

2023 Operations and Monitoring Report

Campbell River Waste Management Centre, Campbell River, British Columbia

Comox Valley Regional District 25 April 2024

→ The Power of Commitment



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Executive Summary

GHD Limited (GHD) was retained by Comox Strathcona Waste Management (CSWM), a function of the Comox Valley Regional District (CVRD), to complete the 2023 water quality monitoring and prepare this Annual Operations and Monitoring Report (Annual Report) for the Campbell River Waste Management Centre (Site or CRWMC). The objective of this Annual Report is to summarize the developmental progress and environmental monitoring for the Site during the 2023 calendar year (Reporting Period). The Annual Report contains the information required by Section 10.6 of the Landfill Criteria for Municipal Solid Waste (Landfill Criteria), Section 25.3 of the 2012 Comox Strathcona Solid Waste Management Plan (SWMP), and Section 3.2 of the Operational Certificate (OC) MR-02401.

The Site is located on Crown Lands within the city limits of Campbell River, British Columbia (BC) at 6700 Argonaut Road approximately 7.5 kilometres (km) west of the city centre. The Site is owned by the CVRD and operated by Berry & Vale Contracting Ltd. under contract with the CVRD. The authorized works include the municipal solid waste landfill and related appurtenances.

Site Operations and Development

The CRWMC Sanitary Landfill (Landfill) reached capacity as of May 4, 2022. Since then, the Site operated as a transfer station, with all MSW transferred to the Comox Valley Waste Management Centre (CVWMC) for disposal. The transfer station closed in 2023. No waste was discharged to the landfill in 2023.

Construction of the LFG collection system was completed in 2022, with 31 vertical LFG wells and 13 probes installed. The blower and flare will be installed in the Spring of 2024. A regional organics composting facility was constructed in 2022 on the lot adjacent to the Landfill (Block J) and operates since April 12, 2023.

Environmental Monitoring

Groundwater was observed to flow towards the east across the Site based on water levels measured during the Reporting Period, which is consistent with previous years. Groundwater elevations across the Site showed a decreasing trend between 2017 and 2019 but have since stabilized. Groundwater elevations at the Site in 2023 were consistent with the elevations observed in 2022 and 2021. The Site water table was found to fluctuate seasonally between 0.12 to 2.97 m below top of riser (BTOR) with a median fluctuation of 0.5 m over the four monitoring events conducted in 2023.

Analytical results for groundwater and surface water samples (SWM Pond only) are compared to the BC Contaminated Sites Regulation (CSR) (BC Reg. 375/96 including amendments up to BC Reg. 179/2021, July 7, 2021) Schedule 3.2 Column 3 (Aquatic Life Freshwater) (FAW) and Schedule 3.2 Column 6 (Drinking Water) (DW).

Surface water analytical results (excluding SWM Pond) are compared to the British Columbia Approved Water Quality Guidelines: Aquatic Life, Wildlife & Agriculture (BC ENV, 2021), BC Source Drinking Water Quality Guidelines (ENV, 2020), and BC Working Water Quality Guidelines: Aquatic Life, Wildlife & Agriculture (BC Ministry of Environment [MOE], 2021) (WQGs) for drinking water (DW) and the protection of freshwater aquatic life (FWAL).

No Landfill-derived impacts were observed in groundwater quality at background monitoring well MW01-16. Groundwater quality at monitoring well MW01-16 is considered to be representative of background groundwater quality at the Site.

Leachate impacts continue to be observed in groundwater at monitoring wells located in the Landfill Vicinity monitoring wells EBA04-6, EBA04-7, HBT94-1, and HBT94-2. Concentrations of nitrate and nitrite in monitoring well EBA04-7 exceeded the BC CSR Drinking Water standards during the May and August 2023 sampling events.

The decreasing trend in concentrations of leachate indicator parameters (such as alkalinity, chloride, TDS, conductivity, and manganese) at EBA11-1, observed during all four 2023 sampling events, is most likely due to the

final cover that has been applied to the Landfill. It is anticipated that groundwater quality at EBA11-1 will continue to improve now that the final cover has been applied to the Landfill.

Concentrations of nitrate and nitrite in monitoring well EBA11-1 exceeded the BC CSR Drinking Water standards in all four 2023 sampling events.

In the deep monitoring well MW04-19 located in the Block J Vicinity, concentrations of iron, manganese, and vanadium increased significantly during the November 2023 sampling event and the concentration of cobalt exceeded the BC CSR Drinking Water standards in November 2023 monitoring event. It is inferred that water impacted by leachate seeps from the SWM pond has traveled and infiltrated to the deep aquifer and moving downgradient from the pond.

In the shallow, downgradient and off-site monitoring well MW02-18, ammonia, dissolved manganese, and dissolved cobalt concentrations were greater than the applicable CSR standards in one or more monitoring events in 2023. It is noted that monitoring well MW02-18 is located adjacent to a historic dumping ground, therefore, impacts noted at MW02-18 may be from a combination of the Landfill and historical dumping.

Deep downgradient groundwater quality southeast of the Site at AG99-01, AG99-02, AG99-04, and AG99-05 remains generally stable over time with minimal leachate impacts observed.

Based on the results of surface water quality monitoring conducted in 2023 at SW-1 (tributary of Cold Creek), and SW03-17 (unnamed pond upstream of SW-1) the presence of leachate impacts is not suspected.

Water quality in the SWM Pond has improved in 2023. Concentrations of some leachate parameters, including alkalinity, chloride, conductivity, TDS, iron, and manganese decreased during the March and November 2023 sampling events at SWM Pond, while concentrations of sulphate and vanadium increased during the November 2023 sampling event.

It is anticipated that surface water quality in the SWM Pond will continue to improve now that the final cover has been applied to the Landfill. These measures have minimized precipitation infiltration to the Landfill, resulting in a significantly lower rate of leachate generation. The final cover has also significantly increased the clean surface water runoff from the landfill footprint that flows to the SWM Pond. The cover has also prevented, at lease partially, leachate seeps from mixing with surface water and being directed to the SWM Pond.

Recommendations

Continue the groundwater and surface water monitoring programs (Appendix K) on a quarterly basis. Install the LFG blower and flare and commission the LFG collection and management system. Complete the landfill gas monitoring program as described in the Closure Plan.

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1. Introduction

GHD Limited (GHD) was retained by Comox Strathcona Waste Management (CSWM), a function of the Comox Valley Regional District (CVRD), to complete the 2023 water quality monitoring and prepare this Annual Operations and Monitoring Report (Annual Report) for the Campbell River Waste Management Centre (CRWMC or Site).

1.1 Objectives and Scope

The purpose of this Annual Report is to summarize the Site operations and development activities carried out during the 2023 calendar year (Reporting Period) and to provide and assess the Site environmental monitoring data. This Annual Report contains the following information in accordance with Section 10.6 of the Landfill Criteria for Municipal Solid Waste (Landfill Criteria) (BC MOE, 2016), Section 25.3 of the 2012 Comox Strathcona Solid Waste Management Plan (SWMP) (AECOM, 2013), and Section 3.2 of the Site's Operational Certificate 2401 (OC-2401) (Appendix A):

- A review of the preceding year of operation, plans for the next year and any new information or proposed changes relating to the facility.
- A summary of the landfill operation equipment.
- Closure works completed.
- Summary of complaints received, and the actions taken as a result of the complaint.
- Identification of non-compliance items and proposed action plan and schedule to reach compliance (if applicable).
- Progress report on efforts to resolve previously identified non-compliance items (if applicable).
- Landfill gas quantities collected, flared, and utilized.
- The tonnage of each type of waste discharged into the landfill or diverted.
- An updated estimate of the municipal solid waste (MSW) per capita disposal rate.
- A waste area population table including adjusted projected population for the estimated facility life.
- A survey including volume changes, on required frequency.
- The remaining Site life and capacity update.
- Update to the closure and post closure liability fund estimate.
- Comparison of the water quality monitoring data with the performance criteria in Section 4 of the Landfill Criteria
 for Municipal Solid Waste and the Guidelines for Environmental Monitoring at Municipal Solid Waste Landfills,
 interpretation of the monitoring data, identification and interpretation or irregularities and trends,
 recommendations, and any proposed changes to the monitoring program.

1.2 Scope and Limitations

This report: has been prepared by GHD for Comox Valley Regional District and may only be used and relied on by Comox Valley Regional District for the purpose agreed between GHD and Comox Valley Regional District.

GHD otherwise disclaims responsibility to any person other than Comox Valley Regional District arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. GHD has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared.

The opinions, conclusions and any recommendations in this report are based on assumptions made by GHD described in this report. GHD disclaims liability arising from any of the assumptions being incorrect.

1.3 Regulatory Settings

The CRWMC sanitary landfill (Landfill) currently operates under OC-2401, issued on December 2, 2003, by the British Columbia Ministry of Environment (MOE), and last amended on May 19, 2020. OC-2401 replaced the original permit, which was issued in November 1973 and last amended in July 1992 (CH2MHILL, 2009). A copy of the OC with the amendment letter are provided in Appendix A. Refuse authorized for disposal at the Site is characterized as "municipal solid waste as defined under the Waste Management Act".

Groundwater quality for the Site has been historically compared to the BC Contaminated Sites Regulation (CSR) (BC Reg. 375/96 including amendments) Schedule 10 (Schedule 10) Column V (Drinking Water) (DW) and Schedule 6 (Schedule 6) Column II (Aquatic Life, Freshwater) (FAW) and Column V (Drinking Water) (DW). On November 1, 2017, the Stage 10 (Omnibus) and Stage 11 (Housekeeping) amendments came into effect, thus replacing the CSR Standards listed above. The CSR standards applied in this Annual Report are:

- Schedule 3.2 Generic Numerical Water Standards Column 3 for Freshwater Aquatic Life (FAW)
- Schedule 3.2 Generic Numerical Water Standards Column 6 for Drinking Water (DW)

The appropriate groundwater standards that apply to the Site depend on the current and future potential groundwater and surface water uses in the vicinity of the Site and the potential for groundwater or surface water at the Site to flow to surface water bodies that support aquatic life in the vicinity of the Site. The BC Ministry of Environment and Climate Change Strategy (ENV) (formerly the BC MOE) Protocol 21 Water Use Determination (Protocol 21) provides the criteria for selecting the appropriate CSR standards for water quality.

Protocol 21 specifies that Aquatic Life standards apply to groundwater quality at sites located within a 500 metre (m) radius of a surface water body. According to iMapBC, accessed November 7, 2023, the Site is located less than 500 m from two fresh surface water bodies: McIvor Lake and an ephemeral tributary of Cold Creek. McIvor Lake is upgradient of the Site and is not a receptor of any groundwater discharge from the Site. The tributary of Cold Creek is downgradient of the Site and may potentially be a receptor of groundwater discharge from the Site. Therefore, FAW standards apply to groundwater at the Site.

Based on the information obtained from iMapBC, accessed March 5, 2024, five water supply wells are located within a 500 m radius from the Site listed for Private Domestic use. In addition to five non-domestic/commercial use wells, one is listed as a water supply well for unknown use and one is listed as a decommissioned monitoring well (well tag 110853 assigned as monitoring well GLL93-1) in 2013. Additionally, based on GHD's correspondence with the owner of the adjacent property, located at 5900 Argonaut Road, there is an unregistered shallow dug well located on the 5900 Argonaut Road property, which is located less than 500 m from the Site. GHD understands the well is used for domestic purposes at this time. The CSR DW standards have been applied to the Site in accordance with Protocol 21.

Surface water analytical results are also compared to the British Columbia Approved Water Quality Guidelines: Aquatic Life, Wildlife & Agriculture (ENV, 2021), BC Source Drinking Water Quality Guidelines (ENV, 2020), and BC Working Water Quality Guidelines: Aquatic Life, Wildlife & Agriculture (BC MOE, 2021) (collectively defined as WQGs) for drinking water (DW) the protection of freshwater aquatic life (FAW).

1.4 Annual Report Organization

The Annual Report is organized into the following sections:

- Executive Summary
- Section 1 Introduction
- Section 2 Site Background

- Section 3 Site Operations and Development
- Section 4 Environmental Monitoring Program
- Section 5 Environmental Monitoring Results
- Section 6 Compliance Assessment
- Section 7 Summary
- Section 8 Recommendations
- References

2. Site Background

2.1 Site Location

A Site location map is presented on Figure 1 and a Site Plan is presented on Figure 2. Figure 3 presents the land zoning uses in the area surrounding the Site.

The Site is located on Crown Lands within the city limits of Campbell River, BC at 6700 Argonaut Road, approximately 7.5 kilometres (km) west of the city centre. The legal description for the southern half of the Site is Block M, all part of District Lot 85, Sayward District. The legal description of the northern portion of the Site is Block J, all part of District Lot 85, Sayward District. The previous legal land description for Block M was "Block C, together with that part of Block A, and that part of Block K, all part of District Lot 85, Sayward District". The aforementioned lands were all combined into Block M as per Land Lease V934579 dated January 8, 2019, from the Ministry of Forests, Lands and Natural Resource Operations.

A portion of Block M and the majority of Block J are located within the Agricultural Land Reserve (ALR) as set out by the Agricultural Land Commission (ALC). The CVRD has received a variance from the ALC with regards to the current location of the Landfill and surface water management pond where they overlap with ALR lands. The ALR boundary also includes land parcels located north and east of the Site as illustrated in Figure 4.

The total Site area is 29.7 hectares. The Site is currently zoned as Industrial Four (I-4) under the City of Campbell River Bylaw No. 3250, 2006, consolidated to bylaw 3743, 2019 (last amended November 4, 2019).

Island Ready Mix is located immediately to the west of the Site and houses operations and equipment for concrete manufacturing and a gravel pit. West Shore Aggregates Ltd. operates a gravel pit immediately to the south of the Site. The West Shore Aggregates property also has a landfill permitted to discharge refuse from "dryland log sorting, land clearing, construction and demolition operations" under permit PR 07730.

Mature forests situated on Crown Land are located to the north and east of the Site. There are three residential dwellings located approximately 500 m to the northeast of the Landfill footprint. The property immediately to the east of Block J is occupied by a single dwelling residential lot.

There are also several active and historical industrial operations in the vicinity of the Site. Active industrial operations include an auto scrap yard, three construction waste landfills (permits PR 07730, PR 10807, and PR 9081), aggregate extraction pits, an asphalt paving plant, and an Emcon facility, which includes a salt storage shed. Historical operations in the area include a crane operation, which housed facilities for cleaning copper coated fish farm nets, and a metal scrap yard.

2.2 Landfill Development

Prior to waste disposal operations at the Site, the Site operated as an aggregate extraction facility in the 1950s. According to CH2M HILL's 2009 closure plan, the Site was then used as an unregulated dump site prior to the 1970s. Waste burning took place at the Site as well as disposal of liquid wastes (EBA, 2014). The City of Campbell River took

over Site operations in the mid 1970's until ownership was transferred to the CVRD in 1999 (EBA, 2014). A private contractor, Berry & Vale Contracting Ltd. (Berry & Vale), has operated the Site under contract with the CVRD since 1996.

According to the SWMP, the Site was projected to reach its capacity in early 2012. A transfer station was constructed in 2011 to divert certain incoming waste streams to the Comox Valley Waste Management Centre (CVWMC). In 2014, a mechanically stabilized earth wall (MSE wall) was constructed along the southeastern Site boundary with the aim of addressing slope stability concerns and adding additional capacity.

Prior to closure of the landfill in May 2022, landfilling occurred on Block M. Block J is primarily used for extraction of sand and gravel for use as cover material within the Landfill. An updated 2017 Design, Operations, and Closure Plan (2017 DOCP) (GHD, 2017) was prepared in 2017 and was submitted to ENV in March 2018. The 2017 DOCP provides final contours and a closure plan for the Site. The 2017 DOCP includes updated plans for the management of landfill gas and surface water. In 2018 construction began on a surface water management pond (SWM Pond) in Block J and was completed in 2019. An updated Closure Plan was prepared and submitted to ENV October 1, 2020.

The Landfill reached capacity and ceased landfilling of waste on May 4, 2022. The Landfill closure plan was prepared by GHD and was completed in 2022. Installation of an enclosed LFG flare is planned to be completed for the Spring of 2024. A regional organics composting facility designed by Sperling Hansen began construction in 2022 on the adjacent lot to the Landfill (Block J) and it operates since April 12, 2023.

Figure 2 presents a site plan for the Site.

2.3 Topography and Drainage

Topography in the vicinity of the Site generally slopes downward to the east from McIvor Lake, (approximately 400 m to the west of the Landfill footprint), flattening out approximately 500 m to the east of the Site. The Site is located on the north side of a local valley. The narrow valley floor slopes to the east/northeast following the course of Argonaut Road. The valley appears to have been expanded laterally by historical soil extraction operations at the Site and to the southwest of the Site across Argonaut Road.

There are no natural watercourses on the Site. A constructed surface water infiltration swale is located along the southeast boundary of the Landfill footprint, which collects surface runoff from the southeast side of the Landfill footprint. During periods of heavy rainfall, surface water has been observed to flow northeast along the swale infiltrating into the ground within approximately 500 m of the Landfill footprint.

The closest natural surface water channel is located 400 m northeast of the Site and is one of several ephemeral tributaries of Cold Creek. Cold Creek discharges into the Quinsam River approximately 3 km northeast of the Site. Quinsam Hatchery, a salmon hatchery, is located at the confluence of Cold Creek and the Quinsam River. Quinsam River ultimately drains into the Campbell River approximately 2.3 km downstream of the confluence of Cold Creek and Quinsam River.

McIvor Lake, which is contiguous with Campbell Lake, is located approximately 400 m to the west of the Site with a lake elevation of approximately 180 metres above mean sea level (m AMSL) well above the inferred original ground surface elevation of the Site (140 m AMSL). A drainage map illustrating surface water drainage in the area of the Site is presented in Figure 5.

2.4 Geologic Setting

2.4.1 Regional Geology

Vancouver Island is part of the Wrangellia Terrane, which includes most of Vancouver Island, Haida Gwaii, and parts of central Alaska. The Wrangellia Terrane is composed mostly of widespread, late Triassic aged flood basalts (Greene, Scoates and Weis, 2005). Regional bedrock geology in the vicinity of the Site is composed of the Vancouver

Group of mid to late Triassic age (Guthrie, 2003). The Vancouver Group is composed of undivided sedimentary rocks, marine sedimentary volcanic rocks, and small amounts of siltstones.

At several time periods during the Pleistocene Epoch, Vancouver Island was believed to be glaciated with ice thicknesses up to 2,000 m. During the recession of the last glaciation approximately 14,000-years ago, glacial and glaciofluvial sediments were deposited, and in some cases reworked and redeposited, to make up many of the present surficial deposits of Vancouver Island. These deposits consist of till, which is deposited directly by glacial activity and consist of larger clasts supported in a matrix of fine-grained sediment, and of glacial outwash, which consists primarily of poorly sorted, coarse grained (sand and gravel) sediments deposited by glacial melt water (Greene, Scoates and Weis, 2005). The overburden at the Site consists of glaciofluvial and outwash deposits of sand and gravel.

2.4.2 Site Geology

The understanding of the Site geology presented in the following sections is based on existing Site borehole logs for the monitoring wells, provided in Appendix B, regional mapping, previous reports, and well completion logs from nearby private wells.

