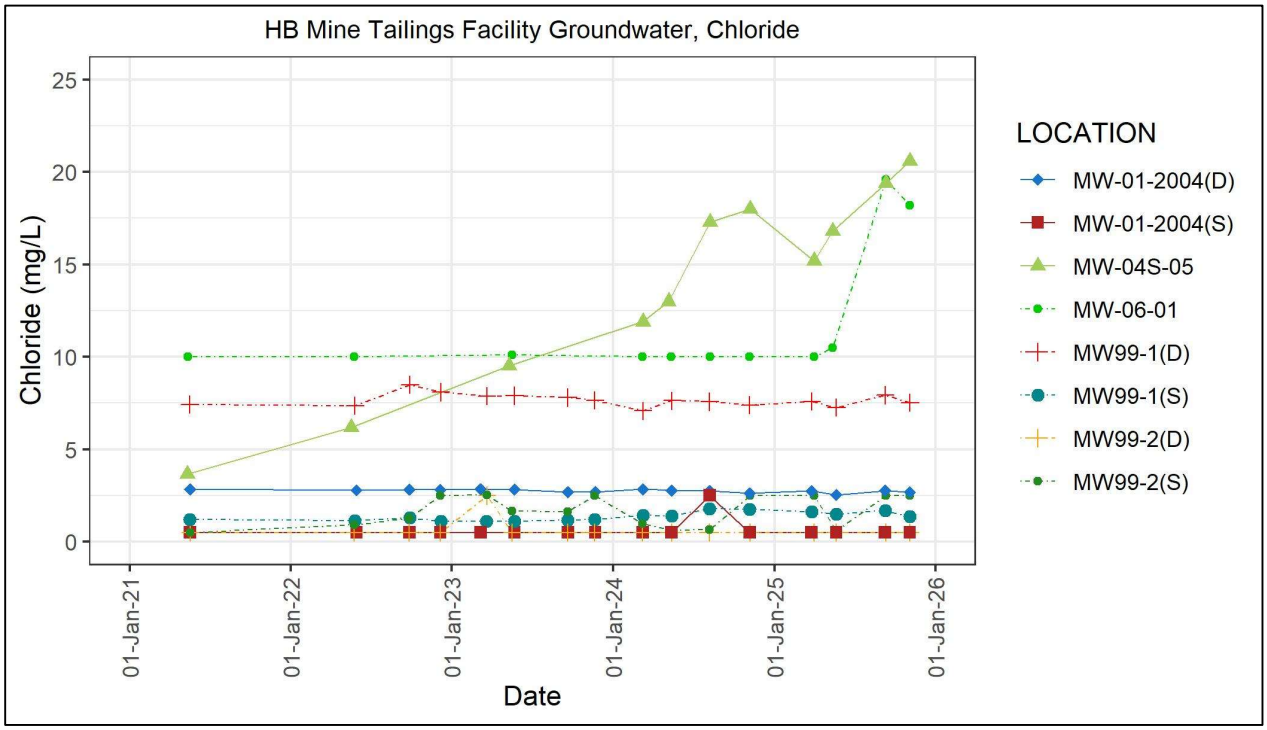


Figure A5-18

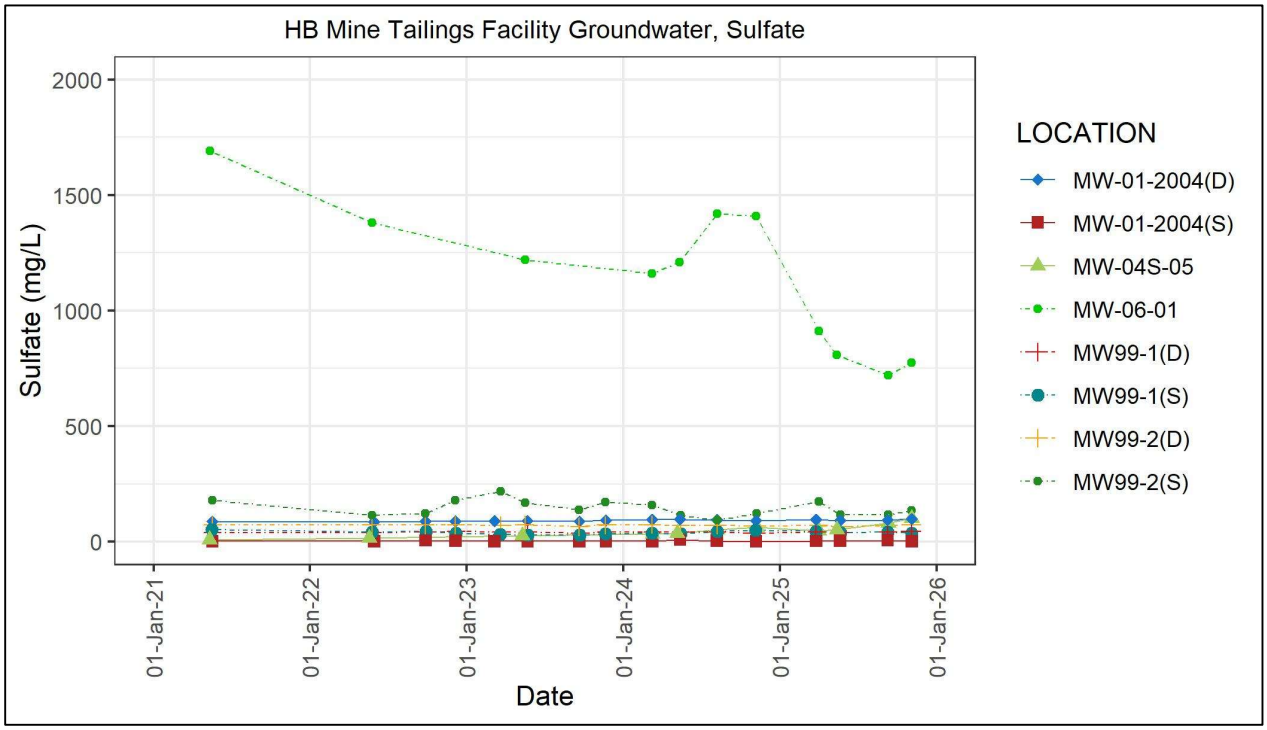


Figure A5-19

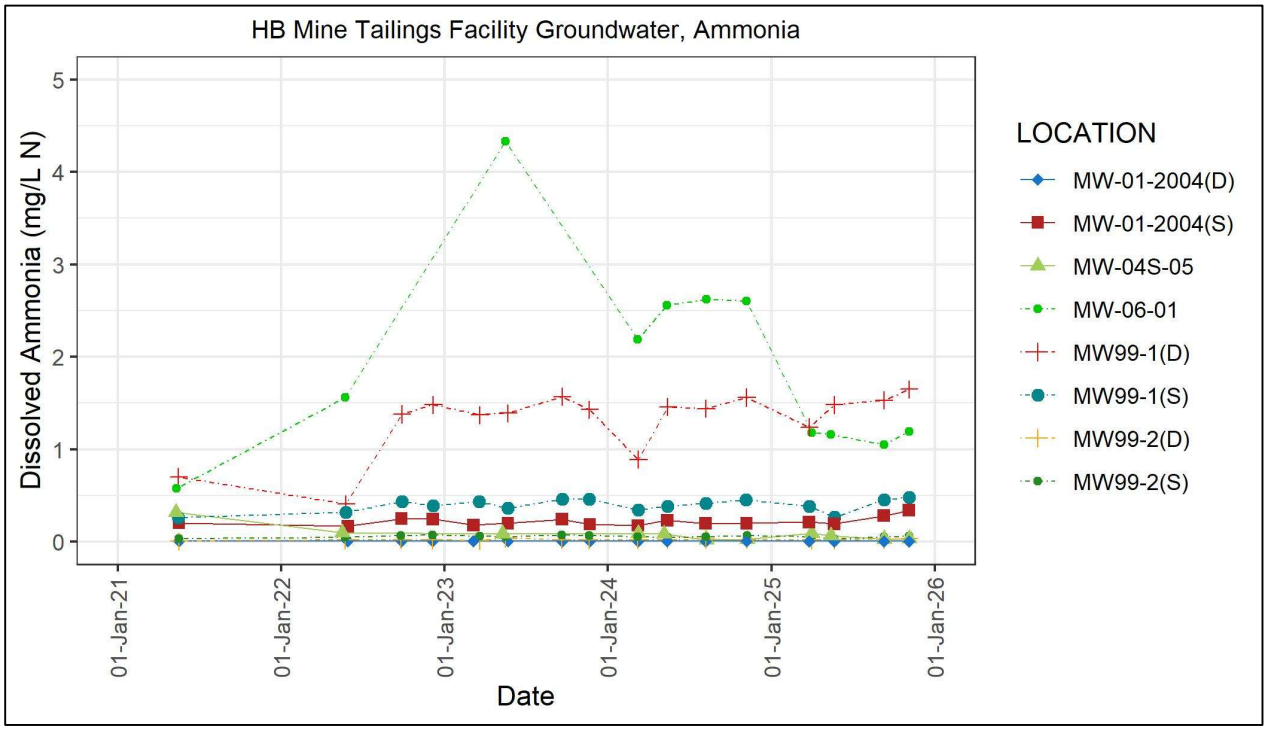


Figure A5-20

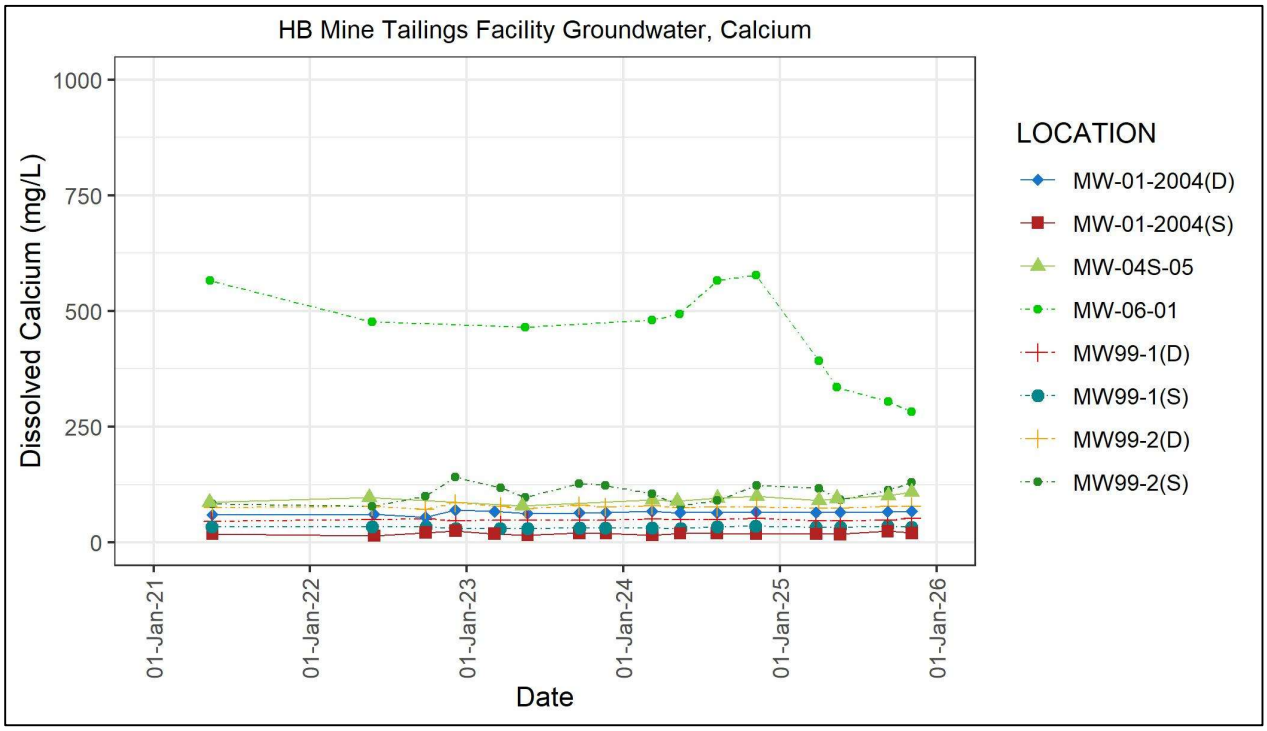


Figure A5-21

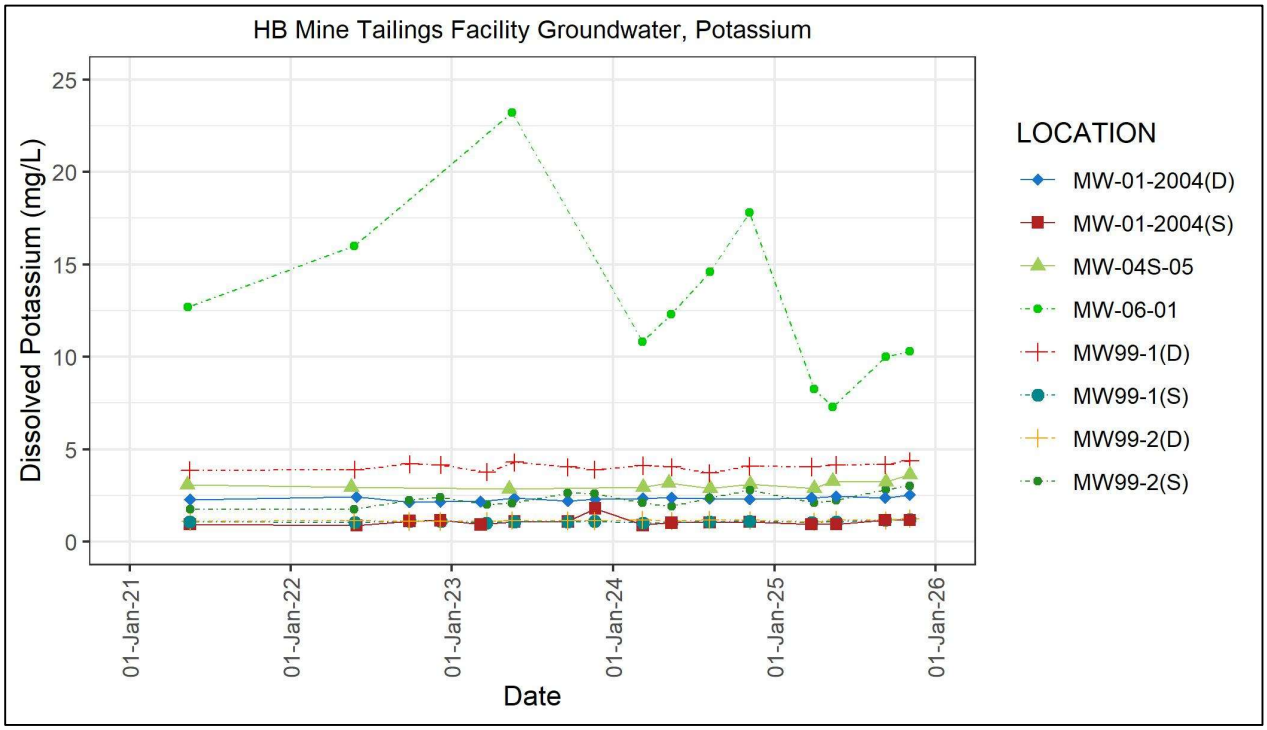


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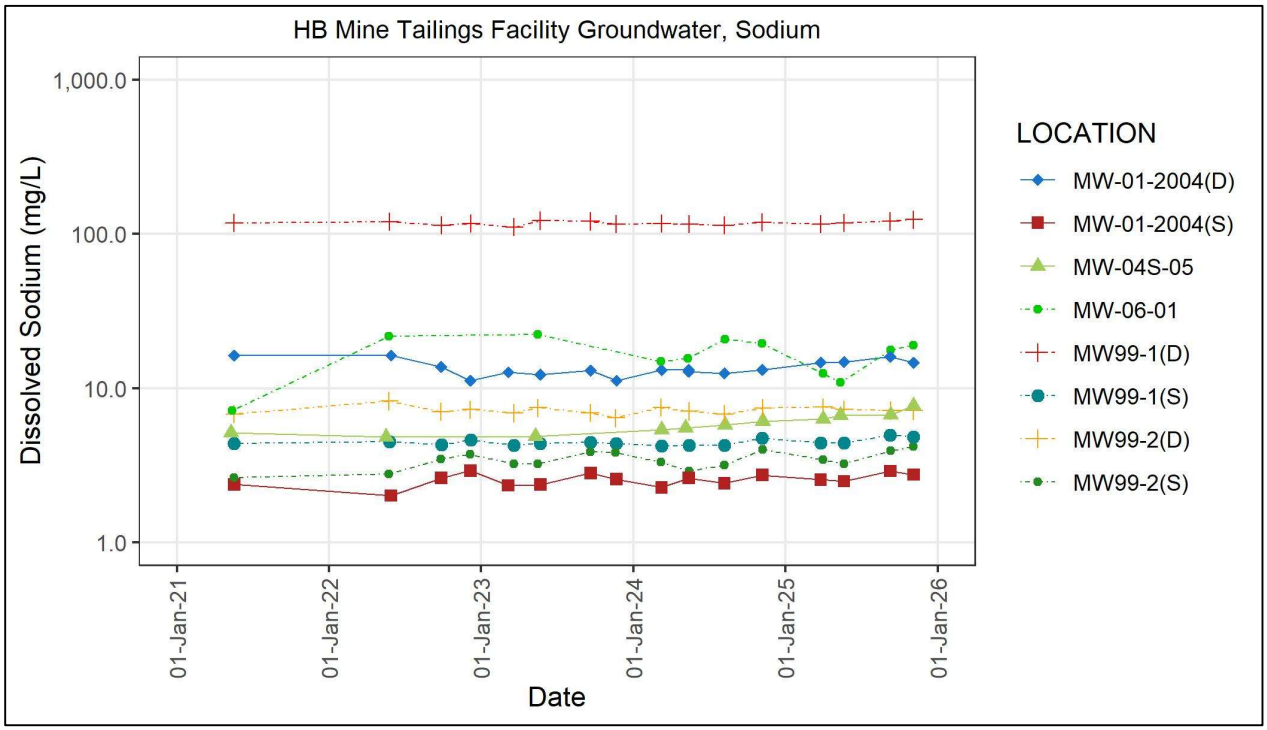


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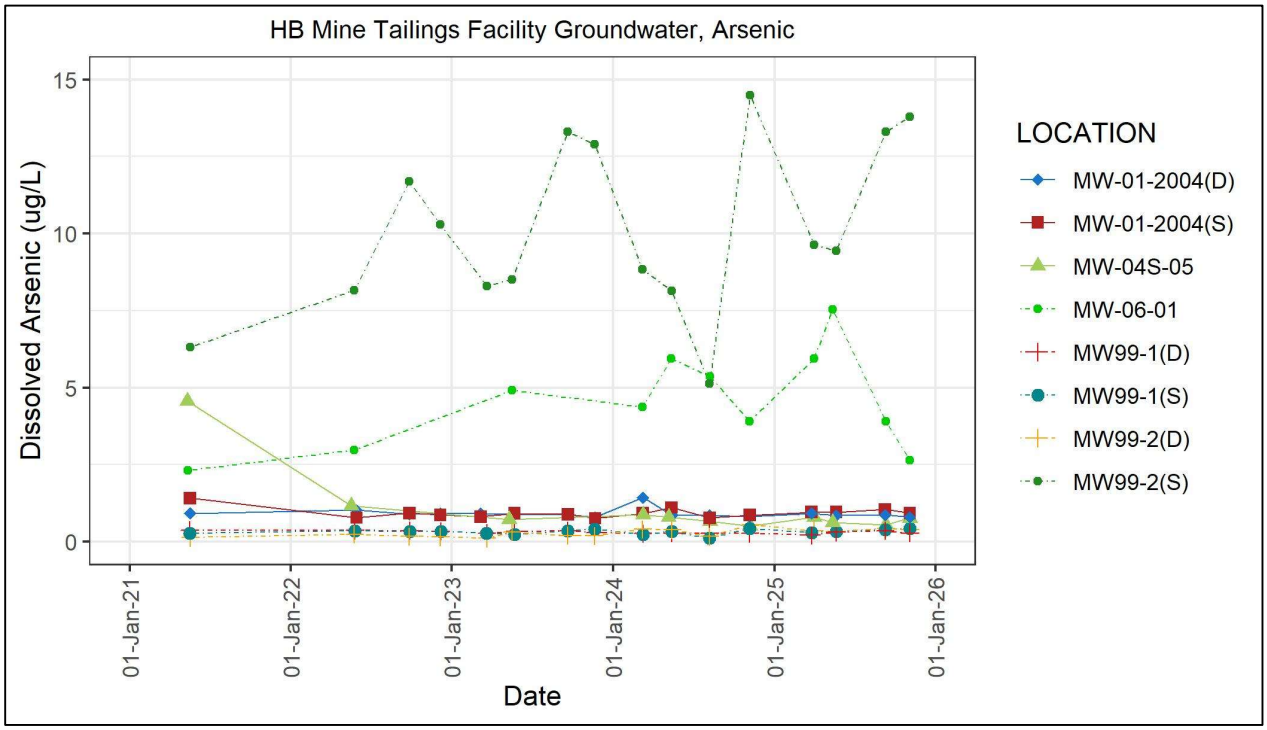


Figure A5-24

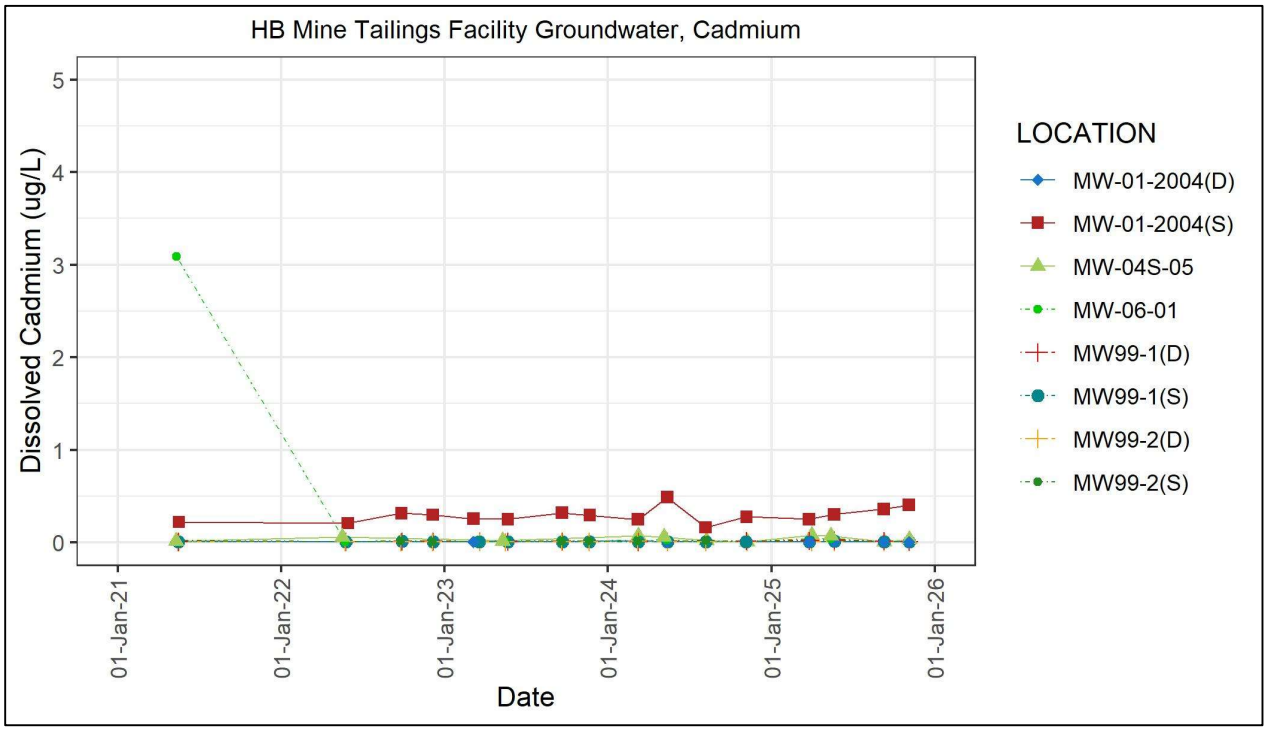


Figure A5-25

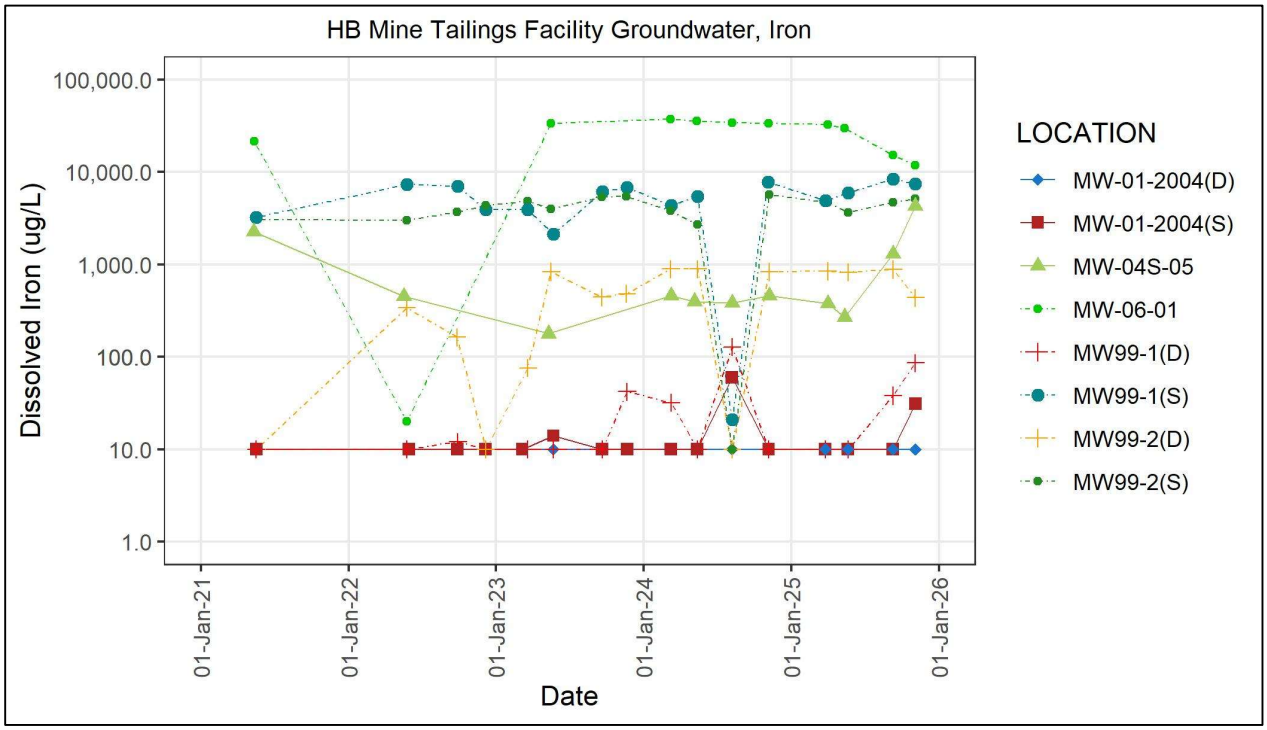


Figure A5-26

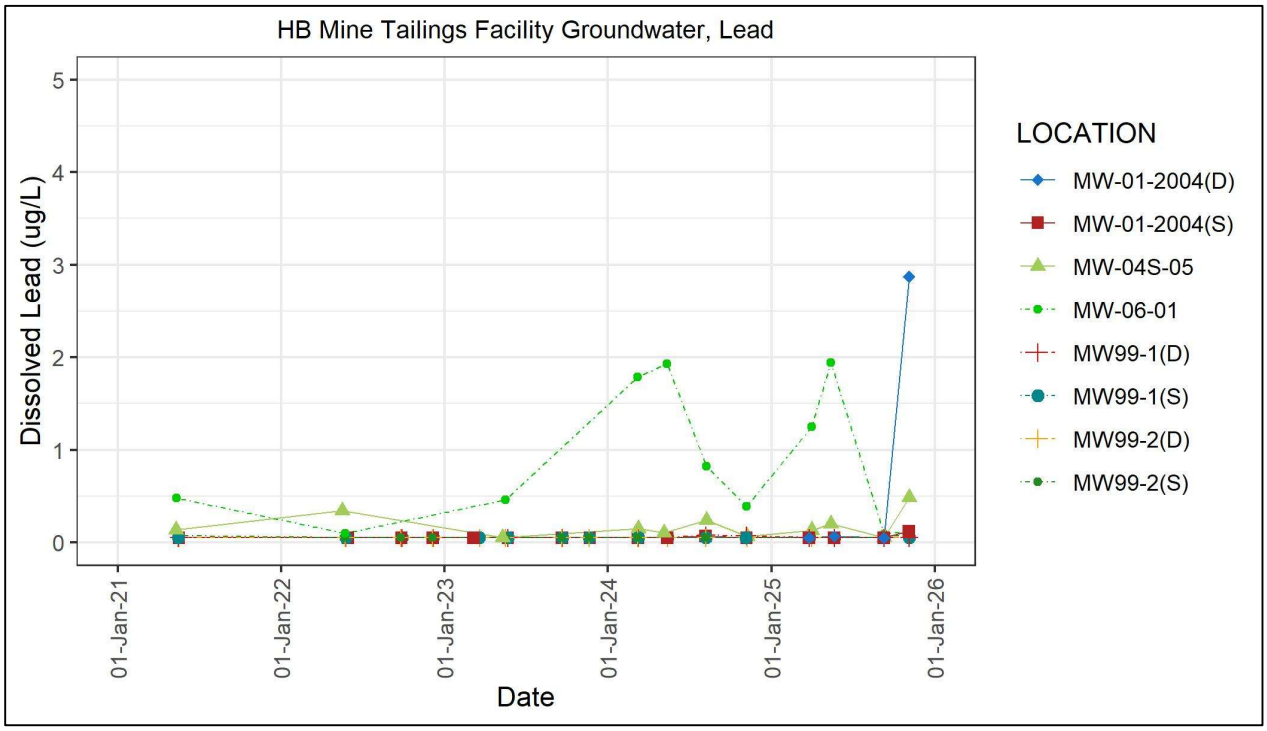


Figure A5-27

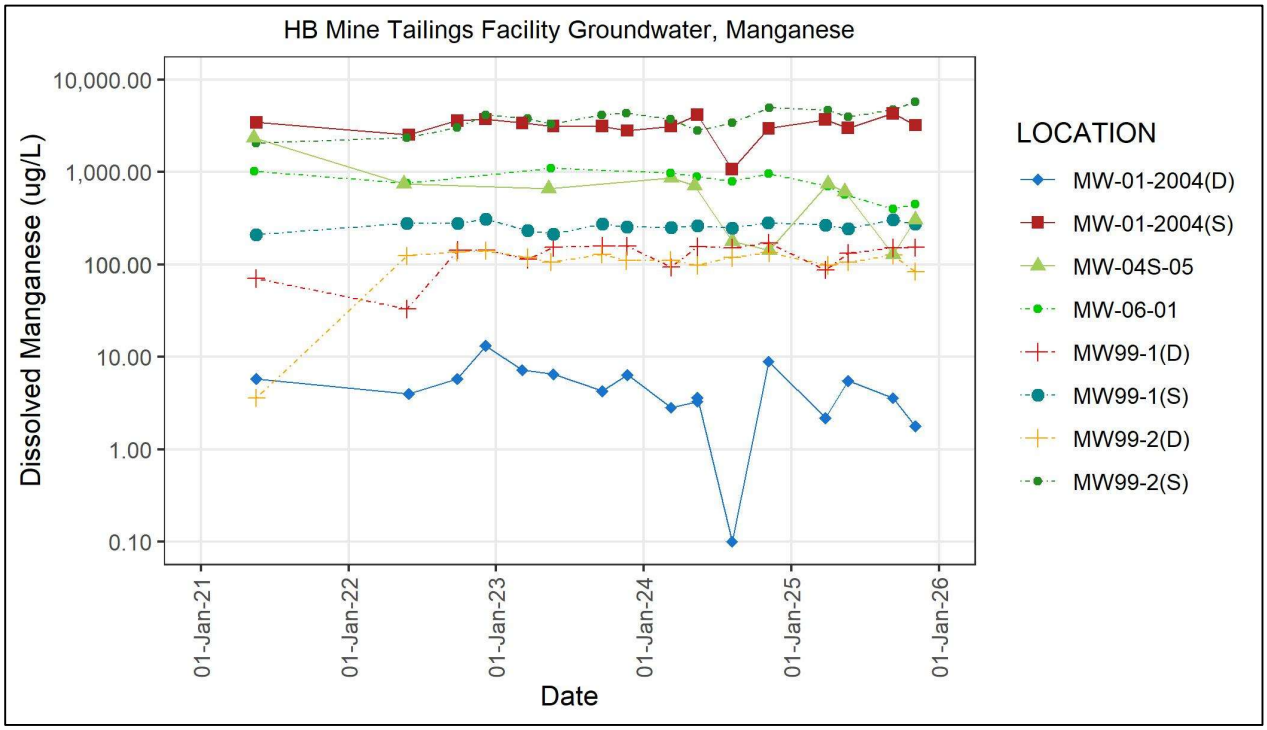


Figure A5-28

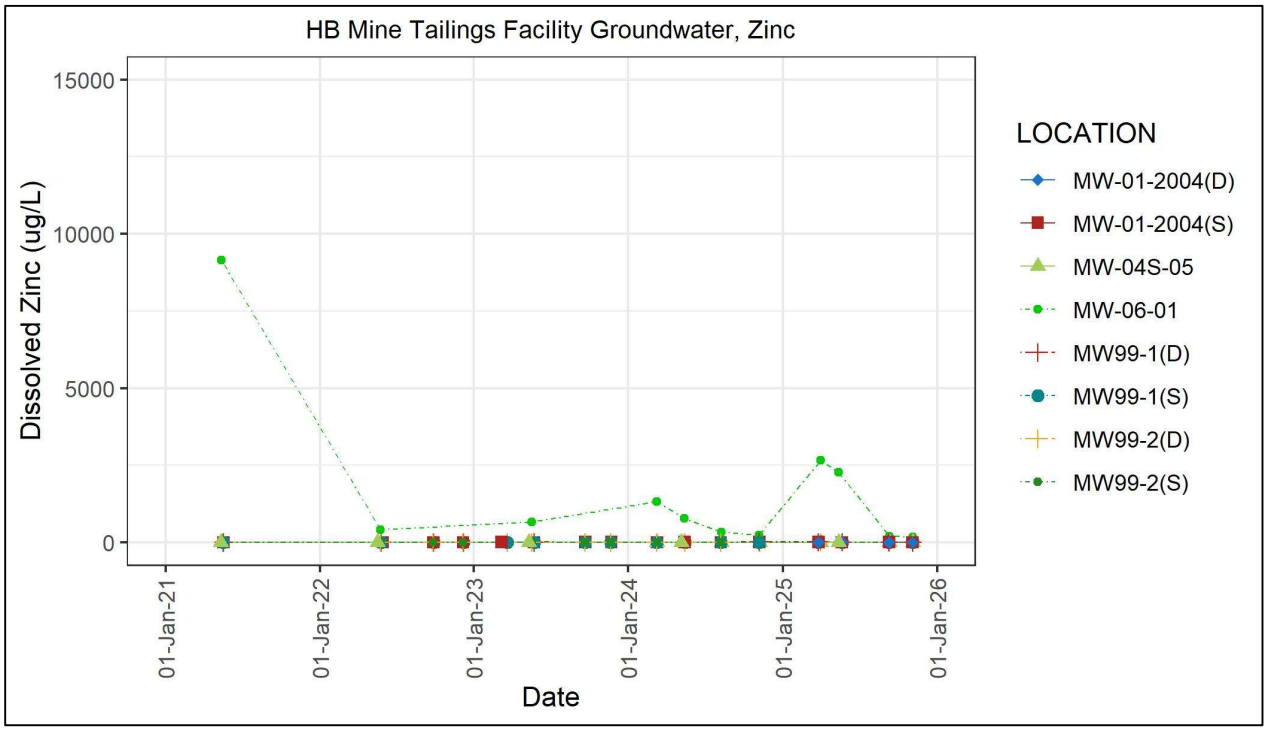


Figure A5-29

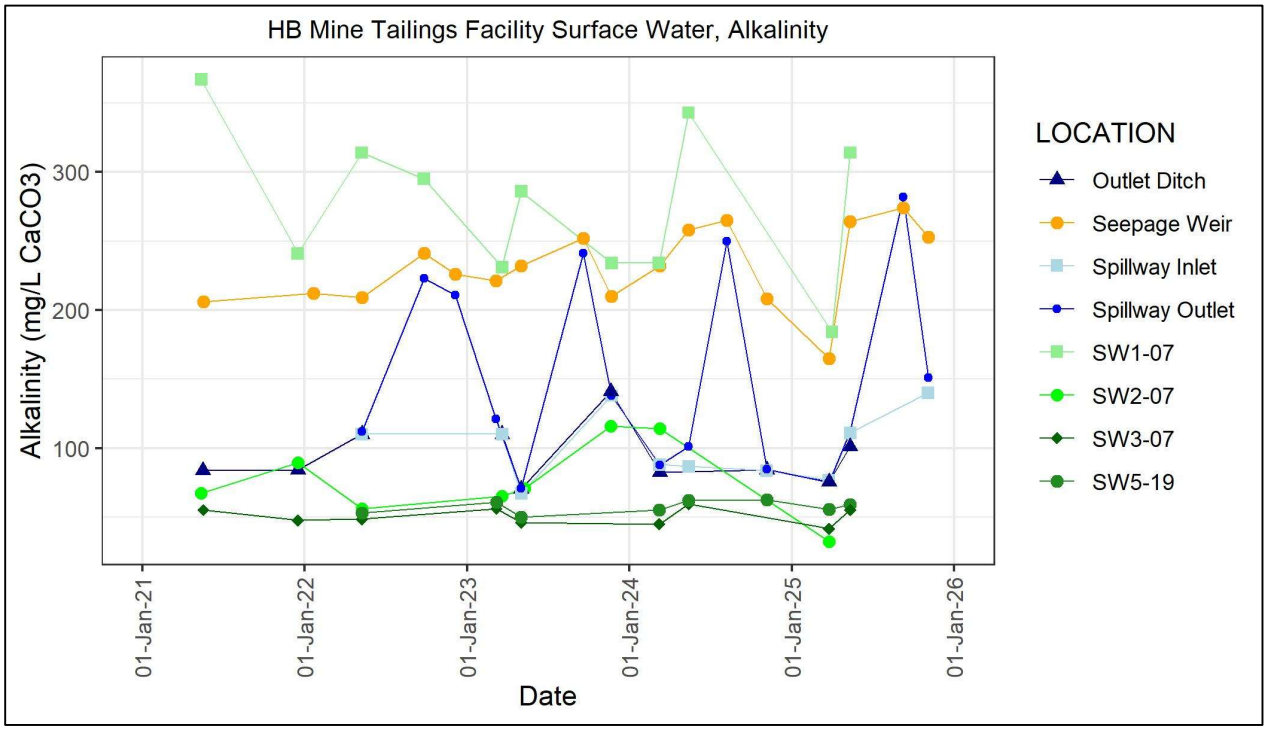


Figure A5-30

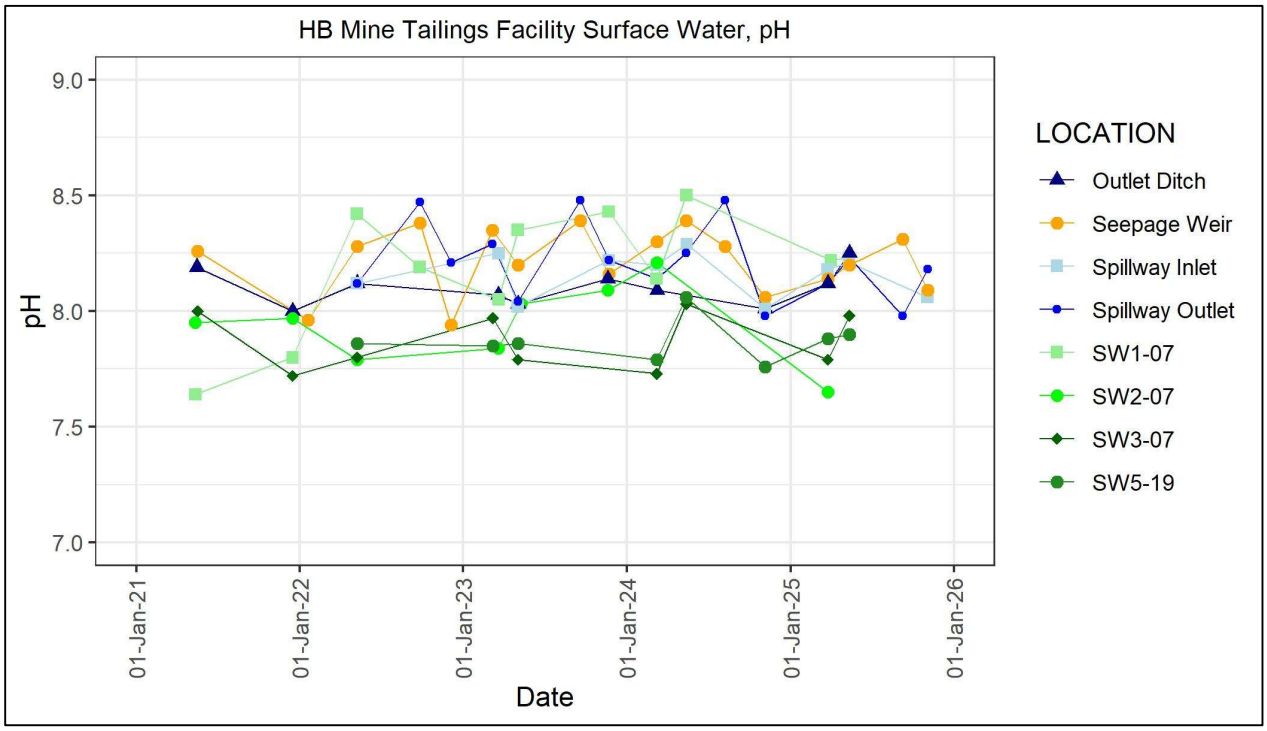


Figure A5-31

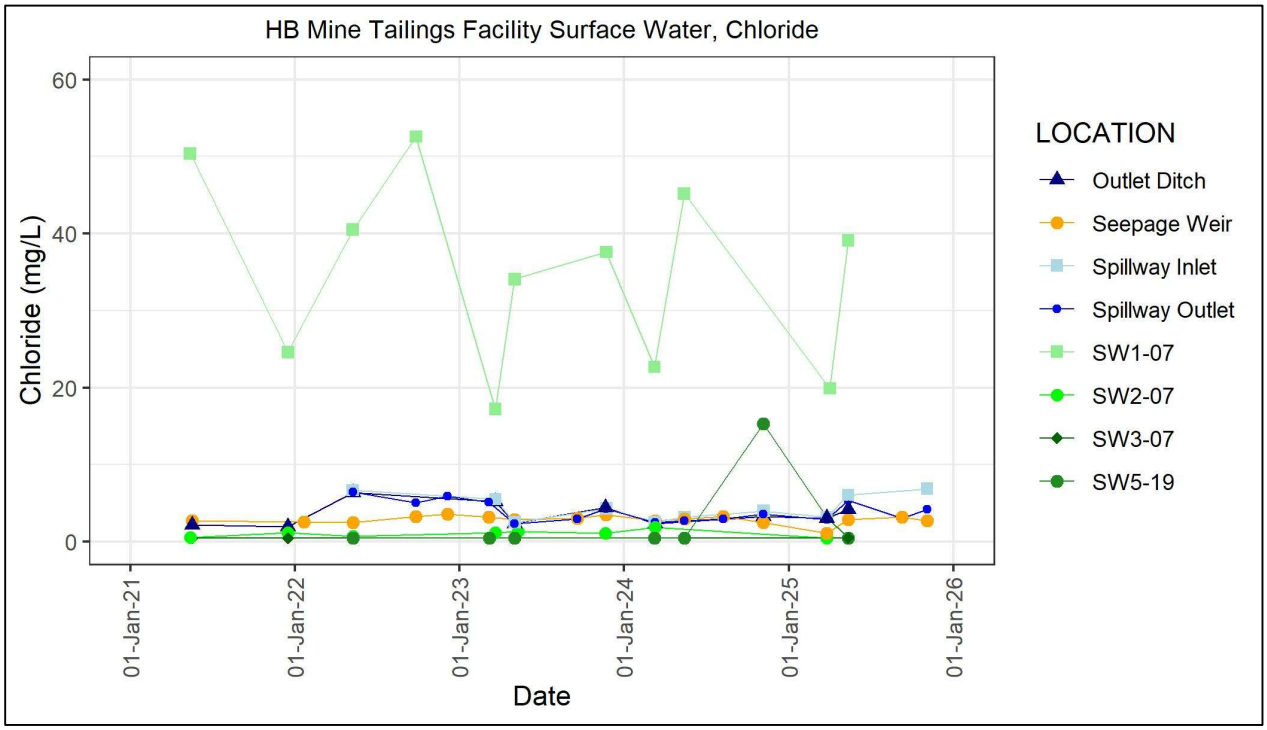


Figure A5-32

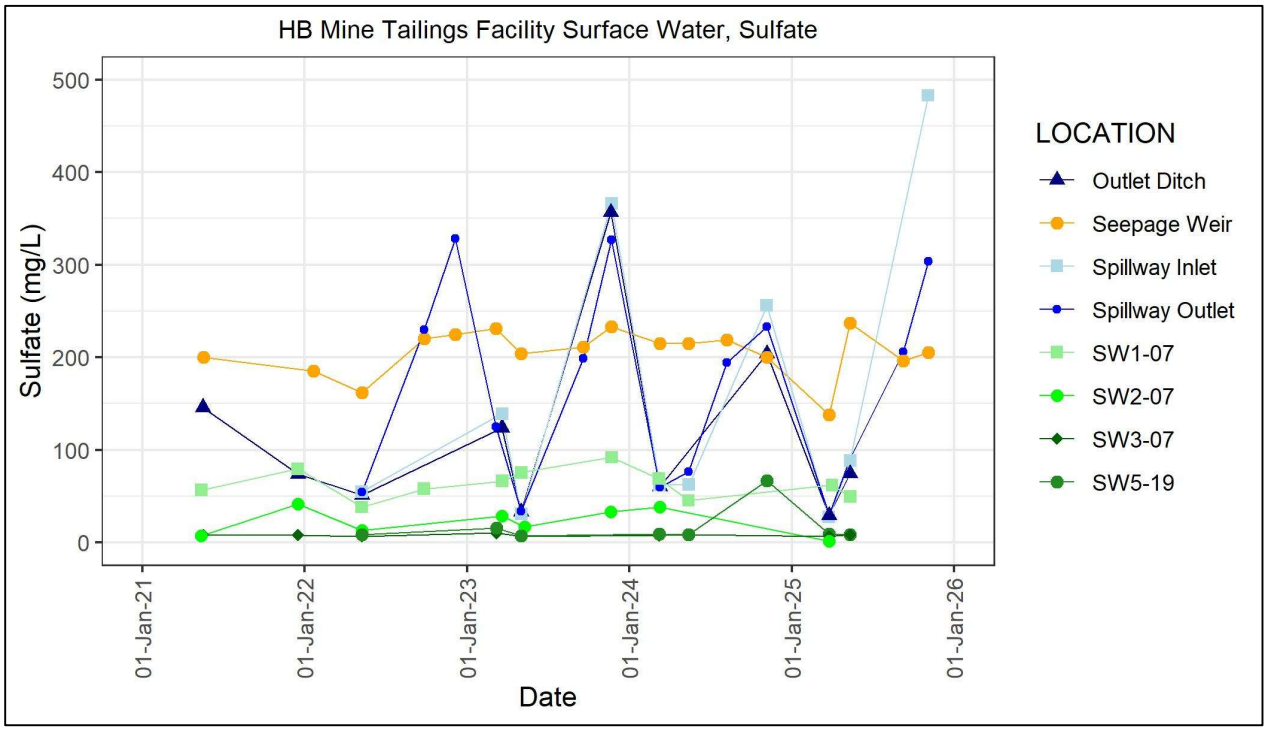


Figure A5-33

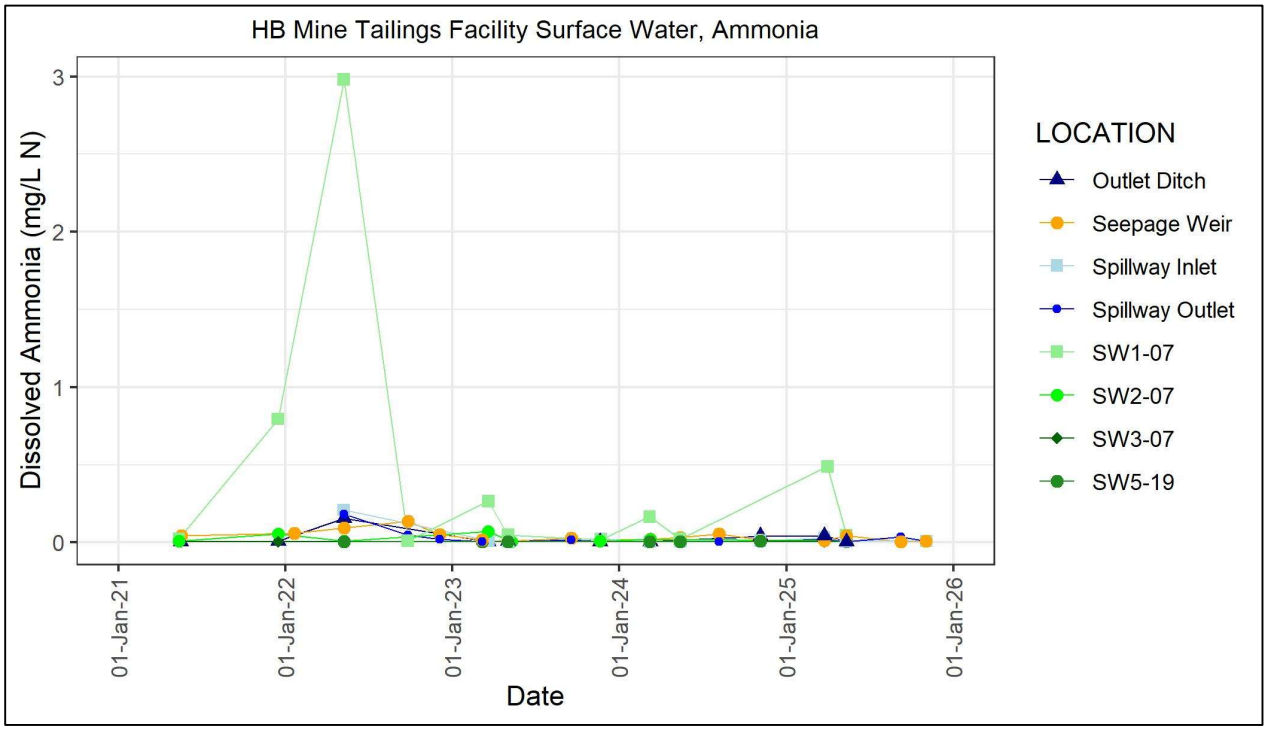


Figure A5-34

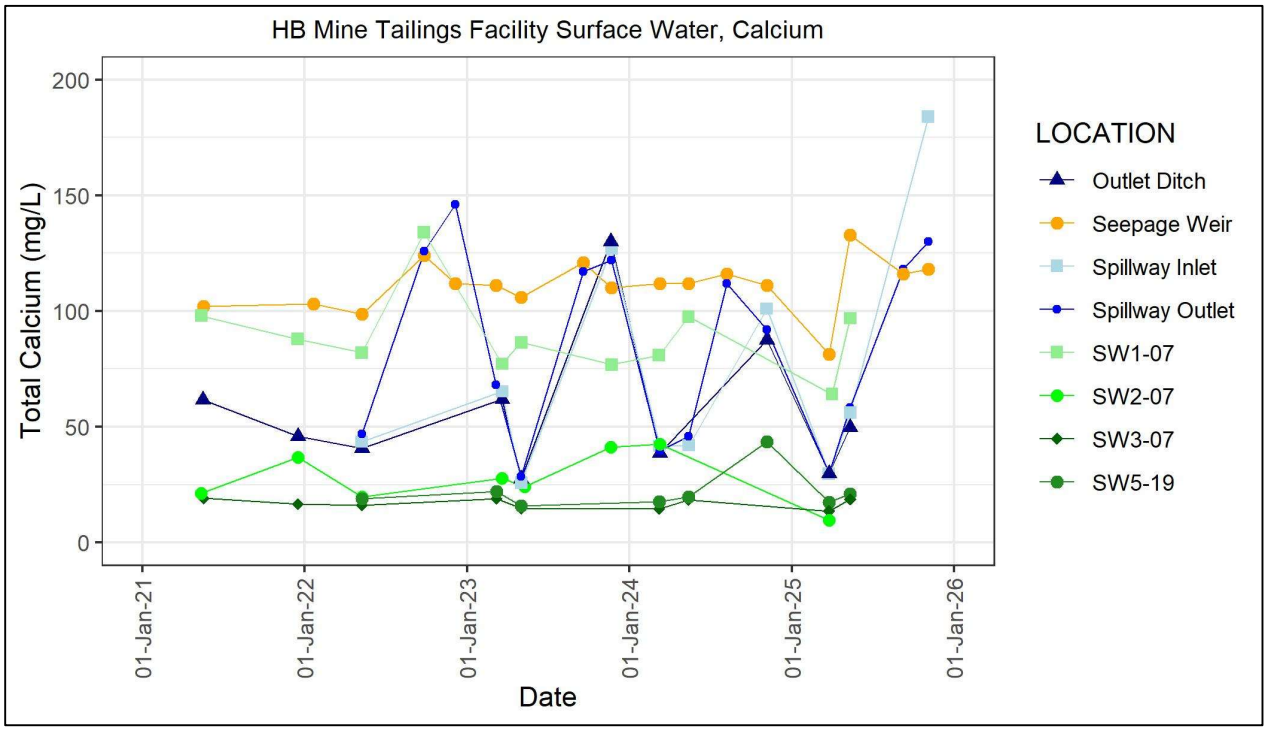


Figure A5-35

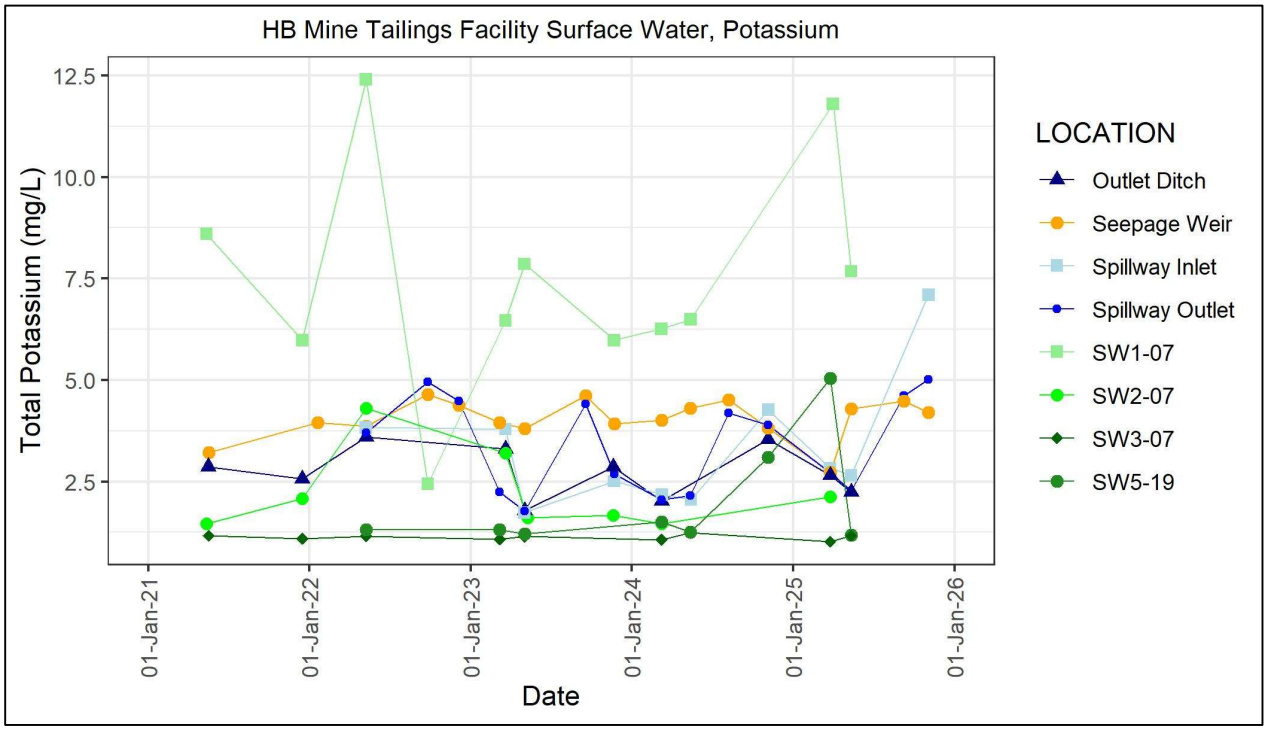


Figure A5-36

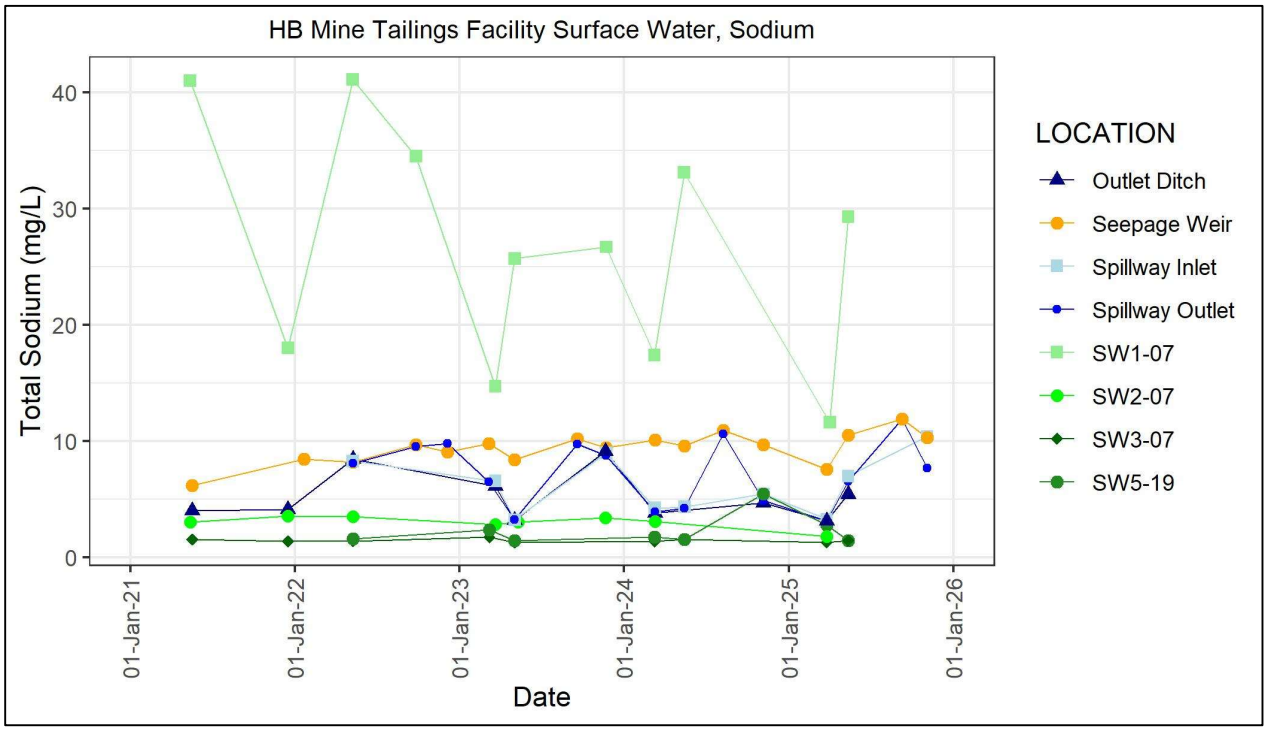


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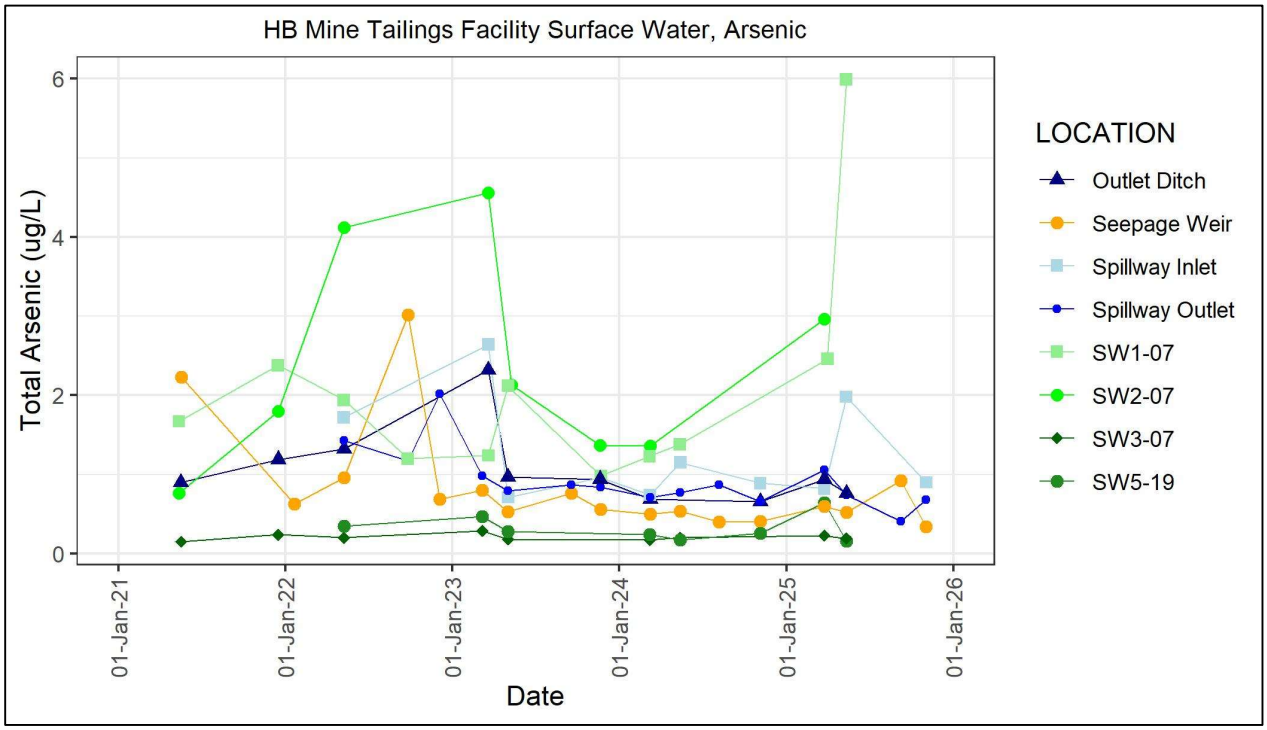


Figure A5-38

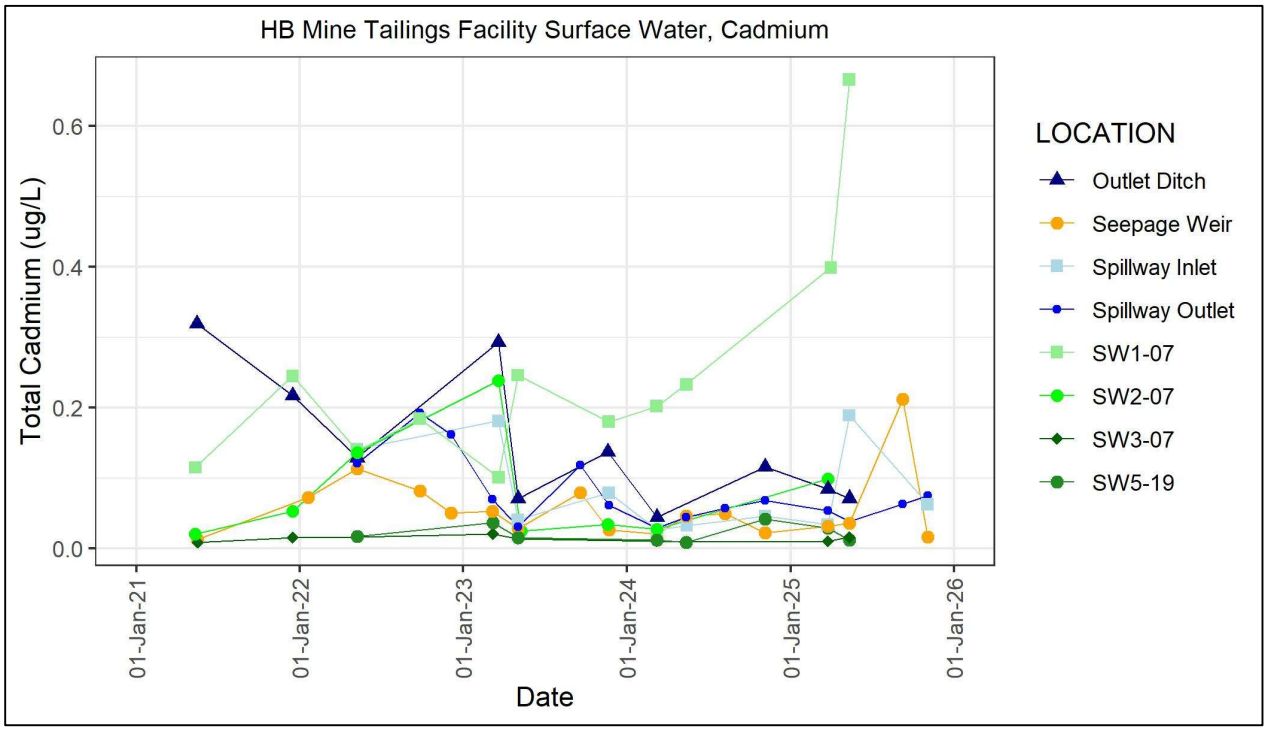


Figure A5-39

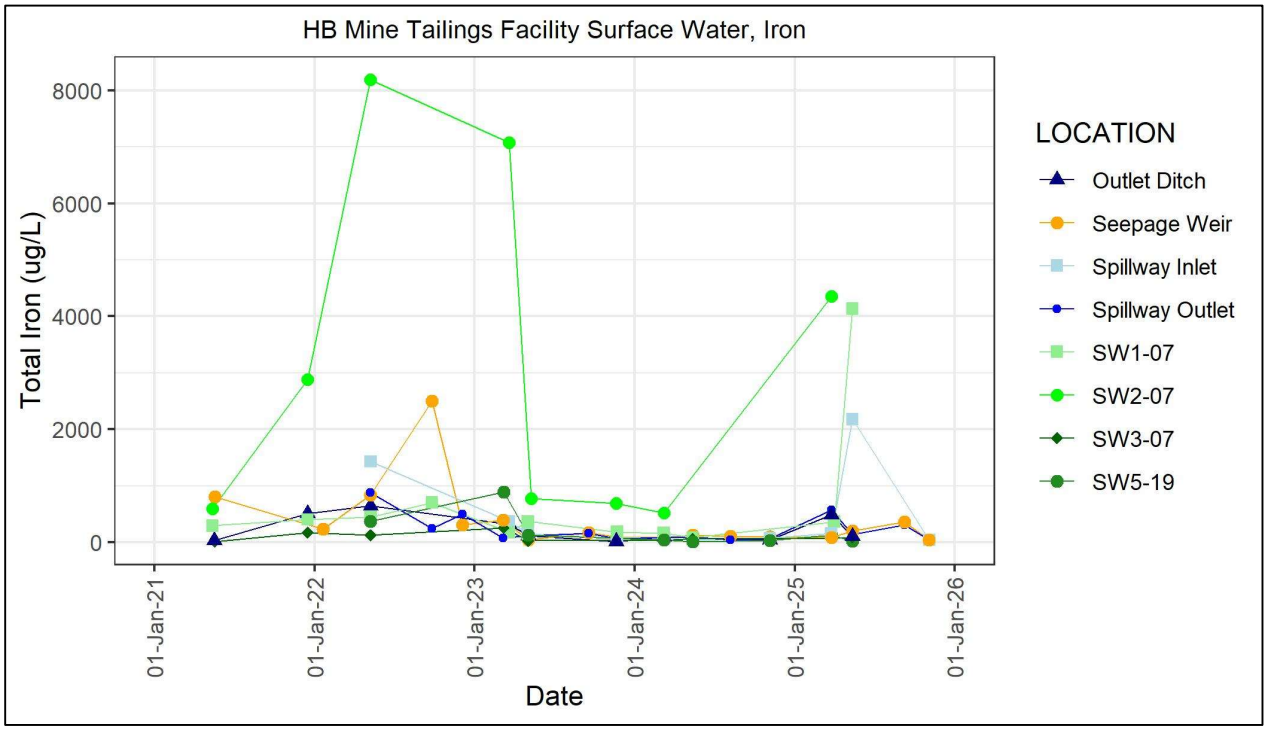


Figure A5-40

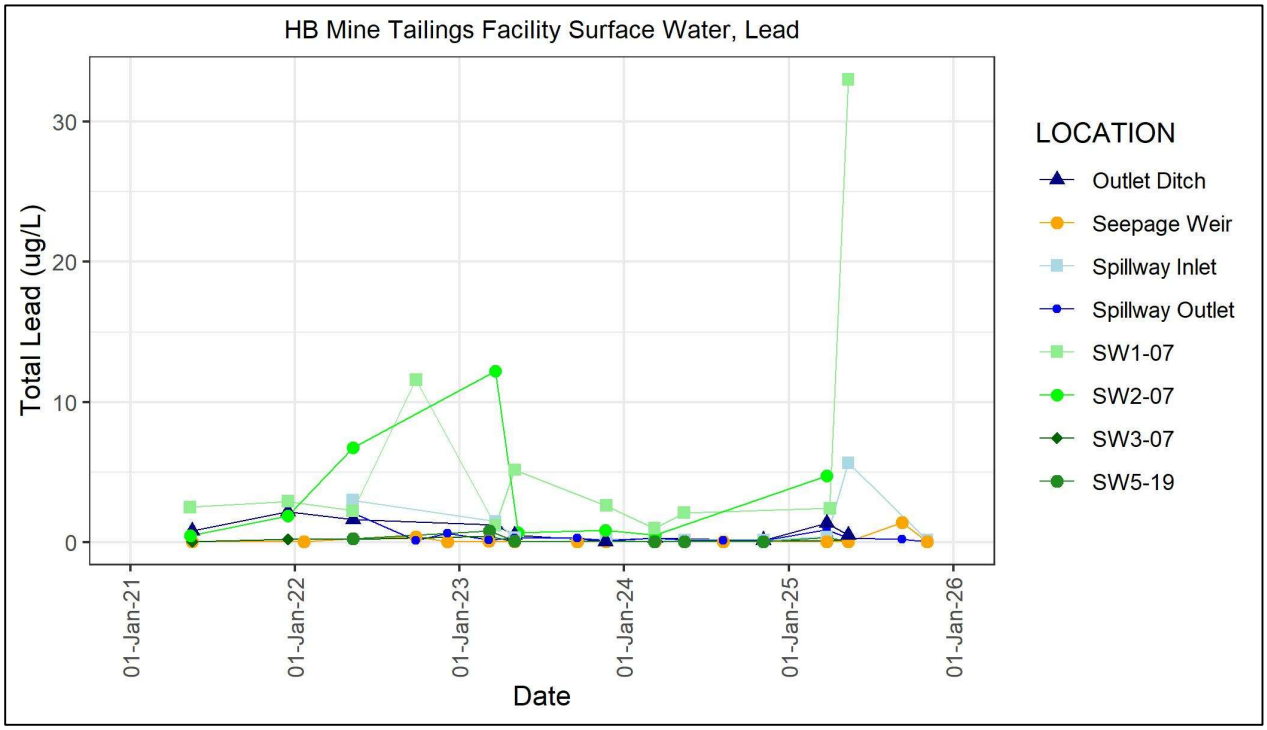


Figure A5-41

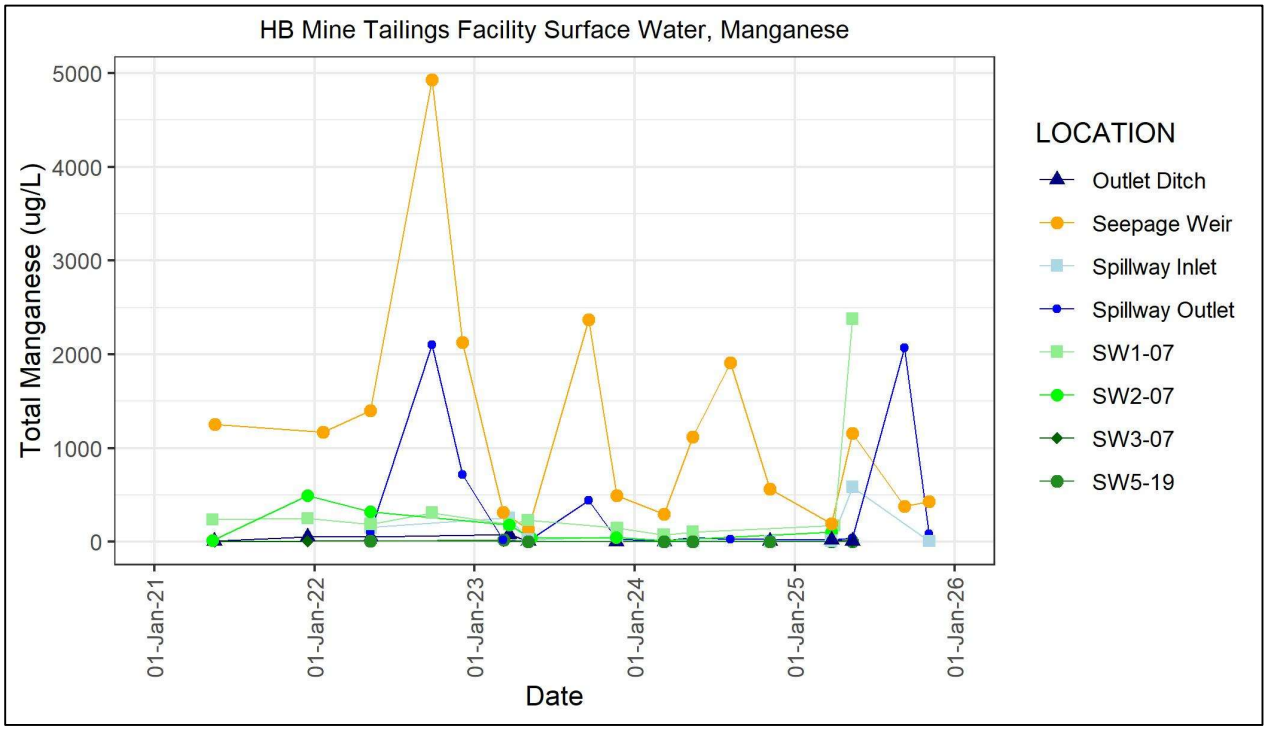
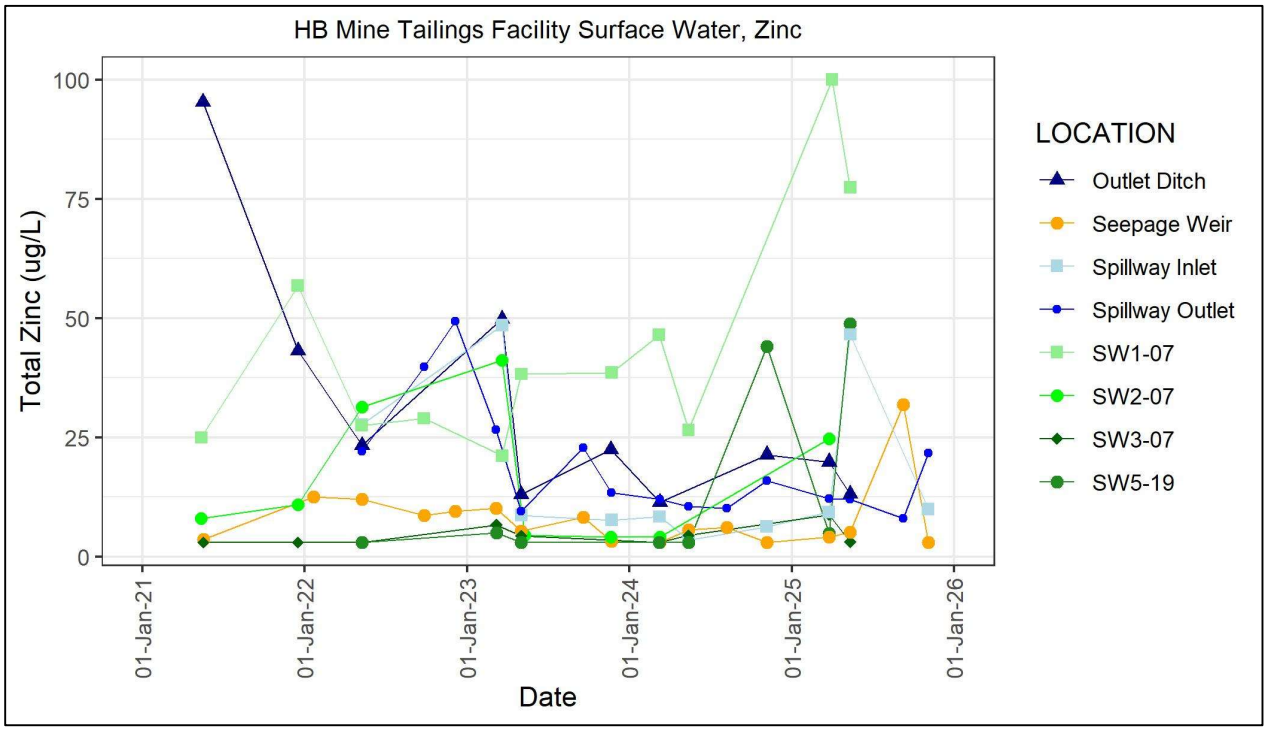


Figure A5-42



APPENDIX 6. LABORATORY CERTIFICATES OF ANALYSIS

CERTIFICATE OF ANALYSIS

Work Order	:	**VA25A6875**		
Amendment	:	**1**		
Client	:	**Masse Environmental Consultants Ltd.**	Laboratory	: ALS Environmental - Vancouver
Contact	:	Ico de Zwart	Account Manager	: Can Dang
Address	:	812 Vernon Street Nelson British Columbia Canada V1L 4G4	Address	: 8081 Lougheed Highway Burnaby BC Canada V5A 1W9
Telephone	:	----	Telephone	: +1 604 253 4188
Project	:	RDCK 2025	Date Samples Received	: 28-Mar-2025 12:45
PO	:	----	Date Analysis Commenced	: 28-Mar-2025
C-O-C number	:	22-20250327-1	Issue Date	: 07-Apr-2025 16:57
Sampler	:	C.S		
Site	:	RDCK		
Quote number	:	----		
No. of samples received	:	7		
No. of samples analysed	:	7		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Dan Gebert	Supervisor - Metals Mercury & Speciation	Metals, Burnaby, British Columbia
Ilnaz Badbezanchi	Supervisor - Metals Prep	Metals, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia
Miles Gropen	Department Manager - Inorganics	Inorganics, Burnaby, British Columbia
Monica Ko	Lab Assistant	Inorganics, Burnaby, British Columbia
Owen Cheng		Metals, Burnaby, British Columbia

General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Please refer to Quality Control Interpretive report (QCI) for information regarding Holding Time compliance.

Key: CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances.
LOR: Limit of Reporting (detection limit).

Unit	*Description*
-	no units
mg/L	milligrams per litre
pH units	pH units
µg/L	micrograms per litre
µS/cm	microsiemens per centimetre

<: less than.
>: greater than.
Surrogate: An analyte that is similar in behavior to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED on SRN or QCI Report, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Workorder Comments

4 EMS ID doesn't excist. /SW5-19 /seepage weir/ spillway inlet/ spillway outlet /

Amendment (07/04/2025): This report has been amended following changes to the analytical data reported. The quality system is being utilised to resolve this issue. The reporting units for metals and hardness analysis data was changed from mg/L to ug/L as requested.

Qualifiers

Qualifier	Description
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).

Analytical Results

Sub-Matrix: Surface Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	SW2-07	SW3-07	SW5-19	Seepage Weir	Spillway Inlet
					Client sampling date / time	25-Mar-2025 14:17	25-Mar-2025 13:55	25-Mar-2025 14:05	25-Mar-2025 13:00	25-Mar-2025 12:20
						VA25A6875-001	VA25A6875-002	VA25A6875-003	VA25A6875-004	VA25A6875-005
						Result	Result	Result	Result	Result
Physical Tests										
Alkalinity, bicarbonate (as CaCO3)	----	E290/VA	1.0	mg/L		32.1	41.6	55.6	165	76.7
Alkalinity, carbonate (as CaCO3)	----	E290/VA	1.0	mg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Alkalinity, hydroxide (as CaCO3)	----	E290/VA	1.0	mg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Alkalinity, phenolphthalein (as CaCO3)	----	E290/VA	1.0	mg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Alkalinity, total (as CaCO3)	----	E290/VA	1.0	mg/L		32.1	41.6	55.6	165	76.7
Conductivity	----	E100/VA	2.0	µS/cm		64.8	93.3	138	559	211
Hardness (as CaCO3), dissolved	----	EC100/VA	500	µg/L		29900	42300	58200	279000	98300
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/VA	0.50	mg/L		35.1	44.1	57.5	293	101
pH	----	E108/VA	0.10	pH units		7.65	7.79	7.88	8.14	8.18
Solids, total dissolved [TDS]	----	E162/VA	10	mg/L		112	63	90	340	134
Solids, total suspended [TSS]	----	E160/VA	3.0	mg/L		29.7	<3.0	<3.0	<3.0	<3.0
Anions and Nutrients										
Ammonia, total (as N)	7664-41-7	E298/VA	0.0050	mg/L		0.0134	0.0070	0.0112	0.0120	0.0299
Bromide	24959-67-9	E235.Br-L/VA	0.050	mg/L		<0.050	<0.050	<0.050	<0.050	<0.050
Chloride	16887-00-6	E235.Cl/VA	0.50	mg/L		0.50	<0.50	3.18	1.08	3.19
Fluoride	16984-48-8	E235.F/VA	0.020	mg/L		0.122	0.046	0.052	0.131	0.058
Kjeldahl nitrogen, total [TKN]	----	E318/VA	0.050	mg/L		0.164	0.092	0.505	0.100	0.288
Nitrate (as N)	14797-55-8	E235.NO3-L/VA	0.0050	mg/L		0.0549	<0.0050	0.107	0.509	0.243
Nitrite (as N)	14797-65-0	E235.NO2-L/VA	0.0010	mg/L		<0.0010	<0.0010	0.0011	0.0016	0.0038
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U/VA	0.0010	mg/L		0.0572	<0.0010	0.0127	0.0072	0.0041
Sulfate (as SO4)	14808-79-8	E235.SO4/VA	0.30	mg/L		1.59	6.72	9.06	138	27.5

Analytical Results

Sub-Matrix: Surface Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	SW2-07	SW3-07	SW5-19	Seepage Weir	Spillway Inlet
					Client sampling date / time	25-Mar-2025 14:17	25-Mar-2025 13:55	25-Mar-2025 14:05	25-Mar-2025 13:00	25-Mar-2025 12:20
						VA25A6875-001	VA25A6875-002	VA25A6875-003	VA25A6875-004	VA25A6875-005
						Result	Result	Result	Result	Result
Organic / Inorganic Carbon										
Carbon, dissolved organic [DOC]	----	E358-L/VA	0.50	mg/L		2.87	2.61	5.36	1.81	5.30
Carbon, total organic [TOC]	----	E355-L/VA	0.50	mg/L		3.76	2.32	5.46	1.94	4.95
Total Sulfides										
Sulfide, total (as S)	18496-25-8	E395/VA	0.0015	mg/L		<0.0015	0.0019	0.0023	<0.0015	0.0035
Sulfide, total (as H2S)	7783-06-4	E395/VA	0.0016	mg/L		<0.0016	0.0020	0.0024	<0.0016	0.0037
Total Metals										
Aluminum, total	7429-90-5	E420/VA	3.0	µg/L		4540	91.1	146	45.7	111
Antimony, total	7440-36-0	E420/VA	0.10	µg/L		0.12	<0.10	<0.10	0.14	0.10
Arsenic, total	7440-38-2	E420/VA	0.10	µg/L		2.96	0.23	0.64	0.60	0.82
Barium, total	7440-39-3	E420/VA	0.10	µg/L		84.2	7.90	19.7	31.2	20.4
Beryllium, total	7440-41-7	E420/VA	0.020	µg/L		0.256	<0.020	<0.020	<0.020	<0.020
Bismuth, total	7440-69-9	E420/VA	0.050	µg/L		0.065	<0.050	<0.050	<0.050	<0.050
Boron, total	7440-42-8	E420/VA	10	µg/L		<10	<10	<10	10	19
Cadmium, total	7440-43-9	E420/VA	0.0050	µg/L		0.0984	0.0102	0.0292	0.0313	0.0339
Calcium, total	7440-70-2	E420/VA	50	µg/L		9630	13600	17400	81300	29700
Cesium, total	7440-46-2	E420/VA	0.010	µg/L		0.770	0.023	0.018	0.051	0.019
Chromium, total	7440-47-3	E420/VA	0.50	µg/L		4.69	<0.50	<0.50	<0.50	<0.50
Cobalt, total	7440-48-4	E420/VA	0.10	µg/L		1.40	<0.10	<0.10	<0.10	<0.10
Copper, total	7440-50-8	E420/VA	0.50	µg/L		5.83	0.59	2.16	<0.50	1.79
Iron, total	7439-89-6	E420/VA	10	µg/L		4350	76	123	88	154
Lead, total	7439-92-1	E420/VA	0.050	µg/L		4.74	0.109	0.340	0.052	0.383

Analytical Results

Sub-Matrix: Surface Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	SW2-07	SW3-07	SW5-19	Seepage Weir	Spillway Inlet
					Client sampling date / time	25-Mar-2025 14:17	25-Mar-2025 13:55	25-Mar-2025 14:05	25-Mar-2025 13:00	25-Mar-2025 12:20
						VA25A6875-001	VA25A6875-002	VA25A6875-003	VA25A6875-004	VA25A6875-005
						Result	Result	Result	Result	Result
Total Metals										
Lithium, total	7439-93-2	E420/VA	1.0	µg/L		3.4	<1.0	<1.0	<1.0	<1.0
Magnesium, total	7439-95-4	E420/VA	5.0	µg/L		2690	2460	3410	21900	6530
Manganese, total	7439-96-5	E420/VA	0.10	µg/L		103	2.48	2.81	193	9.55
Mercury, total	7439-97-6	E508/VA	0.0050	µg/L		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Molybdenum, total	7439-98-7	E420/VA	0.050	µg/L		0.621	0.160	0.333	2.78	0.423
Nickel, total	7440-02-0	E420/VA	0.50	µg/L		4.50	<0.50	0.52	<0.50	0.74
Phosphorus, total	7723-14-0	E420/VA	50	µg/L		180	<50	<50	<50	<50
Potassium, total	7440-09-7	E420/VA	50	µg/L		2120	1020	5040	2730	2830
Rubidium, total	7440-17-7	E420/VA	0.20	µg/L		7.74	0.59	1.24	1.20	0.96
Selenium, total	7782-49-2	E420/VA	0.050	µg/L		0.122	0.089	0.076	0.728	0.077
Silicon, total	7440-21-3	E420/VA	100	µg/L		12900	6060	5700	5850	5270
Silver, total	7440-22-4	E420/VA	0.010	µg/L		0.033	<0.010	<0.010	<0.010	<0.010
Sodium, total	7440-23-5	E420/VA	50	µg/L		1760	1260	2770	7570	3270
Strontium, total	7440-24-6	E420/VA	0.20	µg/L		62.7	71.4	96.7	332	143
Sulfur, total	7704-34-9	E420/VA	500	µg/L		<500	1970	3030	51000	9450
Tellurium, total	13494-80-9	E420/VA	0.20	µg/L		<0.20	<0.20	<0.20	<0.20	<0.20
Thallium, total	7440-28-0	E420/VA	0.010	µg/L		0.046	<0.010	<0.010	<0.010	<0.010
Thorium, total	7440-29-1	E420/VA	0.10	µg/L		3.94	<0.10	<0.10	<0.10	<0.10
Tin, total	7440-31-5	E420/VA	0.10	µg/L		<0.10	<0.10	<0.10	<0.10	<0.10
Titanium, total	7440-32-6	E420/VA	0.30	µg/L		92.0	3.06	4.11	<1.50 DLM	3.40
Tungsten, total	7440-33-7	E420/VA	0.10	µg/L		<0.10	<0.10	<0.10	<0.10	<0.10

Analytical Results

Sub-Matrix: Surface Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	SW2-07	SW3-07	SW5-19	Seepage Weir	Spillway Inlet
					Client sampling date / time	25-Mar-2025 14:17	25-Mar-2025 13:55	25-Mar-2025 14:05	25-Mar-2025 13:00	25-Mar-2025 12:20
						VA25A6875-001	VA25A6875-002	VA25A6875-003	VA25A6875-004	VA25A6875-005
						Result	Result	Result	Result	Result
Total Metals										
Uranium, total	7440-61-1	E420/VA	0.010	µg/L		1.56	0.131	0.340	10.4	1.67
Vanadium, total	7440-62-2	E420/VA	0.50	µg/L		6.71	0.59	0.66	0.51	0.71
Zinc, total	7440-66-6	E420/VA	3.0	µg/L		24.7	8.8	4.9	4.1	9.4
Zirconium, total	7440-67-7	E420/VA	0.20	µg/L		0.30	<0.20	<0.20	<0.20	<0.20
Dissolved Metals										
Aluminum, dissolved	7429-90-5	E421/VA	1.0	µg/L		87.4	22.2	49.6	4.5	24.2
Antimony, dissolved	7440-36-0	E421/VA	0.10	µg/L		<0.10	<0.10	<0.10	0.13	<0.10
Arsenic, dissolved	7440-38-2	E421/VA	0.10	µg/L		0.75	0.18	0.53	0.53	0.72
Barium, dissolved	7440-39-3	E421/VA	0.10	µg/L		10.7	6.97	18.5	30.6	18.8
Beryllium, dissolved	7440-41-7	E421/VA	0.020	µg/L		<0.020	<0.020	<0.020	<0.020	<0.020
Bismuth, dissolved	7440-69-9	E421/VA	0.050	µg/L		<0.050	<0.050	<0.050	<0.050	<0.050
Boron, dissolved	7440-42-8	E421/VA	10	µg/L		<10	<10	<10	<10	18
Cadmium, dissolved	7440-43-9	E421/VA	0.0050	µg/L		0.0086	0.0088	0.0238	0.0274	0.0217
Calcium, dissolved	7440-70-2	E421/VA	50	µg/L		9240	13000	17900	77400	28800
Cesium, dissolved	7440-46-2	E421/VA	0.010	µg/L		0.010	<0.010	<0.010	0.043	<0.010
Chromium, dissolved	7440-47-3	E421/VA	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Cobalt, dissolved	7440-48-4	E421/VA	0.10	µg/L		<0.10	<0.10	<0.10	<0.10	<0.10
Copper, dissolved	7440-50-8	E421/VA	0.20	µg/L		0.68	0.48	1.74	0.41	1.46
Iron, dissolved	7439-89-6	E421/VA	10	µg/L		47	13	45	33	62
Lead, dissolved	7439-92-1	E421/VA	0.050	µg/L		0.066	<0.050	0.182	<0.050	0.217
Lithium, dissolved	7439-93-2	E421/VA	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0

Analytical Results

Sub-Matrix: Surface Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	SW2-07	SW3-07	SW5-19	Seepage Weir	Spillway Inlet
					Client sampling date / time	25-Mar-2025 14:17	25-Mar-2025 13:55	25-Mar-2025 14:05	25-Mar-2025 13:00	25-Mar-2025 12:20
						VA25A6875-001	VA25A6875-002	VA25A6875-003	VA25A6875-004	VA25A6875-005
						Result	Result	Result	Result	Result
Dissolved Metals										
Magnesium, dissolved	7439-95-4	E421/VA	5.0	µg/L		1660	2390	3280	20800	6400
Manganese, dissolved	7439-96-5	E421/VA	0.10	µg/L		4.84	0.59	1.04	178	6.06
Mercury, dissolved	7439-97-6	E509/VA	0.0050	µg/L		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Molybdenum, dissolved	7439-98-7	E421/VA	0.050	µg/L		0.586	0.148	0.338	2.70	0.388
Nickel, dissolved	7440-02-0	E421/VA	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	0.60
Phosphorus, dissolved	7723-14-0	E421/VA	50	µg/L		56	<50	<50	<50	<50
Potassium, dissolved	7440-09-7	E421/VA	50	µg/L		772	1020	4920	2660	2870
Rubidium, dissolved	7440-17-7	E421/VA	0.20	µg/L		0.27	0.46	1.04	1.07	0.77
Selenium, dissolved	7782-49-2	E421/VA	0.050	µg/L		0.090	0.065	0.081	0.780	0.070
Silicon, dissolved	7440-21-3	E421/VA	50	µg/L		5320	6000	5530	5500	4830
Silver, dissolved	7440-22-4	E421/VA	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Sodium, dissolved	7440-23-5	E421/VA	50	µg/L		1200	1220	2680	6990	3100
Strontium, dissolved	7440-24-6	E421/VA	0.20	µg/L		54.9	66.0	99.5	324	136
Sulfur, dissolved	7704-34-9	E421/VA	500	µg/L		<500	2020	2830	48300	9170
Tellurium, dissolved	13494-80-9	E421/VA	0.20	µg/L		<0.20	<0.20	<0.20	<0.20	<0.20
Thallium, dissolved	7440-28-0	E421/VA	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Thorium, dissolved	7440-29-1	E421/VA	0.10	µg/L		<0.10	<0.10	<0.10	<0.10	<0.10
Tin, dissolved	7440-31-5	E421/VA	0.10	µg/L		<0.10	<0.10	<0.10	<0.10	<0.10
Titanium, dissolved	7440-32-6	E421/VA	0.30	µg/L		1.70	0.50	1.31	<0.30	0.72
Tungsten, dissolved	7440-33-7	E421/VA	0.10	µg/L		<0.10	<0.10	<0.10	<0.10	<0.10
Uranium, dissolved	7440-61-1	E421/VA	0.010	µg/L		0.834	0.116	0.311	9.78	1.58

Analytical Results

Sub-Matrix: Surface Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	SW2-07	SW3-07	SW5-19	Seepage Weir	Spillway Inlet
					Client sampling date / time	25-Mar-2025 14:17	25-Mar-2025 13:55	25-Mar-2025 14:05	25-Mar-2025 13:00	25-Mar-2025 12:20
						VA25A6875-001	VA25A6875-002	VA25A6875-003	VA25A6875-004	VA25A6875-005
						Result	Result	Result	Result	Result
Dissolved Metals										
Vanadium, dissolved	7440-62-2	E421/VA	0.50	µg/L		0.68	<0.50	<0.50	<0.50	<0.50
Zinc, dissolved	7440-66-6	E421/VA	1.0	µg/L		1.5	1.2	3.6	3.7	7.4
Zirconium, dissolved	7440-67-7	E421/VA	0.30	µg/L		<0.30	<0.30	<0.30	<0.30	<0.30
Dissolved mercury filtration location	----	EP509/VA	-	-		Field	Field	Field	Field	Field
Dissolved metals filtration location	----	EP421/VA	-	-		Field	Field	Field	Field	Field

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Analytical Results

Sub-Matrix: Surface Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	Spillway Outlet	Outlet Ditch	----	----	----
					Client sampling date / time	25-Mar-2025 12:15	25-Mar-2025 10:30	----	----	----
						VA25A6875-006	VA25A6875-007	----	----	----
						Result	Result	----	----	----
Physical Tests										
Alkalinity, bicarbonate (as CaCO3)	----	E290/VA	1.0	mg/L		75.1	75.4	----	----	----
Alkalinity, carbonate (as CaCO3)	----	E290/VA	1.0	mg/L		<1.0	<1.0	----	----	----
Alkalinity, hydroxide (as CaCO3)	----	E290/VA	1.0	mg/L		<1.0	<1.0	----	----	----
Alkalinity, phenolphthalein (as CaCO3)	----	E290/VA	1.0	mg/L		<1.0	<1.0	----	----	----
Alkalinity, total (as CaCO3)	----	E290/VA	1.0	mg/L		75.1	75.4	----	----	----
Conductivity	----	E100/VA	2.0	µS/cm		212	215	----	----	----
Hardness (as CaCO3), dissolved	----	EC100/VA	500	µg/L		100000	96500	----	----	----
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/VA	0.50	mg/L		103	102	----	----	----
pH	----	E108/VA	0.10	pH units		8.12	8.12	----	----	----

Analytical Results

Sub-Matrix: Surface Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	Spillway Outlet	Outlet Ditch	----	----	----
					Client sampling date / time	25-Mar-2025 12:15	25-Mar-2025 10:30	----	----	----
						VA25A6875-006	VA25A6875-007	----	----	----
						Result	Result	----	----	----
Physical Tests										
Solids, total dissolved [TDS]	----	E162/VA	10	mg/L		141	138	----	----	----
Solids, total suspended [TSS]	----	E160/VA	3.0	mg/L		24.1	12.7	----	----	----
Anions and Nutrients										
Ammonia, total (as N)	7664-41-7	E298/VA	0.0050	mg/L		0.0205	0.0443	----	----	----
Bromide	24959-67-9	E235.Br-L/VA	0.050	mg/L		<0.050	<0.050	----	----	----
Chloride	16887-00-6	E235.Cl/VA	0.50	mg/L		2.88	3.07	----	----	----
Fluoride	16984-48-8	E235.F/VA	0.020	mg/L		0.062	0.058	----	----	----
Kjeldahl nitrogen, total [TKN]	----	E318/VA	0.050	mg/L		0.344	0.330	----	----	----
Nitrate (as N)	14797-55-8	E235.NO3-L/VA	0.0050	mg/L		0.232	0.260	----	----	----
Nitrite (as N)	14797-65-0	E235.NO2-L/VA	0.0010	mg/L		0.0045	0.0046	----	----	----
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U/VA	0.0010	mg/L		0.0037	0.0060	----	----	----
Sulfate (as SO4)	14808-79-8	E235.SO4/VA	0.30	mg/L		29.8	29.0	----	----	----
Organic / Inorganic Carbon										
Carbon, dissolved organic [DOC]	----	E358-L/VA	0.50	mg/L		5.00	4.95	----	----	----
Carbon, total organic [TOC]	----	E355-L/VA	0.50	mg/L		5.30	5.23	----	----	----
Total Sulfides										
Sulfide, total (as S)	18496-25-8	E395/VA	0.0015	mg/L		0.0034	0.0041	----	----	----
Sulfide, total (as H2S)	7783-06-4	E395/VA	0.0016	mg/L		0.0036	0.0044	----	----	----
Total Metals										
Aluminum, total	7429-90-5	E420/VA	3.0	µg/L		435	388	----	----	----
Antimony, total	7440-36-0	E420/VA	0.10	µg/L		0.13	0.15	----	----	----

Analytical Results

Sub-Matrix: Surface Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	Spillway Outlet	Outlet Ditch	----	----	----
					Client sampling date / time	25-Mar-2025 12:15	25-Mar-2025 10:30	----	----	----
						VA25A6875-006	VA25A6875-007	----	----	----
						Result	Result	----	----	----
Total Metals										
Arsenic, total	7440-38-2	E420/VA	0.10	µg/L		1.06	0.94	----	----	----
Barium, total	7440-39-3	E420/VA	0.10	µg/L		24.4	23.8	----	----	----
Beryllium, total	7440-41-7	E420/VA	0.020	µg/L		0.022	<0.020	----	----	----
Bismuth, total	7440-69-9	E420/VA	0.050	µg/L		<0.050	<0.050	----	----	----
Boron, total	7440-42-8	E420/VA	10	µg/L		18	19	----	----	----
Cadmium, total	7440-43-9	E420/VA	0.0050	µg/L		0.0532	0.0843	----	----	----
Calcium, total	7440-70-2	E420/VA	50	µg/L		29900	29800	----	----	----
Cesium, total	7440-46-2	E420/VA	0.010	µg/L		0.112	0.086	----	----	----
Chromium, total	7440-47-3	E420/VA	0.50	µg/L		0.92	0.91	----	----	----
Cobalt, total	7440-48-4	E420/VA	0.10	µg/L		0.28	0.27	----	----	----
Copper, total	7440-50-8	E420/VA	0.50	µg/L		3.35	3.58	----	----	----
Iron, total	7439-89-6	E420/VA	10	µg/L		569	484	----	----	----
Lead, total	7439-92-1	E420/VA	0.050	µg/L		0.925	1.39	----	----	----
Lithium, total	7439-93-2	E420/VA	1.0	µg/L		<1.0	<1.0	----	----	----
Magnesium, total	7439-95-4	E420/VA	5.0	µg/L		6790	6760	----	----	----
Manganese, total	7439-96-5	E420/VA	0.10	µg/L		21.6	18.8	----	----	----
Mercury, total	7439-97-6	E508/VA	0.0050	µg/L		<0.0050	<0.0050	----	----	----
Molybdenum, total	7439-98-7	E420/VA	0.050	µg/L		0.475	0.465	----	----	----
Nickel, total	7440-02-0	E420/VA	0.50	µg/L		1.26	1.31	----	----	----
Phosphorus, total	7723-14-0	E420/VA	50	µg/L		<50	<50	----	----	----
Potassium, total	7440-09-7	E420/VA	50	µg/L		2720	2660	----	----	----

Analytical Results

Sub-Matrix: Surface Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	Spillway Outlet	Outlet Ditch	----	----	----
					Client sampling date / time	25-Mar-2025 12:15	25-Mar-2025 10:30	----	----	----
						VA25A6875-006	VA25A6875-007	----	----	----
						Result	Result	----	----	----
Total Metals										
Rubidium, total	7440-17-7	E420/VA	0.20	µg/L		1.36	1.37	----	----	----
Selenium, total	7782-49-2	E420/VA	0.050	µg/L		0.100	0.106	----	----	----
Silicon, total	7440-21-3	E420/VA	100	µg/L		5510	5640	----	----	----
Silver, total	7440-22-4	E420/VA	0.010	µg/L		0.013	0.012	----	----	----
Sodium, total	7440-23-5	E420/VA	50	µg/L		3120	3140	----	----	----
Strontium, total	7440-24-6	E420/VA	0.20	µg/L		137	139	----	----	----
Sulfur, total	7704-34-9	E420/VA	500	µg/L		10100	10100	----	----	----
Tellurium, total	13494-80-9	E420/VA	0.20	µg/L		<0.20	<0.20	----	----	----
Thallium, total	7440-28-0	E420/VA	0.010	µg/L		<0.010	<0.010	----	----	----
Thorium, total	7440-29-1	E420/VA	0.10	µg/L		0.23	0.14	----	----	----
Tin, total	7440-31-5	E420/VA	0.10	µg/L		<0.10	<0.10	----	----	----
Titanium, total	7440-32-6	E420/VA	0.30	µg/L		13.1	13.6	----	----	----
Tungsten, total	7440-33-7	E420/VA	0.10	µg/L		<0.10	<0.10	----	----	----
Uranium, total	7440-61-1	E420/VA	0.010	µg/L		1.87	1.81	----	----	----
Vanadium, total	7440-62-2	E420/VA	0.50	µg/L		1.48	1.66	----	----	----
Zinc, total	7440-66-6	E420/VA	3.0	µg/L		12.2	19.9	----	----	----
Zirconium, total	7440-67-7	E420/VA	0.20	µg/L		<0.20	<0.20	----	----	----
Dissolved Metals										
Aluminum, dissolved	7429-90-5	E421/VA	1.0	µg/L		30.7	29.0	----	----	----
Antimony, dissolved	7440-36-0	E421/VA	0.10	µg/L		0.10	0.13	----	----	----
Arsenic, dissolved	7440-38-2	E421/VA	0.10	µg/L		0.78	0.67	----	----	----

Analytical Results

Sub-Matrix: Surface Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	Spillway Outlet	Outlet Ditch	----	----	----
					Client sampling date / time	25-Mar-2025 12:15	25-Mar-2025 10:30	----	----	----
						VA25A6875-006	VA25A6875-007	----	----	----
						Result	Result	----	----	----
Dissolved Metals										
Barium, dissolved	7440-39-3	E421/VA	0.10	µg/L		19.0	19.3	----	----	----
Beryllium, dissolved	7440-41-7	E421/VA	0.020	µg/L		<0.020	<0.020	----	----	----
Bismuth, dissolved	7440-69-9	E421/VA	0.050	µg/L		<0.050	<0.050	----	----	----
Boron, dissolved	7440-42-8	E421/VA	10	µg/L		17	18	----	----	----
Cadmium, dissolved	7440-43-9	E421/VA	0.0050	µg/L		0.0287	0.0363	----	----	----
Calcium, dissolved	7440-70-2	E421/VA	50	µg/L		29500	28200	----	----	----
Cesium, dissolved	7440-46-2	E421/VA	0.010	µg/L		0.026	0.029	----	----	----
Chromium, dissolved	7440-47-3	E421/VA	0.50	µg/L		<0.50	<0.50	----	----	----
Cobalt, dissolved	7440-48-4	E421/VA	0.10	µg/L		<0.10	<0.10	----	----	----
Copper, dissolved	7440-50-8	E421/VA	0.20	µg/L		2.20	1.92	----	----	----
Iron, dissolved	7439-89-6	E421/VA	10	µg/L		68	69	----	----	----
Lead, dissolved	7439-92-1	E421/VA	0.050	µg/L		0.227	0.285	----	----	----
Lithium, dissolved	7439-93-2	E421/VA	1.0	µg/L		<1.0	<1.0	----	----	----
Magnesium, dissolved	7439-95-4	E421/VA	5.0	µg/L		6520	6330	----	----	----
Manganese, dissolved	7439-96-5	E421/VA	0.10	µg/L		5.43	4.68	----	----	----
Mercury, dissolved	7439-97-6	E509/VA	0.0050	µg/L		<0.0050	<0.0050	----	----	----
Molybdenum, dissolved	7439-98-7	E421/VA	0.050	µg/L		0.423	0.420	----	----	----
Nickel, dissolved	7440-02-0	E421/VA	0.50	µg/L		0.66	0.69	----	----	----
Phosphorus, dissolved	7723-14-0	E421/VA	50	µg/L		<50	<50	----	----	----
Potassium, dissolved	7440-09-7	E421/VA	50	µg/L		2730	2610	----	----	----
Rubidium, dissolved	7440-17-7	E421/VA	0.20	µg/L		0.84	0.78	----	----	----

Analytical Results

Sub-Matrix: Surface Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	Spillway Outlet	Outlet Ditch	----	----	----
					Client sampling date / time	25-Mar-2025 12:15	25-Mar-2025 10:30	----	----	----
						VA25A6875-006	VA25A6875-007	----	----	----
						Result	Result	----	----	----
Dissolved Metals										
Selenium, dissolved	7782-49-2	E421/VA	0.050	µg/L		0.091	0.084	----	----	----
Silicon, dissolved	7440-21-3	E421/VA	50	µg/L		4790	4880	----	----	----
Silver, dissolved	7440-22-4	E421/VA	0.010	µg/L		<0.010	<0.010	----	----	----
Sodium, dissolved	7440-23-5	E421/VA	50	µg/L		2960	2990	----	----	----
Strontium, dissolved	7440-24-6	E421/VA	0.20	µg/L		131	131	----	----	----
Sulfur, dissolved	7704-34-9	E421/VA	500	µg/L		9660	9740	----	----	----
Tellurium, dissolved	13494-80-9	E421/VA	0.20	µg/L		<0.20	<0.20	----	----	----
Thallium, dissolved	7440-28-0	E421/VA	0.010	µg/L		<0.010	<0.010	----	----	----
Thorium, dissolved	7440-29-1	E421/VA	0.10	µg/L		<0.10	<0.10	----	----	----
Tin, dissolved	7440-31-5	E421/VA	0.10	µg/L		<0.10	<0.10	----	----	----
Titanium, dissolved	7440-32-6	E421/VA	0.30	µg/L		0.92	0.84	----	----	----
Tungsten, dissolved	7440-33-7	E421/VA	0.10	µg/L		<0.10	<0.10	----	----	----
Uranium, dissolved	7440-61-1	E421/VA	0.010	µg/L		1.73	1.64	----	----	----
Vanadium, dissolved	7440-62-2	E421/VA	0.50	µg/L		<0.50	0.52	----	----	----
Zinc, dissolved	7440-66-6	E421/VA	1.0	µg/L		7.1	10.7	----	----	----
Zirconium, dissolved	7440-67-7	E421/VA	0.30	µg/L		<0.30	<0.30	----	----	----
Dissolved mercury filtration location	----	EP509/VA	-	-		Field	Field	----	----	----
Dissolved metals filtration location	----	EP421/VA	-	-		Field	Field	----	----	----

Please refer to the General Comments section for an explanation of any result qualifiers detected.

ALS Canada Ltd.

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QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **VA25A6875**	Page	: 1 of 26
Amendment	: 1		
Client	: **Masse Environmental Consultants Ltd.**	Laboratory	: ALS Environmental - Vancouver
Contact	: Ico de Zwart	Account Manager	: Can Dang
Address	: 812 Vernon Street Nelson BC Canada V1L 4G4	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: ----	Telephone	: +1 604 253 4188
Project	: RDCK 2025	Date Samples Received	: 28-Mar-2025 12:45
PO	: ----	Issue Date	: 07-Apr-2025 16:56
C-O-C number	: 22-20250327-1		
Sampler	: C.S		
Site	: RDCK		
Quote number	: ----		
No. of samples received	: 7		
No. of samples analysed	: 7		

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Key

Anonymous: Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number: Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO: Data Quality Objective.
LOR: Limit of Reporting (detection limit).
RPD: Relative Percent Difference.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Summary of Outliers

Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- No Duplicate outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- No Matrix Spike outliers occur.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- Analysis Holding Time Outliers exist - please see following pages for full details.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: **Water** Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	*Method*	*Sampling Date*	*Extraction / Preparation*				*Analysis*			
			Preparation Date	*Holding Times* Rec	*Holding Times* Actual	*Eval*	*Analysis Date*	*Holding Times* Rec	*Holding Times* Actual	*Eval*
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) Seepage Weir	E298	25-Mar-2025	29-Mar-2025	28 days	3 days	✓	31-Mar-2025	28 days	6 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) SW2-07	E298	25-Mar-2025	29-Mar-2025	28 days	3 days	✓	31-Mar-2025	28 days	6 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) SW5-19	E298	25-Mar-2025	29-Mar-2025	28 days	3 days	✓	31-Mar-2025	28 days	6 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) Outlet Ditch	E298	25-Mar-2025	29-Mar-2025	28 days	4 days	✓	31-Mar-2025	28 days	6 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) Spillway Inlet	E298	25-Mar-2025	29-Mar-2025	28 days	4 days	✓	31-Mar-2025	28 days	6 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) Spillway Outlet	E298	25-Mar-2025	29-Mar-2025	28 days	4 days	✓	31-Mar-2025	28 days	6 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (lab preserved) SW3-07	E298	25-Mar-2025	29-Mar-2025	3 days	3 days	✓	31-Mar-2025	28 days	3 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE Outlet Ditch	E235.Br-L	25-Mar-2025	28-Mar-2025	28 days	3 days	✓	28-Mar-2025	28 days	3 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE Seepage Weir	E235.Br-L	25-Mar-2025	28-Mar-2025	28 days	3 days	✓	28-Mar-2025	28 days	3 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE Spillway Inlet	E235.Br-L	25-Mar-2025	28-Mar-2025	28 days	3 days	✓	28-Mar-2025	28 days	3 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE Spillway Outlet	E235.Br-L	25-Mar-2025	28-Mar-2025	28 days	3 days	✓	28-Mar-2025	28 days	3 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE SW2-07	E235.Br-L	25-Mar-2025	28-Mar-2025	28 days	3 days	✓	28-Mar-2025	28 days	3 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE SW3-07	E235.Br-L	25-Mar-2025	28-Mar-2025	28 days	3 days	✓	28-Mar-2025	28 days	3 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE SW5-19	E235.Br-L	25-Mar-2025	28-Mar-2025	28 days	3 days	✓	28-Mar-2025	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE Outlet Ditch	E235.Cl	25-Mar-2025	28-Mar-2025	28 days	3 days	✓	28-Mar-2025	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE Seepage Weir	E235.Cl	25-Mar-2025	28-Mar-2025	28 days	3 days	✓	28-Mar-2025	28 days	3 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Chloride in Water by IC										
HDPE Spillway Inlet	E235.Cl	25-Mar-2025	28-Mar-2025	28 days	3 days	✓	28-Mar-2025	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE Spillway Outlet	E235.Cl	25-Mar-2025	28-Mar-2025	28 days	3 days	✓	28-Mar-2025	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE SW2-07	E235.Cl	25-Mar-2025	28-Mar-2025	28 days	3 days	✓	28-Mar-2025	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE SW3-07	E235.Cl	25-Mar-2025	28-Mar-2025	28 days	3 days	✓	28-Mar-2025	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE SW5-19	E235.Cl	25-Mar-2025	28-Mar-2025	28 days	3 days	✓	28-Mar-2025	28 days	3 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE Outlet Ditch	E378-U	25-Mar-2025	28-Mar-2025	3 days	3 days	✓	28-Mar-2025	3 days	3 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE Seepage Weir	E378-U	25-Mar-2025	28-Mar-2025	3 days	3 days	✓	28-Mar-2025	3 days	3 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE Spillway Inlet	E378-U	25-Mar-2025	28-Mar-2025	3 days	3 days	✓	28-Mar-2025	3 days	3 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE Spillway Outlet	E378-U	25-Mar-2025	28-Mar-2025	3 days	3 days	✓	28-Mar-2025	3 days	3 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE SW2-07	E378-U	25-Mar-2025	28-Mar-2025	3 days	3 days	✓	28-Mar-2025	3 days	3 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE SW3-07	E378-U	25-Mar-2025	28-Mar-2025	3 days	3 days	✓	28-Mar-2025	3 days	3 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE SW5-19	E378-U	25-Mar-2025	28-Mar-2025	3 days	3 days	✓	28-Mar-2025	3 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE Outlet Ditch	E235.F	25-Mar-2025	28-Mar-2025	28 days	3 days	✓	28-Mar-2025	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE Seepage Weir	E235.F	25-Mar-2025	28-Mar-2025	28 days	3 days	✓	28-Mar-2025	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE Spillway Inlet	E235.F	25-Mar-2025	28-Mar-2025	28 days	3 days	✓	28-Mar-2025	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE Spillway Outlet	E235.F	25-Mar-2025	28-Mar-2025	28 days	3 days	✓	28-Mar-2025	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE SW2-07	E235.F	25-Mar-2025	28-Mar-2025	28 days	3 days	✓	28-Mar-2025	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE SW3-07	E235.F	25-Mar-2025	28-Mar-2025	28 days	3 days	✓	28-Mar-2025	28 days	3 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Fluoride in Water by IC										
HDPE SW5-19	E235.F	25-Mar-2025	28-Mar-2025	28 days	3 days	✓	28-Mar-2025	28 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE Outlet Ditch	E235.NO3-L	25-Mar-2025	28-Mar-2025	3 days	3 days	✓	28-Mar-2025	3 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE Seepage Weir	E235.NO3-L	25-Mar-2025	28-Mar-2025	3 days	3 days	✓	28-Mar-2025	3 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE Spillway Inlet	E235.NO3-L	25-Mar-2025	28-Mar-2025	3 days	3 days	✓	28-Mar-2025	3 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE Spillway Outlet	E235.NO3-L	25-Mar-2025	28-Mar-2025	3 days	3 days	✓	28-Mar-2025	3 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE SW2-07	E235.NO3-L	25-Mar-2025	28-Mar-2025	3 days	3 days	✓	28-Mar-2025	3 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE SW3-07	E235.NO3-L	25-Mar-2025	28-Mar-2025	3 days	3 days	✓	28-Mar-2025	3 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE SW5-19	E235.NO3-L	25-Mar-2025	28-Mar-2025	3 days	3 days	✓	28-Mar-2025	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE Outlet Ditch	E235.NO2-L	25-Mar-2025	28-Mar-2025	3 days	3 days	✓	28-Mar-2025	3 days	3 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE Seepage Weir	E235.NO2-L	25-Mar-2025	28-Mar-2025	3 days	3 days	✓	28-Mar-2025	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE Spillway Inlet	E235.NO2-L	25-Mar-2025	28-Mar-2025	3 days	3 days	✓	28-Mar-2025	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE Spillway Outlet	E235.NO2-L	25-Mar-2025	28-Mar-2025	3 days	3 days	✓	28-Mar-2025	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE SW2-07	E235.NO2-L	25-Mar-2025	28-Mar-2025	3 days	3 days	✓	28-Mar-2025	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE SW3-07	E235.NO2-L	25-Mar-2025	28-Mar-2025	3 days	3 days	✓	28-Mar-2025	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE SW5-19	E235.NO2-L	25-Mar-2025	28-Mar-2025	3 days	3 days	✓	28-Mar-2025	3 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE Outlet Ditch	E235.SO4	25-Mar-2025	28-Mar-2025	28 days	3 days	✓	28-Mar-2025	28 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE Seepage Weir	E235.SO4	25-Mar-2025	28-Mar-2025	28 days	3 days	✓	28-Mar-2025	28 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE Spillway Inlet	E235.SO4	25-Mar-2025	28-Mar-2025	28 days	3 days	✓	28-Mar-2025	28 days	3 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
Spillway Outlet	E235.SO4	25-Mar-2025	28-Mar-2025	28 days	3 days	✓	28-Mar-2025	28 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
SW2-07	E235.SO4	25-Mar-2025	28-Mar-2025	28 days	3 days	✓	28-Mar-2025	28 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
SW3-07	E235.SO4	25-Mar-2025	28-Mar-2025	28 days	3 days	✓	28-Mar-2025	28 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
SW5-19	E235.SO4	25-Mar-2025	28-Mar-2025	28 days	3 days	✓	28-Mar-2025	28 days	3 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid)										
Seepage Weir	E318	25-Mar-2025	29-Mar-2025	28 days	3 days	✓	30-Mar-2025	28 days	5 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid)										
SW2-07	E318	25-Mar-2025	29-Mar-2025	28 days	3 days	✓	30-Mar-2025	28 days	5 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid)										
SW5-19	E318	25-Mar-2025	29-Mar-2025	28 days	3 days	✓	30-Mar-2025	28 days	5 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid)										
Outlet Ditch	E318	25-Mar-2025	29-Mar-2025	28 days	4 days	✓	30-Mar-2025	28 days	5 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid)										
Spillway Inlet	E318	25-Mar-2025	29-Mar-2025	28 days	4 days	✓	30-Mar-2025	28 days	5 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid)										
Spillway Outlet	E318	25-Mar-2025	29-Mar-2025	28 days	4 days	✓	30-Mar-2025	28 days	5 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (lab preserved)										
SW3-07	E318	25-Mar-2025	29-Mar-2025	3 days	3 days	✓	30-Mar-2025	28 days	2 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
SW2-07	E509	25-Mar-2025	02-Apr-2025	28 days	7 days	✓	02-Apr-2025	28 days	7 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
SW3-07	E509	25-Mar-2025	02-Apr-2025	28 days	7 days	✓	02-Apr-2025	28 days	7 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
SW5-19	E509	25-Mar-2025	02-Apr-2025	28 days	7 days	✓	02-Apr-2025	28 days	7 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
Seepage Weir	E509	25-Mar-2025	02-Apr-2025	28 days	7 days	✓	02-Apr-2025	28 days	8 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
Spillway Inlet	E509	25-Mar-2025	02-Apr-2025	28 days	8 days	✓	02-Apr-2025	28 days	8 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
Spillway Outlet	E509	25-Mar-2025	02-Apr-2025	28 days	8 days	✓	02-Apr-2025	28 days	8 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
Outlet Ditch	E509	25-Mar-2025	03-Apr-2025	28 days	9 days	✓	03-Apr-2025	28 days	9 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
Outlet Ditch	E421	25-Mar-2025	31-Mar-2025	180 days	6 days	✓	31-Mar-2025	180 days	6 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
Seepage Weir	E421	25-Mar-2025	31-Mar-2025	180 days	6 days	✓	31-Mar-2025	180 days	6 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
Spillway Inlet	E421	25-Mar-2025	31-Mar-2025	180 days	6 days	✓	31-Mar-2025	180 days	6 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
Spillway Outlet	E421	25-Mar-2025	31-Mar-2025	180 days	6 days	✓	31-Mar-2025	180 days	6 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
SW2-07	E421	25-Mar-2025	31-Mar-2025	180 days	6 days	✓	31-Mar-2025	180 days	6 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
SW3-07	E421	25-Mar-2025	31-Mar-2025	180 days	6 days	✓	31-Mar-2025	180 days	6 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
SW5-19	E421	25-Mar-2025	31-Mar-2025	180 days	6 days	✓	31-Mar-2025	180 days	6 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass - dissolved (field filtered/sulfuric acid)										
Seepage Weir	E358-L	25-Mar-2025	29-Mar-2025	28 days	3 days	✓	29-Mar-2025	28 days	4 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass - dissolved (field filtered/sulfuric acid)										
SW2-07	E358-L	25-Mar-2025	29-Mar-2025	28 days	3 days	✓	29-Mar-2025	28 days	4 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass - dissolved (field filtered/sulfuric acid)										
SW3-07	E358-L	25-Mar-2025	29-Mar-2025	28 days	3 days	✓	29-Mar-2025	28 days	4 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass - dissolved (field filtered/sulfuric acid)										
SW5-19	E358-L	25-Mar-2025	29-Mar-2025	28 days	3 days	✓	29-Mar-2025	28 days	4 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass - dissolved (field filtered/sulfuric acid)										
Outlet Ditch	E358-L	25-Mar-2025	29-Mar-2025	28 days	4 days	✓	29-Mar-2025	28 days	4 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass - dissolved (field filtered/sulfuric acid)										
Spillway Inlet	E358-L	25-Mar-2025	29-Mar-2025	28 days	4 days	✓	29-Mar-2025	28 days	4 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass - dissolved (field filtered/sulfuric acid)										
Spillway Outlet	E358-L	25-Mar-2025	29-Mar-2025	28 days	4 days	✓	29-Mar-2025	28 days	4 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
Seepage Weir	E355-L	25-Mar-2025	29-Mar-2025	28 days	3 days	✓	29-Mar-2025	28 days	4 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
SW2-07	E355-L	25-Mar-2025	29-Mar-2025	28 days	3 days	✓	29-Mar-2025	28 days	4 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
SW5-19	E355-L	25-Mar-2025	29-Mar-2025	28 days	3 days	✓	29-Mar-2025	28 days	4 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
Outlet Ditch	E355-L	25-Mar-2025	29-Mar-2025	28 days	4 days	✓	29-Mar-2025	28 days	4 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
Spillway Inlet	E355-L	25-Mar-2025	29-Mar-2025	28 days	4 days	✓	29-Mar-2025	28 days	4 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
Spillway Outlet	E355-L	25-Mar-2025	29-Mar-2025	28 days	4 days	✓	29-Mar-2025	28 days	4 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (lab preserved)										
SW3-07	E355-L	25-Mar-2025	29-Mar-2025	3 days	3 days	✓	29-Mar-2025	28 days	0 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
Outlet Ditch	E290	25-Mar-2025	28-Mar-2025	14 days	3 days	✓	29-Mar-2025	14 days	4 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
Seepage Weir	E290	25-Mar-2025	28-Mar-2025	14 days	3 days	✓	29-Mar-2025	14 days	4 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
Spillway Inlet	E290	25-Mar-2025	28-Mar-2025	14 days	3 days	✓	29-Mar-2025	14 days	4 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
Spillway Outlet	E290	25-Mar-2025	28-Mar-2025	14 days	3 days	✓	29-Mar-2025	14 days	4 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
SW2-07	E290	25-Mar-2025	28-Mar-2025	14 days	3 days	✓	29-Mar-2025	14 days	4 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
SW3-07	E290	25-Mar-2025	28-Mar-2025	14 days	3 days	✓	29-Mar-2025	14 days	4 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Alkalinity Species by Titration										
HDPE SW5-19	E290	25-Mar-2025	28-Mar-2025	14 days	3 days	✓	29-Mar-2025	14 days	4 days	✓
Physical Tests : Conductivity in Water										
HDPE Outlet Ditch	E100	25-Mar-2025	28-Mar-2025	28 days	3 days	✓	29-Mar-2025	28 days	4 days	✓
Physical Tests : Conductivity in Water										
HDPE Seepage Weir	E100	25-Mar-2025	28-Mar-2025	28 days	3 days	✓	29-Mar-2025	28 days	4 days	✓
Physical Tests : Conductivity in Water										
HDPE Spillway Inlet	E100	25-Mar-2025	28-Mar-2025	28 days	3 days	✓	29-Mar-2025	28 days	4 days	✓
Physical Tests : Conductivity in Water										
HDPE Spillway Outlet	E100	25-Mar-2025	28-Mar-2025	28 days	3 days	✓	29-Mar-2025	28 days	4 days	✓
Physical Tests : Conductivity in Water										
HDPE SW2-07	E100	25-Mar-2025	28-Mar-2025	28 days	3 days	✓	29-Mar-2025	28 days	4 days	✓
Physical Tests : Conductivity in Water										
HDPE SW3-07	E100	25-Mar-2025	28-Mar-2025	28 days	3 days	✓	29-Mar-2025	28 days	4 days	✓
Physical Tests : Conductivity in Water										
HDPE SW5-19	E100	25-Mar-2025	28-Mar-2025	28 days	3 days	✓	29-Mar-2025	28 days	4 days	✓
Physical Tests : pH by Meter										
HDPE SW2-07	E108	25-Mar-2025	28-Mar-2025	0.25 hrs	77 hrs	× EHTR-FM	29-Mar-2025	0.25 hrs	90 hrs	× EHTR-FM

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : pH by Meter										
HDPE SW5-19	E108	25-Mar-2025	28-Mar-2025	0.25 hrs	77 hrs	× EHTR-FM	29-Mar-2025	0.25 hrs	90 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE SW3-07	E108	25-Mar-2025	28-Mar-2025	0.25 hrs	78 hrs	× EHTR-FM	29-Mar-2025	0.25 hrs	90 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE Seepage Weir	E108	25-Mar-2025	28-Mar-2025	0.25 hrs	79 hrs	× EHTR-FM	29-Mar-2025	0.25 hrs	91 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE Spillway Inlet	E108	25-Mar-2025	28-Mar-2025	0.25 hrs	79 hrs	× EHTR-FM	29-Mar-2025	0.25 hrs	92 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE Spillway Outlet	E108	25-Mar-2025	28-Mar-2025	0.25 hrs	79 hrs	× EHTR-FM	29-Mar-2025	0.25 hrs	92 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE Outlet Ditch	E108	25-Mar-2025	28-Mar-2025	0.25 hrs	81 hrs	× EHTR-FM	29-Mar-2025	0.25 hrs	93 hrs	× EHTR-FM
Physical Tests : TDS by Gravimetry										
HDPE Outlet Ditch	E162	25-Mar-2025	----	----	----		31-Mar-2025	7 days	6 days	✓
Physical Tests : TDS by Gravimetry										
HDPE Seepage Weir	E162	25-Mar-2025	----	----	----		31-Mar-2025	7 days	6 days	✓
Physical Tests : TDS by Gravimetry										
HDPE Spillway Inlet	E162	25-Mar-2025	----	----	----		31-Mar-2025	7 days	6 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : TDS by Gravimetry										
HDPE Spillway Outlet	E162	25-Mar-2025	----	----	----		31-Mar-2025	7 days	6 days	✓
Physical Tests : TDS by Gravimetry										
HDPE SW2-07	E162	25-Mar-2025	----	----	----		31-Mar-2025	7 days	6 days	✓
Physical Tests : TDS by Gravimetry										
HDPE SW3-07	E162	25-Mar-2025	----	----	----		31-Mar-2025	7 days	6 days	✓
Physical Tests : TDS by Gravimetry										
HDPE SW5-19	E162	25-Mar-2025	----	----	----		31-Mar-2025	7 days	6 days	✓
Physical Tests : TSS by Gravimetry										
HDPE Outlet Ditch	E160	25-Mar-2025	----	----	----		31-Mar-2025	7 days	6 days	✓
Physical Tests : TSS by Gravimetry										
HDPE Seepage Weir	E160	25-Mar-2025	----	----	----		31-Mar-2025	7 days	6 days	✓
Physical Tests : TSS by Gravimetry										
HDPE Spillway Inlet	E160	25-Mar-2025	----	----	----		31-Mar-2025	7 days	6 days	✓
Physical Tests : TSS by Gravimetry										
HDPE Spillway Outlet	E160	25-Mar-2025	----	----	----		31-Mar-2025	7 days	6 days	✓
Physical Tests : TSS by Gravimetry										
HDPE SW2-07	E160	25-Mar-2025	----	----	----		31-Mar-2025	7 days	6 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : TSS by Gravimetry										
HDPE SW3-07	E160	25-Mar-2025	----	----	----		31-Mar-2025	7 days	6 days	✓
Physical Tests : TSS by Gravimetry										
HDPE SW5-19	E160	25-Mar-2025	----	----	----		31-Mar-2025	7 days	6 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved) Outlet Ditch	E508	25-Mar-2025	02-Apr-2025	28 days	8 days	✓	02-Apr-2025	28 days	8 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved) Seepage Weir	E508	25-Mar-2025	02-Apr-2025	28 days	8 days	✓	02-Apr-2025	28 days	8 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved) Spillway Inlet	E508	25-Mar-2025	02-Apr-2025	28 days	8 days	✓	02-Apr-2025	28 days	8 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved) Spillway Outlet	E508	25-Mar-2025	02-Apr-2025	28 days	8 days	✓	02-Apr-2025	28 days	8 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved) SW2-07	E508	25-Mar-2025	02-Apr-2025	28 days	8 days	✓	02-Apr-2025	28 days	8 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved) SW3-07	E508	25-Mar-2025	02-Apr-2025	28 days	8 days	✓	02-Apr-2025	28 days	8 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved) SW5-19	E508	25-Mar-2025	02-Apr-2025	28 days	8 days	✓	02-Apr-2025	28 days	8 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) Outlet Ditch	E420	25-Mar-2025	31-Mar-2025	180 days	6 days	✓	01-Apr-2025	180 days	7 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) Seepage Weir	E420	25-Mar-2025	31-Mar-2025	180 days	6 days	✓	01-Apr-2025	180 days	7 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) Spillway Inlet	E420	25-Mar-2025	31-Mar-2025	180 days	6 days	✓	01-Apr-2025	180 days	7 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) Spillway Outlet	E420	25-Mar-2025	31-Mar-2025	180 days	6 days	✓	01-Apr-2025	180 days	7 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) SW2-07	E420	25-Mar-2025	31-Mar-2025	180 days	6 days	✓	01-Apr-2025	180 days	7 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) SW3-07	E420	25-Mar-2025	31-Mar-2025	180 days	6 days	✓	01-Apr-2025	180 days	7 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) SW5-19	E420	25-Mar-2025	31-Mar-2025	180 days	6 days	✓	01-Apr-2025	180 days	7 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) Outlet Ditch	E395	25-Mar-2025	----	----	----		29-Mar-2025	7 days	4 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) Seepage Weir	E395	25-Mar-2025	----	----	----		29-Mar-2025	7 days	4 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide)										
Spillway Inlet	E395	25-Mar-2025	----	----	----		29-Mar-2025	7 days	4 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide)										
Spillway Outlet	E395	25-Mar-2025	----	----	----		29-Mar-2025	7 days	4 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide)										
SW2-07	E395	25-Mar-2025	----	----	----		29-Mar-2025	7 days	4 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide)										
SW3-07	E395	25-Mar-2025	----	----	----		29-Mar-2025	7 days	4 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide)										
SW5-19	E395	25-Mar-2025	----	----	----		29-Mar-2025	7 days	4 days	✓

Legend & Qualifier Definitions

EHTR-FM: Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended

Rec. HT: ALS recommended hold time (see units).

Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Water**

Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
Conductivity in Water	E100	1929999	1	20	5.0	5.0	✓
pH by Meter	E108	1929997	1	20	5.0	5.0	✓
TSS by Gravimetry	E160	1932017	1	10	10.0	5.0	✓
TDS by Gravimetry	E162	1932019	1	10	10.0	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1930002	1	20	5.0	5.0	✓
Chloride in Water by IC	E235.Cl	1930001	1	20	5.0	5.0	✓
Fluoride in Water by IC	E235.F	1930000	1	20	5.0	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1930004	1	20	5.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1930003	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1930005	1	20	5.0	5.0	✓
Alkalinity Species by Titration	E290	1929998	1	20	5.0	5.0	✓
Ammonia by Fluorescence	E298	1930150	1	16	6.2	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	1930153	1	16	6.2	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1930151	1	16	6.2	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1930152	1	15	6.6	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	1930007	1	16	6.2	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	1930667	1	15	6.6	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1930466	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1931774	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	1934507	1	20	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1934403	2	36	5.5	5.0	✓
Laboratory Control Samples (LCS)							
Conductivity in Water	E100	1929999	1	20	5.0	5.0	✓
pH by Meter	E108	1929997	1	20	5.0	5.0	✓
TSS by Gravimetry	E160	1932017	1	10	10.0	5.0	✓
TDS by Gravimetry	E162	1932019	1	10	10.0	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1930002	1	20	5.0	5.0	✓
Chloride in Water by IC	E235.Cl	1930001	1	20	5.0	5.0	✓
Fluoride in Water by IC	E235.F	1930000	1	20	5.0	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1930004	1	20	5.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1930003	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1930005	1	20	5.0	5.0	✓
Alkalinity Species by Titration	E290	1929998	1	20	5.0	5.0	✓
Ammonia by Fluorescence	E298	1930150	1	16	6.2	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	1930153	1	16	6.2	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1930151	1	16	6.2	5.0	✓

Matrix: **Water**

Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Control Samples (LCS) - Continued							
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1930152	1	15	6.6	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	1930007	1	16	6.2	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	1930667	1	15	6.6	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1930466	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1931774	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	1934507	1	20	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1934403	2	36	5.5	5.0	✓
Method Blanks (MB)							
Conductivity in Water	E100	1929999	1	20	5.0	5.0	✓
TSS by Gravimetry	E160	1932017	1	10	10.0	5.0	✓
TDS by Gravimetry	E162	1932019	1	10	10.0	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1930002	1	20	5.0	5.0	✓
Chloride in Water by IC	E235.Cl	1930001	1	20	5.0	5.0	✓
Fluoride in Water by IC	E235.F	1930000	1	20	5.0	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1930004	1	20	5.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1930003	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1930005	1	20	5.0	5.0	✓
Alkalinity Species by Titration	E290	1929998	1	20	5.0	5.0	✓
Ammonia by Fluorescence	E298	1930150	1	16	6.2	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	1930153	1	16	6.2	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1930151	1	16	6.2	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1930152	1	15	6.6	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	1930007	1	16	6.2	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	1930667	1	15	6.6	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1930466	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1931774	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	1934507	1	20	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1934403	2	36	5.5	5.0	✓
Matrix Spikes (MS)							
Bromide in Water by IC (Low Level)	E235.Br-L	1930002	1	20	5.0	5.0	✓
Chloride in Water by IC	E235.Cl	1930001	1	20	5.0	5.0	✓
Fluoride in Water by IC	E235.F	1930000	1	20	5.0	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1930004	1	20	5.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1930003	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1930005	1	20	5.0	5.0	✓
Ammonia by Fluorescence	E298	1930150	1	16	6.2	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	1930153	1	16	6.2	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1930151	1	16	6.2	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1930152	1	15	6.6	5.0	✓

Matrix: **Water**

Evaluation: × = *QC frequency outside specification*; ✓ = *QC frequency within specification.*

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Matrix Spikes (MS) - Continued							
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	1930007	1	16	6.2	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	1930667	1	15	6.6	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1930466	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1931774	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	1934507	1	20	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1934403	2	36	5.5	5.0	✓

Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Conductivity in Water	E100 ALS Environmental - Vancouver	Water	APHA 2510 (mod)	Conductivity, also known as Electrical Conductivity (EC) or Specific Conductance, is measured by immersion of a conductivity cell with platinum electrodes into a water sample. Conductivity measurements are temperature-compensated to 25°C.
pH by Meter	E108 ALS Environmental - Vancouver	Water	APHA 4500-H (mod)	pH is determined by potentiometric measurement with a pH electrode, and is conducted at ambient laboratory temperature (normally 20 ± 5°C). For high accuracy test results, pH should be measured in the field within the recommended 15 minute hold time.
TSS by Gravimetry	E160 ALS Environmental - Vancouver	Water	APHA 2540 D (mod)	Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, following by drying of the filter at 104 ± 1°C, with gravimetric measurement of the filtered solids. Samples containing very high dissolved solid content (i.e. seawaters, brackish waters) may produce a positive bias by this method. Alternate analysis methods are available for these types of samples.
TDS by Gravimetry	E162 ALS Environmental - Vancouver	Water	APHA 2540 C (mod)	Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, with evaporation of the filtrate at 180 ± 2°C for 16 hours or to constant weight, with gravimetric measurement of the residue.
Bromide in Water by IC (Low Level)	E235.Br-L ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Chloride in Water by IC	E235.Cl ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Fluoride in Water by IC	E235.F ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrite in Water by IC (Low Level)	E235.NO2-L ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrate in Water by IC (Low Level)	E235.NO3-L ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Sulfate in Water by IC	E235.SO4 ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Alkalinity Species by Titration	E290 ALS Environmental - Vancouver	Water	APHA 2320 B (mod)	Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.
Ammonia by Fluorescence	E298 ALS Environmental - Vancouver	Water	Method Fialab 100, 2018	Ammonia in water is determined by automated continuous flow analysis with membrane diffusion and fluorescence detection, after reaction with OPA (ortho-phthalaldehyde). This method is approved under US EPA 40 CFR Part 136 (May 2021)
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318 ALS Environmental - Vancouver	Water	Method Fialab 100, 2018	TKN in water is determined by automated continuous flow analysis with membrane diffusion and fluorescence detection, after reaction with OPA (ortho-phthalaldehyde). This method is approved under US EPA 40 CFR Part 136 (May 2021).
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L ALS Environmental - Vancouver	Water	APHA 5310 B (mod)	Total Organic Carbon (Non-Purgeable), also known as NPOC (total), is a direct measurement of TOC after an acidified sample has been purged to remove carbonate-based Inorganic Carbon (IC). Analysis is by high temperature combustion with infrared detection of CO2. Forms of carbon associated with inorganic or organic molecules (e.g. SCN and CN) are included in NPOC if they are not removed by purging under acidic conditions. Notably, NPOC excludes most volatile organic compounds and free cyanide. For samples where the majority of Total Carbon is inorganic, this method provides greater accuracy and reliability versus the TOC by subtraction method (TC minus TIC).
Dissolved Organic Carbon by Combustion (Low Level)	E358-L ALS Environmental - Vancouver	Water	APHA 5310 B (mod)	Dissolved Organic Carbon (Non-Purgeable), also known as NPOC (dissolved), is a direct measurement of DOC after a filtered (0.45 micron) sample has been acidified and purged to remove inorganic carbon (IC). Analysis is by high temperature combustion with infrared detection of CO2. NPOC does not include volatile organic species that are purged off with IC. For samples where the majority of DC (dissolved carbon) is comprised of IC (which is common), this method is more accurate and more reliable than the DOC by subtraction method (i.e. DC minus DIC).
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U ALS Environmental - Vancouver	Water	APHA 4500-P F (mod)	Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter. Field filtration is recommended to ensure test results represent conditions at time of sampling.
Total Sulfide by Colourimetry (Automated Flow)	E395 ALS Environmental - Vancouver	Water	APHA 4500 -S E-Auto-Colorimetry	Sulfide is determined using the gas dialysis automated methlyene blue colourimetric method. Results expressed "as H2S" if reported represent the maximum possible H2S concentration based on the total sulfide concentration in the sample. The H2S calculation converts Total Sulphide as (S2-) and reports it as Total Sulphide as (H2S)

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Total Metals in Water by CRC ICPMS	E420 ALS Environmental - Vancouver	Water	EPA 200.2/6020B (mod)	Water samples are digested with nitric and hydrochloric acids, and analyzed by Collision/Reaction Cell ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
Dissolved Metals in Water by CRC ICPMS	E421 ALS Environmental - Vancouver	Water	APHA 3030B/EPA 6020B (mod)	Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by Collision/Reaction Cell ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
Total Mercury in Water by CVAAS	E508 ALS Environmental - Vancouver	Water	EPA 1631E (mod)	Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS
Dissolved Mercury in Water by CVAAS	E509 ALS Environmental - Vancouver	Water	APHA 3030B/EPA 1631E (mod)	Water samples are filtered (0.45 um), preserved with HCl, then undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS.
Dissolved Hardness (Calculated)	EC100 ALS Environmental - Vancouver	Water	APHA 2340B	“Hardness (as CaCO3), dissolved” is calculated from the sum of dissolved Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. “Total Hardness” refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because it is a property of water due to dissolved divalent cations.
Hardness (Calculated) from Total Ca/Mg	EC100A ALS Environmental - Vancouver	Water	APHA 2340B	“Hardness (as CaCO3), from total Ca/Mg” is calculated from the sum of total Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. “Total Hardness” refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because it is a property of water due to dissolved divalent cations. Hardness from total Ca/Mg is normally comparable to Dissolved Hardness in non-turbid waters.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Ammonia	EP298 ALS Environmental - Vancouver	Water		Sample preparation for Preserved Nutrients Water Quality Analysis.
Digestion for TKN in water	EP318 ALS Environmental - Vancouver	Water	APHA 4500-Norg D (mod)	Samples are digested at high temperature using Sulfuric Acid with Copper catalyst, which converts organic nitrogen sources to Ammonia, which is then quantified by the analytical method as TKN. This method is unsuitable for samples containing high levels of nitrate. If nitrate exceeds TKN concentration by ten times or more, results may be biased low.
Preparation for Total Organic Carbon by Combustion	EP355 ALS Environmental - Vancouver	Water		Preparation for Total Organic Carbon by Combustion

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Dissolved Organic Carbon for Combustion	EP358 ALS Environmental - Vancouver	Water	APHA 5310 B (mod)	Preparation for Dissolved Organic Carbon
Dissolved Metals Water Filtration	EP421 ALS Environmental - Vancouver	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HNO3.
Dissolved Mercury Water Filtration	EP509 ALS Environmental - Vancouver	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HCl.

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QUALITY CONTROL REPORT

Work Order	: **VA25A6875**	Page	: 1 of 17
Amendment	: **1**		
Client	: Masse Environmental Consultants Ltd.	Laboratory	: ALS Environmental - Vancouver
Contact	: Ico de Zwart	Account Manager	: Can Dang
Address	: 812 Vernon Street Nelson BC Canada V1L 4G4	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: ----	Telephone	: +1 604 253 4188
Project	: RDCK 2025	Date Samples Received	: 28-Mar-2025 12:45
PO	: ----	Date Analysis Commenced	: 28-Mar-2025
C-O-C number	: 22-20250327-1	Issue Date	: 07-Apr-2025 16:56
Sampler	: C.S		
Site	: RDCK		
Quote number	: ----		
No. of samples received	: 7		
No. of samples analysed	: 7		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percent Difference (RPD) and Data Quality Objectives
- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Dan Gebert	Supervisor - Metals Mercury & Speciation	Vancouver Metals, Burnaby, British Columbia
Ilnaz Badbezanchi	Supervisor - Metals Prep	Vancouver Metals, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Vancouver Metals, Burnaby, British Columbia
Miles Gropen	Department Manager - Inorganics	Vancouver Inorganics, Burnaby, British Columbia
Monica Ko	Lab Assistant	Vancouver Inorganics, Burnaby, British Columbia
Owen Cheng		Vancouver Metals, Burnaby, British Columbia

General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number = Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO = Data Quality Objective.
LOR = Limit of Reporting (detection limit).
RPD = Relative Percent Difference
# = Indicates a QC result that did not meet the ALS DQO.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test-specific).

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Physical Tests (QC Lot: 1929997)											
FJ2500887-013	Anonymous	pH	----	E108	0.10	pH units	5.60	5.54	1.08%	4%	----
Physical Tests (QC Lot: 1929998)											
FJ2500887-013	Anonymous	Alkalinity, bicarbonate (as CaCO3)	----	E290	1.0	mg/L	<1.0	<1.0	0.00%	200%	----
		Alkalinity, carbonate (as CaCO3)	----	E290	1.0	mg/L	<1.0	<1.0	0.00%	200%	----
		Alkalinity, hydroxide (as CaCO3)	----	E290	1.0	mg/L	<1.0	<1.0	0.00%	200%	----
		Alkalinity, phenolphthalein (as CaCO3)	----	E290	1.0	mg/L	<1.0	<1.0	0	Diff <2x LOR	----
		Alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	<1.0	<1.0	0	Diff <2x LOR	----
Physical Tests (QC Lot: 1929999)											
FJ2500887-013	Anonymous	Conductivity	----	E100	2.0	µS/cm	<2.0	<2.0	0	Diff <2x LOR	----
Physical Tests (QC Lot: 1932017)											
VA25A6821-006	Anonymous	Solids, total suspended [TSS]	----	E160	3.0	mg/L	<3.0	<3.0	0	Diff <2x LOR	----
Physical Tests (QC Lot: 1932019)											
VA25A6821-006	Anonymous	Solids, total dissolved [TDS]	----	E162	10	mg/L	48	45	2	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1930000)											
FJ2500887-009	Anonymous	Fluoride	16984-48-8	E235.F	0.020	mg/L	0.054	0.054	0.0009	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1930001)											
FJ2500887-009	Anonymous	Chloride	16887-00-6	E235.Cl	0.50	mg/L	3.09	3.15	0.05	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1930002)											
FJ2500887-009	Anonymous	Bromide	24959-67-9	E235.Br-L	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1930003)											
FJ2500887-009	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1930004)											
FJ2500887-009	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1930005)											
FJ2500887-009	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	2.74	2.69	0.05	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1930007)											
FJ2500887-009	Anonymous	Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0010	mg/L	0.0324	0.0334	3.09%	20%	----
Anions and Nutrients (QC Lot: 1930150)											
FJ2500887-009	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	0.0537	0.0541	0.763%	20%	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Anions and Nutrients (QC Lot: 1930153)											
FJ2500887-009	Anonymous	Kjeldahl nitrogen, total [TKN]	----	E318	0.050	mg/L	1.33	1.30	1.94%	20%	----
Organic / Inorganic Carbon (QC Lot: 1930151)											
FJ2500887-009	Anonymous	Carbon, total organic [TOC]	----	E355-L	0.50	mg/L	18.1	18.5	2.20%	20%	----
Organic / Inorganic Carbon (QC Lot: 1930152)											
FJ2500887-009	Anonymous	Carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	12.3	13.3	7.60%	20%	----
Total Sulfides (QC Lot: 1930667)											
VA25A6875-001	SW2-07	Sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	<0.0015	0.0019	0.0004	Diff <2x LOR	----
Total Metals (QC Lot: 1930466)											
VA25A6710-001	Anonymous	Aluminum, total	7429-90-5	E420	0.0030	mg/L	0.0388	0.0409	5.19%	20%	----
		Antimony, total	7440-36-0	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Arsenic, total	7440-38-2	E420	0.00010	mg/L	0.00080	0.00079	0.00001	Diff <2x LOR	----
		Barium, total	7440-39-3	E420	0.00010	mg/L	0.0736	0.0748	1.55%	20%	----
		Beryllium, total	7440-41-7	E420	0.000100	mg/L	<0.000100	<0.000100	0	Diff <2x LOR	----
		Bismuth, total	7440-69-9	E420	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Boron, total	7440-42-8	E420	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		Cadmium, total	7440-43-9	E420	0.0000050	mg/L	0.0000120	0.0000117	0.0000004	Diff <2x LOR	----
		Calcium, total	7440-70-2	E420	0.050	mg/L	31.4	30.0	4.61%	20%	----
		Cesium, total	7440-46-2	E420	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Chromium, total	7440-47-3	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Cobalt, total	7440-48-4	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Copper, total	7440-50-8	E420	0.00050	mg/L	0.00097	0.00093	0.00004	Diff <2x LOR	----
		Iron, total	7439-89-6	E420	0.010	mg/L	0.425	0.430	1.23%	20%	----
		Lead, total	7439-92-1	E420	0.000050	mg/L	<0.000050	0.000051	0.0000010	Diff <2x LOR	----
		Lithium, total	7439-93-2	E420	0.0010	mg/L	0.0019	0.0019	0.00008	Diff <2x LOR	----
		Magnesium, total	7439-95-4	E420	0.0050	mg/L	8.22	8.07	1.81%	20%	----
		Manganese, total	7439-96-5	E420	0.00010	mg/L	0.104	0.104	0.485%	20%	----
		Molybdenum, total	7439-98-7	E420	0.000050	mg/L	0.000623	0.000619	0.620%	20%	----
		Nickel, total	7440-02-0	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Phosphorus, total	7723-14-0	E420	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Potassium, total	7440-09-7	E420	0.050	mg/L	1.68	1.66	1.30%	20%	----
		Rubidium, total	7440-17-7	E420	0.00020	mg/L	0.00097	0.00102	0.00004	Diff <2x LOR	----
		Selenium, total	7782-49-2	E420	0.000050	mg/L	0.000056	<0.000050	0.000006	Diff <2x LOR	----
		Silicon, total	7440-21-3	E420	0.10	mg/L	7.90	8.09	2.38%	20%	----
		Silver, total	7440-22-4	E420	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Total Metals (QC Lot: 1930466) - continued											
VA25A6710-001	Anonymous	Sodium, total	7440-23-5	E420	0.050	mg/L	5.15	5.01	2.74%	20%	----
		Strontium, total	7440-24-6	E420	0.00020	mg/L	0.264	0.253	4.25%	20%	----
		Sulfur, total	7704-34-9	E420	0.50	mg/L	7.07	6.99	1.20%	20%	----
		Tellurium, total	13494-80-9	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		Thallium, total	7440-28-0	E420	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Thorium, total	7440-29-1	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Tin, total	7440-31-5	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Titanium, total	7440-32-6	E420	0.00030	mg/L	<0.00180	0.00187	0.00007	Diff <2x LOR	----
		Tungsten, total	7440-33-7	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Uranium, total	7440-61-1	E420	0.000010	mg/L	0.000318	0.000311	1.94%	20%	----
		Vanadium, total	7440-62-2	E420	0.00050	mg/L	0.00052	0.00052	0.0000004	Diff <2x LOR	----
		Zinc, total	7440-66-6	E420	0.0030	mg/L	0.0071	0.0070	0.00009	Diff <2x LOR	----
		Zirconium, total	7440-67-7	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
Total Metals (QC Lot: 1934507)											
VA25A6695-001	Anonymous	Mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1931774)											
VA25A6924-001	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	0.0110	0.0115	4.47%	20%	----
		Antimony, dissolved	7440-36-0	E421	0.00010	mg/L	0.00853	0.00859	0.756%	20%	----
		Arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	0.0546	0.0558	2.23%	20%	----
		Barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.0266	0.0264	0.958%	20%	----
		Beryllium, dissolved	7440-41-7	E421	0.000020	mg/L	<0.000020	<0.000020	0	Diff <2x LOR	----
		Bismuth, dissolved	7440-69-9	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Boron, dissolved	7440-42-8	E421	0.010	mg/L	0.055	0.055	0.0004	Diff <2x LOR	----
		Cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
		Calcium, dissolved	7440-70-2	E421	0.050	mg/L	35.5	34.7	2.50%	20%	----
		Cesium, dissolved	7440-46-2	E421	0.000010	mg/L	0.00165	0.00158	4.11%	20%	----
		Chromium, dissolved	7440-47-3	E421	0.00050	mg/L	0.00071	0.00070	0.000009	Diff <2x LOR	----
		Cobalt, dissolved	7440-48-4	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Copper, dissolved	7440-50-8	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		Iron, dissolved	7439-89-6	E421	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		Lead, dissolved	7439-92-1	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Lithium, dissolved	7439-93-2	E421	0.0010	mg/L	0.252	0.243	3.47%	20%	----
		Magnesium, dissolved	7439-95-4	E421	0.0050	mg/L	1.95	1.94	0.465%	20%	----
		Manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.0358	0.0360	0.369%	20%	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Dissolved Metals (QC Lot: 1931774) - continued											
VA25A6924-001	Anonymous	Molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.00636	0.00643	0.996%	20%	----
		Nickel, dissolved	7440-02-0	E421	0.00050	mg/L	0.00070	0.00073	0.00002	Diff <2x LOR	----
		Phosphorus, dissolved	7723-14-0	E421	0.050	mg/L	0.140	0.138	0.002	Diff <2x LOR	----
		Potassium, dissolved	7440-09-7	E421	0.050	mg/L	3.09	2.89	6.80%	20%	----
		Rubidium, dissolved	7440-17-7	E421	0.00020	mg/L	0.00520	0.00509	2.10%	20%	----
		Selenium, dissolved	7782-49-2	E421	0.000050	mg/L	0.000177	0.000139	0.000037	Diff <2x LOR	----
		Silicon, dissolved	7440-21-3	E421	0.050	mg/L	2.92	2.97	1.66%	20%	----
		Silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Sodium, dissolved	7440-23-5	E421	0.050	mg/L	121	124	1.76%	20%	----
		Strontium, dissolved	7440-24-6	E421	0.00020	mg/L	1.56	1.56	0.551%	20%	----
		Sulfur, dissolved	7704-34-9	E421	0.50	mg/L	79.3	79.8	0.616%	20%	----
		Tellurium, dissolved	13494-80-9	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		Thallium, dissolved	7440-28-0	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Thorium, dissolved	7440-29-1	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Tin, dissolved	7440-31-5	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Titanium, dissolved	7440-32-6	E421	0.00030	mg/L	<0.00030	<0.00030	0	Diff <2x LOR	----
		Tungsten, dissolved	7440-33-7	E421	0.00010	mg/L	0.0101	0.0101	0.0720%	20%	----
		Uranium, dissolved	7440-61-1	E421	0.000010	mg/L	0.00240	0.00241	0.780%	20%	----
		Vanadium, dissolved	7440-62-2	E421	0.00050	mg/L	0.00246	0.00252	0.00006	Diff <2x LOR	----
		Zinc, dissolved	7440-66-6	E421	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Zirconium, dissolved	7440-67-7	E421	0.00030	mg/L	<0.00030	<0.00030	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1934403)											
VA25A6870-001	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	0.0000106	0.0000106	0.00000002	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1936015)											
VA25A6875-007	Outlet Ditch	Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0050 µg/L	<0.0000050	0	Diff <2x LOR	----

Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 1929998)						
Alkalinity, bicarbonate (as CaCO3)	----	E290	1	mg/L	<1.0	----
Alkalinity, carbonate (as CaCO3)	----	E290	1	mg/L	<1.0	----
Alkalinity, hydroxide (as CaCO3)	----	E290	1	mg/L	<1.0	----
Alkalinity, phenolphthalein (as CaCO3)	----	E290	1	mg/L	<1.0	----
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	<1.0	----
Physical Tests (QCLot: 1929999)						
Conductivity	----	E100	1	µS/cm	1.1	----
Physical Tests (QCLot: 1932017)						
Solids, total suspended [TSS]	----	E160	3	mg/L	<3.0	----
Physical Tests (QCLot: 1932019)						
Solids, total dissolved [TDS]	----	E162	10	mg/L	<10	----
Anions and Nutrients (QCLot: 1930000)						
Fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 1930001)						
Chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 1930002)						
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 1930003)						
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 1930004)						
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 1930005)						
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	----
Anions and Nutrients (QCLot: 1930007)						
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 1930150)						
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 1930153)						
Kjeldahl nitrogen, total [TKN]	----	E318	0.05	mg/L	<0.050	----
Organic / Inorganic Carbon (QCLot: 1930151)						
Carbon, total organic [TOC]	----	E355-L	0.5	mg/L	<0.50	----
Organic / Inorganic Carbon (QCLot: 1930152)						

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Organic / Inorganic Carbon (QCLot: 1930152) - continued						
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	<0.50	----
Total Sulfides (QCLot: 1930667)						
Sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	<0.0015	----
Total Metals (QCLot: 1930466)						
Aluminum, total	7429-90-5	E420	0.003	mg/L	<0.0030	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	<0.00010	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	<0.00010	----
Barium, total	7440-39-3	E420	0.0001	mg/L	<0.00010	----
Beryllium, total	7440-41-7	E420	0.00002	mg/L	<0.000020	----
Bismuth, total	7440-69-9	E420	0.00005	mg/L	<0.000050	----
Boron, total	7440-42-8	E420	0.01	mg/L	<0.010	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	<0.0000050	----
Calcium, total	7440-70-2	E420	0.05	mg/L	<0.050	----
Cesium, total	7440-46-2	E420	0.00001	mg/L	<0.000010	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	<0.00050	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	<0.00010	----
Copper, total	7440-50-8	E420	0.0005	mg/L	<0.00050	----
Iron, total	7439-89-6	E420	0.01	mg/L	<0.010	----
Lead, total	7439-92-1	E420	0.00005	mg/L	<0.000050	----
Lithium, total	7439-93-2	E420	0.001	mg/L	<0.0010	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	<0.0050	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	<0.00010	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	<0.000050	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	<0.00050	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	<0.050	----
Potassium, total	7440-09-7	E420	0.05	mg/L	<0.050	----
Rubidium, total	7440-17-7	E420	0.0002	mg/L	<0.00020	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	<0.000050	----
Silicon, total	7440-21-3	E420	0.1	mg/L	<0.10	----
Silver, total	7440-22-4	E420	0.00001	mg/L	<0.000010	----
Sodium, total	7440-23-5	E420	0.05	mg/L	<0.050	----
Strontium, total	7440-24-6	E420	0.0002	mg/L	<0.00020	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	<0.50	----
Tellurium, total	13494-80-9	E420	0.0002	mg/L	<0.00020	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	<0.000010	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (QCLot: 1930466) - continued						
Thorium, total	7440-29-1	E420	0.0001	mg/L	<0.00010	----
Tin, total	7440-31-5	E420	0.0001	mg/L	<0.00010	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	<0.00030	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	<0.00010	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	<0.000010	----
Vanadium, total	7440-62-2	E420	0.0005	mg/L	<0.00050	----
Zinc, total	7440-66-6	E420	0.003	mg/L	<0.0030	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	<0.00020	----
Total Metals (QCLot: 1934507)						
Mercury, total	7439-97-6	E508	0.000005	mg/L	<0.0000050	----
Dissolved Metals (QCLot: 1931774)						
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	<0.0010	----
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	<0.00010	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	<0.00010	----
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	<0.00010	----
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	<0.000020	----
Bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	<0.000050	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	<0.010	----
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	<0.0000050	----
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	<0.050	----
Cesium, dissolved	7440-46-2	E421	0.00001	mg/L	<0.000010	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	<0.00050	----
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	<0.00010	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	<0.00020	----
Iron, dissolved	7439-89-6	E421	0.01	mg/L	<0.010	----
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	<0.000050	----
Lithium, dissolved	7439-93-2	E421	0.001	mg/L	<0.0010	----
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	<0.0050	----
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	<0.00010	----
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	<0.000050	----
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	<0.00050	----
Phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	<0.050	----
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	<0.050	----
Rubidium, dissolved	7440-17-7	E421	0.0002	mg/L	<0.00020	----
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	<0.000050	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Dissolved Metals (QCLot: 1931774) - continued						
Silicon, dissolved	7440-21-3	E421	0.05	mg/L	<0.050	----
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	<0.000010	----
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	<0.050	----
Strontium, dissolved	7440-24-6	E421	0.0002	mg/L	<0.00020	----
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	<0.50	----
Tellurium, dissolved	13494-80-9	E421	0.0002	mg/L	<0.00020	----
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	<0.000010	----
Thorium, dissolved	7440-29-1	E421	0.0001	mg/L	<0.00010	----
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	<0.00010	----
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	<0.00030	----
Tungsten, dissolved	7440-33-7	E421	0.0001	mg/L	<0.00010	----
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	<0.000010	----
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	<0.00050	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	<0.0010	----
Zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	<0.00020	----
Dissolved Metals (QCLot: 1934403)						
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	<0.0000050	----
Dissolved Metals (QCLot: 1936015)						
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	<0.0000050	----

Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 1929997)									
pH	----	E108	----	pH units	7 pH units	100	98.0	102	----
Physical Tests (QCLot: 1929998)									
Alkalinity, phenolphthalein (as CaCO3)	----	E290	1	mg/L	229 mg/L	104	75.0	125	----
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	500 mg/L	103	85.0	115	----
Physical Tests (QCLot: 1929999)									
Conductivity	----	E100	1	µS/cm	147 µS/cm	97.8	90.0	110	----
Physical Tests (QCLot: 1932017)									
Solids, total suspended [TSS]	----	E160	3	mg/L	150 mg/L	86.2	85.0	115	----
Physical Tests (QCLot: 1932019)									
Solids, total dissolved [TDS]	----	E162	10	mg/L	1000 mg/L	92.4	85.0	115	----
Anions and Nutrients (QCLot: 1930000)									
Fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	97.7	90.0	110	----
Anions and Nutrients (QCLot: 1930001)									
Chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	97.1	90.0	110	----
Anions and Nutrients (QCLot: 1930002)									
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	0.5 mg/L	96.1	85.0	115	----
Anions and Nutrients (QCLot: 1930003)									
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	2.5 mg/L	98.4	90.0	110	----
Anions and Nutrients (QCLot: 1930004)									
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	0.5 mg/L	98.9	90.0	110	----
Anions and Nutrients (QCLot: 1930005)									
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	98.8	90.0	110	----
Anions and Nutrients (QCLot: 1930007)									
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.001	mg/L	0.03 mg/L	99.6	80.0	120	----
Anions and Nutrients (QCLot: 1930150)									
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	108	85.0	115	----
Anions and Nutrients (QCLot: 1930153)									
Kjeldahl nitrogen, total [TKN]	----	E318	0.05	mg/L	4 mg/L	100.0	75.0	125	----
Organic / Inorganic Carbon (QCLot: 1930151)									
Carbon, total organic [TOC]	----	E355-L	0.5	mg/L	8.57 mg/L	103	80.0	120	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Organic / Inorganic Carbon (QCLot: 1930152)									
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	8.57 mg/L	106	80.0	120	----
Total Sulfides (QCLot: 1930667)									
Sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	0.08 mg/L	100	80.0	120	----
Total Metals (QCLot: 1930466)									
Aluminum, total	7429-90-5	E420	0.003	mg/L	2 mg/L	102	80.0	120	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	1 mg/L	102	80.0	120	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	1 mg/L	103	80.0	120	----
Barium, total	7440-39-3	E420	0.0001	mg/L	0.25 mg/L	102	80.0	120	----
Beryllium, total	7440-41-7	E420	0.00002	mg/L	0.1 mg/L	98.6	80.0	120	----
Bismuth, total	7440-69-9	E420	0.00005	mg/L	1 mg/L	97.5	80.0	120	----
Boron, total	7440-42-8	E420	0.01	mg/L	1 mg/L	95.6	80.0	120	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	0.1 mg/L	101	80.0	120	----
Calcium, total	7440-70-2	E420	0.05	mg/L	50 mg/L	100	80.0	120	----
Cesium, total	7440-46-2	E420	0.00001	mg/L	0.05 mg/L	101	80.0	120	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	0.25 mg/L	99.8	80.0	120	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	0.25 mg/L	98.7	80.0	120	----
Copper, total	7440-50-8	E420	0.0005	mg/L	0.25 mg/L	99.6	80.0	120	----
Iron, total	7439-89-6	E420	0.01	mg/L	1 mg/L	96.3	80.0	120	----
Lead, total	7439-92-1	E420	0.00005	mg/L	0.5 mg/L	97.2	80.0	120	----
Lithium, total	7439-93-2	E420	0.001	mg/L	0.25 mg/L	98.1	80.0	120	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	50 mg/L	102	80.0	120	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	0.25 mg/L	101	80.0	120	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	0.25 mg/L	98.9	80.0	120	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	0.5 mg/L	99.4	80.0	120	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	10 mg/L	107	80.0	120	----
Potassium, total	7440-09-7	E420	0.05	mg/L	50 mg/L	98.9	80.0	120	----
Rubidium, total	7440-17-7	E420	0.0002	mg/L	0.1 mg/L	98.0	80.0	120	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	1 mg/L	101	80.0	120	----
Silicon, total	7440-21-3	E420	0.1	mg/L	10 mg/L	106	80.0	120	----
Silver, total	7440-22-4	E420	0.00001	mg/L	0.1 mg/L	94.7	80.0	120	----
Sodium, total	7440-23-5	E420	0.05	mg/L	50 mg/L	100	80.0	120	----
Strontium, total	7440-24-6	E420	0.0002	mg/L	0.25 mg/L	103	80.0	120	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	50 mg/L	89.3	80.0	120	----
Tellurium, total	13494-80-9	E420	0.0002	mg/L	0.1 mg/L	102	80.0	120	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Total Metals (QCLot: 1930466) - continued									
Thallium, total	7440-28-0	E420	0.00001	mg/L	1 mg/L	97.6	80.0	120	----
Thorium, total	7440-29-1	E420	0.0001	mg/L	0.1 mg/L	93.7	80.0	120	----
Tin, total	7440-31-5	E420	0.0001	mg/L	0.5 mg/L	101	80.0	120	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	0.25 mg/L	98.7	80.0	120	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	0.1 mg/L	103	80.0	120	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	0.005 mg/L	102	80.0	120	----
Vanadium, total	7440-62-2	E420	0.0005	mg/L	0.5 mg/L	100	80.0	120	----
Zinc, total	7440-66-6	E420	0.003	mg/L	0.5 mg/L	101	80.0	120	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	0.1 mg/L	97.7	80.0	120	----
Total Metals (QCLot: 1934507)									
Mercury, total	7439-97-6	E508	0.000005	mg/L	0 mg/L	94.2	80.0	120	----
Dissolved Metals (QCLot: 1931774)									
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	2 mg/L	104	80.0	120	----
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	1 mg/L	98.7	80.0	120	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	1 mg/L	104	80.0	120	----
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	0.25 mg/L	100	80.0	120	----
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	0.1 mg/L	94.4	80.0	120	----
Bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	1 mg/L	98.0	80.0	120	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	1 mg/L	93.4	80.0	120	----
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	0.1 mg/L	105	80.0	120	----
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	50 mg/L	96.2	80.0	120	----
Cesium, dissolved	7440-46-2	E421	0.00001	mg/L	0.05 mg/L	100	80.0	120	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	0.25 mg/L	104	80.0	120	----
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	0.25 mg/L	103	80.0	120	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	0.25 mg/L	103	80.0	120	----
Iron, dissolved	7439-89-6	E421	0.01	mg/L	1 mg/L	101	80.0	120	----
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	0.5 mg/L	96.4	80.0	120	----
Lithium, dissolved	7439-93-2	E421	0.001	mg/L	0.25 mg/L	94.0	80.0	120	----
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	50 mg/L	110	80.0	120	----
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	0.25 mg/L	103	80.0	120	----
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	0.25 mg/L	100	80.0	120	----
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	0.5 mg/L	103	80.0	120	----
Phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	10 mg/L	106	80.0	120	----
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	50 mg/L	101	80.0	120	----
Rubidium, dissolved	7440-17-7	E421	0.0002	mg/L	0.1 mg/L	100	80.0	120	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Dissolved Metals (QCLot: 1931774) - continued									
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	1 mg/L	104	80.0	120	----
Silicon, dissolved	7440-21-3	E421	0.05	mg/L	10 mg/L	106	80.0	120	----
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	0.1 mg/L	93.2	80.0	120	----
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	50 mg/L	106	80.0	120	----
Strontium, dissolved	7440-24-6	E421	0.0002	mg/L	0.25 mg/L	103	80.0	120	----
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	50 mg/L	94.9	80.0	120	----
Tellurium, dissolved	13494-80-9	E421	0.0002	mg/L	0.1 mg/L	96.8	80.0	120	----
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	1 mg/L	96.0	80.0	120	----
Thorium, dissolved	7440-29-1	E421	0.0001	mg/L	0.1 mg/L	93.8	80.0	120	----
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	0.5 mg/L	100	80.0	120	----
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	0.25 mg/L	101	80.0	120	----
Tungsten, dissolved	7440-33-7	E421	0.0001	mg/L	0.1 mg/L	101	80.0	120	----
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	0.005 mg/L	102	80.0	120	----
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	0.5 mg/L	102	80.0	120	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	0.5 mg/L	104	80.0	120	----
Zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	0.1 mg/L	97.1	80.0	120	----
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0 mg/L	96.4	80.0	120	----
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0 mg/L	98.7	80.0	120	----

Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for the associated sample (or similar samples) may be subject to bias. ND – Recovery not determined, background level >= 1x spike level.

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Anions and Nutrients (QCLot: 1930000)										
FJ2500887-012	Anonymous	Fluoride	16984-48-8	E235.F	1.05 mg/L	1 mg/L	105	75.0	125	----
Anions and Nutrients (QCLot: 1930001)										
FJ2500887-012	Anonymous	Chloride	16887-00-6	E235.Cl	98.5 mg/L	100 mg/L	98.5	75.0	125	----
Anions and Nutrients (QCLot: 1930002)										
FJ2500887-012	Anonymous	Bromide	24959-67-9	E235.Br-L	0.494 mg/L	0.5 mg/L	98.8	75.0	125	----
Anions and Nutrients (QCLot: 1930003)										
FJ2500887-012	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	2.49 mg/L	2.5 mg/L	99.6	75.0	125	----
Anions and Nutrients (QCLot: 1930004)										
FJ2500887-012	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	0.498 mg/L	0.5 mg/L	99.6	75.0	125	----
Anions and Nutrients (QCLot: 1930005)										
FJ2500887-012	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	99.6 mg/L	100 mg/L	99.6	75.0	125	----
Anions and Nutrients (QCLot: 1930007)										
FJ2500887-012	Anonymous	Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	ND mg/L	----	ND	70.0	130	----
Anions and Nutrients (QCLot: 1930150)										
FJ2500887-012	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.110 mg/L	0.1 mg/L	110	75.0	125	----
Anions and Nutrients (QCLot: 1930153)										
FJ2500887-012	Anonymous	Kjeldahl nitrogen, total [TKN]	----	E318	2.48 mg/L	2.5 mg/L	99.3	70.0	130	----
Organic / Inorganic Carbon (QCLot: 1930151)										
FJ2500887-012	Anonymous	Carbon, total organic [TOC]	----	E355-L	ND mg/L	----	ND	70.0	130	----
Organic / Inorganic Carbon (QCLot: 1930152)										
FJ2500887-012	Anonymous	Carbon, dissolved organic [DOC]	----	E358-L	ND mg/L	----	ND	70.0	130	----
Total Sulfides (QCLot: 1930667)										
VA25A6875-002	SW3-07	Sulfide, total (as S)	18496-25-8	E395	0.212 mg/L	0.2 mg/L	106	75.0	125	----
Total Metals (QCLot: 1930466)										
VA25A6710-002	Anonymous	Aluminum, total	7429-90-5	E420	0.189 mg/L	0.2 mg/L	94.4	70.0	130	----
		Antimony, total	7440-36-0	E420	0.0190 mg/L	0.02 mg/L	94.8	70.0	130	----
		Arsenic, total	7440-38-2	E420	0.0195 mg/L	0.02 mg/L	97.4	70.0	130	----
		Barium, total	7440-39-3	E420	ND mg/L	----	ND	70.0	130	----
		Beryllium, total	7440-41-7	E420	0.0364 mg/L	0.04 mg/L	91.0	70.0	130	----
		Bismuth, total	7440-69-9	E420	0.00926 mg/L	0.01 mg/L	92.6	70.0	130	----
		Boron, total	7440-42-8	E420	0.089 mg/L	0.1 mg/L	89.1	70.0	130	----
		Cadmium, total	7440-43-9	E420	0.00392 mg/L	0.004 mg/L	97.9	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Total Metals (QCLot: 1930466) - continued										
VA25A6710-002	Anonymous	Calcium, total	7440-70-2	E420	ND mg/L	----	ND	70.0	130	----
		Cesium, total	7440-46-2	E420	0.00977 mg/L	0.01 mg/L	97.7	70.0	130	----
		Chromium, total	7440-47-3	E420	0.0383 mg/L	0.04 mg/L	95.6	70.0	130	----
		Cobalt, total	7440-48-4	E420	0.0187 mg/L	0.02 mg/L	93.7	70.0	130	----
		Copper, total	7440-50-8	E420	0.0188 mg/L	0.02 mg/L	94.2	70.0	130	----
		Iron, total	7439-89-6	E420	1.85 mg/L	2 mg/L	92.5	70.0	130	----
		Lead, total	7439-92-1	E420	0.0179 mg/L	0.02 mg/L	89.5	70.0	130	----
		Lithium, total	7439-93-2	E420	0.0914 mg/L	0.1 mg/L	91.4	70.0	130	----
		Magnesium, total	7439-95-4	E420	ND mg/L	----	ND	70.0	130	----
		Manganese, total	7439-96-5	E420	ND mg/L	----	ND	70.0	130	----
		Molybdenum, total	7439-98-7	E420	0.0192 mg/L	0.02 mg/L	96.0	70.0	130	----
		Nickel, total	7440-02-0	E420	0.0375 mg/L	0.04 mg/L	93.8	70.0	130	----
		Phosphorus, total	7723-14-0	E420	10.1 mg/L	10 mg/L	101	70.0	130	----
		Potassium, total	7440-09-7	E420	3.73 mg/L	4 mg/L	93.2	70.0	130	----
		Rubidium, total	7440-17-7	E420	0.0188 mg/L	0.02 mg/L	93.8	70.0	130	----
		Selenium, total	7782-49-2	E420	0.0392 mg/L	0.04 mg/L	98.0	70.0	130	----
		Silicon, total	7440-21-3	E420	8.91 mg/L	10 mg/L	89.1	70.0	130	----
		Silver, total	7440-22-4	E420	0.00386 mg/L	0.004 mg/L	96.6	70.0	130	----
		Sodium, total	7440-23-5	E420	ND mg/L	----	ND	70.0	130	----
		Strontium, total	7440-24-6	E420	ND mg/L	----	ND	70.0	130	----
		Sulfur, total	7704-34-9	E420	18.4 mg/L	20 mg/L	92.3	70.0	130	----
		Tellurium, total	13494-80-9	E420	0.0402 mg/L	0.04 mg/L	100	70.0	130	----
		Thallium, total	7440-28-0	E420	0.00357 mg/L	0.004 mg/L	89.2	70.0	130	----
		Thorium, total	7440-29-1	E420	0.0164 mg/L	0.02 mg/L	82.2	70.0	130	----
		Tin, total	7440-31-5	E420	0.0194 mg/L	0.02 mg/L	97.0	70.0	130	----
		Titanium, total	7440-32-6	E420	0.0379 mg/L	0.04 mg/L	94.7	70.0	130	----
		Tungsten, total	7440-33-7	E420	0.0191 mg/L	0.02 mg/L	95.3	70.0	130	----
		Uranium, total	7440-61-1	E420	0.00385 mg/L	0.004 mg/L	96.3	70.0	130	----
		Vanadium, total	7440-62-2	E420	0.0953 mg/L	0.1 mg/L	95.3	70.0	130	----
		Zinc, total	7440-66-6	E420	0.367 mg/L	0.4 mg/L	91.8	70.0	130	----
		Zirconium, total	7440-67-7	E420	0.0385 mg/L	0.04 mg/L	96.2	70.0	130	----
Total Metals (QCLot: 1934507)										
VA25A6710-001	Anonymous	Mercury, total	7439-97-6	E508	0.0000908 mg/L	0 mg/L	90.8	70.0	130	----
Dissolved Metals (QCLot: 1931774)										
VA25A6924-002	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.200 mg/L	0.2 mg/L	100.0	70.0	130	----
		Antimony, dissolved	7440-36-0	E421	0.0183 mg/L	0.02 mg/L	91.7	70.0	130	----
		Arsenic, dissolved	7440-38-2	E421	0.0206 mg/L	0.02 mg/L	103	70.0	130	----
		Barium, dissolved	7440-39-3	E421	0.0194 mg/L	0.02 mg/L	97.2	70.0	130	----
		Beryllium, dissolved	7440-41-7	E421	0.0389 mg/L	0.04 mg/L	97.2	70.0	130	----
		Bismuth, dissolved	7440-69-9	E421	0.00946 mg/L	0.01 mg/L	94.6	70.0	130	----
		Boron, dissolved	7440-42-8	E421	0.093 mg/L	0.1 mg/L	93.2	70.0	130	----
		Cadmium, dissolved	7440-43-9	E421	0.00421 mg/L	0.004 mg/L	105	70.0	130	----
		Calcium, dissolved	7440-70-2	E421	3.88 mg/L	4 mg/L	97.0	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Dissolved Metals (QCLot: 1931774) - continued										
VA25A6924-002	Anonymous	Cesium, dissolved	7440-46-2	E421	0.00951 mg/L	0.01 mg/L	95.1	70.0	130	----
		Chromium, dissolved	7440-47-3	E421	0.0403 mg/L	0.04 mg/L	101	70.0	130	----
		Cobalt, dissolved	7440-48-4	E421	0.0202 mg/L	0.02 mg/L	101	70.0	130	----
		Copper, dissolved	7440-50-8	E421	0.0204 mg/L	0.02 mg/L	102	70.0	130	----
		Iron, dissolved	7439-89-6	E421	1.86 mg/L	2 mg/L	93.2	70.0	130	----
		Lead, dissolved	7439-92-1	E421	0.0189 mg/L	0.02 mg/L	94.5	70.0	130	----
		Lithium, dissolved	7439-93-2	E421	0.0960 mg/L	0.1 mg/L	96.0	70.0	130	----
		Magnesium, dissolved	7439-95-4	E421	1.00 mg/L	1 mg/L	100	70.0	130	----
		Manganese, dissolved	7439-96-5	E421	0.0202 mg/L	0.02 mg/L	101	70.0	130	----
		Molybdenum, dissolved	7439-98-7	E421	0.0184 mg/L	0.02 mg/L	91.9	70.0	130	----
		Nickel, dissolved	7440-02-0	E421	0.0402 mg/L	0.04 mg/L	101	70.0	130	----
		Phosphorus, dissolved	7723-14-0	E421	10.0 mg/L	10 mg/L	100	70.0	130	----
		Potassium, dissolved	7440-09-7	E421	3.96 mg/L	4 mg/L	99.0	70.0	130	----
		Rubidium, dissolved	7440-17-7	E421	0.0193 mg/L	0.02 mg/L	96.5	70.0	130	----
		Selenium, dissolved	7782-49-2	E421	0.0394 mg/L	0.04 mg/L	98.6	70.0	130	----
		Silicon, dissolved	7440-21-3	E421	9.75 mg/L	10 mg/L	97.5	70.0	130	----
		Silver, dissolved	7440-22-4	E421	0.00382 mg/L	0.004 mg/L	95.4	70.0	130	----
		Sodium, dissolved	7440-23-5	E421	2.00 mg/L	2 mg/L	100.0	70.0	130	----
		Strontium, dissolved	7440-24-6	E421	0.0192 mg/L	0.02 mg/L	95.8	70.0	130	----
		Sulfur, dissolved	7704-34-9	E421	18.8 mg/L	20 mg/L	93.8	70.0	130	----
		Tellurium, dissolved	13494-80-9	E421	0.0374 mg/L	0.04 mg/L	93.4	70.0	130	----
		Thallium, dissolved	7440-28-0	E421	0.00372 mg/L	0.004 mg/L	93.0	70.0	130	----
		Thorium, dissolved	7440-29-1	E421	0.0169 mg/L	0.02 mg/L	84.5	70.0	130	----
		Tin, dissolved	7440-31-5	E421	0.0187 mg/L	0.02 mg/L	93.5	70.0	130	----
		Titanium, dissolved	7440-32-6	E421	0.0392 mg/L	0.04 mg/L	98.0	70.0	130	----
		Tungsten, dissolved	7440-33-7	E421	0.0192 mg/L	0.02 mg/L	95.9	70.0	130	----
		Uranium, dissolved	7440-61-1	E421	0.00395 mg/L	0.004 mg/L	98.8	70.0	130	----
		Vanadium, dissolved	7440-62-2	E421	0.0992 mg/L	0.1 mg/L	99.2	70.0	130	----
		Zinc, dissolved	7440-66-6	E421	0.397 mg/L	0.4 mg/L	99.3	70.0	130	----
		Zirconium, dissolved	7440-67-7	E421	0.0382 mg/L	0.04 mg/L	95.5	70.0	130	----
Dissolved Metals (QCLot: 1934403)										
VA25A6870-002	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000975 mg/L	0 mg/L	97.5	70.0	130	----
Dissolved Metals (QCLot: 1936015)										
VA25A6889-011	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000982 mg/L	0 mg/L	98.2	70.0	130	----

W437 N399 TS66 S4339 H9487 H9480

Chain of Custody (COC) / Analytical Request Form

COC Number: 22 - 20250327 - 1

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Work Order Reference VA25A6875

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Report To	Contact and company name below will appear on the final report	Reports / Recipients	Turnaround Time (TAT) Requested
Company:	Masse Environmental	Select Report Format: ☑ PDF ☑ EXCEL ☑ EDD (DIGITAL)	☑ Routine [R] if received by 3pm M-F - no surcharges apply
Contact:	Ico deZwart	Merge QC/QCI Reports with COA ☑ YES ☐ NO ☐ N/A	☐ 4 day [P4] if received by 3pm M-F - 20% rush surcharge mi
Phone:		☐ Compare Results to Criteria on Report - provide details below if box checked	☐ 3 day [P3] if received by 3pm M-F - 25% rush surcharge m
	Company address below will appear on the final report	Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX	☐ 2 day [P2] if received by 3pm M-F - 50% rush surcharge m
Street:	812 Vernon St.	Email 1 or Fax ico@masseenvironmental.com	☐ 1 day [E] if received by 3pm M-F - 100% rush surcharge m
City/Province:	Nelson, BC	Email 2 chris@masseenvironmental.com	☐ Same day [E2] if received by 10am M-S - 200% rush surch
Postal Code:	V1L4G4	Email 3	Additional fees may apply to rush requests on week
Invoice To	Same as Report To ☑ YES ☐ NO	Invoice Recipients	Date and Time Required for all E&P TATs:
	Copy of Invoice with Report ☑ YES ☐ NO	Select Invoice Distribution: ☑ EMAIL ☐ MAIL ☐ FAX	For all tests with rush TATs requested, plea
Company:		Email 1 or Fax lise@masseenvironmental.com	Analysis R
Contact:		Email 2	

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	VA24-MASS200-001	AFE/Cost Center:	PO#
Job #:	2016-503 - HB	Major/Minor Code:	Routing Code:
PO / AFE:		Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (ALS use only):		ALS Contact:	Sampler: C.Stephanou

ALS Sample # (ALS use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	pH, cond,TSS,TDS,alkalinity,hardnes	Chloride, bromide, fluoride, sulfate	Ammonia, TKN, nitrate, nitrite	TOC	DOC	Dissolved Metals (incl Hg)	Total Metals (incl Hg)	Orthophaspahte	Total Sulphide	SAMPLES ON HOLD	EXTENDED STORAGE REQUIRED	SUSPECTED HAZARD (see notes)
	~~SW1-07 (E303730)~~			~~SW~~		R	R	R	R	R	R	R	R	R			
	SW2-07 (E303731)	25-Mar-25	14:17	SW	8	R	R	R	R	R	R	R	R	R			
	SW3-07 (E303732)	25-Mar-25	13:55	SW	8	R	R	R	R	R	R	R	R	R			
	SW5-19 (E335949)	25-Mar-25	14:05	SW	8	R	R	R	R	R	R	R	R	R			
	Seepage Weir (E335950)	25-Mar-25	13:00	SW	8	R	R	R	R	R	R	R	R	R			
	Spillway Inlet (E335951)	25-Mar-25	12:20	SW	8	R	R	R	R	R	R	R	R	R			
	Spillway Outlet (E335952)	25-Mar-25	12:15	SW	8	R	R	R	R	R	R	R	R	R			
	Outlet Ditch (E252603)	25-Mar-25	10:30	SW	8	R	R	R	R	R	R	R	R	R			
	~~Duplicate~~			~~SW~~		R	R	R	R	R	R	R	R	R			

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

Drinking Water (DW) Samples[1] (client use)	Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only)
Are samples taken from a Regulated DW System? ☐ YES ☐ NO	
Are samples for human consumption/ use? ☐ YES ☐ NO	

SAMPLE RECEIPT DETAILS (ALS use only)

Cooling Method: ☐ NONE ☐ ICE ☑ ICE PACKS ☐ FROZEN ☐ COOLING INITIATED

Submission Comments identified on Sample Receipt Notification: ☐ YES ☐ NO

Cooler Custody Seals Intact: ☐ YES ☐ N/A Sample Custody Seals Intact: ☐ YES ☐ N/A

INITIAL COOLER TEMPERATURES °C	FINAL COOLER TEMPERATURES °C
	10.1 10.8

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (ALS use only)			FINAL SHIPMENT RECEPTION (ALS use only)		
Released by:	Date: 27-3-2025	Time: 17:00	Received by:	Date:	Time:	Received by:	Date: 28/03/25	Time: 12:14

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

FEB 2022 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

CERTIFICATE OF ANALYSIS

Work Order	:	**VA25A6884**			
Client	:	**Masse Environmental Consultants Ltd.**	Laboratory	:	ALS Environmental - Vancouver
Contact	:	Ico de Zwart	Account Manager	:	Can Dang
Address	:	812 Vernon Street Nelson British Columbia Canada V1L 4G4	Address	:	8081 Lougheed Highway Burnaby BC Canada V5A 1W9
Telephone	:	----	Telephone	:	+1 604 253 4188
Project	:	2016-503-HB	Date Samples Received	:	28-Mar-2025 13:45
PO	:	----	Date Analysis Commenced	:	29-Mar-2025
C-O-C number	:	22-20250327	Issue Date	:	02-Apr-2025 15:49
Sampler	:	C.S			
Site	:	RDCK			
Quote number	:	----			
No. of samples received	:	8			
No. of samples analysed	:	8			

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Ilnaz Badbezanchi	Supervisor - Metals Prep	Metals, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia
Monica Ko	Lab Assistant	Inorganics, Burnaby, British Columbia
Owen Cheng		Metals, Burnaby, British Columbia

General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Please refer to Quality Control Interpretive report (QCI) for information regarding Holding Time compliance.

Key: CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances.
LOR: Limit of Reporting (detection limit).

Unit	*Description*
-	no units
mg/L	milligrams per litre
pH units	pH units
µS/cm	microsiemens per centimetre

<: less than.
>: greater than.
Surrogate: An analyte that is similar in behavior to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED on SRN or QCI Report, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Qualifiers

Qualifier	Description
DLA	Detection Limit adjusted for required dilution.
DLDS	Detection Limit Raised: Dilution required due to high Dissolved Solids / Electrical Conductivity.
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).

Analytical Results

Sub-Matrix: Groundwater
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	Duplicate	MW99-1(S)	MW99-1(D)	MW-05-01	MW-01-2004(S)
					Client sampling date / time	26-Mar-2025 09:50	26-Mar-2025 14:47	26-Mar-2025 15:27	26-Mar-2025 09:50	26-Mar-2025 11:15
						VA25A6884-001	VA25A6884-002	VA25A6884-003	VA25A6884-004	VA25A6884-005
						Result	Result	Result	Result	Result
Physical Tests										
Alkalinity, bicarbonate (as CaCO3)	----	E290/VA	1.0	mg/L		107	88.9	384	108	74.8
Alkalinity, carbonate (as CaCO3)	----	E290/VA	1.0	mg/L		<1.0	<1.0	4.4	<1.0	<1.0
Alkalinity, hydroxide (as CaCO3)	----	E290/VA	1.0	mg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Alkalinity, phenolphthalein (as CaCO3)	----	E290/VA	1.0	mg/L		<1.0	<1.0	2.2	<1.0	<1.0
Alkalinity, total (as CaCO3)	----	E290/VA	1.0	mg/L		107	88.9	388	108	74.8
Conductivity	----	E100/VA	2.0	µS/cm		217	255	779	211	145
Hardness (as CaCO3), dissolved	----	EC100/VA	0.50	mg/L		106	119	177	106	64.5
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/VA	0.50	mg/L		107	129	186	110	73.2
pH	----	E108/VA	0.10	pH units		7.96	7.37	8.31	7.96	7.49
Solids, total dissolved [TDS]	----	E162/VA	10	mg/L		149	190	501	147	113
Solids, total suspended [TSS]	----	E160/VA	3.0	mg/L		6.5	120	5.7	3.9	63.3
Anions and Nutrients										
Ammonia, total (as N)	7664-41-7	E298/VA	0.0050	mg/L		<0.0050	0.382	1.24	<0.0050	0.211
Bromide	24959-67-9	E235.Br-L/VA	0.050	mg/L		<0.050	<0.050	<0.250 DLDS	<0.050	<0.050
Chloride	16887-00-6	E235.Cl/VA	0.50	mg/L		<0.50	1.62	7.59	<0.50	<0.50
Fluoride	16984-48-8	E235.F/VA	0.020	mg/L		0.195	0.111	0.538	0.193	0.157
Kjeldahl nitrogen, total [TKN]	----	E318/VA	0.050	mg/L		<0.050	0.476	1.34	0.055	0.286
Nitrate (as N)	14797-55-8	E235.NO3-L/VA	0.0050	mg/L		0.0093	0.0076	0.218	0.0111	0.0376
Nitrite (as N)	14797-65-0	E235.NO2-L/VA	0.0010	mg/L		<0.0010	<0.0010	0.0210	<0.0010	<0.0010
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U/VA	0.0010	mg/L		0.0068	0.0920	0.0757	0.0068	0.0635
Sulfate (as SO4)	14808-79-8	E235.SO4/VA	0.30	mg/L		10.5	44.4	41.9	10.4	2.86

Analytical Results

Sub-Matrix: Groundwater
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	Duplicate	MW99-1(S)	MW99-1(D)	MW-05-01	MW-01-2004(S)
					Client sampling date / time	26-Mar-2025 09:50	26-Mar-2025 14:47	26-Mar-2025 15:27	26-Mar-2025 09:50	26-Mar-2025 11:15
						VA25A6884-001	VA25A6884-002	VA25A6884-003	VA25A6884-004	VA25A6884-005
						Result	Result	Result	Result	Result
Organic / Inorganic Carbon										
Carbon, total organic [TOC]	----	E355-L/VA	0.50	mg/L		1.46	3.04	1.18	1.67	2.28
Total Sulfides										
Sulfide, total (as S)	18496-25-8	E395/VA	0.0015	mg/L		0.0018	0.0022	0.0017	<0.0015	<0.0015
Sulfide, total (as H2S)	7783-06-4	E395/VA	0.0016	mg/L		0.0019	0.0023	0.0018	<0.0016	<0.0016
Total Metals										
Aluminum, total	7429-90-5	E420/VA	0.0030	mg/L		0.422	0.0248	0.0428	0.382	2.27
Antimony, total	7440-36-0	E420/VA	0.00010	mg/L		0.00010	0.00011	0.00072	<0.00010	0.00022
Arsenic, total	7440-38-2	E420/VA	0.00010	mg/L		0.00068	0.00196	0.00033	0.00065	0.00643
Barium, total	7440-39-3	E420/VA	0.00010	mg/L		0.0217	0.730	0.0757	0.0211	0.0528
Beryllium, total	7440-41-7	E420/VA	0.000020	mg/L		<0.000020	0.000052	0.000905	<0.000020	0.000098
Bismuth, total	7440-69-9	E420/VA	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000100 DLA
Boron, total	7440-42-8	E420/VA	0.010	mg/L		<0.010	0.025	0.167	<0.010	<0.020 DLA
Cadmium, total	7440-43-9	E420/VA	0.0000050	mg/L		0.0000330	0.0000247	<0.0000350 DLM	0.0000267	0.000419
Calcium, total	7440-70-2	E420/VA	0.050	mg/L		29.0	37.4	52.3	30.3	20.0
Cesium, total	7440-46-2	E420/VA	0.000010	mg/L		0.000077	0.000017	0.00448	0.000061	0.000300
Chromium, total	7440-47-3	E420/VA	0.00050	mg/L		0.00199	0.00558	0.00486	0.00195	0.00400
Cobalt, total	7440-48-4	E420/VA	0.00010	mg/L		0.00035	0.00015	0.00026	0.00031	0.00194
Copper, total	7440-50-8	E420/VA	0.00050	mg/L		0.00211	0.0270	1.03	0.00201	0.00668
Iron, total	7439-89-6	E420/VA	0.010	mg/L		0.490	43.8	0.311	0.447	3.12
Lead, total	7439-92-1	E420/VA	0.000050	mg/L		0.000491	0.000234	0.00165	0.000460	0.00398
Lithium, total	7439-93-2	E420/VA	0.0010	mg/L		0.0027	0.0190	0.222	0.0029	0.0035

Analytical Results

Sub-Matrix: Groundwater
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	Duplicate	MW99-1(S)	MW99-1(D)	MW-05-01	MW-01-2004(S)
					Client sampling date / time	26-Mar-2025 09:50	26-Mar-2025 14:47	26-Mar-2025 15:27	26-Mar-2025 09:50	26-Mar-2025 11:15
						VA25A6884-001	VA25A6884-002	VA25A6884-003	VA25A6884-004	VA25A6884-005
						Result	Result	Result	Result	Result
Total Metals										
Magnesium, total	7439-95-4	E420/VA	0.0050	mg/L		8.43	8.72	13.6	8.23	5.64
Manganese, total	7439-96-5	E420/VA	0.00010	mg/L		0.0257	0.358	0.0901	0.0229	5.74
Mercury, total	7439-97-6	E508/VA	0.0000050	mg/L		<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum, total	7439-98-7	E420/VA	0.000050	mg/L		0.000659	0.000720	0.0366	0.000665	0.00994
Nickel, total	7440-02-0	E420/VA	0.00050	mg/L		0.00097	0.00256	0.00275	0.00089	0.00455
Phosphorus, total	7723-14-0	E420/VA	0.050	mg/L		<0.050	11.9	0.142	<0.050	0.238
Potassium, total	7440-09-7	E420/VA	0.050	mg/L		1.06	1.03	4.05	1.05	1.33
Rubidium, total	7440-17-7	E420/VA	0.00020	mg/L		0.00058	0.00047	0.00864	0.00059	0.00300
Selenium, total	7782-49-2	E420/VA	0.000050	mg/L		0.000171	0.000083	<0.000050	0.000182	<0.000100 DLA
Silicon, total	7440-21-3	E420/VA	0.10	mg/L		8.90	16.1	8.76	8.91	17.1
Silver, total	7440-22-4	E420/VA	0.000010	mg/L		<0.000010	0.000011	0.000170	<0.000010	0.000082
Sodium, total	7440-23-5	E420/VA	0.050	mg/L		4.48	4.34	116	4.56	2.86
Strontium, total	7440-24-6	E420/VA	0.00020	mg/L		0.302	0.291	0.720	0.294	0.129
Sulfur, total	7704-34-9	E420/VA	0.50	mg/L		3.49	15.1	15.8	3.26	<1.00 DLA
Tellurium, total	13494-80-9	E420/VA	0.00020	mg/L		<0.00020	<0.00020	<0.00020	<0.00020	<0.00040 DLA
Thallium, total	7440-28-0	E420/VA	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	0.000021
Thorium, total	7440-29-1	E420/VA	0.00010	mg/L		0.00016	<0.00010	<0.00010	0.00013	0.00109
Tin, total	7440-31-5	E420/VA	0.00010	mg/L		0.00020	<0.00010	0.00218	<0.00010	0.00046
Titanium, total	7440-32-6	E420/VA	0.00030	mg/L		0.0170	0.00206	0.00160	0.0152	0.0638
Tungsten, total	7440-33-7	E420/VA	0.00010	mg/L		<0.00010	0.00107	0.0130	<0.00010	<0.00020 DLA
Uranium, total	7440-61-1	E420/VA	0.000010	mg/L		0.00169	0.000098	0.000604	0.00175	0.00148

Analytical Results

Sub-Matrix: Groundwater
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID: Duplicate	MW99-1(S)	MW99-1(D)	MW-05-01	MW-01-2004(S)
					Client sampling date / time: 26-Mar-2025 09:50	26-Mar-2025 14:47	26-Mar-2025 15:27	26-Mar-2025 09:50	26-Mar-2025 11:15
					VA25A6884-001	VA25A6884-002	VA25A6884-003	VA25A6884-004	VA25A6884-005
					Result	Result	Result	Result	Result
Total Metals									
Vanadium, total	7440-62-2	E420/VA	0.00050	mg/L	0.00176	0.00316	<0.00050	0.00165	0.0104
Zinc, total	7440-66-6	E420/VA	0.0030	mg/L	0.0248	0.0042	0.0296	0.0278	0.0276
Zirconium, total	7440-67-7	E420/VA	0.00020	mg/L	<0.00020	0.00024	<0.00020	<0.00020	<0.00040 DLA
Dissolved Metals									
Aluminum, dissolved	7429-90-5	E421/VA	0.0010	mg/L	0.0517	0.0032	0.0019	0.0539	0.0104
Antimony, dissolved	7440-36-0	E421/VA	0.00010	mg/L	<0.00010	<0.00010	0.00038	<0.00010	<0.00010
Arsenic, dissolved	7440-38-2	E421/VA	0.00010	mg/L	0.00043	0.00030	0.00021	0.00040	0.00096
Barium, dissolved	7440-39-3	E421/VA	0.00010	mg/L	0.0166	0.0655	0.0738	0.0163	0.00803
Beryllium, dissolved	7440-41-7	E421/VA	0.000020	mg/L	<0.000020	<0.000020	0.000051	<0.000020	<0.000020
Bismuth, dissolved	7440-69-9	E421/VA	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron, dissolved	7440-42-8	E421/VA	0.010	mg/L	<0.010	0.023	0.134	<0.010	<0.010
Cadmium, dissolved	7440-43-9	E421/VA	0.0000050	mg/L	0.0000127	<0.0000050	0.0000174	0.0000128	0.000250
Calcium, dissolved	7440-70-2	E421/VA	0.050	mg/L	29.0	33.0	47.3	28.8	18.1
Cesium, dissolved	7440-46-2	E421/VA	0.000010	mg/L	<0.000010	0.000014	0.00433	<0.000010	<0.000010
Chromium, dissolved	7440-47-3	E421/VA	0.00050	mg/L	0.00124	<0.00050	<0.00050	0.00114	<0.00050
Cobalt, dissolved	7440-48-4	E421/VA	0.00010	mg/L	<0.00010	<0.00010	0.00012	<0.00010	0.00010
Copper, dissolved	7440-50-8	E421/VA	0.00020	mg/L	0.00116	0.00044	0.438	0.00120	0.00096
Iron, dissolved	7439-89-6	E421/VA	0.010	mg/L	0.039	4.93	<0.010	0.047	0.010
Lead, dissolved	7439-92-1	E421/VA	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Lithium, dissolved	7439-93-2	E421/VA	0.0010	mg/L	0.0022	0.0177	0.199	0.0022	<0.0010
Magnesium, dissolved	7439-95-4	E421/VA	0.0050	mg/L	8.26	8.83	14.4	8.32	4.68

Analytical Results

Sub-Matrix: Groundwater
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	Duplicate	MW99-1(S)	MW99-1(D)	MW-05-01	MW-01-2004(S)
					Client sampling date / time	26-Mar-2025 09:50	26-Mar-2025 14:47	26-Mar-2025 15:27	26-Mar-2025 09:50	26-Mar-2025 11:15
						VA25A6884-001	VA25A6884-002	VA25A6884-003	VA25A6884-004	VA25A6884-005
						Result	Result	Result	Result	Result
Dissolved Metals										
Manganese, dissolved	7439-96-5	E421/VA	0.00010	mg/L		0.00138	0.268	0.0875	0.00134	3.69
Mercury, dissolved	7439-97-6	E509/VA	0.0000050	mg/L		<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum, dissolved	7439-98-7	E421/VA	0.000050	mg/L		0.000614	0.000220	0.00936	0.000643	0.00580
Nickel, dissolved	7440-02-0	E421/VA	0.00050	mg/L		<0.00050	<0.00050	0.00081	<0.00050	<0.00050
Phosphorus, dissolved	7723-14-0	E421/VA	0.050	mg/L		<0.050	0.763	0.087	<0.050	0.073
Potassium, dissolved	7440-09-7	E421/VA	0.050	mg/L		1.02	1.04	4.05	1.00	0.940
Rubidium, dissolved	7440-17-7	E421/VA	0.00020	mg/L		<0.00020	0.00044	0.00878	<0.00020	<0.00020
Selenium, dissolved	7782-49-2	E421/VA	0.000050	mg/L		0.000162	<0.000050	<0.000050	0.000143	<0.000050
Silicon, dissolved	7440-21-3	E421/VA	0.050	mg/L		8.36	15.1	8.62	8.32	12.0
Silver, dissolved	7440-22-4	E421/VA	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium, dissolved	7440-23-5	E421/VA	0.050	mg/L		4.34	4.40	116	4.25	2.55
Strontium, dissolved	7440-24-6	E421/VA	0.00020	mg/L		0.274	0.193	0.672	0.275	0.112
Sulfur, dissolved	7704-34-9	E421/VA	0.50	mg/L		3.23	13.7	15.2	3.31	0.88
Tellurium, dissolved	13494-80-9	E421/VA	0.00020	mg/L		<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Thallium, dissolved	7440-28-0	E421/VA	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Thorium, dissolved	7440-29-1	E421/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Tin, dissolved	7440-31-5	E421/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium, dissolved	7440-32-6	E421/VA	0.00030	mg/L		0.00139	<0.00030	<0.00030	0.00157	<0.00030
Tungsten, dissolved	7440-33-7	E421/VA	0.00010	mg/L		<0.00010	0.00038	0.00312	<0.00010	<0.00010
Uranium, dissolved	7440-61-1	E421/VA	0.000010	mg/L		0.00160	0.000019	0.000550	0.00158	0.000664
Vanadium, dissolved	7440-62-2	E421/VA	0.00050	mg/L		0.00054	<0.00050	<0.00050	0.00057	0.00115

Analytical Results

Sub-Matrix: Groundwater (Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID: Duplicate	MW99-1(S)	MW99-1(D)	MW-05-01	MW-01-2004(S)
					Client sampling date / time: 26-Mar-2025 09:50	26-Mar-2025 14:47	26-Mar-2025 15:27	26-Mar-2025 09:50	26-Mar-2025 11:15
					VA25A6884-001	VA25A6884-002	VA25A6884-003	VA25A6884-004	VA25A6884-005
					Result	Result	Result	Result	Result
Dissolved Metals									
Zinc, dissolved	7440-66-6	E421/VA	0.0010	mg/L	0.0016	0.0015	0.0165	0.0015	0.0068
Zirconium, dissolved	7440-67-7	E421/VA	0.00030	mg/L	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030
Dissolved mercury filtration location	----	EP509/VA	-	-	Field	Field	Field	Field	Field
Dissolved metals filtration location	----	EP421/VA	-	-	Field	Field	Field	Field	Field

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Analytical Results

Sub-Matrix: Groundwater (Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID: MW-01-2004(D)	S-MW-1	S-MW-2	----	----
					Client sampling date / time: 26-Mar-2025 11:30	26-Mar-2025 14:00	26-Mar-2025 13:11	----	----
					VA25A6884-006	VA25A6884-007	VA25A6884-008	----	----
					Result	Result	Result	----	----
Physical Tests									
Alkalinity, bicarbonate (as CaCO3)	----	E290/VA	1.0	mg/L	161	161	198	----	----
Alkalinity, carbonate (as CaCO3)	----	E290/VA	1.0	mg/L	<1.0	<1.0	<1.0	----	----
Alkalinity, hydroxide (as CaCO3)	----	E290/VA	1.0	mg/L	<1.0	<1.0	<1.0	----	----
Alkalinity, phenolphthalein (as CaCO3)	----	E290/VA	1.0	mg/L	<1.0	<1.0	<1.0	----	----
Alkalinity, total (as CaCO3)	----	E290/VA	1.0	mg/L	161	161	198	----	----
Conductivity	----	E100/VA	2.0	µS/cm	478	309	487	----	----
Hardness (as CaCO3), dissolved	----	EC100/VA	0.50	mg/L	222	166	240	----	----
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/VA	0.50	mg/L	223	168	257	----	----
pH	----	E108/VA	0.10	pH units	8.22	8.29	6.69	----	----
Solids, total dissolved [TDS]	----	E162/VA	10	mg/L	335	194	348	----	----

Analytical Results

Sub-Matrix: Groundwater
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MW-01-2004(D)	S-MW-1	S-MW-2	----	----
					Client sampling date / time	26-Mar-2025 11:30	26-Mar-2025 14:00	26-Mar-2025 13:11	----	----
						VA25A6884-006	VA25A6884-007	VA25A6884-008	----	----
						Result	Result	Result	----	----
Physical Tests										
Solids, total suspended [TSS]	----	E160/VA	3.0	mg/L		<3.0	3.1	78.9	----	----
Anions and Nutrients										
Ammonia, total (as N)	7664-41-7	E298/VA	0.0050	mg/L		<0.0050	<0.0050	0.0050	----	----
Bromide	24959-67-9	E235.Br-L/VA	0.050	mg/L		<0.050	<0.050	<0.050	----	----
Chloride	16887-00-6	E235.Cl/VA	0.50	mg/L		2.74	0.57	7.29	----	----
Fluoride	16984-48-8	E235.F/VA	0.020	mg/L		0.210	0.094	0.038	----	----
Kjeldahl nitrogen, total [TKN]	----	E318/VA	0.050	mg/L		<0.050	<0.050	0.617	----	----
Nitrate (as N)	14797-55-8	E235.NO3-L/VA	0.0050	mg/L		0.106	<0.0050	4.91	----	----
Nitrite (as N)	14797-65-0	E235.NO2-L/VA	0.0010	mg/L		<0.0010	<0.0010	<0.0010	----	----
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U/VA	0.0010	mg/L		0.0316	<0.0010	0.0217	----	----
Sulfate (as SO4)	14808-79-8	E235.SO4/VA	0.30	mg/L		95.4	13.0	36.8	----	----
Organic / Inorganic Carbon										
Carbon, total organic [TOC]	----	E355-L/VA	0.50	mg/L		0.79	<0.50	8.10	----	----
Total Sulfides										
Sulfide, total (as S)	18496-25-8	E395/VA	0.0015	mg/L		<0.0015	<0.0015	0.0021	----	----
Sulfide, total (as H2S)	7783-06-4	E395/VA	0.0016	mg/L		<0.0016	<0.0016	0.0022	----	----
Total Metals										
Aluminum, total	7429-90-5	E420/VA	0.0030	mg/L		0.0167	0.112	1.35	----	----
Antimony, total	7440-36-0	E420/VA	0.00010	mg/L		<0.00010	<0.00010	0.00045	----	----
Arsenic, total	7440-38-2	E420/VA	0.00010	mg/L		0.00113	0.00027	0.00658	----	----
Barium, total	7440-39-3	E420/VA	0.00010	mg/L		0.142	0.0213	0.187	----	----

Analytical Results

Sub-Matrix: Groundwater
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MW-01-2004(D)	S-MW-1	S-MW-2	----	----
					Client sampling date / time	26-Mar-2025 11:30	26-Mar-2025 14:00	26-Mar-2025 13:11	----	----
						VA25A6884-006	VA25A6884-007	VA25A6884-008	----	----
						Result	Result	Result	----	----
Total Metals										
Beryllium, total	7440-41-7	E420/VA	0.000020	mg/L		<0.000020	<0.000020	0.000127	----	----
Bismuth, total	7440-69-9	E420/VA	0.000050	mg/L		<0.000050	<0.000050	<0.000050	----	----
Boron, total	7440-42-8	E420/VA	0.010	mg/L		<0.010	<0.010	0.125	----	----
Cadmium, total	7440-43-9	E420/VA	0.0000050	mg/L		0.0000106	0.0000068	0.00133	----	----
Calcium, total	7440-70-2	E420/VA	0.050	mg/L		66.0	44.7	74.7	----	----
Cesium, total	7440-46-2	E420/VA	0.000010	mg/L		0.000479	0.000408	0.000200	----	----
Chromium, total	7440-47-3	E420/VA	0.00050	mg/L		<0.00050	<0.00050	0.0181	----	----
Cobalt, total	7440-48-4	E420/VA	0.00010	mg/L		<0.00010	0.00016	0.00308	----	----
Copper, total	7440-50-8	E420/VA	0.00050	mg/L		0.00056	<0.00050	0.00963	----	----
Iron, total	7439-89-6	E420/VA	0.010	mg/L		0.145	0.177	4.37	----	----
Lead, total	7439-92-1	E420/VA	0.000050	mg/L		0.000435	0.000161	0.00324	----	----
Lithium, total	7439-93-2	E420/VA	0.0010	mg/L		0.0211	0.0050	0.0031	----	----
Magnesium, total	7439-95-4	E420/VA	0.0050	mg/L		14.2	13.8	17.1	----	----
Manganese, total	7439-96-5	E420/VA	0.00010	mg/L		0.0284	0.122	1.09	----	----
Mercury, total	7439-97-6	E508/VA	0.0000050	mg/L		<0.0000050	<0.0000050	0.0000242	----	----
Molybdenum, total	7439-98-7	E420/VA	0.000050	mg/L		0.00188	0.00259	0.00113	----	----
Nickel, total	7440-02-0	E420/VA	0.00050	mg/L		<0.00050	<0.00050	0.0163	----	----
Phosphorus, total	7723-14-0	E420/VA	0.050	mg/L		0.079	<0.050	0.249	----	----
Potassium, total	7440-09-7	E420/VA	0.050	mg/L		2.30	1.10	5.01	----	----
Rubidium, total	7440-17-7	E420/VA	0.00020	mg/L		0.00152	0.00165	0.00195	----	----
Selenium, total	7782-49-2	E420/VA	0.000050	mg/L		<0.000050	0.000127	0.000150	----	----

Analytical Results

Sub-Matrix: Groundwater
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MW-01-2004(D)	S-MW-1	S-MW-2	----	----
					Client sampling date / time	26-Mar-2025 11:30	26-Mar-2025 14:00	26-Mar-2025 13:11	----	----
						VA25A6884-006	VA25A6884-007	VA25A6884-008	----	----
						Result	Result	Result	----	----
Total Metals										
Silicon, total	7440-21-3	E420/VA	0.10	mg/L		9.96	6.98	11.6	----	----
Silver, total	7440-22-4	E420/VA	0.000010	mg/L		<0.000010	<0.000010	0.000092	----	----
Sodium, total	7440-23-5	E420/VA	0.050	mg/L		15.4	3.14	8.26	----	----
Strontium, total	7440-24-6	E420/VA	0.00020	mg/L		0.377	0.284	0.484	----	----
Sulfur, total	7704-34-9	E420/VA	0.50	mg/L		33.5	4.59	13.2	----	----
Tellurium, total	13494-80-9	E420/VA	0.00020	mg/L		<0.00020	<0.00020	<0.00020	----	----
Thallium, total	7440-28-0	E420/VA	0.000010	mg/L		<0.000010	<0.000010	0.000053	----	----
Thorium, total	7440-29-1	E420/VA	0.00010	mg/L		<0.00010	<0.00010	0.00065	----	----
Tin, total	7440-31-5	E420/VA	0.00010	mg/L		0.00056	0.00043	0.00023	----	----
Titanium, total	7440-32-6	E420/VA	0.00030	mg/L		0.00098	0.00415	0.0429	----	----
Tungsten, total	7440-33-7	E420/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	----	----
Uranium, total	7440-61-1	E420/VA	0.000010	mg/L		0.00242	0.00961	0.00267	----	----
Vanadium, total	7440-62-2	E420/VA	0.00050	mg/L		<0.00050	0.00055	0.0110	----	----
Zinc, total	7440-66-6	E420/VA	0.0030	mg/L		0.0083	0.0048	0.0171	----	----
Zirconium, total	7440-67-7	E420/VA	0.00020	mg/L		<0.00020	<0.00020	0.00093	----	----
Dissolved Metals										
Aluminum, dissolved	7429-90-5	E421/VA	0.0010	mg/L		0.0016	0.0010	0.0016	----	----
Antimony, dissolved	7440-36-0	E421/VA	0.00010	mg/L		<0.00010	<0.00010	0.00019	----	----
Arsenic, dissolved	7440-38-2	E421/VA	0.00010	mg/L		0.00092	0.00015	0.00077	----	----
Barium, dissolved	7440-39-3	E421/VA	0.00010	mg/L		0.141	0.0179	0.132	----	----
Beryllium, dissolved	7440-41-7	E421/VA	0.000020	mg/L		<0.000020	<0.000020	<0.000020	----	----

Analytical Results

Sub-Matrix: Groundwater
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MW-01-2004(D)	S-MW-1	S-MW-2	----	----
					Client sampling date / time	26-Mar-2025 11:30	26-Mar-2025 14:00	26-Mar-2025 13:11	----	----
						VA25A6884-006	VA25A6884-007	VA25A6884-008	----	----
						Result	Result	Result	----	----
Dissolved Metals										
Bismuth, dissolved	7440-69-9	E421/VA	0.000050	mg/L		<0.000050	<0.000050	<0.000050	----	----
Boron, dissolved	7440-42-8	E421/VA	0.010	mg/L		<0.010	<0.010	0.101	----	----
Cadmium, dissolved	7440-43-9	E421/VA	0.0000050	mg/L		<0.0000050	<0.0000050	0.000204	----	----
Calcium, dissolved	7440-70-2	E421/VA	0.050	mg/L		64.9	43.0	68.7	----	----
Cesium, dissolved	7440-46-2	E421/VA	0.000010	mg/L		0.000457	0.000353	<0.000010	----	----
Chromium, dissolved	7440-47-3	E421/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	----	----
Cobalt, dissolved	7440-48-4	E421/VA	0.00010	mg/L		<0.00010	<0.00010	0.00012	----	----
Copper, dissolved	7440-50-8	E421/VA	0.00020	mg/L		0.00028	<0.00020	0.00194	----	----
Iron, dissolved	7439-89-6	E421/VA	0.010	mg/L		<0.010	<0.010	<0.010	----	----
Lead, dissolved	7439-92-1	E421/VA	0.000050	mg/L		<0.000050	<0.000050	<0.000050	----	----
Lithium, dissolved	7439-93-2	E421/VA	0.0010	mg/L		0.0198	0.0045	<0.0010	----	----
Magnesium, dissolved	7439-95-4	E421/VA	0.0050	mg/L		14.6	14.3	16.6	----	----
Manganese, dissolved	7439-96-5	E421/VA	0.00010	mg/L		0.00218	0.0158	0.00373	----	----
Mercury, dissolved	7439-97-6	E509/VA	0.0000050	mg/L		<0.0000050	<0.0000050	<0.0000050	----	----
Molybdenum, dissolved	7439-98-7	E421/VA	0.000050	mg/L		0.00183	0.00251	0.000184	----	----
Nickel, dissolved	7440-02-0	E421/VA	0.00050	mg/L		<0.00050	<0.00050	0.00193	----	----
Phosphorus, dissolved	7723-14-0	E421/VA	0.050	mg/L		<0.050	<0.050	<0.050	----	----
Potassium, dissolved	7440-09-7	E421/VA	0.050	mg/L		2.38	1.15	4.70	----	----
Rubidium, dissolved	7440-17-7	E421/VA	0.00020	mg/L		0.00142	0.00153	<0.00020	----	----
Selenium, dissolved	7782-49-2	E421/VA	0.000050	mg/L		<0.000050	0.000110	0.000107	----	----
Silicon, dissolved	7440-21-3	E421/VA	0.050	mg/L		10.2	6.89	9.38	----	----

Analytical Results

Sub-Matrix: Groundwater
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	MW-01-2004(D)	S-MW-1	S-MW-2	----	----
Client sample ID									
Client sampling date / time					26-Mar-2025 11:30	26-Mar-2025 14:00	26-Mar-2025 13:11	----	----
					VA25A6884-006	VA25A6884-007	VA25A6884-008	----	----
					Result	Result	Result	----	----
Dissolved Metals									
Silver, dissolved	7440-22-4	E421/VA	0.000010	mg/L	<0.000010	<0.000010	<0.000010	----	----
Sodium, dissolved	7440-23-5	E421/VA	0.050	mg/L	14.7	3.17	8.33	----	----
Strontium, dissolved	7440-24-6	E421/VA	0.00020	mg/L	0.332	0.273	0.434	----	----
Sulfur, dissolved	7704-34-9	E421/VA	0.50	mg/L	32.3	4.36	12.7	----	----
Tellurium, dissolved	13494-80-9	E421/VA	0.00020	mg/L	<0.00020	<0.00020	<0.00020	----	----
Thallium, dissolved	7440-28-0	E421/VA	0.000010	mg/L	<0.000010	<0.000010	<0.000010	----	----
Thorium, dissolved	7440-29-1	E421/VA	0.00010	mg/L	<0.00010	<0.00010	<0.00010	----	----
Tin, dissolved	7440-31-5	E421/VA	0.00010	mg/L	<0.00010	0.00018	<0.00010	----	----
Titanium, dissolved	7440-32-6	E421/VA	0.00030	mg/L	<0.00030	<0.00030	<0.00030	----	----
Tungsten, dissolved	7440-33-7	E421/VA	0.00010	mg/L	<0.00010	<0.00010	<0.00010	----	----
Uranium, dissolved	7440-61-1	E421/VA	0.000010	mg/L	0.00221	0.00892	0.00184	----	----
Vanadium, dissolved	7440-62-2	E421/VA	0.00050	mg/L	<0.00050	<0.00050	0.00364	----	----
Zinc, dissolved	7440-66-6	E421/VA	0.0010	mg/L	0.0047	0.0036	0.0027	----	----
Zirconium, dissolved	7440-67-7	E421/VA	0.00030	mg/L	<0.00030	<0.00030	<0.00030	----	----
Dissolved mercury filtration location	----	EP509/VA	-	-	Field	Field	Field	----	----
Dissolved metals filtration location	----	EP421/VA	-	-	Field	Field	Field	----	----

Please refer to the General Comments section for an explanation of any result qualifiers detected.

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QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **VA25A6884**	Page	: 1 of 27
Client	: **Masse Environmental Consultants Ltd.**	Laboratory	: ALS Environmental - Vancouver
Contact	: Ico de Zwart	Account Manager	: Can Dang
Address	: 812 Vernon Street Nelson BC Canada V1L 4G4	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: ----	Telephone	: +1 604 253 4188
Project	: 2016-503-HB	Date Samples Received	: 28-Mar-2025 13:45
PO	: ----	Issue Date	: 02-Apr-2025 15:49
C-O-C number	: 22-20250327		
Sampler	: C.S		
Site	: RDCK		
Quote number	: ----		
No. of samples received	: 8		
No. of samples analysed	: 8		

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Key

Anonymous: Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number: Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO: Data Quality Objective.
LOR: Limit of Reporting (detection limit).
RPD: Relative Percent Difference.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Summary of Outliers

Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- No Duplicate outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- No Matrix Spike outliers occur.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- Analysis Holding Time Outliers exist - please see following pages for full details.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) Duplicate	E298	26-Mar-2025	29-Mar-2025	28 days	3 days	✓	01-Apr-2025	28 days	6 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) MW-01-2004(D)	E298	26-Mar-2025	29-Mar-2025	28 days	3 days	✓	01-Apr-2025	28 days	6 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) MW-01-2004(S)	E298	26-Mar-2025	29-Mar-2025	28 days	3 days	✓	01-Apr-2025	28 days	6 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) MW99-1(S)	E298	26-Mar-2025	29-Mar-2025	28 days	3 days	✓	01-Apr-2025	28 days	6 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) S-MW-1	E298	26-Mar-2025	29-Mar-2025	28 days	3 days	✓	01-Apr-2025	28 days	6 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) S-MW-2	E298	26-Mar-2025	29-Mar-2025	28 days	3 days	✓	01-Apr-2025	28 days	6 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) MW-05-01	E298	26-Mar-2025	29-Mar-2025	28 days	3 days	✓	02-Apr-2025	28 days	7 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) MW99-1(D)	E298	26-Mar-2025	29-Mar-2025	28 days	3 days	✓	02-Apr-2025	28 days	7 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE MW99-1(D)	E235.Br-L	26-Mar-2025	29-Mar-2025	28 days	2 days	✓	29-Mar-2025	28 days	2 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE MW99-1(S)	E235.Br-L	26-Mar-2025	29-Mar-2025	28 days	2 days	✓	29-Mar-2025	28 days	2 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE S-MW-1	E235.Br-L	26-Mar-2025	29-Mar-2025	28 days	2 days	✓	29-Mar-2025	28 days	2 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE Duplicate	E235.Br-L	26-Mar-2025	29-Mar-2025	28 days	3 days	✓	29-Mar-2025	28 days	3 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE MW-01-2004(D)	E235.Br-L	26-Mar-2025	29-Mar-2025	28 days	3 days	✓	29-Mar-2025	28 days	3 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE MW-01-2004(S)	E235.Br-L	26-Mar-2025	29-Mar-2025	28 days	3 days	✓	29-Mar-2025	28 days	3 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE MW-05-01	E235.Br-L	26-Mar-2025	29-Mar-2025	28 days	3 days	✓	29-Mar-2025	28 days	3 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE S-MW-2	E235.Br-L	26-Mar-2025	29-Mar-2025	28 days	3 days	✓	29-Mar-2025	28 days	3 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Chloride in Water by IC										
HDPE MW99-1(D)	E235.Cl	26-Mar-2025	29-Mar-2025	28 days	2 days	✓	29-Mar-2025	28 days	2 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE MW99-1(S)	E235.Cl	26-Mar-2025	29-Mar-2025	28 days	2 days	✓	29-Mar-2025	28 days	2 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE S-MW-1	E235.Cl	26-Mar-2025	29-Mar-2025	28 days	2 days	✓	29-Mar-2025	28 days	2 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE Duplicate	E235.Cl	26-Mar-2025	29-Mar-2025	28 days	3 days	✓	29-Mar-2025	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE MW-01-2004(D)	E235.Cl	26-Mar-2025	29-Mar-2025	28 days	3 days	✓	29-Mar-2025	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE MW-01-2004(S)	E235.Cl	26-Mar-2025	29-Mar-2025	28 days	3 days	✓	29-Mar-2025	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE MW-05-01	E235.Cl	26-Mar-2025	29-Mar-2025	28 days	3 days	✓	29-Mar-2025	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE S-MW-2	E235.Cl	26-Mar-2025	29-Mar-2025	28 days	3 days	✓	29-Mar-2025	28 days	3 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE MW99-1(D)	E378-U	26-Mar-2025	29-Mar-2025	3 days	2 days	✓	29-Mar-2025	3 days	3 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE MW99-1(S)	E378-U	26-Mar-2025	29-Mar-2025	3 days	2 days	✓	29-Mar-2025	3 days	3 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE S-MW-1	E378-U	26-Mar-2025	29-Mar-2025	3 days	2 days	✓	29-Mar-2025	3 days	3 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE Duplicate	E378-U	26-Mar-2025	29-Mar-2025	3 days	3 days	✓	29-Mar-2025	3 days	3 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE MW-01-2004(D)	E378-U	26-Mar-2025	29-Mar-2025	3 days	3 days	✓	29-Mar-2025	3 days	3 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE MW-01-2004(S)	E378-U	26-Mar-2025	29-Mar-2025	3 days	3 days	✓	29-Mar-2025	3 days	3 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE MW-05-01	E378-U	26-Mar-2025	29-Mar-2025	3 days	3 days	✓	29-Mar-2025	3 days	3 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE S-MW-2	E378-U	26-Mar-2025	29-Mar-2025	3 days	3 days	✓	29-Mar-2025	3 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE MW99-1(D)	E235.F	26-Mar-2025	29-Mar-2025	28 days	2 days	✓	29-Mar-2025	28 days	2 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE MW99-1(S)	E235.F	26-Mar-2025	29-Mar-2025	28 days	2 days	✓	29-Mar-2025	28 days	2 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Fluoride in Water by IC										
HDPE S-MW-1	E235.F	26-Mar-2025	29-Mar-2025	28 days	2 days	✓	29-Mar-2025	28 days	2 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE Duplicate	E235.F	26-Mar-2025	29-Mar-2025	28 days	3 days	✓	29-Mar-2025	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE MW-01-2004(D)	E235.F	26-Mar-2025	29-Mar-2025	28 days	3 days	✓	29-Mar-2025	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE MW-01-2004(S)	E235.F	26-Mar-2025	29-Mar-2025	28 days	3 days	✓	29-Mar-2025	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE MW-05-01	E235.F	26-Mar-2025	29-Mar-2025	28 days	3 days	✓	29-Mar-2025	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE S-MW-2	E235.F	26-Mar-2025	29-Mar-2025	28 days	3 days	✓	29-Mar-2025	28 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE MW99-1(D)	E235.NO3-L	26-Mar-2025	29-Mar-2025	3 days	2 days	✓	29-Mar-2025	3 days	2 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE MW99-1(S)	E235.NO3-L	26-Mar-2025	29-Mar-2025	3 days	2 days	✓	29-Mar-2025	3 days	2 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE S-MW-1	E235.NO3-L	26-Mar-2025	29-Mar-2025	3 days	2 days	✓	29-Mar-2025	3 days	2 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE Duplicate	E235.NO3-L	26-Mar-2025	29-Mar-2025	3 days	3 days	✓	29-Mar-2025	3 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE MW-01-2004(D)	E235.NO3-L	26-Mar-2025	29-Mar-2025	3 days	3 days	✓	29-Mar-2025	3 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE MW-01-2004(S)	E235.NO3-L	26-Mar-2025	29-Mar-2025	3 days	3 days	✓	29-Mar-2025	3 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE MW-05-01	E235.NO3-L	26-Mar-2025	29-Mar-2025	3 days	3 days	✓	29-Mar-2025	3 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE S-MW-2	E235.NO3-L	26-Mar-2025	29-Mar-2025	3 days	3 days	✓	29-Mar-2025	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE MW99-1(D)	E235.NO2-L	26-Mar-2025	29-Mar-2025	3 days	2 days	✓	29-Mar-2025	3 days	2 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE MW99-1(S)	E235.NO2-L	26-Mar-2025	29-Mar-2025	3 days	2 days	✓	29-Mar-2025	3 days	2 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE S-MW-1	E235.NO2-L	26-Mar-2025	29-Mar-2025	3 days	2 days	✓	29-Mar-2025	3 days	2 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE Duplicate	E235.NO2-L	26-Mar-2025	29-Mar-2025	3 days	3 days	✓	29-Mar-2025	3 days	3 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
MW-01-2004(D)	E235.NO2-L	26-Mar-2025	29-Mar-2025	3 days	3 days	✓	29-Mar-2025	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
MW-01-2004(S)	E235.NO2-L	26-Mar-2025	29-Mar-2025	3 days	3 days	✓	29-Mar-2025	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
MW-05-01	E235.NO2-L	26-Mar-2025	29-Mar-2025	3 days	3 days	✓	29-Mar-2025	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
S-MW-2	E235.NO2-L	26-Mar-2025	29-Mar-2025	3 days	3 days	✓	29-Mar-2025	3 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
MW99-1(D)	E235.SO4	26-Mar-2025	29-Mar-2025	28 days	2 days	✓	29-Mar-2025	28 days	2 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
MW99-1(S)	E235.SO4	26-Mar-2025	29-Mar-2025	28 days	2 days	✓	29-Mar-2025	28 days	2 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
S-MW-1	E235.SO4	26-Mar-2025	29-Mar-2025	28 days	2 days	✓	29-Mar-2025	28 days	2 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
Duplicate	E235.SO4	26-Mar-2025	29-Mar-2025	28 days	3 days	✓	29-Mar-2025	28 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
MW-01-2004(D)	E235.SO4	26-Mar-2025	29-Mar-2025	28 days	3 days	✓	29-Mar-2025	28 days	3 days	✓

Matrix: **Water**

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Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
MW-01-2004(S)	E235.SO4	26-Mar-2025	29-Mar-2025	28 days	3 days	✓	29-Mar-2025	28 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
MW-05-01	E235.SO4	26-Mar-2025	29-Mar-2025	28 days	3 days	✓	29-Mar-2025	28 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
S-MW-2	E235.SO4	26-Mar-2025	29-Mar-2025	28 days	3 days	✓	29-Mar-2025	28 days	3 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid)										
Duplicate	E318	26-Mar-2025	29-Mar-2025	28 days	3 days	✓	01-Apr-2025	28 days	6 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid)										
MW-01-2004(D)	E318	26-Mar-2025	29-Mar-2025	28 days	3 days	✓	01-Apr-2025	28 days	6 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid)										
MW-01-2004(S)	E318	26-Mar-2025	29-Mar-2025	28 days	3 days	✓	01-Apr-2025	28 days	6 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid)										
MW-05-01	E318	26-Mar-2025	29-Mar-2025	28 days	3 days	✓	01-Apr-2025	28 days	6 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid)										
MW99-1(D)	E318	26-Mar-2025	29-Mar-2025	28 days	3 days	✓	01-Apr-2025	28 days	6 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid)										
MW99-1(S)	E318	26-Mar-2025	29-Mar-2025	28 days	3 days	✓	01-Apr-2025	28 days	6 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid)										
S-MW-1	E318	26-Mar-2025	29-Mar-2025	28 days	3 days	✓	01-Apr-2025	28 days	6 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid)										
S-MW-2	E318	26-Mar-2025	29-Mar-2025	28 days	3 days	✓	01-Apr-2025	28 days	6 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
MW99-1(D)	E509	26-Mar-2025	02-Apr-2025	28 days	6 days	✓	02-Apr-2025	28 days	6 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
MW99-1(S)	E509	26-Mar-2025	02-Apr-2025	28 days	6 days	✓	02-Apr-2025	28 days	6 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
S-MW-1	E509	26-Mar-2025	02-Apr-2025	28 days	6 days	✓	02-Apr-2025	28 days	6 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
S-MW-2	E509	26-Mar-2025	02-Apr-2025	28 days	6 days	✓	02-Apr-2025	28 days	6 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
Duplicate	E509	26-Mar-2025	02-Apr-2025	28 days	7 days	✓	02-Apr-2025	28 days	7 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
MW-01-2004(D)	E509	26-Mar-2025	02-Apr-2025	28 days	7 days	✓	02-Apr-2025	28 days	7 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
MW-01-2004(S)	E509	26-Mar-2025	02-Apr-2025	28 days	7 days	✓	02-Apr-2025	28 days	7 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved) MW-05-01	E509	26-Mar-2025	02-Apr-2025	28 days	7 days	✓	02-Apr-2025	28 days	7 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) Duplicate	E421	26-Mar-2025	31-Mar-2025	180 days	5 days	✓	01-Apr-2025	180 days	6 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) MW-01-2004(D)	E421	26-Mar-2025	31-Mar-2025	180 days	5 days	✓	01-Apr-2025	180 days	6 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) MW-01-2004(S)	E421	26-Mar-2025	31-Mar-2025	180 days	5 days	✓	01-Apr-2025	180 days	6 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) MW-05-01	E421	26-Mar-2025	31-Mar-2025	180 days	5 days	✓	01-Apr-2025	180 days	6 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) MW99-1(D)	E421	26-Mar-2025	31-Mar-2025	180 days	5 days	✓	01-Apr-2025	180 days	6 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) MW99-1(S)	E421	26-Mar-2025	31-Mar-2025	180 days	5 days	✓	01-Apr-2025	180 days	6 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) S-MW-1	E421	26-Mar-2025	31-Mar-2025	180 days	5 days	✓	01-Apr-2025	180 days	6 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) S-MW-2	E421	26-Mar-2025	31-Mar-2025	180 days	5 days	✓	01-Apr-2025	180 days	6 days	✓

Matrix: **Water**

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Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
Duplicate	E355-L	26-Mar-2025	29-Mar-2025	28 days	3 days	✓	29-Mar-2025	28 days	3 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
MW-01-2004(D)	E355-L	26-Mar-2025	29-Mar-2025	28 days	3 days	✓	29-Mar-2025	28 days	3 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
MW-01-2004(S)	E355-L	26-Mar-2025	29-Mar-2025	28 days	3 days	✓	29-Mar-2025	28 days	3 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
MW-05-01	E355-L	26-Mar-2025	29-Mar-2025	28 days	3 days	✓	29-Mar-2025	28 days	3 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
MW99-1(D)	E355-L	26-Mar-2025	29-Mar-2025	28 days	3 days	✓	29-Mar-2025	28 days	3 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
MW99-1(S)	E355-L	26-Mar-2025	29-Mar-2025	28 days	3 days	✓	29-Mar-2025	28 days	3 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
S-MW-1	E355-L	26-Mar-2025	29-Mar-2025	28 days	3 days	✓	29-Mar-2025	28 days	3 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
S-MW-2	E355-L	26-Mar-2025	29-Mar-2025	28 days	3 days	✓	29-Mar-2025	28 days	3 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
MW99-1(D)	E290	26-Mar-2025	29-Mar-2025	14 days	2 days	✓	29-Mar-2025	14 days	3 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Alkalinity Species by Titration										
HDPE MW99-1(S)	E290	26-Mar-2025	29-Mar-2025	14 days	2 days	✓	29-Mar-2025	14 days	3 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE S-MW-1	E290	26-Mar-2025	29-Mar-2025	14 days	2 days	✓	29-Mar-2025	14 days	3 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE Duplicate	E290	26-Mar-2025	29-Mar-2025	14 days	3 days	✓	29-Mar-2025	14 days	3 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE MW-01-2004(D)	E290	26-Mar-2025	29-Mar-2025	14 days	3 days	✓	29-Mar-2025	14 days	3 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE MW-01-2004(S)	E290	26-Mar-2025	29-Mar-2025	14 days	3 days	✓	29-Mar-2025	14 days	3 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE MW-05-01	E290	26-Mar-2025	29-Mar-2025	14 days	3 days	✓	29-Mar-2025	14 days	3 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE S-MW-2	E290	26-Mar-2025	29-Mar-2025	14 days	3 days	✓	29-Mar-2025	14 days	3 days	✓
Physical Tests : Conductivity in Water										
HDPE MW99-1(D)	E100	26-Mar-2025	29-Mar-2025	28 days	2 days	✓	29-Mar-2025	28 days	3 days	✓
Physical Tests : Conductivity in Water										
HDPE MW99-1(S)	E100	26-Mar-2025	29-Mar-2025	28 days	2 days	✓	29-Mar-2025	28 days	3 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Conductivity in Water										
HDPE S-MW-1	E100	26-Mar-2025	29-Mar-2025	28 days	2 days	✓	29-Mar-2025	28 days	3 days	✓
Physical Tests : Conductivity in Water										
HDPE Duplicate	E100	26-Mar-2025	29-Mar-2025	28 days	3 days	✓	29-Mar-2025	28 days	3 days	✓
Physical Tests : Conductivity in Water										
HDPE MW-01-2004(D)	E100	26-Mar-2025	29-Mar-2025	28 days	3 days	✓	29-Mar-2025	28 days	3 days	✓
Physical Tests : Conductivity in Water										
HDPE MW-01-2004(S)	E100	26-Mar-2025	29-Mar-2025	28 days	3 days	✓	29-Mar-2025	28 days	3 days	✓
Physical Tests : Conductivity in Water										
HDPE MW-05-01	E100	26-Mar-2025	29-Mar-2025	28 days	3 days	✓	29-Mar-2025	28 days	3 days	✓
Physical Tests : Conductivity in Water										
HDPE S-MW-2	E100	26-Mar-2025	29-Mar-2025	28 days	3 days	✓	29-Mar-2025	28 days	3 days	✓
Physical Tests : pH by Meter										
HDPE MW99-1(D)	E108	26-Mar-2025	29-Mar-2025	0.25 hrs	58 hrs	× EHTR-FM	29-Mar-2025	0.25 hrs	65 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE MW99-1(S)	E108	26-Mar-2025	29-Mar-2025	0.25 hrs	58 hrs	× EHTR-FM	29-Mar-2025	0.25 hrs	66 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE S-MW-1	E108	26-Mar-2025	29-Mar-2025	0.25 hrs	59 hrs	× EHTR-FM	29-Mar-2025	0.25 hrs	67 hrs	× EHTR-FM

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : pH by Meter										
HDPE S-MW-2	E108	26-Mar-2025	29-Mar-2025	0.25 hrs	60 hrs	× EHTR-FM	29-Mar-2025	0.25 hrs	67 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE MW-01-2004(D)	E108	26-Mar-2025	29-Mar-2025	0.25 hrs	61 hrs	× EHTR-FM	29-Mar-2025	0.25 hrs	69 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE MW-01-2004(S)	E108	26-Mar-2025	29-Mar-2025	0.25 hrs	62 hrs	× EHTR-FM	29-Mar-2025	0.25 hrs	69 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE Duplicate	E108	26-Mar-2025	29-Mar-2025	0.25 hrs	63 hrs	× EHTR-FM	29-Mar-2025	0.25 hrs	71 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE MW-05-01	E108	26-Mar-2025	29-Mar-2025	0.25 hrs	63 hrs	× EHTR-FM	29-Mar-2025	0.25 hrs	71 hrs	× EHTR-FM
Physical Tests : TDS by Gravimetry										
HDPE Duplicate	E162	26-Mar-2025	----	----	----		01-Apr-2025	7 days	6 days	✓
Physical Tests : TDS by Gravimetry										
HDPE MW-01-2004(D)	E162	26-Mar-2025	----	----	----		01-Apr-2025	7 days	6 days	✓
Physical Tests : TDS by Gravimetry										
HDPE MW-01-2004(S)	E162	26-Mar-2025	----	----	----		01-Apr-2025	7 days	6 days	✓
Physical Tests : TDS by Gravimetry										
HDPE MW-05-01	E162	26-Mar-2025	----	----	----		01-Apr-2025	7 days	6 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : TDS by Gravimetry										
HDPE MW99-1(D)	E162	26-Mar-2025	----	----	----		01-Apr-2025	7 days	6 days	✓
Physical Tests : TDS by Gravimetry										
HDPE MW99-1(S)	E162	26-Mar-2025	----	----	----		01-Apr-2025	7 days	6 days	✓
Physical Tests : TDS by Gravimetry										
HDPE S-MW-1	E162	26-Mar-2025	----	----	----		01-Apr-2025	7 days	6 days	✓
Physical Tests : TDS by Gravimetry										
HDPE S-MW-2	E162	26-Mar-2025	----	----	----		01-Apr-2025	7 days	6 days	✓
Physical Tests : TSS by Gravimetry										
HDPE Duplicate	E160	26-Mar-2025	----	----	----		01-Apr-2025	7 days	6 days	✓
Physical Tests : TSS by Gravimetry										
HDPE MW-01-2004(D)	E160	26-Mar-2025	----	----	----		01-Apr-2025	7 days	6 days	✓
Physical Tests : TSS by Gravimetry										
HDPE MW-01-2004(S)	E160	26-Mar-2025	----	----	----		01-Apr-2025	7 days	6 days	✓
Physical Tests : TSS by Gravimetry										
HDPE MW-05-01	E160	26-Mar-2025	----	----	----		01-Apr-2025	7 days	6 days	✓
Physical Tests : TSS by Gravimetry										
HDPE MW99-1(D)	E160	26-Mar-2025	----	----	----		01-Apr-2025	7 days	6 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : TSS by Gravimetry										
HDPE										
MW99-1(S)	E160	26-Mar-2025	----	----	----		01-Apr-2025	7 days	6 days	✓
Physical Tests : TSS by Gravimetry										
HDPE										
S-MW-1	E160	26-Mar-2025	----	----	----		01-Apr-2025	7 days	6 days	✓
Physical Tests : TSS by Gravimetry										
HDPE										
S-MW-2	E160	26-Mar-2025	----	----	----		01-Apr-2025	7 days	6 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved)										
Duplicate	E508	26-Mar-2025	02-Apr-2025	28 days	7 days	✓	02-Apr-2025	28 days	7 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved)										
MW-01-2004(D)	E508	26-Mar-2025	02-Apr-2025	28 days	7 days	✓	02-Apr-2025	28 days	7 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved)										
MW-01-2004(S)	E508	26-Mar-2025	02-Apr-2025	28 days	7 days	✓	02-Apr-2025	28 days	7 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved)										
MW-05-01	E508	26-Mar-2025	02-Apr-2025	28 days	7 days	✓	02-Apr-2025	28 days	7 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved)										
MW99-1(D)	E508	26-Mar-2025	02-Apr-2025	28 days	7 days	✓	02-Apr-2025	28 days	7 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved)										
MW99-1(S)	E508	26-Mar-2025	02-Apr-2025	28 days	7 days	✓	02-Apr-2025	28 days	7 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved) S-MW-1	E508	26-Mar-2025	02-Apr-2025	28 days	7 days	✓	02-Apr-2025	28 days	7 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved) S-MW-2	E508	26-Mar-2025	02-Apr-2025	28 days	7 days	✓	02-Apr-2025	28 days	7 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) Duplicate	E420	26-Mar-2025	31-Mar-2025	180 days	5 days	✓	01-Apr-2025	180 days	6 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) MW-01-2004(D)	E420	26-Mar-2025	31-Mar-2025	180 days	5 days	✓	01-Apr-2025	180 days	6 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) MW-01-2004(S)	E420	26-Mar-2025	31-Mar-2025	180 days	5 days	✓	01-Apr-2025	180 days	6 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) MW-05-01	E420	26-Mar-2025	31-Mar-2025	180 days	5 days	✓	01-Apr-2025	180 days	6 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) MW99-1(D)	E420	26-Mar-2025	31-Mar-2025	180 days	5 days	✓	01-Apr-2025	180 days	6 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) MW99-1(S)	E420	26-Mar-2025	31-Mar-2025	180 days	5 days	✓	01-Apr-2025	180 days	6 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) S-MW-1	E420	26-Mar-2025	31-Mar-2025	180 days	5 days	✓	01-Apr-2025	180 days	6 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) S-MW-2	E420	26-Mar-2025	31-Mar-2025	180 days	5 days	✓	01-Apr-2025	180 days	6 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) Duplicate	E395	26-Mar-2025	----	----	----		29-Mar-2025	7 days	3 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) MW-01-2004(D)	E395	26-Mar-2025	----	----	----		29-Mar-2025	7 days	3 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) MW-01-2004(S)	E395	26-Mar-2025	----	----	----		29-Mar-2025	7 days	3 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) MW-05-01	E395	26-Mar-2025	----	----	----		29-Mar-2025	7 days	3 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) MW99-1(D)	E395	26-Mar-2025	----	----	----		29-Mar-2025	7 days	3 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) MW99-1(S)	E395	26-Mar-2025	----	----	----		29-Mar-2025	7 days	3 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) S-MW-1	E395	26-Mar-2025	----	----	----		29-Mar-2025	7 days	3 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) S-MW-2	E395	26-Mar-2025	----	----	----		29-Mar-2025	7 days	3 days	✓

Legend & Qualifier Definitions

EHTR-FM: Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended

Rec. HT: ALS recommended hold time (see units).

Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Water**

Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
Conductivity in Water	E100	1930186	1	15	6.6	5.0	✓
pH by Meter	E108	1930184	1	20	5.0	5.0	✓
TSS by Gravimetry	E160	1934031	1	17	5.8	5.0	✓
TDS by Gravimetry	E162	1934034	1	17	5.8	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1930189	1	20	5.0	5.0	✓
Chloride in Water by IC	E235.Cl	1930188	1	20	5.0	5.0	✓
Fluoride in Water by IC	E235.F	1930187	1	20	5.0	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1930191	1	20	5.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1930190	1	15	6.6	5.0	✓
Sulfate in Water by IC	E235.SO4	1930192	1	20	5.0	5.0	✓
Alkalinity Species by Titration	E290	1930185	1	20	5.0	5.0	✓
Ammonia by Fluorescence	E298	1930267	1	20	5.0	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	1930268	1	8	12.5	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1930269	1	10	10.0	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	1930194	1	16	6.2	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	1930667	1	15	6.6	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1930466	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1931780	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	1934507	2	23	8.7	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1934403	2	28	7.1	5.0	✓
Laboratory Control Samples (LCS)							
Conductivity in Water	E100	1930186	1	15	6.6	5.0	✓
pH by Meter	E108	1930184	1	20	5.0	5.0	✓
TSS by Gravimetry	E160	1934031	1	17	5.8	5.0	✓
TDS by Gravimetry	E162	1934034	1	17	5.8	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1930189	1	20	5.0	5.0	✓
Chloride in Water by IC	E235.Cl	1930188	1	20	5.0	5.0	✓
Fluoride in Water by IC	E235.F	1930187	1	20	5.0	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1930191	1	20	5.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1930190	1	15	6.6	5.0	✓
Sulfate in Water by IC	E235.SO4	1930192	1	20	5.0	5.0	✓
Alkalinity Species by Titration	E290	1930185	1	20	5.0	5.0	✓
Ammonia by Fluorescence	E298	1930267	1	20	5.0	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	1930268	1	8	12.5	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1930269	1	10	10.0	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	1930194	1	16	6.2	5.0	✓

Matrix: **Water**

Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Control Samples (LCS) - Continued							
Total Sulfide by Colourimetry (Automated Flow)	E395	1930667	1	15	6.6	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1930466	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1931780	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	1934507	2	23	8.7	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1934403	2	28	7.1	5.0	✓
Method Blanks (MB)							
Conductivity in Water	E100	1930186	1	15	6.6	5.0	✓
TSS by Gravimetry	E160	1934031	1	17	5.8	5.0	✓
TDS by Gravimetry	E162	1934034	1	17	5.8	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1930189	1	20	5.0	5.0	✓
Chloride in Water by IC	E235.Cl	1930188	1	20	5.0	5.0	✓
Fluoride in Water by IC	E235.F	1930187	1	20	5.0	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1930191	1	20	5.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1930190	1	15	6.6	5.0	✓
Sulfate in Water by IC	E235.SO4	1930192	1	20	5.0	5.0	✓
Alkalinity Species by Titration	E290	1930185	1	20	5.0	5.0	✓
Ammonia by Fluorescence	E298	1930267	1	20	5.0	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	1930268	1	8	12.5	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1930269	1	10	10.0	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	1930194	1	16	6.2	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	1930667	1	15	6.6	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1930466	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1931780	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	1934507	2	23	8.7	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1934403	2	28	7.1	5.0	✓
Matrix Spikes (MS)							
Bromide in Water by IC (Low Level)	E235.Br-L	1930189	1	20	5.0	5.0	✓
Chloride in Water by IC	E235.Cl	1930188	1	20	5.0	5.0	✓
Fluoride in Water by IC	E235.F	1930187	1	20	5.0	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1930191	1	20	5.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1930190	1	15	6.6	5.0	✓
Sulfate in Water by IC	E235.SO4	1930192	1	20	5.0	5.0	✓
Ammonia by Fluorescence	E298	1930267	1	20	5.0	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	1930268	1	8	12.5	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1930269	1	10	10.0	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	1930194	1	16	6.2	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	1930667	1	15	6.6	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1930466	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1931780	1	20	5.0	5.0	✓

Matrix: **Water**

Evaluation: × = *QC frequency outside specification*; ✓ = *QC frequency within specification.*

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Matrix Spikes (MS) - Continued							
Total Mercury in Water by CVAAS	E508	1934507	2	23	8.7	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1934403	2	28	7.1	5.0	✓

Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Conductivity in Water	E100 ALS Environmental - Vancouver	Water	APHA 2510 (mod)	Conductivity, also known as Electrical Conductivity (EC) or Specific Conductance, is measured by immersion of a conductivity cell with platinum electrodes into a water sample. Conductivity measurements are temperature-compensated to 25°C.
pH by Meter	E108 ALS Environmental - Vancouver	Water	APHA 4500-H (mod)	pH is determined by potentiometric measurement with a pH electrode, and is conducted at ambient laboratory temperature (normally 20 ± 5°C). For high accuracy test results, pH should be measured in the field within the recommended 15 minute hold time.
TSS by Gravimetry	E160 ALS Environmental - Vancouver	Water	APHA 2540 D (mod)	Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, following by drying of the filter at 104 ± 1°C, with gravimetric measurement of the filtered solids. Samples containing very high dissolved solid content (i.e. seawaters, brackish waters) may produce a positive bias by this method. Alternate analysis methods are available for these types of samples.
TDS by Gravimetry	E162 ALS Environmental - Vancouver	Water	APHA 2540 C (mod)	Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, with evaporation of the filtrate at 180 ± 2°C for 16 hours or to constant weight, with gravimetric measurement of the residue.
Bromide in Water by IC (Low Level)	E235.Br-L ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Chloride in Water by IC	E235.Cl ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Fluoride in Water by IC	E235.F ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrite in Water by IC (Low Level)	E235.NO2-L ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrate in Water by IC (Low Level)	E235.NO3-L ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Sulfate in Water by IC	E235.SO4 ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Alkalinity Species by Titration	E290 ALS Environmental - Vancouver	Water	APHA 2320 B (mod)	Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.
Ammonia by Fluorescence	E298 ALS Environmental - Vancouver	Water	Method Fialab 100, 2018	Ammonia in water is determined by automated continuous flow analysis with membrane diffusion and fluorescence detection, after reaction with OPA (ortho-phthalaldehyde). This method is approved under US EPA 40 CFR Part 136 (May 2021)
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318 ALS Environmental - Vancouver	Water	Method Fialab 100, 2018	TKN in water is determined by automated continuous flow analysis with membrane diffusion and fluorescence detection, after reaction with OPA (ortho-phthalaldehyde). This method is approved under US EPA 40 CFR Part 136 (May 2021).
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L ALS Environmental - Vancouver	Water	APHA 5310 B (mod)	Total Organic Carbon (Non-Purgeable), also known as NPOC (total), is a direct measurement of TOC after an acidified sample has been purged to remove carbonate-based Inorganic Carbon (IC). Analysis is by high temperature combustion with infrared detection of CO2. Forms of carbon associated with inorganic or organic molecules (e.g. SCN and CN) are included in NPOC if they are not removed by purging under acidic conditions. Notably, NPOC excludes most volatile organic compounds and free cyanide. For samples where the majority of Total Carbon is inorganic, this method provides greater accuracy and reliability versus the TOC by subtraction method (TC minus TIC).
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U ALS Environmental - Vancouver	Water	APHA 4500-P F (mod)	Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter. Field filtration is recommended to ensure test results represent conditions at time of sampling.
Total Sulfide by Colourimetry (Automated Flow)	E395 ALS Environmental - Vancouver	Water	APHA 4500 -S E-Auto-Colorimetry	Sulfide is determined using the gas dialysis automated methlyene blue colourimetric method. Results expressed "as H2S" if reported represent the maximum possible H2S concentration based on the total sulfide concentration in the sample. The H2S calculation converts Total Sulphide as (S2-) and reports it as Total Sulphide as (H2S)
Total Metals in Water by CRC ICPMS	E420 ALS Environmental - Vancouver	Water	EPA 200.2/6020B (mod)	Water samples are digested with nitric and hydrochloric acids, and analyzed by Collision/Reaction Cell ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
Dissolved Metals in Water by CRC ICPMS	E421 ALS Environmental - Vancouver	Water	APHA 3030B/EPA 6020B (mod)	Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by Collision/Reaction Cell ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Total Mercury in Water by CVAAS	E508 ALS Environmental - Vancouver	Water	EPA 1631E (mod)	Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS
Dissolved Mercury in Water by CVAAS	E509 ALS Environmental - Vancouver	Water	APHA 3030B/EPA 1631E (mod)	Water samples are filtered (0.45 um), preserved with HCl, then undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS.
Dissolved Hardness (Calculated)	EC100 ALS Environmental - Vancouver	Water	APHA 2340B	"Hardness (as CaCO3), dissolved" is calculated from the sum of dissolved Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. "Total Hardness" refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because it is a property of water due to dissolved divalent cations.
Hardness (Calculated) from Total Ca/Mg	EC100A ALS Environmental - Vancouver	Water	APHA 2340B	"Hardness (as CaCO3), from total Ca/Mg" is calculated from the sum of total Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. "Total Hardness" refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because it is a property of water due to dissolved divalent cations. Hardness from total Ca/Mg is normally comparable to Dissolved Hardness in non-turbid waters.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Ammonia	EP298 ALS Environmental - Vancouver	Water		Sample preparation for Preserved Nutrients Water Quality Analysis.
Digestion for TKN in water	EP318 ALS Environmental - Vancouver	Water	APHA 4500-Norg D (mod)	Samples are digested at high temperature using Sulfuric Acid with Copper catalyst, which converts organic nitrogen sources to Ammonia, which is then quantified by the analytical method as TKN. This method is unsuitable for samples containing high levels of nitrate. If nitrate exceeds TKN concentration by ten times or more, results may be biased low.
Preparation for Total Organic Carbon by Combustion	EP355 ALS Environmental - Vancouver	Water		Preparation for Total Organic Carbon by Combustion
Dissolved Metals Water Filtration	EP421 ALS Environmental - Vancouver	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HNO3.
Dissolved Mercury Water Filtration	EP509 ALS Environmental - Vancouver	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HCl.

QUALITY CONTROL REPORT

Work Order	: **VA25A6884**	Page	: 1 of 17
Client	: Masse Environmental Consultants Ltd.	Laboratory	: ALS Environmental - Vancouver
Contact	: Ico de Zwart	Account Manager	: Can Dang
Address	: 812 Vernon Street Nelson BC Canada V1L 4G4	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: ----	Telephone	: +1 604 253 4188
Project	: 2016-503-HB	Date Samples Received	: 28-Mar-2025 13:45
PO	: ----	Date Analysis Commenced	: 29-Mar-2025
C-O-C number	: 22-20250327	Issue Date	: 02-Apr-2025 15:49
Sampler	: C.S		
Site	: RDCK		
Quote number	: ----		
No. of samples received	: 8		
No. of samples analysed	: 8		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percent Difference (RPD) and Data Quality Objectives
- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Ilnaz Badbezanchi	Supervisor - Metals Prep	Vancouver Metals, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Vancouver Metals, Burnaby, British Columbia
Monica Ko	Lab Assistant	Vancouver Inorganics, Burnaby, British Columbia
Owen Cheng		Vancouver Metals, Burnaby, British Columbia

General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number = Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO = Data Quality Objective.
LOR = Limit of Reporting (detection limit).
RPD = Relative Percent Difference
# = Indicates a QC result that did not meet the ALS DQO.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test-specific).

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Physical Tests (QC Lot: 1930184)											
VA25A6825-001	Anonymous	pH	----	E108	0.10	pH units	8.14	8.16	0.245%	4%	----
Physical Tests (QC Lot: 1930185)											
VA25A6825-001	Anonymous	Alkalinity, bicarbonate (as CaCO3)	----	E290	1.0	mg/L	72.2	72.5	0.415%	200%	----
		Alkalinity, carbonate (as CaCO3)	----	E290	1.0	mg/L	<1.0	<1.0	0.00%	200%	----
		Alkalinity, hydroxide (as CaCO3)	----	E290	1.0	mg/L	<1.0	<1.0	0.00%	200%	----
		Alkalinity, phenolphthalein (as CaCO3)	----	E290	1.0	mg/L	<1.0	<1.0	0	Diff <2x LOR	----
		Alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	72.2	72.5	0.415%	20%	----
Physical Tests (QC Lot: 1930186)											
VA25A6825-001	Anonymous	Conductivity	----	E100	2.0	µS/cm	231	231	0.00%	10%	----
Physical Tests (QC Lot: 1934031)											
VA25A6808-005	Anonymous	Solids, total suspended [TSS]	----	E160	3.0	mg/L	<3.0	<3.0	0	Diff <2x LOR	----
Physical Tests (QC Lot: 1934034)											
VA25A6808-005	Anonymous	Solids, total dissolved [TDS]	----	E162	10	mg/L	<10	<10	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1930187)											
VA25A6825-001	Anonymous	Fluoride	16984-48-8	E235.F	0.020	mg/L	0.144	0.145	0.0002	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1930188)											
VA25A6825-001	Anonymous	Chloride	16887-00-6	E235.Cl	0.50	mg/L	1.89	1.86	0.03	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1930189)											
VA25A6825-001	Anonymous	Bromide	24959-67-9	E235.Br-L	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1930190)											
VA25A6825-001	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	0.0549	0.0533	3.05%	20%	----
Anions and Nutrients (QC Lot: 1930191)											
VA25A6825-001	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1930192)											
VA25A6825-001	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	43.3	43.3	0.0846%	20%	----
Anions and Nutrients (QC Lot: 1930194)											
VA25A6825-001	Anonymous	Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1930267)											
VA25A6825-001	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Anions and Nutrients (QC Lot: 1930268)											
VA25A6884-001	Duplicate	Kjeldahl nitrogen, total [TKN]	----	E318	0.050	mg/L	<0.050	0.052	0.002	Diff <2x LOR	----
Organic / Inorganic Carbon (QC Lot: 1930269)											
VA25A6825-001	Anonymous	Carbon, total organic [TOC]	----	E355-L	0.50	mg/L	<0.50	<0.50	0	Diff <2x LOR	----
Total Sulfides (QC Lot: 1930667)											
VA25A6875-001	Anonymous	Sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	<0.0015	0.0019	0.0004	Diff <2x LOR	----
Total Metals (QC Lot: 1930466)											
VA25A6710-001	Anonymous	Aluminum, total	7429-90-5	E420	0.0030	mg/L	0.0388	0.0409	5.19%	20%	----
		Antimony, total	7440-36-0	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Arsenic, total	7440-38-2	E420	0.00010	mg/L	0.00080	0.00079	0.00001	Diff <2x LOR	----
		Barium, total	7440-39-3	E420	0.00010	mg/L	0.0736	0.0748	1.55%	20%	----
		Beryllium, total	7440-41-7	E420	0.000100	mg/L	<0.000100	<0.000100	0	Diff <2x LOR	----
		Bismuth, total	7440-69-9	E420	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Boron, total	7440-42-8	E420	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		Cadmium, total	7440-43-9	E420	0.0000050	mg/L	0.0000120	0.0000117	0.0000004	Diff <2x LOR	----
		Calcium, total	7440-70-2	E420	0.050	mg/L	31.4	30.0	4.61%	20%	----
		Cesium, total	7440-46-2	E420	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Chromium, total	7440-47-3	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Cobalt, total	7440-48-4	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Copper, total	7440-50-8	E420	0.00050	mg/L	0.00097	0.00093	0.00004	Diff <2x LOR	----
		Iron, total	7439-89-6	E420	0.010	mg/L	0.425	0.430	1.23%	20%	----
		Lead, total	7439-92-1	E420	0.000050	mg/L	<0.000050	0.000051	0.0000010	Diff <2x LOR	----
		Lithium, total	7439-93-2	E420	0.0010	mg/L	0.0019	0.0019	0.00008	Diff <2x LOR	----
		Magnesium, total	7439-95-4	E420	0.0050	mg/L	8.22	8.07	1.81%	20%	----
		Manganese, total	7439-96-5	E420	0.00010	mg/L	0.104	0.104	0.485%	20%	----
		Molybdenum, total	7439-98-7	E420	0.000050	mg/L	0.000623	0.000619	0.620%	20%	----
		Nickel, total	7440-02-0	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Phosphorus, total	7723-14-0	E420	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Potassium, total	7440-09-7	E420	0.050	mg/L	1.68	1.66	1.30%	20%	----
		Rubidium, total	7440-17-7	E420	0.00020	mg/L	0.00097	0.00102	0.00004	Diff <2x LOR	----
		Selenium, total	7782-49-2	E420	0.000050	mg/L	0.000056	<0.000050	0.000006	Diff <2x LOR	----
		Silicon, total	7440-21-3	E420	0.10	mg/L	7.90	8.09	2.38%	20%	----
		Silver, total	7440-22-4	E420	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Sodium, total	7440-23-5	E420	0.050	mg/L	5.15	5.01	2.74%	20%	----
		Strontium, total	7440-24-6	E420	0.00020	mg/L	0.264	0.253	4.25%	20%	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Total Metals (QC Lot: 1930466) - continued											
VA25A6710-001	Anonymous	Sulfur, total	7704-34-9	E420	0.50	mg/L	7.07	6.99	1.20%	20%	----
		Tellurium, total	13494-80-9	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		Thallium, total	7440-28-0	E420	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Thorium, total	7440-29-1	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Tin, total	7440-31-5	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Titanium, total	7440-32-6	E420	0.00030	mg/L	<0.00180	0.00187	0.00007	Diff <2x LOR	----
		Tungsten, total	7440-33-7	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Uranium, total	7440-61-1	E420	0.000010	mg/L	0.000318	0.000311	1.94%	20%	----
		Vanadium, total	7440-62-2	E420	0.00050	mg/L	0.00052	0.00052	0.0000004	Diff <2x LOR	----
		Zinc, total	7440-66-6	E420	0.0030	mg/L	0.0071	0.0070	0.00009	Diff <2x LOR	----
		Zirconium, total	7440-67-7	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
Total Metals (QC Lot: 1934507)											
VA25A6695-001	Anonymous	Mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Total Metals (QC Lot: 1934508)											
VA25A6884-006	MW-01-2004(D)	Mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1931780)											
VA25A6884-001	Duplicate	Aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	0.0517	0.0475	8.35%	20%	----
		Antimony, dissolved	7440-36-0	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	0.00043	0.00039	0.00003	Diff <2x LOR	----
		Barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.0166	0.0165	0.538%	20%	----
		Beryllium, dissolved	7440-41-7	E421	0.000020	mg/L	<0.000020	<0.000020	0	Diff <2x LOR	----
		Bismuth, dissolved	7440-69-9	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Boron, dissolved	7440-42-8	E421	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		Cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L	0.0000127	0.0000105	0.0000022	Diff <2x LOR	----
		Calcium, dissolved	7440-70-2	E421	0.050	mg/L	29.0	28.6	1.60%	20%	----
		Cesium, dissolved	7440-46-2	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Chromium, dissolved	7440-47-3	E421	0.00050	mg/L	0.00124	0.00122	0.00002	Diff <2x LOR	----
		Cobalt, dissolved	7440-48-4	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Copper, dissolved	7440-50-8	E421	0.00020	mg/L	0.00116	0.00114	0.00002	Diff <2x LOR	----
		Iron, dissolved	7439-89-6	E421	0.010	mg/L	0.039	0.038	0.0010	Diff <2x LOR	----
		Lead, dissolved	7439-92-1	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Lithium, dissolved	7439-93-2	E421	0.0010	mg/L	0.0022	0.0022	0.00002	Diff <2x LOR	----
		Magnesium, dissolved	7439-95-4	E421	0.0050	mg/L	8.26	8.36	1.24%	20%	----
		Manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.00138	0.00132	4.80%	20%	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Dissolved Metals (QC Lot: 1931780) - continued											
VA25A6884-001	Duplicate	Molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.000614	0.000621	1.21%	20%	----
		Nickel, dissolved	7440-02-0	E421	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Phosphorus, dissolved	7723-14-0	E421	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Potassium, dissolved	7440-09-7	E421	0.050	mg/L	1.02	1.02	0.369%	20%	----
		Rubidium, dissolved	7440-17-7	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		Selenium, dissolved	7782-49-2	E421	0.000050	mg/L	0.000162	0.000209	0.000047	Diff <2x LOR	----
		Silicon, dissolved	7440-21-3	E421	0.050	mg/L	8.36	8.12	2.95%	20%	----
		Silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Sodium, dissolved	7440-23-5	E421	0.050	mg/L	4.34	4.30	0.790%	20%	----
		Strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.274	0.273	0.565%	20%	----
		Sulfur, dissolved	7704-34-9	E421	0.50	mg/L	3.23	3.33	0.09	Diff <2x LOR	----
		Tellurium, dissolved	13494-80-9	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		Thallium, dissolved	7440-28-0	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Thorium, dissolved	7440-29-1	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Tin, dissolved	7440-31-5	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Titanium, dissolved	7440-32-6	E421	0.00030	mg/L	0.00139	0.00126	0.00013	Diff <2x LOR	----
		Tungsten, dissolved	7440-33-7	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Uranium, dissolved	7440-61-1	E421	0.000010	mg/L	0.00160	0.00159	0.786%	20%	----
		Vanadium, dissolved	7440-62-2	E421	0.00050	mg/L	0.00054	0.00055	0.00001	Diff <2x LOR	----
		Zinc, dissolved	7440-66-6	E421	0.0010	mg/L	0.0016	0.0017	0.0001	Diff <2x LOR	----
		Zirconium, dissolved	7440-67-7	E421	0.00030	mg/L	<0.00030	<0.00030	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1934403)											
VA25A6870-001	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	0.0000106	0.0000106	0.00000002	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1934404)											
VA25A6884-006	MW-01-2004(D)	Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----

Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 1930185)						
Alkalinity, bicarbonate (as CaCO3)	----	E290	1	mg/L	<1.0	----
Alkalinity, carbonate (as CaCO3)	----	E290	1	mg/L	<1.0	----
Alkalinity, hydroxide (as CaCO3)	----	E290	1	mg/L	<1.0	----
Alkalinity, phenolphthalein (as CaCO3)	----	E290	1	mg/L	<1.0	----
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	<1.0	----
Physical Tests (QCLot: 1930186)						
Conductivity	----	E100	1	µS/cm	1.2	----
Physical Tests (QCLot: 1934031)						
Solids, total suspended [TSS]	----	E160	3	mg/L	<3.0	----
Physical Tests (QCLot: 1934034)						
Solids, total dissolved [TDS]	----	E162	10	mg/L	<10	----
Anions and Nutrients (QCLot: 1930187)						
Fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 1930188)						
Chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 1930189)						
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 1930190)						
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 1930191)						
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 1930192)						
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	----
Anions and Nutrients (QCLot: 1930194)						
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 1930267)						
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 1930268)						
Kjeldahl nitrogen, total [TKN]	----	E318	0.05	mg/L	<0.050	----
Organic / Inorganic Carbon (QCLot: 1930269)						
Carbon, total organic [TOC]	----	E355-L	0.5	mg/L	<0.50	----
Total Sulfides (QCLot: 1930667)						

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Sulfides (QCLot: 1930667) - continued						
Sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	<0.0015	----
Total Metals (QCLot: 1930466)						
Aluminum, total	7429-90-5	E420	0.003	mg/L	<0.0030	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	<0.00010	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	<0.00010	----
Barium, total	7440-39-3	E420	0.0001	mg/L	<0.00010	----
Beryllium, total	7440-41-7	E420	0.00002	mg/L	<0.000020	----
Bismuth, total	7440-69-9	E420	0.00005	mg/L	<0.000050	----
Boron, total	7440-42-8	E420	0.01	mg/L	<0.010	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	<0.0000050	----
Calcium, total	7440-70-2	E420	0.05	mg/L	<0.050	----
Cesium, total	7440-46-2	E420	0.00001	mg/L	<0.000010	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	<0.00050	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	<0.00010	----
Copper, total	7440-50-8	E420	0.0005	mg/L	<0.00050	----
Iron, total	7439-89-6	E420	0.01	mg/L	<0.010	----
Lead, total	7439-92-1	E420	0.00005	mg/L	<0.000050	----
Lithium, total	7439-93-2	E420	0.001	mg/L	<0.0010	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	<0.0050	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	<0.00010	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	<0.000050	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	<0.00050	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	<0.050	----
Potassium, total	7440-09-7	E420	0.05	mg/L	<0.050	----
Rubidium, total	7440-17-7	E420	0.0002	mg/L	<0.00020	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	<0.000050	----
Silicon, total	7440-21-3	E420	0.1	mg/L	<0.10	----
Silver, total	7440-22-4	E420	0.00001	mg/L	<0.000010	----
Sodium, total	7440-23-5	E420	0.05	mg/L	<0.050	----
Strontium, total	7440-24-6	E420	0.0002	mg/L	<0.00020	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	<0.50	----
Tellurium, total	13494-80-9	E420	0.0002	mg/L	<0.00020	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	<0.000010	----
Thorium, total	7440-29-1	E420	0.0001	mg/L	<0.00010	----
Tin, total	7440-31-5	E420	0.0001	mg/L	<0.00010	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (QCLot: 1930466) - continued						
Titanium, total	7440-32-6	E420	0.0003	mg/L	<0.00030	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	<0.00010	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	<0.000010	----
Vanadium, total	7440-62-2	E420	0.0005	mg/L	<0.00050	----
Zinc, total	7440-66-6	E420	0.003	mg/L	<0.0030	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	<0.00020	----
Total Metals (QCLot: 1934507)						
Mercury, total	7439-97-6	E508	0.000005	mg/L	<0.0000050	----
Total Metals (QCLot: 1934508)						
Mercury, total	7439-97-6	E508	0.000005	mg/L	<0.0000050	----
Dissolved Metals (QCLot: 1931780)						
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	<0.0010	----
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	<0.00010	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	<0.00010	----
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	<0.00010	----
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	<0.000020	----
Bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	<0.000050	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	<0.010	----
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	<0.0000050	----
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	<0.050	----
Cesium, dissolved	7440-46-2	E421	0.00001	mg/L	<0.000010	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	<0.00050	----
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	<0.00010	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	<0.00020	----
Iron, dissolved	7439-89-6	E421	0.01	mg/L	<0.010	----
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	<0.000050	----
Lithium, dissolved	7439-93-2	E421	0.001	mg/L	<0.0010	----
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	<0.0050	----
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	<0.00010	----
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	<0.000050	----
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	<0.00050	----
Phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	<0.050	----
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	<0.050	----
Rubidium, dissolved	7440-17-7	E421	0.0002	mg/L	<0.00020	----
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	<0.000050	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Dissolved Metals (QCLot: 1931780) - continued						
Silicon, dissolved	7440-21-3	E421	0.05	mg/L	<0.050	----
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	<0.000010	----
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	<0.050	----
Strontium, dissolved	7440-24-6	E421	0.0002	mg/L	<0.00020	----
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	<0.50	----
Tellurium, dissolved	13494-80-9	E421	0.0002	mg/L	<0.00020	----
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	<0.000010	----
Thorium, dissolved	7440-29-1	E421	0.0001	mg/L	<0.00010	----
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	<0.00010	----
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	<0.00030	----
Tungsten, dissolved	7440-33-7	E421	0.0001	mg/L	<0.00010	----
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	<0.000010	----
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	<0.00050	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	<0.0010	----
Zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	<0.00020	----
Dissolved Metals (QCLot: 1934403)						
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	<0.0000050	----
Dissolved Metals (QCLot: 1934404)						
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	<0.0000050	----

Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 1930184)									
pH	----	E108	----	pH units	7 pH units	100	98.0	102	----
Physical Tests (QCLot: 1930185)									
Alkalinity, phenolphthalein (as CaCO3)	----	E290	1	mg/L	229 mg/L	101	75.0	125	----
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	500 mg/L	103	85.0	115	----
Physical Tests (QCLot: 1930186)									
Conductivity	----	E100	1	µS/cm	147 µS/cm	95.8	90.0	110	----
Physical Tests (QCLot: 1934031)									
Solids, total suspended [TSS]	----	E160	3	mg/L	150 mg/L	104	85.0	115	----
Physical Tests (QCLot: 1934034)									
Solids, total dissolved [TDS]	----	E162	10	mg/L	1000 mg/L	101	85.0	115	----
Anions and Nutrients (QCLot: 1930187)									
Fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	97.0	90.0	110	----
Anions and Nutrients (QCLot: 1930188)									
Chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	102	90.0	110	----
Anions and Nutrients (QCLot: 1930189)									
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	0.5 mg/L	103	85.0	115	----
Anions and Nutrients (QCLot: 1930190)									
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	2.5 mg/L	102	90.0	110	----
Anions and Nutrients (QCLot: 1930191)									
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	0.5 mg/L	98.8	90.0	110	----
Anions and Nutrients (QCLot: 1930192)									
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	103	90.0	110	----
Anions and Nutrients (QCLot: 1930194)									
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.001	mg/L	0.03 mg/L	98.6	80.0	120	----
Anions and Nutrients (QCLot: 1930267)									
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	109	85.0	115	----
Anions and Nutrients (QCLot: 1930268)									
Kjeldahl nitrogen, total [TKN]	----	E318	0.05	mg/L	4 mg/L	98.7	75.0	125	----
Organic / Inorganic Carbon (QCLot: 1930269)									
Carbon, total organic [TOC]	----	E355-L	0.5	mg/L	8.57 mg/L	100	80.0	120	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Total Sulfides (QCLot: 1930667)									
Sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	0.08 mg/L	100	80.0	120	----
Total Metals (QCLot: 1930466)									
Aluminum, total	7429-90-5	E420	0.003	mg/L	2 mg/L	102	80.0	120	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	1 mg/L	102	80.0	120	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	1 mg/L	103	80.0	120	----
Barium, total	7440-39-3	E420	0.0001	mg/L	0.25 mg/L	102	80.0	120	----
Beryllium, total	7440-41-7	E420	0.00002	mg/L	0.1 mg/L	98.6	80.0	120	----
Bismuth, total	7440-69-9	E420	0.00005	mg/L	1 mg/L	97.5	80.0	120	----
Boron, total	7440-42-8	E420	0.01	mg/L	1 mg/L	95.6	80.0	120	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	0.1 mg/L	101	80.0	120	----
Calcium, total	7440-70-2	E420	0.05	mg/L	50 mg/L	100	80.0	120	----
Cesium, total	7440-46-2	E420	0.00001	mg/L	0.05 mg/L	101	80.0	120	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	0.25 mg/L	99.8	80.0	120	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	0.25 mg/L	98.7	80.0	120	----
Copper, total	7440-50-8	E420	0.0005	mg/L	0.25 mg/L	99.6	80.0	120	----
Iron, total	7439-89-6	E420	0.01	mg/L	1 mg/L	96.3	80.0	120	----
Lead, total	7439-92-1	E420	0.00005	mg/L	0.5 mg/L	97.2	80.0	120	----
Lithium, total	7439-93-2	E420	0.001	mg/L	0.25 mg/L	98.1	80.0	120	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	50 mg/L	102	80.0	120	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	0.25 mg/L	101	80.0	120	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	0.25 mg/L	98.9	80.0	120	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	0.5 mg/L	99.4	80.0	120	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	10 mg/L	107	80.0	120	----
Potassium, total	7440-09-7	E420	0.05	mg/L	50 mg/L	98.9	80.0	120	----
Rubidium, total	7440-17-7	E420	0.0002	mg/L	0.1 mg/L	98.0	80.0	120	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	1 mg/L	101	80.0	120	----
Silicon, total	7440-21-3	E420	0.1	mg/L	10 mg/L	106	80.0	120	----
Silver, total	7440-22-4	E420	0.00001	mg/L	0.1 mg/L	94.7	80.0	120	----
Sodium, total	7440-23-5	E420	0.05	mg/L	50 mg/L	100	80.0	120	----
Strontium, total	7440-24-6	E420	0.0002	mg/L	0.25 mg/L	103	80.0	120	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	50 mg/L	89.3	80.0	120	----
Tellurium, total	13494-80-9	E420	0.0002	mg/L	0.1 mg/L	102	80.0	120	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	1 mg/L	97.6	80.0	120	----
Thorium, total	7440-29-1	E420	0.0001	mg/L	0.1 mg/L	93.7	80.0	120	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
					Target Concentration	LCS	Low	High	Qualifier
Total Metals (QCLot: 1930466) - continued									
Tin, total	7440-31-5	E420	0.0001	mg/L	0.5 mg/L	101	80.0	120	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	0.25 mg/L	98.7	80.0	120	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	0.1 mg/L	103	80.0	120	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	0.005 mg/L	102	80.0	120	----
Vanadium, total	7440-62-2	E420	0.0005	mg/L	0.5 mg/L	100	80.0	120	----
Zinc, total	7440-66-6	E420	0.003	mg/L	0.5 mg/L	101	80.0	120	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	0.1 mg/L	97.7	80.0	120	----
Total Metals (QCLot: 1934507)									
Mercury, total	7439-97-6	E508	0.000005	mg/L	0 mg/L	94.2	80.0	120	----
Total Metals (QCLot: 1934508)									
Mercury, total	7439-97-6	E508	0.000005	mg/L	0 mg/L	94.7	80.0	120	----
Dissolved Metals (QCLot: 1931780)									
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	2 mg/L	100	80.0	120	----
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	1 mg/L	98.8	80.0	120	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	1 mg/L	101	80.0	120	----
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	0.25 mg/L	99.1	80.0	120	----
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	0.1 mg/L	93.0	80.0	120	----
Bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	1 mg/L	98.3	80.0	120	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	1 mg/L	86.9	80.0	120	----
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	0.1 mg/L	97.6	80.0	120	----
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	50 mg/L	93.7	80.0	120	----
Cesium, dissolved	7440-46-2	E421	0.00001	mg/L	0.05 mg/L	98.7	80.0	120	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	0.25 mg/L	98.3	80.0	120	----
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	0.25 mg/L	96.1	80.0	120	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	0.25 mg/L	95.7	80.0	120	----
Iron, dissolved	7439-89-6	E421	0.01	mg/L	1 mg/L	94.4	80.0	120	----
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	0.5 mg/L	97.5	80.0	120	----
Lithium, dissolved	7439-93-2	E421	0.001	mg/L	0.25 mg/L	91.4	80.0	120	----
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	50 mg/L	98.1	80.0	120	----
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	0.25 mg/L	103	80.0	120	----
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	0.25 mg/L	99.2	80.0	120	----
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	0.5 mg/L	95.6	80.0	120	----
Phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	10 mg/L	103	80.0	120	----
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	50 mg/L	99.2	80.0	120	----
Rubidium, dissolved	7440-17-7	E421	0.0002	mg/L	0.1 mg/L	99.7	80.0	120	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Dissolved Metals (QCLot: 1931780) - continued									
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	1 mg/L	102	80.0	120	----
Silicon, dissolved	7440-21-3	E421	0.05	mg/L	10 mg/L	101	80.0	120	----
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	0.1 mg/L	91.7	80.0	120	----
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	50 mg/L	98.9	80.0	120	----
Strontium, dissolved	7440-24-6	E421	0.0002	mg/L	0.25 mg/L	95.0	80.0	120	----
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	50 mg/L	83.1	80.0	120	----
Tellurium, dissolved	13494-80-9	E421	0.0002	mg/L	0.1 mg/L	96.7	80.0	120	----
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	1 mg/L	93.4	80.0	120	----
Thorium, dissolved	7440-29-1	E421	0.0001	mg/L	0.1 mg/L	95.1	80.0	120	----
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	0.5 mg/L	99.0	80.0	120	----
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	0.25 mg/L	93.0	80.0	120	----
Tungsten, dissolved	7440-33-7	E421	0.0001	mg/L	0.1 mg/L	95.8	80.0	120	----
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	0.005 mg/L	94.7	80.0	120	----
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	0.5 mg/L	99.7	80.0	120	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	0.5 mg/L	97.4	80.0	120	----
Zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	0.1 mg/L	94.8	80.0	120	----
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0 mg/L	96.4	80.0	120	----
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0 mg/L	96.3	80.0	120	----

Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for the associated sample (or similar samples) may be subject to bias. ND – Recovery not determined, background level >= 1x spike level.

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Anions and Nutrients (QCLot: 1930187)										
VA25A6825-002	Anonymous	Fluoride	16984-48-8	E235.F	0.958 mg/L	1 mg/L	95.8	75.0	125	----
Anions and Nutrients (QCLot: 1930188)										
VA25A6825-002	Anonymous	Chloride	16887-00-6	E235.Cl	103 mg/L	100 mg/L	103	75.0	125	----
Anions and Nutrients (QCLot: 1930189)										
VA25A6825-002	Anonymous	Bromide	24959-67-9	E235.Br-L	0.534 mg/L	0.5 mg/L	107	75.0	125	----
Anions and Nutrients (QCLot: 1930190)										
VA25A6825-002	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	2.60 mg/L	2.5 mg/L	104	75.0	125	----
Anions and Nutrients (QCLot: 1930191)										
VA25A6825-002	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	0.503 mg/L	0.5 mg/L	100	75.0	125	----
Anions and Nutrients (QCLot: 1930192)										
VA25A6825-002	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	101 mg/L	100 mg/L	101	75.0	125	----
Anions and Nutrients (QCLot: 1930194)										
VA25A6825-002	Anonymous	Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0255 mg/L	0.03 mg/L	85.0	70.0	130	----
Anions and Nutrients (QCLot: 1930267)										
VA25A6825-002	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.105 mg/L	0.1 mg/L	105	75.0	125	----
Anions and Nutrients (QCLot: 1930268)										
VA25A6884-002	MW99-1(S)	Kjeldahl nitrogen, total [TKN]	----	E318	2.56 mg/L	2.5 mg/L	102	70.0	130	----
Organic / Inorganic Carbon (QCLot: 1930269)										
VA25A6825-002	Anonymous	Carbon, total organic [TOC]	----	E355-L	5.14 mg/L	5 mg/L	103	70.0	130	----
Total Sulfides (QCLot: 1930667)										
VA25A6875-002	Anonymous	Sulfide, total (as S)	18496-25-8	E395	0.212 mg/L	0.2 mg/L	106	75.0	125	----
Total Metals (QCLot: 1930466)										
VA25A6710-002	Anonymous	Aluminum, total	7429-90-5	E420	0.189 mg/L	0.2 mg/L	94.4	70.0	130	----
		Antimony, total	7440-36-0	E420	0.0190 mg/L	0.02 mg/L	94.8	70.0	130	----
		Arsenic, total	7440-38-2	E420	0.0195 mg/L	0.02 mg/L	97.4	70.0	130	----
		Barium, total	7440-39-3	E420	ND mg/L	----	ND	70.0	130	----
		Beryllium, total	7440-41-7	E420	0.0364 mg/L	0.04 mg/L	91.0	70.0	130	----
		Bismuth, total	7440-69-9	E420	0.00926 mg/L	0.01 mg/L	92.6	70.0	130	----
		Boron, total	7440-42-8	E420	0.089 mg/L	0.1 mg/L	89.1	70.0	130	----
		Cadmium, total	7440-43-9	E420	0.00392 mg/L	0.004 mg/L	97.9	70.0	130	----
		Calcium, total	7440-70-2	E420	ND mg/L	----	ND	70.0	130	----
		Cesium, total	7440-46-2	E420	0.00977 mg/L	0.01 mg/L	97.7	70.0	130	----
		Chromium, total	7440-47-3	E420	0.0383 mg/L	0.04 mg/L	95.6	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Total Metals (QCLot: 1930466) - continued										
VA25A6710-002	Anonymous	Cobalt, total	7440-48-4	E420	0.0187 mg/L	0.02 mg/L	93.7	70.0	130	----
		Copper, total	7440-50-8	E420	0.0188 mg/L	0.02 mg/L	94.2	70.0	130	----
		Iron, total	7439-89-6	E420	1.85 mg/L	2 mg/L	92.5	70.0	130	----
		Lead, total	7439-92-1	E420	0.0179 mg/L	0.02 mg/L	89.5	70.0	130	----
		Lithium, total	7439-93-2	E420	0.0914 mg/L	0.1 mg/L	91.4	70.0	130	----
		Magnesium, total	7439-95-4	E420	ND mg/L	----	ND	70.0	130	----
		Manganese, total	7439-96-5	E420	ND mg/L	----	ND	70.0	130	----
		Molybdenum, total	7439-98-7	E420	0.0192 mg/L	0.02 mg/L	96.0	70.0	130	----
		Nickel, total	7440-02-0	E420	0.0375 mg/L	0.04 mg/L	93.8	70.0	130	----
		Phosphorus, total	7723-14-0	E420	10.1 mg/L	10 mg/L	101	70.0	130	----
		Potassium, total	7440-09-7	E420	3.73 mg/L	4 mg/L	93.2	70.0	130	----
		Rubidium, total	7440-17-7	E420	0.0188 mg/L	0.02 mg/L	93.8	70.0	130	----
		Selenium, total	7782-49-2	E420	0.0392 mg/L	0.04 mg/L	98.0	70.0	130	----
		Silicon, total	7440-21-3	E420	8.91 mg/L	10 mg/L	89.1	70.0	130	----
		Silver, total	7440-22-4	E420	0.00386 mg/L	0.004 mg/L	96.6	70.0	130	----
		Sodium, total	7440-23-5	E420	ND mg/L	----	ND	70.0	130	----
		Strontium, total	7440-24-6	E420	ND mg/L	----	ND	70.0	130	----
		Sulfur, total	7704-34-9	E420	18.4 mg/L	20 mg/L	92.3	70.0	130	----
		Tellurium, total	13494-80-9	E420	0.0402 mg/L	0.04 mg/L	100	70.0	130	----
		Thallium, total	7440-28-0	E420	0.00357 mg/L	0.004 mg/L	89.2	70.0	130	----
		Thorium, total	7440-29-1	E420	0.0164 mg/L	0.02 mg/L	82.2	70.0	130	----
		Tin, total	7440-31-5	E420	0.0194 mg/L	0.02 mg/L	97.0	70.0	130	----
		Titanium, total	7440-32-6	E420	0.0379 mg/L	0.04 mg/L	94.7	70.0	130	----
		Tungsten, total	7440-33-7	E420	0.0191 mg/L	0.02 mg/L	95.3	70.0	130	----
		Uranium, total	7440-61-1	E420	0.00385 mg/L	0.004 mg/L	96.3	70.0	130	----
		Vanadium, total	7440-62-2	E420	0.0953 mg/L	0.1 mg/L	95.3	70.0	130	----
		Zinc, total	7440-66-6	E420	0.367 mg/L	0.4 mg/L	91.8	70.0	130	----
		Zirconium, total	7440-67-7	E420	0.0385 mg/L	0.04 mg/L	96.2	70.0	130	----
Total Metals (QCLot: 1934507)										
VA25A6710-001	Anonymous	Mercury, total	7439-97-6	E508	0.0000908 mg/L	0 mg/L	90.8	70.0	130	----
Total Metals (QCLot: 1934508)										
VA25A6884-007	S-MW-1	Mercury, total	7439-97-6	E508	0.0000937 mg/L	0 mg/L	93.7	70.0	130	----
Dissolved Metals (QCLot: 1931780)										
VA25A6884-002	MW99-1(S)	Aluminum, dissolved	7429-90-5	E421	0.200 mg/L	0.2 mg/L	99.8	70.0	130	----
		Antimony, dissolved	7440-36-0	E421	0.0191 mg/L	0.02 mg/L	95.6	70.0	130	----
		Arsenic, dissolved	7440-38-2	E421	0.0205 mg/L	0.02 mg/L	102	70.0	130	----
		Barium, dissolved	7440-39-3	E421	ND mg/L	----	ND	70.0	130	----
		Beryllium, dissolved	7440-41-7	E421	0.0365 mg/L	0.04 mg/L	91.3	70.0	130	----
		Bismuth, dissolved	7440-69-9	E421	0.0100 mg/L	0.01 mg/L	100	70.0	130	----
		Boron, dissolved	7440-42-8	E421	0.083 mg/L	0.1 mg/L	83.2	70.0	130	----
		Cadmium, dissolved	7440-43-9	E421	0.00394 mg/L	0.004 mg/L	98.6	70.0	130	----
		Calcium, dissolved	7440-70-2	E421	ND mg/L	----	ND	70.0	130	----
		Cesium, dissolved	7440-46-2	E421	0.00972 mg/L	0.01 mg/L	97.2	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Dissolved Metals (QCLot: 1931780) - continued										
VA25A6884-002	MW99-1(S)	Chromium, dissolved	7440-47-3	E421	0.0406 mg/L	0.04 mg/L	101	70.0	130	----
		Cobalt, dissolved	7440-48-4	E421	0.0197 mg/L	0.02 mg/L	98.6	70.0	130	----
		Copper, dissolved	7440-50-8	E421	0.0192 mg/L	0.02 mg/L	96.2	70.0	130	----
		Iron, dissolved	7439-89-6	E421	ND mg/L	----	ND	70.0	130	----
		Lead, dissolved	7439-92-1	E421	0.0194 mg/L	0.02 mg/L	96.9	70.0	130	----
		Lithium, dissolved	7439-93-2	E421	0.0855 mg/L	0.1 mg/L	85.5	70.0	130	----
		Magnesium, dissolved	7439-95-4	E421	ND mg/L	----	ND	70.0	130	----
		Manganese, dissolved	7439-96-5	E421	ND mg/L	----	ND	70.0	130	----
		Molybdenum, dissolved	7439-98-7	E421	0.0195 mg/L	0.02 mg/L	97.7	70.0	130	----
		Nickel, dissolved	7440-02-0	E421	0.0385 mg/L	0.04 mg/L	96.3	70.0	130	----
		Phosphorus, dissolved	7723-14-0	E421	10.2 mg/L	10 mg/L	102	70.0	130	----
		Potassium, dissolved	7440-09-7	E421	4.02 mg/L	4 mg/L	100	70.0	130	----
		Rubidium, dissolved	7440-17-7	E421	0.0200 mg/L	0.02 mg/L	100	70.0	130	----
		Selenium, dissolved	7782-49-2	E421	0.0408 mg/L	0.04 mg/L	102	70.0	130	----
		Silicon, dissolved	7440-21-3	E421	ND mg/L	----	ND	70.0	130	----
		Silver, dissolved	7440-22-4	E421	0.00388 mg/L	0.004 mg/L	97.0	70.0	130	----
		Sodium, dissolved	7440-23-5	E421	ND mg/L	----	ND	70.0	130	----
		Strontium, dissolved	7440-24-6	E421	ND mg/L	----	ND	70.0	130	----
		Sulfur, dissolved	7704-34-9	E421	20.2 mg/L	20 mg/L	101	70.0	130	----
		Tellurium, dissolved	13494-80-9	E421	0.0397 mg/L	0.04 mg/L	99.2	70.0	130	----
		Thallium, dissolved	7440-28-0	E421	0.00366 mg/L	0.004 mg/L	91.4	70.0	130	----
		Thorium, dissolved	7440-29-1	E421	0.0182 mg/L	0.02 mg/L	91.0	70.0	130	----
		Tin, dissolved	7440-31-5	E421	0.0199 mg/L	0.02 mg/L	99.6	70.0	130	----
		Titanium, dissolved	7440-32-6	E421	0.0386 mg/L	0.04 mg/L	96.6	70.0	130	----
		Tungsten, dissolved	7440-33-7	E421	0.0193 mg/L	0.02 mg/L	96.6	70.0	130	----
		Uranium, dissolved	7440-61-1	E421	0.00388 mg/L	0.004 mg/L	97.0	70.0	130	----
		Vanadium, dissolved	7440-62-2	E421	0.100 mg/L	0.1 mg/L	100	70.0	130	----
		Zinc, dissolved	7440-66-6	E421	0.393 mg/L	0.4 mg/L	98.2	70.0	130	----
		Zirconium, dissolved	7440-67-7	E421	0.0394 mg/L	0.04 mg/L	98.6	70.0	130	----
Dissolved Metals (QCLot: 1934403)										
VA25A6870-002	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000975 mg/L	0 mg/L	97.5	70.0	130	----
Dissolved Metals (QCLot: 1934404)										
VA25A6884-007	S-MW-1	Mercury, dissolved	7439-97-6	E509	0.0000927 mg/L	0 mg/L	92.7	70.0	130	----

Chain of Custody (COC) / Analytical Request Form

COC Number: 22 - 20250377

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Canada Toll Free: 1 800 668 9878

Environmental Division
Vancouver
Work Order Reference
VA25A6884

Telephone : +1 604 253 4188

Report To	Contact and company name below will appear on the final report	Reports / Recipients	Turnaround Time (TAT) Requested
Company:	Masse Environmental	Select Report Format: ☑ PDF ☑ EXCEL ☑ EDD (DIGITAL)	☑ Routine [R] if received by 3pm M-F - no surcharges a
Contact:	Ico deZwart	Merge QC/QCI Reports with COA ☑ YES ☐ NO ☐ N/A	☐ 4 day [P4] if received by 3pm M-F - 20% rush surcha
Phone:		☐ Compare Results to Criteria on Report - provide details below if box checked	☐ 3 day [P3] if received by 3pm M-F - 25% rush surch
	Company address below will appear on the final report	Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX	☐ 2 day [P2] if received by 3pm M-F - 50% rush surch
Street:	812 Vernon St.	Email 1 or Fax ico@masseenvironmental.com	☐ 1 day [E] if received by 3pm M-F - 100% rush surch
City/Province:	Nelson, BC	Email 2 chris@masseenvironmental.com	☐ Same day [E2] if received by 10am M-S - 200% rus
Postal Code:	V1L4G4	Email 3	Additional fees may apply to rush requests o
Invoice To	Same as Report To ☑ YES ☐ NO	Invoice Recipients	Date and Time Required for all E&P TATs:
	Copy of Invoice with Report ☑ YES ☐ NO	Select Invoice Distribution: ☑ EMAIL ☐ MAIL ☐ FAX	For all tests with rush TATs reques
Company:		Email 1 or Fax lise@masseenvironmental.com	Ana
Contact:		Email 2	

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	VA24-MASS200-001	AFE/Cost Center:	PO#
Job #:	2016-503 - HB	Major/Minor Code:	Routing Code:
PO / AFE:		Requisitioner:	
LSD:		Location:	

ALS Lab Work Order # (ALS use only):	ALS Contact:	Sampler: C.Stephanou

ALS Sample # (ALS use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below: pH, cond, TSS, TDS, alkalinity, hardnes	Chloride, bromide, fluoride, sulfate (P)	Ammonia, TKN, nitrate, nitrite (P)	TOC	Dissolved Metals (incl Hg) (F)	Total Metals (incl Hg)	Orthophosphate	Total Sulphide	SAMPLES ON HOLD	EXTENDED STORAGE REQUIRED	SUSPECTED HAZARD (see notes)
	Duplicate	26-Mar-25	09:30	GW	7	R	R	R	R	R	R	R	R			
	~~Field Blank~~															

Drinking Water (DW) Samples[1] (client use)	Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only)
Are samples taken from a Regulated DW System? ☐ YES ☐ NO	
Are samples for human consumption/ use? ☐ YES ☐ NO	

SAMPLE RECEIPT DETAILS (ALS use only)

Cooling Method: ☐ NONE ☐ ICE ☐ ICE PACKS ☐ FROZEN ☐ COOLING INITIATED

Submission Comments identified on Sample Receipt Notification: ☐ YES ☐ NO

Cooler Custody Seals Intact: ☐ YES ☐ N/A Sample Custody Seals Intact: ☐ YES ☐ N/A

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
				10	10	8	

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (ALS use only)			FINAL SHIPMENT RECEPTION (ALS use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by: SJ	Date: 28/03/25	Time: 12:45

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION WHITE - LABORATORY COPY YELLOW - CLIENT COPY

FEH 2022 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form.**

Chain of Custody (COC) / Analytical Request Form

COC Number: 22 - 20250327

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Canada Toll Free: 1 800 668 9878

Report To	Contact and company name below will appear on the final report	Reports / Recipients	Turnaround Time (TAT) Requested
Company:	Masse Environmental	Select Report Format: ☑ PDF ☑ EXCEL ☑ EDD (DIGITAL)	☑ Routine [R] if received by 3pm M-F - no surcharges apply
Contact:	Ico deZwart	Merge QC/QCI Reports with COA ☑ YES ☐ NO ☐ N/A	☐ 4 day [P4] if received by 3pm M-F - 20% rush surcharge minimum
Phone:		☐ Compare Results to Criteria on Report - provide details below if box checked	☐ 3 day [P3] if received by 3pm M-F - 25% rush surcharge minimum
	Company address below will appear on the final report	Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX	☐ 2 day [P2] if received by 3pm M-F - 50% rush surcharge minimum
Street:	812 Vernon St.	Email 1 or Fax ico@masseenvironmental.com	☐ 1 day [E] if received by 3pm M-F - 100% rush surcharge minimum
City/Province:	Nelson, BC	Email 2 chris@masseenvironmental.com	☐ Same day [E2] if received by 10am M-S - 200% rush surcharge.
Postal Code:	V1L4G4	Email 3	Additional fees may apply to rush requests on weekends, statutory holidays and for non-routine tests.
Invoice To	Same as Report To ☑ YES ☐ NO	Invoice Recipients	Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm am/pm
	Copy of Invoice with Report ☑ YES ☐ NO	Select Invoice Distribution: ☑ EMAIL ☐ MAIL ☐ FAX	For all tests with rush TATs requested, please contact your AM to confirm availability.
Company:		Email 1 or Fax lise@masseenvironmental.com	
Contact:		Email 2	

AFFIX ALS BARCODE LABEL HERE (ALS use only)

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	VA24-MASS200-001	AFE/Cost Center:	PO#
Job #:	2016-503 - HB	Major/Minor Code:	Routing Code:
PO / AFE:		Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (ALS use only):		ALS Contact:	Sampler: C.Stephanou

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (ALS use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	pH, cond, TSS, TDS, alkalinity, hardnes	Chloride, bromide, fluoride, sulfate (P)	Ammonia, TKN, nitrate, nitrite (P)	TOC	Dissolved Metals (incl Hg) (F)	Total Metals (incl Hg)	Orthophosphate	Total Sulphide	SAMPLES ON HOLD	EXTENDED STORAGE REQUIRED	SUSPECTED HAZARD (see notes)
	MW99-1(S) (E275563)	26-Mar-25	14:47	GW	7	R	R	R	R	R	R	R	R			
	MW99-1(D) (E240501)	26-Mar-25	15:27	GW	7	R	R	R	R	R	R	R	R			
	~~MW99-2(S) (E275643)~~			~~GW~~	~~7~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~			
	~~MW99-2(D) (E240502)~~			~~GW~~	~~7~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~			
	MW-05-01 (E252593)	26-Mar-25	09:50	GW	7	R	R	R	R	R	R	R	R			
	MW-01-2004(S) (E303722)	26-Mar-25	11:15	GW	7	R	R	R	R	R	R	R	R			
	MW-01-2004(D) (E303723)	26-Mar-25	11:30	GW	7	R	R	R	R	R	R	R	R			
	~~MW-06-01 ((E252594)~~			~~GW~~	~~7~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~			
	S-MW-1 (E221702)	26-Mar-25	14:00	GW	7	R	R	R	R	R	R	R	R			
	~~MW-02A-01 (E252604)~~			~~GW~~	~~7~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~			
	S-MW-2 (E221703)	26-Mar-25	13:11	GW	7	R	R	R	R	R	R	R	R			
	~~MW-04S-05 (E208349)~~			~~GW~~	~~7~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~			

Drinking Water (DW) Samples[1] (client use)	Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only)
Are samples taken from a Regulated DW System? ☐ YES ☐ NO	
Are samples for human consumption/ use? ☐ YES ☐ NO	

SAMPLE RECEIPT DETAILS (ALS use only)

Cooling Method: ☐ NONE ☐ ICE ☒ ICE PACKS ☐ FROZEN ☐ COOLING INITIATED

Submission Comments identified on Sample Receipt Notification: ☐ YES ☐ NO

Cooler Custody Seals Intact: ☐ YES ☐ N/A Sample Custody Seals Intact: ☐ YES ☐ N/A

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
				10	10	8	

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (ALS use only)			FINAL SHIPMENT RECEPTION (ALS use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by: SS	Date: 28 03 25	Time: 12:04

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION WHITE - LABORATORY COPY YELLOW - CLIENT COPY

FEB 2021 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

CERTIFICATE OF ANALYSIS

Work Order	:	**VA25A7369**			
Client	:	**Masse Environmental Consultants Ltd.**	Laboratory	:	ALS Environmental - Vancouver
Contact	:	Ico de Zwart	Account Manager	:	Can Dang
Address	:	812 Vernon Street Nelson British Columbia Canada V1L 4G4	Address	:	8081 Lougheed Highway Burnaby BC Canada V5A 1W9
Telephone	:	----	Telephone	:	+1 604 253 4188
Project	:	2016-503-HB	Date Samples Received	:	03-Apr-2025 13:10
PO	:	----	Date Analysis Commenced	:	04-Apr-2025
C-O-C number	:	22-20250402	Issue Date	:	11-Apr-2025 15:32
Sampler	:	Chris Stephanou			
Site	:	RDCK			
Quote number	:	----			
No. of samples received	:	5			
No. of samples analysed	:	5			

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Dan Gebert	Supervisor - Metals Mercury & Speciation	Metals, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia
Monica Ko	Lab Assistant	Inorganics, Burnaby, British Columbia
Owen Cheng		Metals, Burnaby, British Columbia
Robin Weeks	Team Leader - Metals	Metals, Burnaby, British Columbia
Trace Chometsky	Account Manager Assistant	Administration, Burnaby, British Columbia

General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Please refer to Quality Control Interpretive report (QCI) for information regarding Holding Time compliance.

Key: CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances.
LOR: Limit of Reporting (detection limit).

Unit	*Description*
-	no units
°C	degrees celsius
mg/L	milligrams per litre
mV	millivolts
NTU	nephelometric turbidity units
pH units	pH units
µg/L	micrograms per litre
µS/cm	microsiemens per centimetre

<: less than.
>: greater than.
Surrogate: An analyte that is similar in behavior to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED on SRN or QCI Report, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Qualifiers

Qualifier	Description
DLA	Detection Limit adjusted for required dilution.
DLDS	Detection Limit Raised: Dilution required due to high Dissolved Solids / Electrical Conductivity.
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	Field Blank	MW99-2(S) (E275543)	MW99-2(D) (E240502)	MW-06-01 (E252594)	MW-04S-05 (E266349)
					Client sampling date / time	01-Apr-2025 15:15	01-Apr-2025 11:34	01-Apr-2025 11:59	01-Apr-2025 14:50	01-Apr-2025 13:52
						VA25A7369-001	VA25A7369-002	VA25A7369-003	VA25A7369-004	VA25A7369-005
						Result	Result	Result	Result	Result
Field Tests										
Conductivity, field	----	EF001/VA	0.10	µS/cm		----	564	804	1470	484
Oxygen, dissolved, field	----	EF001/VA	0.01	mg/L		----	3.77	3.37	1.84	6.52
pH, field	----	EF001/VA	0.10	pH units		----	6.54	7.37	6.82	7.15
Redox potential, field	----	EF001/VA	0.01	mV		----	-15.2	-81.3	-94.1	-22.4
Temperature, field	----	EF001/VA	0.10	°C		----	5.80	7.80	6.80	8.80
Turbidity, field	----	EF001/VA	0.01	NTU		----	2.99	6.69	17.2	2.25
Physical Tests										
Alkalinity, total (as CaCO3)	----	E290/VA	1.0	mg/L		<1.0	228	288	287	256
Conductivity	----	E100/VA	2.0	µS/cm		<2.0	725	621	1930	590
Hardness (as CaCO3), dissolved	----	EC100/VA	0.60	mg/L		<0.60	375	328	1190	288
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/VA	0.60	mg/L		<0.60	394	338	1160	279
pH	----	E108/VA	0.10	pH units		5.35	7.68	8.23	7.46	8.14
Solids, total dissolved [TDS]	----	E162/VA	10	mg/L		<10	524	404	1730	385
Solids, total suspended [TSS]	----	E160/VA	3.0	mg/L		<3.0	3.3	7.5	68.7	<3.0
Anions and Nutrients										
Ammonia, total (as N)	7664-41-7	E298/VA	0.0050	mg/L		<0.0050	0.0533	0.0202	1.18	0.0890
Bromide	24959-67-9	E235.Br-L/VA	0.050	mg/L		<0.050	<0.250 DLDS	<0.050	<1.00 DLDS	0.118
Chloride	16887-00-6	E235.Cl/VA	0.50	mg/L		<0.50	<2.50 DLDS	<0.50	<10.0 DLDS	15.2
Fluoride	16984-48-8	E235.F/VA	0.020	mg/L		<0.020	<0.100 DLDS	0.144	<0.400 DLDS	0.034
Kjeldahl nitrogen, total [TKN]	----	E318/VA	0.050	mg/L		<0.050	0.178	<0.050	2.54	0.137
Nitrate (as N)	14797-55-8	E235.NO3-L/VA	0.0050	mg/L		<0.0050	<0.0250 DLDS	<0.0050	<0.100 DLDS	<0.0050

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Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Field Blank	MW99-2(S) (E275543)	MW99-2(D) (E240502)	MW-06-01 (E252594)	MW-04S-05 (E266349)
Client sample ID									
Client sampling date / time					01-Apr-2025 15:15	01-Apr-2025 11:34	01-Apr-2025 11:59	01-Apr-2025 14:50	01-Apr-2025 13:52
					VA25A7369-001	VA25A7369-002	VA25A7369-003	VA25A7369-004	VA25A7369-005
					Result	Result	Result	Result	Result
Anions and Nutrients									
Nitrite (as N)	14797-65-0	E235.NO2-L/VA	0.0010	mg/L	<0.0010	<0.0050 DLDS	<0.0010	<0.0200 DLDS	<0.0010
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U/VA	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Sulfate (as SO4)	14808-79-8	E235.SO4/VA	0.30	mg/L	<0.30	175	70.3	913	46.5
Organic / Inorganic Carbon									
Carbon, total organic [TOC]	----	E355-L/VA	0.50	mg/L	<0.50	3.84	<0.50	15.1	1.40
Total Sulfides									
Sulfide, total (as H2S)	7783-06-4	E395-H/VA	0.011	mg/L	<0.011	<0.011	<0.011	0.268	0.026
Sulfide, total (as S)	18496-25-8	E395-H/VA	0.010	mg/L	<0.010	<0.010	<0.010	0.252	0.024
Total Metals									
Aluminum, total	7429-90-5	E420/VA	3.0	µg/L	<3.0	10.9	38.6	91.2	35.5
Antimony, total	7440-36-0	E420/VA	0.10	µg/L	<0.10	<0.10	<0.10	0.51	0.11
Arsenic, total	7440-38-2	E420/VA	0.10	µg/L	<0.10	9.99	0.80	6.78	0.89
Barium, total	7440-39-3	E420/VA	0.10	µg/L	<0.10	48.8	54.2	20.4	51.2
Beryllium, total	7440-41-7	E420/VA	0.100	µg/L	<0.100	<0.100	<0.100	<0.100 DLA	<0.100
Bismuth, total	7440-69-9	E420/VA	0.050	µg/L	<0.050	<0.050	<0.050	<0.100 DLA	<0.050
Boron, total	7440-42-8	E420/VA	10	µg/L	<10	<10	<10	214	<10
Cadmium, total	7440-43-9	E420/VA	0.0050	µg/L	<0.0050	0.0178	0.0236	9.70	0.480
Calcium, total	7440-70-2	E420/VA	50	µg/L	<50	124000	78200	380000	89000
Cesium, total	7440-46-2	E420/VA	0.010	µg/L	<0.010	0.094	1.07	0.889	0.012
Chromium, total	7440-47-3	E420/VA	0.50	µg/L	<0.50	<0.50	<0.50	<1.00 DLA	<0.50
Cobalt, total	7440-48-4	E420/VA	0.10	µg/L	<0.10	6.95	0.19	2.33	0.44

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	Field Blank	MW99-2(S) (E275543)	MW99-2(D) (E240502)	MW-06-01 (E252594)	MW-04S-05 (E266349)
					Client sampling date / time	01-Apr-2025 15:15	01-Apr-2025 11:34	01-Apr-2025 11:59	01-Apr-2025 14:50	01-Apr-2025 13:52
						VA25A7369-001	VA25A7369-002	VA25A7369-003	VA25A7369-004	VA25A7369-005
						Result	Result	Result	Result	Result
Total Metals										
Copper, total	7440-50-8	E420/VA	0.50	µg/L		<0.50	<0.50	0.69	3.81	0.54
Iron, total	7439-89-6	E420/VA	10	µg/L		<10	5200	1650	33200	675
Lead, total	7439-92-1	E420/VA	0.050	µg/L		<0.050	0.433	0.456	125	8.13
Lithium, total	7439-93-2	E420/VA	1.0	µg/L		<1.0	1.3	6.8	2.8	1.1
Magnesium, total	7439-95-4	E420/VA	5.0	µg/L		<5.0	20400	34800	50400	13800
Manganese, total	7439-96-5	E420/VA	0.10	µg/L		<0.10	4920	108	712	748
Mercury, total	7439-97-6	E508/VA	0.0050	µg/L		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Molybdenum, total	7439-98-7	E420/VA	0.050	µg/L		<0.050	0.668	0.379	0.670	0.546
Nickel, total	7440-02-0	E420/VA	0.50	µg/L		<0.50	4.96	<0.50	9.93	3.00
Phosphorus, total	7723-14-0	E420/VA	50	µg/L		<50	55	64	<100 DLA	<50
Potassium, total	7440-09-7	E420/VA	50	µg/L		<50	2130	1070	8110	2740
Rubidium, total	7440-17-7	E420/VA	0.20	µg/L		<0.20	1.05	1.93	23.4	0.80
Selenium, total	7782-49-2	E420/VA	0.050	µg/L		<0.050	<0.050	<0.050	<0.100 DLA	<0.050
Silicon, total	7440-21-3	E420/VA	100	µg/L		<100	7730	11000	6090	8000
Silver, total	7440-22-4	E420/VA	0.010	µg/L		<0.010	<0.010	<0.010	0.111	<0.010
Sodium, total	7440-23-5	E420/VA	50	µg/L		<50	3510	7470	12000	5960
Strontium, total	7440-24-6	E420/VA	0.20	µg/L		<0.20	440	631	439	468
Sulfur, total	7704-34-9	E420/VA	500	µg/L		<500	62700	26100	332000	16000
Tellurium, total	13494-80-9	E420/VA	0.20	µg/L		<0.20	<0.20	<0.20	<0.40 DLA	<0.20
Thallium, total	7440-28-0	E420/VA	0.010	µg/L		<0.010	<0.010	<0.010	0.305	0.025
Thorium, total	7440-29-1	E420/VA	0.10	µg/L		<0.10	<0.10	<0.10	<0.20 DLA	<0.10

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	Field Blank	MW99-2(S) (E275543)	MW99-2(D) (E240502)	MW-06-01 (E252594)	MW-04S-05 (E266349)
					Client sampling date / time	01-Apr-2025 15:15	01-Apr-2025 11:34	01-Apr-2025 11:59	01-Apr-2025 14:50	01-Apr-2025 13:52
						VA25A7369-001	VA25A7369-002	VA25A7369-003	VA25A7369-004	VA25A7369-005
						Result	Result	Result	Result	Result
Total Metals										
Tin, total	7440-31-5	E420/VA	0.10	µg/L		<0.10	0.14	0.66	<0.20 DLA	0.17
Titanium, total	7440-32-6	E420/VA	0.30	µg/L		<0.30	0.45	1.67	<5.40 DLM	1.23
Tungsten, total	7440-33-7	E420/VA	0.10	µg/L		<0.10	<0.10	0.12	<0.20 DLA	0.23
Uranium, total	7440-61-1	E420/VA	0.010	µg/L		<0.010	3.49	2.00	6.11	6.18
Vanadium, total	7440-62-2	E420/VA	0.50	µg/L		<0.50	<0.50	<0.50	<1.00 DLA	<0.50
Zinc, total	7440-66-6	E420/VA	3.0	µg/L		<3.0	12.5	9.0	3160	11.3
Zirconium, total	7440-67-7	E420/VA	0.20	µg/L		<0.20	<0.20	<0.20	<0.40 DLA	<0.20
Dissolved Metals										
Aluminum, dissolved	7429-90-5	E421/VA	1.0	µg/L		<1.0	1.9	<1.0	3.2	<1.0
Antimony, dissolved	7440-36-0	E421/VA	0.10	µg/L		<0.10	<0.10	<0.10	<0.20 DLA	<0.10
Arsenic, dissolved	7440-38-2	E421/VA	0.10	µg/L		<0.10	9.64	0.36	5.95	0.79
Barium, dissolved	7440-39-3	E421/VA	0.10	µg/L		<0.10	47.1	52.0	17.5	50.2
Beryllium, dissolved	7440-41-7	E421/VA	0.100	µg/L		<0.100	<0.100	<0.100	<0.100 DLA	<0.100
Bismuth, dissolved	7440-69-9	E421/VA	0.050	µg/L		<0.050	<0.050	<0.050	<0.100 DLA	<0.050
Boron, dissolved	7440-42-8	E421/VA	10	µg/L		<10	<10	<10	210	<10
Cadmium, dissolved	7440-43-9	E421/VA	0.0050	µg/L		<0.0050	0.0069	0.0053	0.0415	0.0784
Calcium, dissolved	7440-70-2	E421/VA	50	µg/L		<50	117000	74200	393000	91100
Cesium, dissolved	7440-46-2	E421/VA	0.010	µg/L		<0.010	0.089	0.993	0.829	<0.010
Chromium, dissolved	7440-47-3	E421/VA	0.50	µg/L		<0.50	<0.50	<0.50	<1.00 DLA	<0.50
Cobalt, dissolved	7440-48-4	E421/VA	0.10	µg/L		<0.10	6.68	0.16	2.05	0.34
Copper, dissolved	7440-50-8	E421/VA	0.20	µg/L		<0.20	<0.20	<0.20	0.72	<0.20

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID: Field Blank	MW99-2(S) (E275543)	MW99-2(D) (E240502)	MW-06-01 (E252594)	MW-04S-05 (E266349)
					Client sampling date / time: 01-Apr-2025 15:15	01-Apr-2025 11:34	01-Apr-2025 11:59	01-Apr-2025 14:50	01-Apr-2025 13:52
					VA25A7369-001	VA25A7369-002	VA25A7369-003	VA25A7369-004	VA25A7369-005
					Result	Result	Result	Result	Result
Dissolved Metals									
Iron, dissolved	7439-89-6	E421/VA	10	µg/L	<10	4660	846	32400	376
Lead, dissolved	7439-92-1	E421/VA	0.050	µg/L	<0.050	<0.050	<0.050	1.25	0.133
Lithium, dissolved	7439-93-2	E421/VA	1.0	µg/L	<1.0	1.3	6.7	2.6	1.0
Magnesium, dissolved	7439-95-4	E421/VA	5.0	µg/L	<5.0	20200	34700	50400	14600
Manganese, dissolved	7439-96-5	E421/VA	0.10	µg/L	<0.10	4660	98.2	699	742
Mercury, dissolved	7439-97-6	E509/VA	0.0050	µg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Molybdenum, dissolved	7439-98-7	E421/VA	0.050	µg/L	<0.050	0.726	0.359	0.669	0.554
Nickel, dissolved	7440-02-0	E421/VA	0.50	µg/L	<0.50	4.72	<0.50	7.08	2.40
Phosphorus, dissolved	7723-14-0	E421/VA	50	µg/L	<50	<50	<50	<100 DLA	<50
Potassium, dissolved	7440-09-7	E421/VA	50	µg/L	<50	2100	1080	8250	2890
Rubidium, dissolved	7440-17-7	E421/VA	0.20	µg/L	<0.20	0.87	1.78	23.0	0.80
Selenium, dissolved	7782-49-2	E421/VA	0.050	µg/L	<0.050	<0.050	<0.050	<0.100 DLA	<0.050
Silicon, dissolved	7440-21-3	E421/VA	50	µg/L	<50	7570	11200	6350	8300
Silver, dissolved	7440-22-4	E421/VA	0.010	µg/L	<0.010	<0.010	<0.010	<0.020 DLA	<0.010
Sodium, dissolved	7440-23-5	E421/VA	50	µg/L	<50	3430	7540	12500	6310
Strontium, dissolved	7440-24-6	E421/VA	0.20	µg/L	<0.20	430	623	454	476
Sulfur, dissolved	7704-34-9	E421/VA	500	µg/L	<500	63000	26900	353000	17500
Tellurium, dissolved	13494-80-9	E421/VA	0.20	µg/L	<0.20	<0.20	<0.20	<0.40 DLA	<0.20
Thallium, dissolved	7440-28-0	E421/VA	0.010	µg/L	<0.010	<0.010	<0.010	0.143	<0.010
Thorium, dissolved	7440-29-1	E421/VA	0.10	µg/L	<0.10	<0.10	<0.10	<0.20 DLA	<0.10
Tin, dissolved	7440-31-5	E421/VA	0.10	µg/L	<0.10	<0.10	<0.10	<0.20 DLA	<0.10

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	Field Blank	MW99-2(S) (E275543)	MW99-2(D) (E240502)	MW-06-01 (E252594)	MW-04S-05 (E266349)
					Client sampling date / time	01-Apr-2025 15:15	01-Apr-2025 11:34	01-Apr-2025 11:59	01-Apr-2025 14:50	01-Apr-2025 13:52
						VA25A7369-001	VA25A7369-002	VA25A7369-003	VA25A7369-004	VA25A7369-005
						Result	Result	Result	Result	Result
Dissolved Metals										
Titanium, dissolved	7440-32-6	E421/VA	0.30	µg/L		<0.30	<0.30	<0.30	<0.60 DLA	<0.30
Tungsten, dissolved	7440-33-7	E421/VA	0.10	µg/L		<0.10	<0.10	<0.10	<0.20 DLA	<0.10
Uranium, dissolved	7440-61-1	E421/VA	0.010	µg/L		<0.010	3.42	1.97	6.36	6.30
Vanadium, dissolved	7440-62-2	E421/VA	0.50	µg/L		<0.50	<0.50	<0.50	<1.00 DLA	<0.50
Zinc, dissolved	7440-66-6	E421/VA	1.0	µg/L		<1.0	10.5	5.6	2660	1.8
Zirconium, dissolved	7440-67-7	E421/VA	0.20	µg/L		<0.20	<0.20	<0.20	<0.40 DLA	<0.20
Dissolved mercury filtration location	----	EP509/VA	-	-		Field	Field	Field	Field	Field
Dissolved metals filtration location	----	EP421/VA	-	-		Field	Field	Field	Field	Field

Please refer to the General Comments section for an explanation of any result qualifiers detected.

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QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **VA25A7369**	Page	: 1 of 22
Client	: **Masse Environmental Consultants Ltd.**	Laboratory	: ALS Environmental - Vancouver
Contact	: Ico de Zwart	Account Manager	: Can Dang
Address	: 812 Vernon Street Nelson BC Canada V1L 4G4	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: ----	Telephone	: +1 604 253 4188
Project	: 2016-503-HB	Date Samples Received	: 03-Apr-2025 13:10
PO	: ----	Issue Date	: 11-Apr-2025 15:32
C-O-C number	: 22-20250402		
Sampler	: Chris Stephanou		
Site	: RDCK		
Quote number	: ----		
No. of samples received	: 5		
No. of samples analysed	: 5		

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Key

Anonymous: Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number: Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO: Data Quality Objective.
LOR: Limit of Reporting (detection limit).
RPD: Relative Percent Difference.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Summary of Outliers

Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- No Duplicate outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- Matrix Spike outliers occur - please see following pages for full details.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- Analysis Holding Time Outliers exist - please see following pages for full details.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **Water**

Analyte Group	Laboratory sample ID	Client/Ref Sample ID	Analyte	CAS Number	Method	Result	Limits	Comment
Matrix Spike (MS) Recoveries								
Total Metals	Anonymous	Anonymous	Thorium, total	7440-29-1	E420	63.0 % MES	70.0-130%	Recovery less than lower data quality objective

Result Qualifiers

Qualifier	Description
MES	*Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).*

Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
Field Blank	E298	01-Apr-2025	04-Apr-2025	28 days	3 days	✓	09-Apr-2025	28 days	3 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
MW-04S-05 (E266349)	E298	01-Apr-2025	04-Apr-2025	28 days	3 days	✓	09-Apr-2025	28 days	3 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
MW-06-01 (E252594)	E298	01-Apr-2025	04-Apr-2025	28 days	3 days	✓	09-Apr-2025	28 days	3 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
MW99-2(D) (E240502)	E298	01-Apr-2025	04-Apr-2025	28 days	3 days	✓	09-Apr-2025	28 days	3 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
MW99-2(S) (E275543)	E298	01-Apr-2025	04-Apr-2025	28 days	3 days	✓	09-Apr-2025	28 days	3 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
Field Blank	E235.Br-L	01-Apr-2025	04-Apr-2025	28 days	2 days	✓	04-Apr-2025	28 days	2 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
MW-06-01 (E252594)	E235.Br-L	01-Apr-2025	04-Apr-2025	28 days	2 days	✓	04-Apr-2025	28 days	2 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
MW-04S-05 (E266349)	E235.Br-L	01-Apr-2025	04-Apr-2025	28 days	3 days	✓	04-Apr-2025	28 days	3 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
MW99-2(D) (E240502)	E235.Br-L	01-Apr-2025	04-Apr-2025	28 days	3 days	✓	04-Apr-2025	28 days	3 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
MW99-2(S) (E275543)	E235.Br-L	01-Apr-2025	04-Apr-2025	28 days	3 days	✓	04-Apr-2025	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE										
Field Blank	E235.Cl	01-Apr-2025	04-Apr-2025	28 days	2 days	✓	04-Apr-2025	28 days	2 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE										
MW-06-01 (E252594)	E235.Cl	01-Apr-2025	04-Apr-2025	28 days	2 days	✓	04-Apr-2025	28 days	2 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE										
MW-04S-05 (E266349)	E235.Cl	01-Apr-2025	04-Apr-2025	28 days	3 days	✓	04-Apr-2025	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE										
MW99-2(D) (E240502)	E235.Cl	01-Apr-2025	04-Apr-2025	28 days	3 days	✓	04-Apr-2025	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE										
MW99-2(S) (E275543)	E235.Cl	01-Apr-2025	04-Apr-2025	28 days	3 days	✓	04-Apr-2025	28 days	3 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE										
Field Blank	E378-U	01-Apr-2025	04-Apr-2025	3 days	2 days	✓	04-Apr-2025	3 days	2 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE										
MW-06-01 (E252594)	E378-U	01-Apr-2025	04-Apr-2025	3 days	2 days	✓	04-Apr-2025	3 days	2 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE										
MW-04S-05 (E266349)	E378-U	01-Apr-2025	04-Apr-2025	3 days	3 days	✓	04-Apr-2025	3 days	3 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE										
MW99-2(D) (E240502)	E378-U	01-Apr-2025	04-Apr-2025	3 days	3 days	✓	04-Apr-2025	3 days	3 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE										
MW99-2(S) (E275543)	E378-U	01-Apr-2025	04-Apr-2025	3 days	3 days	✓	04-Apr-2025	3 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
Field Blank	E235.F	01-Apr-2025	04-Apr-2025	28 days	2 days	✓	04-Apr-2025	28 days	2 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
MW-06-01 (E252594)	E235.F	01-Apr-2025	04-Apr-2025	28 days	2 days	✓	04-Apr-2025	28 days	2 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
MW-04S-05 (E266349)	E235.F	01-Apr-2025	04-Apr-2025	28 days	3 days	✓	04-Apr-2025	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
MW99-2(D) (E240502)	E235.F	01-Apr-2025	04-Apr-2025	28 days	3 days	✓	04-Apr-2025	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
MW99-2(S) (E275543)	E235.F	01-Apr-2025	04-Apr-2025	28 days	3 days	✓	04-Apr-2025	28 days	3 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
Field Blank	E235.NO3-L	01-Apr-2025	04-Apr-2025	3 days	2 days	✓	04-Apr-2025	3 days	2 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
MW-06-01 (E252594)	E235.NO3-L	01-Apr-2025	04-Apr-2025	3 days	2 days	✓	04-Apr-2025	3 days	2 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
MW-04S-05 (E266349)	E235.NO3-L	01-Apr-2025	04-Apr-2025	3 days	3 days	✓	04-Apr-2025	3 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
MW99-2(D) (E240502)	E235.NO3-L	01-Apr-2025	04-Apr-2025	3 days	3 days	✓	04-Apr-2025	3 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
MW99-2(S) (E275543)	E235.NO3-L	01-Apr-2025	04-Apr-2025	3 days	3 days	✓	04-Apr-2025	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
Field Blank	E235.NO2-L	01-Apr-2025	04-Apr-2025	3 days	2 days	✓	04-Apr-2025	3 days	2 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
MW-06-01 (E252594)	E235.NO2-L	01-Apr-2025	04-Apr-2025	3 days	2 days	✓	04-Apr-2025	3 days	2 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
MW-04S-05 (E266349)	E235.NO2-L	01-Apr-2025	04-Apr-2025	3 days	3 days	✓	04-Apr-2025	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
MW99-2(D) (E240502)	E235.NO2-L	01-Apr-2025	04-Apr-2025	3 days	3 days	✓	04-Apr-2025	3 days	3 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE MW99-2(S) (E275543)	E235.NO2-L	01-Apr-2025	04-Apr-2025	3 days	3 days	✓	04-Apr-2025	3 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE Field Blank	E235.SO4	01-Apr-2025	04-Apr-2025	28 days	2 days	✓	04-Apr-2025	28 days	2 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE MW-06-01 (E252594)	E235.SO4	01-Apr-2025	04-Apr-2025	28 days	2 days	✓	04-Apr-2025	28 days	2 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE MW-04S-05 (E266349)	E235.SO4	01-Apr-2025	04-Apr-2025	28 days	3 days	✓	04-Apr-2025	28 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE MW99-2(D) (E240502)	E235.SO4	01-Apr-2025	04-Apr-2025	28 days	3 days	✓	04-Apr-2025	28 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE MW99-2(S) (E275543)	E235.SO4	01-Apr-2025	04-Apr-2025	28 days	3 days	✓	04-Apr-2025	28 days	3 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) Field Blank	E318	01-Apr-2025	04-Apr-2025	28 days	3 days	✓	07-Apr-2025	28 days	3 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) MW-04S-05 (E266349)	E318	01-Apr-2025	04-Apr-2025	28 days	3 days	✓	07-Apr-2025	28 days	3 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) MW-06-01 (E252594)	E318	01-Apr-2025	04-Apr-2025	28 days	3 days	✓	07-Apr-2025	28 days	3 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid)										
MW99-2(D) (E240502)	E318	01-Apr-2025	04-Apr-2025	28 days	3 days	✓	07-Apr-2025	28 days	3 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid)										
MW99-2(S) (E275543)	E318	01-Apr-2025	04-Apr-2025	28 days	3 days	✓	07-Apr-2025	28 days	3 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
Field Blank	E509	01-Apr-2025	09-Apr-2025	28 days	8 days	✓	10-Apr-2025	28 days	8 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
MW-04S-05 (E266349)	E509	01-Apr-2025	09-Apr-2025	28 days	8 days	✓	10-Apr-2025	28 days	8 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
MW-06-01 (E252594)	E509	01-Apr-2025	09-Apr-2025	28 days	8 days	✓	10-Apr-2025	28 days	8 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
MW99-2(D) (E240502)	E509	01-Apr-2025	09-Apr-2025	28 days	8 days	✓	10-Apr-2025	28 days	8 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
MW99-2(S) (E275543)	E509	01-Apr-2025	09-Apr-2025	28 days	9 days	✓	10-Apr-2025	28 days	9 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
Field Blank	E421	01-Apr-2025	04-Apr-2025	180 days	3 days	✓	07-Apr-2025	180 days	3 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
MW-04S-05 (E266349)	E421	01-Apr-2025	04-Apr-2025	180 days	3 days	✓	07-Apr-2025	180 days	3 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) MW-06-01 (E252594)	E421	01-Apr-2025	04-Apr-2025	180 days	3 days	✓	07-Apr-2025	180 days	3 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) MW99-2(D) (E240502)	E421	01-Apr-2025	04-Apr-2025	180 days	3 days	✓	07-Apr-2025	180 days	3 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) MW99-2(S) (E275543)	E421	01-Apr-2025	04-Apr-2025	180 days	3 days	✓	07-Apr-2025	180 days	3 days	✓
Field Tests : Field pH,EC,Salinity, TDS, Cl2,ClO2,ORP,DO, Turbidity,T,T-P,o-PO4,NH3,Chloramine										
Glass vial - total (lab preserved) MW-04S-05 (E266349)	EF001	01-Apr-2025	----	----	----		07-Apr-2025	----	----	
Field Tests : Field pH,EC,Salinity, TDS, Cl2,ClO2,ORP,DO, Turbidity,T,T-P,o-PO4,NH3,Chloramine										
Glass vial - total (lab preserved) MW-06-01 (E252594)	EF001	01-Apr-2025	----	----	----		07-Apr-2025	----	----	
Field Tests : Field pH,EC,Salinity, TDS, Cl2,ClO2,ORP,DO, Turbidity,T,T-P,o-PO4,NH3,Chloramine										
Glass vial - total (lab preserved) MW99-2(D) (E240502)	EF001	01-Apr-2025	----	----	----		07-Apr-2025	----	----	
Field Tests : Field pH,EC,Salinity, TDS, Cl2,ClO2,ORP,DO, Turbidity,T,T-P,o-PO4,NH3,Chloramine										
Glass vial - total (lab preserved) MW99-2(S) (E275543)	EF001	01-Apr-2025	----	----	----		07-Apr-2025	----	----	
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) Field Blank	E355-L	01-Apr-2025	04-Apr-2025	28 days	3 days	✓	05-Apr-2025	28 days	3 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) MW-04S-05 (E266349)	E355-L	01-Apr-2025	04-Apr-2025	28 days	3 days	✓	05-Apr-2025	28 days	3 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
MW-06-01 (E252594)	E355-L	01-Apr-2025	04-Apr-2025	28 days	3 days	✓	05-Apr-2025	28 days	3 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
MW99-2(D) (E240502)	E355-L	01-Apr-2025	04-Apr-2025	28 days	3 days	✓	05-Apr-2025	28 days	3 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
MW99-2(S) (E275543)	E355-L	01-Apr-2025	04-Apr-2025	28 days	3 days	✓	05-Apr-2025	28 days	3 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
Field Blank	E290	01-Apr-2025	04-Apr-2025	14 days	2 days	✓	04-Apr-2025	14 days	2 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
MW-06-01 (E252594)	E290	01-Apr-2025	04-Apr-2025	14 days	2 days	✓	04-Apr-2025	14 days	2 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
MW-04S-05 (E266349)	E290	01-Apr-2025	04-Apr-2025	14 days	3 days	✓	04-Apr-2025	14 days	3 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
MW99-2(D) (E240502)	E290	01-Apr-2025	04-Apr-2025	14 days	3 days	✓	04-Apr-2025	14 days	3 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
MW99-2(S) (E275543)	E290	01-Apr-2025	04-Apr-2025	14 days	3 days	✓	04-Apr-2025	14 days	3 days	✓
Physical Tests : Conductivity in Water										
HDPE										
Field Blank	E100	01-Apr-2025	04-Apr-2025	28 days	2 days	✓	04-Apr-2025	28 days	2 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Conductivity in Water										
HDPE MW-06-01 (E252594)	E100	01-Apr-2025	04-Apr-2025	28 days	2 days	✓	04-Apr-2025	28 days	2 days	✓
Physical Tests : Conductivity in Water										
HDPE MW-04S-05 (E266349)	E100	01-Apr-2025	04-Apr-2025	28 days	3 days	✓	04-Apr-2025	28 days	3 days	✓
Physical Tests : Conductivity in Water										
HDPE MW99-2(D) (E240502)	E100	01-Apr-2025	04-Apr-2025	28 days	3 days	✓	04-Apr-2025	28 days	3 days	✓
Physical Tests : Conductivity in Water										
HDPE MW99-2(S) (E275543)	E100	01-Apr-2025	04-Apr-2025	28 days	3 days	✓	04-Apr-2025	28 days	3 days	✓
Physical Tests : pH by Meter										
HDPE Field Blank	E108	01-Apr-2025	04-Apr-2025	0.25 hrs	58 hrs	× EHTR-FM	04-Apr-2025	0.25 hrs	58 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE MW-06-01 (E252594)	E108	01-Apr-2025	04-Apr-2025	0.25 hrs	59 hrs	× EHTR-FM	04-Apr-2025	0.25 hrs	59 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE MW-04S-05 (E266349)	E108	01-Apr-2025	04-Apr-2025	0.25 hrs	60 hrs	× EHTR-FM	04-Apr-2025	0.25 hrs	60 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE MW99-2(D) (E240502)	E108	01-Apr-2025	04-Apr-2025	0.25 hrs	62 hrs	× EHTR-FM	04-Apr-2025	0.25 hrs	62 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE MW99-2(S) (E275543)	E108	01-Apr-2025	04-Apr-2025	0.25 hrs	62 hrs	× EHTR-FM	04-Apr-2025	0.25 hrs	62 hrs	× EHTR-FM

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : TDS by Gravimetry										
HDPE										
Field Blank	E162	01-Apr-2025	----	----	----		04-Apr-2025	7 days	2 days	✓
Physical Tests : TDS by Gravimetry										
HDPE										
MW-04S-05 (E266349)	E162	01-Apr-2025	----	----	----		04-Apr-2025	7 days	2 days	✓
Physical Tests : TDS by Gravimetry										
HDPE										
MW-06-01 (E252594)	E162	01-Apr-2025	----	----	----		04-Apr-2025	7 days	2 days	✓
Physical Tests : TDS by Gravimetry										
HDPE										
MW99-2(D) (E240502)	E162	01-Apr-2025	----	----	----		04-Apr-2025	7 days	3 days	✓
Physical Tests : TDS by Gravimetry										
HDPE										
MW99-2(S) (E275543)	E162	01-Apr-2025	----	----	----		04-Apr-2025	7 days	3 days	✓
Physical Tests : TSS by Gravimetry										
HDPE										
Field Blank	E160	01-Apr-2025	----	----	----		04-Apr-2025	7 days	2 days	✓
Physical Tests : TSS by Gravimetry										
HDPE										
MW-04S-05 (E266349)	E160	01-Apr-2025	----	----	----		04-Apr-2025	7 days	2 days	✓
Physical Tests : TSS by Gravimetry										
HDPE										
MW-06-01 (E252594)	E160	01-Apr-2025	----	----	----		04-Apr-2025	7 days	2 days	✓
Physical Tests : TSS by Gravimetry										
HDPE										
MW99-2(D) (E240502)	E160	01-Apr-2025	----	----	----		04-Apr-2025	7 days	3 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	*Method*	*Sampling Date*	*Extraction / Preparation*				*Analysis*			
			Preparation Date	*Holding Times* Rec	*Holding Times* Actual	*Eval*	*Analysis Date*	*Holding Times* Rec	*Holding Times* Actual	*Eval*
Physical Tests : TSS by Gravimetry										
HDPE MW99-2(S) (E275543)	E160	01-Apr-2025	----	----	----		04-Apr-2025	7 days	3 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved) Field Blank	E508	01-Apr-2025	10-Apr-2025	28 days	9 days	✓	10-Apr-2025	28 days	9 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved) MW-04S-05 (E266349)	E508	01-Apr-2025	10-Apr-2025	28 days	9 days	✓	10-Apr-2025	28 days	9 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved) MW-06-01 (E252594)	E508	01-Apr-2025	10-Apr-2025	28 days	9 days	✓	10-Apr-2025	28 days	9 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved) MW99-2(D) (E240502)	E508	01-Apr-2025	10-Apr-2025	28 days	9 days	✓	10-Apr-2025	28 days	9 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved) MW99-2(S) (E275543)	E508	01-Apr-2025	10-Apr-2025	28 days	9 days	✓	10-Apr-2025	28 days	9 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) Field Blank	E420	01-Apr-2025	04-Apr-2025	180 days	3 days	✓	07-Apr-2025	180 days	3 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) MW-04S-05 (E266349)	E420	01-Apr-2025	04-Apr-2025	180 days	3 days	✓	07-Apr-2025	180 days	3 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) MW-06-01 (E252594)	E420	01-Apr-2025	04-Apr-2025	180 days	3 days	✓	07-Apr-2025	180 days	3 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) MW99-2(D) (E240502)	E420	01-Apr-2025	04-Apr-2025	180 days	3 days	✓	07-Apr-2025	180 days	3 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) MW99-2(S) (E275543)	E420	01-Apr-2025	04-Apr-2025	180 days	3 days	✓	07-Apr-2025	180 days	3 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) Field Blank	E395-H	01-Apr-2025	----	----	----		04-Apr-2025	7 days	3 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) MW-04S-05 (E266349)	E395-H	01-Apr-2025	----	----	----		04-Apr-2025	7 days	3 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) MW-06-01 (E252594)	E395-H	01-Apr-2025	----	----	----		04-Apr-2025	7 days	3 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) MW99-2(D) (E240502)	E395-H	01-Apr-2025	----	----	----		04-Apr-2025	7 days	3 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) MW99-2(S) (E275543)	E395-H	01-Apr-2025	----	----	----		04-Apr-2025	7 days	3 days	✓

Legend & Qualifier Definitions

EHTR-FM: Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended

Rec. HT: ALS recommended hold time (see units).

Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Water**

Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
Conductivity in Water	E100	1937850	1	20	5.0	5.0	✓
pH by Meter	E108	1937852	1	20	5.0	5.0	✓
TSS by Gravimetry	E160	1937833	1	20	5.0	5.0	✓
TDS by Gravimetry	E162	1937831	1	20	5.0	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1937859	1	16	6.2	5.0	✓
Chloride in Water by IC	E235.Cl	1937854	1	20	5.0	5.0	✓
Fluoride in Water by IC	E235.F	1937858	1	16	6.2	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1937856	1	20	5.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1937855	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1937857	1	20	5.0	5.0	✓
Alkalinity Species by Titration	E290	1937851	1	20	5.0	5.0	✓
Ammonia by Fluorescence	E298	1937836	1	20	5.0	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	1937834	1	17	5.8	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1937839	1	17	5.8	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	1937860	1	17	5.8	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395-H	1938431	1	14	7.1	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1938339	1	14	7.1	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1938331	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	1945458	1	14	7.1	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1945359	1	20	5.0	5.0	✓
Laboratory Control Samples (LCS)							
Conductivity in Water	E100	1937850	1	20	5.0	5.0	✓
pH by Meter	E108	1937852	1	20	5.0	5.0	✓
TSS by Gravimetry	E160	1937833	1	20	5.0	5.0	✓
TDS by Gravimetry	E162	1937831	1	20	5.0	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1937859	1	16	6.2	5.0	✓
Chloride in Water by IC	E235.Cl	1937854	1	20	5.0	5.0	✓
Fluoride in Water by IC	E235.F	1937858	1	16	6.2	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1937856	1	20	5.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1937855	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1937857	1	20	5.0	5.0	✓
Alkalinity Species by Titration	E290	1937851	1	20	5.0	5.0	✓
Ammonia by Fluorescence	E298	1937836	1	20	5.0	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	1937834	1	17	5.8	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1937839	1	17	5.8	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	1937860	1	17	5.8	5.0	✓

Matrix: **Water**

Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Control Samples (LCS) - Continued							
Total Sulfide by Colourimetry (Automated Flow)	E395-H	1938431	1	14	7.1	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1938339	1	14	7.1	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1938331	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	1945458	1	14	7.1	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1945359	1	20	5.0	5.0	✓
Method Blanks (MB)							
Conductivity in Water	E100	1937850	1	20	5.0	5.0	✓
TSS by Gravimetry	E160	1937833	1	20	5.0	5.0	✓
TDS by Gravimetry	E162	1937831	1	20	5.0	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1937859	1	16	6.2	5.0	✓
Chloride in Water by IC	E235.Cl	1937854	1	20	5.0	5.0	✓
Fluoride in Water by IC	E235.F	1937858	1	16	6.2	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1937856	1	20	5.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1937855	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1937857	1	20	5.0	5.0	✓
Alkalinity Species by Titration	E290	1937851	1	20	5.0	5.0	✓
Ammonia by Fluorescence	E298	1937836	1	20	5.0	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	1937834	1	17	5.8	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1937839	1	17	5.8	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	1937860	1	17	5.8	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395-H	1938431	1	14	7.1	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1938339	1	14	7.1	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1938331	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	1945458	1	14	7.1	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1945359	1	20	5.0	5.0	✓
Matrix Spikes (MS)							
Bromide in Water by IC (Low Level)	E235.Br-L	1937859	1	16	6.2	5.0	✓
Chloride in Water by IC	E235.Cl	1937854	1	20	5.0	5.0	✓
Fluoride in Water by IC	E235.F	1937858	1	16	6.2	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1937856	1	20	5.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1937855	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1937857	1	20	5.0	5.0	✓
Ammonia by Fluorescence	E298	1937836	1	20	5.0	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	1937834	1	17	5.8	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1937839	1	17	5.8	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	1937860	1	17	5.8	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395-H	1938431	1	14	7.1	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1938339	1	14	7.1	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1938331	1	20	5.0	5.0	✓

Matrix: **Water**

Evaluation: × = *QC frequency outside specification*; ✓ = *QC frequency within specification.*

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Matrix Spikes (MS) - Continued							
Total Mercury in Water by CVAAS	E508	1945458	1	14	7.1	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1945359	1	20	5.0	5.0	✓

Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Conductivity in Water	E100 ALS Environmental - Vancouver	Water	APHA 2510 (mod)	Conductivity, also known as Electrical Conductivity (EC) or Specific Conductance, is measured by immersion of a conductivity cell with platinum electrodes into a water sample. Conductivity measurements are temperature-compensated to 25°C.
pH by Meter	E108 ALS Environmental - Vancouver	Water	APHA 4500-H (mod)	pH is determined by potentiometric measurement with a pH electrode, and is conducted at ambient laboratory temperature (normally 20 ± 5°C). For high accuracy test results, pH should be measured in the field within the recommended 15 minute hold time.
TSS by Gravimetry	E160 ALS Environmental - Vancouver	Water	APHA 2540 D (mod)	Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, following by drying of the filter at 104 ± 1°C, with gravimetric measurement of the filtered solids. Samples containing very high dissolved solid content (i.e. seawaters, brackish waters) may produce a positive bias by this method. Alternate analysis methods are available for these types of samples.
TDS by Gravimetry	E162 ALS Environmental - Vancouver	Water	APHA 2540 C (mod)	Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, with evaporation of the filtrate at 180 ± 2°C for 16 hours or to constant weight, with gravimetric measurement of the residue.
Bromide in Water by IC (Low Level)	E235.Br-L ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Chloride in Water by IC	E235.Cl ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Fluoride in Water by IC	E235.F ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrite in Water by IC (Low Level)	E235.NO2-L ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrate in Water by IC (Low Level)	E235.NO3-L ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Sulfate in Water by IC	E235.SO4 ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Alkalinity Species by Titration	E290 ALS Environmental - Vancouver	Water	APHA 2320 B (mod)	Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.
Ammonia by Fluorescence	E298 ALS Environmental - Vancouver	Water	Method Fialab 100, 2018	Ammonia in water is determined by automated continuous flow analysis with membrane diffusion and fluorescence detection, after reaction with OPA (ortho-phthalaldehyde). This method is approved under US EPA 40 CFR Part 136 (May 2021)
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318 ALS Environmental - Vancouver	Water	Method Fialab 100, 2018	TKN in water is determined by automated continuous flow analysis with membrane diffusion and fluorescence detection, after reaction with OPA (ortho-phthalaldehyde). This method is approved under US EPA 40 CFR Part 136 (May 2021).
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L ALS Environmental - Vancouver	Water	APHA 5310 B (mod)	Total Organic Carbon (Non-Purgeable), also known as NPOC (total), is a direct measurement of TOC after an acidified sample has been purged to remove carbonate-based Inorganic Carbon (IC). Analysis is by high temperature combustion with infrared detection of CO_2. Forms of carbon associated with inorganic or organic molecules (e.g. SCN and CN) are included in NPOC if they are not removed by purging under acidic conditions. Notably, NPOC excludes most volatile organic compounds and free cyanide. For samples where the majority of Total Carbon is inorganic, this method provides greater accuracy and reliability versus the TOC by subtraction method (TC minus TIC).
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U ALS Environmental - Vancouver	Water	APHA 4500-P F (mod)	Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter. Field filtration is recommended to ensure test results represent conditions at time of sampling.
Total Sulfide by Colourimetry (Automated Flow)	E395-H ALS Environmental - Vancouver	Water	APHA 4500 -S E-Auto-Colorimetry	Sulfide is determined using the gas dialysis automated methlyene blue colourimetric method. Results expressed "as H_2S" if reported represent the maximum possible H_2S concentration based on the total sulfide concentration in the sample. The H_2S calculation converts Total Sulphide as (S^{2-}) and reports it as Total Sulphide as (H_2S)
Total Metals in Water by CRC ICPMS	E420 ALS Environmental - Vancouver	Water	EPA 200.2/6020B (mod)	Water samples are digested with nitric and hydrochloric acids, and analyzed by Collision/Reaction Cell ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
Dissolved Metals in Water by CRC ICPMS	E421 ALS Environmental - Vancouver	Water	APHA 3030B/EPA 6020B (mod)	Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by Collision/Reaction Cell ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Total Mercury in Water by CVAAS	E508 ALS Environmental - Vancouver	Water	EPA 1631E (mod)	Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS
Dissolved Mercury in Water by CVAAS	E509 ALS Environmental - Vancouver	Water	APHA 3030B/EPA 1631E (mod)	Water samples are filtered (0.45 um), preserved with HCl, then undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS.
Dissolved Hardness (Calculated)	EC100 ALS Environmental - Vancouver	Water	APHA 2340B	"Hardness (as CaCO3), dissolved" is calculated from the sum of dissolved Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. "Total Hardness" refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because it is a property of water due to dissolved divalent cations.
Hardness (Calculated) from Total Ca/Mg	EC100A ALS Environmental - Vancouver	Water	APHA 2340B	"Hardness (as CaCO3), from total Ca/Mg" is calculated from the sum of total Calcium and Magnesium concentrations, expressed as CaCO3 equivalents. "Total Hardness" refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because hardness is a property of water due to dissolved divalent cations. In non-turbid waters, Hardness from total Ca/Mg is normally comparable to Dissolved Hardness, but may be biased high if particulate forms of Ca or Mg are present.
Field pH,EC,Salinity, TDS, Cl2,ClO2,ORP,DO, Turbidity,T,T-P,o-PO4,NH3,Chloramine	EF001 ALS Environmental - Vancouver	Water	Field Measurement (Client Supplied)	Field pH,EC,Salinity, TDS, Cl2,ClO2,ORP,DO, Turbidity,T,T-P,o-PO4,NH3 or Chloramine measurements provided by client and recorded on ALS report may affect the validity of results.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Ammonia	EP298 ALS Environmental - Vancouver	Water		Sample preparation for Preserved Nutrients Water Quality Analysis.
Digestion for TKN in water	EP318 ALS Environmental - Vancouver	Water	APHA 4500-Norg D (mod)	Samples are digested at high temperature using Sulfuric Acid with Copper catalyst, which converts organic nitrogen sources to Ammonia, which is then quantified by the analytical method as TKN. This method is unsuitable for samples containing high levels of nitrate. If nitrate exceeds TKN concentration by ten times or more, results may be biased low.
Preparation for Total Organic Carbon by Combustion	EP355 ALS Environmental - Vancouver	Water		Preparation for Total Organic Carbon by Combustion
Dissolved Metals Water Filtration	EP421 ALS Environmental - Vancouver	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HNO3.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Dissolved Mercury Water Filtration	EP509 ALS Environmental - Vancouver	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HCl.

QUALITY CONTROL REPORT

Work Order	: **VA25A7369**	Page	: 1 of 17
Client	: Masse Environmental Consultants Ltd.	Laboratory	: ALS Environmental - Vancouver
Contact	: Ico de Zwart	Account Manager	: Can Dang
Address	: 812 Vernon Street Nelson BC Canada V1L 4G4	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: ----	Telephone	: +1 604 253 4188
Project	: 2016-503-HB	Date Samples Received	: 03-Apr-2025 13:10
PO	: ----	Date Analysis Commenced	: 04-Apr-2025
C-O-C number	: 22-20250402	Issue Date	: 11-Apr-2025 15:32
Sampler	: Chris Stephanou		
Site	: RDCK		
Quote number	: ----		
No. of samples received	: 5		
No. of samples analysed	: 5		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percent Difference (RPD) and Data Quality Objectives
- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Dan Gebert	Supervisor - Metals Mercury & Speciation	Vancouver Metals, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Vancouver Metals, Burnaby, British Columbia
Monica Ko	Lab Assistant	Vancouver Inorganics, Burnaby, British Columbia
Owen Cheng		Vancouver Metals, Burnaby, British Columbia
Robin Weeks	Team Leader - Metals	Vancouver Metals, Burnaby, British Columbia
Trace Chometsky	Account Manager Assistant	Vancouver Administration, Burnaby, British Columbia

General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number = Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO = Data Quality Objective.
LOR = Limit of Reporting (detection limit).
RPD = Relative Percent Difference
# = Indicates a QC result that did not meet the ALS DQO.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test-specific).