Overburden Geology

Overburden geology at the Site is relatively homogeneous and is primarily composed of deposits of fine to medium grained sand interbedded with deposits of fine to medium grained sand and medium subrounded gravel. Lenses of silt and fine-grained sand up to 4 m in thickness are present in an irregular distribution across the Site. Decommissioned monitoring well EBA04-5 was the deepest boring within the Site boundaries with a depth of 67 metres below ground surface (m BGS). Bedrock was not encountered at monitoring well EBA04-5. The boring locations (monitoring wells) are illustrated on Figure 2.

Bedrock Geology

Based on Site borehole logs, bedrock has not been encountered in any boreholes advanced within the Site or immediately to the north and west of the Site, which are up to 67 m deep. Bedrock is also not encountered at private water supply wells, which are approximately 60 m deep and located approximately 3 km to the northeast to the Site. Bedrock is encountered at a depth of approximately 1.8 m BGS approximately 1.5 km to the southwest of the Site based on well stratigraphy log for private water supply well (well tag 98020) adjacent to McIvor Lake. The bedrock lithology was not indicated on the well log.

From review of bedrock geology maps of the area, it appears the Karmutsen formation is the bedrock unit in the vicinity of the Site. The Karmutsen formation is comprised of volcanic basalts and breccias.

2.5 Hydrogeologic Setting

The BC aquifer classification system lists Aquifer 975 to be evident over the extent of the Site. Aquifer 975 is classified as a sand and gravel aquifer of moderate productivity, high vulnerability, and low demand.

The Site is located on an unconfined aquifer primarily composed of sands and gravels. Groundwater within this aquifer flows to the east/northeast across the Site. From the mid-1990s to the early 2000s an overall decrease in groundwater elevations within the sand and gravel aquifer by 2 to 4 m is apparent based on historical Site groundwater elevation measurements. The cause of this decrease in groundwater elevations is unknown, however, this phenomenon is not suspected to be related to the Site.

The Site monitoring wells are generally screened at depths ranging from approximately 1 to 25 m below the top of the water table within the overburden aquifer. Wells screened less than 15 m below the top of the water table are intended to monitor the shallow portion of the overburden aquifer. Wells screened greater than 15 m below the top of the water table are intended to monitor the deep portion of the overburden aquifer.

Figures 6 and 7 present groundwater contours for the May and November 2023 monitoring events. Details of the results of the 2023 hydraulic monitoring program at the Site are presented in Section 5.1.

2.6 Potential Receptors

McIvor Lake is the only surface water body located within a 500 m radius of the Site. Based on the local topography and interpreted groundwater flow direction, McIvor Lake is located upgradient from the Site; therefore, it is an unlikely receptor of groundwater or surface water from the Site.

The ephemeral tributary of Cold Creek is located northeast of the Site boundary (750 m northeast of the waste footprint). Based on local topography, groundwater, and surface water elevations and hydrogeologic conditions of the area (i.e., unconfined sand and gravel aquifer), the nearest tributary of Cold Creek is downgradient of the Site. There are no surface water drainages from the Site to the tributary. Groundwater discharge to this tributary is not confirmed as groundwater elevations in the vicinity of the ephemeral tributary is not known. Surface water sampling is carried out on the Cold Creek tributaries east and northeast of the Site. (SW-1 located on a tributary of Cold Creek located approximately 1,100 m east of the Site and SW03-17 located approximately 1000 m east of the Site on a pond).

Based on a search of the iMapBC (accessed March 5, 2024), there are twelve water wells within a 500 m radius of the Site. Five of the water wells are listed as water supply wells for Private Domestic use, five are listed as water supply wells for non-domestic/commercial use, one is listed as a water supply well for unknown use and one is listed as a decommissioned monitoring well (Well tag 110853 assigned as monitoring well GLL93-1) in 2013. The well licenses and a map indicating the locations of the water wells are included in Appendix C.

Well tag 84136 was included in the 2020 environmental monitoring program (EMP) under the label EBA04-1. It should be noted the BC Water Resource Atlas indicates that well tag 84136 (labeled EBA04-1) is located at the southeast side of the Landfill footprint, however, it is actually located at the southwest corner of the Site.

Well tag 109728 was installed in January 2015 and appears to be located southeast of the Landfill footprint on the south side of Argonaut Road.

Well tags 122464, 122450, 39950, 73577, 74191, 74207, 93413, and 103257 appear to be located hydraulically upgradient from the Site, and well tag 125695 is located hydraulically cross-gradient from the Site; therefore, it is unlikely that MSW leachate from the Site will migrate to these well locations.

GHD understands an unregistered well is located on the 5900 Argonaut Road property approximately 70 m east of the Block J property line. GHD understands the well is a dug well currently used for domestic purposes. The well is approximately 7.9 m (26 feet) deep.

3. Site Operations and Development

3.1 Site Operations

The Site operates 7-days a week from 8:30 a.m. to 5:30 p.m. and is closed on all statutory holidays. The authorized works includes entrance facilities, sanitary landfill, recycling, and waste drop off/storage areas, and related appurtenances.

3.1.1 Entrance Facilities

The Site entrance is equipped with a lockable and electrified gate system, posted signs, power, and phone connection. The Site receives waste primarily from the Campbell River waste shed, which includes the City of Campbell River and the surrounding communities. Waste collected from transfer stations in Gold River and Cortes

Island is also transferred to the Site. A weigh scale and scale house with a full-time attendant is located near the entrance.

3.1.2 Landfill

The Landfill is located to the northeast of the entrance facilities. As of May 4, 2022, the Landfill is closed, and the Site only accepted waste to be transferred to the CVWMC. The transfer station at the Site is now closed. The Landfill is a single-cell unlined natural attenuation landfill.

3.1.3 Transfer Station

The transfer station at the Site was permanently closed in 2023.

3.1.4 Management of Recyclable Materials

The selected recyclables that are accepted at the Site are:

- Glass containers
- Foam packaging
- Cartons and paper cups
- Flexible plastic packaging
- Metal containers
- Hard plastic containers
- Paper and cardboard
- Household batteries (excluding vehicle batteries)
- Residential small appliance and power tools
- Larger residential product packaging (e.g., hard plastic pots and trays)
- Scrap metal
- Drywall
- Refrigerant containing items
- Commercial recyclable hard plastics
- Tires off of rims (commercial and residential)
- Light bulbs (commercial and residential)
- Yard waste and grass clippings
- Clean wood waste
- Cooking oil
- Used motor oil
- Thermostats
- Polychlorinated biphenyls (PCBs) ballasts
- Smoke alarms and carbon monoxide detectors
- Commercial and residential motor oil and antifreeze
- Propane cylinders

3.1.5 Fencing

The entrance facilities and Landfill area are surrounded by an electric fence operated year-round.

3.2 Changes from Approved Reports, Plans, and Specifications

3.2.1 CRWMC Closure

The Landfill closure and updating plan and conceptual landfill gas design were submitted to the ENV October 1, 2020, and was accepted on February 2, 2021. The final issued for tender drawings for the landfill gas system and closure design, completed by GHD, were submitted to the ENV, as requested, on April 5, 2022.

An application for an OC amendment will also be submitted in 2024 to reflect the closed status of the Landfill.

There were no other changes to approved reports, plans, and specifications in 2023.

3.3 Site Development

3.3.1 Closure Works

Following closure of the Landfill in May 2022, a geomembrane and final cover were applied. The final cover is currently establishing vegetative cover. As part of the closure works, monitoring well EBA04-2 was decommissioned on July 6, 2022, and the landfill transfer station is now closed.

3.3.2 Composting Facility

A regional organics composting facility designed by Sperling Hansen began construction in 2022 on the adjacent lot to the Landfill (Block J) and operates since April 12, 2023. A new monitoring well (CAM-WELL 66650) located within the compost facility, adjacent to the Landfill, is used to water down the compost. The new monitoring was sampled in 2023 and it will be incorporated in the 2024 EEMP.

3.3.3 Maintenance and Repairs

Ongoing maintenance and repairs of Site equipment was completed as scheduled and required.

3.3.4 Inspections

Inspections were conducted quarterly during groundwater testing events in 2023. There were no signs of erosion or sloughing on the recently closed landfill, in 2023. Landfill cover is native sands and gravels with limited grass growing and there were no signs of significant settlement, burrowing animals or erosion identified during regular operations.

3.4 Complaints

No complaints were received in 2023 for the Site.

3.5 Emergencies, Incidents and Non-Compliance Items

No emergencies, incidents, or non-compliance issues occurred at the Site in 2023.

3.6 Landfill Gas Collection

As part of the 2017 DOCP (GHD, 2018), GHD updated the most recent Landfill Gas Generation Assessment (Conestoga-Rovers and Associates, 2010) to assist the development of the conceptual design of the landfill gas (LFG) collection system for the Site. The updated LFG generation assessment (GHD 2017) predicted that the Site will

produce approximately 1,536 tonnes of methane in 2020 (GHD, 2017). The detailed design of the LFG collection system occurred in 2021. Construction of the LFG collection system was completed in 2022, with 31 vertical LFG wells and 13 probes installed. The blower and flare will be installed in the Spring of 2024.

3.7 Waste Tonnage

The Landfill reached capacity and ceased landfilling of waste on May 4, 2022. No waste was discharged to the landfill in 2023. Table 1 presents the total amount of MSW accepted at the CRWMC and transferred to the CVWMC for disposal in 2023.

3.7.1 Estimate of MSW Disposal Per Capita

Table 2 presents the current and projected population of the Campbell River wastershed until the estimated date of Site closure. Based on 24,111 tonnes of waste generated and a population of 48,172 in the Campbell River watershed in 2023, the updated 2023 municipal solid waste per capita estimate is 0.50 tonnes.

3.8 Volume Survey

The Landfill reached capacity and ceased landfilling of waste on May 4, 2022. Therefore, the annual airspace consumption was not estimate for 2023.

3.9 Remaining Capacity and Estimated Site Life

The Landfill reached capacity and stopped accepting waste as of May 4, 2022.

3.10 Closure and Post-Closure Fund Estimate

The CRWMC closed in spring 2022 and had an anticipated closure cost of \$10,548,575. Forecasted post-closure costs for the Site were prepared for the CVRD. A copy of the memorandum including the information pertinent to the Site is included in Appendix D.

3.11 Operational Plan for the Next 12-Months

Operational plans for 2023 includes the following activities:

- Installation of the flare and blower skid, and commissioning of the landfill gas collection system is planned for the Spring of 2024.
- The recycling facility will be upgraded in the summer of 2024.

4. Environmental Monitoring Program

The water quality monitoring program for the Site was developed based on previous water quality monitoring reports and the requirements for monitoring municipal landfills as provided in Guidelines for Environmental Monitoring and Municipal Solid Waste Landfills (BC MOE, 1996). The objective of the program is to identify potential impacts (if any) the Landfill has on the receiving groundwater and surface water.

Four environmental monitoring events were conducted during the Reporting Period: February 27- March8, May 10-17, August 13-16, and November 13-16, 2023.

During the Reporting Period, water quality monitoring was conducted by CVRD staff. Prior to 2023, the EMP was conducted by GHD personnel with analytical services provided by Canadian Association for Laboratory Accreditation

(CALA) accredited laboratory ALS Canada Ltd (ALS), located in Burnaby, BC. Additionally, a CVRD technician was trained during the third and fourth quarters to take over the field component of the EMP. Water quality monitoring locations are presented on Figure 2. Monitoring specifications including analytical parameters and monitoring frequency for 2023 are included in Appendix E.

4.1 Groundwater Monitoring Program

The objective of the groundwater monitoring program is to monitor groundwater quality within the Site area and to identify, if any, the extent, magnitude, and temporal trends of Landfill-derived impacts to groundwater quality.

The field component of the groundwater monitoring program consists of both hydraulic monitoring and groundwater sampling at 22 locations in the Site area. Groundwater monitoring wells (MWs) location is shown in Figure 2. The 2023 groundwater monitoring program included sampling individual monitoring wells as follows:

- Background wells:
 - Shallow: AM02-01Deep: MW01-16
- Landfill Vicinity wells, which are located within the Landfill footprint or on/near the Site boundary adjacent to the Landfill footprint. For the purpose of discussion in this Annual Report, the Landfill Vicinity wells are further divided between their screened locations in the shallow or deep portions of the overburden aquifer:
 - Shallow: EBA04-7, HBT94-1, HBT94-3
 - Deep: EBA04-1 (tap), EBA04-6, HBT94-2

It should be noted that EBA04-1 is sampled from a tap near the Site scale house located upgradient of the estimated limit of waste, however it has been grouped with the Landfill Vicinity wells for assessment purposes due to its proximity to the estimated limit of waste of the Landfill.

- Block J Vicinity wells, which are located northeast and cross-gradient of the Landfill. The Block J Vicinity wells are further divided between their screen locations in the shallow or deep portions of the overburden aquifer:
 - Shallow: AG99-06, EBA11-1, EBA11-3, EBA11-4
 - Deep: MW04-19, MW08-21
- Downgradient Off-Site wells, which are located east and southeast of the Landfill. The Downgradient Off-Site
 wells are further divided between their screen locations in the shallow or deep portions of the overburden aquifer:
 - Shallow: MW02-18, MW03-18, MW06-21, MW07-21
 - Deep: AG99-01, AG99-02, AG99-04, AG99-05

Groundwater samples were collected quarterly in 2023, with the following exceptions:

- HBT94-3 was dry during all monitoring events.
- HBT94-1 was dry during all monitoring events.
- AM02-01 was dry during all monitoring events.
 - AM02-01 has historically been dry during most monitoring events.

A new monitoring well, CAM_WELL 66650 located within the compost facility, is used to water down the compost. Groundwater samples were collected and analysed in August and November 2023.

Well completion details including screened intervals for each groundwater monitoring well are included in Table 3.

4.2 Surface Water Monitoring Program

The objective of the surface water monitoring program is to identify the extent, magnitude (if any) and temporal trends of potential Landfill-derived impacts to surface water quality.

Surface water monitoring locations are located downstream from the Site, as shown on Figure 2. The 2023 surface water monitoring program included sampling of three surface water monitoring locations as follows:

- SW-1 is located on an ephemeral tributary of Cold Creek, which drains into the Quinsam River. SW-1 was sampled during the February-March, May, and November monitoring events.
 - SW-1 was not sampled in August 2023 as it was dry.
- SW03-17 is located on a pond approximately 1 km east of the Site. This pond sometimes drains into to the same ephemeral tributary of Cold Creek that SW-1 is located on. SW03-17 was sampled during the February-March, May, August, and November sampling events.
- SWM Pond is located on Site in Block J, northeast of the Landfill. The SWM Pond was only sampled during the August and November sampling events. Sampling was not possible during the February-March and May sampling events as the location was dry.

4.3 Leachate Monitoring Program

As there is no leachate collection system at the Site, no leachate monitoring program is currently in place. The Site was originally developed as a natural attenuation landfill.

4.4 Sampling Methodology

Groundwater sampling was conducted in general accordance with BC Field Sampling Manual (MOE, 2013) and consisted of the following methodology:

- Well identification and inspection.
- Water level monitoring followed by well volume calculation.
- Well purging and stabilization monitoring. Purging was completed using a dedicated bailer or dedicated
 WaterraTM tubing. A minimum three well volumes were purged at wells with good recovery. Wells with insufficient
 yield were purged dry and allowed to recover followed by sample collection. Field measurements included pH,
 conductivity, temperature, turbidity, and oxidation-reduction potential.
- Sample collection using dedicated sampling equipment (bailer or Waterra™).
- Equipment decontamination.

Surface water samples were collected by directly dipping a pre-cleaned unpreserved sample container below the water surface and then transferring to the appropriate preserved container when necessary. Field measurements included pH, conductivity, temperature, turbidity, oxidation-reduction potential, and dissolved oxygen.

Sampling of the domestic well on Site was completed by purging for a period of 20-minutes from an outside tap followed by direct sample collection. Field measurements collected included pH, conductivity, temperature, turbidity, and oxidation-reduction potential.

All samples were collected in the appropriate laboratory-supplied sample containers, preserved as required, packaged in an ice-chilled cooler, and delivered to the laboratory under chain-of-custody protocol. Groundwater samples designated for dissolved metals analysis were field filtered when possible.

4.5 Quality Assurance/Quality Control

In order to ensure adequate quality control for water quality samples, the following quality assurance/quality control (QA/QC) practices were employed during the Reporting Period:

- Activities performed by qualified and trained personnel.
- Daily field equipment calibration.
- Field QA/QC practices included field duplicate, field blank and trip blank analysis.

4.6 Laboratory Program

Analytical services for the EMP were provided by ALS of Burnaby, BC. ALS is accredited by the Canadian Association for Laboratory Accreditation (CALA) to perform the analytical tests required as part of the EMP. Field sample keys (FSK) and laboratory reports for each monitoring event are provided in Appendix F.

4.7 Data Quality Assessment and Verification

A qualified chemist completed data verification to assess laboratory and field QA/QC measures. The QA/QC memorandum presented in Appendix G indicates that data exhibited acceptable levels of accuracy and precision with the qualifications and exception noted. All data reported for the 2023 EMP program has been determined to be acceptable for use in support of further analysis and interpretation in this Annual Report.

5. Environmental Monitoring Program Results and Trend Analysis

5.1 Water Level Monitoring

Results of the groundwater monitoring program are presented in Table 3. Groundwater contours for May and November 2023 are presented on Figures 6 and 7 and represent the dry and wet seasons, respectively.

Groundwater was observed to flow towards the east across the Site based on water levels measured during the Reporting Period, which is consistent with previous years.

Site water table was found to fluctuate seasonally between 0.12 to 2.97 m below top of riser (BTOR) with a median fluctuation of 0.5 m over the four monitoring events.

Groundwater elevations at the Site in 2023 were consistent with the elevations observed in 2022 and 2021. Groundwater elevations across the Site showed a decreasing trend between 2017 and 2019 but have since stabilized. Hydrographs showing groundwater elevation across the Site between 2014 and 2023 are presented in Appendix H.

5.2 Typical Leachate Indicator Parameters

The results of the water quality monitoring program are discussed in the following sections. Groundwater quality is assessed in terms of evidence of Landfill-related water quality impacts. This is accomplished through an assessment of the temporal and spatial trends in water quality and a comparison of water quality between each location, typical leachate concentrations, and background concentrations.

Assessment of groundwater and surface water quality at the Site employs indicator parameters that are indicative of leachate-impacted waters. As the Site does not have a leachate collections system or leachate monitoring wells to sample directly, the indicator parameters and their respective concentrations ranges are estimated using leachate quality monitoring data from MSW landfills of similar age ranges (approximately 10 to 15-years old).

Typical leachate indicator parameters concentration ranges for older MSW landfills are presented in Table 5.1 below.

Table 5.1 Typical Leachate Indicator Parameters Concentration Range

Parameter	Older MSW Landfills
Alkalinity	71 – 3,340 ⁽¹⁾
Ammonia	84.3 – 449 ⁽¹⁾

Older MSW Landfills
3.2 – 4.68 ⁽¹⁾
500 ⁽²⁾
161 – 8,126 ⁽¹⁾
50 ⁽²⁾
100 – 500 ⁽²⁾
$0.03 - 7.9^{(2)}$
2,000(2)

All concentrations in mg/L unless otherwise specified.

TDS – total dissolved solids; mg/L – milligrams per litre; μ S/cm – microSiemens per centimetre.

Based on GHD's experience with similar MSW landfills, we consider the above values to be a realistic estimate of potential parameter concentrations in leachate at the Site. However, leachate characteristics can vary widely between landfills as well as landfill age, therefore, the example values are for comparison purposes only and cannot be used to definitively determine whether leachate impacts are present or not.

5.3 Groundwater Quality

The groundwater monitoring well network includes Background, Landfill Vicinity, Block J Vicinity, and Downgradient Off-Site monitoring wells.

Groundwater samples were collected from all monitoring wells quarterly in 2023, except dry or inaccessible wells. The monitoring events occurred February 27- March 8, May 10-17, August 13-16, and November 13-16, 2023.

Groundwater analytical results are presented in Tables 4 and 5. Analytical table notes are presented in Table 7. Summary tables of the leachate indicator parameter concentration ranges at each location are included in Appendix I.

Concentration versus time (C. vs. T) plots of select leachate indicator parameters and vanadium, used to support a temporal assessment of leachate impacts, are presented in Appendix J. Vanadium is included in the C vs. T plots to visualize its temporal trends, which includes seasonal exceedances of the applicable CSR standard.

The following sections provide an analysis of water quality following an upgradient to downgradient pattern, divided by geographic areas.

5.3.1 Background Groundwater Quality Results

Based on groundwater flow direction and historical groundwater chemistry, background monitoring wells include AM02-01 and MW01-16. Both monitoring wells are located upgradient, west of the Landfill footprint (Figure 2) and are screened in the shallow and deep portion of the overburden aquifer, respectively. Monitoring well AM02-01 (screened in the shallow overburden) is frequently dry and was dry during all four monitoring events in 2023 and could not be sampled.

The 2023 analytical results for samples collected from the background monitoring well MW01-16 (screened in the deep overburden) are summarized in Tables 4 and 5. Summary tables including current leachate indicator parameter concentration ranges are included in Appendix I (Table I-1). C vs. T plots of the leachate indicator parameters were used to support this assessment and are presented in Appendix J (Figures J-1 and J-2).

Background water quality in the deep portions of the overburden aquifer is characterized by low concentrations of the leachate indicator parameters. The following observations of background groundwater quality are made based on historic and current analytical data as well as the C vs. T plots:

¹ (Conestoga Rovers & Associates, 2015)

² Mulamoottil, et. al, 1999.

- Monitoring well AM02-1 was dry during all 2023 monitoring events.
- Samples collected from MW01-16 are inferred to be representative of background groundwater quality.
- Leachate indicator parameter concentrations at MW01-16 are, overall, stable in the deep portion of the overburden aquifer except for iron and manganese that show a spiked concentration during the August 2023 sampling event.

5.3.2 Landfill Vicinity Groundwater Quality Results

The Landfill Vicinity wells are installed at the property boundary in the immediate vicinity of the Landfill and immediately downgradient of the Landfill footprint (Figure 2). These monitoring wells represent Site compliance with respect to Landfill-derived impacts migrating off-Site.

The Landfill Vicinity wells network includes:

- Shallow: EBA04-7, HBT94-1, HBT94-3
- Deep: EBA04-1 (tap), EBA04-6, HBT94-2

Monitoring wells HBT94-1 and HBT94-3 were dry during all four sampling events in 2023, and therefore, these were not sampled.

The 2023 analytical results for samples collected from three deep monitoring wells EBA04-1 (tap), EBA04-6, HBT94-2 and one shallow monitoring well (EBA04-7) are summarized in Tables 4 and 5. Based on the concentrations of leachate indicator parameters (Appendix I, Table I-2) and C vs. T plots (Appendix J, Figures J-3 and J-4), the following observations are drawn:

- Leachate indicator parameter concentrations in the Landfill Vicinity wells are, with the exception of EBA04-1, consistently greater than background which indicates the presence of Landfill-derived impacts.
- Concentration of leachate indicator parameters at EBA04-01 are generally comparable to background, with the only exceptions being dissolved iron, manganese, copper, zinc, lead, and vanadium concentrations.
- The C vs. T plots show recent increasing trends of dissolved manganese, and a decrease in sulphate at EBA04-07. All other parameters are, overall, consistent with no clear increasing or decreasing trends.

Overall, impacts are most pronounced at EBA04-07, located in shallow portion of the aquifer northeast of the waste mound. Impacts are generally more pronounced in the shallow monitoring well in each nested pair.

5.3.3 Block J Vicinity Groundwater Quality Results

The Block J Vicinity wells are installed at the Site's property boundary in the immediate vicinity of Block J (Figure 2). These monitoring wells are located cross-gradient to the Landfill. These monitoring wells represent Site compliance with respect to Landfill-derived impacts migrating off-Site.

The Block J Vicinity wells network includes:

- Shallow: AG99-06, EBA11-1, EBA11-2, EBA11-3, EBA11-4
- Deep: MW04-19, MW08-21

Monitoring well EBA11-2 was decommissioned in 2021.

The 2023 analytical results for samples collected from these monitoring wells are summarized in Tables 4 and 5. Based on the concentration of leachate indicator parameters (Appendix I, Tables I-3 and I-4) and C vs. T plots (Appendix J, Figures J-5 to J-8), the following observations are drawn:

 Concentrations of leachate indicator parameters at shallow monitoring well EBA11-1 show a decreasing trend in alkalinity, chloride, TDS, conductivity, sulfate and manganese during all four sampling events in 2023. The decreasing trend in these leachate indicator parameters is most likely attributable to the final cover being applied to the Landfill and improved water quality in the SWM Pond.

- Non-metal leachate indicator parameters at the remaining Block J Vicinity wells were slightly elevated above background in 2023, except for MW04-19 which shows an increase in dissolved iron, manganese and a spike in vanadium concentrations during the November 2023 monitoring event.
- Concentrations of leachate indicator parameter at shallow monitoring well EBA11-4 show an increasing trend in sulphate in 2023 and concentrations of dissolved vanadium at EBA11-4 have been historically elevated well above background.
- With the exception of EBA11-1 (screened in the shallow aquifer) and MW04-19 (screened in the deep aquifer), leachate indicator parameter concentrations at the Block J Vicinity wells have been consistent over time and are similar to background groundwater quality.

Concentrations of leachate indicator parameters increased significantly at EBA11-1 in late 2019 following the commissioning of the SWM Pond. Surface water that has been impacted by leachate seeps is directed to the SWM Pond where it infiltrates to the subsurface. Now that the final cover has been applied to the landfill, groundwater quality has improved in monitoring well EBA11-1 during 2023. It is anticipated that groundwater quality at this location will continue to improve over the following years. Based on the analytical results for monitoring well MW04-19 it can be inferred that water impacted by leachate seeps from the SWM Pond has traveled and infiltrated to the deep aquifer and moving downgradient from the pond. Prior to construction of the pond in 2019, leachate impacted surface water travelled down the surface water ditch adjacent to Argonaut Road. As shown in Figures 6 and 7, the Block J Vicinity wells are located cross-gradient to the inferred groundwater flow path from the landfill but are directly downgradient from the SWM Pond.

Continued monitoring is recommended to observe the evolution of water quality at the deep and shallow Block J monitoring wells. It is anticipated that groundwater quality at EBA11-1 will continue to improve now that the final cover has been applied to the Landfill. These measures will minimize precipitation infiltration to the Landfill, resulting in a significantly lower rate of leachate generation. The final cover will also significantly increase the clean surface water runoff from the landfill footprint that flows to the pond resulting in increased infiltration of clean surface water upgradient of EBA11-1.

5.3.4 Downgradient Off-Site Groundwater Quality Results

The Downgradient Off-Site wells are the monitoring wells installed outside of the Site's property boundary and downgradient, east, and southeast, of the Landfill (Figure 2). These monitoring wells represent Site compliance with respect to Landfill-derived impacts migrating off-Site.

The Downgradient Off-Site wells network includes:

- Shallow: MW02-18, MW03-18, MW06-21, MW07-21
- Deep: AG99-01, AG99-02, AG99-04, AG99-05

The 2023 analytical results for samples collected from these monitoring wells are summarized in Tables 4 and 5. Based on the concentration of leachate indicator parameters (Appendix I, Tables I-5 and I-6) and C vs. T plots (Appendix J, Figures J-9 to J-12) the following is inferred:

- Elevated leachate indicator parameter concentrations are most apparent at shallow monitoring well, MW02-18.
 Concentrations of alkalinity, chloride, conductivity, TDS, iron, and manganese at MW02-18 have been variable, and elevated well above background, over the past several years but do not show any obvious increasing or decreasing trends.
- Concentrations of alkalinity, conductivity, TDS, and vanadium are slightly elevated at the remaining downgradient Off-Site wells while concentrations of chloride, iron, manganese, and sulphate are generally comparable to background concentrations except for MW06-21 which show an elevated concentration of iron during the August 2023 sampling event.
- Concentrations are generally consistent at the remaining downgradient Off-Site wells.

Overall, the monitoring results from the downgradient Off-Site wells show Landfill-derived impacts are present at the shallow monitoring well MW02-18. Results from the remaining wells show that minor impacts may be present but are generally limited and are not worsening.

Figure 2 illustrates the approximate location of an historical dumping area. MW02-18 is located within the dumping area. Impacts noted at MW02-18 may be from a combination of the Landfill and historical dumping.

5.4 Groundwater Geochemical Characteristics

Figure 8 and 9 present chloride and manganese concentrations isopleths, respectively. The spatial pattern of the chloride and manganese contours in each figure match expected patterns of a leachate plume migrating from the east side of the Landfill. Figure 8 shows that a secondary plume is migrating eastward from the Surface Water Management Pond.

Figure 10 presents a trilinear piper plot for groundwater and surface water monitoring locations using analytical data from the November 2023 monitoring event.

The plot provides a means of comparing geochemical fingerprints between monitoring locations. Major cation and anion concentrations are plotted on trilinear (triangular) diagrams as percentages and geochemical patterns can be discerned by comparing the relative locations of samples on the plot. Locations that plot close to one another are characterized by similar major ion geochemistry and vice versa.

For the purposes of this assessment, the piper plot has been employed as an additional line of evidence to support identification of regions where potential MSW Landfill-derived impacts on groundwater may have occurred. Based on GHD's experience with similar MSW landfills, leachate typically plots in the central portion of a piper plot. Conversely, unimpacted groundwater typically plots in the left corner.

The following observations are drawn based on Figure 10:

- Background monitoring wells and the majority of the groundwater monitoring wells plot in the leftmost corner of the diamond. This is inferred to represent un-impacted groundwater and shows that the major ion chemistry of the majority of locations are similar to background.
- Block J Vicinity monitoring well EBA11-1 plots is upwards and to the right of cluster of un-impacted wells. This
 indicates that the geochemical fingerprint of this well has been altered. Based on the location of EBA11-1,
 cross-gradient of the landfill and downgradient of the SWM Pond, groundwater impacts are inferred to be due to
 infiltration of leachate impacted surface water in SWM Pond rather than impacts from the Landfill.
- Landfill Vicinity and Downgradient Off-Site wells HBT94-2, HBT94-1, and MW02-18 plot in locations shifted towards the central portion of the diamond. This shows that the geochemistry at these locations may have been influenced by Landfill leachate. It is noted that the shift between background and the Landfill Vicinity wells is not significant. This indicates that the difference in geochemical fingerprints (i.e., major ion proportions) and leachate impacts are minor.

5.5 Surface Water Quality

The surface water monitoring network includes two off-Site monitors located approximately 1.1 and 1 km east, downgradient, of the Site, Cold Creek tributary (SW-1) and Unnamed Pond (SW03-17) as well as the SWM Pond located on the Block J property. The surface water monitoring locations are presented on Figure 2.

Surface water samples at SW-1 and SW03-17 were collected quarterly in 2023. The monitoring events occurred February 28 – March 8, May 16, August 15, and November 15, 2022. Surface water samples were collected at the SWM Pond on March 3 and November 15, 2023. The SWM Pond was dry during the other monitoring events in 2023. SW-1 was dry during the August 2023 sampling event.

Water quality results were assessed for evidence of Landfill-derived impacts. Surface water analytical results are presented in Table 6a and 6b and analytical table notes are presented in Table 7. Two samples (WS-030823-CS-12 and WS-030823-CS-13) collected at SW-1 on March 8, 2023, were marked as 'failed' for holding time and rejected in the Data Verification Report (Appendix G). Nitrite (as N) has a holding time of 3-days. Holding time for samples WS-030823-CS-12 and WS-030823-CS-13, was past 6-days from sample collection and therefore rejection on detection limits for Nitrite (as N) were required. Summary tables including current leachate indicator parameter concentration ranges are included in Appendix I (Table I-7). C vs. T plots of the leachate indicator parameters were used to support this assessment and are presented in Appendix J (Figures J-13 and J-14).

Figure 10 presents a trilinear piper plot for select groundwater and surface water monitoring locations using analytical results from the November 2023 monitoring event.

At this time, monitoring of background surface water conditions is not conducted for the Site as an appropriate background surface water monitoring location does not appear to exist in the vicinity of the Site. Surface water quality at the Site is assessed based on concentrations of leachate indicator parameters in surface water and the assumption that background surface water quality at the Site is similar to background groundwater quality at monitoring well MW01-16.

Leachate indicator parameter concentrations in SW-1 and SW03-17 are generally comparable to or lower than background groundwater quality except for iron and manganese. In the absence of other elevated parameters, elevated concentrations of iron and manganese are interpreted to be due to natural variation between background groundwater and downgradient surface water.

Leachate indicator parameter concentrations at the SWM Pond have been notably elevated in comparison to background groundwater quality since 2021. However, water quality at the SMP has improved in 2023. Concentrations of some leachate parameters, including alkalinity, chloride, conductivity, TDS, iron and manganese decreased in 2023 at SWM Pond while concentrations of sulphate and vanadium increased during the November 2023 sampling event.

It was anticipated that surface water quality in the SWM Pond will improve now that the final cover has been applied to the Landfill. These measures have minimized precipitation infiltration to the Landfill, resulting in a significantly lower rate of leachate generation. The final cover has also significantly increased the clean surface water runoff from the landfill footprint that flows to the SWM Pond. The cover has also prevented, at lease partially, leachate seeps from mixing with surface water and being directed to the SWM Pond.

The following observations are drawn based on the Piper Plot presented on Figure 10:

- Surface water quality in SWM Pond, plots in the upper portion of the diamond which indicates a moderate
 alteration of the geochemical fingerprint when compared to background groundwater. Considering the elevated
 concentrations and changes to major ion percentages, Landfill-derived impacts are interpreted to still be present,
 however in lower concentrations than observed in 2022.
- Surface water quality in SW-1 and SW03-17 plot in a location away from the background, un-impacted locations.
 This is not, however, interpreted to be related to Landfill-derived impacts. As shown in Table I-7 (Appendix I),
 concentrations of general chemistry and metals ions are very low in both SW-1 and SW03-17. Thus, the slightly
 elevated chloride results in a large shift on the Piper Plot. This is due to the very low concentration and not
 Landfill-impacts.

As previously discussed, there is no direct surface water discharge from the Site to the ephemeral tributaries east of the Site. The depth of groundwater in the vicinity of the tributaries is unknown and as such the discharge of groundwater to the tributaries cannot be confirmed without further investigation. However, there is no evidence of Landfill impacts, so additional investigation is not warranted at this time.

6. Compliance Assessment

A compliance assessment of groundwater analytical concentrations at the Site was completed using the following applicable BC Contaminated Sites Regulation (CSR) standards:

- Schedule 3.2 Generic Numerical Water Standards Column 3 for the protection of freshwater aquatic life (FAW)
- Schedule 3.2 Generic Numerical Water Standards Column 6 for the protection of drinking water (DW)

A compliance assessment of surface water analytical concentrations at the property boundary monitoring locations were completed using the following applicable WQGs:

Approved, Working and Source WQG's for drinking water (DW) and freshwater aquatic life (FAW)

6.1 Groundwater

Background groundwater (MW01-16) analytical results were less than the applicable CSR standards during all four monitoring events in 2023.

The following parameter concentrations were greater than background concentrations and their applicable CSR standards for DW (Tables 4 and 5) during one or more 2023 monitoring events:

- EBA04-7 and EBA11-1: nitrate and nitrite
- MW02-18: dissolved cobalt and dissolved manganese
- MW04-19: dissolved cobalt

The following parameter concentrations were greater than background concentrations and their applicable CSR standards for FAW (Tables 4 and 5) during one 2023 monitoring event:

MW02-18: ammonia

As discussed in the preceding sections, Landfill-derived impacts have been identified in the Landfill Vicinity wells. The observed CSR exceedances of ammonia and dissolved manganese at MW02-18 are inferred to be from a combination of the Landfill and historical dumping. It is unclear what portion of impacts at MW02-18 can be attributed to the Landfill versus the historic dumping area, however, the Landfill cannot be ruled out as at least a partial contributor to the CSR exceedances observed at this monitoring well. As discussed in previously, CSR exceedances at EBA11-1 are inferred to be due to the infiltration of impacted surface water from SWM Pond, rather than Landfill-derived impacts.

Concentrations of vanadium at AG99-02 exceeded CSR standards in 2022. No exceedances of vanadium were detected at AG99-02 in 2023, however vanadium concentrations were elevated during the four 2023 monitoring events and were close to exceeding the CSR DW standards. The source of elevated vanadium at this well is unknown, but as elevated vanadium concentrations have not been observed in other leachate impacted monitoring wells, the elevated vanadium concentrations at AG99-02 are not inferred to be caused by Landfill-derived impacts.

Volatile organic compounds (VOC's) and petroleum hydrocarbons (VHw6-10 and VPHw6-10) were not detected in the landfill vicinity wells, Block J vicinity wells or downgradient Off-Site monitoring wells.

6.2 Surface Water

The surface water monitoring network includes three surface water locations (SW-1, SW03-17 and SWM Pond) (Figure 2). Analytical results from SW-1 and SW03-17 were compared to BC WQGs. Analytical results from the SWM Pond were compared to CSR standards, per the OC.

The following parameters were reported in greater concentrations than their applicable BC WQGs DW (Table 6a) during one or more 2023 monitoring events at the following monitoring wells:

- SW-1 and SW03-17: total iron and total manganese
- SW-1 and SW03-17: field temperature

The following parameters were reported in greater concentrations than their applicable BC WQGs FAW (Table 6a) during one or more 2023 monitoring events at the following monitoring wells:

- SW-1: total alkalinity
- SW-1 and SW03-17: field pH, field temperature, and dissolved aluminum

The following parameters were reported in greater concentrations than their applicable BC CSR DW (Table 6b) during one or more 2023 monitoring events at the following monitoring wells:

SWM Pond: nitrate and nitrite

Elevated concentrations of parameters indicative of Landfill-derived impacts were not identified at SW-1 or SW03-17. As such, BC WQG exceedances at both locations were inferred to be due to natural surface water quality. At SW-1, field pH was below the WQG for FAW through the February-May; at SW03-17 field pH was below the WQG for FAW in February monitoring event, indicating more acidic water in the Cold Creek tributary during this period. However, high alkalinity was observed in SW-1 during May monitoring event.