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Physical Tests (QC Lot: 1937831)											
VA25A7182-003	Anonymous	Solids, total dissolved [TDS]	----	E162	20	mg/L	426	423	0.706%	20%	----
Physical Tests (QC Lot: 1937833)											
VA25A7182-003	Anonymous	Solids, total suspended [TSS]	----	E160	3.0	mg/L	16.1	16.3	0.2	Diff <2x LOR	----
Physical Tests (QC Lot: 1937850)											
VA25A7334-001	Anonymous	Conductivity	----	E100	1.0	µS/cm	574	591	2.92%	10%	----
Physical Tests (QC Lot: 1937851)											
VA25A7334-001	Anonymous	Alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	66.3	66.6	0.451%	20%	----
Physical Tests (QC Lot: 1937852)											
VA25A7334-001	Anonymous	pH	----	E108	0.10	pH units	7.95	7.97	0.251%	4%	----
Anions and Nutrients (QC Lot: 1937834)											
VA25A7291-001	Anonymous	Kjeldahl nitrogen, total [TKN]	----	E318	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1937836)											
VA25A7291-001	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1937854)											
VA25A7353-001	Anonymous	Chloride	16887-00-6	E235.Cl	5.00	mg/L	<5.00	<5.00	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1937855)											
VA25A7353-001	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	0.0500	mg/L	0.150	0.148	0.0023	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1937856)											
VA25A7353-001	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	0.0100	mg/L	<0.0100	<0.0100	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1937857)											
VA25A7353-001	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	3.00	mg/L	1110	1100	1.01%	20%	----
Anions and Nutrients (QC Lot: 1937858)											
VA25A7353-001	Anonymous	Fluoride	16984-48-8	E235.F	0.200	mg/L	<0.200	<0.200	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1937859)											
VA25A7353-001	Anonymous	Bromide	24959-67-9	E235.Br-L	0.500	mg/L	<0.500	<0.500	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1937860)											
VA25A7334-001	Anonymous	Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0010	mg/L	0.0147	0.0134	8.71%	20%	----
Organic / Inorganic Carbon (QC Lot: 1937839)											
VA25A7291-001	Anonymous	Carbon, total organic [TOC]	----	E355-L	0.50	mg/L	4.43	4.51	0.08	Diff <2x LOR	----
Total Sulfides (QC Lot: 1938431)											

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Total Sulfides (QC Lot: 1938431) - continued											
KS2501088-001	Anonymous	Sulfide, total (as S)	18496-25-8	E395-H	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
Total Metals (QC Lot: 1938339)											
VA25A7368-001	Anonymous	Aluminum, total	7429-90-5	E420	0.0030	mg/L	0.0041	<0.0030	0.0011	Diff <2x LOR	----
		Antimony, total	7440-36-0	E420	0.00010	mg/L	0.00020	0.00018	0.00002	Diff <2x LOR	----
		Arsenic, total	7440-38-2	E420	0.00010	mg/L	0.00086	0.00084	0.00003	Diff <2x LOR	----
		Barium, total	7440-39-3	E420	0.00010	mg/L	0.0120	0.0118	1.84%	20%	----
		Beryllium, total	7440-41-7	E420	0.000100	mg/L	<0.000100	<0.000100	0	Diff <2x LOR	----
		Bismuth, total	7440-69-9	E420	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Boron, total	7440-42-8	E420	0.010	mg/L	0.064	0.063	0.0005	Diff <2x LOR	----
		Cadmium, total	7440-43-9	E420	0.0000100	mg/L	<0.0000100	<0.0000100	0	Diff <2x LOR	----
		Calcium, total	7440-70-2	E420	0.050	mg/L	147	150	1.68%	20%	----
		Cesium, total	7440-46-2	E420	0.000010	mg/L	0.000033	0.000034	0.0000008	Diff <2x LOR	----
		Chromium, total	7440-47-3	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Cobalt, total	7440-48-4	E420	0.00010	mg/L	0.00056	0.00056	0.000004	Diff <2x LOR	----
		Copper, total	7440-50-8	E420	0.00050	mg/L	0.00332	0.00325	0.00007	Diff <2x LOR	----
		Iron, total	7439-89-6	E420	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		Lead, total	7439-92-1	E420	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Lithium, total	7439-93-2	E420	0.0010	mg/L	0.0028	0.0028	0.00004	Diff <2x LOR	----
		Magnesium, total	7439-95-4	E420	0.0050	mg/L	15.6	15.3	2.01%	20%	----
		Manganese, total	7439-96-5	E420	0.00010	mg/L	0.00013	0.00013	0.000006	Diff <2x LOR	----
		Molybdenum, total	7439-98-7	E420	0.000050	mg/L	0.0160	0.0162	1.23%	20%	----
		Nickel, total	7440-02-0	E420	0.00050	mg/L	0.00051	<0.00050	0.000008	Diff <2x LOR	----
		Phosphorus, total	7723-14-0	E420	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Potassium, total	7440-09-7	E420	0.050	mg/L	1.25	1.22	2.31%	20%	----
		Rubidium, total	7440-17-7	E420	0.00020	mg/L	0.00132	0.00132	0.0000003	Diff <2x LOR	----
		Selenium, total	7782-49-2	E420	0.000050	mg/L	0.00527	0.00527	0.0278%	20%	----
		Silicon, total	7440-21-3	E420	0.10	mg/L	6.98	6.86	1.78%	20%	----
		Silver, total	7440-22-4	E420	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Sodium, total	7440-23-5	E420	0.050	mg/L	26.6	26.5	0.452%	20%	----
		Strontium, total	7440-24-6	E420	0.00020	mg/L	0.470	0.478	1.67%	20%	----
		Sulfur, total	7704-34-9	E420	0.50	mg/L	124	125	0.699%	20%	----
		Tellurium, total	13494-80-9	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		Thallium, total	7440-28-0	E420	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Thorium, total	7440-29-1	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Total Metals (QC Lot: 1938339) - continued											
VA25A7368-001	Anonymous	Tin, total	7440-31-5	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Titanium, total	7440-32-6	E420	0.00030	mg/L	<0.00030	<0.00030	0	Diff <2x LOR	----
		Tungsten, total	7440-33-7	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Uranium, total	7440-61-1	E420	0.000010	mg/L	0.00119	0.00122	2.17%	20%	----
		Vanadium, total	7440-62-2	E420	0.00050	mg/L	0.00081	0.00078	0.00004	Diff <2x LOR	----
		Zinc, total	7440-66-6	E420	0.0030	mg/L	<0.0030	<0.0030	0	Diff <2x LOR	----
		Zirconium, total	7440-67-7	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
Total Metals (QC Lot: 1945458)											
VA25A7345-004	Anonymous	Mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1938331)											
VA25A7362-001	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	0.0038	0.0040	0.0002	Diff <2x LOR	----
		Antimony, dissolved	7440-36-0	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.0516	0.0524	1.45%	20%	----
		Beryllium, dissolved	7440-41-7	E421	0.000020	mg/L	0.000020	<0.000020	0.0000006	Diff <2x LOR	----
		Bismuth, dissolved	7440-69-9	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Boron, dissolved	7440-42-8	E421	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		Cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L	0.0000829	0.0000915	9.77%	20%	----
		Calcium, dissolved	7440-70-2	E421	0.050	mg/L	125	130	4.35%	20%	----
		Cesium, dissolved	7440-46-2	E421	0.000010	mg/L	0.000127	0.000132	3.72%	20%	----
		Chromium, dissolved	7440-47-3	E421	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Cobalt, dissolved	7440-48-4	E421	0.00010	mg/L	0.00033	0.00033	0.0000004	Diff <2x LOR	----
		Copper, dissolved	7440-50-8	E421	0.00020	mg/L	0.00069	0.00071	0.00002	Diff <2x LOR	----
		Iron, dissolved	7439-89-6	E421	0.010	mg/L	0.012	0.012	0.0003	Diff <2x LOR	----
		Lead, dissolved	7439-92-1	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Lithium, dissolved	7439-93-2	E421	0.0010	mg/L	0.0190	0.0197	3.51%	20%	----
		Magnesium, dissolved	7439-95-4	E421	0.0050	mg/L	64.4	67.0	3.94%	20%	----
		Manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.107	0.108	0.702%	20%	----
		Molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.000306	0.000307	0.000002	Diff <2x LOR	----
		Nickel, dissolved	7440-02-0	E421	0.00050	mg/L	0.00357	0.00354	0.00003	Diff <2x LOR	----
		Phosphorus, dissolved	7723-14-0	E421	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Potassium, dissolved	7440-09-7	E421	0.050	mg/L	2.86	2.94	2.66%	20%	----
		Rubidium, dissolved	7440-17-7	E421	0.00020	mg/L	0.00228	0.00227	0.612%	20%	----
		Selenium, dissolved	7782-49-2	E421	0.000050	mg/L	0.000412	0.000430	0.000018	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Dissolved Metals (QC Lot: 1938331) - continued											
VA25A7362-001	Anonymous	Silicon, dissolved	7440-21-3	E421	0.050	mg/L	6.77	6.45	4.80%	20%	----
		Silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Sodium, dissolved	7440-23-5	E421	0.050	mg/L	7.87	7.84	0.461%	20%	----
		Strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.584	0.599	2.49%	20%	----
		Sulfur, dissolved	7704-34-9	E421	0.50	mg/L	136	128	5.82%	20%	----
		Tellurium, dissolved	13494-80-9	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		Thallium, dissolved	7440-28-0	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Thorium, dissolved	7440-29-1	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Tin, dissolved	7440-31-5	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Titanium, dissolved	7440-32-6	E421	0.00030	mg/L	<0.00030	<0.00030	0	Diff <2x LOR	----
		Tungsten, dissolved	7440-33-7	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Uranium, dissolved	7440-61-1	E421	0.000010	mg/L	0.00639	0.00658	3.04%	20%	----
		Vanadium, dissolved	7440-62-2	E421	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Zinc, dissolved	7440-66-6	E421	0.0010	mg/L	0.0479	0.0485	1.13%	20%	----
		Zirconium, dissolved	7440-67-7	E421	0.00030	mg/L	<0.00030	<0.00030	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1945359)											
VA25A7353-001	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----

Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 1937831)						
Solids, total dissolved [TDS]	----	E162	10	mg/L	<10	----
Physical Tests (QCLot: 1937833)						
Solids, total suspended [TSS]	----	E160	3	mg/L	<3.0	----
Physical Tests (QCLot: 1937850)						
Conductivity	----	E100	1	µS/cm	<1.0	----
Physical Tests (QCLot: 1937851)						
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	<1.0	----
Anions and Nutrients (QCLot: 1937834)						
Kjeldahl nitrogen, total [TKN]	----	E318	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 1937836)						
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 1937854)						
Chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 1937855)						
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 1937856)						
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 1937857)						
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	----
Anions and Nutrients (QCLot: 1937858)						
Fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 1937859)						
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 1937860)						
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.001	mg/L	<0.0010	----
Organic / Inorganic Carbon (QCLot: 1937839)						
Carbon, total organic [TOC]	----	E355-L	0.5	mg/L	<0.50	----
Total Sulfides (QCLot: 1938431)						
Sulfide, total (as S)	18496-25-8	E395-H	0.01	mg/L	<0.010	----
Total Metals (QCLot: 1938339)						
Aluminum, total	7429-90-5	E420	0.003	mg/L	<0.0030	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	<0.00010	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (QCLot: 1938339) - continued						
Arsenic, total	7440-38-2	E420	0.0001	mg/L	<0.00010	----
Barium, total	7440-39-3	E420	0.0001	mg/L	<0.00010	----
Beryllium, total	7440-41-7	E420	0.00002	mg/L	<0.000020	----
Bismuth, total	7440-69-9	E420	0.00005	mg/L	<0.000050	----
Boron, total	7440-42-8	E420	0.01	mg/L	<0.010	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	<0.0000050	----
Calcium, total	7440-70-2	E420	0.05	mg/L	<0.050	----
Cesium, total	7440-46-2	E420	0.00001	mg/L	<0.000010	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	<0.00050	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	<0.00010	----
Copper, total	7440-50-8	E420	0.0005	mg/L	<0.00050	----
Iron, total	7439-89-6	E420	0.01	mg/L	<0.010	----
Lead, total	7439-92-1	E420	0.00005	mg/L	<0.000050	----
Lithium, total	7439-93-2	E420	0.001	mg/L	<0.0010	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	<0.0050	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	<0.00010	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	<0.000050	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	<0.00050	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	<0.050	----
Potassium, total	7440-09-7	E420	0.05	mg/L	<0.050	----
Rubidium, total	7440-17-7	E420	0.0002	mg/L	<0.00020	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	<0.000050	----
Silicon, total	7440-21-3	E420	0.1	mg/L	<0.10	----
Silver, total	7440-22-4	E420	0.00001	mg/L	<0.000010	----
Sodium, total	7440-23-5	E420	0.05	mg/L	<0.050	----
Strontium, total	7440-24-6	E420	0.0002	mg/L	<0.00020	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	<0.50	----
Tellurium, total	13494-80-9	E420	0.0002	mg/L	<0.00020	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	<0.000010	----
Thorium, total	7440-29-1	E420	0.0001	mg/L	<0.00010	----
Tin, total	7440-31-5	E420	0.0001	mg/L	<0.00010	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	<0.00030	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	<0.00010	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	<0.000010	----
Vanadium, total	7440-62-2	E420	0.0005	mg/L	<0.00050	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (QCLot: 1938339) - continued						
Zinc, total	7440-66-6	E420	0.003	mg/L	<0.0030	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	<0.00020	----
Total Metals (QCLot: 1945458)						
Mercury, total	7439-97-6	E508	0.000005	mg/L	<0.0000050	----
Dissolved Metals (QCLot: 1938331)						
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	<0.0010	----
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	<0.00010	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	<0.00010	----
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	<0.00010	----
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	<0.000020	----
Bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	<0.000050	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	<0.010	----
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	<0.0000050	----
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	<0.050	----
Cesium, dissolved	7440-46-2	E421	0.00001	mg/L	<0.000010	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	<0.00050	----
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	<0.00010	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	<0.00020	----
Iron, dissolved	7439-89-6	E421	0.01	mg/L	<0.010	----
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	<0.000050	----
Lithium, dissolved	7439-93-2	E421	0.001	mg/L	<0.0010	----
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	<0.0050	----
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	<0.00010	----
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	<0.000050	----
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	<0.00050	----
Phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	<0.050	----
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	<0.050	----
Rubidium, dissolved	7440-17-7	E421	0.0002	mg/L	<0.00020	----
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	<0.000050	----
Silicon, dissolved	7440-21-3	E421	0.05	mg/L	<0.050	----
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	<0.000010	----
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	<0.050	----
Strontium, dissolved	7440-24-6	E421	0.0002	mg/L	<0.00020	----
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	<0.50	----
Tellurium, dissolved	13494-80-9	E421	0.0002	mg/L	<0.00020	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Dissolved Metals (QCLot: 1938331) - continued						
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	<0.000010	----
Thorium, dissolved	7440-29-1	E421	0.0001	mg/L	<0.00010	----
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	<0.00010	----
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	<0.00030	----
Tungsten, dissolved	7440-33-7	E421	0.0001	mg/L	<0.00010	----
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	<0.000010	----
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	<0.00050	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	<0.0010	----
Zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	<0.00020	----
Dissolved Metals (QCLot: 1945359)						
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	<0.0000050	----

Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 1937831)									
Solids, total dissolved [TDS]	----	E162	10	mg/L	1000 mg/L	106	85.0	115	----
Physical Tests (QCLot: 1937833)									
Solids, total suspended [TSS]	----	E160	3	mg/L	150 mg/L	94.8	85.0	115	----
Physical Tests (QCLot: 1937850)									
Conductivity	----	E100	1	µS/cm	147 µS/cm	100	90.0	110	----
Physical Tests (QCLot: 1937851)									
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	500 mg/L	101	85.0	115	----
Physical Tests (QCLot: 1937852)									
pH	----	E108	----	pH units	7 pH units	100	98.0	102	----
Anions and Nutrients (QCLot: 1937834)									
Kjeldahl nitrogen, total [TKN]	----	E318	0.05	mg/L	4 mg/L	99.9	75.0	125	----
Anions and Nutrients (QCLot: 1937836)									
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	94.8	85.0	115	----
Anions and Nutrients (QCLot: 1937854)									
Chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	99.2	90.0	110	----
Anions and Nutrients (QCLot: 1937855)									
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	2.5 mg/L	99.5	90.0	110	----
Anions and Nutrients (QCLot: 1937856)									
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	0.5 mg/L	97.0	90.0	110	----
Anions and Nutrients (QCLot: 1937857)									
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	99.8	90.0	110	----
Anions and Nutrients (QCLot: 1937858)									
Fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	100.0	90.0	110	----
Anions and Nutrients (QCLot: 1937859)									
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	0.5 mg/L	103	85.0	115	----
Anions and Nutrients (QCLot: 1937860)									
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.001	mg/L	0.03 mg/L	99.6	80.0	120	----
Organic / Inorganic Carbon (QCLot: 1937839)									
Carbon, total organic [TOC]	----	E355-L	0.5	mg/L	8.57 mg/L	104	80.0	120	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Total Sulfides (QCLot: 1938431)									
Sulfide, total (as H2S)	7783-06-4	E395-H	----	mg/L	0.085 mg/L	103	80.0	120	----
Sulfide, total (as S)	18496-25-8	E395-H	0.01	mg/L	0.08 mg/L	102	80.0	120	----
Total Metals (QCLot: 1938339)									
Aluminum, total	7429-90-5	E420	0.003	mg/L	2 mg/L	104	80.0	120	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	1 mg/L	107	80.0	120	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	1 mg/L	101	80.0	120	----
Barium, total	7440-39-3	E420	0.0001	mg/L	0.25 mg/L	101	80.0	120	----
Beryllium, total	7440-41-7	E420	0.00002	mg/L	0.1 mg/L	102	80.0	120	----
Bismuth, total	7440-69-9	E420	0.00005	mg/L	1 mg/L	94.6	80.0	120	----
Boron, total	7440-42-8	E420	0.01	mg/L	1 mg/L	100	80.0	120	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	0.1 mg/L	101	80.0	120	----
Calcium, total	7440-70-2	E420	0.05	mg/L	50 mg/L	106	80.0	120	----
Cesium, total	7440-46-2	E420	0.00001	mg/L	0.05 mg/L	110	80.0	120	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	0.25 mg/L	97.0	80.0	120	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	0.25 mg/L	99.2	80.0	120	----
Copper, total	7440-50-8	E420	0.0005	mg/L	0.25 mg/L	97.6	80.0	120	----
Iron, total	7439-89-6	E420	0.01	mg/L	1 mg/L	96.5	80.0	120	----
Lead, total	7439-92-1	E420	0.00005	mg/L	0.5 mg/L	100	80.0	120	----
Lithium, total	7439-93-2	E420	0.001	mg/L	0.25 mg/L	106	80.0	120	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	50 mg/L	97.1	80.0	120	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	0.25 mg/L	98.7	80.0	120	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	0.25 mg/L	103	80.0	120	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	0.5 mg/L	98.8	80.0	120	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	10 mg/L	104	80.0	120	----
Potassium, total	7440-09-7	E420	0.05	mg/L	50 mg/L	97.9	80.0	120	----
Rubidium, total	7440-17-7	E420	0.0002	mg/L	0.1 mg/L	106	80.0	120	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	1 mg/L	96.9	80.0	120	----
Silicon, total	7440-21-3	E420	0.1	mg/L	10 mg/L	107	80.0	120	----
Silver, total	7440-22-4	E420	0.00001	mg/L	0.1 mg/L	98.3	80.0	120	----
Sodium, total	7440-23-5	E420	0.05	mg/L	50 mg/L	106	80.0	120	----
Strontium, total	7440-24-6	E420	0.0002	mg/L	0.25 mg/L	104	80.0	120	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	50 mg/L	88.3	80.0	120	----
Tellurium, total	13494-80-9	E420	0.0002	mg/L	0.1 mg/L	106	80.0	120	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	1 mg/L	101	80.0	120	----
Thorium, total	7440-29-1	E420	0.0001	mg/L	0.1 mg/L	93.8	80.0	120	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Total Metals (QCLot: 1938339) - continued									
Tin, total	7440-31-5	E420	0.0001	mg/L	0.5 mg/L	102	80.0	120	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	0.25 mg/L	88.9	80.0	120	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	0.1 mg/L	102	80.0	120	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	0.005 mg/L	102	80.0	120	----
Vanadium, total	7440-62-2	E420	0.0005	mg/L	0.5 mg/L	100.0	80.0	120	----
Zinc, total	7440-66-6	E420	0.003	mg/L	0.5 mg/L	102	80.0	120	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	0.1 mg/L	98.1	80.0	120	----
Total Metals (QCLot: 1945458)									
Mercury, total	7439-97-6	E508	0.000005	mg/L	0 mg/L	95.5	80.0	120	----
Dissolved Metals (QCLot: 1938331)									
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	2 mg/L	101	80.0	120	----
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	1 mg/L	104	80.0	120	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	1 mg/L	105	80.0	120	----
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	0.25 mg/L	99.4	80.0	120	----
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	0.1 mg/L	97.0	80.0	120	----
Bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	1 mg/L	94.4	80.0	120	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	1 mg/L	100	80.0	120	----
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	0.1 mg/L	101	80.0	120	----
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	50 mg/L	100	80.0	120	----
Cesium, dissolved	7440-46-2	E421	0.00001	mg/L	0.05 mg/L	106	80.0	120	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	0.25 mg/L	99.2	80.0	120	----
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	0.25 mg/L	99.8	80.0	120	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	0.25 mg/L	101	80.0	120	----
Iron, dissolved	7439-89-6	E421	0.01	mg/L	1 mg/L	100	80.0	120	----
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	0.5 mg/L	96.0	80.0	120	----
Lithium, dissolved	7439-93-2	E421	0.001	mg/L	0.25 mg/L	100	80.0	120	----
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	50 mg/L	100	80.0	120	----
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	0.25 mg/L	99.3	80.0	120	----
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	0.25 mg/L	100	80.0	120	----
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	0.5 mg/L	97.9	80.0	120	----
Phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	10 mg/L	98.4	80.0	120	----
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	50 mg/L	100	80.0	120	----
Rubidium, dissolved	7440-17-7	E421	0.0002	mg/L	0.1 mg/L	101	80.0	120	----
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	1 mg/L	100	80.0	120	----
Silicon, dissolved	7440-21-3	E421	0.05	mg/L	10 mg/L	107	80.0	120	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Dissolved Metals (QCLot: 1938331) - continued									
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	0.1 mg/L	96.1	80.0	120	----
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	50 mg/L	108	80.0	120	----
Strontium, dissolved	7440-24-6	E421	0.0002	mg/L	0.25 mg/L	106	80.0	120	----
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	50 mg/L	96.2	80.0	120	----
Tellurium, dissolved	13494-80-9	E421	0.0002	mg/L	0.1 mg/L	101	80.0	120	----
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	1 mg/L	92.4	80.0	120	----
Thorium, dissolved	7440-29-1	E421	0.0001	mg/L	0.1 mg/L	90.2	80.0	120	----
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	0.5 mg/L	100	80.0	120	----
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	0.25 mg/L	96.6	80.0	120	----
Tungsten, dissolved	7440-33-7	E421	0.0001	mg/L	0.1 mg/L	97.5	80.0	120	----
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	0.005 mg/L	100	80.0	120	----
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	0.5 mg/L	102	80.0	120	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	0.5 mg/L	104	80.0	120	----
Zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	0.1 mg/L	97.0	80.0	120	----
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0 mg/L	95.3	80.0	120	----

Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for the associated sample (or similar samples) may be subject to bias. ND – Recovery not determined, background level >= 1x spike level.

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Anions and Nutrients (QCLot: 1937834)										
VA25A7300-001	Anonymous	Kjeldahl nitrogen, total [TKN]	----	E318	2.72 mg/L	2.5 mg/L	109	70.0	130	----
Anions and Nutrients (QCLot: 1937836)										
VA25A7300-001	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0953 mg/L	0.1 mg/L	95.3	75.0	125	----
Anions and Nutrients (QCLot: 1937854)										
VA25A7353-002	Anonymous	Chloride	16887-00-6	E235.Cl	1970 mg/L	2000 mg/L	98.4	75.0	125	----
Anions and Nutrients (QCLot: 1937855)										
VA25A7353-002	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	49.2 mg/L	50 mg/L	98.4	75.0	125	----
Anions and Nutrients (QCLot: 1937856)										
VA25A7353-002	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	9.60 mg/L	10 mg/L	96.0	75.0	125	----
Anions and Nutrients (QCLot: 1937857)										
VA25A7353-002	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	1960 mg/L	2000 mg/L	98.0	75.0	125	----
Anions and Nutrients (QCLot: 1937858)										
VA25A7353-002	Anonymous	Fluoride	16984-48-8	E235.F	20.3 mg/L	20 mg/L	101	75.0	125	----
Anions and Nutrients (QCLot: 1937859)										
VA25A7353-002	Anonymous	Bromide	24959-67-9	E235.Br-L	10.1 mg/L	10 mg/L	101	75.0	125	----
Anions and Nutrients (QCLot: 1937860)										
VA25A7334-002	Anonymous	Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0290 mg/L	0.03 mg/L	96.6	70.0	130	----
Organic / Inorganic Carbon (QCLot: 1937839)										
VA25A7300-001	Anonymous	Carbon, total organic [TOC]	----	E355-L	ND mg/L	----	ND	70.0	130	----
Total Sulfides (QCLot: 1938431)										
KS2501088-002	Anonymous	Sulfide, total (as S)	18496-25-8	E395-H	0.987 mg/L	1 mg/L	98.7	75.0	125	----
Total Metals (QCLot: 1938339)										
VA25A7368-002	Anonymous	Aluminum, total	7429-90-5	E420	0.193 mg/L	0.2 mg/L	96.7	70.0	130	----
		Antimony, total	7440-36-0	E420	0.0205 mg/L	0.02 mg/L	102	70.0	130	----
		Arsenic, total	7440-38-2	E420	0.0202 mg/L	0.02 mg/L	101	70.0	130	----
		Barium, total	7440-39-3	E420	0.0192 mg/L	0.02 mg/L	96.0	70.0	130	----
		Beryllium, total	7440-41-7	E420	0.0383 mg/L	0.04 mg/L	95.7	70.0	130	----
		Bismuth, total	7440-69-9	E420	0.00842 mg/L	0.01 mg/L	84.2	70.0	130	----
		Boron, total	7440-42-8	E420	ND mg/L	----	ND	70.0	130	----
		Cadmium, total	7440-43-9	E420	0.00396 mg/L	0.004 mg/L	99.0	70.0	130	----
		Calcium, total	7440-70-2	E420	ND mg/L	----	ND	70.0	130	----
		Cesium, total	7440-46-2	E420	0.0110 mg/L	0.01 mg/L	110	70.0	130	----
		Chromium, total	7440-47-3	E420	0.0384 mg/L	0.04 mg/L	95.9	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Total Metals (QCLot: 1938339) - continued										
VA25A7368-002	Anonymous	Cobalt, total	7440-48-4	E420	0.0187 mg/L	0.02 mg/L	93.6	70.0	130	----
		Copper, total	7440-50-8	E420	0.0182 mg/L	0.02 mg/L	90.9	70.0	130	----
		Iron, total	7439-89-6	E420	1.92 mg/L	2 mg/L	96.0	70.0	130	----
		Lead, total	7439-92-1	E420	0.0174 mg/L	0.02 mg/L	87.2	70.0	130	----
		Lithium, total	7439-93-2	E420	0.0971 mg/L	0.1 mg/L	97.1	70.0	130	----
		Magnesium, total	7439-95-4	E420	ND mg/L	----	ND	70.0	130	----
		Manganese, total	7439-96-5	E420	ND mg/L	----	ND	70.0	130	----
		Molybdenum, total	7439-98-7	E420	ND mg/L	----	ND	70.0	130	----
		Nickel, total	7440-02-0	E420	0.0367 mg/L	0.04 mg/L	91.7	70.0	130	----
		Phosphorus, total	7723-14-0	E420	10.7 mg/L	10 mg/L	107	70.0	130	----
		Potassium, total	7440-09-7	E420	3.82 mg/L	4 mg/L	95.6	70.0	130	----
		Rubidium, total	7440-17-7	E420	0.0200 mg/L	0.02 mg/L	99.9	70.0	130	----
		Selenium, total	7782-49-2	E420	0.0432 mg/L	0.04 mg/L	108	70.0	130	----
		Silicon, total	7440-21-3	E420	ND mg/L	----	ND	70.0	130	----
		Silver, total	7440-22-4	E420	0.00399 mg/L	0.004 mg/L	99.8	70.0	130	----
		Sodium, total	7440-23-5	E420	ND mg/L	----	ND	70.0	130	----
		Strontium, total	7440-24-6	E420	ND mg/L	----	ND	70.0	130	----
		Sulfur, total	7704-34-9	E420	ND mg/L	----	ND	70.0	130	----
		Tellurium, total	13494-80-9	E420	0.0411 mg/L	0.04 mg/L	103	70.0	130	----
		Thallium, total	7440-28-0	E420	0.00350 mg/L	0.004 mg/L	87.4	70.0	130	----
		Thorium, total	7440-29-1	E420	0.0126 mg/L	0.02 mg/L	63.0	70.0	130	MES
		Tin, total	7440-31-5	E420	0.0198 mg/L	0.02 mg/L	98.8	70.0	130	----
		Titanium, total	7440-32-6	E420	0.0381 mg/L	0.04 mg/L	95.3	70.0	130	----
		Tungsten, total	7440-33-7	E420	0.0192 mg/L	0.02 mg/L	95.8	70.0	130	----
		Uranium, total	7440-61-1	E420	ND mg/L	----	ND	70.0	130	----
		Vanadium, total	7440-62-2	E420	0.0999 mg/L	0.1 mg/L	99.9	70.0	130	----
		Zinc, total	7440-66-6	E420	0.381 mg/L	0.4 mg/L	95.3	70.0	130	----
		Zirconium, total	7440-67-7	E420	0.0402 mg/L	0.04 mg/L	100	70.0	130	----
Total Metals (QCLot: 1945458)										
VA25A7345-005	Anonymous	Mercury, total	7439-97-6	E508	0.000882 mg/L	0.001 mg/L	88.2	70.0	130	----
Dissolved Metals (QCLot: 1938331)										
VA25A7362-002	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.183 mg/L	0.2 mg/L	91.5	70.0	130	----
		Antimony, dissolved	7440-36-0	E421	0.0193 mg/L	0.02 mg/L	96.4	70.0	130	----
		Arsenic, dissolved	7440-38-2	E421	0.0197 mg/L	0.02 mg/L	98.6	70.0	130	----
		Barium, dissolved	7440-39-3	E421	ND mg/L	----	ND	70.0	130	----
		Beryllium, dissolved	7440-41-7	E421	0.0371 mg/L	0.04 mg/L	92.8	70.0	130	----
		Bismuth, dissolved	7440-69-9	E421	0.00874 mg/L	0.01 mg/L	87.4	70.0	130	----
		Boron, dissolved	7440-42-8	E421	0.096 mg/L	0.1 mg/L	95.6	70.0	130	----
		Cadmium, dissolved	7440-43-9	E421	0.00384 mg/L	0.004 mg/L	96.1	70.0	130	----
		Calcium, dissolved	7440-70-2	E421	ND mg/L	----	ND	70.0	130	----
		Cesium, dissolved	7440-46-2	E421	0.0101 mg/L	0.01 mg/L	101	70.0	130	----
		Chromium, dissolved	7440-47-3	E421	0.0375 mg/L	0.04 mg/L	93.6	70.0	130	----
		Cobalt, dissolved	7440-48-4	E421	0.0180 mg/L	0.02 mg/L	90.3	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Dissolved Metals (QCLot: 1938331) - continued										
VA25A7362-002	Anonymous	Copper, dissolved	7440-50-8	E421	0.0181 mg/L	0.02 mg/L	90.3	70.0	130	----
		Iron, dissolved	7439-89-6	E421	1.84 mg/L	2 mg/L	91.8	70.0	130	----
		Lead, dissolved	7439-92-1	E421	0.0176 mg/L	0.02 mg/L	87.9	70.0	130	----
		Lithium, dissolved	7439-93-2	E421	0.0936 mg/L	0.1 mg/L	93.6	70.0	130	----
		Magnesium, dissolved	7439-95-4	E421	ND mg/L	----	ND	70.0	130	----
		Manganese, dissolved	7439-96-5	E421	ND mg/L	----	ND	70.0	130	----
		Molybdenum, dissolved	7439-98-7	E421	0.0188 mg/L	0.02 mg/L	93.8	70.0	130	----
		Nickel, dissolved	7440-02-0	E421	0.0357 mg/L	0.04 mg/L	89.2	70.0	130	----
		Phosphorus, dissolved	7723-14-0	E421	9.55 mg/L	10 mg/L	95.5	70.0	130	----
		Potassium, dissolved	7440-09-7	E421	3.64 mg/L	4 mg/L	91.1	70.0	130	----
		Rubidium, dissolved	7440-17-7	E421	0.0184 mg/L	0.02 mg/L	92.0	70.0	130	----
		Selenium, dissolved	7782-49-2	E421	0.0384 mg/L	0.04 mg/L	95.9	70.0	130	----
		Silicon, dissolved	7440-21-3	E421	9.29 mg/L	10 mg/L	92.9	70.0	130	----
		Silver, dissolved	7440-22-4	E421	0.00382 mg/L	0.004 mg/L	95.6	70.0	130	----
		Sodium, dissolved	7440-23-5	E421	ND mg/L	----	ND	70.0	130	----
		Strontium, dissolved	7440-24-6	E421	ND mg/L	----	ND	70.0	130	----
		Sulfur, dissolved	7704-34-9	E421	21.0 mg/L	20 mg/L	105	70.0	130	----
		Tellurium, dissolved	13494-80-9	E421	0.0391 mg/L	0.04 mg/L	97.8	70.0	130	----
		Thallium, dissolved	7440-28-0	E421	0.00346 mg/L	0.004 mg/L	86.6	70.0	130	----
		Thorium, dissolved	7440-29-1	E421	0.0162 mg/L	0.02 mg/L	80.9	70.0	130	----
		Tin, dissolved	7440-31-5	E421	0.0188 mg/L	0.02 mg/L	93.9	70.0	130	----
		Titanium, dissolved	7440-32-6	E421	0.0353 mg/L	0.04 mg/L	88.2	70.0	130	----
		Tungsten, dissolved	7440-33-7	E421	0.0181 mg/L	0.02 mg/L	90.6	70.0	130	----
		Uranium, dissolved	7440-61-1	E421	0.00367 mg/L	0.004 mg/L	91.9	70.0	130	----
		Vanadium, dissolved	7440-62-2	E421	0.0940 mg/L	0.1 mg/L	94.0	70.0	130	----
		Zinc, dissolved	7440-66-6	E421	0.379 mg/L	0.4 mg/L	94.7	70.0	130	----
		Zirconium, dissolved	7440-67-7	E421	0.0373 mg/L	0.04 mg/L	93.3	70.0	130	----
Dissolved Metals (QCLot: 1945359)										
VA25A7353-002	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000926 mg/L	0 mg/L	92.6	70.0	130	----

Qualifiers

Qualifier	Description
MES	*Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).*

Chain of Custody (COC) / Analytical Request Form

COC Number: 22 - 20250402

Page 1 of 2

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Canada Toll Free: 1 800 668 9878

Report To	Contact and company name below will appear on the final report
Company:	Masse Environmental
Contact:	Ico deZwart
Phone:	
	Company address below will appear on the final report
Street:	812 Vernon St.
City/Province:	Nelson, BC
Postal Code:	V1L4G4
Invoice To	Same as Report To ☑ YES ☐ NO
	Copy of Invoice with Report ☑ YES ☐ NO
Company:	
Contact:	

Reports / Recipients

Select Report Format: ☑ PDF ☑ EXCEL ☑ EDD (DIGITAL)

Merge QC/QCI Reports with COA ☑ YES ☐ NO ☐ N/A

☐ Compare Results to Criteria on Report - provide details below if box checked

Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX

Email 1 or Fax: ico@masseenvironmental.com

Email 2: chris@masseenvironmental.com

Email 3:

Invoice Recipients

Select Invoice Distribution: ☑ EMAIL ☐ MAIL ☐ FAX

Email 1 or Fax: lise@masseenvironmental.com

Email 2:

Turnaround Time (TAT) Requested

☑ Routine [R] if received by 3pm M-F - no surcharges apply
☐ 4 day [P4] if received by 3pm M-F - 20% rush surcharge minimum
☐ 3 day [P3] if received by 3pm M-F - 25% rush surcharge minimum
☐ 2 day [P2] if received by 3pm M-F - 50% rush surcharge minimum
☐ 1 day [E] if received by 3pm M-F - 100% rush surcharge minimum
☐ Same day [E2] if received by 10am M-S - 200% rush surcharge.

AFFIX ALS BARCODE LABEL HERE (ALS use only)

Additional fees may apply to rush requests on weekends, statutory holidays and for non-routine tests.

Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm am/pm

For all tests with rush TATs requested, please contact your AM to confirm availability.

Project Information

ALS Account # / Quote #:	VA24-MASS200-001
Job #:	2016-503 - HB
PO / AFE:	
LSD:	
ALS Lab Work Order # (ALS use only):	7369

Oil and Gas Required Fields (client use)

AFE/Cost Center:	PO#:
Major/Minor Code:	Routing Code:
Requisitioner:	
Location:	
ALS Contact:	Sampler: C.Stephanou

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (ALS use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	pH, cond,TSS,TDS,alkalinity,hardnes	Chloride, bromide, fluoride, sulfate	Ammonia, TKN, nitrate, nitrite	TOC	Dissolved Metals (incl Hg)	Total Metals (incl Hg)	orthophosphate	total sulfide	SAMPLES ON HOLD	EXTENDED STORAGE REQUIRED	SUSPECTED HAZARD (see notes)
	~~Duplicate~~			~~GW~~		R	R	R	R	R	R					
	Field Blank	01-Apr-25	15:15		7	✓	✓	✓	✓	✓	✓	✓	✓			

Environmental Division
Vancouver
Work Order Reference
VA25A7369

Telephone : +1 604 253 4188

Drinking Water (DW) Samples' (client use)

Are samples taken from a Regulated DW System? ☐ YES ☐ NO

Are samples for human consumption/ use? ☐ YES ☐ NO

Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only)

total alkalinity only

SAMPLE RECEIPT DETAILS (ALS use only)

Cooling Method: ☐ NONE ☐ ICE ☑ ICE PACKS ☐ FROZEN ☐ COOLING INITIATED

Submission Comments identified on Sample Receipt Notification: ☐ YES ☐ NO

Cooler Custody Seals Intact: ☐ YES ☑ N/A Sample Custody Seals Intact: ☐ YES ☑ N/A

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
						8	

SHIPMENT RELEASE (client use)

Released by:	Date:	Time:
	2-Apr-2025	

INITIAL SHIPMENT RECEPTION (ALS use only)

Received by:	Date:	Time:

FINAL SHIPMENT RECEPTION (ALS use only)

Received by:	Date:	Time:
JC	Rcvd 3Apr2025	1310

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

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Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

Chain of Custody (COC) / Analytical Request Form

COC Number: 22 - 1024042

Page 2 of 2

Canada Toll Free: 1 800 668 9878

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Report To	Contact and company name below will appear on the final report
Company:	Masse Environmental
Contact:	Ico deZwart
Phone:	
	Company address below will appear on the final report
Street:	812 Vernon St.
City/Province:	Nelson, BC
Postal Code:	V1L4G4
Invoice To	Same as Report To ☑ YES ☐ NO
	Copy of Invoice with Report ☑ YES ☐ NO
Company:	
Contact:	

Reports / Recipients

Select Report Format: ☑ PDF ☑ EXCEL ☑ EDD (DIGITAL)

Merge QC/QCI Reports with COA ☑ YES ☐ NO ☐ N/A

☐ Compare Results to Criteria on Report - provide details below if box checked

Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX

Email 1 or Fax: ico@masseenvironmental.com

Email 2: chris@masseenvironmental.com

Email 3: jenn@masseenvironmental.com

Invoice Recipients

Select Invoice Distribution: ☑ EMAIL ☐ MAIL ☐ FAX

Email 1 or Fax: lise@masseenvironmental.com

Email 2:

Turnaround Time (TAT) Requested

☑ Routine [R] if received by 3pm M-F - no surcharges apply

☐ 4 day [P4] if received by 3pm M-F - 20% rush surcharge minimum

☐ 3 day [P3] if received by 3pm M-F - 25% rush surcharge minimum

☐ 2 day [P2] if received by 3pm M-F - 50% rush surcharge minimum

☐ 1 day [E] if received by 3pm M-F - 100% rush surcharge minimum

☐ Same day [E2] if received by 10am M-S - 200% rush surcharge.

Additional fees may apply to rush requests on weekends, statutory holidays and for non-routine tests.

Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm am/pm

For all tests with rush TATs requested, please contact your AM to confirm availability.

AFFIX ALS BARCODE LABEL HERE (ALS use only)

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	VA24-MASS200-001	AFE/Cost Center:	PO#
Job #:	2016-503 - HB	Major/Minor Code:	Routing Code:
PO / AFE:		Requisitioner:	
LSD:		Location:	

ALS Lab Work Order # (ALS use only):

ALS Contact:

Sampler: C.Stephanou

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (ALS use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	pH, cond,TSS,TDS,alkalinity,hardnes	Chloride, bromide, fluoride, sulfate (P)	Ammonia, TKN, nitrate, nitrite (P)	TOC	Dissolved Metals (incl Hg) (F)	Total Metals (incl Hg)	Orthophosphate	Total Sulphide	SAMPLES ON HOLD	EXTENDED STORAGE REQUIRED	SUSPECTED HAZARD (see notes)
	~~MW99-1(S) (E275563)~~			~~GW~~	~~7~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~			
	~~MW99-1(D) (E240501)~~			~~GW~~	~~7~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~			
	MW99-2(S) (E275543)	01-Apr-25	11:34	GW	7	R	R	R	R	R	R	R	R			
	MW99-2(D) (E240502)	01-Apr-25	11:59	GW	7	R	R	R	R	R	R	R	R			
	~~MW-05-01 (E252593)~~			~~GW~~	~~7~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~			
	~~MW-01-2004(S) (E303722)~~			~~GW~~	~~7~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~			
	~~MW-01-2004(D) (E303723)~~			~~GW~~	~~7~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~			
	MW-06-01 ((E252594)	01-Apr-25	14:50	GW	7	R	R	R	R	R	R	R	R			
	~~S-MW-1 (E221702)~~			~~GW~~	~~7~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~			
	~~MW-02A-01 (E252591)~~			~~GW~~	~~7~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~			
	~~S-MW-2 (E221703)~~			~~GW~~	~~7~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~			
	MW-04S-05 (E266349)	01-Apr-25	13:52	GW	7	R	R	R	R	R	R	R	R			

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System? ☐ YES ☐ NO

Are samples for human consumption/ use? ☐ YES ☐ NO

Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only)

Total alkalinity only

SAMPLE RECEIPT DETAILS (ALS use only)

Cooling Method: ☐ NONE ☐ ICE ☐ ICE PACKS ☐ FROZEN ☐ COOLING INITIATED

Submission Comments identified on Sample Receipt Notification: ☐ YES ☐ NO

Cooler Custody Seals Intact: ☐ YES ☐ N/A Sample Custody Seals Intact: ☐ YES ☐ N/A

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
					8		

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (ALS use only)			FINAL SHIPMENT RECEPTION (ALS use only)		
Released by:	Date: 02-April-2025	Time:	Received by:	Date:	Time:	Received by: JC	Date:	Time: 1310

Rcvd 3Apr2025

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

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Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

Form 1-1a
Groundwater Well and Surface Water Monitoring Form

Date: _____ Technician(s): _____
Time: _____
Project: _____ Weather: _____
Location: _____ Temperature: _____

Monitoring Wells

Date	Time	Sampled (y/n)	EMS	Monitoring Location	Depth to Water (m BTOR)	Well Depth (m BTOR)	Sampling Device	Target Volume Purged (L)	Temp (°C)	pH	Cond (µS/ cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Quality Description	Filtered / Preserved
			E252591	MW-02A-01		9		30								
26-3-25	9:50	Y	E252593	MW-05-01	1.51	4.71	P	20	5.1	7.17	161.0	4.07	80.0	N/A	C, C, O	F/P
26-3-25	14:00	Y	E221702	S-MW-1	3.59	5.07	B	~~10~~	5.6	7.89	239.9	5.76	63.4	8.18	C, C, O	F/P
26-3-25	13:11	Y	E221703	S-MW-2	6,86	10.19	B	15	7.4	6.06	394.6	1.97	106.8	N/A	T, B, O	F/P
26-3-25	11:15	Y	E303722	MW-01-2004(S)	1.57	5.99	B	20	5.2	6.69	110.6	55.0	73.6	N/A	T, B, O	F/P
26-3-25	11:30	Y	E303723	MW-01-2004(D)	2.93	16	B	10	5.5	7.67	362.9	6.75	86.2	2.05	C, C, O	F/P
26-3-25	14:42	Y	E275563	MW-99-1(S)	10.97	17.15	P	15	7.4	6.76	70.2	0.56	100.9	N/A	T, B, O	F/P
26-3-25	15:22	Y	E240501	MW-99-1(D)	7.91	29.71	P	30	6.9	7.34	626	0.84	110.2	N/A	C, C, O	F/P
1-4-25	11:59	Y	E240502	MW-99-2(D)	0	24	B	30	7.8	7.38	804	3.37	-51.3	6.69	C, C, O	F/P
1-4-25	11:34	Y	E275543	MW-99-2(S)	0.25	4.32	B	30	5.8	6.54	564	3.77	-13.2	7.99	C, C, O	F/P
1-4-25	13:52	Y	E266349	MW-04S-05	0	18.01	B	40	8.8	7.15	484.4	6.52	-72.4	2.25	T, C, O	F/P
1-4-25	14:30	Y	E252594	MW-06-01	0.49	4.03	P	20	6.8	6.87	1471	1.84	-94.1	17.2	T, C, O	F/P
26-3-25	9:50	Y	MW-05-1	Duplicate					5.1	7.17	166.0	4.07	80.0	N/A	C, C, O	F/P
1-4-25		Y		Field Bank			P									

Surface Water

Date	Time	Sampled (y/n)	EMS	Monitoring Location	Flow		Sampling Device		Temp (°C)	pH	Cond (µS/ cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Water Quality Description	Filtered / Preserved
1-4-25	9:54	Y	E303730	SW1-07			GRAB		6.6	7.45	420.6	14.24	106.8	3.89	T, B, O	F/P
25-3-25	14:17	Y	E303731	SW2-07			GRAB		2.1	7.93	41.2	11.49	47.5	N/A	T, B, O	F/P
25-3-25	13:55	Y	E303732	SW3-07			GRAB		3.6	7.80	65.6	11.23	51.5	10.15	C, C, O	F/P
25-3-25	14:05	Y	E335949	SW5-19			GRAB		4.0	7.72	100.3	10.96	85.6	7.10	C, C, O	F/P
25-3-25	13:00	Y	E335950	Seepage Weir			GRAB		5.3	7.48	428.8	10.64	63.4	3.32	C, C, O	F/P
25-3-25	12:20	Y	E335951	Spillway Inlet			GRAB		4.9	8.27	169.4	8.96	52.6	5.93	C, C, O	F/P
25-3-25	12:15	Y	E335952	Spillway Outlet			GRAB		4.7	8.05	159.1	11.17	65.7	37.9	C, C, O	F/P
25-3-25	10:30	Y	E252603	Outlet Ditch			GRAB		3.3	7.90	152	4.35	43.3	N/A	C, C, O	F/P
			E335953	Salmo-Upstream			GRAB									
			E335954	Salmo-Downstream			GRAB									
				Duplicate			GRAB									

Pre-trail

??

CERTIFICATE OF ANALYSIS

Work Order	: **VA25A7383**		
Client	: **Masse Environmental Consultants Ltd.**	Laboratory	: ALS Environmental - Vancouver
Contact	: Ico de Zwart	Account Manager	: Can Dang
Address	: 812 Vernon Street Nelson British Columbia Canada V1L 4G4	Address	: 8081 Lougheed Highway Burnaby BC Canada V5A 1W9
Telephone	: ----	Telephone	: +1 604 253 4188
Project	: 2016-503-HB	Date Samples Received	: 03-Apr-2025 13:10
PO	: ----	Date Analysis Commenced	: 04-Apr-2025
C-O-C number	: 22-20250402-A	Issue Date	: 10-Apr-2025 09:59
Sampler	: Chris Stephanou		
Site	: RDCK		
Quote number	: ----		
No. of samples received	: 1		
No. of samples analysed	: 1		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Dan Gebert	Supervisor - Metals Mercury & Speciation	Metals, Burnaby, British Columbia
Ilnaz Badbezanchi	Supervisor - Metals Prep	Metals, Burnaby, British Columbia
Lindsay Gung	Department Manager - Inorganics	Inorganics, Burnaby, British Columbia
Owen Cheng		Metals, Burnaby, British Columbia
Rebecca Sit	Supervisor - Organics Extractions	Inorganics, Burnaby, British Columbia
Trace Chometsky	Account Manager Assistant	Administration, Burnaby, British Columbia

General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Please refer to Quality Control Interpretive report (QCI) for information regarding Holding Time compliance.

Key: CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances.
LOR: Limit of Reporting (detection limit).

Unit	*Description*
-	no units
°C	degrees celsius
mg/L	milligrams per litre
pH units	pH units
µg/L	micrograms per litre
µS/cm	microsiemens per centimetre

<: less than.
>: greater than.
Surrogate: An analyte that is similar in behavior to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED on SRN or QCI Report, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical Results

Sub-Matrix: Groundwater
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	SW1-07	----	----	----	----
					Client sampling date / time	01-Apr-2025 09:54	----	----	----	----
						VA25A7383-001	----	----	----	----
						Result	----	----	----	----
Field Tests										
Conductivity, field	----	EF001/VA	0.10	µS/cm		421	----	----	----	----
pH, field	----	EF001/VA	0.10	pH units		7.45	----	----	----	----
Temperature, field	----	EF001/VA	0.10	°C		6.60	----	----	----	----
Physical Tests										
Alkalinity, total (as CaCO3)	----	E290/VA	1.0	mg/L		184	----	----	----	----
Conductivity	----	E100/VA	2.0	µS/cm		539	----	----	----	----
Hardness (as CaCO3), dissolved	----	EC100/VA	600	µg/L		225000	----	----	----	----
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/VA	600	µg/L		231000	----	----	----	----
pH	----	E108/VA	0.10	pH units		8.22	----	----	----	----
Solids, total dissolved [TDS]	----	E162/VA	10	mg/L		371	----	----	----	----
Solids, total suspended [TSS]	----	E160/VA	3.0	mg/L		4.9	----	----	----	----
Anions and Nutrients										
Ammonia, total (as N)	7664-41-7	E298/VA	0.0050	mg/L		0.489	----	----	----	----
Bromide	24959-67-9	E235.Br-L/VA	0.050	mg/L		0.096	----	----	----	----
Chloride	16887-00-6	E235.Cl/VA	0.50	mg/L		19.9	----	----	----	----
Fluoride	16984-48-8	E235.F/VA	0.020	mg/L		0.074	----	----	----	----
Kjeldahl nitrogen, total [TKN]	----	E318/VA	0.050	mg/L		2.55	----	----	----	----
Nitrate (as N)	14797-55-8	E235.NO3-L/VA	0.0050	mg/L		0.677	----	----	----	----
Nitrite (as N)	14797-65-0	E235.NO2-L/VA	0.0010	mg/L		0.0819	----	----	----	----
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U/VA	0.0010	mg/L		0.0211	----	----	----	----
Sulfate (as SO4)	14808-79-8	E235.SO4/VA	0.30	mg/L		62.0	----	----	----	----

Analytical Results

Sub-Matrix: Groundwater
(Matrix: Water)

					Client sample ID	SW1-07	----	----	----	----
					Client sampling date / time	01-Apr-2025 09:54	----	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit		VA25A7383-001	----	----	----	----
						Result	----	----	----	----
Organic / Inorganic Carbon										
Carbon, dissolved organic [DOC]	----	E358-L/VA	0.50	mg/L		16.0	----	----	----	----
Carbon, total organic [TOC]	----	E355-L/VA	0.50	mg/L		17.6	----	----	----	----
Total Sulfides										
Sulfide, total (as H2S)	7783-06-4	E395-H/VA	0.011	mg/L		0.026	----	----	----	----
Sulfide, total (as S)	18496-25-8	E395-H/VA	0.010	mg/L		0.024	----	----	----	----
Total Metals										
Aluminum, total	7429-90-5	E420/VA	3.0	µg/L		97.2	----	----	----	----
Antimony, total	7440-36-0	E420/VA	0.10	µg/L		0.32	----	----	----	----
Arsenic, total	7440-38-2	E420/VA	0.10	µg/L		2.46	----	----	----	----
Barium, total	7440-39-3	E420/VA	0.10	µg/L		61.7	----	----	----	----
Beryllium, total	7440-41-7	E420/VA	0.100	µg/L		<0.100	----	----	----	----
Bismuth, total	7440-69-9	E420/VA	0.050	µg/L		<0.050	----	----	----	----
Boron, total	7440-42-8	E420/VA	10	µg/L		98	----	----	----	----
Cadmium, total	7440-43-9	E420/VA	0.0050	µg/L		0.399	----	----	----	----
Calcium, total	7440-70-2	E420/VA	50	µg/L		64100	----	----	----	----
Cesium, total	7440-46-2	E420/VA	0.010	µg/L		0.016	----	----	----	----
Chromium, total	7440-47-3	E420/VA	0.50	µg/L		1.35	----	----	----	----
Cobalt, total	7440-48-4	E420/VA	0.10	µg/L		0.54	----	----	----	----
Copper, total	7440-50-8	E420/VA	0.50	µg/L		7.49	----	----	----	----
Iron, total	7439-89-6	E420/VA	10	µg/L		362	----	----	----	----
Lead, total	7439-92-1	E420/VA	0.050	µg/L		2.43	----	----	----	----

Analytical Results

Sub-Matrix: Groundwater
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	SW1-07	----	----	----	----
					Client sampling date / time	01-Apr-2025 09:54	----	----	----	----
						VA25A7383-001	----	----	----	----
						Result	----	----	----	----
Total Metals										
Lithium, total	7439-93-2	E420/VA	1.0	µg/L		1.6	----	----	----	----
Magnesium, total	7439-95-4	E420/VA	5.0	µg/L		17300	----	----	----	----
Manganese, total	7439-96-5	E420/VA	0.10	µg/L		174	----	----	----	----
Mercury, total	7439-97-6	E508/VA	0.0050	µg/L		0.0051	----	----	----	----
Molybdenum, total	7439-98-7	E420/VA	0.050	µg/L		0.880	----	----	----	----
Nickel, total	7440-02-0	E420/VA	0.50	µg/L		3.42	----	----	----	----
Phosphorus, total	7723-14-0	E420/VA	50	µg/L		146	----	----	----	----
Potassium, total	7440-09-7	E420/VA	50	µg/L		11800	----	----	----	----
Rubidium, total	7440-17-7	E420/VA	0.20	µg/L		4.28	----	----	----	----
Selenium, total	7782-49-2	E420/VA	0.050	µg/L		0.125	----	----	----	----
Silicon, total	7440-21-3	E420/VA	100	µg/L		4810	----	----	----	----
Silver, total	7440-22-4	E420/VA	0.010	µg/L		0.027	----	----	----	----
Sodium, total	7440-23-5	E420/VA	50	µg/L		11600	----	----	----	----
Strontium, total	7440-24-6	E420/VA	0.20	µg/L		349	----	----	----	----
Sulfur, total	7704-34-9	E420/VA	500	µg/L		23000	----	----	----	----
Tellurium, total	13494-80-9	E420/VA	0.20	µg/L		<0.20	----	----	----	----
Thallium, total	7440-28-0	E420/VA	0.010	µg/L		<0.010	----	----	----	----
Thorium, total	7440-29-1	E420/VA	0.10	µg/L		<0.10	----	----	----	----
Tin, total	7440-31-5	E420/VA	0.10	µg/L		0.16	----	----	----	----
Titanium, total	7440-32-6	E420/VA	0.30	µg/L		3.37	----	----	----	----
Tungsten, total	7440-33-7	E420/VA	0.10	µg/L		<0.10	----	----	----	----

Analytical Results

Sub-Matrix: Groundwater
(Matrix: Water)

					Client sample ID	SW1-07	----	----	----	----
					Client sampling date / time	01-Apr-2025 09:54	----	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit		VA25A7383-001	----	----	----	----
						Result	----	----	----	----
Total Metals										
Uranium, total	7440-61-1	E420/VA	0.010	µg/L		4.33	----	----	----	----
Vanadium, total	7440-62-2	E420/VA	0.50	µg/L		0.76	----	----	----	----
Zinc, total	7440-66-6	E420/VA	3.0	µg/L		100	----	----	----	----
Zirconium, total	7440-67-7	E420/VA	0.20	µg/L		<0.20	----	----	----	----
Dissolved Metals										
Aluminum, dissolved	7429-90-5	E421/VA	1.0	µg/L		30.2	----	----	----	----
Antimony, dissolved	7440-36-0	E421/VA	0.10	µg/L		0.30	----	----	----	----
Arsenic, dissolved	7440-38-2	E421/VA	0.10	µg/L		2.27	----	----	----	----
Barium, dissolved	7440-39-3	E421/VA	0.10	µg/L		59.2	----	----	----	----
Beryllium, dissolved	7440-41-7	E421/VA	0.100	µg/L		<0.100	----	----	----	----
Bismuth, dissolved	7440-69-9	E421/VA	0.050	µg/L		<0.050	----	----	----	----
Boron, dissolved	7440-42-8	E421/VA	10	µg/L		94	----	----	----	----
Cadmium, dissolved	7440-43-9	E421/VA	0.0050	µg/L		0.308	----	----	----	----
Calcium, dissolved	7440-70-2	E421/VA	50	µg/L		60200	----	----	----	----
Cesium, dissolved	7440-46-2	E421/VA	0.010	µg/L		<0.010	----	----	----	----
Chromium, dissolved	7440-47-3	E421/VA	0.50	µg/L		1.23	----	----	----	----
Cobalt, dissolved	7440-48-4	E421/VA	0.10	µg/L		0.54	----	----	----	----
Copper, dissolved	7440-50-8	E421/VA	0.20	µg/L		6.52	----	----	----	----
Iron, dissolved	7439-89-6	E421/VA	10	µg/L		258	----	----	----	----
Lead, dissolved	7439-92-1	E421/VA	0.050	µg/L		1.60	----	----	----	----
Lithium, dissolved	7439-93-2	E421/VA	1.0	µg/L		1.5	----	----	----	----

Analytical Results

Sub-Matrix: Groundwater
(Matrix: Water)

					Client sample ID	SW1-07	----	----	----	----
					Client sampling date / time	01-Apr-2025 09:54	----	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit		VA25A7383-001	----	----	----	----
						Result	----	----	----	----
Dissolved Metals										
Magnesium, dissolved	7439-95-4	E421/VA	5.0	µg/L		18100	----	----	----	----
Manganese, dissolved	7439-96-5	E421/VA	0.10	µg/L		171	----	----	----	----
Mercury, dissolved	7439-97-6	E509/VA	0.0050	µg/L		<0.0050	----	----	----	----
Molybdenum, dissolved	7439-98-7	E421/VA	0.050	µg/L		0.875	----	----	----	----
Nickel, dissolved	7440-02-0	E421/VA	0.50	µg/L		3.22	----	----	----	----
Phosphorus, dissolved	7723-14-0	E421/VA	50	µg/L		64	----	----	----	----
Potassium, dissolved	7440-09-7	E421/VA	50	µg/L		12200	----	----	----	----
Rubidium, dissolved	7440-17-7	E421/VA	0.20	µg/L		4.20	----	----	----	----
Selenium, dissolved	7782-49-2	E421/VA	0.050	µg/L		0.131	----	----	----	----
Silicon, dissolved	7440-21-3	E421/VA	50	µg/L		4500	----	----	----	----
Silver, dissolved	7440-22-4	E421/VA	0.010	µg/L		0.016	----	----	----	----
Sodium, dissolved	7440-23-5	E421/VA	50	µg/L		12200	----	----	----	----
Strontium, dissolved	7440-24-6	E421/VA	0.20	µg/L		335	----	----	----	----
Sulfur, dissolved	7704-34-9	E421/VA	500	µg/L		21800	----	----	----	----
Tellurium, dissolved	13494-80-9	E421/VA	0.20	µg/L		<0.20	----	----	----	----
Thallium, dissolved	7440-28-0	E421/VA	0.010	µg/L		<0.010	----	----	----	----
Thorium, dissolved	7440-29-1	E421/VA	0.10	µg/L		<0.10	----	----	----	----
Tin, dissolved	7440-31-5	E421/VA	0.10	µg/L		<0.10	----	----	----	----
Titanium, dissolved	7440-32-6	E421/VA	0.30	µg/L		1.34	----	----	----	----
Tungsten, dissolved	7440-33-7	E421/VA	0.10	µg/L		<0.10	----	----	----	----
Uranium, dissolved	7440-61-1	E421/VA	0.010	µg/L		4.25	----	----	----	----

Analytical Results

Sub-Matrix: Groundwater (Matrix: Water)					Client sample ID	SW1-07	----	----	----	----
					Client sampling date / time	01-Apr-2025 09:54	----	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit		VA25A7383-001	----	----	----	----
						Result	----	----	----	----
Dissolved Metals										
Vanadium, dissolved	7440-62-2	E421/VA	0.50	µg/L		0.67	----	----	----	----
Zinc, dissolved	7440-66-6	E421/VA	1.0	µg/L		92.2	----	----	----	----
Zirconium, dissolved	7440-67-7	E421/VA	0.20	µg/L		<0.20	----	----	----	----
Dissolved mercury filtration location	----	EP509/VA	-	-		Field	----	----	----	----
Dissolved metals filtration location	----	EP421/VA	-	-		Field	----	----	----	----

Please refer to the General Comments section for an explanation of any result qualifiers detected.

ALS Canada Ltd.

right solutions.
right partner.

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **VA25A7383**	Page	: 1 of 13
Client	: **Masse Environmental Consultants Ltd.**	Laboratory	: ALS Environmental - Vancouver
Contact	: Ico de Zwart	Account Manager	: Can Dang
Address	: 812 Vernon Street Nelson BC Canada V1L 4G4	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: ----	Telephone	: +1 604 253 4188
Project	: 2016-503-HB	Date Samples Received	: 03-Apr-2025 13:10
PO	: ----	Issue Date	: 10-Apr-2025 09:59
C-O-C number	: 22-20250402-A		
Sampler	: Chris Stephanou		
Site	: RDCK		
Quote number	: ----		
No. of samples received	: 1		
No. of samples analysed	: 1		

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Key

Anonymous: Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number: Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO: Data Quality Objective.
LOR: Limit of Reporting (detection limit).
RPD: Relative Percent Difference.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Summary of Outliers

Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- No Duplicate outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- Matrix Spike outliers occur - please see following pages for full details.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- Analysis Holding Time Outliers exist - please see following pages for full details.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **Water**

Analyte Group	Laboratory sample ID	Client/Ref Sample ID	Analyte	CAS Number	Method	Result	Limits	Comment
Matrix Spike (MS) Recoveries								
Total Metals	Anonymous	Anonymous	Thorium, total	7440-29-1	E420	63.0 % MES	70.0-130%	Recovery less than lower data quality objective

Result Qualifiers

Qualifier	Description
MES	*Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).*

Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) SW1-07	E298	01-Apr-2025	04-Apr-2025	28 days	3 days	✓	09-Apr-2025	28 days	3 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE SW1-07	E235.Br-L	01-Apr-2025	04-Apr-2025	28 days	3 days	✓	04-Apr-2025	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE SW1-07	E235.Cl	01-Apr-2025	04-Apr-2025	28 days	3 days	✓	04-Apr-2025	28 days	3 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE SW1-07	E378-U	01-Apr-2025	04-Apr-2025	3 days	3 days	✓	04-Apr-2025	3 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE SW1-07	E235.F	01-Apr-2025	04-Apr-2025	28 days	3 days	✓	04-Apr-2025	28 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE SW1-07	E235.NO3-L	01-Apr-2025	04-Apr-2025	3 days	3 days	✓	04-Apr-2025	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE SW1-07	E235.NO2-L	01-Apr-2025	04-Apr-2025	3 days	3 days	✓	04-Apr-2025	3 days	3 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Sulfate in Water by IC										
HDPE SW1-07	E235.SO4	01-Apr-2025	04-Apr-2025	28 days	3 days	✓	04-Apr-2025	28 days	3 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) SW1-07	E318	01-Apr-2025	04-Apr-2025	28 days	3 days	✓	07-Apr-2025	28 days	3 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved) SW1-07	E509	01-Apr-2025	09-Apr-2025	28 days	9 days	✓	10-Apr-2025	28 days	9 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) SW1-07	E421	01-Apr-2025	05-Apr-2025	180 days	4 days	✓	06-Apr-2025	180 days	4 days	✓
Field Tests : Field pH,EC,Salinity, TDS, Cl2,ClO2,ORP,DO, Turbidity,T,T-P,o-PO4,NH3,Chloramine										
Glass vial - total (lab preserved) SW1-07	EF001	01-Apr-2025	----	----	----		07-Apr-2025	----	----	
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass - dissolved (field filtered/sulfuric acid) SW1-07	E358-L	01-Apr-2025	04-Apr-2025	28 days	3 days	✓	06-Apr-2025	28 days	3 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) SW1-07	E355-L	01-Apr-2025	04-Apr-2025	28 days	3 days	✓	05-Apr-2025	28 days	3 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE SW1-07	E290	01-Apr-2025	04-Apr-2025	14 days	3 days	✓	04-Apr-2025	14 days	3 days	✓
Physical Tests : Conductivity in Water										
HDPE SW1-07	E100	01-Apr-2025	04-Apr-2025	28 days	3 days	✓	04-Apr-2025	28 days	3 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	*Method*	*Sampling Date*	*Extraction / Preparation*				*Analysis*			
			Preparation Date	*Holding Times* Rec	*Holding Times* Actual	*Eval*	*Analysis Date*	*Holding Times* Rec	*Holding Times* Actual	*Eval*
Physical Tests : pH by Meter										
HDPE SW1-07	E108	01-Apr-2025	04-Apr-2025	0.25 hrs	68 hrs	× EHTR-FM	04-Apr-2025	0.25 hrs	68 hrs	× EHTR-FM
Physical Tests : TDS by Gravimetry										
HDPE SW1-07	E162	01-Apr-2025	----	----	----		04-Apr-2025	7 days	3 days	✓
Physical Tests : TSS by Gravimetry										
HDPE SW1-07	E160	01-Apr-2025	----	----	----		04-Apr-2025	7 days	3 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved) SW1-07	E508	01-Apr-2025	10-Apr-2025	28 days	9 days	✓	10-Apr-2025	28 days	9 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) SW1-07	E420	01-Apr-2025	04-Apr-2025	180 days	3 days	✓	07-Apr-2025	180 days	3 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) SW1-07	E395-H	01-Apr-2025	----	----	----		04-Apr-2025	7 days	3 days	✓

Legend & Qualifier Definitions

EHTR-FM: Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended

Rec. HT: ALS recommended hold time (see units).

Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Water**

Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
Conductivity in Water	E100	1937965	1	12	8.3	5.0	✓
pH by Meter	E108	1937964	1	12	8.3	5.0	✓
TSS by Gravimetry	E160	1937833	1	20	5.0	5.0	✓
TDS by Gravimetry	E162	1937831	1	20	5.0	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1937961	1	4	25.0	5.0	✓
Chloride in Water by IC	E235.Cl	1937957	1	9	11.1	5.0	✓
Fluoride in Water by IC	E235.F	1937960	1	8	12.5	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1937959	1	18	5.5	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1937958	1	17	5.8	5.0	✓
Sulfate in Water by IC	E235.SO4	1937956	1	17	5.8	5.0	✓
Alkalinity Species by Titration	E290	1937966	1	9	11.1	5.0	✓
Ammonia by Fluorescence	E298	1937836	1	20	5.0	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	1937834	1	17	5.8	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1937839	1	17	5.8	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1937838	1	12	8.3	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	1937963	1	2	50.0	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395-H	1938431	1	14	7.1	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1938339	1	14	7.1	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1938657	1	15	6.6	5.0	✓
Total Mercury in Water by CVAAS	E508	1945442	1	20	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1945359	1	20	5.0	5.0	✓
Laboratory Control Samples (LCS)							
Conductivity in Water	E100	1937965	1	12	8.3	5.0	✓
pH by Meter	E108	1937964	1	12	8.3	5.0	✓
TSS by Gravimetry	E160	1937833	1	20	5.0	5.0	✓
TDS by Gravimetry	E162	1937831	1	20	5.0	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1937961	1	4	25.0	5.0	✓
Chloride in Water by IC	E235.Cl	1937957	1	9	11.1	5.0	✓
Fluoride in Water by IC	E235.F	1937960	1	8	12.5	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1937959	1	18	5.5	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1937958	1	17	5.8	5.0	✓
Sulfate in Water by IC	E235.SO4	1937956	1	17	5.8	5.0	✓
Alkalinity Species by Titration	E290	1937966	1	9	11.1	5.0	✓
Ammonia by Fluorescence	E298	1937836	1	20	5.0	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	1937834	1	17	5.8	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1937839	1	17	5.8	5.0	✓

Matrix: **Water**

Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Control Samples (LCS) - Continued							
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1937838	1	12	8.3	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	1937963	1	2	50.0	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395-H	1938431	1	14	7.1	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1938339	1	14	7.1	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1938657	1	15	6.6	5.0	✓
Total Mercury in Water by CVAAS	E508	1945442	1	20	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1945359	1	20	5.0	5.0	✓
Method Blanks (MB)							
Conductivity in Water	E100	1937965	1	12	8.3	5.0	✓
TSS by Gravimetry	E160	1937833	1	20	5.0	5.0	✓
TDS by Gravimetry	E162	1937831	1	20	5.0	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1937961	1	4	25.0	5.0	✓
Chloride in Water by IC	E235.Cl	1937957	1	9	11.1	5.0	✓
Fluoride in Water by IC	E235.F	1937960	1	8	12.5	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1937959	1	18	5.5	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1937958	1	17	5.8	5.0	✓
Sulfate in Water by IC	E235.SO4	1937956	1	17	5.8	5.0	✓
Alkalinity Species by Titration	E290	1937966	1	9	11.1	5.0	✓
Ammonia by Fluorescence	E298	1937836	1	20	5.0	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	1937834	1	17	5.8	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1937839	1	17	5.8	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1937838	1	12	8.3	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	1937963	1	2	50.0	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395-H	1938431	1	14	7.1	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1938339	1	14	7.1	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1938657	1	15	6.6	5.0	✓
Total Mercury in Water by CVAAS	E508	1945442	1	20	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1945359	1	20	5.0	5.0	✓
Matrix Spikes (MS)							
Bromide in Water by IC (Low Level)	E235.Br-L	1937961	1	4	25.0	5.0	✓
Chloride in Water by IC	E235.Cl	1937957	1	9	11.1	5.0	✓
Fluoride in Water by IC	E235.F	1937960	1	8	12.5	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1937959	1	18	5.5	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1937958	1	17	5.8	5.0	✓
Sulfate in Water by IC	E235.SO4	1937956	1	17	5.8	5.0	✓
Ammonia by Fluorescence	E298	1937836	1	20	5.0	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	1937834	1	17	5.8	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1937839	1	17	5.8	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1937838	1	12	8.3	5.0	✓

Matrix: **Water**

Evaluation: × = *QC frequency outside specification*; ✓ = *QC frequency within specification.*

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Matrix Spikes (MS) - Continued							
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	1937963	1	2	50.0	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395-H	1938431	1	14	7.1	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1938339	1	14	7.1	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1938657	1	15	6.6	5.0	✓
Total Mercury in Water by CVAAS	E508	1945442	1	20	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1945359	1	20	5.0	5.0	✓

Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Conductivity in Water	E100 ALS Environmental - Vancouver	Water	APHA 2510 (mod)	Conductivity, also known as Electrical Conductivity (EC) or Specific Conductance, is measured by immersion of a conductivity cell with platinum electrodes into a water sample. Conductivity measurements are temperature-compensated to 25°C.
pH by Meter	E108 ALS Environmental - Vancouver	Water	APHA 4500-H (mod)	pH is determined by potentiometric measurement with a pH electrode, and is conducted at ambient laboratory temperature (normally 20 ± 5°C). For high accuracy test results, pH should be measured in the field within the recommended 15 minute hold time.
TSS by Gravimetry	E160 ALS Environmental - Vancouver	Water	APHA 2540 D (mod)	Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, following by drying of the filter at 104 ± 1°C, with gravimetric measurement of the filtered solids. Samples containing very high dissolved solid content (i.e. seawaters, brackish waters) may produce a positive bias by this method. Alternate analysis methods are available for these types of samples.
TDS by Gravimetry	E162 ALS Environmental - Vancouver	Water	APHA 2540 C (mod)	Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, with evaporation of the filtrate at 180 ± 2°C for 16 hours or to constant weight, with gravimetric measurement of the residue.
Bromide in Water by IC (Low Level)	E235.Br-L ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Chloride in Water by IC	E235.Cl ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Fluoride in Water by IC	E235.F ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrite in Water by IC (Low Level)	E235.NO2-L ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrate in Water by IC (Low Level)	E235.NO3-L ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Sulfate in Water by IC	E235.SO4 ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Alkalinity Species by Titration	E290 ALS Environmental - Vancouver	Water	APHA 2320 B (mod)	Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.
Ammonia by Fluorescence	E298 ALS Environmental - Vancouver	Water	Method Fialab 100, 2018	Ammonia in water is determined by automated continuous flow analysis with membrane diffusion and fluorescence detection, after reaction with OPA (ortho-phthalaldehyde). This method is approved under US EPA 40 CFR Part 136 (May 2021)
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318 ALS Environmental - Vancouver	Water	Method Fialab 100, 2018	TKN in water is determined by automated continuous flow analysis with membrane diffusion and fluorescence detection, after reaction with OPA (ortho-phthalaldehyde). This method is approved under US EPA 40 CFR Part 136 (May 2021).
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L ALS Environmental - Vancouver	Water	APHA 5310 B (mod)	Total Organic Carbon (Non-Purgeable), also known as NPOC (total), is a direct measurement of TOC after an acidified sample has been purged to remove carbonate-based Inorganic Carbon (IC). Analysis is by high temperature combustion with infrared detection of CO2. Forms of carbon associated with inorganic or organic molecules (e.g. SCN and CN) are included in NPOC if they are not removed by purging under acidic conditions. Notably, NPOC excludes most volatile organic compounds and free cyanide. For samples where the majority of Total Carbon is inorganic, this method provides greater accuracy and reliability versus the TOC by subtraction method (TC minus TIC).
Dissolved Organic Carbon by Combustion (Low Level)	E358-L ALS Environmental - Vancouver	Water	APHA 5310 B (mod)	Dissolved Organic Carbon (Non-Purgeable), also known as NPOC (dissolved), is a direct measurement of DOC after a filtered (0.45 micron) sample has been acidified and purged to remove inorganic carbon (IC). Analysis is by high temperature combustion with infrared detection of CO2. NPOC does not include volatile organic species that are purged off with IC. For samples where the majority of DC (dissolved carbon) is comprised of IC (which is common), this method is more accurate and more reliable than the DOC by subtraction method (i.e. DC minus DIC).
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U ALS Environmental - Vancouver	Water	APHA 4500-P F (mod)	Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter. Field filtration is recommended to ensure test results represent conditions at time of sampling.
Total Sulfide by Colourimetry (Automated Flow)	E395-H ALS Environmental - Vancouver	Water	APHA 4500 -S E-Auto-Colorimetry	Sulfide is determined using the gas dialysis automated methlyene blue colourimetric method. Results expressed "as H2S" if reported represent the maximum possible H2S concentration based on the total sulfide concentration in the sample. The H2S calculation converts Total Sulphide as (S2-) and reports it as Total Sulphide as (H2S)

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Total Metals in Water by CRC ICPMS	E420 ALS Environmental - Vancouver	Water	EPA 200.2/6020B (mod)	Water samples are digested with nitric and hydrochloric acids, and analyzed by Collision/Reaction Cell ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
Dissolved Metals in Water by CRC ICPMS	E421 ALS Environmental - Vancouver	Water	APHA 3030B/EPA 6020B (mod)	Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by Collision/Reaction Cell ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
Total Mercury in Water by CVAAS	E508 ALS Environmental - Vancouver	Water	EPA 1631E (mod)	Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS
Dissolved Mercury in Water by CVAAS	E509 ALS Environmental - Vancouver	Water	APHA 3030B/EPA 1631E (mod)	Water samples are filtered (0.45 um), preserved with HCl, then undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS.
Dissolved Hardness (Calculated)	EC100 ALS Environmental - Vancouver	Water	APHA 2340B	“Hardness (as CaCO3), dissolved” is calculated from the sum of dissolved Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. “Total Hardness” refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because it is a property of water due to dissolved divalent cations.
Hardness (Calculated) from Total Ca/Mg	EC100A ALS Environmental - Vancouver	Water	APHA 2340B	“Hardness (as CaCO3), from total Ca/Mg” is calculated from the sum of total Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. “Total Hardness” refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because it is a property of water due to dissolved divalent cations. Hardness from total Ca/Mg is normally comparable to Dissolved Hardness in non-turbid waters.
Field pH,EC,Salinity, TDS, Cl2,ClO2,ORP,DO, Turbidity,T,T-P,o-PO4,NH3,Chloramine	EF001 ALS Environmental - Vancouver	Water	Field Measurement (Client Supplied)	Field pH,EC,Salinity, TDS, Cl2,ClO2,ORP,DO, Turbidity,T,T-P,o-PO4,NH3 or Chloramine measurements provided by client and recorded on ALS report may affect the validity of results.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Ammonia	EP298 ALS Environmental - Vancouver	Water		Sample preparation for Preserved Nutrients Water Quality Analysis.
Digestion for TKN in water	EP318 ALS Environmental - Vancouver	Water	APHA 4500-Norg D (mod)	Samples are digested at high temperature using Sulfuric Acid with Copper catalyst, which converts organic nitrogen sources to Ammonia, which is then quantified by the analytical method as TKN. This method is unsuitable for samples containing high levels of nitrate. If nitrate exceeds TKN concentration by ten times or more, results may be biased low.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Total Organic Carbon by Combustion	EP355 ALS Environmental - Vancouver	Water		Preparation for Total Organic Carbon by Combustion
Preparation for Dissolved Organic Carbon for Combustion	EP358 ALS Environmental - Vancouver	Water	APHA 5310 B (mod)	Preparation for Dissolved Organic Carbon
Dissolved Metals Water Filtration	EP421 ALS Environmental - Vancouver	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HNO3.
Dissolved Mercury Water Filtration	EP509 ALS Environmental - Vancouver	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HCl.

QUALITY CONTROL REPORT

Work Order	: **VA25A7383**	Page	: 1 of 17
Client	: Masse Environmental Consultants Ltd.	Laboratory	: ALS Environmental - Vancouver
Contact	: Ico de Zwart	Account Manager	: Can Dang
Address	: 812 Vernon Street Nelson BC Canada V1L 4G4	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: ----	Telephone	: +1 604 253 4188
Project	: 2016-503-HB	Date Samples Received	: 03-Apr-2025 13:10
PO	: ----	Date Analysis Commenced	: 04-Apr-2025
C-O-C number	: 22-20250402-A	Issue Date	: 10-Apr-2025 09:59
Sampler	: Chris Stephanou		
Site	: RDCK		
Quote number	: ----		
No. of samples received	: 1		
No. of samples analysed	: 1		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percent Difference (RPD) and Data Quality Objectives
- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Dan Gebert	Supervisor - Metals Mercury & Speciation	Vancouver Metals, Burnaby, British Columbia
Ilnaz Badbezanchi	Supervisor - Metals Prep	Vancouver Metals, Burnaby, British Columbia
Lindsay Gung	Department Manager - Inorganics	Vancouver Inorganics, Burnaby, British Columbia
Owen Cheng		Vancouver Metals, Burnaby, British Columbia
Rebecca Sit	Supervisor - Organics Extractions	Vancouver Inorganics, Burnaby, British Columbia
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General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number = Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO = Data Quality Objective.
LOR = Limit of Reporting (detection limit).
RPD = Relative Percent Difference
# = Indicates a QC result that did not meet the ALS DQO.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test-specific).

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Physical Tests (QC Lot: 1937831)											
VA25A7182-003	Anonymous	Solids, total dissolved [TDS]	----	E162	20	mg/L	426	423	0.706%	20%	----
Physical Tests (QC Lot: 1937833)											
VA25A7182-003	Anonymous	Solids, total suspended [TSS]	----	E160	3.0	mg/L	16.1	16.3	0.2	Diff <2x LOR	----
Physical Tests (QC Lot: 1937964)											
KS2501109-001	Anonymous	pH	----	E108	0.10	pH units	8.23	8.21	0.243%	4%	----
Physical Tests (QC Lot: 1937965)											
KS2501109-001	Anonymous	Conductivity	----	E100	2.0	µS/cm	314	317	0.951%	10%	----
Physical Tests (QC Lot: 1937966)											
KS2501109-001	Anonymous	Alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	169	168	0.356%	20%	----
Anions and Nutrients (QC Lot: 1937834)											
VA25A7291-001	Anonymous	Kjeldahl nitrogen, total [TKN]	----	E318	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1937836)											
VA25A7291-001	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1937956)											
KS2501139-001	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	3.00	mg/L	270	268	0.758%	20%	----
Anions and Nutrients (QC Lot: 1937957)											
KS2501139-001	Anonymous	Chloride	16887-00-6	E235.Cl	5.00	mg/L	144	144	0.212%	20%	----
Anions and Nutrients (QC Lot: 1937958)											
KS2501139-001	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	0.0500	mg/L	12.3	12.2	0.503%	20%	----
Anions and Nutrients (QC Lot: 1937959)											
KS2501139-001	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	0.0100	mg/L	0.112	0.133	17.3%	20%	----
Anions and Nutrients (QC Lot: 1937960)											
KS2501139-001	Anonymous	Fluoride	16984-48-8	E235.F	1.20	mg/L	<1.20	<1.20	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1937961)											
KS2501139-001	Anonymous	Bromide	24959-67-9	E235.Br-L	0.500	mg/L	<0.500	<0.500	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1937963)											
VA25A7307-002	Anonymous	Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.100	mg/L	1.63	1.63	0.0785%	20%	----
Organic / Inorganic Carbon (QC Lot: 1937838)											
VA25A7291-001	Anonymous	Carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	4.23	4.38	0.15	Diff <2x LOR	----
Organic / Inorganic Carbon (QC Lot: 1937839)											

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Organic / Inorganic Carbon (QC Lot: 1937839) - continued											
VA25A7291-001	Anonymous	Carbon, total organic [TOC]	----	E355-L	0.50	mg/L	4.43	4.51	0.08	Diff <2x LOR	----
Total Sulfides (QC Lot: 1938431)											
KS2501088-001	Anonymous	Sulfide, total (as S)	18496-25-8	E395-H	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
Total Metals (QC Lot: 1938339)											
VA25A7368-001	Anonymous	Aluminum, total	7429-90-5	E420	0.0030	mg/L	0.0041	<0.0030	0.0011	Diff <2x LOR	----
		Antimony, total	7440-36-0	E420	0.00010	mg/L	0.00020	0.00018	0.00002	Diff <2x LOR	----
		Arsenic, total	7440-38-2	E420	0.00010	mg/L	0.00086	0.00084	0.00003	Diff <2x LOR	----
		Barium, total	7440-39-3	E420	0.00010	mg/L	0.0120	0.0118	1.84%	20%	----
		Beryllium, total	7440-41-7	E420	0.000100	mg/L	<0.000100	<0.000100	0	Diff <2x LOR	----
		Bismuth, total	7440-69-9	E420	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Boron, total	7440-42-8	E420	0.010	mg/L	0.064	0.063	0.0005	Diff <2x LOR	----
		Cadmium, total	7440-43-9	E420	0.0000100	mg/L	<0.0000100	<0.0000100	0	Diff <2x LOR	----
		Calcium, total	7440-70-2	E420	0.050	mg/L	147	150	1.68%	20%	----
		Cesium, total	7440-46-2	E420	0.000010	mg/L	0.000033	0.000034	0.0000008	Diff <2x LOR	----
		Chromium, total	7440-47-3	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Cobalt, total	7440-48-4	E420	0.00010	mg/L	0.00056	0.00056	0.000004	Diff <2x LOR	----
		Copper, total	7440-50-8	E420	0.00050	mg/L	0.00332	0.00325	0.00007	Diff <2x LOR	----
		Iron, total	7439-89-6	E420	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		Lead, total	7439-92-1	E420	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Lithium, total	7439-93-2	E420	0.0010	mg/L	0.0028	0.0028	0.00004	Diff <2x LOR	----
		Magnesium, total	7439-95-4	E420	0.0050	mg/L	15.6	15.3	2.01%	20%	----
		Manganese, total	7439-96-5	E420	0.00010	mg/L	0.00013	0.00013	0.000006	Diff <2x LOR	----
		Molybdenum, total	7439-98-7	E420	0.000050	mg/L	0.0160	0.0162	1.23%	20%	----
		Nickel, total	7440-02-0	E420	0.00050	mg/L	0.00051	<0.00050	0.000008	Diff <2x LOR	----
		Phosphorus, total	7723-14-0	E420	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Potassium, total	7440-09-7	E420	0.050	mg/L	1.25	1.22	2.31%	20%	----
		Rubidium, total	7440-17-7	E420	0.00020	mg/L	0.00132	0.00132	0.0000003	Diff <2x LOR	----
		Selenium, total	7782-49-2	E420	0.000050	mg/L	0.00527	0.00527	0.0278%	20%	----
		Silicon, total	7440-21-3	E420	0.10	mg/L	6.98	6.86	1.78%	20%	----
		Silver, total	7440-22-4	E420	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Sodium, total	7440-23-5	E420	0.050	mg/L	26.6	26.5	0.452%	20%	----
		Strontium, total	7440-24-6	E420	0.00020	mg/L	0.470	0.478	1.67%	20%	----
		Sulfur, total	7704-34-9	E420	0.50	mg/L	124	125	0.699%	20%	----
		Tellurium, total	13494-80-9	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Total Metals (QC Lot: 1938339) - continued											
VA25A7368-001	Anonymous	Thallium, total	7440-28-0	E420	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Thorium, total	7440-29-1	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Tin, total	7440-31-5	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Titanium, total	7440-32-6	E420	0.00030	mg/L	<0.00030	<0.00030	0	Diff <2x LOR	----
		Tungsten, total	7440-33-7	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Uranium, total	7440-61-1	E420	0.000010	mg/L	0.00119	0.00122	2.17%	20%	----
		Vanadium, total	7440-62-2	E420	0.00050	mg/L	0.00081	0.00078	0.00004	Diff <2x LOR	----
		Zinc, total	7440-66-6	E420	0.0030	mg/L	<0.0030	<0.0030	0	Diff <2x LOR	----
		Zirconium, total	7440-67-7	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
Total Metals (QC Lot: 1945442)											
FJ2500958-001	Anonymous	Mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1938657)											
FJ2500949-001	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	0.0098	0.0104	5.76%	20%	----
		Antimony, dissolved	7440-36-0	E421	0.00010	mg/L	0.00012	0.00012	0.000002	Diff <2x LOR	----
		Arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	0.00034	0.00036	0.00002	Diff <2x LOR	----
		Barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.0676	0.0677	0.114%	20%	----
		Beryllium, dissolved	7440-41-7	E421	0.000100	mg/L	<0.000100	<0.000100	0	Diff <2x LOR	----
		Bismuth, dissolved	7440-69-9	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Boron, dissolved	7440-42-8	E421	0.010	mg/L	0.046	0.046	0.0006	Diff <2x LOR	----
		Cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L	0.0000146	0.0000146	0.000000008	Diff <2x LOR	----
		Calcium, dissolved	7440-70-2	E421	0.050	mg/L	65.3	66.7	2.02%	20%	----
		Cesium, dissolved	7440-46-2	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Chromium, dissolved	7440-47-3	E421	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Cobalt, dissolved	7440-48-4	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Copper, dissolved	7440-50-8	E421	0.00020	mg/L	0.00146	0.00148	0.00002	Diff <2x LOR	----
		Iron, dissolved	7439-89-6	E421	0.010	mg/L	0.049	0.049	0.0005	Diff <2x LOR	----
		Lead, dissolved	7439-92-1	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Lithium, dissolved	7439-93-2	E421	0.0010	mg/L	0.0156	0.0159	1.70%	20%	----
		Magnesium, dissolved	7439-95-4	E421	0.0050	mg/L	34.6	34.9	1.02%	20%	----
		Manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.00239	0.00242	1.50%	20%	----
		Molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.00127	0.00130	2.38%	20%	----
		Nickel, dissolved	7440-02-0	E421	0.00050	mg/L	0.00180	0.00184	0.00004	Diff <2x LOR	----
		Phosphorus, dissolved	7723-14-0	E421	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Potassium, dissolved	7440-09-7	E421	0.050	mg/L	5.12	5.40	5.40%	20%	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Dissolved Metals (QC Lot: 1938657) - continued											
FJ2500949-001	Anonymous	Rubidium, dissolved	7440-17-7	E421	0.00020	mg/L	0.00127	0.00122	0.00005	Diff <2x LOR	----
		Selenium, dissolved	7782-49-2	E421	0.000050	mg/L	0.000790	0.000812	2.75%	20%	----
		Silicon, dissolved	7440-21-3	E421	0.050	mg/L	2.80	2.74	2.07%	20%	----
		Silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Sodium, dissolved	7440-23-5	E421	0.050	mg/L	18.0	18.4	2.42%	20%	----
		Strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.287	0.297	3.36%	20%	----
		Sulfur, dissolved	7704-34-9	E421	0.50	mg/L	29.7	29.4	0.904%	20%	----
		Tellurium, dissolved	13494-80-9	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		Thallium, dissolved	7440-28-0	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Thorium, dissolved	7440-29-1	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Tin, dissolved	7440-31-5	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Titanium, dissolved	7440-32-6	E421	0.00030	mg/L	0.00099	0.00113	0.00014	Diff <2x LOR	----
		Tungsten, dissolved	7440-33-7	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Uranium, dissolved	7440-61-1	E421	0.000010	mg/L	0.00180	0.00186	3.13%	20%	----
		Vanadium, dissolved	7440-62-2	E421	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Zinc, dissolved	7440-66-6	E421	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Zirconium, dissolved	7440-67-7	E421	0.00020	mg/L	0.00029	<0.00020	0.00009	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1945359)											
VA25A7353-001	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----

Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 1937831)						
Solids, total dissolved [TDS]	----	E162	10	mg/L	<10	----
Physical Tests (QCLot: 1937833)						
Solids, total suspended [TSS]	----	E160	3	mg/L	<3.0	----
Physical Tests (QCLot: 1937965)						
Conductivity	----	E100	1	µS/cm	<1.0	----
Physical Tests (QCLot: 1937966)						
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	<1.0	----
Anions and Nutrients (QCLot: 1937834)						
Kjeldahl nitrogen, total [TKN]	----	E318	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 1937836)						
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 1937956)						
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	----
Anions and Nutrients (QCLot: 1937957)						
Chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 1937958)						
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 1937959)						
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 1937960)						
Fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 1937961)						
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 1937963)						
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.001	mg/L	<0.0010	----
Organic / Inorganic Carbon (QCLot: 1937838)						
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	<0.50	----
Organic / Inorganic Carbon (QCLot: 1937839)						
Carbon, total organic [TOC]	----	E355-L	0.5	mg/L	<0.50	----
Total Sulfides (QCLot: 1938431)						
Sulfide, total (as S)	18496-25-8	E395-H	0.01	mg/L	<0.010	----
Total Metals (QCLot: 1938339)						

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (QCLot: 1938339) - continued						
Aluminum, total	7429-90-5	E420	0.003	mg/L	<0.0030	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	<0.00010	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	<0.00010	----
Barium, total	7440-39-3	E420	0.0001	mg/L	<0.00010	----
Beryllium, total	7440-41-7	E420	0.00002	mg/L	<0.000020	----
Bismuth, total	7440-69-9	E420	0.00005	mg/L	<0.000050	----
Boron, total	7440-42-8	E420	0.01	mg/L	<0.010	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	<0.0000050	----
Calcium, total	7440-70-2	E420	0.05	mg/L	<0.050	----
Cesium, total	7440-46-2	E420	0.00001	mg/L	<0.000010	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	<0.00050	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	<0.00010	----
Copper, total	7440-50-8	E420	0.0005	mg/L	<0.00050	----
Iron, total	7439-89-6	E420	0.01	mg/L	<0.010	----
Lead, total	7439-92-1	E420	0.00005	mg/L	<0.000050	----
Lithium, total	7439-93-2	E420	0.001	mg/L	<0.0010	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	<0.0050	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	<0.00010	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	<0.000050	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	<0.00050	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	<0.050	----
Potassium, total	7440-09-7	E420	0.05	mg/L	<0.050	----
Rubidium, total	7440-17-7	E420	0.0002	mg/L	<0.00020	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	<0.000050	----
Silicon, total	7440-21-3	E420	0.1	mg/L	<0.10	----
Silver, total	7440-22-4	E420	0.00001	mg/L	<0.000010	----
Sodium, total	7440-23-5	E420	0.05	mg/L	<0.050	----
Strontium, total	7440-24-6	E420	0.0002	mg/L	<0.00020	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	<0.50	----
Tellurium, total	13494-80-9	E420	0.0002	mg/L	<0.00020	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	<0.000010	----
Thorium, total	7440-29-1	E420	0.0001	mg/L	<0.00010	----
Tin, total	7440-31-5	E420	0.0001	mg/L	<0.00010	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	<0.00030	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	<0.00010	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (QCLot: 1938339) - continued						
Uranium, total	7440-61-1	E420	0.00001	mg/L	<0.000010	----
Vanadium, total	7440-62-2	E420	0.0005	mg/L	<0.00050	----
Zinc, total	7440-66-6	E420	0.003	mg/L	<0.0030	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	<0.00020	----
Total Metals (QCLot: 1945442)						
Mercury, total	7439-97-6	E508	0.000005	mg/L	<0.0000050	----
Dissolved Metals (QCLot: 1938657)						
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	<0.0010	----
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	<0.00010	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	<0.00010	----
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	<0.00010	----
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	<0.000020	----
Bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	<0.000050	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	<0.010	----
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	<0.0000050	----
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	<0.050	----
Cesium, dissolved	7440-46-2	E421	0.00001	mg/L	<0.000010	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	<0.00050	----
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	<0.00010	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	<0.00020	----
Iron, dissolved	7439-89-6	E421	0.01	mg/L	<0.010	----
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	<0.000050	----
Lithium, dissolved	7439-93-2	E421	0.001	mg/L	<0.0010	----
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	<0.0050	----
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	<0.00010	----
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	<0.000050	----
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	<0.00050	----
Phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	<0.050	----
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	<0.050	----
Rubidium, dissolved	7440-17-7	E421	0.0002	mg/L	<0.00020	----
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	<0.000050	----
Silicon, dissolved	7440-21-3	E421	0.05	mg/L	<0.050	----
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	<0.000010	----
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	<0.050	----
Strontium, dissolved	7440-24-6	E421	0.0002	mg/L	<0.00020	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Dissolved Metals (QCLot: 1938657) - continued						
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	<0.50	----
Tellurium, dissolved	13494-80-9	E421	0.0002	mg/L	<0.00020	----
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	<0.000010	----
Thorium, dissolved	7440-29-1	E421	0.0001	mg/L	<0.00010	----
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	<0.00010	----
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	<0.00030	----
Tungsten, dissolved	7440-33-7	E421	0.0001	mg/L	<0.00010	----
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	<0.000010	----
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	<0.00050	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	<0.0010	----
Zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	<0.00020	----
Dissolved Metals (QCLot: 1945359)						
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	<0.0000050	----

Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 1937831)									
Solids, total dissolved [TDS]	----	E162	10	mg/L	1000 mg/L	106	85.0	115	----
Physical Tests (QCLot: 1937833)									
Solids, total suspended [TSS]	----	E160	3	mg/L	150 mg/L	94.8	85.0	115	----
Physical Tests (QCLot: 1937964)									
pH	----	E108	----	pH units	7 pH units	100	98.0	102	----
Physical Tests (QCLot: 1937965)									
Conductivity	----	E100	1	µS/cm	147 µS/cm	101	90.0	110	----
Physical Tests (QCLot: 1937966)									
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	500 mg/L	99.9	85.0	115	----
Anions and Nutrients (QCLot: 1937834)									
Kjeldahl nitrogen, total [TKN]	----	E318	0.05	mg/L	4 mg/L	99.9	75.0	125	----
Anions and Nutrients (QCLot: 1937836)									
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	94.8	85.0	115	----
Anions and Nutrients (QCLot: 1937956)									
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	96.4	90.0	110	----
Anions and Nutrients (QCLot: 1937957)									
Chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	95.3	90.0	110	----
Anions and Nutrients (QCLot: 1937958)									
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	2.5 mg/L	96.2	90.0	110	----
Anions and Nutrients (QCLot: 1937959)									
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	0.5 mg/L	96.5	90.0	110	----
Anions and Nutrients (QCLot: 1937960)									
Fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	95.6	90.0	110	----
Anions and Nutrients (QCLot: 1937961)									
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	0.5 mg/L	97.6	85.0	115	----
Anions and Nutrients (QCLot: 1937963)									
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.001	mg/L	0.03 mg/L	101	80.0	120	----
Organic / Inorganic Carbon (QCLot: 1937838)									
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	8.57 mg/L	91.8	80.0	120	----
Organic / Inorganic Carbon (QCLot: 1937839)									

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Organic / Inorganic Carbon (QCLot: 1937839) - continued									
Carbon, total organic [TOC]	----	E355-L	0.5	mg/L	8.57 mg/L	104	80.0	120	----
Total Sulfides (QCLot: 1938431)									
Sulfide, total (as H2S)	7783-06-4	E395-H	----	mg/L	0.085 mg/L	103	80.0	120	----
Sulfide, total (as S)	18496-25-8	E395-H	0.01	mg/L	0.08 mg/L	102	80.0	120	----
Total Metals (QCLot: 1938339)									
Aluminum, total	7429-90-5	E420	0.003	mg/L	2 mg/L	104	80.0	120	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	1 mg/L	107	80.0	120	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	1 mg/L	101	80.0	120	----
Barium, total	7440-39-3	E420	0.0001	mg/L	0.25 mg/L	101	80.0	120	----
Beryllium, total	7440-41-7	E420	0.00002	mg/L	0.1 mg/L	102	80.0	120	----
Bismuth, total	7440-69-9	E420	0.00005	mg/L	1 mg/L	94.6	80.0	120	----
Boron, total	7440-42-8	E420	0.01	mg/L	1 mg/L	100	80.0	120	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	0.1 mg/L	101	80.0	120	----
Calcium, total	7440-70-2	E420	0.05	mg/L	50 mg/L	106	80.0	120	----
Cesium, total	7440-46-2	E420	0.00001	mg/L	0.05 mg/L	110	80.0	120	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	0.25 mg/L	97.0	80.0	120	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	0.25 mg/L	99.2	80.0	120	----
Copper, total	7440-50-8	E420	0.0005	mg/L	0.25 mg/L	97.6	80.0	120	----
Iron, total	7439-89-6	E420	0.01	mg/L	1 mg/L	96.5	80.0	120	----
Lead, total	7439-92-1	E420	0.00005	mg/L	0.5 mg/L	100	80.0	120	----
Lithium, total	7439-93-2	E420	0.001	mg/L	0.25 mg/L	106	80.0	120	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	50 mg/L	97.1	80.0	120	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	0.25 mg/L	98.7	80.0	120	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	0.25 mg/L	103	80.0	120	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	0.5 mg/L	98.8	80.0	120	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	10 mg/L	104	80.0	120	----
Potassium, total	7440-09-7	E420	0.05	mg/L	50 mg/L	97.9	80.0	120	----
Rubidium, total	7440-17-7	E420	0.0002	mg/L	0.1 mg/L	106	80.0	120	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	1 mg/L	96.9	80.0	120	----
Silicon, total	7440-21-3	E420	0.1	mg/L	10 mg/L	107	80.0	120	----
Silver, total	7440-22-4	E420	0.00001	mg/L	0.1 mg/L	98.3	80.0	120	----
Sodium, total	7440-23-5	E420	0.05	mg/L	50 mg/L	106	80.0	120	----
Strontium, total	7440-24-6	E420	0.0002	mg/L	0.25 mg/L	104	80.0	120	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	50 mg/L	88.3	80.0	120	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Total Metals (QCLot: 1938339) - continued									
Tellurium, total	13494-80-9	E420	0.0002	mg/L	0.1 mg/L	106	80.0	120	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	1 mg/L	101	80.0	120	----
Thorium, total	7440-29-1	E420	0.0001	mg/L	0.1 mg/L	93.8	80.0	120	----
Tin, total	7440-31-5	E420	0.0001	mg/L	0.5 mg/L	102	80.0	120	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	0.25 mg/L	88.9	80.0	120	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	0.1 mg/L	102	80.0	120	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	0.005 mg/L	102	80.0	120	----
Vanadium, total	7440-62-2	E420	0.0005	mg/L	0.5 mg/L	100.0	80.0	120	----
Zinc, total	7440-66-6	E420	0.003	mg/L	0.5 mg/L	102	80.0	120	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	0.1 mg/L	98.1	80.0	120	----
Total Metals (QCLot: 1945442)									
Mercury, total	7439-97-6	E508	0.000005	mg/L	0 mg/L	94.4	80.0	120	----
Dissolved Metals (QCLot: 1938657)									
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	2 mg/L	99.7	80.0	120	----
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	1 mg/L	99.1	80.0	120	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	1 mg/L	104	80.0	120	----
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	0.25 mg/L	100	80.0	120	----
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	0.1 mg/L	94.4	80.0	120	----
Bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	1 mg/L	96.5	80.0	120	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	1 mg/L	93.9	80.0	120	----
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	0.1 mg/L	100	80.0	120	----
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	50 mg/L	94.3	80.0	120	----
Cesium, dissolved	7440-46-2	E421	0.00001	mg/L	0.05 mg/L	99.4	80.0	120	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	0.25 mg/L	100	80.0	120	----
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	0.25 mg/L	101	80.0	120	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	0.25 mg/L	99.0	80.0	120	----
Iron, dissolved	7439-89-6	E421	0.01	mg/L	1 mg/L	98.4	80.0	120	----
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	0.5 mg/L	96.6	80.0	120	----
Lithium, dissolved	7439-93-2	E421	0.001	mg/L	0.25 mg/L	91.9	80.0	120	----
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	50 mg/L	105	80.0	120	----
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	0.25 mg/L	99.2	80.0	120	----
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	0.25 mg/L	102	80.0	120	----
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	0.5 mg/L	98.2	80.0	120	----
Phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	10 mg/L	108	80.0	120	----
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	50 mg/L	99.4	80.0	120	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Dissolved Metals (QCLot: 1938657) - continued									
Rubidium, dissolved	7440-17-7	E421	0.0002	mg/L	0.1 mg/L	98.4	80.0	120	----
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	1 mg/L	97.6	80.0	120	----
Silicon, dissolved	7440-21-3	E421	0.05	mg/L	10 mg/L	99.4	80.0	120	----
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	0.1 mg/L	88.2	80.0	120	----
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	50 mg/L	108	80.0	120	----
Strontium, dissolved	7440-24-6	E421	0.0002	mg/L	0.25 mg/L	101	80.0	120	----
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	50 mg/L	93.3	80.0	120	----
Tellurium, dissolved	13494-80-9	E421	0.0002	mg/L	0.1 mg/L	96.4	80.0	120	----
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	1 mg/L	98.3	80.0	120	----
Thorium, dissolved	7440-29-1	E421	0.0001	mg/L	0.1 mg/L	97.4	80.0	120	----
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	0.5 mg/L	99.5	80.0	120	----
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	0.25 mg/L	99.9	80.0	120	----
Tungsten, dissolved	7440-33-7	E421	0.0001	mg/L	0.1 mg/L	99.7	80.0	120	----
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	0.005 mg/L	101	80.0	120	----
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	0.5 mg/L	101	80.0	120	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	0.5 mg/L	97.0	80.0	120	----
Zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	0.1 mg/L	96.6	80.0	120	----
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0 mg/L	95.3	80.0	120	----

Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for the associated sample (or similar samples) may be subject to bias. ND – Recovery not determined, background level >= 1x spike level.

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Anions and Nutrients (QCLot: 1937834)										
VA25A7300-001	Anonymous	Kjeldahl nitrogen, total [TKN]	----	E318	2.72 mg/L	2.5 mg/L	109	70.0	130	----
Anions and Nutrients (QCLot: 1937836)										
VA25A7300-001	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0953 mg/L	0.1 mg/L	95.3	75.0	125	----
Anions and Nutrients (QCLot: 1937956)										
VA25A7362-001	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	461 mg/L	500 mg/L	92.2	75.0	125	----
Anions and Nutrients (QCLot: 1937957)										
VA25A7362-001	Anonymous	Chloride	16887-00-6	E235.Cl	458 mg/L	500 mg/L	91.6	75.0	125	----
Anions and Nutrients (QCLot: 1937958)										
VA25A7362-001	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	11.6 mg/L	12.5 mg/L	92.6	75.0	125	----
Anions and Nutrients (QCLot: 1937959)										
VA25A7362-001	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	2.32 mg/L	2.5 mg/L	92.7	75.0	125	----
Anions and Nutrients (QCLot: 1937960)										
VA25A7362-001	Anonymous	Fluoride	16984-48-8	E235.F	4.57 mg/L	5 mg/L	91.4	75.0	125	----
Anions and Nutrients (QCLot: 1937961)										
VA25A7362-001	Anonymous	Bromide	24959-67-9	E235.Br-L	2.27 mg/L	2.5 mg/L	90.7	75.0	125	----
Anions and Nutrients (QCLot: 1937963)										
VA25A7383-001	SW1-07	Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0334 mg/L	0.03 mg/L	111	70.0	130	----
Organic / Inorganic Carbon (QCLot: 1937838)										
VA25A7300-001	Anonymous	Carbon, dissolved organic [DOC]	----	E358-L	5.16 mg/L	5 mg/L	103	70.0	130	----
Organic / Inorganic Carbon (QCLot: 1937839)										
VA25A7300-001	Anonymous	Carbon, total organic [TOC]	----	E355-L	ND mg/L	----	ND	70.0	130	----
Total Sulfides (QCLot: 1938431)										
KS2501088-002	Anonymous	Sulfide, total (as S)	18496-25-8	E395-H	0.987 mg/L	1 mg/L	98.7	75.0	125	----
Total Metals (QCLot: 1938339)										
VA25A7368-002	Anonymous	Aluminum, total	7429-90-5	E420	0.193 mg/L	0.2 mg/L	96.7	70.0	130	----
		Antimony, total	7440-36-0	E420	0.0205 mg/L	0.02 mg/L	102	70.0	130	----
		Arsenic, total	7440-38-2	E420	0.0202 mg/L	0.02 mg/L	101	70.0	130	----
		Barium, total	7440-39-3	E420	0.0192 mg/L	0.02 mg/L	96.0	70.0	130	----
		Beryllium, total	7440-41-7	E420	0.0383 mg/L	0.04 mg/L	95.7	70.0	130	----
		Bismuth, total	7440-69-9	E420	0.00842 mg/L	0.01 mg/L	84.2	70.0	130	----
		Boron, total	7440-42-8	E420	ND mg/L	----	ND	70.0	130	----
		Cadmium, total	7440-43-9	E420	0.00396 mg/L	0.004 mg/L	99.0	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Total Metals (QCLot: 1938339) - continued										
VA25A7368-002	Anonymous	Calcium, total	7440-70-2	E420	ND mg/L	----	ND	70.0	130	----
		Cesium, total	7440-46-2	E420	0.0110 mg/L	0.01 mg/L	110	70.0	130	----
		Chromium, total	7440-47-3	E420	0.0384 mg/L	0.04 mg/L	95.9	70.0	130	----
		Cobalt, total	7440-48-4	E420	0.0187 mg/L	0.02 mg/L	93.6	70.0	130	----
		Copper, total	7440-50-8	E420	0.0182 mg/L	0.02 mg/L	90.9	70.0	130	----
		Iron, total	7439-89-6	E420	1.92 mg/L	2 mg/L	96.0	70.0	130	----
		Lead, total	7439-92-1	E420	0.0174 mg/L	0.02 mg/L	87.2	70.0	130	----
		Lithium, total	7439-93-2	E420	0.0971 mg/L	0.1 mg/L	97.1	70.0	130	----
		Magnesium, total	7439-95-4	E420	ND mg/L	----	ND	70.0	130	----
		Manganese, total	7439-96-5	E420	ND mg/L	----	ND	70.0	130	----
		Molybdenum, total	7439-98-7	E420	ND mg/L	----	ND	70.0	130	----
		Nickel, total	7440-02-0	E420	0.0367 mg/L	0.04 mg/L	91.7	70.0	130	----
		Phosphorus, total	7723-14-0	E420	10.7 mg/L	10 mg/L	107	70.0	130	----
		Potassium, total	7440-09-7	E420	3.82 mg/L	4 mg/L	95.6	70.0	130	----
		Rubidium, total	7440-17-7	E420	0.0200 mg/L	0.02 mg/L	99.9	70.0	130	----
		Selenium, total	7782-49-2	E420	0.0432 mg/L	0.04 mg/L	108	70.0	130	----
		Silicon, total	7440-21-3	E420	ND mg/L	----	ND	70.0	130	----
		Silver, total	7440-22-4	E420	0.00399 mg/L	0.004 mg/L	99.8	70.0	130	----
		Sodium, total	7440-23-5	E420	ND mg/L	----	ND	70.0	130	----
		Strontium, total	7440-24-6	E420	ND mg/L	----	ND	70.0	130	----
		Sulfur, total	7704-34-9	E420	ND mg/L	----	ND	70.0	130	----
		Tellurium, total	13494-80-9	E420	0.0411 mg/L	0.04 mg/L	103	70.0	130	----
		Thallium, total	7440-28-0	E420	0.00350 mg/L	0.004 mg/L	87.4	70.0	130	----
		Thorium, total	7440-29-1	E420	0.0126 mg/L	0.02 mg/L	63.0	70.0	130	MES
		Tin, total	7440-31-5	E420	0.0198 mg/L	0.02 mg/L	98.8	70.0	130	----
		Titanium, total	7440-32-6	E420	0.0381 mg/L	0.04 mg/L	95.3	70.0	130	----
		Tungsten, total	7440-33-7	E420	0.0192 mg/L	0.02 mg/L	95.8	70.0	130	----
		Uranium, total	7440-61-1	E420	ND mg/L	----	ND	70.0	130	----
		Vanadium, total	7440-62-2	E420	0.0999 mg/L	0.1 mg/L	99.9	70.0	130	----
		Zinc, total	7440-66-6	E420	0.381 mg/L	0.4 mg/L	95.3	70.0	130	----
		Zirconium, total	7440-67-7	E420	0.0402 mg/L	0.04 mg/L	100	70.0	130	----
Total Metals (QCLot: 1945442)										
FJ2500958-002	Anonymous	Mercury, total	7439-97-6	E508	0.0000955 mg/L	0 mg/L	95.5	70.0	130	----
Dissolved Metals (QCLot: 1938657)										
FJ2500954-004	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.188 mg/L	0.2 mg/L	94.2	70.0	130	----
		Antimony, dissolved	7440-36-0	E421	0.0197 mg/L	0.02 mg/L	98.5	70.0	130	----
		Arsenic, dissolved	7440-38-2	E421	0.0204 mg/L	0.02 mg/L	102	70.0	130	----
		Barium, dissolved	7440-39-3	E421	ND mg/L	----	ND	70.0	130	----
		Beryllium, dissolved	7440-41-7	E421	0.0353 mg/L	0.04 mg/L	88.3	70.0	130	----
		Bismuth, dissolved	7440-69-9	E421	0.00864 mg/L	0.01 mg/L	86.4	70.0	130	----
		Boron, dissolved	7440-42-8	E421	0.088 mg/L	0.1 mg/L	88.2	70.0	130	----
		Cadmium, dissolved	7440-43-9	E421	0.00390 mg/L	0.004 mg/L	97.6	70.0	130	----
		Calcium, dissolved	7440-70-2	E421	ND mg/L	----	ND	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Dissolved Metals (QCLot: 1938657) - continued										
FJ2500954-004	Anonymous	Cesium, dissolved	7440-46-2	E421	0.00982 mg/L	0.01 mg/L	98.2	70.0	130	----
		Chromium, dissolved	7440-47-3	E421	0.0388 mg/L	0.04 mg/L	96.9	70.0	130	----
		Cobalt, dissolved	7440-48-4	E421	0.0184 mg/L	0.02 mg/L	92.3	70.0	130	----
		Copper, dissolved	7440-50-8	E421	0.0178 mg/L	0.02 mg/L	89.1	70.0	130	----
		Iron, dissolved	7439-89-6	E421	1.86 mg/L	2 mg/L	92.8	70.0	130	----
		Lead, dissolved	7439-92-1	E421	0.0178 mg/L	0.02 mg/L	88.9	70.0	130	----
		Lithium, dissolved	7439-93-2	E421	0.0841 mg/L	0.1 mg/L	84.1	70.0	130	----
		Magnesium, dissolved	7439-95-4	E421	ND mg/L	----	ND	70.0	130	----
		Manganese, dissolved	7439-96-5	E421	ND mg/L	----	ND	70.0	130	----
		Molybdenum, dissolved	7439-98-7	E421	0.0197 mg/L	0.02 mg/L	98.5	70.0	130	----
		Nickel, dissolved	7440-02-0	E421	0.0351 mg/L	0.04 mg/L	87.7	70.0	130	----
		Phosphorus, dissolved	7723-14-0	E421	10.5 mg/L	10 mg/L	105	70.0	130	----
		Potassium, dissolved	7440-09-7	E421	3.84 mg/L	4 mg/L	96.1	70.0	130	----
		Rubidium, dissolved	7440-17-7	E421	0.0190 mg/L	0.02 mg/L	95.2	70.0	130	----
		Selenium, dissolved	7782-49-2	E421	0.0389 mg/L	0.04 mg/L	97.2	70.0	130	----
		Silicon, dissolved	7440-21-3	E421	8.88 mg/L	10 mg/L	88.8	70.0	130	----
		Silver, dissolved	7440-22-4	E421	0.00367 mg/L	0.004 mg/L	91.7	70.0	130	----
		Sodium, dissolved	7440-23-5	E421	ND mg/L	----	ND	70.0	130	----
		Strontium, dissolved	7440-24-6	E421	ND mg/L	----	ND	70.0	130	----
		Sulfur, dissolved	7704-34-9	E421	ND mg/L	----	ND	70.0	130	----
		Tellurium, dissolved	13494-80-9	E421	0.0392 mg/L	0.04 mg/L	98.1	70.0	130	----
		Thallium, dissolved	7440-28-0	E421	0.00360 mg/L	0.004 mg/L	90.1	70.0	130	----
		Thorium, dissolved	7440-29-1	E421	0.0180 mg/L	0.02 mg/L	90.1	70.0	130	----
		Tin, dissolved	7440-31-5	E421	0.0195 mg/L	0.02 mg/L	97.4	70.0	130	----
		Titanium, dissolved	7440-32-6	E421	0.0393 mg/L	0.04 mg/L	98.2	70.0	130	----
		Tungsten, dissolved	7440-33-7	E421	0.0190 mg/L	0.02 mg/L	95.2	70.0	130	----
		Uranium, dissolved	7440-61-1	E421	0.00377 mg/L	0.004 mg/L	94.3	70.0	130	----
		Vanadium, dissolved	7440-62-2	E421	0.0970 mg/L	0.1 mg/L	97.0	70.0	130	----
		Zinc, dissolved	7440-66-6	E421	0.356 mg/L	0.4 mg/L	89.1	70.0	130	----
		Zirconium, dissolved	7440-67-7	E421	0.0400 mg/L	0.04 mg/L	99.9	70.0	130	----
Dissolved Metals (QCLot: 1945359)										
VA25A7353-002	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000926 mg/L	0 mg/L	92.6	70.0	130	----

Qualifiers

Qualifier	Description
MES	*Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).*

Chain of Custody (COC) / Analytical Request Form

COC Number: 22 - 20250402-A

Page 1 of 1

www.alsglobal.com

Canada Toll Free: 1 800 668 9878

Report To	Contact and company name below will appear on the final report
Company:	Masse Environmental
Contact:	Ico deZwart
Phone:	
	Company address below will appear on the final report
Street:	812 Vernon St.
City/Province:	Nelson, BC
Postal Code:	V1L4G4
Invoice To	Same as Report To ☑ YES ☐ NO
	Copy of Invoice with Report ☑ YES ☐ NO
Company:	
Contact:	

Reports / Recipients

Select Report Format: ☑ PDF ☑ EXCEL ☑ EDD (DIGITAL)

Merge QC/QCI Reports with COA ☑ YES ☐ NO ☐ N/A

☐ Compare Results to Criteria on Report - provide details below if box checked

Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX

Email 1 or Fax: ico@masseenvironmental.com

Email 2: chris@masseenvironmental.com

Email 3: jenn@masseenvironmental.com

Invoice Recipients

Select Invoice Distribution: ☑ EMAIL ☐ MAIL ☐ FAX

Email 1 or Fax: lise@masseenvironmental.com

Email 2:

Turnaround Time (TAT) Requested

☑ Routine [R] if received by 3pm M-F - no surcharges apply
☐ 4 day [P4] if received by 3pm M-F - 20% rush surcharge minimum
☐ 3 day [P3] if received by 3pm M-F - 25% rush surcharge minimum
☐ 2 day [P2] if received by 3pm M-F - 50% rush surcharge minimum
☐ 1 day [E] if received by 3pm M-F - 100% rush surcharge minimum
☐ Same day [E2] if received by 10am M-S - 200% rush surcharge.

Additional fees may apply to rush requests on weekends, statutory holidays and for non-routine tests.

Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm am/pm

For all tests with rush TATs requested, please contact your AM to confirm availability.

AFFIX ALS BARCODE LABEL HERE (ALS use only)

Project Information

ALS Account # / Quote #:	VA24-MASS200-001
Job #:	2016-503 - HB
PO / AFE:	
LSD:	

Oil and Gas Required Fields (client use)

AFE/Cost Center:	PO#
Major/Minor Code:	Routing Code:
Requisitioner:	
Location:	

ALS Lab Work Order # (ALS use only):

ALS Contact:

Sampler: C.Stephanou

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

NUMBER OF CONTAINERS

ALS Sample # (ALS use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	pH, cond,TSS,TDS,alkalinity,harcines	Chloride, bromide, fluoride, sulfate	Ammonia, TKN, nitrate, nitrite	TOC	DOC	Dissolved Metals (incl Hg)	Total Metals (incl Hg)	Orthophosphate	Total Sulphide	SAMPLES ON HOLD	EXTENDED STORAGE REQUIRED	SUSPECTED HAZARD (see notes)
						P	P		F/P	F							
	SW1-07 (E303730)	01-Apr-25	09:54	SW	8	R	R	R	R	R	R	R	R	R			
	~~SW2-07 (E303704)~~			~~SW~~	~~8~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~			
	~~SW3-07 (E303702)~~			~~SW~~	~~8~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~			
	~~SW5-19 (E335949)~~			~~SW~~	~~8~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~			
	~~Seepage Weir (E335950)~~			~~SW~~	~~8~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~			
	~~Spillway Inlet (E335951)~~			~~SW~~	~~8~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~			
	~~Spillway Outlet (E335952)~~			~~SW~~	~~8~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~			
	~~Outlet Ditch (E252683)~~			~~SW~~	~~8~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~			
	~~Duplicate~~			~~SW~~	~~8~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~			

Environmental Division
Vancouver
Work Order Reference
VA25A7383

Telephone : +1 604 253 4188

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System?
☐ YES ☐ NO

Are samples for human consumption/ use?
☐ YES ☐ NO

Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only)

total alkalinity only

SAMPLE RECEIPT DETAILS (ALS use only)

Cooling Method: ☐ NONE ☐ ICE ☑ ICE PACKS ☐ FROZEN ☐ COOLING INITIATED

Submission Comments identified on Sample Receipt Notification: ☐ YES ☐ NO

Cooler Custody Seals Intact: ☐ YES ☑ N/A Sample Custody Seals Intact: ☐ YES ☑ N/A

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
				8			

SHIPMENT RELEASE (client use)

Released by:	Date:	Time:
	02-Apr-2025	

INITIAL SHIPMENT RECEPTION (ALS use only)

Received by:	Date:	Time:

FINAL SHIPMENT RECEPTION (ALS use only)

Received by:	Date:	Time:
JC	Rcvd 3Apr2025	1310

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

FEB 2022 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

Field Data Form

Project: RDCK - HB

Date: 1st April - 2025

Personnel: C. Stephanou

Site ID	T (°C)	pH	Cond.
SW1-07	6.6	7.45	420.6

CERTIFICATE OF ANALYSIS

Work Order	:	**VA25B1325**			
Amendment	:	**1**			
Client	:	**Masse Environmental Consultants Ltd.**	Laboratory	:	ALS Environmental - Vancouver
Contact	:	Ico de Zwart	Account Manager	:	Can Dang
Address	:	812 Vernon Street Nelson British Columbia Canada V1L 4G4	Address	:	8081 Lougheed Highway Burnaby BC Canada V5A 1W9
Telephone	:	----	E-mail	:	Can.Dang@ALSGlobal.com
Project	:	2016-503-HB	Telephone	:	+1 604 253 4188
PO	:	----	Date Samples Received	:	15-May-2025 12:00
C-O-C number	:	22-20240514-3	Date Analysis Commenced	:	16-May-2025
Sampler	:	----	Issue Date	:	28-May-2025 15:55
Site	:	RDCK			
Quote number	:	----			
No. of samples received	:	5			
No. of samples analysed	:	5			

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Angela Ren	Team Leader - Metals	Metals, Burnaby, British Columbia
Dan Gebert	Supervisor - Metals Mercury & Speciation	Metals, Burnaby, British Columbia
Erika Vanegas	Lab Assistant	Metals, Burnaby, British Columbia
Owen Cheng		Metals, Burnaby, British Columbia
Rebecca Sit	Supervisor - Organics Extractions	Inorganics, Burnaby, British Columbia

General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Please refer to Quality Control Interpretive report (QCI) for information regarding Holding Time compliance.

Key: CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances.
LOR: Limit of Reporting (detection limit).

Unit	*Description*
-	no units
mg/L	milligrams per litre
pH units	pH units
µg/L	micrograms per litre
µS/cm	microsiemens per centimetre

<: less than.
>: greater than.
Surrogate: An analyte that is similar in behavior to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED on SRN or QCI Report, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Workorder Comments

Amendment (28/05/2025): This report has been amended to change the reporting unit for metals from mg/L to ug/L. All analysis results are as per the previous report.

Qualifiers

Qualifier	Description
DLA	Detection Limit adjusted for required dilution.
DLDS	Detection Limit Raised: Dilution required due to high Dissolved Solids / Electrical Conductivity.
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).

Analytical Results

Sub-Matrix: Groundwater
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MW-06-01	S-MW-1	MW-02A-01	S-MW-2	MW-04S-05
					Client sampling date / time	13-May-2025 14:40	13-May-2025 10:06	13-May-2025 11:20	13-May-2025 12:40	13-May-2025 14:00
						VA25B1325-001	VA25B1325-002	VA25B1325-003	VA25B1325-004	VA25B1325-005
						Result	Result	Result	Result	Result
Physical Tests										
Alkalinity, total (as CaCO3)	----	E290/VA	1.0	mg/L		267	167	163	217	260
Conductivity	----	E100/VA	2.0	µS/cm		1680	331	360	524	602
Hardness (as CaCO3), dissolved	----	EC100/VA	0.60	mg/L		990	168	45.4	252	298
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/VA	0.60	mg/L		1160	180	47.8	282	324
pH	----	E108/VA	0.10	pH units		7.13	8.17	8.03	6.65	7.82
Solids, total dissolved [TDS]	----	E162/VA	10	mg/L		1230	174	200	290	340
Solids, total suspended [TSS]	----	E160/VA	3.0	mg/L		110	3.8	8.4	51.0	4.0
Anions and Nutrients										
Ammonia, total (as N)	7664-41-7	E298/VA	0.0050	mg/L		1.16	<0.0050	0.0096	<0.0050	0.0676
Bromide	24959-67-9	E235.Br-L/VA	0.050	mg/L		<0.500 DLDS	<0.050	0.065	<0.050	0.093
Chloride	16887-00-6	E235.Cl/VA	0.50	mg/L		10.5	0.60	15.8	8.29	16.8
Fluoride	16984-48-8	E235.F/VA	0.020	mg/L		<0.200 DLDS	0.102	1.45	0.040	0.040
Kjeldahl nitrogen, total [TKN]	----	E318/VA	0.050	mg/L		2.11	<0.050	<0.050	0.540	0.104
Nitrate (as N)	14797-55-8	E235.NO3-L/VA	0.0050	mg/L		<0.0500 DLDS	0.0070	<0.0050	3.12	0.0092
Nitrite (as N)	14797-65-0	E235.NO2-L/VA	0.0010	mg/L		<0.0100 DLDS	<0.0010	<0.0010	<0.0010	0.0017
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U/VA	0.0010	mg/L		<0.0010	<0.0010	0.0183	0.0182	<0.0010
Sulfate (as SO4)	14808-79-8	E235.SO4/VA	0.30	mg/L		809	14.1	5.38	44.6	52.3
Organic / Inorganic Carbon										
Carbon, total organic [TOC]	----	E355-L/VA	0.50	mg/L		15.6	<0.50	0.75	7.64	1.44
Total Sulfides										
Sulfide, total (as H2S)	7783-06-4	E395-H/VA	0.011	mg/L		0.238	<0.011	<0.011	<0.011	<0.106

Analytical Results

Sub-Matrix: Groundwater
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MW-06-01	S-MW-1	MW-02A-01	S-MW-2	MW-04S-05
					Client sampling date / time	13-May-2025 14:40	13-May-2025 10:06	13-May-2025 11:20	13-May-2025 12:40	13-May-2025 14:00
						VA25B1325-001	VA25B1325-002	VA25B1325-003	VA25B1325-004	VA25B1325-005
						Result	Result	Result	Result	Result
Total Sulfides										
Sulfide, total (as S)	18496-25-8	E395-H/VA	0.010	mg/L		0.224	<0.010	<0.010	<0.010	<0.100 DLM
Total Metals										
Aluminum, total	7429-90-5	E420/VA	3.0	µg/L		221	142	337	1220	9.5
Antimony, total	7440-36-0	E420/VA	0.10	µg/L		0.76	<0.10	0.15	0.33	<0.10
Arsenic, total	7440-38-2	E420/VA	0.10	µg/L		9.25	0.30	5.83	3.95	0.82
Barium, total	7440-39-3	E420/VA	0.10	µg/L		57.2	22.4	72.4	162	54.3
Beryllium, total	7440-41-7	E420/VA	0.100	µg/L		<0.100 DLA	<0.100	<0.100	<0.100	<0.100
Bismuth, total	7440-69-9	E420/VA	0.050	µg/L		<0.100 DLA	<0.050	<0.050	<0.050	<0.050
Boron, total	7440-42-8	E420/VA	10	µg/L		194	<10	570	112	<10
Cadmium, total	7440-43-9	E420/VA	0.0050	µg/L		11.1	0.0066	0.0540	0.864	0.355
Calcium, total	7440-70-2	E420/VA	50	µg/L		388000	48800	14400	82100	103000
Cesium, total	7440-46-2	E420/VA	0.010	µg/L		1.06	0.487	0.059	0.147	<0.010
Chromium, total	7440-47-3	E420/VA	0.50	µg/L		1.99	<0.50	0.74	27.7	<0.50
Cobalt, total	7440-48-4	E420/VA	0.10	µg/L		2.80	0.14	0.44	1.62	0.55
Copper, total	7440-50-8	E420/VA	0.50	µg/L		5.23	<0.50	1.06	5.99	<0.50
Iron, total	7439-89-6	E420/VA	10	µg/L		34200	236	1870	2210	974
Lead, total	7439-92-1	E420/VA	0.050	µg/L		238	0.205	0.730	1.52	2.15
Lithium, total	7439-93-2	E420/VA	1.0	µg/L		3.0	5.5	12.3	2.5	1.3
Magnesium, total	7439-95-4	E420/VA	5.0	µg/L		46600	14100	2880	18700	16200
Manganese, total	7439-96-5	E420/VA	0.10	µg/L		601	79.2	446	469	621
Mercury, total	7439-97-6	E508/VA	0.0050	µg/L		0.0106	<0.0050	<0.0050	<0.0050	<0.0050

Analytical Results

Sub-Matrix: Groundwater
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MW-06-01	S-MW-1	MW-02A-01	S-MW-2	MW-04S-05
					Client sampling date / time	13-May-2025 14:40	13-May-2025 10:06	13-May-2025 11:20	13-May-2025 12:40	13-May-2025 14:00
						VA25B1325-001	VA25B1325-002	VA25B1325-003	VA25B1325-004	VA25B1325-005
						Result	Result	Result	Result	Result
Total Metals										
Molybdenum, total	7439-98-7	E420/VA	0.050	µg/L		0.818	2.82	0.824	1.11	0.551
Nickel, total	7440-02-0	E420/VA	0.50	µg/L		11.7	<0.50	1.03	16.3	4.17
Phosphorus, total	7723-14-0	E420/VA	50	µg/L		<100 DLA	<50	279	140	<50
Potassium, total	7440-09-7	E420/VA	50	µg/L		6840	1190	914	4820	3010
Rubidium, total	7440-17-7	E420/VA	0.20	µg/L		18.6	1.93	0.63	1.50	0.90
Selenium, total	7782-49-2	E420/VA	0.050	µg/L		0.125	0.536	0.207	0.149	0.062
Silicon, total	7440-21-3	E420/VA	100	µg/L		6230	7550	7390	12000	8800
Silver, total	7440-22-4	E420/VA	0.010	µg/L		0.256	<0.010	<0.010	0.027	<0.010
Sodium, total	7440-23-5	E420/VA	50	µg/L		11300	3270	67800	8490	6780
Strontium, total	7440-24-6	E420/VA	0.20	µg/L		399	300	99.4	485	482
Sulfur, total	7704-34-9	E420/VA	500	µg/L		299000	4970	2050	16400	19100
Tellurium, total	13494-80-9	E420/VA	0.20	µg/L		<0.40 DLA	<0.20	<0.20	<0.20	<0.20
Thallium, total	7440-28-0	E420/VA	0.010	µg/L		0.403	<0.010	<0.010	0.021	0.030
Thorium, total	7440-29-1	E420/VA	0.10	µg/L		<0.20 DLA	<0.10	0.16	0.40	<0.10
Tin, total	7440-31-5	E420/VA	0.10	µg/L		<0.20 DLA	0.35	<0.10	<0.10	0.23
Titanium, total	7440-32-6	E420/VA	0.30	µg/L		14.9	5.56	10.4	50.9	0.39
Tungsten, total	7440-33-7	E420/VA	0.10	µg/L		<0.20 DLA	<0.10	1.31	<0.10	<0.10
Uranium, total	7440-61-1	E420/VA	0.010	µg/L		7.20	9.67	0.280	2.06	6.69
Vanadium, total	7440-62-2	E420/VA	0.50	µg/L		1.64	<0.50	1.94	8.41	<0.50
Zinc, total	7440-66-6	E420/VA	3.0	µg/L		3540	8.1	3.3	11.0	10.8
Zirconium, total	7440-67-7	E420/VA	0.20	µg/L		<0.40 DLA	<0.20	<0.20	0.53	<0.20

Analytical Results

Sub-Matrix: Groundwater
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MW-06-01	S-MW-1	MW-02A-01	S-MW-2	MW-04S-05
					Client sampling date / time	13-May-2025 14:40	13-May-2025 10:06	13-May-2025 11:20	13-May-2025 12:40	13-May-2025 14:00
						VA25B1325-001	VA25B1325-002	VA25B1325-003	VA25B1325-004	VA25B1325-005
						Result	Result	Result	Result	Result
Dissolved Metals										
Aluminum, dissolved	7429-90-5	E421/VA	1.0	µg/L		3.0	1.4	4.0	2.0	1.1
Antimony, dissolved	7440-36-0	E421/VA	0.10	µg/L		0.20	<0.10	0.15	0.20	<0.10
Arsenic, dissolved	7440-38-2	E421/VA	0.10	µg/L		7.53	0.15	4.61	0.82	0.63
Barium, dissolved	7440-39-3	E421/VA	0.10	µg/L		49.0	20.1	54.8	129	53.2
Beryllium, dissolved	7440-41-7	E421/VA	0.100	µg/L		<0.100	<0.100	<0.100	<0.100	<0.100
Bismuth, dissolved	7440-69-9	E421/VA	0.050	µg/L		<0.050	<0.050	<0.050	<0.050	<0.050
Boron, dissolved	7440-42-8	E421/VA	10	µg/L		180	<10	622	110	<10
Cadmium, dissolved	7440-43-9	E421/VA	0.0050	µg/L		0.0383	<0.0050	<0.0050	0.204	0.0696
Calcium, dissolved	7440-70-2	E421/VA	50	µg/L		336000	44900	13600	73500	95200
Cesium, dissolved	7440-46-2	E421/VA	0.010	µg/L		0.904	0.417	<0.010	<0.010	<0.010
Chromium, dissolved	7440-47-3	E421/VA	0.50	µg/L		<0.50	<0.50	<0.50	0.51	<0.50
Cobalt, dissolved	7440-48-4	E421/VA	0.10	µg/L		2.23	<0.10	0.16	0.14	0.36
Copper, dissolved	7440-50-8	E421/VA	0.20	µg/L		<0.20	<0.20	<0.20	1.55	<0.20
Iron, dissolved	7439-89-6	E421/VA	10	µg/L		30000	<10	952	<10	270
Lead, dissolved	7439-92-1	E421/VA	0.050	µg/L		1.94	<0.050	<0.050	<0.050	0.199
Lithium, dissolved	7439-93-2	E421/VA	1.0	µg/L		2.1	5.0	11.6	<1.0	1.1
Magnesium, dissolved	7439-95-4	E421/VA	5.0	µg/L		36700	13500	2780	16600	14700
Manganese, dissolved	7439-96-5	E421/VA	0.10	µg/L		569	24.6	430	7.64	616
Mercury, dissolved	7439-97-6	E509/VA	0.0050	µg/L		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Molybdenum, dissolved	7439-98-7	E421/VA	0.050	µg/L		0.633	2.52	0.827	0.264	0.467
Nickel, dissolved	7440-02-0	E421/VA	0.50	µg/L		7.26	<0.50	<0.50	3.11	2.53

Analytical Results

Sub-Matrix: Groundwater
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MW-06-01	S-MW-1	MW-02A-01	S-MW-2	MW-04S-05
					Client sampling date / time	13-May-2025 14:40	13-May-2025 10:06	13-May-2025 11:20	13-May-2025 12:40	13-May-2025 14:00
						VA25B1325-001	VA25B1325-002	VA25B1325-003	VA25B1325-004	VA25B1325-005
						Result	Result	Result	Result	Result
Dissolved Metals										
Phosphorus, dissolved	7723-14-0	E421/VA	50	µg/L		<50	<50	146	<50	<50
Potassium, dissolved	7440-09-7	E421/VA	50	µg/L		7290	1270	939	5090	3280
Rubidium, dissolved	7440-17-7	E421/VA	0.20	µg/L		19.4	1.65	<0.20	<0.20	0.75
Selenium, dissolved	7782-49-2	E421/VA	0.050	µg/L		<0.050	0.370	0.172	0.121	<0.050
Silicon, dissolved	7440-21-3	E421/VA	50	µg/L		5830	7240	6940	9940	8750
Silver, dissolved	7440-22-4	E421/VA	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Sodium, dissolved	7440-23-5	E421/VA	50	µg/L		10900	3290	67100	8520	6660
Strontium, dissolved	7440-24-6	E421/VA	0.20	µg/L		399	294	98.2	499	472
Sulfur, dissolved	7704-34-9	E421/VA	500	µg/L		271000	4460	1740	15200	17200
Tellurium, dissolved	13494-80-9	E421/VA	0.20	µg/L		<0.20	<0.20	<0.20	<0.20	<0.20
Thallium, dissolved	7440-28-0	E421/VA	0.010	µg/L		0.181	<0.010	<0.010	<0.010	<0.010
Thorium, dissolved	7440-29-1	E421/VA	0.10	µg/L		<0.10	<0.10	<0.10	<0.10	<0.10
Tin, dissolved	7440-31-5	E421/VA	0.10	µg/L		<0.10	0.18	<0.10	<0.10	<0.10
Titanium, dissolved	7440-32-6	E421/VA	0.30	µg/L		<0.30	<0.30	<0.30	<0.30	<0.30
Tungsten, dissolved	7440-33-7	E421/VA	0.10	µg/L		<0.10	<0.10	1.18	<0.10	<0.10
Uranium, dissolved	7440-61-1	E421/VA	0.010	µg/L		6.66	9.32	0.263	1.65	6.19
Vanadium, dissolved	7440-62-2	E421/VA	0.50	µg/L		<0.50	<0.50	<0.50	3.74	<0.50
Zinc, dissolved	7440-66-6	E421/VA	1.0	µg/L		2280	2.8	<1.0	2.9	2.5
Zirconium, dissolved	7440-67-7	E421/VA	0.20	µg/L		<0.20	<0.20	<0.20	<0.20	<0.20
Dissolved mercury filtration location	----	EP509/VA	-	-		Field	Field	Field	Field	Field
Dissolved metals filtration location	----	EP421/VA	-	-		Field	Field	Field	Field	Field

Please refer to the General Comments section for an explanation of any qualifiers detected.

ALS Canada Ltd.

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QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **VA25B1325**	Page	: 1 of 21
Amendment	: 1		
Client	: **Masse Environmental Consultants Ltd.**	Laboratory	: ALS Environmental - Vancouver
Contact	: Ico de Zwart	Account Manager	: Can Dang
Address	: 812 Vernon Street Nelson BC Canada V1L 4G4	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: ----	Telephone	: +1 604 253 4188
Project	: 2016-503-HB	Date Samples Received	: 15-May-2025 12:00
PO	: ----	Issue Date	: 28-May-2025 15:55
C-O-C number	: 22-20240514-3		
Sampler	: ----		
Site	: RDCK		
Quote number	: ----		
No. of samples received	: 5		
No. of samples analysed	: 5		

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Key

Anonymous: Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number: Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO: Data Quality Objective.
LOR: Limit of Reporting (detection limit).
RPD: Relative Percent Difference.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Summary of Outliers

Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- No Duplicate outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- Matrix Spike outliers occur - please see following pages for full details.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- Analysis Holding Time Outliers exist - please see following pages for full details.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **Water**

Analyte Group	Laboratory sample ID	Client/Ref Sample ID	Analyte	CAS Number	Method	Result	Limits	Comment
Matrix Spike (MS) Recoveries								
Total Metals	Anonymous	Anonymous	Thorium, total	7440-29-1	E420	68.6 % MES	70.0-130%	Recovery less than lower data quality objective
Dissolved Metals	Anonymous	Anonymous	Silver, dissolved	7440-22-4	E421	65.3 % MES	70.0-130%	Recovery less than lower data quality objective

Result Qualifiers

Qualifier	*Description*
MES	*Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).*

Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	*Method*	*Sampling Date*	*Extraction / Preparation*				*Analysis*			
			Preparation Date	*Holding Times* Rec	*Holding Times* Actual	*Eval*	*Analysis Date*	*Holding Times* Rec	*Holding Times* Actual	*Eval*
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) MW-02A-01	E298	13-May-2025	16-May-2025	28 days	3 days	✓	21-May-2025	28 days	3 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) MW-04S-05	E298	13-May-2025	16-May-2025	28 days	3 days	✓	21-May-2025	28 days	3 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) MW-06-01	E298	13-May-2025	16-May-2025	28 days	3 days	✓	21-May-2025	28 days	3 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) S-MW-1	E298	13-May-2025	16-May-2025	28 days	3 days	✓	21-May-2025	28 days	3 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) S-MW-2	E298	13-May-2025	16-May-2025	28 days	3 days	✓	21-May-2025	28 days	3 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE MW-04S-05	E235.Br-L	13-May-2025	16-May-2025	28 days	2 days	✓	16-May-2025	28 days	2 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE MW-06-01	E235.Br-L	13-May-2025	16-May-2025	28 days	2 days	✓	16-May-2025	28 days	2 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE MW-02A-01	E235.Br-L	13-May-2025	16-May-2025	28 days	3 days	✓	16-May-2025	28 days	3 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE S-MW-1	E235.Br-L	13-May-2025	16-May-2025	28 days	3 days	✓	16-May-2025	28 days	3 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE S-MW-2	E235.Br-L	13-May-2025	16-May-2025	28 days	3 days	✓	16-May-2025	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE MW-04S-05	E235.Cl	13-May-2025	16-May-2025	28 days	2 days	✓	16-May-2025	28 days	2 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE MW-06-01	E235.Cl	13-May-2025	16-May-2025	28 days	2 days	✓	16-May-2025	28 days	2 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE MW-02A-01	E235.Cl	13-May-2025	16-May-2025	28 days	3 days	✓	16-May-2025	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE S-MW-1	E235.Cl	13-May-2025	16-May-2025	28 days	3 days	✓	16-May-2025	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE S-MW-2	E235.Cl	13-May-2025	16-May-2025	28 days	3 days	✓	16-May-2025	28 days	3 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE MW-04S-05	E378-U	13-May-2025	16-May-2025	3 days	2 days	✓	16-May-2025	3 days	2 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE										
MW-06-01	E378-U	13-May-2025	16-May-2025	3 days	2 days	✓	16-May-2025	3 days	2 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE										
MW-02A-01	E378-U	13-May-2025	16-May-2025	3 days	3 days	✓	16-May-2025	3 days	3 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE										
S-MW-1	E378-U	13-May-2025	16-May-2025	3 days	3 days	✓	16-May-2025	3 days	3 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE										
S-MW-2	E378-U	13-May-2025	16-May-2025	3 days	3 days	✓	16-May-2025	3 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
MW-04S-05	E235.F	13-May-2025	16-May-2025	28 days	2 days	✓	16-May-2025	28 days	2 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
MW-06-01	E235.F	13-May-2025	16-May-2025	28 days	2 days	✓	16-May-2025	28 days	2 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
MW-02A-01	E235.F	13-May-2025	16-May-2025	28 days	3 days	✓	16-May-2025	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
S-MW-1	E235.F	13-May-2025	16-May-2025	28 days	3 days	✓	16-May-2025	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
S-MW-2	E235.F	13-May-2025	16-May-2025	28 days	3 days	✓	16-May-2025	28 days	3 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE MW-04S-05	E235.NO3-L	13-May-2025	16-May-2025	3 days	2 days	✓	16-May-2025	3 days	2 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE MW-06-01	E235.NO3-L	13-May-2025	16-May-2025	3 days	2 days	✓	16-May-2025	3 days	2 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE MW-02A-01	E235.NO3-L	13-May-2025	16-May-2025	3 days	3 days	✓	16-May-2025	3 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE S-MW-1	E235.NO3-L	13-May-2025	16-May-2025	3 days	3 days	✓	16-May-2025	3 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE S-MW-2	E235.NO3-L	13-May-2025	16-May-2025	3 days	3 days	✓	16-May-2025	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE MW-04S-05	E235.NO2-L	13-May-2025	16-May-2025	3 days	2 days	✓	16-May-2025	3 days	2 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE MW-06-01	E235.NO2-L	13-May-2025	16-May-2025	3 days	2 days	✓	16-May-2025	3 days	2 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE MW-02A-01	E235.NO2-L	13-May-2025	16-May-2025	3 days	3 days	✓	16-May-2025	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE S-MW-1	E235.NO2-L	13-May-2025	16-May-2025	3 days	3 days	✓	16-May-2025	3 days	3 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
S-MW-2	E235.NO2-L	13-May-2025	16-May-2025	3 days	3 days	✓	16-May-2025	3 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
MW-04S-05	E235.SO4	13-May-2025	16-May-2025	28 days	2 days	✓	16-May-2025	28 days	2 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
MW-06-01	E235.SO4	13-May-2025	16-May-2025	28 days	2 days	✓	16-May-2025	28 days	2 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
MW-02A-01	E235.SO4	13-May-2025	16-May-2025	28 days	3 days	✓	16-May-2025	28 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
S-MW-1	E235.SO4	13-May-2025	16-May-2025	28 days	3 days	✓	16-May-2025	28 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
S-MW-2	E235.SO4	13-May-2025	16-May-2025	28 days	3 days	✓	16-May-2025	28 days	3 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid)										
MW-02A-01	E318	13-May-2025	16-May-2025	28 days	3 days	✓	22-May-2025	28 days	3 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid)										
MW-04S-05	E318	13-May-2025	16-May-2025	28 days	3 days	✓	22-May-2025	28 days	3 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid)										
MW-06-01	E318	13-May-2025	16-May-2025	28 days	3 days	✓	22-May-2025	28 days	3 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid)										
S-MW-1	E318	13-May-2025	16-May-2025	28 days	3 days	✓	22-May-2025	28 days	3 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid)										
S-MW-2	E318	13-May-2025	16-May-2025	28 days	3 days	✓	22-May-2025	28 days	3 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (field filtered/lab preserved)										
MW-02A-01	E509	13-May-2025	23-May-2025	28 days	10 days	✓	23-May-2025	28 days	10 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (field filtered/lab preserved)										
S-MW-1	E509	13-May-2025	23-May-2025	28 days	10 days	✓	23-May-2025	28 days	10 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (field filtered/lab preserved)										
MW-04S-05	E509	13-May-2025	23-May-2025	28 days	9 days	✓	23-May-2025	28 days	9 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (field filtered/lab preserved)										
MW-06-01	E509	13-May-2025	23-May-2025	28 days	9 days	✓	23-May-2025	28 days	9 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (field filtered/lab preserved)										
S-MW-2	E509	13-May-2025	23-May-2025	28 days	9 days	✓	23-May-2025	28 days	9 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
MW-02A-01	E421	13-May-2025	22-May-2025	180 days	9 days	✓	23-May-2025	180 days	9 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
MW-04S-05	E421	13-May-2025	22-May-2025	180 days	9 days	✓	23-May-2025	180 days	9 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) MW-06-01	E421	13-May-2025	22-May-2025	180 days	9 days	✓	23-May-2025	180 days	9 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) S-MW-1	E421	13-May-2025	22-May-2025	180 days	9 days	✓	23-May-2025	180 days	9 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) S-MW-2	E421	13-May-2025	22-May-2025	180 days	9 days	✓	23-May-2025	180 days	9 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) MW-02A-01	E355-L	13-May-2025	16-May-2025	28 days	3 days	✓	16-May-2025	28 days	3 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) MW-04S-05	E355-L	13-May-2025	16-May-2025	28 days	3 days	✓	16-May-2025	28 days	3 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) MW-06-01	E355-L	13-May-2025	16-May-2025	28 days	3 days	✓	16-May-2025	28 days	3 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) S-MW-1	E355-L	13-May-2025	16-May-2025	28 days	3 days	✓	16-May-2025	28 days	3 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) S-MW-2	E355-L	13-May-2025	16-May-2025	28 days	3 days	✓	16-May-2025	28 days	3 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE MW-04S-05	E290	13-May-2025	16-May-2025	14 days	2 days	✓	16-May-2025	14 days	2 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Alkalinity Species by Titration										
HDPE MW-06-01	E290	13-May-2025	16-May-2025	14 days	2 days	✓	16-May-2025	14 days	2 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE MW-02A-01	E290	13-May-2025	16-May-2025	14 days	3 days	✓	16-May-2025	14 days	3 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE S-MW-1	E290	13-May-2025	16-May-2025	14 days	3 days	✓	16-May-2025	14 days	3 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE S-MW-2	E290	13-May-2025	16-May-2025	14 days	3 days	✓	16-May-2025	14 days	3 days	✓
Physical Tests : Conductivity in Water										
HDPE MW-04S-05	E100	13-May-2025	16-May-2025	28 days	2 days	✓	16-May-2025	28 days	2 days	✓
Physical Tests : Conductivity in Water										
HDPE MW-06-01	E100	13-May-2025	16-May-2025	28 days	2 days	✓	16-May-2025	28 days	2 days	✓
Physical Tests : Conductivity in Water										
HDPE MW-02A-01	E100	13-May-2025	16-May-2025	28 days	3 days	✓	16-May-2025	28 days	3 days	✓
Physical Tests : Conductivity in Water										
HDPE S-MW-1	E100	13-May-2025	16-May-2025	28 days	3 days	✓	16-May-2025	28 days	3 days	✓
Physical Tests : Conductivity in Water										
HDPE S-MW-2	E100	13-May-2025	16-May-2025	28 days	3 days	✓	16-May-2025	28 days	3 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : pH by Meter										
HDPE MW-06-01	E108	13-May-2025	16-May-2025	0.25 hrs	58 hrs	× EHTR-FM	16-May-2025	0.25 hrs	58 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE MW-04S-05	E108	13-May-2025	16-May-2025	0.25 hrs	59 hrs	× EHTR-FM	16-May-2025	0.25 hrs	59 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE S-MW-2	E108	13-May-2025	16-May-2025	0.25 hrs	60 hrs	× EHTR-FM	16-May-2025	0.25 hrs	60 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE MW-02A-01	E108	13-May-2025	16-May-2025	0.25 hrs	62 hrs	× EHTR-FM	16-May-2025	0.25 hrs	62 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE S-MW-1	E108	13-May-2025	16-May-2025	0.25 hrs	63 hrs	× EHTR-FM	16-May-2025	0.25 hrs	63 hrs	× EHTR-FM
Physical Tests : TDS by Gravimetry										
HDPE MW-02A-01	E162	13-May-2025	----	----	----		20-May-2025	7 days	7 days	✓
Physical Tests : TDS by Gravimetry										
HDPE MW-04S-05	E162	13-May-2025	----	----	----		20-May-2025	7 days	7 days	✓
Physical Tests : TDS by Gravimetry										
HDPE MW-06-01	E162	13-May-2025	----	----	----		20-May-2025	7 days	7 days	✓
Physical Tests : TDS by Gravimetry										
HDPE S-MW-1	E162	13-May-2025	----	----	----		20-May-2025	7 days	7 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : TDS by Gravimetry										
HDPE										
S-MW-2	E162	13-May-2025	----	----	----		20-May-2025	7 days	7 days	✓
Physical Tests : TSS by Gravimetry										
HDPE										
MW-02A-01	E160	13-May-2025	----	----	----		20-May-2025	7 days	7 days	✓
Physical Tests : TSS by Gravimetry										
HDPE										
MW-04S-05	E160	13-May-2025	----	----	----		20-May-2025	7 days	7 days	✓
Physical Tests : TSS by Gravimetry										
HDPE										
MW-06-01	E160	13-May-2025	----	----	----		20-May-2025	7 days	7 days	✓
Physical Tests : TSS by Gravimetry										
HDPE										
S-MW-1	E160	13-May-2025	----	----	----		20-May-2025	7 days	7 days	✓
Physical Tests : TSS by Gravimetry										
HDPE										
S-MW-2	E160	13-May-2025	----	----	----		20-May-2025	7 days	7 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved / hydrochloric acid)										
MW-02A-01	E508	13-May-2025	22-May-2025	28 days	9 days	✓	22-May-2025	28 days	9 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved / hydrochloric acid)										
MW-04S-05	E508	13-May-2025	22-May-2025	28 days	9 days	✓	22-May-2025	28 days	9 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved / hydrochloric acid)										
MW-06-01	E508	13-May-2025	22-May-2025	28 days	9 days	✓	22-May-2025	28 days	9 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved / hydrochloric acid)										
S-MW-1	E508	13-May-2025	22-May-2025	28 days	9 days	✓	22-May-2025	28 days	9 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved / hydrochloric acid)										
S-MW-2	E508	13-May-2025	22-May-2025	28 days	9 days	✓	22-May-2025	28 days	9 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved)										
MW-02A-01	E420	13-May-2025	17-May-2025	180 days	4 days	✓	21-May-2025	180 days	4 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved)										
MW-04S-05	E420	13-May-2025	17-May-2025	180 days	4 days	✓	21-May-2025	180 days	4 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved)										
MW-06-01	E420	13-May-2025	17-May-2025	180 days	4 days	✓	21-May-2025	180 days	4 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved)										
S-MW-1	E420	13-May-2025	17-May-2025	180 days	4 days	✓	21-May-2025	180 days	4 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved)										
S-MW-2	E420	13-May-2025	17-May-2025	180 days	4 days	✓	21-May-2025	180 days	4 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide)										
MW-02A-01	E395-H	13-May-2025	----	----	----		16-May-2025	7 days	3 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide)										
MW-04S-05	E395-H	13-May-2025	----	----	----		16-May-2025	7 days	3 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	*Method*	*Sampling Date*	*Extraction / Preparation*				*Analysis*			
			Preparation Date	*Holding Times*		*Eval*	*Analysis Date*	*Holding Times*		*Eval*
				Rec	*Actual*			*Rec*	*Actual*	
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide)										
MW-06-01	E395-H	13-May-2025	----	----	----		16-May-2025	7 days	3 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide)										
S-MW-1	E395-H	13-May-2025	----	----	----		16-May-2025	7 days	3 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide)										
S-MW-2	E395-H	13-May-2025	----	----	----		16-May-2025	7 days	3 days	✓

Legend & Qualifier Definitions

EHTR-FM: Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended

Rec. HT: ALS recommended hold time (see units).

Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Water**

Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
Conductivity in Water	E100	2000056	1	20	5.0	5.0	✓
pH by Meter	E108	2000054	1	20	5.0	5.0	✓
TSS by Gravimetry	E160	2004403	1	20	5.0	5.0	✓
TDS by Gravimetry	E162	2004221	1	20	5.0	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	2000060	1	16	6.2	5.0	✓
Chloride in Water by IC	E235.Cl	2000059	1	20	5.0	5.0	✓
Fluoride in Water by IC	E235.F	2000058	1	16	6.2	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	2000062	1	20	5.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	2000061	1	16	6.2	5.0	✓
Sulfate in Water by IC	E235.SO4	2000063	1	20	5.0	5.0	✓
Alkalinity Species by Titration	E290	2000055	1	16	6.2	5.0	✓
Ammonia by Fluorescence	E298	2000300	1	20	5.0	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	2000301	1	5	20.0	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	2000302	1	5	20.0	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	2000065	1	20	5.0	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395-H	2000890	1	15	6.6	5.0	✓
Total Metals in Water by CRC ICPMS	E420	2000820	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	2000869	1	19	5.2	5.0	✓
Total Mercury in Water by CVAAS	E508	2009700	1	20	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	2010831	1	20	5.0	5.0	✓
Laboratory Control Samples (LCS)							
Conductivity in Water	E100	2000056	1	20	5.0	5.0	✓
pH by Meter	E108	2000054	1	20	5.0	5.0	✓
TSS by Gravimetry	E160	2004403	1	20	5.0	5.0	✓
TDS by Gravimetry	E162	2004221	1	20	5.0	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	2000060	1	16	6.2	5.0	✓
Chloride in Water by IC	E235.Cl	2000059	1	20	5.0	5.0	✓
Fluoride in Water by IC	E235.F	2000058	1	16	6.2	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	2000062	1	20	5.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	2000061	1	16	6.2	5.0	✓
Sulfate in Water by IC	E235.SO4	2000063	1	20	5.0	5.0	✓
Alkalinity Species by Titration	E290	2000055	1	16	6.2	5.0	✓
Ammonia by Fluorescence	E298	2000300	1	20	5.0	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	2000301	1	5	20.0	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	2000302	1	5	20.0	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	2000065	1	20	5.0	5.0	✓

Matrix: **Water**

Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Control Samples (LCS) - Continued							
Total Sulfide by Colourimetry (Automated Flow)	E395-H	2000890	1	15	6.6	5.0	✓
Total Metals in Water by CRC ICPMS	E420	2000820	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	2000869	1	19	5.2	5.0	✓
Total Mercury in Water by CVAAS	E508	2009700	1	20	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	2010831	1	20	5.0	5.0	✓
Method Blanks (MB)							
Conductivity in Water	E100	2000056	1	20	5.0	5.0	✓
TSS by Gravimetry	E160	2004403	1	20	5.0	5.0	✓
TDS by Gravimetry	E162	2004221	1	20	5.0	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	2000060	1	16	6.2	5.0	✓
Chloride in Water by IC	E235.Cl	2000059	1	20	5.0	5.0	✓
Fluoride in Water by IC	E235.F	2000058	1	16	6.2	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	2000062	1	20	5.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	2000061	1	16	6.2	5.0	✓
Sulfate in Water by IC	E235.SO4	2000063	1	20	5.0	5.0	✓
Alkalinity Species by Titration	E290	2000055	1	16	6.2	5.0	✓
Ammonia by Fluorescence	E298	2000300	1	20	5.0	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	2000301	1	5	20.0	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	2000302	1	5	20.0	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	2000065	1	20	5.0	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395-H	2000890	1	15	6.6	5.0	✓
Total Metals in Water by CRC ICPMS	E420	2000820	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	2000869	1	19	5.2	5.0	✓
Total Mercury in Water by CVAAS	E508	2009700	1	20	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	2010831	1	20	5.0	5.0	✓
Matrix Spikes (MS)							
Bromide in Water by IC (Low Level)	E235.Br-L	2000060	1	16	6.2	5.0	✓
Chloride in Water by IC	E235.Cl	2000059	1	20	5.0	5.0	✓
Fluoride in Water by IC	E235.F	2000058	1	16	6.2	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	2000062	1	20	5.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	2000061	1	16	6.2	5.0	✓
Sulfate in Water by IC	E235.SO4	2000063	1	20	5.0	5.0	✓
Ammonia by Fluorescence	E298	2000300	1	20	5.0	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	2000301	1	5	20.0	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	2000302	1	5	20.0	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	2000065	1	20	5.0	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395-H	2000890	1	15	6.6	5.0	✓
Total Metals in Water by CRC ICPMS	E420	2000820	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	2000869	1	19	5.2	5.0	✓

Matrix: **Water**

Evaluation: × = *QC frequency outside specification*; ✓ = *QC frequency within specification.*

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Matrix Spikes (MS) - Continued							
Total Mercury in Water by CVAAS	E508	2009700	1	20	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	2010831	1	20	5.0	5.0	✓

Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Conductivity in Water	E100 ALS Environmental - Vancouver	Water	APHA 2510 (mod)	Conductivity, also known as Electrical Conductivity (EC) or Specific Conductance, is measured by immersion of a conductivity cell with platinum electrodes into a water sample. Conductivity measurements are temperature-compensated to 25°C.
pH by Meter	E108 ALS Environmental - Vancouver	Water	APHA 4500-H (mod)	pH is determined by potentiometric measurement with a pH electrode, and is conducted at ambient laboratory temperature (normally 20 ± 5°C). For high accuracy test results, pH should be measured in the field within the recommended 15 minute hold time.
TSS by Gravimetry	E160 ALS Environmental - Vancouver	Water	APHA 2540 D (mod)	Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, following by drying of the filter at 104 ± 1°C, with gravimetric measurement of the filtered solids. Samples containing very high dissolved solid content (i.e. seawaters, brackish waters) may produce a positive bias by this method. Alternate analysis methods are available for these types of samples.
TDS by Gravimetry	E162 ALS Environmental - Vancouver	Water	APHA 2540 C (mod)	Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, with evaporation of the filtrate at 180 ± 2°C for 16 hours or to constant weight, with gravimetric measurement of the residue.
Bromide in Water by IC (Low Level)	E235.Br-L ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Chloride in Water by IC	E235.Cl ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Fluoride in Water by IC	E235.F ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrite in Water by IC (Low Level)	E235.NO2-L ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrate in Water by IC (Low Level)	E235.NO3-L ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Sulfate in Water by IC	E235.SO4 ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Alkalinity Species by Titration	E290 ALS Environmental - Vancouver	Water	APHA 2320 B (mod)	Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.
Ammonia by Fluorescence	E298 ALS Environmental - Vancouver	Water	Method Fialab 100, 2018	Ammonia in water is determined by automated continuous flow analysis with membrane diffusion and fluorescence detection, after reaction with OPA (ortho-phthalaldehyde). This method is approved under US EPA 40 CFR Part 136 (May 2021)
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318 ALS Environmental - Vancouver	Water	Method Fialab 100, 2018	TKN in water is determined by automated continuous flow analysis with membrane diffusion and fluorescence detection, after reaction with OPA (ortho-phthalaldehyde). This method is approved under US EPA 40 CFR Part 136 (May 2021).
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L ALS Environmental - Vancouver	Water	APHA 5310 B (mod)	Total Organic Carbon (Non-Purgeable), also known as NPOC (total), is a direct measurement of TOC after an acidified sample has been purged to remove carbonate-based Inorganic Carbon (IC). Analysis is by high temperature combustion with infrared detection of CO_2. Forms of carbon associated with inorganic or organic molecules (e.g. SCN and CN) are included in NPOC if they are not removed by purging under acidic conditions. Notably, NPOC excludes most volatile organic compounds and free cyanide. For samples where the majority of Total Carbon is inorganic, this method provides greater accuracy and reliability versus the TOC by subtraction method (TC minus TIC).
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U ALS Environmental - Vancouver	Water	APHA 4500-P F (mod)	Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter. Field filtration is recommended to ensure test results represent conditions at time of sampling.
Total Sulfide by Colourimetry (Automated Flow)	E395-H ALS Environmental - Vancouver	Water	APHA 4500 -S E-Auto-Colorimetry	Sulfide is determined using the gas dialysis automated methlyene blue colourimetric method. Results expressed "as H_2S" if reported represent the maximum possible H_2S concentration based on the total sulfide concentration in the sample. The H_2S calculation converts Total Sulphide as (S^{2-}) and reports it as Total Sulphide as (H_2S)
Total Metals in Water by CRC ICPMS	E420 ALS Environmental - Vancouver	Water	EPA 200.2/6020B (mod)	Water samples are digested with nitric and hydrochloric acids, and analyzed by Collision/Reaction Cell ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
Dissolved Metals in Water by CRC ICPMS	E421 ALS Environmental - Vancouver	Water	APHA 3030B/EPA 6020B (mod)	Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by Collision/Reaction Cell ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Total Mercury in Water by CVAAS	E508 ALS Environmental - Vancouver	Water	EPA 1631E (mod)	Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS
Dissolved Mercury in Water by CVAAS	E509 ALS Environmental - Vancouver	Water	APHA 3030B/EPA 1631E (mod)	Water samples are filtered (0.45 um), preserved with HCl, then undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS.
Dissolved Hardness (Calculated)	EC100 ALS Environmental - Vancouver	Water	APHA 2340B	"Hardness (as CaCO3), dissolved" is calculated from the sum of dissolved Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. "Total Hardness" refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because it is a property of water due to dissolved divalent cations.
Hardness (Calculated) from Total Ca/Mg	EC100A ALS Environmental - Vancouver	Water	APHA 2340B	"Hardness (as CaCO3), from total Ca/Mg" is calculated from the sum of total Calcium and Magnesium concentrations, expressed as CaCO3 equivalents. "Total Hardness" refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because hardness is a property of water due to dissolved divalent cations. In non-turbid waters, Hardness from total Ca/Mg is normally comparable to Dissolved Hardness, but may be biased high if particulate forms of Ca or Mg are present.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Ammonia	EP298 ALS Environmental - Vancouver	Water		Sample preparation for Preserved Nutrients Water Quality Analysis.
Digestion for TKN in water	EP318 ALS Environmental - Vancouver	Water	APHA 4500-Norg D (mod)	Samples are digested at high temperature using Sulfuric Acid with Copper catalyst, which converts organic nitrogen sources to Ammonia, which is then quantified by the analytical method as TKN. This method is unsuitable for samples containing high levels of nitrate. If nitrate exceeds TKN concentration by ten times or more, results may be biased low.
Preparation for Total Organic Carbon by Combustion	EP355 ALS Environmental - Vancouver	Water		Preparation for Total Organic Carbon by Combustion
Dissolved Metals Water Filtration	EP421 ALS Environmental - Vancouver	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HNO3.
Dissolved Mercury Water Filtration	EP509 ALS Environmental - Vancouver	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HCl.

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QUALITY CONTROL REPORT

Work Order	: **VA25B1325**	Page	: 1 of 17
Amendment	: **1**		
Client	: Masse Environmental Consultants Ltd.	Laboratory	: ALS Environmental - Vancouver
Contact	: Ico de Zwart	Account Manager	: Can Dang
Address	: 812 Vernon Street Nelson BC Canada V1L 4G4	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: ----	Telephone	: +1 604 253 4188
Project	: 2016-503-HB	Date Samples Received	: 15-May-2025 12:00
PO	: ----	Date Analysis Commenced	: 16-May-2025
C-O-C number	: 22-20240514-3	Issue Date	: 28-May-2025 15:55
Sampler	: ----		
Site	: RDCK		
Quote number	: ----		
No. of samples received	: 5		
No. of samples analysed	: 5		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percent Difference (RPD) and Data Quality Objectives
- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Angela Ren	Team Leader - Metals	Vancouver Metals, Burnaby, British Columbia
Dan Gebert	Supervisor - Metals Mercury & Speciation	Vancouver Metals, Burnaby, British Columbia
Erika Vanegas	Lab Assistant	Vancouver Metals, Burnaby, British Columbia
Owen Cheng		Vancouver Metals, Burnaby, British Columbia
Rebecca Sit	Supervisor - Organics Extractions	Vancouver Inorganics, Burnaby, British Columbia

General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number = Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO = Data Quality Objective.
LOR = Limit of Reporting (detection limit).
RPD = Relative Percent Difference
# = Indicates a QC result that did not meet the ALS DQO.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test-specific).

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Physical Tests (QC Lot: 2000054)											
VA25B1146-001	Anonymous	pH	----	E108	0.10	pH units	8.32	8.33	0.120%	4%	----
Physical Tests (QC Lot: 2000055)											
VA25B1146-001	Anonymous	Alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	337	339	0.532%	20%	----
Physical Tests (QC Lot: 2000056)											
VA25B1146-001	Anonymous	Conductivity	----	E100	2.0	µS/cm	6260	6280	0.319%	10%	----
Physical Tests (QC Lot: 2004221)											
VA25B1237-002	Anonymous	Solids, total dissolved [TDS]	----	E162	20	mg/L	182	180	2	Diff <2x LOR	----
Physical Tests (QC Lot: 2004403)											
VA25B1237-002	Anonymous	Solids, total suspended [TSS]	----	E160	3.0	mg/L	<3.0	<3.0	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 2000058)											
VA25B1146-001	Anonymous	Fluoride	16984-48-8	E235.F	1.00	mg/L	<1.00	<1.00	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 2000059)											
VA25B1146-001	Anonymous	Chloride	16887-00-6	E235.Cl	25.0	mg/L	72.7	73.3	0.62	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 2000060)											
VA25B1146-001	Anonymous	Bromide	24959-67-9	E235.Br-L	2.50	mg/L	<2.50	<2.50	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 2000061)											
VA25B1146-001	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	0.250	mg/L	<0.250	<0.250	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 2000062)											
VA25B1146-001	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	0.0500	mg/L	<0.0500	<0.0500	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 2000063)											
VA25B1146-001	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	15.0	mg/L	4120	4180	1.53%	20%	----
Anions and Nutrients (QC Lot: 2000065)											
VA25B1146-001	Anonymous	Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 2000300)											
VA25B1110-001	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	0.0259	0.0261	0.0003	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 2000301)											
VA25B1325-001	MW-06-01	Kjeldahl nitrogen, total [TKN]	----	E318	0.050	mg/L	2.11	2.10	0.711%	20%	----
Organic / Inorganic Carbon (QC Lot: 2000302)											
VA25B1325-001	MW-06-01	Carbon, total organic [TOC]	----	E355-L	0.50	mg/L	15.6	16.5	5.65%	20%	----
Total Sulfides (QC Lot: 2000890)											

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Total Sulfides (QC Lot: 2000890) - continued											
TY2504656-001	Anonymous	Sulfide, total (as S)	18496-25-8	E395-H	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
Total Metals (QC Lot: 2000820)											
VA25B1316-001	Anonymous	Aluminum, total	7429-90-5	E420	0.0030	mg/L	<0.0030	<0.0030	0	Diff <2x LOR	----
		Antimony, total	7440-36-0	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Arsenic, total	7440-38-2	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Barium, total	7440-39-3	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Beryllium, total	7440-41-7	E420	0.000100	mg/L	<0.000100	<0.000100	0	Diff <2x LOR	----
		Bismuth, total	7440-69-9	E420	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Boron, total	7440-42-8	E420	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		Cadmium, total	7440-43-9	E420	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
		Calcium, total	7440-70-2	E420	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Cesium, total	7440-46-2	E420	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Chromium, total	7440-47-3	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Cobalt, total	7440-48-4	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Copper, total	7440-50-8	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Iron, total	7439-89-6	E420	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		Lead, total	7439-92-1	E420	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Lithium, total	7439-93-2	E420	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Magnesium, total	7439-95-4	E420	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
		Manganese, total	7439-96-5	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Molybdenum, total	7439-98-7	E420	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Nickel, total	7440-02-0	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Phosphorus, total	7723-14-0	E420	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Potassium, total	7440-09-7	E420	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Rubidium, total	7440-17-7	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		Selenium, total	7782-49-2	E420	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Silicon, total	7440-21-3	E420	0.10	mg/L	<0.10	<0.10	0	Diff <2x LOR	----
		Silver, total	7440-22-4	E420	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Sodium, total	7440-23-5	E420	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Strontium, total	7440-24-6	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		Sulfur, total	7704-34-9	E420	0.50	mg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Tellurium, total	13494-80-9	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		Thallium, total	7440-28-0	E420	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Thorium, total	7440-29-1	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Total Metals (QC Lot: 2000820) - continued											
VA25B1316-001	Anonymous	Tin, total	7440-31-5	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Titanium, total	7440-32-6	E420	0.00030	mg/L	<0.00030	<0.00030	0	Diff <2x LOR	----
		Tungsten, total	7440-33-7	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Uranium, total	7440-61-1	E420	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Vanadium, total	7440-62-2	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Zinc, total	7440-66-6	E420	0.0030	mg/L	<0.0030	<0.0030	0	Diff <2x LOR	----
		Zirconium, total	7440-67-7	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
Total Metals (QC Lot: 2009700)											
KS2501751-001	Anonymous	Mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 2000869)											
VA25B1394-001	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	2.59	2.56	1.31%	20%	----
		Antimony, dissolved	7440-36-0	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	0.00020	0.00018	0.00001	Diff <2x LOR	----
		Barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.0166	0.0161	3.06%	20%	----
		Beryllium, dissolved	7440-41-7	E421	0.000020	mg/L	0.000370	0.000338	9.01%	20%	----
		Bismuth, dissolved	7440-69-9	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Boron, dissolved	7440-42-8	E421	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		Cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L	0.00120	0.00119	0.623%	20%	----
		Calcium, dissolved	7440-70-2	E421	0.050	mg/L	39.1	38.7	1.16%	20%	----
		Cesium, dissolved	7440-46-2	E421	0.000010	mg/L	0.000083	0.000084	0.0000008	Diff <2x LOR	----
		Chromium, dissolved	7440-47-3	E421	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Cobalt, dissolved	7440-48-4	E421	0.00010	mg/L	0.0101	0.00998	1.39%	20%	----
		Copper, dissolved	7440-50-8	E421	0.00020	mg/L	0.0186	0.0188	0.915%	20%	----
		Iron, dissolved	7439-89-6	E421	0.010	mg/L	0.347	0.352	1.20%	20%	----
		Lead, dissolved	7439-92-1	E421	0.000050	mg/L	0.000640	0.000629	1.80%	20%	----
		Lithium, dissolved	7439-93-2	E421	0.0010	mg/L	0.0059	0.0058	0.0001	Diff <2x LOR	----
		Magnesium, dissolved	7439-95-4	E421	0.0050	mg/L	2.68	2.69	0.291%	20%	----
		Manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.993	0.985	0.798%	20%	----
		Molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Nickel, dissolved	7440-02-0	E421	0.00050	mg/L	0.00357	0.00351	0.00006	Diff <2x LOR	----
		Phosphorus, dissolved	7723-14-0	E421	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Potassium, dissolved	7440-09-7	E421	0.050	mg/L	0.220	0.219	0.002	Diff <2x LOR	----
		Rubidium, dissolved	7440-17-7	E421	0.00020	mg/L	0.00032	0.00029	0.00003	Diff <2x LOR	----
		Selenium, dissolved	7782-49-2	E421	0.000050	mg/L	0.000058	0.000109	0.000051	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Dissolved Metals (QC Lot: 2000869) - continued											
VA25B1394-001	Anonymous	Silicon, dissolved	7440-21-3	E421	0.050	mg/L	3.10	3.21	3.53%	20%	----
		Silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Sodium, dissolved	7440-23-5	E421	0.050	mg/L	0.452	0.458	0.006	Diff <2x LOR	----
		Strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.162	0.160	0.880%	20%	----
		Sulfur, dissolved	7704-34-9	E421	0.50	mg/L	43.2	42.6	1.37%	20%	----
		Tellurium, dissolved	13494-80-9	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		Thallium, dissolved	7440-28-0	E421	0.000010	mg/L	0.000011	0.000011	0.0000003	Diff <2x LOR	----
		Thorium, dissolved	7440-29-1	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Tin, dissolved	7440-31-5	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Titanium, dissolved	7440-32-6	E421	0.00030	mg/L	<0.00030	<0.00030	0	Diff <2x LOR	----
		Tungsten, dissolved	7440-33-7	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Uranium, dissolved	7440-61-1	E421	0.000010	mg/L	0.000465	0.000458	1.50%	20%	----
		Vanadium, dissolved	7440-62-2	E421	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Zinc, dissolved	7440-66-6	E421	0.0010	mg/L	0.127	0.127	0.144%	20%	----
		Zirconium, dissolved	7440-67-7	E421	0.00030	mg/L	<0.00030	<0.00030	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 2010831)											
VA25B1222-003	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----

Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 2000055)						
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	<1.0	----
Physical Tests (QCLot: 2000056)						
Conductivity	----	E100	1	µS/cm	<1.0	----
Physical Tests (QCLot: 2004221)						
Solids, total dissolved [TDS]	----	E162	10	mg/L	<10	----
Physical Tests (QCLot: 2004403)						
Solids, total suspended [TSS]	----	E160	3	mg/L	<3.0	----
Anions and Nutrients (QCLot: 2000058)						
Fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 2000059)						
Chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 2000060)						
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 2000061)						
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 2000062)						
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 2000063)						
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	----
Anions and Nutrients (QCLot: 2000065)						
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 2000300)						
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 2000301)						
Kjeldahl nitrogen, total [TKN]	----	E318	0.05	mg/L	<0.050	----
Organic / Inorganic Carbon (QCLot: 2000302)						
Carbon, total organic [TOC]	----	E355-L	0.5	mg/L	<0.50	----
Total Sulfides (QCLot: 2000890)						
Sulfide, total (as S)	18496-25-8	E395-H	0.01	mg/L	<0.010	----
Total Metals (QCLot: 2000820)						
Aluminum, total	7429-90-5	E420	0.003	mg/L	<0.0030	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	<0.00010	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (QCLot: 2000820) - continued						
Arsenic, total	7440-38-2	E420	0.0001	mg/L	<0.00010	----
Barium, total	7440-39-3	E420	0.0001	mg/L	<0.00010	----
Beryllium, total	7440-41-7	E420	0.00002	mg/L	<0.000020	----
Bismuth, total	7440-69-9	E420	0.00005	mg/L	<0.000050	----
Boron, total	7440-42-8	E420	0.01	mg/L	<0.010	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	<0.0000050	----
Calcium, total	7440-70-2	E420	0.05	mg/L	<0.050	----
Cesium, total	7440-46-2	E420	0.00001	mg/L	<0.000010	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	<0.00050	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	<0.00010	----
Copper, total	7440-50-8	E420	0.0005	mg/L	<0.00050	----
Iron, total	7439-89-6	E420	0.01	mg/L	<0.010	----
Lead, total	7439-92-1	E420	0.00005	mg/L	<0.000050	----
Lithium, total	7439-93-2	E420	0.001	mg/L	<0.0010	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	<0.0050	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	<0.00010	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	<0.000050	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	<0.00050	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	<0.050	----
Potassium, total	7440-09-7	E420	0.05	mg/L	<0.050	----
Rubidium, total	7440-17-7	E420	0.0002	mg/L	<0.00020	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	<0.000050	----
Silicon, total	7440-21-3	E420	0.1	mg/L	<0.10	----
Silver, total	7440-22-4	E420	0.00001	mg/L	<0.000010	----
Sodium, total	7440-23-5	E420	0.05	mg/L	<0.050	----
Strontium, total	7440-24-6	E420	0.0002	mg/L	<0.00020	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	<0.50	----
Tellurium, total	13494-80-9	E420	0.0002	mg/L	<0.00020	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	<0.000010	----
Thorium, total	7440-29-1	E420	0.0001	mg/L	<0.00010	----
Tin, total	7440-31-5	E420	0.0001	mg/L	<0.00010	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	<0.00030	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	<0.00010	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	<0.000010	----
Vanadium, total	7440-62-2	E420	0.0005	mg/L	<0.00050	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (QCLot: 2000820) - continued						
Zinc, total	7440-66-6	E420	0.003	mg/L	<0.0030	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	<0.00020	----
Total Metals (QCLot: 2009700)						
Mercury, total	7439-97-6	E508	0.000005	mg/L	<0.0000050	----
Dissolved Metals (QCLot: 2000869)						
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	<0.0010	----
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	<0.00010	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	<0.00010	----
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	<0.00010	----
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	<0.000020	----
Bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	<0.000050	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	<0.010	----
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	<0.0000050	----
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	<0.050	----
Cesium, dissolved	7440-46-2	E421	0.00001	mg/L	<0.000010	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	<0.00050	----
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	<0.00010	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	<0.00020	----
Iron, dissolved	7439-89-6	E421	0.01	mg/L	<0.010	----
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	<0.000050	----
Lithium, dissolved	7439-93-2	E421	0.001	mg/L	<0.0010	----
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	<0.0050	----
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	<0.00010	----
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	<0.000050	----
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	<0.00050	----
Phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	<0.050	----
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	<0.050	----
Rubidium, dissolved	7440-17-7	E421	0.0002	mg/L	<0.00020	----
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	<0.000050	----
Silicon, dissolved	7440-21-3	E421	0.05	mg/L	<0.050	----
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	<0.000010	----
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	<0.050	----
Strontium, dissolved	7440-24-6	E421	0.0002	mg/L	<0.00020	----
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	<0.50	----
Tellurium, dissolved	13494-80-9	E421	0.0002	mg/L	<0.00020	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Dissolved Metals (QCLot: 2000869) - continued						
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	<0.000010	----
Thorium, dissolved	7440-29-1	E421	0.0001	mg/L	<0.00010	----
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	<0.00010	----
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	<0.00030	----
Tungsten, dissolved	7440-33-7	E421	0.0001	mg/L	<0.00010	----
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	<0.000010	----
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	<0.00050	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	<0.0010	----
Zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	<0.00020	----
Dissolved Metals (QCLot: 2010831)						
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	<0.0000050	----

Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 2000054)									
pH	----	E108	----	pH units	7 pH units	100	98.0	102	----
Physical Tests (QCLot: 2000055)									
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	500 mg/L	103	85.0	115	----
Physical Tests (QCLot: 2000056)									
Conductivity	----	E100	1	µS/cm	147 µS/cm	97.9	90.0	110	----
Physical Tests (QCLot: 2004221)									
Solids, total dissolved [TDS]	----	E162	10	mg/L	1000 mg/L	101	85.0	115	----
Physical Tests (QCLot: 2004403)									
Solids, total suspended [TSS]	----	E160	3	mg/L	150 mg/L	106	85.0	115	----
Anions and Nutrients (QCLot: 2000058)									
Fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 2000059)									
Chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	103	90.0	110	----
Anions and Nutrients (QCLot: 2000060)									
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	0.5 mg/L	97.4	85.0	115	----
Anions and Nutrients (QCLot: 2000061)									
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	2.5 mg/L	103	90.0	110	----
Anions and Nutrients (QCLot: 2000062)									
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	0.5 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 2000063)									
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	105	90.0	110	----
Anions and Nutrients (QCLot: 2000065)									
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.001	mg/L	0.03 mg/L	97.4	80.0	120	----
Anions and Nutrients (QCLot: 2000300)									
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	99.2	85.0	115	----
Anions and Nutrients (QCLot: 2000301)									
Kjeldahl nitrogen, total [TKN]	----	E318	0.05	mg/L	4 mg/L	106	75.0	125	----
Organic / Inorganic Carbon (QCLot: 2000302)									
Carbon, total organic [TOC]	----	E355-L	0.5	mg/L	8.57 mg/L	108	80.0	120	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Total Sulfides (QCLot: 2000890)									
Sulfide, total (as H2S)	7783-06-4	E395-H	----	mg/L	0.085 mg/L	104	80.0	120	----
Sulfide, total (as S)	18496-25-8	E395-H	0.01	mg/L	0.08 mg/L	104	80.0	120	----
Total Metals (QCLot: 2000820)									
Aluminum, total	7429-90-5	E420	0.003	mg/L	2 mg/L	99.7	80.0	120	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	1 mg/L	103	80.0	120	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	1 mg/L	105	80.0	120	----
Barium, total	7440-39-3	E420	0.0001	mg/L	0.25 mg/L	103	80.0	120	----
Beryllium, total	7440-41-7	E420	0.00002	mg/L	0.1 mg/L	110	80.0	120	----
Bismuth, total	7440-69-9	E420	0.00005	mg/L	1 mg/L	104	80.0	120	----
Boron, total	7440-42-8	E420	0.01	mg/L	1 mg/L	96.9	80.0	120	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	0.1 mg/L	97.2	80.0	120	----
Calcium, total	7440-70-2	E420	0.05	mg/L	50 mg/L	107	80.0	120	----
Cesium, total	7440-46-2	E420	0.00001	mg/L	0.05 mg/L	102	80.0	120	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	0.25 mg/L	102	80.0	120	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	0.25 mg/L	99.6	80.0	120	----
Copper, total	7440-50-8	E420	0.0005	mg/L	0.25 mg/L	99.1	80.0	120	----
Iron, total	7439-89-6	E420	0.01	mg/L	1 mg/L	96.3	80.0	120	----
Lead, total	7439-92-1	E420	0.00005	mg/L	0.5 mg/L	101	80.0	120	----
Lithium, total	7439-93-2	E420	0.001	mg/L	0.25 mg/L	106	80.0	120	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	50 mg/L	96.2	80.0	120	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	0.25 mg/L	96.0	80.0	120	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	0.25 mg/L	104	80.0	120	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	0.5 mg/L	99.6	80.0	120	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	10 mg/L	101	80.0	120	----
Potassium, total	7440-09-7	E420	0.05	mg/L	50 mg/L	95.9	80.0	120	----
Rubidium, total	7440-17-7	E420	0.0002	mg/L	0.1 mg/L	101	80.0	120	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	1 mg/L	105	80.0	120	----
Silicon, total	7440-21-3	E420	0.1	mg/L	10 mg/L	116	80.0	120	----
Silver, total	7440-22-4	E420	0.00001	mg/L	0.1 mg/L	98.2	80.0	120	----
Sodium, total	7440-23-5	E420	0.05	mg/L	50 mg/L	103	80.0	120	----
Strontium, total	7440-24-6	E420	0.0002	mg/L	0.25 mg/L	98.4	80.0	120	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	50 mg/L	95.3	80.0	120	----
Tellurium, total	13494-80-9	E420	0.0002	mg/L	0.1 mg/L	102	80.0	120	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	1 mg/L	101	80.0	120	----
Thorium, total	7440-29-1	E420	0.0001	mg/L	0.1 mg/L	101	80.0	120	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Total Metals (QCLot: 2000820) - continued									
Tin, total	7440-31-5	E420	0.0001	mg/L	0.5 mg/L	98.2	80.0	120	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	0.25 mg/L	102	80.0	120	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	0.1 mg/L	104	80.0	120	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	0.005 mg/L	102	80.0	120	----
Vanadium, total	7440-62-2	E420	0.0005	mg/L	0.5 mg/L	98.6	80.0	120	----
Zinc, total	7440-66-6	E420	0.003	mg/L	0.5 mg/L	101	80.0	120	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	0.1 mg/L	100	80.0	120	----
Total Metals (QCLot: 2009700)									
Mercury, total	7439-97-6	E508	0.000005	mg/L	0 mg/L	94.1	80.0	120	----
Dissolved Metals (QCLot: 2000869)									
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	2 mg/L	101	80.0	120	----
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	1 mg/L	103	80.0	120	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	1 mg/L	103	80.0	120	----
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	0.25 mg/L	103	80.0	120	----
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	0.1 mg/L	104	80.0	120	----
Bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	1 mg/L	85.5	80.0	120	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	1 mg/L	96.8	80.0	120	----
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	0.1 mg/L	94.7	80.0	120	----
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	50 mg/L	97.6	80.0	120	----
Cesium, dissolved	7440-46-2	E421	0.00001	mg/L	0.05 mg/L	98.7	80.0	120	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	0.25 mg/L	96.8	80.0	120	----
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	0.25 mg/L	96.4	80.0	120	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	0.25 mg/L	94.8	80.0	120	----
Iron, dissolved	7439-89-6	E421	0.01	mg/L	1 mg/L	97.2	80.0	120	----
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	0.5 mg/L	95.0	80.0	120	----
Lithium, dissolved	7439-93-2	E421	0.001	mg/L	0.25 mg/L	98.0	80.0	120	----
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	50 mg/L	96.2	80.0	120	----
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	0.25 mg/L	96.7	80.0	120	----
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	0.25 mg/L	99.1	80.0	120	----
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	0.5 mg/L	94.4	80.0	120	----
Phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	10 mg/L	91.7	80.0	120	----
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	50 mg/L	102	80.0	120	----
Rubidium, dissolved	7440-17-7	E421	0.0002	mg/L	0.1 mg/L	103	80.0	120	----
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	1 mg/L	95.1	80.0	120	----
Silicon, dissolved	7440-21-3	E421	0.05	mg/L	10 mg/L	106	80.0	120	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Dissolved Metals (QCLot: 2000869) - continued									
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	0.1 mg/L	90.3	80.0	120	----
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	50 mg/L	103	80.0	120	----
Strontium, dissolved	7440-24-6	E421	0.0002	mg/L	0.25 mg/L	98.9	80.0	120	----
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	50 mg/L	102	80.0	120	----
Tellurium, dissolved	13494-80-9	E421	0.0002	mg/L	0.1 mg/L	101	80.0	120	----
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	1 mg/L	94.2	80.0	120	----
Thorium, dissolved	7440-29-1	E421	0.0001	mg/L	0.1 mg/L	85.9	80.0	120	----
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	0.5 mg/L	93.6	80.0	120	----
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	0.25 mg/L	95.1	80.0	120	----
Tungsten, dissolved	7440-33-7	E421	0.0001	mg/L	0.1 mg/L	93.8	80.0	120	----
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	0.005 mg/L	95.4	80.0	120	----
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	0.5 mg/L	98.0	80.0	120	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	0.5 mg/L	95.8	80.0	120	----
Zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	0.1 mg/L	97.1	80.0	120	----
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0 mg/L	91.5	80.0	120	----

Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for the associated sample (or similar samples) may be subject to bias. ND – Recovery not determined, background level >= 1x spike level.

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Anions and Nutrients (QCLot: 2000058)										
VA25B1146-002	Anonymous	Fluoride	16984-48-8	E235.F	51.8 mg/L	50 mg/L	104	75.0	125	----
Anions and Nutrients (QCLot: 2000059)										
VA25B1146-002	Anonymous	Chloride	16887-00-6	E235.Cl	5240 mg/L	5000 mg/L	105	75.0	125	----
Anions and Nutrients (QCLot: 2000060)										
VA25B1146-002	Anonymous	Bromide	24959-67-9	E235.Br-L	25.6 mg/L	25 mg/L	102	75.0	125	----
Anions and Nutrients (QCLot: 2000061)										
VA25B1146-002	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	131 mg/L	125 mg/L	105	75.0	125	----
Anions and Nutrients (QCLot: 2000062)										
VA25B1146-002	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	25.4 mg/L	25 mg/L	102	75.0	125	----
Anions and Nutrients (QCLot: 2000063)										
VA25B1146-002	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	4990 mg/L	5000 mg/L	99.8	75.0	125	----
Anions and Nutrients (QCLot: 2000065)										
VA25B1146-002	Anonymous	Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0307 mg/L	0.03 mg/L	102	70.0	130	----
Anions and Nutrients (QCLot: 2000300)										
VA25B1110-002	Anonymous	Ammonia, total (as N)	7664-41-7	E298	ND mg/L	----	ND	75.0	125	----
Anions and Nutrients (QCLot: 2000301)										
VA25B1325-002	S-MW-1	Kjeldahl nitrogen, total [TKN]	----	E318	2.46 mg/L	2.5 mg/L	98.2	70.0	130	----
Organic / Inorganic Carbon (QCLot: 2000302)										
VA25B1325-002	S-MW-1	Carbon, total organic [TOC]	----	E355-L	5.78 mg/L	5 mg/L	116	70.0	130	----
Total Sulfides (QCLot: 2000890)										
TY2504656-002	Anonymous	Sulfide, total (as S)	18496-25-8	E395-H	1.08 mg/L	1 mg/L	108	75.0	125	----
Total Metals (QCLot: 2000820)										
VA25B1316-002	Anonymous	Aluminum, total	7429-90-5	E420	0.187 mg/L	0.2 mg/L	93.3	70.0	130	----
		Antimony, total	7440-36-0	E420	0.0197 mg/L	0.02 mg/L	98.5	70.0	130	----
		Arsenic, total	7440-38-2	E420	0.0202 mg/L	0.02 mg/L	101	70.0	130	----
		Barium, total	7440-39-3	E420	ND mg/L	----	ND	70.0	130	----
		Beryllium, total	7440-41-7	E420	0.0403 mg/L	0.04 mg/L	101	70.0	130	----
		Bismuth, total	7440-69-9	E420	0.00857 mg/L	0.01 mg/L	85.7	70.0	130	----
		Boron, total	7440-42-8	E420	0.100 mg/L	0.1 mg/L	99.6	70.0	130	----
		Cadmium, total	7440-43-9	E420	0.00367 mg/L	0.004 mg/L	91.8	70.0	130	----
		Calcium, total	7440-70-2	E420	ND mg/L	----	ND	70.0	130	----
		Cesium, total	7440-46-2	E420	0.00986 mg/L	0.01 mg/L	98.6	70.0	130	----
		Chromium, total	7440-47-3	E420	0.0385 mg/L	0.04 mg/L	96.2	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Total Metals (QCLot: 2000820) - continued										
VA25B1316-002	Anonymous	Cobalt, total	7440-48-4	E420	0.0183 mg/L	0.02 mg/L	91.7	70.0	130	----
		Copper, total	7440-50-8	E420	0.0176 mg/L	0.02 mg/L	88.0	70.0	130	----
		Iron, total	7439-89-6	E420	1.80 mg/L	2 mg/L	90.3	70.0	130	----
		Lead, total	7439-92-1	E420	0.0174 mg/L	0.02 mg/L	87.0	70.0	130	----
		Lithium, total	7439-93-2	E420	0.0972 mg/L	0.1 mg/L	97.2	70.0	130	----
		Magnesium, total	7439-95-4	E420	ND mg/L	----	ND	70.0	130	----
		Manganese, total	7439-96-5	E420	ND mg/L	----	ND	70.0	130	----
		Molybdenum, total	7439-98-7	E420	0.0209 mg/L	0.02 mg/L	105	70.0	130	----
		Nickel, total	7440-02-0	E420	0.0354 mg/L	0.04 mg/L	88.6	70.0	130	----
		Phosphorus, total	7723-14-0	E420	9.62 mg/L	10 mg/L	96.2	70.0	130	----
		Potassium, total	7440-09-7	E420	3.84 mg/L	4 mg/L	96.1	70.0	130	----
		Rubidium, total	7440-17-7	E420	0.0181 mg/L	0.02 mg/L	90.6	70.0	130	----
		Selenium, total	7782-49-2	E420	0.0407 mg/L	0.04 mg/L	102	70.0	130	----
		Silicon, total	7440-21-3	E420	9.69 mg/L	10 mg/L	96.9	70.0	130	----
		Silver, total	7440-22-4	E420	0.00387 mg/L	0.004 mg/L	96.7	70.0	130	----
		Sodium, total	7440-23-5	E420	ND mg/L	----	ND	70.0	130	----
		Strontium, total	7440-24-6	E420	ND mg/L	----	ND	70.0	130	----
		Sulfur, total	7704-34-9	E420	ND mg/L	----	ND	70.0	130	----
		Tellurium, total	13494-80-9	E420	0.0394 mg/L	0.04 mg/L	98.6	70.0	130	----
		Thallium, total	7440-28-0	E420	0.00346 mg/L	0.004 mg/L	86.6	70.0	130	----
		Thorium, total	7440-29-1	E420	0.0137 mg/L	0.02 mg/L	68.6	70.0	130	MES
		Tin, total	7440-31-5	E420	0.0186 mg/L	0.02 mg/L	93.1	70.0	130	----
		Titanium, total	7440-32-6	E420	0.0397 mg/L	0.04 mg/L	99.3	70.0	130	----
		Tungsten, total	7440-33-7	E420	0.0188 mg/L	0.02 mg/L	94.0	70.0	130	----
		Uranium, total	7440-61-1	E420	0.00370 mg/L	0.004 mg/L	92.4	70.0	130	----
		Vanadium, total	7440-62-2	E420	0.0960 mg/L	0.1 mg/L	96.0	70.0	130	----
		Zinc, total	7440-66-6	E420	0.375 mg/L	0.4 mg/L	93.8	70.0	130	----
		Zirconium, total	7440-67-7	E420	0.0397 mg/L	0.04 mg/L	99.2	70.0	130	----
Total Metals (QCLot: 2009700)										
KS2501771-001	Anonymous	Mercury, total	7439-97-6	E508	0.0000867 mg/L	0 mg/L	86.7	70.0	130	----
Dissolved Metals (QCLot: 2000869)										
VA25B1316-002	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.207 mg/L	0.2 mg/L	104	70.0	130	----
		Antimony, dissolved	7440-36-0	E421	0.0198 mg/L	0.02 mg/L	98.8	70.0	130	----
		Arsenic, dissolved	7440-38-2	E421	0.0209 mg/L	0.02 mg/L	104	70.0	130	----
		Barium, dissolved	7440-39-3	E421	ND mg/L	----	ND	70.0	130	----
		Beryllium, dissolved	7440-41-7	E421	0.0405 mg/L	0.04 mg/L	101	70.0	130	----
		Bismuth, dissolved	7440-69-9	E421	0.00864 mg/L	0.01 mg/L	86.4	70.0	130	----
		Boron, dissolved	7440-42-8	E421	0.102 mg/L	0.1 mg/L	102	70.0	130	----
		Cadmium, dissolved	7440-43-9	E421	0.00369 mg/L	0.004 mg/L	92.2	70.0	130	----
		Calcium, dissolved	7440-70-2	E421	ND mg/L	----	ND	70.0	130	----
		Cesium, dissolved	7440-46-2	E421	0.00993 mg/L	0.01 mg/L	99.3	70.0	130	----
		Chromium, dissolved	7440-47-3	E421	0.0382 mg/L	0.04 mg/L	95.5	70.0	130	----
		Cobalt, dissolved	7440-48-4	E421	0.0184 mg/L	0.02 mg/L	92.3	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Dissolved Metals (QCLot: 2000869) - continued										
VA25B1316-002	Anonymous	Copper, dissolved	7440-50-8	E421	0.0182 mg/L	0.02 mg/L	91.2	70.0	130	----
		Iron, dissolved	7439-89-6	E421	1.91 mg/L	2 mg/L	95.4	70.0	130	----
		Lead, dissolved	7439-92-1	E421	0.0180 mg/L	0.02 mg/L	90.2	70.0	130	----
		Lithium, dissolved	7439-93-2	E421	0.100 mg/L	0.1 mg/L	100	70.0	130	----
		Magnesium, dissolved	7439-95-4	E421	ND mg/L	----	ND	70.0	130	----
		Manganese, dissolved	7439-96-5	E421	ND mg/L	----	ND	70.0	130	----
		Molybdenum, dissolved	7439-98-7	E421	0.0205 mg/L	0.02 mg/L	103	70.0	130	----
		Nickel, dissolved	7440-02-0	E421	0.0365 mg/L	0.04 mg/L	91.3	70.0	130	----
		Phosphorus, dissolved	7723-14-0	E421	10.6 mg/L	10 mg/L	106	70.0	130	----
		Potassium, dissolved	7440-09-7	E421	4.00 mg/L	4 mg/L	100	70.0	130	----
		Rubidium, dissolved	7440-17-7	E421	0.0199 mg/L	0.02 mg/L	99.3	70.0	130	----
		Selenium, dissolved	7782-49-2	E421	0.0378 mg/L	0.04 mg/L	94.5	70.0	130	----
		Silicon, dissolved	7440-21-3	E421	10.7 mg/L	10 mg/L	107	70.0	130	----
		Silver, dissolved	7440-22-4	E421	0.00261 mg/L	0.004 mg/L	65.3	70.0	130	MES
		Sodium, dissolved	7440-23-5	E421	ND mg/L	----	ND	70.0	130	----
		Strontium, dissolved	7440-24-6	E421	ND mg/L	----	ND	70.0	130	----
		Sulfur, dissolved	7704-34-9	E421	ND mg/L	----	ND	70.0	130	----
		Tellurium, dissolved	13494-80-9	E421	0.0396 mg/L	0.04 mg/L	99.1	70.0	130	----
		Thallium, dissolved	7440-28-0	E421	0.00358 mg/L	0.004 mg/L	89.4	70.0	130	----
		Thorium, dissolved	7440-29-1	E421	0.0164 mg/L	0.02 mg/L	82.2	70.0	130	----
		Tin, dissolved	7440-31-5	E421	0.0191 mg/L	0.02 mg/L	95.4	70.0	130	----
		Titanium, dissolved	7440-32-6	E421	0.0392 mg/L	0.04 mg/L	97.9	70.0	130	----
		Tungsten, dissolved	7440-33-7	E421	0.0190 mg/L	0.02 mg/L	95.0	70.0	130	----
		Uranium, dissolved	7440-61-1	E421	0.00380 mg/L	0.004 mg/L	95.1	70.0	130	----
		Vanadium, dissolved	7440-62-2	E421	0.0986 mg/L	0.1 mg/L	98.6	70.0	130	----
		Zinc, dissolved	7440-66-6	E421	0.366 mg/L	0.4 mg/L	91.5	70.0	130	----
		Zirconium, dissolved	7440-67-7	E421	0.0442 mg/L	0.04 mg/L	111	70.0	130	----
Dissolved Metals (QCLot: 2010831)										
VA25B1246-005	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000932 mg/L	0 mg/L	93.2	70.0	130	----

Qualifiers

Qualifier	Description
MES	*Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).*

Chain of Custody (COC) / Analytical Request Form

COC Number: 22 - 7024 0514-3

Page 1 of 1

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Canada Toll Free: 1 800 668 9878

Report To	Contact and company name below will appear on the final report
Company:	Masse Environmental
Contact:	Ico deZwart
Phone:	
	Company address below will appear on the final report
Street:	812 Vernon St.
City/Province:	Nelson, BC
Postal Code:	V1L4G4
Invoice To	Same as Report To ☑ YES ☐ NO
	Copy of Invoice with Report ☑ YES ☐ NO
Company:	
Contact:	

Reports / Recipients

Select Report Format: ☑ PDF ☑ EXCEL ☑ EDD (DIGITAL)

Merge QC/QCI Reports with COA ☑ YES ☐ NO ☐ N/A

☐ Compare Results to Criteria on Report - provide details below if box checked

Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX

Email 1 or Fax: ico@masseenvironmental.com

Email 2: chris@masseenvironmental.com

Email 3: jenn@masseenvironmental.com

Invoice Recipients

Select Invoice Distribution: ☑ EMAIL ☐ MAIL ☐ FAX

Email 1 or Fax: lise@masseenvironmental.com

Email 2:

Turnaround Time (TAT) Requested

☑ Routine [R] if received by 3pm M-F - no surcharges apply
☐ 4 day [P4] if received by 3pm M-F - 20% rush surcharge minimum
☐ 3 day [P3] if received by 3pm M-F - 25% rush surcharge minimum
☐ 2 day [P2] if received by 3pm M-F - 50% rush surcharge minimum
☐ 1 day [E] if received by 3pm M-F - 100% rush surcharge minimum
☐ Same day [E2] if received by 10am M-S - 200% rush surcharge.

Additional fees may apply to rush requests on weekends, statutory holidays and for non-routine tests.

Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm am/pm

For all tests with rush TATs requested, please contact your AM to confirm availability.

AFFIX ALS BARCODE LABEL HERE (ALS use only)

Project Information

ALS Account # / Quote #:	VA24-MASS200-001
Job #:	2016-503 - HB
PO / AFE:	
LSD:	

Oil and Gas Required Fields (client use)

AFE/Cost Center:	PO#
Major/Minor Code:	Routing Code:
Requisitioner:	
Location:	

ALS Lab Work Order # (ALS use only): B1325

ALS Contact: Sampler: C.Stephanou

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (ALS use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	pH, cond, TSS, TDS, total alk, hardness	Chloride, bromide, fluoride, sulfate	Ammonia, TKN, nitrate, nitrite	TOC	Dissolved Metals (incl Hg)	Total Metals (incl Hg)	Orthophospahte	Total Sulphide	SAMPLES ON HOLD	EXTENDED STORAGE REQUIRED	SUSPECTED HAZARD (see notes)
						P	P		F		P	P				
	MW-06-01 ((E252594)	13-May-25	14:40	GW	7	R	R	R	R	R	R	R	R			
	S-MW-1 (E221702)	13-May-25	10:06	GW	7	R	R	R	R	R	R	R	R			
	MW-02A-01 (E252591)	13-May-25	11:20	GW	7	R	R	R	R	R	R	R	R			
	S-MW-2 (E221703)	13-May-25	12:40	GW	7	R	R	R	R	R	R	R	R			
	MW-04S-05 (E266349)	13-May-25	14:00	GW	7	R	R	R	R	R	R	R	R			

Environmental Division
Vancouver
Work Order Reference
VA25B1325

Telephone : +1 604 253 4188

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System? ☐ YES ☐ NO

Are samples for human consumption/ use? ☐ YES ☐ NO

Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only)

SAMPLE RECEIPT DETAILS (ALS use only)

Cooling Method: ☐ NONE ☐ ICE ☑ ICE PACKS ☐ FROZEN ☐ COOLING INITIATED

Submission Comments identified on Sample Receipt Notification: ☐ YES ☐ NO

Cooler Custody Seals Intact: ☐ YES ☐ N/A Sample Custody Seals Intact: ☐ YES ☐ N/A

INITIAL COOLER TEMPERATURES °C	FINAL COOLER TEMPERATURES °C
	7/7/11 C

SHIPMENT RELEASE (client use)

Released by:	Date:	Time:
	14-May-2025	9:30

INITIAL SHIPMENT RECEPTION (ALS use only)

Received by:	Date:	Time:

FINAL SHIPMENT RECEPTION (ALS use only)

Received by:	Date:	Time:
	May 15	12 PM

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

FEB 2022 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form.**

CERTIFICATE OF ANALYSIS

Work Order	:	**VA25B1332**	Laboratory	:	ALS Environmental - Vancouver
Amendment	:	**1**	Account Manager	:	Can Dang
Client	:	**Masse Environmental Consultants Ltd.**	Address	:	8081 Lougheed Highway Burnaby BC Canada V5A 1W9
Contact	:	Ico de Zwart	E-mail	:	Can.Dang@ALSGlobal.com
Address	:	812 Vernon Street Nelson British Columbia Canada V1L 4G4	Telephone	:	+1 604 253 4188
Telephone	:	----	Date Samples Received	:	15-May-2025 12:00
Project	:	2016-503-HB	Date Analysis Commenced	:	16-May-2025
PO	:	----	Issue Date	:	27-May-2025 15:49
C-O-C number	:	22-20240514-2			
Sampler	:	----			
Site	:	RDCK			
Quote number	:	----			
No. of samples received	:	7			
No. of samples analysed	:	7			

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Angela Ren	Team Leader - Metals	Metals, Burnaby, British Columbia
Angelo Salandanan	Lab Assistant	Metals, Burnaby, British Columbia
Claire Yang	Lab Assistant	Inorganics, Burnaby, British Columbia
Dan Gebert	Supervisor - Metals Mercury & Speciation	Metals, Burnaby, British Columbia
Leon Yang	Analyst	Inorganics, Burnaby, British Columbia
Owen Cheng		Metals, Burnaby, British Columbia

General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Please refer to Quality Control Interpretive report (QCI) for information regarding Holding Time compliance.

Key: CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances.
LOR: Limit of Reporting (detection limit).

Unit	*Description*
-	no units
mg/L	milligrams per litre
pH units	pH units
µg/L	micrograms per litre
µS/cm	microsiemens per centimetre

<: less than.
>: greater than.
Surrogate: An analyte that is similar in behavior to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED on SRN or QCI Report, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Workorder Comments

Amendment (27/05/2025): This report has been amended as a result of a request to change the reporting unit for metals from 'mg/L" to "ug/L". All analysis results are as per the previous report.

Qualifiers

Qualifier	Description
DLDS	Detection Limit Raised: Dilution required due to high Dissolved Solids / Electrical Conductivity.

Analytical Results

Sub-Matrix: Surface Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	SW1-07	SW3-07	SW5-19	Seepage Weir	Spillway Inlet
					Client sampling date / time	12-May-2025 13:22	12-May-2025 12:07	12-May-2025 12:33	12-May-2025 11:28	12-May-2025 10:43
						VA25B1332-001	VA25B1332-003	VA25B1332-004	VA25B1332-005	VA25B1332-006
						Result	Result	Result	Result	Result
Sample Preparation										
Dissolved carbon filtration location	----	EP358/VA	-	-		field	field	field	field	field
Physical Tests										
Alkalinity, total (as CaCO3)	----	E290/VA	1.0	mg/L		314	55.2	59.1	264	111
Conductivity	----	E100/VA	2.0	µS/cm		762	124	131	884	404
Hardness (as CaCO3), dissolved	----	EC100/VA	0.60	mg/L		356	58.0	61.3	483	192
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/VA	0.60	mg/L		363	59.9	64.7	499	197
pH	----	E108/VA	0.10	pH units		8.23	7.98	7.90	8.20	8.21
Solids, total dissolved [TDS]	----	E162/VA	10	mg/L		478	72	93	642	255
Solids, total suspended [TSS]	----	E160/VA	3.0	mg/L		29.7	3.5	<3.0	<3.0	29.9
Anions and Nutrients										
Ammonia, total (as N)	7664-41-7	E298/VA	0.0050	mg/L		0.0478	<0.0050	<0.0050	0.0430	0.0086
Bromide	24959-67-9	E235.Br-L/VA	0.050	mg/L		<0.250 DLDS	<0.050	<0.050	<0.250 DLDS	<0.050
Chloride	16887-00-6	E235.Cl/VA	0.50	mg/L		39.1	<0.50	<0.50	2.92	6.07
Fluoride	16984-48-8	E235.F/VA	0.020	mg/L		<0.100 DLDS	0.041	0.039	0.115	0.081
Kjeldahl nitrogen, total [TKN]	----	E318/VA	0.050	mg/L		1.78	0.062	0.060	0.180	0.630
Nitrate (as N)	14797-55-8	E235.NO3-L/VA	0.0050	mg/L		0.120	<0.0050	<0.0050	0.311	<0.0050
Nitrite (as N)	14797-65-0	E235.NO2-L/VA	0.0010	mg/L		<0.0050 DLDS	<0.0010	<0.0010	0.0068	<0.0010
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U/VA	0.0010	mg/L		0.0249	<0.0010	<0.0010	<0.0010	0.0010
Sulfate (as SO4)	14808-79-8	E235.SO4/VA	0.30	mg/L		49.4	8.28	8.22	237	88.6
Organic / Inorganic Carbon										
Carbon, dissolved organic [DOC]	----	E358-L/VA	0.50	mg/L		19.7	1.59	1.17	3.00	5.42

Analytical Results

Sub-Matrix: Surface Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	SW1-07	SW3-07	SW5-19	Seepage Weir	Spillway Inlet
Client sample ID									
Client sampling date / time					12-May-2025 13:22	12-May-2025 12:07	12-May-2025 12:33	12-May-2025 11:28	12-May-2025 10:43
					VA25B1332-001	VA25B1332-003	VA25B1332-004	VA25B1332-005	VA25B1332-006
					Result	Result	Result	Result	Result
Organic / Inorganic Carbon									
Carbon, total organic [TOC]	----	E355-L/VA	0.50	mg/L	22.4	2.80	1.29	2.98	6.40
Total Sulfides									
Sulfide, total (as H2S)	7783-06-4	E395-H/VA	0.011	mg/L	0.047	<0.011	<0.011	<0.011	<0.011
Sulfide, total (as S)	18496-25-8	E395-H/VA	0.010	mg/L	0.044	<0.010	<0.010	<0.010	<0.010
Total Metals									
Aluminum, total	7429-90-5	E420/VA	3.0	µg/L	319	70.4	23.7	9.4	1540
Antimony, total	7440-36-0	E420/VA	0.10	µg/L	0.27	<0.10	<0.10	0.11	0.11
Arsenic, total	7440-38-2	E420/VA	0.10	µg/L	5.99	0.19	0.16	0.52	1.98
Barium, total	7440-39-3	E420/VA	0.10	µg/L	105	10.5	10.1	46.0	52.8
Beryllium, total	7440-41-7	E420/VA	0.100	µg/L	<0.100	<0.100	<0.100	<0.100	<0.100
Bismuth, total	7440-69-9	E420/VA	0.050	µg/L	<0.050	<0.050	<0.050	<0.050	<0.050
Boron, total	7440-42-8	E420/VA	10	µg/L	173	<10	<10	19	26
Cadmium, total	7440-43-9	E420/VA	0.0050	µg/L	0.666	0.0158	0.0116	0.0354	0.189
Calcium, total	7440-70-2	E420/VA	50	µg/L	96900	18700	20900	133000	56000
Cesium, total	7440-46-2	E420/VA	0.010	µg/L	0.054	0.019	<0.010	0.072	0.399
Chromium, total	7440-47-3	E420/VA	0.50	µg/L	2.16	1.69	<0.50	<0.50	2.45
Cobalt, total	7440-48-4	E420/VA	0.10	µg/L	2.55	<0.10	<0.10	0.16	1.36
Copper, total	7440-50-8	E420/VA	0.50	µg/L	5.39	0.52	<0.50	<0.50	3.07
Iron, total	7439-89-6	E420/VA	10	µg/L	4140	87	20	203	2180
Lead, total	7439-92-1	E420/VA	0.050	µg/L	33.0	0.221	0.085	<0.050	5.67
Lithium, total	7439-93-2	E420/VA	1.0	µg/L	2.1	<1.0	<1.0	1.0	2.0

Analytical Results

Sub-Matrix: Surface Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	SW1-07	SW3-07	SW5-19	Seepage Weir	Spillway Inlet
					Client sampling date / time	12-May-2025 13:22	12-May-2025 12:07	12-May-2025 12:33	12-May-2025 11:28	12-May-2025 10:43
						VA25B1332-001	VA25B1332-003	VA25B1332-004	VA25B1332-005	VA25B1332-006
						Result	Result	Result	Result	Result
Total Metals										
Magnesium, total	7439-95-4	E420/VA	5.0	µg/L		29500	3200	3040	40600	14000
Manganese, total	7439-96-5	E420/VA	0.10	µg/L		2380	4.88	1.96	1160	585
Mercury, total	7439-97-6	E508/VA	0.0050	µg/L		0.0066	<0.0050	<0.0050	<0.0050	<0.0050
Molybdenum, total	7439-98-7	E420/VA	0.050	µg/L		0.714	0.282	0.105	2.90	0.947
Nickel, total	7440-02-0	E420/VA	0.50	µg/L		5.99	<0.50	<0.50	0.52	3.48
Phosphorus, total	7723-14-0	E420/VA	50	µg/L		480	<50	<50	<50	116
Potassium, total	7440-09-7	E420/VA	50	µg/L		7680	1170	1190	4290	2650
Rubidium, total	7440-17-7	E420/VA	0.20	µg/L		2.31	0.63	0.48	2.27	3.84
Selenium, total	7782-49-2	E420/VA	0.050	µg/L		0.177	0.052	<0.050	0.201	0.094
Silicon, total	7440-21-3	E420/VA	100	µg/L		5860	6470	6660	8170	8340
Silver, total	7440-22-4	E420/VA	0.010	µg/L		0.041	<0.010	<0.010	<0.010	0.020
Sodium, total	7440-23-5	E420/VA	50	µg/L		29300	1430	1440	10500	6980
Strontium, total	7440-24-6	E420/VA	0.20	µg/L		495	92.1	99.3	548	241
Sulfur, total	7704-34-9	E420/VA	500	µg/L		19400	2510	2500	85200	31400
Tellurium, total	13494-80-9	E420/VA	0.20	µg/L		<0.20	<0.20	<0.20	<0.20	<0.20
Thallium, total	7440-28-0	E420/VA	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	0.020
Thorium, total	7440-29-1	E420/VA	0.10	µg/L		0.12	<0.10	<0.10	<0.10	0.69
Tin, total	7440-31-5	E420/VA	0.10	µg/L		<0.10	<0.10	<0.10	<0.10	<0.10
Titanium, total	7440-32-6	E420/VA	0.30	µg/L		13.0	2.43	0.58	<0.30	43.7
Tungsten, total	7440-33-7	E420/VA	0.10	µg/L		0.14	<0.10	<0.10	<0.10	<0.10
Uranium, total	7440-61-1	E420/VA	0.010	µg/L		7.48	0.187	0.107	8.85	3.42

Analytical Results

Sub-Matrix: Surface Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	SW1-07	SW3-07	SW5-19	Seepage Weir	Spillway Inlet
					Client sampling date / time	12-May-2025 13:22	12-May-2025 12:07	12-May-2025 12:33	12-May-2025 11:28	12-May-2025 10:43
						VA25B1332-001	VA25B1332-003	VA25B1332-004	VA25B1332-005	VA25B1332-006
						Result	Result	Result	Result	Result
Total Metals										
Vanadium, total	7440-62-2	E420/VA	0.50	µg/L		3.16	0.52	<0.50	<0.50	3.34
Zinc, total	7440-66-6	E420/VA	3.0	µg/L		77.4	3.1	48.8	5.1	46.6
Zirconium, total	7440-67-7	E420/VA	0.20	µg/L		0.33	<0.20	0.88	<0.20	<0.20
Dissolved Metals										
Aluminum, dissolved	7429-90-5	E421/VA	1.0	µg/L		7.6	9.6	2.0	1.4	10.2
Antimony, dissolved	7440-36-0	E421/VA	0.10	µg/L		0.20	<0.10	<0.10	0.10	<0.10
Arsenic, dissolved	7440-38-2	E421/VA	0.10	µg/L		2.45	0.16	0.14	0.45	0.85
Barium, dissolved	7440-39-3	E421/VA	0.10	µg/L		58.8	9.80	9.99	43.7	25.4
Beryllium, dissolved	7440-41-7	E421/VA	0.100	µg/L		<0.100	<0.100	<0.100	<0.100	<0.100
Bismuth, dissolved	7440-69-9	E421/VA	0.050	µg/L		<0.050	<0.050	<0.050	<0.050	<0.050
Boron, dissolved	7440-42-8	E421/VA	10	µg/L		166	<10	<10	18	25
Cadmium, dissolved	7440-43-9	E421/VA	0.0050	µg/L		0.0843	0.0102	0.0106	0.0341	0.0217
Calcium, dissolved	7440-70-2	E421/VA	50	µg/L		96200	18600	20000	130000	55000
Cesium, dissolved	7440-46-2	E421/VA	0.010	µg/L		<0.010	<0.010	<0.010	0.065	<0.010
Chromium, dissolved	7440-47-3	E421/VA	0.50	µg/L		0.93	<0.50	<0.50	<0.50	<0.50
Cobalt, dissolved	7440-48-4	E421/VA	0.10	µg/L		1.12	<0.10	<0.10	0.14	0.11
Copper, dissolved	7440-50-8	E421/VA	0.20	µg/L		1.10	0.44	0.26	0.24	0.63
Iron, dissolved	7439-89-6	E421/VA	10	µg/L		266	14	<10	63	44
Lead, dissolved	7439-92-1	E421/VA	0.050	µg/L		1.29	<0.050	<0.050	<0.050	0.107
Lithium, dissolved	7439-93-2	E421/VA	1.0	µg/L		2.0	<1.0	<1.0	1.2	<1.0
Magnesium, dissolved	7439-95-4	E421/VA	5.0	µg/L		28200	2820	2760	38500	13200

Analytical Results

Sub-Matrix: Surface Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	SW1-07	SW3-07	SW5-19	Seepage Weir	Spillway Inlet
					Client sampling date / time	12-May-2025 13:22	12-May-2025 12:07	12-May-2025 12:33	12-May-2025 11:28	12-May-2025 10:43
						VA25B1332-001	VA25B1332-003	VA25B1332-004	VA25B1332-005	VA25B1332-006
						Result	Result	Result	Result	Result
Dissolved Metals										
Manganese, dissolved	7439-96-5	E421/VA	0.10	µg/L		1080	2.48	1.40	1100	138
Mercury, dissolved	7439-97-6	E509/VA	0.0050	µg/L		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Molybdenum, dissolved	7439-98-7	E421/VA	0.050	µg/L		0.580	0.171	0.099	2.83	0.864
Nickel, dissolved	7440-02-0	E421/VA	0.50	µg/L		4.65	<0.50	<0.50	<0.50	0.90
Phosphorus, dissolved	7723-14-0	E421/VA	50	µg/L		<50	<50	<50	<50	<50
Potassium, dissolved	7440-09-7	E421/VA	50	µg/L		7570	1090	1130	4090	2140
Rubidium, dissolved	7440-17-7	E421/VA	0.20	µg/L		1.90	0.53	0.42	2.31	0.96
Selenium, dissolved	7782-49-2	E421/VA	0.050	µg/L		0.126	0.056	0.070	0.178	0.079
Silicon, dissolved	7440-21-3	E421/VA	50	µg/L		5390	6590	6600	8270	5800
Silver, dissolved	7440-22-4	E421/VA	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Sodium, dissolved	7440-23-5	E421/VA	50	µg/L		27200	1340	1350	10100	6720
Strontium, dissolved	7440-24-6	E421/VA	0.20	µg/L		450	90.9	94.1	514	218
Sulfur, dissolved	7704-34-9	E421/VA	500	µg/L		18200	2670	2770	82000	29200
Tellurium, dissolved	13494-80-9	E421/VA	0.20	µg/L		<0.20	<0.20	<0.20	<0.20	<0.20
Thallium, dissolved	7440-28-0	E421/VA	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Thorium, dissolved	7440-29-1	E421/VA	0.10	µg/L		<0.10	<0.10	<0.10	<0.10	<0.10
Tin, dissolved	7440-31-5	E421/VA	0.10	µg/L		<0.10	<0.10	<0.10	<0.10	<0.10
Titanium, dissolved	7440-32-6	E421/VA	0.30	µg/L		0.70	<0.30	<0.30	<0.30	<0.30
Tungsten, dissolved	7440-33-7	E421/VA	0.10	µg/L		<0.10	<0.10	<0.10	<0.10	<0.10
Uranium, dissolved	7440-61-1	E421/VA	0.010	µg/L		6.37	0.159	0.092	8.00	2.89
Vanadium, dissolved	7440-62-2	E421/VA	0.50	µg/L		0.76	<0.50	<0.50	<0.50	<0.50

Analytical Results

Sub-Matrix: Surface Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	SW1-07	SW3-07	SW5-19	Seepage Weir	Spillway Inlet
					Client sampling date / time	12-May-2025 13:22	12-May-2025 12:07	12-May-2025 12:33	12-May-2025 11:28	12-May-2025 10:43
						VA25B1332-001	VA25B1332-003	VA25B1332-004	VA25B1332-005	VA25B1332-006
						Result	Result	Result	Result	Result
Dissolved Metals										
Zinc, dissolved	7440-66-6	E421/VA	1.0	µg/L		19.1	2.7	51.2	4.9	3.7
Zirconium, dissolved	7440-67-7	E421/VA	0.20	µg/L		0.21	<0.20	<0.20	<0.20	<0.20
Dissolved mercury filtration location	----	EP509/VA	-	-		Field	Field	Field	Field	Field
Dissolved metals filtration location	----	EP421/VA	-	-		Field	Field	Field	Field	Field

Please refer to the General Comments section for an explanation of any qualifiers detected.

Analytical Results

Sub-Matrix: Surface Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	Spillway Outlet	Outlet Ditch	----	----	----
					Client sampling date / time	12-May-2025 11:23	12-May-2025 10:09	----	----	----
						VA25B1332-007	VA25B1332-008	----	----	----
						Result	Result	----	----	----
Sample Preparation										
Dissolved carbon filtration location	----	EP358/VA	-	-		field	field	----	----	----
Physical Tests										
Alkalinity, total (as CaCO3)	----	E290/VA	1.0	mg/L		112	101	----	----	----
Conductivity	----	E100/VA	2.0	µS/cm		407	354	----	----	----
Hardness (as CaCO3), dissolved	----	EC100/VA	0.60	mg/L		196	166	----	----	----
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/VA	0.60	mg/L		199	170	----	----	----
pH	----	E108/VA	0.10	pH units		8.23	8.25	----	----	----
Solids, total dissolved [TDS]	----	E162/VA	10	mg/L		263	225	----	----	----
Solids, total suspended [TSS]	----	E160/VA	3.0	mg/L		6.5	4.1	----	----	----
Anions and Nutrients										
Ammonia, total (as N)	7664-41-7	E298/VA	0.0050	mg/L		0.0054	0.0064	----	----	----

Analytical Results

Sub-Matrix: Surface Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	Spillway Outlet	Outlet Ditch	----	----	----
					Client sampling date / time	12-May-2025 11:23	12-May-2025 10:09	----	----	----
						VA25B1332-007	VA25B1332-008	----	----	----
						Result	Result	----	----	----
Anions and Nutrients										
Bromide	24959-67-9	E235.Br-L/VA	0.050	mg/L		<0.050	<0.050	----	----	----
Chloride	16887-00-6	E235.Cl/VA	0.50	mg/L		5.36	4.19	----	----	----
Fluoride	16984-48-8	E235.F/VA	0.020	mg/L		0.073	0.070	----	----	----
Kjeldahl nitrogen, total [TKN]	----	E318/VA	0.050	mg/L		0.231	0.215	----	----	----
Nitrate (as N)	14797-55-8	E235.NO3-L/VA	0.0050	mg/L		0.0930	0.0838	----	----	----
Nitrite (as N)	14797-65-0	E235.NO2-L/VA	0.0010	mg/L		<0.0010	<0.0010	----	----	----
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U/VA	0.0010	mg/L		0.0084	0.0134	----	----	----
Sulfate (as SO4)	14808-79-8	E235.SO4/VA	0.30	mg/L		90.9	74.7	----	----	----
Organic / Inorganic Carbon										
Carbon, dissolved organic [DOC]	----	E358-L/VA	0.50	mg/L		3.73	3.44	----	----	----
Carbon, total organic [TOC]	----	E355-L/VA	0.50	mg/L		3.84	3.31	----	----	----
Total Sulfides										
Sulfide, total (as H2S)	7783-06-4	E395-H/VA	0.011	mg/L		<0.011	<0.011	----	----	----
Sulfide, total (as S)	18496-25-8	E395-H/VA	0.010	mg/L		<0.010	<0.010	----	----	----
Total Metals										
Aluminum, total	7429-90-5	E420/VA	3.0	µg/L		104	77.1	----	----	----
Antimony, total	7440-36-0	E420/VA	0.10	µg/L		<0.10	0.17	----	----	----
Arsenic, total	7440-38-2	E420/VA	0.10	µg/L		0.74	0.76	----	----	----
Barium, total	7440-39-3	E420/VA	0.10	µg/L		29.3	26.8	----	----	----
Beryllium, total	7440-41-7	E420/VA	0.100	µg/L		<0.100	<0.100	----	----	----
Bismuth, total	7440-69-9	E420/VA	0.050	µg/L		<0.050	<0.050	----	----	----

Analytical Results

Sub-Matrix: Surface Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	Spillway Outlet	Outlet Ditch	----	----	----
					Client sampling date / time	12-May-2025 11:23	12-May-2025 10:09	----	----	----
						VA25B1332-007	VA25B1332-008	----	----	----
						Result	Result	----	----	----
Total Metals										
Boron, total	7440-42-8	E420/VA	10	µg/L		22	17	----	----	----
Cadmium, total	7440-43-9	E420/VA	0.0050	µg/L		0.0379	0.0710	----	----	----
Calcium, total	7440-70-2	E420/VA	50	µg/L		58200	49700	----	----	----
Cesium, total	7440-46-2	E420/VA	0.010	µg/L		0.145	0.065	----	----	----
Chromium, total	7440-47-3	E420/VA	0.50	µg/L		<0.50	<0.50	----	----	----
Cobalt, total	7440-48-4	E420/VA	0.10	µg/L		0.12	0.10	----	----	----
Copper, total	7440-50-8	E420/VA	0.50	µg/L		1.06	2.31	----	----	----
Iron, total	7439-89-6	E420/VA	10	µg/L		139	108	----	----	----
Lead, total	7439-92-1	E420/VA	0.050	µg/L		0.313	0.528	----	----	----
Lithium, total	7439-93-2	E420/VA	1.0	µg/L		<1.0	<1.0	----	----	----
Magnesium, total	7439-95-4	E420/VA	5.0	µg/L		13000	11200	----	----	----
Manganese, total	7439-96-5	E420/VA	0.10	µg/L		37.7	8.77	----	----	----
Mercury, total	7439-97-6	E508/VA	0.0050	µg/L		<0.0050	<0.0050	----	----	----
Molybdenum, total	7439-98-7	E420/VA	0.050	µg/L		0.822	0.784	----	----	----
Nickel, total	7440-02-0	E420/VA	0.50	µg/L		0.96	0.84	----	----	----
Phosphorus, total	7723-14-0	E420/VA	50	µg/L		<50	<50	----	----	----
Potassium, total	7440-09-7	E420/VA	50	µg/L		2270	2240	----	----	----
Rubidium, total	7440-17-7	E420/VA	0.20	µg/L		1.10	1.02	----	----	----
Selenium, total	7782-49-2	E420/VA	0.050	µg/L		0.084	0.121	----	----	----
Silicon, total	7440-21-3	E420/VA	100	µg/L		6210	6360	----	----	----
Silver, total	7440-22-4	E420/VA	0.010	µg/L		<0.010	<0.010	----	----	----

Analytical Results

Sub-Matrix: Surface Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	Spillway Outlet	Outlet Ditch	----	----	----
					Client sampling date / time	12-May-2025 11:23	12-May-2025 10:09	----	----	----
						VA25B1332-007	VA25B1332-008	----	----	----
						Result	Result	----	----	----
Total Metals										
Sodium, total	7440-23-5	E420/VA	50	µg/L		6530	5420	----	----	----
Strontium, total	7440-24-6	E420/VA	0.20	µg/L		248	219	----	----	----
Sulfur, total	7704-34-9	E420/VA	500	µg/L		32300	25800	----	----	----
Tellurium, total	13494-80-9	E420/VA	0.20	µg/L		<0.20	<0.20	----	----	----
Thallium, total	7440-28-0	E420/VA	0.010	µg/L		<0.010	<0.010	----	----	----
Thorium, total	7440-29-1	E420/VA	0.10	µg/L		<0.10	<0.10	----	----	----
Tin, total	7440-31-5	E420/VA	0.10	µg/L		<0.10	<0.10	----	----	----
Titanium, total	7440-32-6	E420/VA	0.30	µg/L		3.24	2.98	----	----	----
Tungsten, total	7440-33-7	E420/VA	0.10	µg/L		<0.10	<0.10	----	----	----
Uranium, total	7440-61-1	E420/VA	0.010	µg/L		3.60	2.91	----	----	----
Vanadium, total	7440-62-2	E420/VA	0.50	µg/L		0.59	0.79	----	----	----
Zinc, total	7440-66-6	E420/VA	3.0	µg/L		12.0	13.2	----	----	----
Zirconium, total	7440-67-7	E420/VA	0.20	µg/L		<0.20	<0.20	----	----	----
Dissolved Metals										
Aluminum, dissolved	7429-90-5	E421/VA	1.0	µg/L		6.3	5.9	----	----	----
Antimony, dissolved	7440-36-0	E421/VA	0.10	µg/L		<0.10	0.16	----	----	----
Arsenic, dissolved	7440-38-2	E421/VA	0.10	µg/L		0.69	0.65	----	----	----
Barium, dissolved	7440-39-3	E421/VA	0.10	µg/L		28.4	24.9	----	----	----
Beryllium, dissolved	7440-41-7	E421/VA	0.100	µg/L		<0.100	<0.100	----	----	----
Bismuth, dissolved	7440-69-9	E421/VA	0.050	µg/L		<0.050	<0.050	----	----	----
Boron, dissolved	7440-42-8	E421/VA	10	µg/L		21	16	----	----	----

Analytical Results

Sub-Matrix: Surface Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	Spillway Outlet	Outlet Ditch	----	----	----
					Client sampling date / time	12-May-2025 11:23	12-May-2025 10:09	----	----	----
						VA25B1332-007	VA25B1332-008	----	----	----
						Result	Result	----	----	----
Dissolved Metals										
Cadmium, dissolved	7440-43-9	E421/VA	0.0050	µg/L		0.0231	0.0520	----	----	----
Calcium, dissolved	7440-70-2	E421/VA	50	µg/L		57400	48800	----	----	----
Cesium, dissolved	7440-46-2	E421/VA	0.010	µg/L		0.110	0.044	----	----	----
Chromium, dissolved	7440-47-3	E421/VA	0.50	µg/L		<0.50	<0.50	----	----	----
Cobalt, dissolved	7440-48-4	E421/VA	0.10	µg/L		<0.10	<0.10	----	----	----
Copper, dissolved	7440-50-8	E421/VA	0.20	µg/L		0.78	1.70	----	----	----
Iron, dissolved	7439-89-6	E421/VA	10	µg/L		19	<10	----	----	----
Lead, dissolved	7439-92-1	E421/VA	0.050	µg/L		0.050	<0.050	----	----	----
Lithium, dissolved	7439-93-2	E421/VA	1.0	µg/L		<1.0	<1.0	----	----	----
Magnesium, dissolved	7439-95-4	E421/VA	5.0	µg/L		12900	10800	----	----	----
Manganese, dissolved	7439-96-5	E421/VA	0.10	µg/L		22.1	1.71	----	----	----
Mercury, dissolved	7439-97-6	E509/VA	0.0050	µg/L		<0.0050	<0.0050	----	----	----
Molybdenum, dissolved	7439-98-7	E421/VA	0.050	µg/L		0.809	0.775	----	----	----
Nickel, dissolved	7440-02-0	E421/VA	0.50	µg/L		0.70	0.58	----	----	----
Phosphorus, dissolved	7723-14-0	E421/VA	50	µg/L		<50	<50	----	----	----
Potassium, dissolved	7440-09-7	E421/VA	50	µg/L		2220	2080	----	----	----
Rubidium, dissolved	7440-17-7	E421/VA	0.20	µg/L		0.91	0.92	----	----	----
Selenium, dissolved	7782-49-2	E421/VA	0.050	µg/L		0.089	0.083	----	----	----
Silicon, dissolved	7440-21-3	E421/VA	50	µg/L		5940	6210	----	----	----
Silver, dissolved	7440-22-4	E421/VA	0.010	µg/L		<0.010	<0.010	----	----	----
Sodium, dissolved	7440-23-5	E421/VA	50	µg/L		5970	4960	----	----	----

Analytical Results

Sub-Matrix: Surface Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	Spillway Outlet	Outlet Ditch	----	----	----
					Client sampling date / time	12-May-2025 11:23	12-May-2025 10:09	----	----	----
						VA25B1332-007	VA25B1332-008	----	----	----
						Result	Result	----	----	----
Dissolved Metals										
Strontium, dissolved	7440-24-6	E421/VA	0.20	µg/L		238	207	----	----	----
Sulfur, dissolved	7704-34-9	E421/VA	500	µg/L		29300	24700	----	----	----
Tellurium, dissolved	13494-80-9	E421/VA	0.20	µg/L		<0.20	<0.20	----	----	----
Thallium, dissolved	7440-28-0	E421/VA	0.010	µg/L		<0.010	<0.010	----	----	----
Thorium, dissolved	7440-29-1	E421/VA	0.10	µg/L		<0.10	<0.10	----	----	----
Tin, dissolved	7440-31-5	E421/VA	0.10	µg/L		<0.10	<0.10	----	----	----
Titanium, dissolved	7440-32-6	E421/VA	0.30	µg/L		<0.30	<0.30	----	----	----
Tungsten, dissolved	7440-33-7	E421/VA	0.10	µg/L		<0.10	<0.10	----	----	----
Uranium, dissolved	7440-61-1	E421/VA	0.010	µg/L		3.23	2.51	----	----	----
Vanadium, dissolved	7440-62-2	E421/VA	0.50	µg/L		<0.50	0.50	----	----	----
Zinc, dissolved	7440-66-6	E421/VA	1.0	µg/L		8.8	9.0	----	----	----
Zirconium, dissolved	7440-67-7	E421/VA	0.20	µg/L		<0.20	<0.20	----	----	----
Dissolved mercury filtration location	----	EP509/VA	-	-		Field	Field	----	----	----
Dissolved metals filtration location	----	EP421/VA	-	-		Field	Field	----	----	----

Please refer to the General Comments section for an explanation of any qualifiers detected.

ALS Canada Ltd.

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QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **VA25B1332**	Page	: 1 of 27
Amendment	: 1		
Client	: **Masse Environmental Consultants Ltd.**	Laboratory	: ALS Environmental - Vancouver
Contact	: Ico de Zwart	Account Manager	: Can Dang
Address	: 812 Vernon Street Nelson BC Canada V1L 4G4	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: ----	Telephone	: +1 604 253 4188
Project	: 2016-503-HB	Date Samples Received	: 15-May-2025 12:00
PO	: ----	Issue Date	: 27-May-2025 15:49
C-O-C number	: 22-20240514-2		
Sampler	: ----		
Site	: RDCK		
Quote number	: ----		
No. of samples received	: 7		
No. of samples analysed	: 7		

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Key

Anonymous: Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number: Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO: Data Quality Objective.
LOR: Limit of Reporting (detection limit).
RPD: Relative Percent Difference.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Summary of Outliers

Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- No Duplicate outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- Matrix Spike outliers occur - please see following pages for full details.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- Analysis Holding Time Outliers exist - please see following pages for full details.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **Water**

Analyte Group	Laboratory sample ID	Client/Ref Sample ID	Analyte	CAS Number	Method	Result	Limits	Comment
Matrix Spike (MS) Recoveries								
Total Metals	Anonymous	Anonymous	Thorium, total	7440-29-1	E420	60.9 % MES	70.0-130%	Recovery less than lower data quality objective
Dissolved Metals	Anonymous	Anonymous	Silver, dissolved	7440-22-4	E421	58.2 % MS-Ag	70.0-130%	Recovery less than lower data quality objective
Dissolved Metals	Anonymous	Anonymous	Thorium, dissolved	7440-29-1	E421	60.8 % MES	70.0-130%	Recovery less than lower data quality objective

Result Qualifiers

Qualifier	*Description*
MES	*Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).*
MS-Ag	*Matrix Spike recovery for silver was marginally below DQO (40 to <60%) due to its instability in the sample matrix. Silver was not detected. Reported result (< LOR) is reliable*

Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
Outlet Ditch	E298	12-May-2025	16-May-2025	28 days	4 days	✓	23-May-2025	28 days	4 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
Seepage Weir	E298	12-May-2025	16-May-2025	28 days	4 days	✓	23-May-2025	28 days	4 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
Spillway Inlet	E298	12-May-2025	16-May-2025	28 days	4 days	✓	23-May-2025	28 days	4 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
Spillway Outlet	E298	12-May-2025	16-May-2025	28 days	4 days	✓	23-May-2025	28 days	4 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
SW1-07	E298	12-May-2025	16-May-2025	28 days	4 days	✓	23-May-2025	28 days	4 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
SW3-07	E298	12-May-2025	16-May-2025	28 days	4 days	✓	23-May-2025	28 days	4 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
SW5-19	E298	12-May-2025	16-May-2025	28 days	4 days	✓	23-May-2025	28 days	4 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE Outlet Ditch	E235.Br-L	12-May-2025	20-May-2025	28 days	8 days	✓	20-May-2025	28 days	8 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE Seepage Weir	E235.Br-L	12-May-2025	20-May-2025	28 days	8 days	✓	20-May-2025	28 days	8 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE Spillway Inlet	E235.Br-L	12-May-2025	20-May-2025	28 days	8 days	✓	20-May-2025	28 days	8 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE Spillway Outlet	E235.Br-L	12-May-2025	20-May-2025	28 days	8 days	✓	20-May-2025	28 days	8 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE SW1-07	E235.Br-L	12-May-2025	20-May-2025	28 days	8 days	✓	20-May-2025	28 days	8 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE SW3-07	E235.Br-L	12-May-2025	20-May-2025	28 days	8 days	✓	20-May-2025	28 days	8 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE SW5-19	E235.Br-L	12-May-2025	20-May-2025	28 days	8 days	✓	20-May-2025	28 days	8 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE Outlet Ditch	E235.Cl	12-May-2025	20-May-2025	28 days	8 days	✓	20-May-2025	28 days	8 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE Seepage Weir	E235.Cl	12-May-2025	20-May-2025	28 days	8 days	✓	20-May-2025	28 days	8 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Chloride in Water by IC										
HDPE Spillway Inlet	E235.Cl	12-May-2025	20-May-2025	28 days	8 days	✓	20-May-2025	28 days	8 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE Spillway Outlet	E235.Cl	12-May-2025	20-May-2025	28 days	8 days	✓	20-May-2025	28 days	8 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE SW1-07	E235.Cl	12-May-2025	20-May-2025	28 days	8 days	✓	20-May-2025	28 days	8 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE SW3-07	E235.Cl	12-May-2025	20-May-2025	28 days	8 days	✓	20-May-2025	28 days	8 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE SW5-19	E235.Cl	12-May-2025	20-May-2025	28 days	8 days	✓	20-May-2025	28 days	8 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE Outlet Ditch	E378-U	12-May-2025	20-May-2025	3 days	8 days	× EHTL	20-May-2025	3 days	8 days	× EHTL
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE Seepage Weir	E378-U	12-May-2025	20-May-2025	3 days	8 days	× EHTL	20-May-2025	3 days	8 days	× EHTL
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE Spillway Inlet	E378-U	12-May-2025	20-May-2025	3 days	8 days	× EHTL	20-May-2025	3 days	8 days	× EHTL
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE Spillway Outlet	E378-U	12-May-2025	20-May-2025	3 days	8 days	× EHTL	20-May-2025	3 days	8 days	× EHTL

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE SW1-07	E378-U	12-May-2025	20-May-2025	3 days	8 days	× EHTL	20-May-2025	3 days	8 days	× EHTL
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE SW3-07	E378-U	12-May-2025	20-May-2025	3 days	8 days	× EHTL	20-May-2025	3 days	8 days	× EHTL
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE SW5-19	E378-U	12-May-2025	20-May-2025	3 days	8 days	× EHTL	20-May-2025	3 days	8 days	× EHTL
Anions and Nutrients : Fluoride in Water by IC										
HDPE Outlet Ditch	E235.F	12-May-2025	20-May-2025	28 days	8 days	✓	20-May-2025	28 days	8 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE Seepage Weir	E235.F	12-May-2025	20-May-2025	28 days	8 days	✓	20-May-2025	28 days	8 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE Spillway Inlet	E235.F	12-May-2025	20-May-2025	28 days	8 days	✓	20-May-2025	28 days	8 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE Spillway Outlet	E235.F	12-May-2025	20-May-2025	28 days	8 days	✓	20-May-2025	28 days	8 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE SW1-07	E235.F	12-May-2025	20-May-2025	28 days	8 days	✓	20-May-2025	28 days	8 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE SW3-07	E235.F	12-May-2025	20-May-2025	28 days	8 days	✓	20-May-2025	28 days	8 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Fluoride in Water by IC										
HDPE SW5-19	E235.F	12-May-2025	20-May-2025	28 days	8 days	✓	20-May-2025	28 days	8 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE Outlet Ditch	E235.NO3-L	12-May-2025	20-May-2025	3 days	8 days	× EHTL	20-May-2025	3 days	8 days	× EHTL
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE Seepage Weir	E235.NO3-L	12-May-2025	20-May-2025	3 days	8 days	× EHTL	20-May-2025	3 days	8 days	× EHTL
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE Spillway Inlet	E235.NO3-L	12-May-2025	20-May-2025	3 days	8 days	× EHTL	20-May-2025	3 days	8 days	× EHTL
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE Spillway Outlet	E235.NO3-L	12-May-2025	20-May-2025	3 days	8 days	× EHTL	20-May-2025	3 days	8 days	× EHTL
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE SW1-07	E235.NO3-L	12-May-2025	20-May-2025	3 days	8 days	× EHTL	20-May-2025	3 days	8 days	× EHTL
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE SW3-07	E235.NO3-L	12-May-2025	20-May-2025	3 days	8 days	× EHTL	20-May-2025	3 days	8 days	× EHTL
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE SW5-19	E235.NO3-L	12-May-2025	20-May-2025	3 days	8 days	× EHTL	20-May-2025	3 days	8 days	× EHTL
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE Outlet Ditch	E235.NO2-L	12-May-2025	20-May-2025	3 days	8 days	× EHTL	20-May-2025	3 days	8 days	× EHTL

Matrix: **Water**

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Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE Seepage Weir	E235.NO2-L	12-May-2025	20-May-2025	3 days	8 days	× EHTL	20-May-2025	3 days	8 days	× EHTL
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE Spillway Inlet	E235.NO2-L	12-May-2025	20-May-2025	3 days	8 days	× EHTL	20-May-2025	3 days	8 days	× EHTL
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE Spillway Outlet	E235.NO2-L	12-May-2025	20-May-2025	3 days	8 days	× EHTL	20-May-2025	3 days	8 days	× EHTL
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE SW1-07	E235.NO2-L	12-May-2025	20-May-2025	3 days	8 days	× EHTL	20-May-2025	3 days	8 days	× EHTL
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE SW3-07	E235.NO2-L	12-May-2025	20-May-2025	3 days	8 days	× EHTL	20-May-2025	3 days	8 days	× EHTL
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE SW5-19	E235.NO2-L	12-May-2025	20-May-2025	3 days	8 days	× EHTL	20-May-2025	3 days	8 days	× EHTL
Anions and Nutrients : Sulfate in Water by IC										
HDPE Outlet Ditch	E235.SO4	12-May-2025	20-May-2025	28 days	8 days	✓	20-May-2025	28 days	8 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE Seepage Weir	E235.SO4	12-May-2025	20-May-2025	28 days	8 days	✓	20-May-2025	28 days	8 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE Spillway Inlet	E235.SO4	12-May-2025	20-May-2025	28 days	8 days	✓	20-May-2025	28 days	8 days	✓

Matrix: **Water**

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Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Sulfate in Water by IC										
HDPE Spillway Outlet	E235.SO4	12-May-2025	20-May-2025	28 days	8 days	✓	20-May-2025	28 days	8 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE SW1-07	E235.SO4	12-May-2025	20-May-2025	28 days	8 days	✓	20-May-2025	28 days	8 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE SW3-07	E235.SO4	12-May-2025	20-May-2025	28 days	8 days	✓	20-May-2025	28 days	8 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE SW5-19	E235.SO4	12-May-2025	20-May-2025	28 days	8 days	✓	20-May-2025	28 days	8 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) Outlet Ditch	E318	12-May-2025	16-May-2025	28 days	4 days	✓	22-May-2025	28 days	4 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) Seepage Weir	E318	12-May-2025	16-May-2025	28 days	4 days	✓	22-May-2025	28 days	4 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) Spillway Inlet	E318	12-May-2025	16-May-2025	28 days	4 days	✓	22-May-2025	28 days	4 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) Spillway Outlet	E318	12-May-2025	16-May-2025	28 days	4 days	✓	22-May-2025	28 days	4 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) SW1-07	E318	12-May-2025	16-May-2025	28 days	4 days	✓	22-May-2025	28 days	4 days	✓

Matrix: **Water**

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Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid)										
SW3-07	E318	12-May-2025	16-May-2025	28 days	4 days	✓	22-May-2025	28 days	4 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid)										
SW5-19	E318	12-May-2025	16-May-2025	28 days	4 days	✓	22-May-2025	28 days	4 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (field filtered/lab preserved)										
SW1-07	E509	12-May-2025	23-May-2025	28 days	10 days	✓	23-May-2025	28 days	10 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (field filtered/lab preserved)										
Outlet Ditch	E509	12-May-2025	23-May-2025	28 days	11 days	✓	23-May-2025	28 days	11 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (field filtered/lab preserved)										
Seepage Weir	E509	12-May-2025	23-May-2025	28 days	11 days	✓	23-May-2025	28 days	11 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (field filtered/lab preserved)										
Spillway Inlet	E509	12-May-2025	23-May-2025	28 days	11 days	✓	23-May-2025	28 days	11 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (field filtered/lab preserved)										
Spillway Outlet	E509	12-May-2025	23-May-2025	28 days	11 days	✓	23-May-2025	28 days	11 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (field filtered/lab preserved)										
SW3-07	E509	12-May-2025	23-May-2025	28 days	11 days	✓	23-May-2025	28 days	11 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (field filtered/lab preserved)										
SW5-19	E509	12-May-2025	23-May-2025	28 days	11 days	✓	23-May-2025	28 days	11 days	✓

Matrix: **Water**

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Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) Outlet Ditch	E421	12-May-2025	20-May-2025	180 days	8 days	✓	21-May-2025	180 days	8 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) Seepage Weir	E421	12-May-2025	20-May-2025	180 days	8 days	✓	21-May-2025	180 days	8 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) Spillway Inlet	E421	12-May-2025	20-May-2025	180 days	8 days	✓	21-May-2025	180 days	8 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) Spillway Outlet	E421	12-May-2025	20-May-2025	180 days	8 days	✓	21-May-2025	180 days	8 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) SW1-07	E421	12-May-2025	20-May-2025	180 days	8 days	✓	21-May-2025	180 days	8 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) SW3-07	E421	12-May-2025	20-May-2025	180 days	8 days	✓	21-May-2025	180 days	8 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) SW5-19	E421	12-May-2025	20-May-2025	180 days	8 days	✓	21-May-2025	180 days	8 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass - dissolved (field filtered/sulfuric acid) Outlet Ditch	E358-L	12-May-2025	16-May-2025	28 days	4 days	✓	16-May-2025	28 days	4 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass - dissolved (field filtered/sulfuric acid) Seepage Weir	E358-L	12-May-2025	16-May-2025	28 days	4 days	✓	16-May-2025	28 days	4 days	✓

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Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass - dissolved (field filtered/sulfuric acid)										
Spillway Inlet	E358-L	12-May-2025	16-May-2025	28 days	4 days	✓	16-May-2025	28 days	4 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass - dissolved (field filtered/sulfuric acid)										
Spillway Outlet	E358-L	12-May-2025	16-May-2025	28 days	4 days	✓	16-May-2025	28 days	4 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass - dissolved (field filtered/sulfuric acid)										
SW1-07	E358-L	12-May-2025	16-May-2025	28 days	4 days	✓	16-May-2025	28 days	4 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass - dissolved (field filtered/sulfuric acid)										
SW3-07	E358-L	12-May-2025	16-May-2025	28 days	4 days	✓	16-May-2025	28 days	4 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass - dissolved (field filtered/sulfuric acid)										
SW5-19	E358-L	12-May-2025	16-May-2025	28 days	4 days	✓	16-May-2025	28 days	4 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
Outlet Ditch	E355-L	12-May-2025	16-May-2025	28 days	4 days	✓	16-May-2025	28 days	4 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
Seepage Weir	E355-L	12-May-2025	16-May-2025	28 days	4 days	✓	16-May-2025	28 days	4 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
Spillway Inlet	E355-L	12-May-2025	16-May-2025	28 days	4 days	✓	16-May-2025	28 days	4 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
Spillway Outlet	E355-L	12-May-2025	16-May-2025	28 days	4 days	✓	16-May-2025	28 days	4 days	✓

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Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) SW1-07	E355-L	12-May-2025	16-May-2025	28 days	4 days	✓	16-May-2025	28 days	4 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) SW3-07	E355-L	12-May-2025	16-May-2025	28 days	4 days	✓	16-May-2025	28 days	4 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) SW5-19	E355-L	12-May-2025	16-May-2025	28 days	4 days	✓	16-May-2025	28 days	4 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE Outlet Ditch	E290	12-May-2025	20-May-2025	14 days	8 days	✓	20-May-2025	14 days	8 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE Seepage Weir	E290	12-May-2025	20-May-2025	14 days	8 days	✓	20-May-2025	14 days	8 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE Spillway Inlet	E290	12-May-2025	20-May-2025	14 days	8 days	✓	20-May-2025	14 days	8 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE Spillway Outlet	E290	12-May-2025	20-May-2025	14 days	8 days	✓	20-May-2025	14 days	8 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE SW1-07	E290	12-May-2025	20-May-2025	14 days	8 days	✓	20-May-2025	14 days	8 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE SW3-07	E290	12-May-2025	20-May-2025	14 days	8 days	✓	20-May-2025	14 days	8 days	✓

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Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Alkalinity Species by Titration										
HDPE SW5-19	E290	12-May-2025	20-May-2025	14 days	8 days	✓	20-May-2025	14 days	8 days	✓
Physical Tests : Conductivity in Water										
HDPE Outlet Ditch	E100	12-May-2025	20-May-2025	28 days	8 days	✓	20-May-2025	28 days	8 days	✓
Physical Tests : Conductivity in Water										
HDPE Seepage Weir	E100	12-May-2025	20-May-2025	28 days	8 days	✓	20-May-2025	28 days	8 days	✓
Physical Tests : Conductivity in Water										
HDPE Spillway Inlet	E100	12-May-2025	20-May-2025	28 days	8 days	✓	20-May-2025	28 days	8 days	✓
Physical Tests : Conductivity in Water										
HDPE Spillway Outlet	E100	12-May-2025	20-May-2025	28 days	8 days	✓	20-May-2025	28 days	8 days	✓
Physical Tests : Conductivity in Water										
HDPE SW1-07	E100	12-May-2025	20-May-2025	28 days	8 days	✓	20-May-2025	28 days	8 days	✓
Physical Tests : Conductivity in Water										
HDPE SW3-07	E100	12-May-2025	20-May-2025	28 days	8 days	✓	20-May-2025	28 days	8 days	✓
Physical Tests : Conductivity in Water										
HDPE SW5-19	E100	12-May-2025	20-May-2025	28 days	8 days	✓	20-May-2025	28 days	8 days	✓
Physical Tests : pH by Meter										
HDPE SW1-07	E108	12-May-2025	20-May-2025	0.25 hrs	192 hrs	× EHTR-FM	20-May-2025	0.25 hrs	192 hrs	× EHTR-FM

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			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : pH by Meter										
HDPE SW5-19	E108	12-May-2025	20-May-2025	0.25 hrs	192 hrs	× EHTR-FM	20-May-2025	0.25 hrs	192 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE SW3-07	E108	12-May-2025	20-May-2025	0.25 hrs	193 hrs	× EHTR-FM	20-May-2025	0.25 hrs	193 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE Seepage Weir	E108	12-May-2025	20-May-2025	0.25 hrs	194 hrs	× EHTR-FM	20-May-2025	0.25 hrs	194 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE Spillway Inlet	E108	12-May-2025	20-May-2025	0.25 hrs	194 hrs	× EHTR-FM	20-May-2025	0.25 hrs	194 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE Spillway Outlet	E108	12-May-2025	20-May-2025	0.25 hrs	194 hrs	× EHTR-FM	20-May-2025	0.25 hrs	194 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE Outlet Ditch	E108	12-May-2025	20-May-2025	0.25 hrs	195 hrs	× EHTR-FM	20-May-2025	0.25 hrs	195 hrs	× EHTR-FM
Physical Tests : TDS by Gravimetry										
HDPE Outlet Ditch	E162	12-May-2025	----	----	----		18-May-2025	7 days	6 days	✓
Physical Tests : TDS by Gravimetry										
HDPE Seepage Weir	E162	12-May-2025	----	----	----		18-May-2025	7 days	6 days	✓
Physical Tests : TDS by Gravimetry										
HDPE Spillway Inlet	E162	12-May-2025	----	----	----		18-May-2025	7 days	6 days	✓

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			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : TDS by Gravimetry										
HDPE Spillway Outlet	E162	12-May-2025	----	----	----		18-May-2025	7 days	6 days	✓
Physical Tests : TDS by Gravimetry										
HDPE SW1-07	E162	12-May-2025	----	----	----		18-May-2025	7 days	6 days	✓
Physical Tests : TDS by Gravimetry										
HDPE SW3-07	E162	12-May-2025	----	----	----		18-May-2025	7 days	6 days	✓
Physical Tests : TDS by Gravimetry										
HDPE SW5-19	E162	12-May-2025	----	----	----		18-May-2025	7 days	6 days	✓
Physical Tests : TSS by Gravimetry										
HDPE Outlet Ditch	E160	12-May-2025	----	----	----		17-May-2025	7 days	5 days	✓
Physical Tests : TSS by Gravimetry										
HDPE Seepage Weir	E160	12-May-2025	----	----	----		17-May-2025	7 days	5 days	✓
Physical Tests : TSS by Gravimetry										
HDPE Spillway Inlet	E160	12-May-2025	----	----	----		17-May-2025	7 days	5 days	✓
Physical Tests : TSS by Gravimetry										
HDPE Spillway Outlet	E160	12-May-2025	----	----	----		17-May-2025	7 days	5 days	✓
Physical Tests : TSS by Gravimetry										
HDPE SW1-07	E160	12-May-2025	----	----	----		17-May-2025	7 days	5 days	✓

Matrix: **Water**

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Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : TSS by Gravimetry										
HDPE SW3-07	E160	12-May-2025	----	----	----		17-May-2025	7 days	5 days	✓
Physical Tests : TSS by Gravimetry										
HDPE SW5-19	E160	12-May-2025	----	----	----		17-May-2025	7 days	5 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved / hydrochloric acid) Outlet Ditch	E508	12-May-2025	22-May-2025	28 days	10 days	✓	22-May-2025	28 days	10 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved / hydrochloric acid) Seepage Weir	E508	12-May-2025	22-May-2025	28 days	10 days	✓	22-May-2025	28 days	10 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved / hydrochloric acid) Spillway Inlet	E508	12-May-2025	22-May-2025	28 days	10 days	✓	22-May-2025	28 days	10 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved / hydrochloric acid) Spillway Outlet	E508	12-May-2025	22-May-2025	28 days	10 days	✓	22-May-2025	28 days	10 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved / hydrochloric acid) SW1-07	E508	12-May-2025	22-May-2025	28 days	10 days	✓	22-May-2025	28 days	10 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved / hydrochloric acid) SW3-07	E508	12-May-2025	22-May-2025	28 days	10 days	✓	22-May-2025	28 days	10 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved / hydrochloric acid) SW5-19	E508	12-May-2025	22-May-2025	28 days	10 days	✓	22-May-2025	28 days	10 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) Outlet Ditch	E420	12-May-2025	21-May-2025	180 days	9 days	✓	22-May-2025	180 days	9 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) Seepage Weir	E420	12-May-2025	21-May-2025	180 days	9 days	✓	22-May-2025	180 days	9 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) Spillway Inlet	E420	12-May-2025	21-May-2025	180 days	9 days	✓	22-May-2025	180 days	9 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) Spillway Outlet	E420	12-May-2025	21-May-2025	180 days	9 days	✓	22-May-2025	180 days	9 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) SW1-07	E420	12-May-2025	21-May-2025	180 days	9 days	✓	22-May-2025	180 days	9 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) SW3-07	E420	12-May-2025	21-May-2025	180 days	9 days	✓	22-May-2025	180 days	9 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) SW5-19	E420	12-May-2025	21-May-2025	180 days	9 days	✓	22-May-2025	180 days	9 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) Outlet Ditch	E395-H	12-May-2025	----	----	----		16-May-2025	7 days	4 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) Seepage Weir	E395-H	12-May-2025	----	----	----		16-May-2025	7 days	4 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide)										
Spillway Inlet	E395-H	12-May-2025	----	----	----		16-May-2025	7 days	4 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide)										
Spillway Outlet	E395-H	12-May-2025	----	----	----		16-May-2025	7 days	4 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide)										
SW1-07	E395-H	12-May-2025	----	----	----		16-May-2025	7 days	4 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide)										
SW3-07	E395-H	12-May-2025	----	----	----		16-May-2025	7 days	4 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide)										
SW5-19	E395-H	12-May-2025	----	----	----		16-May-2025	7 days	4 days	✓

Legend & Qualifier Definitions

EHTR-FM: Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended

EHTL: Exceeded ALS recommended hold time prior to analysis. Sample was received less than 24 hours prior to expiry.

Rec. HT: ALS recommended hold time (see units).

Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Water**

Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
Conductivity in Water	E100	2005110	1	20	5.0	5.0	✓
pH by Meter	E108	2005108	1	20	5.0	5.0	✓
TSS by Gravimetry	E160	2002912	2	21	9.5	5.0	✓
TDS by Gravimetry	E162	2002919	2	21	9.5	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	2005114	1	12	8.3	5.0	✓
Chloride in Water by IC	E235.Cl	2005113	1	20	5.0	5.0	✓
Fluoride in Water by IC	E235.F	2005112	1	12	8.3	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	2005116	1	20	5.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	2005115	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	2005117	1	20	5.0	5.0	✓
Alkalinity Species by Titration	E290	2005109	1	20	5.0	5.0	✓
Ammonia by Fluorescence	E298	2000754	1	20	5.0	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	2000755	1	9	11.1	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	2000756	1	9	11.1	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	2000753	1	20	5.0	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	2005111	1	20	5.0	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395-H	2000877	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	2000822	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	2000872	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	2009700	1	20	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	2010831	1	20	5.0	5.0	✓
Laboratory Control Samples (LCS)							
Conductivity in Water	E100	2005110	1	20	5.0	5.0	✓
pH by Meter	E108	2005108	1	20	5.0	5.0	✓
TSS by Gravimetry	E160	2002912	2	21	9.5	5.0	✓
TDS by Gravimetry	E162	2002919	2	21	9.5	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	2005114	1	12	8.3	5.0	✓
Chloride in Water by IC	E235.Cl	2005113	1	20	5.0	5.0	✓
Fluoride in Water by IC	E235.F	2005112	1	12	8.3	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	2005116	1	20	5.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	2005115	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	2005117	1	20	5.0	5.0	✓
Alkalinity Species by Titration	E290	2005109	1	20	5.0	5.0	✓
Ammonia by Fluorescence	E298	2000754	1	20	5.0	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	2000755	1	9	11.1	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	2000756	1	9	11.1	5.0	✓

Matrix: **Water**

Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Control Samples (LCS) - Continued							
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	2000753	1	20	5.0	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	2005111	1	20	5.0	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395-H	2000877	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	2000822	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	2000872	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	2009700	1	20	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	2010831	1	20	5.0	5.0	✓
Method Blanks (MB)							
Conductivity in Water	E100	2005110	1	20	5.0	5.0	✓
TSS by Gravimetry	E160	2002912	2	21	9.5	5.0	✓
TDS by Gravimetry	E162	2002919	2	21	9.5	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	2005114	1	12	8.3	5.0	✓
Chloride in Water by IC	E235.Cl	2005113	1	20	5.0	5.0	✓
Fluoride in Water by IC	E235.F	2005112	1	12	8.3	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	2005116	1	20	5.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	2005115	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	2005117	1	20	5.0	5.0	✓
Alkalinity Species by Titration	E290	2005109	1	20	5.0	5.0	✓
Ammonia by Fluorescence	E298	2000754	1	20	5.0	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	2000755	1	9	11.1	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	2000756	1	9	11.1	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	2000753	1	20	5.0	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	2005111	1	20	5.0	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395-H	2000877	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	2000822	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	2000872	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	2009700	1	20	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	2010831	1	20	5.0	5.0	✓
Matrix Spikes (MS)							
Bromide in Water by IC (Low Level)	E235.Br-L	2005114	1	12	8.3	5.0	✓
Chloride in Water by IC	E235.Cl	2005113	1	20	5.0	5.0	✓
Fluoride in Water by IC	E235.F	2005112	1	12	8.3	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	2005116	1	20	5.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	2005115	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	2005117	1	20	5.0	5.0	✓
Ammonia by Fluorescence	E298	2000754	1	20	5.0	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	2000755	1	9	11.1	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	2000756	1	9	11.1	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	2000753	1	20	5.0	5.0	✓

Matrix: **Water**

Evaluation: × = *QC frequency outside specification*; ✓ = *QC frequency within specification.*

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Matrix Spikes (MS) - Continued							
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	2005111	1	20	5.0	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395-H	2000877	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	2000822	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	2000872	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	2009700	1	20	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	2010831	1	20	5.0	5.0	✓

Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Conductivity in Water	E100 ALS Environmental - Vancouver	Water	APHA 2510 (mod)	Conductivity, also known as Electrical Conductivity (EC) or Specific Conductance, is measured by immersion of a conductivity cell with platinum electrodes into a water sample. Conductivity measurements are temperature-compensated to 25°C.
pH by Meter	E108 ALS Environmental - Vancouver	Water	APHA 4500-H (mod)	pH is determined by potentiometric measurement with a pH electrode, and is conducted at ambient laboratory temperature (normally 20 ± 5°C). For high accuracy test results, pH should be measured in the field within the recommended 15 minute hold time.
TSS by Gravimetry	E160 ALS Environmental - Vancouver	Water	APHA 2540 D (mod)	Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, following by drying of the filter at 104 ± 1°C, with gravimetric measurement of the filtered solids. Samples containing very high dissolved solid content (i.e. seawaters, brackish waters) may produce a positive bias by this method. Alternate analysis methods are available for these types of samples.
TDS by Gravimetry	E162 ALS Environmental - Vancouver	Water	APHA 2540 C (mod)	Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, with evaporation of the filtrate at 180 ± 2°C for 16 hours or to constant weight, with gravimetric measurement of the residue.
Bromide in Water by IC (Low Level)	E235.Br-L ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Chloride in Water by IC	E235.Cl ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Fluoride in Water by IC	E235.F ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrite in Water by IC (Low Level)	E235.NO2-L ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrate in Water by IC (Low Level)	E235.NO3-L ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Sulfate in Water by IC	E235.SO4 ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Alkalinity Species by Titration	E290 ALS Environmental - Vancouver	Water	APHA 2320 B (mod)	Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.
Ammonia by Fluorescence	E298 ALS Environmental - Vancouver	Water	Method Fialab 100, 2018	Ammonia in water is determined by automated continuous flow analysis with membrane diffusion and fluorescence detection, after reaction with OPA (ortho-phthalaldehyde). This method is approved under US EPA 40 CFR Part 136 (May 2021)
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318 ALS Environmental - Vancouver	Water	Method Fialab 100, 2018	TKN in water is determined by automated continuous flow analysis with membrane diffusion and fluorescence detection, after reaction with OPA (ortho-phthalaldehyde). This method is approved under US EPA 40 CFR Part 136 (May 2021).
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L ALS Environmental - Vancouver	Water	APHA 5310 B (mod)	Total Organic Carbon (Non-Purgeable), also known as NPOC (total), is a direct measurement of TOC after an acidified sample has been purged to remove carbonate-based Inorganic Carbon (IC). Analysis is by high temperature combustion with infrared detection of CO2. Forms of carbon associated with inorganic or organic molecules (e.g. SCN and CN) are included in NPOC if they are not removed by purging under acidic conditions. Notably, NPOC excludes most volatile organic compounds and free cyanide. For samples where the majority of Total Carbon is inorganic, this method provides greater accuracy and reliability versus the TOC by subtraction method (TC minus TIC).
Dissolved Organic Carbon by Combustion (Low Level)	E358-L ALS Environmental - Vancouver	Water	APHA 5310 B (mod)	Dissolved Organic Carbon (Non-Purgeable), also known as NPOC (dissolved), is a direct measurement of DOC after a filtered (0.45 micron) sample has been acidified and purged to remove inorganic carbon (IC). Analysis is by high temperature combustion with infrared detection of CO2. NPOC does not include volatile organic species that are purged off with IC. For samples where the majority of DC (dissolved carbon) is comprised of IC (which is common), this method is more accurate and more reliable than the DOC by subtraction method (i.e. DC minus DIC).
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U ALS Environmental - Vancouver	Water	APHA 4500-P F (mod)	Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter. Field filtration is recommended to ensure test results represent conditions at time of sampling.
Total Sulfide by Colourimetry (Automated Flow)	E395-H ALS Environmental - Vancouver	Water	APHA 4500 -S E-Auto-Colorimetry	Sulfide is determined using the gas dialysis automated methlyene blue colourimetric method. Results expressed "as H2S" if reported represent the maximum possible H2S concentration based on the total sulfide concentration in the sample. The H2S calculation converts Total Sulphide as (S2-) and reports it as Total Sulphide as (H2S)

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Total Metals in Water by CRC ICPMS	E420 ALS Environmental - Vancouver	Water	EPA 200.2/6020B (mod)	Water samples are digested with nitric and hydrochloric acids, and analyzed by Collision/Reaction Cell ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
Dissolved Metals in Water by CRC ICPMS	E421 ALS Environmental - Vancouver	Water	APHA 3030B/EPA 6020B (mod)	Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by Collision/Reaction Cell ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
Total Mercury in Water by CVAAS	E508 ALS Environmental - Vancouver	Water	EPA 1631E (mod)	Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS
Dissolved Mercury in Water by CVAAS	E509 ALS Environmental - Vancouver	Water	APHA 3030B/EPA 1631E (mod)	Water samples are filtered (0.45 um), preserved with HCl, then undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS.
Dissolved Hardness (Calculated)	EC100 ALS Environmental - Vancouver	Water	APHA 2340B	“Hardness (as CaCO3), dissolved” is calculated from the sum of dissolved Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. “Total Hardness” refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because it is a property of water due to dissolved divalent cations.
Hardness (Calculated) from Total Ca/Mg	EC100A ALS Environmental - Vancouver	Water	APHA 2340B	“Hardness (as CaCO3), from total Ca/Mg” is calculated from the sum of total Calcium and Magnesium concentrations, expressed as CaCO3 equivalents. “Total Hardness” refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because hardness is a property of water due to dissolved divalent cations. In non-turbid waters, Hardness from total Ca/Mg is normally comparable to Dissolved Hardness, but may be biased high if particulate forms of Ca or Mg are present.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Ammonia	EP298 ALS Environmental - Vancouver	Water		Sample preparation for Preserved Nutrients Water Quality Analysis.
Digestion for TKN in water	EP318 ALS Environmental - Vancouver	Water	APHA 4500-Norg D (mod)	Samples are digested at high temperature using Sulfuric Acid with Copper catalyst, which converts organic nitrogen sources to Ammonia, which is then quantified by the analytical method as TKN. This method is unsuitable for samples containing high levels of nitrate. If nitrate exceeds TKN concentration by ten times or more, results may be biased low.
Preparation for Total Organic Carbon by Combustion	EP355 ALS Environmental - Vancouver	Water		Preparation for Total Organic Carbon by Combustion

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Dissolved Organic Carbon for Combustion	EP358 ALS Environmental - Vancouver	Water	APHA 5310 B (mod)	Preparation for Dissolved Organic Carbon
Dissolved Metals Water Filtration	EP421 ALS Environmental - Vancouver	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HNO3.
Dissolved Mercury Water Filtration	EP509 ALS Environmental - Vancouver	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HCl.

QUALITY CONTROL REPORT

Work Order	: **VA25B1332**	Page	: 1 of 17
Amendment	: **1**		
Client	: Masse Environmental Consultants Ltd.	Laboratory	: ALS Environmental - Vancouver
Contact	: Ico de Zwart	Account Manager	: Can Dang
Address	: 812 Vernon Street Nelson BC Canada V1L 4G4	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: ----	Telephone	: +1 604 253 4188
Project	: 2016-503-HB	Date Samples Received	: 15-May-2025 12:00
PO	: ----	Date Analysis Commenced	: 16-May-2025
C-O-C number	: 22-20240514-2	Issue Date	: 27-May-2025 15:49
Sampler	: ----		
Site	: RDCK		
Quote number	: ----		
No. of samples received	: 7		
No. of samples analysed	: 7		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percent Difference (RPD) and Data Quality Objectives
- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Angela Ren	Team Leader - Metals	Vancouver Metals, Burnaby, British Columbia
Angelo Salandanan	Lab Assistant	Vancouver Metals, Burnaby, British Columbia
Claire Yang	Lab Assistant	Vancouver Inorganics, Burnaby, British Columbia
Dan Gebert	Supervisor - Metals Mercury & Speciation	Vancouver Metals, Burnaby, British Columbia
Leon Yang	Analyst	Vancouver Inorganics, Burnaby, British Columbia
Owen Cheng		Vancouver Metals, Burnaby, British Columbia

General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number = Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO = Data Quality Objective.
LOR = Limit of Reporting (detection limit).
RPD = Relative Percent Difference
# = Indicates a QC result that did not meet the ALS DQO.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test-specific).

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Physical Tests (QC Lot: 2002912)											
FJ2501382-001	Anonymous	Solids, total suspended [TSS]	----	E160	3.0	mg/L	4.7	<3.0	1.7	Diff <2x LOR	----
Physical Tests (QC Lot: 2002913)											
VA25B1332-008	Outlet Ditch	Solids, total suspended [TSS]	----	E160	3.0	mg/L	4.1	<3.0	1.1	Diff <2x LOR	----
Physical Tests (QC Lot: 2002919)											
FJ2501382-001	Anonymous	Solids, total dissolved [TDS]	----	E162	20	mg/L	910	868	4.72%	20%	----
Physical Tests (QC Lot: 2002920)											
VA25B1332-008	Outlet Ditch	Solids, total dissolved [TDS]	----	E162	20	mg/L	225	208	8.09%	20%	----
Physical Tests (QC Lot: 2005108)											
VA25B0898-003	Anonymous	pH	----	E108	0.10	pH units	8.24	8.24	0.00%	4%	----
Physical Tests (QC Lot: 2005109)											
VA25B0898-003	Anonymous	Alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	201	203	0.700%	20%	----
Physical Tests (QC Lot: 2005110)											
VA25B0898-003	Anonymous	Conductivity	----	E100	2.0	µS/cm	1170	1170	0.171%	10%	----
Anions and Nutrients (QC Lot: 2000754)											
VA25B1327-001	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	0.347	0.350	1.06%	20%	----
Anions and Nutrients (QC Lot: 2000755)											
VA25B1332-004	SW5-19	Kjeldahl nitrogen, total [TKN]	----	E318	0.050	mg/L	0.060	0.056	0.004	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 2005111)											
VA25B0898-001	Anonymous	Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 2005112)											
VA25B0898-001	Anonymous	Fluoride	16984-48-8	E235.F	0.100	mg/L	<0.100	<0.100	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 2005113)											
VA25B0898-001	Anonymous	Chloride	16887-00-6	E235.Cl	2.50	mg/L	24.9	24.9	0.007	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 2005114)											
VA25B0898-001	Anonymous	Bromide	24959-67-9	E235.Br-L	0.250	mg/L	<0.250	<0.250	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 2005115)											
VA25B0898-001	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	0.0250	mg/L	5.66	5.68	0.358%	20%	----
Anions and Nutrients (QC Lot: 2005116)											
VA25B0898-001	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	0.0050	mg/L	1.71	1.71	0.0316%	20%	----
Anions and Nutrients (QC Lot: 2005117)											

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Anions and Nutrients (QC Lot: 2005117) - continued											
VA25B0898-001	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	1.50	mg/L	205	204	0.552%	20%	----
Organic / Inorganic Carbon (QC Lot: 2000753)											
VA25B1327-001	Anonymous	Carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	3.86	3.96	0.10	Diff <2x LOR	----
Organic / Inorganic Carbon (QC Lot: 2000756)											
VA25B1332-001	SW1-07	Carbon, total organic [TOC]	----	E355-L	0.50	mg/L	22.4	24.1	7.18%	20%	----
Total Sulfides (QC Lot: 2000877)											
FJ2501349-001	Anonymous	Sulfide, total (as S)	18496-25-8	E395-H	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
Total Metals (QC Lot: 2000822)											
VA25B1327-001	Anonymous	Aluminum, total	7429-90-5	E420	0.0030	mg/L	0.0839	0.0784	6.79%	20%	----
		Antimony, total	7440-36-0	E420	0.00010	mg/L	0.00018	0.00018	0.000005	Diff <2x LOR	----
		Arsenic, total	7440-38-2	E420	0.00010	mg/L	0.00280	0.00288	2.61%	20%	----
		Barium, total	7440-39-3	E420	0.00010	mg/L	0.109	0.113	3.15%	20%	----
		Beryllium, total	7440-41-7	E420	0.000020	mg/L	<0.000020	<0.000020	0	Diff <2x LOR	----
		Bismuth, total	7440-69-9	E420	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Boron, total	7440-42-8	E420	0.010	mg/L	0.042	0.042	0.00007	Diff <2x LOR	----
		Cadmium, total	7440-43-9	E420	0.0000050	mg/L	0.0000965	0.000107	9.97%	20%	----
		Calcium, total	7440-70-2	E420	0.050	mg/L	263	265	0.766%	20%	----
		Cesium, total	7440-46-2	E420	0.000010	mg/L	0.000032	0.000031	0.0000008	Diff <2x LOR	----
		Chromium, total	7440-47-3	E420	0.00050	mg/L	<0.00050	0.00051	0.00001	Diff <2x LOR	----
		Cobalt, total	7440-48-4	E420	0.00010	mg/L	0.00086	0.00088	0.00002	Diff <2x LOR	----
		Copper, total	7440-50-8	E420	0.00050	mg/L	0.00531	0.00522	1.80%	20%	----
		Iron, total	7439-89-6	E420	0.010	mg/L	0.958	0.962	0.458%	20%	----
		Lead, total	7439-92-1	E420	0.000050	mg/L	0.000076	0.000075	0.0000002	Diff <2x LOR	----
		Lithium, total	7439-93-2	E420	0.0010	mg/L	0.0010	0.0010	0.00002	Diff <2x LOR	----
		Magnesium, total	7439-95-4	E420	0.100	mg/L	68.6	66.8	2.65%	20%	----
		Manganese, total	7439-96-5	E420	0.00010	mg/L	8.96	8.85	1.19%	20%	----
		Molybdenum, total	7439-98-7	E420	0.000050	mg/L	0.0183	0.0179	1.94%	20%	----
		Nickel, total	7440-02-0	E420	0.00050	mg/L	0.00135	0.00138	0.00003	Diff <2x LOR	----
		Phosphorus, total	7723-14-0	E420	0.050	mg/L	0.193	0.165	0.028	Diff <2x LOR	----
		Potassium, total	7440-09-7	E420	0.100	mg/L	22.1	22.0	0.669%	20%	----
		Rubidium, total	7440-17-7	E420	0.00020	mg/L	0.00172	0.00182	0.00009	Diff <2x LOR	----
		Selenium, total	7782-49-2	E420	0.000050	mg/L	0.000651	0.000782	18.3%	20%	----
		Silicon, total	7440-21-3	E420	0.10	mg/L	8.47	8.50	0.338%	20%	----
		Silver, total	7440-22-4	E420	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Total Metals (QC Lot: 2000822) - continued											
VA25B1327-001	Anonymous	Sodium, total	7440-23-5	E420	0.050	mg/L	59.3	58.5	1.32%	20%	----
		Strontium, total	7440-24-6	E420	0.00020	mg/L	1.14	1.13	1.12%	20%	----
		Sulfur, total	7704-34-9	E420	0.50	mg/L	292	292	0.0596%	20%	----
		Tellurium, total	13494-80-9	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		Thallium, total	7440-28-0	E420	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Thorium, total	7440-29-1	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Tin, total	7440-31-5	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Titanium, total	7440-32-6	E420	0.00030	mg/L	0.00490	0.00506	3.23%	20%	----
		Tungsten, total	7440-33-7	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Uranium, total	7440-61-1	E420	0.000010	mg/L	0.00142	0.00136	4.67%	20%	----
		Vanadium, total	7440-62-2	E420	0.00050	mg/L	0.00070	0.00072	0.00003	Diff <2x LOR	----
		Zinc, total	7440-66-6	E420	0.0030	mg/L	0.0030	0.0030	0.000002	Diff <2x LOR	----
		Zirconium, total	7440-67-7	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
Total Metals (QC Lot: 2009700)											
KS2501751-001	Anonymous	Mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 2000872)											
VA25B1331-001	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	0.0015	<0.0010	0.0005	Diff <2x LOR	----
		Antimony, dissolved	7440-36-0	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	0.00182	0.00180	1.09%	20%	----
		Barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.0718	0.0729	1.47%	20%	----
		Beryllium, dissolved	7440-41-7	E421	0.000020	mg/L	<0.000020	<0.000020	0	Diff <2x LOR	----
		Bismuth, dissolved	7440-69-9	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Boron, dissolved	7440-42-8	E421	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		Cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L	0.0000066	0.0000083	0.0000017	Diff <2x LOR	----
		Calcium, dissolved	7440-70-2	E421	0.050	mg/L	96.2	99.8	3.77%	20%	----
		Cesium, dissolved	7440-46-2	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Chromium, dissolved	7440-47-3	E421	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Cobalt, dissolved	7440-48-4	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Copper, dissolved	7440-50-8	E421	0.00020	mg/L	0.00062	0.00064	0.00001	Diff <2x LOR	----
		Iron, dissolved	7439-89-6	E421	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		Lead, dissolved	7439-92-1	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Lithium, dissolved	7439-93-2	E421	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Magnesium, dissolved	7439-95-4	E421	0.100	mg/L	19.5	19.9	1.94%	20%	----
		Manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.00262	0.00269	2.57%	20%	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Dissolved Metals (QC Lot: 2000872) - continued											
VA25B1331-001	Anonymous	Molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.00119	0.00114	4.17%	20%	----
		Nickel, dissolved	7440-02-0	E421	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Phosphorus, dissolved	7723-14-0	E421	0.050	mg/L	<0.050	0.052	0.002	Diff <2x LOR	----
		Potassium, dissolved	7440-09-7	E421	0.100	mg/L	1.65	1.74	5.41%	20%	----
		Rubidium, dissolved	7440-17-7	E421	0.00020	mg/L	0.00035	0.00038	0.00003	Diff <2x LOR	----
		Selenium, dissolved	7782-49-2	E421	0.000050	mg/L	0.000199	0.000251	0.000052	Diff <2x LOR	----
		Silicon, dissolved	7440-21-3	E421	0.050	mg/L	5.71	5.69	0.440%	20%	----
		Silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Sodium, dissolved	7440-23-5	E421	0.050	mg/L	7.17	7.39	3.06%	20%	----
		Strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.300	0.306	1.93%	20%	----
		Sulfur, dissolved	7704-34-9	E421	0.50	mg/L	81.2	79.0	2.85%	20%	----
		Tellurium, dissolved	13494-80-9	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		Thallium, dissolved	7440-28-0	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Thorium, dissolved	7440-29-1	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Tin, dissolved	7440-31-5	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Titanium, dissolved	7440-32-6	E421	0.00030	mg/L	<0.00030	<0.00030	0	Diff <2x LOR	----
		Tungsten, dissolved	7440-33-7	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Uranium, dissolved	7440-61-1	E421	0.000010	mg/L	0.000280	0.000281	0.378%	20%	----
		Vanadium, dissolved	7440-62-2	E421	0.00050	mg/L	0.00102	0.00105	0.00003	Diff <2x LOR	----
		Zinc, dissolved	7440-66-6	E421	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Zirconium, dissolved	7440-67-7	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 2010831)											
VA25B1222-003	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----

Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 2002912)						
Solids, total suspended [TSS]	----	E160	3	mg/L	<3.0	----
Physical Tests (QCLot: 2002913)						
Solids, total suspended [TSS]	----	E160	3	mg/L	<3.0	----
Physical Tests (QCLot: 2002919)						
Solids, total dissolved [TDS]	----	E162	10	mg/L	<10	----
Physical Tests (QCLot: 2002920)						
Solids, total dissolved [TDS]	----	E162	10	mg/L	<10	----
Physical Tests (QCLot: 2005109)						
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	<1.0	----
Physical Tests (QCLot: 2005110)						
Conductivity	----	E100	1	µS/cm	<1.0	----
Anions and Nutrients (QCLot: 2000754)						
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 2000755)						
Kjeldahl nitrogen, total [TKN]	----	E318	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 2005111)						
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 2005112)						
Fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 2005113)						
Chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 2005114)						
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 2005115)						
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 2005116)						
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 2005117)						
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	----
Organic / Inorganic Carbon (QCLot: 2000753)						
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	<0.50	----
Organic / Inorganic Carbon (QCLot: 2000756)						

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Organic / Inorganic Carbon (QCLot: 2000756) - continued						
Carbon, total organic [TOC]	----	E355-L	0.5	mg/L	<0.50	----
Total Sulfides (QCLot: 2000877)						
Sulfide, total (as S)	18496-25-8	E395-H	0.01	mg/L	<0.010	----
Total Metals (QCLot: 2000822)						
Aluminum, total	7429-90-5	E420	0.003	mg/L	<0.0030	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	<0.00010	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	<0.00010	----
Barium, total	7440-39-3	E420	0.0001	mg/L	<0.00010	----
Beryllium, total	7440-41-7	E420	0.00002	mg/L	<0.000020	----
Bismuth, total	7440-69-9	E420	0.00005	mg/L	<0.000050	----
Boron, total	7440-42-8	E420	0.01	mg/L	<0.010	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	<0.0000050	----
Calcium, total	7440-70-2	E420	0.05	mg/L	<0.050	----
Cesium, total	7440-46-2	E420	0.00001	mg/L	<0.000010	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	<0.00050	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	<0.00010	----
Copper, total	7440-50-8	E420	0.0005	mg/L	<0.00050	----
Iron, total	7439-89-6	E420	0.01	mg/L	<0.010	----
Lead, total	7439-92-1	E420	0.00005	mg/L	<0.000050	----
Lithium, total	7439-93-2	E420	0.001	mg/L	<0.0010	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	<0.0050	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	<0.00010	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	<0.000050	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	<0.00050	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	<0.050	----
Potassium, total	7440-09-7	E420	0.05	mg/L	<0.050	----
Rubidium, total	7440-17-7	E420	0.0002	mg/L	<0.00020	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	<0.000050	----
Silicon, total	7440-21-3	E420	0.1	mg/L	<0.10	----
Silver, total	7440-22-4	E420	0.00001	mg/L	<0.000010	----
Sodium, total	7440-23-5	E420	0.05	mg/L	<0.050	----
Strontium, total	7440-24-6	E420	0.0002	mg/L	<0.00020	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	<0.50	----
Tellurium, total	13494-80-9	E420	0.0002	mg/L	<0.00020	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	<0.000010	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (QCLot: 2000822) - continued						
Thorium, total	7440-29-1	E420	0.0001	mg/L	<0.00010	----
Tin, total	7440-31-5	E420	0.0001	mg/L	<0.00010	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	<0.00030	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	<0.00010	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	<0.000010	----
Vanadium, total	7440-62-2	E420	0.0005	mg/L	<0.00050	----
Zinc, total	7440-66-6	E420	0.003	mg/L	<0.0030	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	<0.00020	----
Total Metals (QCLot: 2009700)						
Mercury, total	7439-97-6	E508	0.000005	mg/L	<0.0000050	----
Dissolved Metals (QCLot: 2000872)						
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	<0.0010	----
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	<0.00010	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	<0.00010	----
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	<0.00010	----
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	<0.000020	----
Bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	<0.000050	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	<0.010	----
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	<0.0000050	----
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	<0.050	----
Cesium, dissolved	7440-46-2	E421	0.00001	mg/L	<0.000010	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	<0.00050	----
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	<0.00010	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	<0.00020	----
Iron, dissolved	7439-89-6	E421	0.01	mg/L	<0.010	----
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	<0.000050	----
Lithium, dissolved	7439-93-2	E421	0.001	mg/L	<0.0010	----
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	<0.0050	----
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	<0.00010	----
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	<0.000050	----
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	<0.00050	----
Phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	<0.050	----
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	<0.050	----
Rubidium, dissolved	7440-17-7	E421	0.0002	mg/L	<0.00020	----
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	<0.000050	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Dissolved Metals (QCLot: 2000872) - continued						
Silicon, dissolved	7440-21-3	E421	0.05	mg/L	<0.050	----
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	<0.000010	----
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	<0.050	----
Strontium, dissolved	7440-24-6	E421	0.0002	mg/L	<0.00020	----
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	<0.50	----
Tellurium, dissolved	13494-80-9	E421	0.0002	mg/L	<0.00020	----
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	<0.000010	----
Thorium, dissolved	7440-29-1	E421	0.0001	mg/L	<0.00010	----
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	<0.00010	----
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	<0.00030	----
Tungsten, dissolved	7440-33-7	E421	0.0001	mg/L	<0.00010	----
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	<0.000010	----
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	<0.00050	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	<0.0010	----
Zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	<0.00020	----
Dissolved Metals (QCLot: 2010831)						
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	<0.0000050	----

Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 2002912)									
Solids, total suspended [TSS]	----	E160	3	mg/L	150 mg/L	87.5	85.0	115	----
Physical Tests (QCLot: 2002913)									
Solids, total suspended [TSS]	----	E160	3	mg/L	150 mg/L	88.2	85.0	115	----
Physical Tests (QCLot: 2002919)									
Solids, total dissolved [TDS]	----	E162	10	mg/L	1000 mg/L	96.9	85.0	115	----
Physical Tests (QCLot: 2002920)									
Solids, total dissolved [TDS]	----	E162	10	mg/L	1000 mg/L	98.7	85.0	115	----
Physical Tests (QCLot: 2005108)									
pH	----	E108	----	pH units	7 pH units	100	98.0	102	----
Physical Tests (QCLot: 2005109)									
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	500 mg/L	105	85.0	115	----
Physical Tests (QCLot: 2005110)									
Conductivity	----	E100	1	µS/cm	147 µS/cm	100	90.0	110	----
Anions and Nutrients (QCLot: 2000754)									
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	101	85.0	115	----
Anions and Nutrients (QCLot: 2000755)									
Kjeldahl nitrogen, total [TKN]	----	E318	0.05	mg/L	4 mg/L	108	75.0	125	----
Anions and Nutrients (QCLot: 2005111)									
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.001	mg/L	0.03 mg/L	95.7	80.0	120	----
Anions and Nutrients (QCLot: 2005112)									
Fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 2005113)									
Chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	102	90.0	110	----
Anions and Nutrients (QCLot: 2005114)									
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	0.5 mg/L	101	85.0	115	----
Anions and Nutrients (QCLot: 2005115)									
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	2.5 mg/L	103	90.0	110	----
Anions and Nutrients (QCLot: 2005116)									
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	0.5 mg/L	100	90.0	110	----
Anions and Nutrients (QCLot: 2005117)									
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	103	90.0	110	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Organic / Inorganic Carbon (QCLot: 2000753)									
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	8.57 mg/L	93.7	80.0	120	----
Organic / Inorganic Carbon (QCLot: 2000756)									
Carbon, total organic [TOC]	----	E355-L	0.5	mg/L	8.57 mg/L	102	80.0	120	----
Total Sulfides (QCLot: 2000877)									
Sulfide, total (as H2S)	7783-06-4	E395-H	----	mg/L	0.085 mg/L	104	80.0	120	----
Sulfide, total (as S)	18496-25-8	E395-H	0.01	mg/L	0.08 mg/L	104	80.0	120	----
Total Metals (QCLot: 2000822)									
Aluminum, total	7429-90-5	E420	0.003	mg/L	2 mg/L	98.9	80.0	120	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	1 mg/L	100	80.0	120	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	1 mg/L	103	80.0	120	----
Barium, total	7440-39-3	E420	0.0001	mg/L	0.25 mg/L	98.0	80.0	120	----
Beryllium, total	7440-41-7	E420	0.00002	mg/L	0.1 mg/L	99.2	80.0	120	----
Bismuth, total	7440-69-9	E420	0.00005	mg/L	1 mg/L	104	80.0	120	----
Boron, total	7440-42-8	E420	0.01	mg/L	1 mg/L	101	80.0	120	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	0.1 mg/L	97.9	80.0	120	----
Calcium, total	7440-70-2	E420	0.05	mg/L	50 mg/L	99.7	80.0	120	----
Cesium, total	7440-46-2	E420	0.00001	mg/L	0.05 mg/L	104	80.0	120	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	0.25 mg/L	102	80.0	120	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	0.25 mg/L	98.9	80.0	120	----
Copper, total	7440-50-8	E420	0.0005	mg/L	0.25 mg/L	100	80.0	120	----
Iron, total	7439-89-6	E420	0.01	mg/L	1 mg/L	98.0	80.0	120	----
Lead, total	7439-92-1	E420	0.00005	mg/L	0.5 mg/L	100	80.0	120	----
Lithium, total	7439-93-2	E420	0.001	mg/L	0.25 mg/L	97.3	80.0	120	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	50 mg/L	101	80.0	120	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	0.25 mg/L	95.3	80.0	120	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	0.25 mg/L	104	80.0	120	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	0.5 mg/L	98.2	80.0	120	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	10 mg/L	114	80.0	120	----
Potassium, total	7440-09-7	E420	0.05	mg/L	50 mg/L	99.2	80.0	120	----
Rubidium, total	7440-17-7	E420	0.0002	mg/L	0.1 mg/L	99.2	80.0	120	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	1 mg/L	99.3	80.0	120	----
Silicon, total	7440-21-3	E420	0.1	mg/L	10 mg/L	99.4	80.0	120	----
Silver, total	7440-22-4	E420	0.00001	mg/L	0.1 mg/L	92.1	80.0	120	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Total Metals (QCLot: 2000822) - continued									
Sodium, total	7440-23-5	E420	0.05	mg/L	50 mg/L	105	80.0	120	----
Strontium, total	7440-24-6	E420	0.0002	mg/L	0.25 mg/L	100	80.0	120	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	50 mg/L	95.2	80.0	120	----
Tellurium, total	13494-80-9	E420	0.0002	mg/L	0.1 mg/L	96.3	80.0	120	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	1 mg/L	102	80.0	120	----
Thorium, total	7440-29-1	E420	0.0001	mg/L	0.1 mg/L	103	80.0	120	----
Tin, total	7440-31-5	E420	0.0001	mg/L	0.5 mg/L	99.5	80.0	120	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	0.25 mg/L	98.1	80.0	120	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	0.1 mg/L	99.4	80.0	120	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	0.005 mg/L	108	80.0	120	----
Vanadium, total	7440-62-2	E420	0.0005	mg/L	0.5 mg/L	101	80.0	120	----
Zinc, total	7440-66-6	E420	0.003	mg/L	0.5 mg/L	98.0	80.0	120	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	0.1 mg/L	99.5	80.0	120	----
Total Metals (QCLot: 2009700)									
Mercury, total	7439-97-6	E508	0.000005	mg/L	0 mg/L	94.1	80.0	120	----
Dissolved Metals (QCLot: 2000872)									
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	2 mg/L	95.8	80.0	120	----
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	1 mg/L	100	80.0	120	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	1 mg/L	103	80.0	120	----
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	0.25 mg/L	96.7	80.0	120	----
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	0.1 mg/L	98.2	80.0	120	----
Bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	1 mg/L	98.0	80.0	120	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	1 mg/L	92.5	80.0	120	----
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	0.1 mg/L	95.3	80.0	120	----
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	50 mg/L	97.1	80.0	120	----
Cesium, dissolved	7440-46-2	E421	0.00001	mg/L	0.05 mg/L	97.5	80.0	120	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	0.25 mg/L	98.7	80.0	120	----
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	0.25 mg/L	97.1	80.0	120	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	0.25 mg/L	96.9	80.0	120	----
Iron, dissolved	7439-89-6	E421	0.01	mg/L	1 mg/L	90.6	80.0	120	----
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	0.5 mg/L	94.1	80.0	120	----
Lithium, dissolved	7439-93-2	E421	0.001	mg/L	0.25 mg/L	96.4	80.0	120	----
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	50 mg/L	96.3	80.0	120	----
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	0.25 mg/L	96.6	80.0	120	----
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	0.25 mg/L	101	80.0	120	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Dissolved Metals (QCLot: 2000872) - continued									
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	0.5 mg/L	96.1	80.0	120	----
Phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	10 mg/L	97.0	80.0	120	----
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	50 mg/L	93.6	80.0	120	----
Rubidium, dissolved	7440-17-7	E421	0.0002	mg/L	0.1 mg/L	98.5	80.0	120	----
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	1 mg/L	103	80.0	120	----
Silicon, dissolved	7440-21-3	E421	0.05	mg/L	10 mg/L	103	80.0	120	----
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	0.1 mg/L	93.6	80.0	120	----
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	50 mg/L	101	80.0	120	----
Strontium, dissolved	7440-24-6	E421	0.0002	mg/L	0.25 mg/L	94.4	80.0	120	----
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	50 mg/L	82.8	80.0	120	----
Tellurium, dissolved	13494-80-9	E421	0.0002	mg/L	0.1 mg/L	102	80.0	120	----
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	1 mg/L	93.2	80.0	120	----
Thorium, dissolved	7440-29-1	E421	0.0001	mg/L	0.1 mg/L	93.4	80.0	120	----
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	0.5 mg/L	96.7	80.0	120	----
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	0.25 mg/L	98.3	80.0	120	----
Tungsten, dissolved	7440-33-7	E421	0.0001	mg/L	0.1 mg/L	97.8	80.0	120	----
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	0.005 mg/L	97.9	80.0	120	----
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	0.5 mg/L	97.3	80.0	120	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	0.5 mg/L	104	80.0	120	----
Zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	0.1 mg/L	95.9	80.0	120	----
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0 mg/L	91.5	80.0	120	----

Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for the associated sample (or similar samples) may be subject to bias. ND – Recovery not determined, background level >= 1x spike level.

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Anions and Nutrients (QCLot: 2000754)										
VA25B1327-002	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0976 mg/L	0.1 mg/L	97.6	75.0	125	----
Anions and Nutrients (QCLot: 2000755)										
VA25B1332-005	Seepage Weir	Kjeldahl nitrogen, total [TKN]	----	E318	2.70 mg/L	2.5 mg/L	108	70.0	130	----
Anions and Nutrients (QCLot: 2005111)										
VA25B0898-002	Anonymous	Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0303 mg/L	0.03 mg/L	101	70.0	130	----
Anions and Nutrients (QCLot: 2005112)										
VA25B0898-002	Anonymous	Fluoride	16984-48-8	E235.F	5.19 mg/L	5 mg/L	104	75.0	125	----
Anions and Nutrients (QCLot: 2005113)										
VA25B0898-002	Anonymous	Chloride	16887-00-6	E235.Cl	527 mg/L	500 mg/L	105	75.0	125	----
Anions and Nutrients (QCLot: 2005114)										
VA25B0898-002	Anonymous	Bromide	24959-67-9	E235.Br-L	2.55 mg/L	2.5 mg/L	102	75.0	125	----
Anions and Nutrients (QCLot: 2005115)										
VA25B0898-002	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	ND mg/L	----	ND	75.0	125	----
Anions and Nutrients (QCLot: 2005116)										
VA25B0898-002	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	2.57 mg/L	2.5 mg/L	103	75.0	125	----
Anions and Nutrients (QCLot: 2005117)										
VA25B0898-002	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	522 mg/L	500 mg/L	104	75.0	125	----
Organic / Inorganic Carbon (QCLot: 2000753)										
VA25B1327-002	Anonymous	Carbon, dissolved organic [DOC]	----	E358-L	5.04 mg/L	5 mg/L	101	70.0	130	----
Organic / Inorganic Carbon (QCLot: 2000756)										
VA25B1332-003	SW3-07	Carbon, total organic [TOC]	----	E355-L	4.03 mg/L	5 mg/L	80.7	70.0	130	----
Total Sulfides (QCLot: 2000877)										
FJ2501349-002	Anonymous	Sulfide, total (as S)	18496-25-8	E395-H	1.06 mg/L	1 mg/L	106	75.0	125	----
Total Metals (QCLot: 2000822)										
VA25B1327-002	Anonymous	Aluminum, total	7429-90-5	E420	0.194 mg/L	0.2 mg/L	96.8	70.0	130	----
		Antimony, total	7440-36-0	E420	0.0192 mg/L	0.02 mg/L	96.0	70.0	130	----
		Arsenic, total	7440-38-2	E420	0.0207 mg/L	0.02 mg/L	103	70.0	130	----
		Barium, total	7440-39-3	E420	ND mg/L	----	ND	70.0	130	----
		Beryllium, total	7440-41-7	E420	0.0372 mg/L	0.04 mg/L	93.1	70.0	130	----
		Bismuth, total	7440-69-9	E420	0.00935 mg/L	0.01 mg/L	93.5	70.0	130	----
		Boron, total	7440-42-8	E420	0.091 mg/L	0.1 mg/L	90.9	70.0	130	----
		Cadmium, total	7440-43-9	E420	0.00386 mg/L	0.004 mg/L	96.6	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Total Metals (QCLot: 2000822) - continued										
VA25B1327-002	Anonymous	Calcium, total	7440-70-2	E420	ND mg/L	----	ND	70.0	130	----
		Cesium, total	7440-46-2	E420	0.0102 mg/L	0.01 mg/L	102	70.0	130	----
		Chromium, total	7440-47-3	E420	0.0398 mg/L	0.04 mg/L	99.5	70.0	130	----
		Cobalt, total	7440-48-4	E420	0.0189 mg/L	0.02 mg/L	94.7	70.0	130	----
		Copper, total	7440-50-8	E420	0.0182 mg/L	0.02 mg/L	91.0	70.0	130	----
		Iron, total	7439-89-6	E420	1.89 mg/L	2 mg/L	94.5	70.0	130	----
		Lead, total	7439-92-1	E420	0.0184 mg/L	0.02 mg/L	91.8	70.0	130	----
		Lithium, total	7439-93-2	E420	0.0864 mg/L	0.1 mg/L	86.4	70.0	130	----
		Magnesium, total	7439-95-4	E420	ND mg/L	----	ND	70.0	130	----
		Manganese, total	7439-96-5	E420	ND mg/L	----	ND	70.0	130	----
		Molybdenum, total	7439-98-7	E420	0.0206 mg/L	0.02 mg/L	103	70.0	130	----
		Nickel, total	7440-02-0	E420	0.0372 mg/L	0.04 mg/L	92.9	70.0	130	----
		Phosphorus, total	7723-14-0	E420	11.3 mg/L	10 mg/L	113	70.0	130	----
		Potassium, total	7440-09-7	E420	ND mg/L	----	ND	70.0	130	----
		Rubidium, total	7440-17-7	E420	0.0195 mg/L	0.02 mg/L	97.5	70.0	130	----
		Selenium, total	7782-49-2	E420	0.0434 mg/L	0.04 mg/L	109	70.0	130	----
		Silicon, total	7440-21-3	E420	9.76 mg/L	10 mg/L	97.6	70.0	130	----
		Silver, total	7440-22-4	E420	0.00375 mg/L	0.004 mg/L	93.8	70.0	130	----
		Sodium, total	7440-23-5	E420	ND mg/L	----	ND	70.0	130	----
		Strontium, total	7440-24-6	E420	ND mg/L	----	ND	70.0	130	----
		Sulfur, total	7704-34-9	E420	ND mg/L	----	ND	70.0	130	----
		Tellurium, total	13494-80-9	E420	0.0387 mg/L	0.04 mg/L	96.8	70.0	130	----
		Thallium, total	7440-28-0	E420	0.00359 mg/L	0.004 mg/L	89.7	70.0	130	----
		Thorium, total	7440-29-1	E420	0.0122 mg/L	0.02 mg/L	60.9	70.0	130	MES
		Tin, total	7440-31-5	E420	0.0194 mg/L	0.02 mg/L	97.2	70.0	130	----
		Titanium, total	7440-32-6	E420	0.0408 mg/L	0.04 mg/L	102	70.0	130	----
		Tungsten, total	7440-33-7	E420	0.0191 mg/L	0.02 mg/L	95.3	70.0	130	----
		Uranium, total	7440-61-1	E420	0.00412 mg/L	0.004 mg/L	103	70.0	130	----
		Vanadium, total	7440-62-2	E420	0.101 mg/L	0.1 mg/L	101	70.0	130	----
		Zinc, total	7440-66-6	E420	0.363 mg/L	0.4 mg/L	90.8	70.0	130	----
		Zirconium, total	7440-67-7	E420	0.0415 mg/L	0.04 mg/L	104	70.0	130	----
Total Metals (QCLot: 2009700)										
KS2501771-001	Anonymous	Mercury, total	7439-97-6	E508	0.0000867 mg/L	0 mg/L	86.7	70.0	130	----
Dissolved Metals (QCLot: 2000872)										
VA25B1331-002	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.187 mg/L	0.2 mg/L	93.4	70.0	130	----
		Antimony, dissolved	7440-36-0	E421	0.0198 mg/L	0.02 mg/L	99.1	70.0	130	----
		Arsenic, dissolved	7440-38-2	E421	0.0207 mg/L	0.02 mg/L	103	70.0	130	----
		Barium, dissolved	7440-39-3	E421	ND mg/L	----	ND	70.0	130	----
		Beryllium, dissolved	7440-41-7	E421	0.0388 mg/L	0.04 mg/L	97.1	70.0	130	----
		Bismuth, dissolved	7440-69-9	E421	0.00870 mg/L	0.01 mg/L	87.0	70.0	130	----
		Boron, dissolved	7440-42-8	E421	0.086 mg/L	0.1 mg/L	86.5	70.0	130	----
		Cadmium, dissolved	7440-43-9	E421	0.00352 mg/L	0.004 mg/L	88.1	70.0	130	----
		Calcium, dissolved	7440-70-2	E421	ND mg/L	----	ND	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Dissolved Metals (QCLot: 2000872) - continued										
VA25B1331-002	Anonymous	Cesium, dissolved	7440-46-2	E421	0.00983 mg/L	0.01 mg/L	98.3	70.0	130	----
		Chromium, dissolved	7440-47-3	E421	0.0380 mg/L	0.04 mg/L	95.1	70.0	130	----
		Cobalt, dissolved	7440-48-4	E421	0.0182 mg/L	0.02 mg/L	91.0	70.0	130	----
		Copper, dissolved	7440-50-8	E421	0.0177 mg/L	0.02 mg/L	88.3	70.0	130	----
		Iron, dissolved	7439-89-6	E421	1.85 mg/L	2 mg/L	92.6	70.0	130	----
		Lead, dissolved	7439-92-1	E421	0.0174 mg/L	0.02 mg/L	86.8	70.0	130	----
		Lithium, dissolved	7439-93-2	E421	0.0934 mg/L	0.1 mg/L	93.4	70.0	130	----
		Magnesium, dissolved	7439-95-4	E421	ND mg/L	----	ND	70.0	130	----
		Manganese, dissolved	7439-96-5	E421	ND mg/L	----	ND	70.0	130	----
		Molybdenum, dissolved	7439-98-7	E421	0.0209 mg/L	0.02 mg/L	105	70.0	130	----
		Nickel, dissolved	7440-02-0	E421	0.0354 mg/L	0.04 mg/L	88.4	70.0	130	----
		Phosphorus, dissolved	7723-14-0	E421	10.1 mg/L	10 mg/L	101	70.0	130	----
		Potassium, dissolved	7440-09-7	E421	ND mg/L	----	ND	70.0	130	----
		Rubidium, dissolved	7440-17-7	E421	0.0187 mg/L	0.02 mg/L	93.6	70.0	130	----
		Selenium, dissolved	7782-49-2	E421	0.0434 mg/L	0.04 mg/L	109	70.0	130	----
		Silicon, dissolved	7440-21-3	E421	9.00 mg/L	10 mg/L	90.0	70.0	130	----
		Silver, dissolved	7440-22-4	E421	0.00233 mg/L	0.004 mg/L	58.2	70.0	130	MS-Ag
		Sodium, dissolved	7440-23-5	E421	ND mg/L	----	ND	70.0	130	----
		Strontium, dissolved	7440-24-6	E421	ND mg/L	----	ND	70.0	130	----
		Sulfur, dissolved	7704-34-9	E421	ND mg/L	----	ND	70.0	130	----
		Tellurium, dissolved	13494-80-9	E421	0.0379 mg/L	0.04 mg/L	94.8	70.0	130	----
		Thallium, dissolved	7440-28-0	E421	0.00348 mg/L	0.004 mg/L	87.1	70.0	130	----
		Thorium, dissolved	7440-29-1	E421	0.0122 mg/L	0.02 mg/L	60.8	70.0	130	MES
		Tin, dissolved	7440-31-5	E421	0.0186 mg/L	0.02 mg/L	93.1	70.0	130	----
		Titanium, dissolved	7440-32-6	E421	0.0409 mg/L	0.04 mg/L	102	70.0	130	----
		Tungsten, dissolved	7440-33-7	E421	0.0189 mg/L	0.02 mg/L	94.4	70.0	130	----
		Uranium, dissolved	7440-61-1	E421	0.00362 mg/L	0.004 mg/L	90.4	70.0	130	----
		Vanadium, dissolved	7440-62-2	E421	0.0954 mg/L	0.1 mg/L	95.4	70.0	130	----
		Zinc, dissolved	7440-66-6	E421	0.380 mg/L	0.4 mg/L	95.0	70.0	130	----
		Zirconium, dissolved	7440-67-7	E421	0.0401 mg/L	0.04 mg/L	100	70.0	130	----
Dissolved Metals (QCLot: 2010831)										
VA25B1246-005	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000932 mg/L	0 mg/L	93.2	70.0	130	----

Qualifiers

Qualifier	Description
MES	*Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).*
MS-Ag	*Matrix Spike recovery for silver was marginally below DQO (40 to <60%) due to its instability in the sample matrix. Silver was not detected. Reported result (< LOR) is reliable*

Chain of Custody (COC) / Analytical Request Form

COC Number: 22 - 20240514-2

Page 1 of 1

Canada Toll Free: 1 800 668 9878

www.alsglobal.com

Report To	Contact and company name below will appear on the final report
Company:	Masse Environmental
Contact:	Ico deZwart
Phone:	
	Company address below will appear on the final report
Street:	812 Vernon St.
City/Province:	Nelson, BC
Postal Code:	V1L4G4
Invoice To	Same as Report To ☑ YES ☐ NO
	Copy of Invoice with Report ☑ YES ☐ NO
Company:	
Contact:	

Reports / Recipients

Select Report Format: ☑ PDF ☑ EXCEL ☑ EDD (DIGITAL)

Merge QC/QCI Reports with COA ☑ YES ☐ NO ☐ N/A

☐ Compare Results to Criteria on Report - provide details below if box checked

Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX

Email 1 or Fax: ico@masseenvironmental.com

Email 2: chris@masseenvironmental.com

Email 3: jenn@masseenvironmental.com

Invoice Recipients

Select Invoice Distribution: ☑ EMAIL ☐ MAIL ☐ FAX

Email 1 or Fax: lise@masseenvironmental.com

Email 2:

Turnaround Time (TAT) Requested

☑ Routine [R] if received by 3pm M-F - no surcharges apply
☐ 4 day [P4] if received by 3pm M-F - 20% rush surcharge minimum
☐ 3 day [P3] if received by 3pm M-F - 25% rush surcharge minimum
☐ 2 day [P2] if received by 3pm M-F - 50% rush surcharge minimum
☐ 1 day [E] if received by 3pm M-F - 100% rush surcharge minimum
☐ Same day [E2] if received by 10am M-S - 200% rush surcharge.

Additional fees may apply to rush requests on weekends, statutory holidays and for non-routine tests.

Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm am/pm

For all tests with rush TATs requested, please contact your AM to confirm availability.

AFFIX ALS BARCODE LABEL HERE (ALS use only)

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	VA24-MASS200-001	AFE/Cost Center:	PO#
Job #:	2016-503 - HB	Major/Minor Code:	Routing Code:
PO / AFE:		Requisitioner:	
LSD:		Location:	

ALS Lab Work Order # (ALS use only): B1332

ALS Contact: | Sampler: C.Stephanou

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (ALS use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	pH, cond, TSS, TDS, total alk, hardness	Chloride, bromide, fluoride, sulfate	Ammonia, TKN, nitrate, nitrite	TOC	DOC	Dissolved Metals (incl Hg)	Total Metals (incl Hg)	Orthophosphate	Total Sulphide	SAMPLES ON HOLD	EXTENDED STORAGE REQUIRED	SUSPECTED HAZARD (see notes)
						P	P			F/P	F		P	P			
	SW1-07 (E303730)	12-May-25	13:22	SW	8	R	R	R	R	R	R	R	R	R			
	SW2-07 (E303731)	12-May-25	12:55	SW	8	R	R	R	R	R	R	R	R	R			
	SW3-07 (E303732)	12-May-25	12:07	SW	8	R	R	R	R	R	R	R	R	R			
	SW5-19 (E335949)	12-May-25	12:33	SW	8	R	R	R	R	R	R	R	R	R			
	Seepage Weir (E335950)	12-May-25	11:28	SW	8	R	R	R	R	R	R	R	R	R			
	Spillway Inlet (E335951)	12-May-25	10:43	SW	8	R	R	R	R	R	R	R	R	R			
	Spillway Outlet (E335952)	12-May-25	11:23	SW	8	R	R	R	R	R	R	R	R	R			
	Outlet Ditch (E252603)	12-May-25	10:09	SW	8	R	R	R	R	R	R	R	R	R			

Environmental Division
Vancouver
Work Order Reference
VA25B1332

Telephone : +1 604 253 4188

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System? ☐ YES ☐ NO

Are samples for human consumption/ use? ☐ YES ☐ NO

Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only)

SAMPLE RECEIPT DETAILS (ALS use only)

Cooling Method: ☐ NONE ☐ ICE ☐ ICE PACKS ☐ FROZEN ☐ COOLING INITIATED

Submission Comments identified on Sample Receipt Notification: ☐ YES ☐ NO

Cooler Custody Seals Intact: ☐ YES ☐ N/A Sample Custody Seals Intact: ☐ YES ☐ N/A

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
				7/7/11 C			

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (ALS use only)			FINAL SHIPMENT RECEPTION (ALS use only)		
Released by:	Date: 14-May-2025	Time: 9:30	Received by:	Date:	Time:	Received by:	Date: May 15	Time: 12 PM

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

FEB 2022 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

CERTIFICATE OF ANALYSIS

Work Order	: **VA25B2060**		
Client	: **Masse Environmental Consultants Ltd.**	Laboratory	: ALS Environmental - Vancouver
Contact	: Ico de Zwart	Account Manager	: Can Dang
Address	: 812 Vernon Street Nelson British Columbia Canada V1L 4G4	Address	: 8081 Lougheed Highway Burnaby BC Canada V5A 1W9
Telephone	: ----	E-mail	: Can.Dang@ALSGlobal.com
Project	: 2016-503-HB	Telephone	: +1 604 253 4188
PO	: ----	Date Samples Received	: 23-May-2025 11:50
C-O-C number	: 22-20250522-2	Date Analysis Commenced	: 23-May-2025
Sampler	: Chris Stephanou	Issue Date	: 30-May-2025 22:11
Site	: RDCK		
Quote number	: ----		
No. of samples received	: 9		
No. of samples analysed	: 9		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Erika Vanegas	Lab Assistant	Metals, Burnaby, British Columbia
Ilnaz Badbezanchi	Supervisor - Metals Prep	Metals, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia
Leon Yang	Analyst	Inorganics, Burnaby, British Columbia
Lindsay Gung	Department Manager - Inorganics	Inorganics, Burnaby, British Columbia
Maya Urquhart	Lab Analyst	Metals, Burnaby, British Columbia
Robert Nguyen	Analyst	Metals, Burnaby, British Columbia

General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Please refer to Quality Control Interpretive report (QCI) for information regarding Holding Time compliance.

Key: CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances.
LOR: Limit of Reporting (detection limit).

Unit	*Description*
-	no units
mg/L	milligrams per litre
pH units	pH units
µg/L	micrograms per litre
µS/cm	microsiemens per centimetre

<: less than.
>: greater than.
Surrogate: An analyte that is similar in behavior to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED on SRN or QCI Report, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Qualifiers

Qualifier	Description
DLA	Detection Limit adjusted for required dilution.
DLDS	Detection Limit Raised: Dilution required due to high Dissolved Solids / Electrical Conductivity.
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).
RRV	Reported result verified by repeat analysis.

Analytical Results

Sub-Matrix: Groundwater
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MW99-1(S) (E275563)	MW99-1(D) (E240501)	MW99-2(S) (E275543)	MW99-2(D) (E240502)	MW-05-01 (E252593)
					Client sampling date / time	21-May-2025 10:07	21-May-2025 10:34	21-May-2025 14:50	21-May-2025 15:15	21-May-2025 13:40
						VA25B2060-001	VA25B2060-002	VA25B2060-003	VA25B2060-004	VA25B2060-005
						Result	Result	Result	Result	Result
Physical Tests										
Alkalinity, total (as CaCO3)	----	E290/VA	1.0	mg/L		92.1	397	198	285	106
Conductivity	----	E100/VA	2.0	µS/cm		243	772	574	604	206
Hardness (as CaCO3), dissolved	----	EC100/VA	0.60	mg/L		117	174	300	327	97.2
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/VA	0.60	mg/L		125	177	280	327	101
pH	----	E108/VA	0.10	pH units		7.32	7.91	7.38	8.10	7.78
Solids, total dissolved [TDS]	----	E162/VA	10	mg/L		192	515	444	426	149
Solids, total suspended [TSS]	----	E160/VA	3.0	mg/L		103	25.9	6.1	8.9	37.5
Anions and Nutrients										
Ammonia, total (as N)	7664-41-7	E298/VA	0.0050	mg/L		0.267	1.48	0.0244	0.0173	<0.0050
Bromide	24959-67-9	E235.Br-L/VA	0.050	mg/L		<0.050	<0.250 DLDS	<0.050	<0.050	<0.050
Chloride	16887-00-6	E235.Cl/VA	0.50	mg/L		1.50	7.27	0.60	<0.50	<0.50
Fluoride	16984-48-8	E235.F/VA	0.020	mg/L		0.148	0.548	0.054	0.145	0.173
Kjeldahl nitrogen, total [TKN]	----	E318/VA	0.050	mg/L		0.478	1.61	0.171	0.087	0.118
Nitrate (as N)	14797-55-8	E235.NO3-L/VA	0.0050	mg/L		0.0413	0.0851	<0.0050	<0.0050	<0.0050
Nitrite (as N)	14797-65-0	E235.NO2-L/VA	0.0010	mg/L		<0.0010	<0.0050 DLDS	<0.0010	<0.0010	<0.0010
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U/VA	0.0010	mg/L		0.0343	0.0967	<0.0010	<0.0010	0.0073
Sulfate (as SO4)	14808-79-8	E235.SO4/VA	0.30	mg/L		38.0	40.3	116	65.3	9.04
Organic / Inorganic Carbon										
Carbon, total organic [TOC]	----	E355-L/VA	0.50	mg/L		3.42	0.61	4.28	0.79	2.52
Total Sulfides										
Sulfide, total (as H2S)	7783-06-4	E395-H/VA	0.011	mg/L		<0.011	<0.011	<0.011	<0.011	<0.011

Analytical Results

Sub-Matrix: Groundwater
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MW99-1(S) (E275563)	MW99-1(D) (E240501)	MW99-2(S) (E275543)	MW99-2(D) (E240502)	MW-05-01 (E252593)
					Client sampling date / time	21-May-2025 10:07	21-May-2025 10:34	21-May-2025 14:50	21-May-2025 15:15	21-May-2025 13:40
						VA25B2060-001	VA25B2060-002	VA25B2060-003	VA25B2060-004	VA25B2060-005
						Result	Result	Result	Result	Result
Total Sulfides										
Sulfide, total (as S)	18496-25-8	E395-H/VA	0.010	mg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Total Metals										
Aluminum, total	7429-90-5	E420/VA	3.0	µg/L		49.1	593	12.4	68.4	717
Antimony, total	7440-36-0	E420/VA	0.10	µg/L		0.31	0.76	<0.10	<0.10	0.12
Arsenic, total	7440-38-2	E420/VA	0.10	µg/L		1.50	0.41	10.2	1.07	0.71
Barium, total	7440-39-3	E420/VA	0.10	µg/L		712	80.8	40.0	57.2	24.4
Beryllium, total	7440-41-7	E420/VA	0.100	µg/L		<0.100	0.208	<0.100	<0.100	<0.100
Bismuth, total	7440-69-9	E420/VA	0.050	µg/L		<0.050	<0.050	<0.050	<0.050	<0.050
Boron, total	7440-42-8	E420/VA	10	µg/L		28	156	<10	<10	<10
Cadmium, total	7440-43-9	E420/VA	0.0050	µg/L		0.0720	0.0360	0.0202	0.0710	0.0635
Calcium, total	7440-70-2	E420/VA	50	µg/L		35700	47600	84900	72700	26700
Cesium, total	7440-46-2	E420/VA	0.010	µg/L		0.027	5.12	0.090	0.969	0.131
Chromium, total	7440-47-3	E420/VA	0.50	µg/L		2.84	2.15	<0.50	<0.50	2.58
Cobalt, total	7440-48-4	E420/VA	0.10	µg/L		0.16	0.25	5.16	0.22	0.72
Copper, total	7440-50-8	E420/VA	0.50	µg/L		7.34	209	<0.50	0.86	3.28
Iron, total	7439-89-6	E420/VA	10	µg/L		37100	427	4070	2060	837
Lead, total	7439-92-1	E420/VA	0.050	µg/L		0.738	0.798	0.426	2.04	0.776
Lithium, total	7439-93-2	E420/VA	1.0	µg/L		18.0	220	1.1	6.6	2.9
Magnesium, total	7439-95-4	E420/VA	5.0	µg/L		8650	14100	16600	35300	8340
Manganese, total	7439-96-5	E420/VA	0.10	µg/L		374	153	3890	132	70.5
Mercury, total	7439-97-6	E508/VA	0.0050	µg/L		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050

Analytical Results

Sub-Matrix: Groundwater
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MW99-1(S) (E275563)	MW99-1(D) (E240501)	MW99-2(S) (E275543)	MW99-2(D) (E240502)	MW-05-01 (E252593)
					Client sampling date / time	21-May-2025 10:07	21-May-2025 10:34	21-May-2025 14:50	21-May-2025 15:15	21-May-2025 13:40
						VA25B2060-001	VA25B2060-002	VA25B2060-003	VA25B2060-004	VA25B2060-005
						Result	Result	Result	Result	Result
Total Metals										
Molybdenum, total	7439-98-7	E420/VA	0.050	µg/L		0.436	6.12	0.717	0.338	0.642
Nickel, total	7440-02-0	E420/VA	0.50	µg/L		1.14	1.51	4.22	0.55	1.96
Phosphorus, total	7723-14-0	E420/VA	50	µg/L		9080	149	53	92	64
Potassium, total	7440-09-7	E420/VA	50	µg/L		1080	4060	2080	1140	1080
Rubidium, total	7440-17-7	E420/VA	0.20	µg/L		0.54	9.73	1.06	2.18	1.01
Selenium, total	7782-49-2	E420/VA	0.050	µg/L		0.091	<0.050	0.050	<0.050	0.205
Silicon, total	7440-21-3	E420/VA	100	µg/L		16800	11000	8100	11800	10600
Silver, total	7440-22-4	E420/VA	0.010	µg/L		0.015	0.027	<0.010	<0.010	0.020
Sodium, total	7440-23-5	E420/VA	50	µg/L		4460	119000	3280	7140	4680
Strontium, total	7440-24-6	E420/VA	0.20	µg/L		298	760	351	619	277
Sulfur, total	7704-34-9	E420/VA	500	µg/L		14600	17000	45400	26400	3440
Tellurium, total	13494-80-9	E420/VA	0.20	µg/L		<0.20	<0.20	<0.20	<0.20	<0.20
Thallium, total	7440-28-0	E420/VA	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	0.011
Thorium, total	7440-29-1	E420/VA	0.10	µg/L		<0.10	<0.80 DLM	<0.10	<0.10	<0.30 DLM
Tin, total	7440-31-5	E420/VA	0.10	µg/L		0.12	0.27	<0.10	0.90	<0.10
Titanium, total	7440-32-6	E420/VA	0.30	µg/L		2.88	8.46	0.42	2.63	28.1
Tungsten, total	7440-33-7	E420/VA	0.10	µg/L		1.08	2.52	<0.10	0.11	<0.10
Uranium, total	7440-61-1	E420/VA	0.010	µg/L		0.339	0.722	2.21	2.01	1.27
Vanadium, total	7440-62-2	E420/VA	0.50	µg/L		4.56	<0.50	<0.50	<0.50	2.33
Zinc, total	7440-66-6	E420/VA	3.0	µg/L		8.3	9.9	6.5	18.9	8.3
Zirconium, total	7440-67-7	E420/VA	0.20	µg/L		0.26	0.67	<0.20	<0.20	<0.20

Analytical Results

Sub-Matrix: Groundwater
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MW99-1(S) (E275563)	MW99-1(D) (E240501)	MW99-2(S) (E275543)	MW99-2(D) (E240502)	MW-05-01 (E252593)
					Client sampling date / time	21-May-2025 10:07	21-May-2025 10:34	21-May-2025 14:50	21-May-2025 15:15	21-May-2025 13:40
						VA25B2060-001	VA25B2060-002	VA25B2060-003	VA25B2060-004	VA25B2060-005
						Result	Result	Result	Result	Result
Dissolved Metals										
Aluminum, dissolved	7429-90-5	E421/VA	1.0	µg/L		1.4	1.0	5.8	1.2	87.7
Antimony, dissolved	7440-36-0	E421/VA	0.10	µg/L		0.14	0.45	<0.10	<0.10	<0.10
Arsenic, dissolved	7440-38-2	E421/VA	0.10	µg/L		0.33	0.31	9.44	0.33	0.34
Barium, dissolved	7440-39-3	E421/VA	0.10	µg/L		66.1	75.4	40.4	52.0	15.7
Beryllium, dissolved	7440-41-7	E421/VA	0.100	µg/L		<0.100	<0.100	<0.100	<0.100	<0.100
Bismuth, dissolved	7440-69-9	E421/VA	0.050	µg/L		<0.050	<0.050	<0.050	<0.050	<0.050
Boron, dissolved	7440-42-8	E421/VA	10	µg/L		25	154	<10	<10	<10
Cadmium, dissolved	7440-43-9	E421/VA	0.0050	µg/L		0.0105	0.0247	<0.0050	0.0076	0.0142
Calcium, dissolved	7440-70-2	E421/VA	50	µg/L		32900	47100	92100	73400	25600
Cesium, dissolved	7440-46-2	E421/VA	0.010	µg/L		0.016	4.72	0.086	0.902	<0.010
Chromium, dissolved	7440-47-3	E421/VA	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	1.24
Cobalt, dissolved	7440-48-4	E421/VA	0.10	µg/L		<0.10	0.12	5.27	0.16	<0.10
Copper, dissolved	7440-50-8	E421/VA	0.20	µg/L		0.25	137	<0.20	<0.20	1.54
Iron, dissolved	7439-89-6	E421/VA	10	µg/L		5960	10	3620	823	70
Lead, dissolved	7439-92-1	E421/VA	0.050	µg/L		<0.050	<0.050	<0.050	<0.050	0.086
Lithium, dissolved	7439-93-2	E421/VA	1.0	µg/L		17.9	211	1.1	6.4	2.2
Magnesium, dissolved	7439-95-4	E421/VA	5.0	µg/L		8370	13700	16900	35000	8070
Manganese, dissolved	7439-96-5	E421/VA	0.10	µg/L		243	132	3960	106	4.16
Mercury, dissolved	7439-97-6	E509/VA	0.0050	µg/L		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Molybdenum, dissolved	7439-98-7	E421/VA	0.050	µg/L		0.240	3.12	0.668	0.289	0.579
Nickel, dissolved	7440-02-0	E421/VA	0.50	µg/L		<0.50	<0.50	4.32	<0.50	<0.50

Analytical Results

Sub-Matrix: Groundwater
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MW99-1(S) (E275563)	MW99-1(D) (E240501)	MW99-2(S) (E275543)	MW99-2(D) (E240502)	MW-05-01 (E252593)
					Client sampling date / time	21-May-2025 10:07	21-May-2025 10:34	21-May-2025 14:50	21-May-2025 15:15	21-May-2025 13:40
						VA25B2060-001	VA25B2060-002	VA25B2060-003	VA25B2060-004	VA25B2060-005
						Result	Result	Result	Result	Result
Dissolved Metals										
Phosphorus, dissolved	7723-14-0	E421/VA	50	µg/L		1080	90	<50	<50	<50
Potassium, dissolved	7440-09-7	E421/VA	50	µg/L		1080	4160	2240	1170	946
Rubidium, dissolved	7440-17-7	E421/VA	0.20	µg/L		0.41	9.35	0.96	1.94	<0.20
Selenium, dissolved	7782-49-2	E421/VA	0.050	µg/L		<0.050	<0.050	<0.050	<0.050	0.141
Silicon, dissolved	7440-21-3	E421/VA	50	µg/L		15500	8260	7810	11100	8970
Silver, dissolved	7440-22-4	E421/VA	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Sodium, dissolved	7440-23-5	E421/VA	50	µg/L		4430	118000	3220	7270	4560
Strontium, dissolved	7440-24-6	E421/VA	0.20	µg/L		206	717	336	601	258
Sulfur, dissolved	7704-34-9	E421/VA	500	µg/L		13600	15200	41100	23700	2950
Tellurium, dissolved	13494-80-9	E421/VA	0.20	µg/L		<0.20	<0.20	<0.20	<0.20	<0.20
Thallium, dissolved	7440-28-0	E421/VA	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Thorium, dissolved	7440-29-1	E421/VA	0.10	µg/L		<0.10	<0.10	<0.10	<0.10	<0.10
Tin, dissolved	7440-31-5	E421/VA	0.10	µg/L		<0.10	<0.10	<0.10	<0.10	<0.10
Titanium, dissolved	7440-32-6	E421/VA	0.30	µg/L		<0.30	<0.30	<0.30	<0.30	2.72
Tungsten, dissolved	7440-33-7	E421/VA	0.10	µg/L		0.36	1.37	<0.10	<0.10	<0.10
Uranium, dissolved	7440-61-1	E421/VA	0.010	µg/L		0.030	0.523	2.14	1.91	1.22
Vanadium, dissolved	7440-62-2	E421/VA	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	0.71
Zinc, dissolved	7440-66-6	E421/VA	1.0	µg/L		1.3	7.1	4.7	8.6	2.9
Zirconium, dissolved	7440-67-7	E421/VA	0.20	µg/L		<0.20	<0.20	<0.20	<0.20	<0.20
Dissolved mercury filtration location	----	EP509/VA	-	-		Field	Field	Field	Field	Field
Dissolved metals filtration location	----	EP421/VA	-	-		Field	Field	Field	Field	Field

Please refer to the General Comments section for an explanation of any qualifiers detected.

Analytical Results

Sub-Matrix: Groundwater
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MW-01-2004(S) (E303722)	MW-01-2004(D) (E303723)	GW Duplicate	Field Blank	----
					Client sampling date / time	21-May-2025 11:32	21-May-2025 11:46	22-May-2025 10:07	22-May-2025 15:50	----
						VA25B2060-006	VA25B2060-007	VA25B2060-008	VA25B2060-009	----
						Result	Result	Result	Result	----
Physical Tests										
Alkalinity, total (as CaCO3)	----	E290/VA	1.0	mg/L		70.0	162	91.5	<1.0	----
Conductivity	----	E100/VA	2.0	µS/cm		137	477	245	<2.0	----
Hardness (as CaCO3), dissolved	----	EC100/VA	0.60	mg/L		62.9	223	117	<0.60	----
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/VA	0.60	mg/L		66.4	224	122	<0.60	----
pH	----	E108/VA	0.10	pH units		7.49	8.15	7.34	5.74	----
Solids, total dissolved [TDS]	----	E162/VA	10	mg/L		109	352	206	<10	----
Solids, total suspended [TSS]	----	E160/VA	3.0	mg/L		73.9	4.9	80.9	<3.0	----
Anions and Nutrients										
Ammonia, total (as N)	7664-41-7	E298/VA	0.0050	mg/L		0.192	<0.0050	0.353	<0.0050	----
Bromide	24959-67-9	E235.Br-L/VA	0.050	mg/L		<0.050	<0.050	<0.050	<0.050	----
Chloride	16887-00-6	E235.Cl/VA	0.50	mg/L		<0.50	2.54	1.43	<0.50	----
Fluoride	16984-48-8	E235.F/VA	0.020	mg/L		0.173	0.205	0.120	<0.020	----
Kjeldahl nitrogen, total [TKN]	----	E318/VA	0.050	mg/L		0.298	0.062	0.487	<0.050	----
Nitrate (as N)	14797-55-8	E235.NO3-L/VA	0.0050	mg/L		0.0379	0.0791	0.0353	<0.0050	----
Nitrite (as N)	14797-65-0	E235.NO2-L/VA	0.0010	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	----
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U/VA	0.0010	mg/L		0.0662	0.0320	0.0348	<0.0010	----
Sulfate (as SO4)	14808-79-8	E235.SO4/VA	0.30	mg/L		3.47	91.7	38.4	<0.30	----
Organic / Inorganic Carbon										
Carbon, total organic [TOC]	----	E355-L/VA	0.50	mg/L		2.00	1.01	2.77	<0.50	----

Analytical Results

Sub-Matrix: Groundwater
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MW-01-2004(S) (E303722)	MW-01-2004(D) (E303723)	GW Duplicate	Field Blank	----
					Client sampling date / time	21-May-2025 11:32	21-May-2025 11:46	22-May-2025 10:07	22-May-2025 15:50	----
						VA25B2060-006	VA25B2060-007	VA25B2060-008	VA25B2060-009	----
						Result	Result	Result	Result	----
Total Sulfides										
Sulfide, total (as H2S)	7783-06-4	E395-H/VA	0.011	mg/L		<0.011	<0.011	<0.011	<0.011	----
Sulfide, total (as S)	18496-25-8	E395-H/VA	0.010	mg/L		<0.010	<0.010	<0.010	<0.010	----
Total Metals										
Aluminum, total	7429-90-5	E420/VA	3.0	µg/L		2750	23.3	40.4	<3.0	----
Antimony, total	7440-36-0	E420/VA	0.10	µg/L		0.25	<0.10	0.26	<0.10	----
Arsenic, total	7440-38-2	E420/VA	0.10	µg/L		7.37	2.08	1.28	<0.10	----
Barium, total	7440-39-3	E420/VA	0.10	µg/L		67.9	141	570	0.20 RRV	----
Beryllium, total	7440-41-7	E420/VA	0.100	µg/L		0.138	<0.100	<0.100	<0.100	----
Bismuth, total	7440-69-9	E420/VA	0.050	µg/L		<0.100 DLA	<0.050	<0.050	<0.050	----
Boron, total	7440-42-8	E420/VA	10	µg/L		<20 DLA	<10	25	<10	----
Cadmium, total	7440-43-9	E420/VA	0.0050	µg/L		0.652	0.0877	0.0402	<0.0050 RRV	----
Calcium, total	7440-70-2	E420/VA	50	µg/L		18000	65900	34900	<50	----
Cesium, total	7440-46-2	E420/VA	0.010	µg/L		0.398	0.478	0.022	<0.010	----
Chromium, total	7440-47-3	E420/VA	0.50	µg/L		4.96	<0.50	2.07	<0.50	----
Cobalt, total	7440-48-4	E420/VA	0.10	µg/L		2.26	<0.10	0.14	<0.10	----
Copper, total	7440-50-8	E420/VA	0.50	µg/L		8.79	0.89	5.81	<0.50	----
Iron, total	7439-89-6	E420/VA	10	µg/L		4120	794	30100	<10	----
Lead, total	7439-92-1	E420/VA	0.050	µg/L		5.52	2.58	0.493	0.142 RRV	----
Lithium, total	7439-93-2	E420/VA	1.0	µg/L		3.6	20.0	18.0	<1.0	----
Magnesium, total	7439-95-4	E420/VA	5.0	µg/L		5210	14500	8400	13.9 RRV	----
Manganese, total	7439-96-5	E420/VA	0.10	µg/L		6870	123	347	0.36 RRV	----

Analytical Results

Sub-Matrix: Groundwater (Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MW-01-2004(S) (E303722)	MW-01-2004(D) (E303723)	GW Duplicate	Field Blank	----
					Client sampling date / time	21-May-2025 11:32	21-May-2025 11:46	22-May-2025 10:07	22-May-2025 15:50	----
						VA25B2060-006	VA25B2060-007	VA25B2060-008	VA25B2060-009	----
						Result	Result	Result	Result	----
Total Metals										
Mercury, total	7439-97-6	E508/VA	0.0050	µg/L		<0.0050	<0.0050	<0.0050	<0.0050	----
Molybdenum, total	7439-98-7	E420/VA	0.050	µg/L		13.1	1.99	0.383	<0.050	----
Nickel, total	7440-02-0	E420/VA	0.50	µg/L		5.87	<0.50	0.95	<0.50	----
Phosphorus, total	7723-14-0	E420/VA	50	µg/L		278	150	7430	<50	----
Potassium, total	7440-09-7	E420/VA	50	µg/L		1420	2380	1050	<50	----
Rubidium, total	7440-17-7	E420/VA	0.20	µg/L		3.66	1.55	0.44	<0.20	----
Selenium, total	7782-49-2	E420/VA	0.050	µg/L		0.115	<0.050	0.058	<0.050	----
Silicon, total	7440-21-3	E420/VA	100	µg/L		16800	10500	16500	<100	----
Silver, total	7440-22-4	E420/VA	0.010	µg/L		0.118	<0.010	<0.010	<0.010	----
Sodium, total	7440-23-5	E420/VA	50	µg/L		2720	14900	4390	<50	----
Strontium, total	7440-24-6	E420/VA	0.20	µg/L		130	377	282	0.29 RRV	----
Sulfur, total	7704-34-9	E420/VA	500	µg/L		1230	36400	14000	<500	----
Tellurium, total	13494-80-9	E420/VA	0.20	µg/L		<0.40 DLA	<0.20	<0.20	<0.20	----
Thallium, total	7440-28-0	E420/VA	0.010	µg/L		0.032	<0.010	<0.010	<0.010	----
Thorium, total	7440-29-1	E420/VA	0.10	µg/L		<1.50 DLM	<0.10	<0.10	<0.10	----
Tin, total	7440-31-5	E420/VA	0.10	µg/L		0.42	0.53	<0.10	2.31 RRV	----
Titanium, total	7440-32-6	E420/VA	0.30	µg/L		82.3	1.54	2.36	<0.30	----
Tungsten, total	7440-33-7	E420/VA	0.10	µg/L		<0.20 DLA	<0.10	0.95	<0.10	----
Uranium, total	7440-61-1	E420/VA	0.010	µg/L		1.70	2.36	0.264	<0.010	----
Vanadium, total	7440-62-2	E420/VA	0.50	µg/L		13.8	<0.50	3.71	<0.50	----
Zinc, total	7440-66-6	E420/VA	3.0	µg/L		31.3	14.2	6.5	<3.0	----

Analytical Results

Sub-Matrix: Groundwater (Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MW-01-2004(S) (E303722)	MW-01-2004(D) (E303723)	GW Duplicate	Field Blank	----
					Client sampling date / time	21-May-2025 11:32	21-May-2025 11:46	22-May-2025 10:07	22-May-2025 15:50	----
						VA25B2060-006	VA25B2060-007	VA25B2060-008	VA25B2060-009	----
						Result	Result	Result	Result	----
Total Metals										
Zirconium, total	7440-67-7	E420/VA	0.20	µg/L		<0.40 DLA	<0.20	<0.20	<0.20	----
Dissolved Metals										
Aluminum, dissolved	7429-90-5	E421/VA	1.0	µg/L		8.4	1.0	1.3	1.1 RRV	----
Antimony, dissolved	7440-36-0	E421/VA	0.10	µg/L		<0.10	<0.10	0.12	<0.10	----
Arsenic, dissolved	7440-38-2	E421/VA	0.10	µg/L		0.96	0.85	0.33	<0.10	----
Barium, dissolved	7440-39-3	E421/VA	0.10	µg/L		6.03	137	67.2	0.15 RRV	----
Beryllium, dissolved	7440-41-7	E421/VA	0.100	µg/L		<0.100	<0.100	<0.100	<0.100	----
Bismuth, dissolved	7440-69-9	E421/VA	0.050	µg/L		<0.050	<0.050	<0.050	<0.050	----
Boron, dissolved	7440-42-8	E421/VA	10	µg/L		<10	<10	25	<10	----
Cadmium, dissolved	7440-43-9	E421/VA	0.0050	µg/L		0.302	0.0120	0.0067	<0.0050	----
Calcium, dissolved	7440-70-2	E421/VA	50	µg/L		17700	65200	32900	<50	----
Cesium, dissolved	7440-46-2	E421/VA	0.010	µg/L		<0.010	0.468	0.020	<0.010	----
Chromium, dissolved	7440-47-3	E421/VA	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Cobalt, dissolved	7440-48-4	E421/VA	0.10	µg/L		<0.10	<0.10	<0.10	<0.10	----
Copper, dissolved	7440-50-8	E421/VA	0.20	µg/L		0.92	0.23	<0.20	<0.20	----
Iron, dissolved	7439-89-6	E421/VA	10	µg/L		<10	<10	5820	<10	----
Lead, dissolved	7439-92-1	E421/VA	0.050	µg/L		<0.050	0.065	<0.050	<0.050	----
Lithium, dissolved	7439-93-2	E421/VA	1.0	µg/L		<1.0	19.1	18.0	<1.0	----
Magnesium, dissolved	7439-95-4	E421/VA	5.0	µg/L		4540	14600	8410	11.5 RRV	----
Manganese, dissolved	7439-96-5	E421/VA	0.10	µg/L		3000	5.50	249	0.22 RRV	----
Mercury, dissolved	7439-97-6	E509/VA	0.0050	µg/L		<0.0050	<0.0050	<0.0050	<0.0050	----

Analytical Results

Sub-Matrix: Groundwater (Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MW-01-2004(S) (E303722)	MW-01-2004(D) (E303723)	GW Duplicate	Field Blank	----
					Client sampling date / time	21-May-2025 11:32	21-May-2025 11:46	22-May-2025 10:07	22-May-2025 15:50	----
						VA25B2060-006	VA25B2060-007	VA25B2060-008	VA25B2060-009	----
						Result	Result	Result	Result	----
Dissolved Metals										
Molybdenum, dissolved	7439-98-7	E421/VA	0.050	µg/L		5.66	1.93	0.252	<0.050	----
Nickel, dissolved	7440-02-0	E421/VA	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Phosphorus, dissolved	7723-14-0	E421/VA	50	µg/L		65	<50	1020	<50	----
Potassium, dissolved	7440-09-7	E421/VA	50	µg/L		944	2450	1060	<50	----
Rubidium, dissolved	7440-17-7	E421/VA	0.20	µg/L		<0.20	1.59	0.47	<0.20	----
Selenium, dissolved	7782-49-2	E421/VA	0.050	µg/L		0.092	<0.050	<0.050	<0.050	----
Silicon, dissolved	7440-21-3	E421/VA	50	µg/L		11800	9660	15300	<50	----
Silver, dissolved	7440-22-4	E421/VA	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	----
Sodium, dissolved	7440-23-5	E421/VA	50	µg/L		2490	14800	4270	<50	----
Strontium, dissolved	7440-24-6	E421/VA	0.20	µg/L		112	366	216	0.26 RRV	----
Sulfur, dissolved	7704-34-9	E421/VA	500	µg/L		960	32500	12800	<500	----
Tellurium, dissolved	13494-80-9	E421/VA	0.20	µg/L		<0.20	<0.20	<0.20	<0.20	----
Thallium, dissolved	7440-28-0	E421/VA	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	----
Thorium, dissolved	7440-29-1	E421/VA	0.10	µg/L		<0.10	<0.10	<0.10	<0.10	----
Tin, dissolved	7440-31-5	E421/VA	0.10	µg/L		<0.10	<0.10	<0.10	2.13 RRV	----
Titanium, dissolved	7440-32-6	E421/VA	0.30	µg/L		<0.30	<0.30	<0.30	<0.30	----
Tungsten, dissolved	7440-33-7	E421/VA	0.10	µg/L		<0.10	<0.10	0.39	<0.10	----
Uranium, dissolved	7440-61-1	E421/VA	0.010	µg/L		0.648	2.25	0.028	<0.010	----
Vanadium, dissolved	7440-62-2	E421/VA	0.50	µg/L		1.18	<0.50	<0.50	<0.50	----
Zinc, dissolved	7440-66-6	E421/VA	1.0	µg/L		4.3	4.6	<1.0	<1.0	----
Zirconium, dissolved	7440-67-7	E421/VA	0.20	µg/L		<0.20	<0.20	<0.20	<0.20	----

Analytical Results

Sub-Matrix: Groundwater (Matrix: Water)					Client sample ID	MW-01-2004(S) (E303722)	MW-01-2004(D) (E303723)	GW Duplicate	Field Blank	----
					Client sampling date / time	21-May-2025 11:32	21-May-2025 11:46	22-May-2025 10:07	22-May-2025 15:50	----
Analyte	CAS Number	Method/Lab	LOR	Unit		VA25B2060-006	VA25B2060-007	VA25B2060-008	VA25B2060-009	----
						Result	Result	Result	Result	----
Dissolved Metals										
Dissolved mercury filtration location	----	EP509/VA	-	-		Field	Field	Field	Field	----
Dissolved metals filtration location	----	EP421/VA	-	-		Field	Field	Field	Field	----

Please refer to the General Comments section for an explanation of any qualifiers detected.