As previously discussed, Landfill-derived impacts are noted within the SWM Pond. Consequently, exceedances of CSR standards in the SWM Pond appear to be attributed to the Landfill. As previously mentioned, application of the final cover has improved runoff water quality that is entering the SWM Pond and it is anticipated that this will continue to improve surface water quality as well as groundwater quality in the vicinity of the SWM Pond.

7. Summary

The following summarizes the findings of the Annual Report:

Site Operations

The CRWMC Landfill reached capacity and ceased disposal of waste in May 2022. Since then, the Site operated as a transfer station, with all MSW transferred to the Comox Valley Waste Management Centre (CVWMC) for disposal in 2023. No waste was discharged to the landfill in 2023.

Groundwater Flow Patterns

- Groundwater was observed to flow towards the east across the Site.
- Site water table was found to fluctuate seasonally between 0.12 and 2.97 m below top of riser (BTOR) with a median fluctuation of 0.5 m.
- Groundwater elevations at the Site in 2023 were consistent with the elevations observed in 2022 and 2021.
 Groundwater elevations across the Site showed a decreasing trend between 2017 and 2019 but have since stabilized.

Groundwater Quality

- No Landfill-derived impacts were observed in groundwater quality at background monitoring well MW01-16.
- Leachate impacts continue to be observed in groundwater at monitoring wells located in the Landfill Vicinity monitoring wells EBA04-6, EBA04-7, HBT94-1, and HBT94-2. Concentrations of nitrate and nitrite in monitoring well EBA04-7 exceeded the BC CSR Drinking Water standards during the May and August 2023 sampling events.

- The decreasing trend in concentrations of leachate indicator parameters (such as alkalinity, chloride, TDS, conductivity, and manganese) at EBA11-1, observed during all four 2023 sampling events, is most likely due to the final cover that has been applied to the Landfill.
- Concentrations of nitrate and nitrite in monitoring well EBA11-1 exceeded the BC CSR Drinking Water standards in all four 2023 sampling events.
- In monitoring well MW04-19, concentrations of iron, manganese, and vanadium increased significantly during the November 2023 sampling event and the concentration of cobalt exceeded the BC CSR Drinking Water standards in November 2023 monitoring event. It is inferred that water impacted by leachate seeps from the SWM pond has traveled and infiltrated to the deep aguifer and moving downgradient from the pond.
- Ammonia, dissolved manganese and dissolved cobalt concentrations at MW02-18 were greater than the
 applicable CSR standards in one or more monitoring events in 2023. It is noted that monitoring well MW02-18 is
 located adjacent to a historic dumping ground, therefore, impacts noted at MW02-18 may be from a combination
 of the Landfill and historical dumping.
- Deep downgradient groundwater quality southeast of the Site at AG99-01, AG99-02, AG99-04, and AG99-05 remains generally stable over time with minimal leachate impacts observed.
- The source of vanadium in groundwater quality at AG99-02 is not known at this time but is unlikely related to Landfilling activities.
- It is anticipated that groundwater quality at EBA11-1 will continue to improve now that the final cover has been applied to the Landfill. These measures will minimize precipitation infiltration to the Landfill, resulting in a significantly lower rate of leachate generation. The final cover will also significantly increase the clean surface water runoff from the landfill footprint that flows to the SWM Pond resulting in increased infiltration of clean surface water upgradient of EBA11-1. The cover will also prevent any leachate seeps from mixing with surface water and being directed to the SWM Pond.

Surface Water Quality

- Based on the results of surface water quality monitoring conducted in 2023 at SW-1 (tributary of Cold Creek), and SW03-17 (unnamed pond upstream of SW-1) the presence of leachate impacts is not suspected.
- Water quality in the SWM Pond has improved in 2023. Concentrations of some leachate parameters, including alkalinity, chloride, conductivity, TDS, iron and manganese decreased during the March and November 2023 sampling events at SWM Pond, while concentrations of sulphate and vanadium increased during the November 2023 sampling event.
- It is anticipated that surface water quality in the SWM Pond will continue to improve now that the final cover has been applied to the Landfill. These measures have minimized precipitation infiltration to the Landfill, resulting in a significantly lower rate of leachate generation. The final cover has also significantly increased the clean surface water runoff from the landfill footprint that flows to the SWM Pond. The cover has also prevented, at lease partially, leachate seeps from mixing with surface water and being directed to the SWM Pond.

8. Recommendations

Based on the findings of the Annual Report, the following recommendations are made:

- Continue the groundwater and surface water monitoring programs (Appendix K) on a quarterly basis.
- Install the LFG blower and flare and commission the LFG collection and management system.
- Complete the landfill gas monitoring program as described in the Closure Plan.

All of Which is Respectfully Submitted, GHD

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Tables

Table 1 Waste Tonnage and Diversion 2023 Operations and Monitoring Report Campbell River Waste Management Centre Comox Strathcona Waste Management

	Units	2023									
WASTE DISCHARGED TO LANDFILL (1)	-										
Waste from CRWMC Wasteshed											
Construction Waste	tonnes	1656									
ICI & Household	tonnes	17301									
Municipal Waste by Contract	tonnes	4301									
Volunteer Clean Up	tonnes	20									
Streetside cleanup/illegal dumping	tonnes	8									
Mattresses	tonnes	421									
Mixed Waste with Recyclables	tonnes	219									
Invasive Species	tonnes	185									
Clean Fill - Disposed	tonnes	0									
	Subtotal	24111									
Non-MSW materials diverted from	mixed loads (2)	839									
Total MSW accpeted at C	23272										
Total MSW Transferred to CVWN	23272										
Total MSW Discharged to Landfill 0											
LANDFILLED OFF-SITE											
Asbestos	tonnes	26									
Clean Fill	tonnes	1298									
Total Waste Lan	dfilled Off-Site	1324									
RECYLED/DIVERTED MATERIAL ⁽¹⁾											
Yard Waste	tonnes	1507									
Commercial Cardboard/Recycling	tonnes	21									
Scrap Metal Sales	tonnes	881									
Battery Sales	tonnes	31									
Drywall/Gypsum waste	tonnes	625									
Cut Grass & Raked Leaves	tonnes	178									
Organics/food waste	tonnes	2198									
Tires weigh only and EPR outbound only	tonnes	146									
Outbound transfer of wood waste	tonnes	758									
Total Recycled/Div	erted Material	6345									

Notes:

- (1) Campbell River Waste Management Centre Yearly Tonnage Summary
- (2) Non-MSW materials diverted by customers after passing over the scale

CRWMC - Campbell River Waste Management Centre

CVWMC - Comox Valley Waste Management Centre

MSW - Municipal Solid Waste

Table 2 Page 1 of 1

Waste Area Population and Projected Population 2023 Annual Operations and Monitoring Report Campbell River Waste Management Centre Campbell River, British Columbia

Year	Estimated Population ⁽¹⁾⁽²⁾
2022	47,761
2023	48,172
2024	48,586
2025	49,004

Notes:

⁽¹⁾ 2021 population sourced from Stats Canada for City of Campbell River, Village of Sayward, Village of Gold River, Strathcona electoral areas A, B, C, and D, and adjacent IRs

⁽²⁾ Average Annual population growth rate of 0.86% (Stats Canada, 2021)

Well Completion Details and Hydraulic Monitoring 2023 Annual Operations and Monitoring Report Campbell River Waste Management Centre Campbell River, British Columbia

	Coordinates		Top of Riser Reference	Total Depth		Screene	d Interval		Screen	February 27-	March 8, 2023	May 10	-17, 2023	August 1	3-16, 2023	November 1	13-16, 2023		
Location	Coordi	Elev		of Well	(m BTOR)		(m AMSL)		Length	Depth to Water	Water Elevation	Screened Unit	Screened Lithology						
	Northing (y)	Easting (x)	(m AMSL)	(m btor)	from	to	from	to	(m)	(m btor)	(m AMSL)								
MW01-16	5542073.127	331106.575	186.90	43.17	38.60	41.64	148.15	145.10	3.1	33.06	153.84	35.42	151.48	32.52	154.39	33.85	153.05	Shallow overburden	Sand and gravel
MW02-18	5542104.290	331913.490	138.79	32.66	31.14	32.66	107.65	106.13	1.5	25.49	113.30	25.55	113.24	25.32	113.47	25.27	113.52	Shallow overburden	Sand
MW03-18	5542306.040	332132.200	132.10	27.21	25.68	27.21	106.42	104.89	1.5	21.52	110.58	21.81	110.29	21.37	110.73	21.34	110.76	Shallow overburden	Sand and gravel
MW04-19	5542518.573	331969.010	136.32	36.12	32.31	35.36	104.01	100.96	3.1	24.60	111.72	24.76	111.56	24.63	111.69	24.65	111.67	Shallow overburden	Silty sand
MW06-21	5542011.922	331957.118	139.63	32.92	29.87	32.92	109.76	106.71	3.1	27.14	112.50	27.34	112.29	26.85	112.78	26.88	112.76	Shallow overburden	Silty Sand
MW07-21	5542197.335	332069.071	135.33	30.48	26.52	29.57	108.81	105.76	3.1	23.94	111.39	24.31	111.02	23.83	111.50	23.79	111.54	Shallow overburden	Gravel and sand
MW08-21	5542475.019	332003.177	134.81	42.67	37.49	40.54	97.32	94.27	3.1	23.99	110.82	24.29	110.52	23.84	110.98	23.84	110.97	Deep overburden	Sand
AG99-01	5542063.675	331815.529	144.19	48.50	46.50	48.50	97.69	95.69	2.0	29.40	114.80	30.62	113.57	30.07	114.12	30.12	114.07	Deep overburden	Gravel
AG99-02	5542017.821	331937.280	139.85	51.51	49.00	51.00	90.85	88.85	2.0	27.38	112.47	27.59	112.26	27.10	112.75	27.13	112.72	Deep overburden	Gravel, some sand and cobbles
AG99-04	5542190.662	332048.523	136.44	45.42	38.00	45.00	98.44	91.44	7.0	24.16	112.29	24.54	111.90	24.04	112.40	24.01	112.43	Deep overburden	Gravel, some sand and cobbles
AG99-05	5542314.710	332133.846	132.09	50.90	44.00	50.00	88.09	82.09	6.0	21.56	110.53	21.85	110.24	21.40	110.69	24.37	107.72	Deep overburden	Sand, trace silt
AG99-06	5542635.565	332073.874	132.69	45.11	22.00	25.00	110.69	107.69	3.0	22.96	109.73	23.13	109.56	23.48	109.21	23.65	109.04	Shallow overburden	Sand, trace silt
AM02-01	5542076.112	331105.831	186.86	33.20	19.00	34.00	167.86	152.86	15.0	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	Shallow overburden	Sand
EBA04-1	-	-	-	-	-	-	-	-	-	TAP	TAP	TAP	TAP	TAP	TAP	TAP	TAP	Deep overburden	Sand and gravel
EBA04-6	5542397.539	331952.509	136.34	39.60	38.10	39.60	98.24	96.74	1.5	25.81	110.53	26.21	110.13	25.71	110.63	25.69	110.65	Deep overburden	Sand and gravel
EBA04-7	5542370.669	331954.022	136.40	32.00	30.50	32.00	105.90	104.40	1.5	25.72	110.68	26.12	110.28	25.63	110.77	25.60	110.81	Shallow overburden	Sand and gravel
EBA11-1	5542468.941	331995.662	134.77	28.96	25.60	28.70	109.17	106.07	3.1	23.59	111.18	22.84	111.93	23.55	111.22	23.72	111.05	Shallow overburden	Sand, trace/some silt
EBA11-3	5542801.160	332038.159	134.19	30.18	27.10	30.18	107.09	104.01	3.1	23.91	110.29	23.98	110.21	23.99	110.20	24.03	110.16	Shallow overburden	Sand, trace gravel
EBA11-4	5542698.635	332061.625	133.13	29.57	25.90	29.00	107.23	104.13	3.1	23.83	109.30	24.02	109.11	24.10	109.03	24.21	108.93	Shallow overburden	Sand, trace gravel, trace/some silt
HBT94-1	5542161.126	331798.592	141.98	34.00	31.00	34.00	110.98	107.98	3.0	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	Shallow overburden	Sand, trace silt and gravel
HBT94-2	5542157.473	331796.264	142.05	44.00	41.00	43.00	101.05	99.05	2.0	27.99	114.06	28.27	113.78	27.81	114.24	27.71	114.34	Deep overburden	Sand, some silt
HBT94-3	5542148.604	331791.155	142.26	27.00	25.00	27.00	117.26	115.26	2.0	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	Shallow overburden	Gravel

Notes:

m metre

m BTOR metres below top of riser

m AMSL metres above mean sea level

- not measured/data unavailable

Table 4 Groundwater Analytical Results - General Chemistry, Nutrients and Metals 2023 Annual Operations and Monitoring Report Campbell River Waste Management Centre Campbell River, British Columbia

Sample Location:	т т				AG9	9-01				AG9	9-02			AG99-04				
Sample ID: Sample Date:			CSR dule 3.2	WG-022723-CS-40 02/27/2023	WG-051023-CS-02 05/10/2023	WG-081323-CS-02 08/13/2023	WG-111323-CS-02 11/13/2023	WG-022723-CS-42 02/27/2023	WG-051023-CS-04 05/10/2023	WG-051023-CS-05 05/10/2023	WG-081423-C5-12 08/14/2023	WG-111423-CS-14 11/14/2023	11/14/2023	WG-030723-CS-50 03/07/2023	WG-051623-CS-09 05/16/2023	WG-081423-C5-14 08/14/2023	WG-081423-C5-15 08/14/2023	WG-111523-CS-1 11/15/2023
Parameters	Units	a	FAW b							Duplicate			Duplicate				Duplicate	
Field Parameters																		
Conductivity, field	uS/cm			226	222	192	204	286	190	190	146	184	184	104	98	98	98	108
Oxidation reduction potential (ORP), field	millivolts			306	248	222	247	268	220	220	213	219	219	256	220	182	182	193
pH, field	s.u.			7.65	7.68	7.83	7.72	8.12	8.27	8.27	8.40	8.34	8.34	8.08	8.14	8.40	8.40	8.31
Temperature, field	Deg C		-	10.64 147	12.12 145	12.82 125	10.67	10.57 186	12.78	12.78	16.10 95	10.91 120	10.91	11.16 68	13.65 64	13.70 64	13.70 64	10.25
Total dissolved solids, field (TDS) Turbidity, field	mg/L NTU	-	-	6.7	0.0	2.0	132 3.5	0.0	124 0.0	124 0.0	1.7	1.8	120 1.8	0.0	0.0	0.1	0.1	70 0.7
General Chemistry																		
Alkalinity, bicarbonate	mg/L			111	113	106 J	108	145	97.9	98.0	78.8 J	95.2	94.6	50.4	49.2	52.8 J	52.3 J	55.2
Alkalinity, carbonate	mg/L			ND (1.0)	ND (1.0)	ND (1.0) J	ND (1.0)	5.8	ND (1.0)	ND (1.0)	ND (1.0) J	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0) J	ND (1.0) J	ND (1.0)
Alkalinity, hydroxide	mg/L			ND (1.0)	ND (1.0)	ND (1.0) J	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0) J	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0) J	ND (1.0) J	ND (1.0)
Alkalinity, total (as CaCO3) Chloride (dissolved)	mg/L	250	1500	111 2.13	113 2.49	106 J 2.48 J	108 1.99	151 1.37	97.9 1.48	98.0 1.48	78.8 J 1.72 J	95.2 1.95	94.6 1.94	50.4 1.08	49.2 1.07	52.8 J 1.23 J	52.3 J 1.22 J	55.2 1.04
	mg/L	250	1500						1.48	1.48		1.95	1.94	1.08		1.23 J 107 J	1.22 J 106 J	1.04
Conductivity	uS/cm		0-1	217	223	207 J	207	282			156 J				100			
Fluoride Hardness	mg/L mg/L	1.5	[b]	ND (0.020) 102	ND (0.020) 111	ND (0.020) J 99.2 J	ND (0.020) 109	ND (0.020) 141	ND (0.020) 96.1	ND (0.020) 95.1	ND (0.020) J 83 8 J	ND (0.020) 92.2	ND (0.020) 94.7	ND (0.020) 51.7	ND (0.020) 44.8	ND (0.020) J 55.1.I	ND (0.020) J 53.2.I	ND (0.020) 51.4
Sulfate (dissolved)	mg/L	500	[b]	3.05	3.22	2.44 J	3.07	2.61	2.70	2.71	3.05 J	2.57	2.59	2.33	1.85	2.48 J	2.44 J	2.54
Total dissolved solids (TDS)	mg/L			139	154	130 J	133	164	120	122	121 J	112	116	68 J	59	82 J	75 J	74
Nutrients																		
Ammonia-N	mg/L		[a]	ND (0.0050)	ND (0.0050)	ND (0.0050) J	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050) J	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050) J	ND (0.0050) J	ND (0.0050)
Nitrate (as N)	mg/L	10	400	0.188	0.228	0.187 J	0.198	0.206	0.193	0.193	0.209 J	0.158 J	0.159 J	0.123	0.0992	0.124 J	0.122 J	0.128
Nitrite (as N)	mg/L	1	[c]	ND (0.0010)	ND (0.0010)	ND (0.0010) J	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010) J	ND (0.0010) J	ND (0.0010) J	ND (0.0010)	ND (0.0010)	ND (0.0010) J	ND (0.0010) J	ND (0.0010)
Nitrite/Nitrate	mg/L	10	400	0.188	0.228	0.187 J	0.198	0.206	0.193	0.193	0.209 J	0.158 J	0.159 J	0.123	0.0992	0.124 J	0.122 J	0.128
Dissolved Metals																		
Aluminum (dissolved)	ug/L	9500		2	2.6	4.4	4.1	3.7	4.4	4.8	6	4	5	6	5.3	4.8	4.5	4.2
Antimony (dissolved)	ug/L	6	90	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)								
Arsenic (dissolved)	ug/L	10	50	0.77	0.68	0.74	0.82	1.84	1.89	1.95	1.96	1.85	1.9	0.31	0.4	0.36	0.37	0.34
Barium (dissolved)	ug/L	1000	10000	2.28	2.19	2.12	2.33	6.79	4.33	4.39	3.66	4.5	4.56	0.73	0.71	0.71	0.7	0.73
Beryllium (dissolved)	ug/L	8	1.5	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)								
Bismuth (dissolved)	ug/L			ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)								
Boron (dissolved)	ug/L	5000	12000	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)								
Cadmium (dissolved)	ug/L	5	[b]	ND (0.005)	ND (0.005)	ND (0.005)	0.0053	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)				
Caesium (dissolved)	ug/L		-	-	•		-						•	•		•	•	
Calcium (dissolved)	ug/L			32900	35800	31700	35700	43500	29800	29200	26200	28200	28500	18000	15300	19300	18600	17600
Chromium (dissolved)	ug/L	50	10	0.57	0.57	0.56	0.56	0.69	0.52	0.55	0.55	0.53	0.57	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Cobalt (dissolved) (1)	ug/L	1	40	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)								
Copper (dissolved)	ug/L	1500	[b]	ND (0.2)	ND (0.2)	ND (0.2)	0.27	ND (0.2)	ND (0.2)	0.23	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)				
Iron (dissolved) (2)	ug/L	6500		ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)								
Lead (dissolved)	ug/L	10	[b]	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)								
Lithium (dissolved)	ug/L	8		ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)								
Magnesium (dissolved)	ug/L			4960	5320	4860	4900	7960	5270	5380	4470	5300	5710	1640	1610	1680	1640	1820
Manganese (dissolved) (3)	ug/L	1500		ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)								
Mercury (dissolved)	ug/L	1	0.25	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)								
Molybdenum (dissolved)	ug/L	250	10000	0.125	0.106	0.138	0.137	0.082	0.106	0.105	0.132	0.102	0.097	0.115	0.116	0.108	0.099	0.109
Nickel (dissolved)	ug/L	80	[b]	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)								
Phosphorus (dissolved)	ug/L			ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)								
Potassium (dissolved)	ug/L			815	795	790	795	1510	1180	1210	1050	1240	1280	280	287	258	254	283
Rubidium (dissolved)	ug/L			-				-						-				-
Selenium (dissolved)	ug/L	10	20	0.112	0.094	0.089	0.131	0.174	0.2	0.224	0.2	0.154	0.153	0.113	0.106	0.089	0.078	0.102
Silicon (dissolved)	ug/L			6110	6430	6480	5880	6120	6100	6070	5680	5880	5940	3940	4260	3950	3950	3940
Silver (dissolved)	ug/L	20	[b]	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)								
Sodium (dissolved)	ug/L	200000	101	1890	1870	2100	1860	1890	1530	1540	1530	1660	1710	1610	1360	1320	1330	1320
Strontium (dissolved)	ug/L	2500		56.3	57	53.2	54.8	55.7	38.9	39.7	32.8	36.4	36	28.3	25.2	28	29	27.8
Sulphur (dissolved)	ug/L	2500	-	630	1010	800	1170	640	800	820	620	710	670	660	890	500	560	850
Tellurium (dissolved)	ug/L	-	-	530	1310	500		540	500	520	320	.10	570	530	550	500	500	650
Tellurium (dissolved) Thallium (dissolved)	ug/L ug/L	-	3	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)								
Thorium (dissolved)	ug/L			140 (0.01)	10.01)	140 (0.01)	(0.01)	145 (0.01)	140 (0.01)	(0.01)	145 (0.01)	140 (0.01)	140 (0.01)	140 (0.01)	(0.01)	140 (0.01)	(0.01)	145 (0.01)
Tin (dissolved)	ug/L	2500	-	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)								
		2000	1000							ND (0.1)						ND (0.1)	ND (0.1)	ND (0.1) ND (0.3)
Titanium (dissolved)	ug/L		1000	ND (0.3)	ND (0.3)	ND (0.3)	ND (0.3)	ND (0.3)	ND (0.3)	ND (0.3)								
Tungsten (dissolved)	ug/L	3		0.400	0.407	- 0.000	0.407	0.000	0.407		0.400	0.450		0.005	- 0.004	0.000	0.005	0.004
Uranium (dissolved)	ug/L	20	85	0.102	0.107	0.096	0.107	0.332	0.197	0.192	0.108	0.152	0.149	0.025	0.024	0.026	0.025	0.031
Vanadium (dissolved)	ug/L	20	-	5.54	5.12	5.36	5.57	17.6	18	18.5	19	18.7	19.6	2.47	2.83	2.72	2.69	2.6
Zinc (dissolved)	ug/L	3000	[b]	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)								
Zirconium (dissolved)	ug/L			ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)								

Table 4 Groundwater Analytical Results - General Chemistry, Nutrients and Metals 2023 Annual Operations and Monitoring Report Campbell River Waste Management Centre Campbell River, British Columbia

Sample Location:					AG9	9-05			AG9	9-06				EBA04-1		
Sample ID: Sample Date:		Sched	CSR fule 3.2	WG-022823-CS-47 02/28/2023	WG-051623-CS-07 05/16/2023	WG-081523-CS-17 08/15/2023	WG-111523-CS-19 11/15/2023	WG-030723-CS-52 03/07/2023	WG-051723-CS-16 05/17/2023	WG-081323-CS-06 08/13/2023	WG-111323-CS-06 11/13/2023	WG-022723-CS-41 02/27/2023	WG-051723-CS-18 05/17/2023	WG-081623-C5-20 08/16/2023	WG-081623-C5-21 08/16/2023	WG-111623-CS-24 11/16/2023
Parameters	Units	DW a	FAW b												Duplicate	
Field Parameters																
Conductivity, field	uS/cm			164	180	116	100	129	219	157	100	89	87	85	85	89
Oxidation reduction potential (ORP), field	millivolts	-		265	224	267	240	301	241	239	240	270	174	184	184	143
pH, field	s.u.	-		8.01	7.89	7.43	8.22	7.56	7.66	7.90	7.93	8.41	8.60	8.46	8.46	8.57
Temperature, field	Deg C			10.28	13.13	12.01	10.70	9.26	12.00	13.11	9.74	7.35	16.88	21.44	21.44	8.16
Total dissolved solids, field (TDS) Turbidity, field	mg/L NTU	-	=	107 0.0	117 0.7	76 1.7	65 3.2	84 222	142 84.9	102 48.5	65 26.1	58 19.5	56 0.0	55 0.5	55 0.5	58 0.0
General Chemistry																
Alkalinity, bicarbonate	mg/L			77.7	93.6	62.4	50.3	60.2	65.2	77.9 J	44.3	43.2	42.8	43.8 J	43.8 J	44.6
Alkalinity, carbonate	mg/L	-	-	ND (1.0)	ND (1.0) J	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0) J	ND (1.0) J	ND (1.0)					
Alkalinity, hydroxide	mg/L	_	-	ND (1.0)	ND (1.0) J	ND (1.0) 44.3	ND (1.0)	ND (1.0)	ND (1.0) J	ND (1.0) J	ND (1.0)					
Alkalinity, total (as CaCO3) Chloride (dissolved)	mg/L mg/L	250	1500	77.7 3.12	93.6 2.73	62.4 1.16	50.3 1.05	60.2 8.09	65.2 26.0	77.9 J 4.47 J	44.3 2.34	43.2 0.86	42.8 0.84	43.8 J 0.84 J	43.8 J 0.83 J	44.6 0.79
Conductivity	uS/cm	250	1500	3.12 160	184	1.16	1.05	146	20.0	4.47 J	94.7	89.7	0.64 86.7	0.64 J 85.6 J	0.63 J 84.9 J	93.3
Fluoride	mg/L	1.5	[6]	ND (0.020)	ND (0.020)	ND (0.020)	ND (0.020)	0.021	ND (0.020)	ND (0.020) J	0.021	ND (0.020)	ND (0.020)	ND (0.020) J	ND (0.020) J	ND (0.020)
Hardness	mg/L	1.0	101	73.5	ND (0.020) 88.0	ND (0.020) 60.3	ND (0.020) 45.0	70.3	100	ND (0.020) J 82 4 J	45.8	40.3	38.0	43.8 J	42.9 J	ND (0.020)
Sulfate (dissolved)	mg/L	500	[b]	2.13	1.85	2.00	2.50	2.72	1.43	2.62 J	1.71	2.32	1.90	2.00 J	2.00 J	2.37
Total dissolved solids (TDS)	mg/L	-		93	98	76	71	89 J	151	106 J	60	55	56	69 J	59 J	65
Nutrients																
Ammonia-N	mg/L	-	[a]	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	0.0050	ND (0.0050)	ND (0.0050) J	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050) J	ND (0.0050) J	ND (0.0050)
Nitrate (as N)	mg/L	10	400	0.0924	0.104	0.0730	0.0921	0.172	0.0996	0.269 J	0.261	0.0393	0.0490	0.0673 J	0.0666 J	0.0666
Nitrite (as N) Nitrite/Nitrate	mg/L mg/L	1 10	[c] 400	ND (0.0010) 0.0924	ND (0.0010) 0.104	ND (0.0010) 0.0730	ND (0.0010) 0.0921	ND (0.0010) 0.172	ND (0.0010) 0.0996	ND (0.0010) J 0.269 J	ND (0.0010) 0.261	ND (0.0010) 0.0393	ND (0.0010) 0.0490	ND (0.0010) J 0.0673 J	ND (0.0010) J 0.0666 J	ND (0.0010)
Dissolved Metals																
Aluminum (dissolved)	ug/L	9500	_	3.3	3.4	5.4	3.5	64.1	2.4	3.6	3.8	3	4.7	5.3	4.8	3.1
Antimony (dissolved)	ug/L	6	90	ND (0.1)												
Arsenic (dissolved)	ug/L	10	50	0.27	0.25	0.25	0.32	0.13	0.14	0.16	0.22	0.46	0.8	0.28	0.27	0.3
Barium (dissolved)	ug/L	1000	10000	1.15	1.39	0.95	0.71	6.18	3.13	0.5	0.28	0.41	0.44	0.46	0.49	0.45
Beryllium (dissolved)	ug/L	8	1.5	ND (0.02)	ND (0.1)											
Bismuth (dissolved)	ug/L	-	-	ND (0.05)												
Boron (dissolved)	ug/L	5000	12000	ND (10)	31	26	12	ND (10)								
Cadmium (dissolved)	ug/L	5	[b]	ND (0.005)	0.0094	0.0078	0.0063	0.0072	0.0068							
Caesium (dissolved)	ug/L	-	-	-	-			-	-	-	-	-	-	-	-	ND (0.01)
Calcium (dissolved)	ug/L		-	24800	29600	20500	15300	22000	30600	24800	14200	13200	12400	14700	14400	14000
Chromium (dissolved)	ug/L	50	10	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	0.76	0.7	0.93	0.64	ND (0.5)	0.67	ND (0.5)	ND (0.5)	ND (0.5)
Cobalt (dissolved) (1)	ug/L	1	40	ND (0.1)												
Copper (dissolved)	ug/L	1500	[b]	0.44	0.87	0.41	ND (0.2)	7.46	0.36	0.21	0.28	1.66	1.45	1.88	1.83	2.3
Iron (dissolved) (2)	ug/L	6500	-	ND (10)	ND (10)	ND (10)	ND (10)	50	ND (10)	ND (10)	ND (10)	24	33	12	11	24
Lead (dissolved)	ug/L	10	[b]	ND (0.05)	0.183	0.225	0.121	0.115	0.21							
Lithium (dissolved)	ug/L	8		ND (1)												
Magnesium (dissolved)	ug/L	-	-	2820	3420	2210	1660	3730	5870	4960	2500	1790	1720	1720	1690	1680
Manganese (dissolved) (3)	ug/L	1500		ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	1.96	0.18	0.23	0.17	0.36	0.4	0.24	0.22	0.57
Mercury (dissolved)	ug/L	1	0.25	ND (0.005)												
Molybdenum (dissolved)	ug/L	250	10000	0.089	0.06	0.128	0.131	0.102	0.08	0.093	0.099	0.296	0.168	0.197	0.161	0.135
Nickel (dissolved)	ug/L	80	[b]	ND (0.5)												
Phosphorus (dissolved)	ug/L			ND (50)												
Potassium (dissolved)	ug/L			459	504	425	387	272	365	331	246	288	269	231	217	234
Rubidium (dissolved)	ug/L							-				1 2				ND (0.2)
Selenium (dissolved)	ug/L	10	20	0.09	0.088	0.098	0.096	0.064	0.185	0.127	0.097	0.098	0.119	0.092	0.104	0.098
Silicon (dissolved)	ug/L			4210	4750	4260	4180	4810	5180	5130	4720	4380	5190	3640	3710	4050
Silver (dissolved)	ug/L	20	[6]	ND (0.01)												
Sodium (dissolved)	ug/L	200000		2090	2090	1780	2000	2820	3320	3260	2220	1200	1300	1110	1100	1200
Strontium (dissolved)	ug/L	2500		42.2	49.5	30.7	26.8	50.7	74.9	61.3	31.4	20.8	20.1	22.2	21.1	22.8
Sulphur (dissolved)	ug/L	2300	-	960	1130	740	790	780	520	1070	850	ND (500)	600	1010	1000	610
Tellurium (dissolved)	ug/L	_	_					100	020		-	140 (000)	-	.0.0	1000	ND (0.2)
Thallium (dissolved)	ug/L	_	3	ND (0.01)	ND (0.2)											
Thorium (dissolved)	ug/L ug/L		3	ND (0.01)	(U.U.)	ND (0.01)										
Tin (dissolved)	ug/L ug/L	2500	-	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	0.12	ND (0.1)	ND (0.1) ND (0.1)						
		2500	1000													ND (0.1)
Titanium (dissolved)	ug/L		1000	ND (0.3)	ND (0.3)	ND (0.3)	ND (0.3)	2	ND (0.3)							
Tungsten (dissolved)	ug/L	3														ND (0.1)
Uranium (dissolved)	ug/L	20	85	0.062	0.098	0.048	0.033	0.122	0.146	0.217	0.068	0.015	0.018	0.012	0.011	0.015
Vanadium (dissolved)	ug/L	20		2.14	2.02	2.26	2.3	3.29	3.24	3.65	4.26	3.46	4.81	2.25	2.2	2.26
Zinc (dissolved)	ug/L	3000	[b]	ND (1)	ND (1)	ND (1)	ND (1)	2.1	2.2	ND (1)	ND (1)	22.2	15.4	15	14.6	20.4
Zirconium (dissolved)	ug/L			ND (0.2)												

Sample Location:						EBA04-6				EBA				EBA		
Sample ID: Sample Date:			C CSR edule 3.2	WG-030823-CS-55 03/08/2023	WG-030823-CS-56 03/08/2023	WG-051723-CS-21 05/17/2023	WG-081323-CS-08 08/13/2023	WG-111323-CS-09 11/13/2023	WG-030823-CS-57 03/08/2023	WG-051723-CS-20 05/17/2023	WG-081323-CS-07 08/13/2023	WG-111423-CS-11 11/14/2023	WG-022823-CS-45 02/28/2023	WG-051623-CS-12 05/16/2023	WG-081423-CS-10 08/14/2023	WG-111323-CS-0 11/13/2023
arameters	Units	DW a	FAW b		Duplicate											
ield Parameters	uS/cm			485	485	671	593	586	899	803	790	927	1010	985	931	702
kidation reduction potential (ORP), field	millivolts	-	-	295	295	239	236	237	303	244	242	262	264	232	236	248
H, field	S.U.			7.23	7.23	7.23	7.32	7.27	6.84	7.00	7.10	6.85	7.11	7.22	7.32	7.44
emperature, field	Deg C	_	_	10.86	10.86	14.89	14.34	10.66	10.70	13.80	13.81	10.57	8.81	11.42	10.46	9.06
otal dissolved solids, field (TDS)	mg/L	-		315	315	429	379	375	576	513	502	593	647	630	596	449
urbidity, field	NTU	-		0.0	0.0	0.0	1.0	2.4	0.0	0.0	1.1	1.4	14.0	9.8	1.3	2.9
General Chemistry																
Ikalinity, bicarbonate	mg/L	-		252	253	323	317 J	315	323	283	313 J	442	208	162	162 J	107
Ikalinity, carbonate	mg/L	-	-	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0) J	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0) J	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0) J	ND (1.0)
Ikalinity, hydroxide	mg/L	-		ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0) J	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0) J	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0) J	ND (1.0)
Ikalinity, total (as CaCO3)	mg/L		4500	252	254	323	317 J	315	323	283	313 J	442	208	162	162 J	107
Chloride (dissolved)	mg/L	250	1500	2.58 466	2.56 469	10.9	10.2 J	3.79 566	63.1 841	54.7	61.9 J 862 J	43.1 958	133 991	152	131 J 964 J	98.4
Conductivity	uS/cm	4.5		466 ND (0.020)		623 ND (0.020)	640 J ND (0.020) J	ND (0.020)	841 ND (0.100)	780 ND (0.100)	862 J ND (0.100) J	958 ND (0.100)	991 ND (0.100)	1020 ND (0.100)	964 J ND (0.100) J	722
fluoride Hardness	mg/L mg/L	1.5	[b]	ND (0.020) 252	ND (0.020) 257	ND (0.020) 343	ND (0.020) J 316 J	ND (0.020) 327	ND (0.100) 424	ND (0.100) 348	ND (0.100) J 371 J	ND (0.100) 463	ND (0.100) 380	ND (0.100) 339	ND (0.100) J 361 J	ND (0.100) 240
tardness Sulfate (dissolved)	mg/L mg/L	500	[b]	252	257	343 14.2	316 J 13.6 J	3.82	424 11.7	348 11.2	3/1 J 10.1 J	463 8.76	380 47.2	30.0	35.4 J	240 35.4
Fotal dissolved solids (TDS)	mg/L			269 J	2.02 289 J	416	391 J	352	535 J	525	568 J	616	634	748	696 J	498
lutrients																
Ammonia-N	mg/L	-	[a]	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050) J	ND (0.0050)	ND (0.0122)	0.0109	0.0110 J	0.0116	ND (0.0050)	ND (0.0050)	ND (0.0050) J	ND (0.0050)
Nitrate (as N)	mg/L	10	400	1.70	1.69	3.37	4.88 J	2.14	9.68	15.6	12.4 J	5.30 J	14.2	27.2	26.9 J	16.8
Nitrite (as N)	mg/L	1	[c]	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010) J	ND (0.0010)	ND (0.0050)	ND (0.0050)	ND (0.0050) J	ND (0.0050) J	0.217	0.135	0.0672 J	0.0434
Nitrite/Nitrate	mg/L	10	400	1.70	1.69	3.37	4.88 J	2.14	9.68	15.6ª	12.4 J ^a	5.30 J	14.4°	27.3°	27.0 J	16.8
Dissolved Metals																
Numinum (dissolved)	ug/L	9500	_	1.4	1.1	1.1	ND (1)	1.2	1	ND (1)	1.6	ND (1)	1.5	1.4	1.1	7.6
Antimony (dissolved)	ug/L	6	90	ND (0.1)	ND (0.1)											
Arsenic (dissolved)	ug/L	10	50	ND (0.1)	ND (0.1)	0.11	0.11	0.13	0.12	0.1	0.12	0.13	0.14	0.14	0.13	0.15
Barium (dissolved)	ug/L	1000	10000	5.85	5.98	8.65	7.85	7.45	15.7	14.1	14.4	18.2	13.8	15.2	14.6	9.36
Beryllium (dissolved)	ug/L	8	1.5	ND (0.02)	ND (0.02)											
Bismuth (dissolved)	ug/L			ND (0.05)	ND (0.05)											
Boron (dissolved)	ug/L	5000	12000	34	35	69	127	73	174	119	152	275	148	145	148	107
Cadmium (dissolved)	ug/L	5	[b]	0.0083	0.0054	0.0108	0.0102	0.0064	0.0561	0.0387	0.0429	0.0729	0.0405	0.0316	0.0363	0.0193
Caesium (dissolved)	ug/L		IDI	0.0063	0.0034	0.0100	0.0102	0.0004	0.0301	0.0367	0.0425	0.0725	0.0400	0.0310	0.0303	0.0153
Calcium (dissolved)				76000	77800	103000	95200	99600	127000	101000	111000	139000	111000	101000	109000	71700
	ug/L	50	10	1.24	1.26		ND (0.5)	1.27			ND (0.5)					ND (0.5)
Chromium (dissolved)	ug/L					ND (0.5)			ND (0.5)	ND (0.5)		ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	
Cobalt (dissolved) (1)	ug/L	1	40	ND (0.1)	0.36	0.24	0.26	0.56	0.74	0.58	0.61	0.44				
Copper (dissolved)	ug/L	1500	[b]	ND (0.2)	ND (0.2)	0.9	0.84	0.32	2.08	1.33	1.48	4.21	5.09	3.77	3.59	3.29
ron (dissolved) (2)	ug/L	6500		ND (10)	10											
.ead (dissolved)	ug/L	10	[b]	ND (0.05)	ND (0.05)											
ithium (dissolved)	ug/L	8		ND (1)	1.1	1	ND (1)	ND (1)	ND (1)	ND (1)						
Magnesium (dissolved)	ug/L	-		15200	15200	20900	18900	19000	25900	23200	22800	28200	24900	21000	21600	14900
Manganese (dissolved) (3)	ug/L	1500		ND (0.1)	ND (0.1)	0.16	0.27	ND (0.1)	369	309	403	502	565	193	279	150
Mercury (dissolved)	ug/L	1	0.25	ND (0.005)	ND (0.005)											
folybdenum (dissolved)	ug/L	250	10000	ND (0.05)	0.099	0.11	0.111	0.111	0.096	0.067	0.07	0.088				
lickel (dissolved)	ug/L	80	[b]	ND (0.5)	1.1	0.75	0.84	2.1	1.34	1.05	1.06	0.66				
Phosphorus (dissolved)	ug/L		[9]	ND (50)	ND (50)											
		_	-			1510	ND (50)	1460				2440		1720	1740	1320
Potassium (dissolved)	ug/L	-	-	1260	1240	1010	1440	1400	2260	2200	2150	2440	1520	1720	1740	1320
Rubidium (dissolved)	ug/L	-	-						I				1	•		-
Selenium (dissolved)	ug/L	10	20	ND (0.05)	0.156	0.074	0.072	0.066								
Silicon (dissolved)	ug/L	-		11400	11300	12900	13400	12300	12600	12800	13500	14700	8840	9950	9830	9030
ilver (dissolved)	ug/L	20	[b]	ND (0.01)	ND (0.01)											
odium (dissolved)	ug/L	200000		6260	6230	7370	8030	8280	24800	22800	27900	30600	42100	56200	59600	47100
trontium (dissolved)	ug/L	2500		181	172	227	216	203	323	278	286	336	297	292	302	189
ulphur (dissolved)	ug/L			750	830	4910	5230	1470	4320	4330	4980	4180	17600	13000	13000	12800
'ellurium (dissolved)	ug/L	_											1			
'hallium (dissolved)	ug/L	_	3	ND (0.01)	ND (0.01)											
'horium (dissolved)	ug/L	_		- (- (- (- (()	(,	(,	- ((0.0.,		- (- (,	()
in (dissolved)	ug/L	2500		ND (0.1)	ND (0.1)											
		2500	1000													
itanium (dissolved)	ug/L		1000	ND (0.3)	0.37											
ungsten (dissolved)	ug/L	3	-			•	•		1	•		-	1	•		-
Jranium (dissolved)	ug/L	20	85	0.188	0.196	0.33	0.302	0.242	0.747	0.743	0.624	0.663	0.881	0.595	0.506	0.381
/anadium (dissolved)	ug/L	20		1.65	1.63	1.7	1.62	1.76	1.61	1.67	1.58	1.79	3.32	2.87	3.08	3.26
inc (dissolved)	ug/L	3000	[b]	ND (1)	ND (1)											
Zirconium (dissolved)	ug/L	-		ND (0.2)	ND (0.2)											