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QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **VA25B2060**	Page	: 1 of 29
Client	: **Masse Environmental Consultants Ltd.**	Laboratory	: ALS Environmental - Vancouver
Contact	: Ico de Zwart	Account Manager	: Can Dang
Address	: 812 Vernon Street Nelson BC Canada V1L 4G4	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: ----	Telephone	: +1 604 253 4188
Project	: 2016-503-HB	Date Samples Received	: 23-May-2025 11:50
PO	: ----	Issue Date	: 30-May-2025 22:09
C-O-C number	: 22-20250522-2		
Sampler	: Chris Stephanou		
Site	: RDCK		
Quote number	: ----		
No. of samples received	: 9		
No. of samples analysed	: 9		

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Key

Anonymous: Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number: Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO: Data Quality Objective.
LOR: Limit of Reporting (detection limit).
RPD: Relative Percent Difference.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Summary of Outliers

Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- No Duplicate outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- No Matrix Spike outliers occur.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- Analysis Holding Time Outliers exist - please see following pages for full details.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
Field Blank	E298	22-May-2025	24-May-2025	28 days	2 days	✓	29-May-2025	28 days	2 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
GW Duplicate	E298	22-May-2025	24-May-2025	28 days	2 days	✓	29-May-2025	28 days	2 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
MW-01-2004(D) (E303723)	E298	21-May-2025	24-May-2025	28 days	3 days	✓	29-May-2025	28 days	3 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
MW-01-2004(S) (E303722)	E298	21-May-2025	24-May-2025	28 days	3 days	✓	29-May-2025	28 days	3 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
MW-05-01 (E252593)	E298	21-May-2025	24-May-2025	28 days	3 days	✓	29-May-2025	28 days	3 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
MW99-1(D) (E240501)	E298	21-May-2025	24-May-2025	28 days	3 days	✓	29-May-2025	28 days	3 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
MW99-1(S) (E275563)	E298	21-May-2025	24-May-2025	28 days	3 days	✓	30-May-2025	28 days	3 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) MW99-2(D) (E240502)	E298	21-May-2025	24-May-2025	28 days	3 days	✓	30-May-2025	28 days	3 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) MW99-2(S) (E275543)	E298	21-May-2025	24-May-2025	28 days	3 days	✓	30-May-2025	28 days	3 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE Field Blank	E235.Br-L	22-May-2025	23-May-2025	28 days	1 days	✓	23-May-2025	28 days	1 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE GW Duplicate	E235.Br-L	22-May-2025	23-May-2025	28 days	2 days	✓	23-May-2025	28 days	2 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE MW-01-2004(D) (E303723)	E235.Br-L	21-May-2025	23-May-2025	28 days	2 days	✓	23-May-2025	28 days	2 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE MW-01-2004(S) (E303722)	E235.Br-L	21-May-2025	23-May-2025	28 days	2 days	✓	23-May-2025	28 days	2 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE MW-05-01 (E252593)	E235.Br-L	21-May-2025	23-May-2025	28 days	2 days	✓	23-May-2025	28 days	2 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE MW99-2(D) (E240502)	E235.Br-L	21-May-2025	23-May-2025	28 days	2 days	✓	23-May-2025	28 days	2 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE MW99-2(S) (E275543)	E235.Br-L	21-May-2025	23-May-2025	28 days	2 days	✓	23-May-2025	28 days	2 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE MW99-1(D) (E240501)	E235.Br-L	21-May-2025	23-May-2025	28 days	3 days	✓	23-May-2025	28 days	3 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE MW99-1(S) (E275563)	E235.Br-L	21-May-2025	23-May-2025	28 days	3 days	✓	23-May-2025	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE Field Blank	E235.Cl	22-May-2025	23-May-2025	28 days	1 days	✓	23-May-2025	28 days	1 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE GW Duplicate	E235.Cl	22-May-2025	23-May-2025	28 days	2 days	✓	23-May-2025	28 days	2 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE MW-01-2004(D) (E303723)	E235.Cl	21-May-2025	23-May-2025	28 days	2 days	✓	23-May-2025	28 days	2 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE MW-01-2004(S) (E303722)	E235.Cl	21-May-2025	23-May-2025	28 days	2 days	✓	23-May-2025	28 days	2 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE MW-05-01 (E252593)	E235.Cl	21-May-2025	23-May-2025	28 days	2 days	✓	23-May-2025	28 days	2 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE MW99-2(D) (E240502)	E235.Cl	21-May-2025	23-May-2025	28 days	2 days	✓	23-May-2025	28 days	2 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE MW99-2(S) (E275543)	E235.Cl	21-May-2025	23-May-2025	28 days	2 days	✓	23-May-2025	28 days	2 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	*Method*	*Sampling Date*	*Extraction / Preparation*				*Analysis*			
			Preparation Date	*Holding Times* Rec	*Holding Times* Actual	*Eval*	*Analysis Date*	*Holding Times* Rec	*Holding Times* Actual	*Eval*
Anions and Nutrients : Chloride in Water by IC										
HDPE MW99-1(D) (E240501)	E235.Cl	21-May-2025	23-May-2025	28 days	3 days	✓	23-May-2025	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE MW99-1(S) (E275563)	E235.Cl	21-May-2025	23-May-2025	28 days	3 days	✓	23-May-2025	28 days	3 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE Field Blank	E378-U	22-May-2025	23-May-2025	3 days	1 days	✓	24-May-2025	3 days	1 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE GW Duplicate	E378-U	22-May-2025	23-May-2025	3 days	2 days	✓	24-May-2025	3 days	2 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE MW-01-2004(D) (E303723)	E378-U	21-May-2025	23-May-2025	3 days	2 days	✓	24-May-2025	3 days	2 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE MW-01-2004(S) (E303722)	E378-U	21-May-2025	23-May-2025	3 days	2 days	✓	24-May-2025	3 days	2 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE MW-05-01 (E252593)	E378-U	21-May-2025	23-May-2025	3 days	2 days	✓	24-May-2025	3 days	2 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE MW99-2(D) (E240502)	E378-U	21-May-2025	23-May-2025	3 days	2 days	✓	24-May-2025	3 days	2 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE MW99-2(S) (E275543)	E378-U	21-May-2025	23-May-2025	3 days	2 days	✓	24-May-2025	3 days	2 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE										
MW99-1(D) (E240501)	E378-U	21-May-2025	23-May-2025	3 days	3 days	✓	24-May-2025	3 days	3 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE										
MW99-1(S) (E275563)	E378-U	21-May-2025	23-May-2025	3 days	3 days	✓	24-May-2025	3 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
Field Blank	E235.F	22-May-2025	23-May-2025	28 days	1 days	✓	23-May-2025	28 days	1 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
GW Duplicate	E235.F	22-May-2025	23-May-2025	28 days	2 days	✓	23-May-2025	28 days	2 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
MW-01-2004(D) (E303723)	E235.F	21-May-2025	23-May-2025	28 days	2 days	✓	23-May-2025	28 days	2 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
MW-01-2004(S) (E303722)	E235.F	21-May-2025	23-May-2025	28 days	2 days	✓	23-May-2025	28 days	2 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
MW-05-01 (E252593)	E235.F	21-May-2025	23-May-2025	28 days	2 days	✓	23-May-2025	28 days	2 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
MW99-2(D) (E240502)	E235.F	21-May-2025	23-May-2025	28 days	2 days	✓	23-May-2025	28 days	2 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
MW99-2(S) (E275543)	E235.F	21-May-2025	23-May-2025	28 days	2 days	✓	23-May-2025	28 days	2 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Fluoride in Water by IC										
HDPE MW99-1(D) (E240501)	E235.F	21-May-2025	23-May-2025	28 days	3 days	✓	23-May-2025	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE MW99-1(S) (E275563)	E235.F	21-May-2025	23-May-2025	28 days	3 days	✓	23-May-2025	28 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE Field Blank	E235.NO3-L	22-May-2025	23-May-2025	3 days	1 days	✓	23-May-2025	3 days	1 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE GW Duplicate	E235.NO3-L	22-May-2025	23-May-2025	3 days	2 days	✓	23-May-2025	3 days	2 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE MW-01-2004(D) (E303723)	E235.NO3-L	21-May-2025	23-May-2025	3 days	2 days	✓	23-May-2025	3 days	2 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE MW-01-2004(S) (E303722)	E235.NO3-L	21-May-2025	23-May-2025	3 days	2 days	✓	23-May-2025	3 days	2 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE MW-05-01 (E252593)	E235.NO3-L	21-May-2025	23-May-2025	3 days	2 days	✓	23-May-2025	3 days	2 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE MW99-2(D) (E240502)	E235.NO3-L	21-May-2025	23-May-2025	3 days	2 days	✓	23-May-2025	3 days	2 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE MW99-2(S) (E275543)	E235.NO3-L	21-May-2025	23-May-2025	3 days	2 days	✓	23-May-2025	3 days	2 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE MW99-1(D) (E240501)	E235.NO3-L	21-May-2025	23-May-2025	3 days	3 days	✓	23-May-2025	3 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE MW99-1(S) (E275563)	E235.NO3-L	21-May-2025	23-May-2025	3 days	3 days	✓	23-May-2025	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE Field Blank	E235.NO2-L	22-May-2025	23-May-2025	3 days	1 days	✓	23-May-2025	3 days	1 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE GW Duplicate	E235.NO2-L	22-May-2025	23-May-2025	3 days	2 days	✓	23-May-2025	3 days	2 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE MW-01-2004(D) (E303723)	E235.NO2-L	21-May-2025	23-May-2025	3 days	2 days	✓	23-May-2025	3 days	2 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE MW-01-2004(S) (E303722)	E235.NO2-L	21-May-2025	23-May-2025	3 days	2 days	✓	23-May-2025	3 days	2 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE MW-05-01 (E252593)	E235.NO2-L	21-May-2025	23-May-2025	3 days	2 days	✓	23-May-2025	3 days	2 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE MW99-2(D) (E240502)	E235.NO2-L	21-May-2025	23-May-2025	3 days	2 days	✓	23-May-2025	3 days	2 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE MW99-2(S) (E275543)	E235.NO2-L	21-May-2025	23-May-2025	3 days	2 days	✓	23-May-2025	3 days	2 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE MW99-1(D) (E240501)	E235.NO2-L	21-May-2025	23-May-2025	3 days	3 days	✓	23-May-2025	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE MW99-1(S) (E275563)	E235.NO2-L	21-May-2025	23-May-2025	3 days	3 days	✓	23-May-2025	3 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE Field Blank	E235.SO4	22-May-2025	23-May-2025	28 days	1 days	✓	23-May-2025	28 days	1 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE GW Duplicate	E235.SO4	22-May-2025	23-May-2025	28 days	2 days	✓	23-May-2025	28 days	2 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE MW-01-2004(D) (E303723)	E235.SO4	21-May-2025	23-May-2025	28 days	2 days	✓	23-May-2025	28 days	2 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE MW-01-2004(S) (E303722)	E235.SO4	21-May-2025	23-May-2025	28 days	2 days	✓	23-May-2025	28 days	2 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE MW-05-01 (E252593)	E235.SO4	21-May-2025	23-May-2025	28 days	2 days	✓	23-May-2025	28 days	2 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE MW99-2(D) (E240502)	E235.SO4	21-May-2025	23-May-2025	28 days	2 days	✓	23-May-2025	28 days	2 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE MW99-2(S) (E275543)	E235.SO4	21-May-2025	23-May-2025	28 days	2 days	✓	23-May-2025	28 days	2 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Sulfate in Water by IC										
HDPE MW99-1(D) (E240501)	E235.SO4	21-May-2025	23-May-2025	28 days	3 days	✓	23-May-2025	28 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE MW99-1(S) (E275563)	E235.SO4	21-May-2025	23-May-2025	28 days	3 days	✓	23-May-2025	28 days	3 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) Field Blank	E318	22-May-2025	24-May-2025	28 days	2 days	✓	29-May-2025	28 days	2 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) GW Duplicate	E318	22-May-2025	24-May-2025	28 days	2 days	✓	29-May-2025	28 days	2 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) MW-01-2004(D) (E303723)	E318	21-May-2025	24-May-2025	28 days	3 days	✓	29-May-2025	28 days	3 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) MW-01-2004(S) (E303722)	E318	21-May-2025	24-May-2025	28 days	3 days	✓	29-May-2025	28 days	3 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) MW-05-01 (E252593)	E318	21-May-2025	24-May-2025	28 days	3 days	✓	29-May-2025	28 days	3 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) MW99-1(D) (E240501)	E318	21-May-2025	24-May-2025	28 days	3 days	✓	29-May-2025	28 days	3 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) MW99-1(S) (E275563)	E318	21-May-2025	24-May-2025	28 days	3 days	✓	29-May-2025	28 days	3 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid)										
MW99-2(D) (E240502)	E318	21-May-2025	24-May-2025	28 days	3 days	✓	29-May-2025	28 days	3 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid)										
MW99-2(S) (E275543)	E318	21-May-2025	24-May-2025	28 days	3 days	✓	29-May-2025	28 days	3 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
Field Blank	E509	22-May-2025	29-May-2025	28 days	7 days	✓	29-May-2025	28 days	7 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
GW Duplicate	E509	22-May-2025	29-May-2025	28 days	7 days	✓	29-May-2025	28 days	7 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
MW-01-2004(D) (E303723)	E509	21-May-2025	29-May-2025	28 days	8 days	✓	29-May-2025	28 days	8 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
MW-01-2004(S) (E303722)	E509	21-May-2025	29-May-2025	28 days	8 days	✓	29-May-2025	28 days	8 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
MW-05-01 (E252593)	E509	21-May-2025	29-May-2025	28 days	8 days	✓	29-May-2025	28 days	8 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
MW99-1(D) (E240501)	E509	21-May-2025	29-May-2025	28 days	8 days	✓	29-May-2025	28 days	8 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
MW99-1(S) (E275563)	E509	21-May-2025	29-May-2025	28 days	8 days	✓	29-May-2025	28 days	8 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved) MW99-2(D) (E240502)	E509	21-May-2025	29-May-2025	28 days	8 days	✓	29-May-2025	28 days	8 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved) MW99-2(S) (E275543)	E509	21-May-2025	29-May-2025	28 days	8 days	✓	29-May-2025	28 days	8 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) Field Blank	E421	22-May-2025	28-May-2025	180 days	6 days	✓	29-May-2025	180 days	6 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) GW Duplicate	E421	22-May-2025	28-May-2025	180 days	6 days	✓	29-May-2025	180 days	6 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) MW-01-2004(D) (E303723)	E421	21-May-2025	28-May-2025	180 days	7 days	✓	29-May-2025	180 days	7 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) MW-01-2004(S) (E303722)	E421	21-May-2025	28-May-2025	180 days	7 days	✓	29-May-2025	180 days	7 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) MW-05-01 (E252593)	E421	21-May-2025	28-May-2025	180 days	7 days	✓	29-May-2025	180 days	7 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) MW99-1(D) (E240501)	E421	21-May-2025	28-May-2025	180 days	7 days	✓	29-May-2025	180 days	7 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) MW99-1(S) (E275563)	E421	21-May-2025	28-May-2025	180 days	7 days	✓	29-May-2025	180 days	7 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) MW99-2(D) (E240502)	E421	21-May-2025	28-May-2025	180 days	7 days	✓	29-May-2025	180 days	7 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) MW99-2(S) (E275543)	E421	21-May-2025	28-May-2025	180 days	7 days	✓	29-May-2025	180 days	7 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) Field Blank	E355-L	22-May-2025	24-May-2025	28 days	2 days	✓	24-May-2025	28 days	2 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) GW Duplicate	E355-L	22-May-2025	24-May-2025	28 days	2 days	✓	24-May-2025	28 days	2 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) MW-01-2004(D) (E303723)	E355-L	21-May-2025	24-May-2025	28 days	3 days	✓	24-May-2025	28 days	3 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) MW-01-2004(S) (E303722)	E355-L	21-May-2025	24-May-2025	28 days	3 days	✓	24-May-2025	28 days	3 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) MW-05-01 (E252593)	E355-L	21-May-2025	24-May-2025	28 days	3 days	✓	24-May-2025	28 days	3 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) MW99-1(D) (E240501)	E355-L	21-May-2025	24-May-2025	28 days	3 days	✓	24-May-2025	28 days	3 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) MW99-1(S) (E275563)	E355-L	21-May-2025	24-May-2025	28 days	3 days	✓	24-May-2025	28 days	3 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) MW99-2(D) (E240502)	E355-L	21-May-2025	24-May-2025	28 days	3 days	✓	24-May-2025	28 days	3 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) MW99-2(S) (E275543)	E355-L	21-May-2025	24-May-2025	28 days	3 days	✓	24-May-2025	28 days	3 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE Field Blank	E290	22-May-2025	23-May-2025	14 days	1 days	✓	24-May-2025	14 days	1 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE GW Duplicate	E290	22-May-2025	23-May-2025	14 days	2 days	✓	24-May-2025	14 days	2 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE MW-01-2004(D) (E303723)	E290	21-May-2025	23-May-2025	14 days	2 days	✓	24-May-2025	14 days	2 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE MW-01-2004(S) (E303722)	E290	21-May-2025	23-May-2025	14 days	2 days	✓	24-May-2025	14 days	2 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE MW-05-01 (E252593)	E290	21-May-2025	23-May-2025	14 days	2 days	✓	24-May-2025	14 days	2 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE MW99-2(D) (E240502)	E290	21-May-2025	23-May-2025	14 days	2 days	✓	24-May-2025	14 days	2 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE MW99-2(S) (E275543)	E290	21-May-2025	23-May-2025	14 days	2 days	✓	24-May-2025	14 days	2 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Alkalinity Species by Titration										
HDPE MW99-1(D) (E240501)	E290	21-May-2025	23-May-2025	14 days	3 days	✓	24-May-2025	14 days	3 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE MW99-1(S) (E275563)	E290	21-May-2025	23-May-2025	14 days	3 days	✓	24-May-2025	14 days	3 days	✓
Physical Tests : Conductivity in Water										
HDPE Field Blank	E100	22-May-2025	23-May-2025	28 days	1 days	✓	24-May-2025	28 days	1 days	✓
Physical Tests : Conductivity in Water										
HDPE GW Duplicate	E100	22-May-2025	23-May-2025	28 days	2 days	✓	24-May-2025	28 days	2 days	✓
Physical Tests : Conductivity in Water										
HDPE MW-01-2004(D) (E303723)	E100	21-May-2025	23-May-2025	28 days	2 days	✓	24-May-2025	28 days	2 days	✓
Physical Tests : Conductivity in Water										
HDPE MW-01-2004(S) (E303722)	E100	21-May-2025	23-May-2025	28 days	2 days	✓	24-May-2025	28 days	2 days	✓
Physical Tests : Conductivity in Water										
HDPE MW-05-01 (E252593)	E100	21-May-2025	23-May-2025	28 days	2 days	✓	24-May-2025	28 days	2 days	✓
Physical Tests : Conductivity in Water										
HDPE MW99-2(D) (E240502)	E100	21-May-2025	23-May-2025	28 days	2 days	✓	24-May-2025	28 days	2 days	✓
Physical Tests : Conductivity in Water										
HDPE MW99-2(S) (E275543)	E100	21-May-2025	23-May-2025	28 days	2 days	✓	24-May-2025	28 days	2 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Conductivity in Water										
HDPE MW99-1(D) (E240501)	E100	21-May-2025	23-May-2025	28 days	3 days	✓	24-May-2025	28 days	3 days	✓
Physical Tests : Conductivity in Water										
HDPE MW99-1(S) (E275563)	E100	21-May-2025	23-May-2025	28 days	3 days	✓	24-May-2025	28 days	3 days	✓
Physical Tests : pH by Meter										
HDPE Field Blank	E108	22-May-2025	23-May-2025	0.25 hrs	31 hrs	× EHTR-FM	24-May-2025	0.25 hrs	31 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE GW Duplicate	E108	22-May-2025	23-May-2025	0.25 hrs	36 hrs	× EHTR-FM	24-May-2025	0.25 hrs	36 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE MW99-2(D) (E240502)	E108	21-May-2025	23-May-2025	0.25 hrs	55 hrs	× EHTR-FM	24-May-2025	0.25 hrs	55 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE MW99-2(S) (E275543)	E108	21-May-2025	23-May-2025	0.25 hrs	56 hrs	× EHTR-FM	24-May-2025	0.25 hrs	56 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE MW-05-01 (E252593)	E108	21-May-2025	23-May-2025	0.25 hrs	57 hrs	× EHTR-FM	24-May-2025	0.25 hrs	57 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE MW-01-2004(D) (E303723)	E108	21-May-2025	23-May-2025	0.25 hrs	59 hrs	× EHTR-FM	24-May-2025	0.25 hrs	59 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE MW-01-2004(S) (E303722)	E108	21-May-2025	23-May-2025	0.25 hrs	59 hrs	× EHTR-FM	24-May-2025	0.25 hrs	59 hrs	× EHTR-FM

Matrix: **Water**

Evaluation: ✗ = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : pH by Meter										
HDPE MW99-1(D) (E240501)	E108	21-May-2025	23-May-2025	0.25 hrs	60 hrs	✗ EHTR-FM	24-May-2025	0.25 hrs	60 hrs	✗ EHTR-FM
Physical Tests : pH by Meter										
HDPE MW99-1(S) (E275563)	E108	21-May-2025	23-May-2025	0.25 hrs	60 hrs	✗ EHTR-FM	24-May-2025	0.25 hrs	60 hrs	✗ EHTR-FM
Physical Tests : TDS by Gravimetry										
HDPE Field Blank	E162	22-May-2025	----	----	----		28-May-2025	7 days	6 days	✓
Physical Tests : TDS by Gravimetry										
HDPE GW Duplicate	E162	22-May-2025	----	----	----		28-May-2025	7 days	6 days	✓
Physical Tests : TDS by Gravimetry										
HDPE MW-01-2004(D) (E303723)	E162	21-May-2025	----	----	----		28-May-2025	7 days	7 days	✓
Physical Tests : TDS by Gravimetry										
HDPE MW-01-2004(S) (E303722)	E162	21-May-2025	----	----	----		28-May-2025	7 days	7 days	✓
Physical Tests : TDS by Gravimetry										
HDPE MW-05-01 (E252593)	E162	21-May-2025	----	----	----		28-May-2025	7 days	7 days	✓
Physical Tests : TDS by Gravimetry										
HDPE MW99-1(D) (E240501)	E162	21-May-2025	----	----	----		28-May-2025	7 days	7 days	✓
Physical Tests : TDS by Gravimetry										
HDPE MW99-1(S) (E275563)	E162	21-May-2025	----	----	----		28-May-2025	7 days	7 days	✓

Matrix: **Water**

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Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : TDS by Gravimetry										
HDPE MW99-2(D) (E240502)	E162	21-May-2025	----	----	----		28-May-2025	7 days	7 days	✓
Physical Tests : TDS by Gravimetry										
HDPE MW99-2(S) (E275543)	E162	21-May-2025	----	----	----		28-May-2025	7 days	7 days	✓
Physical Tests : TSS by Gravimetry										
HDPE Field Blank	E160	22-May-2025	----	----	----		28-May-2025	7 days	6 days	✓
Physical Tests : TSS by Gravimetry										
HDPE GW Duplicate	E160	22-May-2025	----	----	----		28-May-2025	7 days	6 days	✓
Physical Tests : TSS by Gravimetry										
HDPE MW-01-2004(D) (E303723)	E160	21-May-2025	----	----	----		28-May-2025	7 days	7 days	✓
Physical Tests : TSS by Gravimetry										
HDPE MW-01-2004(S) (E303722)	E160	21-May-2025	----	----	----		28-May-2025	7 days	7 days	✓
Physical Tests : TSS by Gravimetry										
HDPE MW-05-01 (E252593)	E160	21-May-2025	----	----	----		28-May-2025	7 days	7 days	✓
Physical Tests : TSS by Gravimetry										
HDPE MW99-1(D) (E240501)	E160	21-May-2025	----	----	----		28-May-2025	7 days	7 days	✓
Physical Tests : TSS by Gravimetry										
HDPE MW99-1(S) (E275563)	E160	21-May-2025	----	----	----		28-May-2025	7 days	7 days	✓

Matrix: **Water**

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Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : TSS by Gravimetry										
HDPE MW99-2(D) (E240502)	E160	21-May-2025	----	----	----		28-May-2025	7 days	7 days	✓
Physical Tests : TSS by Gravimetry										
HDPE MW99-2(S) (E275543)	E160	21-May-2025	----	----	----		28-May-2025	7 days	7 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved) Field Blank	E508	22-May-2025	29-May-2025	28 days	6 days	✓	29-May-2025	28 days	6 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved) GW Duplicate	E508	22-May-2025	29-May-2025	28 days	7 days	✓	29-May-2025	28 days	7 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved) MW99-2(D) (E240502)	E508	21-May-2025	29-May-2025	28 days	7 days	✓	29-May-2025	28 days	7 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved) MW-01-2004(D) (E303723)	E508	21-May-2025	29-May-2025	28 days	8 days	✓	29-May-2025	28 days	8 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved) MW-01-2004(S) (E303722)	E508	21-May-2025	29-May-2025	28 days	8 days	✓	29-May-2025	28 days	8 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved) MW-05-01 (E252593)	E508	21-May-2025	29-May-2025	28 days	8 days	✓	29-May-2025	28 days	8 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved) MW99-1(D) (E240501)	E508	21-May-2025	29-May-2025	28 days	8 days	✓	29-May-2025	28 days	8 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved) MW99-1(S) (E275563)	E508	21-May-2025	29-May-2025	28 days	8 days	✓	29-May-2025	28 days	8 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved) MW99-2(S) (E275543)	E508	21-May-2025	29-May-2025	28 days	8 days	✓	29-May-2025	28 days	8 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) Field Blank	E420	22-May-2025	27-May-2025	180 days	5 days	✓	29-May-2025	180 days	5 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) GW Duplicate	E420	22-May-2025	27-May-2025	180 days	5 days	✓	29-May-2025	180 days	5 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) MW-01-2004(D) (E303723)	E420	21-May-2025	27-May-2025	180 days	6 days	✓	29-May-2025	180 days	6 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) MW-01-2004(S) (E303722)	E420	21-May-2025	27-May-2025	180 days	6 days	✓	29-May-2025	180 days	6 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) MW-05-01 (E252593)	E420	21-May-2025	27-May-2025	180 days	6 days	✓	29-May-2025	180 days	6 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) MW99-1(D) (E240501)	E420	21-May-2025	27-May-2025	180 days	6 days	✓	29-May-2025	180 days	6 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) MW99-1(S) (E275563)	E420	21-May-2025	27-May-2025	180 days	6 days	✓	29-May-2025	180 days	6 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) MW99-2(D) (E240502)	E420	21-May-2025	27-May-2025	180 days	6 days	✓	29-May-2025	180 days	6 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) MW99-2(S) (E275543)	E420	21-May-2025	27-May-2025	180 days	6 days	✓	29-May-2025	180 days	6 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) Field Blank	E395-H	22-May-2025	----	----	----		28-May-2025	7 days	6 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) GW Duplicate	E395-H	22-May-2025	----	----	----		28-May-2025	7 days	6 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) MW-01-2004(D) (E303723)	E395-H	21-May-2025	----	----	----		27-May-2025	7 days	6 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) MW-01-2004(S) (E303722)	E395-H	21-May-2025	----	----	----		27-May-2025	7 days	6 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) MW-05-01 (E252593)	E395-H	21-May-2025	----	----	----		27-May-2025	7 days	6 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) MW99-1(D) (E240501)	E395-H	21-May-2025	----	----	----		27-May-2025	7 days	6 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) MW99-1(S) (E275563)	E395-H	21-May-2025	----	----	----		27-May-2025	7 days	6 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide)										
MW99-2(D) (E240502)	E395-H	21-May-2025	----	----	----		27-May-2025	7 days	6 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide)										
MW99-2(S) (E275543)	E395-H	21-May-2025	----	----	----		27-May-2025	7 days	6 days	✓

Legend & Qualifier Definitions

EHTR-FM: Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended

Rec. HT: ALS recommended hold time (see units).

Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Water**

Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
Conductivity in Water	E100	2012881	1	19	5.2	5.0	✓
pH by Meter	E108	2012879	1	19	5.2	5.0	✓
TSS by Gravimetry	E160	2019613	1	20	5.0	5.0	✓
TDS by Gravimetry	E162	2019631	1	20	5.0	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	2012884	1	10	10.0	5.0	✓
Chloride in Water by IC	E235.Cl	2012883	1	19	5.2	5.0	✓
Fluoride in Water by IC	E235.F	2012882	1	19	5.2	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	2012886	1	19	5.2	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	2012885	1	19	5.2	5.0	✓
Sulfate in Water by IC	E235.SO4	2012887	1	19	5.2	5.0	✓
Alkalinity Species by Titration	E290	2012880	1	19	5.2	5.0	✓
Ammonia by Fluorescence	E298	2013444	1	19	5.2	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	2013447	1	10	10.0	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	2013448	1	10	10.0	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	2012889	1	18	5.5	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395-H	2016842	2	29	6.9	5.0	✓
Total Metals in Water by CRC ICPMS	E420	2014854	1	19	5.2	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	2015009	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	2020970	2	40	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	2023278	1	20	5.0	5.0	✓
Laboratory Control Samples (LCS)							
Conductivity in Water	E100	2012881	1	19	5.2	5.0	✓
pH by Meter	E108	2012879	1	19	5.2	5.0	✓
TSS by Gravimetry	E160	2019613	1	20	5.0	5.0	✓
TDS by Gravimetry	E162	2019631	1	20	5.0	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	2012884	1	10	10.0	5.0	✓
Chloride in Water by IC	E235.Cl	2012883	1	19	5.2	5.0	✓
Fluoride in Water by IC	E235.F	2012882	1	19	5.2	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	2012886	1	19	5.2	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	2012885	1	19	5.2	5.0	✓
Sulfate in Water by IC	E235.SO4	2012887	1	19	5.2	5.0	✓
Alkalinity Species by Titration	E290	2012880	1	19	5.2	5.0	✓
Ammonia by Fluorescence	E298	2013444	1	19	5.2	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	2013447	1	10	10.0	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	2013448	1	10	10.0	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	2012889	1	18	5.5	5.0	✓

Matrix: **Water**

Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Control Samples (LCS) - Continued							
Total Sulfide by Colourimetry (Automated Flow)	E395-H	2016842	2	29	6.9	5.0	✓
Total Metals in Water by CRC ICPMS	E420	2014854	1	19	5.2	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	2015009	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	2020970	2	40	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	2023278	1	20	5.0	5.0	✓
Method Blanks (MB)							
Conductivity in Water	E100	2012881	1	19	5.2	5.0	✓
TSS by Gravimetry	E160	2019613	1	20	5.0	5.0	✓
TDS by Gravimetry	E162	2019631	1	20	5.0	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	2012884	1	10	10.0	5.0	✓
Chloride in Water by IC	E235.Cl	2012883	1	19	5.2	5.0	✓
Fluoride in Water by IC	E235.F	2012882	1	19	5.2	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	2012886	1	19	5.2	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	2012885	1	19	5.2	5.0	✓
Sulfate in Water by IC	E235.SO4	2012887	1	19	5.2	5.0	✓
Alkalinity Species by Titration	E290	2012880	1	19	5.2	5.0	✓
Ammonia by Fluorescence	E298	2013444	1	19	5.2	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	2013447	1	10	10.0	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	2013448	1	10	10.0	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	2012889	1	18	5.5	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395-H	2016842	2	29	6.9	5.0	✓
Total Metals in Water by CRC ICPMS	E420	2014854	1	19	5.2	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	2015009	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	2020970	2	40	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	2023278	1	20	5.0	5.0	✓
Matrix Spikes (MS)							
Bromide in Water by IC (Low Level)	E235.Br-L	2012884	1	10	10.0	5.0	✓
Chloride in Water by IC	E235.Cl	2012883	1	19	5.2	5.0	✓
Fluoride in Water by IC	E235.F	2012882	1	19	5.2	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	2012886	1	19	5.2	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	2012885	1	19	5.2	5.0	✓
Sulfate in Water by IC	E235.SO4	2012887	1	19	5.2	5.0	✓
Ammonia by Fluorescence	E298	2013444	1	19	5.2	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	2013447	1	10	10.0	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	2013448	1	10	10.0	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	2012889	1	18	5.5	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395-H	2016842	2	29	6.9	5.0	✓
Total Metals in Water by CRC ICPMS	E420	2014854	1	19	5.2	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	2015009	1	20	5.0	5.0	✓

Matrix: **Water**

Evaluation: × = *QC frequency outside specification*; ✓ = *QC frequency within specification.*

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Matrix Spikes (MS) - Continued							
Total Mercury in Water by CVAAS	E508	2020970	2	40	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	2023278	1	20	5.0	5.0	✓

Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Conductivity in Water	E100 ALS Environmental - Vancouver	Water	APHA 2510 (mod)	Conductivity, also known as Electrical Conductivity (EC) or Specific Conductance, is measured by immersion of a conductivity cell with platinum electrodes into a water sample. Conductivity measurements are temperature-compensated to 25°C.
pH by Meter	E108 ALS Environmental - Vancouver	Water	APHA 4500-H (mod)	pH is determined by potentiometric measurement with a pH electrode, and is conducted at ambient laboratory temperature (normally 20 ± 5°C). For high accuracy test results, pH should be measured in the field within the recommended 15 minute hold time.
TSS by Gravimetry	E160 ALS Environmental - Vancouver	Water	APHA 2540 D (mod)	Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, following by drying of the filter at 104 ± 1°C, with gravimetric measurement of the filtered solids. Samples containing very high dissolved solid content (i.e. seawaters, brackish waters) may produce a positive bias by this method. Alternate analysis methods are available for these types of samples.
TDS by Gravimetry	E162 ALS Environmental - Vancouver	Water	APHA 2540 C (mod)	Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, with evaporation of the filtrate at 180 ± 2°C for 16 hours or to constant weight, with gravimetric measurement of the residue.
Bromide in Water by IC (Low Level)	E235.Br-L ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Chloride in Water by IC	E235.Cl ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Fluoride in Water by IC	E235.F ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrite in Water by IC (Low Level)	E235.NO2-L ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrate in Water by IC (Low Level)	E235.NO3-L ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Sulfate in Water by IC	E235.SO4 ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Alkalinity Species by Titration	E290 ALS Environmental - Vancouver	Water	APHA 2320 B (mod)	Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.
Ammonia by Fluorescence	E298 ALS Environmental - Vancouver	Water	Method Fialab 100, 2018	Ammonia in water is determined by automated continuous flow analysis with membrane diffusion and fluorescence detection, after reaction with OPA (ortho-phthalaldehyde). This method is approved under US EPA 40 CFR Part 136 (May 2021)
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318 ALS Environmental - Vancouver	Water	Method Fialab 100, 2018	TKN in water is determined by automated continuous flow analysis with membrane diffusion and fluorescence detection, after reaction with OPA (ortho-phthalaldehyde). This method is approved under US EPA 40 CFR Part 136 (May 2021).
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L ALS Environmental - Vancouver	Water	APHA 5310 B (mod)	Total Organic Carbon (Non-Purgeable), also known as NPOC (total), is a direct measurement of TOC after an acidified sample has been purged to remove carbonate-based Inorganic Carbon (IC). Analysis is by high temperature combustion with infrared detection of CO2. Forms of carbon associated with inorganic or organic molecules (e.g. SCN and CN) are included in NPOC if they are not removed by purging under acidic conditions. Notably, NPOC excludes most volatile organic compounds and free cyanide. For samples where the majority of Total Carbon is inorganic, this method provides greater accuracy and reliability versus the TOC by subtraction method (TC minus TIC).
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U ALS Environmental - Vancouver	Water	APHA 4500-P F (mod)	Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter. Field filtration is recommended to ensure test results represent conditions at time of sampling.
Total Sulfide by Colourimetry (Automated Flow)	E395-H ALS Environmental - Vancouver	Water	APHA 4500 -S E-Auto-Colorimetry	Sulfide is determined using the gas dialysis automated methlyene blue colourimetric method. Results expressed "as H2S" if reported represent the maximum possible H2S concentration based on the total sulfide concentration in the sample. The H2S calculation converts Total Sulphide as (S2-) and reports it as Total Sulphide as (H2S)
Total Metals in Water by CRC ICPMS	E420 ALS Environmental - Vancouver	Water	EPA 200.2/6020B (mod)	Water samples are digested with nitric and hydrochloric acids, and analyzed by Collision/Reaction Cell ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
Dissolved Metals in Water by CRC ICPMS	E421 ALS Environmental - Vancouver	Water	APHA 3030B/EPA 6020B (mod)	Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by Collision/Reaction Cell ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Total Mercury in Water by CVAAS	E508 ALS Environmental - Vancouver	Water	EPA 1631E (mod)	Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS
Dissolved Mercury in Water by CVAAS	E509 ALS Environmental - Vancouver	Water	APHA 3030B/EPA 1631E (mod)	Water samples are filtered (0.45 um), preserved with HCl, then undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS.
Dissolved Hardness (Calculated)	EC100 ALS Environmental - Vancouver	Water	APHA 2340B	"Hardness (as CaCO3), dissolved" is calculated from the sum of dissolved Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. "Total Hardness" refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because it is a property of water due to dissolved divalent cations.
Hardness (Calculated) from Total Ca/Mg	EC100A ALS Environmental - Vancouver	Water	APHA 2340B	"Hardness (as CaCO3), from total Ca/Mg" is calculated from the sum of total Calcium and Magnesium concentrations, expressed as CaCO3 equivalents. "Total Hardness" refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because hardness is a property of water due to dissolved divalent cations. In non-turbid waters, Hardness from total Ca/Mg is normally comparable to Dissolved Hardness, but may be biased high if particulate forms of Ca or Mg are present.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Ammonia	EP298 ALS Environmental - Vancouver	Water		Sample preparation for Preserved Nutrients Water Quality Analysis.
Digestion for TKN in water	EP318 ALS Environmental - Vancouver	Water	APHA 4500-Norg D (mod)	Samples are digested at high temperature using Sulfuric Acid with Copper catalyst, which converts organic nitrogen sources to Ammonia, which is then quantified by the analytical method as TKN. This method is unsuitable for samples containing high levels of nitrate. If nitrate exceeds TKN concentration by ten times or more, results may be biased low.
Preparation for Total Organic Carbon by Combustion	EP355 ALS Environmental - Vancouver	Water		Preparation for Total Organic Carbon by Combustion
Dissolved Metals Water Filtration	EP421 ALS Environmental - Vancouver	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HNO3.
Dissolved Mercury Water Filtration	EP509 ALS Environmental - Vancouver	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HCl.

QUALITY CONTROL REPORT

Work Order	: **VA25B2060**	Page	: 1 of 17
Client	: Masse Environmental Consultants Ltd.	Laboratory	: ALS Environmental - Vancouver
Contact	: Ico de Zwart	Account Manager	: Can Dang
Address	: 812 Vernon Street Nelson BC Canada V1L 4G4	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: ----	Telephone	: +1 604 253 4188
Project	: 2016-503-HB	Date Samples Received	: 23-May-2025 11:50
PO	: ----	Date Analysis Commenced	: 23-May-2025
C-O-C number	: 22-20250522-2	Issue Date	: 30-May-2025 22:09
Sampler	: Chris Stephanou		
Site	: RDCK		
Quote number	: ----		
No. of samples received	: 9		
No. of samples analysed	: 9		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percent Difference (RPD) and Data Quality Objectives
- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Erika Vanegas	Lab Assistant	Vancouver Metals, Burnaby, British Columbia
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Kevin Duarte	Supervisor - Metals ICP Instrumentation	Vancouver Metals, Burnaby, British Columbia
Leon Yang	Analyst	Vancouver Inorganics, Burnaby, British Columbia
Lindsay Gung	Department Manager - Inorganics	Vancouver Inorganics, Burnaby, British Columbia
Maya Urquhart	Lab Analyst	Vancouver Metals, Burnaby, British Columbia
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General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number = Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO = Data Quality Objective.
LOR = Limit of Reporting (detection limit).
RPD = Relative Percent Difference
# = Indicates a QC result that did not meet the ALS DQO.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test-specific).

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Physical Tests (QC Lot: 2012879)											
VA25B2059-001	Anonymous	pH	----	E108	0.10	pH units	7.94	7.94	0.00%	4%	----
Physical Tests (QC Lot: 2012880)											
VA25B2059-001	Anonymous	Alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	179	179	0.112%	20%	----
Physical Tests (QC Lot: 2012881)											
VA25B2059-001	Anonymous	Conductivity	----	E100	2.0	µS/cm	315	311	1.28%	10%	----
Physical Tests (QC Lot: 2019613)											
VA25B1997-001	Anonymous	Solids, total suspended [TSS]	----	E160	3.0	mg/L	13.5	14.5	1.0	Diff <2x LOR	----
Physical Tests (QC Lot: 2019631)											
VA25B1997-001	Anonymous	Solids, total dissolved [TDS]	----	E162	20	mg/L	251	258	2.94%	20%	----
Anions and Nutrients (QC Lot: 2012882)											
VA25B2059-001	Anonymous	Fluoride	16984-48-8	E235.F	0.020	mg/L	0.154	0.148	0.006	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 2012883)											
VA25B2059-001	Anonymous	Chloride	16887-00-6	E235.Cl	0.50	mg/L	0.53	0.52	0.01	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 2012884)											
VA25B2059-001	Anonymous	Bromide	24959-67-9	E235.Br-L	0.050	mg/L	0.067	0.069	0.002	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 2012885)											
VA25B2059-001	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 2012886)											
VA25B2059-001	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 2012887)											
VA25B2059-001	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	0.95	0.94	0.01	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 2012889)											
VA25B2060-001	MW99-1(S) (E275563)	Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0010	mg/L	0.0343	0.0330	3.74%	20%	----
Anions and Nutrients (QC Lot: 2013444)											
VA25B2048-001	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 2013447)											
VA25B2060-002	MW99-1(D) (E240501)	Kjeldahl nitrogen, total [TKN]	----	E318	0.050	mg/L	1.61	1.56	3.11%	20%	----
Organic / Inorganic Carbon (QC Lot: 2013448)											
VA25B2059-001	Anonymous	Carbon, total organic [TOC]	----	E355-L	0.50	mg/L	1.94	2.05	0.11	Diff <2x LOR	----
Total Sulfides (QC Lot: 2016842)											

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Total Sulfides (QC Lot: 2016842) - continued											
FJ2501492-001	Anonymous	Sulfide, total (as S)	18496-25-8	E395-H	0.010	mg/L	0.026	0.025	0.0009	Diff <2x LOR	----
Total Sulfides (QC Lot: 2019361)											
FJ2501518-001	Anonymous	Sulfide, total (as S)	18496-25-8	E395-H	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
Total Metals (QC Lot: 2014854)											
VA25B2045-019	Anonymous	Aluminum, total	7429-90-5	E420	0.0030	mg/L	<0.0030	<0.0030	0	Diff <2x LOR	----
		Antimony, total	7440-36-0	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Arsenic, total	7440-38-2	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Barium, total	7440-39-3	E420	0.00010	mg/L	<0.00010	0.00010	0.000002	Diff <2x LOR	----
		Beryllium, total	7440-41-7	E420	0.000020	mg/L	<0.000020	<0.000020	0	Diff <2x LOR	----
		Bismuth, total	7440-69-9	E420	0.000050	mg/L	<0.000050	0.000064	0.000014	Diff <2x LOR	----
		Boron, total	7440-42-8	E420	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		Cadmium, total	7440-43-9	E420	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
		Calcium, total	7440-70-2	E420	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Cesium, total	7440-46-2	E420	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Chromium, total	7440-47-3	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Cobalt, total	7440-48-4	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Copper, total	7440-50-8	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Iron, total	7439-89-6	E420	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		Lead, total	7439-92-1	E420	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Lithium, total	7439-93-2	E420	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Magnesium, total	7439-95-4	E420	0.100	mg/L	<0.100	<0.100	0	Diff <2x LOR	----
		Manganese, total	7439-96-5	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Molybdenum, total	7439-98-7	E420	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Nickel, total	7440-02-0	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Phosphorus, total	7723-14-0	E420	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Potassium, total	7440-09-7	E420	0.100	mg/L	<0.100	<0.100	0	Diff <2x LOR	----
		Rubidium, total	7440-17-7	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		Selenium, total	7782-49-2	E420	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Silicon, total	7440-21-3	E420	0.10	mg/L	<0.10	<0.10	0	Diff <2x LOR	----
		Silver, total	7440-22-4	E420	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Sodium, total	7440-23-5	E420	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Strontium, total	7440-24-6	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		Sulfur, total	7704-34-9	E420	0.50	mg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Tellurium, total	13494-80-9	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Total Metals (QC Lot: 2014854) - continued											
VA25B2045-019	Anonymous	Thallium, total	7440-28-0	E420	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Thorium, total	7440-29-1	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Tin, total	7440-31-5	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Titanium, total	7440-32-6	E420	0.00030	mg/L	<0.00030	<0.00030	0	Diff <2x LOR	----
		Tungsten, total	7440-33-7	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Uranium, total	7440-61-1	E420	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Vanadium, total	7440-62-2	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Zinc, total	7440-66-6	E420	0.0030	mg/L	<0.0030	<0.0030	0	Diff <2x LOR	----
		Zirconium, total	7440-67-7	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
Total Metals (QC Lot: 2020970)											
VA25B2045-012	Anonymous	Mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Total Metals (QC Lot: 2020971)											
VA25B2060-008	GW Duplicate	Mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.0050 µg/L	<0.0000050	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 2015009)											
VA25B2045-021	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	0.0062	0.0056	0.0006	Diff <2x LOR	----
		Antimony, dissolved	7440-36-0	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	0.00020	0.00017	0.00002	Diff <2x LOR	----
		Barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.0434	0.0429	1.22%	20%	----
		Beryllium, dissolved	7440-41-7	E421	0.000020	mg/L	<0.000020	<0.000020	0	Diff <2x LOR	----
		Bismuth, dissolved	7440-69-9	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Boron, dissolved	7440-42-8	E421	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		Cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
		Calcium, dissolved	7440-70-2	E421	0.050	mg/L	36.0	35.7	0.893%	20%	----
		Cesium, dissolved	7440-46-2	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Chromium, dissolved	7440-47-3	E421	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Cobalt, dissolved	7440-48-4	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Copper, dissolved	7440-50-8	E421	0.00020	mg/L	0.00082	0.00080	0.00002	Diff <2x LOR	----
		Iron, dissolved	7439-89-6	E421	0.010	mg/L	0.046	0.046	0.00004	Diff <2x LOR	----
		Lead, dissolved	7439-92-1	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Lithium, dissolved	7439-93-2	E421	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Magnesium, dissolved	7439-95-4	E421	0.100	mg/L	3.93	3.86	1.77%	20%	----
		Manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.00237	0.00232	2.41%	20%	----
		Molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.00187	0.00185	0.843%	20%	----
		Nickel, dissolved	7440-02-0	E421	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Dissolved Metals (QC Lot: 2015009) - continued											
VA25B2045-021	Anonymous	Phosphorus, dissolved	7723-14-0	E421	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Potassium, dissolved	7440-09-7	E421	0.100	mg/L	0.627	0.630	0.003	Diff <2x LOR	----
		Rubidium, dissolved	7440-17-7	E421	0.00020	mg/L	0.00025	0.00026	0.00001	Diff <2x LOR	----
		Selenium, dissolved	7782-49-2	E421	0.000050	mg/L	0.00144	0.00154	7.13%	20%	----
		Silicon, dissolved	7440-21-3	E421	0.050	mg/L	3.09	3.08	0.484%	20%	----
		Silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Sodium, dissolved	7440-23-5	E421	0.050	mg/L	21.0	21.0	0.0752%	20%	----
		Strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.235	0.228	3.09%	20%	----
		Sulfur, dissolved	7704-34-9	E421	0.50	mg/L	14.2	13.7	3.21%	20%	----
		Tellurium, dissolved	13494-80-9	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		Thallium, dissolved	7440-28-0	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Thorium, dissolved	7440-29-1	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Tin, dissolved	7440-31-5	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Titanium, dissolved	7440-32-6	E421	0.00030	mg/L	<0.00030	<0.00030	0	Diff <2x LOR	----
		Tungsten, dissolved	7440-33-7	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Uranium, dissolved	7440-61-1	E421	0.000010	mg/L	0.000117	0.000112	4.51%	20%	----
		Vanadium, dissolved	7440-62-2	E421	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Zinc, dissolved	7440-66-6	E421	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Zirconium, dissolved	7440-67-7	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 2023278)											
VA25B2045-018	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----

Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 2012880)						
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	<1.0	----
Physical Tests (QCLot: 2012881)						
Conductivity	----	E100	1	µS/cm	1.2	----
Physical Tests (QCLot: 2019613)						
Solids, total suspended [TSS]	----	E160	3	mg/L	<3.0	----
Physical Tests (QCLot: 2019631)						
Solids, total dissolved [TDS]	----	E162	10	mg/L	<10	----
Anions and Nutrients (QCLot: 2012882)						
Fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 2012883)						
Chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 2012884)						
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 2012885)						
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 2012886)						
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 2012887)						
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	----
Anions and Nutrients (QCLot: 2012889)						
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 2013444)						
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 2013447)						
Kjeldahl nitrogen, total [TKN]	----	E318	0.05	mg/L	<0.050	----
Organic / Inorganic Carbon (QCLot: 2013448)						
Carbon, total organic [TOC]	----	E355-L	0.5	mg/L	<0.50	----
Total Sulfides (QCLot: 2016842)						
Sulfide, total (as S)	18496-25-8	E395-H	0.01	mg/L	<0.010	----
Total Sulfides (QCLot: 2019361)						
Sulfide, total (as S)	18496-25-8	E395-H	0.01	mg/L	<0.010	----
Total Metals (QCLot: 2014854)						

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (QCLot: 2014854) - continued						
Aluminum, total	7429-90-5	E420	0.003	mg/L	<0.0030	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	<0.00010	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	<0.00010	----
Barium, total	7440-39-3	E420	0.0001	mg/L	<0.00010	----
Beryllium, total	7440-41-7	E420	0.00002	mg/L	<0.000020	----
Bismuth, total	7440-69-9	E420	0.00005	mg/L	<0.000050	----
Boron, total	7440-42-8	E420	0.01	mg/L	<0.010	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	<0.0000050	----
Calcium, total	7440-70-2	E420	0.05	mg/L	<0.050	----
Cesium, total	7440-46-2	E420	0.00001	mg/L	<0.000010	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	<0.00050	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	<0.00010	----
Copper, total	7440-50-8	E420	0.0005	mg/L	<0.00050	----
Iron, total	7439-89-6	E420	0.01	mg/L	<0.010	----
Lead, total	7439-92-1	E420	0.00005	mg/L	<0.000050	----
Lithium, total	7439-93-2	E420	0.001	mg/L	<0.0010	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	<0.0050	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	<0.00010	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	<0.000050	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	<0.00050	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	<0.050	----
Potassium, total	7440-09-7	E420	0.05	mg/L	<0.050	----
Rubidium, total	7440-17-7	E420	0.0002	mg/L	<0.00020	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	<0.000050	----
Silicon, total	7440-21-3	E420	0.1	mg/L	<0.10	----
Silver, total	7440-22-4	E420	0.00001	mg/L	<0.000010	----
Sodium, total	7440-23-5	E420	0.05	mg/L	<0.050	----
Strontium, total	7440-24-6	E420	0.0002	mg/L	<0.00020	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	<0.50	----
Tellurium, total	13494-80-9	E420	0.0002	mg/L	<0.00020	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	<0.000010	----
Thorium, total	7440-29-1	E420	0.0001	mg/L	<0.00010	----
Tin, total	7440-31-5	E420	0.0001	mg/L	<0.00010	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	<0.00030	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	<0.00010	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (QCLot: 2014854) - continued						
Uranium, total	7440-61-1	E420	0.00001	mg/L	<0.000010	----
Vanadium, total	7440-62-2	E420	0.0005	mg/L	<0.00050	----
Zinc, total	7440-66-6	E420	0.003	mg/L	<0.0030	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	<0.00020	----
Total Metals (QCLot: 2020970)						
Mercury, total	7439-97-6	E508	0.000005	mg/L	<0.0000050	----
Total Metals (QCLot: 2020971)						
Mercury, total	7439-97-6	E508	0.000005	mg/L	<0.0000050	----
Dissolved Metals (QCLot: 2015009)						
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	<0.0010	----
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	<0.00010	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	<0.00010	----
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	<0.00010	----
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	<0.000020	----
Bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	<0.000050	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	<0.010	----
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	<0.0000050	----
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	<0.050	----
Cesium, dissolved	7440-46-2	E421	0.00001	mg/L	<0.000010	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	<0.00050	----
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	<0.00010	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	<0.00020	----
Iron, dissolved	7439-89-6	E421	0.01	mg/L	<0.010	----
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	<0.000050	----
Lithium, dissolved	7439-93-2	E421	0.001	mg/L	<0.0010	----
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	<0.0050	----
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	<0.00010	----
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	<0.000050	----
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	<0.00050	----
Phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	<0.050	----
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	<0.050	----
Rubidium, dissolved	7440-17-7	E421	0.0002	mg/L	<0.00020	----
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	<0.000050	----
Silicon, dissolved	7440-21-3	E421	0.05	mg/L	<0.050	----
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	<0.000010	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Dissolved Metals (QCLot: 2015009) - continued						
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	<0.050	----
Strontium, dissolved	7440-24-6	E421	0.0002	mg/L	<0.00020	----
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	<0.50	----
Tellurium, dissolved	13494-80-9	E421	0.0002	mg/L	<0.00020	----
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	<0.000010	----
Thorium, dissolved	7440-29-1	E421	0.0001	mg/L	<0.00010	----
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	<0.00010	----
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	<0.00030	----
Tungsten, dissolved	7440-33-7	E421	0.0001	mg/L	<0.00010	----
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	<0.000010	----
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	<0.00050	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	<0.0010	----
Zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	<0.00020	----
Dissolved Metals (QCLot: 2023278)						
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	<0.0000050	----

Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 2012879)									
pH	----	E108	----	pH units	7 pH units	100	98.0	102	----
Physical Tests (QCLot: 2012880)									
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	500 mg/L	105	85.0	115	----
Physical Tests (QCLot: 2012881)									
Conductivity	----	E100	1	µS/cm	147 µS/cm	97.5	90.0	110	----
Physical Tests (QCLot: 2019613)									
Solids, total suspended [TSS]	----	E160	3	mg/L	150 mg/L	90.8	85.0	115	----
Physical Tests (QCLot: 2019631)									
Solids, total dissolved [TDS]	----	E162	10	mg/L	1000 mg/L	106	85.0	115	----
Anions and Nutrients (QCLot: 2012882)									
Fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	98.6	90.0	110	----
Anions and Nutrients (QCLot: 2012883)									
Chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	99.4	90.0	110	----
Anions and Nutrients (QCLot: 2012884)									
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	0.5 mg/L	100	85.0	115	----
Anions and Nutrients (QCLot: 2012885)									
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	2.5 mg/L	100	90.0	110	----
Anions and Nutrients (QCLot: 2012886)									
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	0.5 mg/L	98.1	90.0	110	----
Anions and Nutrients (QCLot: 2012887)									
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	96.8	90.0	110	----
Anions and Nutrients (QCLot: 2012889)									
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.001	mg/L	0.03 mg/L	109	80.0	120	----
Anions and Nutrients (QCLot: 2013444)									
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	108	85.0	115	----
Anions and Nutrients (QCLot: 2013447)									
Kjeldahl nitrogen, total [TKN]	----	E318	0.05	mg/L	4 mg/L	104	75.0	125	----
Organic / Inorganic Carbon (QCLot: 2013448)									
Carbon, total organic [TOC]	----	E355-L	0.5	mg/L	8.57 mg/L	113	80.0	120	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Total Sulfides (QCLot: 2016842)									
Sulfide, total (as H2S)	7783-06-4	E395-H	----	mg/L	0.085 mg/L	109	80.0	120	----
Sulfide, total (as S)	18496-25-8	E395-H	0.01	mg/L	0.08 mg/L	109	80.0	120	----
Total Sulfides (QCLot: 2019361)									
Sulfide, total (as H2S)	7783-06-4	E395-H	----	mg/L	0.085 mg/L	96.3	80.0	120	----
Sulfide, total (as S)	18496-25-8	E395-H	0.01	mg/L	0.08 mg/L	95.9	80.0	120	----
Total Metals (QCLot: 2014854)									
Aluminum, total	7429-90-5	E420	0.003	mg/L	2 mg/L	104	80.0	120	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	1 mg/L	108	80.0	120	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	1 mg/L	103	80.0	120	----
Barium, total	7440-39-3	E420	0.0001	mg/L	0.25 mg/L	99.9	80.0	120	----
Beryllium, total	7440-41-7	E420	0.00002	mg/L	0.1 mg/L	95.0	80.0	120	----
Bismuth, total	7440-69-9	E420	0.00005	mg/L	1 mg/L	99.3	80.0	120	----
Boron, total	7440-42-8	E420	0.01	mg/L	1 mg/L	91.6	80.0	120	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	0.1 mg/L	102	80.0	120	----
Calcium, total	7440-70-2	E420	0.05	mg/L	50 mg/L	95.6	80.0	120	----
Cesium, total	7440-46-2	E420	0.00001	mg/L	0.05 mg/L	104	80.0	120	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	0.25 mg/L	102	80.0	120	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	0.25 mg/L	101	80.0	120	----
Copper, total	7440-50-8	E420	0.0005	mg/L	0.25 mg/L	103	80.0	120	----
Iron, total	7439-89-6	E420	0.01	mg/L	1 mg/L	102	80.0	120	----
Lead, total	7439-92-1	E420	0.00005	mg/L	0.5 mg/L	97.2	80.0	120	----
Lithium, total	7439-93-2	E420	0.001	mg/L	0.25 mg/L	94.3	80.0	120	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	50 mg/L	101	80.0	120	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	0.25 mg/L	105	80.0	120	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	0.25 mg/L	102	80.0	120	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	0.5 mg/L	102	80.0	120	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	10 mg/L	104	80.0	120	----
Potassium, total	7440-09-7	E420	0.05	mg/L	50 mg/L	100	80.0	120	----
Rubidium, total	7440-17-7	E420	0.0002	mg/L	0.1 mg/L	100	80.0	120	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	1 mg/L	107	80.0	120	----
Silicon, total	7440-21-3	E420	0.1	mg/L	10 mg/L	112	80.0	120	----
Silver, total	7440-22-4	E420	0.00001	mg/L	0.1 mg/L	94.3	80.0	120	----
Sodium, total	7440-23-5	E420	0.05	mg/L	50 mg/L	107	80.0	120	----
Strontium, total	7440-24-6	E420	0.0002	mg/L	0.25 mg/L	105	80.0	120	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	50 mg/L	96.5	80.0	120	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Total Metals (QCLot: 2014854) - continued									
Tellurium, total	13494-80-9	E420	0.0002	mg/L	0.1 mg/L	106	80.0	120	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	1 mg/L	95.2	80.0	120	----
Thorium, total	7440-29-1	E420	0.0001	mg/L	0.1 mg/L	96.1	80.0	120	----
Tin, total	7440-31-5	E420	0.0001	mg/L	0.5 mg/L	102	80.0	120	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	0.25 mg/L	100	80.0	120	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	0.1 mg/L	98.4	80.0	120	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	0.005 mg/L	102	80.0	120	----
Vanadium, total	7440-62-2	E420	0.0005	mg/L	0.5 mg/L	102	80.0	120	----
Zinc, total	7440-66-6	E420	0.003	mg/L	0.5 mg/L	102	80.0	120	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	0.1 mg/L	96.0	80.0	120	----
Total Metals (QCLot: 2020970)									
Mercury, total	7439-97-6	E508	0.000005	mg/L	0 mg/L	95.6	80.0	120	----
Total Metals (QCLot: 2020971)									
Mercury, total	7439-97-6	E508	0.000005	mg/L	0 mg/L	96.3	80.0	120	----
Dissolved Metals (QCLot: 2015009)									
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	2 mg/L	99.6	80.0	120	----
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	1 mg/L	93.7	80.0	120	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	1 mg/L	105	80.0	120	----
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	0.25 mg/L	106	80.0	120	----
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	0.1 mg/L	96.4	80.0	120	----
Bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	1 mg/L	99.2	80.0	120	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	1 mg/L	99.0	80.0	120	----
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	0.1 mg/L	99.2	80.0	120	----
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	50 mg/L	97.2	80.0	120	----
Cesium, dissolved	7440-46-2	E421	0.00001	mg/L	0.05 mg/L	97.4	80.0	120	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	0.25 mg/L	100	80.0	120	----
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	0.25 mg/L	97.5	80.0	120	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	0.25 mg/L	95.9	80.0	120	----
Iron, dissolved	7439-89-6	E421	0.01	mg/L	1 mg/L	98.5	80.0	120	----
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	0.5 mg/L	97.8	80.0	120	----
Lithium, dissolved	7439-93-2	E421	0.001	mg/L	0.25 mg/L	119	80.0	120	----
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	50 mg/L	102	80.0	120	----
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	0.25 mg/L	97.8	80.0	120	----
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	0.25 mg/L	94.1	80.0	120	----
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	0.5 mg/L	97.6	80.0	120	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Dissolved Metals (QCLot: 2015009) - continued									
Phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	10 mg/L	101	80.0	120	----
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	50 mg/L	97.9	80.0	120	----
Rubidium, dissolved	7440-17-7	E421	0.0002	mg/L	0.1 mg/L	97.6	80.0	120	----
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	1 mg/L	96.6	80.0	120	----
Silicon, dissolved	7440-21-3	E421	0.05	mg/L	10 mg/L	100	80.0	120	----
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	0.1 mg/L	86.4	80.0	120	----
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	50 mg/L	99.6	80.0	120	----
Strontium, dissolved	7440-24-6	E421	0.0002	mg/L	0.25 mg/L	92.7	80.0	120	----
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	50 mg/L	95.2	80.0	120	----
Tellurium, dissolved	13494-80-9	E421	0.0002	mg/L	0.1 mg/L	99.4	80.0	120	----
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	1 mg/L	95.0	80.0	120	----
Thorium, dissolved	7440-29-1	E421	0.0001	mg/L	0.1 mg/L	100	80.0	120	----
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	0.5 mg/L	100	80.0	120	----
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	0.25 mg/L	99.1	80.0	120	----
Tungsten, dissolved	7440-33-7	E421	0.0001	mg/L	0.1 mg/L	102	80.0	120	----
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	0.005 mg/L	98.6	80.0	120	----
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	0.5 mg/L	101	80.0	120	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	0.5 mg/L	96.1	80.0	120	----
Zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	0.1 mg/L	90.1	80.0	120	----
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0 mg/L	93.6	80.0	120	----

Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for the associated sample (or similar samples) may be subject to bias. ND – Recovery not determined, background level >= 1x spike level.

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Anions and Nutrients (QCLot: 2012882)										
VA25B2060-001	MW99-1(S) (E275563)	Fluoride	16984-48-8	E235.F	1.06 mg/L	1 mg/L	106	75.0	125	----
Anions and Nutrients (QCLot: 2012883)										
VA25B2060-001	MW99-1(S) (E275563)	Chloride	16887-00-6	E235.Cl	102 mg/L	100 mg/L	102	75.0	125	----
Anions and Nutrients (QCLot: 2012884)										
VA25B2060-001	MW99-1(S) (E275563)	Bromide	24959-67-9	E235.Br-L	0.530 mg/L	0.5 mg/L	106	75.0	125	----
Anions and Nutrients (QCLot: 2012885)										
VA25B2060-001	MW99-1(S) (E275563)	Nitrate (as N)	14797-55-8	E235.NO3-L	2.57 mg/L	2.5 mg/L	103	75.0	125	----
Anions and Nutrients (QCLot: 2012886)										
VA25B2060-001	MW99-1(S) (E275563)	Nitrite (as N)	14797-65-0	E235.NO2-L	0.500 mg/L	0.5 mg/L	99.9	75.0	125	----
Anions and Nutrients (QCLot: 2012887)										
VA25B2060-001	MW99-1(S) (E275563)	Sulfate (as SO4)	14808-79-8	E235.SO4	102 mg/L	100 mg/L	102	75.0	125	----
Anions and Nutrients (QCLot: 2012889)										
VA25B2060-002	MW99-1(D) (E240501)	Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	ND mg/L	----	ND	70.0	130	----
Anions and Nutrients (QCLot: 2013444)										
VA25B2048-002	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0989 mg/L	0.1 mg/L	98.9	75.0	125	----
Anions and Nutrients (QCLot: 2013447)										
VA25B2060-003	MW99-2(S) (E275543)	Kjeldahl nitrogen, total [TKN]	----	E318	2.56 mg/L	2.5 mg/L	102	70.0	130	----
Organic / Inorganic Carbon (QCLot: 2013448)										
VA25B2060-001	MW99-1(S) (E275563)	Carbon, total organic [TOC]	----	E355-L	5.53 mg/L	5 mg/L	110	70.0	130	----
Total Sulfides (QCLot: 2016842)										
FJ2501492-002	Anonymous	Sulfide, total (as S)	18496-25-8	E395-H	1.14 mg/L	1 mg/L	114	75.0	125	----
Total Sulfides (QCLot: 2019361)										
FJ2501518-002	Anonymous	Sulfide, total (as S)	18496-25-8	E395-H	0.999 mg/L	1 mg/L	99.9	75.0	125	----
Total Metals (QCLot: 2014854)										
VA25B2045-020	Anonymous	Aluminum, total	7429-90-5	E420	0.203 mg/L	0.2 mg/L	101	70.0	130	----
		Antimony, total	7440-36-0	E420	0.0197 mg/L	0.02 mg/L	98.4	70.0	130	----
		Arsenic, total	7440-38-2	E420	0.0197 mg/L	0.02 mg/L	98.4	70.0	130	----
		Barium, total	7440-39-3	E420	0.0190 mg/L	0.02 mg/L	94.9	70.0	130	----
		Beryllium, total	7440-41-7	E420	0.0375 mg/L	0.04 mg/L	93.7	70.0	130	----
		Bismuth, total	7440-69-9	E420	0.00927 mg/L	0.01 mg/L	92.7	70.0	130	----
		Boron, total	7440-42-8	E420	0.091 mg/L	0.1 mg/L	90.9	70.0	130	----
		Cadmium, total	7440-43-9	E420	0.00390 mg/L	0.004 mg/L	97.4	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Total Metals (QCLot: 2014854) - continued										
VA25B2045-020	Anonymous	Calcium, total	7440-70-2	E420	3.63 mg/L	4 mg/L	90.8	70.0	130	----
		Cesium, total	7440-46-2	E420	0.00992 mg/L	0.01 mg/L	99.2	70.0	130	----
		Chromium, total	7440-47-3	E420	0.0390 mg/L	0.04 mg/L	97.4	70.0	130	----
		Cobalt, total	7440-48-4	E420	0.0196 mg/L	0.02 mg/L	97.9	70.0	130	----
		Copper, total	7440-50-8	E420	0.0200 mg/L	0.02 mg/L	99.8	70.0	130	----
		Iron, total	7439-89-6	E420	1.94 mg/L	2 mg/L	96.8	70.0	130	----
		Lead, total	7439-92-1	E420	0.0182 mg/L	0.02 mg/L	91.2	70.0	130	----
		Lithium, total	7439-93-2	E420	0.0922 mg/L	0.1 mg/L	92.2	70.0	130	----
		Magnesium, total	7439-95-4	E420	0.969 mg/L	1 mg/L	96.9	70.0	130	----
		Manganese, total	7439-96-5	E420	0.0198 mg/L	0.02 mg/L	99.2	70.0	130	----
		Molybdenum, total	7439-98-7	E420	0.0190 mg/L	0.02 mg/L	95.1	70.0	130	----
		Nickel, total	7440-02-0	E420	0.0404 mg/L	0.04 mg/L	101	70.0	130	----
		Phosphorus, total	7723-14-0	E420	9.13 mg/L	10 mg/L	91.3	70.0	130	----
		Potassium, total	7440-09-7	E420	3.89 mg/L	4 mg/L	97.3	70.0	130	----
		Rubidium, total	7440-17-7	E420	0.0197 mg/L	0.02 mg/L	98.5	70.0	130	----
		Selenium, total	7782-49-2	E420	0.0409 mg/L	0.04 mg/L	102	70.0	130	----
		Silicon, total	7440-21-3	E420	9.91 mg/L	10 mg/L	99.1	70.0	130	----
		Silver, total	7440-22-4	E420	0.00397 mg/L	0.004 mg/L	99.3	70.0	130	----
		Sodium, total	7440-23-5	E420	1.98 mg/L	2 mg/L	98.8	70.0	130	----
		Strontium, total	7440-24-6	E420	0.0193 mg/L	0.02 mg/L	96.5	70.0	130	----
		Sulfur, total	7704-34-9	E420	19.7 mg/L	20 mg/L	98.4	70.0	130	----
		Tellurium, total	13494-80-9	E420	0.0393 mg/L	0.04 mg/L	98.2	70.0	130	----
		Thallium, total	7440-28-0	E420	0.00360 mg/L	0.004 mg/L	90.0	70.0	130	----
		Thorium, total	7440-29-1	E420	0.0160 mg/L	0.02 mg/L	80.0	70.0	130	----
		Tin, total	7440-31-5	E420	0.0191 mg/L	0.02 mg/L	95.7	70.0	130	----
		Titanium, total	7440-32-6	E420	0.0382 mg/L	0.04 mg/L	95.6	70.0	130	----
		Tungsten, total	7440-33-7	E420	0.0179 mg/L	0.02 mg/L	89.6	70.0	130	----
		Uranium, total	7440-61-1	E420	0.00375 mg/L	0.004 mg/L	93.8	70.0	130	----
		Vanadium, total	7440-62-2	E420	0.0972 mg/L	0.1 mg/L	97.2	70.0	130	----
		Zinc, total	7440-66-6	E420	0.405 mg/L	0.4 mg/L	101	70.0	130	----
		Zirconium, total	7440-67-7	E420	0.0380 mg/L	0.04 mg/L	95.0	70.0	130	----
Total Metals (QCLot: 2020970)										
VA25B2045-013	Anonymous	Mercury, total	7439-97-6	E508	0.0000948 mg/L	0 mg/L	94.8	70.0	130	----
Total Metals (QCLot: 2020971)										
VA25B2060-009	Field Blank	Mercury, total	7439-97-6	E508	0.0000954 mg/L	0 mg/L	95.4	70.0	130	----
Dissolved Metals (QCLot: 2015009)										
VA25B2059-001	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.202 mg/L	0.2 mg/L	101	70.0	130	----
		Antimony, dissolved	7440-36-0	E421	0.0193 mg/L	0.02 mg/L	96.3	70.0	130	----
		Arsenic, dissolved	7440-38-2	E421	0.0198 mg/L	0.02 mg/L	99.2	70.0	130	----
		Barium, dissolved	7440-39-3	E421	ND mg/L	----	ND	70.0	130	----
		Beryllium, dissolved	7440-41-7	E421	0.0380 mg/L	0.04 mg/L	95.0	70.0	130	----
		Bismuth, dissolved	7440-69-9	E421	0.00858 mg/L	0.01 mg/L	85.8	70.0	130	----
		Boron, dissolved	7440-42-8	E421	0.096 mg/L	0.1 mg/L	96.4	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Dissolved Metals (QCLot: 2015009) - continued										
VA25B2059-001	Anonymous	Cadmium, dissolved	7440-43-9	E421	0.00388 mg/L	0.004 mg/L	97.1	70.0	130	----
		Calcium, dissolved	7440-70-2	E421	ND mg/L	----	ND	70.0	130	----
		Cesium, dissolved	7440-46-2	E421	0.00970 mg/L	0.01 mg/L	97.0	70.0	130	----
		Chromium, dissolved	7440-47-3	E421	0.0389 mg/L	0.04 mg/L	97.4	70.0	130	----
		Cobalt, dissolved	7440-48-4	E421	0.0190 mg/L	0.02 mg/L	94.9	70.0	130	----
		Copper, dissolved	7440-50-8	E421	0.0191 mg/L	0.02 mg/L	95.5	70.0	130	----
		Iron, dissolved	7439-89-6	E421	1.90 mg/L	2 mg/L	95.1	70.0	130	----
		Lead, dissolved	7439-92-1	E421	0.0177 mg/L	0.02 mg/L	88.4	70.0	130	----
		Lithium, dissolved	7439-93-2	E421	0.0947 mg/L	0.1 mg/L	94.7	70.0	130	----
		Magnesium, dissolved	7439-95-4	E421	ND mg/L	----	ND	70.0	130	----
		Manganese, dissolved	7439-96-5	E421	ND mg/L	----	ND	70.0	130	----
		Molybdenum, dissolved	7439-98-7	E421	0.0190 mg/L	0.02 mg/L	95.0	70.0	130	----
		Nickel, dissolved	7440-02-0	E421	0.0386 mg/L	0.04 mg/L	96.4	70.0	130	----
		Phosphorus, dissolved	7723-14-0	E421	9.60 mg/L	10 mg/L	96.0	70.0	130	----
		Potassium, dissolved	7440-09-7	E421	4.00 mg/L	4 mg/L	99.9	70.0	130	----
		Rubidium, dissolved	7440-17-7	E421	0.0192 mg/L	0.02 mg/L	95.8	70.0	130	----
		Selenium, dissolved	7782-49-2	E421	0.0405 mg/L	0.04 mg/L	101	70.0	130	----
		Silicon, dissolved	7440-21-3	E421	8.44 mg/L	10 mg/L	84.4	70.0	130	----
		Silver, dissolved	7440-22-4	E421	0.00368 mg/L	0.004 mg/L	92.1	70.0	130	----
		Sodium, dissolved	7440-23-5	E421	ND mg/L	----	ND	70.0	130	----
		Strontium, dissolved	7440-24-6	E421	ND mg/L	----	ND	70.0	130	----
		Sulfur, dissolved	7704-34-9	E421	19.9 mg/L	20 mg/L	99.7	70.0	130	----
		Tellurium, dissolved	13494-80-9	E421	0.0377 mg/L	0.04 mg/L	94.2	70.0	130	----
		Thallium, dissolved	7440-28-0	E421	0.00356 mg/L	0.004 mg/L	88.9	70.0	130	----
		Thorium, dissolved	7440-29-1	E421	0.0188 mg/L	0.02 mg/L	94.0	70.0	130	----
		Tin, dissolved	7440-31-5	E421	0.0191 mg/L	0.02 mg/L	95.6	70.0	130	----
		Titanium, dissolved	7440-32-6	E421	0.0383 mg/L	0.04 mg/L	95.8	70.0	130	----
		Tungsten, dissolved	7440-33-7	E421	0.0183 mg/L	0.02 mg/L	91.3	70.0	130	----
		Uranium, dissolved	7440-61-1	E421	0.00371 mg/L	0.004 mg/L	92.7	70.0	130	----
		Vanadium, dissolved	7440-62-2	E421	0.0976 mg/L	0.1 mg/L	97.6	70.0	130	----
		Zinc, dissolved	7440-66-6	E421	0.426 mg/L	0.4 mg/L	106	70.0	130	----
		Zirconium, dissolved	7440-67-7	E421	0.0368 mg/L	0.04 mg/L	92.1	70.0	130	----
Dissolved Metals (QCLot: 2023278)										
VA25B2045-019	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000940 mg/L	0 mg/L	94.0	70.0	130	----

Chain of Custody (COC) / Analytical Request Form

COC Number: 22 - 7025022-2

Page 1 of 1

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Canada Toll Free: 1 800 668 9878

Environmental Division Vancouver
Work Order Reference
VA25B2060

Telephone : +1 604 253 4188

Report To	Contact and company name below will appear on the final report
Company:	Masse Environmental
Contact:	Ico deZwart
Phone:	
	Company address below will appear on the final report
Street:	812 Vernon St.
City/Province:	Nelson, BC
Postal Code:	V1L4G4
Invoice To	Same as Report To ☑ YES ☐ NO
	Copy of Invoice with Report ☑ YES ☐ NO
Company:	
Contact:	

Reports / Recipients	
Select Report Format:	☑ PDF ☑ EXCEL ☑ EDD (DIGITAL)
Merge QC/QCI Reports with COA	☑ YES ☐ NO ☐ N/A
☐ Compare Results to Criteria on Report - provide details below if box checked	
Select Distribution:	☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	ico@masseenvironmental.com
Email 2	chris@masseenvironmental.com
Email 3	jenn@masseenvironmental.com

Invoice Recipients	
Select Invoice Distribution:	☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	lise@masseenvironmental.com
Email 2	

Turnaround Time (TAT) Requested
☑ Routine [R] if received by 3pm M-F - no surcharges apply
☐ 4 day [P4] if received by 3pm M-F - 20% rush surcharge minimum
☐ 3 day [P3] if received by 3pm M-F - 25% rush surcharge minimum
☐ 2 day [P2] if received by 3pm M-F - 50% rush surcharge minimum
☐ 1 day [E] if received by 3pm M-F - 100% rush surcharge minimum
☐ Same day [E2] if received by 10am M-S - 200% rush surcharge
Additional fees may apply to rush requests on weekends
Date and Time Required for all E&P TATs:
For all tests with rush TATs requested, please

Project Information	
ALS Account # / Quote #:	VA24-MASS200-001
Job #:	2016-503 - HB
PO / AFE:	
LSD:	

Oil and Gas Required Fields (client use)	
AFE/Cost Center:	PO#
Major/Minor Code:	Routing Code:
Requisitioner:	
Location:	

ALS Lab Work Order # (ALS use only): 2060

ALS Contact: Sampler: C.Stephanou

Analysis R

Indicate Filtered (F), Preserved (P) or Filtered &

ALS Sample # (ALS use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	pH, cond,TSS,TDS,total alk,hardness	Chloride, bromide, fluoride, sulfate	Ammonia, TKN, nitrate, nitrite	TOC	Dissolved Metals (incl Hg)	Total Metals (incl Hg)	Orthophosphate	Total Sulphide	SAMPLES ON HOLD	EXTENDED STORAGE REQ	SUSPECTED HAZARD (se
						P	P		F		P	P				
	MW99-1(S) (E275563)	21-May-25	10:07	GW	7	R	R	R	R	R	R	R	R			
	MW99-1(D) (E240501)	21-May-25	10:34	GW	7	R	R	R	R	R	R	R	R			
	MW99-2(S) (E275543)	21-May-25	14:50	GW	7	R	R	R	R	R	R	R	R			
	MW99-2(D) (E240502)	21-May-25	15:15	GW	7	R	R	R	R	R	R	R	R			
	MW-05-01 (E252593)	21-May-25	13:40	GW	7	R	R	R	R	R	R	R	R			
	MW-01-2004(S) (E303722)	21-May-25	11:32	GW	7	R	R	R	R	R	R	R	R			
	MW-01-2004(D) (E303723)	21-May-25	11:46	GW	7	R	R	R	R	R	R	R	R			
	GW Duplicate	22-May-25	10:07	GW	7	R	R	R	R	R	R	R	R			
	Field Blank	23-May-25	15:50	GW	7	R	R	R	R	R	R	R	R			
				GW												
				GW												
				GW												

Drinking Water (DW) Samples[1] (client use)	Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only)
Are samples taken from a Regulated DW System? ☐ YES ☐ NO	
Are samples for human consumption/ use? ☐ YES ☐ NO	

SAMPLE RECEIPT DETAILS (ALS use only)

Cooling Method: ☐ NONE ☐ ICE ☐ ICE PACKS ☐ FROZEN ☐ COOLING INITIATED

Submission Comments Identified on Sample Receipt Notification: ☐ YES ☐ NO

Cooler Custody Seals Intact: ☐ YES ☐ N/A Sample Custody Seals Intact: ☐ YES ☐ N/A

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
				6	6	5	7

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (ALS use only)			FINAL SHIPMENT RECEPTION (ALS use only)		
Released by:	Date: 22-May-2025	Time: 11:00	Received by:	Date:	Time:	Received by: AS	Date: 23/05/2025	Time: 11:50

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

FEB 2022 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

CERTIFICATE OF ANALYSIS

Work Order	:	**VA25C3911**			
Client	:	**Masse Environmental Consultants Ltd.**	Laboratory	:	ALS Environmental - Vancouver
Contact	:	Ico de Zwart	Account Manager	:	Can Dang
Address	:	812 Vernon Street Nelson British Columbia Canada V1L 4G4	Address	:	8081 Lougheed Highway Burnaby BC Canada V5A 1W9
Telephone	:	----	E-mail	:	Can.Dang@ALSGlobal.com
Project	:	2016-503-HB	Telephone	:	+1 604 253 4188
PO	:	----	Date Samples Received	:	12-Sep-2025 19:27
C-O-C number	:	22-20250911-1	Date Analysis Commenced	:	13-Sep-2025
Sampler	:	Chris Stephanou	Issue Date	:	23-Sep-2025 11:10
Site	:	RDCK			
Quote number	:	----			
No. of samples received	:	15			
No. of samples analysed	:	15			

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Anita Chuang	Lab Assistant	Inorganics, Burnaby, British Columbia
Erika Vanegas	Lab Assistant	Metals, Burnaby, British Columbia
Kate Dimitrova	Supervisor - Inorganic	Inorganics, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia
Kimia Taheri	Lab Assistant	Metals, Burnaby, British Columbia
Miles Gropen	Department Manager - Inorganics	Inorganics, Burnaby, British Columbia
Monica Ko	Supervisor - Inorganic	Inorganics, Burnaby, British Columbia
Owen Cheng		Metals, Burnaby, British Columbia
Robert Nguyen	Analyst	Metals, Burnaby, British Columbia

General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Please refer to Quality Control Interpretive report (QCI) for information regarding Holding Time compliance.

Key: CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances.
LOR: Limit of Reporting (detection limit).

Unit	*Description*
-	no units
mg/L	milligrams per litre
pH units	pH units
µg/L	micrograms per litre
µS/cm	microsiemens per centimetre

<: less than.
>: greater than.
Surrogate: An analyte that is similar in behavior to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED on SRN or QCI Report, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Qualifiers

Qualifier	Description
DLA	Detection Limit adjusted for required dilution.
DLDS	Detection Limit Raised: Dilution required due to high Dissolved Solids / Electrical Conductivity.
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).
RRV	Reported result verified by repeat analysis.

Analytical Results

Sub-Matrix: Groundwater
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MW99-1(S) (E275563) ----	MW99-1(D) (E240501) ----	MW99-2(S) (E275543) ----	MW99-2(D) (E240502) ----	MW-05-01-1 (E252593) ----
					Client sampling date / time	09-Sep-2025 15:17	09-Sep-2025 15:50	10-Sep-2025 10:12	10-Sep-2025 10:35	09-Sep-2025 09:21
						VA25C3911-001	VA25C3911-002	VA25C3911-003	VA25C3911-004	VA25C3911-005
						Result	Result	Result	Result	Result
Physical Tests										
Alkalinity, total (as CaCO3)	----	E290/VA	1.0	mg/L		91.7	399	277	289	114
Conductivity	----	E100/VA	2.0	µS/cm		260	787	697	619	234
Hardness (as CaCO3), dissolved	----	EC100/VA	0.60	mg/L		126	177	366	340	113
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/VA	0.60	mg/L		124	181	372	347	116
pH	----	E108/VA	0.10	pH units		7.64	8.12	7.36	8.09	8.01
Solids, total dissolved [TDS]	----	E162/VA	10	mg/L		200	526	510	425	167
Solids, total suspended [TSS]	----	E160/VA	3.0	mg/L		16.6	29.8	11.0	8.2	69.6
Anions and Nutrients										
Ammonia, total (as N)	7664-41-7	E298/VA	0.0050	mg/L		0.452	1.53	0.0556	0.0254	<0.0050
Bromide	24959-67-9	E235.Br-L/VA	0.050	mg/L		<0.050	<0.250 DLDS	<0.250 DLDS	<0.050	<0.050
Chloride	16887-00-6	E235.Cl/VA	0.50	mg/L		1.69	7.93	<2.50 DLDS	<0.50	<0.50
Fluoride	16984-48-8	E235.F/VA	0.020	mg/L		0.112	0.538	<0.100 DLDS	0.178	0.266
Kjeldahl nitrogen, total [TKN]	----	E318/VA	0.050	mg/L		0.468	1.58	0.172	0.056	<0.050
Nitrate (as N)	14797-55-8	E235.NO3-L/VA	0.0050	mg/L		<0.0050	0.0644	<0.0250 DLDS	<0.0050	0.0123
Nitrite (as N)	14797-65-0	E235.NO2-L/VA	0.0010	mg/L		<0.0010	<0.0050 DLDS	<0.0050 DLDS	<0.0010	<0.0010
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U/VA	0.0010	mg/L		0.0030	0.0908	<0.0010	<0.0010	0.0074
Sulfate (as SO4)	14808-79-8	E235.SO4/VA	0.30	mg/L		41.8	41.2	116	69.8	13.2
Organic / Inorganic Carbon										
Carbon, total organic [TOC]	----	E355-L/VA	0.50	mg/L		1.26	0.76	4.49	0.77	0.52
Total Sulfides										
Sulfide, total (as H2S)	7783-06-4	E395-H/VA	0.011	mg/L		<0.011	<0.011	<0.011	<0.011	<0.011

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Analytical Results

Sub-Matrix: Groundwater
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MW99-1(S) (E275563) ----	MW99-1(D) (E240501) ----	MW99-2(S) (E275543) ----	MW99-2(D) (E240502) ----	MW-05-01-1 (E252593) ----
					Client sampling date / time	09-Sep-2025 15:17	09-Sep-2025 15:50	10-Sep-2025 10:12	10-Sep-2025 10:35	09-Sep-2025 09:21
						VA25C3911-001	VA25C3911-002	VA25C3911-003	VA25C3911-004	VA25C3911-005
						Result	Result	Result	Result	Result
Total Sulfides										
Sulfide, total (as S)	18496-25-8	E395-H/VA	0.010	mg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Total Metals										
Aluminum, total	7429-90-5	E420/VA	3.0	µg/L		27.6	366	20.0	55.3	923
Antimony, total	7440-36-0	E420/VA	0.10	µg/L		<0.10	1.00	<0.10	<0.10	0.10
Arsenic, total	7440-38-2	E420/VA	0.10	µg/L		0.49	0.45	16.4	0.87	1.26
Barium, total	7440-39-3	E420/VA	0.10	µg/L		138	79.9	59.7	58.4	31.4
Beryllium, total	7440-41-7	E420/VA	0.100	µg/L		<0.100	0.128	<0.100	<0.100	<0.100
Bismuth, total	7440-69-9	E420/VA	0.050	µg/L		<0.050	<0.050	<0.050	<0.050	<0.050
Boron, total	7440-42-8	E420/VA	10	µg/L		32	161	<10	<10	<10
Cadmium, total	7440-43-9	E420/VA	0.0050	µg/L		0.0059	0.0130	0.0240	0.0371	0.0514
Calcium, total	7440-70-2	E420/VA	50	µg/L		34400	48800	115000	77700	31500
Cesium, total	7440-46-2	E420/VA	0.010	µg/L		0.019	4.82	0.126	0.752	0.193
Chromium, total	7440-47-3	E420/VA	0.50	µg/L		<0.50	3.09	<0.50	<0.50	2.33
Cobalt, total	7440-48-4	E420/VA	0.10	µg/L		0.11	0.28	7.07	0.26	0.80
Copper, total	7440-50-8	E420/VA	0.50	µg/L		1.29	51.5	<0.50	0.70	2.46
Iron, total	7439-89-6	E420/VA	10	µg/L		9680	396	6800	1830	1210
Lead, total	7439-92-1	E420/VA	0.050	µg/L		0.070	0.559	0.663	1.06	1.54
Lithium, total	7439-93-2	E420/VA	1.0	µg/L		20.6	232	1.6	6.9	3.6
Magnesium, total	7439-95-4	E420/VA	5.0	µg/L		9190	14300	20500	37100	9020
Manganese, total	7439-96-5	E420/VA	0.10	µg/L		303	161	4970	151	45.7
Mercury, total	7439-97-6	E508/VA	0.0050	µg/L		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050

Analytical Results

Sub-Matrix: Groundwater
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MW99-1(S) (E275563) ----	MW99-1(D) (E240501) ----	MW99-2(S) (E275543) ----	MW99-2(D) (E240502) ----	MW-05-01-1 (E252593) ----
					Client sampling date / time	09-Sep-2025 15:17	09-Sep-2025 15:50	10-Sep-2025 10:12	10-Sep-2025 10:35	09-Sep-2025 09:21
						VA25C3911-001	VA25C3911-002	VA25C3911-003	VA25C3911-004	VA25C3911-005
						Result	Result	Result	Result	Result
Total Metals										
Molybdenum, total	7439-98-7	E420/VA	0.050	µg/L		0.171	1.98	0.847	0.298	0.751
Nickel, total	7440-02-0	E420/VA	0.50	µg/L		<0.50	1.88	4.96	<0.50	2.05
Phosphorus, total	7723-14-0	E420/VA	50	µg/L		1970	167	82	68	120
Potassium, total	7440-09-7	E420/VA	50	µg/L		1140	4220	2760	1200	1460
Rubidium, total	7440-17-7	E420/VA	0.20	µg/L		0.60	10.1	1.40	2.15	1.58
Selenium, total	7782-49-2	E420/VA	0.050	µg/L		<0.050	<0.050	<0.050	<0.050	0.173
Silicon, total	7440-21-3	E420/VA	100	µg/L		18200	10100	10500	12300	9910
Silver, total	7440-22-4	E420/VA	0.010	µg/L		<0.010	<0.020 DLM	<0.010	<0.010	0.014
Sodium, total	7440-23-5	E420/VA	50	µg/L		4970	127000	4020	7590	5340
Strontium, total	7440-24-6	E420/VA	0.20	µg/L		229	746	425	602	338
Sulfur, total	7704-34-9	E420/VA	500	µg/L		15900	17100	46000	28000	4940
Tellurium, total	13494-80-9	E420/VA	0.20	µg/L		<0.20	<0.20	<0.20	<0.20	<0.20
Thallium, total	7440-28-0	E420/VA	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Thorium, total	7440-29-1	E420/VA	0.10	µg/L		<0.10	0.68	<0.10	<0.10	0.48
Tin, total	7440-31-5	E420/VA	0.10	µg/L		<0.10	0.14	0.17	0.56	<0.10
Titanium, total	7440-32-6	E420/VA	0.30	µg/L		1.64	6.41	0.88	2.42	44.7
Tungsten, total	7440-33-7	E420/VA	0.10	µg/L		0.50	1.03	<0.10	0.11	<0.10
Uranium, total	7440-61-1	E420/VA	0.010	µg/L		0.034	0.744	4.02	1.96	1.89
Vanadium, total	7440-62-2	E420/VA	0.50	µg/L		0.67	<0.50	<0.50	<0.50	3.49
Zinc, total	7440-66-6	E420/VA	3.0	µg/L		<3.0	6.7	11.4	9.3	7.7
Zirconium, total	7440-67-7	E420/VA	0.20	µg/L		<0.20	0.46	<0.20	<0.20	<0.20

Analytical Results

Sub-Matrix: Groundwater
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MW99-1(S) (E275563) ----	MW99-1(D) (E240501) ----	MW99-2(S) (E275543) ----	MW99-2(D) (E240502) ----	MW-05-01-1 (E252593) ----
					Client sampling date / time	09-Sep-2025 15:17	09-Sep-2025 15:50	10-Sep-2025 10:12	10-Sep-2025 10:35	09-Sep-2025 09:21
						VA25C3911-001	VA25C3911-002	VA25C3911-003	VA25C3911-004	VA25C3911-005
						Result	Result	Result	Result	Result
Dissolved Metals										
Aluminum, dissolved	7429-90-5	E421/VA	1.0	µg/L		2.1	7.2	3.5	<1.0	4.5
Antimony, dissolved	7440-36-0	E421/VA	0.10	µg/L		<0.10	0.79	<0.10	<0.10	<0.10
Arsenic, dissolved	7440-38-2	E421/VA	0.10	µg/L		0.39	0.36	13.3	0.43	0.65
Barium, dissolved	7440-39-3	E421/VA	0.10	µg/L		103	79.2	58.2	56.5	19.2
Beryllium, dissolved	7440-41-7	E421/VA	0.100	µg/L		<0.100	<0.100	<0.100	<0.100	<0.100
Bismuth, dissolved	7440-69-9	E421/VA	0.050	µg/L		<0.050	<0.050	<0.050	<0.050	<0.050
Boron, dissolved	7440-42-8	E421/VA	10	µg/L		29	148	<10	<10	<10
Cadmium, dissolved	7440-43-9	E421/VA	0.0050	µg/L		0.0055	0.0148	0.0065	0.0053	0.0068
Calcium, dissolved	7440-70-2	E421/VA	50	µg/L		35600	48400	113000	78200	31500
Cesium, dissolved	7440-46-2	E421/VA	0.010	µg/L		0.018	4.69	0.118	0.698	<0.010
Chromium, dissolved	7440-47-3	E421/VA	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	0.73
Cobalt, dissolved	7440-48-4	E421/VA	0.10	µg/L		<0.10	0.18	6.36	0.20	<0.10
Copper, dissolved	7440-50-8	E421/VA	0.20	µg/L		0.38	33.5	<0.20	<0.20	0.30
Iron, dissolved	7439-89-6	E421/VA	10	µg/L		8430	38	4670	885	<10
Lead, dissolved	7439-92-1	E421/VA	0.050	µg/L		<0.050	<0.050	<0.050	<0.050	<0.050
Lithium, dissolved	7439-93-2	E421/VA	1.0	µg/L		19.8	225	1.5	6.6	2.6
Magnesium, dissolved	7439-95-4	E421/VA	5.0	µg/L		9040	13600	20500	35200	8380
Manganese, dissolved	7439-96-5	E421/VA	0.10	µg/L		303	151	4740	126	0.45
Mercury, dissolved	7439-97-6	E509/VA	0.0050	µg/L		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Molybdenum, dissolved	7439-98-7	E421/VA	0.050	µg/L		0.159	1.50	0.712	0.271	0.789
Nickel, dissolved	7440-02-0	E421/VA	0.50	µg/L		<0.50	0.55	4.76	<0.50	<0.50

Analytical Results

Sub-Matrix: Groundwater
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MW99-1(S) (E275563) ----	MW99-1(D) (E240501) ----	MW99-2(S) (E275543) ----	MW99-2(D) (E240502) ----	MW-05-01-1 (E252593) ----
					Client sampling date / time	09-Sep-2025 15:17	09-Sep-2025 15:50	10-Sep-2025 10:12	10-Sep-2025 10:35	09-Sep-2025 09:21
						VA25C3911-001	VA25C3911-002	VA25C3911-003	VA25C3911-004	VA25C3911-005
						Result	Result	Result	Result	Result
Dissolved Metals										
Phosphorus, dissolved	7723-14-0	E421/VA	50	µg/L		1580	156	<50	<50	<50
Potassium, dissolved	7440-09-7	E421/VA	50	µg/L		1170	4170	2810	1160	1270
Rubidium, dissolved	7440-17-7	E421/VA	0.20	µg/L		0.54	9.67	1.26	2.07	<0.20
Selenium, dissolved	7782-49-2	E421/VA	0.050	µg/L		<0.050	<0.050	<0.050	<0.050	0.189
Silicon, dissolved	7440-21-3	E421/VA	50	µg/L		16900	8650	9850	11700	8070
Silver, dissolved	7440-22-4	E421/VA	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Sodium, dissolved	7440-23-5	E421/VA	50	µg/L		4970	121000	3940	7170	5020
Strontium, dissolved	7440-24-6	E421/VA	0.20	µg/L		222	763	432	606	335
Sulfur, dissolved	7704-34-9	E421/VA	500	µg/L		14400	15900	41200	26200	4490
Tellurium, dissolved	13494-80-9	E421/VA	0.20	µg/L		<0.20	<0.20	<0.20	<0.20	<0.20
Thallium, dissolved	7440-28-0	E421/VA	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Thorium, dissolved	7440-29-1	E421/VA	0.10	µg/L		<0.10	<0.20 DLM	<0.10	<0.10	<0.10
Tin, dissolved	7440-31-5	E421/VA	0.10	µg/L		<0.10	<0.10	<0.10	<0.10	<0.10
Titanium, dissolved	7440-32-6	E421/VA	0.30	µg/L		<0.30	<0.30	<0.30	<0.30	<0.30
Tungsten, dissolved	7440-33-7	E421/VA	0.10	µg/L		0.47	0.91	<0.10	<0.10	<0.10
Uranium, dissolved	7440-61-1	E421/VA	0.010	µg/L		0.025	0.543	3.92	1.91	1.78
Vanadium, dissolved	7440-62-2	E421/VA	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	0.64
Zinc, dissolved	7440-66-6	E421/VA	1.0	µg/L		1.1	5.3	8.7	4.4	<1.0
Zirconium, dissolved	7440-67-7	E421/VA	0.20	µg/L		<0.20	<0.20	<0.20	<0.20	<0.20
Dissolved mercury filtration location	----	EP509/VA	-	-		Field	Field	Field	Field	Field
Dissolved metals filtration location	----	EP421/VA	-	-		Field	Field	Field	Field	Field

Please refer to the General Comments section for an explanation of any qualifiers detected.

Analytical Results

Sub-Matrix: Groundwater
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MW-01-2004(S) (E303722) ----	MW-01-2004(D) (E303723) ----	MW-04S-05(S) (E266349) ----	MW-06-01(E252594) ----	S-MW-1(E221702) ----
					Client sampling date / time	09-Sep-2025 11:48	09-Sep-2025 11:25	10-Sep-2025 11:10	10-Sep-2025 12:04	10-Sep-2025 09:21
						VA25C3911-006	VA25C3911-007	VA25C3911-008	VA25C3911-009	VA25C3911-010
						Result	Result	Result	Result	Result
Physical Tests										
Alkalinity, total (as CaCO3)	----	E290/VA	1.0	mg/L		93.1	162	240	258	174
Conductivity	----	E100/VA	2.0	µS/cm		184	485	630	1590	335
Hardness (as CaCO3), dissolved	----	EC100/VA	0.60	mg/L		83.8	225	322	956	171
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/VA	0.60	mg/L		92.5	230	328	943	176
pH	----	E108/VA	0.10	pH units		7.69	8.13	7.95	7.65	8.21
Solids, total dissolved [TDS]	----	E162/VA	10	mg/L		150	348	454	1450	226
Solids, total suspended [TSS]	----	E160/VA	3.0	mg/L		139	5.6	14.2	31.0	4.0
Anions and Nutrients										
Ammonia, total (as N)	7664-41-7	E298/VA	0.0050	mg/L		0.280	<0.0050	0.0290	1.05	0.0317
Bromide	24959-67-9	E235.Br-L/VA	0.050	mg/L		<0.050	<0.050	0.107	<0.500 DLDS	<0.050
Chloride	16887-00-6	E235.Cl/VA	0.50	mg/L		<0.50	2.76	19.4	19.6	0.68
Fluoride	16984-48-8	E235.F/VA	0.020	mg/L		0.190	0.228	0.033	0.226	0.112
Kjeldahl nitrogen, total [TKN]	----	E318/VA	0.050	mg/L		0.410	0.051	0.082	1.65	<0.050
Nitrate (as N)	14797-55-8	E235.NO3-L/VA	0.0050	mg/L		0.0458	0.0882	<0.0050	<0.0500 DLDS	0.0061
Nitrite (as N)	14797-65-0	E235.NO2-L/VA	0.0010	mg/L		0.0107	<0.0010	<0.0010	<0.0100 DLDS	<0.0010
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U/VA	0.0010	mg/L		0.0782	0.0268	<0.0010	<0.0010	<0.0010
Sulfate (as SO4)	14808-79-8	E235.SO4/VA	0.30	mg/L		6.20	94.6	80.9	720	14.2
Organic / Inorganic Carbon										
Carbon, total organic [TOC]	----	E355-L/VA	0.50	mg/L		2.92	0.99	1.50	8.19	<0.50

Analytical Results

Sub-Matrix: Groundwater
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MW-01-2004(S) (E303722) ----	MW-01-2004(D) (E303723) ----	MW-04S-05(S) (E266349) ----	MW-06-01(E252594) ----	S-MW-1(E221702) ----
					Client sampling date / time	09-Sep-2025 11:48	09-Sep-2025 11:25	10-Sep-2025 11:10	10-Sep-2025 12:04	10-Sep-2025 09:21
						VA25C3911-006	VA25C3911-007	VA25C3911-008	VA25C3911-009	VA25C3911-010
						Result	Result	Result	Result	Result
Total Sulfides										
Sulfide, total (as H2S)	7783-06-4	E395-H/VA	0.011	mg/L		<0.011	<0.011	<1.06	0.028	<0.011
Sulfide, total (as S)	18496-25-8	E395-H/VA	0.010	mg/L		<0.010	<0.010	<1.00 DLM	0.026	<0.010
Total Metals										
Aluminum, total	7429-90-5	E420/VA	3.0	µg/L		5130	46.7	29.1	10.0	159
Antimony, total	7440-36-0	E420/VA	0.10	µg/L		<0.50 DLA	<0.10	0.17	0.16	<0.10
Arsenic, total	7440-38-2	E420/VA	0.10	µg/L		9.61	1.82	1.73	5.08	0.37
Barium, total	7440-39-3	E420/VA	0.10	µg/L		164	156	61.2	20.4	32.0
Beryllium, total	7440-41-7	E420/VA	0.100	µg/L		0.197	<0.100	<0.100	<0.100	<0.100
Bismuth, total	7440-69-9	E420/VA	0.050	µg/L		<0.250 DLA	<0.050	<0.050	<0.050	<0.050
Boron, total	7440-42-8	E420/VA	10	µg/L		<50 DLA	<10	<10	300	<10
Cadmium, total	7440-43-9	E420/VA	0.0050	µg/L		1.01	0.0276	1.42	1.14	0.0170
Calcium, total	7440-70-2	E420/VA	50	µg/L		25000	66900	103000	301000	45900
Cesium, total	7440-46-2	E420/VA	0.010	µg/L		0.622	0.497	0.011	0.892	0.687
Chromium, total	7440-47-3	E420/VA	0.50	µg/L		9.38	<0.50	1.23	<0.50	0.58
Cobalt, total	7440-48-4	E420/VA	0.10	µg/L		6.32	<0.10	2.64	0.23	0.31
Copper, total	7440-50-8	E420/VA	0.50	µg/L		16.2	1.32	5.18	0.94	0.85
Iron, total	7439-89-6	E420/VA	10	µg/L		7290	585	11500	17700	336
Lead, total	7439-92-1	E420/VA	0.050	µg/L		9.66	1.24	14.5	24.2	0.361
Lithium, total	7439-93-2	E420/VA	1.0	µg/L		6.1	21.8	1.2	3.6	8.8
Magnesium, total	7439-95-4	E420/VA	5.0	µg/L		7310	15400	17100	46500	14800
Manganese, total	7439-96-5	E420/VA	0.10	µg/L		12700	59.5	154	413	378

Analytical Results

Sub-Matrix: Groundwater
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MW-01-2004(S) (E303722) ----	MW-01-2004(D) (E303723) ----	MW-04S-05(S) (E266349) ----	MW-06-01(E252594) ----	S-MW-1(E221702) ----
					Client sampling date / time	09-Sep-2025 11:48	09-Sep-2025 11:25	10-Sep-2025 11:10	10-Sep-2025 12:04	10-Sep-2025 09:21
						VA25C3911-006	VA25C3911-007	VA25C3911-008	VA25C3911-009	VA25C3911-010
						Result	Result	Result	Result	Result
Total Metals										
Mercury, total	7439-97-6	E508/VA	0.0050	µg/L		0.0054	<0.0050	<0.0050	<0.0050	<0.0050
Molybdenum, total	7439-98-7	E420/VA	0.050	µg/L		15.4	1.92	1.06	1.30	3.06
Nickel, total	7440-02-0	E420/VA	0.50	µg/L		9.41	<0.50	20.0	1.99	1.08
Phosphorus, total	7723-14-0	E420/VA	50	µg/L		502	134	<50	<50	<50
Potassium, total	7440-09-7	E420/VA	50	µg/L		1980	2490	3190	10400	1520
Rubidium, total	7440-17-7	E420/VA	0.20	µg/L		7.09	1.67	0.95	36.4	2.55
Selenium, total	7782-49-2	E420/VA	0.050	µg/L		<0.250 DLA	<0.050	<0.050	<0.050	0.387
Silicon, total	7440-21-3	E420/VA	100	µg/L		21200	10600	8970	8380	8930
Silver, total	7440-22-4	E420/VA	0.010	µg/L		0.211	<0.010	<0.010	0.013	<0.010
Sodium, total	7440-23-5	E420/VA	50	µg/L		3460	17000	6960	18200	5120
Strontium, total	7440-24-6	E420/VA	0.20	µg/L		172	383	512	452	324
Sulfur, total	7704-34-9	E420/VA	500	µg/L		<2500 DLA	36500	30800	298000	5280
Tellurium, total	13494-80-9	E420/VA	0.20	µg/L		<1.00 DLA	<0.20	<0.20	<0.20	<0.20
Thallium, total	7440-28-0	E420/VA	0.010	µg/L		0.056	<0.010	0.166	0.083	<0.010
Thorium, total	7440-29-1	E420/VA	0.10	µg/L		2.13	<0.10	<0.10	<0.10	<0.10
Tin, total	7440-31-5	E420/VA	0.10	µg/L		0.59	0.84	0.22	<0.10	0.37
Titanium, total	7440-32-6	E420/VA	0.30	µg/L		148	2.52	0.79	0.48	6.02
Tungsten, total	7440-33-7	E420/VA	0.10	µg/L		<0.50 DLA	<0.10	<0.10	<0.10	<0.10
Uranium, total	7440-61-1	E420/VA	0.010	µg/L		3.65	2.31	6.69	3.03	10.7
Vanadium, total	7440-62-2	E420/VA	0.50	µg/L		26.8	<0.50	0.79	<0.50	<0.50
Zinc, total	7440-66-6	E420/VA	3.0	µg/L		51.0	12.5	14.6	281	3.8

Analytical Results

Sub-Matrix: Groundwater
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MW-01-2004(S) (E303722) ----	MW-01-2004(D) (E303723) ----	MW-04S-05(S) (E266349) ----	MW-06-01(E252594) ----	S-MW-1(E221702) ----
					Client sampling date / time	09-Sep-2025 11:48	09-Sep-2025 11:25	10-Sep-2025 11:10	10-Sep-2025 12:04	10-Sep-2025 09:21
						VA25C3911-006	VA25C3911-007	VA25C3911-008	VA25C3911-009	VA25C3911-010
						Result	Result	Result	Result	Result
Total Metals										
Zirconium, total	7440-67-7	E420/VA	0.20	µg/L		<1.00 DLA	<0.20	<0.20	<0.20	<0.20
Dissolved Metals										
Aluminum, dissolved	7429-90-5	E421/VA	1.0	µg/L		4.1	<1.0	<1.0	<1.0	76.4
Antimony, dissolved	7440-36-0	E421/VA	0.10	µg/L		<0.10	<0.10	<0.10	<0.10	<0.10
Arsenic, dissolved	7440-38-2	E421/VA	0.10	µg/L		1.05	0.87	0.54	3.91	0.28
Barium, dissolved	7440-39-3	E421/VA	0.10	µg/L		9.76	143	59.9	17.6	27.4
Beryllium, dissolved	7440-41-7	E421/VA	0.100	µg/L		<0.100	<0.100	<0.100	<0.100	<0.100
Bismuth, dissolved	7440-69-9	E421/VA	0.050	µg/L		<0.050	<0.050	<0.050	<0.050	<0.050
Boron, dissolved	7440-42-8	E421/VA	10	µg/L		<10	<10	<10	280	<10
Cadmium, dissolved	7440-43-9	E421/VA	0.0050	µg/L		0.360	0.0073	0.0060	0.0054	0.0096
Calcium, dissolved	7440-70-2	E421/VA	50	µg/L		24200	66400	101000	305000	45400
Cesium, dissolved	7440-46-2	E421/VA	0.010	µg/L		<0.010	0.485	<0.010	0.874	0.645
Chromium, dissolved	7440-47-3	E421/VA	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Cobalt, dissolved	7440-48-4	E421/VA	0.10	µg/L		0.11	<0.10	0.68	0.19	0.10
Copper, dissolved	7440-50-8	E421/VA	0.20	µg/L		1.18	0.46	<0.20	<0.20	0.57
Iron, dissolved	7439-89-6	E421/VA	10	µg/L		<10	<10	1300	15300	138
Lead, dissolved	7439-92-1	E421/VA	0.050	µg/L		<0.050	<0.050	<0.050	0.093	0.162
Lithium, dissolved	7439-93-2	E421/VA	1.0	µg/L		1.0	21.0	1.1	3.6	8.5
Magnesium, dissolved	7439-95-4	E421/VA	5.0	µg/L		5680	14300	17000	47200	14100
Manganese, dissolved	7439-96-5	E421/VA	0.10	µg/L		4310	3.59	128	400	122
Mercury, dissolved	7439-97-6	E509/VA	0.0050	µg/L		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050

Analytical Results

Sub-Matrix: Groundwater
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MW-01-2004(S) (E303722) ----	MW-01-2004(D) (E303723) ----	MW-04S-05(S) (E266349) ----	MW-06-01(E252594) ----	S-MW-1(E221702) ----
					Client sampling date / time	09-Sep-2025 11:48	09-Sep-2025 11:25	10-Sep-2025 11:10	10-Sep-2025 12:04	10-Sep-2025 09:21
						VA25C3911-006	VA25C3911-007	VA25C3911-008	VA25C3911-009	VA25C3911-010
						Result	Result	Result	Result	Result
Dissolved Metals										
Molybdenum, dissolved	7439-98-7	E421/VA	0.050	µg/L		8.04	1.90	0.636	1.24	1.92
Nickel, dissolved	7440-02-0	E421/VA	0.50	µg/L		0.53	<0.50	4.56	1.71	0.59
Phosphorus, dissolved	7723-14-0	E421/VA	50	µg/L		82	<50	<50	<50	<50
Potassium, dissolved	7440-09-7	E421/VA	50	µg/L		1170	2380	3250	10000	1530
Rubidium, dissolved	7440-17-7	E421/VA	0.20	µg/L		0.25	1.72	0.84	36.1	2.56
Selenium, dissolved	7782-49-2	E421/VA	0.050	µg/L		<0.050	<0.050	<0.050	<0.050	0.349
Silicon, dissolved	7440-21-3	E421/VA	50	µg/L		12800	10300	8640	7420	8460
Silver, dissolved	7440-22-4	E421/VA	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Sodium, dissolved	7440-23-5	E421/VA	50	µg/L		2900	16000	6720	17600	5030
Strontium, dissolved	7440-24-6	E421/VA	0.20	µg/L		155	393	517	411	323
Sulfur, dissolved	7704-34-9	E421/VA	500	µg/L		2300	35100	29800	265000	4850
Tellurium, dissolved	13494-80-9	E421/VA	0.20	µg/L		<0.20	<0.20	<0.20	<0.20	<0.20
Thallium, dissolved	7440-28-0	E421/VA	0.010	µg/L		<0.010	<0.010	<0.010	0.069	<0.010
Thorium, dissolved	7440-29-1	E421/VA	0.10	µg/L		<0.10	<0.10	<0.10	<0.10	<0.10
Tin, dissolved	7440-31-5	E421/VA	0.10	µg/L		<0.10	<0.10	<0.10	<0.10	0.22
Titanium, dissolved	7440-32-6	E421/VA	0.30	µg/L		<0.30	<0.30	<0.30	<0.30	2.90
Tungsten, dissolved	7440-33-7	E421/VA	0.10	µg/L		<0.10	<0.10	<0.10	<0.10	<0.10
Uranium, dissolved	7440-61-1	E421/VA	0.010	µg/L		1.39	2.24	6.00	2.95	10.4
Vanadium, dissolved	7440-62-2	E421/VA	0.50	µg/L		1.54	<0.50	<0.50	<0.50	<0.50
Zinc, dissolved	7440-66-6	E421/VA	1.0	µg/L		6.6	7.3	2.7	198	2.3
Zirconium, dissolved	7440-67-7	E421/VA	0.20	µg/L		<0.20	<0.20	<0.20	<0.20	<0.20

Analytical Results

Sub-Matrix: Groundwater (Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MW-01-2004(S) (E303722) ----	MW-01-2004(D) (E303723) ----	MW-04S-05(S) (E266349) ----	MW-06-01(E252594) ----	S-MW-1(E221702) ----
					Client sampling date / time	09-Sep-2025 11:48	09-Sep-2025 11:25	10-Sep-2025 11:10	10-Sep-2025 12:04	10-Sep-2025 09:21
						VA25C3911-006	VA25C3911-007	VA25C3911-008	VA25C3911-009	VA25C3911-010
						Result	Result	Result	Result	Result
Dissolved Metals										
Dissolved mercury filtration location	----	EP509/VA	-	-		Field	Field	Field	Field	Field
Dissolved metals filtration location	----	EP421/VA	-	-		Field	Field	Field	Field	Field

Please refer to the General Comments section for an explanation of any qualifiers detected.

Analytical Results

Sub-Matrix: Groundwater (Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	S-MW-2(E221703) ----	GW Duplicate ----	Field Blank ----	----	----
					Client sampling date / time	09-Sep-2025 13:30	10-Sep-2025 11:10	10-Sep-2025 12:30	----	----
						VA25C3911-011	VA25C3911-012	VA25C3911-013	----	----
						Result	Result	Result	----	----
Physical Tests										
Alkalinity, total (as CaCO3)	----	E290/VA	1.0	mg/L		273	240	1.0	----	----
Conductivity	----	E100/VA	2.0	µS/cm		618	628	2.4	----	----
Hardness (as CaCO3), dissolved	----	EC100/VA	0.60	mg/L		316	324	<0.60	----	----
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/VA	0.60	mg/L		318	324	0.80	----	----
pH	----	E108/VA	0.10	pH units		7.43	7.90	6.26	----	----
Solids, total dissolved [TDS]	----	E162/VA	10	mg/L		431	458	<10	----	----
Solids, total suspended [TSS]	----	E160/VA	3.0	mg/L		54.8	9.6	<3.0	----	----
Anions and Nutrients										
Ammonia, total (as N)	7664-41-7	E298/VA	0.0050	mg/L		0.0200	0.0236	<0.0050	----	----
Bromide	24959-67-9	E235.Br-L/VA	0.050	mg/L		<0.050	0.096	<0.050	----	----
Chloride	16887-00-6	E235.Cl/VA	0.50	mg/L		8.52	19.5	<0.50	----	----
Fluoride	16984-48-8	E235.F/VA	0.020	mg/L		0.049	0.033	<0.020	----	----

Analytical Results

Sub-Matrix: Groundwater
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	S-MW-2(E221703) ----	GW Duplicate ----	Field Blank ----	----	----
					Client sampling date / time	09-Sep-2025 13:30	10-Sep-2025 11:10	10-Sep-2025 12:30	----	----
						VA25C3911-011	VA25C3911-012	VA25C3911-013	----	----
						Result	Result	Result	----	----
Anions and Nutrients										
Kjeldahl nitrogen, total [TKN]	----	E318/VA	0.050	mg/L		0.513	0.072	<0.050	----	----
Nitrate (as N)	14797-55-8	E235.NO3-L/VA	0.0050	mg/L		2.88	0.0063	<0.0050	----	----
Nitrite (as N)	14797-65-0	E235.NO2-L/VA	0.0010	mg/L		<0.0010	<0.0010	<0.0010	----	----
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U/VA	0.0010	mg/L		0.0120	<0.0010	<0.0010	----	----
Sulfate (as SO4)	14808-79-8	E235.SO4/VA	0.30	mg/L		44.8	80.8	<0.30	----	----
Organic / Inorganic Carbon										
Carbon, total organic [TOC]	----	E355-L/VA	0.50	mg/L		6.61	1.36	<0.50	----	----
Total Sulfides										
Sulfide, total (as H2S)	7783-06-4	E395-H/VA	0.011	mg/L		<0.011	1.85	<0.011	----	----
Sulfide, total (as S)	18496-25-8	E395-H/VA	0.010	mg/L		<0.010	1.74	<0.010	----	----
Total Metals										
Aluminum, total	7429-90-5	E420/VA	3.0	µg/L		1270	24.1	16.2 RRV	----	----
Antimony, total	7440-36-0	E420/VA	0.10	µg/L		0.31	0.16	<0.10	----	----
Arsenic, total	7440-38-2	E420/VA	0.10	µg/L		3.90	1.73	<0.10	----	----
Barium, total	7440-39-3	E420/VA	0.10	µg/L		164	62.0	0.65 RRV	----	----
Beryllium, total	7440-41-7	E420/VA	0.100	µg/L		<0.100	<0.100	<0.100	----	----
Bismuth, total	7440-69-9	E420/VA	0.050	µg/L		<0.050	<0.050	<0.050	----	----
Boron, total	7440-42-8	E420/VA	10	µg/L		107	<10	<10	----	----
Cadmium, total	7440-43-9	E420/VA	0.0050	µg/L		0.832	1.41	0.0546 RRV	----	----
Calcium, total	7440-70-2	E420/VA	50	µg/L		88400	101000	238 RRV	----	----
Cesium, total	7440-46-2	E420/VA	0.010	µg/L		0.151	0.011	<0.010	----	----

Analytical Results

Sub-Matrix: Groundwater
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	S-MW-2(E221703) ----	GW Duplicate ----	Field Blank ----	----	----
					Client sampling date / time	09-Sep-2025 13:30	10-Sep-2025 11:10	10-Sep-2025 12:30	----	----
						VA25C3911-011	VA25C3911-012	VA25C3911-013	----	----
						Result	Result	Result	----	----
Total Metals										
Chromium, total	7440-47-3	E420/VA	0.50	µg/L		6.44	0.88	<0.50	----	----
Cobalt, total	7440-48-4	E420/VA	0.10	µg/L		2.08	2.73	<0.10	----	----
Copper, total	7440-50-8	E420/VA	0.50	µg/L		6.51	5.84	3.93 RRV	----	----
Iron, total	7439-89-6	E420/VA	10	µg/L		2630	11100	33 RRV	----	----
Lead, total	7439-92-1	E420/VA	0.050	µg/L		1.94	14.2	1.03 RRV	----	----
Lithium, total	7439-93-2	E420/VA	1.0	µg/L		2.6	1.2	<1.0	----	----
Magnesium, total	7439-95-4	E420/VA	5.0	µg/L		23500	17500	49.1 RRV	----	----
Manganese, total	7439-96-5	E420/VA	0.10	µg/L		572	155	0.99 RRV	----	----
Mercury, total	7439-97-6	E508/VA	0.0050	µg/L		0.0079	<0.0050	<0.0050	----	----
Molybdenum, total	7439-98-7	E420/VA	0.050	µg/L		0.571	0.986	<0.050	----	----
Nickel, total	7440-02-0	E420/VA	0.50	µg/L		8.77	21.4	<0.50	----	----
Phosphorus, total	7723-14-0	E420/VA	50	µg/L		160	<50	<50	----	----
Potassium, total	7440-09-7	E420/VA	50	µg/L		4960	3250	<50	----	----
Rubidium, total	7440-17-7	E420/VA	0.20	µg/L		1.77	0.93	<0.20	----	----
Selenium, total	7782-49-2	E420/VA	0.050	µg/L		0.117	<0.050	<0.050	----	----
Silicon, total	7440-21-3	E420/VA	100	µg/L		11600	8950	<100	----	----
Silver, total	7440-22-4	E420/VA	0.010	µg/L		0.036	<0.010	<0.010	----	----
Sodium, total	7440-23-5	E420/VA	50	µg/L		9650	7070	82 RRV	----	----
Strontium, total	7440-24-6	E420/VA	0.20	µg/L		491	526	1.10 RRV	----	----
Sulfur, total	7704-34-9	E420/VA	500	µg/L		17700	31600	<500	----	----
Tellurium, total	13494-80-9	E420/VA	0.20	µg/L		<0.20	<0.20	<0.20	----	----

Analytical Results

Sub-Matrix: Groundwater
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	S-MW-2(E221703) ----	GW Duplicate ----	Field Blank ----	----	----
					Client sampling date / time	09-Sep-2025 13:30	10-Sep-2025 11:10	10-Sep-2025 12:30	----	----
						VA25C3911-011	VA25C3911-012	VA25C3911-013	----	----
						Result	Result	Result	----	----
Total Metals										
Thallium, total	7440-28-0	E420/VA	0.010	µg/L		0.022	0.174	<0.010	----	----
Thorium, total	7440-29-1	E420/VA	0.10	µg/L		0.39	<0.10	<0.10	----	----
Tin, total	7440-31-5	E420/VA	0.10	µg/L		0.16	0.21	<0.10	----	----
Titanium, total	7440-32-6	E420/VA	0.30	µg/L		46.1	0.75	0.61 RRV	----	----
Tungsten, total	7440-33-7	E420/VA	0.10	µg/L		<0.10	<0.10	<0.10	----	----
Uranium, total	7440-61-1	E420/VA	0.010	µg/L		2.38	6.72	<0.010	----	----
Vanadium, total	7440-62-2	E420/VA	0.50	µg/L		6.66	0.74	<0.50	----	----
Zinc, total	7440-66-6	E420/VA	3.0	µg/L		14.2	15.3	5.9 RRV	----	----
Zirconium, total	7440-67-7	E420/VA	0.20	µg/L		0.67	<0.20	<0.20	----	----
Dissolved Metals										
Aluminum, dissolved	7429-90-5	E421/VA	1.0	µg/L		3.6	<1.0	1.4 RRV	----	----
Antimony, dissolved	7440-36-0	E421/VA	0.10	µg/L		0.18	<0.10	<0.10	----	----
Arsenic, dissolved	7440-38-2	E421/VA	0.10	µg/L		0.48	0.55	<0.10	----	----
Barium, dissolved	7440-39-3	E421/VA	0.10	µg/L		135	59.4	0.36 RRV	----	----
Beryllium, dissolved	7440-41-7	E421/VA	0.100	µg/L		<0.100	<0.100	<0.100	----	----
Bismuth, dissolved	7440-69-9	E421/VA	0.050	µg/L		<0.050	<0.050	<0.050	----	----
Boron, dissolved	7440-42-8	E421/VA	10	µg/L		103	<10	<10	----	----
Cadmium, dissolved	7440-43-9	E421/VA	0.0050	µg/L		0.113	0.0076	<0.0050	----	----
Calcium, dissolved	7440-70-2	E421/VA	50	µg/L		89400	102000	171 RRV	----	----
Cesium, dissolved	7440-46-2	E421/VA	0.010	µg/L		<0.010	<0.010	<0.010	----	----
Chromium, dissolved	7440-47-3	E421/VA	0.50	µg/L		<0.50	<0.50	<0.50	----	----

Analytical Results

Sub-Matrix: Groundwater
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	S-MW-2(E221703) ----	GW Duplicate ----	Field Blank ----	----	----
					Client sampling date / time	09-Sep-2025 13:30	10-Sep-2025 11:10	10-Sep-2025 12:30	----	----
						VA25C3911-011	VA25C3911-012	VA25C3911-013	----	----
						Result	Result	Result	----	----
Dissolved Metals										
Cobalt, dissolved	7440-48-4	E421/VA	0.10	µg/L		0.13	0.69	<0.10	----	----
Copper, dissolved	7440-50-8	E421/VA	0.20	µg/L		1.96	<0.20	0.75 RRV	----	----
Iron, dissolved	7439-89-6	E421/VA	10	µg/L		<10	1290	<10	----	----
Lead, dissolved	7439-92-1	E421/VA	0.050	µg/L		<0.050	<0.050	<0.050	----	----
Lithium, dissolved	7439-93-2	E421/VA	1.0	µg/L		1.1	1.2	<1.0	----	----
Magnesium, dissolved	7439-95-4	E421/VA	5.0	µg/L		22500	16800	27.3 RRV	----	----
Manganese, dissolved	7439-96-5	E421/VA	0.10	µg/L		8.74	126	0.46 RRV	----	----
Mercury, dissolved	7439-97-6	E509/VA	0.0050	µg/L		<0.0050	<0.0050	<0.0050	----	----
Molybdenum, dissolved	7439-98-7	E421/VA	0.050	µg/L		0.156	0.613	<0.050	----	----
Nickel, dissolved	7440-02-0	E421/VA	0.50	µg/L		2.38	4.47	<0.50	----	----
Phosphorus, dissolved	7723-14-0	E421/VA	50	µg/L		<50	<50	<50	----	----
Potassium, dissolved	7440-09-7	E421/VA	50	µg/L		4980	3240	<50	----	----
Rubidium, dissolved	7440-17-7	E421/VA	0.20	µg/L		0.25	0.84	<0.20	----	----
Selenium, dissolved	7782-49-2	E421/VA	0.050	µg/L		0.104	<0.050	<0.050	----	----
Silicon, dissolved	7440-21-3	E421/VA	50	µg/L		9470	8440	<50	----	----
Silver, dissolved	7440-22-4	E421/VA	0.010	µg/L		<0.010	<0.010	<0.010	----	----
Sodium, dissolved	7440-23-5	E421/VA	50	µg/L		9720	6820	78 RRV	----	----
Strontium, dissolved	7440-24-6	E421/VA	0.20	µg/L		490	520	0.98 RRV	----	----
Sulfur, dissolved	7704-34-9	E421/VA	500	µg/L		16600	29300	<500	----	----
Tellurium, dissolved	13494-80-9	E421/VA	0.20	µg/L		<0.20	<0.20	<0.20	----	----
Thallium, dissolved	7440-28-0	E421/VA	0.010	µg/L		<0.010	<0.010	<0.010	----	----

Analytical Results

Sub-Matrix: Groundwater (Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	S-MW-2(E221703) ----	GW Duplicate ----	Field Blank ----	----	----
					Client sampling date / time	09-Sep-2025 13:30	10-Sep-2025 11:10	10-Sep-2025 12:30	----	----
						VA25C3911-011	VA25C3911-012	VA25C3911-013	----	----
						Result	Result	Result	----	----
Dissolved Metals										
Thorium, dissolved	7440-29-1	E421/VA	0.10	µg/L		<0.10	<0.10	<0.10	----	----
Tin, dissolved	7440-31-5	E421/VA	0.10	µg/L		<0.10	<0.10	<0.10	----	----
Titanium, dissolved	7440-32-6	E421/VA	0.30	µg/L		<0.30	<0.30	<0.30	----	----
Tungsten, dissolved	7440-33-7	E421/VA	0.10	µg/L		<0.10	<0.10	<0.10	----	----
Uranium, dissolved	7440-61-1	E421/VA	0.010	µg/L		2.02	6.07	<0.010	----	----
Vanadium, dissolved	7440-62-2	E421/VA	0.50	µg/L		1.56	<0.50	<0.50	----	----
Zinc, dissolved	7440-66-6	E421/VA	1.0	µg/L		3.1	5.6	2.0 RRV	----	----
Zirconium, dissolved	7440-67-7	E421/VA	0.20	µg/L		<0.20	<0.20	<0.20	----	----
Dissolved mercury filtration location	----	EP509/VA	-	-		Field	Field	Field	----	----
Dissolved metals filtration location	----	EP421/VA	-	-		Field	Field	Field	----	----

Please refer to the General Comments section for an explanation of any qualifiers detected.

Analytical Results

Sub-Matrix: Surface Water (Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	Seepage Weir (E335950) ----	Spillway Outlet (E335952) ----	----	----	----
					Client sampling date / time	08-Sep-2025 11:15	08-Sep-2025 11:10	----	----	----
						VA25C3911-014	VA25C3911-015	----	----	----
						Result	Result	----	----	----
Sample Preparation										
Dissolved carbon filtration location	----	EP358/VA	-	-		field	field	----	----	----
Physical Tests										
Alkalinity, total (as CaCO3)	----	E290/VA	1.0	mg/L		274	282	----	----	----
Conductivity	----	E100/VA	2.0	µS/cm		816	862	----	----	----

Analytical Results

Sub-Matrix: Surface Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	Seepage Weir (E335950) ----	Spillway Outlet (E335952) ----	----	----	----
					Client sampling date / time	08-Sep-2025 11:15	08-Sep-2025 11:10	----	----	----
						VA25C3911-014	VA25C3911-015	----	----	----
						Result	Result	----	----	----
Physical Tests										
Hardness (as CaCO3), dissolved	----	EC100/VA	0.60	mg/L		446	461	----	----	----
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/VA	0.60	mg/L		450	463	----	----	----
pH	----	E108/VA	0.10	pH units		8.31	7.98	----	----	----
Solids, total dissolved [TDS]	----	E162/VA	10	mg/L		626	680	----	----	----
Solids, total suspended [TSS]	----	E160/VA	3.0	mg/L		12.8	6.8	----	----	----
Anions and Nutrients										
Ammonia, total (as N)	7664-41-7	E298/VA	0.0050	mg/L		0.0059	0.0348	----	----	----
Bromide	24959-67-9	E235.Br-L/VA	0.050	mg/L		<0.250 DLDS	0.088	----	----	----
Chloride	16887-00-6	E235.Cl/VA	0.50	mg/L		3.16	3.02	----	----	----
Fluoride	16984-48-8	E235.F/VA	0.020	mg/L		0.137	0.146	----	----	----
Kjeldahl nitrogen, total [TKN]	----	E318/VA	0.050	mg/L		0.125	0.154	----	----	----
Nitrate (as N)	14797-55-8	E235.NO3-L/VA	0.0050	mg/L		0.284	0.185	----	----	----
Nitrite (as N)	14797-65-0	E235.NO2-L/VA	0.0010	mg/L		<0.0050 DLDS	0.0093	----	----	----
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U/VA	0.0010	mg/L		0.0178	<0.0010	----	----	----
Sulfate (as SO4)	14808-79-8	E235.SO4/VA	0.30	mg/L		196	206	----	----	----
Organic / Inorganic Carbon										
Carbon, dissolved organic [DOC]	----	E358-L/VA	0.50	mg/L		3.07	3.44	----	----	----
Carbon, total organic [TOC]	----	E355-L/VA	0.50	mg/L		3.94	3.98	----	----	----
Total Sulfides										
Sulfide, total (as H2S)	7783-06-4	E395-H/VA	0.011	mg/L		<0.011	<0.011	----	----	----
Sulfide, total (as S)	18496-25-8	E395-H/VA	0.010	mg/L		<0.010	<0.010	----	----	----

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Analytical Results

Sub-Matrix: Surface Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	Seepage Weir (E335950) ----	Spillway Outlet (E335952) ----	----	----	----
					Client sampling date / time	08-Sep-2025 11:15	08-Sep-2025 11:10	----	----	----
						VA25C3911-014	VA25C3911-015	----	----	----
						Result	Result	----	----	----
Total Metals										
Aluminum, total	7429-90-5	E420/VA	3.0	µg/L		225	148	----	----	----
Antimony, total	7440-36-0	E420/VA	0.10	µg/L		0.30	<0.10	----	----	----
Arsenic, total	7440-38-2	E420/VA	0.10	µg/L		0.92	0.41	----	----	----
Barium, total	7440-39-3	E420/VA	0.10	µg/L		49.5	53.9	----	----	----
Beryllium, total	7440-41-7	E420/VA	0.100	µg/L		<0.100	<0.100	----	----	----
Bismuth, total	7440-69-9	E420/VA	0.050	µg/L		<0.050	<0.050	----	----	----
Boron, total	7440-42-8	E420/VA	10	µg/L		20	21	----	----	----
Cadmium, total	7440-43-9	E420/VA	0.0050	µg/L		0.212	0.0626	----	----	----
Calcium, total	7440-70-2	E420/VA	50	µg/L		116000	118000	----	----	----
Cesium, total	7440-46-2	E420/VA	0.010	µg/L		0.120	0.122	----	----	----
Chromium, total	7440-47-3	E420/VA	0.50	µg/L		<0.50	<0.50	----	----	----
Cobalt, total	7440-48-4	E420/VA	0.10	µg/L		0.28	0.30	----	----	----
Copper, total	7440-50-8	E420/VA	0.50	µg/L		4.76	0.61	----	----	----
Iron, total	7439-89-6	E420/VA	10	µg/L		357	303	----	----	----
Lead, total	7439-92-1	E420/VA	0.050	µg/L		1.44	0.234	----	----	----
Lithium, total	7439-93-2	E420/VA	1.0	µg/L		1.4	1.4	----	----	----
Magnesium, total	7439-95-4	E420/VA	5.0	µg/L		38900	40800	----	----	----
Manganese, total	7439-96-5	E420/VA	0.10	µg/L		379	2070	----	----	----
Mercury, total	7439-97-6	E508/VA	0.0050	µg/L		<0.0050	<0.0050	----	----	----
Molybdenum, total	7439-98-7	E420/VA	0.050	µg/L		2.30	3.05	----	----	----
Nickel, total	7440-02-0	E420/VA	0.50	µg/L		0.98	1.00	----	----	----

Analytical Results

Sub-Matrix: Surface Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	Seepage Weir (E335950) ----	Spillway Outlet (E335952) ----	----	----	----
					Client sampling date / time	08-Sep-2025 11:15	08-Sep-2025 11:10	----	----	----
						VA25C3911-014	VA25C3911-015	----	----	----
						Result	Result	----	----	----
Total Metals										
Phosphorus, total	7723-14-0	E420/VA	50	µg/L		72	<50	----	----	----
Potassium, total	7440-09-7	E420/VA	50	µg/L		4480	4620	----	----	----
Rubidium, total	7440-17-7	E420/VA	0.20	µg/L		2.94	3.03	----	----	----
Selenium, total	7782-49-2	E420/VA	0.050	µg/L		0.158	0.081	----	----	----
Silicon, total	7440-21-3	E420/VA	100	µg/L		10400	10200	----	----	----
Silver, total	7440-22-4	E420/VA	0.010	µg/L		<0.010	<0.010	----	----	----
Sodium, total	7440-23-5	E420/VA	50	µg/L		11900	11900	----	----	----
Strontium, total	7440-24-6	E420/VA	0.20	µg/L		534	560	----	----	----
Sulfur, total	7704-34-9	E420/VA	500	µg/L		75200	82000	----	----	----
Tellurium, total	13494-80-9	E420/VA	0.20	µg/L		<0.20	<0.20	----	----	----
Thallium, total	7440-28-0	E420/VA	0.010	µg/L		<0.010	<0.010	----	----	----
Thorium, total	7440-29-1	E420/VA	0.10	µg/L		0.15	<0.10	----	----	----
Tin, total	7440-31-5	E420/VA	0.10	µg/L		<0.10	<0.10	----	----	----
Titanium, total	7440-32-6	E420/VA	0.30	µg/L		8.84	4.29	----	----	----
Tungsten, total	7440-33-7	E420/VA	0.10	µg/L		<0.10	<0.10	----	----	----
Uranium, total	7440-61-1	E420/VA	0.010	µg/L		6.67	5.69	----	----	----
Vanadium, total	7440-62-2	E420/VA	0.50	µg/L		1.11	<0.50	----	----	----
Zinc, total	7440-66-6	E420/VA	3.0	µg/L		31.9	8.0	----	----	----
Zirconium, total	7440-67-7	E420/VA	0.20	µg/L		<0.20	<0.20	----	----	----
Dissolved Metals										
Aluminum, dissolved	7429-90-5	E421/VA	1.0	µg/L		1.4	1.9	----	----	----

Analytical Results

Sub-Matrix: Surface Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	Seepage Weir (E335950) ----	Spillway Outlet (E335952) ----	----	----	----
					Client sampling date / time	08-Sep-2025 11:15	08-Sep-2025 11:10	----	----	----
						VA25C3911-014	VA25C3911-015	----	----	----
						Result	Result	----	----	----
Dissolved Metals										
Antimony, dissolved	7440-36-0	E421/VA	0.10	µg/L		0.25	<0.10	----	----	----
Arsenic, dissolved	7440-38-2	E421/VA	0.10	µg/L		0.64	0.30	----	----	----
Barium, dissolved	7440-39-3	E421/VA	0.10	µg/L		44.5	50.7	----	----	----
Beryllium, dissolved	7440-41-7	E421/VA	0.100	µg/L		<0.100	<0.100	----	----	----
Bismuth, dissolved	7440-69-9	E421/VA	0.050	µg/L		<0.050	<0.050	----	----	----
Boron, dissolved	7440-42-8	E421/VA	10	µg/L		21	22	----	----	----
Cadmium, dissolved	7440-43-9	E421/VA	0.0050	µg/L		0.0718	0.0477	----	----	----
Calcium, dissolved	7440-70-2	E421/VA	50	µg/L		116000	118000	----	----	----
Cesium, dissolved	7440-46-2	E421/VA	0.010	µg/L		0.074	0.083	----	----	----
Chromium, dissolved	7440-47-3	E421/VA	0.50	µg/L		<0.50	<0.50	----	----	----
Cobalt, dissolved	7440-48-4	E421/VA	0.10	µg/L		<0.10	0.19	----	----	----
Copper, dissolved	7440-50-8	E421/VA	0.20	µg/L		2.14	0.26	----	----	----
Iron, dissolved	7439-89-6	E421/VA	10	µg/L		<10	53	----	----	----
Lead, dissolved	7439-92-1	E421/VA	0.050	µg/L		<0.050	<0.050	----	----	----
Lithium, dissolved	7439-93-2	E421/VA	1.0	µg/L		1.2	1.2	----	----	----
Magnesium, dissolved	7439-95-4	E421/VA	5.0	µg/L		38100	40500	----	----	----
Manganese, dissolved	7439-96-5	E421/VA	0.10	µg/L		11.5	2030	----	----	----
Mercury, dissolved	7439-97-6	E509/VA	0.0050	µg/L		<0.0050	<0.0050	----	----	----
Molybdenum, dissolved	7439-98-7	E421/VA	0.050	µg/L		2.40	2.97	----	----	----
Nickel, dissolved	7440-02-0	E421/VA	0.50	µg/L		<0.50	0.74	----	----	----
Phosphorus, dissolved	7723-14-0	E421/VA	50	µg/L		<50	<50	----	----	----

Analytical Results

Sub-Matrix: Surface Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	Seepage Weir (E335950) ----	Spillway Outlet (E335952) ----	----	----	----
					Client sampling date / time	08-Sep-2025 11:15	08-Sep-2025 11:10	----	----	----
						VA25C3911-014	VA25C3911-015	----	----	----
						Result	Result	----	----	----
Dissolved Metals										
Potassium, dissolved	7440-09-7	E421/VA	50	µg/L		4450	4720	----	----	----
Rubidium, dissolved	7440-17-7	E421/VA	0.20	µg/L		2.75	2.90	----	----	----
Selenium, dissolved	7782-49-2	E421/VA	0.050	µg/L		0.147	0.097	----	----	----
Silicon, dissolved	7440-21-3	E421/VA	50	µg/L		9710	9380	----	----	----
Silver, dissolved	7440-22-4	E421/VA	0.010	µg/L		<0.010	<0.010	----	----	----
Sodium, dissolved	7440-23-5	E421/VA	50	µg/L		11500	12000	----	----	----
Strontium, dissolved	7440-24-6	E421/VA	0.20	µg/L		545	579	----	----	----
Sulfur, dissolved	7704-34-9	E421/VA	500	µg/L		71400	74400	----	----	----
Tellurium, dissolved	13494-80-9	E421/VA	0.20	µg/L		<0.20	<0.20	----	----	----
Thallium, dissolved	7440-28-0	E421/VA	0.010	µg/L		<0.010	<0.010	----	----	----
Thorium, dissolved	7440-29-1	E421/VA	0.10	µg/L		<0.10	<0.10	----	----	----
Tin, dissolved	7440-31-5	E421/VA	0.10	µg/L		<0.10	<0.10	----	----	----
Titanium, dissolved	7440-32-6	E421/VA	0.30	µg/L		<0.30	<0.30	----	----	----
Tungsten, dissolved	7440-33-7	E421/VA	0.10	µg/L		<0.10	<0.10	----	----	----
Uranium, dissolved	7440-61-1	E421/VA	0.010	µg/L		6.46	5.54	----	----	----
Vanadium, dissolved	7440-62-2	E421/VA	0.50	µg/L		<0.50	<0.50	----	----	----
Zinc, dissolved	7440-66-6	E421/VA	1.0	µg/L		8.1	5.9	----	----	----
Zirconium, dissolved	7440-67-7	E421/VA	0.20	µg/L		<0.20	<0.20	----	----	----
Dissolved mercury filtration location	----	EP509/VA	-	-		Field	Field	----	----	----
Dissolved metals filtration location	----	EP421/VA	-	-		Field	Field	----	----	----

Please refer to the General Comments section for an explanation of any qualifiers detected.

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QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **VA25C3911**	Page	: 1 of 44
Client	: **Masse Environmental Consultants Ltd.**	Laboratory	: ALS Environmental - Vancouver
Contact	: Ico de Zwart	Account Manager	: Can Dang
Address	: 812 Vernon Street Nelson BC Canada V1L 4G4	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: ----	Telephone	: +1 604 253 4188
Project	: 2016-503-HB	Date Samples Received	: 12-Sep-2025 19:27
PO	: ----	Issue Date	: 23-Sep-2025 11:10
C-O-C number	: 22-20250911-1		
Sampler	: Chris Stephanou		
Site	: RDCK		
Quote number	: ----		
No. of samples received	: 15		
No. of samples analysed	: 15		

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Key

Anonymous: Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number: Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO: Data Quality Objective.
LOR: Limit of Reporting (detection limit).
RPD: Relative Percent Difference.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Summary of Outliers

Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- No Duplicate outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- Matrix Spike outliers occur - please see following pages for full details.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- Analysis Holding Time Outliers exist - please see following pages for full details.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **Water**

Analyte Group	Laboratory sample ID	Client/Ref Sample ID	Analyte	CAS Number	Method	Result	Limits	Comment
Matrix Spike (MS) Recoveries								
Total Metals	VA25C3911-002	MW99-1(D) (E240501)	Thorium, total	7440-29-1	E420	62.8 % MES	70.0-130%	Recovery less than lower data quality objective
Dissolved Metals	VA25C3911-002	MW99-1(D) (E240501)	Thorium, dissolved	7440-29-1	E421	56.4 % MS-Th	70.0-130%	Recovery less than lower data quality objective

Result Qualifiers

Qualifier	*Description*
MES	*Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).*
MS-Th	*Matrix Spike recovery for thorium was marginally below DQO (40 to <60%) due to its instability in the sample matrix. Thorium was not detected. Reported result (< LOR) is reliable*

Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) Field Blank	E298	10-Sep-2025	16-Sep-2025	28 days	6 days	✓	20-Sep-2025	28 days	6 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) GW Duplicate	E298	10-Sep-2025	16-Sep-2025	28 days	6 days	✓	20-Sep-2025	28 days	6 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) MW-04S-05(S)(E266349)	E298	10-Sep-2025	16-Sep-2025	28 days	6 days	✓	20-Sep-2025	28 days	6 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) MW-06-01(E252594)	E298	10-Sep-2025	16-Sep-2025	28 days	6 days	✓	20-Sep-2025	28 days	6 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) MW99-2(D)(E240502)	E298	10-Sep-2025	16-Sep-2025	28 days	6 days	✓	20-Sep-2025	28 days	6 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) MW99-2(S)(E275543)	E298	10-Sep-2025	16-Sep-2025	28 days	6 days	✓	20-Sep-2025	28 days	6 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) S-MW-1(E221702)	E298	10-Sep-2025	16-Sep-2025	28 days	6 days	✓	20-Sep-2025	28 days	6 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) MW-01-2004(D)(E303723)	E298	09-Sep-2025	16-Sep-2025	28 days	7 days	✓	20-Sep-2025	28 days	7 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) MW-01-2004(S)(E303722)	E298	09-Sep-2025	16-Sep-2025	28 days	7 days	✓	20-Sep-2025	28 days	7 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) MW-05-01-1(E252593)	E298	09-Sep-2025	16-Sep-2025	28 days	7 days	✓	20-Sep-2025	28 days	7 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) MW99-1(D)(E240501)	E298	09-Sep-2025	16-Sep-2025	28 days	7 days	✓	20-Sep-2025	28 days	7 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) MW99-1(S)(E275563)	E298	09-Sep-2025	16-Sep-2025	28 days	7 days	✓	20-Sep-2025	28 days	7 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) S-MW-2(E221703)	E298	09-Sep-2025	16-Sep-2025	28 days	7 days	✓	20-Sep-2025	28 days	7 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) Seepage Weir(E335950)	E298	08-Sep-2025	16-Sep-2025	28 days	8 days	✓	20-Sep-2025	28 days	8 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) Spillway Outlet(E335952)	E298	08-Sep-2025	16-Sep-2025	28 days	8 days	✓	20-Sep-2025	28 days	8 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE Field Blank	E235.Br-L	10-Sep-2025	13-Sep-2025	28 days	3 days	✓	13-Sep-2025	28 days	3 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE GW Duplicate	E235.Br-L	10-Sep-2025	13-Sep-2025	28 days	3 days	✓	13-Sep-2025	28 days	3 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE MW-04S-05(S)(E266349)	E235.Br-L	10-Sep-2025	13-Sep-2025	28 days	3 days	✓	13-Sep-2025	28 days	3 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE MW-06-01(E252594)	E235.Br-L	10-Sep-2025	13-Sep-2025	28 days	3 days	✓	13-Sep-2025	28 days	3 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE MW99-2(D)(E240502)	E235.Br-L	10-Sep-2025	13-Sep-2025	28 days	3 days	✓	13-Sep-2025	28 days	3 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE MW99-2(S)(E275543)	E235.Br-L	10-Sep-2025	13-Sep-2025	28 days	3 days	✓	13-Sep-2025	28 days	3 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE S-MW-1(E221702)	E235.Br-L	10-Sep-2025	13-Sep-2025	28 days	3 days	✓	13-Sep-2025	28 days	3 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE MW-01-2004(D)(E303723)	E235.Br-L	09-Sep-2025	13-Sep-2025	28 days	4 days	✓	13-Sep-2025	28 days	4 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE MW-01-2004(S)(E303722)	E235.Br-L	09-Sep-2025	13-Sep-2025	28 days	4 days	✓	13-Sep-2025	28 days	4 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE MW-05-01-1(E252593)	E235.Br-L	09-Sep-2025	13-Sep-2025	28 days	4 days	✓	13-Sep-2025	28 days	4 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE MW99-1(D)(E240501)	E235.Br-L	09-Sep-2025	13-Sep-2025	28 days	4 days	✓	13-Sep-2025	28 days	4 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE MW99-1(S)(E275563)	E235.Br-L	09-Sep-2025	13-Sep-2025	28 days	4 days	✓	13-Sep-2025	28 days	4 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE S-MW-2(E221703)	E235.Br-L	09-Sep-2025	13-Sep-2025	28 days	4 days	✓	13-Sep-2025	28 days	4 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE Seepage Weir(E335950)	E235.Br-L	08-Sep-2025	13-Sep-2025	28 days	5 days	✓	13-Sep-2025	28 days	5 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE Spillway Outlet(E335952)	E235.Br-L	08-Sep-2025	13-Sep-2025	28 days	5 days	✓	13-Sep-2025	28 days	5 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE Field Blank	E235.Cl	10-Sep-2025	13-Sep-2025	28 days	3 days	✓	13-Sep-2025	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE GW Duplicate	E235.Cl	10-Sep-2025	13-Sep-2025	28 days	3 days	✓	13-Sep-2025	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE MW-04S-05(S)(E266349)	E235.Cl	10-Sep-2025	13-Sep-2025	28 days	3 days	✓	13-Sep-2025	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE MW-06-01(E252594)	E235.Cl	10-Sep-2025	13-Sep-2025	28 days	3 days	✓	13-Sep-2025	28 days	3 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Chloride in Water by IC										
HDPE MW99-2(D)(E240502)	E235.Cl	10-Sep-2025	13-Sep-2025	28 days	3 days	✓	13-Sep-2025	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE MW99-2(S)(E275543)	E235.Cl	10-Sep-2025	13-Sep-2025	28 days	3 days	✓	13-Sep-2025	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE S-MW-1(E221702)	E235.Cl	10-Sep-2025	13-Sep-2025	28 days	3 days	✓	13-Sep-2025	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE MW-01-2004(D)(E303723)	E235.Cl	09-Sep-2025	13-Sep-2025	28 days	4 days	✓	13-Sep-2025	28 days	4 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE MW-01-2004(S)(E303722)	E235.Cl	09-Sep-2025	13-Sep-2025	28 days	4 days	✓	13-Sep-2025	28 days	4 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE MW-05-01-1(E252593)	E235.Cl	09-Sep-2025	13-Sep-2025	28 days	4 days	✓	13-Sep-2025	28 days	4 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE MW99-1(D)(E240501)	E235.Cl	09-Sep-2025	13-Sep-2025	28 days	4 days	✓	13-Sep-2025	28 days	4 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE MW99-1(S)(E275563)	E235.Cl	09-Sep-2025	13-Sep-2025	28 days	4 days	✓	13-Sep-2025	28 days	4 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE S-MW-2(E221703)	E235.Cl	09-Sep-2025	13-Sep-2025	28 days	4 days	✓	13-Sep-2025	28 days	4 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Chloride in Water by IC										
HDPE Seepage Weir(E335950)	E235.Cl	08-Sep-2025	13-Sep-2025	28 days	5 days	✓	13-Sep-2025	28 days	5 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE Spillway Outlet(E335952)	E235.Cl	08-Sep-2025	13-Sep-2025	28 days	5 days	✓	13-Sep-2025	28 days	5 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE Field Blank	E378-U	10-Sep-2025	13-Sep-2025	3 days	3 days	✓	13-Sep-2025	3 days	3 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE GW Duplicate	E378-U	10-Sep-2025	13-Sep-2025	3 days	3 days	✓	13-Sep-2025	3 days	3 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE MW-04S-05(S)(E266349)	E378-U	10-Sep-2025	13-Sep-2025	3 days	3 days	✓	13-Sep-2025	3 days	3 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE MW-06-01(E252594)	E378-U	10-Sep-2025	13-Sep-2025	3 days	3 days	✓	13-Sep-2025	3 days	3 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE MW99-1(D)(E240501)	E378-U	09-Sep-2025	13-Sep-2025	3 days	3 days	✓	13-Sep-2025	3 days	3 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE MW99-1(S)(E275563)	E378-U	09-Sep-2025	13-Sep-2025	3 days	3 days	✓	13-Sep-2025	3 days	3 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE MW99-2(D)(E240502)	E378-U	10-Sep-2025	13-Sep-2025	3 days	3 days	✓	13-Sep-2025	3 days	3 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE										
MW99-2(S)(E275543)	E378-U	10-Sep-2025	13-Sep-2025	3 days	3 days	✓	13-Sep-2025	3 days	3 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE										
S-MW-1(E221702)	E378-U	10-Sep-2025	13-Sep-2025	3 days	3 days	✓	13-Sep-2025	3 days	3 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE										
S-MW-2(E221703)	E378-U	09-Sep-2025	13-Sep-2025	3 days	3 days	✓	13-Sep-2025	3 days	3 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE										
MW-01-2004(D)(E303723)	E378-U	09-Sep-2025	13-Sep-2025	3 days	4 days	× EHTR	13-Sep-2025	3 days	4 days	× EHTR
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE										
MW-01-2004(S)(E303722)	E378-U	09-Sep-2025	13-Sep-2025	3 days	4 days	× EHTR	13-Sep-2025	3 days	4 days	× EHTR
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE										
MW-05-01-1(E252593)	E378-U	09-Sep-2025	13-Sep-2025	3 days	4 days	× EHTR	13-Sep-2025	3 days	4 days	× EHTR
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE										
Seepage Weir(E335950)	E378-U	08-Sep-2025	13-Sep-2025	3 days	5 days	× EHTR	13-Sep-2025	3 days	5 days	× EHTR
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE										
Spillway Outlet(E335952)	E378-U	08-Sep-2025	13-Sep-2025	3 days	5 days	× EHTR	13-Sep-2025	3 days	5 days	× EHTR
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
Field Blank	E235.F	10-Sep-2025	13-Sep-2025	28 days	3 days	✓	13-Sep-2025	28 days	3 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Fluoride in Water by IC										
HDPE GW Duplicate	E235.F	10-Sep-2025	13-Sep-2025	28 days	3 days	✓	13-Sep-2025	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE MW-04S-05(S)(E266349)	E235.F	10-Sep-2025	13-Sep-2025	28 days	3 days	✓	13-Sep-2025	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE MW-06-01(E252594)	E235.F	10-Sep-2025	13-Sep-2025	28 days	3 days	✓	13-Sep-2025	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE MW99-2(D)(E240502)	E235.F	10-Sep-2025	13-Sep-2025	28 days	3 days	✓	13-Sep-2025	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE MW99-2(S)(E275543)	E235.F	10-Sep-2025	13-Sep-2025	28 days	3 days	✓	13-Sep-2025	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE S-MW-1(E221702)	E235.F	10-Sep-2025	13-Sep-2025	28 days	3 days	✓	13-Sep-2025	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE MW-01-2004(D)(E303723)	E235.F	09-Sep-2025	13-Sep-2025	28 days	4 days	✓	13-Sep-2025	28 days	4 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE MW-01-2004(S)(E303722)	E235.F	09-Sep-2025	13-Sep-2025	28 days	4 days	✓	13-Sep-2025	28 days	4 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE MW-05-01-1(E252593)	E235.F	09-Sep-2025	13-Sep-2025	28 days	4 days	✓	13-Sep-2025	28 days	4 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	*Method*	*Sampling Date*	*Extraction / Preparation*				*Analysis*			
			Preparation Date	*Holding Times* Rec	*Holding Times* Actual	*Eval*	*Analysis Date*	*Holding Times* Rec	*Holding Times* Actual	*Eval*
Anions and Nutrients : Fluoride in Water by IC										
HDPE MW99-1(D)(E240501)	E235.F	09-Sep-2025	13-Sep-2025	28 days	4 days	✓	13-Sep-2025	28 days	4 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE MW99-1(S)(E275563)	E235.F	09-Sep-2025	13-Sep-2025	28 days	4 days	✓	13-Sep-2025	28 days	4 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE S-MW-2(E221703)	E235.F	09-Sep-2025	13-Sep-2025	28 days	4 days	✓	13-Sep-2025	28 days	4 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE Seepage Weir(E335950)	E235.F	08-Sep-2025	13-Sep-2025	28 days	5 days	✓	13-Sep-2025	28 days	5 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE Spillway Outlet(E335952)	E235.F	08-Sep-2025	13-Sep-2025	28 days	5 days	✓	13-Sep-2025	28 days	5 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE Field Blank	E235.NO3-L	10-Sep-2025	13-Sep-2025	3 days	3 days	✓	13-Sep-2025	3 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE GW Duplicate	E235.NO3-L	10-Sep-2025	13-Sep-2025	3 days	3 days	✓	13-Sep-2025	3 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE MW-04S-05(S)(E266349)	E235.NO3-L	10-Sep-2025	13-Sep-2025	3 days	3 days	✓	13-Sep-2025	3 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE MW-06-01(E252594)	E235.NO3-L	10-Sep-2025	13-Sep-2025	3 days	3 days	✓	13-Sep-2025	3 days	3 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
MW99-1(D)(E240501)	E235.NO3-L	09-Sep-2025	13-Sep-2025	3 days	3 days	✓	13-Sep-2025	3 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
MW99-1(S)(E275563)	E235.NO3-L	09-Sep-2025	13-Sep-2025	3 days	3 days	✓	13-Sep-2025	3 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
MW99-2(D)(E240502)	E235.NO3-L	10-Sep-2025	13-Sep-2025	3 days	3 days	✓	13-Sep-2025	3 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
MW99-2(S)(E275543)	E235.NO3-L	10-Sep-2025	13-Sep-2025	3 days	3 days	✓	13-Sep-2025	3 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
S-MW-1(E221702)	E235.NO3-L	10-Sep-2025	13-Sep-2025	3 days	3 days	✓	13-Sep-2025	3 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
S-MW-2(E221703)	E235.NO3-L	09-Sep-2025	13-Sep-2025	3 days	3 days	✓	13-Sep-2025	3 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
MW-01-2004(D)(E303723)	E235.NO3-L	09-Sep-2025	13-Sep-2025	3 days	4 days	× EHTR	13-Sep-2025	3 days	4 days	× EHTR
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
MW-01-2004(S)(E303722)	E235.NO3-L	09-Sep-2025	13-Sep-2025	3 days	4 days	× EHTR	13-Sep-2025	3 days	4 days	× EHTR
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
MW-05-01-1(E252593)	E235.NO3-L	09-Sep-2025	13-Sep-2025	3 days	4 days	× EHTR	13-Sep-2025	3 days	4 days	× EHTR

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
Seepage Weir(E335950)	E235.NO3-L	08-Sep-2025	13-Sep-2025	3 days	5 days	× EHTR	13-Sep-2025	3 days	5 days	× EHTR
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
Spillway Outlet(E335952)	E235.NO3-L	08-Sep-2025	13-Sep-2025	3 days	5 days	× EHTR	13-Sep-2025	3 days	5 days	× EHTR
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
Field Blank	E235.NO2-L	10-Sep-2025	13-Sep-2025	3 days	3 days	✓	13-Sep-2025	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
GW Duplicate	E235.NO2-L	10-Sep-2025	13-Sep-2025	3 days	3 days	✓	13-Sep-2025	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
MW-04S-05(S)(E266349)	E235.NO2-L	10-Sep-2025	13-Sep-2025	3 days	3 days	✓	13-Sep-2025	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
MW-06-01(E252594)	E235.NO2-L	10-Sep-2025	13-Sep-2025	3 days	3 days	✓	13-Sep-2025	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
MW99-1(D)(E240501)	E235.NO2-L	09-Sep-2025	13-Sep-2025	3 days	3 days	✓	13-Sep-2025	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
MW99-1(S)(E275563)	E235.NO2-L	09-Sep-2025	13-Sep-2025	3 days	3 days	✓	13-Sep-2025	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
MW99-2(D)(E240502)	E235.NO2-L	10-Sep-2025	13-Sep-2025	3 days	3 days	✓	13-Sep-2025	3 days	3 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE MW99-2(S)(E275543)	E235.NO2-L	10-Sep-2025	13-Sep-2025	3 days	3 days	✓	13-Sep-2025	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE S-MW-1(E221702)	E235.NO2-L	10-Sep-2025	13-Sep-2025	3 days	3 days	✓	13-Sep-2025	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE S-MW-2(E221703)	E235.NO2-L	09-Sep-2025	13-Sep-2025	3 days	3 days	✓	13-Sep-2025	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE MW-01-2004(D)(E303723)	E235.NO2-L	09-Sep-2025	13-Sep-2025	3 days	4 days	× EHTR	13-Sep-2025	3 days	4 days	× EHTR
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE MW-01-2004(S)(E303722)	E235.NO2-L	09-Sep-2025	13-Sep-2025	3 days	4 days	× EHTR	13-Sep-2025	3 days	4 days	× EHTR
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE MW-05-01-1(E252593)	E235.NO2-L	09-Sep-2025	13-Sep-2025	3 days	4 days	× EHTR	13-Sep-2025	3 days	4 days	× EHTR
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE Seepage Weir(E335950)	E235.NO2-L	08-Sep-2025	13-Sep-2025	3 days	5 days	× EHTR	13-Sep-2025	3 days	5 days	× EHTR
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE Spillway Outlet(E335952)	E235.NO2-L	08-Sep-2025	13-Sep-2025	3 days	5 days	× EHTR	13-Sep-2025	3 days	5 days	× EHTR
Anions and Nutrients : Sulfate in Water by IC										
HDPE Field Blank	E235.SO4	10-Sep-2025	13-Sep-2025	28 days	3 days	✓	13-Sep-2025	28 days	3 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Sulfate in Water by IC										
HDPE GW Duplicate	E235.SO4	10-Sep-2025	13-Sep-2025	28 days	3 days	✓	13-Sep-2025	28 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE MW-04S-05(S)(E266349)	E235.SO4	10-Sep-2025	13-Sep-2025	28 days	3 days	✓	13-Sep-2025	28 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE MW-06-01(E252594)	E235.SO4	10-Sep-2025	13-Sep-2025	28 days	3 days	✓	13-Sep-2025	28 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE MW99-2(D)(E240502)	E235.SO4	10-Sep-2025	13-Sep-2025	28 days	3 days	✓	13-Sep-2025	28 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE MW99-2(S)(E275543)	E235.SO4	10-Sep-2025	13-Sep-2025	28 days	3 days	✓	13-Sep-2025	28 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE S-MW-1(E221702)	E235.SO4	10-Sep-2025	13-Sep-2025	28 days	3 days	✓	13-Sep-2025	28 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE MW-01-2004(D)(E303723)	E235.SO4	09-Sep-2025	13-Sep-2025	28 days	4 days	✓	13-Sep-2025	28 days	4 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE MW-01-2004(S)(E303722)	E235.SO4	09-Sep-2025	13-Sep-2025	28 days	4 days	✓	13-Sep-2025	28 days	4 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE MW-05-01-1(E252593)	E235.SO4	09-Sep-2025	13-Sep-2025	28 days	4 days	✓	13-Sep-2025	28 days	4 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Sulfate in Water by IC										
HDPE MW99-1(D)(E240501)	E235.SO4	09-Sep-2025	13-Sep-2025	28 days	4 days	✓	13-Sep-2025	28 days	4 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE MW99-1(S)(E275563)	E235.SO4	09-Sep-2025	13-Sep-2025	28 days	4 days	✓	13-Sep-2025	28 days	4 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE S-MW-2(E221703)	E235.SO4	09-Sep-2025	13-Sep-2025	28 days	4 days	✓	13-Sep-2025	28 days	4 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE Seepage Weir(E335950)	E235.SO4	08-Sep-2025	13-Sep-2025	28 days	5 days	✓	13-Sep-2025	28 days	5 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE Spillway Outlet(E335952)	E235.SO4	08-Sep-2025	13-Sep-2025	28 days	5 days	✓	13-Sep-2025	28 days	5 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) Field Blank	E318	10-Sep-2025	16-Sep-2025	28 days	6 days	✓	18-Sep-2025	28 days	6 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) GW Duplicate	E318	10-Sep-2025	16-Sep-2025	28 days	6 days	✓	18-Sep-2025	28 days	6 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) MW-04S-05(S)(E266349)	E318	10-Sep-2025	16-Sep-2025	28 days	6 days	✓	18-Sep-2025	28 days	6 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) MW-06-01(E252594)	E318	10-Sep-2025	16-Sep-2025	28 days	6 days	✓	18-Sep-2025	28 days	6 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) MW99-2(D)(E240502)	E318	10-Sep-2025	16-Sep-2025	28 days	6 days	✓	18-Sep-2025	28 days	6 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) MW99-2(S)(E275543)	E318	10-Sep-2025	16-Sep-2025	28 days	6 days	✓	18-Sep-2025	28 days	6 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) S-MW-1(E221702)	E318	10-Sep-2025	16-Sep-2025	28 days	6 days	✓	18-Sep-2025	28 days	6 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) MW-01-2004(D)(E303723)	E318	09-Sep-2025	16-Sep-2025	28 days	7 days	✓	18-Sep-2025	28 days	7 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) MW-01-2004(S)(E303722)	E318	09-Sep-2025	16-Sep-2025	28 days	7 days	✓	18-Sep-2025	28 days	7 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) MW-05-01-1(E252593)	E318	09-Sep-2025	16-Sep-2025	28 days	7 days	✓	18-Sep-2025	28 days	7 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) MW99-1(D)(E240501)	E318	09-Sep-2025	16-Sep-2025	28 days	7 days	✓	18-Sep-2025	28 days	7 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) MW99-1(S)(E275563)	E318	09-Sep-2025	16-Sep-2025	28 days	7 days	✓	18-Sep-2025	28 days	7 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) S-MW-2(E221703)	E318	09-Sep-2025	16-Sep-2025	28 days	7 days	✓	18-Sep-2025	28 days	7 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid)										
Seepage Weir(E335950)	E318	08-Sep-2025	16-Sep-2025	28 days	8 days	✓	18-Sep-2025	28 days	8 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid)										
Spillway Outlet(E335952)	E318	08-Sep-2025	16-Sep-2025	28 days	8 days	✓	18-Sep-2025	28 days	8 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
Field Blank	E509	10-Sep-2025	20-Sep-2025	28 days	10 days	✓	20-Sep-2025	28 days	10 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
GW Duplicate	E509	10-Sep-2025	20-Sep-2025	28 days	10 days	✓	20-Sep-2025	28 days	10 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
MW-04S-05(S)(E266349)	E509	10-Sep-2025	20-Sep-2025	28 days	10 days	✓	20-Sep-2025	28 days	10 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
MW-06-01(E252594)	E509	10-Sep-2025	20-Sep-2025	28 days	10 days	✓	20-Sep-2025	28 days	10 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
MW99-1(D)(E240501)	E509	09-Sep-2025	20-Sep-2025	28 days	10 days	✓	20-Sep-2025	28 days	10 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
MW99-1(S)(E275563)	E509	09-Sep-2025	20-Sep-2025	28 days	10 days	✓	20-Sep-2025	28 days	10 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
MW99-2(D)(E240502)	E509	10-Sep-2025	20-Sep-2025	28 days	10 days	✓	20-Sep-2025	28 days	10 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved) MW99-2(S)(E275543)	E509	10-Sep-2025	20-Sep-2025	28 days	10 days	✓	20-Sep-2025	28 days	10 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved) S-MW-1(E221702)	E509	10-Sep-2025	20-Sep-2025	28 days	10 days	✓	20-Sep-2025	28 days	10 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved) MW-01-2004(D)(E303723)	E509	09-Sep-2025	20-Sep-2025	28 days	11 days	✓	20-Sep-2025	28 days	11 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved) MW-01-2004(S)(E303722)	E509	09-Sep-2025	20-Sep-2025	28 days	11 days	✓	20-Sep-2025	28 days	11 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved) MW-05-01-1(E252593)	E509	09-Sep-2025	20-Sep-2025	28 days	11 days	✓	20-Sep-2025	28 days	11 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved) S-MW-2(E221703)	E509	09-Sep-2025	20-Sep-2025	28 days	11 days	✓	20-Sep-2025	28 days	11 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved) Seepage Weir(E335950)	E509	08-Sep-2025	20-Sep-2025	28 days	12 days	✓	20-Sep-2025	28 days	12 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved) Spillway Outlet(E335952)	E509	08-Sep-2025	20-Sep-2025	28 days	12 days	✓	20-Sep-2025	28 days	12 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) MW-01-2004(D)(E303723)	E421	09-Sep-2025	19-Sep-2025	180 days	10 days	✓	21-Sep-2025	180 days	10 days	✓

Matrix: **Water**

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Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) MW-01-2004(S)(E303722)	E421	09-Sep-2025	19-Sep-2025	180 days	10 days	✓	21-Sep-2025	180 days	10 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) MW-05-01-1(E252593)	E421	09-Sep-2025	19-Sep-2025	180 days	10 days	✓	21-Sep-2025	180 days	10 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) MW99-1(D)(E240501)	E421	09-Sep-2025	19-Sep-2025	180 days	10 days	✓	21-Sep-2025	180 days	10 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) MW99-1(S)(E275563)	E421	09-Sep-2025	19-Sep-2025	180 days	10 days	✓	21-Sep-2025	180 days	10 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) S-MW-2(E221703)	E421	09-Sep-2025	19-Sep-2025	180 days	10 days	✓	21-Sep-2025	180 days	10 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) Seepage Weir(E335950)	E421	08-Sep-2025	19-Sep-2025	180 days	11 days	✓	21-Sep-2025	180 days	11 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) Spillway Outlet(E335952)	E421	08-Sep-2025	19-Sep-2025	180 days	11 days	✓	21-Sep-2025	180 days	11 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) Field Blank	E421	10-Sep-2025	19-Sep-2025	180 days	9 days	✓	21-Sep-2025	180 days	9 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) GW Duplicate	E421	10-Sep-2025	19-Sep-2025	180 days	9 days	✓	21-Sep-2025	180 days	9 days	✓

Matrix: **Water**

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Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) MW-04S-05(S)(E266349)	E421	10-Sep-2025	19-Sep-2025	180 days	9 days	✓	21-Sep-2025	180 days	9 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) MW-06-01(E252594)	E421	10-Sep-2025	19-Sep-2025	180 days	9 days	✓	21-Sep-2025	180 days	9 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) MW99-2(D)(E240502)	E421	10-Sep-2025	19-Sep-2025	180 days	9 days	✓	21-Sep-2025	180 days	9 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) MW99-2(S)(E275543)	E421	10-Sep-2025	19-Sep-2025	180 days	9 days	✓	21-Sep-2025	180 days	9 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) S-MW-1(E221702)	E421	10-Sep-2025	19-Sep-2025	180 days	9 days	✓	21-Sep-2025	180 days	9 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass - dissolved (field filtered/sulfuric acid) Seepage Weir(E335950)	E358-L	08-Sep-2025	16-Sep-2025	28 days	8 days	✓	16-Sep-2025	28 days	8 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass - dissolved (field filtered/sulfuric acid) Spillway Outlet(E335952)	E358-L	08-Sep-2025	16-Sep-2025	28 days	8 days	✓	16-Sep-2025	28 days	8 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) Field Blank	E355-L	10-Sep-2025	16-Sep-2025	28 days	6 days	✓	16-Sep-2025	28 days	6 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) GW Duplicate	E355-L	10-Sep-2025	16-Sep-2025	28 days	6 days	✓	16-Sep-2025	28 days	6 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
MW-04S-05(S)(E266349)	E355-L	10-Sep-2025	16-Sep-2025	28 days	6 days	✓	16-Sep-2025	28 days	6 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
MW-06-01(E252594)	E355-L	10-Sep-2025	16-Sep-2025	28 days	6 days	✓	16-Sep-2025	28 days	6 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
MW99-2(D)(E240502)	E355-L	10-Sep-2025	16-Sep-2025	28 days	6 days	✓	16-Sep-2025	28 days	6 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
MW99-2(S)(E275543)	E355-L	10-Sep-2025	16-Sep-2025	28 days	6 days	✓	16-Sep-2025	28 days	6 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
S-MW-1(E221702)	E355-L	10-Sep-2025	16-Sep-2025	28 days	6 days	✓	16-Sep-2025	28 days	6 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
MW-01-2004(D)(E303723)	E355-L	09-Sep-2025	16-Sep-2025	28 days	7 days	✓	16-Sep-2025	28 days	7 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
MW-01-2004(S)(E303722)	E355-L	09-Sep-2025	16-Sep-2025	28 days	7 days	✓	16-Sep-2025	28 days	7 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
MW-05-01-1(E252593)	E355-L	09-Sep-2025	16-Sep-2025	28 days	7 days	✓	16-Sep-2025	28 days	7 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
MW99-1(D)(E240501)	E355-L	09-Sep-2025	16-Sep-2025	28 days	7 days	✓	16-Sep-2025	28 days	7 days	✓

Matrix: **Water**

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Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
MW99-1(S)(E275563)	E355-L	09-Sep-2025	16-Sep-2025	28 days	7 days	✓	16-Sep-2025	28 days	7 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
S-MW-2(E221703)	E355-L	09-Sep-2025	16-Sep-2025	28 days	7 days	✓	16-Sep-2025	28 days	7 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
Seepage Weir(E335950)	E355-L	08-Sep-2025	16-Sep-2025	28 days	8 days	✓	16-Sep-2025	28 days	8 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
Spillway Outlet(E335952)	E355-L	08-Sep-2025	16-Sep-2025	28 days	8 days	✓	16-Sep-2025	28 days	8 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
Field Blank	E290	10-Sep-2025	13-Sep-2025	14 days	3 days	✓	13-Sep-2025	14 days	3 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
GW Duplicate	E290	10-Sep-2025	13-Sep-2025	14 days	3 days	✓	13-Sep-2025	14 days	3 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
MW-04S-05(S)(E266349)	E290	10-Sep-2025	13-Sep-2025	14 days	3 days	✓	13-Sep-2025	14 days	3 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
MW-06-01(E252594)	E290	10-Sep-2025	13-Sep-2025	14 days	3 days	✓	13-Sep-2025	14 days	3 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
MW99-2(D)(E240502)	E290	10-Sep-2025	13-Sep-2025	14 days	3 days	✓	13-Sep-2025	14 days	3 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Alkalinity Species by Titration										
HDPE MW99-2(S)(E275543)	E290	10-Sep-2025	13-Sep-2025	14 days	3 days	✓	13-Sep-2025	14 days	3 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE S-MW-1(E221702)	E290	10-Sep-2025	13-Sep-2025	14 days	3 days	✓	13-Sep-2025	14 days	3 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE MW-01-2004(D)(E303723)	E290	09-Sep-2025	13-Sep-2025	14 days	4 days	✓	13-Sep-2025	14 days	4 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE MW-01-2004(S)(E303722)	E290	09-Sep-2025	13-Sep-2025	14 days	4 days	✓	13-Sep-2025	14 days	4 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE MW-05-01-1(E252593)	E290	09-Sep-2025	13-Sep-2025	14 days	4 days	✓	13-Sep-2025	14 days	4 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE MW99-1(D)(E240501)	E290	09-Sep-2025	13-Sep-2025	14 days	4 days	✓	13-Sep-2025	14 days	4 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE MW99-1(S)(E275563)	E290	09-Sep-2025	13-Sep-2025	14 days	4 days	✓	13-Sep-2025	14 days	4 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE S-MW-2(E221703)	E290	09-Sep-2025	13-Sep-2025	14 days	4 days	✓	13-Sep-2025	14 days	4 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE Seepage Weir(E335950)	E290	08-Sep-2025	13-Sep-2025	14 days	5 days	✓	13-Sep-2025	14 days	5 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Alkalinity Species by Titration										
HDPE										
Spillway Outlet(E335952)	E290	08-Sep-2025	13-Sep-2025	14 days	5 days	✓	13-Sep-2025	14 days	5 days	✓
Physical Tests : Conductivity in Water										
HDPE										
Field Blank	E100	10-Sep-2025	13-Sep-2025	28 days	3 days	✓	13-Sep-2025	28 days	3 days	✓
Physical Tests : Conductivity in Water										
HDPE										
GW Duplicate	E100	10-Sep-2025	13-Sep-2025	28 days	3 days	✓	13-Sep-2025	28 days	3 days	✓
Physical Tests : Conductivity in Water										
HDPE										
MW-04S-05(S)(E266349)	E100	10-Sep-2025	13-Sep-2025	28 days	3 days	✓	13-Sep-2025	28 days	3 days	✓
Physical Tests : Conductivity in Water										
HDPE										
MW-06-01(E252594)	E100	10-Sep-2025	13-Sep-2025	28 days	3 days	✓	13-Sep-2025	28 days	3 days	✓
Physical Tests : Conductivity in Water										
HDPE										
MW99-2(D)(E240502)	E100	10-Sep-2025	13-Sep-2025	28 days	3 days	✓	13-Sep-2025	28 days	3 days	✓
Physical Tests : Conductivity in Water										
HDPE										
MW99-2(S)(E275543)	E100	10-Sep-2025	13-Sep-2025	28 days	3 days	✓	13-Sep-2025	28 days	3 days	✓
Physical Tests : Conductivity in Water										
HDPE										
S-MW-1(E221702)	E100	10-Sep-2025	13-Sep-2025	28 days	3 days	✓	13-Sep-2025	28 days	3 days	✓
Physical Tests : Conductivity in Water										
HDPE										
MW-01-2004(D)(E303723)	E100	09-Sep-2025	13-Sep-2025	28 days	4 days	✓	13-Sep-2025	28 days	4 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Conductivity in Water										
HDPE MW-01-2004(S)(E303722)	E100	09-Sep-2025	13-Sep-2025	28 days	4 days	✓	13-Sep-2025	28 days	4 days	✓
Physical Tests : Conductivity in Water										
HDPE MW-05-01-1(E252593)	E100	09-Sep-2025	13-Sep-2025	28 days	4 days	✓	13-Sep-2025	28 days	4 days	✓
Physical Tests : Conductivity in Water										
HDPE MW99-1(D)(E240501)	E100	09-Sep-2025	13-Sep-2025	28 days	4 days	✓	13-Sep-2025	28 days	4 days	✓
Physical Tests : Conductivity in Water										
HDPE MW99-1(S)(E275563)	E100	09-Sep-2025	13-Sep-2025	28 days	4 days	✓	13-Sep-2025	28 days	4 days	✓
Physical Tests : Conductivity in Water										
HDPE S-MW-2(E221703)	E100	09-Sep-2025	13-Sep-2025	28 days	4 days	✓	13-Sep-2025	28 days	4 days	✓
Physical Tests : Conductivity in Water										
HDPE Seepage Weir(E335950)	E100	08-Sep-2025	13-Sep-2025	28 days	5 days	✓	13-Sep-2025	28 days	5 days	✓
Physical Tests : Conductivity in Water										
HDPE Spillway Outlet(E335952)	E100	08-Sep-2025	13-Sep-2025	28 days	5 days	✓	13-Sep-2025	28 days	5 days	✓
Physical Tests : pH by Meter										
HDPE Seepage Weir(E335950)	E108	08-Sep-2025	13-Sep-2025	0.25 hrs	121 hrs	× EHTR-FM	13-Sep-2025	0.25 hrs	121 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE Spillway Outlet(E335952)	E108	08-Sep-2025	13-Sep-2025	0.25 hrs	121 hrs	× EHTR-FM	13-Sep-2025	0.25 hrs	121 hrs	× EHTR-FM

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : pH by Meter										
HDPE Field Blank	E108	10-Sep-2025	13-Sep-2025	0.25 hrs	72 hrs	× EHTR-FM	13-Sep-2025	0.25 hrs	72 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE MW-06-01(E252594)	E108	10-Sep-2025	13-Sep-2025	0.25 hrs	72 hrs	× EHTR-FM	13-Sep-2025	0.25 hrs	72 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE GW Duplicate	E108	10-Sep-2025	13-Sep-2025	0.25 hrs	73 hrs	× EHTR-FM	13-Sep-2025	0.25 hrs	73 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE MW-04S-05(S)(E266349)	E108	10-Sep-2025	13-Sep-2025	0.25 hrs	73 hrs	× EHTR-FM	13-Sep-2025	0.25 hrs	73 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE MW99-2(D)(E240502)	E108	10-Sep-2025	13-Sep-2025	0.25 hrs	74 hrs	× EHTR-FM	13-Sep-2025	0.25 hrs	74 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE MW99-2(S)(E275543)	E108	10-Sep-2025	13-Sep-2025	0.25 hrs	74 hrs	× EHTR-FM	13-Sep-2025	0.25 hrs	74 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE S-MW-1(E221702)	E108	10-Sep-2025	13-Sep-2025	0.25 hrs	75 hrs	× EHTR-FM	13-Sep-2025	0.25 hrs	75 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE MW99-1(D)(E240501)	E108	09-Sep-2025	13-Sep-2025	0.25 hrs	93 hrs	× EHTR-FM	13-Sep-2025	0.25 hrs	93 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE MW99-1(S)(E275563)	E108	09-Sep-2025	13-Sep-2025	0.25 hrs	93 hrs	× EHTR-FM	13-Sep-2025	0.25 hrs	93 hrs	× EHTR-FM

Matrix: **Water**

Evaluation: ✗ = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : pH by Meter										
HDPE S-MW-2(E221703)	E108	09-Sep-2025	13-Sep-2025	0.25 hrs	95 hrs	✗ EHTR-FM	13-Sep-2025	0.25 hrs	95 hrs	✗ EHTR-FM
Physical Tests : pH by Meter										
HDPE MW-01-2004(D)(E303723)	E108	09-Sep-2025	13-Sep-2025	0.25 hrs	97 hrs	✗ EHTR-FM	13-Sep-2025	0.25 hrs	97 hrs	✗ EHTR-FM
Physical Tests : pH by Meter										
HDPE MW-01-2004(S)(E303722)	E108	09-Sep-2025	13-Sep-2025	0.25 hrs	97 hrs	✗ EHTR-FM	13-Sep-2025	0.25 hrs	97 hrs	✗ EHTR-FM
Physical Tests : pH by Meter										
HDPE MW-05-01-1(E252593)	E108	09-Sep-2025	13-Sep-2025	0.25 hrs	99 hrs	✗ EHTR-FM	13-Sep-2025	0.25 hrs	99 hrs	✗ EHTR-FM
Physical Tests : TDS by Gravimetry										
HDPE Field Blank	E162	10-Sep-2025	----	----	----		14-Sep-2025	7 days	4 days	✓
Physical Tests : TDS by Gravimetry										
HDPE GW Duplicate	E162	10-Sep-2025	----	----	----		14-Sep-2025	7 days	4 days	✓
Physical Tests : TDS by Gravimetry										
HDPE MW-04S-05(S)(E266349)	E162	10-Sep-2025	----	----	----		14-Sep-2025	7 days	4 days	✓
Physical Tests : TDS by Gravimetry										
HDPE MW-06-01(E252594)	E162	10-Sep-2025	----	----	----		14-Sep-2025	7 days	4 days	✓
Physical Tests : TDS by Gravimetry										
HDPE MW99-2(D)(E240502)	E162	10-Sep-2025	----	----	----		14-Sep-2025	7 days	4 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : TDS by Gravimetry										
HDPE MW99-2(S)(E275543)	E162	10-Sep-2025	----	----	----		14-Sep-2025	7 days	4 days	✓
Physical Tests : TDS by Gravimetry										
HDPE S-MW-1(E221702)	E162	10-Sep-2025	----	----	----		14-Sep-2025	7 days	4 days	✓
Physical Tests : TDS by Gravimetry										
HDPE MW-01-2004(D)(E303723)	E162	09-Sep-2025	----	----	----		14-Sep-2025	7 days	5 days	✓
Physical Tests : TDS by Gravimetry										
HDPE MW-01-2004(S)(E303722)	E162	09-Sep-2025	----	----	----		14-Sep-2025	7 days	5 days	✓
Physical Tests : TDS by Gravimetry										
HDPE MW-05-01-1(E252593)	E162	09-Sep-2025	----	----	----		14-Sep-2025	7 days	5 days	✓
Physical Tests : TDS by Gravimetry										
HDPE MW99-1(D)(E240501)	E162	09-Sep-2025	----	----	----		14-Sep-2025	7 days	5 days	✓
Physical Tests : TDS by Gravimetry										
HDPE MW99-1(S)(E275563)	E162	09-Sep-2025	----	----	----		14-Sep-2025	7 days	5 days	✓
Physical Tests : TDS by Gravimetry										
HDPE S-MW-2(E221703)	E162	09-Sep-2025	----	----	----		14-Sep-2025	7 days	5 days	✓
Physical Tests : TDS by Gravimetry										
HDPE Seepage Weir(E335950)	E162	08-Sep-2025	----	----	----		14-Sep-2025	7 days	6 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : TDS by Gravimetry										
HDPE Spillway Outlet(E335952)	E162	08-Sep-2025	----	----	----		14-Sep-2025	7 days	6 days	✓
Physical Tests : TSS by Gravimetry										
HDPE Field Blank	E160	10-Sep-2025	----	----	----		14-Sep-2025	7 days	4 days	✓
Physical Tests : TSS by Gravimetry										
HDPE GW Duplicate	E160	10-Sep-2025	----	----	----		14-Sep-2025	7 days	4 days	✓
Physical Tests : TSS by Gravimetry										
HDPE MW-04S-05(S)(E266349)	E160	10-Sep-2025	----	----	----		14-Sep-2025	7 days	4 days	✓
Physical Tests : TSS by Gravimetry										
HDPE MW-06-01(E252594)	E160	10-Sep-2025	----	----	----		14-Sep-2025	7 days	4 days	✓
Physical Tests : TSS by Gravimetry										
HDPE MW99-2(D)(E240502)	E160	10-Sep-2025	----	----	----		14-Sep-2025	7 days	4 days	✓
Physical Tests : TSS by Gravimetry										
HDPE MW99-2(S)(E275543)	E160	10-Sep-2025	----	----	----		14-Sep-2025	7 days	4 days	✓
Physical Tests : TSS by Gravimetry										
HDPE S-MW-1(E221702)	E160	10-Sep-2025	----	----	----		14-Sep-2025	7 days	4 days	✓
Physical Tests : TSS by Gravimetry										
HDPE MW-01-2004(D)(E303723)	E160	09-Sep-2025	----	----	----		14-Sep-2025	7 days	5 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : TSS by Gravimetry										
HDPE MW-01-2004(S)(E303722)	E160	09-Sep-2025	----	----	----		14-Sep-2025	7 days	5 days	✓
Physical Tests : TSS by Gravimetry										
HDPE MW-05-01-1(E252593)	E160	09-Sep-2025	----	----	----		14-Sep-2025	7 days	5 days	✓
Physical Tests : TSS by Gravimetry										
HDPE MW99-1(D)(E240501)	E160	09-Sep-2025	----	----	----		14-Sep-2025	7 days	5 days	✓
Physical Tests : TSS by Gravimetry										
HDPE MW99-1(S)(E275563)	E160	09-Sep-2025	----	----	----		14-Sep-2025	7 days	5 days	✓
Physical Tests : TSS by Gravimetry										
HDPE S-MW-2(E221703)	E160	09-Sep-2025	----	----	----		14-Sep-2025	7 days	5 days	✓
Physical Tests : TSS by Gravimetry										
HDPE Seepage Weir(E335950)	E160	08-Sep-2025	----	----	----		14-Sep-2025	7 days	6 days	✓
Physical Tests : TSS by Gravimetry										
HDPE Spillway Outlet(E335952)	E160	08-Sep-2025	----	----	----		14-Sep-2025	7 days	6 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved) GW Duplicate	E508	10-Sep-2025	19-Sep-2025	28 days	10 days	✓	19-Sep-2025	28 days	10 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved) MW-04S-05(S)(E266349)	E508	10-Sep-2025	19-Sep-2025	28 days	10 days	✓	19-Sep-2025	28 days	10 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved) MW99-1(D)(E240501)	E508	09-Sep-2025	19-Sep-2025	28 days	10 days	✓	19-Sep-2025	28 days	10 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved) MW99-1(S)(E275563)	E508	09-Sep-2025	19-Sep-2025	28 days	10 days	✓	19-Sep-2025	28 days	10 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved) MW99-2(D)(E240502)	E508	10-Sep-2025	19-Sep-2025	28 days	10 days	✓	19-Sep-2025	28 days	10 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved) MW99-2(S)(E275543)	E508	10-Sep-2025	19-Sep-2025	28 days	10 days	✓	19-Sep-2025	28 days	10 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved) S-MW-1(E221702)	E508	10-Sep-2025	19-Sep-2025	28 days	10 days	✓	19-Sep-2025	28 days	10 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved) S-MW-2(E221703)	E508	09-Sep-2025	19-Sep-2025	28 days	10 days	✓	19-Sep-2025	28 days	10 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved) MW-01-2004(D)(E303723)	E508	09-Sep-2025	19-Sep-2025	28 days	11 days	✓	19-Sep-2025	28 days	11 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved) MW-01-2004(S)(E303722)	E508	09-Sep-2025	19-Sep-2025	28 days	11 days	✓	19-Sep-2025	28 days	11 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved) MW-05-01-1(E252593)	E508	09-Sep-2025	19-Sep-2025	28 days	11 days	✓	19-Sep-2025	28 days	11 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	*Method*	*Sampling Date*	*Extraction / Preparation*				*Analysis*			
			Preparation Date	*Holding Times*		*Eval*	*Analysis Date*	*Holding Times*		*Eval*
				Rec	*Actual*			*Rec*	*Actual*	
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved)										
Seepage Weir(E335950)	E508	08-Sep-2025	19-Sep-2025	28 days	12 days	✓	19-Sep-2025	28 days	12 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved)										
Spillway Outlet(E335952)	E508	08-Sep-2025	19-Sep-2025	28 days	12 days	✓	19-Sep-2025	28 days	12 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved)										
Field Blank	E508	10-Sep-2025	19-Sep-2025	28 days	9 days	✓	19-Sep-2025	28 days	9 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved)										
MW-06-01(E252594)	E508	10-Sep-2025	19-Sep-2025	28 days	9 days	✓	19-Sep-2025	28 days	9 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved)										
MW-01-2004(D)(E303723)	E420	09-Sep-2025	19-Sep-2025	180 days	10 days	✓	21-Sep-2025	180 days	10 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved)										
MW-01-2004(S)(E303722)	E420	09-Sep-2025	19-Sep-2025	180 days	10 days	✓	21-Sep-2025	180 days	10 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved)										
MW-05-01-1(E252593)	E420	09-Sep-2025	19-Sep-2025	180 days	10 days	✓	21-Sep-2025	180 days	10 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved)										
MW99-1(D)(E240501)	E420	09-Sep-2025	19-Sep-2025	180 days	10 days	✓	21-Sep-2025	180 days	10 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved)										
MW99-1(S)(E275563)	E420	09-Sep-2025	19-Sep-2025	180 days	10 days	✓	21-Sep-2025	180 days	10 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) S-MW-2(E221703)	E420	09-Sep-2025	19-Sep-2025	180 days	10 days	✓	21-Sep-2025	180 days	10 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) Seepage Weir(E335950)	E420	08-Sep-2025	19-Sep-2025	180 days	11 days	✓	21-Sep-2025	180 days	11 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) Spillway Outlet(E335952)	E420	08-Sep-2025	19-Sep-2025	180 days	11 days	✓	21-Sep-2025	180 days	11 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) Field Blank	E420	10-Sep-2025	19-Sep-2025	180 days	9 days	✓	21-Sep-2025	180 days	9 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) GW Duplicate	E420	10-Sep-2025	19-Sep-2025	180 days	9 days	✓	21-Sep-2025	180 days	9 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) MW-04S-05(S)(E266349)	E420	10-Sep-2025	19-Sep-2025	180 days	9 days	✓	21-Sep-2025	180 days	9 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) MW-06-01(E252594)	E420	10-Sep-2025	19-Sep-2025	180 days	9 days	✓	21-Sep-2025	180 days	9 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) MW99-2(D)(E240502)	E420	10-Sep-2025	19-Sep-2025	180 days	9 days	✓	21-Sep-2025	180 days	9 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) MW99-2(S)(E275543)	E420	10-Sep-2025	19-Sep-2025	180 days	9 days	✓	21-Sep-2025	180 days	9 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved)										
S-MW-1(E221702)	E420	10-Sep-2025	19-Sep-2025	180 days	9 days	✓	21-Sep-2025	180 days	9 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide)										
Seepage Weir(E335950)	E395-H	08-Sep-2025	----	----	----		13-Sep-2025	7 days	5 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide)										
Spillway Outlet(E335952)	E395-H	08-Sep-2025	----	----	----		13-Sep-2025	7 days	5 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide)										
S-MW-1(E221702)	E395-H	10-Sep-2025	----	----	----		16-Sep-2025	7 days	6 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide)										
Field Blank	E395-H	10-Sep-2025	----	----	----		17-Sep-2025	7 days	7 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide)										
GW Duplicate	E395-H	10-Sep-2025	----	----	----		17-Sep-2025	7 days	7 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide)										
MW-01-2004(D)(E303723)	E395-H	09-Sep-2025	----	----	----		16-Sep-2025	7 days	7 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide)										
MW-01-2004(S)(E303722)	E395-H	09-Sep-2025	----	----	----		16-Sep-2025	7 days	7 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide)										
MW-04S-05(S)(E266349)	E395-H	10-Sep-2025	----	----	----		17-Sep-2025	7 days	7 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide)										
MW-05-01-1(E252593)	E395-H	09-Sep-2025	----	----	----		16-Sep-2025	7 days	7 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide)										
MW-06-01(E252594)	E395-H	10-Sep-2025	----	----	----		17-Sep-2025	7 days	7 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide)										
MW99-1(D)(E240501)	E395-H	09-Sep-2025	----	----	----		16-Sep-2025	7 days	7 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide)										
MW99-1(S)(E275563)	E395-H	09-Sep-2025	----	----	----		16-Sep-2025	7 days	7 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide)										
MW99-2(D)(E240502)	E395-H	10-Sep-2025	----	----	----		17-Sep-2025	7 days	7 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide)										
MW99-2(S)(E275543)	E395-H	10-Sep-2025	----	----	----		17-Sep-2025	7 days	7 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide)										
S-MW-2(E221703)	E395-H	09-Sep-2025	----	----	----		16-Sep-2025	7 days	7 days	✓

Legend & Qualifier Definitions

EHTR-FM: Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended

EHTR: Exceeded ALS recommended hold time prior to sample receipt.