Sample Location:						EBA11-3					EBA	11-4		
Sample ID:		BC	CSR	WG-030723-CS-53	WG-051723-CS-13	WG-081323-CS-03	WG-081323-CS-04	WG-111323-CS-03	WG-030723-CS-54	WG-051723-CS-14	WG-051723-CS-15	WG-081323-CS-05	WG-111323-CS-04	WG-111323-CS-05
Sample Date:			dule 3.2	03/07/2023	05/17/2023	08/13/2023	08/13/2023	11/13/2023	03/07/2023	05/17/2023	05/17/2023	08/13/2023	11/13/2023	11/13/2023
		DW	FAW				Duplicate				Duplicate			Duplicate
Parameters	Units	а	b				•				-			•
Field Parameters														
Conductivity, field	uS/cm			126	126	106	106	108	121	119	119	123	139	139
Oxidation reduction potential (ORP), field	millivolts			295	230	232	232	242	286	220	220	236	243	243
pH, field	s.u.			7.75	7.73	7.90	7.90	7.88	7.98	7.97	7.97	8.00	8.05	8.05
Temperature, field	Deg C			10.01	11.41	12.07	12.07	10.16	9.51	11.48	11.48	11.93	10.04	10.04
Total dissolved solids, field (TDS)	mg/L			82	82	69	69	70	79	77	77	80	90	90
Turbidity, field	NTU	-	-	9.1	0.0	2.6	2.6	3.7	121	61.0	61.0	30.0	25.8	25.8
General Chemistry														
Alkalinity, bicarbonate	mg/L			55.8	55.3	53.9 J	54.0 J	54.4	50.9	53.2	52.0	57.4 J	61.3	61.4
Alkalinity, carbonate	mg/L	-		ND (1.0)	ND (1.0)	ND (1.0) J	ND (1.0) J	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0) J	ND (1.0)	ND (1.0)
Alkalinity, hydroxide	mg/L			ND (1.0)	ND (1.0)	ND (1.0) J	ND (1.0) J	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0) J	ND (1.0)	ND (1.0)
Alkalinity, total (as CaCO3)	mg/L			55.8	55.3	53.9 J	54.0 J	54.4	50.9	53.2	52.0	57.4 J	61.3	61.4
Chloride (dissolved)	mg/L	250	1500	4.22	3.74	1.94 J	1.94 J	1.41	5.59	4.95	4.95	3.01 J	2.84	2.84
Conductivity Fluoride	uS/cm	1.5	fb.)	124 ND (0.020)	118 ND (0.020)	114 J ND (0.020) J	114 J ND (0.020) J	110 ND (0.020)	121 0.021	118 ND (0.020)	120 ND (0.020)	131 J ND (0.020) J	140 ND (0.020)	140 ND (0.020)
	mg/L	1.5	[b]				49 R.I		53.6					
Hardness Sulfate (dissolved)	mg/L mg/L	500	[b]	59.5 2.51	55.7 2.40	50.6 J 2.29 J	49.8 J 2.29 J	51.2 2.49	53.6 2.22	51.0 1.75	49.4 1.75	54.8 J 4.34 J	63.4 6.13	63.4 6.14
Total dissolved solids (TDS)	mg/L	500	[6]	2.51 87 J	81	2.29 J 80 J	2.29 J 85 J	68	72 J	77	84	4.34 J 90 J	93	93
	HIGHE			01.3	01	00 3	60 3	00	123	"	04	50 3	55	53
Nutrients	ma/l		fol	0.0055	ND (0.0050)	ND (0.0050) J	ND (0.0050) J	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050) J	ND (0.0050)	ND (0.0050)
Ammonia-N	mg/L		[a]											
Nitrate (as N)	mg/L	10	400	0.230	0.280	0.106 J	0.105 J	0.0480	0.277	0.245	0.246	0.534 J	0.471	0.468
Nitrite (as N)	mg/L	1	[c]	ND (0.0010)	ND (0.0010)	ND (0.0010) J	ND (0.0010) J	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010) J	ND (0.0010)	ND (0.0010)
Nitrite/Nitrate	mg/L	10	400	0.230	0.280	0.106 J	0.105 J	0.0480	0.277	0.245	0.246	0.534 J	0.471	0.468
Dissolved Metals														
Aluminum (dissolved)	ug/L	9500		1.9	1.7	1.4	1.4	3.9	3.8	3.3	2.4	8.9	5.5	3.1
Antimony (dissolved)	ug/L	6	90	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)
Arsenic (dissolved)	ug/L	10	50	0.2	0.2	0.21	0.21	0.2	2	2.14	2.16	1.68	1.57	1.54
Barium (dissolved)	ug/L	1000	10000	0.63	0.48	0.42	0.43	0.41	1.37	1.48	1.43	1.67	1.78	1.87
Beryllium (dissolved)	ug/L	8	1.5	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)
Bismuth (dissolved)	ug/L			ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
Boron (dissolved)	ug/L	5000	12000	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
Cadmium (dissolved)	ug/L	5	[b]	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)
Caesium (dissolved)	ug/L			-	-	-	-	-	-	-	-	-		-
Calcium (dissolved)	ug/L			19400	18000	16200	15800	16600	17000	15900	15400	16600	19700	19700
Chromium (dissolved)	ug/L	50	10	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	1.94	1.97	2.08	0.75	0.73	0.76
Cobalt (dissolved) (1)	ug/L	1	40	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)
Copper (dissolved)	ug/L	1500	[b]	0.88	ND (0.2)	ND (0.2)	ND (0.2)	0.24	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	0.26	0.29
Iron (dissolved) (2)	ua/L	6500		ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
Lead (dissolved)	ug/L	10	[b]	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
Lithium (dissolved)	ug/L	8	[0]	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
Magnesium (dissolved)	ug/L		-	2690	2620	2460	2520	2360	2710	2750	2650	3240	3450	3450
		1500		ND (0.1)	ND (0.1)		ND (0.1)	0.1			ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)
Manganese (dissolved) (3)	ug/L	1				ND (0.1)			ND (0.1)	ND (0.1)				
Mercury (dissolved)	ug/L	1 250	0.25 10000	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)
Molybdenum (dissolved)	ug/L			0.128 ND (0.5)	0.147	0.146 ND (0.5)	0.158 ND (0.5)	0.132	0.094	0.109	0.118	0.072	0.061	0.065
Nickel (dissolved)	ug/L	80	[b]	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Phosphorus (dissolved)	ug/L	-	-	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	50	53	ND (50)	ND (50)	ND (50)
Potassium (dissolved)	ug/L	-	-	281	312	284	292	300	821	815	788	1010	1200	1200
Rubidium (dissolved)	ug/L				-		-			-	-			
Selenium (dissolved)	ug/L	10	20	0.15	0.154	0.236	0.18	0.102	0.255	0.28	0.331	0.142	0.151	0.129
Silicon (dissolved)	ug/L	-	-	4340	4710	4640	4630	4830	5710	6240	6220	5660	5140	5170
Silver (dissolved)	ug/L	20	[b]	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)
Sodium (dissolved)	ug/L	200000		2390	2180	2240	2220	2500	2970	2750	2670	3210	3150	3200
Strontium (dissolved)	ug/L	2500		33.2	32.2	29.7	29.7	26.7	31.9	30.1	29.3	34.1	32.4	32.8
Sulphur (dissolved)	ug/L	-		690	880	660	650	1000	ND (500)	750	650	1390	2200	2060
Tellurium (dissolved)	ug/L			-			-							
Thallium (dissolved)	ug/L		3	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)
Thorium (dissolved)	ua/L			1 27		****							-	,
Tin (dissolved)	ug/L	2500		ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)
Titanium (dissolved)	ug/L		1000	ND (0.3)	ND (0.3)	ND (0.3)	ND (0.3)	ND (0.3)	ND (0.3)	ND (0.3)	ND (0.3)	ND (0.3)	ND (0.3)	ND (0.3)
Tungsten (dissolved)	ug/L ug/L	3	1000	IND (U.3)	ND (0.3)	ND (0.3)	ND (0.3)	ND (0.3)	ND (0.3)	ND (0.3)	ND (0.3)	ND (0.3)	IND (U.S)	IND (U.S)
		20		0.041	0.037	0.035	0.036	0.032	0.282	0.263	0.262	0.328	0.383	0.397
Uranium (dissolved)	ug/L		85											
Vanadium (dissolved)	ug/L	20		3.7	3.81	3.78	3.75	4.11	16.4	17.7	17.3	14.7	14.4	14.4
Zinc (dissolved)	ug/L	3000	[b]	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
Zirconium (dissolved)	ug/L			ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)

Sample Location:						Г94-2			MW0					MW02-18		
Sample ID: Sample Date:		BC 0 Schedu		WG-030823-CS-59 03/08/2023	WG-051723-CS-22 05/17/2023	WG-081623-C5-23 08/16/2023	WG-111623-CS-23 11/16/2023	WG-022723-CS-39 02/27/2023	WG-051023-CS-01 05/10/2023	WG-081323-CS-01 08/13/2023	WG-111323-CS-01 11/13/2023	WG-022723-CS-43 02/27/2023	WG-022723-CS-44 02/27/2023	WG-051023-CS-06 05/10/2023	WG-081423-C5-13 08/14/2023	WG-111523-CS-16 11/15/2023
Parameters	Units	DW a	FAW b										Duplicate			
Field Parameters																
Conductivity, field	uS/cm	-		641	642	452	468	75	78	67	90	522	522	698	766	547
Oxidation reduction potential (ORP), field	millivolts	-		5	-23	1	32	328	255	240	258	125	125	89	96	93
pH, field	s.u.	-		7.20	7.23	7.35	7.38	7.29	7.48	7.40	7.33	6.95	6.95	6.97	6.87	6.97
Temperature, field	Deg C	-		11.86	14.80	17.69	11.25	15.15	19.45	12.26	11.38	10.99	10.99	12.85	14.07	11.27
Total dissolved solids, field (TDS) Turbidity, field	mg/L NTU	-	-	410 5.1	410 0.0	294 1.8	304 0.0	49 10.9	51 0.0	43 2.9	58 3.1	334 0.0	334 0.0	447 0.0	490 0.7	350 0.5
General Chemistry																
Alkalinity, bicarbonate	mg/L	-		254	238	205 J	188	34.4	37.3	35.8 J	44.9	204	203	291	354 J	237
Alkalinity, carbonate	mg/L	-		ND (1.0)	ND (1.0)	ND (1.0) J	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0) J	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0) J	ND (1.0)
Alkalinity, hydroxide	mg/L	=		ND (1.0)	ND (1.0)	ND (1.0) J	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0) J	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0) J	ND (1.0)
Alkalinity, total (as CaCO3) Chloride (dissolved)	mg/L mg/L	250	1500	254 47.5	238 49.2	205 J 35.1 J	188 37.7	34.4 0.81	37.3 1.03	35.8 J 0.88 J	44.9 0.78	204 33.6	203 33.3	291 47.4	354 J 56.5 J	237 34.2
Conductivity	uS/cm	250	1500	612	49.2 593	35.1 J 464 J	473	74.3	79.9	75.9 J	91.8	33.6 498	33.3 496	47.4 691	800 J	34.2 576
Fluoride	mg/L	1.5	[b]	ND (0.020)	ND (0.020)	ND (0.040) J	ND (0.020)	ND (0.020)	ND (0.020)	ND (0.020) J	ND (0.020)	ND (0.020)	ND (0.020)	ND (0.100)	ND (0.020) J	ND (0.020)
Hardness	mg/L mg/L		101	ND (0.020)	ND (0.020) 223	179 J	ND (0.020) 155	ND (0.020)	36.1	34 O J	ND (0.020)	ND (0.020)	139	ND (0.100) 220	ND (0.020) J 292 J	ND (0.020)
Sulfate (dissolved)	mg/L	500	[b]	2.87	3.16	1.84 J	2.39	2.35	2.53	2.12 J	2.68	2.59	2.64	2.11	3.54 J	2.78
Total dissolved solids (TDS)	mg/L	-	-	357 J	355	273 J	308	50	63	57 J	58	248	248	354	421 J	291
Nutrients	1															-
Ammonia-N	mg/L	-	[a]	7.02	6.86	5.76 J	4.52	ND (0.0050)	ND (0.0050)	ND (0.0050) J	ND (0.0050)	12.6	12.2	14.9	19.9 J ^b	13.7
Nitrate (as N)	mg/L	10	400	0.0404	0.0241	ND (0.0050) J	0.0053	0.0614	0.0770	0.0686 J	0.126	ND (0.0050)	ND (0.0050)	ND (0.0250)	ND (0.0050) J	ND (0.0050)
Nitrite (as N)	mg/L	1	[c]	ND (0.0010)	0.0018	0.0035 J	0.0015	ND (0.0010)	ND (0.0010)	ND (0.0010) J	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0050)	0.0023 J	ND (0.0010)
Nitrite/Nitrate	mg/L	10	400	0.0404	0.0259	ND (0.0051) J	-	0.0614	0.0770	0.0686 J	0.126	ND (0.0051)	ND (0.0051)	ND (0.0255)	ND (0.0051) J	ND (0.0051)
Dissolved Metals																
Aluminum (dissolved)	ug/L	9500		4.1	3.2	3.8	20.9	4.6	2.3	8.5	2.8	ND (1)	ND (1)	1.1	ND (1)	1.1
Antimony (dissolved)	ug/L	6	90	ND (0.1)												
Arsenic (dissolved)	ug/L	10	50 10000	1.66	1.67	1.48 12.7	1.35	0.1	ND (0.1)	ND (0.1)	ND (0.1)	0.2	0.18	0.21	0.21	0.2
Barium (dissolved) Beryllium (dissolved)	ug/L ug/L	1000 8	10000	17.4 ND (0.02)	18.6 ND (0.02)	12.7 ND (0.02)	11.8 ND (0.1)	1.44 ND (0.02)	1.29 ND (0.02)	1.11 ND (0.02)	1.33 ND (0.02)	21.8 ND (0.02)	21.2 ND (0.02)	32.9 ND (0.02)	46.1 ND (0.02)	26.2 ND (0.02)
Bismuth (dissolved)	ug/L ug/L		1.5	ND (0.02) ND (0.05)	ND (0.02) ND (0.05)	ND (0.02) ND (0.05)	ND (0.1) ND (0.05)	ND (0.02) ND (0.05)	ND (0.02) ND (0.05)	ND (0.02) ND (0.05)	ND (0.02) ND (0.05)	ND (0.02) ND (0.05)	ND (0.02) ND (0.05)	ND (0.02)	ND (0.02) ND (0.05)	ND (0.02)
Boron (dissolved)	ug/L	5000	12000	150	161	ND (0.05)	124	10	ND (0.05)	ND (0.05)	ND (0.05)	209	ND (0.05)	222	208	ND (0.05)
Cadmium (dissolved)		5	[b]	0.048	0.0603	0.0405	0.0395	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)	0.0676	0.0613	0.0869	0.0989	0.0739
Caesium (dissolved)	ug/L	5	IDI	0.048	0.0003	0.0405	ND (0.01)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)	0.0676	0.0613	0.0009	0.0969	0.0739
	ug/L	-	-											65900		48800
Calcium (dissolved)	ug/L	50	10	84800 ND (0.5)	74900	60700	52400	10400 ND (0.5)	11900	11000	14300 ND (0.5)	42000 ND (0.5)	41800 ND (0.5)		88000	
Chromium (dissolved)	ug/L		40	ND (0.5)												
Cobalt (dissolved) (1)	ug/L	1		0.18	0.2	0.17	0.16	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	0.88	0.86	1.2	1.54	1.02
Copper (dissolved)	ug/L	1500	[b]	0.26	0.28	0.22	0.41	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	8.41	8.25	8.69	9.25	9.56
Iron (dissolved) (2)	ug/L	6500		371	389	278	202	ND (10)	ND (10)	18	ND (10)	22	22	35	26	28
Lead (dissolved)	ug/L	10	[b]	ND (0.05)												
Lithium (dissolved)	ug/L	8		ND (1)												
Magnesium (dissolved)	ug/L	-		9300	8690	6630	5840	1420	1560	1600	1930	8870	8490	13400	17500	9890
Manganese (dissolved) (3)	ug/L	1500		1420	1340	1160	922	0.12	ND (0.1)	1.13	0.14	1440	1430	2120	2950°	1560
Mercury (dissolved)	ug/L	1	0.25	ND (0.005)	0.0052	ND (0.005)	ND (0.005)									
Molybdenum (dissolved)	ug/L	250	10000	0.132	0.14	0.125	0.151	0.21	0.164	0.122	0.137	0.768	0.754	0.636	0.632	0.702
Nickel (dissolved)	ug/L	80	[b]	1.38	1.72	0.87	0.84	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	1.75	1.69	1.75	1.99	2.01
Phosphorus (dissolved)	ug/L	-		ND (50)												
Potassium (dissolved)	ug/L	-		5260	5040	4430	4500	190	176	136	179	8540	8400	10000	12400	9260
Rubidium (dissolved)	ug/L	-		-		-	0.35	-		-		-				-
Selenium (dissolved)	ug/L	10	20	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	0.089	0.109	0.091	0.113	ND (0.05)				
Silicon (dissolved)	ug/L	-		7910	8860	8720	8110	4340	4280	3610	3870	13200	13100	14200	14800	13200
Silver (dissolved)	ug/L	20	[b]	ND (0.01)												
Sodium (dissolved)	ug/L	200000		25200	27300	23400	22600	1140	1110	1040	1190	22000	21900	27500	30300	22300
Strontium (dissolved)	ug/L	2500		265	244	182	164	16.5	17.6	17.3	20	198	190	304	411	234
Sulphur (dissolved)	ug/L	-		1120	1170	1280	830	560	700	630	1000	720	740	800	1260	1140
Tellurium (dissolved)	ug/L	-		-		-	ND (0.2)	-				-		-		-
Thallium (dissolved)	ug/L	-	3	ND (0.01)												
Thorium (dissolved)	ug/L	-					ND (0.1)									1.0
Tin (dissolved)	ug/L	2500		ND (0.1)												
Titanium (dissolved)	ug/L		1000	ND (0.3)	ND (0.3)	ND (0.3)	2.11	ND (0.3)	ND (0.3)	0.49	ND (0.3)					
		3		(,	(,	- (,	ND (0.1)		- (,		()	- (,			(,	
Tungsten (dissolved)	ug/L		85	0.11	0.111	0.069		ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	0.22	0.221	0.365	0.479	0.286
Tungsten (dissolved) Uranium (dissolved)	ug/L	20	85	0.11 ND (0.5)	0.111 ND (0.5)	0.069 ND (0.5)	0.08	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	0.22	0.221	0.365	0.479	0.286
Tungsten (dissolved)			85 [b]	0.11 ND (0.5) ND (1)	0.111 ND (0.5) ND (1)	0.069 ND (0.5) ND (1)		ND (0.01) 1.91 ND (1)	ND (0.01) 1.59 ND (1)	ND (0.01) 1.09 ND (1)	ND (0.01) 1.35 ND (1)	0.22 1.64 ND (1)	0.221 1.58 2.7	0.365 1.64 ND (1)	0.479 1.72 ND (1)	0.286 1.62 ND (1)

Sample Location:	т т					MW03-18				MW	04-19			MWO	6-21	
Sample ID:			CSR	WG-022823-CS-48	WG-051623-CS-08	WG-081523-CS-18	WG-111523-CS-20	WG-111523-CS-21	WG-030823-CS-58	WG-051723-CS-19	WG-081623-C5-22	WG-111423-CS-12	WG-030723-CS-49	WG-051023-CS-03	WG-081423-C5-11	WG-111423-CS-13
Sample Date:			ule 3.2	02/28/2023	05/16/2023	08/15/2023	11/15/2023	11/15/2023	03/08/2023	05/17/2023	08/16/2023	11/14/2023	03/07/2023	05/10/2023	08/14/2023	11/14/2023
Parameters	Units	DW a	FAW b					Duplicate								
Field Parameters																
Conductivity, field	uS/cm		_	156	134	126	221	221	209	169	132	114	185	179	174	181
Oxidation reduction potential (ORP), field	millivolts		-	265	210	214	241	241	226	210	185	202	260	234	238	222
pH, field	s.u.		-	8.10	8.14	8.38	8.22	8.22	8.19	8.35	8.59	7.51	7.69	7.87	7.92	7.87
Temperature, field	Deg C		-	10.65	12.99	13.21	11.19	11.19	7.99	13.07	16.75	8.93	10.36	13.11	12.43	10.38
Total dissolved solids, field (TDS) Turbidity, field	mg/L NTU	-	-	102 0.0	87 0.0	82 0.4	144 0.3	144 0.3	136 1000	110 1000	86 345	74 354	120 385	116 166	113 10.7	118 51.8
lurbidity, field	NIU	-	-	0.0	0.0	0.4	0.3	0.3	1000	1000	345	354	385	166	10.7	51.8
General Chemistry																
Alkalinity, bicarbonate	mg/L		-	78.6	67.7	66.2	116	117	105	75.9	63.4 J	62.2	90.8	90.1	91.9 J	91.9
Alkalinity, carbonate	mg/L		-	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0) J	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0) J	ND (1.0)
Alkalinity, hydroxide	mg/L	=	_	ND (1.0)	ND (1.0) 67.7	ND (1.0)	ND (1.0) 116	ND (1.0) 117	ND (1.0)	ND (1.0)	ND (1.0) J	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0) J	ND (1.0)
Alkalinity, total (as CaCO3) Chloride (dissolved)	mg/L mg/L	250	1500	78.6 1.26	1.26	66.2 1.29	116 2.74	2.74	105 5.99	75.9 5.39	63.4 J 4.33 J	62.2 4.13	90.8 2.56	90.1 2.72	91.9 J 2.58 J	91.9 2.60
Conductivity	uS/cm	200	1300	156	135	129	230	231	198	161	4.33 J	138	185	186	181 J	188
Fluoride	mg/L	1.5	[b]	ND (0.020)	ND (0.020)	ND (0.020)	ND (0.020)	ND (0.020)	ND (0.020)	ND (0.020)	ND (0.020) J	ND (0.020)	0.022	0.025	0.026 J	0.023
Hardness	mg/L			72.8	60.8	60.8	108	105	90.8	73.5	65.6 J	71.0	93.9	89.7	94.4 J	90.5
Sulfate (dissolved)	mg/L	500	[b]	2.12	1.96	1.99	2.83	2.84	5.10	4.54	3.27 J	3.60	1.79	2.09	2.10 J	1.77
Total dissolved solids (TDS)	mg/L		-	91	76	80	144	137	122 J	108	102 J	114	120 J	123	118 J	122
Nutrients																
Ammonia-N	mg/L		[a]	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0222)	0.0165	ND (0.0050) J	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050) J	ND (0.0050)
Nitrate (as N)	mg/L	10	400	0.161	0.141	0.114	0.221	0.220	0.219	0.239	0.221 J	0.218 J	0.586	0.650	0.610 J	0.629 J
Nitrite (as N)	mg/L	1	[c]	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)	0.0012	ND (0.0010)	ND (0.0010) J	ND (0.0010) J	ND (0.0010)	ND (0.0010)	ND (0.0010) J	ND (0.0010) J
Nitrite/Nitrate	mg/L	10	400	0.161	0.141	0.114	0.221	0.220	0.220	0.239	0.221 J	0.218 J	0.586	0.650	0.610 J	0.629 J
Dissolved Metals																
Aluminum (dissolved)	ug/L	9500	_	4.7	5.4	5	4	4.2	4.8	6.4	17.7	3220	6.2	3.5	147	3.4
Antimony (dissolved)	ug/L	6	90	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)
Arsenic (dissolved)	ug/L	10	50	0.52	0.6	0.63	0.55	0.52	0.17	0.22	0.31	0.58	0.3	0.27	0.29	0.26
Barium (dissolved)	ug/L	1000	10000	1.82	1.59	1.66	2.73	2.74	4.54	4.38	3.07	23.4	7.56	7.45	8.48	7.37
Beryllium (dissolved)	ug/L	8	1.5	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	0.038	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)
Bismuth (dissolved)	ug/L	-		ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
Boron (dissolved)	ug/L	5000	12000	35	24	16	16	15	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
Cadmium (dissolved)	ug/L	5	[b]	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)	0.0383	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)
Caesium (dissolved)	ug/L	-	-			-		-			-					
Calcium (dissolved)	ug/L	50	10	25600	21400	21600	38200	37000	23700 7.8	19300 7.48	17800	18300	27000	25900	27200	26000
Chromium (dissolved)	ug/L	50		ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)			6.75	8.81	2.53	2.59	2.73	2.55
Cobalt (dissolved) (1)	ug/L	1 1500	40	ND (0.1)	ND (0.1)	ND (0.1) ND (0.2)	ND (0.1) 0.47	ND (0.1) 0.47	ND (0.1) ND (0.2)	ND (0.1) ND (0.2)	ND (0.1) ND (0.2)	2.23 ^a 18.1	ND (0.1) ND (0.2)	ND (0.1) ND (0.2)	0.16 0.93	ND (0.1)
Copper (dissolved)	ug/L		[b]	0.28 ND (10)	ND (0.2) ND (10)		ND (10)			ND (0.2)	ND (0.2)	3870	ND (0.2) ND (10)		201	ND (0.2) ND (10)
Iron (dissolved) (2) Lead (dissolved)	ug/L	6500 10	[b]	ND (10) ND (0.05)	ND (10) ND (0.05)	ND (10) ND (0.05)	ND (10) ND (0.05)	ND (10) ND (0.05)	ND (10) ND (0.05)	ND (10) ND (0.05)	ND (10) ND (0.05)	0.325	ND (10) ND (0.05)	ND (10) ND (0.05)	201 ND (0.05)	ND (10) ND (0.05)
	ug/L	8	[D]	ND (0.05)			ND (0.05)		ND (0.05) ND (1)	ND (0.05)		1.2			ND (0.05)	
Lithium (dissolved) Magnesium (dissolved)	ug/L		_	2160	ND (1) 1800	ND (1) 1670	3190	ND (1) 3180	7680	6140	ND (1) 5130	6150	ND (1) 6430	ND (1) 6080	6420	ND (1) 6210
	ug/L		-	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)		ND (0.1)	ND (0.1)	0.15	75.1	0.1		7.54	ND (0.1)
Manganese (dissolved) (3) Mercury (dissolved)	ug/L	1500	0.25	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1) ND (0.005)	ND (0.1)	ND (0.1)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.1) ND (0.005)	7.54 ND (0.005)	ND (0.1)
Molybdenum (dissolved)	ug/L	250	10000	0.106	0.152	0.154	0.102	0.102	0.092	0.105	0.125	0.104	0.152	0.164	0.153	0.165
Nickel (dissolved)	ug/L	250 80		ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	3.19	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
	ug/L		[b]	ND (0.5)	ND (0.5) ND (50)	ND (0.5) ND (50)	ND (50)	ND (0.5)	ND (0.5) ND (50)	ND (50)	ND (0.5)	240	ND (0.5)	ND (0.5) ND (50)	ND (0.5)	ND (0.5)
Phosphorus (dissolved) Potassium (dissolved)	ug/L	-	_	508	ND (50) 516	ND (50) 526	708	701	772	755	ND (50) 681	1020	ND (50) 481	ND (50) 497	ND (50) 510	500
	ug/L	-	-	500	510	520	700	701	112	/50	001	1020	401	497	510	500
Rubidium (dissolved) Selenium (dissolved)	ug/L ug/L	10	20	0.127	0.142	0.125	0.13	0.127	0.255	0.252	0.288	0.282	0.117	0.125	0.101	0.092
Silicon (dissolved)		10	20	4260	4610	4300	4410	4540	7310	7830	7860	13300	6120	6610	6740	6500
	ug/L	20	- n-1	4260 ND (0.01)	4610 ND (0.01)	4300 ND (0.01)	4410 ND (0.01)	4540 ND (0.01)	7310 ND (0.01)		7860 ND (0.01)	0.016	ND (0.01)	ND (0.01)	ND (0.01)	
Silver (dissolved) Sodium (dissolved)	ug/L	200000	[b]	ND (0.01) 2310	ND (0.01) 2730	ND (0.01) 2880	ND (0.01) 3560		ND (0.01) 4870	ND (0.01) 4070	ND (0.01) 3940	0.016 3960	ND (0.01) 2530	ND (0.01) 2330		ND (0.01) 2420
	ug/L		_					3550 63							2500	2420 41.5
		2500		41.7 1030	36.2	33.4	63.5		68.5 1480	64.9	60.4	67	45.1 ND (500)	42.5	46.8	
Strontium (dissolved)	ug/L				1060	640	1010	1130	1480	1340	1580	1060	ND (500)	560	ND (500)	ND (500)
Strontium (dissolved) Sulphur (dissolved)	ug/L	-	-	1000												
Strontium (dissolved) Sulphur (dissolved) Tellurium (dissolved)	ug/L ug/L	-	-	-		ND (0.01)	ND (0.01)	ND (0.04)	ND (0.01)	ND (0.01)	ND (0.01)	0.011	ND (0.01)	ND (0.01)	ND (0.04)	ND (0.01)
Strontium (dissolved) Sulphur (dissolved) Tellurium (dissolved) Thallium (dissolved)	ug/L ug/L ug/L	=	3	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	0.011	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)
Strontium (dissolved) Sulphur (dissolved) Tellurium (dissolved) Thallium (dissolved) Thorium (dissolved)	ug/L ug/L ug/L ug/L	=-	3	ND (0.01)	ND (0.01)							-				
Strontium (dissolved) Sulphur (dissolved) Tellurium (dissolved) Thallium (dissolved) Thorium (dissolved) Tin (dissolved)	ug/L ug/L ug/L ug/L ug/L	 2500	- 3 -	ND (0.01) - ND (0.1)	ND (0.01) - ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)
Strontium (dissolved) Sulphur (dissolved) Tellurium (dissolved) Thalium (dissolved) Thorium (dissolved) Tin (dissolved) Titanium (dissolved)	ug/L ug/L ug/L ug/L ug/L ug/L	 2500	3	ND (0.01)	ND (0.01)							-				
Strontium (dissolved) Sulphur (dissolved) Tellurium (dissolved) Thallium (dissolved) Thorium (dissolved) Tin (dissolved) Tin (dissolved) Titanium (dissolved) Tungsten (dissolved) Tungsten (dissolved)	ug/L ug/L ug/L ug/L ug/L ug/L ug/L	 2500 3	- 3 - - 1000	ND (0.01) 	ND (0.01) - ND (0.1) ND (0.3)	ND (0.1) ND (0.3)	ND (0.1) ND (0.3)	ND (0.1) ND (0.3)	ND (0.1) ND (0.3)	ND (0.1) ND (0.3)	ND (0.1) 0.34	ND (0.1) 192	ND (0.1) ND (0.3)	ND (0.1) ND (0.3)	ND (0.1)	ND (0.1) ND (0.3)
Stronlium (dissolved) Stufptur (dissolved) Tellurium (dissolved) Thallium (dissolved) Thorium (dissolved) Tin (dissolved) Tin (dissolved) Titanium (dissolved) Tungsten (dissolved) Tungsten (dissolved) Uranium (dissolved)	ug/L ug/L ug/L ug/L ug/L ug/L ug/L ug/L	 2500 3 20	- 3 -	ND (0.01) ND (0.1) ND (0.3) 0.056	ND (0.01) ND (0.1) ND (0.3) - 0.044	ND (0.1) ND (0.3)	ND (0.1) ND (0.3) - 0.093	ND (0.1) ND (0.3)	ND (0.1) ND (0.3) - 0.309	ND (0.1) ND (0.3) - 0.221	ND (0.1) 0.34 - 0.144	ND (0.1) 192 - 0.186	ND (0.1) ND (0.3) - 0.261	ND (0.1) ND (0.3)	ND (0.1) 11 - 0.265	ND (0.1) ND (0.3) - 0.229
Strontium (dissolved) Sulphur (dissolved) Tellurium (dissolved) Thallium (dissolved) Thorium (dissolved) Tin (dissolved) Tin (dissolved) Titanium (dissolved) Tungsten (dissolved) Tungsten (dissolved)	ug/L ug/L ug/L ug/L ug/L ug/L ug/L	 2500 3	- 3 - - 1000	ND (0.01) 	ND (0.01) - ND (0.1) ND (0.3)	ND (0.1) ND (0.3)	ND (0.1) ND (0.3)	ND (0.1) ND (0.3)	ND (0.1) ND (0.3)	ND (0.1) ND (0.3)	ND (0.1) 0.34	ND (0.1) 192	ND (0.1) ND (0.3)	ND (0.1) ND (0.3)	ND (0.1)	ND (0.1) ND (0.3)