Rec. HT: ALS recommended hold time (see units).

Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Water**

Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
Conductivity in Water	E100	2217477	1	20	5.0	5.0	✓
pH by Meter	E108	2217475	1	20	5.0	5.0	✓
TSS by Gravimetry	E160	2217911	2	37	5.4	5.0	✓
TDS by Gravimetry	E162	2217916	2	37	5.4	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	2217480	1	20	5.0	5.0	✓
Chloride in Water by IC	E235.Cl	2217479	1	20	5.0	5.0	✓
Fluoride in Water by IC	E235.F	2217478	1	20	5.0	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	2217482	1	20	5.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	2217481	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	2217483	1	20	5.0	5.0	✓
Alkalinity Species by Titration	E290	2217476	1	20	5.0	5.0	✓
Ammonia by Fluorescence	E298	2222358	1	20	5.0	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	2222359	1	15	6.6	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	2222360	1	15	6.6	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	2222361	1	2	50.0	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	2217484	1	20	5.0	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395-H	2217507	4	43	9.3	5.0	✓
Total Metals in Water by CRC ICPMS	E420	2218015	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	2219685	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	2230542	2	40	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	2230583	2	34	5.8	5.0	✓
Laboratory Control Samples (LCS)							
Conductivity in Water	E100	2217477	1	20	5.0	5.0	✓
pH by Meter	E108	2217475	1	20	5.0	5.0	✓
TSS by Gravimetry	E160	2217911	2	37	5.4	5.0	✓
TDS by Gravimetry	E162	2217916	2	37	5.4	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	2217480	1	20	5.0	5.0	✓
Chloride in Water by IC	E235.Cl	2217479	1	20	5.0	5.0	✓
Fluoride in Water by IC	E235.F	2217478	1	20	5.0	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	2217482	1	20	5.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	2217481	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	2217483	1	20	5.0	5.0	✓
Alkalinity Species by Titration	E290	2217476	1	20	5.0	5.0	✓
Ammonia by Fluorescence	E298	2222358	1	20	5.0	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	2222359	1	15	6.6	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	2222360	1	15	6.6	5.0	✓

Matrix: **Water**

Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Control Samples (LCS) - Continued							
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	2222361	1	2	50.0	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	2217484	1	20	5.0	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395-H	2217507	4	43	9.3	5.0	✓
Total Metals in Water by CRC ICPMS	E420	2218015	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	2219685	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	2230542	2	40	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	2230583	2	34	5.8	5.0	✓
Method Blanks (MB)							
Conductivity in Water	E100	2217477	1	20	5.0	5.0	✓
TSS by Gravimetry	E160	2217911	2	37	5.4	5.0	✓
TDS by Gravimetry	E162	2217916	2	37	5.4	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	2217480	1	20	5.0	5.0	✓
Chloride in Water by IC	E235.Cl	2217479	1	20	5.0	5.0	✓
Fluoride in Water by IC	E235.F	2217478	1	20	5.0	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	2217482	1	20	5.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	2217481	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	2217483	1	20	5.0	5.0	✓
Alkalinity Species by Titration	E290	2217476	1	20	5.0	5.0	✓
Ammonia by Fluorescence	E298	2222358	1	20	5.0	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	2222359	1	15	6.6	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	2222360	1	15	6.6	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	2222361	1	2	50.0	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	2217484	1	20	5.0	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395-H	2217507	4	43	9.3	5.0	✓
Total Metals in Water by CRC ICPMS	E420	2218015	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	2219685	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	2230542	2	40	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	2230583	2	34	5.8	5.0	✓
Matrix Spikes (MS)							
Bromide in Water by IC (Low Level)	E235.Br-L	2217480	1	20	5.0	5.0	✓
Chloride in Water by IC	E235.Cl	2217479	1	20	5.0	5.0	✓
Fluoride in Water by IC	E235.F	2217478	1	20	5.0	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	2217482	1	20	5.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	2217481	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	2217483	1	20	5.0	5.0	✓
Ammonia by Fluorescence	E298	2222358	1	20	5.0	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	2222359	1	15	6.6	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	2222360	1	15	6.6	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	2222361	1	2	50.0	5.0	✓

Matrix: **Water**

Evaluation: × = *QC frequency outside specification*; ✓ = *QC frequency within specification.*

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Matrix Spikes (MS) - Continued							
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	2217484	1	20	5.0	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395-H	2217507	4	43	9.3	5.0	✓
Total Metals in Water by CRC ICPMS	E420	2218015	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	2219685	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	2230542	2	40	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	2230583	2	34	5.8	5.0	✓

Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Conductivity in Water	E100 ALS Environmental - Vancouver	Water	APHA 2510 (mod)	Conductivity, also known as Electrical Conductivity (EC) or Specific Conductance, is measured by immersion of a conductivity cell with platinum electrodes into a water sample. Conductivity measurements are temperature-compensated to 25°C.
pH by Meter	E108 ALS Environmental - Vancouver	Water	APHA 4500-H (mod)	pH is determined by potentiometric measurement with a pH electrode, and is conducted at ambient laboratory temperature (normally 20 ± 5°C). For high accuracy test results, pH should be measured in the field within the recommended 15 minute hold time.
TSS by Gravimetry	E160 ALS Environmental - Vancouver	Water	APHA 2540 D (mod)	Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, following by drying of the filter at 104 ± 1°C, with gravimetric measurement of the filtered solids. Samples containing very high dissolved solid content (i.e. seawaters, brackish waters) may produce a positive bias by this method. Alternate analysis methods are available for these types of samples.
TDS by Gravimetry	E162 ALS Environmental - Vancouver	Water	APHA 2540 C (mod)	Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, with evaporation of the filtrate at 180 ± 2°C for 16 hours or to constant weight, with gravimetric measurement of the residue.
Bromide in Water by IC (Low Level)	E235.Br-L ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Chloride in Water by IC	E235.Cl ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Fluoride in Water by IC	E235.F ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrite in Water by IC (Low Level)	E235.NO2-L ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrate in Water by IC (Low Level)	E235.NO3-L ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Sulfate in Water by IC	E235.SO4 ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Alkalinity Species by Titration	E290 ALS Environmental - Vancouver	Water	APHA 2320 B (mod)	Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.
Ammonia by Fluorescence	E298 ALS Environmental - Vancouver	Water	Method Fialab 100, 2018	Ammonia in water is determined by automated continuous flow analysis with membrane diffusion and fluorescence detection, after reaction with OPA (ortho-phthalaldehyde). This method is approved under US EPA 40 CFR Part 136 (May 2021)
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318 ALS Environmental - Vancouver	Water	Method Fialab 100, 2018	TKN in water is determined by automated continuous flow analysis with membrane diffusion and fluorescence detection, after reaction with OPA (ortho-phthalaldehyde). This method is approved under US EPA 40 CFR Part 136 (May 2021).
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L ALS Environmental - Vancouver	Water	APHA 5310 B (mod)	Total Organic Carbon (Non-Purgeable), also known as NPOC (total), is a direct measurement of TOC after an acidified sample has been purged to remove carbonate-based Inorganic Carbon (IC). Analysis is by high temperature combustion with infrared detection of CO2. Forms of carbon associated with inorganic or organic molecules (e.g. SCN and CN) are included in NPOC if they are not removed by purging under acidic conditions. Notably, NPOC excludes most volatile organic compounds and free cyanide. For samples where the majority of Total Carbon is inorganic, this method provides greater accuracy and reliability versus the TOC by subtraction method (TC minus TIC).
Dissolved Organic Carbon by Combustion (Low Level)	E358-L ALS Environmental - Vancouver	Water	APHA 5310 B (mod)	Dissolved Organic Carbon (Non-Purgeable), also known as NPOC (dissolved), is a direct measurement of DOC after a filtered (0.45 micron) sample has been acidified and purged to remove inorganic carbon (IC). Analysis is by high temperature combustion with infrared detection of CO2. NPOC does not include volatile organic species that are purged off with IC. For samples where the majority of DC (dissolved carbon) is comprised of IC (which is common), this method is more accurate and more reliable than the DOC by subtraction method (i.e. DC minus DIC).
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U ALS Environmental - Vancouver	Water	APHA 4500-P F (mod)	Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter. Field filtration is recommended to ensure test results represent conditions at time of sampling.
Total Sulfide by Colourimetry (Automated Flow)	E395-H ALS Environmental - Vancouver	Water	APHA 4500 -S E-Auto-Colorimetry	Sulfide is determined using the gas dialysis automated methylene blue colourimetric method. Results expressed "as H2S" if reported represent the maximum possible H2S concentration based on the total sulfide concentration in the sample. The H2S calculation converts Total Sulfide as (S2-) and reports it as Total Sulfide as (H2S)

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Total Metals in Water by CRC ICPMS	E420 ALS Environmental - Vancouver	Water	EPA 200.2/6020B (mod)	Water samples are digested with nitric and hydrochloric acids, and analyzed by Collision/Reaction Cell ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
Dissolved Metals in Water by CRC ICPMS	E421 ALS Environmental - Vancouver	Water	APHA 3030B/EPA 6020B (mod)	Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by Collision/Reaction Cell ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
Total Mercury in Water by CVAAS	E508 ALS Environmental - Vancouver	Water	EPA 1631E (mod)	Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS
Dissolved Mercury in Water by CVAAS	E509 ALS Environmental - Vancouver	Water	APHA 3030B/EPA 1631E (mod)	Water samples are filtered (0.45 um), preserved with HCl, then undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS.
Dissolved Hardness (Calculated)	EC100 ALS Environmental - Vancouver	Water	APHA 2340B	“Hardness (as CaCO3), dissolved” is calculated from the sum of dissolved Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. “Total Hardness” refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because it is a property of water due to dissolved divalent cations.
Hardness (Calculated) from Total Ca/Mg	EC100A ALS Environmental - Vancouver	Water	APHA 2340B	“Hardness (as CaCO3), from total Ca/Mg” is calculated from the sum of total Calcium and Magnesium concentrations, expressed as CaCO3 equivalents. “Total Hardness” refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because hardness is a property of water due to dissolved divalent cations. In non-turbid waters, Hardness from total Ca/Mg is normally comparable to Dissolved Hardness, but may be biased high if particulate forms of Ca or Mg are present.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Ammonia	EP298 ALS Environmental - Vancouver	Water		Sample preparation for Preserved Nutrients Water Quality Analysis.
Digestion for TKN in water	EP318 ALS Environmental - Vancouver	Water	APHA 4500-Norg D (mod)	Samples are digested at high temperature using Sulfuric Acid with Copper catalyst, which converts organic nitrogen sources to Ammonia, which is then quantified by the analytical method as TKN. This method is unsuitable for samples containing high levels of nitrate. If nitrate exceeds TKN concentration by ten times or more, results may be biased low.
Preparation for Total Organic Carbon by Combustion	EP355 ALS Environmental - Vancouver	Water		Preparation for Total Organic Carbon by Combustion

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Dissolved Organic Carbon for Combustion	EP358 ALS Environmental - Vancouver	Water	APHA 5310 B (mod)	Preparation for Dissolved Organic Carbon
Dissolved Metals Water Filtration	EP421 ALS Environmental - Vancouver	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HNO3.
Dissolved Mercury Water Filtration	EP509 ALS Environmental - Vancouver	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HCl.

QUALITY CONTROL REPORT

Work Order	: **VA25C3911**	Page	: 1 of 18
Client	: Masse Environmental Consultants Ltd.	Laboratory	: ALS Environmental - Vancouver
Contact	: Ico de Zwart	Account Manager	: Can Dang
Address	: 812 Vernon Street Nelson BC Canada V1L 4G4	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: ----	Telephone	: +1 604 253 4188
Project	: 2016-503-HB	Date Samples Received	: 12-Sep-2025 19:27
PO	: ----	Date Analysis Commenced	: 13-Sep-2025
C-O-C number	: 22-20250911-1	Issue Date	: 23-Sep-2025 11:10
Sampler	: Chris Stephanou		
Site	: RDCK		
Quote number	: ----		
No. of samples received	: 15		
No. of samples analysed	: 15		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percent Difference (RPD) and Data Quality Objectives
- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Anita Chuang	Lab Assistant	Vancouver Inorganics, Burnaby, British Columbia
Erika Vanegas	Lab Assistant	Vancouver Metals, Burnaby, British Columbia
Kate Dimitrova	Supervisor - Inorganic	Vancouver Inorganics, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Vancouver Metals, Burnaby, British Columbia
Kimia Taheri	Lab Assistant	Vancouver Metals, Burnaby, British Columbia
Miles Gropen	Department Manager - Inorganics	Vancouver Inorganics, Burnaby, British Columbia
Monica Ko	Supervisor - Inorganic	Vancouver Inorganics, Burnaby, British Columbia
Owen Cheng		Vancouver Metals, Burnaby, British Columbia
Robert Nguyen	Analyst	Vancouver Metals, Burnaby, British Columbia

General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number = Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO = Data Quality Objective.
LOR = Limit of Reporting (detection limit).
RPD = Relative Percent Difference
# = Indicates a QC result that did not meet the ALS DQO.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test-specific).

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Physical Tests (QC Lot: 2217475)											
VA25C3911-003	MW99-2(S)(E275543)	pH	----	E108	0.10	pH units	7.36	7.37	0.136%	4%	----
Physical Tests (QC Lot: 2217476)											
VA25C3911-003	MW99-2(S)(E275543)	Alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	277	279	0.720%	20%	----
Physical Tests (QC Lot: 2217477)											
VA25C3911-003	MW99-2(S)(E275543)	Conductivity	----	E100	2.0	µS/cm	697	700	0.429%	10%	----
Physical Tests (QC Lot: 2217911)											
VA25C3462-003	Anonymous	Solids, total suspended [TSS]	----	E160	3.0	mg/L	<3.0	4.2	1.2	Diff <2x LOR	----
Physical Tests (QC Lot: 2217912)											
VA25C3911-012	GW Duplicate	Solids, total suspended [TSS]	----	E160	3.0	mg/L	9.6	8.4	1.2	Diff <2x LOR	----
Physical Tests (QC Lot: 2217916)											
VA25C3462-003	Anonymous	Solids, total dissolved [TDS]	----	E162	20	mg/L	2580	2560	0.622%	20%	----
Physical Tests (QC Lot: 2217917)											
VA25C3911-012	GW Duplicate	Solids, total dissolved [TDS]	----	E162	20	mg/L	458	463	0.977%	20%	----
Anions and Nutrients (QC Lot: 2217478)											
VA25C3911-001	MW99-1(S)(E275563)	Fluoride	16984-48-8	E235.F	0.020	mg/L	0.112	0.115	0.002	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 2217479)											
VA25C3911-001	MW99-1(S)(E275563)	Chloride	16887-00-6	E235.Cl	0.50	mg/L	1.69	1.59	0.10	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 2217480)											
VA25C3911-001	MW99-1(S)(E275563)	Bromide	24959-67-9	E235.Br-L	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 2217481)											
VA25C3911-001	MW99-1(S)(E275563)	Nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 2217482)											
VA25C3911-001	MW99-1(S)(E275563)	Nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 2217483)											
VA25C3911-001	MW99-1(S)(E275563)	Sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	41.8	41.3	1.21%	20%	----
Anions and Nutrients (QC Lot: 2217484)											
VA25C3911-001	MW99-1(S)(E275563)	Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0010	mg/L	0.0030	0.0016	0.0014	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 2222358)											
VA25C3911-001	MW99-1(S)(E275563)	Ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	0.452	0.454	0.422%	20%	----
Anions and Nutrients (QC Lot: 2222359)											

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Anions and Nutrients (QC Lot: 2222359) - continued											
VA25C3911-001	MW99-1(S)(E275563)	Kjeldahl nitrogen, total [TKN]	----	E318	0.050	mg/L	0.468	0.466	0.0010	Diff <2x LOR	----
Organic / Inorganic Carbon (QC Lot: 2222360)											
VA25C3911-001	MW99-1(S)(E275563)	Carbon, total organic [TOC]	----	E355-L	0.50	mg/L	1.26	1.35	0.08	Diff <2x LOR	----
Organic / Inorganic Carbon (QC Lot: 2222361)											
VA25C3911-014	Seepage Weir(E335950)	Carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	3.07	3.16	0.09	Diff <2x LOR	----
Total Sulfides (QC Lot: 2217507)											
VA25C3911-014	Seepage Weir(E335950)	Sulfide, total (as S)	18496-25-8	E395-H	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
Total Sulfides (QC Lot: 2221393)											
TY2510101-001	Anonymous	Sulfide, total (as S)	18496-25-8	E395-H	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
Total Sulfides (QC Lot: 2221410)											
FJ2502799-002	Anonymous	Sulfide, total (as S)	18496-25-8	E395-H	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
Total Sulfides (QC Lot: 2224029)											
VA25C3556-001	Anonymous	Sulfide, total (as S)	18496-25-8	E395-H	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
Total Metals (QC Lot: 2218015)											
VA25C3911-001	MW99-1(S)(E275563)	Aluminum, total	7429-90-5	E420	0.0030	mg/L	27.6 µg/L	0.0270	0.0005	Diff <2x LOR	----
		Antimony, total	7440-36-0	E420	0.00010	mg/L	<0.10 µg/L	<0.00010	0	Diff <2x LOR	----
		Arsenic, total	7440-38-2	E420	0.00010	mg/L	0.49 µg/L	0.00048	0.00001	Diff <2x LOR	----
		Barium, total	7440-39-3	E420	0.00010	mg/L	138 µg/L	0.137	0.892%	20%	----
		Beryllium, total	7440-41-7	E420	0.000100	mg/L	<0.100 µg/L	<0.000100	0	Diff <2x LOR	----
		Bismuth, total	7440-69-9	E420	0.000050	mg/L	<0.050 µg/L	<0.000050	0	Diff <2x LOR	----
		Boron, total	7440-42-8	E420	0.010	mg/L	32 µg/L	0.032	0.0006	Diff <2x LOR	----
		Cadmium, total	7440-43-9	E420	0.0000050	mg/L	0.0059 µg/L	0.0000050	0.0000009	Diff <2x LOR	----
		Calcium, total	7440-70-2	E420	0.050	mg/L	34400 µg/L	34.8	1.15%	20%	----
		Cesium, total	7440-46-2	E420	0.000010	mg/L	0.019 µg/L	0.000022	0.000003	Diff <2x LOR	----
		Chromium, total	7440-47-3	E420	0.00050	mg/L	<0.50 µg/L	<0.00050	0	Diff <2x LOR	----
		Cobalt, total	7440-48-4	E420	0.00010	mg/L	0.11 µg/L	0.00012	0.000009	Diff <2x LOR	----
		Copper, total	7440-50-8	E420	0.00050	mg/L	1.29 µg/L	0.00128	0.0000008	Diff <2x LOR	----
		Iron, total	7439-89-6	E420	0.010	mg/L	9680 µg/L	9.54	1.50%	20%	----
		Lead, total	7439-92-1	E420	0.000050	mg/L	0.070 µg/L	0.000073	0.000003	Diff <2x LOR	----
		Lithium, total	7439-93-2	E420	0.0010	mg/L	20.6 µg/L	0.0203	1.46%	20%	----
		Magnesium, total	7439-95-4	E420	0.0050	mg/L	9190 µg/L	8.98	2.29%	20%	----
		Manganese, total	7439-96-5	E420	0.00010	mg/L	303 µg/L	0.297	2.02%	20%	----
		Molybdenum, total	7439-98-7	E420	0.000050	mg/L	0.171 µg/L	0.000175	0.000004	Diff <2x LOR	----
		Nickel, total	7440-02-0	E420	0.00050	mg/L	<0.50 µg/L	<0.00050	0	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Total Metals (QC Lot: 2218015) - continued											
VA25C3911-001	MW99-1(S)(E275563)	Phosphorus, total	7723-14-0	E420	0.050	mg/L	1970 µg/L	2.01	1.87%	20%	----
		Potassium, total	7440-09-7	E420	0.050	mg/L	1140 µg/L	1.12	2.08%	20%	----
		Rubidium, total	7440-17-7	E420	0.00020	mg/L	0.60 µg/L	0.00051	0.00008	Diff <2x LOR	----
		Selenium, total	7782-49-2	E420	0.000050	mg/L	<0.050 µg/L	<0.000050	0	Diff <2x LOR	----
		Silicon, total	7440-21-3	E420	0.10	mg/L	18200 µg/L	17.7	3.03%	20%	----
		Silver, total	7440-22-4	E420	0.000010	mg/L	<0.010 µg/L	<0.000010	0	Diff <2x LOR	----
		Sodium, total	7440-23-5	E420	0.050	mg/L	4970 µg/L	4.85	2.51%	20%	----
		Strontium, total	7440-24-6	E420	0.00020	mg/L	229 µg/L	0.228	0.114%	20%	----
		Sulfur, total	7704-34-9	E420	0.50	mg/L	15900 µg/L	15.4	3.57%	20%	----
		Tellurium, total	13494-80-9	E420	0.00020	mg/L	<0.20 µg/L	<0.00020	0	Diff <2x LOR	----
		Thallium, total	7440-28-0	E420	0.000010	mg/L	<0.010 µg/L	<0.000010	0	Diff <2x LOR	----
		Thorium, total	7440-29-1	E420	0.00010	mg/L	<0.10 µg/L	<0.00010	0	Diff <2x LOR	----
		Tin, total	7440-31-5	E420	0.00010	mg/L	<0.10 µg/L	<0.00010	0	Diff <2x LOR	----
		Titanium, total	7440-32-6	E420	0.00030	mg/L	1.64 µg/L	0.00173	0.00009	Diff <2x LOR	----
		Tungsten, total	7440-33-7	E420	0.00010	mg/L	0.50 µg/L	0.00052	0.00002	Diff <2x LOR	----
		Uranium, total	7440-61-1	E420	0.000010	mg/L	0.034 µg/L	0.000036	0.000002	Diff <2x LOR	----
		Vanadium, total	7440-62-2	E420	0.00050	mg/L	0.67 µg/L	0.00066	0.000009	Diff <2x LOR	----
		Zinc, total	7440-66-6	E420	0.0030	mg/L	<3.0 µg/L	<0.0030	0	Diff <2x LOR	----
		Zirconium, total	7440-67-7	E420	0.00020	mg/L	<0.20 µg/L	<0.00020	0	Diff <2x LOR	----
Total Metals (QC Lot: 2230542)											
KS2503690-001	Anonymous	Mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Total Metals (QC Lot: 2230544)											
VA25C3911-015	Spillway Outlet(E335952)	Mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.0050 µg/L	<0.0000050	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 2219685)											
VA25C3911-001	MW99-1(S)(E275563)	Aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	2.1 µg/L	0.0016	0.0005	Diff <2x LOR	----
		Antimony, dissolved	7440-36-0	E421	0.00010	mg/L	<0.10 µg/L	<0.00010	0	Diff <2x LOR	----
		Arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	0.39 µg/L	0.00039	0.000004	Diff <2x LOR	----
		Barium, dissolved	7440-39-3	E421	0.00010	mg/L	103 µg/L	0.100	3.20%	20%	----
		Beryllium, dissolved	7440-41-7	E421	0.000100	mg/L	<0.100 µg/L	<0.000100	0	Diff <2x LOR	----
		Bismuth, dissolved	7440-69-9	E421	0.000050	mg/L	<0.050 µg/L	<0.000050	0	Diff <2x LOR	----
		Boron, dissolved	7440-42-8	E421	0.010	mg/L	29 µg/L	0.030	0.0006	Diff <2x LOR	----
		Cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L	0.0055 µg/L	<0.0000050	0.0000005	Diff <2x LOR	----
		Calcium, dissolved	7440-70-2	E421	0.050	mg/L	35600 µg/L	33.9	4.78%	20%	----
		Cesium, dissolved	7440-46-2	E421	0.000010	mg/L	0.018 µg/L	0.000021	0.000003	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Dissolved Metals (QC Lot: 2219685) - continued											
VA25C3911-001	MW99-1(S)(E275563)	Chromium, dissolved	7440-47-3	E421	0.00050	mg/L	<0.50 µg/L	<0.00050	0	Diff <2x LOR	----
		Cobalt, dissolved	7440-48-4	E421	0.00010	mg/L	<0.10 µg/L	<0.00010	0	Diff <2x LOR	----
		Copper, dissolved	7440-50-8	E421	0.00020	mg/L	0.38 µg/L	0.00034	0.00004	Diff <2x LOR	----
		Iron, dissolved	7439-89-6	E421	0.010	mg/L	8430 µg/L	8.23	2.43%	20%	----
		Lead, dissolved	7439-92-1	E421	0.000050	mg/L	<0.050 µg/L	<0.000050	0	Diff <2x LOR	----
		Lithium, dissolved	7439-93-2	E421	0.0010	mg/L	19.8 µg/L	0.0195	1.52%	20%	----
		Magnesium, dissolved	7439-95-4	E421	0.0050	mg/L	9040 µg/L	8.78	2.90%	20%	----
		Manganese, dissolved	7439-96-5	E421	0.00010	mg/L	303 µg/L	0.288	4.89%	20%	----
		Molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.159 µg/L	0.000176	0.000017	Diff <2x LOR	----
		Nickel, dissolved	7440-02-0	E421	0.00050	mg/L	<0.50 µg/L	<0.00050	0	Diff <2x LOR	----
		Phosphorus, dissolved	7723-14-0	E421	0.050	mg/L	1580 µg/L	1.56	1.16%	20%	----
		Potassium, dissolved	7440-09-7	E421	0.050	mg/L	1170 µg/L	1.12	4.84%	20%	----
		Rubidium, dissolved	7440-17-7	E421	0.00020	mg/L	0.54 µg/L	0.00053	0.000008	Diff <2x LOR	----
		Selenium, dissolved	7782-49-2	E421	0.000050	mg/L	<0.050 µg/L	<0.000050	0	Diff <2x LOR	----
		Silicon, dissolved	7440-21-3	E421	0.050	mg/L	16900 µg/L	17.4	3.15%	20%	----
		Silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.010 µg/L	<0.000010	0	Diff <2x LOR	----
		Sodium, dissolved	7440-23-5	E421	0.050	mg/L	4970 µg/L	4.75	4.60%	20%	----
		Strontium, dissolved	7440-24-6	E421	0.00020	mg/L	222 µg/L	0.226	1.92%	20%	----
		Sulfur, dissolved	7704-34-9	E421	0.50	mg/L	14400 µg/L	15.0	4.12%	20%	----
		Tellurium, dissolved	13494-80-9	E421	0.00020	mg/L	<0.20 µg/L	<0.00020	0	Diff <2x LOR	----
		Thallium, dissolved	7440-28-0	E421	0.000010	mg/L	<0.010 µg/L	<0.000010	0	Diff <2x LOR	----
		Thorium, dissolved	7440-29-1	E421	0.00010	mg/L	<0.10 µg/L	<0.00010	0	Diff <2x LOR	----
		Tin, dissolved	7440-31-5	E421	0.00010	mg/L	<0.10 µg/L	<0.00010	0	Diff <2x LOR	----
		Titanium, dissolved	7440-32-6	E421	0.00030	mg/L	<0.30 µg/L	<0.00030	0	Diff <2x LOR	----
		Tungsten, dissolved	7440-33-7	E421	0.00010	mg/L	0.47 µg/L	0.00048	0.00001	Diff <2x LOR	----
		Uranium, dissolved	7440-61-1	E421	0.000010	mg/L	0.025 µg/L	0.000026	0.0000006	Diff <2x LOR	----
		Vanadium, dissolved	7440-62-2	E421	0.00050	mg/L	<0.50 µg/L	<0.00050	0	Diff <2x LOR	----
		Zinc, dissolved	7440-66-6	E421	0.0010	mg/L	1.1 µg/L	<0.0010	0.00009	Diff <2x LOR	----
		Zirconium, dissolved	7440-67-7	E421	0.00020	mg/L	<0.20 µg/L	<0.00020	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 2230583)											
KS2503733-001	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 2230584)											
VA25C3911-010	S-MW-1(E221702)	Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0050 µg/L	<0.0000050	0	Diff <2x LOR	----

Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 2217476)						
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	<1.0	----
Physical Tests (QCLot: 2217477)						
Conductivity	----	E100	1	µS/cm	1.0	----
Physical Tests (QCLot: 2217911)						
Solids, total suspended [TSS]	----	E160	3	mg/L	<3.0	----
Physical Tests (QCLot: 2217912)						
Solids, total suspended [TSS]	----	E160	3	mg/L	<3.0	----
Physical Tests (QCLot: 2217916)						
Solids, total dissolved [TDS]	----	E162	10	mg/L	<10	----
Physical Tests (QCLot: 2217917)						
Solids, total dissolved [TDS]	----	E162	10	mg/L	<10	----
Anions and Nutrients (QCLot: 2217478)						
Fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 2217479)						
Chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 2217480)						
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 2217481)						
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 2217482)						
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 2217483)						
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	----
Anions and Nutrients (QCLot: 2217484)						
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 2222358)						
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 2222359)						
Kjeldahl nitrogen, total [TKN]	----	E318	0.05	mg/L	<0.050	----
Organic / Inorganic Carbon (QCLot: 2222360)						
Carbon, total organic [TOC]	----	E355-L	0.5	mg/L	<0.50	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Organic / Inorganic Carbon (QCLot: 2222361)						
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	<0.50	----
Total Sulfides (QCLot: 2217507)						
Sulfide, total (as S)	18496-25-8	E395-H	0.01	mg/L	<0.010	----
Total Sulfides (QCLot: 2221393)						
Sulfide, total (as S)	18496-25-8	E395-H	0.01	mg/L	<0.010	----
Total Sulfides (QCLot: 2221410)						
Sulfide, total (as S)	18496-25-8	E395-H	0.01	mg/L	<0.010	----
Total Sulfides (QCLot: 2224029)						
Sulfide, total (as S)	18496-25-8	E395-H	0.01	mg/L	<0.010	----
Total Metals (QCLot: 2218015)						
Aluminum, total	7429-90-5	E420	0.003	mg/L	<0.0030	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	<0.00010	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	<0.00010	----
Barium, total	7440-39-3	E420	0.0001	mg/L	<0.00010	----
Beryllium, total	7440-41-7	E420	0.00002	mg/L	<0.000020	----
Bismuth, total	7440-69-9	E420	0.00005	mg/L	<0.000050	----
Boron, total	7440-42-8	E420	0.01	mg/L	<0.010	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	<0.0000050	----
Calcium, total	7440-70-2	E420	0.05	mg/L	<0.050	----
Cesium, total	7440-46-2	E420	0.00001	mg/L	<0.000010	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	<0.00050	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	<0.00010	----
Copper, total	7440-50-8	E420	0.0005	mg/L	<0.00050	----
Iron, total	7439-89-6	E420	0.01	mg/L	<0.010	----
Lead, total	7439-92-1	E420	0.00005	mg/L	<0.000050	----
Lithium, total	7439-93-2	E420	0.001	mg/L	<0.0010	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	<0.0050	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	<0.00010	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	<0.000050	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	<0.00050	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	<0.050	----
Potassium, total	7440-09-7	E420	0.05	mg/L	<0.050	----
Rubidium, total	7440-17-7	E420	0.0002	mg/L	<0.00020	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	<0.000050	----
Silicon, total	7440-21-3	E420	0.1	mg/L	<0.10	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (QCLot: 2218015) - continued						
Silver, total	7440-22-4	E420	0.00001	mg/L	<0.000010	----
Sodium, total	7440-23-5	E420	0.05	mg/L	<0.050	----
Strontium, total	7440-24-6	E420	0.0002	mg/L	<0.00020	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	<0.50	----
Tellurium, total	13494-80-9	E420	0.0002	mg/L	<0.00020	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	<0.000010	----
Thorium, total	7440-29-1	E420	0.0001	mg/L	<0.00010	----
Tin, total	7440-31-5	E420	0.0001	mg/L	<0.00010	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	<0.00030	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	<0.00010	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	<0.000010	----
Vanadium, total	7440-62-2	E420	0.0005	mg/L	<0.00050	----
Zinc, total	7440-66-6	E420	0.003	mg/L	<0.0030	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	<0.00020	----
Total Metals (QCLot: 2230542)						
Mercury, total	7439-97-6	E508	0.000005	mg/L	<0.0000050	----
Total Metals (QCLot: 2230544)						
Mercury, total	7439-97-6	E508	0.000005	mg/L	<0.0000050	----
Dissolved Metals (QCLot: 2219685)						
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	<0.0010	----
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	<0.00010	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	<0.00010	----
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	<0.00010	MBRR
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	<0.000020	----
Bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	<0.000050	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	<0.010	----
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	<0.0000050	----
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	<0.050	----
Cesium, dissolved	7440-46-2	E421	0.00001	mg/L	<0.000010	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	<0.00050	----
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	<0.00010	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	<0.00020	----
Iron, dissolved	7439-89-6	E421	0.01	mg/L	<0.010	----
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	<0.000050	----
Lithium, dissolved	7439-93-2	E421	0.001	mg/L	<0.0010	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Dissolved Metals (QCLot: 2219685) - continued						
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	<0.0050	----
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	<0.00010	----
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	<0.000050	----
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	<0.00050	----
Phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	<0.050	----
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	<0.050	----
Rubidium, dissolved	7440-17-7	E421	0.0002	mg/L	<0.00020	----
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	<0.000050	----
Silicon, dissolved	7440-21-3	E421	0.05	mg/L	<0.050	----
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	<0.000010	----
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	<0.050	----
Strontium, dissolved	7440-24-6	E421	0.0002	mg/L	<0.00020	----
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	<0.50	----
Tellurium, dissolved	13494-80-9	E421	0.0002	mg/L	<0.00020	----
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	<0.000010	----
Thorium, dissolved	7440-29-1	E421	0.0001	mg/L	<0.00010	----
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	<0.00010	----
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	<0.00030	----
Tungsten, dissolved	7440-33-7	E421	0.0001	mg/L	<0.00010	----
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	<0.000010	----
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	<0.00050	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	<0.0010	----
Zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	<0.00020	----
Dissolved Metals (QCLot: 2230583)						
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	<0.0000050	----
Dissolved Metals (QCLot: 2230584)						
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	<0.0000050	----

Qualifiers

Qualifier	Description
MBRR	Initial MB for this submission had positive results for flagged analyte (data not shown). Low level samples were repeated with new QC (2nd MB results shown). High level results (>5x initial MB level) and non-detect results were reported and are defensible

Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 2217475)									
pH	----	E108	----	pH units	7 pH units	99.8	98.0	102	----
Physical Tests (QCLot: 2217476)									
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	500 mg/L	98.8	85.0	115	----
Physical Tests (QCLot: 2217477)									
Conductivity	----	E100	1	µS/cm	147 µS/cm	98.0	90.0	110	----
Physical Tests (QCLot: 2217911)									
Solids, total suspended [TSS]	----	E160	3	mg/L	150 mg/L	108	85.0	115	----
Physical Tests (QCLot: 2217912)									
Solids, total suspended [TSS]	----	E160	3	mg/L	150 mg/L	108	85.0	115	----
Physical Tests (QCLot: 2217916)									
Solids, total dissolved [TDS]	----	E162	10	mg/L	1000 mg/L	110	85.0	115	----
Physical Tests (QCLot: 2217917)									
Solids, total dissolved [TDS]	----	E162	10	mg/L	1000 mg/L	104	85.0	115	----
Anions and Nutrients (QCLot: 2217478)									
Fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 2217479)									
Chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	98.9	90.0	110	----
Anions and Nutrients (QCLot: 2217480)									
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	0.5 mg/L	104	85.0	115	----
Anions and Nutrients (QCLot: 2217481)									
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	2.5 mg/L	99.0	90.0	110	----
Anions and Nutrients (QCLot: 2217482)									
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	0.5 mg/L	98.4	90.0	110	----
Anions and Nutrients (QCLot: 2217483)									
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	99.4	90.0	110	----
Anions and Nutrients (QCLot: 2217484)									
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.001	mg/L	0.03 mg/L	102	80.0	120	----
Anions and Nutrients (QCLot: 2222358)									
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	103	85.0	115	----
Anions and Nutrients (QCLot: 2222359)									
Kjeldahl nitrogen, total [TKN]	----	E318	0.05	mg/L	4 mg/L	102	75.0	125	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report: Spike: Target Concentration	Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High	Qualifier
Organic / Inorganic Carbon (QCLot: 2222360)									
Carbon, total organic [TOC]	----	E355-L	0.5	mg/L	8.57 mg/L	106	80.0	120	----
Organic / Inorganic Carbon (QCLot: 2222361)									
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	8.57 mg/L	106	80.0	120	----
Total Sulfides (QCLot: 2217507)									
Sulfide, total (as H2S)	7783-06-4	E395-H	----	mg/L	0.085 mg/L	93.8	80.0	120	----
Sulfide, total (as S)	18496-25-8	E395-H	0.01	mg/L	0.08 mg/L	93.8	80.0	120	----
Total Sulfides (QCLot: 2221393)									
Sulfide, total (as H2S)	7783-06-4	E395-H	----	mg/L	0.085 mg/L	103	80.0	120	----
Sulfide, total (as S)	18496-25-8	E395-H	0.01	mg/L	0.08 mg/L	103	80.0	120	----
Total Sulfides (QCLot: 2221410)									
Sulfide, total (as H2S)	7783-06-4	E395-H	----	mg/L	0.085 mg/L	106	80.0	120	----
Sulfide, total (as S)	18496-25-8	E395-H	0.01	mg/L	0.08 mg/L	106	80.0	120	----
Total Sulfides (QCLot: 2224029)									
Sulfide, total (as H2S)	7783-06-4	E395-H	----	mg/L	0.085 mg/L	106	80.0	120	----
Sulfide, total (as S)	18496-25-8	E395-H	0.01	mg/L	0.08 mg/L	106	80.0	120	----
Total Metals (QCLot: 2218015)									
Aluminum, total	7429-90-5	E420	0.003	mg/L	2 mg/L	110	80.0	120	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	1 mg/L	100	80.0	120	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	1 mg/L	106	80.0	120	----
Barium, total	7440-39-3	E420	0.0001	mg/L	0.25 mg/L	108	80.0	120	----
Beryllium, total	7440-41-7	E420	0.00002	mg/L	0.1 mg/L	98.2	80.0	120	----
Bismuth, total	7440-69-9	E420	0.00005	mg/L	1 mg/L	99.1	80.0	120	----
Boron, total	7440-42-8	E420	0.01	mg/L	1 mg/L	92.6	80.0	120	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	0.1 mg/L	98.2	80.0	120	----
Calcium, total	7440-70-2	E420	0.05	mg/L	50 mg/L	97.4	80.0	120	----
Cesium, total	7440-46-2	E420	0.00001	mg/L	0.05 mg/L	98.3	80.0	120	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	0.25 mg/L	105	80.0	120	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	0.25 mg/L	102	80.0	120	----
Copper, total	7440-50-8	E420	0.0005	mg/L	0.25 mg/L	102	80.0	120	----
Iron, total	7439-89-6	E420	0.01	mg/L	1 mg/L	105	80.0	120	----
Lead, total	7439-92-1	E420	0.00005	mg/L	0.5 mg/L	100	80.0	120	----
Lithium, total	7439-93-2	E420	0.001	mg/L	0.25 mg/L	97.4	80.0	120	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	50 mg/L	102	80.0	120	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Total Metals (QCLot: 2218015) - continued									
Manganese, total	7439-96-5	E420	0.0001	mg/L	0.25 mg/L	103	80.0	120	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	0.25 mg/L	100	80.0	120	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	0.5 mg/L	101	80.0	120	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	10 mg/L	107	80.0	120	----
Potassium, total	7440-09-7	E420	0.05	mg/L	50 mg/L	100	80.0	120	----
Rubidium, total	7440-17-7	E420	0.0002	mg/L	0.1 mg/L	106	80.0	120	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	1 mg/L	103	80.0	120	----
Silicon, total	7440-21-3	E420	0.1	mg/L	10 mg/L	110	80.0	120	----
Silver, total	7440-22-4	E420	0.00001	mg/L	0.1 mg/L	94.3	80.0	120	----
Sodium, total	7440-23-5	E420	0.05	mg/L	50 mg/L	108	80.0	120	----
Strontium, total	7440-24-6	E420	0.0002	mg/L	0.25 mg/L	102	80.0	120	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	50 mg/L	97.7	80.0	120	----
Tellurium, total	13494-80-9	E420	0.0002	mg/L	0.1 mg/L	103	80.0	120	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	1 mg/L	98.6	80.0	120	----
Thorium, total	7440-29-1	E420	0.0001	mg/L	0.1 mg/L	96.8	80.0	120	----
Tin, total	7440-31-5	E420	0.0001	mg/L	0.5 mg/L	97.2	80.0	120	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	0.25 mg/L	97.1	80.0	120	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	0.1 mg/L	99.6	80.0	120	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	0.005 mg/L	101	80.0	120	----
Vanadium, total	7440-62-2	E420	0.0005	mg/L	0.5 mg/L	104	80.0	120	----
Zinc, total	7440-66-6	E420	0.003	mg/L	0.5 mg/L	101	80.0	120	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	0.1 mg/L	95.2	80.0	120	----
Total Metals (QCLot: 2230542)									
Mercury, total	7439-97-6	E508	0.000005	mg/L	0 mg/L	94.7	80.0	120	----
Total Metals (QCLot: 2230544)									
Mercury, total	7439-97-6	E508	0.000005	mg/L	0 mg/L	93.7	80.0	120	----
Dissolved Metals (QCLot: 2219685)									
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	2 mg/L	104	80.0	120	----
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	1 mg/L	101	80.0	120	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	1 mg/L	102	80.0	120	----
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	0.25 mg/L	108	80.0	120	----
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	0.1 mg/L	101	80.0	120	----
Bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	1 mg/L	99.8	80.0	120	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	1 mg/L	90.8	80.0	120	----
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	0.1 mg/L	99.0	80.0	120	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Dissolved Metals (QCLot: 2219685) - continued									
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	50 mg/L	97.5	80.0	120	----
Cesium, dissolved	7440-46-2	E421	0.00001	mg/L	0.05 mg/L	97.8	80.0	120	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	0.25 mg/L	106	80.0	120	----
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	0.25 mg/L	98.9	80.0	120	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	0.25 mg/L	101	80.0	120	----
Iron, dissolved	7439-89-6	E421	0.01	mg/L	1 mg/L	103	80.0	120	----
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	0.5 mg/L	98.7	80.0	120	----
Lithium, dissolved	7439-93-2	E421	0.001	mg/L	0.25 mg/L	96.8	80.0	120	----
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	50 mg/L	102	80.0	120	----
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	0.25 mg/L	102	80.0	120	----
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	0.25 mg/L	100	80.0	120	----
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	0.5 mg/L	101	80.0	120	----
Phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	10 mg/L	107	80.0	120	----
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	50 mg/L	101	80.0	120	----
Rubidium, dissolved	7440-17-7	E421	0.0002	mg/L	0.1 mg/L	102	80.0	120	----
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	1 mg/L	105	80.0	120	----
Silicon, dissolved	7440-21-3	E421	0.05	mg/L	10 mg/L	111	80.0	120	----
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	0.1 mg/L	94.0	80.0	120	----
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	50 mg/L	108	80.0	120	----
Strontium, dissolved	7440-24-6	E421	0.0002	mg/L	0.25 mg/L	103	80.0	120	----
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	50 mg/L	92.6	80.0	120	----
Tellurium, dissolved	13494-80-9	E421	0.0002	mg/L	0.1 mg/L	97.7	80.0	120	----
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	1 mg/L	96.8	80.0	120	----
Thorium, dissolved	7440-29-1	E421	0.0001	mg/L	0.1 mg/L	94.3	80.0	120	----
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	0.5 mg/L	100	80.0	120	----
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	0.25 mg/L	92.0	80.0	120	----
Tungsten, dissolved	7440-33-7	E421	0.0001	mg/L	0.1 mg/L	98.1	80.0	120	----
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	0.005 mg/L	101	80.0	120	----
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	0.5 mg/L	105	80.0	120	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	0.5 mg/L	98.3	80.0	120	----
Zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	0.1 mg/L	97.4	80.0	120	----
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0 mg/L	93.1	80.0	120	----
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0 mg/L	95.6	80.0	120	----

Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for the associated sample (or similar samples) may be subject to bias. ND – Recovery not determined, background level >= 1x spike level.

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Anions and Nutrients (QCLot: 2217478)										
VA25C3911-002	MW99-1(D)(E240501)	Fluoride	16984-48-8	E235.F	5.39 mg/L	5 mg/L	108	75.0	125	----
Anions and Nutrients (QCLot: 2217479)										
VA25C3911-002	MW99-1(D)(E240501)	Chloride	16887-00-6	E235.Cl	517 mg/L	500 mg/L	103	75.0	125	----
Anions and Nutrients (QCLot: 2217480)										
VA25C3911-002	MW99-1(D)(E240501)	Bromide	24959-67-9	E235.Br-L	2.87 mg/L	2.5 mg/L	115	75.0	125	----
Anions and Nutrients (QCLot: 2217481)										
VA25C3911-002	MW99-1(D)(E240501)	Nitrate (as N)	14797-55-8	E235.NO3-L	12.9 mg/L	12.5 mg/L	103	75.0	125	----
Anions and Nutrients (QCLot: 2217482)										
VA25C3911-002	MW99-1(D)(E240501)	Nitrite (as N)	14797-65-0	E235.NO2-L	2.55 mg/L	2.5 mg/L	102	75.0	125	----
Anions and Nutrients (QCLot: 2217483)										
VA25C3911-002	MW99-1(D)(E240501)	Sulfate (as SO4)	14808-79-8	E235.SO4	511 mg/L	500 mg/L	102	75.0	125	----
Anions and Nutrients (QCLot: 2217484)										
VA25C3911-002	MW99-1(D)(E240501)	Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	ND mg/L	----	ND	70.0	130	----
Anions and Nutrients (QCLot: 2222358)										
VA25C3911-002	MW99-1(D)(E240501)	Ammonia, total (as N)	7664-41-7	E298	ND mg/L	----	ND	75.0	125	----
Anions and Nutrients (QCLot: 2222359)										
VA25C3911-002	MW99-1(D)(E240501)	Kjeldahl nitrogen, total [TKN]	----	E318	2.47 mg/L	2.5 mg/L	98.9	70.0	130	----
Organic / Inorganic Carbon (QCLot: 2222360)										
VA25C3911-002	MW99-1(D)(E240501)	Carbon, total organic [TOC]	----	E355-L	5.51 mg/L	5 mg/L	110	70.0	130	----
Organic / Inorganic Carbon (QCLot: 2222361)										
VA25C3911-015	Spillway Outlet(E335952)	Carbon, dissolved organic [DOC]	----	E358-L	5.58 mg/L	5 mg/L	112	70.0	130	----
Total Sulfides (QCLot: 2217507)										
VA25C3911-015	Spillway Outlet(E335952)	Sulfide, total (as S)	18496-25-8	E395-H	0.990 mg/L	1 mg/L	99.0	75.0	125	----
Total Sulfides (QCLot: 2221393)										
VA25C3911-001	MW99-1(S)(E275563)	Sulfide, total (as S)	18496-25-8	E395-H	1.00 mg/L	1 mg/L	100	75.0	125	----
Total Sulfides (QCLot: 2221410)										
KS2503728-001	Anonymous	Sulfide, total (as S)	18496-25-8	E395-H	4.00 mg/L	5 mg/L	80.1	75.0	125	----
Total Sulfides (QCLot: 2224029)										
VA25C3556-002	Anonymous	Sulfide, total (as S)	18496-25-8	E395-H	0.982 mg/L	1 mg/L	98.2	75.0	125	----
Total Metals (QCLot: 2218015)										

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Total Metals (QCLot: 2218015) - continued										
VA25C3911-002	MW99-1(D)(E240501)	Aluminum, total	7429-90-5	E420	ND mg/L	----	ND	70.0	130	----
		Antimony, total	7440-36-0	E420	0.0184 mg/L	0.02 mg/L	92.2	70.0	130	----
		Arsenic, total	7440-38-2	E420	0.0190 mg/L	0.02 mg/L	95.2	70.0	130	----
		Barium, total	7440-39-3	E420	ND mg/L	----	ND	70.0	130	----
		Beryllium, total	7440-41-7	E420	0.0372 mg/L	0.04 mg/L	93.0	70.0	130	----
		Bismuth, total	7440-69-9	E420	0.00844 mg/L	0.01 mg/L	84.4	70.0	130	----
		Boron, total	7440-42-8	E420	ND mg/L	----	ND	70.0	130	----
		Cadmium, total	7440-43-9	E420	0.00360 mg/L	0.004 mg/L	89.9	70.0	130	----
		Calcium, total	7440-70-2	E420	ND mg/L	----	ND	70.0	130	----
		Cesium, total	7440-46-2	E420	0.00890 mg/L	0.01 mg/L	89.0	70.0	130	----
		Chromium, total	7440-47-3	E420	0.0422 mg/L	0.04 mg/L	106	70.0	130	----
		Cobalt, total	7440-48-4	E420	0.0183 mg/L	0.02 mg/L	91.7	70.0	130	----
		Copper, total	7440-50-8	E420	ND mg/L	----	ND	70.0	130	----
		Iron, total	7439-89-6	E420	1.90 mg/L	2 mg/L	95.2	70.0	130	----
		Lead, total	7439-92-1	E420	0.0172 mg/L	0.02 mg/L	86.2	70.0	130	----
		Lithium, total	7439-93-2	E420	ND mg/L	----	ND	70.0	130	----
		Magnesium, total	7439-95-4	E420	ND mg/L	----	ND	70.0	130	----
		Manganese, total	7439-96-5	E420	ND mg/L	----	ND	70.0	130	----
		Molybdenum, total	7439-98-7	E420	0.0189 mg/L	0.02 mg/L	94.6	70.0	130	----
		Nickel, total	7440-02-0	E420	0.0376 mg/L	0.04 mg/L	94.1	70.0	130	----
		Phosphorus, total	7723-14-0	E420	10.2 mg/L	10 mg/L	102	70.0	130	----
		Potassium, total	7440-09-7	E420	ND mg/L	----	ND	70.0	130	----
		Rubidium, total	7440-17-7	E420	0.0190 mg/L	0.02 mg/L	94.8	70.0	130	----
		Selenium, total	7782-49-2	E420	0.0354 mg/L	0.04 mg/L	88.5	70.0	130	----
		Silicon, total	7440-21-3	E420	ND mg/L	----	ND	70.0	130	----
		Silver, total	7440-22-4	E420	0.00716 mg/L	0.008 mg/L	89.5	70.0	130	----
		Sodium, total	7440-23-5	E420	ND mg/L	----	ND	70.0	130	----
		Strontium, total	7440-24-6	E420	ND mg/L	----	ND	70.0	130	----
		Sulfur, total	7704-34-9	E420	19.6 mg/L	20 mg/L	98.0	70.0	130	----
		Tellurium, total	13494-80-9	E420	0.0345 mg/L	0.04 mg/L	86.3	70.0	130	----
		Thallium, total	7440-28-0	E420	0.00332 mg/L	0.004 mg/L	83.0	70.0	130	----
		Thorium, total	7440-29-1	E420	0.0251 mg/L	0.04 mg/L	62.8	70.0	130	MES
		Tin, total	7440-31-5	E420	0.0185 mg/L	0.02 mg/L	92.7	70.0	130	----
		Titanium, total	7440-32-6	E420	0.0380 mg/L	0.04 mg/L	95.1	70.0	130	----
		Tungsten, total	7440-33-7	E420	0.0183 mg/L	0.02 mg/L	91.7	70.0	130	----
		Uranium, total	7440-61-1	E420	0.00371 mg/L	0.004 mg/L	92.7	70.0	130	----
		Vanadium, total	7440-62-2	E420	0.100 mg/L	0.1 mg/L	100	70.0	130	----
		Zinc, total	7440-66-6	E420	0.349 mg/L	0.4 mg/L	87.3	70.0	130	----
		Zirconium, total	7440-67-7	E420	0.0370 mg/L	0.04 mg/L	92.6	70.0	130	----
Total Metals (QCLot: 2230542)										
KS2503698-001	Anonymous	Mercury, total	7439-97-6	E508	0.0000903 mg/L	0 mg/L	90.3	70.0	130	----
Total Metals (QCLot: 2230544)										
VA25C3976-001	Anonymous	Mercury, total	7439-97-6	E508	0.0000924 mg/L	0 mg/L	92.4	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Dissolved Metals (QCLot: 2219685)										
VA25C3911-002	MW99-1(D)(E240501)	Aluminum, dissolved	7429-90-5	E421	0.202 mg/L	0.2 mg/L	101	70.0	130	----
		Antimony, dissolved	7440-36-0	E421	0.0198 mg/L	0.02 mg/L	99.0	70.0	130	----
		Arsenic, dissolved	7440-38-2	E421	0.0207 mg/L	0.02 mg/L	104	70.0	130	----
		Barium, dissolved	7440-39-3	E421	ND mg/L	----	ND	70.0	130	----
		Beryllium, dissolved	7440-41-7	E421	0.0378 mg/L	0.04 mg/L	94.6	70.0	130	----
		Bismuth, dissolved	7440-69-9	E421	0.00870 mg/L	0.01 mg/L	87.0	70.0	130	----
		Boron, dissolved	7440-42-8	E421	ND mg/L	----	ND	70.0	130	----
		Cadmium, dissolved	7440-43-9	E421	0.00369 mg/L	0.004 mg/L	92.2	70.0	130	----
		Calcium, dissolved	7440-70-2	E421	ND mg/L	----	ND	70.0	130	----
		Cesium, dissolved	7440-46-2	E421	0.00954 mg/L	0.01 mg/L	95.4	70.0	130	----
		Chromium, dissolved	7440-47-3	E421	0.0401 mg/L	0.04 mg/L	100	70.0	130	----
		Cobalt, dissolved	7440-48-4	E421	0.0189 mg/L	0.02 mg/L	94.6	70.0	130	----
		Copper, dissolved	7440-50-8	E421	ND mg/L	----	ND	70.0	130	----
		Iron, dissolved	7439-89-6	E421	1.91 mg/L	2 mg/L	95.7	70.0	130	----
		Lead, dissolved	7439-92-1	E421	0.0183 mg/L	0.02 mg/L	91.6	70.0	130	----
		Lithium, dissolved	7439-93-2	E421	ND mg/L	----	ND	70.0	130	----
		Magnesium, dissolved	7439-95-4	E421	ND mg/L	----	ND	70.0	130	----
		Manganese, dissolved	7439-96-5	E421	ND mg/L	----	ND	70.0	130	----
		Molybdenum, dissolved	7439-98-7	E421	0.0203 mg/L	0.02 mg/L	102	70.0	130	----
		Nickel, dissolved	7440-02-0	E421	0.0369 mg/L	0.04 mg/L	92.3	70.0	130	----
		Phosphorus, dissolved	7723-14-0	E421	10.5 mg/L	10 mg/L	105	70.0	130	----
		Potassium, dissolved	7440-09-7	E421	ND mg/L	----	ND	70.0	130	----
		Rubidium, dissolved	7440-17-7	E421	0.0206 mg/L	0.02 mg/L	103	70.0	130	----
		Selenium, dissolved	7782-49-2	E421	0.0394 mg/L	0.04 mg/L	98.6	70.0	130	----
		Silicon, dissolved	7440-21-3	E421	9.87 mg/L	10 mg/L	98.7	70.0	130	----
		Silver, dissolved	7440-22-4	E421	0.00379 mg/L	0.004 mg/L	94.7	70.0	130	----
		Sodium, dissolved	7440-23-5	E421	ND mg/L	----	ND	70.0	130	----
		Strontium, dissolved	7440-24-6	E421	ND mg/L	----	ND	70.0	130	----
		Sulfur, dissolved	7704-34-9	E421	21.5 mg/L	20 mg/L	108	70.0	130	----
		Tellurium, dissolved	13494-80-9	E421	0.0380 mg/L	0.04 mg/L	94.9	70.0	130	----
		Thallium, dissolved	7440-28-0	E421	0.00354 mg/L	0.004 mg/L	88.4	70.0	130	----
		Thorium, dissolved	7440-29-1	E421	0.0113 mg/L	0.02 mg/L	56.4	70.0	130	MS-Th
		Tin, dissolved	7440-31-5	E421	0.0192 mg/L	0.02 mg/L	95.8	70.0	130	----
		Titanium, dissolved	7440-32-6	E421	0.0392 mg/L	0.04 mg/L	98.1	70.0	130	----
		Tungsten, dissolved	7440-33-7	E421	0.0192 mg/L	0.02 mg/L	96.2	70.0	130	----
		Uranium, dissolved	7440-61-1	E421	0.00383 mg/L	0.004 mg/L	95.9	70.0	130	----
		Vanadium, dissolved	7440-62-2	E421	0.102 mg/L	0.1 mg/L	102	70.0	130	----
		Zinc, dissolved	7440-66-6	E421	0.376 mg/L	0.4 mg/L	93.9	70.0	130	----
		Zirconium, dissolved	7440-67-7	E421	0.0396 mg/L	0.04 mg/L	99.1	70.0	130	----
Dissolved Metals (QCLot: 2230583)										
KS2503733-002	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000935 mg/L	0 mg/L	93.5	70.0	130	----
Dissolved Metals (QCLot: 2230584)										
VA25C3911-011	S-MW-2(E221703)	Mercury, dissolved	7439-97-6	E509	0.0000930 mg/L	0 mg/L	93.0	70.0	130	----

Qualifiers

Qualifier	Description
MES	Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).
MS-Th	Matrix Spike recovery for thorium was marginally below DQO (40 to <60%) due to its instability in the sample matrix. Thorium was not detected. Reported result (< LOR) is reliable

Chain of Custody (COC) / Analytical Request Form

COC Number: 22 - 20250911-1

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Canada Toll Free: 1 800 668 9878

Environmental Division Vancouver
Work Order Reference
VA25C3911

Telephone : +1 604 253 4188

Report To	Contact and company name below will appear on the final report	Reports / Recipients	Turnaround Time (TAT) Requested
Company:	Masse Environmental	Select Report Format: ☑ PDF ☑ EXCEL ☑ EDD (DIGITAL)	☑ Routine [R] If received by 3pm M-F - no surcharges apply
Contact:	Ico deZwart	Merge QC/QCI Reports with COA ☑ YES ☐ NO ☐ N/A	☐ 4 day [P4] if received by 3pm M-F - 20% rush surcharge minimul
Phone:		☐ Compare Results to Criteria on Report - provide details below if box checked	☐ 3 day [P3] if received by 3pm M-F - 25% rush surcharge minim
	Company address below will appear on the final report	Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX	☐ 2 day [P2] if received by 3pm M-F - 50% rush surcharge minim
Street:	812 Vernon St.	Email 1 or Fax ico@masseenvironmental.com	☐ 1 day [E] if received by 3pm M-F - 100% rush surcharge minim
City/Province:	Nelson, BC	Email 2 chris@masseenvironmental.com	☐ Same day [E2] if received by 10am M-S - 200% rush surcharge
Postal Code:	V1L4G4	Email 3 jenn@masseenvironmental.com	Additional fees may apply to rush requests on weekend
Invoice To	Same as Report To ☑ YES ☐ NO	Invoice Recipients	Date and Time Required for all E&P TATs:
	Copy of Invoice with Report ☑ YES ☐ NO	Select Invoice Distribution: ☑ EMAIL ☐ MAIL ☐ FAX	For all tests with rush TATs requested, please c
Company:		Email 1 or Fax lise@masseenvironmental.com	Analysis Re
Contact:		Email 2	

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	VA24-MASS200-001	AFE/Cost Center:	PO#
Job #:	2016-503 - HB	Major/Minor Code:	Routing Code:
PO / AFE:		Requisitioner:	
LSD:		Location:	

ALS Lab Work Order # (ALS use only):	ALS Contact:	Sampler: C.Stephanou

ALS Sample # (ALS use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below: pH, cond,TSS,TDS,total alk,hardness	Chloride, bromide, fluoride, sulfate	Ammonia, TKN, nitrate, nitrite	TOC	F: Dissolved Metals (incl Hg)	Total Metals (incl Hg)	P: Orthophosphate	Total Sulphide	SAMPLES ON HOLD	EXTENDED STORAGE REQUIRE	SUSPECTED HAZARD (see note
	MW99-1(S) (E275563)	09-Sep-25	15:17	GW	7	R	R	R	R	R	R	R	R			
	MW99-1(D) (E240501)	09-Sep-25	15:50	GW	7	R	R	R	R	R	R	R	R			
	MW99-2(S) (E275543)	10-Sep-25	10:12	GW	7	R	R	R	R	R	R	R	R			
	MW99-2(D) (E240502)	10-Sep-25	10:35	GW	7	R	R	R	R	R	R	R	R			
	MW-05-01 (E252593)	09-Sep-25	09:21	GW	7	R	R	R	R	R	R	R	R			
	MW-01-2004(S) (E303722)	09-Sep-25	11:48	GW	7	R	R	R	R	R	R	R	R			
	MW-01-2004(D) (E303723)	09-Sep-25	11:25	GW	7	R	R	R	R	R	R	R	R			
	MW-04S-05 (E266349)	10-Sep-25	11:10	GW	7	R	R	R	R	R	R	R	R			
	MW-06-01 (E252594)	10-Sep-25	17:04	GW	7	R	R	R	R	R	R	R	R			
	S-MW-1 (E221702)	10-Sep-25	09:21	GW	7	R	R	R	R	R	R	R	R			
	S-MW-2 (E221703)	09-Sep-25	13:30	GW	7	R	R	R	R	R	R	R	R			

Drinking Water (DW) Samples[1] (client use)	Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only)
Are samples taken from a Regulated DW System? ☐ YES ☐ NO	
Are samples for human consumption/ use? ☐ YES ☐ NO	

SAMPLE RECEIPT DETAILS (ALS use only)

Cooling Method: ☐ NONE ☐ ICE ☑ ICE PACKS ☐ FROZEN ☐ COOLING INITIATED

Submission Comments identified on Sample Receipt Notification: ☐ YES ☐ NO

Cooler Custody Seals Intact: ☐ YES ☐ N/A Sample Custody Seals Intact: ☐ YES ☑ N/A

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
				7.5	8	9	

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (ALS use only)			FINAL SHIPMENT RECEPTION (ALS use only)		
Released by: C.Stephanou	Date: 11-Sep-2025	Time: 11:00	Received by:	Date:	Time:	Received by: DJ	Date: Sep 12/25	Time: 11:55

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION WHITE - LABORATORY COPY YELLOW - CLIENT COPY

FEB 2022 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form.**

Chain of Custody (COC) / Analytical Request Form

COC Number: 22 - 1015 0911-2

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Canada Toll Free: 1 800 668 9878

Report To	Contact and company name below will appear on the final report
Company:	Masse Environmental
Contact:	Ico deZwart
Phone:	
	Company address below will appear on the final report
Street:	812 Vernon St.
City/Province:	Nelson, BC
Postal Code:	V1L4G4
Invoice To	Same as Report To ☑ YES ☐ NO
	Copy of Invoice with Report ☑ YES ☐ NO
Company:	
Contact:	

Reports / Recipients	
Select Report Format:	☑ PDF ☑ EXCEL ☑ EDD (DIGITAL)
Merge QC/QCI Reports with COA	☑ YES ☐ NO ☐ N/A
☐ Compare Results to Criteria on Report - provide details below if box checked	
Select Distribution:	☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	ico@masseenvironmental.com
Email 2	chris@masseenvironmental.com
Email 3	jenn@masseenvironmental.com
Invoice Recipients	
Select Invoice Distribution:	☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	lise@masseenvironmental.com
Email 2	

Turnaround Time (TAT) Requested
☑ Routine [R] if received by 3pm M-F - no surcharges apply
☐ 4 day [P4] if received by 3pm M-F - 20% rush surcharge minimum
☐ 3 day [P3] if received by 3pm M-F - 25% rush surcharge minimum
☐ 2 day [P2] if received by 3pm M-F - 50% rush surcharge minimum
☐ 1 day [E] if received by 3pm M-F - 100% rush surcharge minimum
☐ Same day [E2] if received by 10am M-S - 200% rush surcharge.

AFFIX ALS BARCODE LABEL HERE (ALS use only)

Additional fees may apply to rush requests on weekends, statutory holidays and for non-routine tests.

Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm am/pm

For all tests with rush TATs requested, please contact your AM to confirm availability.

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	VA24-MASS200-001	AFE/Cost Center:	PO#
Job #:	2016-503 - HB	Major/Minor Code:	Routing Code:
PO / AFE:		Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (ALS use only):		ALS Contact:	Sampler: C:Stephanou

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (ALS use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	pH, cond, TSS, TDS, total alk, hardness	Chloride, bromide, fluoride, sulfate	Ammonia, TKN, nitrate, nitrite	TOC	Dissolved Metals (incl Hg) F	Total Metals (incl Hg)	Orthophosphate P	Total Sulphide	SAMPLES ON HOLD	EXTENDED STORAGE REQUIRED	SUSPECTED HAZARD (see notes)
	GW Duplicate	10-Sep-25	11:10	GW	7	R	R	R	R	R	R	R	R			
	Field Blank	10-Sep-25	12:30	GW	7	R	R	R	R	R	R	R	R			

Drinking Water (DW) Samples[1] (client use)	Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only)
Are samples taken from a Regulated DW System? ☐ YES ☐ NO	
Are samples for human consumption/ use? ☐ YES ☐ NO	

SAMPLE RECEIPT DETAILS (ALS use only)

Cooling Method: ☐ NONE ☐ ICE ☐ ICE PACKS ☐ FROZEN ☐ COOLING INITIATED

Submission Comments identified on Sample Receipt Notification: ☐ YES ☐ NO

Cooler Custody Seals Intact: ☐ YES ☐ N/A Sample Custody Seals Intact: ☐ YES ☐ N/A

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (ALS use only)			FINAL SHIPMENT RECEPTION (ALS use only)		
Released by: C. Stephanou	Date: 11-Sep-2025	Time: 1000	Received by:	Date:	Time:	Received by:	Date:	Time:

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

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Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

Chain of Custody (COC) / Analytical Request Form

COC Number: 22 - 20250911-3

Page 3 of 3

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Canada Toll Free: 1 800 668 9878

Report To	Contact and company name below will appear on the final report
Company:	Masse Environmental
Contact:	Ico deZwart
Phone:	
	Company address below will appear on the final report
Street:	812 Vernon St.
City/Province:	Nelson, BC
Postal Code:	V1L4G4
Invoice To	Same as Report To ☑ YES ☐ NO
	Copy of Invoice with Report ☑ YES ☐ NO
Company:	
Contact:	

Reports / Recipients	
Select Report Format:	☑ PDF ☑ EXCEL ☑ EDD (DIGITAL)
Merge QC/QCI Reports with COA	☑ YES ☐ NO ☐ N/A
☐ Compare Results to Criteria on Report - provide details below if box checked	
Select Distribution:	☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	ico@masseenvironmental.com
Email 2	chris@masseenvironmental.com
Email 3	jenn@masseenvironmental.com
Invoice Recipients	
Select Invoice Distribution:	☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	lise@masseenvironmental.com
Email 2	

Turnaround Time (TAT) Requested
☑ Routine [R] if received by 3pm M-F - no surcharges apply
☐ 4 day [P4] if received by 3pm M-F - 20% rush surcharge minimum
☐ 3 day [P3] if received by 3pm M-F - 25% rush surcharge minimum
☐ 2 day [P2] if received by 3pm M-F - 50% rush surcharge minimum
☐ 1 day [E] if received by 3pm M-F - 100% rush surcharge minimum
☐ Same day [E2] if received by 10am M-S - 200% rush surcharge.

AFFIX ALS BARCODE LABEL HERE (ALS use only)

Additional fees may apply to rush requests on weekends, statutory holidays and for non-routine tests.

Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm am/pm

For all tests with rush TATs requested, please contact your AM to confirm availability.

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	VA24-MASS200-001	AFE/Cost Center:	PO#:
Job #:	2016-503 - HB	Major/Minor Code:	Routing Code:
PO / AFE:		Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (ALS use only):		ALS Contact:	Sampler: C.Stephanou

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (ALS use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	pH, cond, TSS, TDS, total alk, hardness	Chloride, bromide, fluoride, sulfate	Ammonia, TKN, nitrate, nitrite	TOC	DOC (F/P)	Dissolved Metals (incl Hg) (F)	Total Metals (incl Hg)	Orthophosphate (P)	Total Sulphide	SAMPLES ON HOLD	EXTENDED STORAGE REQUIRED	SUSPECTED HAZARD (see notes)
	~~SW1-07 (E303730)~~			~~SW~~	~~8~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~			
	~~SW2-07 (E303731)~~			~~SW~~	~~8~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~			
	~~SW3-07 (E303732)~~			~~SW~~	~~8~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~			
	~~SW5-19 (E305948)~~			~~SW~~	~~8~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~			
	Seepage Weir (E335950)	08-Sep-25	11:15	SW	8	R	R	R	R	R	R	R	R	R			
	~~Spillway Inlet (E335951)~~			~~SW~~	~~8~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~			
	Spillway Outlet (E335952)	08-Sep-25	11:10	SW	8	R	R	R	R	R	R	R	R	R			
	~~Outlet Ditch (E252683)~~			~~SW~~	~~8~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~			

Drinking Water (DW) Samples[1] (client use)	Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only)
Are samples taken from a Regulated DW System? ☐ YES ☐ NO	
Are samples for human consumption/ use? ☐ YES ☐ NO	

SAMPLE RECEIPT DETAILS (ALS use only)

Cooling Method: ☐ NONE ☐ ICE ☐ ICE PACKS ☐ FROZEN ☐ COOLING INITIATED

Submission Comments identified on Sample Receipt Notification: ☐ YES ☐ NO

Cooler Custody Seals Intact: ☐ YES ☐ N/A Sample Custody Seals Intact: ☐ YES ☐ N/A

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (ALS use only)			FINAL SHIPMENT RECEPTION (ALS use only)		
Released by: C. Stephanou	Date: 11-Sep-2025	Time: 11:00	Received by:	Date:	Time:	Received by:	Date:	Time:

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1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

CERTIFICATE OF ANALYSIS

Work Order	:	**VA25C9760**		
Client	:	**Masse Environmental Consultants Ltd.**	Laboratory	: ALS Environmental - Vancouver
Contact	:	Ico de Zwart	Account Manager	: Can Dang
Address	:	812 Vernon Street Nelson British Columbia Canada V1L 4G4	Address	: 8081 Lougheed Highway Burnaby BC Canada V5A 1W9
Telephone	:	----	E-mail	: Can.Dang@ALSGlobal.com
Project	:	2016-503-HB	Telephone	: +1 604 253 4188
PO	:	----	Date Samples Received	: 06-Nov-2025 12:50
C-O-C number	:	22-20251104-GW	Date Analysis Commenced	: 07-Nov-2025
Sampler	:	C.Stephanou	Issue Date	: 17-Nov-2025 10:38
Site	:	RDCK		
Quote number	:	----		
No. of samples received	:	11		
No. of samples analysed	:	11		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Angelo Salandanan	Lab Assistant	Metals, Burnaby, British Columbia
Jaewook Lee	Lab Assistant	Metals, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia
Kim Jensen	Department Manager - Metals	Metals, Burnaby, British Columbia
Miles Gropen	Department Manager - Inorganics	Inorganics, Burnaby, British Columbia
Monica Ko	Supervisor - Inorganic	Inorganics, Burnaby, British Columbia
Rebecca Sit	Supervisor - Organics Extractions	Inorganics, Burnaby, British Columbia

General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Please refer to Quality Control Interpretive report (QCI) for information regarding Holding Time compliance.

Key: CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances.
LOR: Limit of Reporting (detection limit).

Unit	*Description*
-	no units
mg/L	milligrams per litre
pH units	pH units
µg/L	micrograms per litre
µS/cm	microsiemens per centimetre

<: less than.
>: greater than.
Surrogate: An analyte that is similar in behavior to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED on SRN or QCI Report, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Qualifiers

Qualifier	Description
DLA	Detection Limit adjusted for required dilution.
DLDS	Detection Limit Raised: Dilution required due to high Dissolved Solids / Electrical Conductivity.

Analytical Results

Sub-Matrix: Groundwater
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MW99-1(S) (E275563) ----	MW99-1(D) (E240501) ----	MW99-2(S) (E275543) ----	MW99-2(D) (E240502) ----	MW-05-01 (E252593) ----
					Client sampling date / time	04-Nov-2025 09:30	04-Nov-2025 10:40	04-Nov-2025 13:43	04-Nov-2025 13:57	03-Nov-2025 14:24
						VA25C9760-001	VA25C9760-002	VA25C9760-003	VA25C9760-004	VA25C9760-005
						Result	Result	Result	Result	Result
Physical Tests										
Alkalinity, total (as CaCO3)	----	E290/VA	1.0	mg/L		92.9	387	306	285	115
Conductivity	----	E100/VA	2.0	µS/cm		248	817	779	617	234
Hardness (as CaCO3), dissolved	----	EC100/VA	0.60	mg/L		115	185	413	336	115
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/VA	0.60	mg/L		131	191	442	355	128
pH	----	E108/VA	0.10	pH units		7.04	7.90	7.01	7.89	7.78
Solids, total dissolved [TDS]	----	E162/VA	10	mg/L		188	495	553	409	169
Solids, total suspended [TSS]	----	E160/VA	3.0	mg/L		51.7	6.1	20.5	7.3	96.3
Anions and Nutrients										
Ammonia, total (as N)	7664-41-7	E298/VA	0.0050	mg/L		0.478	1.65	0.0618	0.0308	<0.0050
Bromide	24959-67-9	E235.Br-L/VA	0.050	mg/L		<0.050	<0.250 DLDS	<0.250 DLDS	<0.050	<0.050
Chloride	16887-00-6	E235.Cl/VA	0.50	mg/L		1.36	7.52	<2.50 DLDS	<0.50	<0.50
Fluoride	16984-48-8	E235.F/VA	0.020	mg/L		0.114	0.512	<0.100 DLDS	0.168	0.266
Kjeldahl nitrogen, total [TKN]	----	E318/VA	0.050	mg/L		0.542	1.67	0.198	0.084	<0.050
Nitrate (as N)	14797-55-8	E235.NO3-L/VA	0.0050	mg/L		<0.0050	<0.0250 DLDS	<0.0250 DLDS	0.0575	0.0189
Nitrite (as N)	14797-65-0	E235.NO2-L/VA	0.0010	mg/L		<0.0010	<0.0050 DLDS	<0.0050 DLDS	<0.0010	<0.0010
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U/VA	0.0010	mg/L		0.0123	0.0844	<0.0010	0.0016	0.0088
Sulfate (as SO4)	14808-79-8	E235.SO4/VA	0.30	mg/L		37.1	44.0	134	72.6	14.2
Organic / Inorganic Carbon										
Carbon, total organic [TOC]	----	E355-L/VA	0.50	mg/L		2.05	<0.50	4.42	0.68	<0.50
Total Sulfides										
Sulfide, total (as H2S)	7783-06-4	E395-H/VA	0.011	mg/L		<0.011	<0.011	<0.011	<0.011	<0.011

Analytical Results

Sub-Matrix: Groundwater
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MW99-1(S) (E275563) ----	MW99-1(D) (E240501) ----	MW99-2(S) (E275543) ----	MW99-2(D) (E240502) ----	MW-05-01 (E252593) ----
					Client sampling date / time	04-Nov-2025 09:30	04-Nov-2025 10:40	04-Nov-2025 13:43	04-Nov-2025 13:57	03-Nov-2025 14:24
						VA25C9760-001	VA25C9760-002	VA25C9760-003	VA25C9760-004	VA25C9760-005
						Result	Result	Result	Result	Result
Total Sulfides										
Sulfide, total (as S)	18496-25-8	E395-H/VA	0.010	mg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Total Metals										
Aluminum, total	7429-90-5	E420/VA	3.0	µg/L		31.1	98.9	33.9	36.3	1890
Antimony, total	7440-36-0	E420/VA	0.10	µg/L		0.12	0.54	<0.20 DLA	<0.10	0.14
Arsenic, total	7440-38-2	E420/VA	0.10	µg/L		0.97	0.37	17.6	1.73	2.13
Barium, total	7440-39-3	E420/VA	0.10	µg/L		455	75.5	88.0	58.7	40.6
Beryllium, total	7440-41-7	E420/VA	0.100	µg/L		<0.100	<0.100	<0.100	<0.100	<0.100
Bismuth, total	7440-69-9	E420/VA	0.050	µg/L		<0.050	<0.050	<0.100 DLA	<0.050	<0.050
Boron, total	7440-42-8	E420/VA	10	µg/L		30	154	<20 DLA	<10	<10
Cadmium, total	7440-43-9	E420/VA	0.0050	µg/L		0.0317	0.0149	0.0881	0.0245	0.0901
Calcium, total	7440-70-2	E420/VA	50	µg/L		38600	53600	138000	84300	35700
Cesium, total	7440-46-2	E420/VA	0.010	µg/L		0.025	4.75	0.134	0.830	0.482
Chromium, total	7440-47-3	E420/VA	0.50	µg/L		1.49	2.62	<1.00 DLA	<0.50	6.59
Cobalt, total	7440-48-4	E420/VA	0.10	µg/L		0.13	0.20	13.6	0.20	1.87
Copper, total	7440-50-8	E420/VA	0.50	µg/L		2.70	15.4	<1.00 DLA	0.63	4.94
Iron, total	7439-89-6	E420/VA	10	µg/L		21700	266	8360	3030	2820
Lead, total	7439-92-1	E420/VA	0.050	µg/L		0.369	0.193	3.02	0.741	3.30
Lithium, total	7439-93-2	E420/VA	1.0	µg/L		20.2	227	2.0	7.1	5.1
Magnesium, total	7439-95-4	E420/VA	5.0	µg/L		8400	13800	23600	35100	9340
Manganese, total	7439-96-5	E420/VA	0.10	µg/L		318	147	6730	95.8	99.3
Mercury, total	7439-97-6	E508/VA	0.0050	µg/L		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050

Analytical Results

Sub-Matrix: Groundwater
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MW99-1(S) (E275563) ----	MW99-1(D) (E240501) ----	MW99-2(S) (E275543) ----	MW99-2(D) (E240502) ----	MW-05-01 (E252593) ----
					Client sampling date / time	04-Nov-2025 09:30	04-Nov-2025 10:40	04-Nov-2025 13:43	04-Nov-2025 13:57	03-Nov-2025 14:24
						VA25C9760-001	VA25C9760-002	VA25C9760-003	VA25C9760-004	VA25C9760-005
						Result	Result	Result	Result	Result
Total Metals										
Molybdenum, total	7439-98-7	E420/VA	0.050	µg/L		0.241	0.786	1.21	0.270	1.01
Nickel, total	7440-02-0	E420/VA	0.50	µg/L		0.63	1.77	7.00	<0.50	5.42
Phosphorus, total	7723-14-0	E420/VA	50	µg/L		5660	152	<100 DLA	111	163
Potassium, total	7440-09-7	E420/VA	50	µg/L		1070	3920	2810	1100	1700
Rubidium, total	7440-17-7	E420/VA	0.20	µg/L		0.54	8.55	1.30	2.00	3.45
Selenium, total	7782-49-2	E420/VA	0.050	µg/L		<0.050	<0.050	<0.100 DLA	<0.050	0.164
Silicon, total	7440-21-3	E420/VA	100	µg/L		17100	8630	10000	11600	11000
Silver, total	7440-22-4	E420/VA	0.010	µg/L		0.016	<0.010	<0.020 DLA	<0.010	0.023
Sodium, total	7440-23-5	E420/VA	50	µg/L		4390	111000	3990	6710	4770
Strontium, total	7440-24-6	E420/VA	0.20	µg/L		270	734	452	602	343
Sulfur, total	7704-34-9	E420/VA	500	µg/L		13000	16300	46100	26500	5160
Tellurium, total	13494-80-9	E420/VA	0.20	µg/L		<0.20	<0.20	<0.40 DLA	<0.20	<0.20
Thallium, total	7440-28-0	E420/VA	0.010	µg/L		<0.010	<0.010	<0.020 DLA	<0.010	0.028
Thorium, total	7440-29-1	E420/VA	0.10	µg/L		<0.10	0.12	<0.20 DLA	<0.10	0.99
Tin, total	7440-31-5	E420/VA	0.10	µg/L		<0.10	<0.10	<0.20 DLA	0.48	0.12
Titanium, total	7440-32-6	E420/VA	0.30	µg/L		1.99	2.66	1.65	2.99	100
Tungsten, total	7440-33-7	E420/VA	0.10	µg/L		0.76	0.79	<0.20 DLA	0.11	0.10
Uranium, total	7440-61-1	E420/VA	0.010	µg/L		0.315	0.568	5.73	1.95	2.10
Vanadium, total	7440-62-2	E420/VA	0.50	µg/L		2.94	0.54	<1.00 DLA	0.76	7.02
Zinc, total	7440-66-6	E420/VA	3.0	µg/L		5.0	3.0	13.6	8.6	15.5
Zirconium, total	7440-67-7	E420/VA	0.20	µg/L		<0.20	<0.20	<0.40 DLA	<0.20	0.22

Analytical Results

Sub-Matrix: Groundwater
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MW99-1(S) (E275563) ----	MW99-1(D) (E240501) ----	MW99-2(S) (E275543) ----	MW99-2(D) (E240502) ----	MW-05-01 (E252593) ----
					Client sampling date / time	04-Nov-2025 09:30	04-Nov-2025 10:40	04-Nov-2025 13:43	04-Nov-2025 13:57	03-Nov-2025 14:24
						VA25C9760-001	VA25C9760-002	VA25C9760-003	VA25C9760-004	VA25C9760-005
						Result	Result	Result	Result	Result
Dissolved Metals										
Aluminum, dissolved	7429-90-5	E421/VA	1.0	µg/L		1.3	<1.0	<2.0 DLA	<1.0	2.8
Antimony, dissolved	7440-36-0	E421/VA	0.10	µg/L		<0.10	0.37	<0.20 DLA	<0.10	<0.10
Arsenic, dissolved	7440-38-2	E421/VA	0.10	µg/L		0.42	0.28	13.8	0.39	0.62
Barium, dissolved	7440-39-3	E421/VA	0.10	µg/L		82.8	76.8	67.1	54.0	18.5
Beryllium, dissolved	7440-41-7	E421/VA	0.100	µg/L		<0.100	<0.100	<0.100	<0.100	<0.100
Bismuth, dissolved	7440-69-9	E421/VA	0.050	µg/L		<0.050	<0.050	<0.100 DLA	<0.050	<0.050
Boron, dissolved	7440-42-8	E421/VA	10	µg/L		29	163	<20 DLA	<10	<10
Cadmium, dissolved	7440-43-9	E421/VA	0.0050	µg/L		<0.0050	0.0088	0.0114	0.0069	0.0076
Calcium, dissolved	7440-70-2	E421/VA	50	µg/L		33100	51500	130000	78200	33400
Cesium, dissolved	7440-46-2	E421/VA	0.010	µg/L		0.021	4.58	0.119	0.765	<0.010
Chromium, dissolved	7440-47-3	E421/VA	0.50	µg/L		<0.50	<0.50	<1.00 DLA	<0.50	0.65
Cobalt, dissolved	7440-48-4	E421/VA	0.10	µg/L		<0.10	0.18	9.34	0.14	<0.10
Copper, dissolved	7440-50-8	E421/VA	0.20	µg/L		<0.20	6.66	<0.40 DLA	<0.20	0.26
Iron, dissolved	7439-89-6	E421/VA	10	µg/L		7420	86	5140	436	<10
Lead, dissolved	7439-92-1	E421/VA	0.050	µg/L		<0.050	<0.050	<0.100 DLA	<0.050	<0.050
Lithium, dissolved	7439-93-2	E421/VA	1.0	µg/L		19.2	234	<2.0 DLA	6.2	2.5
Magnesium, dissolved	7439-95-4	E421/VA	5.0	µg/L		7950	13600	21400	34200	7710
Manganese, dissolved	7439-96-5	E421/VA	0.10	µg/L		274	153	5750	83.7	0.62
Mercury, dissolved	7439-97-6	E509/VA	0.0050	µg/L		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Molybdenum, dissolved	7439-98-7	E421/VA	0.050	µg/L		0.185	0.606	0.855	0.257	0.926
Nickel, dissolved	7440-02-0	E421/VA	0.50	µg/L		<0.50	0.50	5.34	<0.50	<0.50

Analytical Results

Sub-Matrix: Groundwater
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MW99-1(S) (E275563) ----	MW99-1(D) (E240501) ----	MW99-2(S) (E275543) ----	MW99-2(D) (E240502) ----	MW-05-01 (E252593) ----
					Client sampling date / time	04-Nov-2025 09:30	04-Nov-2025 10:40	04-Nov-2025 13:43	04-Nov-2025 13:57	03-Nov-2025 14:24
						VA25C9760-001	VA25C9760-002	VA25C9760-003	VA25C9760-004	VA25C9760-005
						Result	Result	Result	Result	Result
Dissolved Metals										
Phosphorus, dissolved	7723-14-0	E421/VA	50	µg/L		1590	129	<100 DLA	<50	<50
Potassium, dissolved	7440-09-7	E421/VA	50	µg/L		1200	4360	3010	1240	1390
Rubidium, dissolved	7440-17-7	E421/VA	0.20	µg/L		0.51	9.17	1.27	1.97	<0.20
Selenium, dissolved	7782-49-2	E421/VA	0.050	µg/L		<0.050	<0.050	<0.100 DLA	<0.050	0.168
Silicon, dissolved	7440-21-3	E421/VA	50	µg/L		16600	8690	9900	11400	8170
Silver, dissolved	7440-22-4	E421/VA	0.010	µg/L		<0.010	<0.010	<0.020 DLA	<0.010	<0.010
Sodium, dissolved	7440-23-5	E421/VA	50	µg/L		4820	124000	4170	7130	5020
Strontium, dissolved	7440-24-6	E421/VA	0.20	µg/L		215	746	462	602	338
Sulfur, dissolved	7704-34-9	E421/VA	500	µg/L		11800	15800	44700	24800	4650
Tellurium, dissolved	13494-80-9	E421/VA	0.20	µg/L		<0.20	<0.20	<0.40 DLA	<0.20	<0.20
Thallium, dissolved	7440-28-0	E421/VA	0.010	µg/L		<0.010	<0.010	<0.020 DLA	<0.010	<0.010
Thorium, dissolved	7440-29-1	E421/VA	0.10	µg/L		<0.10	<0.10	<0.20 DLA	<0.10	<0.10
Tin, dissolved	7440-31-5	E421/VA	0.10	µg/L		<0.10	<0.10	<0.20 DLA	<0.10	<0.10
Titanium, dissolved	7440-32-6	E421/VA	0.30	µg/L		<0.30	<0.30	<0.60 DLA	<0.30	<0.30
Tungsten, dissolved	7440-33-7	E421/VA	0.10	µg/L		0.47	0.69	<0.20 DLA	<0.10	<0.10
Uranium, dissolved	7440-61-1	E421/VA	0.010	µg/L		0.024	0.517	5.33	1.93	1.97
Vanadium, dissolved	7440-62-2	E421/VA	0.50	µg/L		<0.50	<0.50	<1.00 DLA	<0.50	0.67
Zinc, dissolved	7440-66-6	E421/VA	1.0	µg/L		<1.0	2.5	3.6	1.1	<1.0
Zirconium, dissolved	7440-67-7	E421/VA	0.20	µg/L		<0.20	<0.20	<0.40 DLA	<0.20	<0.20
Dissolved mercury filtration location	----	EP509/VA	-	-		Field	Field	Field	Field	Field
Dissolved metals filtration location	----	EP421/VA	-	-		Field	Field	Field	Field	Field

Please refer to the General Comments section for an explanation of any qualifiers detected.

Analytical Results

Sub-Matrix: Groundwater
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	MW-01-2004(S) (E303722) ----	MW-01-2004(D) (E303723) ----	MW-04S-05 (E266349) ----	MW-06-01 (E252594) ----	S-MW-1 (E221702) ----
Client sample ID									
Client sampling date / time					04-Nov-2025 11:50	04-Nov-2025 17:10	04-Nov-2025 14:24	04-Nov-2025 15:15	04-Nov-2025 15:55
					VA25C9760-006	VA25C9760-007	VA25C9760-008	VA25C9760-009	VA25C9760-010
					Result	Result	Result	Result	Result
Physical Tests									
Alkalinity, total (as CaCO3)	----	E290/VA	1.0	mg/L	81.4	160	235	266	167
Conductivity	----	E100/VA	2.0	µS/cm	152	492	657	1720	333
Hardness (as CaCO3), dissolved	----	EC100/VA	0.60	mg/L	69.2	224	342	910	168
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/VA	0.60	mg/L	367	239	356	1040	183
pH	----	E108/VA	0.10	pH units	6.82	7.87	7.49	7.20	7.97
Solids, total dissolved [TDS]	----	E162/VA	10	mg/L	149	342	460	1500	198
Solids, total suspended [TSS]	----	E160/VA	3.0	mg/L	771	8.1	143	34.3	3.9
Anions and Nutrients									
Ammonia, total (as N)	7664-41-7	E298/VA	0.0050	mg/L	0.340	<0.0050	0.0328	1.19	<0.0050
Bromide	24959-67-9	E235.Br-L/VA	0.050	mg/L	<0.050	<0.050	0.081	<0.500 DLDS	<0.050
Chloride	16887-00-6	E235.Cl/VA	0.50	mg/L	<0.50	2.68	20.6	18.2	0.63
Fluoride	16984-48-8	E235.F/VA	0.020	mg/L	0.162	0.202	0.038	0.204	0.104
Kjeldahl nitrogen, total [TKN]	----	E318/VA	0.050	mg/L	1.14	0.132	1.48	2.03	<0.050
Nitrate (as N)	14797-55-8	E235.NO3-L/VA	0.0050	mg/L	0.232	0.104	<0.0050	<0.0500 DLDS	0.0069
Nitrite (as N)	14797-65-0	E235.NO2-L/VA	0.0010	mg/L	0.0093	<0.0010	<0.0010	<0.0100 DLDS	<0.0010
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U/VA	0.0010	mg/L	0.0751	0.0241	<0.0010	<0.0010	<0.0010
Sulfate (as SO4)	14808-79-8	E235.SO4/VA	0.30	mg/L	1.77	97.8	102	775	15.0
Organic / Inorganic Carbon									
Carbon, total organic [TOC]	----	E355-L/VA	0.50	mg/L	15.8	1.25	3.36	7.37	<0.50

Analytical Results

Sub-Matrix: Groundwater
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MW-01-2004(S) (E303722) ----	MW-01-2004(D) (E303723) ----	MW-04S-05 (E266349) ----	MW-06-01 (E252594) ----	S-MW-1 (E221702) ----
					Client sampling date / time	04-Nov-2025 11:50	04-Nov-2025 17:10	04-Nov-2025 14:24	04-Nov-2025 15:15	04-Nov-2025 15:55
						VA25C9760-006	VA25C9760-007	VA25C9760-008	VA25C9760-009	VA25C9760-010
						Result	Result	Result	Result	Result
Total Sulfides										
Sulfide, total (as H2S)	7783-06-4	E395-H/VA	0.011	mg/L		<0.011	<0.011	0.050	0.032	<0.011
Sulfide, total (as S)	18496-25-8	E395-H/VA	0.010	mg/L		<0.010	<0.010	0.047	0.030	<0.010
Total Metals										
Aluminum, total	7429-90-5	E420/VA	3.0	µg/L		124000	38.1	961	14.6	56.6
Antimony, total	7440-36-0	E420/VA	0.10	µg/L		<2.00 DLA	0.97	4.17	<0.20 DLA	<0.10
Arsenic, total	7440-38-2	E420/VA	0.10	µg/L		68.3	3.65	15.5	5.39	0.29
Barium, total	7440-39-3	E420/VA	0.10	µg/L		2620	170	88.2	18.9	25.5
Beryllium, total	7440-41-7	E420/VA	0.100	µg/L		6.70	<0.100	<0.100	<0.100	<0.100
Bismuth, total	7440-69-9	E420/VA	0.050	µg/L		3.94	<0.050	<0.050	<0.100 DLA	<0.050
Boron, total	7440-42-8	E420/VA	10	µg/L		<200 DLA	<10	<10	311	<10
Cadmium, total	7440-43-9	E420/VA	0.0050	µg/L		13.2	0.0317	11.8	0.886	0.0132
Calcium, total	7440-70-2	E420/VA	50	µg/L		60600	71700	113000	337000	50100
Cesium, total	7440-46-2	E420/VA	0.010	µg/L		18.3	0.435	0.242	0.931	0.600
Chromium, total	7440-47-3	E420/VA	0.50	µg/L		269	0.64	2.20	<1.00 DLA	<0.50
Cobalt, total	7440-48-4	E420/VA	0.10	µg/L		119	0.10	2.22	<0.20 DLA	0.15
Copper, total	7440-50-8	E420/VA	0.50	µg/L		468	2.49	12.1	<1.00 DLA	<0.50
Iron, total	7439-89-6	E420/VA	10	µg/L		168000	1750	52200	18100	118
Lead, total	7439-92-1	E420/VA	0.050	µg/L		232	127	974	12.2	0.427
Lithium, total	7439-93-2	E420/VA	1.0	µg/L		167	19.4	2.5	4.2	6.5
Magnesium, total	7439-95-4	E420/VA	5.0	µg/L		52300	14600	17900	48600	14000
Manganese, total	7439-96-5	E420/VA	0.10	µg/L		62300	275	335	412	194

Analytical Results

Sub-Matrix: Groundwater
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MW-01-2004(S) (E303722) ----	MW-01-2004(D) (E303723) ----	MW-04S-05 (E266349) ----	MW-06-01 (E252594) ----	S-MW-1 (E221702) ----
					Client sampling date / time	04-Nov-2025 11:50	04-Nov-2025 17:10	04-Nov-2025 14:24	04-Nov-2025 15:15	04-Nov-2025 15:55
						VA25C9760-006	VA25C9760-007	VA25C9760-008	VA25C9760-009	VA25C9760-010
						Result	Result	Result	Result	Result
Total Metals										
Mercury, total	7439-97-6	E508/VA	0.0050	µg/L		0.0307	<0.0050	<0.0050	<0.0050	<0.0050
Molybdenum, total	7439-98-7	E420/VA	0.050	µg/L		20.7	1.58	1.73	1.07	3.04
Nickel, total	7440-02-0	E420/VA	0.50	µg/L		252	1.27	14.3	2.05	0.62
Phosphorus, total	7723-14-0	E420/VA	50	µg/L		13200	204	257	<100 DLA	<50
Potassium, total	7440-09-7	E420/VA	50	µg/L		16400	2290	3520	10200	1400
Rubidium, total	7440-17-7	E420/VA	0.20	µg/L		154	1.50	2.63	34.6	2.12
Selenium, total	7782-49-2	E420/VA	0.050	µg/L		1.53	<0.050	1.68	<0.100 DLA	0.464
Silicon, total	7440-21-3	E420/VA	100	µg/L		112000	10200	11800	7660	8150
Silver, total	7440-22-4	E420/VA	0.010	µg/L		2.88	0.012	0.059	<0.020 DLA	<0.010
Sodium, total	7440-23-5	E420/VA	50	µg/L		4950	13500	6680	17400	3430
Strontium, total	7440-24-6	E420/VA	0.20	µg/L		484	383	521	474	328
Sulfur, total	7704-34-9	E420/VA	500	µg/L		<10000 DLA	36300	37500	291000	5410
Tellurium, total	13494-80-9	E420/VA	0.20	µg/L		<4.00 DLA	<0.20	<0.20	<0.40 DLA	<0.20
Thallium, total	7440-28-0	E420/VA	0.010	µg/L		1.32	<0.010	0.368	0.072	<0.010
Thorium, total	7440-29-1	E420/VA	0.10	µg/L		59.4	<0.10	0.87	<0.20 DLA	<0.10
Tin, total	7440-31-5	E420/VA	0.10	µg/L		5.33	0.58	0.96	<0.20 DLA	0.35
Titanium, total	7440-32-6	E420/VA	0.30	µg/L		2580	2.96	28.6	<0.60 DLA	2.20
Tungsten, total	7440-33-7	E420/VA	0.10	µg/L		<2.00 DLA	<0.10	<0.10	<0.20 DLA	<0.10
Uranium, total	7440-61-1	E420/VA	0.010	µg/L		56.6	2.38	12.4	3.38	9.84
Vanadium, total	7440-62-2	E420/VA	0.50	µg/L		541	0.51	6.43	<1.00 DLA	<0.50
Zinc, total	7440-66-6	E420/VA	3.0	µg/L		1270	8.3	175	343	4.6

Analytical Results

Sub-Matrix: Groundwater
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MW-01-2004(S) (E303722) ----	MW-01-2004(D) (E303723) ----	MW-04S-05 (E266349) ----	MW-06-01 (E252594) ----	S-MW-1 (E221702) ----
					Client sampling date / time	04-Nov-2025 11:50	04-Nov-2025 17:10	04-Nov-2025 14:24	04-Nov-2025 15:15	04-Nov-2025 15:55
						VA25C9760-006	VA25C9760-007	VA25C9760-008	VA25C9760-009	VA25C9760-010
						Result	Result	Result	Result	Result
Total Metals										
Zirconium, total	7440-67-7	E420/VA	0.20	µg/L		<4.00 DLA	<0.20	<0.20	<0.40 DLA	<0.20
Dissolved Metals										
Aluminum, dissolved	7429-90-5	E421/VA	1.0	µg/L		17.8	<1.0	1.0	<1.0	<1.0
Antimony, dissolved	7440-36-0	E421/VA	0.10	µg/L		<0.10	0.23	<0.10	<0.10	<0.10
Arsenic, dissolved	7440-38-2	E421/VA	0.10	µg/L		0.93	0.79	0.77	2.64	0.18
Barium, dissolved	7440-39-3	E421/VA	0.10	µg/L		13.2	148	53.9	17.3	22.9
Beryllium, dissolved	7440-41-7	E421/VA	0.100	µg/L		<0.100	<0.100	<0.100	<0.100	<0.100
Bismuth, dissolved	7440-69-9	E421/VA	0.050	µg/L		<0.050	<0.050	<0.050	<0.050	<0.050
Boron, dissolved	7440-42-8	E421/VA	10	µg/L		<10	<10	<10	271	<10
Cadmium, dissolved	7440-43-9	E421/VA	0.0050	µg/L		0.403	0.0051	0.0305	<0.0050	<0.0050
Calcium, dissolved	7440-70-2	E421/VA	50	µg/L		20200	66800	109000	283000	45300
Cesium, dissolved	7440-46-2	E421/VA	0.010	µg/L		<0.010	0.402	<0.010	0.774	0.531
Chromium, dissolved	7440-47-3	E421/VA	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Cobalt, dissolved	7440-48-4	E421/VA	0.10	µg/L		0.18	<0.10	0.49	0.15	<0.10
Copper, dissolved	7440-50-8	E421/VA	0.20	µg/L		1.37	0.85	<0.20	<0.20	<0.20
Iron, dissolved	7439-89-6	E421/VA	10	µg/L		31	<10	4270	11900	<10
Lead, dissolved	7439-92-1	E421/VA	0.050	µg/L		0.121	2.87	0.487	0.120	<0.050
Lithium, dissolved	7439-93-2	E421/VA	1.0	µg/L		<1.0	17.3	1.2	3.3	5.5
Magnesium, dissolved	7439-95-4	E421/VA	5.0	µg/L		4560	13800	17000	49300	13400
Manganese, dissolved	7439-96-5	E421/VA	0.10	µg/L		3210	1.77	305	448	11.0
Mercury, dissolved	7439-97-6	E509/VA	0.0050	µg/L		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050

Analytical Results

Sub-Matrix: Groundwater
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MW-01-2004(S) (E303722) ----	MW-01-2004(D) (E303723) ----	MW-04S-05 (E266349) ----	MW-06-01 (E252594) ----	S-MW-1 (E221702) ----
					Client sampling date / time	04-Nov-2025 11:50	04-Nov-2025 17:10	04-Nov-2025 14:24	04-Nov-2025 15:15	04-Nov-2025 15:55
						VA25C9760-006	VA25C9760-007	VA25C9760-008	VA25C9760-009	VA25C9760-010
						Result	Result	Result	Result	Result
Dissolved Metals										
Molybdenum, dissolved	7439-98-7	E421/VA	0.050	µg/L		5.43	1.84	0.393	1.10	2.78
Nickel, dissolved	7440-02-0	E421/VA	0.50	µg/L		0.57	<0.50	4.27	1.53	<0.50
Phosphorus, dissolved	7723-14-0	E421/VA	50	µg/L		76	<50	<50	<50	<50
Potassium, dissolved	7440-09-7	E421/VA	50	µg/L		1170	2540	3630	10300	1510
Rubidium, dissolved	7440-17-7	E421/VA	0.20	µg/L		0.26	1.47	0.79	36.4	2.02
Selenium, dissolved	7782-49-2	E421/VA	0.050	µg/L		<0.050	<0.050	0.060	<0.050	0.570
Silicon, dissolved	7440-21-3	E421/VA	50	µg/L		13400	10500	8330	7470	8260
Silver, dissolved	7440-22-4	E421/VA	0.010	µg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Sodium, dissolved	7440-23-5	E421/VA	50	µg/L		2750	14600	7670	18900	3620
Strontium, dissolved	7440-24-6	E421/VA	0.20	µg/L		134	362	518	420	309
Sulfur, dissolved	7704-34-9	E421/VA	500	µg/L		<500	34600	36100	245000	4830
Tellurium, dissolved	13494-80-9	E421/VA	0.20	µg/L		<0.20	<0.20	<0.20	<0.20	<0.20
Thallium, dissolved	7440-28-0	E421/VA	0.010	µg/L		<0.010	<0.010	0.018	0.050	<0.010
Thorium, dissolved	7440-29-1	E421/VA	0.10	µg/L		<0.10	<0.10	<0.10	<0.10	<0.10
Tin, dissolved	7440-31-5	E421/VA	0.10	µg/L		0.16	<0.10	0.49	<0.10	<0.10
Titanium, dissolved	7440-32-6	E421/VA	0.30	µg/L		0.66	<0.30	0.41	<0.30	<0.30
Tungsten, dissolved	7440-33-7	E421/VA	0.10	µg/L		<0.10	<0.10	<0.10	<0.10	<0.10
Uranium, dissolved	7440-61-1	E421/VA	0.010	µg/L		0.683	2.25	7.69	2.75	9.47
Vanadium, dissolved	7440-62-2	E421/VA	0.50	µg/L		1.90	<0.50	<0.50	<0.50	<0.50
Zinc, dissolved	7440-66-6	E421/VA	1.0	µg/L		2.6	1.7	6.6	175	2.1
Zirconium, dissolved	7440-67-7	E421/VA	0.20	µg/L		<0.20	<0.20	<0.20	<0.20	<0.20

Analytical Results

Sub-Matrix: Groundwater
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MW-01-2004(S) (E303722) ----	MW-01-2004(D) (E303723) ----	MW-04S-05 (E266349) ----	MW-06-01 (E252594) ----	S-MW-1 (E221702) ----
					Client sampling date / time	04-Nov-2025 11:50	04-Nov-2025 17:10	04-Nov-2025 14:24	04-Nov-2025 15:15	04-Nov-2025 15:55
					VA25C9760-006	VA25C9760-007	VA25C9760-008	VA25C9760-009	VA25C9760-010	
					Result	Result	Result	Result	Result	
Dissolved Metals										
Dissolved mercury filtration location	----	EP509/VA	-	-	Field	Field	Field	Field	Field	
Dissolved metals filtration location	----	EP421/VA	-	-	Field	Field	Field	Field	Field	

Please refer to the General Comments section for an explanation of any qualifiers detected.

Analytical Results

Sub-Matrix: Groundwater
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	S-MW-2 (E221703) ----	----	----	----	----
					Client sampling date / time	03-Nov-2025 15:40	----	----	----	----
					VA25C9760-011	----	----	----	----	
					Result	----	----	----	----	
Physical Tests										
Alkalinity, total (as CaCO3)	----	E290/VA	1.0	mg/L	305	----	----	----	----	
Conductivity	----	E100/VA	2.0	µS/cm	674	----	----	----	----	
Hardness (as CaCO3), dissolved	----	EC100/VA	0.60	mg/L	342	----	----	----	----	
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/VA	0.60	mg/L	423	----	----	----	----	
pH	----	E108/VA	0.10	pH units	7.19	----	----	----	----	
Solids, total dissolved [TDS]	----	E162/VA	10	mg/L	512	----	----	----	----	
Solids, total suspended [TSS]	----	E160/VA	3.0	mg/L	375	----	----	----	----	
Anions and Nutrients										
Ammonia, total (as N)	7664-41-7	E298/VA	0.0050	mg/L	0.0062	----	----	----	----	
Bromide	24959-67-9	E235.Br-L/VA	0.050	mg/L	<0.250 DLDS	----	----	----	----	
Chloride	16887-00-6	E235.Cl/VA	0.50	mg/L	9.45	----	----	----	----	
Fluoride	16984-48-8	E235.F/VA	0.020	mg/L	<0.100 DLDS	----	----	----	----	

Analytical Results

Sub-Matrix: Groundwater
(Matrix: Water)

					Client sample ID	S-MW-2 (E221703) ----	----	----	----	----
					Client sampling date / time	03-Nov-2025 15:40	----	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit		VA25C9760-011	----	----	----	----
						Result	----	----	----	----
Anions and Nutrients										
Kjeldahl nitrogen, total [TKN]	----	E318/VA	0.050	mg/L		0.677	----	----	----	----
Nitrate (as N)	14797-55-8	E235.NO3-L/VA	0.0050	mg/L		2.99	----	----	----	----
Nitrite (as N)	14797-65-0	E235.NO2-L/VA	0.0010	mg/L		<0.0050 DLDS	----	----	----	----
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U/VA	0.0010	mg/L		0.0152	----	----	----	----
Sulfate (as SO4)	14808-79-8	E235.SO4/VA	0.30	mg/L		47.7	----	----	----	----
Organic / Inorganic Carbon										
Carbon, total organic [TOC]	----	E355-L/VA	0.50	mg/L		9.24	----	----	----	----
Total Sulfides										
Sulfide, total (as H2S)	7783-06-4	E395-H/VA	0.011	mg/L		<0.011	----	----	----	----
Sulfide, total (as S)	18496-25-8	E395-H/VA	0.010	mg/L		<0.010	----	----	----	----
Total Metals										
Aluminum, total	7429-90-5	E420/VA	3.0	µg/L		9500	----	----	----	----
Antimony, total	7440-36-0	E420/VA	0.10	µg/L		0.99	----	----	----	----
Arsenic, total	7440-38-2	E420/VA	0.10	µg/L		19.2	----	----	----	----
Barium, total	7440-39-3	E420/VA	0.10	µg/L		301	----	----	----	----
Beryllium, total	7440-41-7	E420/VA	0.100	µg/L		0.515	----	----	----	----
Bismuth, total	7440-69-9	E420/VA	0.050	µg/L		0.137	----	----	----	----
Boron, total	7440-42-8	E420/VA	10	µg/L		111	----	----	----	----
Cadmium, total	7440-43-9	E420/VA	0.0050	µg/L		3.06	----	----	----	----
Calcium, total	7440-70-2	E420/VA	50	µg/L		117000	----	----	----	----
Cesium, total	7440-46-2	E420/VA	0.010	µg/L		1.04	----	----	----	----

Analytical Results

Sub-Matrix: Groundwater
(Matrix: Water)

					Client sample ID	S-MW-2 (E221703) ----	----	----	----	----
					Client sampling date / time	03-Nov-2025 15:40	----	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit		VA25C9760-011	----	----	----	----
						Result	----	----	----	----
Total Metals										
Chromium, total	7440-47-3	E420/VA	0.50	µg/L		38.7	----	----	----	----
Cobalt, total	7440-48-4	E420/VA	0.10	µg/L		11.8	----	----	----	----
Copper, total	7440-50-8	E420/VA	0.50	µg/L		26.2	----	----	----	----
Iron, total	7439-89-6	E420/VA	10	µg/L		16400	----	----	----	----
Lead, total	7439-92-1	E420/VA	0.050	µg/L		11.9	----	----	----	----
Lithium, total	7439-93-2	E420/VA	1.0	µg/L		12.1	----	----	----	----
Magnesium, total	7439-95-4	E420/VA	5.0	µg/L		31700	----	----	----	----
Manganese, total	7439-96-5	E420/VA	0.10	µg/L		2470	----	----	----	----
Mercury, total	7439-97-6	E508/VA	0.0050	µg/L		0.0351	----	----	----	----
Molybdenum, total	7439-98-7	E420/VA	0.050	µg/L		2.36	----	----	----	----
Nickel, total	7440-02-0	E420/VA	0.50	µg/L		37.2	----	----	----	----
Phosphorus, total	7723-14-0	E420/VA	50	µg/L		712	----	----	----	----
Potassium, total	7440-09-7	E420/VA	50	µg/L		6310	----	----	----	----
Rubidium, total	7440-17-7	E420/VA	0.20	µg/L		9.89	----	----	----	----
Selenium, total	7782-49-2	E420/VA	0.050	µg/L		0.255	----	----	----	----
Silicon, total	7440-21-3	E420/VA	100	µg/L		23100	----	----	----	----
Silver, total	7440-22-4	E420/VA	0.010	µg/L		0.142	----	----	----	----
Sodium, total	7440-23-5	E420/VA	50	µg/L		9370	----	----	----	----
Strontium, total	7440-24-6	E420/VA	0.20	µg/L		559	----	----	----	----
Sulfur, total	7704-34-9	E420/VA	500	µg/L		17300	----	----	----	----
Tellurium, total	13494-80-9	E420/VA	0.20	µg/L		<0.20	----	----	----	----

Analytical Results

Sub-Matrix: Groundwater
(Matrix: Water)

					Client sample ID	S-MW-2 (E221703) ----	----	----	----	----
					Client sampling date / time	03-Nov-2025 15:40	----	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit		VA25C9760-011	----	----	----	----
						Result	----	----	----	----
Total Metals										
Thallium, total	7440-28-0	E420/VA	0.010	µg/L		0.147	----	----	----	----
Thorium, total	7440-29-1	E420/VA	0.10	µg/L		3.01	----	----	----	----
Tin, total	7440-31-5	E420/VA	0.10	µg/L		0.31	----	----	----	----
Titanium, total	7440-32-6	E420/VA	0.30	µg/L		340	----	----	----	----
Tungsten, total	7440-33-7	E420/VA	0.10	µg/L		0.20	----	----	----	----
Uranium, total	7440-61-1	E420/VA	0.010	µg/L		4.46	----	----	----	----
Vanadium, total	7440-62-2	E420/VA	0.50	µg/L		33.1	----	----	----	----
Zinc, total	7440-66-6	E420/VA	3.0	µg/L		69.3	----	----	----	----
Zirconium, total	7440-67-7	E420/VA	0.20	µg/L		1.44	----	----	----	----
Dissolved Metals										
Aluminum, dissolved	7429-90-5	E421/VA	1.0	µg/L		44.9	----	----	----	----
Antimony, dissolved	7440-36-0	E421/VA	0.10	µg/L		0.19	----	----	----	----
Arsenic, dissolved	7440-38-2	E421/VA	0.10	µg/L		0.67	----	----	----	----
Barium, dissolved	7440-39-3	E421/VA	0.10	µg/L		138	----	----	----	----
Beryllium, dissolved	7440-41-7	E421/VA	0.100	µg/L		<0.100	----	----	----	----
Bismuth, dissolved	7440-69-9	E421/VA	0.050	µg/L		<0.050	----	----	----	----
Boron, dissolved	7440-42-8	E421/VA	10	µg/L		105	----	----	----	----
Cadmium, dissolved	7440-43-9	E421/VA	0.0050	µg/L		0.153	----	----	----	----
Calcium, dissolved	7440-70-2	E421/VA	50	µg/L		97500	----	----	----	----
Cesium, dissolved	7440-46-2	E421/VA	0.010	µg/L		<0.010	----	----	----	----
Chromium, dissolved	7440-47-3	E421/VA	0.50	µg/L		<0.50	----	----	----	----

Analytical Results

Sub-Matrix: Groundwater
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	S-MW-2 (E221703) ----	----	----	----	----
Client sample ID									
Client sampling date / time					03-Nov-2025 15:40	----	----	----	----
					VA25C9760-011	----	----	----	----
					Result	----	----	----	----
Dissolved Metals									
Cobalt, dissolved	7440-48-4	E421/VA	0.10	µg/L	0.16	----	----	----	----
Copper, dissolved	7440-50-8	E421/VA	0.20	µg/L	1.92	----	----	----	----
Iron, dissolved	7439-89-6	E421/VA	10	µg/L	67	----	----	----	----
Lead, dissolved	7439-92-1	E421/VA	0.050	µg/L	0.086	----	----	----	----
Lithium, dissolved	7439-93-2	E421/VA	1.0	µg/L	1.1	----	----	----	----
Magnesium, dissolved	7439-95-4	E421/VA	5.0	µg/L	23900	----	----	----	----
Manganese, dissolved	7439-96-5	E421/VA	0.10	µg/L	30.4	----	----	----	----
Mercury, dissolved	7439-97-6	E509/VA	0.0050	µg/L	<0.0050	----	----	----	----
Molybdenum, dissolved	7439-98-7	E421/VA	0.050	µg/L	0.253	----	----	----	----
Nickel, dissolved	7440-02-0	E421/VA	0.50	µg/L	2.17	----	----	----	----
Phosphorus, dissolved	7723-14-0	E421/VA	50	µg/L	<50	----	----	----	----
Potassium, dissolved	7440-09-7	E421/VA	50	µg/L	5010	----	----	----	----
Rubidium, dissolved	7440-17-7	E421/VA	0.20	µg/L	0.23	----	----	----	----
Selenium, dissolved	7782-49-2	E421/VA	0.050	µg/L	0.103	----	----	----	----
Silicon, dissolved	7440-21-3	E421/VA	50	µg/L	9390	----	----	----	----
Silver, dissolved	7440-22-4	E421/VA	0.010	µg/L	<0.010	----	----	----	----
Sodium, dissolved	7440-23-5	E421/VA	50	µg/L	9480	----	----	----	----
Strontium, dissolved	7440-24-6	E421/VA	0.20	µg/L	518	----	----	----	----
Sulfur, dissolved	7704-34-9	E421/VA	500	µg/L	16800	----	----	----	----
Tellurium, dissolved	13494-80-9	E421/VA	0.20	µg/L	<0.20	----	----	----	----
Thallium, dissolved	7440-28-0	E421/VA	0.010	µg/L	<0.010	----	----	----	----

Analytical Results

Sub-Matrix: Groundwater
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	S-MW-2 (E221703) ----	----	----	----	----
Client sample ID									
Client sampling date / time					03-Nov-2025 15:40	----	----	----	----
					VA25C9760-011	**----**	**----**	**----**	**----**
					Result	----	----	----	----
Dissolved Metals									
Thorium, dissolved	7440-29-1	E421/VA	0.10	µg/L	<0.10	----	----	----	----
Tin, dissolved	7440-31-5	E421/VA	0.10	µg/L	<0.10	----	----	----	----
Titanium, dissolved	7440-32-6	E421/VA	0.30	µg/L	1.34	----	----	----	----
Tungsten, dissolved	7440-33-7	E421/VA	0.10	µg/L	<0.10	----	----	----	----
Uranium, dissolved	7440-61-1	E421/VA	0.010	µg/L	2.46	----	----	----	----
Vanadium, dissolved	7440-62-2	E421/VA	0.50	µg/L	1.17	----	----	----	----
Zinc, dissolved	7440-66-6	E421/VA	1.0	µg/L	2.9	----	----	----	----
Zirconium, dissolved	7440-67-7	E421/VA	0.20	µg/L	<0.20	----	----	----	----
Dissolved mercury filtration location	----	EP509/VA	-	-	Field	----	----	----	----
Dissolved metals filtration location	----	EP421/VA	-	-	Field	----	----	----	----

Please refer to the General Comments section for an explanation of any qualifiers detected.

ALS Canada Ltd.

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QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **VA25C9760**	Page	: 1 of 33
Client	: **Masse Environmental Consultants Ltd.**	Laboratory	: ALS Environmental - Vancouver
Contact	: Ico de Zwart	Account Manager	: Can Dang
Address	: 812 Vernon Street Nelson BC Canada V1L 4G4	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: ----	Telephone	: +1 604 253 4188
Project	: 2016-503-HB	Date Samples Received	: 06-Nov-2025 12:50
PO	: ----	Issue Date	: 17-Nov-2025 10:38
C-O-C number	: 22-20251104-GW		
Sampler	: C.Stephanou		
Site	: RDCK		
Quote number	: ----		
No. of samples received	: 11		
No. of samples analysed	: 11		

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Key

Anonymous: Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number: Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO: Data Quality Objective.
LOR: Limit of Reporting (detection limit).
RPD: Relative Percent Difference.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Summary of Outliers

Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- No Duplicate outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- No Matrix Spike outliers occur.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- Analysis Holding Time Outliers exist - please see following pages for full details.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / **Container / Client Sample ID(s)**	*Method*	*Sampling Date*	*Extraction / Preparation*				*Analysis*			
			Preparation Date	*Holding Times* Rec	*Holding Times* Actual	*Eval*	*Analysis Date*	*Holding Times* Rec	*Holding Times* Actual	*Eval*
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) MW-01-2004(D) (E303723)	E298	04-Nov-2025	09-Nov-2025	28 days	5 days	✓	14-Nov-2025	28 days	5 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) MW-01-2004(S) (E303722)	E298	04-Nov-2025	09-Nov-2025	28 days	5 days	✓	14-Nov-2025	28 days	5 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) MW-04S-05 (E266349)	E298	04-Nov-2025	09-Nov-2025	28 days	5 days	✓	14-Nov-2025	28 days	5 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) MW-06-01 (E252594)	E298	04-Nov-2025	09-Nov-2025	28 days	5 days	✓	14-Nov-2025	28 days	5 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) MW99-1(D) (E240501)	E298	04-Nov-2025	09-Nov-2025	28 days	5 days	✓	14-Nov-2025	28 days	5 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) MW99-1(S) (E275563)	E298	04-Nov-2025	09-Nov-2025	28 days	5 days	✓	14-Nov-2025	28 days	5 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) MW99-2(D) (E240502)	E298	04-Nov-2025	09-Nov-2025	28 days	5 days	✓	14-Nov-2025	28 days	5 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
MW99-2(S) (E275543)	E298	04-Nov-2025	09-Nov-2025	28 days	5 days	✓	14-Nov-2025	28 days	5 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
S-MW-1 (E221702)	E298	04-Nov-2025	09-Nov-2025	28 days	5 days	✓	14-Nov-2025	28 days	5 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
MW-05-01 (E252593)	E298	03-Nov-2025	09-Nov-2025	28 days	6 days	✓	14-Nov-2025	28 days	6 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
S-MW-2 (E221703)	E298	03-Nov-2025	09-Nov-2025	28 days	6 days	✓	14-Nov-2025	28 days	6 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
MW-01-2004(D) (E303723)	E235.Br-L	04-Nov-2025	07-Nov-2025	28 days	3 days	✓	07-Nov-2025	28 days	3 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
MW-01-2004(S) (E303722)	E235.Br-L	04-Nov-2025	07-Nov-2025	28 days	3 days	✓	07-Nov-2025	28 days	3 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
MW-04S-05 (E266349)	E235.Br-L	04-Nov-2025	07-Nov-2025	28 days	3 days	✓	07-Nov-2025	28 days	3 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
MW-06-01 (E252594)	E235.Br-L	04-Nov-2025	07-Nov-2025	28 days	3 days	✓	07-Nov-2025	28 days	3 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
MW99-1(D) (E240501)	E235.Br-L	04-Nov-2025	07-Nov-2025	28 days	3 days	✓	07-Nov-2025	28 days	3 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
MW99-1(S) (E275563)	E235.Br-L	04-Nov-2025	07-Nov-2025	28 days	3 days	✓	07-Nov-2025	28 days	3 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
MW99-2(D) (E240502)	E235.Br-L	04-Nov-2025	07-Nov-2025	28 days	3 days	✓	07-Nov-2025	28 days	3 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
MW99-2(S) (E275543)	E235.Br-L	04-Nov-2025	07-Nov-2025	28 days	3 days	✓	07-Nov-2025	28 days	3 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
S-MW-1 (E221702)	E235.Br-L	04-Nov-2025	07-Nov-2025	28 days	3 days	✓	07-Nov-2025	28 days	3 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
MW-05-01 (E252593)	E235.Br-L	03-Nov-2025	07-Nov-2025	28 days	4 days	✓	07-Nov-2025	28 days	4 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
S-MW-2 (E221703)	E235.Br-L	03-Nov-2025	07-Nov-2025	28 days	4 days	✓	07-Nov-2025	28 days	4 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE										
MW-01-2004(D) (E303723)	E235.Cl	04-Nov-2025	07-Nov-2025	28 days	3 days	✓	07-Nov-2025	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE										
MW-01-2004(S) (E303722)	E235.Cl	04-Nov-2025	07-Nov-2025	28 days	3 days	✓	07-Nov-2025	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE										
MW-04S-05 (E266349)	E235.Cl	04-Nov-2025	07-Nov-2025	28 days	3 days	✓	07-Nov-2025	28 days	3 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Chloride in Water by IC										
HDPE MW-06-01 (E252594)	E235.Cl	04-Nov-2025	07-Nov-2025	28 days	3 days	✓	07-Nov-2025	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE MW99-1(D) (E240501)	E235.Cl	04-Nov-2025	07-Nov-2025	28 days	3 days	✓	07-Nov-2025	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE MW99-1(S) (E275563)	E235.Cl	04-Nov-2025	07-Nov-2025	28 days	3 days	✓	07-Nov-2025	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE MW99-2(D) (E240502)	E235.Cl	04-Nov-2025	07-Nov-2025	28 days	3 days	✓	07-Nov-2025	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE MW99-2(S) (E275543)	E235.Cl	04-Nov-2025	07-Nov-2025	28 days	3 days	✓	07-Nov-2025	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE S-MW-1 (E221702)	E235.Cl	04-Nov-2025	07-Nov-2025	28 days	3 days	✓	07-Nov-2025	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE MW-05-01 (E252593)	E235.Cl	03-Nov-2025	07-Nov-2025	28 days	4 days	✓	07-Nov-2025	28 days	4 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE S-MW-2 (E221703)	E235.Cl	03-Nov-2025	07-Nov-2025	28 days	4 days	✓	07-Nov-2025	28 days	4 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE MW-01-2004(D) (E303723)	E378-U	04-Nov-2025	07-Nov-2025	3 days	3 days	✓	07-Nov-2025	3 days	3 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE										
MW-01-2004(S) (E303722)	E378-U	04-Nov-2025	07-Nov-2025	3 days	3 days	✓	07-Nov-2025	3 days	3 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE										
MW-04S-05 (E266349)	E378-U	04-Nov-2025	07-Nov-2025	3 days	3 days	✓	07-Nov-2025	3 days	3 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE										
MW-05-01 (E252593)	E378-U	03-Nov-2025	07-Nov-2025	3 days	3 days	✓	07-Nov-2025	3 days	3 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE										
MW-06-01 (E252594)	E378-U	04-Nov-2025	07-Nov-2025	3 days	3 days	✓	07-Nov-2025	3 days	3 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE										
MW99-1(D) (E240501)	E378-U	04-Nov-2025	07-Nov-2025	3 days	3 days	✓	07-Nov-2025	3 days	3 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE										
MW99-1(S) (E275563)	E378-U	04-Nov-2025	07-Nov-2025	3 days	3 days	✓	07-Nov-2025	3 days	3 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE										
MW99-2(D) (E240502)	E378-U	04-Nov-2025	07-Nov-2025	3 days	3 days	✓	07-Nov-2025	3 days	3 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE										
MW99-2(S) (E275543)	E378-U	04-Nov-2025	07-Nov-2025	3 days	3 days	✓	07-Nov-2025	3 days	3 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE										
S-MW-1 (E221702)	E378-U	04-Nov-2025	07-Nov-2025	3 days	3 days	✓	07-Nov-2025	3 days	3 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE										
S-MW-2 (E221703)	E378-U	03-Nov-2025	07-Nov-2025	3 days	3 days	✓	07-Nov-2025	3 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
MW-01-2004(D) (E303723)	E235.F	04-Nov-2025	07-Nov-2025	28 days	3 days	✓	07-Nov-2025	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
MW-01-2004(S) (E303722)	E235.F	04-Nov-2025	07-Nov-2025	28 days	3 days	✓	07-Nov-2025	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
MW-04S-05 (E266349)	E235.F	04-Nov-2025	07-Nov-2025	28 days	3 days	✓	07-Nov-2025	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
MW-06-01 (E252594)	E235.F	04-Nov-2025	07-Nov-2025	28 days	3 days	✓	07-Nov-2025	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
MW99-1(D) (E240501)	E235.F	04-Nov-2025	07-Nov-2025	28 days	3 days	✓	07-Nov-2025	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
MW99-1(S) (E275563)	E235.F	04-Nov-2025	07-Nov-2025	28 days	3 days	✓	07-Nov-2025	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
MW99-2(D) (E240502)	E235.F	04-Nov-2025	07-Nov-2025	28 days	3 days	✓	07-Nov-2025	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
MW99-2(S) (E275543)	E235.F	04-Nov-2025	07-Nov-2025	28 days	3 days	✓	07-Nov-2025	28 days	3 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
S-MW-1 (E221702)	E235.F	04-Nov-2025	07-Nov-2025	28 days	3 days	✓	07-Nov-2025	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
MW-05-01 (E252593)	E235.F	03-Nov-2025	07-Nov-2025	28 days	4 days	✓	07-Nov-2025	28 days	4 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
S-MW-2 (E221703)	E235.F	03-Nov-2025	07-Nov-2025	28 days	4 days	✓	07-Nov-2025	28 days	4 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
MW-01-2004(D) (E303723)	E235.NO3-L	04-Nov-2025	07-Nov-2025	3 days	3 days	✓	07-Nov-2025	3 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
MW-01-2004(S) (E303722)	E235.NO3-L	04-Nov-2025	07-Nov-2025	3 days	3 days	✓	07-Nov-2025	3 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
MW-04S-05 (E266349)	E235.NO3-L	04-Nov-2025	07-Nov-2025	3 days	3 days	✓	07-Nov-2025	3 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
MW-05-01 (E252593)	E235.NO3-L	03-Nov-2025	07-Nov-2025	3 days	3 days	✓	07-Nov-2025	3 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
MW-06-01 (E252594)	E235.NO3-L	04-Nov-2025	07-Nov-2025	3 days	3 days	✓	07-Nov-2025	3 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
MW99-1(D) (E240501)	E235.NO3-L	04-Nov-2025	07-Nov-2025	3 days	3 days	✓	07-Nov-2025	3 days	3 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE MW99-1(S) (E275563)	E235.NO3-L	04-Nov-2025	07-Nov-2025	3 days	3 days	✓	07-Nov-2025	3 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE MW99-2(D) (E240502)	E235.NO3-L	04-Nov-2025	07-Nov-2025	3 days	3 days	✓	07-Nov-2025	3 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE MW99-2(S) (E275543)	E235.NO3-L	04-Nov-2025	07-Nov-2025	3 days	3 days	✓	07-Nov-2025	3 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE S-MW-1 (E221702)	E235.NO3-L	04-Nov-2025	07-Nov-2025	3 days	3 days	✓	07-Nov-2025	3 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE S-MW-2 (E221703)	E235.NO3-L	03-Nov-2025	07-Nov-2025	3 days	3 days	✓	07-Nov-2025	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE MW-01-2004(D) (E303723)	E235.NO2-L	04-Nov-2025	07-Nov-2025	3 days	3 days	✓	07-Nov-2025	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE MW-01-2004(S) (E303722)	E235.NO2-L	04-Nov-2025	07-Nov-2025	3 days	3 days	✓	07-Nov-2025	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE MW-04S-05 (E266349)	E235.NO2-L	04-Nov-2025	07-Nov-2025	3 days	3 days	✓	07-Nov-2025	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE MW-05-01 (E252593)	E235.NO2-L	03-Nov-2025	07-Nov-2025	3 days	3 days	✓	07-Nov-2025	3 days	3 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE MW-06-01 (E252594)	E235.NO2-L	04-Nov-2025	07-Nov-2025	3 days	3 days	✓	07-Nov-2025	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE MW99-1(D) (E240501)	E235.NO2-L	04-Nov-2025	07-Nov-2025	3 days	3 days	✓	07-Nov-2025	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE MW99-1(S) (E275563)	E235.NO2-L	04-Nov-2025	07-Nov-2025	3 days	3 days	✓	07-Nov-2025	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE MW99-2(D) (E240502)	E235.NO2-L	04-Nov-2025	07-Nov-2025	3 days	3 days	✓	07-Nov-2025	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE MW99-2(S) (E275543)	E235.NO2-L	04-Nov-2025	07-Nov-2025	3 days	3 days	✓	07-Nov-2025	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE S-MW-1 (E221702)	E235.NO2-L	04-Nov-2025	07-Nov-2025	3 days	3 days	✓	07-Nov-2025	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE S-MW-2 (E221703)	E235.NO2-L	03-Nov-2025	07-Nov-2025	3 days	3 days	✓	07-Nov-2025	3 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE MW-01-2004(D) (E303723)	E235.SO4	04-Nov-2025	07-Nov-2025	28 days	3 days	✓	07-Nov-2025	28 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE MW-01-2004(S) (E303722)	E235.SO4	04-Nov-2025	07-Nov-2025	28 days	3 days	✓	07-Nov-2025	28 days	3 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Sulfate in Water by IC										
HDPE MW-04S-05 (E266349)	E235.SO4	04-Nov-2025	07-Nov-2025	28 days	3 days	✓	07-Nov-2025	28 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE MW-06-01 (E252594)	E235.SO4	04-Nov-2025	07-Nov-2025	28 days	3 days	✓	07-Nov-2025	28 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE MW99-1(D) (E240501)	E235.SO4	04-Nov-2025	07-Nov-2025	28 days	3 days	✓	07-Nov-2025	28 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE MW99-1(S) (E275563)	E235.SO4	04-Nov-2025	07-Nov-2025	28 days	3 days	✓	07-Nov-2025	28 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE MW99-2(D) (E240502)	E235.SO4	04-Nov-2025	07-Nov-2025	28 days	3 days	✓	07-Nov-2025	28 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE MW99-2(S) (E275543)	E235.SO4	04-Nov-2025	07-Nov-2025	28 days	3 days	✓	07-Nov-2025	28 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE S-MW-1 (E221702)	E235.SO4	04-Nov-2025	07-Nov-2025	28 days	3 days	✓	07-Nov-2025	28 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE MW-05-01 (E252593)	E235.SO4	03-Nov-2025	07-Nov-2025	28 days	4 days	✓	07-Nov-2025	28 days	4 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE S-MW-2 (E221703)	E235.SO4	03-Nov-2025	07-Nov-2025	28 days	4 days	✓	07-Nov-2025	28 days	4 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) MW-01-2004(D) (E303723)	E318	04-Nov-2025	09-Nov-2025	28 days	5 days	✓	13-Nov-2025	28 days	5 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) MW-01-2004(S) (E303722)	E318	04-Nov-2025	09-Nov-2025	28 days	5 days	✓	13-Nov-2025	28 days	5 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) MW-04S-05 (E266349)	E318	04-Nov-2025	09-Nov-2025	28 days	5 days	✓	12-Nov-2025	28 days	5 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) MW-06-01 (E252594)	E318	04-Nov-2025	09-Nov-2025	28 days	5 days	✓	12-Nov-2025	28 days	5 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) MW99-1(D) (E240501)	E318	04-Nov-2025	09-Nov-2025	28 days	5 days	✓	13-Nov-2025	28 days	5 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) MW99-1(S) (E275563)	E318	04-Nov-2025	09-Nov-2025	28 days	5 days	✓	13-Nov-2025	28 days	5 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) MW99-2(D) (E240502)	E318	04-Nov-2025	09-Nov-2025	28 days	5 days	✓	13-Nov-2025	28 days	5 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) MW99-2(S) (E275543)	E318	04-Nov-2025	09-Nov-2025	28 days	5 days	✓	13-Nov-2025	28 days	5 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) S-MW-1 (E221702)	E318	04-Nov-2025	09-Nov-2025	28 days	5 days	✓	12-Nov-2025	28 days	5 days	✓

Matrix: **Water**

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Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid)										
MW-05-01 (E252593)	E318	03-Nov-2025	09-Nov-2025	28 days	6 days	✓	13-Nov-2025	28 days	6 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid)										
S-MW-2 (E221703)	E318	03-Nov-2025	09-Nov-2025	28 days	6 days	✓	12-Nov-2025	28 days	6 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
MW-05-01 (E252593)	E509	03-Nov-2025	13-Nov-2025	28 days	10 days	✓	13-Nov-2025	28 days	10 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
S-MW-2 (E221703)	E509	03-Nov-2025	13-Nov-2025	28 days	10 days	✓	13-Nov-2025	28 days	10 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
MW-01-2004(D) (E303723)	E509	04-Nov-2025	13-Nov-2025	28 days	9 days	✓	13-Nov-2025	28 days	9 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
MW-01-2004(S) (E303722)	E509	04-Nov-2025	13-Nov-2025	28 days	9 days	✓	13-Nov-2025	28 days	9 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
MW-04S-05 (E266349)	E509	04-Nov-2025	13-Nov-2025	28 days	9 days	✓	13-Nov-2025	28 days	9 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
MW-06-01 (E252594)	E509	04-Nov-2025	13-Nov-2025	28 days	9 days	✓	13-Nov-2025	28 days	9 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
MW99-1(D) (E240501)	E509	04-Nov-2025	13-Nov-2025	28 days	9 days	✓	13-Nov-2025	28 days	9 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved) MW99-1(S) (E275563)	E509	04-Nov-2025	13-Nov-2025	28 days	9 days	✓	13-Nov-2025	28 days	9 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved) MW99-2(D) (E240502)	E509	04-Nov-2025	13-Nov-2025	28 days	9 days	✓	13-Nov-2025	28 days	9 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved) MW99-2(S) (E275543)	E509	04-Nov-2025	13-Nov-2025	28 days	9 days	✓	13-Nov-2025	28 days	9 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved) S-MW-1 (E221702)	E509	04-Nov-2025	13-Nov-2025	28 days	9 days	✓	13-Nov-2025	28 days	9 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) MW-01-2004(D) (E303723)	E421	04-Nov-2025	10-Nov-2025	180 days	6 days	✓	12-Nov-2025	180 days	6 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) MW-01-2004(S) (E303722)	E421	04-Nov-2025	10-Nov-2025	180 days	6 days	✓	12-Nov-2025	180 days	6 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) MW-04S-05 (E266349)	E421	04-Nov-2025	10-Nov-2025	180 days	6 days	✓	12-Nov-2025	180 days	6 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) MW-06-01 (E252594)	E421	04-Nov-2025	10-Nov-2025	180 days	6 days	✓	12-Nov-2025	180 days	6 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) MW99-1(D) (E240501)	E421	04-Nov-2025	10-Nov-2025	180 days	6 days	✓	12-Nov-2025	180 days	6 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) MW99-1(S) (E275563)	E421	04-Nov-2025	10-Nov-2025	180 days	6 days	✓	12-Nov-2025	180 days	6 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) MW99-2(D) (E240502)	E421	04-Nov-2025	10-Nov-2025	180 days	6 days	✓	12-Nov-2025	180 days	6 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) MW99-2(S) (E275543)	E421	04-Nov-2025	10-Nov-2025	180 days	6 days	✓	12-Nov-2025	180 days	6 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) S-MW-1 (E221702)	E421	04-Nov-2025	10-Nov-2025	180 days	6 days	✓	12-Nov-2025	180 days	6 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) MW-05-01 (E252593)	E421	03-Nov-2025	10-Nov-2025	180 days	7 days	✓	12-Nov-2025	180 days	7 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) S-MW-2 (E221703)	E421	03-Nov-2025	10-Nov-2025	180 days	7 days	✓	12-Nov-2025	180 days	7 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) MW-01-2004(D) (E303723)	E355-L	04-Nov-2025	09-Nov-2025	28 days	5 days	✓	09-Nov-2025	28 days	5 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) MW-01-2004(S) (E303722)	E355-L	04-Nov-2025	09-Nov-2025	28 days	5 days	✓	09-Nov-2025	28 days	5 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) MW-04S-05 (E266349)	E355-L	04-Nov-2025	09-Nov-2025	28 days	5 days	✓	09-Nov-2025	28 days	5 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) MW-06-01 (E252594)	E355-L	04-Nov-2025	09-Nov-2025	28 days	5 days	✓	09-Nov-2025	28 days	5 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) MW99-1(D) (E240501)	E355-L	04-Nov-2025	09-Nov-2025	28 days	5 days	✓	09-Nov-2025	28 days	5 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) MW99-1(S) (E275563)	E355-L	04-Nov-2025	09-Nov-2025	28 days	5 days	✓	09-Nov-2025	28 days	5 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) MW99-2(D) (E240502)	E355-L	04-Nov-2025	09-Nov-2025	28 days	5 days	✓	09-Nov-2025	28 days	5 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) MW99-2(S) (E275543)	E355-L	04-Nov-2025	09-Nov-2025	28 days	5 days	✓	09-Nov-2025	28 days	5 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) S-MW-1 (E221702)	E355-L	04-Nov-2025	09-Nov-2025	28 days	5 days	✓	09-Nov-2025	28 days	5 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) MW-05-01 (E252593)	E355-L	03-Nov-2025	09-Nov-2025	28 days	6 days	✓	09-Nov-2025	28 days	6 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) S-MW-2 (E221703)	E355-L	03-Nov-2025	09-Nov-2025	28 days	6 days	✓	09-Nov-2025	28 days	6 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE MW-01-2004(D) (E303723)	E290	04-Nov-2025	07-Nov-2025	14 days	3 days	✓	07-Nov-2025	14 days	3 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Alkalinity Species by Titration										
HDPE MW-01-2004(S) (E303722)	E290	04-Nov-2025	07-Nov-2025	14 days	3 days	✓	07-Nov-2025	14 days	3 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE MW-04S-05 (E266349)	E290	04-Nov-2025	07-Nov-2025	14 days	3 days	✓	07-Nov-2025	14 days	3 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE MW-06-01 (E252594)	E290	04-Nov-2025	07-Nov-2025	14 days	3 days	✓	07-Nov-2025	14 days	3 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE MW99-1(D) (E240501)	E290	04-Nov-2025	07-Nov-2025	14 days	3 days	✓	07-Nov-2025	14 days	3 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE MW99-1(S) (E275563)	E290	04-Nov-2025	07-Nov-2025	14 days	3 days	✓	07-Nov-2025	14 days	3 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE MW99-2(D) (E240502)	E290	04-Nov-2025	07-Nov-2025	14 days	3 days	✓	07-Nov-2025	14 days	3 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE MW99-2(S) (E275543)	E290	04-Nov-2025	07-Nov-2025	14 days	3 days	✓	07-Nov-2025	14 days	3 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE S-MW-1 (E221702)	E290	04-Nov-2025	07-Nov-2025	14 days	3 days	✓	07-Nov-2025	14 days	3 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE MW-05-01 (E252593)	E290	03-Nov-2025	07-Nov-2025	14 days	4 days	✓	07-Nov-2025	14 days	4 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Alkalinity Species by Titration										
HDPE S-MW-2 (E221703)	E290	03-Nov-2025	07-Nov-2025	14 days	4 days	✓	07-Nov-2025	14 days	4 days	✓
Physical Tests : Conductivity in Water										
HDPE MW-01-2004(D) (E303723)	E100	04-Nov-2025	07-Nov-2025	28 days	3 days	✓	07-Nov-2025	28 days	3 days	✓
Physical Tests : Conductivity in Water										
HDPE MW-01-2004(S) (E303722)	E100	04-Nov-2025	07-Nov-2025	28 days	3 days	✓	07-Nov-2025	28 days	3 days	✓
Physical Tests : Conductivity in Water										
HDPE MW-04S-05 (E266349)	E100	04-Nov-2025	07-Nov-2025	28 days	3 days	✓	07-Nov-2025	28 days	3 days	✓
Physical Tests : Conductivity in Water										
HDPE MW-06-01 (E252594)	E100	04-Nov-2025	07-Nov-2025	28 days	3 days	✓	07-Nov-2025	28 days	3 days	✓
Physical Tests : Conductivity in Water										
HDPE MW99-1(D) (E240501)	E100	04-Nov-2025	07-Nov-2025	28 days	3 days	✓	07-Nov-2025	28 days	3 days	✓
Physical Tests : Conductivity in Water										
HDPE MW99-1(S) (E275563)	E100	04-Nov-2025	07-Nov-2025	28 days	3 days	✓	07-Nov-2025	28 days	3 days	✓
Physical Tests : Conductivity in Water										
HDPE MW99-2(D) (E240502)	E100	04-Nov-2025	07-Nov-2025	28 days	3 days	✓	07-Nov-2025	28 days	3 days	✓
Physical Tests : Conductivity in Water										
HDPE MW99-2(S) (E275543)	E100	04-Nov-2025	07-Nov-2025	28 days	3 days	✓	07-Nov-2025	28 days	3 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Conductivity in Water										
HDPE S-MW-1 (E221702)	E100	04-Nov-2025	07-Nov-2025	28 days	3 days	✓	07-Nov-2025	28 days	3 days	✓
Physical Tests : Conductivity in Water										
HDPE MW-05-01 (E252593)	E100	03-Nov-2025	07-Nov-2025	28 days	4 days	✓	07-Nov-2025	28 days	4 days	✓
Physical Tests : Conductivity in Water										
HDPE S-MW-2 (E221703)	E100	03-Nov-2025	07-Nov-2025	28 days	4 days	✓	07-Nov-2025	28 days	4 days	✓
Physical Tests : pH by Meter										
HDPE MW-01-2004(D) (E303723)	E108	04-Nov-2025	07-Nov-2025	0.25 hrs	66 hrs	× EHTR-FM	07-Nov-2025	0.25 hrs	66 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE MW-06-01 (E252594)	E108	04-Nov-2025	07-Nov-2025	0.25 hrs	68 hrs	× EHTR-FM	07-Nov-2025	0.25 hrs	68 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE S-MW-1 (E221702)	E108	04-Nov-2025	07-Nov-2025	0.25 hrs	68 hrs	× EHTR-FM	07-Nov-2025	0.25 hrs	68 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE MW-04S-05 (E266349)	E108	04-Nov-2025	07-Nov-2025	0.25 hrs	69 hrs	× EHTR-FM	07-Nov-2025	0.25 hrs	69 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE MW99-2(D) (E240502)	E108	04-Nov-2025	07-Nov-2025	0.25 hrs	69 hrs	× EHTR-FM	07-Nov-2025	0.25 hrs	69 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE MW99-2(S) (E275543)	E108	04-Nov-2025	07-Nov-2025	0.25 hrs	70 hrs	× EHTR-FM	07-Nov-2025	0.25 hrs	70 hrs	× EHTR-FM

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Physical Tests : pH by Meter										
HDPE										
MW-01-2004(S) (E303722)	E108	04-Nov-2025	07-Nov-2025	0.25 hrs	72 hrs	× EHTR-FM	07-Nov-2025	0.25 hrs	72 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE										
MW99-1(D) (E240501)	E108	04-Nov-2025	07-Nov-2025	0.25 hrs	73 hrs	× EHTR-FM	07-Nov-2025	0.25 hrs	73 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE										
MW99-1(S) (E275563)	E108	04-Nov-2025	07-Nov-2025	0.25 hrs	74 hrs	× EHTR-FM	07-Nov-2025	0.25 hrs	74 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE										
S-MW-2 (E221703)	E108	03-Nov-2025	07-Nov-2025	0.25 hrs	92 hrs	× EHTR-FM	07-Nov-2025	0.25 hrs	92 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE										
MW-05-01 (E252593)	E108	03-Nov-2025	07-Nov-2025	0.25 hrs	93 hrs	× EHTR-FM	07-Nov-2025	0.25 hrs	93 hrs	× EHTR-FM
Physical Tests : TDS by Gravimetry										
HDPE										
MW-01-2004(D) (E303723)	E162	04-Nov-2025	----	----	----		08-Nov-2025	7 days	4 days	✓
Physical Tests : TDS by Gravimetry										
HDPE										
MW-01-2004(S) (E303722)	E162	04-Nov-2025	----	----	----		08-Nov-2025	7 days	4 days	✓
Physical Tests : TDS by Gravimetry										
HDPE										
MW-04S-05 (E266349)	E162	04-Nov-2025	----	----	----		08-Nov-2025	7 days	4 days	✓
Physical Tests : TDS by Gravimetry										
HDPE										
MW-06-01 (E252594)	E162	04-Nov-2025	----	----	----		08-Nov-2025	7 days	4 days	✓

Matrix: **Water**

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Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : TDS by Gravimetry										
HDPE MW99-1(D) (E240501)	E162	04-Nov-2025	----	----	----		08-Nov-2025	7 days	4 days	✓
Physical Tests : TDS by Gravimetry										
HDPE MW99-1(S) (E275563)	E162	04-Nov-2025	----	----	----		08-Nov-2025	7 days	4 days	✓
Physical Tests : TDS by Gravimetry										
HDPE MW99-2(D) (E240502)	E162	04-Nov-2025	----	----	----		08-Nov-2025	7 days	4 days	✓
Physical Tests : TDS by Gravimetry										
HDPE MW99-2(S) (E275543)	E162	04-Nov-2025	----	----	----		08-Nov-2025	7 days	4 days	✓
Physical Tests : TDS by Gravimetry										
HDPE S-MW-1 (E221702)	E162	04-Nov-2025	----	----	----		08-Nov-2025	7 days	4 days	✓
Physical Tests : TDS by Gravimetry										
HDPE MW-05-01 (E252593)	E162	03-Nov-2025	----	----	----		08-Nov-2025	7 days	5 days	✓
Physical Tests : TDS by Gravimetry										
HDPE S-MW-2 (E221703)	E162	03-Nov-2025	----	----	----		08-Nov-2025	7 days	5 days	✓
Physical Tests : TSS by Gravimetry										
HDPE MW-01-2004(D) (E303723)	E160	04-Nov-2025	----	----	----		08-Nov-2025	7 days	4 days	✓
Physical Tests : TSS by Gravimetry										
HDPE MW-01-2004(S) (E303722)	E160	04-Nov-2025	----	----	----		08-Nov-2025	7 days	4 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : TSS by Gravimetry										
HDPE MW-04S-05 (E266349)	E160	04-Nov-2025	----	----	----		08-Nov-2025	7 days	4 days	✓
Physical Tests : TSS by Gravimetry										
HDPE MW-06-01 (E252594)	E160	04-Nov-2025	----	----	----		08-Nov-2025	7 days	4 days	✓
Physical Tests : TSS by Gravimetry										
HDPE MW99-1(D) (E240501)	E160	04-Nov-2025	----	----	----		08-Nov-2025	7 days	4 days	✓
Physical Tests : TSS by Gravimetry										
HDPE MW99-1(S) (E275563)	E160	04-Nov-2025	----	----	----		08-Nov-2025	7 days	4 days	✓
Physical Tests : TSS by Gravimetry										
HDPE MW99-2(D) (E240502)	E160	04-Nov-2025	----	----	----		08-Nov-2025	7 days	4 days	✓
Physical Tests : TSS by Gravimetry										
HDPE MW99-2(S) (E275543)	E160	04-Nov-2025	----	----	----		08-Nov-2025	7 days	4 days	✓
Physical Tests : TSS by Gravimetry										
HDPE S-MW-1 (E221702)	E160	04-Nov-2025	----	----	----		08-Nov-2025	7 days	4 days	✓
Physical Tests : TSS by Gravimetry										
HDPE MW-05-01 (E252593)	E160	03-Nov-2025	----	----	----		08-Nov-2025	7 days	5 days	✓
Physical Tests : TSS by Gravimetry										
HDPE S-MW-2 (E221703)	E160	03-Nov-2025	----	----	----		08-Nov-2025	7 days	5 days	✓

Matrix: **Water**

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Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved) MW-05-01 (E252593)	E508	03-Nov-2025	13-Nov-2025	28 days	10 days	✓	13-Nov-2025	28 days	10 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved) S-MW-2 (E221703)	E508	03-Nov-2025	13-Nov-2025	28 days	10 days	✓	13-Nov-2025	28 days	10 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved) MW-01-2004(D) (E303723)	E508	04-Nov-2025	13-Nov-2025	28 days	9 days	✓	13-Nov-2025	28 days	9 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved) MW-01-2004(S) (E303722)	E508	04-Nov-2025	13-Nov-2025	28 days	9 days	✓	13-Nov-2025	28 days	9 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved) MW-04S-05 (E266349)	E508	04-Nov-2025	13-Nov-2025	28 days	9 days	✓	13-Nov-2025	28 days	9 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved) MW-06-01 (E252594)	E508	04-Nov-2025	13-Nov-2025	28 days	9 days	✓	13-Nov-2025	28 days	9 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved) MW99-1(D) (E240501)	E508	04-Nov-2025	13-Nov-2025	28 days	9 days	✓	13-Nov-2025	28 days	9 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved) MW99-1(S) (E275563)	E508	04-Nov-2025	13-Nov-2025	28 days	9 days	✓	13-Nov-2025	28 days	9 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved) MW99-2(D) (E240502)	E508	04-Nov-2025	13-Nov-2025	28 days	9 days	✓	13-Nov-2025	28 days	9 days	✓

Matrix: **Water**

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Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved)										
MW99-2(S) (E275543)	E508	04-Nov-2025	13-Nov-2025	28 days	9 days	✓	13-Nov-2025	28 days	9 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved)										
S-MW-1 (E221702)	E508	04-Nov-2025	13-Nov-2025	28 days	9 days	✓	13-Nov-2025	28 days	9 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved)										
MW-01-2004(D) (E303723)	E420	04-Nov-2025	10-Nov-2025	180 days	6 days	✓	12-Nov-2025	180 days	6 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved)										
MW-01-2004(S) (E303722)	E420	04-Nov-2025	10-Nov-2025	180 days	6 days	✓	12-Nov-2025	180 days	6 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved)										
MW-04S-05 (E266349)	E420	04-Nov-2025	10-Nov-2025	180 days	6 days	✓	12-Nov-2025	180 days	6 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved)										
MW-06-01 (E252594)	E420	04-Nov-2025	10-Nov-2025	180 days	6 days	✓	12-Nov-2025	180 days	6 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved)										
MW99-1(D) (E240501)	E420	04-Nov-2025	10-Nov-2025	180 days	6 days	✓	12-Nov-2025	180 days	6 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved)										
MW99-1(S) (E275563)	E420	04-Nov-2025	10-Nov-2025	180 days	6 days	✓	12-Nov-2025	180 days	6 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved)										
MW99-2(D) (E240502)	E420	04-Nov-2025	10-Nov-2025	180 days	6 days	✓	12-Nov-2025	180 days	6 days	✓

Matrix: **Water**

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Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) MW99-2(S) (E275543)	E420	04-Nov-2025	10-Nov-2025	180 days	6 days	✓	12-Nov-2025	180 days	6 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) S-MW-1 (E221702)	E420	04-Nov-2025	10-Nov-2025	180 days	6 days	✓	12-Nov-2025	180 days	6 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) MW-05-01 (E252593)	E420	03-Nov-2025	10-Nov-2025	180 days	7 days	✓	12-Nov-2025	180 days	7 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) S-MW-2 (E221703)	E420	03-Nov-2025	10-Nov-2025	180 days	7 days	✓	12-Nov-2025	180 days	7 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) MW-01-2004(D) (E303723)	E395-H	04-Nov-2025	----	----	----		10-Nov-2025	7 days	6 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) MW-01-2004(S) (E303722)	E395-H	04-Nov-2025	----	----	----		10-Nov-2025	7 days	6 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) MW-04S-05 (E266349)	E395-H	04-Nov-2025	----	----	----		10-Nov-2025	7 days	6 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) MW-06-01 (E252594)	E395-H	04-Nov-2025	----	----	----		10-Nov-2025	7 days	6 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) MW99-1(D) (E240501)	E395-H	04-Nov-2025	----	----	----		10-Nov-2025	7 days	6 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	*Method*	*Sampling Date*	*Extraction / Preparation*				*Analysis*			
			Preparation Date	*Holding Times*		*Eval*	*Analysis Date*	*Holding Times*		*Eval*
				Rec	*Actual*			*Rec*	*Actual*	
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) MW99-1(S) (E275563)	E395-H	04-Nov-2025	----	----	----		10-Nov-2025	7 days	6 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) MW99-2(D) (E240502)	E395-H	04-Nov-2025	----	----	----		10-Nov-2025	7 days	6 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) MW99-2(S) (E275543)	E395-H	04-Nov-2025	----	----	----		10-Nov-2025	7 days	6 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) S-MW-1 (E221702)	E395-H	04-Nov-2025	----	----	----		10-Nov-2025	7 days	6 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) MW-05-01 (E252593)	E395-H	03-Nov-2025	----	----	----		10-Nov-2025	7 days	7 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) S-MW-2 (E221703)	E395-H	03-Nov-2025	----	----	----		10-Nov-2025	7 days	7 days	✓

Legend & Qualifier Definitions

EHTR-FM: Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended

Rec. HT: ALS recommended hold time (see units).

Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Water**

Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
Conductivity in Water	E100	2325042	1	20	5.0	5.0	✓
pH by Meter	E108	2325040	1	20	5.0	5.0	✓
TSS by Gravimetry	E160	2326776	1	20	5.0	5.0	✓
TDS by Gravimetry	E162	2326784	1	20	5.0	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	2325048	1	17	5.8	5.0	✓
Chloride in Water by IC	E235.Cl	2325043	1	20	5.0	5.0	✓
Fluoride in Water by IC	E235.F	2325047	1	17	5.8	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	2325045	1	20	5.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	2325044	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	2325046	1	20	5.0	5.0	✓
Alkalinity Species by Titration	E290	2325041	1	20	5.0	5.0	✓
Ammonia by Fluorescence	E298	2327706	2	37	5.4	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	2327702	2	30	6.6	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	2327703	2	26	7.6	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	2325050	1	20	5.0	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395-H	2329511	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	2324866	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	2324937	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	2333468	2	40	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	2335477	2	40	5.0	5.0	✓
Laboratory Control Samples (LCS)							
Conductivity in Water	E100	2325042	1	20	5.0	5.0	✓
pH by Meter	E108	2325040	1	20	5.0	5.0	✓
TSS by Gravimetry	E160	2326776	1	20	5.0	5.0	✓
TDS by Gravimetry	E162	2326784	1	20	5.0	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	2325048	1	17	5.8	5.0	✓
Chloride in Water by IC	E235.Cl	2325043	1	20	5.0	5.0	✓
Fluoride in Water by IC	E235.F	2325047	1	17	5.8	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	2325045	1	20	5.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	2325044	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	2325046	1	20	5.0	5.0	✓
Alkalinity Species by Titration	E290	2325041	1	20	5.0	5.0	✓
Ammonia by Fluorescence	E298	2327706	2	37	5.4	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	2327702	2	30	6.6	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	2327703	2	26	7.6	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	2325050	1	20	5.0	5.0	✓

Matrix: **Water**

Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Control Samples (LCS) - Continued							
Total Sulfide by Colourimetry (Automated Flow)	E395-H	2329511	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	2324866	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	2324937	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	2333468	2	40	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	2335477	2	40	5.0	5.0	✓
Method Blanks (MB)							
Conductivity in Water	E100	2325042	1	20	5.0	5.0	✓
TSS by Gravimetry	E160	2326776	1	20	5.0	5.0	✓
TDS by Gravimetry	E162	2326784	1	20	5.0	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	2325048	1	17	5.8	5.0	✓
Chloride in Water by IC	E235.Cl	2325043	1	20	5.0	5.0	✓
Fluoride in Water by IC	E235.F	2325047	1	17	5.8	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	2325045	1	20	5.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	2325044	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	2325046	1	20	5.0	5.0	✓
Alkalinity Species by Titration	E290	2325041	1	20	5.0	5.0	✓
Ammonia by Fluorescence	E298	2327706	2	37	5.4	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	2327702	2	30	6.6	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	2327703	2	26	7.6	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	2325050	1	20	5.0	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395-H	2329511	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	2324866	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	2324937	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	2333468	2	40	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	2335477	2	40	5.0	5.0	✓
Matrix Spikes (MS)							
Bromide in Water by IC (Low Level)	E235.Br-L	2325048	1	17	5.8	5.0	✓
Chloride in Water by IC	E235.Cl	2325043	1	20	5.0	5.0	✓
Fluoride in Water by IC	E235.F	2325047	1	17	5.8	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	2325045	1	20	5.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	2325044	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	2325046	1	20	5.0	5.0	✓
Ammonia by Fluorescence	E298	2327706	2	37	5.4	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	2327702	2	30	6.6	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	2327703	2	26	7.6	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	2325050	1	20	5.0	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395-H	2329511	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	2324866	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	2324937	1	20	5.0	5.0	✓

Matrix: **Water**

Evaluation: × = *QC frequency outside specification*; ✓ = *QC frequency within specification.*

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Matrix Spikes (MS) - Continued							
Total Mercury in Water by CVAAS	E508	2333468	2	40	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	2335477	2	40	5.0	5.0	✓

Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Conductivity in Water	E100 ALS Environmental - Vancouver	Water	APHA 2510 (mod)	Conductivity, also known as Electrical Conductivity (EC) or Specific Conductance, is measured by immersion of a conductivity cell with platinum electrodes into a water sample. Conductivity measurements are temperature-compensated to 25°C.
pH by Meter	E108 ALS Environmental - Vancouver	Water	APHA 4500-H (mod)	pH is determined by potentiometric measurement with a pH electrode, and is conducted at ambient laboratory temperature (normally 20 ± 5°C). For high accuracy test results, pH should be measured in the field within the recommended 15 minute hold time.
TSS by Gravimetry	E160 ALS Environmental - Vancouver	Water	APHA 2540 D (mod)	Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, following by drying of the filter at 104 ± 1°C, with gravimetric measurement of the filtered solids. Samples containing very high dissolved solid content (i.e. seawaters, brackish waters) may produce a positive bias by this method. Alternate analysis methods are available for these types of samples.
TDS by Gravimetry	E162 ALS Environmental - Vancouver	Water	APHA 2540 C (mod)	Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, with evaporation of the filtrate at 180 ± 2°C for 16 hours or to constant weight, with gravimetric measurement of the residue.
Bromide in Water by IC (Low Level)	E235.Br-L ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Chloride in Water by IC	E235.Cl ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Fluoride in Water by IC	E235.F ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrite in Water by IC (Low Level)	E235.NO2-L ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrate in Water by IC (Low Level)	E235.NO3-L ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Sulfate in Water by IC	E235.SO4 ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Alkalinity Species by Titration	E290 ALS Environmental - Vancouver	Water	APHA 2320 B (mod)	Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.
Ammonia by Fluorescence	E298 ALS Environmental - Vancouver	Water	Method Fialab 100, 2018	Ammonia in water is determined by automated continuous flow analysis with membrane diffusion and fluorescence detection, after reaction with OPA (ortho-phthalaldehyde). This method is approved under US EPA 40 CFR Part 136 (May 2021)
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318 ALS Environmental - Vancouver	Water	Method Fialab 100, 2018	TKN in water is determined by automated continuous flow analysis with membrane diffusion and fluorescence detection, after reaction with OPA (ortho-phthalaldehyde). This method is approved under US EPA 40 CFR Part 136 (May 2021).
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L ALS Environmental - Vancouver	Water	APHA 5310 B (mod)	Total Organic Carbon (Non-Purgeable), also known as NPOC (total), is a direct measurement of TOC after an acidified sample has been purged to remove carbonate-based Inorganic Carbon (IC). Analysis is by high temperature combustion with infrared detection of CO_2. Forms of carbon associated with inorganic or organic molecules (e.g. SCN and CN) are included in NPOC if they are not removed by purging under acidic conditions. Notably, NPOC excludes most volatile organic compounds and free cyanide. For samples where the majority of Total Carbon is inorganic, this method provides greater accuracy and reliability versus the TOC by subtraction method (TC minus TIC).
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U ALS Environmental - Vancouver	Water	APHA 4500-P F (mod)	Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter. Field filtration is recommended to ensure test results represent conditions at time of sampling.
Total Sulfide by Colourimetry (Automated Flow)	E395-H ALS Environmental - Vancouver	Water	APHA 4500 -S E-Auto-Colorimetry	Sulfide is determined using the gas dialysis automated methylene blue colourimetric method. Results expressed "as H_2S" if reported represent the maximum possible H_2S concentration based on the total sulfide concentration in the sample. The H_2S calculation converts Total Sulfide as (S^{2-}) and reports it as Total Sulfide as (H_2S)
Total Metals in Water by CRC ICPMS	E420 ALS Environmental - Vancouver	Water	EPA 200.2/6020B (mod)	Water samples are digested with nitric and hydrochloric acids, and analyzed by Collision/Reaction Cell ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
Dissolved Metals in Water by CRC ICPMS	E421 ALS Environmental - Vancouver	Water	APHA 3030B/EPA 6020B (mod)	Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by Collision/Reaction Cell ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Total Mercury in Water by CVAAS	E508 ALS Environmental - Vancouver	Water	EPA 1631E (mod)	Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS
Dissolved Mercury in Water by CVAAS	E509 ALS Environmental - Vancouver	Water	APHA 3030B/EPA 1631E (mod)	Water samples are filtered (0.45 um), preserved with HCl, then undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS.
Dissolved Hardness (Calculated)	EC100 ALS Environmental - Vancouver	Water	APHA 2340B	"Hardness (as CaCO3), dissolved" is calculated from the sum of dissolved Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. "Total Hardness" refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because it is a property of water due to dissolved divalent cations.
Hardness (Calculated) from Total Ca/Mg	EC100A ALS Environmental - Vancouver	Water	APHA 2340B	"Hardness (as CaCO3), from total Ca/Mg" is calculated from the sum of total Calcium and Magnesium concentrations, expressed as CaCO3 equivalents. "Total Hardness" refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because hardness is a property of water due to dissolved divalent cations. In non-turbid waters, Hardness from total Ca/Mg is normally comparable to Dissolved Hardness, but may be biased high if particulate forms of Ca or Mg are present.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Ammonia	EP298 ALS Environmental - Vancouver	Water		Sample preparation for Preserved Nutrients Water Quality Analysis.
Digestion for TKN in water	EP318 ALS Environmental - Vancouver	Water	APHA 4500-Norg D (mod)	Samples are digested at high temperature using Sulfuric Acid with Copper catalyst, which converts organic nitrogen sources to Ammonia, which is then quantified by the analytical method as TKN. This method is unsuitable for samples containing high levels of nitrate. If nitrate exceeds TKN concentration by ten times or more, results may be biased low.
Preparation for Total Organic Carbon by Combustion	EP355 ALS Environmental - Vancouver	Water		Preparation for Total Organic Carbon by Combustion
Dissolved Metals Water Filtration	EP421 ALS Environmental - Vancouver	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HNO3.
Dissolved Mercury Water Filtration	EP509 ALS Environmental - Vancouver	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HCl.

QUALITY CONTROL REPORT

Work Order	: **VA25C9760**	Page	: 1 of 18
Client	: Masse Environmental Consultants Ltd.	Laboratory	: ALS Environmental - Vancouver
Contact	: Ico de Zwart	Account Manager	: Can Dang
Address	: 812 Vernon Street Nelson BC Canada V1L 4G4	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: ----	Telephone	: +1 604 253 4188
Project	: 2016-503-HB	Date Samples Received	: 06-Nov-2025 12:50
PO	: ----	Date Analysis Commenced	: 07-Nov-2025
C-O-C number	: 22-20251104-GW	Issue Date	: 17-Nov-2025 10:38
Sampler	: C.Stephanou		
Site	: RDCK		
Quote number	: ----		
No. of samples received	: 11		
No. of samples analysed	: 11		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percent Difference (RPD) and Data Quality Objectives
- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Angelo Salandanan	Lab Assistant	Vancouver Metals, Burnaby, British Columbia
Jaewook Lee	Lab Assistant	Vancouver Metals, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Vancouver Metals, Burnaby, British Columbia
Kim Jensen	Department Manager - Metals	Vancouver Metals, Burnaby, British Columbia
Miles Gropen	Department Manager - Inorganics	Vancouver Inorganics, Burnaby, British Columbia
Monica Ko	Supervisor - Inorganic	Vancouver Inorganics, Burnaby, British Columbia
Rebecca Sit	Supervisor - Organics Extractions	Vancouver Inorganics, Burnaby, British Columbia

General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number = Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO = Data Quality Objective.
LOR = Limit of Reporting (detection limit).
RPD = Relative Percent Difference
# = Indicates a QC result that did not meet the ALS DQO.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test-specific).

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Physical Tests (QC Lot: 2325040)											
FJ2503445-003	Anonymous	pH	----	E108	0.10	pH units	8.00	8.00	0.00%	4%	----
Physical Tests (QC Lot: 2325041)											
FJ2503445-003	Anonymous	Alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	202	202	0.0991%	20%	----
Physical Tests (QC Lot: 2325042)											
FJ2503445-003	Anonymous	Conductivity	----	E100	2.0	µS/cm	374	371	0.805%	10%	----
Physical Tests (QC Lot: 2326776)											
VA25C9684-005	Anonymous	Solids, total suspended [TSS]	----	E160	3.0	mg/L	<3.0	<3.0	0	Diff <2x LOR	----
Physical Tests (QC Lot: 2326784)											
VA25C9684-005	Anonymous	Solids, total dissolved [TDS]	----	E162	13	mg/L	108	101	7	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 2325043)											
VA25C9760-001	MW99-1(S) (E275563)	Chloride	16887-00-6	E235.Cl	0.50	mg/L	1.36	1.35	0.004	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 2325044)											
VA25C9760-001	MW99-1(S) (E275563)	Nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 2325045)											
VA25C9760-001	MW99-1(S) (E275563)	Nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 2325046)											
VA25C9760-001	MW99-1(S) (E275563)	Sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	37.1	37.1	0.122%	20%	----
Anions and Nutrients (QC Lot: 2325047)											
VA25C9760-001	MW99-1(S) (E275563)	Fluoride	16984-48-8	E235.F	0.020	mg/L	0.114	0.120	0.006	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 2325048)											
VA25C9760-001	MW99-1(S) (E275563)	Bromide	24959-67-9	E235.Br-L	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 2325050)											
FJ2503445-001	Anonymous	Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0010	mg/L	0.0197	0.0197	0.0592%	20%	----
Anions and Nutrients (QC Lot: 2327702)											
VA25C9714-001	Anonymous	Kjeldahl nitrogen, total [TKN]	----	E318	0.050	mg/L	0.070	0.055	0.015	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 2327706)											
VA25C9714-001	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 2327708)											
VA25C9760-001	MW99-1(S) (E275563)	Kjeldahl nitrogen, total [TKN]	----	E318	0.050	mg/L	0.542	0.537	0.842%	20%	----
Anions and Nutrients (QC Lot: 2327710)											

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Anions and Nutrients (QC Lot: 2327710) - continued											
VA25C9760-001	MW99-1(S) (E275563)	Ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	0.478	0.482	0.659%	20%	----
Organic / Inorganic Carbon (QC Lot: 2327703)											
VA25C9714-001	Anonymous	Carbon, total organic [TOC]	----	E355-L	0.50	mg/L	1.57	1.75	0.19	Diff <2x LOR	----
Organic / Inorganic Carbon (QC Lot: 2327709)											
VA25C9760-001	MW99-1(S) (E275563)	Carbon, total organic [TOC]	----	E355-L	0.50	mg/L	2.05	2.43	0.39	Diff <2x LOR	----
Total Sulfides (QC Lot: 2329511)											
VA25C9509-001	Anonymous	Sulfide, total (as S)	18496-25-8	E395-H	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
Total Metals (QC Lot: 2324866)											
VA25C9760-001	MW99-1(S) (E275563)	Aluminum, total	7429-90-5	E420	0.0030	mg/L	31.1 µg/L	0.0312	0.342%	20%	----
		Antimony, total	7440-36-0	E420	0.00010	mg/L	0.12 µg/L	0.00013	0.000001	Diff <2x LOR	----
		Arsenic, total	7440-38-2	E420	0.00010	mg/L	0.97 µg/L	0.00094	0.00004	Diff <2x LOR	----
		Barium, total	7440-39-3	E420	0.00010	mg/L	455 µg/L	0.446	2.03%	20%	----
		Beryllium, total	7440-41-7	E420	0.000100	mg/L	<0.100 µg/L	<0.000100	0	Diff <2x LOR	----
		Bismuth, total	7440-69-9	E420	0.000050	mg/L	<0.050 µg/L	<0.000050	0	Diff <2x LOR	----
		Boron, total	7440-42-8	E420	0.010	mg/L	30 µg/L	0.030	0.0001	Diff <2x LOR	----
		Cadmium, total	7440-43-9	E420	0.0000050	mg/L	0.0317 µg/L	0.0000383	0.0000067	Diff <2x LOR	----
		Calcium, total	7440-70-2	E420	0.050	mg/L	38600 µg/L	39.2	1.44%	20%	----
		Cesium, total	7440-46-2	E420	0.000010	mg/L	0.025 µg/L	0.000029	0.000004	Diff <2x LOR	----
		Chromium, total	7440-47-3	E420	0.00050	mg/L	1.49 µg/L	0.00131	0.00018	Diff <2x LOR	----
		Cobalt, total	7440-48-4	E420	0.00010	mg/L	0.13 µg/L	0.00014	0.000008	Diff <2x LOR	----
		Copper, total	7440-50-8	E420	0.00050	mg/L	2.70 µg/L	0.00276	0.00006	Diff <2x LOR	----
		Iron, total	7439-89-6	E420	0.010	mg/L	21700 µg/L	21.5	1.07%	20%	----
		Lead, total	7439-92-1	E420	0.000050	mg/L	0.369 µg/L	0.000373	0.000004	Diff <2x LOR	----
		Lithium, total	7439-93-2	E420	0.0010	mg/L	20.2 µg/L	0.0201	0.438%	20%	----
		Magnesium, total	7439-95-4	E420	0.0050	mg/L	8400 µg/L	8.41	0.0540%	20%	----
		Manganese, total	7439-96-5	E420	0.00010	mg/L	318 µg/L	0.316	0.738%	20%	----
		Molybdenum, total	7439-98-7	E420	0.000050	mg/L	0.241 µg/L	0.000247	0.000006	Diff <2x LOR	----
		Nickel, total	7440-02-0	E420	0.00050	mg/L	0.63 µg/L	0.00069	0.00006	Diff <2x LOR	----
		Phosphorus, total	7723-14-0	E420	0.050	mg/L	5660 µg/L	5.64	0.323%	20%	----
		Potassium, total	7440-09-7	E420	0.050	mg/L	1070 µg/L	1.08	0.540%	20%	----
		Rubidium, total	7440-17-7	E420	0.00020	mg/L	0.54 µg/L	0.00048	0.00007	Diff <2x LOR	----
		Selenium, total	7782-49-2	E420	0.000050	mg/L	<0.050 µg/L	0.000051	0.000001	Diff <2x LOR	----
		Silicon, total	7440-21-3	E420	0.10	mg/L	17100 µg/L	17.4	2.06%	20%	----
		Silver, total	7440-22-4	E420	0.000010	mg/L	0.016 µg/L	0.000017	0.0000009	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Total Metals (QC Lot: 2324866) - continued											
VA25C9760-001	MW99-1(S) (E275563)	Sodium, total	7440-23-5	E420	0.050	mg/L	4390 µg/L	4.54	3.27%	20%	----
		Strontium, total	7440-24-6	E420	0.00020	mg/L	270 µg/L	0.278	2.74%	20%	----
		Sulfur, total	7704-34-9	E420	0.50	mg/L	13000 µg/L	13.0	0.0414%	20%	----
		Tellurium, total	13494-80-9	E420	0.00020	mg/L	<0.20 µg/L	<0.00020	0	Diff <2x LOR	----
		Thallium, total	7440-28-0	E420	0.000010	mg/L	<0.010 µg/L	<0.000010	0	Diff <2x LOR	----
		Thorium, total	7440-29-1	E420	0.00010	mg/L	<0.10 µg/L	<0.00010	0	Diff <2x LOR	----
		Tin, total	7440-31-5	E420	0.00010	mg/L	<0.10 µg/L	<0.00010	0	Diff <2x LOR	----
		Titanium, total	7440-32-6	E420	0.00030	mg/L	1.99 µg/L	0.00203	0.00004	Diff <2x LOR	----
		Tungsten, total	7440-33-7	E420	0.00010	mg/L	0.76 µg/L	0.00079	0.00003	Diff <2x LOR	----
		Uranium, total	7440-61-1	E420	0.000010	mg/L	0.315 µg/L	0.000302	4.32%	20%	----
		Vanadium, total	7440-62-2	E420	0.00050	mg/L	2.94 µg/L	0.00293	0.00001	Diff <2x LOR	----
		Zinc, total	7440-66-6	E420	0.0030	mg/L	5.0 µg/L	0.0049	0.0001	Diff <2x LOR	----
		Zirconium, total	7440-67-7	E420	0.00020	mg/L	<0.20 µg/L	<0.00020	0	Diff <2x LOR	----
Total Metals (QC Lot: 2333468)											
VA25C9757-001	Anonymous	Mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Total Metals (QC Lot: 2333469)											
VA25C9760-011	S-MW-2 (E221703)	Mercury, total	7439-97-6	E508	0.0000050	mg/L	0.0351 µg/L	0.0000379	0.0000028	Diff <2x LOR	----
Dissolved Metals (QC Lot: 2324937)											
VA25C9760-001	MW99-1(S) (E275563)	Aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	1.3 µg/L	0.0013	0.00008	Diff <2x LOR	----
		Antimony, dissolved	7440-36-0	E421	0.00010	mg/L	<0.10 µg/L	<0.00010	0	Diff <2x LOR	----
		Arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	0.42 µg/L	0.00039	0.00003	Diff <2x LOR	----
		Barium, dissolved	7440-39-3	E421	0.00010	mg/L	82.8 µg/L	0.0792	4.49%	20%	----
		Beryllium, dissolved	7440-41-7	E421	0.000100	mg/L	<0.100 µg/L	<0.000100	0	Diff <2x LOR	----
		Bismuth, dissolved	7440-69-9	E421	0.000050	mg/L	<0.050 µg/L	<0.000050	0	Diff <2x LOR	----
		Boron, dissolved	7440-42-8	E421	0.010	mg/L	29 µg/L	0.028	0.0009	Diff <2x LOR	----
		Cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L	<0.0050 µg/L	<0.0000050	0	Diff <2x LOR	----
		Calcium, dissolved	7440-70-2	E421	0.050	mg/L	33100 µg/L	33.1	0.140%	20%	----
		Cesium, dissolved	7440-46-2	E421	0.000010	mg/L	0.021 µg/L	0.000019	0.000002	Diff <2x LOR	----
		Chromium, dissolved	7440-47-3	E421	0.00050	mg/L	<0.50 µg/L	<0.00050	0	Diff <2x LOR	----
		Cobalt, dissolved	7440-48-4	E421	0.00010	mg/L	<0.10 µg/L	<0.00010	0	Diff <2x LOR	----
		Copper, dissolved	7440-50-8	E421	0.00020	mg/L	<0.20 µg/L	<0.00020	0	Diff <2x LOR	----
		Iron, dissolved	7439-89-6	E421	0.010	mg/L	7420 µg/L	7.36	0.883%	20%	----
		Lead, dissolved	7439-92-1	E421	0.000050	mg/L	<0.050 µg/L	<0.000050	0	Diff <2x LOR	----
		Lithium, dissolved	7439-93-2	E421	0.0010	mg/L	19.2 µg/L	0.0185	3.90%	20%	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Dissolved Metals (QC Lot: 2324937) - continued											
VA25C9760-001	MW99-1(S) (E275563)	Magnesium, dissolved	7439-95-4	E421	0.0050	mg/L	7950 µg/L	7.78	2.11%	20%	----
		Manganese, dissolved	7439-96-5	E421	0.00010	mg/L	274 µg/L	0.267	2.55%	20%	----
		Molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.185 µg/L	0.000196	0.000011	Diff <2x LOR	----
		Nickel, dissolved	7440-02-0	E421	0.00050	mg/L	<0.50 µg/L	<0.00050	0	Diff <2x LOR	----
		Phosphorus, dissolved	7723-14-0	E421	0.050	mg/L	1590 µg/L	1.53	3.78%	20%	----
		Potassium, dissolved	7440-09-7	E421	0.050	mg/L	1200 µg/L	1.19	1.07%	20%	----
		Rubidium, dissolved	7440-17-7	E421	0.00020	mg/L	0.51 µg/L	0.00050	0.00002	Diff <2x LOR	----
		Selenium, dissolved	7782-49-2	E421	0.000050	mg/L	<0.050 µg/L	<0.000050	0	Diff <2x LOR	----
		Silicon, dissolved	7440-21-3	E421	0.050	mg/L	16600 µg/L	17.1	2.53%	20%	----
		Silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.010 µg/L	<0.000010	0	Diff <2x LOR	----
		Sodium, dissolved	7440-23-5	E421	0.050	mg/L	4820 µg/L	4.80	0.493%	20%	----
		Strontium, dissolved	7440-24-6	E421	0.00020	mg/L	215 µg/L	0.223	3.43%	20%	----
		Sulfur, dissolved	7704-34-9	E421	0.50	mg/L	11800 µg/L	12.1	1.95%	20%	----
		Tellurium, dissolved	13494-80-9	E421	0.00020	mg/L	<0.20 µg/L	<0.00020	0	Diff <2x LOR	----
		Thallium, dissolved	7440-28-0	E421	0.000010	mg/L	<0.010 µg/L	<0.000010	0	Diff <2x LOR	----
		Thorium, dissolved	7440-29-1	E421	0.00010	mg/L	<0.10 µg/L	<0.00010	0	Diff <2x LOR	----
		Tin, dissolved	7440-31-5	E421	0.00010	mg/L	<0.10 µg/L	<0.00010	0	Diff <2x LOR	----
		Titanium, dissolved	7440-32-6	E421	0.00030	mg/L	<0.30 µg/L	<0.00030	0	Diff <2x LOR	----
		Tungsten, dissolved	7440-33-7	E421	0.00010	mg/L	0.47 µg/L	0.00047	0.000009	Diff <2x LOR	----
		Uranium, dissolved	7440-61-1	E421	0.000010	mg/L	0.024 µg/L	0.000023	0.000001	Diff <2x LOR	----
		Vanadium, dissolved	7440-62-2	E421	0.00050	mg/L	<0.50 µg/L	<0.00050	0	Diff <2x LOR	----
		Zinc, dissolved	7440-66-6	E421	0.0010	mg/L	<1.0 µg/L	<0.0010	0	Diff <2x LOR	----
		Zirconium, dissolved	7440-67-7	E421	0.00020	mg/L	<0.20 µg/L	<0.00020	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 2335477)											
VA25C9741-001	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 2335478)											
VA25C9760-003	MW99-2(S) (E275543)	Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0050 µg/L	<0.0000050	0	Diff <2x LOR	----

Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 2325041)						
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	<1.0	----
Physical Tests (QCLot: 2325042)						
Conductivity	----	E100	1	µS/cm	1.1	----
Physical Tests (QCLot: 2326776)						
Solids, total suspended [TSS]	----	E160	3	mg/L	<3.0	----
Physical Tests (QCLot: 2326784)						
Solids, total dissolved [TDS]	----	E162	10	mg/L	<10	----
Anions and Nutrients (QCLot: 2325043)						
Chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 2325044)						
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 2325045)						
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 2325046)						
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	----
Anions and Nutrients (QCLot: 2325047)						
Fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 2325048)						
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 2325050)						
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 2327702)						
Kjeldahl nitrogen, total [TKN]	----	E318	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 2327706)						
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 2327708)						
Kjeldahl nitrogen, total [TKN]	----	E318	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 2327710)						
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	----
Organic / Inorganic Carbon (QCLot: 2327703)						
Carbon, total organic [TOC]	----	E355-L	0.5	mg/L	<0.50	----
Organic / Inorganic Carbon (QCLot: 2327709)						

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Organic / Inorganic Carbon (QCLot: 2327709) - continued						
Carbon, total organic [TOC]	----	E355-L	0.5	mg/L	<0.50	----
Total Sulfides (QCLot: 2329511)						
Sulfide, total (as S)	18496-25-8	E395-H	0.01	mg/L	<0.010	----
Total Metals (QCLot: 2324866)						
Aluminum, total	7429-90-5	E420	0.003	mg/L	<0.0030	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	<0.00010	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	<0.00010	----
Barium, total	7440-39-3	E420	0.0001	mg/L	<0.00010	----
Beryllium, total	7440-41-7	E420	0.00002	mg/L	<0.000020	----
Bismuth, total	7440-69-9	E420	0.00005	mg/L	<0.000050	----
Boron, total	7440-42-8	E420	0.01	mg/L	<0.010	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	<0.0000050	----
Calcium, total	7440-70-2	E420	0.05	mg/L	<0.050	----
Cesium, total	7440-46-2	E420	0.00001	mg/L	<0.000010	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	<0.00050	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	<0.00010	----
Copper, total	7440-50-8	E420	0.0005	mg/L	<0.00050	----
Iron, total	7439-89-6	E420	0.01	mg/L	<0.010	----
Lead, total	7439-92-1	E420	0.00005	mg/L	<0.000050	----
Lithium, total	7439-93-2	E420	0.001	mg/L	<0.0010	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	<0.0050	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	<0.00010	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	<0.000050	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	<0.00050	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	<0.050	----
Potassium, total	7440-09-7	E420	0.05	mg/L	<0.050	----
Rubidium, total	7440-17-7	E420	0.0002	mg/L	<0.00020	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	<0.000050	----
Silicon, total	7440-21-3	E420	0.1	mg/L	<0.10	----
Silver, total	7440-22-4	E420	0.00001	mg/L	<0.000010	----
Sodium, total	7440-23-5	E420	0.05	mg/L	<0.050	----
Strontium, total	7440-24-6	E420	0.0002	mg/L	<0.00020	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	<0.50	----
Tellurium, total	13494-80-9	E420	0.0002	mg/L	<0.00020	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	<0.000010	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (QCLot: 2324866) - continued						
Thorium, total	7440-29-1	E420	0.0001	mg/L	<0.00010	----
Tin, total	7440-31-5	E420	0.0001	mg/L	<0.00010	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	<0.00030	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	<0.00010	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	<0.000010	----
Vanadium, total	7440-62-2	E420	0.0005	mg/L	<0.00050	----
Zinc, total	7440-66-6	E420	0.003	mg/L	<0.0030	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	<0.00020	----
Total Metals (QCLot: 2333468)						
Mercury, total	7439-97-6	E508	0.000005	mg/L	<0.0000050	----
Total Metals (QCLot: 2333469)						
Mercury, total	7439-97-6	E508	0.000005	mg/L	<0.0000050	----
Dissolved Metals (QCLot: 2324937)						
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	<0.0010	----
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	<0.00010	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	<0.00010	----
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	<0.00010	----
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	<0.000020	----
Bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	<0.000050	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	<0.010	----
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	<0.0000050	----
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	<0.050	----
Cesium, dissolved	7440-46-2	E421	0.00001	mg/L	<0.000010	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	<0.00050	----
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	<0.00010	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	<0.00020	----
Iron, dissolved	7439-89-6	E421	0.01	mg/L	<0.010	----
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	<0.000050	----
Lithium, dissolved	7439-93-2	E421	0.001	mg/L	<0.0010	----
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	<0.0050	----
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	<0.00010	----
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	<0.000050	----
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	<0.00050	----
Phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	<0.050	----
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	<0.050	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Dissolved Metals (QCLot: 2324937) - continued						
Rubidium, dissolved	7440-17-7	E421	0.0002	mg/L	<0.00020	----
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	<0.000050	----
Silicon, dissolved	7440-21-3	E421	0.05	mg/L	<0.050	----
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	<0.000010	----
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	<0.050	----
Strontium, dissolved	7440-24-6	E421	0.0002	mg/L	<0.00020	----
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	<0.50	----
Tellurium, dissolved	13494-80-9	E421	0.0002	mg/L	<0.00020	----
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	<0.000010	----
Thorium, dissolved	7440-29-1	E421	0.0001	mg/L	<0.00010	----
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	<0.00010	----
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	<0.00030	----
Tungsten, dissolved	7440-33-7	E421	0.0001	mg/L	<0.00010	----
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	<0.000010	----
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	<0.00050	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	<0.0010	----
Zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	<0.00020	----
Dissolved Metals (QCLot: 2335477)						
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	<0.0000050	----
Dissolved Metals (QCLot: 2335478)						
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	<0.0000050	----

Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 2325040)									
pH	----	E108	----	pH units	7 pH units	99.9	98.0	102	----
Physical Tests (QCLot: 2325041)									
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	500 mg/L	100	85.0	115	----
Physical Tests (QCLot: 2325042)									
Conductivity	----	E100	1	µS/cm	147 µS/cm	96.7	90.0	110	----
Physical Tests (QCLot: 2326776)									
Solids, total suspended [TSS]	----	E160	3	mg/L	150 mg/L	97.2	85.0	115	----
Physical Tests (QCLot: 2326784)									
Solids, total dissolved [TDS]	----	E162	10	mg/L	1000 mg/L	106	85.0	115	----
Anions and Nutrients (QCLot: 2325043)									
Chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 2325044)									
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	2.5 mg/L	102	90.0	110	----
Anions and Nutrients (QCLot: 2325045)									
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	0.5 mg/L	98.9	90.0	110	----
Anions and Nutrients (QCLot: 2325046)									
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	102	90.0	110	----
Anions and Nutrients (QCLot: 2325047)									
Fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	96.4	90.0	110	----
Anions and Nutrients (QCLot: 2325048)									
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	0.5 mg/L	104	85.0	115	----
Anions and Nutrients (QCLot: 2325050)									
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.001	mg/L	0.03 mg/L	105	80.0	120	----
Anions and Nutrients (QCLot: 2327702)									
Kjeldahl nitrogen, total [TKN]	----	E318	0.05	mg/L	4 mg/L	103	75.0	125	----
Anions and Nutrients (QCLot: 2327706)									
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	101	85.0	115	----
Anions and Nutrients (QCLot: 2327708)									
Kjeldahl nitrogen, total [TKN]	----	E318	0.05	mg/L	4 mg/L	104	75.0	125	----
Anions and Nutrients (QCLot: 2327710)									
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	101	85.0	115	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Organic / Inorganic Carbon (QCLot: 2327703)									
Carbon, total organic [TOC]	----	E355-L	0.5	mg/L	8.57 mg/L	102	80.0	120	----
Organic / Inorganic Carbon (QCLot: 2327709)									
Carbon, total organic [TOC]	----	E355-L	0.5	mg/L	8.57 mg/L	104	80.0	120	----
Total Sulfides (QCLot: 2329511)									
Sulfide, total (as H2S)	7783-06-4	E395-H	----	mg/L	0.085 mg/L	93.8	80.0	120	----
Sulfide, total (as S)	18496-25-8	E395-H	0.01	mg/L	0.08 mg/L	93.5	80.0	120	----
Total Metals (QCLot: 2324866)									
Aluminum, total	7429-90-5	E420	0.003	mg/L	2 mg/L	95.2	80.0	120	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	1 mg/L	101	80.0	120	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	1 mg/L	97.5	80.0	120	----
Barium, total	7440-39-3	E420	0.0001	mg/L	0.25 mg/L	97.2	80.0	120	----
Beryllium, total	7440-41-7	E420	0.00002	mg/L	0.1 mg/L	97.9	80.0	120	----
Bismuth, total	7440-69-9	E420	0.00005	mg/L	1 mg/L	104	80.0	120	----
Boron, total	7440-42-8	E420	0.01	mg/L	1 mg/L	93.8	80.0	120	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	0.1 mg/L	97.3	80.0	120	----
Calcium, total	7440-70-2	E420	0.05	mg/L	50 mg/L	99.9	80.0	120	----
Cesium, total	7440-46-2	E420	0.00001	mg/L	0.05 mg/L	96.1	80.0	120	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	0.25 mg/L	96.6	80.0	120	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	0.25 mg/L	95.1	80.0	120	----
Copper, total	7440-50-8	E420	0.0005	mg/L	0.25 mg/L	93.7	80.0	120	----
Iron, total	7439-89-6	E420	0.01	mg/L	1 mg/L	95.8	80.0	120	----
Lead, total	7439-92-1	E420	0.00005	mg/L	0.5 mg/L	98.9	80.0	120	----
Lithium, total	7439-93-2	E420	0.001	mg/L	0.25 mg/L	94.9	80.0	120	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	50 mg/L	96.3	80.0	120	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	0.25 mg/L	95.0	80.0	120	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	0.25 mg/L	99.2	80.0	120	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	0.5 mg/L	97.5	80.0	120	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	10 mg/L	92.9	80.0	120	----
Potassium, total	7440-09-7	E420	0.05	mg/L	50 mg/L	95.9	80.0	120	----
Rubidium, total	7440-17-7	E420	0.0002	mg/L	0.1 mg/L	97.7	80.0	120	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	1 mg/L	98.9	80.0	120	----
Silicon, total	7440-21-3	E420	0.1	mg/L	10 mg/L	101	80.0	120	----
Silver, total	7440-22-4	E420	0.00001	mg/L	0.1 mg/L	88.9	80.0	120	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Total Metals (QCLot: 2324866) - continued									
Sodium, total	7440-23-5	E420	0.05	mg/L	50 mg/L	100	80.0	120	----
Strontium, total	7440-24-6	E420	0.0002	mg/L	0.25 mg/L	98.9	80.0	120	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	50 mg/L	94.2	80.0	120	----
Tellurium, total	13494-80-9	E420	0.0002	mg/L	0.1 mg/L	96.8	80.0	120	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	1 mg/L	102	80.0	120	----
Thorium, total	7440-29-1	E420	0.0001	mg/L	0.1 mg/L	98.0	80.0	120	----
Tin, total	7440-31-5	E420	0.0001	mg/L	0.5 mg/L	96.8	80.0	120	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	0.25 mg/L	94.4	80.0	120	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	0.1 mg/L	97.9	80.0	120	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	0.005 mg/L	102	80.0	120	----
Vanadium, total	7440-62-2	E420	0.0005	mg/L	0.5 mg/L	98.0	80.0	120	----
Zinc, total	7440-66-6	E420	0.003	mg/L	0.5 mg/L	94.4	80.0	120	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	0.1 mg/L	88.9	80.0	120	----
Total Metals (QCLot: 2333468)									
Mercury, total	7439-97-6	E508	0.000005	mg/L	0 mg/L	95.5	80.0	120	----
Total Metals (QCLot: 2333469)									
Mercury, total	7439-97-6	E508	0.000005	mg/L	0 mg/L	95.9	80.0	120	----
Dissolved Metals (QCLot: 2324937)									
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	2 mg/L	105	80.0	120	----
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	1 mg/L	100	80.0	120	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	1 mg/L	102	80.0	120	----
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	0.25 mg/L	103	80.0	120	----
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	0.1 mg/L	105	80.0	120	----
Bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	1 mg/L	101	80.0	120	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	1 mg/L	107	80.0	120	----
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	0.1 mg/L	99.1	80.0	120	----
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	50 mg/L	101	80.0	120	----
Cesium, dissolved	7440-46-2	E421	0.00001	mg/L	0.05 mg/L	96.0	80.0	120	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	0.25 mg/L	101	80.0	120	----
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	0.25 mg/L	100	80.0	120	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	0.25 mg/L	98.5	80.0	120	----
Iron, dissolved	7439-89-6	E421	0.01	mg/L	1 mg/L	102	80.0	120	----
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	0.5 mg/L	99.7	80.0	120	----
Lithium, dissolved	7439-93-2	E421	0.001	mg/L	0.25 mg/L	99.9	80.0	120	----
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	50 mg/L	101	80.0	120	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Dissolved Metals (QCLot: 2324937) - continued									
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	0.25 mg/L	102	80.0	120	----
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	0.25 mg/L	102	80.0	120	----
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	0.5 mg/L	99.1	80.0	120	----
Phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	10 mg/L	104	80.0	120	----
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	50 mg/L	110	80.0	120	----
Rubidium, dissolved	7440-17-7	E421	0.0002	mg/L	0.1 mg/L	100	80.0	120	----
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	1 mg/L	109	80.0	120	----
Silicon, dissolved	7440-21-3	E421	0.05	mg/L	10 mg/L	115	80.0	120	----
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	0.1 mg/L	87.9	80.0	120	----
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	50 mg/L	108	80.0	120	----
Strontium, dissolved	7440-24-6	E421	0.0002	mg/L	0.25 mg/L	97.8	80.0	120	----
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	50 mg/L	98.2	80.0	120	----
Tellurium, dissolved	13494-80-9	E421	0.0002	mg/L	0.1 mg/L	94.6	80.0	120	----
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	1 mg/L	99.3	80.0	120	----
Thorium, dissolved	7440-29-1	E421	0.0001	mg/L	0.1 mg/L	96.4	80.0	120	----
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	0.5 mg/L	99.3	80.0	120	----
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	0.25 mg/L	100	80.0	120	----
Tungsten, dissolved	7440-33-7	E421	0.0001	mg/L	0.1 mg/L	96.3	80.0	120	----
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	0.005 mg/L	101	80.0	120	----
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	0.5 mg/L	105	80.0	120	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	0.5 mg/L	97.9	80.0	120	----
Zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	0.1 mg/L	96.9	80.0	120	----
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0 mg/L	93.8	80.0	120	----
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0 mg/L	94.5	80.0	120	----

Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for the associated sample (or similar samples) may be subject to bias. ND – Recovery not determined, background level >= 1x spike level.

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Anions and Nutrients (QCLot: 2325043)										
VA25C9760-002	MW99-1(D) (E240501)	Chloride	16887-00-6	E235.Cl	487 mg/L	500 mg/L	97.5	75.0	125	----
Anions and Nutrients (QCLot: 2325044)										
VA25C9760-002	MW99-1(D) (E240501)	Nitrate (as N)	14797-55-8	E235.NO3-L	12.4 mg/L	12.5 mg/L	98.9	75.0	125	----
Anions and Nutrients (QCLot: 2325045)										
VA25C9760-002	MW99-1(D) (E240501)	Nitrite (as N)	14797-65-0	E235.NO2-L	2.38 mg/L	2.5 mg/L	95.3	75.0	125	----
Anions and Nutrients (QCLot: 2325046)										
VA25C9760-002	MW99-1(D) (E240501)	Sulfate (as SO4)	14808-79-8	E235.SO4	488 mg/L	500 mg/L	97.6	75.0	125	----
Anions and Nutrients (QCLot: 2325047)										
VA25C9760-002	MW99-1(D) (E240501)	Fluoride	16984-48-8	E235.F	4.86 mg/L	5 mg/L	97.2	75.0	125	----
Anions and Nutrients (QCLot: 2325048)										
VA25C9760-002	MW99-1(D) (E240501)	Bromide	24959-67-9	E235.Br-L	2.47 mg/L	2.5 mg/L	99.0	75.0	125	----
Anions and Nutrients (QCLot: 2325050)										
FJ2503445-002	Anonymous	Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0305 mg/L	0.03 mg/L	102	70.0	130	----
Anions and Nutrients (QCLot: 2327702)										
VA25C9714-002	Anonymous	Kjeldahl nitrogen, total [TKN]	----	E318	2.53 mg/L	2.5 mg/L	101	70.0	130	----
Anions and Nutrients (QCLot: 2327706)										
VA25C9714-002	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0995 mg/L	0.1 mg/L	99.5	75.0	125	----
Anions and Nutrients (QCLot: 2327708)										
VA25C9760-002	MW99-1(D) (E240501)	Kjeldahl nitrogen, total [TKN]	----	E318	2.73 mg/L	2.5 mg/L	109	70.0	130	----
Anions and Nutrients (QCLot: 2327710)										
VA25C9760-002	MW99-1(D) (E240501)	Ammonia, total (as N)	7664-41-7	E298	ND mg/L	----	ND	75.0	125	----
Organic / Inorganic Carbon (QCLot: 2327703)										
VA25C9714-002	Anonymous	Carbon, total organic [TOC]	----	E355-L	5.26 mg/L	5 mg/L	105	70.0	130	----
Organic / Inorganic Carbon (QCLot: 2327709)										
VA25C9760-002	MW99-1(D) (E240501)	Carbon, total organic [TOC]	----	E355-L	5.23 mg/L	5 mg/L	105	70.0	130	----
Total Sulfides (QCLot: 2329511)										
VA25C9509-002	Anonymous	Sulfide, total (as S)	18496-25-8	E395-H	0.895 mg/L	1 mg/L	89.5	75.0	125	----
Total Metals (QCLot: 2324866)										
VA25C9760-002	MW99-1(D) (E240501)	Aluminum, total	7429-90-5	E420	0.200 mg/L	0.2 mg/L	99.9	70.0	130	----
		Antimony, total	7440-36-0	E420	0.0189 mg/L	0.02 mg/L	94.6	70.0	130	----
		Arsenic, total	7440-38-2	E420	0.0184 mg/L	0.02 mg/L	91.9	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Total Metals (QCLot: 2324866) - continued										
VA25C9760-002	MW99-1(D) (E240501)	Barium, total	7440-39-3	E420	ND mg/L	----	ND	70.0	130	----
		Beryllium, total	7440-41-7	E420	0.0368 mg/L	0.04 mg/L	92.0	70.0	130	----
		Bismuth, total	7440-69-9	E420	0.00895 mg/L	0.01 mg/L	89.5	70.0	130	----
		Boron, total	7440-42-8	E420	ND mg/L	----	ND	70.0	130	----
		Cadmium, total	7440-43-9	E420	0.00358 mg/L	0.004 mg/L	89.5	70.0	130	----
		Calcium, total	7440-70-2	E420	ND mg/L	----	ND	70.0	130	----
		Cesium, total	7440-46-2	E420	0.00929 mg/L	0.01 mg/L	92.9	70.0	130	----
		Chromium, total	7440-47-3	E420	0.0360 mg/L	0.04 mg/L	90.1	70.0	130	----
		Cobalt, total	7440-48-4	E420	0.0175 mg/L	0.02 mg/L	87.7	70.0	130	----
		Copper, total	7440-50-8	E420	0.0169 mg/L	0.02 mg/L	84.3	70.0	130	----
		Iron, total	7439-89-6	E420	1.83 mg/L	2 mg/L	91.3	70.0	130	----
		Lead, total	7439-92-1	E420	0.0174 mg/L	0.02 mg/L	86.8	70.0	130	----
		Lithium, total	7439-93-2	E420	ND mg/L	----	ND	70.0	130	----
		Magnesium, total	7439-95-4	E420	ND mg/L	----	ND	70.0	130	----
		Manganese, total	7439-96-5	E420	ND mg/L	----	ND	70.0	130	----
		Molybdenum, total	7439-98-7	E420	0.0194 mg/L	0.02 mg/L	97.1	70.0	130	----
		Nickel, total	7440-02-0	E420	0.0352 mg/L	0.04 mg/L	87.9	70.0	130	----
		Phosphorus, total	7723-14-0	E420	9.72 mg/L	10 mg/L	97.2	70.0	130	----
		Potassium, total	7440-09-7	E420	3.60 mg/L	4 mg/L	90.1	70.0	130	----
		Rubidium, total	7440-17-7	E420	0.0175 mg/L	0.02 mg/L	87.3	70.0	130	----
		Selenium, total	7782-49-2	E420	0.0391 mg/L	0.04 mg/L	97.6	70.0	130	----
		Silicon, total	7440-21-3	E420	9.15 mg/L	10 mg/L	91.5	70.0	130	----
		Silver, total	7440-22-4	E420	0.00363 mg/L	0.004 mg/L	90.6	70.0	130	----
		Sodium, total	7440-23-5	E420	ND mg/L	----	ND	70.0	130	----
		Strontium, total	7440-24-6	E420	ND mg/L	----	ND	70.0	130	----
		Sulfur, total	7704-34-9	E420	20.5 mg/L	20 mg/L	102	70.0	130	----
		Tellurium, total	13494-80-9	E420	0.0389 mg/L	0.04 mg/L	97.1	70.0	130	----
		Thallium, total	7440-28-0	E420	0.00355 mg/L	0.004 mg/L	88.8	70.0	130	----
		Thorium, total	7440-29-1	E420	0.0183 mg/L	0.02 mg/L	91.7	70.0	130	----
		Tin, total	7440-31-5	E420	0.0192 mg/L	0.02 mg/L	95.9	70.0	130	----
		Titanium, total	7440-32-6	E420	0.0367 mg/L	0.04 mg/L	91.7	70.0	130	----
		Tungsten, total	7440-33-7	E420	0.0187 mg/L	0.02 mg/L	93.4	70.0	130	----
		Uranium, total	7440-61-1	E420	0.00375 mg/L	0.004 mg/L	93.9	70.0	130	----
		Vanadium, total	7440-62-2	E420	0.0917 mg/L	0.1 mg/L	91.7	70.0	130	----
		Zinc, total	7440-66-6	E420	0.354 mg/L	0.4 mg/L	88.5	70.0	130	----
		Zirconium, total	7440-67-7	E420	0.0375 mg/L	0.04 mg/L	93.9	70.0	130	----
Total Metals (QCLot: 2333468)										
VA25C9757-002	Anonymous	Mercury, total	7439-97-6	E508	0.0000877 mg/L	0 mg/L	87.7	70.0	130	----
Total Metals (QCLot: 2333469)										
VA25C9773-001	Anonymous	Mercury, total	7439-97-6	E508	0.0000882 mg/L	0 mg/L	88.2	70.0	130	----
Dissolved Metals (QCLot: 2324937)										
VA25C9760-002	MW99-1(D) (E240501)	Aluminum, dissolved	7429-90-5	E421	0.187 mg/L	0.2 mg/L	93.3	70.0	130	----
		Antimony, dissolved	7440-36-0	E421	0.0192 mg/L	0.02 mg/L	96.2	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Dissolved Metals (QCLot: 2324937) - continued										
VA25C9760-002	MW99-1(D) (E240501)	Arsenic, dissolved	7440-38-2	E421	0.0199 mg/L	0.02 mg/L	99.7	70.0	130	----
		Barium, dissolved	7440-39-3	E421	ND mg/L	----	ND	70.0	130	----
		Beryllium, dissolved	7440-41-7	E421	0.0413 mg/L	0.04 mg/L	103	70.0	130	----
		Bismuth, dissolved	7440-69-9	E421	0.00889 mg/L	0.01 mg/L	88.9	70.0	130	----
		Boron, dissolved	7440-42-8	E421	ND mg/L	----	ND	70.0	130	----
		Cadmium, dissolved	7440-43-9	E421	0.00393 mg/L	0.004 mg/L	98.3	70.0	130	----
		Calcium, dissolved	7440-70-2	E421	ND mg/L	----	ND	70.0	130	----
		Cesium, dissolved	7440-46-2	E421	0.00953 mg/L	0.01 mg/L	95.3	70.0	130	----
		Chromium, dissolved	7440-47-3	E421	0.0392 mg/L	0.04 mg/L	98.0	70.0	130	----
		Cobalt, dissolved	7440-48-4	E421	0.0189 mg/L	0.02 mg/L	94.4	70.0	130	----
		Copper, dissolved	7440-50-8	E421	0.0179 mg/L	0.02 mg/L	89.6	70.0	130	----
		Iron, dissolved	7439-89-6	E421	1.90 mg/L	2 mg/L	94.9	70.0	130	----
		Lead, dissolved	7439-92-1	E421	0.0189 mg/L	0.02 mg/L	94.4	70.0	130	----
		Lithium, dissolved	7439-93-2	E421	ND mg/L	----	ND	70.0	130	----
		Magnesium, dissolved	7439-95-4	E421	ND mg/L	----	ND	70.0	130	----
		Manganese, dissolved	7439-96-5	E421	ND mg/L	----	ND	70.0	130	----
		Molybdenum, dissolved	7439-98-7	E421	0.0206 mg/L	0.02 mg/L	103	70.0	130	----
		Nickel, dissolved	7440-02-0	E421	0.0363 mg/L	0.04 mg/L	90.7	70.0	130	----
		Phosphorus, dissolved	7723-14-0	E421	10.2 mg/L	10 mg/L	102	70.0	130	----
		Potassium, dissolved	7440-09-7	E421	ND mg/L	----	ND	70.0	130	----
		Rubidium, dissolved	7440-17-7	E421	0.0191 mg/L	0.02 mg/L	95.6	70.0	130	----
		Selenium, dissolved	7782-49-2	E421	0.0421 mg/L	0.04 mg/L	105	70.0	130	----
		Silicon, dissolved	7440-21-3	E421	9.79 mg/L	10 mg/L	97.9	70.0	130	----
		Silver, dissolved	7440-22-4	E421	0.00372 mg/L	0.004 mg/L	93.1	70.0	130	----
		Sodium, dissolved	7440-23-5	E421	ND mg/L	----	ND	70.0	130	----
		Strontium, dissolved	7440-24-6	E421	ND mg/L	----	ND	70.0	130	----
		Sulfur, dissolved	7704-34-9	E421	22.0 mg/L	20 mg/L	110	70.0	130	----
		Tellurium, dissolved	13494-80-9	E421	0.0384 mg/L	0.04 mg/L	96.1	70.0	130	----
		Thallium, dissolved	7440-28-0	E421	0.00360 mg/L	0.004 mg/L	90.1	70.0	130	----
		Thorium, dissolved	7440-29-1	E421	0.0207 mg/L	0.02 mg/L	103	70.0	130	----
		Tin, dissolved	7440-31-5	E421	0.0193 mg/L	0.02 mg/L	96.7	70.0	130	----
		Titanium, dissolved	7440-32-6	E421	0.0388 mg/L	0.04 mg/L	96.9	70.0	130	----
		Tungsten, dissolved	7440-33-7	E421	0.0190 mg/L	0.02 mg/L	94.8	70.0	130	----
		Uranium, dissolved	7440-61-1	E421	0.00394 mg/L	0.004 mg/L	98.4	70.0	130	----
		Vanadium, dissolved	7440-62-2	E421	0.103 mg/L	0.1 mg/L	103	70.0	130	----
		Zinc, dissolved	7440-66-6	E421	0.371 mg/L	0.4 mg/L	92.7	70.0	130	----
		Zirconium, dissolved	7440-67-7	E421	0.0412 mg/L	0.04 mg/L	103	70.0	130	----
Dissolved Metals (QCLot: 2335477)										
VA25C9741-002	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000903 mg/L	0 mg/L	90.3	70.0	130	----
Dissolved Metals (QCLot: 2335478)										
VA25C9760-004	MW99-2(D) (E240502)	Mercury, dissolved	7439-97-6	E509	0.0000905 mg/L	0 mg/L	90.5	70.0	130	----

Chain of Custody (COC) / Analytical Request Form

COC Number: 22 - 20251104-GW

Page 1 of 1

www.alsglobal.com

Canada Toll Free: 1 800 668 9878

Environmental Division
Vancouver
Work Order Reference
VA25C9760

Telephone : +1 604 253 4188

Report To	Contact and company name below will appear on the final report
Company:	Masse Environmental
Contact:	Ico deZwart
Phone:	
	Company address below will appear on the final report
Street:	812 Vernon St.
City/Province:	Nelson, BC
Postal Code:	V1L4G4
Invoice To	Same as Report To ☑ YES ☐ NO
	Copy of Invoice with Report ☑ YES ☐ NO
Company:	
Contact:	

Reports / Recipients	
Select Report Format:	☑ PDF ☑ EXCEL ☑ EDD (DIGITAL)
Merge QC/QCI Reports with COA	☑ YES ☐ NO ☐ N/A
☐ Compare Results to Criteria on Report - provide details below if box checked	
Select Distribution:	☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	ico@masseenvironmental.com
Email 2	chris@masseenvironmental.com
Email 3	jenn@masseenvironmental.com
Invoice Recipients	
Select Invoice Distribution:	☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	lise@masseenvironmental.com
Email 2	

Turnaround Time (TAT) Requested
☑ Routine [R] if received by 3pm M-F - no surcharges apply
☐ 4 day [P4] if received by 3pm M-F - 20% rush surcharge minimu
☐ 3 day [P3] if received by 3pm M-F - 25% rush surcharge minimu
☐ 2 day [P2] if received by 3pm M-F - 50% rush surcharge minimu
☐ 1 day [E] if received by 3pm M-F - 100% rush surcharge minimu
☐ Same day [E2] if received by 10am M-S - 200% rush surcharge
Additional fees may apply to rush requests on weekends
Date and Time Required for all E&P TATs:
For all tests with rush TATs requested, please co

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	VA24-MASS200-001	AFE/Cost Center:	PO#
Job #:	2016-503 - HB	Major/Minor Code:	Routing Code:
PO / AFE:		Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (ALS use only):		ALS Contact:	Sampler: C.Stephanou

Analysis Req

Indicate Filtered (F), Preserved (P) or Filtered and

ALS Sample # (ALS use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	pH, cond,TSS,TDS,total alk,hardness	Chloride, bromide, fluoride, sulfate	Ammonia, TKN, nitrate, nitrite	TOC	Dissolved Metals (incl Hg)	Total Metals (incl Hg)	Orthophosphate	Total Sulphide	SAMPLES ON HOLD	EXTENDED STORAGE REQUIR	SUSPECTED HAZARD (see note
	MW99-1(S) (E275563)	04-Nov-25	9:30	GW	7	R	R	R	R	R	R	R	R			
	MW99-1(D) (E240501)	04-Nov-25	10:40	GW	7	R	R	R	R	R	R	R	R			
	MW99-2(S) (E275543)	04-Nov-25	13:43	GW	7	R	R	R	R	R	R	R	R			
	MW99-2(D) (E240502)	04-Nov-25	13:57	GW	7	R	R	R	R	R	R	R	R			
	MW-05-01 (E252593)	03-Nov-25	14:24	GW	7	R	R	R	R	R	R	R	R			
	MW-01-2004(S) (E303722)	04-Nov-25	11:50	GW	7	R	R	R	R	R	R	R	R			
	MW-01-2004(D) (E303723)	04-Nov-25	17:10	GW	7	R	R	R	R	R	R	R	R			
	MW-04S-05 (E266349)	04-Nov-25	14:24	GW	7	R	R	R	R	R	R	R	R			
	MW-06-01 (E252594)	04-Nov-25	15:15	GW	7	R	R	R	R	R	R	R	R			
	S-MW-1 (E221702)	04-Nov-25	15:55	GW	7	R	R	R	R	R	R	R	R			
	S-MW-2 (E221703)	03-Nov-25	15:40	GW	7	R	R	R	R	R	R	R	R			

Drinking Water (DW) Samples[1] (client use)	Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only)
Are samples taken from a Regulated DW System? ☐ YES ☐ NO	
Are samples for human consumption/ use? ☐ YES ☐ NO	

SAMPLE RECEIPT DETAILS (ALS use only)

Cooling Method: ☐ NONE ☐ ICE ☑ ICE PACKS ☐ FROZEN ☐ COOLING INITIATED

Submission Comments identified on Sample Receipt Notification: ☐ YES ☐ NO

Cooler Custody Seals Intact: ☐ YES ☑ N/A Sample Custody Seals Intact: ☐ YES ☑ N/A

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		
			8	8	9

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (ALS use only)			FINAL SHIPMENT RECEPTION (ALS use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:
	5-Nov-2025	11:00				TC	6-11-25	12:50pm

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION WHITE - LABORATORY COPY YELLOW - CLIENT COPY

FEB 2022 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

CERTIFICATE OF ANALYSIS

Work Order	:	**VA25C9773**		
Client	:	**Masse Environmental Consultants Ltd.**	Laboratory	: ALS Environmental - Vancouver
Contact	:	Ico de Zwart	Account Manager	: Can Dang
Address	:	812 Vernon Street Nelson British Columbia Canada V1L 4G4	Address	: 8081 Lougheed Highway Burnaby BC Canada V5A 1W9
Telephone	:	----	E-mail	: Can.Dang@ALSGlobal.com
Project	:	2016-503-HB	Telephone	: +1 604 253 4188
PO	:	----	Date Samples Received	: 06-Nov-2025 12:50
C-O-C number	:	22-20251104-SW	Date Analysis Commenced	: 08-Nov-2025
Sampler	:	Chris Stephanou	Issue Date	: 14-Nov-2025 12:03
Site	:	RDCK		
Quote number	:	----		
No. of samples received	:	3		
No. of samples analysed	:	3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Anita Chuang	Lab Assistant	Inorganics, Burnaby, British Columbia
Jaewook Lee	Lab Assistant	Metals, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia
Kim Jensen	Department Manager - Metals	Metals, Burnaby, British Columbia
Rebecca Sit	Supervisor - Organics Extractions	Inorganics, Burnaby, British Columbia

General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Please refer to Quality Control Interpretive report (QCI) for information regarding Holding Time compliance.

Key: CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances.
LOR: Limit of Reporting (detection limit).

Unit	*Description*
-	no units
mg/L	milligrams per litre
pH units	pH units
µg/L	micrograms per litre
µS/cm	microsiemens per centimetre

<: less than.
>: greater than.
Surrogate: An analyte that is similar in behavior to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED on SRN or QCI Report, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Qualifiers

Qualifier	Description
DLDS	Detection Limit Raised: Dilution required due to high Dissolved Solids / Electrical Conductivity.
PHA	pH adjusted before analysis.

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID: Seepage Weir (E335950) ----	Spillway Intel (E335951) ----	Spillway Outlet (E335952) ----	----	----
					Client sampling date / time: 03-Nov-2025 11:53	03-Nov-2025 10:50	03-Nov-2025 11:45	----	----
					VA25C9773-001	VA25C9773-002	VA25C9773-003	----	----
					Result	Result	Result	----	----
Sample Preparation									
Dissolved carbon filtration location	----	EP358/VA	-	-	field	field	field	----	----
Physical Tests									
Alkalinity, total (as CaCO3)	----	E290/VA	1.0	mg/L	253	140	151	----	----
Conductivity	----	E100/VA	2.0	µS/cm	842	1120	858	----	----
Hardness (as CaCO3), dissolved	----	EC100/VA	0.60	mg/L	420	597	431	----	----
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/VA	0.60	mg/L	447	634	451	----	----
pH	----	E108/VA	0.10	pH units	8.09	8.06	8.18	----	----
Solids, total dissolved [TDS]	----	E162/VA	10	mg/L	625	974	693	----	----
Solids, total suspended [TSS]	----	E160/VA	3.0	mg/L	<3.0	<3.0	<3.0	----	----
Anions and Nutrients									
Ammonia, total (as N)	7664-41-7	E298/VA	0.0050	mg/L	0.0101	0.0095	0.0090	----	----
Bromide	24959-67-9	E235.Br-L/VA	0.050	mg/L	<0.250 DLDS	<0.250 DLDS	<0.250 DLDS	----	----
Chloride	16887-00-6	E235.Cl/VA	0.50	mg/L	2.75	6.88	4.17	----	----
Fluoride	16984-48-8	E235.F/VA	0.020	mg/L	0.140	<0.100 DLDS	<0.100 DLDS	----	----
Kjeldahl nitrogen, total [TKN]	----	E318/VA	0.050	mg/L	0.161	0.566	0.231	----	----
Nitrate (as N)	14797-55-8	E235.NO3-L/VA	0.0050	mg/L	0.519	<0.0250 DLDS	0.204	----	----
Nitrite (as N)	14797-65-0	E235.NO2-L/VA	0.0010	mg/L	<0.0050 DLDS	<0.0050 DLDS	<0.0050 DLDS	----	----
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U/VA	0.0010	mg/L	0.0018	0.0032	0.0093	----	----
Sulfate (as SO4)	14808-79-8	E235.SO4/VA	0.30	mg/L	205	483	304	----	----
Organic / Inorganic Carbon									
Carbon, dissolved organic [DOC]	----	E358-L/VA	0.50	mg/L	2.81	8.26	4.14	----	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	Seepage Weir (E335950) ----	Spillway Intel (E335951) ----	Spillway Outlet (E335952) ----	----	----
					Client sampling date / time	03-Nov-2025 11:53	03-Nov-2025 10:50	03-Nov-2025 11:45	----	----
						VA25C9773-001	VA25C9773-002	VA25C9773-003	----	----
						Result	Result	Result	----	----
Organic / Inorganic Carbon										
Carbon, total organic [TOC]	----	E355-L/VA	0.50	mg/L		2.90	8.47	4.33	----	----
Total Sulfides										
Sulfide, total (as H2S)	7783-06-4	E395-H/VA	0.011	mg/L		<0.011	<0.011	<0.011	----	----
Sulfide, total (as S)	18496-25-8	E395-H/VA	0.010	mg/L		<0.010 PHA	<0.010 PHA	<0.010 PHA	----	----
Total Metals										
Aluminum, total	7429-90-5	E420/VA	3.0	µg/L		5.2	38.4	7.7	----	----
Antimony, total	7440-36-0	E420/VA	0.10	µg/L		<0.10	0.16	0.14	----	----
Arsenic, total	7440-38-2	E420/VA	0.10	µg/L		0.34	0.90	0.68	----	----
Barium, total	7440-39-3	E420/VA	0.10	µg/L		38.3	50.9	52.0	----	----
Beryllium, total	7440-41-7	E420/VA	0.100	µg/L		<0.100	<0.100	<0.100	----	----
Bismuth, total	7440-69-9	E420/VA	0.050	µg/L		<0.050	<0.050	<0.050	----	----
Boron, total	7440-42-8	E420/VA	10	µg/L		21	11	14	----	----
Cadmium, total	7440-43-9	E420/VA	0.0050	µg/L		0.0160	0.0628	0.0746	----	----
Calcium, total	7440-70-2	E420/VA	50	µg/L		118000	184000	130000	----	----
Cesium, total	7440-46-2	E420/VA	0.010	µg/L		0.051	0.011	0.109	----	----
Chromium, total	7440-47-3	E420/VA	0.50	µg/L		<0.50	<0.50	<0.50	----	----
Cobalt, total	7440-48-4	E420/VA	0.10	µg/L		<0.10	0.15	<0.10	----	----
Copper, total	7440-50-8	E420/VA	0.50	µg/L		<0.50	3.57	2.25	----	----
Iron, total	7439-89-6	E420/VA	10	µg/L		44	43	40	----	----
Lead, total	7439-92-1	E420/VA	0.050	µg/L		<0.050	0.149	<0.050	----	----
Lithium, total	7439-93-2	E420/VA	1.0	µg/L		1.4	1.9	1.5	----	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	Seepage Weir (E335950) ----	Spillway Intel (E335951) ----	Spillway Outlet (E335952) ----	----	----
					Client sampling date / time	03-Nov-2025 11:53	03-Nov-2025 10:50	03-Nov-2025 11:45	----	----
						VA25C9773-001	VA25C9773-002	VA25C9773-003	----	----
						Result	Result	Result	----	----
Total Metals										
Magnesium, total	7439-95-4	E420/VA	5.0	µg/L		36900	42500	30700	----	----
Manganese, total	7439-96-5	E420/VA	0.10	µg/L		428	7.95	83.6	----	----
Mercury, total	7439-97-6	E508/VA	0.0050	µg/L		<0.0050	<0.0050	<0.0050	----	----
Molybdenum, total	7439-98-7	E420/VA	0.050	µg/L		2.72	1.21	1.53	----	----
Nickel, total	7440-02-0	E420/VA	0.50	µg/L		<0.50	1.10	0.72	----	----
Phosphorus, total	7723-14-0	E420/VA	50	µg/L		<50	67	<50	----	----
Potassium, total	7440-09-7	E420/VA	50	µg/L		4200	7100	5010	----	----
Rubidium, total	7440-17-7	E420/VA	0.20	µg/L		1.97	1.06	2.03	----	----
Selenium, total	7782-49-2	E420/VA	0.050	µg/L		0.403	0.558	0.542	----	----
Silicon, total	7440-21-3	E420/VA	100	µg/L		8910	5520	6390	----	----
Silver, total	7440-22-4	E420/VA	0.010	µg/L		<0.010	<0.010	<0.010	----	----
Sodium, total	7440-23-5	E420/VA	50	µg/L		10300	10400	7640	----	----
Strontium, total	7440-24-6	E420/VA	0.20	µg/L		500	579	476	----	----
Sulfur, total	7704-34-9	E420/VA	500	µg/L		77100	181000	113000	----	----
Tellurium, total	13494-80-9	E420/VA	0.20	µg/L		<0.20	<0.20	<0.20	----	----
Thallium, total	7440-28-0	E420/VA	0.010	µg/L		<0.010	<0.010	<0.010	----	----
Thorium, total	7440-29-1	E420/VA	0.10	µg/L		<0.10	<0.10	<0.10	----	----
Tin, total	7440-31-5	E420/VA	0.10	µg/L		<0.10	<0.10	<0.10	----	----
Titanium, total	7440-32-6	E420/VA	0.30	µg/L		<0.30	0.94	<0.30	----	----
Tungsten, total	7440-33-7	E420/VA	0.10	µg/L		<0.10	<0.10	<0.10	----	----
Uranium, total	7440-61-1	E420/VA	0.010	µg/L		7.56	20.8	11.7	----	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	Seepage Weir (E335950) ----	Spillway Intel (E335951) ----	Spillway Outlet (E335952) ----	----	----
					Client sampling date / time	03-Nov-2025 11:53	03-Nov-2025 10:50	03-Nov-2025 11:45	----	----
						VA25C9773-001	VA25C9773-002	VA25C9773-003	----	----
						Result	Result	Result	----	----
Total Metals										
Vanadium, total	7440-62-2	E420/VA	0.50	µg/L		0.55	0.71	0.72	----	----
Zinc, total	7440-66-6	E420/VA	3.0	µg/L		<3.0	10.0	21.7	----	----
Zirconium, total	7440-67-7	E420/VA	0.20	µg/L		<0.20	<0.20	<0.20	----	----
Dissolved Metals										
Aluminum, dissolved	7429-90-5	E421/VA	1.0	µg/L		1.5	5.0	<1.0	----	----
Antimony, dissolved	7440-36-0	E421/VA	0.10	µg/L		<0.10	0.12	0.10	----	----
Arsenic, dissolved	7440-38-2	E421/VA	0.10	µg/L		0.29	0.77	0.62	----	----
Barium, dissolved	7440-39-3	E421/VA	0.10	µg/L		40.4	51.5	52.8	----	----
Beryllium, dissolved	7440-41-7	E421/VA	0.100	µg/L		<0.100	<0.100	<0.100	----	----
Bismuth, dissolved	7440-69-9	E421/VA	0.050	µg/L		<0.050	<0.050	<0.050	----	----
Boron, dissolved	7440-42-8	E421/VA	10	µg/L		18	<10	12	----	----
Cadmium, dissolved	7440-43-9	E421/VA	0.0050	µg/L		0.0135	0.0584	0.0755	----	----
Calcium, dissolved	7440-70-2	E421/VA	50	µg/L		111000	173000	124000	----	----
Cesium, dissolved	7440-46-2	E421/VA	0.010	µg/L		0.050	<0.010	0.112	----	----
Chromium, dissolved	7440-47-3	E421/VA	0.50	µg/L		<0.50	<0.50	<0.50	----	----
Cobalt, dissolved	7440-48-4	E421/VA	0.10	µg/L		0.10	0.14	<0.10	----	----
Copper, dissolved	7440-50-8	E421/VA	0.20	µg/L		0.35	3.46	2.27	----	----
Iron, dissolved	7439-89-6	E421/VA	10	µg/L		16	<10	23	----	----
Lead, dissolved	7439-92-1	E421/VA	0.050	µg/L		<0.050	<0.050	<0.050	----	----
Lithium, dissolved	7439-93-2	E421/VA	1.0	µg/L		<1.0	1.4	1.0	----	----
Magnesium, dissolved	7439-95-4	E421/VA	5.0	µg/L		34800	40100	29400	----	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	Seepage Weir (E335950) ----	Spillway Intel (E335951) ----	Spillway Outlet (E335952) ----	----	----
					Client sampling date / time	03-Nov-2025 11:53	03-Nov-2025 10:50	03-Nov-2025 11:45	----	----
						VA25C9773-001	VA25C9773-002	VA25C9773-003	----	----
						Result	Result	Result	----	----
Dissolved Metals										
Manganese, dissolved	7439-96-5	E421/VA	0.10	µg/L		411	3.35	75.6	----	----
Mercury, dissolved	7439-97-6	E509/VA	0.0050	µg/L		<0.0050	<0.0050	<0.0050	----	----
Molybdenum, dissolved	7439-98-7	E421/VA	0.050	µg/L		2.66	1.11	1.52	----	----
Nickel, dissolved	7440-02-0	E421/VA	0.50	µg/L		<0.50	1.01	0.66	----	----
Phosphorus, dissolved	7723-14-0	E421/VA	50	µg/L		<50	<50	<50	----	----
Potassium, dissolved	7440-09-7	E421/VA	50	µg/L		4520	6940	4920	----	----
Rubidium, dissolved	7440-17-7	E421/VA	0.20	µg/L		2.05	0.99	1.93	----	----
Selenium, dissolved	7782-49-2	E421/VA	0.050	µg/L		0.404	0.604	0.599	----	----
Silicon, dissolved	7440-21-3	E421/VA	50	µg/L		8790	5550	6160	----	----
Silver, dissolved	7440-22-4	E421/VA	0.010	µg/L		<0.010	<0.010	<0.010	----	----
Sodium, dissolved	7440-23-5	E421/VA	50	µg/L		11200	10800	7930	----	----
Strontium, dissolved	7440-24-6	E421/VA	0.20	µg/L		494	559	479	----	----
Sulfur, dissolved	7704-34-9	E421/VA	500	µg/L		71200	173000	106000	----	----
Tellurium, dissolved	13494-80-9	E421/VA	0.20	µg/L		<0.20	<0.20	<0.20	----	----
Thallium, dissolved	7440-28-0	E421/VA	0.010	µg/L		<0.010	<0.010	<0.010	----	----
Thorium, dissolved	7440-29-1	E421/VA	0.10	µg/L		<0.10	<0.10	<0.10	----	----
Tin, dissolved	7440-31-5	E421/VA	0.10	µg/L		<0.10	<0.10	<0.10	----	----
Titanium, dissolved	7440-32-6	E421/VA	0.30	µg/L		<0.30	<0.30	<0.30	----	----
Tungsten, dissolved	7440-33-7	E421/VA	0.10	µg/L		<0.10	<0.10	<0.10	----	----
Uranium, dissolved	7440-61-1	E421/VA	0.010	µg/L		7.39	21.0	11.4	----	----
Vanadium, dissolved	7440-62-2	E421/VA	0.50	µg/L		<0.50	<0.50	<0.50	----	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	Seepage Weir (E335950) ----	Spillway Intel (E335951) ----	Spillway Outlet (E335952) ----	----	----
					Client sampling date / time	03-Nov-2025 11:53	03-Nov-2025 10:50	03-Nov-2025 11:45	----	----
						VA25C9773-001	VA25C9773-002	VA25C9773-003	----	----
						Result	Result	Result	----	----
Dissolved Metals										
Zinc, dissolved	7440-66-6	E421/VA	1.0	µg/L		1.9	8.4	20.2	----	----
Zirconium, dissolved	7440-67-7	E421/VA	0.20	µg/L		<0.20	<0.20	<0.20	----	----
Dissolved mercury filtration location	----	EP509/VA	-	-		Field	Field	Field	----	----
Dissolved metals filtration location	----	EP421/VA	-	-		Field	Field	Field	----	----

Please refer to the General Comments section for an explanation of any qualifiers detected.

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QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **VA25C9773**	Page	: 1 of 17
Client	: **Masse Environmental Consultants Ltd.**	Laboratory	: ALS Environmental - Vancouver
Contact	: Ico de Zwart	Account Manager	: Can Dang
Address	: 812 Vernon Street Nelson BC Canada V1L 4G4	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: ----	Telephone	: +1 604 253 4188
Project	: 2016-503-HB	Date Samples Received	: 06-Nov-2025 12:50
PO	: ----	Issue Date	: 14-Nov-2025 12:02
C-O-C number	: 22-20251104-SW		
Sampler	: Chris Stephanou		
Site	: RDCK		
Quote number	: ----		
No. of samples received	: 3		
No. of samples analysed	: 3		

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Key

Anonymous: Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number: Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO: Data Quality Objective.
LOR: Limit of Reporting (detection limit).
RPD: Relative Percent Difference.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Summary of Outliers

Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- No Duplicate outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- No Matrix Spike outliers occur.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- Analysis Holding Time Outliers exist - please see following pages for full details.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) Seepage Weir (E335950)	E298	03-Nov-2025	09-Nov-2025	28 days	6 days	✓	14-Nov-2025	28 days	6 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) Spillway Intel (E335951)	E298	03-Nov-2025	09-Nov-2025	28 days	6 days	✓	14-Nov-2025	28 days	6 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) Spillway Outlet (E335952)	E298	03-Nov-2025	09-Nov-2025	28 days	6 days	✓	14-Nov-2025	28 days	6 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE Seepage Weir (E335950)	E235.Br-L	03-Nov-2025	12-Nov-2025	28 days	9 days	✓	13-Nov-2025	28 days	9 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE Spillway Intel (E335951)	E235.Br-L	03-Nov-2025	12-Nov-2025	28 days	9 days	✓	13-Nov-2025	28 days	9 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE Spillway Outlet (E335952)	E235.Br-L	03-Nov-2025	12-Nov-2025	28 days	9 days	✓	13-Nov-2025	28 days	9 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE Seepage Weir (E335950)	E235.Cl	03-Nov-2025	12-Nov-2025	28 days	9 days	✓	13-Nov-2025	28 days	9 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Chloride in Water by IC										
HDPE Spillway Intel (E335951)	E235.Cl	03-Nov-2025	12-Nov-2025	28 days	9 days	✓	13-Nov-2025	28 days	9 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE Spillway Outlet (E335952)	E235.Cl	03-Nov-2025	12-Nov-2025	28 days	9 days	✓	13-Nov-2025	28 days	9 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE Seepage Weir (E335950)	E378-U	03-Nov-2025	12-Nov-2025	3 days	8 days	× EHTL	12-Nov-2025	3 days	8 days	× EHTL
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE Spillway Outlet (E335952)	E378-U	03-Nov-2025	12-Nov-2025	3 days	8 days	× EHTL	12-Nov-2025	3 days	8 days	× EHTL
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE Spillway Intel (E335951)	E378-U	03-Nov-2025	12-Nov-2025	3 days	9 days	× EHTL	12-Nov-2025	3 days	9 days	× EHTL
Anions and Nutrients : Fluoride in Water by IC										
HDPE Seepage Weir (E335950)	E235.F	03-Nov-2025	12-Nov-2025	28 days	9 days	✓	13-Nov-2025	28 days	9 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE Spillway Intel (E335951)	E235.F	03-Nov-2025	12-Nov-2025	28 days	9 days	✓	13-Nov-2025	28 days	9 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE Spillway Outlet (E335952)	E235.F	03-Nov-2025	12-Nov-2025	28 days	9 days	✓	13-Nov-2025	28 days	9 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE Seepage Weir (E335950)	E235.NO3-L	03-Nov-2025	12-Nov-2025	3 days	8 days	× EHTL	13-Nov-2025	3 days	8 days	× EHTL

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
Spillway Outlet (E335952)	E235.NO3-L	03-Nov-2025	12-Nov-2025	3 days	8 days	× EHTL	13-Nov-2025	3 days	8 days	× EHTL
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
Spillway Intel (E335951)	E235.NO3-L	03-Nov-2025	12-Nov-2025	3 days	9 days	× EHTL	13-Nov-2025	3 days	9 days	× EHTL
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
Seepage Weir (E335950)	E235.NO2-L	03-Nov-2025	12-Nov-2025	3 days	8 days	× EHTL	13-Nov-2025	3 days	8 days	× EHTL
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
Spillway Outlet (E335952)	E235.NO2-L	03-Nov-2025	12-Nov-2025	3 days	8 days	× EHTL	13-Nov-2025	3 days	8 days	× EHTL
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
Spillway Intel (E335951)	E235.NO2-L	03-Nov-2025	12-Nov-2025	3 days	9 days	× EHTL	13-Nov-2025	3 days	9 days	× EHTL
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
Seepage Weir (E335950)	E235.SO4	03-Nov-2025	12-Nov-2025	28 days	9 days	✓	13-Nov-2025	28 days	9 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
Spillway Intel (E335951)	E235.SO4	03-Nov-2025	12-Nov-2025	28 days	9 days	✓	13-Nov-2025	28 days	9 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
Spillway Outlet (E335952)	E235.SO4	03-Nov-2025	12-Nov-2025	28 days	9 days	✓	13-Nov-2025	28 days	9 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid)										
Seepage Weir (E335950)	E318	03-Nov-2025	09-Nov-2025	28 days	6 days	✓	12-Nov-2025	28 days	6 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid)										
Spillway Intel (E335951)	E318	03-Nov-2025	09-Nov-2025	28 days	6 days	✓	12-Nov-2025	28 days	6 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid)										
Spillway Outlet (E335952)	E318	03-Nov-2025	09-Nov-2025	28 days	6 days	✓	12-Nov-2025	28 days	6 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
Seepage Weir (E335950)	E509	03-Nov-2025	13-Nov-2025	28 days	10 days	✓	13-Nov-2025	28 days	10 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
Spillway Intel (E335951)	E509	03-Nov-2025	13-Nov-2025	28 days	10 days	✓	13-Nov-2025	28 days	10 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
Spillway Outlet (E335952)	E509	03-Nov-2025	13-Nov-2025	28 days	10 days	✓	13-Nov-2025	28 days	10 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
Seepage Weir (E335950)	E421	03-Nov-2025	10-Nov-2025	180 days	7 days	✓	12-Nov-2025	180 days	7 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
Spillway Intel (E335951)	E421	03-Nov-2025	10-Nov-2025	180 days	7 days	✓	12-Nov-2025	180 days	7 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
Spillway Outlet (E335952)	E421	03-Nov-2025	10-Nov-2025	180 days	7 days	✓	12-Nov-2025	180 days	7 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass - dissolved (field filtered/sulfuric acid)										
Seepage Weir (E335950)	E358-L	03-Nov-2025	09-Nov-2025	28 days	6 days	✓	09-Nov-2025	28 days	6 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass - dissolved (field filtered/sulfuric acid)										
Spillway Intel (E335951)	E358-L	03-Nov-2025	09-Nov-2025	28 days	6 days	✓	09-Nov-2025	28 days	6 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass - dissolved (field filtered/sulfuric acid)										
Spillway Outlet (E335952)	E358-L	03-Nov-2025	09-Nov-2025	28 days	6 days	✓	09-Nov-2025	28 days	6 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
Seepage Weir (E335950)	E355-L	03-Nov-2025	09-Nov-2025	28 days	6 days	✓	09-Nov-2025	28 days	6 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
Spillway Intel (E335951)	E355-L	03-Nov-2025	09-Nov-2025	28 days	6 days	✓	09-Nov-2025	28 days	6 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
Spillway Outlet (E335952)	E355-L	03-Nov-2025	09-Nov-2025	28 days	6 days	✓	09-Nov-2025	28 days	6 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
Seepage Weir (E335950)	E290	03-Nov-2025	12-Nov-2025	14 days	9 days	✓	12-Nov-2025	14 days	9 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
Spillway Intel (E335951)	E290	03-Nov-2025	12-Nov-2025	14 days	9 days	✓	12-Nov-2025	14 days	9 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
Spillway Outlet (E335952)	E290	03-Nov-2025	12-Nov-2025	14 days	9 days	✓	12-Nov-2025	14 days	9 days	✓
Physical Tests : Conductivity in Water										
HDPE										
Seepage Weir (E335950)	E100	03-Nov-2025	12-Nov-2025	28 days	9 days	✓	12-Nov-2025	28 days	9 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Conductivity in Water										
HDPE Spillway Intel (E335951)	E100	03-Nov-2025	12-Nov-2025	28 days	9 days	✓	12-Nov-2025	28 days	9 days	✓
Physical Tests : Conductivity in Water										
HDPE Spillway Outlet (E335952)	E100	03-Nov-2025	12-Nov-2025	28 days	9 days	✓	12-Nov-2025	28 days	9 days	✓
Physical Tests : pH by Meter										
HDPE Seepage Weir (E335950)	E108	03-Nov-2025	12-Nov-2025	0.25 hrs	216 hrs	× EHTR-FM	12-Nov-2025	0.25 hrs	216 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE Spillway Outlet (E335952)	E108	03-Nov-2025	12-Nov-2025	0.25 hrs	216 hrs	× EHTR-FM	12-Nov-2025	0.25 hrs	216 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE Spillway Intel (E335951)	E108	03-Nov-2025	12-Nov-2025	0.25 hrs	217 hrs	× EHTR-FM	12-Nov-2025	0.25 hrs	217 hrs	× EHTR-FM
Physical Tests : TDS by Gravimetry										
HDPE Seepage Weir (E335950)	E162	03-Nov-2025	----	----	----		08-Nov-2025	7 days	5 days	✓
Physical Tests : TDS by Gravimetry										
HDPE Spillway Intel (E335951)	E162	03-Nov-2025	----	----	----		08-Nov-2025	7 days	5 days	✓
Physical Tests : TDS by Gravimetry										
HDPE Spillway Outlet (E335952)	E162	03-Nov-2025	----	----	----		08-Nov-2025	7 days	5 days	✓
Physical Tests : TSS by Gravimetry										
HDPE Seepage Weir (E335950)	E160	03-Nov-2025	----	----	----		08-Nov-2025	7 days	5 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : TSS by Gravimetry										
HDPE										
Spillway Intel (E335951)	E160	03-Nov-2025	----	----	----		08-Nov-2025	7 days	5 days	✓
Physical Tests : TSS by Gravimetry										
HDPE										
Spillway Outlet (E335952)	E160	03-Nov-2025	----	----	----		08-Nov-2025	7 days	5 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved)										
Seepage Weir (E335950)	E508	03-Nov-2025	13-Nov-2025	28 days	10 days	✓	13-Nov-2025	28 days	10 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved)										
Spillway Intel (E335951)	E508	03-Nov-2025	13-Nov-2025	28 days	10 days	✓	13-Nov-2025	28 days	10 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved)										
Spillway Outlet (E335952)	E508	03-Nov-2025	13-Nov-2025	28 days	10 days	✓	13-Nov-2025	28 days	10 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved)										
Seepage Weir (E335950)	E420	03-Nov-2025	10-Nov-2025	180 days	7 days	✓	12-Nov-2025	180 days	7 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved)										
Spillway Intel (E335951)	E420	03-Nov-2025	10-Nov-2025	180 days	7 days	✓	12-Nov-2025	180 days	7 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved)										
Spillway Outlet (E335952)	E420	03-Nov-2025	10-Nov-2025	180 days	7 days	✓	12-Nov-2025	180 days	7 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide)										
Seepage Weir (E335950)	E395-H	03-Nov-2025	----	----	----		10-Nov-2025	7 days	7 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide)										
Spillway Intel (E335951)	E395-H	03-Nov-2025	----	----	----		10-Nov-2025	7 days	7 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide)										
Spillway Outlet (E335952)	E395-H	03-Nov-2025	----	----	----		10-Nov-2025	7 days	7 days	✓

Legend & Qualifier Definitions

EHTR-FM: Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended

EHTL: Exceeded ALS recommended hold time prior to analysis. Sample was received less than 24 hours prior to expiry.

Rec. HT: ALS recommended hold time (see units).

Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Water**

Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
Conductivity in Water	E100	2331861	1	19	5.2	5.0	✓
pH by Meter	E108	2331862	1	19	5.2	5.0	✓
TSS by Gravimetry	E160	2326776	2	22	9.0	5.0	✓
TDS by Gravimetry	E162	2326784	2	22	9.0	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	2331871	1	18	5.5	5.0	✓
Chloride in Water by IC	E235.Cl	2331868	1	19	5.2	5.0	✓
Fluoride in Water by IC	E235.F	2331870	1	18	5.5	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	2331867	1	19	5.2	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	2331866	1	18	5.5	5.0	✓
Sulfate in Water by IC	E235.SO4	2331865	1	19	5.2	5.0	✓
Alkalinity Species by Titration	E290	2331863	1	19	5.2	5.0	✓
Ammonia by Fluorescence	E298	2327706	1	20	5.0	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	2327702	1	15	6.6	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	2327703	1	17	5.8	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	2327707	1	15	6.6	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	2331873	1	13	7.6	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395-H	2329503	1	18	5.5	5.0	✓
Total Metals in Water by CRC ICPMS	E420	2324866	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	2324937	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	2333469	1	20	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	2335478	1	20	5.0	5.0	✓
Laboratory Control Samples (LCS)							
Conductivity in Water	E100	2331861	1	19	5.2	5.0	✓
pH by Meter	E108	2331862	1	19	5.2	5.0	✓
TSS by Gravimetry	E160	2326776	2	22	9.0	5.0	✓
TDS by Gravimetry	E162	2326784	2	22	9.0	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	2331871	1	18	5.5	5.0	✓
Chloride in Water by IC	E235.Cl	2331868	1	19	5.2	5.0	✓
Fluoride in Water by IC	E235.F	2331870	1	18	5.5	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	2331867	1	19	5.2	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	2331866	1	18	5.5	5.0	✓
Sulfate in Water by IC	E235.SO4	2331865	1	19	5.2	5.0	✓
Alkalinity Species by Titration	E290	2331863	1	19	5.2	5.0	✓
Ammonia by Fluorescence	E298	2327706	1	20	5.0	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	2327702	1	15	6.6	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	2327703	1	17	5.8	5.0	✓

Matrix: **Water**

Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Control Samples (LCS) - Continued							
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	2327707	1	15	6.6	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	2331873	1	13	7.6	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395-H	2329503	1	18	5.5	5.0	✓
Total Metals in Water by CRC ICPMS	E420	2324866	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	2324937	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	2333469	1	20	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	2335478	1	20	5.0	5.0	✓
Method Blanks (MB)							
Conductivity in Water	E100	2331861	1	19	5.2	5.0	✓
TSS by Gravimetry	E160	2326776	2	22	9.0	5.0	✓
TDS by Gravimetry	E162	2326784	2	22	9.0	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	2331871	1	18	5.5	5.0	✓
Chloride in Water by IC	E235.Cl	2331868	1	19	5.2	5.0	✓
Fluoride in Water by IC	E235.F	2331870	1	18	5.5	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	2331867	1	19	5.2	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	2331866	1	18	5.5	5.0	✓
Sulfate in Water by IC	E235.SO4	2331865	1	19	5.2	5.0	✓
Alkalinity Species by Titration	E290	2331863	1	19	5.2	5.0	✓
Ammonia by Fluorescence	E298	2327706	1	20	5.0	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	2327702	1	15	6.6	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	2327703	1	17	5.8	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	2327707	1	15	6.6	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	2331873	1	13	7.6	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395-H	2329503	1	18	5.5	5.0	✓
Total Metals in Water by CRC ICPMS	E420	2324866	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	2324937	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	2333469	1	20	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	2335478	1	20	5.0	5.0	✓
Matrix Spikes (MS)							
Bromide in Water by IC (Low Level)	E235.Br-L	2331871	1	18	5.5	5.0	✓
Chloride in Water by IC	E235.Cl	2331868	1	19	5.2	5.0	✓
Fluoride in Water by IC	E235.F	2331870	1	18	5.5	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	2331867	1	19	5.2	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	2331866	1	18	5.5	5.0	✓
Sulfate in Water by IC	E235.SO4	2331865	1	19	5.2	5.0	✓
Ammonia by Fluorescence	E298	2327706	1	20	5.0	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	2327702	1	15	6.6	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	2327703	1	17	5.8	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	2327707	1	15	6.6	5.0	✓

Matrix: **Water**

Evaluation: × = *QC frequency outside specification*; ✓ = *QC frequency within specification.*

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Matrix Spikes (MS) - Continued							
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	2331873	1	13	7.6	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395-H	2329503	1	18	5.5	5.0	✓
Total Metals in Water by CRC ICPMS	E420	2324866	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	2324937	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	2333469	1	20	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	2335478	1	20	5.0	5.0	✓

Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Conductivity in Water	E100 ALS Environmental - Vancouver	Water	APHA 2510 (mod)	Conductivity, also known as Electrical Conductivity (EC) or Specific Conductance, is measured by immersion of a conductivity cell with platinum electrodes into a water sample. Conductivity measurements are temperature-compensated to 25°C.
pH by Meter	E108 ALS Environmental - Vancouver	Water	APHA 4500-H (mod)	pH is determined by potentiometric measurement with a pH electrode, and is conducted at ambient laboratory temperature (normally 20 ± 5°C). For high accuracy test results, pH should be measured in the field within the recommended 15 minute hold time.
TSS by Gravimetry	E160 ALS Environmental - Vancouver	Water	APHA 2540 D (mod)	Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, following by drying of the filter at 104 ± 1°C, with gravimetric measurement of the filtered solids. Samples containing very high dissolved solid content (i.e. seawaters, brackish waters) may produce a positive bias by this method. Alternate analysis methods are available for these types of samples.
TDS by Gravimetry	E162 ALS Environmental - Vancouver	Water	APHA 2540 C (mod)	Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, with evaporation of the filtrate at 180 ± 2°C for 16 hours or to constant weight, with gravimetric measurement of the residue.
Bromide in Water by IC (Low Level)	E235.Br-L ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Chloride in Water by IC	E235.Cl ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Fluoride in Water by IC	E235.F ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrite in Water by IC (Low Level)	E235.NO2-L ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrate in Water by IC (Low Level)	E235.NO3-L ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Sulfate in Water by IC	E235.SO4 ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Alkalinity Species by Titration	E290 ALS Environmental - Vancouver	Water	APHA 2320 B (mod)	Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.
Ammonia by Fluorescence	E298 ALS Environmental - Vancouver	Water	Method Fialab 100, 2018	Ammonia in water is determined by automated continuous flow analysis with membrane diffusion and fluorescence detection, after reaction with OPA (ortho-phthalaldehyde). This method is approved under US EPA 40 CFR Part 136 (May 2021)
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318 ALS Environmental - Vancouver	Water	Method Fialab 100, 2018	TKN in water is determined by automated continuous flow analysis with membrane diffusion and fluorescence detection, after reaction with OPA (ortho-phthalaldehyde). This method is approved under US EPA 40 CFR Part 136 (May 2021).
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L ALS Environmental - Vancouver	Water	APHA 5310 B (mod)	Total Organic Carbon (Non-Purgeable), also known as NPOC (total), is a direct measurement of TOC after an acidified sample has been purged to remove carbonate-based Inorganic Carbon (IC). Analysis is by high temperature combustion with infrared detection of CO2. Forms of carbon associated with inorganic or organic molecules (e.g. SCN and CN) are included in NPOC if they are not removed by purging under acidic conditions. Notably, NPOC excludes most volatile organic compounds and free cyanide. For samples where the majority of Total Carbon is inorganic, this method provides greater accuracy and reliability versus the TOC by subtraction method (TC minus TIC).
Dissolved Organic Carbon by Combustion (Low Level)	E358-L ALS Environmental - Vancouver	Water	APHA 5310 B (mod)	Dissolved Organic Carbon (Non-Purgeable), also known as NPOC (dissolved), is a direct measurement of DOC after a filtered (0.45 micron) sample has been acidified and purged to remove inorganic carbon (IC). Analysis is by high temperature combustion with infrared detection of CO2. NPOC does not include volatile organic species that are purged off with IC. For samples where the majority of DC (dissolved carbon) is comprised of IC (which is common), this method is more accurate and more reliable than the DOC by subtraction method (i.e. DC minus DIC).
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U ALS Environmental - Vancouver	Water	APHA 4500-P F (mod)	Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter. Field filtration is recommended to ensure test results represent conditions at time of sampling.
Total Sulfide by Colourimetry (Automated Flow)	E395-H ALS Environmental - Vancouver	Water	APHA 4500 -S E-Auto-Colorimetry	Sulfide is determined using the gas dialysis automated methylene blue colourimetric method. Results expressed "as H2S" if reported represent the maximum possible H2S concentration based on the total sulfide concentration in the sample. The H2S calculation converts Total Sulfide as (S2-) and reports it as Total Sulfide as (H2S)

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Total Metals in Water by CRC ICPMS	E420 ALS Environmental - Vancouver	Water	EPA 200.2/6020B (mod)	Water samples are digested with nitric and hydrochloric acids, and analyzed by Collision/Reaction Cell ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
Dissolved Metals in Water by CRC ICPMS	E421 ALS Environmental - Vancouver	Water	APHA 3030B/EPA 6020B (mod)	Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by Collision/Reaction Cell ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
Total Mercury in Water by CVAAS	E508 ALS Environmental - Vancouver	Water	EPA 1631E (mod)	Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS
Dissolved Mercury in Water by CVAAS	E509 ALS Environmental - Vancouver	Water	APHA 3030B/EPA 1631E (mod)	Water samples are filtered (0.45 um), preserved with HCl, then undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS.
Dissolved Hardness (Calculated)	EC100 ALS Environmental - Vancouver	Water	APHA 2340B	“Hardness (as CaCO3), dissolved” is calculated from the sum of dissolved Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. “Total Hardness” refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because it is a property of water due to dissolved divalent cations.
Hardness (Calculated) from Total Ca/Mg	EC100A ALS Environmental - Vancouver	Water	APHA 2340B	“Hardness (as CaCO3), from total Ca/Mg” is calculated from the sum of total Calcium and Magnesium concentrations, expressed as CaCO3 equivalents. “Total Hardness” refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because hardness is a property of water due to dissolved divalent cations. In non-turbid waters, Hardness from total Ca/Mg is normally comparable to Dissolved Hardness, but may be biased high if particulate forms of Ca or Mg are present.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Ammonia	EP298 ALS Environmental - Vancouver	Water		Sample preparation for Preserved Nutrients Water Quality Analysis.
Digestion for TKN in water	EP318 ALS Environmental - Vancouver	Water	APHA 4500-Norg D (mod)	Samples are digested at high temperature using Sulfuric Acid with Copper catalyst, which converts organic nitrogen sources to Ammonia, which is then quantified by the analytical method as TKN. This method is unsuitable for samples containing high levels of nitrate. If nitrate exceeds TKN concentration by ten times or more, results may be biased low.
Preparation for Total Organic Carbon by Combustion	EP355 ALS Environmental - Vancouver	Water		Preparation for Total Organic Carbon by Combustion

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Dissolved Organic Carbon for Combustion	EP358 ALS Environmental - Vancouver	Water	APHA 5310 B (mod)	Preparation for Dissolved Organic Carbon
Dissolved Metals Water Filtration	EP421 ALS Environmental - Vancouver	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HNO3.
Dissolved Mercury Water Filtration	EP509 ALS Environmental - Vancouver	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HCl.

QUALITY CONTROL REPORT

Work Order	: **VA25C9773**	Page	: 1 of 17
Client	: Masse Environmental Consultants Ltd.	Laboratory	: ALS Environmental - Vancouver
Contact	: Ico de Zwart	Account Manager	: Can Dang
Address	: 812 Vernon Street Nelson BC Canada V1L 4G4	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: ----	Telephone	: +1 604 253 4188
Project	: 2016-503-HB	Date Samples Received	: 06-Nov-2025 12:50
PO	: ----	Date Analysis Commenced	: 08-Nov-2025
C-O-C number	: 22-20251104-SW	Issue Date	: 14-Nov-2025 12:03
Sampler	: Chris Stephanou		
Site	: RDCK		
Quote number	: ----		
No. of samples received	: 3		
No. of samples analysed	: 3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percent Difference (RPD) and Data Quality Objectives
- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Angelo Salandanan	Lab Assistant	Vancouver Metals, Burnaby, British Columbia
Anita Chuang	Lab Assistant	Vancouver Inorganics, Burnaby, British Columbia
Jaewook Lee	Lab Assistant	Vancouver Metals, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Vancouver Metals, Burnaby, British Columbia
Kim Jensen	Department Manager - Metals	Vancouver Metals, Burnaby, British Columbia
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General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number = Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO = Data Quality Objective.
LOR = Limit of Reporting (detection limit).
RPD = Relative Percent Difference
# = Indicates a QC result that did not meet the ALS DQO.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test-specific).

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Physical Tests (QC Lot: 2326776)											
VA25C9684-005	Anonymous	Solids, total suspended [TSS]	----	E160	3.0	mg/L	<3.0	<3.0	0	Diff <2x LOR	----
Physical Tests (QC Lot: 2326777)											
VA25C9773-002	Spillway Intel (E335951)	Solids, total suspended [TSS]	----	E160	3.0	mg/L	<3.0	<3.0	0	Diff <2x LOR	----
Physical Tests (QC Lot: 2326784)											
VA25C9684-005	Anonymous	Solids, total dissolved [TDS]	----	E162	13	mg/L	108	101	7	Diff <2x LOR	----
Physical Tests (QC Lot: 2326785)											
VA25C9773-002	Spillway Intel (E335951)	Solids, total dissolved [TDS]	----	E162	20	mg/L	974	971	0.308%	20%	----
Physical Tests (QC Lot: 2331861)											
VA25C9773-002	Spillway Intel (E335951)	Conductivity	----	E100	2.0	µS/cm	1120	1130	0.710%	10%	----
Physical Tests (QC Lot: 2331862)											
VA25C9773-002	Spillway Intel (E335951)	pH	----	E108	0.10	pH units	8.06	8.14	0.988%	4%	----
Physical Tests (QC Lot: 2331863)											
VA25C9773-002	Spillway Intel (E335951)	Alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	140	141	0.720%	20%	----
Anions and Nutrients (QC Lot: 2327702)											
VA25C9714-001	Anonymous	Kjeldahl nitrogen, total [TKN]	----	E318	0.050	mg/L	0.070	0.055	0.015	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 2327706)											
VA25C9714-001	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 2331865)											
VA25C9773-001	Seepage Weir (E335950)	Sulfate (as SO4)	14808-79-8	E235.SO4	1.50	mg/L	205	205	0.267%	20%	----
Anions and Nutrients (QC Lot: 2331866)											
VA25C9773-001	Seepage Weir (E335950)	Nitrate (as N)	14797-55-8	E235.NO3-L	0.0250	mg/L	0.519	0.517	0.352%	20%	----
Anions and Nutrients (QC Lot: 2331867)											
VA25C9773-001	Seepage Weir (E335950)	Nitrite (as N)	14797-65-0	E235.NO2-L	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 2331868)											
VA25C9773-001	Seepage Weir (E335950)	Chloride	16887-00-6	E235.Cl	2.50	mg/L	2.75	2.75	0.004	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 2331870)											
VA25C9773-001	Seepage Weir (E335950)	Fluoride	16984-48-8	E235.F	0.100	mg/L	0.140	0.139	0.001	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 2331871)											
VA25C9773-001	Seepage Weir (E335950)	Bromide	24959-67-9	E235.Br-L	0.250	mg/L	<0.250	<0.250	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 2331873)											

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Anions and Nutrients (QC Lot: 2331873) - continued											
VA25C9773-001	Seepage Weir (E335950)	Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0010	mg/L	0.0018	0.0018	0.00004	Diff <2x LOR	----
Organic / Inorganic Carbon (QC Lot: 2327703)											
VA25C9714-001	Anonymous	Carbon, total organic [TOC]	----	E355-L	0.50	mg/L	1.57	1.75	0.19	Diff <2x LOR	----
Organic / Inorganic Carbon (QC Lot: 2327707)											
VA25C9714-001	Anonymous	Carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	1.51	1.59	0.08	Diff <2x LOR	----
Total Sulfides (QC Lot: 2329503)											
SK2507032-001	Anonymous	Sulfide, total (as S)	18496-25-8	E395-H	0.010	mg/L	<10 µg/L	<0.010	0	Diff <2x LOR	----
Total Metals (QC Lot: 2324866)											
VA25C9760-001	Anonymous	Aluminum, total	7429-90-5	E420	0.0030	mg/L	31.1 µg/L	0.0312	0.342%	20%	----
		Antimony, total	7440-36-0	E420	0.00010	mg/L	0.12 µg/L	0.00013	0.000001	Diff <2x LOR	----
		Arsenic, total	7440-38-2	E420	0.00010	mg/L	0.97 µg/L	0.00094	0.00004	Diff <2x LOR	----
		Barium, total	7440-39-3	E420	0.00010	mg/L	455 µg/L	0.446	2.03%	20%	----
		Beryllium, total	7440-41-7	E420	0.000100	mg/L	<0.100 µg/L	<0.000100	0	Diff <2x LOR	----
		Bismuth, total	7440-69-9	E420	0.000050	mg/L	<0.050 µg/L	<0.000050	0	Diff <2x LOR	----
		Boron, total	7440-42-8	E420	0.010	mg/L	30 µg/L	0.030	0.0001	Diff <2x LOR	----
		Cadmium, total	7440-43-9	E420	0.0000050	mg/L	0.0317 µg/L	0.0000383	0.0000067	Diff <2x LOR	----
		Calcium, total	7440-70-2	E420	0.050	mg/L	38600 µg/L	39.2	1.44%	20%	----
		Cesium, total	7440-46-2	E420	0.000010	mg/L	0.025 µg/L	0.000029	0.000004	Diff <2x LOR	----
		Chromium, total	7440-47-3	E420	0.00050	mg/L	1.49 µg/L	0.00131	0.00018	Diff <2x LOR	----
		Cobalt, total	7440-48-4	E420	0.00010	mg/L	0.13 µg/L	0.00014	0.000008	Diff <2x LOR	----
		Copper, total	7440-50-8	E420	0.00050	mg/L	2.70 µg/L	0.00276	0.00006	Diff <2x LOR	----
		Iron, total	7439-89-6	E420	0.010	mg/L	21700 µg/L	21.5	1.07%	20%	----
		Lead, total	7439-92-1	E420	0.000050	mg/L	0.369 µg/L	0.000373	0.000004	Diff <2x LOR	----
		Lithium, total	7439-93-2	E420	0.0010	mg/L	20.2 µg/L	0.0201	0.438%	20%	----
		Magnesium, total	7439-95-4	E420	0.0050	mg/L	8400 µg/L	8.41	0.0540%	20%	----
		Manganese, total	7439-96-5	E420	0.00010	mg/L	318 µg/L	0.316	0.738%	20%	----
		Molybdenum, total	7439-98-7	E420	0.000050	mg/L	0.241 µg/L	0.000247	0.000006	Diff <2x LOR	----
		Nickel, total	7440-02-0	E420	0.00050	mg/L	0.63 µg/L	0.00069	0.00006	Diff <2x LOR	----
		Phosphorus, total	7723-14-0	E420	0.050	mg/L	5660 µg/L	5.64	0.323%	20%	----
		Potassium, total	7440-09-7	E420	0.050	mg/L	1070 µg/L	1.08	0.540%	20%	----
		Rubidium, total	7440-17-7	E420	0.00020	mg/L	0.54 µg/L	0.00048	0.00007	Diff <2x LOR	----
		Selenium, total	7782-49-2	E420	0.000050	mg/L	<0.050 µg/L	0.000051	0.000001	Diff <2x LOR	----
		Silicon, total	7440-21-3	E420	0.10	mg/L	17100 µg/L	17.4	2.06%	20%	----
		Silver, total	7440-22-4	E420	0.000010	mg/L	0.016 µg/L	0.000017	0.0000009	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Total Metals (QC Lot: 2324866) - continued											
VA25C9760-001	Anonymous	Sodium, total	7440-23-5	E420	0.050	mg/L	4390 µg/L	4.54	3.27%	20%	----
		Strontium, total	7440-24-6	E420	0.00020	mg/L	270 µg/L	0.278	2.74%	20%	----
		Sulfur, total	7704-34-9	E420	0.50	mg/L	13000 µg/L	13.0	0.0414%	20%	----
		Tellurium, total	13494-80-9	E420	0.00020	mg/L	<0.20 µg/L	<0.00020	0	Diff <2x LOR	----
		Thallium, total	7440-28-0	E420	0.000010	mg/L	<0.010 µg/L	<0.000010	0	Diff <2x LOR	----
		Thorium, total	7440-29-1	E420	0.00010	mg/L	<0.10 µg/L	<0.00010	0	Diff <2x LOR	----
		Tin, total	7440-31-5	E420	0.00010	mg/L	<0.10 µg/L	<0.00010	0	Diff <2x LOR	----
		Titanium, total	7440-32-6	E420	0.00030	mg/L	1.99 µg/L	0.00203	0.00004	Diff <2x LOR	----
		Tungsten, total	7440-33-7	E420	0.00010	mg/L	0.76 µg/L	0.00079	0.00003	Diff <2x LOR	----
		Uranium, total	7440-61-1	E420	0.000010	mg/L	0.315 µg/L	0.000302	4.32%	20%	----
		Vanadium, total	7440-62-2	E420	0.00050	mg/L	2.94 µg/L	0.00293	0.00001	Diff <2x LOR	----
		Zinc, total	7440-66-6	E420	0.0030	mg/L	5.0 µg/L	0.0049	0.0001	Diff <2x LOR	----
		Zirconium, total	7440-67-7	E420	0.00020	mg/L	<0.20 µg/L	<0.00020	0	Diff <2x LOR	----
Total Metals (QC Lot: 2333469)											
VA25C9760-011	Anonymous	Mercury, total	7439-97-6	E508	0.0000050	mg/L	0.0351 µg/L	0.0000379	0.0000028	Diff <2x LOR	----
Dissolved Metals (QC Lot: 2324937)											
VA25C9760-001	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	1.3 µg/L	0.0013	0.00008	Diff <2x LOR	----
		Antimony, dissolved	7440-36-0	E421	0.00010	mg/L	<0.10 µg/L	<0.00010	0	Diff <2x LOR	----
		Arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	0.42 µg/L	0.00039	0.00003	Diff <2x LOR	----
		Barium, dissolved	7440-39-3	E421	0.00010	mg/L	82.8 µg/L	0.0792	4.49%	20%	----
		Beryllium, dissolved	7440-41-7	E421	0.000100	mg/L	<0.100 µg/L	<0.000100	0	Diff <2x LOR	----
		Bismuth, dissolved	7440-69-9	E421	0.000050	mg/L	<0.050 µg/L	<0.000050	0	Diff <2x LOR	----
		Boron, dissolved	7440-42-8	E421	0.010	mg/L	29 µg/L	0.028	0.0009	Diff <2x LOR	----
		Cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L	<0.0050 µg/L	<0.0000050	0	Diff <2x LOR	----
		Calcium, dissolved	7440-70-2	E421	0.050	mg/L	33100 µg/L	33.1	0.140%	20%	----
		Cesium, dissolved	7440-46-2	E421	0.000010	mg/L	0.021 µg/L	0.000019	0.000002	Diff <2x LOR	----
		Chromium, dissolved	7440-47-3	E421	0.00050	mg/L	<0.50 µg/L	<0.00050	0	Diff <2x LOR	----
		Cobalt, dissolved	7440-48-4	E421	0.00010	mg/L	<0.10 µg/L	<0.00010	0	Diff <2x LOR	----
		Copper, dissolved	7440-50-8	E421	0.00020	mg/L	<0.20 µg/L	<0.00020	0	Diff <2x LOR	----
		Iron, dissolved	7439-89-6	E421	0.010	mg/L	7420 µg/L	7.36	0.883%	20%	----
		Lead, dissolved	7439-92-1	E421	0.000050	mg/L	<0.050 µg/L	<0.000050	0	Diff <2x LOR	----
		Lithium, dissolved	7439-93-2	E421	0.0010	mg/L	19.2 µg/L	0.0185	3.90%	20%	----
		Magnesium, dissolved	7439-95-4	E421	0.0050	mg/L	7950 µg/L	7.78	2.11%	20%	----
		Manganese, dissolved	7439-96-5	E421	0.00010	mg/L	274 µg/L	0.267	2.55%	20%	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Dissolved Metals (QC Lot: 2324937) - continued											
VA25C9760-001	Anonymous	Molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.185 µg/L	0.000196	0.000011	Diff <2x LOR	----
		Nickel, dissolved	7440-02-0	E421	0.00050	mg/L	<0.50 µg/L	<0.00050	0	Diff <2x LOR	----
		Phosphorus, dissolved	7723-14-0	E421	0.050	mg/L	1590 µg/L	1.53	3.78%	20%	----
		Potassium, dissolved	7440-09-7	E421	0.050	mg/L	1200 µg/L	1.19	1.07%	20%	----
		Rubidium, dissolved	7440-17-7	E421	0.00020	mg/L	0.51 µg/L	0.00050	0.00002	Diff <2x LOR	----
		Selenium, dissolved	7782-49-2	E421	0.000050	mg/L	<0.050 µg/L	<0.000050	0	Diff <2x LOR	----
		Silicon, dissolved	7440-21-3	E421	0.050	mg/L	16600 µg/L	17.1	2.53%	20%	----
		Silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.010 µg/L	<0.000010	0	Diff <2x LOR	----
		Sodium, dissolved	7440-23-5	E421	0.050	mg/L	4820 µg/L	4.80	0.493%	20%	----
		Strontium, dissolved	7440-24-6	E421	0.00020	mg/L	215 µg/L	0.223	3.43%	20%	----
		Sulfur, dissolved	7704-34-9	E421	0.50	mg/L	11800 µg/L	12.1	1.95%	20%	----
		Tellurium, dissolved	13494-80-9	E421	0.00020	mg/L	<0.20 µg/L	<0.00020	0	Diff <2x LOR	----
		Thallium, dissolved	7440-28-0	E421	0.000010	mg/L	<0.010 µg/L	<0.000010	0	Diff <2x LOR	----
		Thorium, dissolved	7440-29-1	E421	0.00010	mg/L	<0.10 µg/L	<0.00010	0	Diff <2x LOR	----
		Tin, dissolved	7440-31-5	E421	0.00010	mg/L	<0.10 µg/L	<0.00010	0	Diff <2x LOR	----
		Titanium, dissolved	7440-32-6	E421	0.00030	mg/L	<0.30 µg/L	<0.00030	0	Diff <2x LOR	----
		Tungsten, dissolved	7440-33-7	E421	0.00010	mg/L	0.47 µg/L	0.00047	0.000009	Diff <2x LOR	----
		Uranium, dissolved	7440-61-1	E421	0.000010	mg/L	0.024 µg/L	0.000023	0.000001	Diff <2x LOR	----
		Vanadium, dissolved	7440-62-2	E421	0.00050	mg/L	<0.50 µg/L	<0.00050	0	Diff <2x LOR	----
		Zinc, dissolved	7440-66-6	E421	0.0010	mg/L	<1.0 µg/L	<0.0010	0	Diff <2x LOR	----
		Zirconium, dissolved	7440-67-7	E421	0.00020	mg/L	<0.20 µg/L	<0.00020	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 2335478)											
VA25C9760-003	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0050 µg/L	<0.0000050	0	Diff <2x LOR	----

Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 2326776)						
Solids, total suspended [TSS]	----	E160	3	mg/L	<3.0	----
Physical Tests (QCLot: 2326777)						
Solids, total suspended [TSS]	----	E160	3	mg/L	<3.0	----
Physical Tests (QCLot: 2326784)						
Solids, total dissolved [TDS]	----	E162	10	mg/L	<10	----
Physical Tests (QCLot: 2326785)						
Solids, total dissolved [TDS]	----	E162	10	mg/L	<10	----
Physical Tests (QCLot: 2331861)						
Conductivity	----	E100	1	µS/cm	<1.0	----
Physical Tests (QCLot: 2331863)						
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	<1.0	----
Anions and Nutrients (QCLot: 2327702)						
Kjeldahl nitrogen, total [TKN]	----	E318	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 2327706)						
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 2331865)						
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	----
Anions and Nutrients (QCLot: 2331866)						
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 2331867)						
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 2331868)						
Chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 2331870)						
Fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 2331871)						
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 2331873)						
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.001	mg/L	<0.0010	----
Organic / Inorganic Carbon (QCLot: 2327703)						
Carbon, total organic [TOC]	----	E355-L	0.5	mg/L	<0.50	----
Organic / Inorganic Carbon (QCLot: 2327707)						

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Organic / Inorganic Carbon (QCLot: 2327707) - continued						
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	<0.50	----
Total Sulfides (QCLot: 2329503)						
Sulfide, total (as S)	18496-25-8	E395-H	0.01	mg/L	<0.010	----
Total Metals (QCLot: 2324866)						
Aluminum, total	7429-90-5	E420	0.003	mg/L	<0.0030	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	<0.00010	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	<0.00010	----
Barium, total	7440-39-3	E420	0.0001	mg/L	<0.00010	----
Beryllium, total	7440-41-7	E420	0.00002	mg/L	<0.000020	----
Bismuth, total	7440-69-9	E420	0.00005	mg/L	<0.000050	----
Boron, total	7440-42-8	E420	0.01	mg/L	<0.010	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	<0.0000050	----
Calcium, total	7440-70-2	E420	0.05	mg/L	<0.050	----
Cesium, total	7440-46-2	E420	0.00001	mg/L	<0.000010	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	<0.00050	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	<0.00010	----
Copper, total	7440-50-8	E420	0.0005	mg/L	<0.00050	----
Iron, total	7439-89-6	E420	0.01	mg/L	<0.010	----
Lead, total	7439-92-1	E420	0.00005	mg/L	<0.000050	----
Lithium, total	7439-93-2	E420	0.001	mg/L	<0.0010	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	<0.0050	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	<0.00010	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	<0.000050	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	<0.00050	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	<0.050	----
Potassium, total	7440-09-7	E420	0.05	mg/L	<0.050	----
Rubidium, total	7440-17-7	E420	0.0002	mg/L	<0.00020	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	<0.000050	----
Silicon, total	7440-21-3	E420	0.1	mg/L	<0.10	----
Silver, total	7440-22-4	E420	0.00001	mg/L	<0.000010	----
Sodium, total	7440-23-5	E420	0.05	mg/L	<0.050	----
Strontium, total	7440-24-6	E420	0.0002	mg/L	<0.00020	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	<0.50	----
Tellurium, total	13494-80-9	E420	0.0002	mg/L	<0.00020	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	<0.000010	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (QCLot: 2324866) - continued						
Thorium, total	7440-29-1	E420	0.0001	mg/L	<0.00010	----
Tin, total	7440-31-5	E420	0.0001	mg/L	<0.00010	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	<0.00030	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	<0.00010	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	<0.000010	----
Vanadium, total	7440-62-2	E420	0.0005	mg/L	<0.00050	----
Zinc, total	7440-66-6	E420	0.003	mg/L	<0.0030	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	<0.00020	----
Total Metals (QCLot: 2333469)						
Mercury, total	7439-97-6	E508	0.000005	mg/L	<0.0000050	----
Dissolved Metals (QCLot: 2324937)						
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	<0.0010	----
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	<0.00010	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	<0.00010	----
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	<0.00010	----
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	<0.000020	----
Bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	<0.000050	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	<0.010	----
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	<0.0000050	----
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	<0.050	----
Cesium, dissolved	7440-46-2	E421	0.00001	mg/L	<0.000010	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	<0.00050	----
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	<0.00010	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	<0.00020	----
Iron, dissolved	7439-89-6	E421	0.01	mg/L	<0.010	----
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	<0.000050	----
Lithium, dissolved	7439-93-2	E421	0.001	mg/L	<0.0010	----
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	<0.0050	----
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	<0.00010	----
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	<0.000050	----
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	<0.00050	----
Phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	<0.050	----
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	<0.050	----
Rubidium, dissolved	7440-17-7	E421	0.0002	mg/L	<0.00020	----
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	<0.000050	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Dissolved Metals (QCLot: 2324937) - continued						
Silicon, dissolved	7440-21-3	E421	0.05	mg/L	<0.050	----
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	<0.000010	----
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	<0.050	----
Strontium, dissolved	7440-24-6	E421	0.0002	mg/L	<0.00020	----
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	<0.50	----
Tellurium, dissolved	13494-80-9	E421	0.0002	mg/L	<0.00020	----
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	<0.000010	----
Thorium, dissolved	7440-29-1	E421	0.0001	mg/L	<0.00010	----
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	<0.00010	----
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	<0.00030	----
Tungsten, dissolved	7440-33-7	E421	0.0001	mg/L	<0.00010	----
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	<0.000010	----
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	<0.00050	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	<0.0010	----
Zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	<0.00020	----
Dissolved Metals (QCLot: 2335478)						
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	<0.0000050	----

Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 2326776)									
Solids, total suspended [TSS]	----	E160	3	mg/L	150 mg/L	97.2	85.0	115	----
Physical Tests (QCLot: 2326777)									
Solids, total suspended [TSS]	----	E160	3	mg/L	150 mg/L	95.9	85.0	115	----
Physical Tests (QCLot: 2326784)									
Solids, total dissolved [TDS]	----	E162	10	mg/L	1000 mg/L	106	85.0	115	----
Physical Tests (QCLot: 2326785)									
Solids, total dissolved [TDS]	----	E162	10	mg/L	1000 mg/L	106	85.0	115	----
Physical Tests (QCLot: 2331861)									
Conductivity	----	E100	1	µS/cm	147 µS/cm	103	90.0	110	----
Physical Tests (QCLot: 2331862)									
pH	----	E108	----	pH units	7 pH units	99.6	98.0	102	----
Physical Tests (QCLot: 2331863)									
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	500 mg/L	103	85.0	115	----
Anions and Nutrients (QCLot: 2327702)									
Kjeldahl nitrogen, total [TKN]	----	E318	0.05	mg/L	4 mg/L	103	75.0	125	----
Anions and Nutrients (QCLot: 2327706)									
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	101	85.0	115	----
Anions and Nutrients (QCLot: 2331865)									
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 2331866)									
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	2.5 mg/L	100	90.0	110	----
Anions and Nutrients (QCLot: 2331867)									
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	0.5 mg/L	98.5	90.0	110	----
Anions and Nutrients (QCLot: 2331868)									
Chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	99.1	90.0	110	----
Anions and Nutrients (QCLot: 2331870)									
Fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	99.6	90.0	110	----
Anions and Nutrients (QCLot: 2331871)									
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	0.5 mg/L	106	85.0	115	----
Anions and Nutrients (QCLot: 2331873)									
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.001	mg/L	0.03 mg/L	97.6	80.0	120	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Organic / Inorganic Carbon (QCLot: 2327703)									
Carbon, total organic [TOC]	----	E355-L	0.5	mg/L	8.57 mg/L	102	80.0	120	----
Organic / Inorganic Carbon (QCLot: 2327707)									
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	8.57 mg/L	100	80.0	120	----
Total Sulfides (QCLot: 2329503)									
Sulfide, total (as H2S)	7783-06-4	E395-H	----	mg/L	0.085 mg/L	101	80.0	120	----
Sulfide, total (as S)	18496-25-8	E395-H	0.01	mg/L	0.08 mg/L	101	80.0	120	----
Total Metals (QCLot: 2324866)									
Aluminum, total	7429-90-5	E420	0.003	mg/L	2 mg/L	95.2	80.0	120	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	1 mg/L	101	80.0	120	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	1 mg/L	97.5	80.0	120	----
Barium, total	7440-39-3	E420	0.0001	mg/L	0.25 mg/L	97.2	80.0	120	----
Beryllium, total	7440-41-7	E420	0.00002	mg/L	0.1 mg/L	97.9	80.0	120	----
Bismuth, total	7440-69-9	E420	0.00005	mg/L	1 mg/L	104	80.0	120	----
Boron, total	7440-42-8	E420	0.01	mg/L	1 mg/L	93.8	80.0	120	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	0.1 mg/L	97.3	80.0	120	----
Calcium, total	7440-70-2	E420	0.05	mg/L	50 mg/L	99.9	80.0	120	----
Cesium, total	7440-46-2	E420	0.00001	mg/L	0.05 mg/L	96.1	80.0	120	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	0.25 mg/L	96.6	80.0	120	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	0.25 mg/L	95.1	80.0	120	----
Copper, total	7440-50-8	E420	0.0005	mg/L	0.25 mg/L	93.7	80.0	120	----
Iron, total	7439-89-6	E420	0.01	mg/L	1 mg/L	95.8	80.0	120	----
Lead, total	7439-92-1	E420	0.00005	mg/L	0.5 mg/L	98.9	80.0	120	----
Lithium, total	7439-93-2	E420	0.001	mg/L	0.25 mg/L	94.9	80.0	120	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	50 mg/L	96.3	80.0	120	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	0.25 mg/L	95.0	80.0	120	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	0.25 mg/L	99.2	80.0	120	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	0.5 mg/L	97.5	80.0	120	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	10 mg/L	92.9	80.0	120	----
Potassium, total	7440-09-7	E420	0.05	mg/L	50 mg/L	95.9	80.0	120	----
Rubidium, total	7440-17-7	E420	0.0002	mg/L	0.1 mg/L	97.7	80.0	120	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	1 mg/L	98.9	80.0	120	----
Silicon, total	7440-21-3	E420	0.1	mg/L	10 mg/L	101	80.0	120	----
Silver, total	7440-22-4	E420	0.00001	mg/L	0.1 mg/L	88.9	80.0	120	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Total Metals (QCLot: 2324866) - continued									
Sodium, total	7440-23-5	E420	0.05	mg/L	50 mg/L	100	80.0	120	----
Strontium, total	7440-24-6	E420	0.0002	mg/L	0.25 mg/L	98.9	80.0	120	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	50 mg/L	94.2	80.0	120	----
Tellurium, total	13494-80-9	E420	0.0002	mg/L	0.1 mg/L	96.8	80.0	120	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	1 mg/L	102	80.0	120	----
Thorium, total	7440-29-1	E420	0.0001	mg/L	0.1 mg/L	98.0	80.0	120	----
Tin, total	7440-31-5	E420	0.0001	mg/L	0.5 mg/L	96.8	80.0	120	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	0.25 mg/L	94.4	80.0	120	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	0.1 mg/L	97.9	80.0	120	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	0.005 mg/L	102	80.0	120	----
Vanadium, total	7440-62-2	E420	0.0005	mg/L	0.5 mg/L	98.0	80.0	120	----
Zinc, total	7440-66-6	E420	0.003	mg/L	0.5 mg/L	94.4	80.0	120	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	0.1 mg/L	88.9	80.0	120	----
Total Metals (QCLot: 2333469)									
Mercury, total	7439-97-6	E508	0.000005	mg/L	0 mg/L	95.9	80.0	120	----
Dissolved Metals (QCLot: 2324937)									
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	2 mg/L	105	80.0	120	----
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	1 mg/L	100	80.0	120	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	1 mg/L	102	80.0	120	----
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	0.25 mg/L	103	80.0	120	----
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	0.1 mg/L	105	80.0	120	----
Bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	1 mg/L	101	80.0	120	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	1 mg/L	107	80.0	120	----
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	0.1 mg/L	99.1	80.0	120	----
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	50 mg/L	101	80.0	120	----
Cesium, dissolved	7440-46-2	E421	0.00001	mg/L	0.05 mg/L	96.0	80.0	120	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	0.25 mg/L	101	80.0	120	----
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	0.25 mg/L	100	80.0	120	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	0.25 mg/L	98.5	80.0	120	----
Iron, dissolved	7439-89-6	E421	0.01	mg/L	1 mg/L	102	80.0	120	----
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	0.5 mg/L	99.7	80.0	120	----
Lithium, dissolved	7439-93-2	E421	0.001	mg/L	0.25 mg/L	99.9	80.0	120	----
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	50 mg/L	101	80.0	120	----
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	0.25 mg/L	102	80.0	120	----
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	0.25 mg/L	102	80.0	120	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Dissolved Metals (QCLot: 2324937) - continued									
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	0.5 mg/L	99.1	80.0	120	----
Phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	10 mg/L	104	80.0	120	----
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	50 mg/L	110	80.0	120	----
Rubidium, dissolved	7440-17-7	E421	0.0002	mg/L	0.1 mg/L	100	80.0	120	----
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	1 mg/L	109	80.0	120	----
Silicon, dissolved	7440-21-3	E421	0.05	mg/L	10 mg/L	115	80.0	120	----
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	0.1 mg/L	87.9	80.0	120	----
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	50 mg/L	108	80.0	120	----
Strontium, dissolved	7440-24-6	E421	0.0002	mg/L	0.25 mg/L	97.8	80.0	120	----
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	50 mg/L	98.2	80.0	120	----
Tellurium, dissolved	13494-80-9	E421	0.0002	mg/L	0.1 mg/L	94.6	80.0	120	----
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	1 mg/L	99.3	80.0	120	----
Thorium, dissolved	7440-29-1	E421	0.0001	mg/L	0.1 mg/L	96.4	80.0	120	----
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	0.5 mg/L	99.3	80.0	120	----
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	0.25 mg/L	100	80.0	120	----
Tungsten, dissolved	7440-33-7	E421	0.0001	mg/L	0.1 mg/L	96.3	80.0	120	----
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	0.005 mg/L	101	80.0	120	----
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	0.5 mg/L	105	80.0	120	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	0.5 mg/L	97.9	80.0	120	----
Zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	0.1 mg/L	96.9	80.0	120	----
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0 mg/L	94.5	80.0	120	----

Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for the associated sample (or similar samples) may be subject to bias. ND – Recovery not determined, background level >= 1x spike level.

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Anions and Nutrients (QCLot: 2327702)										
VA25C9714-002	Anonymous	Kjeldahl nitrogen, total [TKN]	----	E318	2.53 mg/L	2.5 mg/L	101	70.0	130	----
Anions and Nutrients (QCLot: 2327706)										
VA25C9714-002	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0995 mg/L	0.1 mg/L	99.5	75.0	125	----
Anions and Nutrients (QCLot: 2331865)										
VA25C9773-002	Spillway Intel (E335951)	Sulfate (as SO4)	14808-79-8	E235.SO4	475 mg/L	500 mg/L	95.1	75.0	125	----
Anions and Nutrients (QCLot: 2331866)										
VA25C9773-002	Spillway Intel (E335951)	Nitrate (as N)	14797-55-8	E235.NO3-L	12.5 mg/L	12.5 mg/L	100	75.0	125	----
Anions and Nutrients (QCLot: 2331867)										
VA25C9773-002	Spillway Intel (E335951)	Nitrite (as N)	14797-65-0	E235.NO2-L	2.45 mg/L	2.5 mg/L	97.9	75.0	125	----
Anions and Nutrients (QCLot: 2331868)										
VA25C9773-002	Spillway Intel (E335951)	Chloride	16887-00-6	E235.Cl	494 mg/L	500 mg/L	98.9	75.0	125	----
Anions and Nutrients (QCLot: 2331870)										
VA25C9773-002	Spillway Intel (E335951)	Fluoride	16984-48-8	E235.F	5.03 mg/L	5 mg/L	101	75.0	125	----
Anions and Nutrients (QCLot: 2331871)										
VA25C9773-002	Spillway Intel (E335951)	Bromide	24959-67-9	E235.Br-L	2.41 mg/L	2.5 mg/L	96.3	75.0	125	----
Anions and Nutrients (QCLot: 2331873)										
VA25C9773-002	Spillway Intel (E335951)	Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0323 mg/L	0.03 mg/L	108	70.0	130	----
Organic / Inorganic Carbon (QCLot: 2327703)										
VA25C9714-002	Anonymous	Carbon, total organic [TOC]	----	E355-L	5.26 mg/L	5 mg/L	105	70.0	130	----
Organic / Inorganic Carbon (QCLot: 2327707)										
VA25C9714-002	Anonymous	Carbon, dissolved organic [DOC]	----	E358-L	5.27 mg/L	5 mg/L	105	70.0	130	----
Total Sulfides (QCLot: 2329503)										
SK2507032-002	Anonymous	Sulfide, total (as S)	18496-25-8	E395-H	0.882 mg/L	1 mg/L	88.2	75.0	125	----
Total Metals (QCLot: 2324866)										
VA25C9760-002	Anonymous	Aluminum, total	7429-90-5	E420	0.200 mg/L	0.2 mg/L	99.9	70.0	130	----
		Antimony, total	7440-36-0	E420	0.0189 mg/L	0.02 mg/L	94.6	70.0	130	----
		Arsenic, total	7440-38-2	E420	0.0184 mg/L	0.02 mg/L	91.9	70.0	130	----
		Barium, total	7440-39-3	E420	ND mg/L	----	ND	70.0	130	----
		Beryllium, total	7440-41-7	E420	0.0368 mg/L	0.04 mg/L	92.0	70.0	130	----
		Bismuth, total	7440-69-9	E420	0.00895 mg/L	0.01 mg/L	89.5	70.0	130	----
		Boron, total	7440-42-8	E420	ND mg/L	----	ND	70.0	130	----
		Cadmium, total	7440-43-9	E420	0.00358 mg/L	0.004 mg/L	89.5	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Total Metals (QCLot: 2324866) - continued										
VA25C9760-002	Anonymous	Calcium, total	7440-70-2	E420	ND mg/L	----	ND	70.0	130	----
		Cesium, total	7440-46-2	E420	0.00929 mg/L	0.01 mg/L	92.9	70.0	130	----
		Chromium, total	7440-47-3	E420	0.0360 mg/L	0.04 mg/L	90.1	70.0	130	----
		Cobalt, total	7440-48-4	E420	0.0175 mg/L	0.02 mg/L	87.7	70.0	130	----
		Copper, total	7440-50-8	E420	0.0169 mg/L	0.02 mg/L	84.3	70.0	130	----
		Iron, total	7439-89-6	E420	1.83 mg/L	2 mg/L	91.3	70.0	130	----
		Lead, total	7439-92-1	E420	0.0174 mg/L	0.02 mg/L	86.8	70.0	130	----
		Lithium, total	7439-93-2	E420	ND mg/L	----	ND	70.0	130	----
		Magnesium, total	7439-95-4	E420	ND mg/L	----	ND	70.0	130	----
		Manganese, total	7439-96-5	E420	ND mg/L	----	ND	70.0	130	----
		Molybdenum, total	7439-98-7	E420	0.0194 mg/L	0.02 mg/L	97.1	70.0	130	----
		Nickel, total	7440-02-0	E420	0.0352 mg/L	0.04 mg/L	87.9	70.0	130	----
		Phosphorus, total	7723-14-0	E420	9.72 mg/L	10 mg/L	97.2	70.0	130	----
		Potassium, total	7440-09-7	E420	3.60 mg/L	4 mg/L	90.1	70.0	130	----
		Rubidium, total	7440-17-7	E420	0.0175 mg/L	0.02 mg/L	87.3	70.0	130	----
		Selenium, total	7782-49-2	E420	0.0391 mg/L	0.04 mg/L	97.6	70.0	130	----
		Silicon, total	7440-21-3	E420	9.15 mg/L	10 mg/L	91.5	70.0	130	----
		Silver, total	7440-22-4	E420	0.00363 mg/L	0.004 mg/L	90.6	70.0	130	----
		Sodium, total	7440-23-5	E420	ND mg/L	----	ND	70.0	130	----
		Strontium, total	7440-24-6	E420	ND mg/L	----	ND	70.0	130	----
		Sulfur, total	7704-34-9	E420	20.5 mg/L	20 mg/L	102	70.0	130	----
		Tellurium, total	13494-80-9	E420	0.0389 mg/L	0.04 mg/L	97.1	70.0	130	----
		Thallium, total	7440-28-0	E420	0.00355 mg/L	0.004 mg/L	88.8	70.0	130	----
		Thorium, total	7440-29-1	E420	0.0183 mg/L	0.02 mg/L	91.7	70.0	130	----
		Tin, total	7440-31-5	E420	0.0192 mg/L	0.02 mg/L	95.9	70.0	130	----
		Titanium, total	7440-32-6	E420	0.0367 mg/L	0.04 mg/L	91.7	70.0	130	----
		Tungsten, total	7440-33-7	E420	0.0187 mg/L	0.02 mg/L	93.4	70.0	130	----
		Uranium, total	7440-61-1	E420	0.00375 mg/L	0.004 mg/L	93.9	70.0	130	----
		Vanadium, total	7440-62-2	E420	0.0917 mg/L	0.1 mg/L	91.7	70.0	130	----
		Zinc, total	7440-66-6	E420	0.354 mg/L	0.4 mg/L	88.5	70.0	130	----
		Zirconium, total	7440-67-7	E420	0.0375 mg/L	0.04 mg/L	93.9	70.0	130	----
Total Metals (QCLot: 2333469)										
VA25C9773-001	Seepage Weir (E335950)	Mercury, total	7439-97-6	E508	0.0000882 mg/L	0 mg/L	88.2	70.0	130	----
Dissolved Metals (QCLot: 2324937)										
VA25C9760-002	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.187 mg/L	0.2 mg/L	93.3	70.0	130	----
		Antimony, dissolved	7440-36-0	E421	0.0192 mg/L	0.02 mg/L	96.2	70.0	130	----
		Arsenic, dissolved	7440-38-2	E421	0.0199 mg/L	0.02 mg/L	99.7	70.0	130	----
		Barium, dissolved	7440-39-3	E421	ND mg/L	----	ND	70.0	130	----
		Beryllium, dissolved	7440-41-7	E421	0.0413 mg/L	0.04 mg/L	103	70.0	130	----
		Bismuth, dissolved	7440-69-9	E421	0.00889 mg/L	0.01 mg/L	88.9	70.0	130	----
		Boron, dissolved	7440-42-8	E421	ND mg/L	----	ND	70.0	130	----
		Cadmium, dissolved	7440-43-9	E421	0.00393 mg/L	0.004 mg/L	98.3	70.0	130	----
		Calcium, dissolved	7440-70-2	E421	ND mg/L	----	ND	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Dissolved Metals (QCLot: 2324937) - continued										
VA25C9760-002	Anonymous	Cesium, dissolved	7440-46-2	E421	0.00953 mg/L	0.01 mg/L	95.3	70.0	130	----
		Chromium, dissolved	7440-47-3	E421	0.0392 mg/L	0.04 mg/L	98.0	70.0	130	----
		Cobalt, dissolved	7440-48-4	E421	0.0189 mg/L	0.02 mg/L	94.4	70.0	130	----
		Copper, dissolved	7440-50-8	E421	0.0179 mg/L	0.02 mg/L	89.6	70.0	130	----
		Iron, dissolved	7439-89-6	E421	1.90 mg/L	2 mg/L	94.9	70.0	130	----
		Lead, dissolved	7439-92-1	E421	0.0189 mg/L	0.02 mg/L	94.4	70.0	130	----
		Lithium, dissolved	7439-93-2	E421	ND mg/L	----	ND	70.0	130	----
		Magnesium, dissolved	7439-95-4	E421	ND mg/L	----	ND	70.0	130	----
		Manganese, dissolved	7439-96-5	E421	ND mg/L	----	ND	70.0	130	----
		Molybdenum, dissolved	7439-98-7	E421	0.0206 mg/L	0.02 mg/L	103	70.0	130	----
		Nickel, dissolved	7440-02-0	E421	0.0363 mg/L	0.04 mg/L	90.7	70.0	130	----
		Phosphorus, dissolved	7723-14-0	E421	10.2 mg/L	10 mg/L	102	70.0	130	----
		Potassium, dissolved	7440-09-7	E421	ND mg/L	----	ND	70.0	130	----
		Rubidium, dissolved	7440-17-7	E421	0.0191 mg/L	0.02 mg/L	95.6	70.0	130	----
		Selenium, dissolved	7782-49-2	E421	0.0421 mg/L	0.04 mg/L	105	70.0	130	----
		Silicon, dissolved	7440-21-3	E421	9.79 mg/L	10 mg/L	97.9	70.0	130	----
		Silver, dissolved	7440-22-4	E421	0.00372 mg/L	0.004 mg/L	93.1	70.0	130	----
		Sodium, dissolved	7440-23-5	E421	ND mg/L	----	ND	70.0	130	----
		Strontium, dissolved	7440-24-6	E421	ND mg/L	----	ND	70.0	130	----
		Sulfur, dissolved	7704-34-9	E421	22.0 mg/L	20 mg/L	110	70.0	130	----
		Tellurium, dissolved	13494-80-9	E421	0.0384 mg/L	0.04 mg/L	96.1	70.0	130	----
		Thallium, dissolved	7440-28-0	E421	0.00360 mg/L	0.004 mg/L	90.1	70.0	130	----
		Thorium, dissolved	7440-29-1	E421	0.0207 mg/L	0.02 mg/L	103	70.0	130	----
		Tin, dissolved	7440-31-5	E421	0.0193 mg/L	0.02 mg/L	96.7	70.0	130	----
		Titanium, dissolved	7440-32-6	E421	0.0388 mg/L	0.04 mg/L	96.9	70.0	130	----
		Tungsten, dissolved	7440-33-7	E421	0.0190 mg/L	0.02 mg/L	94.8	70.0	130	----
		Uranium, dissolved	7440-61-1	E421	0.00394 mg/L	0.004 mg/L	98.4	70.0	130	----
		Vanadium, dissolved	7440-62-2	E421	0.103 mg/L	0.1 mg/L	103	70.0	130	----
		Zinc, dissolved	7440-66-6	E421	0.371 mg/L	0.4 mg/L	92.7	70.0	130	----
		Zirconium, dissolved	7440-67-7	E421	0.0412 mg/L	0.04 mg/L	103	70.0	130	----
Dissolved Metals (QCLot: 2335478)										
VA25C9760-004	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000905 mg/L	0 mg/L	90.5	70.0	130	----

Chain of Custody (COC) / Analytical Request Form

COC Number: 22 - 20251104-SW

Page 1 of 1

www.alsglobal.com

Canada Toll Free: 1 800 668 9878

Environmental Division
Vancouver
Work Order Reference
VA25C9773

Telephone : +1 604 253 4188

Report To	Contact and company name below will appear on the final report	Reports / Recipients	Turnaround Time (TAT) Requested
Company:	Masse Environmental	Select Report Format: ☑ PDF ☑ EXCEL ☑ EDD (DIGITAL)	☑ Routine [R] if received by 3pm M-F - no surcharges apply
Contact:	Ico deZwart	Merge QC/QCI Reports with COA ☑ YES ☐ NO ☐ N/A	☐ 4 day [P4] if received by 3pm M-F - 20% rush surcharge minimum
Phone:		☐ Compare Results to Criteria on Report - provide details below if box checked	☐ 3 day [P3] if received by 3pm M-F - 25% rush surcharge minimum
	Company address below will appear on the final report	Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX	☐ 2 day [P2] if received by 3pm M-F - 50% rush surcharge minimum
Street:	812 Vernon St.	Email 1 or Fax ico@masseenvironmental.com	☐ 1 day [E] if received by 3pm M-F - 100% rush surcharge minimum
City/Province:	Nelson, BC	Email 2 chris@masseenvironmental.com	☐ Same day [E2] if received by 10am M-S - 200% rush surcharge.
Postal Code:	V1L4G4	Email 3 jenn@masseenvironmental.com	Additional fees may apply to rush requests on weekends.
Invoice To	Same as Report To ☑ YES ☐ NO	Invoice Recipients	Date and Time Required for all E&P TATs:
	Copy of Invoice with Report ☑ YES ☐ NO	Select Invoice Distribution: ☑ EMAIL ☐ MAIL ☐ FAX	For all tests with rush TATs requested, please cont
Company:		Email 1 or Fax lise@masseenvironmental.com	
Contact:		Email 2	

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	VA24-MASS200-001	AFE/Cost Center:	PO#
Job #:	2016-503 - HB	Major/Minor Code:	Routing Code:
PO / AFE:		Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (ALS use only):		ALS Contact:	Sampler: C.Stephanou

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (ALS use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	pH, cond, TSS, TDS, total alk, hardness	Chloride, bromide, fluoride, sulfate	Ammonia, TKN, nitrate, nitrite	TOC	DOC (F/P)	Dissolved Metals (incl Hg) (F)	Total Metals (incl Hg)	Orthophosphate (P)	Total Sulphide						SAMPLES ON HOLD	EXTENDED STORAGE REQUIRED	SUSPECTED HAZARD (see notes)
	~~SW1-07 (E303730)~~			~~SW~~	8	R	R	R	R	R	R	R	R	R								
	~~SW2-07 (E303731)~~			~~SW~~	8	R	R	R	R	R	R	R	R	R								
	~~SW3-07 (E303732)~~			~~SW~~	8	R	R	R	R	R	R	R	R	R								
	~~SW5-10 (E335840)~~			~~SW~~	8	R	R	R	R	R	R	R	R	R								
	Seepage Weir (E335950)	03-Nov-25	11:53	SW	8	R	R	R	R	R	R	R	R	R								
	Spillway Inlet (E335951)	03-Nov-25	10:50	SW	8	R	R	R	R	R	R	R	R	R								
	Spillway Outlet (E335952)	03-Nov-25	11:45	SW	8	R	R	R	R	R	R	R	R	R								
	~~Outlet Ditch (E252608)~~			~~SW~~	8	R	R	R	R	R	R	R	R	R								

Drinking Water (DW) Samples[1] (client use)	Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only)
Are samples taken from a Regulated DW System? ☐ YES ☐ NO	
Are samples for human consumption/ use? ☐ YES ☐ NO	

SAMPLE RECEIPT DETAILS (ALS use only)

Cooling Method: ☐ NONE ☐ ICE ☑ ICE PACKS ☐ FROZEN ☐ COOLING INITIATED

Submission Comments identified on Sample Receipt Notification: ☐ YES ☐ NO

Cooler Custody Seals Intact: ☐ YES ☑ N/A Sample Custody Seals Intact: ☐ YES ☑ N/A

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C		
				8	8	9

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (ALS use only)			FINAL SHIPMENT RECEPTION (ALS use only)		
Released by:	Date: 5 Nov-2025	Time: 11:00	Received by:	Date:	Time:	Received by: JC	Date: 6 Nov 25	Time: 12:50 PM

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

FEB 2022 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

CERTIFICATE OF ANALYSIS

Work Order	:	**VA25C9784**			
Client	:	**Masse Environmental Consultants Ltd.**	Laboratory	:	ALS Environmental - Vancouver
Contact	:	Ico de Zwart	Account Manager	:	Can Dang
Address	:	812 Vernon Street Nelson British Columbia Canada V1L 4G4	Address	:	8081 Lougheed Highway Burnaby BC Canada V5A 1W9
Telephone	:	----	E-mail	:	Can.Dang@ALSGlobal.com
Project	:	2016-503-HB	Telephone	:	+1 604 253 4188
PO	:	----	Date Samples Received	:	06-Nov-2025 12:50
C-O-C number	:	22-20251104-QA	Date Analysis Commenced	:	07-Nov-2025
Sampler	:	Chris Stephanou	Issue Date	:	17-Nov-2025 10:39
Site	:	RDCK			
Quote number	:	----			
No. of samples received	:	2			
No. of samples analysed	:	2			

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Jaewook Lee	Lab Assistant	Metals, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia
Lindsay Gung	Department Manager - Inorganics	Inorganics, Burnaby, British Columbia
Monica Ko	Supervisor - Inorganic	Inorganics, Burnaby, British Columbia

General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Please refer to Quality Control Interpretive report (QCI) for information regarding Holding Time compliance.

Key: CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances.
LOR: Limit of Reporting (detection limit).

Unit	*Description*
-	no units
mg/L	milligrams per litre
pH units	pH units
µg/L	micrograms per litre
µS/cm	microsiemens per centimetre

<: less than.
>: greater than.
Surrogate: An analyte that is similar in behavior to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED on SRN or QCI Report, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Qualifiers

Qualifier	Description
DLA	Detection Limit adjusted for required dilution.
DLDS	Detection Limit Raised: Dilution required due to high Dissolved Solids / Electrical Conductivity.
RRV	Reported result verified by repeat analysis.

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	GW Duplicate ----	Field Blank ----	----	----	----
					Client sampling date / time	04-Nov-2025 15:15	04-Nov-2025 15:30	----	----	----
						VA25C9784-001	VA25C9784-002	----	----	----
						Result	Result	----	----	----
Physical Tests										
Alkalinity, total (as CaCO3)	----	E290/VA	1.0	mg/L		279	<1.0	----	----	----
Conductivity	----	E100/VA	2.0	µS/cm		1680	2.9	----	----	----
Hardness (as CaCO3), dissolved	----	EC100/VA	0.60	mg/L		903	0.79	----	----	----
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/VA	0.60	mg/L		1040	0.97	----	----	----
pH	----	E108/VA	0.10	pH units		6.99	6.07	----	----	----
Solids, total dissolved [TDS]	----	E162/VA	10	mg/L		1440	<10	----	----	----
Solids, total suspended [TSS]	----	E160/VA	3.0	mg/L		34.9	3.3	----	----	----
Anions and Nutrients										
Ammonia, total (as N)	7664-41-7	E298/VA	0.0050	mg/L		1.26	<0.0050	----	----	----
Bromide	24959-67-9	E235.Br-L/VA	0.050	mg/L		<0.500 DLDS	<0.050	----	----	----
Chloride	16887-00-6	E235.Cl/VA	0.50	mg/L		18.8	<0.50	----	----	----
Fluoride	16984-48-8	E235.F/VA	0.020	mg/L		<0.200 DLDS	<0.020	----	----	----
Kjeldahl nitrogen, total [TKN]	----	E318/VA	0.050	mg/L		1.90	<0.050	----	----	----
Nitrate (as N)	14797-55-8	E235.NO3-L/VA	0.0050	mg/L		<0.0500 DLDS	<0.0050	----	----	----
Nitrite (as N)	14797-65-0	E235.NO2-L/VA	0.0010	mg/L		<0.0100 DLDS	<0.0010	----	----	----
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U/VA	0.0010	mg/L		<0.0010	<0.0010	----	----	----
Sulfate (as SO4)	14808-79-8	E235.SO4/VA	0.30	mg/L		787	<0.30	----	----	----
Organic / Inorganic Carbon										
Carbon, total organic [TOC]	----	E355-L/VA	0.50	mg/L		7.34	<0.50	----	----	----
Total Sulfides										
Sulfide, total (as H2S)	7783-06-4	E395-H/VA	0.011	mg/L		0.036	<0.011	----	----	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID: GW Duplicate ----	Field Blank ----	----	----	----
					Client sampling date / time: 04-Nov-2025 15:15	04-Nov-2025 15:30	----	----	----
					VA25C9784-001	VA25C9784-002	----	----	----
					Result	Result	----	----	----
Total Sulfides									
Sulfide, total (as S)	18496-25-8	E395-H/VA	0.010	mg/L	0.034	<0.010	----	----	----
Total Metals									
Aluminum, total	7429-90-5	E420/VA	3.0	µg/L	8.7	20.5	----	----	----
Antimony, total	7440-36-0	E420/VA	0.10	µg/L	<0.20 DLA	<0.10	----	----	----
Arsenic, total	7440-38-2	E420/VA	0.10	µg/L	5.33	0.11	----	----	----
Barium, total	7440-39-3	E420/VA	0.10	µg/L	18.3	0.95	----	----	----
Beryllium, total	7440-41-7	E420/VA	0.100	µg/L	<0.100	<0.100	----	----	----
Bismuth, total	7440-69-9	E420/VA	0.050	µg/L	<0.100 DLA	<0.050	----	----	----
Boron, total	7440-42-8	E420/VA	10	µg/L	307	<10	----	----	----
Cadmium, total	7440-43-9	E420/VA	0.0050	µg/L	1.23	0.0842	----	----	----
Calcium, total	7440-70-2	E420/VA	50	µg/L	339000	270	----	----	----
Cesium, total	7440-46-2	E420/VA	0.010	µg/L	0.913	<0.010	----	----	----
Chromium, total	7440-47-3	E420/VA	0.50	µg/L	<1.00 DLA	1.85	----	----	----
Cobalt, total	7440-48-4	E420/VA	0.10	µg/L	<0.20 DLA	<0.10	----	----	----
Copper, total	7440-50-8	E420/VA	0.50	µg/L	<1.00 DLA	0.94	----	----	----
Iron, total	7439-89-6	E420/VA	10	µg/L	17700	57	----	----	----
Lead, total	7439-92-1	E420/VA	0.050	µg/L	14.2	0.652	----	----	----
Lithium, total	7439-93-2	E420/VA	1.0	µg/L	4.0	<1.0	----	----	----
Magnesium, total	7439-95-4	E420/VA	5.0	µg/L	47200	72.0	----	----	----
Manganese, total	7439-96-5	E420/VA	0.10	µg/L	407	7.02	----	----	----
Mercury, total	7439-97-6	E508/VA	0.0050	µg/L	<0.0050	<0.0050	----	----	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	GW Duplicate ----	Field Blank ----	----	----	----
					Client sampling date / time	04-Nov-2025 15:15	04-Nov-2025 15:30	----	----	----
						VA25C9784-001	VA25C9784-002	----	----	----
						Result	Result	----	----	----
Total Metals										
Molybdenum, total	7439-98-7	E420/VA	0.050	µg/L		0.945	0.060	----	----	----
Nickel, total	7440-02-0	E420/VA	0.50	µg/L		2.12	0.95	----	----	----
Phosphorus, total	7723-14-0	E420/VA	50	µg/L		<100 DLA	<50	----	----	----
Potassium, total	7440-09-7	E420/VA	50	µg/L		9500	51	----	----	----
Rubidium, total	7440-17-7	E420/VA	0.20	µg/L		33.7	<0.20	----	----	----
Selenium, total	7782-49-2	E420/VA	0.050	µg/L		<0.100 DLA	<0.050	----	----	----
Silicon, total	7440-21-3	E420/VA	100	µg/L		7380	120	----	----	----
Silver, total	7440-22-4	E420/VA	0.010	µg/L		<0.020 DLA	<0.010	----	----	----
Sodium, total	7440-23-5	E420/VA	50	µg/L		16900	106	----	----	----
Strontium, total	7440-24-6	E420/VA	0.20	µg/L		467	1.13	----	----	----
Sulfur, total	7704-34-9	E420/VA	500	µg/L		278000	<500	----	----	----
Tellurium, total	13494-80-9	E420/VA	0.20	µg/L		<0.40 DLA	<0.20	----	----	----
Thallium, total	7440-28-0	E420/VA	0.010	µg/L		0.076	<0.010	----	----	----
Thorium, total	7440-29-1	E420/VA	0.10	µg/L		<0.20 DLA	<0.10	----	----	----
Tin, total	7440-31-5	E420/VA	0.10	µg/L		<0.20 DLA	0.13	----	----	----
Titanium, total	7440-32-6	E420/VA	0.30	µg/L		<0.60 DLA	1.15	----	----	----
Tungsten, total	7440-33-7	E420/VA	0.10	µg/L		<0.20 DLA	<0.10	----	----	----
Uranium, total	7440-61-1	E420/VA	0.010	µg/L		3.32	<0.010	----	----	----
Vanadium, total	7440-62-2	E420/VA	0.50	µg/L		<1.00 DLA	<0.50	----	----	----
Zinc, total	7440-66-6	E420/VA	3.0	µg/L		355	4.5	----	----	----
Zirconium, total	7440-67-7	E420/VA	0.20	µg/L		<0.40 DLA	<0.20	----	----	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	GW Duplicate ----	Field Blank ----	----	----	----
					Client sampling date / time	04-Nov-2025 15:15	04-Nov-2025 15:30	----	----	----
						VA25C9784-001	VA25C9784-002	----	----	----
						Result	Result	----	----	----
Dissolved Metals										
Aluminum, dissolved	7429-90-5	E421/VA	1.0	µg/L		2.9	1.1 RRV	----	----	----
Antimony, dissolved	7440-36-0	E421/VA	0.10	µg/L		<0.20 DLA	<0.10	----	----	----
Arsenic, dissolved	7440-38-2	E421/VA	0.10	µg/L		2.27	<0.10	----	----	----
Barium, dissolved	7440-39-3	E421/VA	0.10	µg/L		16.2	0.52 RRV	----	----	----
Beryllium, dissolved	7440-41-7	E421/VA	0.100	µg/L		<0.100	<0.100	----	----	----
Bismuth, dissolved	7440-69-9	E421/VA	0.050	µg/L		<0.100 DLA	<0.050	----	----	----
Boron, dissolved	7440-42-8	E421/VA	10	µg/L		275	<10	----	----	----
Cadmium, dissolved	7440-43-9	E421/VA	0.0050	µg/L		<0.0100 DLA	0.0070 RRV	----	----	----
Calcium, dissolved	7440-70-2	E421/VA	50	µg/L		284000	242 RRV	----	----	----
Cesium, dissolved	7440-46-2	E421/VA	0.010	µg/L		0.785	<0.010	----	----	----
Chromium, dissolved	7440-47-3	E421/VA	0.50	µg/L		<1.00 DLA	<0.50	----	----	----
Cobalt, dissolved	7440-48-4	E421/VA	0.10	µg/L		<0.20 DLA	<0.10	----	----	----
Copper, dissolved	7440-50-8	E421/VA	0.20	µg/L		<0.40 DLA	0.47 RRV	----	----	----
Iron, dissolved	7439-89-6	E421/VA	10	µg/L		11800	<10	----	----	----
Lead, dissolved	7439-92-1	E421/VA	0.050	µg/L		0.113	<0.050	----	----	----
Lithium, dissolved	7439-93-2	E421/VA	1.0	µg/L		3.9	<1.0	----	----	----
Magnesium, dissolved	7439-95-4	E421/VA	5.0	µg/L		47100	44.1 RRV	----	----	----
Manganese, dissolved	7439-96-5	E421/VA	0.10	µg/L		407	2.50 RRV	----	----	----
Mercury, dissolved	7439-97-6	E509/VA	0.0050	µg/L		<0.0050	<0.0050	----	----	----
Molybdenum, dissolved	7439-98-7	E421/VA	0.050	µg/L		1.15	<0.050	----	----	----
Nickel, dissolved	7440-02-0	E421/VA	0.50	µg/L		1.59	<0.50	----	----	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	GW Duplicate ----	Field Blank ----	----	----	----
					Client sampling date / time	04-Nov-2025 15:15	04-Nov-2025 15:30	----	----	----
						VA25C9784-001	VA25C9784-002	----	----	----
						Result	Result	----	----	----
Dissolved Metals										
Phosphorus, dissolved	7723-14-0	E421/VA	50	µg/L		<100 DLA	<50	----	----	----
Potassium, dissolved	7440-09-7	E421/VA	50	µg/L		9690	<50	----	----	----
Rubidium, dissolved	7440-17-7	E421/VA	0.20	µg/L		33.4	<0.20	----	----	----
Selenium, dissolved	7782-49-2	E421/VA	0.050	µg/L		<0.100 DLA	<0.050	----	----	----
Silicon, dissolved	7440-21-3	E421/VA	50	µg/L		7400	51 RRV	----	----	----
Silver, dissolved	7440-22-4	E421/VA	0.010	µg/L		<0.020 DLA	<0.010	----	----	----
Sodium, dissolved	7440-23-5	E421/VA	50	µg/L		17600	91 RRV	----	----	----
Strontium, dissolved	7440-24-6	E421/VA	0.20	µg/L		453	1.01 RRV	----	----	----
Sulfur, dissolved	7704-34-9	E421/VA	500	µg/L		239000	<500	----	----	----
Tellurium, dissolved	13494-80-9	E421/VA	0.20	µg/L		<0.40 DLA	<0.20	----	----	----
Thallium, dissolved	7440-28-0	E421/VA	0.010	µg/L		0.051	<0.010	----	----	----
Thorium, dissolved	7440-29-1	E421/VA	0.10	µg/L		<0.20 DLA	<0.10	----	----	----
Tin, dissolved	7440-31-5	E421/VA	0.10	µg/L		<0.20 DLA	<0.10	----	----	----
Titanium, dissolved	7440-32-6	E421/VA	0.30	µg/L		<0.60 DLA	<0.30	----	----	----
Tungsten, dissolved	7440-33-7	E421/VA	0.10	µg/L		<0.20 DLA	<0.10	----	----	----
Uranium, dissolved	7440-61-1	E421/VA	0.010	µg/L		2.79	<0.010	----	----	----
Vanadium, dissolved	7440-62-2	E421/VA	0.50	µg/L		<1.00 DLA	<0.50	----	----	----
Zinc, dissolved	7440-66-6	E421/VA	1.0	µg/L		158	1.6 RRV	----	----	----
Zirconium, dissolved	7440-67-7	E421/VA	0.20	µg/L		<0.40 DLA	<0.20	----	----	----
Dissolved mercury filtration location	----	EP509/VA	-	-		Field	Field	----	----	----
Dissolved metals filtration location	----	EP421/VA	-	-		Field	Field	----	----	----

Please refer to the General Comments section for an explanation of any qualifiers detected.

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QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **VA25C9784**	Page	: 1 of 13
Client	: **Masse Environmental Consultants Ltd.**	Laboratory	: ALS Environmental - Vancouver
Contact	: Ico de Zwart	Account Manager	: Can Dang
Address	: 812 Vernon Street Nelson BC Canada V1L 4G4	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: ----	Telephone	: +1 604 253 4188
Project	: 2016-503-HB	Date Samples Received	: 06-Nov-2025 12:50
PO	: ----	Issue Date	: 17-Nov-2025 10:38
C-O-C number	: 22-20251104-QA		
Sampler	: Chris Stephanou		
Site	: RDCK		
Quote number	: ----		
No. of samples received	: 2		
No. of samples analysed	: 2		

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Key

Anonymous: Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number: Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO: Data Quality Objective.
LOR: Limit of Reporting (detection limit).
RPD: Relative Percent Difference.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Summary of Outliers

Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- No Duplicate outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- No Matrix Spike outliers occur.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- Analysis Holding Time Outliers exist - please see following pages for full details.

Outliers : Frequency of Quality Control Samples

- Quality Control Sample Frequency Outliers occur - please see following pages for full details.

Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) Field Blank	E298	04-Nov-2025	08-Nov-2025	28 days	4 days	✓	14-Nov-2025	28 days	4 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) GW Duplicate	E298	04-Nov-2025	08-Nov-2025	28 days	4 days	✓	14-Nov-2025	28 days	4 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE Field Blank	E235.Br-L	04-Nov-2025	07-Nov-2025	28 days	3 days	✓	07-Nov-2025	28 days	3 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE GW Duplicate	E235.Br-L	04-Nov-2025	07-Nov-2025	28 days	3 days	✓	07-Nov-2025	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE Field Blank	E235.Cl	04-Nov-2025	07-Nov-2025	28 days	3 days	✓	07-Nov-2025	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE GW Duplicate	E235.Cl	04-Nov-2025	07-Nov-2025	28 days	3 days	✓	07-Nov-2025	28 days	3 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE Field Blank	E378-U	04-Nov-2025	07-Nov-2025	3 days	3 days	✓	07-Nov-2025	3 days	3 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE GW Duplicate	E378-U	04-Nov-2025	07-Nov-2025	3 days	3 days	✓	07-Nov-2025	3 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE Field Blank	E235.F	04-Nov-2025	07-Nov-2025	28 days	3 days	✓	07-Nov-2025	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE GW Duplicate	E235.F	04-Nov-2025	07-Nov-2025	28 days	3 days	✓	07-Nov-2025	28 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE Field Blank	E235.NO3-L	04-Nov-2025	07-Nov-2025	3 days	3 days	✓	07-Nov-2025	3 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE GW Duplicate	E235.NO3-L	04-Nov-2025	07-Nov-2025	3 days	3 days	✓	07-Nov-2025	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE Field Blank	E235.NO2-L	04-Nov-2025	07-Nov-2025	3 days	3 days	✓	07-Nov-2025	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE GW Duplicate	E235.NO2-L	04-Nov-2025	07-Nov-2025	3 days	3 days	✓	07-Nov-2025	3 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE Field Blank	E235.SO4	04-Nov-2025	07-Nov-2025	28 days	3 days	✓	07-Nov-2025	28 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE GW Duplicate	E235.SO4	04-Nov-2025	07-Nov-2025	28 days	3 days	✓	07-Nov-2025	28 days	3 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid)										
Field Blank	E318	04-Nov-2025	08-Nov-2025	28 days	4 days	✓	13-Nov-2025	28 days	4 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid)										
GW Duplicate	E318	04-Nov-2025	08-Nov-2025	28 days	4 days	✓	13-Nov-2025	28 days	4 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
Field Blank	E509	04-Nov-2025	13-Nov-2025	28 days	9 days	✓	13-Nov-2025	28 days	9 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
GW Duplicate	E509	04-Nov-2025	13-Nov-2025	28 days	9 days	✓	13-Nov-2025	28 days	9 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
Field Blank	E421	04-Nov-2025	10-Nov-2025	180 days	6 days	✓	12-Nov-2025	180 days	6 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
GW Duplicate	E421	04-Nov-2025	10-Nov-2025	180 days	6 days	✓	12-Nov-2025	180 days	6 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
Field Blank	E355-L	04-Nov-2025	08-Nov-2025	28 days	4 days	✓	09-Nov-2025	28 days	4 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
GW Duplicate	E355-L	04-Nov-2025	08-Nov-2025	28 days	4 days	✓	09-Nov-2025	28 days	4 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
Field Blank	E290	04-Nov-2025	07-Nov-2025	14 days	3 days	✓	07-Nov-2025	14 days	3 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Alkalinity Species by Titration										
HDPE GW Duplicate	E290	04-Nov-2025	07-Nov-2025	14 days	3 days	✓	07-Nov-2025	14 days	3 days	✓
Physical Tests : Conductivity in Water										
HDPE Field Blank	E100	04-Nov-2025	07-Nov-2025	28 days	3 days	✓	07-Nov-2025	28 days	3 days	✓
Physical Tests : Conductivity in Water										
HDPE GW Duplicate	E100	04-Nov-2025	07-Nov-2025	28 days	3 days	✓	07-Nov-2025	28 days	3 days	✓
Physical Tests : pH by Meter										
HDPE Field Blank	E108	04-Nov-2025	07-Nov-2025	0.25 hrs	68 hrs	× EHTR-FM	07-Nov-2025	0.25 hrs	68 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE GW Duplicate	E108	04-Nov-2025	07-Nov-2025	0.25 hrs	71 hrs	× EHTR-FM	07-Nov-2025	0.25 hrs	71 hrs	× EHTR-FM
Physical Tests : TDS by Gravimetry										
HDPE GW Duplicate	E162	04-Nov-2025	----	----	----		10-Nov-2025	7 days	6 days	✓
Physical Tests : TDS by Gravimetry										
HDPE Field Blank	E162	04-Nov-2025	----	----	----		12-Nov-2025	7 days	8 days	× EHT
Physical Tests : TSS by Gravimetry										
HDPE Field Blank	E160	04-Nov-2025	----	----	----		10-Nov-2025	7 days	6 days	✓
Physical Tests : TSS by Gravimetry										
HDPE GW Duplicate	E160	04-Nov-2025	----	----	----		10-Nov-2025	7 days	6 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved) Field Blank	E508	04-Nov-2025	13-Nov-2025	28 days	9 days	✓	13-Nov-2025	28 days	9 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved) GW Duplicate	E508	04-Nov-2025	13-Nov-2025	28 days	9 days	✓	13-Nov-2025	28 days	9 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) Field Blank	E420	04-Nov-2025	10-Nov-2025	180 days	6 days	✓	12-Nov-2025	180 days	6 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) GW Duplicate	E420	04-Nov-2025	10-Nov-2025	180 days	6 days	✓	12-Nov-2025	180 days	6 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) Field Blank	E395-H	04-Nov-2025	----	----	----		10-Nov-2025	7 days	6 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) GW Duplicate	E395-H	04-Nov-2025	----	----	----		10-Nov-2025	7 days	6 days	✓

Legend & Qualifier Definitions

EHTR-FM: Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended

EHT: Exceeded ALS recommended hold time prior to analysis.

Rec. HT: ALS recommended hold time (see units).

Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Water**

Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
Conductivity in Water	E100	2325379	2	35	5.7	5.0	✓
pH by Meter	E108	2325377	2	39	5.1	5.0	✓
TSS by Gravimetry	E160	2328997	1	14	7.1	5.0	✓
TDS by Gravimetry	E162	2329003	1	13	7.6	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	2325386	2	6	33.3	5.0	✓
Chloride in Water by IC	E235.Cl	2325382	2	35	5.7	5.0	✓
Fluoride in Water by IC	E235.F	2325381	2	24	8.3	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	2325384	2	36	5.5	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	2325383	2	39	5.1	5.0	✓
Sulfate in Water by IC	E235.SO4	2325385	2	36	5.5	5.0	✓
Alkalinity Species by Titration	E290	2325378	2	25	8.0	5.0	✓
Ammonia by Fluorescence	E298	2327298	1	20	5.0	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	2327294	1	11	9.0	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	2327295	1	20	5.0	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	2325387	2	21	9.5	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395-H	2329511	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	2324866	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	2324943	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	2333469	1	20	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	2335478	1	20	5.0	5.0	✓
Laboratory Control Samples (LCS)							
Conductivity in Water	E100	2325379	2	35	5.7	5.0	✓
pH by Meter	E108	2325377	2	39	5.1	5.0	✓
TSS by Gravimetry	E160	2328997	1	14	7.1	5.0	✓
TDS by Gravimetry	E162	2329003	1	13	7.6	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	2325386	2	6	33.3	5.0	✓
Chloride in Water by IC	E235.Cl	2325382	2	35	5.7	5.0	✓
Fluoride in Water by IC	E235.F	2325381	2	24	8.3	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	2325384	2	36	5.5	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	2325383	2	39	5.1	5.0	✓
Sulfate in Water by IC	E235.SO4	2325385	2	36	5.5	5.0	✓
Alkalinity Species by Titration	E290	2325378	2	25	8.0	5.0	✓
Ammonia by Fluorescence	E298	2327298	1	20	5.0	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	2327294	1	11	9.0	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	2327295	1	20	5.0	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	2325387	2	21	9.5	5.0	✓

Matrix: **Water**

Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Control Samples (LCS) - Continued							
Total Sulfide by Colourimetry (Automated Flow)	E395-H	2329511	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	2324866	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	2324943	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	2333469	1	20	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	2335478	1	20	5.0	5.0	✓
Method Blanks (MB)							
Conductivity in Water	E100	2325379	2	35	5.7	5.0	✓
TSS by Gravimetry	E160	2328997	1	14	7.1	5.0	✓
TDS by Gravimetry	E162	2329003	1	13	7.6	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	2325386	2	6	33.3	5.0	✓
Chloride in Water by IC	E235.Cl	2325382	2	35	5.7	5.0	✓
Fluoride in Water by IC	E235.F	2325381	2	24	8.3	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	2325384	2	36	5.5	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	2325383	2	39	5.1	5.0	✓
Sulfate in Water by IC	E235.SO4	2325385	2	36	5.5	5.0	✓
Alkalinity Species by Titration	E290	2325378	2	25	8.0	5.0	✓
Ammonia by Fluorescence	E298	2327298	1	20	5.0	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	2327294	1	11	9.0	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	2327295	1	20	5.0	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	2325387	2	21	9.5	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395-H	2329511	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	2324866	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	2324943	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	2333469	1	20	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	2335478	1	20	5.0	5.0	✓
Matrix Spikes (MS)							
Bromide in Water by IC (Low Level)	E235.Br-L	2325386	1	6	16.6	5.0	✓
Chloride in Water by IC	E235.Cl	2325382	2	35	5.7	5.0	✓
Fluoride in Water by IC	E235.F	2325381	2	24	8.3	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	2325384	2	36	5.5	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	2325383	2	39	5.1	5.0	✓
Sulfate in Water by IC	E235.SO4	2325385	2	36	5.5	5.0	✓
Ammonia by Fluorescence	E298	2327298	1	20	5.0	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	2327294	1	11	9.0	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	2327295	1	20	5.0	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	2325387	1	21	4.7	5.0	×
Total Sulfide by Colourimetry (Automated Flow)	E395-H	2329511	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	2324866	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	2324943	1	20	5.0	5.0	✓

Matrix: **Water**

Evaluation: × = *QC frequency outside specification*; ✓ = *QC frequency within specification.*

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Matrix Spikes (MS) - Continued							
Total Mercury in Water by CVAAS	E508	2333469	1	20	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	2335478	1	20	5.0	5.0	✓

Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Conductivity in Water	E100 ALS Environmental - Vancouver	Water	APHA 2510 (mod)	Conductivity, also known as Electrical Conductivity (EC) or Specific Conductance, is measured by immersion of a conductivity cell with platinum electrodes into a water sample. Conductivity measurements are temperature-compensated to 25°C.
pH by Meter	E108 ALS Environmental - Vancouver	Water	APHA 4500-H (mod)	pH is determined by potentiometric measurement with a pH electrode, and is conducted at ambient laboratory temperature (normally 20 ± 5°C). For high accuracy test results, pH should be measured in the field within the recommended 15 minute hold time.
TSS by Gravimetry	E160 ALS Environmental - Vancouver	Water	APHA 2540 D (mod)	Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, following by drying of the filter at 104 ± 1°C, with gravimetric measurement of the filtered solids. Samples containing very high dissolved solid content (i.e. seawaters, brackish waters) may produce a positive bias by this method. Alternate analysis methods are available for these types of samples.
TDS by Gravimetry	E162 ALS Environmental - Vancouver	Water	APHA 2540 C (mod)	Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, with evaporation of the filtrate at 180 ± 2°C for 16 hours or to constant weight, with gravimetric measurement of the residue.
Bromide in Water by IC (Low Level)	E235.Br-L ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Chloride in Water by IC	E235.Cl ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Fluoride in Water by IC	E235.F ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrite in Water by IC (Low Level)	E235.NO2-L ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrate in Water by IC (Low Level)	E235.NO3-L ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Sulfate in Water by IC	E235.SO4 ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Alkalinity Species by Titration	E290 ALS Environmental - Vancouver	Water	APHA 2320 B (mod)	Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.
Ammonia by Fluorescence	E298 ALS Environmental - Vancouver	Water	Method Fialab 100, 2018	Ammonia in water is determined by automated continuous flow analysis with membrane diffusion and fluorescence detection, after reaction with OPA (ortho-phthalaldehyde). This method is approved under US EPA 40 CFR Part 136 (May 2021)
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318 ALS Environmental - Vancouver	Water	Method Fialab 100, 2018	TKN in water is determined by automated continuous flow analysis with membrane diffusion and fluorescence detection, after reaction with OPA (ortho-phthalaldehyde). This method is approved under US EPA 40 CFR Part 136 (May 2021).
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L ALS Environmental - Vancouver	Water	APHA 5310 B (mod)	Total Organic Carbon (Non-Purgeable), also known as NPOC (total), is a direct measurement of TOC after an acidified sample has been purged to remove carbonate-based Inorganic Carbon (IC). Analysis is by high temperature combustion with infrared detection of CO_2. Forms of carbon associated with inorganic or organic molecules (e.g. SCN and CN) are included in NPOC if they are not removed by purging under acidic conditions. Notably, NPOC excludes most volatile organic compounds and free cyanide. For samples where the majority of Total Carbon is inorganic, this method provides greater accuracy and reliability versus the TOC by subtraction method (TC minus TIC).
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U ALS Environmental - Vancouver	Water	APHA 4500-P F (mod)	Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter. Field filtration is recommended to ensure test results represent conditions at time of sampling.
Total Sulfide by Colourimetry (Automated Flow)	E395-H ALS Environmental - Vancouver	Water	APHA 4500 -S E-Auto-Colorimetry	Sulfide is determined using the gas dialysis automated methylene blue colourimetric method. Results expressed "as H_2S" if reported represent the maximum possible H_2S concentration based on the total sulfide concentration in the sample. The H_2S calculation converts Total Sulfide as (S^{2-}) and reports it as Total Sulfide as (H_2S)
Total Metals in Water by CRC ICPMS	E420 ALS Environmental - Vancouver	Water	EPA 200.2/6020B (mod)	Water samples are digested with nitric and hydrochloric acids, and analyzed by Collision/Reaction Cell ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
Dissolved Metals in Water by CRC ICPMS	E421 ALS Environmental - Vancouver	Water	APHA 3030B/EPA 6020B (mod)	Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by Collision/Reaction Cell ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Total Mercury in Water by CVAAS	E508 ALS Environmental - Vancouver	Water	EPA 1631E (mod)	Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS
Dissolved Mercury in Water by CVAAS	E509 ALS Environmental - Vancouver	Water	APHA 3030B/EPA 1631E (mod)	Water samples are filtered (0.45 um), preserved with HCl, then undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS.
Dissolved Hardness (Calculated)	EC100 ALS Environmental - Vancouver	Water	APHA 2340B	"Hardness (as CaCO3), dissolved" is calculated from the sum of dissolved Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. "Total Hardness" refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because it is a property of water due to dissolved divalent cations.
Hardness (Calculated) from Total Ca/Mg	EC100A ALS Environmental - Vancouver	Water	APHA 2340B	"Hardness (as CaCO3), from total Ca/Mg" is calculated from the sum of total Calcium and Magnesium concentrations, expressed as CaCO3 equivalents. "Total Hardness" refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because hardness is a property of water due to dissolved divalent cations. In non-turbid waters, Hardness from total Ca/Mg is normally comparable to Dissolved Hardness, but may be biased high if particulate forms of Ca or Mg are present.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Ammonia	EP298 ALS Environmental - Vancouver	Water		Sample preparation for Preserved Nutrients Water Quality Analysis.
Digestion for TKN in water	EP318 ALS Environmental - Vancouver	Water	APHA 4500-Norg D (mod)	Samples are digested at high temperature using Sulfuric Acid with Copper catalyst, which converts organic nitrogen sources to Ammonia, which is then quantified by the analytical method as TKN. This method is unsuitable for samples containing high levels of nitrate. If nitrate exceeds TKN concentration by ten times or more, results may be biased low.
Preparation for Total Organic Carbon by Combustion	EP355 ALS Environmental - Vancouver	Water		Preparation for Total Organic Carbon by Combustion
Dissolved Metals Water Filtration	EP421 ALS Environmental - Vancouver	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HNO3.
Dissolved Mercury Water Filtration	EP509 ALS Environmental - Vancouver	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HCl.

QUALITY CONTROL REPORT

Work Order	: **VA25C9784**	Page	: 1 of 20
Client	: Masse Environmental Consultants Ltd.	Laboratory	: ALS Environmental - Vancouver
Contact	: Ico de Zwart	Account Manager	: Can Dang
Address	: 812 Vernon Street Nelson BC Canada V1L 4G4	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: ----	Telephone	: +1 604 253 4188
Project	: 2016-503-HB	Date Samples Received	: 06-Nov-2025 12:50
PO	: ----	Date Analysis Commenced	: 07-Nov-2025
C-O-C number	: 22-20251104-QA	Issue Date	: 17-Nov-2025 10:38
Sampler	: Chris Stephanou		
Site	: RDCK		
Quote number	: ----		
No. of samples received	: 2		
No. of samples analysed	: 2		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percent Difference (RPD) and Data Quality Objectives
- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Jaewook Lee	Lab Assistant	Vancouver Metals, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Vancouver Metals, Burnaby, British Columbia
Kimia Taheri	Lab Assistant	Vancouver Metals, Burnaby, British Columbia
Lindsay Gung	Department Manager - Inorganics	Vancouver Inorganics, Burnaby, British Columbia
Monica Ko	Supervisor - Inorganic	Vancouver Inorganics, Burnaby, British Columbia

General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number = Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO = Data Quality Objective.
LOR = Limit of Reporting (detection limit).
RPD = Relative Percent Difference
# = Indicates a QC result that did not meet the ALS DQO.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test-specific).

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Physical Tests (QC Lot: 2325377)											
VA25C9754-003	Anonymous	pH	----	E108	0.10	pH units	7.71	7.71	0.00%	4%	----
Physical Tests (QC Lot: 2325378)											
VA25C9754-003	Anonymous	Alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	48.6	48.1	1.03%	20%	----
Physical Tests (QC Lot: 2325379)											
VA25C9754-003	Anonymous	Conductivity	----	E100	2.0	µS/cm	108	109	0.832%	10%	----
Physical Tests (QC Lot: 2325545)											
VA25C9794-001	Anonymous	pH	----	E108	0.10	pH units	8.05	8.04	0.124%	4%	----
Physical Tests (QC Lot: 2325546)											
VA25C9794-001	Anonymous	Conductivity	----	E100	2.0	µS/cm	4140	4180	0.962%	10%	----
Physical Tests (QC Lot: 2325547)											
VA25C9794-001	Anonymous	Alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	154	152	1.25%	20%	----
Physical Tests (QC Lot: 2328997)											
VA25C9646-003	Anonymous	Solids, total suspended [TSS]	----	E160	3.0	mg/L	<3.0	<3.0	0	Diff <2x LOR	----
Physical Tests (QC Lot: 2329003)											
VA25C9646-003	Anonymous	Solids, total dissolved [TDS]	----	E162	10	mg/L	36	34	2	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 2325381)											
VA25C9754-001	Anonymous	Fluoride	16984-48-8	E235.F	0.020	mg/L	0.037	0.034	0.003	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 2325382)											
VA25C9754-001	Anonymous	Chloride	16887-00-6	E235.Cl	0.50	mg/L	<0.50	<0.50	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 2325383)											
VA25C9754-001	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	0.0891	0.0900	0.994%	20%	----
Anions and Nutrients (QC Lot: 2325384)											
VA25C9754-001	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 2325385)											
VA25C9754-001	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	6.97	6.95	0.350%	20%	----
Anions and Nutrients (QC Lot: 2325386)											
VA25C9784-002	Field Blank	Bromide	24959-67-9	E235.Br-L	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 2325387)											
VA25C9754-001	Anonymous	Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 2325548)											

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Anions and Nutrients (QC Lot: 2325548) - continued											
VA25C9556-001	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	74.6	74.8	0.153%	20%	----
Anions and Nutrients (QC Lot: 2325549)											
VA25C9556-001	Anonymous	Chloride	16887-00-6	E235.Cl	0.50	mg/L	17.6	17.5	0.216%	20%	----
Anions and Nutrients (QC Lot: 2325550)											
VA25C9556-001	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	0.225	0.225	0.0209%	20%	----
Anions and Nutrients (QC Lot: 2325551)											
VA25C9556-001	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	0.0692	0.0693	0.144%	20%	----
Anions and Nutrients (QC Lot: 2325552)											
VA25C9556-001	Anonymous	Fluoride	16984-48-8	E235.F	0.020	mg/L	0.104	0.103	0.0006	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 2325554)											
VA25C9556-001	Anonymous	Bromide	24959-67-9	E235.Br-L	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 2325557)											
VA25C9784-001	GW Duplicate	Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 2327294)											
VA25C9784-001	GW Duplicate	Kjeldahl nitrogen, total [TKN]	----	E318	0.050	mg/L	1.90	1.93	1.13%	20%	----
Anions and Nutrients (QC Lot: 2327298)											
VA25C9757-001	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
Organic / Inorganic Carbon (QC Lot: 2327295)											
VA25C9757-003	Anonymous	Carbon, total organic [TOC]	----	E355-L	0.50	mg/L	1.82	1.70	0.12	Diff <2x LOR	----
Total Sulfides (QC Lot: 2329511)											
VA25C9509-001	Anonymous	Sulfide, total (as S)	18496-25-8	E395-H	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
Total Metals (QC Lot: 2324866)											
VA25C9760-001	Anonymous	Aluminum, total	7429-90-5	E420	0.0030	mg/L	31.1 µg/L	0.0312	0.342%	20%	----
		Antimony, total	7440-36-0	E420	0.00010	mg/L	0.12 µg/L	0.00013	0.000001	Diff <2x LOR	----
		Arsenic, total	7440-38-2	E420	0.00010	mg/L	0.97 µg/L	0.00094	0.00004	Diff <2x LOR	----
		Barium, total	7440-39-3	E420	0.00010	mg/L	455 µg/L	0.446	2.03%	20%	----
		Beryllium, total	7440-41-7	E420	0.000100	mg/L	<0.100 µg/L	<0.000100	0	Diff <2x LOR	----
		Bismuth, total	7440-69-9	E420	0.000050	mg/L	<0.050 µg/L	<0.000050	0	Diff <2x LOR	----
		Boron, total	7440-42-8	E420	0.010	mg/L	30 µg/L	0.030	0.0001	Diff <2x LOR	----
		Cadmium, total	7440-43-9	E420	0.0000050	mg/L	0.0317 µg/L	0.0000383	0.0000067	Diff <2x LOR	----
		Calcium, total	7440-70-2	E420	0.050	mg/L	38600 µg/L	39.2	1.44%	20%	----
		Cesium, total	7440-46-2	E420	0.000010	mg/L	0.025 µg/L	0.000029	0.000004	Diff <2x LOR	----
		Chromium, total	7440-47-3	E420	0.00050	mg/L	1.49 µg/L	0.00131	0.00018	Diff <2x LOR	----
		Cobalt, total	7440-48-4	E420	0.00010	mg/L	0.13 µg/L	0.00014	0.000008	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Total Metals (QC Lot: 2324866) - continued											
VA25C9760-001	Anonymous	Copper, total	7440-50-8	E420	0.00050	mg/L	2.70 µg/L	0.00276	0.00006	Diff <2x LOR	----
		Iron, total	7439-89-6	E420	0.010	mg/L	21700 µg/L	21.5	1.07%	20%	----
		Lead, total	7439-92-1	E420	0.000050	mg/L	0.369 µg/L	0.000373	0.000004	Diff <2x LOR	----
		Lithium, total	7439-93-2	E420	0.0010	mg/L	20.2 µg/L	0.0201	0.438%	20%	----
		Magnesium, total	7439-95-4	E420	0.0050	mg/L	8400 µg/L	8.41	0.0540%	20%	----
		Manganese, total	7439-96-5	E420	0.00010	mg/L	318 µg/L	0.316	0.738%	20%	----
		Molybdenum, total	7439-98-7	E420	0.000050	mg/L	0.241 µg/L	0.000247	0.000006	Diff <2x LOR	----
		Nickel, total	7440-02-0	E420	0.00050	mg/L	0.63 µg/L	0.00069	0.00006	Diff <2x LOR	----
		Phosphorus, total	7723-14-0	E420	0.050	mg/L	5660 µg/L	5.64	0.323%	20%	----
		Potassium, total	7440-09-7	E420	0.050	mg/L	1070 µg/L	1.08	0.540%	20%	----
		Rubidium, total	7440-17-7	E420	0.00020	mg/L	0.54 µg/L	0.00048	0.00007	Diff <2x LOR	----
		Selenium, total	7782-49-2	E420	0.000050	mg/L	<0.050 µg/L	0.000051	0.000001	Diff <2x LOR	----
		Silicon, total	7440-21-3	E420	0.10	mg/L	17100 µg/L	17.4	2.06%	20%	----
		Silver, total	7440-22-4	E420	0.000010	mg/L	0.016 µg/L	0.000017	0.0000009	Diff <2x LOR	----
		Sodium, total	7440-23-5	E420	0.050	mg/L	4390 µg/L	4.54	3.27%	20%	----
		Strontium, total	7440-24-6	E420	0.00020	mg/L	270 µg/L	0.278	2.74%	20%	----
		Sulfur, total	7704-34-9	E420	0.50	mg/L	13000 µg/L	13.0	0.0414%	20%	----
		Tellurium, total	13494-80-9	E420	0.00020	mg/L	<0.20 µg/L	<0.00020	0	Diff <2x LOR	----
		Thallium, total	7440-28-0	E420	0.000010	mg/L	<0.010 µg/L	<0.000010	0	Diff <2x LOR	----
		Thorium, total	7440-29-1	E420	0.00010	mg/L	<0.10 µg/L	<0.00010	0	Diff <2x LOR	----
		Tin, total	7440-31-5	E420	0.00010	mg/L	<0.10 µg/L	<0.00010	0	Diff <2x LOR	----
		Titanium, total	7440-32-6	E420	0.00030	mg/L	1.99 µg/L	0.00203	0.00004	Diff <2x LOR	----
		Tungsten, total	7440-33-7	E420	0.00010	mg/L	0.76 µg/L	0.00079	0.00003	Diff <2x LOR	----
		Uranium, total	7440-61-1	E420	0.000010	mg/L	0.315 µg/L	0.000302	4.32%	20%	----
		Vanadium, total	7440-62-2	E420	0.00050	mg/L	2.94 µg/L	0.00293	0.00001	Diff <2x LOR	----
		Zinc, total	7440-66-6	E420	0.0030	mg/L	5.0 µg/L	0.0049	0.0001	Diff <2x LOR	----
		Zirconium, total	7440-67-7	E420	0.00020	mg/L	<0.20 µg/L	<0.00020	0	Diff <2x LOR	----
Total Metals (QC Lot: 2333469)											
VA25C9760-011	Anonymous	Mercury, total	7439-97-6	E508	0.0000050	mg/L	0.0351 µg/L	0.0000379	0.0000028	Diff <2x LOR	----
Dissolved Metals (QC Lot: 2324943)											
VA25C9784-001	GW Duplicate	Aluminum, dissolved	7429-90-5	E421	0.0020	mg/L	2.9 µg/L	0.0028	0.0001	Diff <2x LOR	----
		Antimony, dissolved	7440-36-0	E421	0.00020	mg/L	<0.20 µg/L	<0.00020	0	Diff <2x LOR	----
		Arsenic, dissolved	7440-38-2	E421	0.00020	mg/L	2.27 µg/L	0.00236	3.90%	20%	----
		Barium, dissolved	7440-39-3	E421	0.00020	mg/L	16.2 µg/L	0.0167	3.43%	20%	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Dissolved Metals (QC Lot: 2324943) - continued											
VA25C9784-001	GW Duplicate	Beryllium, dissolved	7440-41-7	E421	0.000100	mg/L	<0.100 µg/L	<0.000100	0	Diff <2x LOR	----
		Bismuth, dissolved	7440-69-9	E421	0.000100	mg/L	<0.100 µg/L	<0.000100	0	Diff <2x LOR	----
		Boron, dissolved	7440-42-8	E421	0.020	mg/L	275 µg/L	0.272	1.29%	20%	----
		Cadmium, dissolved	7440-43-9	E421	0.0000100	mg/L	<0.0100 µg/L	<0.0000100	0	Diff <2x LOR	----
		Calcium, dissolved	7440-70-2	E421	0.100	mg/L	284000 µg/L	278	1.97%	20%	----
		Cesium, dissolved	7440-46-2	E421	0.000020	mg/L	0.785 µg/L	0.000786	0.148%	20%	----
		Chromium, dissolved	7440-47-3	E421	0.00100	mg/L	<1.00 µg/L	<0.00100	0	Diff <2x LOR	----
		Cobalt, dissolved	7440-48-4	E421	0.00020	mg/L	<0.20 µg/L	<0.00020	0	Diff <2x LOR	----
		Copper, dissolved	7440-50-8	E421	0.00040	mg/L	<0.40 µg/L	<0.00040	0	Diff <2x LOR	----
		Iron, dissolved	7439-89-6	E421	0.020	mg/L	11800 µg/L	12.1	2.05%	20%	----
		Lead, dissolved	7439-92-1	E421	0.000100	mg/L	0.113 µg/L	0.000114	0.0000004	Diff <2x LOR	----
		Lithium, dissolved	7439-93-2	E421	0.0020	mg/L	3.9 µg/L	0.0037	0.0002	Diff <2x LOR	----
		Magnesium, dissolved	7439-95-4	E421	0.0100	mg/L	47100 µg/L	47.8	1.58%	20%	----
		Manganese, dissolved	7439-96-5	E421	0.00020	mg/L	407 µg/L	0.417	2.53%	20%	----
		Molybdenum, dissolved	7439-98-7	E421	0.000100	mg/L	1.15 µg/L	0.00108	5.69%	20%	----
		Nickel, dissolved	7440-02-0	E421	0.00100	mg/L	1.59 µg/L	0.00155	0.00004	Diff <2x LOR	----
		Phosphorus, dissolved	7723-14-0	E421	0.100	mg/L	<100 µg/L	<0.100	0	Diff <2x LOR	----
		Potassium, dissolved	7440-09-7	E421	0.100	mg/L	9690 µg/L	10.1	3.93%	20%	----
		Rubidium, dissolved	7440-17-7	E421	0.00040	mg/L	33.4 µg/L	0.0341	2.01%	20%	----
		Selenium, dissolved	7782-49-2	E421	0.000100	mg/L	<0.100 µg/L	<0.000100	0	Diff <2x LOR	----
		Silicon, dissolved	7440-21-3	E421	0.100	mg/L	7400 µg/L	7.60	2.68%	20%	----
		Silver, dissolved	7440-22-4	E421	0.000020	mg/L	<0.020 µg/L	<0.000020	0	Diff <2x LOR	----
		Sodium, dissolved	7440-23-5	E421	0.100	mg/L	17600 µg/L	17.7	0.704%	20%	----
		Strontium, dissolved	7440-24-6	E421	0.00040	mg/L	453 µg/L	0.455	0.369%	20%	----
		Sulfur, dissolved	7704-34-9	E421	1.00	mg/L	239000 µg/L	250	4.24%	20%	----
		Tellurium, dissolved	13494-80-9	E421	0.00040	mg/L	<0.40 µg/L	<0.00040	0	Diff <2x LOR	----
		Thallium, dissolved	7440-28-0	E421	0.000020	mg/L	0.051 µg/L	0.000049	0.000002	Diff <2x LOR	----
		Thorium, dissolved	7440-29-1	E421	0.00020	mg/L	<0.20 µg/L	<0.00020	0	Diff <2x LOR	----
		Tin, dissolved	7440-31-5	E421	0.00020	mg/L	<0.20 µg/L	<0.00020	0	Diff <2x LOR	----
		Titanium, dissolved	7440-32-6	E421	0.00060	mg/L	<0.60 µg/L	<0.00060	0	Diff <2x LOR	----
		Tungsten, dissolved	7440-33-7	E421	0.00020	mg/L	<0.20 µg/L	<0.00020	0	Diff <2x LOR	----
		Uranium, dissolved	7440-61-1	E421	0.000020	mg/L	2.79 µg/L	0.00277	0.878%	20%	----
		Vanadium, dissolved	7440-62-2	E421	0.00100	mg/L	<1.00 µg/L	<0.00100	0	Diff <2x LOR	----
		Zinc, dissolved	7440-66-6	E421	0.0020	mg/L	158 µg/L	0.164	3.78%	20%	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Dissolved Metals (QC Lot: 2324943) - continued											
VA25C9784-001	GW Duplicate	Zirconium, dissolved	7440-67-7	E421	0.00040	mg/L	<0.40 µg/L	<0.00040	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 2335478)											
VA25C9760-003	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0050 µg/L	<0.0000050	0	Diff <2x LOR	----

Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 2325378)						
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	<1.0	----
Physical Tests (QCLot: 2325379)						
Conductivity	----	E100	1	µS/cm	1.2	----
Physical Tests (QCLot: 2325546)						
Conductivity	----	E100	1	µS/cm	<1.0	----
Physical Tests (QCLot: 2325547)						
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	<1.0	----
Physical Tests (QCLot: 2328997)						
Solids, total suspended [TSS]	----	E160	3	mg/L	<3.0	----
Physical Tests (QCLot: 2329003)						
Solids, total dissolved [TDS]	----	E162	10	mg/L	<10	----
Anions and Nutrients (QCLot: 2325381)						
Fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 2325382)						
Chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 2325383)						
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 2325384)						
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 2325385)						
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	----
Anions and Nutrients (QCLot: 2325386)						
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 2325387)						
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 2325548)						
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	----
Anions and Nutrients (QCLot: 2325549)						
Chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 2325550)						
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 2325551)						

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Anions and Nutrients (QCLot: 2325551) - continued						
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 2325552)						
Fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 2325554)						
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 2325557)						
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 2327294)						
Kjeldahl nitrogen, total [TKN]	----	E318	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 2327298)						
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	----
Organic / Inorganic Carbon (QCLot: 2327295)						
Carbon, total organic [TOC]	----	E355-L	0.5	mg/L	<0.50	----
Total Sulfides (QCLot: 2329511)						
Sulfide, total (as S)	18496-25-8	E395-H	0.01	mg/L	<0.010	----
Total Metals (QCLot: 2324866)						
Aluminum, total	7429-90-5	E420	0.003	mg/L	<0.0030	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	<0.00010	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	<0.00010	----
Barium, total	7440-39-3	E420	0.0001	mg/L	<0.00010	----
Beryllium, total	7440-41-7	E420	0.00002	mg/L	<0.000020	----
Bismuth, total	7440-69-9	E420	0.00005	mg/L	<0.000050	----
Boron, total	7440-42-8	E420	0.01	mg/L	<0.010	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	<0.0000050	----
Calcium, total	7440-70-2	E420	0.05	mg/L	<0.050	----
Cesium, total	7440-46-2	E420	0.00001	mg/L	<0.000010	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	<0.00050	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	<0.00010	----
Copper, total	7440-50-8	E420	0.0005	mg/L	<0.00050	----
Iron, total	7439-89-6	E420	0.01	mg/L	<0.010	----
Lead, total	7439-92-1	E420	0.00005	mg/L	<0.000050	----
Lithium, total	7439-93-2	E420	0.001	mg/L	<0.0010	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	<0.0050	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	<0.00010	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	<0.000050	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (QCLot: 2324866) - continued						
Nickel, total	7440-02-0	E420	0.0005	mg/L	<0.00050	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	<0.050	----
Potassium, total	7440-09-7	E420	0.05	mg/L	<0.050	----
Rubidium, total	7440-17-7	E420	0.0002	mg/L	<0.00020	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	<0.000050	----
Silicon, total	7440-21-3	E420	0.1	mg/L	<0.10	----
Silver, total	7440-22-4	E420	0.00001	mg/L	<0.000010	----
Sodium, total	7440-23-5	E420	0.05	mg/L	<0.050	----
Strontium, total	7440-24-6	E420	0.0002	mg/L	<0.00020	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	<0.50	----
Tellurium, total	13494-80-9	E420	0.0002	mg/L	<0.00020	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	<0.000010	----
Thorium, total	7440-29-1	E420	0.0001	mg/L	<0.00010	----
Tin, total	7440-31-5	E420	0.0001	mg/L	<0.00010	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	<0.00030	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	<0.00010	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	<0.000010	----
Vanadium, total	7440-62-2	E420	0.0005	mg/L	<0.00050	----
Zinc, total	7440-66-6	E420	0.003	mg/L	<0.0030	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	<0.00020	----
Total Metals (QCLot: 2333469)						
Mercury, total	7439-97-6	E508	0.000005	mg/L	<0.0000050	----
Dissolved Metals (QCLot: 2324943)						
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	<0.0010	----
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	<0.00010	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	<0.00010	----
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	<0.00010	----
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	<0.000020	----
Bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	<0.000050	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	<0.010	----
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	<0.0000050	----
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	<0.050	----
Cesium, dissolved	7440-46-2	E421	0.00001	mg/L	<0.000010	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	<0.00050	----
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	<0.00010	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Dissolved Metals (QCLot: 2324943) - continued						
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	<0.00020	MBRR
Iron, dissolved	7439-89-6	E421	0.01	mg/L	<0.010	MBRR
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	<0.000050	----
Lithium, dissolved	7439-93-2	E421	0.001	mg/L	<0.0010	----
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	<0.0050	----
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	<0.00010	----
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	<0.000050	----
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	<0.00050	MBRR
Phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	<0.050	----
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	<0.050	----
Rubidium, dissolved	7440-17-7	E421	0.0002	mg/L	<0.00020	----
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	<0.000050	----
Silicon, dissolved	7440-21-3	E421	0.05	mg/L	<0.050	----
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	<0.000010	----
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	<0.050	----
Strontium, dissolved	7440-24-6	E421	0.0002	mg/L	<0.00020	----
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	<0.50	----
Tellurium, dissolved	13494-80-9	E421	0.0002	mg/L	<0.00020	----
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	<0.000010	----
Thorium, dissolved	7440-29-1	E421	0.0001	mg/L	<0.00010	----
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	<0.00010	----
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	<0.00030	----
Tungsten, dissolved	7440-33-7	E421	0.0001	mg/L	<0.00010	----
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	<0.000010	----
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	<0.00050	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	<0.0010	----
Zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	<0.00020	----
Dissolved Metals (QCLot: 2335478)						
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	<0.0000050	----

Qualifiers

Qualifier	Description
MBRR	*Initial MB for this submission had positive results for flagged analyte (data not shown). Low level samples were repeated with new QC (2nd MB results shown). High level results (>5x initial MB level) and non-detect results were reported and are defensible*

Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 2325377)									
pH	----	E108	----	pH units	7 pH units	99.9	98.0	102	----
Physical Tests (QCLot: 2325378)									
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	500 mg/L	99.0	85.0	115	----
Physical Tests (QCLot: 2325379)									
Conductivity	----	E100	1	µS/cm	147 µS/cm	98.7	90.0	110	----
Physical Tests (QCLot: 2325545)									
pH	----	E108	----	pH units	7 pH units	99.9	98.0	102	----
Physical Tests (QCLot: 2325546)									
Conductivity	----	E100	1	µS/cm	147 µS/cm	100	90.0	110	----
Physical Tests (QCLot: 2325547)									
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	500 mg/L	103	85.0	115	----
Physical Tests (QCLot: 2328997)									
Solids, total suspended [TSS]	----	E160	3	mg/L	150 mg/L	95.5	85.0	115	----
Physical Tests (QCLot: 2329003)									
Solids, total dissolved [TDS]	----	E162	10	mg/L	1000 mg/L	104	85.0	115	----
Anions and Nutrients (QCLot: 2325381)									
Fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	102	90.0	110	----
Anions and Nutrients (QCLot: 2325382)									
Chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	103	90.0	110	----
Anions and Nutrients (QCLot: 2325383)									
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	2.5 mg/L	103	90.0	110	----
Anions and Nutrients (QCLot: 2325384)									
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	0.5 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 2325385)									
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	105	90.0	110	----
Anions and Nutrients (QCLot: 2325386)									
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	0.5 mg/L	107	85.0	115	----
Anions and Nutrients (QCLot: 2325387)									
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.001	mg/L	0.03 mg/L	106	80.0	120	----
Anions and Nutrients (QCLot: 2325548)									

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Anions and Nutrients (QCLot: 2325548) - continued									
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	102	90.0	110	----
Anions and Nutrients (QCLot: 2325549)									
Chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	99.5	90.0	110	----
Anions and Nutrients (QCLot: 2325550)									
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	2.5 mg/L	100	90.0	110	----
Anions and Nutrients (QCLot: 2325551)									
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	0.5 mg/L	96.8	90.0	110	----
Anions and Nutrients (QCLot: 2325552)									
Fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	98.0	90.0	110	----
Anions and Nutrients (QCLot: 2325554)									
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	0.5 mg/L	95.8	85.0	115	----
Anions and Nutrients (QCLot: 2325557)									
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.001	mg/L	0.03 mg/L	105	80.0	120	----
Anions and Nutrients (QCLot: 2327294)									
Kjeldahl nitrogen, total [TKN]	----	E318	0.05	mg/L	4 mg/L	105	75.0	125	----
Anions and Nutrients (QCLot: 2327298)									
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	98.8	85.0	115	----
Organic / Inorganic Carbon (QCLot: 2327295)									
Carbon, total organic [TOC]	----	E355-L	0.5	mg/L	8.57 mg/L	103	80.0	120	----
Total Sulfides (QCLot: 2329511)									
Sulfide, total (as H2S)	7783-06-4	E395-H	----	mg/L	0.085 mg/L	93.8	80.0	120	----
Sulfide, total (as S)	18496-25-8	E395-H	0.01	mg/L	0.08 mg/L	93.5	80.0	120	----
Total Metals (QCLot: 2324866)									
Aluminum, total	7429-90-5	E420	0.003	mg/L	2 mg/L	95.2	80.0	120	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	1 mg/L	101	80.0	120	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	1 mg/L	97.5	80.0	120	----
Barium, total	7440-39-3	E420	0.0001	mg/L	0.25 mg/L	97.2	80.0	120	----
Beryllium, total	7440-41-7	E420	0.00002	mg/L	0.1 mg/L	97.9	80.0	120	----
Bismuth, total	7440-69-9	E420	0.00005	mg/L	1 mg/L	104	80.0	120	----
Boron, total	7440-42-8	E420	0.01	mg/L	1 mg/L	93.8	80.0	120	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	0.1 mg/L	97.3	80.0	120	----
Calcium, total	7440-70-2	E420	0.05	mg/L	50 mg/L	99.9	80.0	120	----
Cesium, total	7440-46-2	E420	0.00001	mg/L	0.05 mg/L	96.1	80.0	120	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Total Metals (QCLot: 2324866) - continued									
Chromium, total	7440-47-3	E420	0.0005	mg/L	0.25 mg/L	96.6	80.0	120	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	0.25 mg/L	95.1	80.0	120	----
Copper, total	7440-50-8	E420	0.0005	mg/L	0.25 mg/L	93.7	80.0	120	----
Iron, total	7439-89-6	E420	0.01	mg/L	1 mg/L	95.8	80.0	120	----
Lead, total	7439-92-1	E420	0.00005	mg/L	0.5 mg/L	98.9	80.0	120	----
Lithium, total	7439-93-2	E420	0.001	mg/L	0.25 mg/L	94.9	80.0	120	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	50 mg/L	96.3	80.0	120	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	0.25 mg/L	95.0	80.0	120	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	0.25 mg/L	99.2	80.0	120	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	0.5 mg/L	97.5	80.0	120	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	10 mg/L	92.9	80.0	120	----
Potassium, total	7440-09-7	E420	0.05	mg/L	50 mg/L	95.9	80.0	120	----
Rubidium, total	7440-17-7	E420	0.0002	mg/L	0.1 mg/L	97.7	80.0	120	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	1 mg/L	98.9	80.0	120	----
Silicon, total	7440-21-3	E420	0.1	mg/L	10 mg/L	101	80.0	120	----
Silver, total	7440-22-4	E420	0.00001	mg/L	0.1 mg/L	88.9	80.0	120	----
Sodium, total	7440-23-5	E420	0.05	mg/L	50 mg/L	100	80.0	120	----
Strontium, total	7440-24-6	E420	0.0002	mg/L	0.25 mg/L	98.9	80.0	120	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	50 mg/L	94.2	80.0	120	----
Tellurium, total	13494-80-9	E420	0.0002	mg/L	0.1 mg/L	96.8	80.0	120	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	1 mg/L	102	80.0	120	----
Thorium, total	7440-29-1	E420	0.0001	mg/L	0.1 mg/L	98.0	80.0	120	----
Tin, total	7440-31-5	E420	0.0001	mg/L	0.5 mg/L	96.8	80.0	120	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	0.25 mg/L	94.4	80.0	120	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	0.1 mg/L	97.9	80.0	120	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	0.005 mg/L	102	80.0	120	----
Vanadium, total	7440-62-2	E420	0.0005	mg/L	0.5 mg/L	98.0	80.0	120	----
Zinc, total	7440-66-6	E420	0.003	mg/L	0.5 mg/L	94.4	80.0	120	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	0.1 mg/L	88.9	80.0	120	----
Total Metals (QCLot: 2333469)									
Mercury, total	7439-97-6	E508	0.000005	mg/L	0 mg/L	95.9	80.0	120	----
Dissolved Metals (QCLot: 2324943)									
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	2 mg/L	98.9	80.0	120	----
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	1 mg/L	96.9	80.0	120	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	1 mg/L	97.9	80.0	120	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Dissolved Metals (QCLot: 2324943) - continued									
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	0.25 mg/L	99.5	80.0	120	----
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	0.1 mg/L	98.8	80.0	120	----
Bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	1 mg/L	101	80.0	120	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	1 mg/L	97.2	80.0	120	----
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	0.1 mg/L	97.3	80.0	120	----
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	50 mg/L	101	80.0	120	----
Cesium, dissolved	7440-46-2	E421	0.00001	mg/L	0.05 mg/L	98.4	80.0	120	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	0.25 mg/L	96.7	80.0	120	----
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	0.25 mg/L	95.8	80.0	120	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	0.25 mg/L	93.9	80.0	120	----
Iron, dissolved	7439-89-6	E421	0.01	mg/L	1 mg/L	98.7	80.0	120	----
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	0.5 mg/L	97.7	80.0	120	----
Lithium, dissolved	7439-93-2	E421	0.001	mg/L	0.25 mg/L	94.2	80.0	120	----
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	50 mg/L	95.8	80.0	120	----
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	0.25 mg/L	96.0	80.0	120	----
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	0.25 mg/L	98.6	80.0	120	----
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	0.5 mg/L	96.3	80.0	120	----
Phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	10 mg/L	99.9	80.0	120	----
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	50 mg/L	96.0	80.0	120	----
Rubidium, dissolved	7440-17-7	E421	0.0002	mg/L	0.1 mg/L	98.4	80.0	120	----
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	1 mg/L	104	80.0	120	----
Silicon, dissolved	7440-21-3	E421	0.05	mg/L	10 mg/L	104	80.0	120	----
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	0.1 mg/L	89.8	80.0	120	----
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	50 mg/L	93.6	80.0	120	----
Strontium, dissolved	7440-24-6	E421	0.0002	mg/L	0.25 mg/L	101	80.0	120	----
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	50 mg/L	93.8	80.0	120	----
Tellurium, dissolved	13494-80-9	E421	0.0002	mg/L	0.1 mg/L	101	80.0	120	----
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	1 mg/L	99.4	80.0	120	----
Thorium, dissolved	7440-29-1	E421	0.0001	mg/L	0.1 mg/L	99.8	80.0	120	----
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	0.5 mg/L	97.3	80.0	120	----
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	0.25 mg/L	96.6	80.0	120	----
Tungsten, dissolved	7440-33-7	E421	0.0001	mg/L	0.1 mg/L	96.4	80.0	120	----
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	0.005 mg/L	102	80.0	120	----
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	0.5 mg/L	95.0	80.0	120	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	0.5 mg/L	95.6	80.0	120	----
Zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	0.1 mg/L	91.2	80.0	120	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Dissolved Metals (QCLot: 2335478) - continued									
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0 mg/L	94.5	80.0	120	----

Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for the associated sample (or similar samples) may be subject to bias. ND – Recovery not determined, background level >= 1x spike level.

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Anions and Nutrients (QCLot: 2325381)										
VA25C9754-002	Anonymous	Fluoride	16984-48-8	E235.F	1.10 mg/L	1 mg/L	110	75.0	125	----
Anions and Nutrients (QCLot: 2325382)										
VA25C9754-002	Anonymous	Chloride	16887-00-6	E235.Cl	110 mg/L	100 mg/L	110	75.0	125	----
Anions and Nutrients (QCLot: 2325383)										
VA25C9754-002	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	2.76 mg/L	2.5 mg/L	110	75.0	125	----
Anions and Nutrients (QCLot: 2325384)										
VA25C9754-002	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	0.536 mg/L	0.5 mg/L	107	75.0	125	----
Anions and Nutrients (QCLot: 2325385)										
VA25C9754-002	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	115 mg/L	100 mg/L	115	75.0	125	----
Anions and Nutrients (QCLot: 2325387)										
VA25C9754-002	Anonymous	Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0310 mg/L	0.03 mg/L	103	70.0	130	----
Anions and Nutrients (QCLot: 2325548)										
VA25C9784-001	GW Duplicate	Sulfate (as SO4)	14808-79-8	E235.SO4	ND mg/L	----	ND	75.0	125	----
Anions and Nutrients (QCLot: 2325549)										
VA25C9784-001	GW Duplicate	Chloride	16887-00-6	E235.Cl	1040 mg/L	1000 mg/L	104	75.0	125	----
Anions and Nutrients (QCLot: 2325550)										
VA25C9784-001	GW Duplicate	Nitrate (as N)	14797-55-8	E235.NO3-L	26.4 mg/L	25 mg/L	105	75.0	125	----
Anions and Nutrients (QCLot: 2325551)										
VA25C9784-001	GW Duplicate	Nitrite (as N)	14797-65-0	E235.NO2-L	4.99 mg/L	5 mg/L	99.8	75.0	125	----
Anions and Nutrients (QCLot: 2325552)										
VA25C9784-001	GW Duplicate	Fluoride	16984-48-8	E235.F	10.3 mg/L	10 mg/L	103	75.0	125	----
Anions and Nutrients (QCLot: 2325554)										
VA25C9784-001	GW Duplicate	Bromide	24959-67-9	E235.Br-L	4.87 mg/L	5 mg/L	97.3	75.0	125	----
Anions and Nutrients (QCLot: 2327294)										
VA25C9784-002	Field Blank	Kjeldahl nitrogen, total [TKN]	----	E318	2.59 mg/L	2.5 mg/L	104	70.0	130	----
Anions and Nutrients (QCLot: 2327298)										
VA25C9757-002	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0994 mg/L	0.1 mg/L	99.4	75.0	125	----
Organic / Inorganic Carbon (QCLot: 2327295)										
VA25C9757-004	Anonymous	Carbon, total organic [TOC]	----	E355-L	5.09 mg/L	5 mg/L	102	70.0	130	----
Total Sulfides (QCLot: 2329511)										

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Total Sulfides (QCLot: 2329511) - continued										
VA25C9509-002	Anonymous	Sulfide, total (as S)	18496-25-8	E395-H	0.895 mg/L	1 mg/L	89.5	75.0	125	----
Total Metals (QCLot: 2324866)										
VA25C9760-002	Anonymous	Aluminum, total	7429-90-5	E420	0.200 mg/L	0.2 mg/L	99.9	70.0	130	----
		Antimony, total	7440-36-0	E420	0.0189 mg/L	0.02 mg/L	94.6	70.0	130	----
		Arsenic, total	7440-38-2	E420	0.0184 mg/L	0.02 mg/L	91.9	70.0	130	----
		Barium, total	7440-39-3	E420	ND mg/L	----	ND	70.0	130	----
		Beryllium, total	7440-41-7	E420	0.0368 mg/L	0.04 mg/L	92.0	70.0	130	----
		Bismuth, total	7440-69-9	E420	0.00895 mg/L	0.01 mg/L	89.5	70.0	130	----
		Boron, total	7440-42-8	E420	ND mg/L	----	ND	70.0	130	----
		Cadmium, total	7440-43-9	E420	0.00358 mg/L	0.004 mg/L	89.5	70.0	130	----
		Calcium, total	7440-70-2	E420	ND mg/L	----	ND	70.0	130	----
		Cesium, total	7440-46-2	E420	0.00929 mg/L	0.01 mg/L	92.9	70.0	130	----
		Chromium, total	7440-47-3	E420	0.0360 mg/L	0.04 mg/L	90.1	70.0	130	----
		Cobalt, total	7440-48-4	E420	0.0175 mg/L	0.02 mg/L	87.7	70.0	130	----
		Copper, total	7440-50-8	E420	0.0169 mg/L	0.02 mg/L	84.3	70.0	130	----
		Iron, total	7439-89-6	E420	1.83 mg/L	2 mg/L	91.3	70.0	130	----
		Lead, total	7439-92-1	E420	0.0174 mg/L	0.02 mg/L	86.8	70.0	130	----
		Lithium, total	7439-93-2	E420	ND mg/L	----	ND	70.0	130	----
		Magnesium, total	7439-95-4	E420	ND mg/L	----	ND	70.0	130	----
		Manganese, total	7439-96-5	E420	ND mg/L	----	ND	70.0	130	----
		Molybdenum, total	7439-98-7	E420	0.0194 mg/L	0.02 mg/L	97.1	70.0	130	----
		Nickel, total	7440-02-0	E420	0.0352 mg/L	0.04 mg/L	87.9	70.0	130	----
		Phosphorus, total	7723-14-0	E420	9.72 mg/L	10 mg/L	97.2	70.0	130	----
		Potassium, total	7440-09-7	E420	3.60 mg/L	4 mg/L	90.1	70.0	130	----
		Rubidium, total	7440-17-7	E420	0.0175 mg/L	0.02 mg/L	87.3	70.0	130	----
		Selenium, total	7782-49-2	E420	0.0391 mg/L	0.04 mg/L	97.6	70.0	130	----
		Silicon, total	7440-21-3	E420	9.15 mg/L	10 mg/L	91.5	70.0	130	----
		Silver, total	7440-22-4	E420	0.00363 mg/L	0.004 mg/L	90.6	70.0	130	----
		Sodium, total	7440-23-5	E420	ND mg/L	----	ND	70.0	130	----
		Strontium, total	7440-24-6	E420	ND mg/L	----	ND	70.0	130	----
		Sulfur, total	7704-34-9	E420	20.5 mg/L	20 mg/L	102	70.0	130	----
		Tellurium, total	13494-80-9	E420	0.0389 mg/L	0.04 mg/L	97.1	70.0	130	----
		Thallium, total	7440-28-0	E420	0.00355 mg/L	0.004 mg/L	88.8	70.0	130	----
		Thorium, total	7440-29-1	E420	0.0183 mg/L	0.02 mg/L	91.7	70.0	130	----
		Tin, total	7440-31-5	E420	0.0192 mg/L	0.02 mg/L	95.9	70.0	130	----
		Titanium, total	7440-32-6	E420	0.0367 mg/L	0.04 mg/L	91.7	70.0	130	----
		Tungsten, total	7440-33-7	E420	0.0187 mg/L	0.02 mg/L	93.4	70.0	130	----
		Uranium, total	7440-61-1	E420	0.00375 mg/L	0.004 mg/L	93.9	70.0	130	----
		Vanadium, total	7440-62-2	E420	0.0917 mg/L	0.1 mg/L	91.7	70.0	130	----
		Zinc, total	7440-66-6	E420	0.354 mg/L	0.4 mg/L	88.5	70.0	130	----
		Zirconium, total	7440-67-7	E420	0.0375 mg/L	0.04 mg/L	93.9	70.0	130	----
Total Metals (QCLot: 2333469)										
VA25C9773-001	Anonymous	Mercury, total	7439-97-6	E508	0.0000882 mg/L	0 mg/L	88.2	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Dissolved Metals (QCLot: 2324943)										
VA25C9784-002	Field Blank	Aluminum, dissolved	7429-90-5	E421	0.193 mg/L	0.2 mg/L	96.3	70.0	130	----
		Antimony, dissolved	7440-36-0	E421	0.0177 mg/L	0.02 mg/L	88.5	70.0	130	----
		Arsenic, dissolved	7440-38-2	E421	0.0181 mg/L	0.02 mg/L	90.4	70.0	130	----
		Barium, dissolved	7440-39-3	E421	0.0190 mg/L	0.02 mg/L	95.2	70.0	130	----
		Beryllium, dissolved	7440-41-7	E421	0.0370 mg/L	0.04 mg/L	92.4	70.0	130	----
		Bismuth, dissolved	7440-69-9	E421	0.00939 mg/L	0.01 mg/L	93.9	70.0	130	----
		Boron, dissolved	7440-42-8	E421	0.087 mg/L	0.1 mg/L	87.3	70.0	130	----
		Cadmium, dissolved	7440-43-9	E421	0.00385 mg/L	0.004 mg/L	96.3	70.0	130	----
		Calcium, dissolved	7440-70-2	E421	3.75 mg/L	4 mg/L	93.6	70.0	130	----
		Cesium, dissolved	7440-46-2	E421	0.00928 mg/L	0.01 mg/L	92.8	70.0	130	----
		Chromium, dissolved	7440-47-3	E421	0.0364 mg/L	0.04 mg/L	91.0	70.0	130	----
		Cobalt, dissolved	7440-48-4	E421	0.0183 mg/L	0.02 mg/L	91.7	70.0	130	----
		Copper, dissolved	7440-50-8	E421	0.0191 mg/L	0.02 mg/L	95.4	70.0	130	----
		Iron, dissolved	7439-89-6	E421	1.88 mg/L	2 mg/L	94.0	70.0	130	----
		Lead, dissolved	7439-92-1	E421	0.0184 mg/L	0.02 mg/L	92.2	70.0	130	----
		Lithium, dissolved	7439-93-2	E421	0.0919 mg/L	0.1 mg/L	91.9	70.0	130	----
		Magnesium, dissolved	7439-95-4	E421	0.936 mg/L	1 mg/L	93.6	70.0	130	----
		Manganese, dissolved	7439-96-5	E421	0.0190 mg/L	0.02 mg/L	94.8	70.0	130	----
		Molybdenum, dissolved	7439-98-7	E421	0.0176 mg/L	0.02 mg/L	87.8	70.0	130	----
		Nickel, dissolved	7440-02-0	E421	0.0369 mg/L	0.04 mg/L	92.2	70.0	130	----
		Phosphorus, dissolved	7723-14-0	E421	9.18 mg/L	10 mg/L	91.8	70.0	130	----
		Potassium, dissolved	7440-09-7	E421	3.75 mg/L	4 mg/L	93.7	70.0	130	----
		Rubidium, dissolved	7440-17-7	E421	0.0188 mg/L	0.02 mg/L	93.8	70.0	130	----
		Selenium, dissolved	7782-49-2	E421	0.0386 mg/L	0.04 mg/L	96.4	70.0	130	----
		Silicon, dissolved	7440-21-3	E421	9.66 mg/L	10 mg/L	96.6	70.0	130	----
		Silver, dissolved	7440-22-4	E421	0.00364 mg/L	0.004 mg/L	91.0	70.0	130	----
		Sodium, dissolved	7440-23-5	E421	1.92 mg/L	2 mg/L	95.9	70.0	130	----
		Strontium, dissolved	7440-24-6	E421	0.0200 mg/L	0.02 mg/L	100.0	70.0	130	----
		Sulfur, dissolved	7704-34-9	E421	17.7 mg/L	20 mg/L	88.5	70.0	130	----
		Tellurium, dissolved	13494-80-9	E421	0.0372 mg/L	0.04 mg/L	93.1	70.0	130	----
		Thallium, dissolved	7440-28-0	E421	0.00377 mg/L	0.004 mg/L	94.4	70.0	130	----
		Thorium, dissolved	7440-29-1	E421	0.0193 mg/L	0.02 mg/L	96.3	70.0	130	----
		Tin, dissolved	7440-31-5	E421	0.0177 mg/L	0.02 mg/L	88.4	70.0	130	----
		Titanium, dissolved	7440-32-6	E421	0.0352 mg/L	0.04 mg/L	88.1	70.0	130	----
		Tungsten, dissolved	7440-33-7	E421	0.0176 mg/L	0.02 mg/L	88.0	70.0	130	----
		Uranium, dissolved	7440-61-1	E421	0.00379 mg/L	0.004 mg/L	94.9	70.0	130	----
		Vanadium, dissolved	7440-62-2	E421	0.0887 mg/L	0.1 mg/L	88.7	70.0	130	----
		Zinc, dissolved	7440-66-6	E421	0.372 mg/L	0.4 mg/L	93.0	70.0	130	----
		Zirconium, dissolved	7440-67-7	E421	0.0344 mg/L	0.04 mg/L	86.1	70.0	130	----
Dissolved Metals (QCLot: 2335478)										
VA25C9760-004	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000905 mg/L	0 mg/L	90.5	70.0	130	----

Chain of Custody (COC) / Analytical Request Form

www.alsglobal.com

Canada Toll Free: 1 800 668 9878

COC Number: 22 - 20251104 - QA

Page 1 of 1

Report To	Contact and company name below will appear on the final report	Reports / Recipients	Turnaround Time (TAT) Requested
Company:	Masse Environmental	Select Report Format: ☑ PDF ☑ EXCEL ☑ EDD (DIGITAL)	☑ Routine [R] if received by 3pm M-F - no surcharges apply
Contact:	Ico deZwart	Merge QC/QCI Reports with COA ☑ YES ☐ NO ☐ N/A	☐ 4 day [P4] if received by 3pm M-F - 20% rush surcharge minimum
Phone:		☐ Compare Results to Criteria on Report - provide details below if box checked	☐ 3 day [P3] if received by 3pm M-F - 25% rush surcharge minimum
	Company address below will appear on the final report	Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX	☐ 2 day [P2] if received by 3pm M-F - 50% rush surcharge minimum
Street:	812 Vernon St.	Email 1 or Fax ico@masseenvironmental.com	☐ 1 day [E] if received by 3pm M-F - 100% rush surcharge minimum
City/Province:	Nelson, BC	Email 2 chris@masseenvironmental.com	☐ Same day [E2] if received by 10am M-S - 200% rush surcharge.
Postal Code:	V1L4G4	Email 3 jenn@masseenvironmental.com	AFFIX ALS BARCODE LABEL HERE (ALS use only)
Invoice To	Same as Report To ☑ YES ☐ NO	Invoice Recipients	Additional fees may apply to rush requests on weekends, statutory holidays and for non-routine tests.
	Copy of Invoice with Report ☑ YES ☐ NO	Select Invoice Distribution: ☑ EMAIL ☐ MAIL ☐ FAX	Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm am/pm
Company:		Email 1 or Fax lise@masseenvironmental.com	For all tests with rush TATs requested, please contact your AM to confirm availability.
Contact:		Email 2	

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	VA24-MASS200-001	AFE/Cost Center:	PO#
Job #:	2016-503 - HB	Major/Minor Code:	Routing Code:
PO / AFE:		Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (ALS use only):		ALS Contact:	Sampler: C.Stephanou

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (ALS use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	pH, cond, TSS, TDS, total alk, hardness	Chloride, bromide, fluoride, sulfate	Ammonia, TKN, nitrate, nitrite	TOC	Dissolved Metals (incl Hg)	Total Metals (incl Hg)	Orthophospahte	Total Sulphide	SAMPLES ON HOLD	EXTENDED STORAGE REQUIRED	SUSPECTED HAZARD (see notes)
	GW Duplicate	04-Nov-25	15:15	GW	7	R	R	R	R	R	R	R	R			
	Field Blank	04-Nov-25	15:30	GW	7	R	R	R	R	R	R	R	R			

Environmental Division
Vancouver
Work Order Reference
VA25C9784

Telephone : +1 604 253 4188

Drinking Water (DW) Samples[1] (client use)	Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only)
Are samples taken from a Regulated DW System? ☐ YES ☐ NO	
Are samples for human consumption/ use? ☐ YES ☐ NO	

SAMPLE RECEIPT DETAILS (ALS use only)

Cooling Method: ☐ NONE ☐ ICE ☐ ICE PACKS ☐ FROZEN ☐ COOLING INITIATED

Submission Comments identified on Sample Receipt Notification: ☐ YES ☐ NO

Cooler Custody Seals Intact: ☐ YES ☑ N/A Sample Custody Seals Intact: ☐ YES ☑ N/A

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (ALS use only)			FINAL SHIPMENT RECEPTION (ALS use only)		
Released by:	Date: 5-Nov-2025	Time: 11:00	Received by:	Date:	Time:	Received by: JC	Date: 6-11-25	Time: 12:50

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

FEB 2022 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

APPENDIX F: 2025 WILDLIFE SURVEY SUMMARY

Technical Memorandum

To:	Alayne Hamilton Environmental Projects Lead	**From:**	Benjamin Foulger, P.Ag.
Company:	Regional District of Central Kootenay	**SLR Consulting (Canada) Ltd.**	
cc:		**Date:**	October 23, 2025
		Project No.	204.V03242.00011
		Revision	0

RE: 2025 Post Construction Wildlife Monitoring Summary
HB Tailings Management Facility, Salmo, BC

1.0 Introduction

The HB Tailings Management Facility (TMF; the site), is an approximately 26.5-hectares parcel, located about six kilometres (km) south of the Village of Salmo, British Columbia (BC) (Figure 1). The TMF stores tailings from Cominco Limited's (Teck Resources Limited) historic operations at the nearby HB Mine. The TMF was recently transitioned to passive-closure phase, as defined by the Canadian Dam Association (CDA), in 2021 through 2022 with post-closure monitoring being conducted at the TMF from 2023 through 2025.

The site is currently sparsely vegetated and surrounding the TMF are generally steep, forested slopes, within the Interior Cedar Hemlock Biogeoclimatic zone and Dry Warm subzone (ICHdw1). There are two vehicle access routes to the site, at the North and South ends of the tailings area (Figure 2). SLR Consulting (Canada) Ltd. (SLR) has been completing ongoing wildlife monitoring to fulfill requirements of *Mines Act* Permit M-218. This memorandum is a summary of wildlife observations collected and includes data from:

- Four wildlife cameras deployed between October 2024 and October 2025.
- Incidental wildlife observations and inspections documented during the June 24-25, 2025 and October 3, 2025, wildlife monitoring events.
- General observations documented during Environmental Monitoring (EM) at the TMF on April 11, and August 8, 2025.

2.0 Methods

A combination of camera traps, transects, and incidental observations were used to collect wildlife data on-site.

2.1 Camera Trapping

Four Reconyx wildlife cameras, deployed since September 2023, have been continuously monitoring key locations surrounding the site (Table A). The cameras were placed in the same locations as baseline studies in 2020[1] to allow consistency and comparison with previous deployments. Targeted locations such as game trails, access routes, and openings were selected as they were anticipated to generate high detections of wildlife.

[1] SLR. 2020. Wildlife Baseline Assessment for Regional District of Central Kootenay. SLR Consulting (Canada) Ltd. September 2020.

Cameras that were previously set during the baseline wildlife assessment at these locations with similar views resulted in a high yield of camera sightings with a wide variety of species observed.

Table A: HB Tailings Management Facility Wildlife Camera Locations

Camera ID	Coordinates UTM (11 U)		Targeted Feature
	Easting	Northing	
V-1	481625	5442555	Game trail entrance to site
V-2	481654	5442436	Game trail entrance to site
V-3	481862	5441947	Regenerating access route
V-4	481931	5442788	Forest opening / game trail leading to site

Maintenance and functionality checks were completed twice a year (June and October 2025), to replace batteries, download data, and trim surrounding vegetation to avoid obscuring or inadvertently triggering the cameras. All cameras remained deployed from 1.5 to 1.8 metres (m) above the ground. Future camera maintenance and checks for functionality will continue at a similar, biannual schedule.

Photographs were pre-processed using Microsoft's Megadetector V5 model. Megadetector is an artificial intelligence model that can identify wildlife, humans, vehicles, and 'empty' photographs (i.e., those falsely triggered by vegetation or other reasons). Following pre-processing, images were reviewed by SLR ecologists with the date, time of first detection, detection distance, total number of pictures in the series, species, sex and life stage (when known) recorded for each unique detection. Images were viewed and processed using Timelapse software[2].

Photographs were sorted by classification and those with confidence values (i.e., confidence of ≥50%) indicating presence of wildlife were manually inspected to verify and identify to species. A secondary check of photographs classified as containing wildlife with confidence values between ≥25-50 revealed no additional events confirming the approach. Multiple photographs of a particular species taken within a short period of time (≤15 minutes), were considered the same animal and counted as one detection, as suggested by other camera trap studies[3]. Observations more than 15 minutes apart were considered independent.

2.2 Transects

Multiple sweeps using meandering transects were completed by SLR ecologists during wildlife inspections within the site boundary. During transects, surveyors actively searched for wildlife activity such as visual and auditory observations of wildlife at the site and evidence of use such as dens, bird nests, tracks, scat, and game trails.

2.3 Incidental observations

During EM inspections, from April to October 2025, and revegetation surveys in August 2025, surveyors recorded incidental observations and detections of wildlife, including visual, auditory, or sign such as tracks or scat.

[2] Greenburg, S. 2024. Timelapse: An Image Analyser for Camera Traps.
Available: https://saul.cpsc.ucalgary.ca/timelapse/pmwiki.php Accessed: August 7, 2024.
[3] O'Brien, T.G., M.F. Kinnaird, H.T. Wibisono. 2003. Crouching tigers, hidden prey: Sumatran tiger and prey populations in a tropical forest landscape. Anim. Conserv. 6(2):131-139

3.0 Results

Observations between October 12, 2024, and October 3, 2025, included nine mammal species, 17 bird species, and two amphibian species (Table 1 attached). Of these, three species are considered Species of Conservation Concern (SOCC), which includes species that are Provincially red or blue listed and/or those federally listed as Special Concern, Threatened, or Endangered by the *Species at Risk Act* (SARA) or the Committee on the Status of Endangered Wildlife in Canada (COSEWIC).

Identified SOCC included grizzly bear (*Ursus arctos*), killdeer (*Charadrius vociferus*) and western toad (*Anaxyrus boreas*). Fourty-six species have been observed or detected on-site, post-construction, since monitoring began in 2022[4],[5].

3.1 Grizzly Bear

Grizzly Bear (*Ursus arctos*) is yellow listed Provincially and federally is listed as Special Concern by COSWIC and SARA. Camera footage from V-1 captured one to three individuals (including sow and cubs) during 12 separate events from May 24 to June 20, 2025. Camera footage from V-2 captured one individual on May 1, 2025.

3.2 Killdeer

Killdeer (*Charadrius vociferus*) is not federally listed by COSEWIC or SARA but is blue listed Provincially. During the June 25, 2025, monitoring event, a total of three individuals were observed on the eastern side of the site. No nests were observed; however, the individuals demonstrated nesting behaviours including loud alarm calls and distraction display. Crew members on site avoided walking within 30 m of the area for the remainder of the surveys.

3.3 Western Toad

Western Toad (*Anaxyrus boreas*) is yellow listed Provincially and federally listed as Special Concern by COSEWIC and SARA. During the June 25, 2025, monitoring event, approximately 100 tadpoles were observed in a small pond southeast of site. No mortality or signs of distress were observed during the inspection.

4.0 Discussion and Recommendations

The 2025 Post-Construction Wildlife Survey recorded a total of 26 species, contributing to a cumulative total of 46 unique species observed over four consecutive years of monitoring. This year's count represents a slight decline from the 36 species observed in 2024 but remains higher than the initial years of monitoring in 2023 (29 species) and 2022 (16 species), indicating a generally positive trajectory in species richness and habitat recovery.

Notably, while no sightings of cougar (*Puma concolor*) were documented during the 2025 monitoring efforts. The two additional mammal species first observed in 2024, including bobcat (*Lynx rufus*) and grizzly bear (*Ursus arctos*), were once again recorded in 2025.

[4] SLR. 2022. Technical Memorandum: 2022 Post-Construction Wildlife Survey – HB Tailings Management Facility. SLR Consulting (Canada) Ltd. November 24, 2022.
[5] SLR. 2023. Technical Memorandum: 2023 Post-Construction Wildlife Survey – HB Tailings Management Facility. SLR Consulting (Canada) Ltd. November 24, 2023.

Overall, these results suggest a positive trajectory in habitat restoration. The cumulative increase in species richness, along with repeated detections of key species, supports the effectiveness of post-construction mitigation and habitat enhancement efforts.

Given the success of remote cameras in detecting wildlife and the incidental observations made during biannual maintenance visits, SLR recommends continuation with annual wildlife inspections supported by biennial maintenance in 2026 to maintain monitoring consistency while continuing to capture meaningful data.

5.0 Statement of Limitations

This report has been prepared by SLR Consulting (Canada) Ltd. (SLR) for Regional District of Central Kootenay (Client) in accordance with the scope of work and all other terms and conditions of the agreement between such parties. SLR acknowledges and agrees that the Client may provide this report to government agencies, interest holders, and/or Indigenous communities as part of project planning or regulatory approval processes. Copying or distribution of this report, in whole or in part, for any other purpose other than as aforementioned is not permitted without the prior written consent of SLR.

Any findings, conclusions, recommendations, or designs provided in this report are based on conditions and criteria that existed at the time work was completed and the assumptions and qualifications set forth herein.

This report may contain data or information provided by third party sources on which SLR is entitled to rely without verification and SLR does not warranty the accuracy of any such data or information.

Nothing in this report constitutes a legal opinion nor does SLR make any representation as to compliance with any laws, rules, regulations, or policies established by federal, provincial territorial, or local government bodies, other than as specifically set forth in this report. Revisions to legislative or regulatory standards referred to in this report may be expected over time and, as a result, modifications to the findings, conclusions, or recommendations may be necessary.

6.0 Closure

We trust that this summary provides suitable documentation for your records. If you have any questions, please contact one of our team members listed below at any time.

Regards,

SLR Consulting (Canada) Ltd.

Sarah von der Weid, BSc., P.Biol.
Ecologist
svonderweid@slrconsulting.com

Stephen Symes, MSc., P.Biol., R.P. Bio.
Senior Wildlife Specialist
ssymes@slrconsulting.com

Attachments Table 1

Figures 1 and 2

A. Site Photographs

Table

2025 Post Construction Wildlife Monitoring Summary

HB Tailings Storage Facility, Salmo, BC

Regional District of Central Kootenay

SLR Project No.: 204.V03242.00011

October 23, 2025

Table 1: Wildlife Species Detected at HB TMF during October 2024 to October 2025

Common Name	Scientific Name	Conservation Status[a]			Observation Type/ Comments	No. of Unique Camera Detections[e]
		BC Status[b]	COSEWIC[c]	SARA[d]		
Amphibians						
Columbia Spotted Frog	*Rana luteiventris*	Yellow	NAR	-	Visual, tadpoles	-
Western Toad	*Anaxyrus boreas*	Yellow	SC	1-SC	Visual, tadpoles	-
Birds						
American Crow**	*Corvus brachyrhynchos*	Yellow	-	-	Visual call, camera	50
American Robin	*Turdus migratorius*	Yellow	-	-	Call	-
Bald Eagle**	*Haliaeetus leucocephalus*	Yellow	NAR	-	Visual, call	-
California Quail*	*Callipepla californica*	Exotic	-	-	*Not observed in 2025*	-
Canada Goose**	*Branta canadensis*	Yellow	-	-	Camera	5
Cassin's Vireo*	*Vireo cassinii*	Yellow	-	-	*Not observed in 2025*	-
Chestnut-backed Chickadee*	*Poecile rufescens*	Yellow	-	-	*Not observed in 2025*	-
Common Raven	*Corvus corax*	Yellow	-	-	Visual, call	-
Common Yellowthroat*	*Geothlypis trichas*	Yellow	-	-	*Not observed in 2025*	-
Dark-eyed Junco*	*Junco hyemalis*	Yellow	-	-	*Not observed in 2025*	-
Downy Woodpecker*	*Dryobates pubescens*	Yellow	-	-	*Not observed in 2025*	-
Evening Grosbeak*	*Coccothraustes vespertinus*	Yellow	SC	1-SC	*Not observed in 2025*	-
Golden-crowned Kinglet*	*Regulus satrapa*	Yellow	-	-	*Not observed in 2025*	-
Hammonds Flycatcher**	*Empidonax hammondii*	Yellow	-	-	Call	-
Hairy Woodpecker*	*Dryobates villosus*	Yellow	-	-	*Not observed in 2025*	-
Killdeer	*Charadrius vociferus*	Blue	-	-	Visual, call	-
Lazuli Bunting**	*Passerina amoena*	Yellow	-	-	Call	-

Common Name	Scientific Name	Conservation Status[a]			Observation Type/ Comments	No. of Unique Camera Detections[e]
		BC Status[b]	COSEWIC[c]	SARA[d]		
Lincoln's Sparrow*	*Melospiza lincolnii*	Yellow	-	-	*Not observed in 2025*	-
Mallard*	*Anas platyrhynchos*	Yellow			*Not observed in 2025*	-
Pileated Woodpecker**	*Dryocopus pileatus*	Yellow	-	-	Call	-
Pine Siskin*	*Spinus pinus*	Yellow	-	-	*Not observed in 2025*	-
Red-breasted Nuthatch*	*Sitta canadensis*	Yellow	-	-	*Not observed in 2025*	-
Red Crossbill**	*Loxia curvirostra*	Yellow	-	-	Call	-
Red-tailed Hawk**	*Buteo jamaicensis*	Yellow	-	-	Visual, call	-
Song Sparrow**	*Melospiza melodia*	Yellow	-	-	Call	-
Swainson Thrush	*Catharus ustulatus*	Yellow	-	-	Call	-
Turkey Vulture**	*Cathartes aura*	Yellow	-	-	Visual	-
Wild Turkey	*Meleagris gallopavo*	Exotic	-	-	Tracks	-
Wilson's Snipe**	*Gallinago delicata*	Yellow	-	-	Call	-
Yellow-rumped Warbler	*Setophaga coronata*	Yellow	-	-	Call	-
Mammals						
American Black Bear	*Ursus americanus*	Yellow	NAR	-	Camera, tracks, scat	20
Bobcat	*Lynx rufus*	Yellow	-	-	Camera	1
Cougar*	*Puma concolor*	Yellow	-	-	*Not observed in 2025*	-
Coyote	*Canis latrans*	Yellow	-	-	Camera, tracks, scat	72
Elk	*Cervus elaphus*	Yellow	-	-	Camera, tracks, scat	169
Grey Wolf	*Canis lupus*	Yellow	NAR	-	Camera	25
Grizzly Bear	*Ursus arctos*	Blue	SC	1-SC	Camera	19
Moose	*Alces alces*	Yellow	-	-	Camera, tracks	1

Common Name	Scientific Name	Conservation Status[a]			Observation Type/ Comments	No. of Unique Camera Detections[e]
		BC Status[b]	COSEWIC[c]	SARA[d]		
Mule Deer	*Odocoileus hemionus*	Yellow	-	-	Tracks	-
Red Squirrel*	*Tamiasciurus hudsonicus*	Yellow	-	-	*Not observed in 2025*	-
Snowshoe Hare*	*Lepus americanus*	Yellow	-	-	*Not observed in 2025*	-
Stripped Skunk	*Mephitis mephitis*	Yellow	-	-	Visual	-
Weasel sp.*	*Mustelidae sp.*	Yellow	-	-	*Not observed in 2025*	-
White-tailed Deer	*Odocoileus virginianus*	Yellow	-	-	Camera, visual, tracks	622

NOTES:
**Species identified prior to 2025 Wildlife Monitoring.*
*** New species identified during 2025 Wildlife Monitoring*
[a]: Conservation status as of October 2025 (BC CDC 2025)
[b]: BC List Status:
- ***Red**: extirpated, endangered, or threatened*
- ***Blue**: special concern*
- ***Yellow**: secure and not at risk*

[c]: COSEWIC Status:
- ***E** – Endangered: species facing imminent extirpation or extinction*
- ***T** – Threatened: species likely to become endangered if limiting factors are not reversed*
- ***SC** – Special concern: species sensitive to human activities or vulnerable to natural events*
- ***DD** – Data Deficient: species for which there is insufficient scientific information to support status designation.*
- ***NAR** – Not At Risk: species that has been evaluated and found to be not at risk.*

[d]: SARA Status: SARA Schedule followed by status code (definitions the same as COSEWIC)
[e]: Multiple photographs of a particular species taken within a short period of time (~15minutes), that were likely the same animal were counted as one detection.

Figures

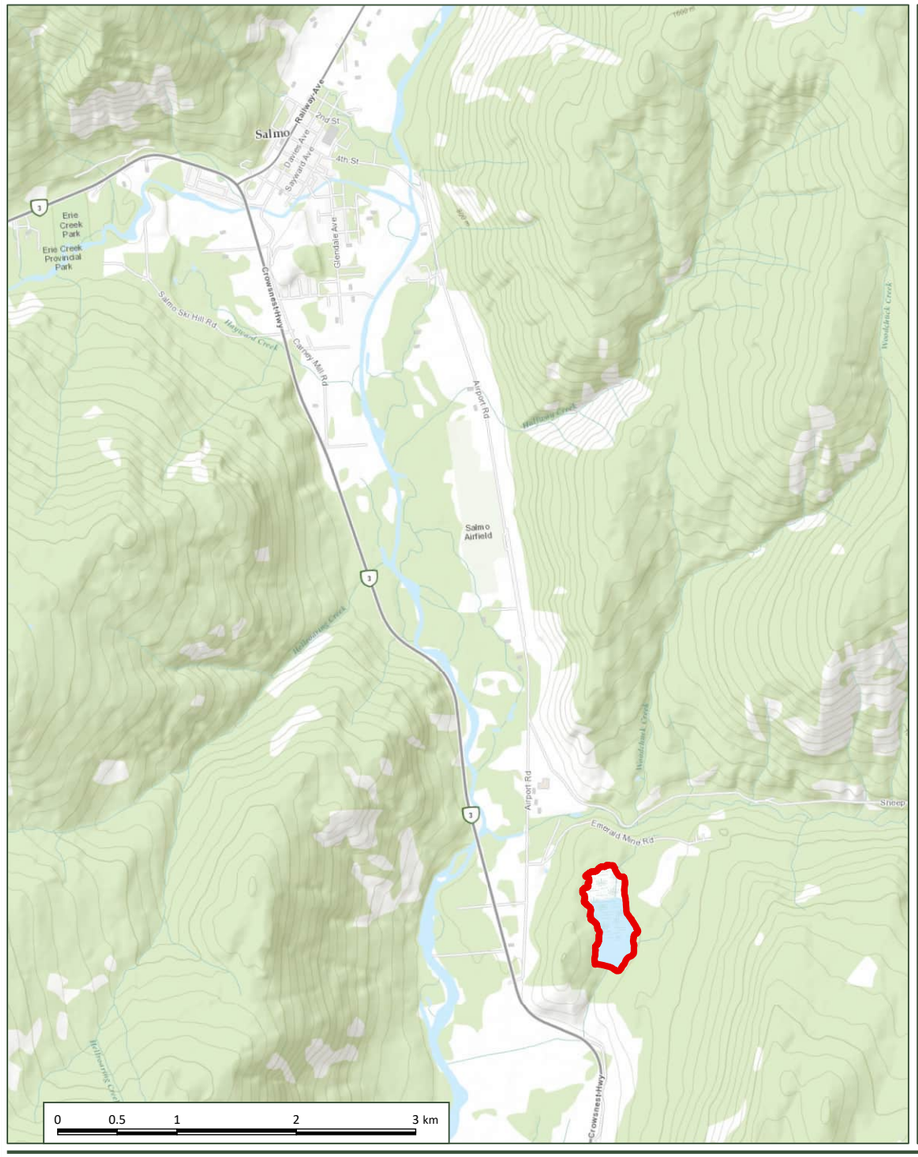
2025 Post Construction Wildlife Monitoring Summary

HB Tailings Storage Facility, Salmo, BC

Regional District of Central Kootenay

SLR Project No.: 204.V03242.00011

October 23, 2025







NOTES:

1. SOURCES: ESRI, HERE, GARMIN, INTERMAP, INCREMENT P CORP., GEBCO, USGS, FAO, NPS, NRCAN, GEOBASE, IGN, KADASTER NL, ORDNANCE SURVEY, ESRI JAPAN, METI, ESRI CHINA (HONG KONG), (C) OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY SOURCE: ESRI, MAXAR, EARTHSTAR GEOGRAPHICS, AND THE GIS USER COMMUNITY

2. SATELLITE IMAGERY - 20 SEPTEMBER 2022, MAXAR

LEGEND:

SITE BOUNDARY - HB TAILINGS MANAGEMENT FACILITY

PARCEL BOUNDARY

0 50 100 200 300 m

SCALE 1:10,000
PAGE SIZE 11 x 17
NAD 1983 UTM Zone 10N

THIS MAP IS FOR CONCEPTUAL PURPOSES ONLY AND SHOULD NOT BE USED FOR NAVIGATION

REGIONAL DISTRICT OF CENTRAL KOOTENAY
HB MINE TAILINGS MANAGEMENT FACILITY
SALMO, BC

2025 POST CONSTUCTION WILDLIFE MONITORING SURVEY

SITE LOCATION

SLR

FIGURE NO:
1

DATE: November 19, 2023

PROJECT NO: 234.30029.00001

Last Saved: November 19, 2023 11:05:15 AM by alewall

GIS PATH: C:\PROJECTS\234_30029_HB Dam\1_Maps\RPT\RPT_20231_RRP2023\234_30029_RRP2023_01_SiteLocation.mxd

Last Saved: November 03, 2023 9:21:41 AM by alewall



LEGEND:

- WILDLIFE CAMERA LOCATION (WITH VIEW DIRECTION)
- ACCESS ROAD
- CENTRAL LANDFILL
- SITE BOUNDARY - HB TAILINGS MANAGEMENT FACILITY

NOTES:
1. IMAGERY - 20/SEP/2022, MAXAR

0 25 50 100 150 m

SCALE 1:4,000
PAGE SIZE 11 x 17
NAD 1983 UTM Zone 11N

THIS MAP IS FOR CONCEPTUAL PURPOSES ONLY
AND SHOULD NOT BE USED FOR NAVIGATION

REGIONAL DISTRICT OF CENTRAL KOOTENAY
HB MINE TAILINGS MANAGEMENT FACILITY
SALMO, BC

2025 POST CONSTRUCTION
WILDLIFE MONITORING SURVEY

WILDLIFE CAMERA LOCATIONS

SLR

FIGURE NO:
2

DATE: November 3, 2023

PROJECT NO: 204.03242.00009

GIS PATH: N:\Vancouver\GIS_Projects_GIS\204\204.03242_RDCKWXDs\PCWS\2023\204_03242_PCWS_02_CameraLocations.mxd

Attachment A Site Photographs

2025 Post Construction Wildlife Monitoring Summary

HB Tailings Storage Facility, Salmo, BC

Regional District of Central Kootenay

SLR Project No.: 204.V03242.00011

October 23, 2025

Site Photographs

Photo 1: Elk (October 31, 2024).



Photo 2: Grizzly Bear (April 24, 2025).

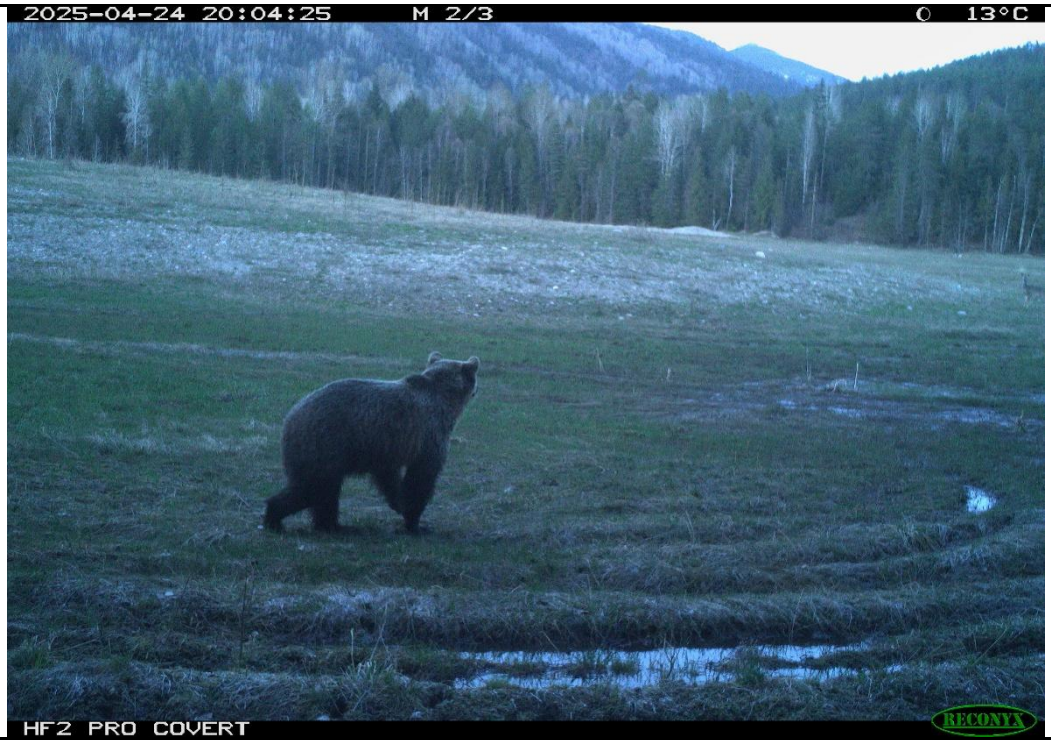


Photo 3: Bobcat (March 9, 2025).



Photo 4: American Black Bear (sow) with two cubs (June 13, 2025).



Photo 5: White-tailed Deer (April 11, 2025)

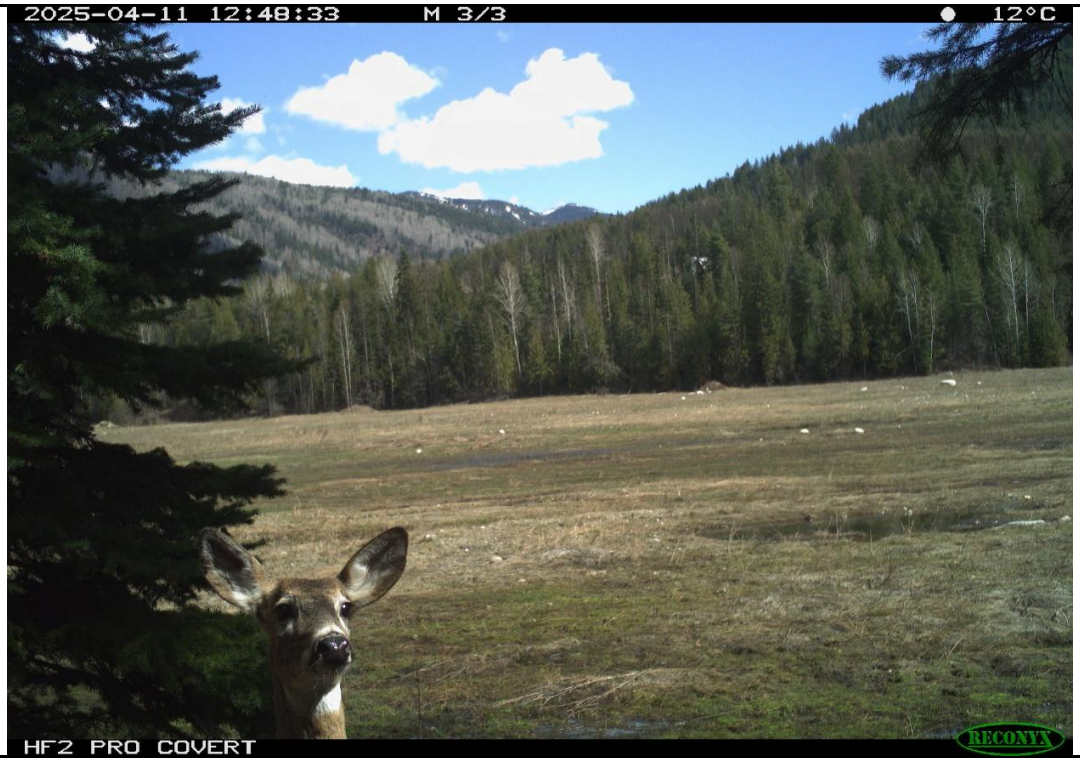


Photo 6: Grey Wolf and Black Crow (March 1, 2025)



Photo 7: Coyote (April 24, 2025)

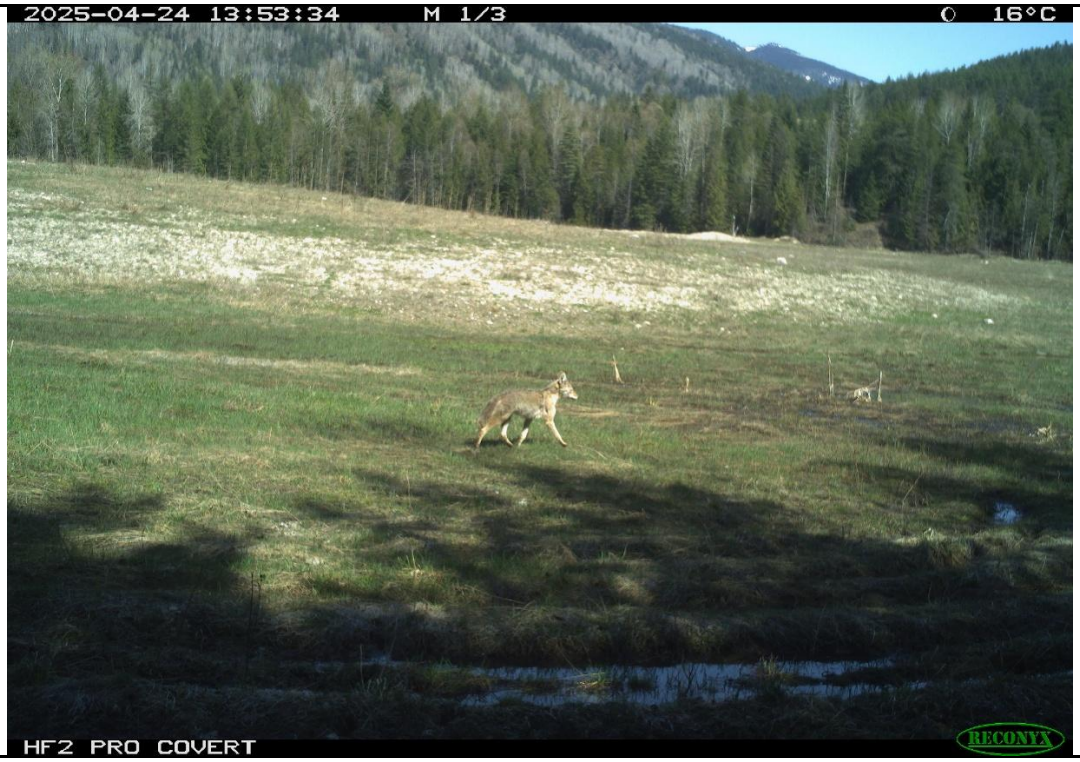


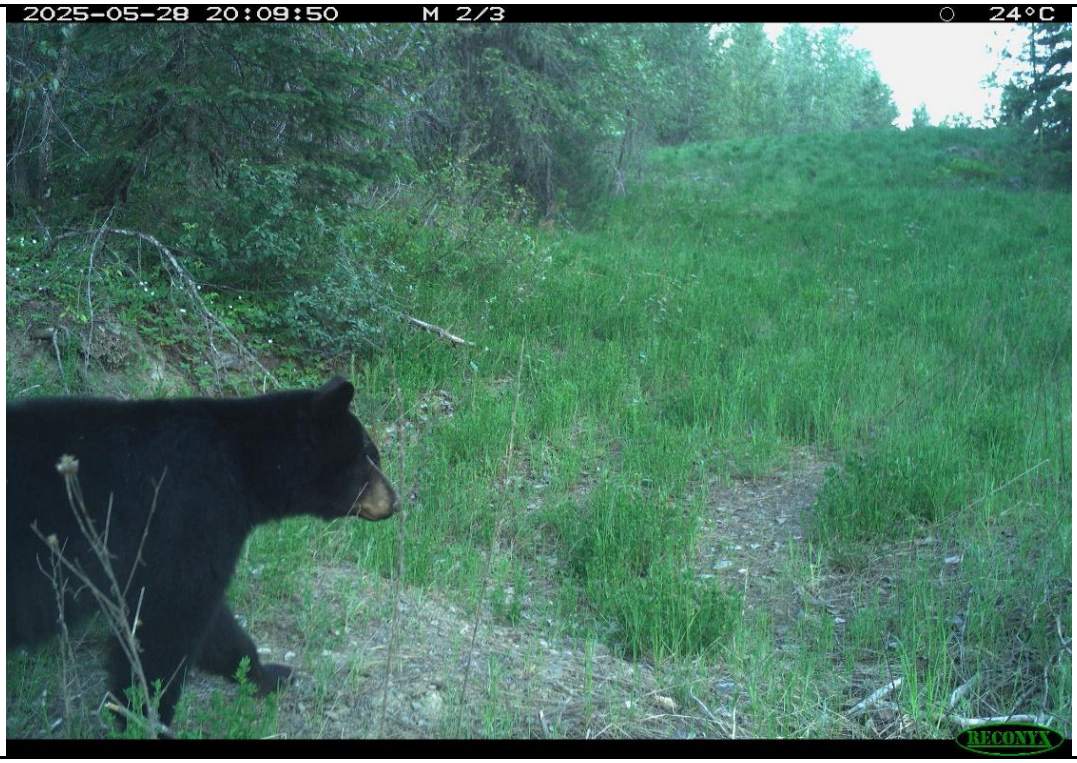
Photo 8: Wild Turkey (May 13, 2025).

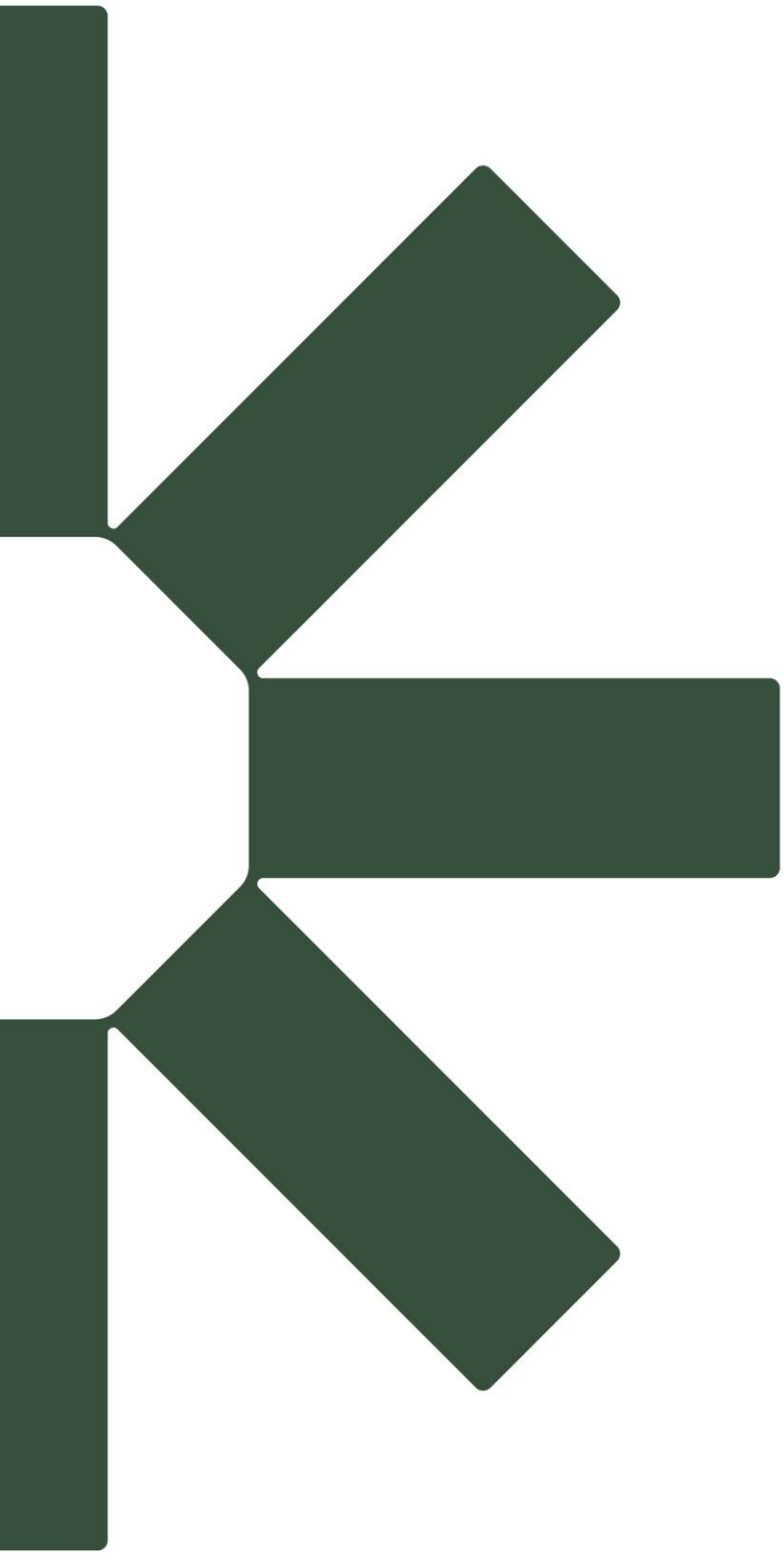


Photo 9: Coyote (May 27, 2025).



Photo 10: American Black Bear (May 28, 2025).





Making Sustainability Happen

APPENDIX G: RECLAMATION RESEARCH PROGRAM 2025 SUMMARY

HB Tailings Management Facility Reclamation Research Program 2025 Summary

Salmo, BC

Regional District of Central Kootenay

Box 590, 202 Lakeside Drive
Nelson, BC V1L 5R4

Prepared by:

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8 St. Paul Street W,
Kamloops, BC V2C 1G1

SLR Project No.: 234.030029.00003

December 19, 2025

Revision: 0

Revision Record

Revision	Date	Prepared By	Checked By	Authorized By
0	December 19, 2025	Kalina Noel	David McKeown	Benjamin Foulger

Statement of Limitations

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Acronyms and Abbreviations

BC	British Columbia
CDA	Canadian Dam Association
cm	centimetre
CKISS	Central Kootenay Invasive Species Society
HB TMF	HB Tailings Management Facility
ha	hectare
IMPA	Invasive Plant Management Area
m	metre
RDCK	Regional District of Central Kootenay
RCP	Remediation and Closure Plan
SLR	SLR Consulting (Canada) Ltd.

1.0 Introduction

SLR Consulting (Canada) Ltd. (SLR) was retained by the Regional District of Central Kootenay (RDCK) to develop and trial a Reclamation Research Program (RRP) during transition of the HB Tailings Management Facility (HB TMF) (the site) to passive closure under the *Mines Act* Permit M-218. The RRP program was developed by SLR to complement the Remediation and Closure Plan (RCP), which guided the reclamation works at the site.

Tailings surface works in 2021 and 2022 included establishment of a soil cap, and seeding with an agronomic/native seed blend. The RRP was designed to determine if enhanced native species seeding could support the end land use goal of providing wildlife habitat and native vegetation establishment in a cost-effective manner. SLR established the enhanced seeding program in 2023 and completed post-closure revegetation monitoring from 2023 to 2025 as part of the reclamation research initiative.

2.0 Background

The HB TMF is located approximately six kilometers south of the Village of Salmo, British Columbia (BC) (Figure 1). The RCP was prepared as part of an application to amend *Mines Act* Permit M-218, in which the RDCK applied to complete closure construction works, remediate and reclaim the areas formerly disturbed by historical tailings storage operations, and transition the facility to the passive closure phase, as defined by the Canadian Dam Association (CDA). The amended Permit M-218 was issued on May 18, 2021, with the most recent amendment issued on March 5, 2025.

Closure works included dam stabilization measures, lowering of the spillway, installation of surface water conveyance channels as well as capping of the tailings surface. The application of surface cover capping material over the exposed tailings was completed in 2021/2022, followed by post-construction hydroseeding and broadcast seeding a combination of agronomic and native seed blends (seed blends 1 and 2), in September 2022. Application of enhanced seeding, as part of the RRP was completed in June 2023, which included placing additional seed blends 1 and 2, and introducing seed blend 3, a blend of native species local to the area and have traditional significance to the Interior Salish First Nations in BC's southern interior. Seed blends 1, 2, and 3 are listed in Table A.

Year 1 and 2 post closure vegetation monitoring was conducted by SLR in 2023 and 2024, respectively (SLR 2023; SLR 2024a). This report summarizes the Year 3 vegetation monitoring conducted by SLR in 2025 to assess the overall success of three growing years (2023 to 2025), including an overall assessment of wildlife habitat use resulting from the enhanced seeding application.

Table A: Agronomic (Blends 1 & 2) and Experimental (Blend 3) Seed Blends Applied at the HB Tailings Management Facility

#	Common Name	Scientific Name	Functional Group	Seed Blend Proportion (%)	Seed Blend No.
1	Slender Wheatgrass	*Elymus trachycaulus*	Native Grass	14	Blend 1
2	Pubescent wheatgrass	*Thinopyrum intermedium*	Agronomic Grass	8	
3	Perennial Ryegrass	*Lolium perenne*	Agronomic Grass	16	
4	Alfalfa	*Medicago sativa*	Agronomic Legume	9	
5	Sheep fescue	*Festuca ovina*	Agronomic Grass	11	
6	Creeping Red fescue	*Festuca rubra*	Agronomic Grass	10	
7	Canada Bluegrass	*Poa compressa*	Agronomic Grass	16	
8	Redtop	*Agrostis gigantea*	Agronomic Grass	16	
1	Coated Fringed Brome	*Bromus ciliates*	Native Grass	8	Blend 2
2	Annual ryegrass	*Lolium multiflorum*	Agronomic Grass	13	
3	Coated Tufted Hairgrass	*Deschampsia cespitosa*	Native Grass	19	
4	Slender Wheatgrass	*Elymus trachycaulus*	Native Grass	7	
5	American Slough grass	*Beckmannia syzigachne*	Native Grass	29	
6	June grass	*Koeleria macrantha*	Native Grass	24	
1	Rocky Mountain Fescue	*Festuca saximontana*	Native Grass	35	Blend 3 Experimental Blend
2	Slender Wheatgrass	*Elymus trachycaulus*	Native Grass	15	
3	June grass	*Koeleria macrantha*	Native Grass	35	
4	Fireweed	*Chamerion angustifolium ssp. angustifolium*	Native Forb	6	
5	Western Yarrow	*Achillea millefolium*	Native Forb	6	
6	Tall Oregon Grape	*Mahonia aquifolium*	Native Shrub*	3	

3.0 Objective

The primary objective of the RRP was to implement a standardized post closure reclamation program by establishing a cost effective and suitable vegetation tailings cover system, which reduces post-closure dust and loss of soil through erosion. The program was developed to determine the success of the post-closure vegetation establishment by comparing its success to targeted vegetation cover percentages. The target vegetation cover percentages are required to meet passive closure under Permit M-218, which states that a successful, self-sufficient vegetative cover must achieve an 80% survival rate of germinated seeds across the site. Typically, to meet this requirement, following the addition of capping material, agronomic seed species are applied, which establish vegetation cover quickly; however, the RRP specifies the requirement must also promote establishment of native species that have been identified as important to the local environment, wildlife, and the Interior Salish First Nations (Traditionally Important Plants).

Although placing additional seed onto an already establishing cover may be viewed as cost-prohibitive, the second objective of this study is to determine if enhancing the existing vegetation cover with native species can not only achieve the targeted percentage cover for Permit M-218, but can also enhance vegetation cover that provides wildlife habitat for foraging and nesting, and promotes growth of traditionally important plants.

4.0 Methods

The study was divided into two parts:

1 Determining if the vegetative cover had achieved the targeted percent cover as per Permit M-218 following hydroseeding/broadcast seeding in 2022.

2 Development of the RRP to determine if enhanced agronomic and native species seeding provides:

   a) A more robust vegetative cover than one seeding application.

   b) Additional habitat for wildlife (i.e., nesting, foraging, roosting, breeding).

   c) Growth of native species which are also traditionally important plants in addition to agronomic grasses.

The study design included establishment of several representative test plots within the HB TMF. Successful vegetation establishment following closure seeding and the enhanced seeding applications was assessed to determine whether the program met the objectives of the RRP.

The following plots were established during the implementation of the RRP (Figure 2):

- Twenty-six 1 x 1 metre (m) revegetation plots (revegetation monitoring plots) with only hydroseeded vegetation (Blends 1 and 2) to assess the survival, vigour, and overall vegetation establishment for the purposes of erosion control.
- Eight 10 x 10 m research plots, consisting of the following:
  - Four plots where additional seeding of seed blends 1 and 2 (agronomic species) were introduced; and,
  - Four plots where additional seeding of seed blend 3 (native species) was introduced.

- One 1 x 1 m control plot (control test plot) where no seed blend had been applied at any time. This plot was selected to determine if natural regeneration of vegetation is possible at the reclaimed tailings site with only soil cap cover.

The following sections describe the study design in more detail.

4.1 Revegetation Monitoring Plots

4.1.1 Establishment of Monitoring Plots

Revegetation monitoring plots included seed blends 1 and 2 which were hydroseeded onto the HB TMF in 2022. To establish a sample size suitable to assess revegetation success within the approximately 26.5 hectare (ha) Tailings Management Facility, 1 m x 1 m monitoring plots (quadrats) were established at an evenly spaced rate of approximately one plot per ha.

A total of 26 monitoring plots were established across the TMF (Figure 2). The GPS location of each monitoring plot was recorded at the southwestern corner/point of the quadrat to facilitate annual monitoring consistency. A labelled wooden stake was then driven into the ground to facilitate identification during subsequent survey years.

4.1.2 Survey Methods

Once the plot was identified using the GPS location and labelled stake, each plot was assessed for percent cover for all species present. Where overlapping species layers were encountered (e.g., mosses, herbs, grasses), the sum of the percent cover values for all species could be quantified as greater than 100% within an individual monitoring plot.

All species observed were recorded within the plot even if the species was not part of the seed blend as it was expected that volunteer species and successional weedy species would be present. Where a plant could not be taxonomically identified, it was included in the data collection to the closest description possible (i.e., grass, forb, shrub). Each plot was also assessed for presence of bare ground and leaf litter. Each plant species was also assessed visually for survival/vigour and level of browse and provided a numerical value based on the code categories shown in Table B.

Table B: Survival/Vigour and Browse Codes

Code	Survival/Vigour	Browse
1	**Dead**: Stem breaks with light to moderate pressure. No visual signs of plant being alive noted. At least 50% of the plant is dead.	**Heavy**: More than 50% of the vegetative matter has some visual sign of browse.
2	**Poor**: Plant is showing signs of poor health including loss of leaves, poor plant form, and/or signs of drought or nutrient deficiency (end of leaves wilted or turning brown). At least 50% of the plant appears to be alive.	**Light**: Less than 50% of the vegetative matter shows sign of browse.
3	**Moderate**: Plant is showing minor signs of stress including issues associated with water and nutrient availability. At least 75% of the plant is in good health.	**None**: No browse noted.
4	**Good**: Plant shows good vigour including good stem and leaf growth and condition. At least 90% of the plant is in good health.	N/A

4.2 Research Plots

The enhanced seeding study within the research plots was initiated in 2023. The study was designed to determine if additional application of seed (seed blends 1 and 2) would provide further benefit, such as establishment of a denser vegetation cover in comparison with just a single application. In addition, the study was also designed to determine if application of a third seed blend, seed blend 3 consisting of all native plant species, would attract wildlife by providing additional forage species and promote establishment of traditionally important plants.

Eight research plots were established by marking out a 10 m x 10 m plot with high visibility spray painted wooden stakes and flagging tape adjacent to existing monitoring plots (see below).

The eight plots were then divided into two groups for additional seeding of the following seed blends (see Figure 2):

- A 50/50 blend of native and agronomic species (seed blends 1 and 2) applied at a sowing rate of 100 kg/ha (within research plots 10, 16, 18, and 24).
- A native species blend (seed blend 3) applied at a sowing rate of 100 kg/ha (within research plots 7, 9, 21, and 23).

Due to some compaction observed in 2023 within these plots, light tilling of surface soils was required in advance of seeding. Soil tilling was completed using a rototiller to break up the compacted surface soil in the top 10 centimetre (cm) making sure not to contact the tailing material located 20 to 30 cm below surface.

In 2024 and 2025, these plots were assessed for establishment of additional species and/or denser growth from seed blends 1 and 2, and the addition of native species from seed blend 3 after one and two full years of growth, respectively. Survival/vigour and level of browse were also assessed in each of the eight research plots.

4.3 Control Test Plot Establishment

One control plot was established within the HB TMF for comparison to both the monitoring plots and the research plots. The plot was established in 2022 and was isolated from the hydroseeding program to determine if the seeded agronomic cover and the enhanced native seeded cover have increased stability and resistance to invasive species, versus having added no additional cover species.

The control plot was established in 2022 in a similar manner to the research plots by setting up a permanent 10 x 10 m plot. No seeding of any kind has occurred within the control test plot (Figure 2) and monitoring has been completed annually from 2023 to 2025 along with the revegetation and research plots.

4.4 Additional Observations

4.4.1 Erosion

Excessive erosion has the potential to reduce the TMF cap thickness and functionality. As such, observations of soil loss, runoff channels, and areas of bare ground were assessed at each monitoring plot as well as incidentally.

4.4.2 Incidental Wildlife Observations

As part of the ongoing post-closure wildlife monitoring program, an annual wildlife survey has been completed to determine if the vegetated surface cover is providing habitat. Wildlife surveys were completed in Year 1 through Year 3.

The following site work was completed:

- Four wildlife cameras deployed between October 2024 and October 2025.
- Incidental wildlife observations and inspections documented June 24-25, 2025 (this study), and October 3, 2025 (camera collection).
- General observations documented during environmental monitoring completed April 11, and August 8, 2025.

Observations obtained from the wildlife cameras deployed between October 12, 2024, and October 3, 2025, included nine mammal species, 17 bird species, and two amphibian species.

Incidental observations were also collected, including recording visual and auditory observations and sign such as scat and tracks during vegetation monitoring. Results of the 2024 and 2025 wildlife surveys are described in separate wildlife memoranda (SLR 2024b; SLR 2025).

4.4.3 Traditionally Important Plants

In addition to enhancing available wildlife forage within the HB TMF with slender wheatgrass and Rocky Mountain fescue, four additional native species were selected as part of seed blend 3. These species have importance to the Interior Salish First Nations and were deemed suitable to grow within the area of the HB TMF.

Species selected were fireweed, yarrow, June grass, and tall Oregon grape. These and other traditionally use plants may provide importance to local First Nations as food, medicine, dyes, or other uses (Moerman 1998; Hart 1992; Turner et al. 1980; Palmer 1975; Perry 1952).

5.0 Year 3 Results

SLR ecologists completed the Year 3 RRP monitoring program on June 24 to 25, 2025. Results indicated that slender wheatgrass and/or coated tufted hairgrass present in seed blends 1 and 2 were observed in all plots except for plot 2. In 2025, plot 2 was observed to be dominated by cleavers (*Galium aparine*), which may have been present within the topsoil that was stockpiled at this location.

Cleavers are known to be invasive in other regions of BC due to their ability to grow up to 100 cm across the ground or up other plants/structures (Government of BC 2002).

Full plot results can be found in appended Table 1, and photographs of each plot can be found in Appendix A.

5.1 Revegetation Monitoring Plot Results

Revegetation monitoring plots are those which were seeded in 2022 with seed blends 1 and 2, either by hydroseeding or hand broadcast (Figure 2). The following sections provide the results of the 2025 (Year 3) study.

5.1.1 Percent Cover

Assessment of percent cover, including vegetative growth and leaf litter, was conducted to confirm the site had achieved the passive closure target of 80 percent (%) pursuant to Permit M-218 requirements. Where possible, species were identified to genus and species. To ensure all plants observed were included in the percent cover assessment, plants that could not be taxonomically identified were categorized to tree/shrub, forb, grass, or moss.

In 2025, percent cover within the revegetation monitoring plots ranged between 83% and 216% (with overlapping species cover). The average percent cover was 164%, which is an increase of 135% across all plots since 2023.

Leaf litter percent cover ranged from 0% to 100%. Mosses were also observed ranging between 10% and 90% of the plots.

Data collected in 2025 can be found in Table C with comparative percent covers from 2023 and 2024.

Table C: Percent Cover in Revegetation Monitoring Plots Comparison over Three Years

Plot Number	Percent Cover *			Seeding Type September 2022	Seeding Type June 2023
	June 2023	August 2024	July 2025		
1	63	98	228	Broadcast seeded	Not seeded
2	174	102	100	Broadcast seeded	Not seeded
3	20	88	209	Broadcast seeded	Not seeded
4	15	69	123	Hydroseeded	Not seeded
5	6	30	87	Broadcast seeded	Not seeded
6	11	95	151	Broadcast seeded	Not seeded
8	10	74	215	Broadcast seeded	Not seeded
11	1	25	131	Broadcast seeded	Not seeded
12	116	88	216	Broadcast seeded	Not seeded
13	57	80	207	Broadcast seeded	Not seeded
14	3	18	101	Hydroseeded	Not seeded
15	17	95	201	Broadcast seeded	Not seeded
17	45	82	190	Hydroseeded	Not seeded
19	5	79	176	Hydroseeded	Not seeded
20	6	21	83	Hydroseeded	Not seeded
22	21	93	213	Hydroseeded	Not seeded
25	6	35	193	Hydroseeded	Not seeded
26	49	97	132	Hydroseeded	Not seeded

* Percent cover >100% achieved in select plots due to multiple vegetative layers present.

5.1.2 Species Inventory

An inventory of species included those that were associated with the seed mixes within the revegetation monitoring plots, and their frequency of occurrence in plots in 2025, is provided in Table D. Data from the two previous monitoring programs in 2023 and 2024 are included for comparison purposes.

Table D: Seeded Species Observed Within Revegetation Monitoring plots

Common Name	Scientific Name	Number of Plots Observed in 2023	Number of Plots Observed in 2024	Number of Plots Observed in 2025
Coated tufted hairgrass	*Deschampsia cespitosa*	-	-	23
Slender wheatgrass	*Elymus trachycaulus*	9	12	7
Perennial ryegrass	*Lolium perenne*	2	0	7
Alfalfa	*Medicago sativa*	10	14	4
Rocky Mountain fescue	*Festuca saximontana*	0	1	3
Western yarrow	*Achillea millefolium*	-	-	3
Annual ryegrass	*Lolium multiflorum*	-	-	2
June grass	*Koeleria macrantha*	-	-	2
Fowl bluegrass	*Poa palustris*	22	21	-
Fireweed	*Chamaenerion angustifolium*	1	0	1

Coated tufted hairgrass was observed in 23 of 26 plots in 2025. This could be due to changes in the water regime within the HB TMF. Coated tufted hairgrass prefers moister growing conditions and may not have been present in 2023 and 2024 due to hot dry temperatures. Fowl bluegrass was not observed within plots in 2025; however, was observed incidentally within wetter areas where this species is more suited to grow. Presence of fowl bluegrass in 2023 and 2024 is possibly due to misidentification at earlier stages of germination.

The dominant *Poa* sp. observed within most of the plots in 2025 was identified as *Poa pratensis* which is Kentucky bluegrass, a common grass species.

Slender wheatgrass (included in all three seed blends) was observed throughout the site. Rocky Mountain fescue was observed within three monitoring plots (two revegetation and one research plot); however, it is possible that this fescue could have been misidentified and may have been either sheep fescue or creeping red fescue, which are part of seed blends 1 and 2.

Of note, other native species present in seed blend 3 were observed for the first time in 2025, including June grass and western yarrow.

5.1.3 Vigour and Browse

Overall vigour of vegetation (seeded and volunteer species) within the revegetation monitoring plots were predominantly good (score of 4). Where the volunteer species red clover was observed, it was noted to have a fair vigour score of 3. In 2024, red clover was observed to be dead in some cases (vigour score of 1) which was likely associated with very dry conditions at the site the past few years.

No browse was observed within any of the plots even though deer, moose, and elk tracks and scat were observed throughout the HB TMF. However, signs of browse were generally observed during the wildlife monitoring programs within the more mature vegetated areas surrounding the Tailings Management Facility.

Vigour and browse results for the revegetation monitoring plots during the 2025 assessment can be found in appended Table 1.

5.2 Research Plot Results

As described previously, enhanced seeding occurred within eight select plots in 2023, which had been placed at eight of the existing revegetation monitoring plot locations (Figure 2).

To establish the research plots, additional treatment was added to the 10 x 10 m test areas as follows:

- Plots 10, 16, 18, and 24 – application of additional seed blend 1 and 2.
- Plots 7, 9, 21, and 23 – application of seed blend 3.

5.2.1 Percent Cover

Monitoring within the eight 10 x 10 m research plots included assessing for the increased germination of species included in seed blends 1 and 2, and the presence of additional native species present in seed blend 3 in the applicable plots.

Within the plots with additional seed blends 1 and 2, average percent cover was 162% and within plots with seed blend 3, the average percent cover was 166%. Data collected in 2025 can be found in Table E with comparative percent covers from 2023 and 2024.

Overall, average percent cover in all research plots increased 140% between 2024 and 2025 (69% to 166%). As such, these plots showed marked increase in plant growth and percent cover following two years of added seed growth.

Table E: Percent Cover Comparisons over Three Years

Plot Number	Percent Cover*			Seeding Type September 2022	Seeding Type June 2023
	June 2023**	August 2024	July 2025		
Research Plots with Additional Seed Blends 1 & 2					
10	16	63	302	Hydroseeded	Broadcast seeded with blend 1 & 2
16	7	65	129	Hydroseeded	Broadcast seeded with blend 1 & 2
18	7	73	200	Broadcast seeded	Broadcast seeded with blend 1 & 2
24	8	55	20	Hydroseeded	Broadcast seeded with blend 1 & 2
Research Plots with Additional Seed Blend 3					
7	14	95	269	Broadcast seeded	Broadcast seeded with blend 3
9	10	30	112	Hydroseeded	Broadcast seeded with blend 3
21	43	97	218	Hydroseeded	Broadcast seeded with blend 3
23	25	43	83	Hydroseeded	Broadcast seeded with blend 3

* Percent cover >100% achieved in select plots due to multiple vegetative layers present.
**2023 percent cover values assessed prior to addition of seed

5.2.2 Species Inventory

Species growing in the research plots from seed blends 1 and 2, and seed blend 3 were assessed for successful germination within the 10 x 10 m plots and were often noted to have similar species composition as the 1 x 1 m revegetation monitoring plots. Similar to the revegetation monitoring plots, coated tufted hairgrass was the dominant species (present in seed blends 1 and 2) which was observed in both types of research plots, although not present in seed blend 3, the plant species had successfully established following the 2022 hydroseeding. Of note, seed blend 3 research plots in 2025 were observed to have yarrow in three of four plots. Yarrow was not observed in any other plots, suggesting that this species had successfully germinated as a result of amendments applied using seed blend 3.

5.2.3 Vigor and Browse

Vigour ratings for vegetation within the research plots were predominantly good (score of 4); however, similar to the revegetation monitoring plots, red clover was observed to have a moderate score of 3. No browse was observed within any of the plots even though deer, moose, and elk tracks and scat were observed throughout the HB TMF. However, signs of browse were generally observed during the wildlife monitoring programs within the more mature vegetated areas surrounding the Tailings Management Facility. Vigour and browse results for the research plots can be found in appended Table 1.

5.3 Volunteer Plants

In addition to the seeded species observed, an additional 13 species were present within 17 revegetation monitoring plots and research plots (Table F). Of note, in 2025, wetland species such as fowl bluegrass, which is a species of bluegrass which grows in wetter soils, sedges/rushes, and birch shrubs were observed where naturalizing wetlands are developing at the south end of the HB TMF.

Other species in the pea family, including red clover, sweetvetch, and black medic were noted in several plots. These species are known to provide nitrogen fixation within the soil, which can provide added macronutrients to support further growth of seeded and recruitment species.

Table F: Volunteer Plants Observed Growing Within All Monitoring Plots

Common Name	Scientific Name	Plot Observed In	Benefit to HB TMF
Timothy grass	*Phleum pratensis*	5	Forage species
Kentucky bluegrass	*Poa pratensis*	1, 5, 8, 25-26, and 27	Forage species
Canada wild rye	*Elymus canadensis*	18	Forage species
Field horsetail	*Equisetum arvense*	10, 12, 13, 17, 19	Wetland facultative species – deep rooting system
Meadow horsetail	*Equisetum pratense*	3	Wetland facultative species – deep rooting system
Red clover	*Trifolium pratense*	4, 6, 7, 8, 9, 10, 11, 12, 13, 14, 20, 21, 22, 23, and 27	Nitrogen fixing, forage species
Sweetvetch	*Hedysarum boreale*	7	Nitrogen fixing, forage species
Black medic	*Medicago lupulina,*	21	Nitrogen fixing
Sedges	*Carex sp.*	1, 3	Wetland species, forage
Rush species	*Juncus sp.*	10, 15, 17, 22	Wetland species, forage
Moss species	*Unknown mosses*	3-6, 8, 9, 10, 11, 15, 16, 18, 20, 21, 22, 23, 25, 26, and 27	Ground cover, reduced soil loss
Birch seedlings	*Betula sp.*	21	Shrub layer, browse
Willow saplings	*Salix sp.*	22	Shrub layer, browse

5.4 Invasive Plants

Invasive plant species observed within the revegetation monitoring and research plots, and any incidental observations of invasive species across the HB TMF during the vegetation surveys were recorded (Table G).

Invasive species include those identified on the Central Kootenay Invasive Species Society (CKISS) Priority List (CKISS, 2025a) for the Lower Arrow / Pend D'Orielle Invasive Plant Management Area (IMPA) and/or Provincially or Regionally Noxious by BC's Weed Control Regulations (*Weed Control Act,* (Government of BC 2025).

Additional species were recorded, which can be considered invasive although not listed provincially or regionally. These species may be of concern if they compete with seeded species, and as such, were included in the table.

Table G: Invasive and Noxious Plant Species Observed at HB Tailings Management Facility in 2025

Common Name	Scientific Name	IPMA Invasive Plant Priority List Ranking[a]	Regionally or Provincially Noxious[b]	Potential Concern
Bird's-foot trefoil	*Lotus corniculatus*	-	-	Low growing, trailing up to 2m in length
Prickly lettuce	*Lactuca serriola*	-	-	Short-lived but tall growing plant with wind dispersed seeds
Cleavers	*Galium aparine*	-	regionally	Low growing, trailing shading out other species
Sweet white clover	*Melilotus alba*	-	-	Potential to compete with other plants
Oxeye daisy	*Leucanthemum vulgare*	4	regionally	Produces many seeds which remain in the seed bank for years – competes with native species
Field bindweed	*Convulvus arvensis*	4	-	Creeping-rooted plant binds to other species and shading
Perennial sow-thistle	*Sonchus arvensis*	4	provincially	Can impact growth of other species – tall shading
Reed canary grass	*Phalaris canariensis.*	-		Creates dense monocultures outcompeting other species especially in wetlands

[a]Lower Arrow / Pend D'Orielle Invasive Plant Management Area (IPMA) Rankings (CKISS, 2025b): 1-Prevent, 2-Eradicate, 3-Contain, 4-Strategic Control, 5-Insufficient Information.

[b]Schedule A of the BC Weed Control Regulation (Government of British Columbia. 2025).

5.5 Control Plot Results

The control plot is located within the HB TMF and was not seeded with any seed blends. Bare ground was observed to encompass 96% of the plot in 2024. In 2025, improvement to the control plot was observed with a decrease of bare ground to 35% with the remaining 71% comprising vegetation cover and litter. Two grasses were observed, including volunteer species timothy grass and fowl bluegrass.

In addition, nitrogen fixing species bird's-foot trefoil and alfalfa were observed. The plot was very dry, compacted, and stoney, which may be contributing to the slow natural re-vegetation. However, similar stoniness and compaction was observed in other seeded plots that had over 100% vegetation cover.

5.6 Additional Observations

Additional observations made in 2025 included assessing the HB TMF for signs of erosion, scour, and sediment transport as these processes may indicate loss of tailings cover material thickness and potential exposure of the tailings material. Wildlife incidental observations were also conducted to support monitoring for wildlife use of the area as habitat.

The following sections describe results of additional observations made at the site during the 2025 RRP field assessment. Associated photographs can be found in Appendix B.

5.6.1 Surface Erosion

Throughout the site and within each plot, visual inspections were performed opportunistically for signs of surface erosion, scour, sediment transport, and/or exposed tailings. No signs of erosion or exposed tailings were observed during the 2025 revegetation monitoring program.

5.6.2 Incidental Wildlife

Wildlife data collected are presented annually in separate wildlife memoranda (SLR 2024b; SLR 2025). Initial wildlife monitoring results indicated that wildlife is returning post-closure, as identified through scat, track, and sign. The annual wildlife study and incidental observations made during various site visits and survey efforts, including the revegetation monitoring program, aid in supporting the determination that the site is developing into suitable wildlife habitat.

The 2025 post-construction wildlife survey recorded a total of 26 species, contributing to a cumulative total of 46 unique species over the three years of wildlife monitoring.

Incidental observations in 2025 included wildlife tracks and scat of deer (unidentified sp.), Rocky Mountain elk (*Cervus elaphus*), moose (*Alces alces*), and bear (unidentified sp.) Incidental wildlife observations included striped skunk (*Mephitis mephitis*), migratory songbirds and waterfowl, a potential nesting pair of killdeer (*Charadrius vociferus*), turkey vultures (*Cathartes aura*), common raven (*Corvus corax*), and western toad tadpoles (*Anaxyrus boreas*).

Overall, these results suggest a positive trajectory in habitat restoration. The cumulative increase in species richness, along with repeated detections of key species, supports the effectiveness of post-construction mitigation and habitat enhancement efforts.



5.6.3 Traditionally Important Plants

Following three years of monitoring, five of the six species within seed blend 3 have been observed within the plots. Only tall Oregon grape has not been observed in the research plots. Tall Oregon grape has variable germination and may take additional time to establish within the research plots.

Two volunteer plants that have traditional importance were also observed within the revegetation and research plots, red clover and willow saplings. Birch saplings were also observed within the HB TMF outside of the established monitoring plots. These species were also identified to have traditional importance to the Interior Salish First Nations.

5.6.4 Other Observations

Wetland species (sedges/rushes) were observed in some plots in 2025, as well as throughout the HB TMF. These species were not seeded and likely have started to grow voluntarily within areas where water is accumulating. Persistent standing water in select areas along the southern portion of the HB TMF through the drier parts of the year over the past few years has allowed the development of naturalized wetlands (Appendix B).

These areas are providing habitat for species wetland-associated species. Areas of unvegetated soil left behind as seasonally wet areas (i.e., following snowmelt and seasonal rainfall) dry out were also observed. Wildlife track and scat were observed in these unvegetated areas (Appendix B).

In addition to naturalized wetland areas, ditches developed to manage surface water have also provided suitable habitat for wetland species. In a ditch at the south end of the HB TMF, western toad tadpoles were observed (Appendix B).

6.0 Discussion

To meet passive closure under the *Mines Act* Permit M-218, a successful, self-sufficient vegetative cover must be established, which achieves an 80% survival rate of germinated seeds across the site. In 2023, percent cover ranged from 1% to 174% (average of 29%) across the 26 revegetation monitoring plots following initial seeding in 2022.

In 2024, percent cover had improved with values ranging from 18% to 102% (average of 69%). In 2025, average percent cover had increased to 164% for revegetation monitoring plots and 166% for research plots, which is an overall increase of 140% for all plots between 2023 and 2025. All revegetation monitoring and research plots, with the exception of research plot 24 exceeded the 80% average vegetation cover target across the TMF, and as such, the site can be considered adequately vegetated.

In addition to seeded species, volunteer species are becoming more prevalent, including nitrogen fixers (pea family), several native and agronomic grass species, and two shrub species (willow and birch). Invasive species were also observed with highest concentrations in the landform area where imported soils were placed during closure works; however, only one species observed is considered provincially noxious (perennial sow thistle). The other two invasive species observed are listed as regionally invasive (cleavers and oxeye daisy).

As perennial sow thistle is listed under Schedule A of the *Weed Control Act*, this species should be considered in the annual treatment program, which is conducted by the CKISS in the surrounding landfill area.

Observations of wildlife use have also increased over the past three years through signs of scat and track, and remote camera data throughout the HB TMF. Although no heavy browse was observed at any of the plots, it is likely that early availability of vegetation following snowmelt provides forage for ungulates and bears. This is supported by the number of ungulate tracks observed across the Tailings Management Facility during the vegetation monitoring and during wildlife inspections through camera data collection.

Observations of tracks were predominantly observed within seasonal water holding ponds that were dry during the vegetation monitoring study, which suggests that when standing water is present earlier in the year, these water sources are important to wildlife when other water sources may still be frozen. The development of naturalized wetlands may also provide water sources throughout the summer, as well as breeding ponds for amphibians.

Observations of traditionally important plants to the Interior Salish First Nations were also observed. In total, six different species were observed within the HB TMF. Five within the research plots (four from seed blend 3 and one volunteer) and one additional volunteer species within the HB TMF.

7.0 Recommendations

The purpose of the RRP study was to determine if the targeted percentage vegetation cover required to meet passive closure had occurred and to determine the most suitable and cost-efficient cover for the HB TMF, and its potential applicability to other similar reclamation projects within the RDCK. In general, species within in seed blends 1 and 2 were selected for their suitability to the climate and area.

Seed blend 3 species were also selected with the intent to create habitat for local species such as herbivores and nesting birds and to facilitate growth of traditionally important plants. Monitoring over the past three years has determined that both goals have been achieved through the observations of track and scat and the growth of five of the six (not tall Oregon grape) selected native species in seed blend 3.

During the first two years, species within the seed mixes were only beginning to germinate, and as such, establishment of many species had not yet occurred. However, in 2025, after three growing years, species diversity and coverage within the HB TMF increased. Successful revegetation was also evidenced by the presence of litter as this represents successional, annual growth. Overall, the 2025 results indicated that:

- The monitoring plots had on average at least two of the species present within seed blends 1 and 2: slender wheatgrass and coated tufted hairgrass. Other species identified within the revegetation monitoring plots considered as volunteer species, were more dominant having at least four different species within the plots. These species are not considered invasive and are typically associated with areas that are in the process of reclamation. The majority of the volunteer species were those from the pea family such as red clover. Pea species are nitrogen-fixers and can hold soil in place and provide important macronutrients.
- Research plots that were re-seeded in 2023 with seed blends 1 and 2 (four plots) were not found to show any improvement in cover compared to the single hydroseeding. Between 1 and 2 species from the seed mix were observed within these plots, typically slender wheatgrass and coated tufted hairgrass. In addition, less volunteer species were observed within these research plots than the revegetation monitoring plots.

- Research plots that were re-seeded with the experimental seed blend 3 (four plots) had more success with seeded species germinating that one cover of hydroseeded blends 1 and 2. In addition, more volunteer species germinated within the seed blend 3 research plots than the seed blends 1 and 2 research plots. And as previously noted, five of the six species selected that may provide traditionally important plants were successful within the seed blend 3 research plots.

Overall, in all plots over three years, only seven of 15 of all the species present in all three seed blends were observed within the plots. It is therefore understood that not all of these species may be suitable for reclamation within the RDCK.

SLR recommends that the most cost-effective option for revegetation of similar projects within the RDCK would be to apply one round of a more suitable seed blend following capping consisting of select species that had the highest success rate at the HB TMF rather than incurring costs associated with application of additional rounds of seeding with standard blends.

Application of the proposed seed blend presented below in Table H is more likely to result in establishment of a more site specific and diverse vegetative cover and supports growth of four traditionally important plants.

Table H: Proposed Seed Blend for the HB Tailings Management Facility

Common Name	Scientific Name
Slender Wheatgrass	Elymus trachycaulus
Perennial Ryegrass	*Lolium perenne*
Annual Ryegrass	*Lolium multiflorum*
Alfalfa	*Medicago sativa*
Coated Tufted Hairgrass	*Deschampsia cespitosa*
June Grass	*Koeleria macrantha*
Rocky Mountain Fescue	*Festuca saximontana*
Fireweed	*Chamerion angustifolium ssp. Angustifolium*
Western Yarrow	*Achillea millefolium*

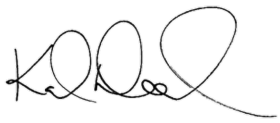
As there is potential for additional species to establish at the HB TMF as was observed in 2025, it is recommended that two additional revegetation monitoring programs occur at Year 5 and Year 10 post seeding (2027 and 2032). Annual monitoring of wildlife will continue at the TMF, which will also provide information on the use of vegetated areas for grazing and browsing, and future nesting once volunteer shrub species mature; all of which may be indicative of wildlife habitat establishment.

8.0 Closure

We trust that this summary provides suitable documentation for your records. If you have any questions, please contact the undersigned at any time.

Regards,

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Tables

HB Tailings Management Facility Reclamation Research Program 2025 Summary

Salmo, BC

Regional District of Central Kootenay

SLR Project No.: 234.030029.00003

December 19, 2025

Table 1: Vegetative Species Plot Presence and Percent Cover within HB TMF Sample Plots

Project: 204.030029.00003	Plot # 1			
Surveyor: KN, JH, SV	Plot Changed from mapped location?: N/A			
Date: 24-Jun-25	Plot Type (monitoring, Control, Seed Blend #): monitoring			
UTM: 1U 481662 5442811	Photos Taken? Y			
Species:	% Cover	Vigour (1-4)	Level of Browse (1-3)	Average Plant Height (cm)
Lotus corniculatus	25	4	3	40
Lolium multiflorum	8	4	3	56
Elymus trachycaulus	2	4	3	56
Poa pratensis	30	4	3	64
Phleum pratense	<1	4	3	70
Deschampsia cespitosa	40	4	3	72
Koeleroa macrantha	1	4	3	23
Festuca saximontana	1	4	3	23
Trifolium pratense	8	4	3	30
Lactuca serriola	<1	4	3	21
Carex sp.	10	4	3	40
Unknown forb A	<1	4	3	12
litter	100	N/A	N/A	N/A
bareground	5	N/A	N/A	N/A
Signs of surface erosion or exposed tailings? (or other comments)				
Good cover - mix grasses (seeded) with non-seeded. Pea family nitrogen fixers present.				

Project: 204.030029.00003	Plot # 2			
Surveyor: KN, JH, SV	Plot Changed from mapped location?: N/A			
Date: 24-Jun-25	Plot Type (monitoring, Control, Seed Blend #): monitoring			
UTM: 1U 481762 5442811	Photos Taken? Y			
Species:	% Cover	Vigour (1-4)	Level of Browse (1-3)	Average Plant Height (cm)
Galium aparine	100	4	3	70

Signs of surface erosion or exposed tailings? (or other comments)
Dense cover on what looks like a topsoil pile that was left. Other invasive species onbserved in area, outside of plot include; *Brassica rapa, Amaranthus retroflexus, Elymus trachycaulus.*

Project: 204.030029.00003	Plot # 3
Surveyor: KN, JH, SV	Plot Changed from mapped location?: N/A
Date: 24-Jun-25	Plot Type (monitoring, Control, Seed Blend #): monitoring
UTM: 1U 481862 5442811	Photos Taken? Y

Species:	% Cover	Vigour (1-4)	Level of Browse (1-3)	Average Plant Height (cm)
Lotus corniculatus	70	4	3	55
Equisetum pratense	25	4	3	28
Melilotus alba	20	4	3	68
Elymus trachycaulus	2	4	3	83
Carex sp.	1	4	3	3
Poa pratensis	40	4	3	52
Unknown moss A	50	4	3	N/A
bareground	10	4	3	N/A
litter	<1	N/A	N/A	N/A

Signs of surface erosion or exposed tailings? (or other comments)
Good cover but dominated by pea family species. Slightly wetter plot. Some grasses established on own. Start of development of mosses. Minor insect browse observed.

Project: 204.030029.00003	Plot # 4			
Surveyor: KN, JH, SV	Plot Changed from mapped location?: N/A			
Date: 24-Jun-25	Plot Type (monitoring, Control, Seed Blend #): monitoring			
UTM: 1U 481862 5442711	Photos Taken? Y			
Species:	% Cover	Vigour (1-4)	Level of Browse (1-3)	Average Plant Height (cm)
Deschampsia cespitosa	80	3	3	39
Lotus corniculatus	<1	3	3	2
Trifolium pratense	15	1	3	24
unknown moss A	25	4	3	N/A
bareground	30	N/A	N/A	N/A
litter	2	N/A	N/A	N/A

Signs of surface erosion or exposed tailings? (or other comments)
Soil is extremely dry and compacted. Earlier growth of plants - stems remaining. Likely dried out mid-growth. Could have been sitting in standing water at some point based on species. Early establishment of mosses.

Project: 204.030029.00003	Plot # 5
Surveyor: KN, JH, SV	Plot Changed from mapped location?: N/A
Date: 24-Jun-25	Plot Type (monitoring, Control, Seed Blend #): monitoring
UTM: 1U 481862 5442711	Photos Taken? Y

Species:	% Cover	Vigour (1-4)	Level of Browse (1-3)	Average Plant Height (cm)
Lotus corniculatus	10	3	2	35
Koeleria macrantha	20	4	3	10
Deschampsia cespitosa	20	4	3	38
Lolium perenne	10	4	3	40
Elymus trachycaulus	2	4	3	303
Leucanthemim vulgare	2	4	3	24
Phleum pratense	1	4	3	22
Poa pratensis	10	4	3	29
unknown moss A	10	4	3	N/A
bareground	80	N/A	N/A	N/A
litter	2	N/A	N/A	N/A

Signs of surface erosion or exposed tailings? (or other comments)
High level of stoniness and compacted/dry soil. Plant vigour is low.

Project: 204.030029.00003	Plot # 6
Surveyor: KN, JH, SV	Plot Changed from mapped location?: N/A
Date: 24-Jun-25	Plot Type (monitoring, Control, Seed Blend #): monitoring
UTM: 1U 481662 5442711	Photos Taken? Y

Species:	% Cover	Vigour (1-4)	Level of Browse (1-3)	Average Plant Height (cm)
Lotus corniculatus	10	4	3	24
Poa palustris	8	4	3	34
Melilotis alba	20	4	2	60
Trifolium pratense	2	4	3	38
Elymus trachycaulus	10	4	3	76
Lactuca serriola	<1	4	3	19
Unknown moss A	20	4	3	N/A
bareground	0	N/A	N/A	N/A
litter	80	4	3	N/A

Signs of surface erosion or exposed tailings? (or other comments)
Good vigour of grasses. Some invasive species present including pea family. Minimal bare ground.

Project: 204.030029.00003	Plot # 7
Surveyor: KN, JH, SV	Plot Changed from mapped location?: N/A
Date: 25-Jun-25	Plot Type (monitoring, Control, Seed Blend #): Blend 3
UTM: 1U 481664 5442610	Photos Taken? Y

Species:	% Cover	Vigour (1-4)	Level of Browse (1-3)	Average Plant Height (cm)
Lotus corniculatus	80	4	3	40
Hedysarum boreale	20	4	3	40
Elymus trachycaulus	10	4	3	95
Deschampsia cespitosa	10	4	3	80
Polygonum convolvulus	2	4	3	23
Poa pratensis	40	4	3	20
Trifolium pratense	5	4	3	50
Festuca saximontana	2	4	3	22
bareground	0	N/A	N/A	N/A
litter	100	N/A	N/A	N/A

Signs of surface erosion or exposed tailings? (or other comments)
Good vigour of grasses. Some invasive pea family plants including alsike clover (Trifolium pratense).
General 10x10 plot:
Elymus trachycaulus (seed mix), Lotis corniculatus, Hedysarum boreale , Trifolium pratense, Lolium prenne, Deschampsia cepsitosa, Medicago sativa, Lactuca serriola, Achillea millefolium (seed mix), Pleum pratense, Melilotus officinalis, Phalaris canariensis.

Project: 204.030029.00003	Plot # 8			
Surveyor: KN, JH, SV	Plot Changed from mapped location?: N/A			
Date: 24-Jun-25	Plot Type (monitoring, Control, Seed Blend #): monitoring			
UTM: 1U 481762 5442611	Photos Taken? Y			
Species:	% Cover	Vigour (1-4)	Level of Browse (1-3)	Average Plant Height (cm)
Lotus corniculatus	80	4	3	40
Deschampsia cespitosa	20	4	3	50
Trifolium pratense	5	4	3	35
Poa pratensis	20	4	3	33
Phleum pratense	10	4	3	40
unknown moss A	60	N/A	N/A	N/A
bareground	40	N/A	N/A	N/A
litter	20	N/A	N/A	N/A

Signs of surface erosion or exposed tailings? (or other comments)
Fairly good vigour of grasses; however, plot noted to be quite dry and compacted soil. Mosses

Project: 204.030029.00003	Plot # 9			
Surveyor: KN, JH, SV	Plot Changed from mapped location?: N/A			
Date: 25-Jun-25	Plot Type (monitoring, Control, Seed Blend #): Blend 3			
UTM: 1U 481870 5442516	Photos Taken? Y			
Species:	% Cover	Vigour (1-4)	Level of Browse (1-3)	Average Plant Height (cm)
Deschampsia cespitosa	20	4	3	48
Trifolium pratense	20	4	3	8
Lotus corniculatus	<1	4	3	11
Poa pratensis	10	4	3	42
Festuca sp.	1	4	3	7
unknown moss A	40	N/A	N/A	N/A
bareground	40	N/A	N/A	N/A
litter	20	N/A	N/A	N/A

Signs of surface erosion or exposed tailings? (or other comments)
Stony, dry, compacted soil. Plants noted to be smaller and less vigorous.
General plot 10x10:
Deschampsia cespitosa, Lotus corniculatus, Melilotus albus, Poa pratensis, Achillea millefolium (seed mix), Festuca sp. , bareground, and ungulate tracks.

Project: 204.030029.00003	Plot # 10
Surveyor: KN, JH, SV	Plot Changed from mapped location?: N/A
Date: 25-Jun-25	Plot Type (monitoring, Control, Seed Blend #): Blend 1 + 2
UTM: 1U 481862 5442510	Photos Taken? Y

Species:	% Cover	Vigour (1-4)	Level of Browse (1-3)	Average Plant Height (cm)
Deschampsia cespitosa	75	4	3	73
Poa pratensis	10	4	3	53
Trifolium pratense	15	4	3	17
Medicago sativa	2	4	3	20
unknown moss A	100	N/A	N/A	N/A
bareground	0	N/A	N/A	N/A
litter	100	N/A	N/A	N/A

Signs of surface erosion or exposed tailings? (or other comments)
Wetter plot with mosses observed under dense cover and litter.
General plot 10x10:
Juncus sp., Equisetum arvense, Deschampsia cespitosa, Poa sp. Use by wildlife (tracks).

Project: 204.030029.00003	Plot # 11
Surveyor: KN, JH, SV	Plot Changed from mapped location?: N/A
Date: 24-Jun-25	Plot Type (monitoring, Control, Seed Blend #): monitoring
UTM: 1U 481762 5442511	Photos Taken? Y

Species:	% Cover	Vigour (1-4)	Level of Browse (1-3)	Average Plant Height (cm)
Trifolium pratense	3	3	3	15
Lotus corniculatus	2	4	3	5
Lolium perenne	20	4	3	50
Elymus trachycaulus	8	4	3	44
Poa pratensis	<1	4	3	4
Deschampsia cespitosa	2	4	3	57
unknown moss A	90	N/A	N/A	N/A
bareground	3	N/A	N/A	N/A
litter	5	N/A	N/A	N/A

Signs of surface erosion or exposed tailings? (or other comments)
Bare, compact, and dry plot. Tracks (ungulate) observed throughout.

Project: 204.030029.00003	Plot # 12			
Surveyor: KN, JH, SV	Plot Changed from mapped location?: N/A			
Date: 24-Jun-25	Plot Type (monitoring, Control, Seed Blend #): monitoring			
UTM: 1U 481662 5442510	Photos Taken? Y			
Species:	% Cover	Vigour (1-4)	Level of Browse (1-3)	Average Plant Height (cm)
Equisetum arvense	90	4	3	60
Trifolium pratenses	<1	4	3	10
Deschampsia cespitosa	20	4	3	55
Poa pratensis	5	4	3	45
bareground	0	N/A	N/A	N/A
litter	100	N/A	N/A	N/A

Signs of surface erosion or exposed tailings? (or other comments)
Wetter plot. Dominated by horsetails (*Equisetum arvense*). Use by wildlife (tracks).

Project: 204.030029.00003	Plot # 13
Surveyor: KN, JH, SV	Plot Changed from mapped location?: N/A
Date: 25-Jun-25	Plot Type (monitoring, Control, Seed Blend #): monitoring
UTM: 1U 481762 5442411	Photos Taken? Y

Species:	% Cover	Vigour (1-4)	Level of Browse (1-3)	Average Plant Height (cm)
Equisetum arvense	80	4	3	42
Melilotus albus	4	4	3	80
Trifolium pratense	20	4	3	45
Lolium perenne	<1	4	3	72
Deschampsia cespitosa	<1	4	3	57
Poa pratensis	<1	4	3	40
bareground	0	N/A	N/A	N/A
litter	100	N/A	N/A	N/A

Signs of surface erosion or exposed tailings? (or other comments)
Dense vegetation predominatly horsetail (Equisetum arvense) and pea family (clovers). Wetter plot.

Project: 204.030029.00003	Plot # 14			
Surveyor: KN, JH, SV	Plot Changed from mapped location?: N/A			
Date: 25-Jun-25	Plot Type (monitoring, Control, Seed Blend #): monitoring			
UTM: 1U 481862 5442410	Photos Taken? Y			
Species:	% Cover	Vigour (1-4)	Level of Browse (1-3)	Average Plant Height (cm)
Lotus corniculatus	40	4	3	37
Elymus trachycaulus	5	4	3	34
Poa pratensis	10	4	3	40
Deschampsia cespitosa	15	4	3	41
Festuca saximontana	10	4	3	40
Trifolium pratense	10	4	3	32
Lolium perenne	1	4	3	35
litter	10	N/A	N/A	N/A
bareground	90	N/A	N/A	N/A

Signs of surface erosion or exposed tailings? (or other comments)
Dry, stonier plot. Smalller, less vigorous vegetation cover.

Project: 204.030029.00003	Plot # 15
Surveyor: KN, JH, SV	Plot Changed from mapped location?: N/A
Date: 25-Jun-25	Plot Type (monitoring, Control, Seed Blend #): monitoring
UTM: 1U 481962 5442411	Photos Taken? Y

Species:	% Cover	Vigour (1-4)	Level of Browse (1-3)	Average Plant Height (cm)
Esquisetum arvense	90	4	3	43
Lotus corniculatus	15	4	3	105
Deschampsia cespitosa	5	4	3	85
Sonchus arvensis	1	4	3	28
Lactuca serriola	<1	4	3	17
Poa pratensis	2	4	3	50
Juncus sp.	3	4	3	28
Epilobium sp.	1	4	3	42
unknown plant B	3	4	3	26
unknown moss A	80	N/A	N/A	N/A
bareground	20	N/A	N/A	N/A
litter	0			

Signs of surface erosion or exposed tailings? (or other comments)
Wetter plot with invasive species present (*lactuca serriola*) and some minor erosion. Use by wildllife (ungulate track).

Project: 204.030029.00003	Plot # 16
Surveyor: KN, JH, SV	Plot Changed from mapped location?: N/A
Date: 25-Jun-25	Plot Type (monitoring, Control, Seed Blend #): Blend 1 + 2
UTM: 1U 481973 5442313	Photos Taken? Y

Species:	% Cover	Vigour (1-4)	Level of Browse (1-3)	Average Plant Height (cm)
Lotus corniculatus	7	4	3	40
Lolium prenne	40	4	3	42
Deschampsia cespitosa	2	4	3	40
Poa pratensis	40	4	3	41
unknown moss A	30	N/A	N/A	N/A
bareground	60	N/A	N/A	N/A
litter	10	N/A	N/A	N/A

Signs of surface erosion or exposed tailings? (or other comments)
Minor observations of exposed tailings. Plot was dry, compact. Observations of areas where standing water was retained for longer periods of time. Use by wildlife (tracks and scat). Plot compact with more stoniness.
General plot 10x10:
Lotus corniculatus, Deschampsia cespitosa, Lolium perenne, Medicago sativa.

Project: 204.030029.00003	Plot # 17
Surveyor: KN, JH, SV	Plot Changed from mapped location?: minor 2m stepout to represent area
Date: 25-Jun-25	Plot Type (monitoring, Control, Seed Blend #): monitoring
UTM: 1U 481861 5442308	Photos Taken? Y

Species:	% Cover	Vigour (1-4)	Level of Browse (1-3)	Average Plant Height (cm)
Equisetum arvense	50	4	3	25
Deschampsia cespitosa	50	4	3	49
Juncus sp.	10	4	3	20
bareground	20	N/A	N/A	N/A
litter	80	N/A	N/A	N/A

Signs of surface erosion or exposed tailings? (or other comments)
Potential minor exposed tailings. Plot was dry and compact. Some use by wildlife (tracks).

Project: 204.030029.00003	Plot # 18
Surveyor: KN, JH, SV	Plot Changed from mapped location?: N/A
Date: 25-Jun-25	Plot Type (monitoring, Control, Seed Blend #): Blend 1 + 2
UTM: 1U 481761 5442311	Photos Taken? Y

Species:	% Cover	Vigour (1-4)	Level of Browse (1-3)	Average Plant Height (cm)
Deschampsia cespitosa	40	4	3	71
Poa pratensis	20	4	3	43
Lotus corniculatus	20	4	3	38
Lolium multiflorium	10	4	3	46
unknown moss A	50			
litter	60			
bareground	5			

Signs of surface erosion or exposed tailings? (or other comments)
Fairly good cover but plot is dry and soil compacted.
General plot 10x10:
Similar to quadrat, E*lymus canadensis*. Wildlife use (elk scat).

Project: 204.030029.00003	Plot # 19
Surveyor: KN, JH, SV	Plot Changed from mapped location?: N/A
Date: 25-Jun-25	Plot Type (monitoring, Control, Seed Blend #): monitoring
UTM: 1U 481762 5442211	Photos Taken? Y

Species:	% Cover	Vigour (1-4)	Level of Browse (1-3)	Average Plant Height (cm)
Deschampsia cespitosa	70	4	3	73
Poa pratensis	10	4	3	35
Equisetum arvense	5	4	3	28
Lotus corniculatus	5	4	3	36
Lolium perenne	<1	4	3	25
litter	85	N/A	N/A	N/A
bareground	15	N/A	N/A	N/A

Signs of surface erosion or exposed tailings? (or other comments)
Dry plot with some soil compaction. Good vigour of grasses and leaf litter.

Project: 204.030029.00003	Plot # 20
Surveyor: KN, JH, SV	Plot Changed from mapped location?: N/A
Date: 25-Jun-25	Plot Type (monitoring, Control, Seed Blend #): monitoring
UTM: 1U 481856 5442211	Photos Taken? Y

Species:	% Cover	Vigour (1-4)	Level of Browse (1-3)	Average Plant Height (cm)
Deschampsia cespitosa	30	4	3	55
Trifolium pratense	25	4	3	15
Poa pratensis	10	4	3	31
Lolium pratense	3	4	3	33
unknown moss A	5	N/A	N/A	N/A
bareground	75	N/A	N/A	N/A
litter	10	N/A	N/A	N/A

Signs of surface erosion or exposed tailings? (or other comments)
Very dry plot with compacted bare ground exposed. Wildlife tracks observed.

Project: 204.030029.00003	Plot # 21
Surveyor: KN, JH, SV	Plot Changed from mapped location?: N/A
Date: 25-Jun-25	Plot Type (monitoring, Control, Seed Blend #): Blend 3
UTM: 1U 481962 5442211	Photos Taken? Y

Species:	% Cover	Vigour (1-4)	Level of Browse (1-3)	Average Plant Height (cm)
Deschampsia cespitosa	80	4	3	80
Lotus corniculatus	20	4	3	41
Medicago sativa	1	4	3	44
Trifolium pratense	15	4	3	41
Achillea millefolium	2	4	3	19
bareground	0	N/A	N/A	N/A
litter	100	N/A	N/A	N/A

Signs of surface erosion or exposed tailings? (or other comments)
Good cover of grass species. Some compaction of soil.
General plot 10x10:
M*edicago sativa, Poa sp., Deschampsia cespitosa, Lotus corniculatus,* moss*, Medicago lupulina,* birch seedlings.

Project: 204.030029.00003	Plot # 22			
Surveyor: KN, JH, SV	Plot Changed from mapped location?: N/A			
Date: 25-Jun-25	Plot Type (monitoring, Control, Seed Blend #): monitoring			
UTM: 1U 481963 5442206	Photos Taken? Y			
Species:	% Cover	Vigour (1-4)	Level of Browse (1-3)	Average Plant Height (cm)
Deschampsia cespitosa	25	4	3	77
Medicago sativa	15	4	3	43
Salix sp.	1	4	3	20
Juncus sp.	2	4	3	38
unknown moss A	90	N/A	N/A	N/A
bare ground	0	N/A	N/A	N/A
litter	80	N/A	N/A	N/A
Signs of surface erosion or exposed tailings? (or other comments) Good cover of grasses. Slightly wetter plot.				

Project: 204.030029.00003	Plot # 23
Surveyor: KN, JH, SV	Plot Changed from mapped location?: N/A
Date: 25-Jun-25	Plot Type (monitoring, Control, Seed Blend #): Blend 3
UTM: 1U 481860 5442106	Photos Taken? Y

Species:	% Cover	Vigour (1-4)	Level of Browse (1-3)	Average Plant Height (cm)
Deschampsia cespitosa	10	4	3	35
Poa pratensis	2	4	3	30
Trifolium pratense	10	3	3	9
Lotus corniculatus	<1	4	3	7
unknown moss A	40	N/A	N/A	N/A
bareground	80	N/A	N/A	N/A
litter	20	N/A	N/A	N/A

Signs of surface erosion or exposed tailings? (or other comments)
Dry, compated plot with many tracks and possible killdeer nest nearby. Likely has standing water for longer periods of time.
General plot 10x10:
Bio cust forming. M*edicago sativa, Lotus cornuculatus, and Trifolium pratense* only plants present.

Project: 204.030029.00003	Plot # 24			
Surveyor: KN, JH, SV	Plot Changed from mapped location?: N/A			
Date: 25-Jun-25	Plot Type (monitoring, Control, Seed Blend #): Blend 1+2			
UTM: 1U 481762 5442110	Photos Taken? Y			
Species:	% Cover	Vigour (1-4)	Level of Browse (1-3)	Average Plant Height (cm)
Deschampsia cespitosa	20	4	3	49
bareground	100	N/A	N/A	N/A

Signs of surface erosion or exposed tailings? (or other comments)
Dry, compated plot with many tracks and possible killdeer nest nearby.
General plot 10x10:
Seasonal standing water reducing plant growth. Soil is compacted. M*edicago sativa and Poa sp.* only plants present*.* Bio crust forming.

Project: 204.030029.00003	Plot # 25
Surveyor: KN, JH, SV	Plot Changed from mapped location?: N/A
Date: 25-Jun-25	Plot Type (monitoring, Control, Seed Blend #): monitoring
UTM: 1U 481665 5442117	Photos Taken? Y

Species:	% Cover	Vigour (1-4)	Level of Browse (1-3)	Average Plant Height (cm)
Medicago sativa	80	4	3	50
Poa prantensis	20	4	3	40
Phleum pratense	1	4	3	50
Deschampsia cespitosa	2	4	3	39
unknown moss A	50	N/A	N/A	N/A
bareground	40	N/A	N/A	N/A
litter	40	N/A	N/A	N/A

Signs of surface erosion or exposed tailings? (or other comments)
High stoniness. Ground is dry and compacted. Plants limited.

Project: 204.030029.00003	Plot # 26
Surveyor: KN, JH, SV	Plot Changed from mapped location?: N/A
Date: 25-Jun-25	Plot Type (monitoring, Control, Seed Blend #): monitoring
UTM: 1U 481862 5442011	Photos Taken? Y

Species:	% Cover	Vigour (1-4)	Level of Browse (1-3)	Average Plant Height (cm)
Lotus corniculatus	30	4	3	33
Deschampsia cespitosa	20	4	3	37
Phleum pratense	<1	4	3	50
Poa pratensis	1	4	3	36
unknown moss A	60	N/A	N/A	N/A
bareground	0	N/A	N/A	N/A
litter	20	N/A	N/A	N/A

Signs of surface erosion or exposed tailings? (or other comments)
High stoniness and some bare ground. Mosses establishing.

Project: 204.030029.00003	Plot # 27
Surveyor: KN, JH, SV	Plot Changed from mapped location?: N/A
Date: 25-Jun-25	Plot Type (monitoring, Control, Seed Blend #): control
UTM: 1U 481931 5442237	Photos Taken? Y

Species:	% Cover	Vigour (1-4)	Level of Browse (1-3)	Average Plant Height (cm)
Medicago sativa	20	4	3	42
Lotus corniculatus	20	4	3	22
Poa pratensis	5	4	3	26
Phleum pratense	1	4	3	22
unknown moss A	60	N/A	N/A	N/A
bareground	35	N/A	N/A	N/A
litter	5	N/A	N/A	N/A

Signs of surface erosion or exposed tailings? (or other comments)
Dry, compated plot with many ungulate tracks.

General plot 10x10:
High stoniness with deep tracks in ground by heavy machinery. Vegetation growing in grooves. Including *Deschampsia cespitosa* and *Poa sp.* , *Medicago sativ* a, and *Trifolium* sp.

Figures

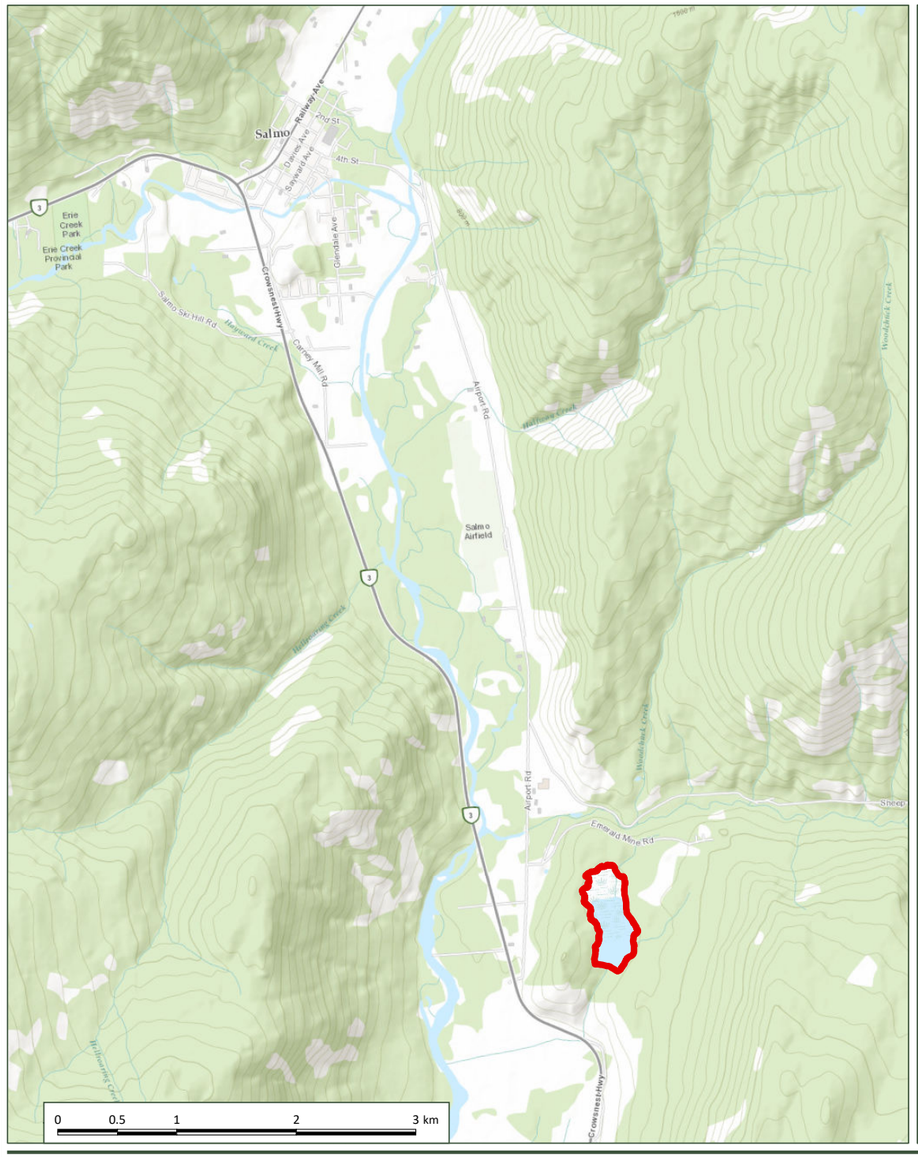
HB Tailings Management Facility Reclamation Research Program 2025 Summary

Salmo, BC

Regional District of Central Kootenay

SLR Project No.: 234.030029.00003

December 19, 2025







NOTES:

1. SOURCES: ESRI, HERE, GARMIN, INTERMAP, INCREMENT P CORP., GEBCO, USGS, FAO, NPS, NRCAN, GEOBASE, IGN, KADASTER NL, ORDNANCE SURVEY, ESRI JAPAN, METI, ESRI CHINA (HONG KONG), (C) OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY SOURCE: ESRI, MAXAR, EARTHSTAR GEOGRAPHICS, AND THE GIS USER COMMUNITY

2. SATELLITE IMAGERY - 20 SEPTEMBER 2022, MAXAR

LEGEND:

SITE BOUNDARY - HB TAILINGS MANAGEMENT FACILITY

PARCEL BOUNDARY

0 50 100 200 300 m

SCALE 1:10,000
PAGE SIZE 11 x 17
NAD 1983 UTM Zone 10N

THIS MAP IS FOR CONCEPTUAL PURPOSES ONLY AND SHOULD NOT BE USED FOR NAVIGATION

REGIONAL DISTRICT OF CENTRAL KOOTENAY
HB MINE TAILINGS MANAGEMENT FACILITY
SALMO, BC

RECLAMATION RESEARCH PROGRAM
2025 SUMMARY

SITE LOCATION

SLR

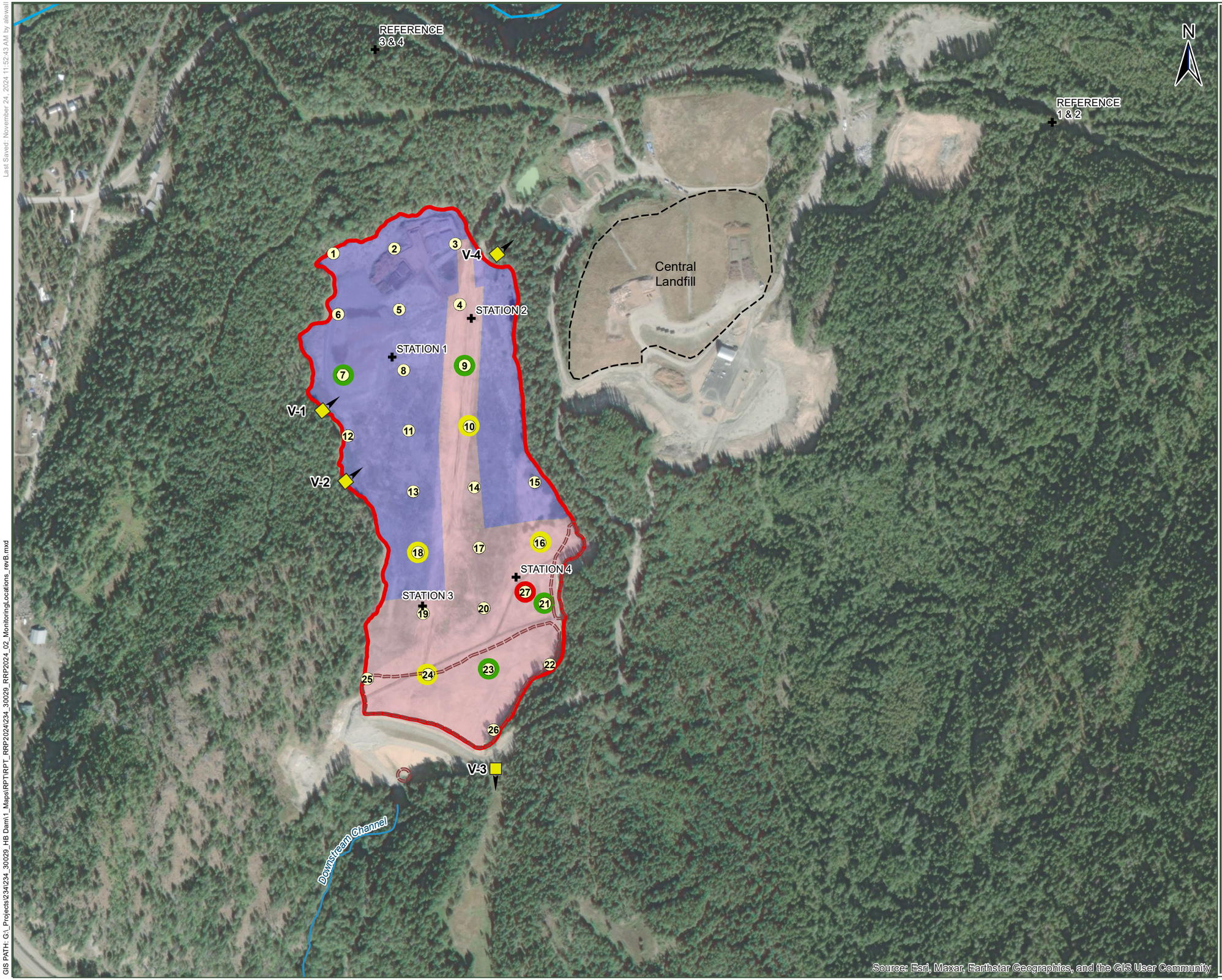
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1

DATE: November 24, 2024

PROJECT NO: 234.30029.00002

Last Saved: November 24, 2024 11:50:02 AM by alewall

GIS PATH: G:_Projects\234\234_30029_HB Dam\1_Maps\RPT\RPT_RRP2024\234_30029_RRP2024_01_SiteLocation.mxd



LEGEND:

- WILDLIFE CAMERA LOCATION (WITH VIEW DIRECTION)
- VEGETATION TISSUE AND SOIL SAMPLE LOCATION
- 1 X 1 M REVEGETATION MONITORING PLOT
- 10 X 10 M RESEARCH PLOT CONTROL (NO HYDROSEEDING)
- 10 X 10 M RESEARCH PLOT SEED BLEND 1 & 2
- 10 X 10 M RESEARCH PLOT SEED BLEND 3 - NATIVE MIX
- CENTRAL LANDFILL
- SITE BOUNDARY - HB TAILINGS MANAGEMENT FACILITY
- TAILINGS POND
- TAILINGS COVER BROADCAST SEEDED AREA
- TAILINGS COVER HYDROSEED AREA

NOTES:

1. SOURCE: ESRI, MAXAR, EARTHSTAR GEOGRAPHICS AND THE GIS USER COMMUNITY
2. SATELLITE IMAGERY - 20 SEPTEMBER 2022, MAXAR

0 50 100 200 300 m

SCALE 1:6,000
PAGE SIZE 11 x 17
NAD 1983 UTM Zone 10N

THIS MAP IS FOR CONCEPTUAL PURPOSES ONLY
AND SHOULD NOT BE USED FOR NAVIGATION

REGIONAL DISTRICT OF CENTRAL KOOTENAY
HB MINE TAILINGS MANAGEMENT FACILITY
SALMO, BC

RECLAMATION RESEARCH PROGRAM
2025 SUMMARY

RESEARCH AND REVEGETATION MONITORING LOCATIONS

SLR

FIGURE NO:
2

DATE: November 24, 2024

PROJECT NO: 201.38281.00002

Last Saved: November 24, 2024 11:52:43 AM by alewall
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Appendix A Photolog – Vegetation Plots

HB Tailings Management Facility Reclamation Research Program 2025 Summary

Salmo, BC

Regional District of Central Kootenay

SLR Project No.: 234.030029.00003

December 19, 2025

Appendix A Vegetation Monitoring and Research Plots

Photo 1: Plot 1 – 1 x 1 m Monitoring Plot (June 24, 2025)



Photo 2: Plot 2 – 1 x 1 m Monitoring Plot (June 24, 2025)



Photo 3: Plot 3 – 1 x 1 m Monitoring Plot (June 24, 2025)



Photo 4: Plot 4 – 1 x 1 m Monitoring Plot (June 24, 2025)



Photo 5: Plot 5 – 1 x 1 m Monitoring Plot (June 24, 2025)



Photo 6: Plot 6 – 1 x 1 m Monitoring Plot (June 24, 2025)



Photo 7: Plot 7 – 10 x 10 m Research Plot (June 25, 2025)



Photo 8: Plot 7 – 1 x 1 m Research Plot (June 25, 2025)



Photo 9: Plot 8 – 1 x 1 m Monitoring Plot (June 24, 2025)



Photo 10: Plot 9 – 10 x 10 m Research Plot (June 25, 2025)



Photo 11: Plot 9 – 1 x 1 m Research Plot (June 25, 2025)



Photo 12: Plot 10 – 10 x 10 m Research Plot (June 25, 2025)



Photo 13: Plot 10 – 1 x 1 m Research Plot (June 25, 2025)

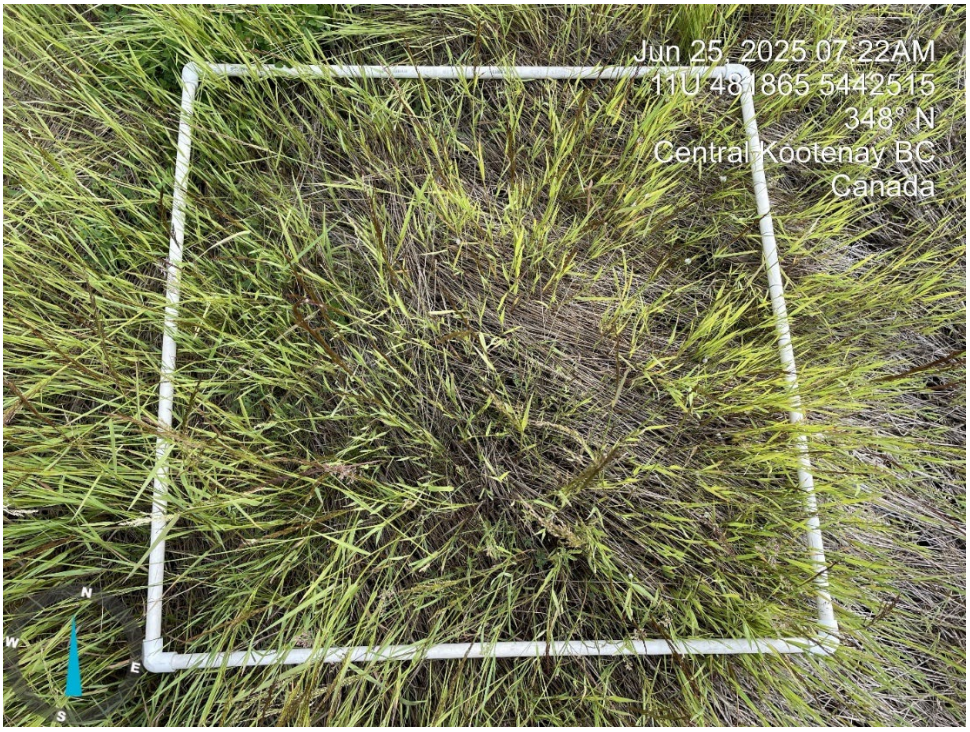


Photo 14: Plot 11 – 1 x 1 m Monitoring Plot (June 24, 2025)



Photo 15: Plot 12 – 1 x 1 m Monitoring Plot (June 25, 2025)

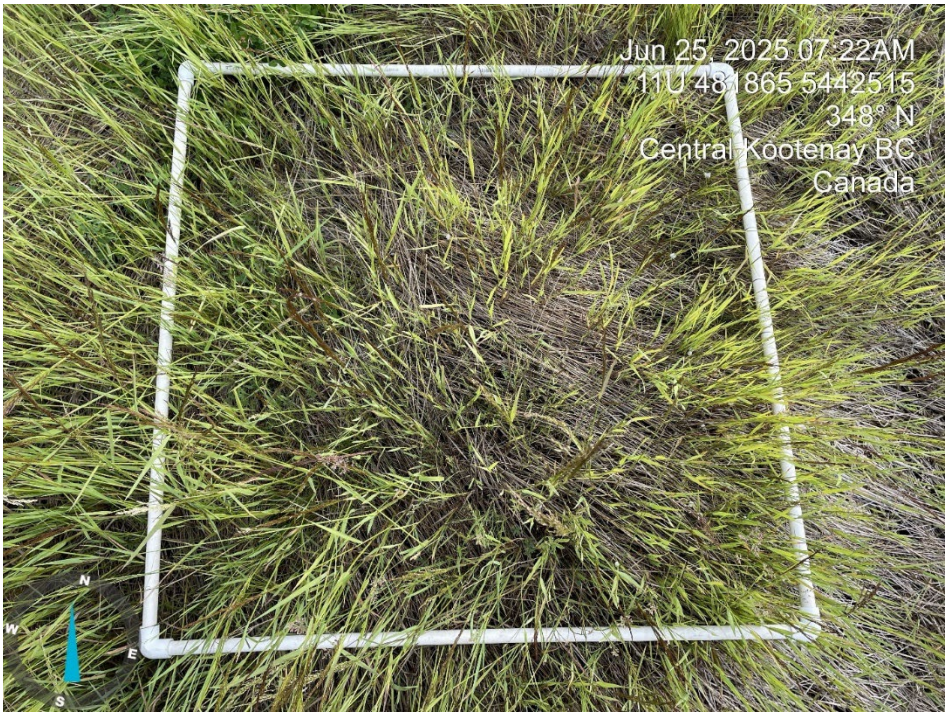


Photo 16: Plot 13 – 1 x 1 m Monitoring Plot (June 25, 2025)



Photo 17: Plot 14 – 1 x 1 m Monitoring Plot (June 25, 2025)



Photo 18: Plot 15 – 1 x 1 m Monitoring Plot (June 25, 2025)



Photo 19: Plot 16 – 10 x 10 m Research Plot (June 25, 2025)



Photo 20: Plot 16 – 1 x 1 m Research Plot (June 25, 2025)

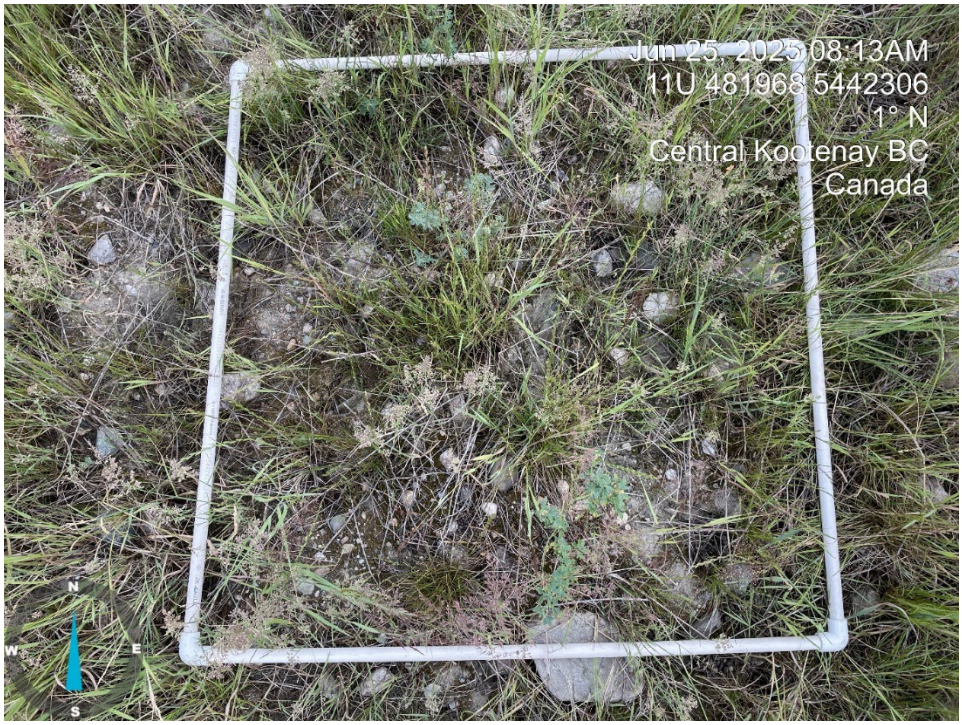


Photo 21: Plot 17 – 1 x 1 m Monitoring Plot (June 25, 2025)

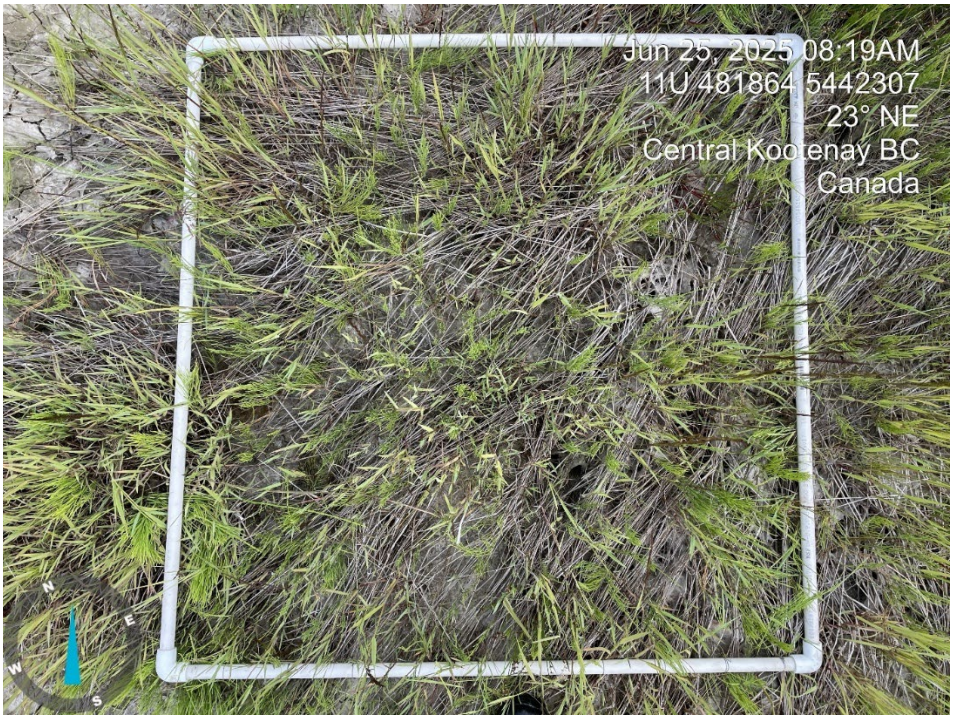


Photo 22: Plot 18 – 1 x 1 m Research Plot (June 25, 2025)

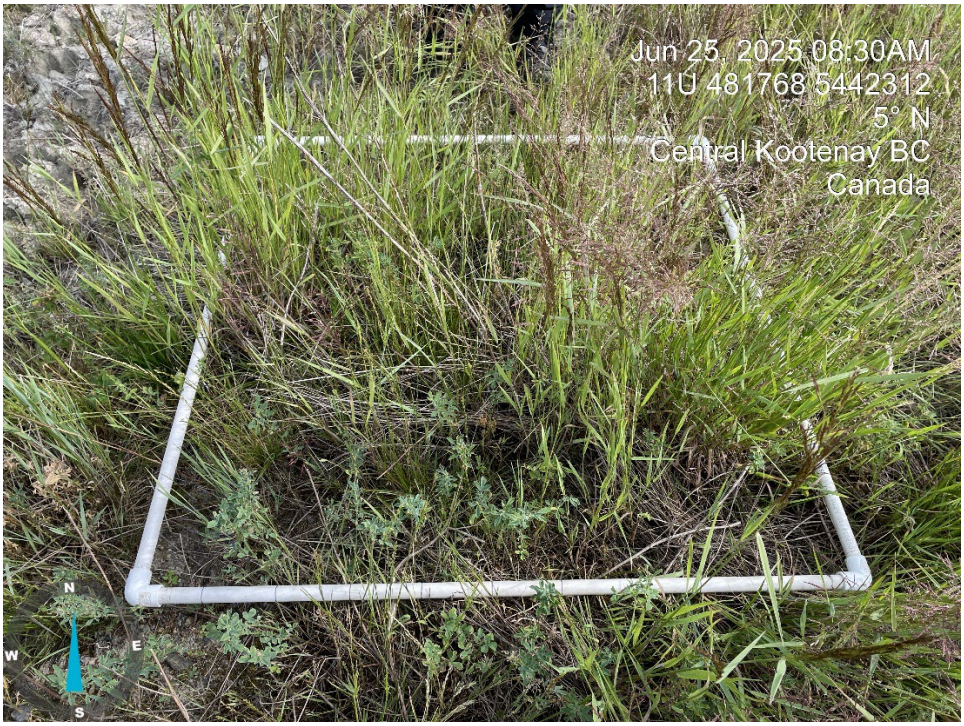


Photo 23: Plot 19 – 1 x 1 m Monitoring Plot (June 25, 2025)

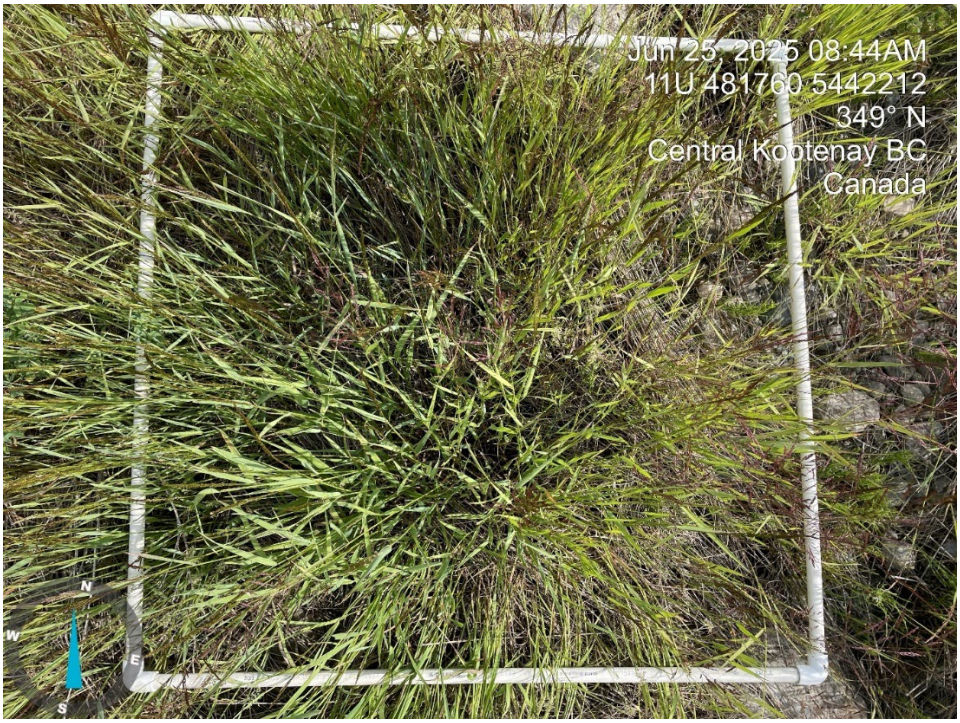


Photo 24: Plot 20 – 1 x 1 m Monitoring Plot (June 25, 2025)



Photo 25: Plot 21 – 10 x 10 m Research Plot (June 25, 2025)



Photo 26: Plot 21 – 1 x 1 m Research Plot (June 25, 2025)



Photo 27: Plot 22 – 1 x 1 m Monitoring Plot (June 25, 2025)

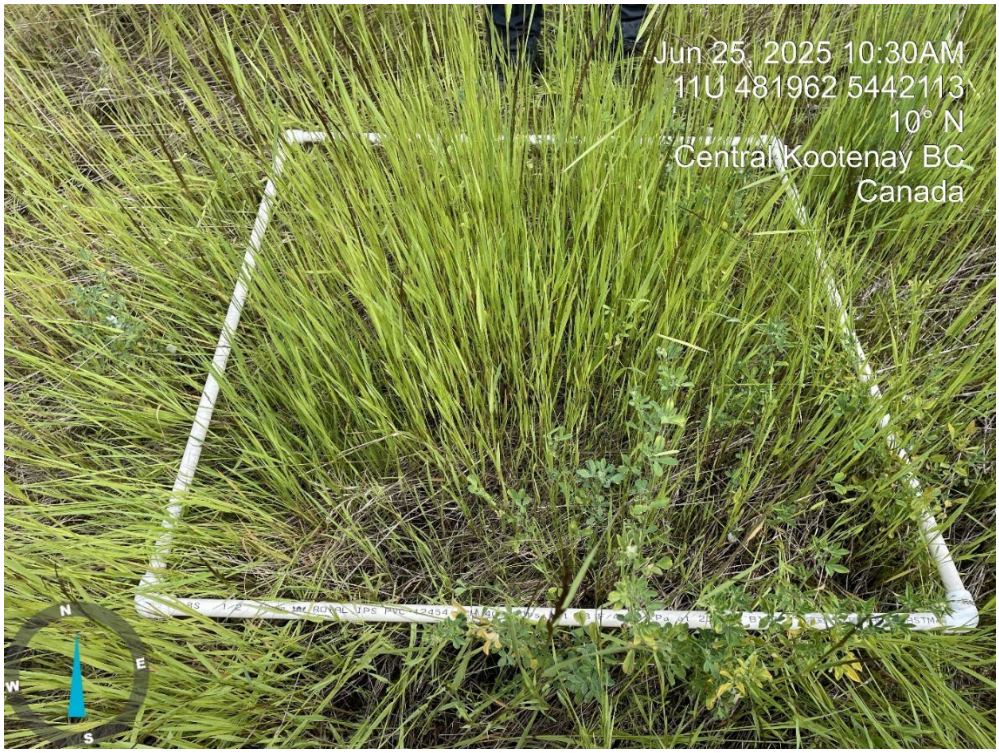


Photo 28: Plot 23 – 10 x 10 m Research Plot (June 25, 2025)



Photo 29: Plot 23 – 1 x 1 m Research Plot (June 25, 2025)



Photo 30: Plot 24 – 10 x 10 m Research Plot (June 25, 2025)



Photo 31: Plot 24 – 1 x 1 m Research Plot (June 25, 2025)



Photo 32: Plot 25 – 1 x 1 m Monitoring Plot (June 25, 2025)



Photo 33: Plot 26 – 1 x 1 m Monitoring Plot (June 25, 2025)

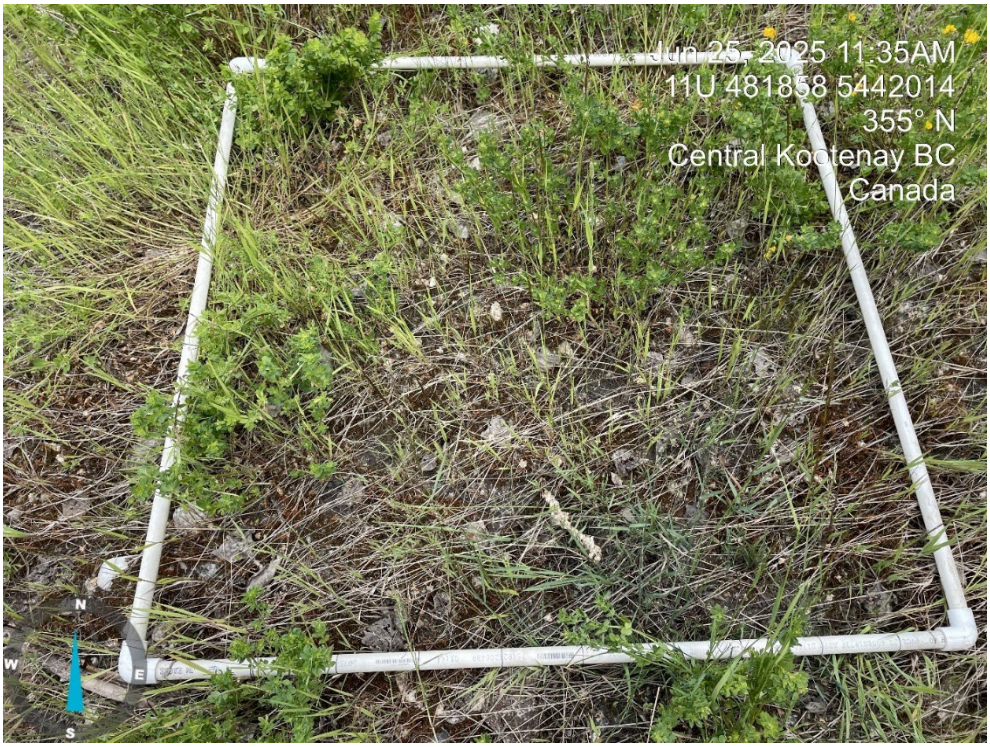


Photo 34: Plot 27 – 10 x 10 m Research Control Plot (June 25, 2025)



Photo 35: Plot 27 – 1 x 1 m Research Control Plot (June 25, 2025)



Appendix B Photolog – Site Observations

HB Tailings Management Facility Reclamation Research Program 2025 Summary

Salmo, BC

Regional District of Central Kootenay

SLR Project No.: 234.030029.00003

December 19, 2025

Appendix B Site Observations

Photo 1: Western yarrow (Achillea millefolium) from seed blend 3



Photo 2: Western toad (*Anaxyrus boreas*) tadpoles observed in naturalized ditch



Photo 3: Bear track observed in HB TMF



Photo 4: Moose track observed in HB TMF



Photo 5: Naturalized wetland observed in HB TMF



Photo 6: Naturalized wetland observed in HB TMF

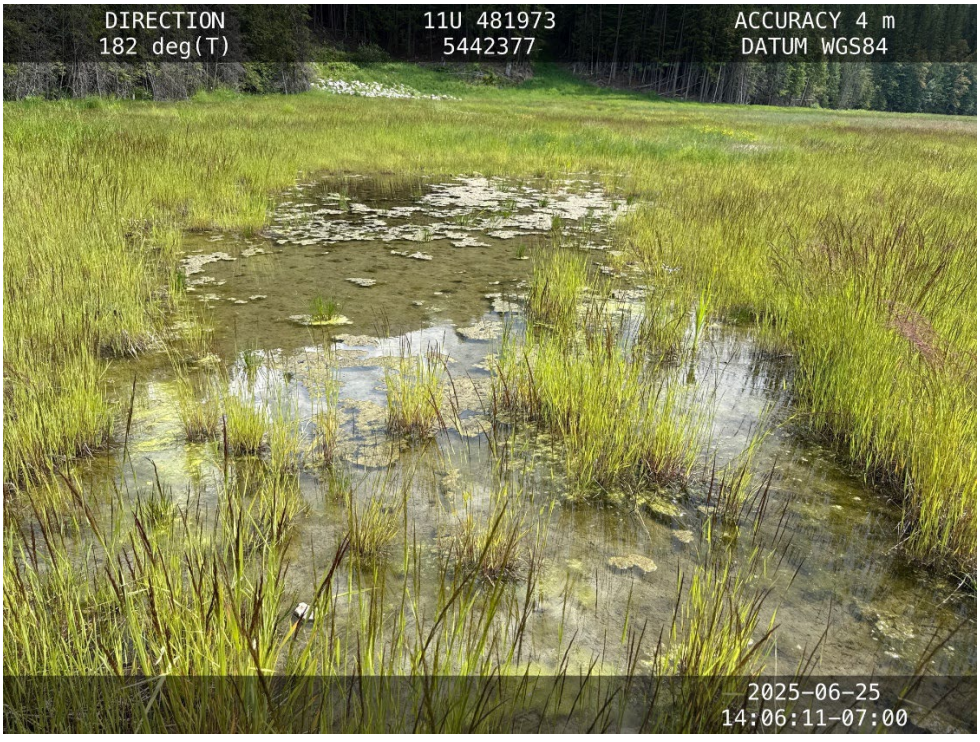


Photo 7: Ditch with wetland species and shrubs



Photo 8: Area of prolonged standing water with wildlife tracks

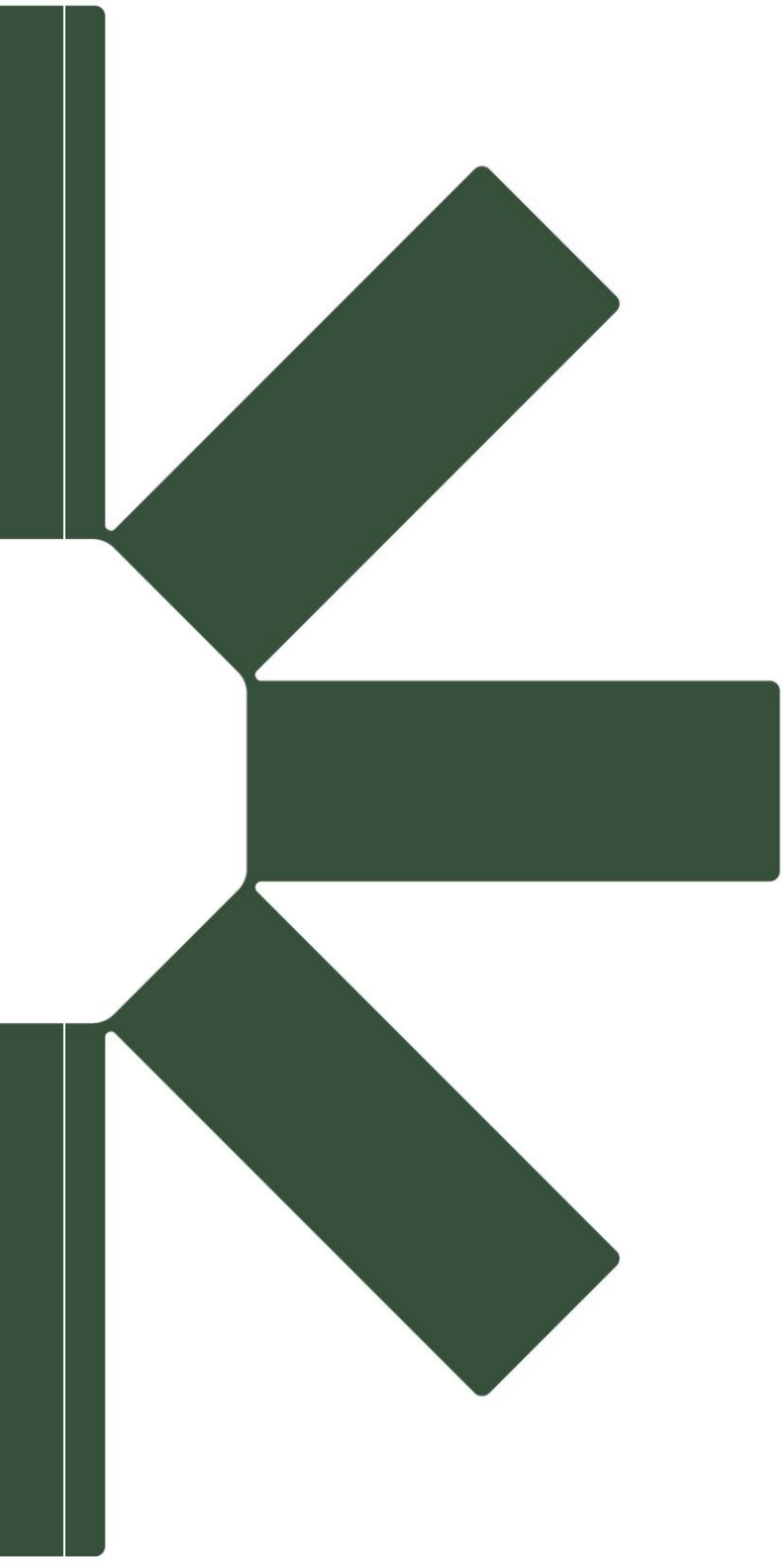


Photo 9: Naturalized wetland area with cattails (*Typha latifolia*)



Photo 10: General view across HB TMF looking south at vegetation cover





Making Sustainability Happen