Sample Location:	1 1			1	MW0	7-21			MW0	8-21	
Sample ID:		BC	CSR	WG-030723-CS-51	WG-051623-CS-10	WG-081423-C5-16	WG-111523-CS-17	WG-022823-CS-46	WG-051623-CS-11	WG-081423-C5-09	WG-111323-CS-07
Sample Date:		Sched	lule 3.2	03/07/2023	05/16/2023	08/14/2023	11/15/2023	02/28/2023	05/16/2023	08/14/2023	11/13/2023
		DW	FAW								
Parameters	Units	a	b								
Field Parameters											
Conductivity, field	uS/cm	-		136	136	157	165	492	476	406	472
Oxidation reduction potential (ORP), field	millivolts	-		255	219	194	169	282	256	251	252
pH, field	s.u.	-		8.19	8.15	8.29	8.21	7.42	7.46	7.45	7.52
Temperature, field	Deg C	-	=	11.32	14.05 88	14.10	10.53 107	9.00 320	13.80 309	11.59 264	9.89 307
Total dissolved solids, field (TDS) Turbidity, field	mg/L NTU		-	80 8.4	4.9	102 4.9	8.7	267	157	204 58.8	61.0
raiolaty, nela	1410			0.4	4.5	4.5	0.7	207	107	50.0	01.0
General Chemistry											
Alkalinity, bicarbonate	mg/L	-		67.3	68.6	86.0 J	86.0	229	226	192 J	216
Alkalinity, carbonate Alkalinity, hydroxide	mg/L mg/L		=	ND (1.0) ND (1.0)	ND (1.0) ND (1.0)	ND (1.0) J ND (1.0) J	ND (1.0) ND (1.0)	ND (1.0) ND (1.0)	ND (1.0) ND (1.0)	ND (1.0) J ND (1.0) J	ND (1.0) ND (1.0)
Alkalinity, hydroxide Alkalinity, total (as CaCO3)	mg/L			67.3	ND (1.0) 68.6	ND (1.0) J 86 O.I	ND (1.0) 86.0	ND (1.0) 229	ND (1.0)	192 J	216
Chloride (dissolved)	mg/L	250	1500	1.20	1.35	1.77 J	1.76	19.0	23.4	15.1 J	18.4
Conductivity	uS/cm	-		137	138	168 J	175	482	478	393 J	458
Fluoride	mg/L	1.5	[b]	ND (0.020)	ND (0.020)	ND (0.020) J	ND (0.020)	ND (0.020)	ND (0.020)	ND (0.020) J	ND (0.020)
Hardness Communication of the	mg/L			68.8	65.2	89.1 J	80.8	226	230	223 J	243
Sulfate (dissolved)	mg/L	500	[b]	2.37	1.95	2.48 J	2.61	6.31	6.25	6.15 J	8.25 282
Total dissolved solids (TDS)	mg/L	-	-	78 J	79	109 J	110	295	272	279 J	202
Nutrients											
Ammonia-N	mg/L	-	[a]	ND (0.0050)	ND (0.0050)	ND (0.0050) J	ND (0.0050)	ND (0.0050)	ND (0.0050)	ND (0.0050) J	ND (0.0050)
Nitrate (as N)	mg/L	10	400	0.140	0.135	0.159 J	0.175	0.986	0.819	1.14 J	1.23
Nitrite (as N)	mg/L	1	[c]	ND (0.0010)	ND (0.0010)	ND (0.0010) J	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010) J	ND (0.0010)
Nitrite/Nitrate	mg/L	10	400	0.140	0.135	0.159 J	0.175	0.986	0.819	1.14 J	1.23
Dissolved Metals											
Aluminum (dissolved)	ug/L	9500		5.6	5.9	7.3	12	4.3	19.8	6.6	4.2
Antimony (dissolved)	ug/L	6	90	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)
Arsenic (dissolved)	ug/L	10	50	0.33	0.36	0.32	0.35	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)
Barium (dissolved) Beryllium (dissolved)	ug/L ug/L	1000 8	10000 1.5	1.51 ND (0.02)	2 ND (0.02)	2.48 ND (0.02)	1.93 ND (0.02)	8.7 ND (0.02)	8.92 ND (0.02)	7.44 ND (0.02)	8.47 ND (0.02)
Bismuth (dissolved)	ug/L	-	1.0	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.02)	ND (0.05)
Boron (dissolved)	ug/L	5000	12000	14	13	11	17	17	14	14	15
Cadmium (dissolved)	ug/L	5	[b]	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)	0.0051
Caesium (dissolved)	ug/L	_		-		-	-	-	-	-	-
Calcium (dissolved)	ug/L	-		24700	23200	32100	28600	70100	72600	70900	77500
Chromium (dissolved)	ug/L	50	10	ND (0.5)	ND (0.5)	0.72	ND (0.5)	1.66	2	2	1.84
Cobalt (dissolved) (1)	ug/L	1	40	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)
Copper (dissolved)	ug/L	1500	[b]	0.21	0.24	0.52	0.42	0.2	ND (0.2)	ND (0.2)	0.2
Iron (dissolved) (2)	ug/L	6500		ND (10)	ND (10)	14	16	ND (10)	26	ND (10)	ND (10)
Lead (dissolved)	ug/L	10	[b]	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
Lithium (dissolved)	ug/L	8		ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
Magnesium (dissolved)	ug/L	-		1720	1760	2180	2290	12500	11900	11200	12100
Manganese (dissolved) (3)	ug/L	1500		ND (0.1)	ND (0.1)	0.33	0.77	0.16	0.5	0.1	ND (0.1)
Mercury (dissolved)	ug/L	1	0.25	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)
Molybdenum (dissolved)	ug/L	250	10000	0.115	0.123	0.13	0.13	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
Nickel (dissolved)	ug/L	80	[b]	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Phosphorus (dissolved) Potassium (dissolved)	ug/L ug/L	-		ND (50) 382	ND (50) 433	ND (50) 466	ND (50) 465	ND (50) 1300	ND (50) 1300	ND (50) 1200	ND (50) 1270
Rubidium (dissolved)	ug/L ug/L	_		302	433	400	403	1300	1300	1200	1270
Selenium (dissolved)	ug/L ug/L	10	20	0.128	0.114	0.132	0.165	0.155	0.137	0.186	0.092
Silicon (dissolved)	ug/L ug/L	10	20	4160	4720	4530	4230	8090	8740	8290	7960
Silver (dissolved)	ug/L	20	[b]	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)
Sodium (dissolved)	ug/L	200000		1930	1780	2280	1760	8060	6170	5780	6170
Strontium (dissolved)	ug/L	2500	-	39.5	38.4	50.7	47.5	172	180	167	171
Sulphur (dissolved)	ug/L			680	820	1090	910	2700	2730	2010	2880
Tellurium (dissolved)	ug/L	-	-	-		-	-	-		-	-
Thallium (dissolved)	ug/L	-	3	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)
Thorium (dissolved)	ug/L	-		-			-	-	-		-
Tin (dissolved)	ug/L	2500		ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)
Titanium (dissolved)	ug/L	-	1000	ND (0.3)	ND (0.3)	ND (0.3)	0.67	ND (0.3)	0.88	ND (0.3)	ND (0.3)
Tungsten (dissolved)	ug/L	3		-	-	-	-	-	-	-	-
Uranium (dissolved)	ug/L	20 20	85	0.039	0.039	0.053	0.057	0.343	0.342	0.32	0.358
Vanadium (dissolved)	ug/L ug/L	20 3000	[b]	2.39 ND (1)	2.55 ND (1)	2.35 ND (1)	2.22 ND (1)	1.81 ND (1)	1.7 ND (1)	1.67 ND (1)	1.71 ND (1)
Zinc (dissolved)											

Table 5

Groundwater Analytical Results - Volatile Organic Compounds and Petroleum Products 2023 Annual Operations and Monitoring Report Campbell River Waste Management Centre Campbell River, British Columbia

Sample Location:				AGS	99-06	EBA	.04-7	EBA	11-1
Sample ID:		BC	CSR	WG-030723-CS-52	WG-081323-CS-06	WG-030823-CS-57	WG-081323-CS-07	WG-022823-CS-45	WG-081423-CS-10
Sample Date:		Sche	dule 3.2	03/07/2023	08/13/2023	03/08/2023	08/13/2023	02/28/2023	08/14/2023
		DW	FAW						
Parameters	Units	a	b						
Petroleum Products									
VHw6-10	ug/L	15000	15000	ND (100)	ND (100) J	ND (100)	ND (100) J	ND (100)	ND (100) J
VPHw	ug/L		1500	ND (100)	ND (100) J	ND (100)	ND (100) J	ND (100)	ND (100) J
Volatile Organic Compounds									
1,1,1,2-Tetrachloroethane	ug/L	6		ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50) J
1,1,1-Trichloroethane	ug/L	8000		ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50) J
1,1,2,2-Tetrachloroethane	ug/L	0.8		ND (0.20)	ND (0.20) J	ND (0.20)	ND (0.20) J	ND (0.20)	ND (0.20) J
1,1,2-Trichloroethane	ug/L	3		ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50) J
1,1-Dichloroethane	ug/L	30		ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50) J
1.1-Dichloroethene	ug/L	14		ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50) J
1,2-Dichlorobenzene	ug/L	200	7	ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50) J
1,2-Dichloroethane	ug/L	5	1000	ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50) J
1,2-Dichloropropane	ug/L	4.5		ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50) J
1,3-Dichlorobenzene	ug/L		1500	ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50) J
1.4-Dichlorobenzene	ug/L	5	260	ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50) J
Benzene	ug/L	5	400	ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50) J
Bromodichloromethane	ug/L	100		ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50) J
Bromoform	ug/L	100		ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50) J
Carbon tetrachloride	ug/L	2	130	ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50) J
Chlorobenzene	ug/L	80	13	ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50) J
Chloroethane	ug/L			ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50) J
Chloroform (Trichloromethane)	ug/L	100	20	ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50) J
Chloromethane (Methyl chloride)	ug/L			ND (5.0)	ND (5.0) J	ND (5.0)	ND (5.0) J	ND (5.0)	ND (5.0) J
cis-1,2-Dichloroethene	ug/L	8		ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50) J
cis-1,3-Dichloropropene	ug/L ug/L			ND (0.50)	ND (0.50) J	ND (0.50) ND (0.50)	ND (0.50) J ND (0.50) J	ND (0.50)	ND (0.50) J
cis-1,3-Dichloropropene cis-1,3-Dichloropropene/trans-1,3-Dichloropropene				ND (0.30) ND (0.75)	ND (0.30) J ND (0.75) J	ND (0.50) ND (0.75)	ND (0.50) J ND (0.75) J	ND (0.50) ND (0.75)	ND (0.30) J ND (0.75) J
Dibromochloromethane	ug/L ug/L	100		ND (0.75) ND (0.50)	ND (0.75) J	ND (0.75) ND (0.50)	ND (0.75) J ND (0.50) J	ND (0.75) ND (0.50)	ND (0.75) J
Ethylbenzene	ug/L ug/L	140	2000	ND (0.50)	ND (0.50) J	ND (0.50) ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50) J
		-							
m&p-Xylenes	ug/L			ND (0.40)	ND (0.40) J	ND (0.40)	ND (0.40) J	ND (0.40)	ND (0.40) J
Methyl tert butyl ether (MTBE)	ug/L	95	34000	ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50) J
Methylene chloride	ug/L	50	980	ND (1.0)	ND (1.0) J	ND (1.0)	ND (1.0) J	ND (1.0)	ND (1.0) J
o-Xylene	ug/L			ND (0.30)	ND (0.30) J	ND (0.30)	ND (0.30) J	ND (0.30)	ND (0.30) J
Styrene	ug/L	800	720	ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50) J
Tetrachloroethene	ug/L	30	1100	ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50) J
Toluene	ug/L	60	5	ND (0.40)	ND (0.40) J	ND (0.40)	ND (0.40) J	ND (0.40)	ND (0.40) J
trans-1,2-Dichloroethene	ug/L	80		ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50) J
trans-1,3-Dichloropropene	ug/L			ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50) J
Trichloroethene	ug/L	5	200	ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50) J
Trichlorofluoromethane (CFC-11)	ug/L	1000		ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50) J
Vinyl chloride	ug/L	2		ND (0.40)	ND (0.40) J	ND (0.40)	ND (0.40) J	ND (0.40)	ND (0.40) J
Xylenes (total)	ug/L	90	300	ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50) J

Table 5

Groundwater Analytical Results - Volatile Organic Compounds and Petroleum Products 2023 Annual Operations and Monitoring Report Campbell River Waste Management Centre Campbell River, British Columbia

Sample Location:					EBA11-3		EBA	11-4	НВТ	94-2
Sample ID:	1	BC	CSR	WG-030723-CS-53	WG-081323-CS-03	WG-081323-CS-04	WG-030723-CS-54	WG-081323-CS-05	WG-030823-CS-59	WG-081623-CS-23
Sample Date:		Sched	ule 3.2	03/07/2023	08/13/2023	08/13/2023	03/07/2023	08/13/2023	03/08/2023	08/16/2023
		DW	FAW			Duplicate	***************************************			
Parameters	Units	a	b			- upouto				
		_	-							
Petroleum Products										
VHw6-10	ug/L	15000	15000	ND (100)	ND (100) J	ND (100) J	ND (100)	ND (100) J	ND (100)	ND (100) J
VPHw	ug/L		1500	ND (100)	ND (100) J	ND (100) J	ND (100)	ND (100) J	ND (100)	ND (100) J
Volatile Organic Compounds										
1.1.1.2-Tetrachloroethane	ug/L	6		ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50) J
1.1.1-Trichloroethane	ug/L	8000		ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50) J
1,1,2,2-Tetrachloroethane	ug/L	0.8		ND (0.20)	ND (0.20) J	ND (0.20) J	ND (0.20)	ND (0.20) J	ND (0.20)	ND (0.20) J
1,1,2-Trichloroethane	ug/L	3		ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50) J
1,1-Dichloroethane	ug/L	30		ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50) J
1.1-Dichloroethane	ug/L ug/L	30 14		ND (0.50) ND (0.50)	ND (0.50) J ND (0.50) J	ND (0.50) J ND (0.50) J	ND (0.50) ND (0.50)	ND (0.50) J ND (0.50) J	ND (0.50) ND (0.50)	ND (0.50) J ND (0.50) J
1.2-Dichlorobenzene	ug/L ug/L	200	 7	ND (0.50) ND (0.50)	ND (0.50) J ND (0.50) J	ND (0.50) J ND (0.50) J	ND (0.50) ND (0.50)	ND (0.50) J ND (0.50) J	ND (0.50) ND (0.50)	ND (0.50) J ND (0.50) J
			•							
1,2-Dichloroethane	ug/L	5	1000	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50) J
1,2-Dichloropropane	ug/L	4.5		ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50) J
1,3-Dichlorobenzene	ug/L		1500	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50) J
1,4-Dichlorobenzene	ug/L	5	260	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50) J
Benzene	ug/L	5	400	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50) J
Bromodichloromethane	ug/L	100		ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50) J
Bromoform	ug/L	100		ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50) J
Carbon tetrachloride	ug/L	2	130	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50) J
Chlorobenzene	ug/L	80	13	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50) J
Chloroethane	ug/L			ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50) J
Chloroform (Trichloromethane)	ug/L	100	20	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50) J
Chloromethane (Methyl chloride)	ug/L			ND (5.0)	ND (5.0) J	ND (5.0) J	ND (5.0)	ND (5.0) J	ND (5.0)	ND (5.0) J
cis-1,2-Dichloroethene	ug/L	8		ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50) J
cis-1,3-Dichloropropene	ug/L			ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50) J
cis-1,3-Dichloropropene/trans-1,3-Dichloropropene	ug/L			ND (0.75)	ND (0.75) J	ND (0.75) J	ND (0.75)	ND (0.75) J	ND (0.75)	ND (0.75) J
Dibromochloromethane	ug/L	100		ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50) J
Ethylbenzene	ug/L	140	2000	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50) J
m&p-Xylenes	ug/L			ND (0.40)	ND (0.40) J	ND (0.40) J	ND (0.40)	ND (0.40) J	ND (0.40)	ND (0.40) J
Methyl tert butyl ether (MTBE)	ug/L	95	34000	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50) J
Methylene chloride	ug/L	50	980	ND (1.0)	ND (50.0) J	ND (50.0) J	ND (1.0)	ND (1.0) J	ND (1.0)	ND (1.0) J
o-Xylene	ug/L			ND (0.30)	ND (0.30) J	ND (0.30) J	ND (0.30)	ND (0.30) J	ND (0.30)	ND (0.30) J
Styrene	ug/L	800	720	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50) J
Tetrachloroethene	ug/L ug/L	30	1100	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50) J
Toluene		60	1100	ND (0.50) ND (0.40)	ND (0.50) J ND (0.40) J	ND (0.50) J ND (0.40) J	ND (0.50) ND (0.40)	ND (0.50) J ND (0.40) J	(/	ND (0.50) J ND (0.40) J
trans-1,2-Dichloroethene	ug/L	80	5 	ND (0.40) ND (0.50)	ND (0.40) J ND (0.50) J	ND (0.40) J ND (0.50) J	ND (0.40) ND (0.50)	ND (0.40) J ND (0.50) J	ND (0.40) ND (0.50)	ND (0.40) J ND (0.50) J
	ug/L									
trans-1,3-Dichloropropene	ug/L			ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50) J
Trichloroethene	ug/L	5	200	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50) J
Trichlorofluoromethane (CFC-11)	ug/L	1000		ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50) J
Vinyl chloride	ug/L	2		ND (0.40)	ND (0.40) J	ND (0.40) J	ND (0.40)	ND (0.40) J	ND (0.40)	ND (0.40) J
Xylenes (total)	ug/L	90	300	ND (0.50)	ND (0.50) J	ND (0.50) J	ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50) J

Table 5

Groundwater Analytical Results - Volatile Organic Compounds and Petroleum Products 2023 Annual Operations and Monitoring Report Campbell River Waste Management Centre Campbell River, British Columbia

Sample Location:				MWO	01-16		MW02-18		MW08-21
Sample ID:		ВС	CSR	WG-022723-CS-39	WG-081323-CS-01	WG-022723-CS-43	WG-022723-CS-44	WG-081423-CS-13	WG-022823-CS-46
Sample Date:		Sche	dule 3.2	02/27/2023	08/13/2023	02/27/2023	02/27/2023	08/14/2023	02/28/2023
		DW	FAW			*	Duplicate		
Parameters	Units	a	b						
Petroleum Products									
VHw6-10	ug/L	15000	15000	ND (100)	ND (100) J	ND (100)	ND (100)	ND (100) J	ND (100)
VPHw	ug/L		1500	ND (100)	ND (100) J	ND (100)	ND (100)	ND (100) J	ND (100)
Volatile Organic Compounds									
1,1,1,2-Tetrachloroethane	ug/L	6		ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50)
1,1,1-Trichloroethane	ug/L	8000		ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50)
1,1,2,2-Tetrachloroethane	ug/L	0.8		ND (0.20)	ND (0.20) J	ND (0.20)	ND (0.20)	ND (0.20) J	ND (0.20)
1,1,2-Trichloroethane	ug/L	3		ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50)
1,1-Dichloroethane	ug/L	30		ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50)
1,1-Dichloroethene	ug/L	14		ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50)
1,2-Dichlorobenzene	ug/L	200	7	ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50)
1,2-Dichloroethane	ug/L	5	1000	ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50)
1,2-Dichloropropane	ug/L	4.5		ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50)
1,3-Dichlorobenzene	ug/L		1500	ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50)
1.4-Dichlorobenzene	ug/L	5	260	ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50)
Benzene	ug/L	5	400	ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50)
Bromodichloromethane	ug/L	100		ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50)
Bromoform	ug/L	100		ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50)
Carbon tetrachloride	ug/L	2	130	ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50)
Chlorobenzene	ug/L	80	13	ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50)
Chloroethane	ug/L			ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50)
Chloroform (Trichloromethane)	ug/L	100	20	ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50)
Chloromethane (Methyl chloride)	ug/L			ND (5.0)	ND (5.0) J	ND (5.0)	ND (5.0)	ND (5.0) J	ND (5.0)
cis-1,2-Dichloroethene	ug/L	8		ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50)
cis-1,3-Dichloropropene				ND (0.50) ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50)
cis-1,3-Dichloropropene cis-1,3-Dichloropropene/trans-1,3-Dichloropropene	ug/L			ND (0.50) ND (0.75)	ND (0.30) J ND (0.75) J	ND (0.50) ND (0.75)	ND (0.50) ND (0.75)	ND (0.50) J	ND (0.50) ND (0.75)
Dibromochloromethane	ug/L	100		ND (0.75) ND (0.50)	ND (0.75) J ND (0.50) J	ND (0.75) ND (0.50)	ND (0.75) ND (0.50)	ND (0.75) J ND (0.50) J	
	ug/L	140							ND (0.50)
Ethylbenzene	ug/L	_	2000	ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50)
m&p-Xylenes	ug/L			ND (0.40)	ND (0.40) J	ND (0.40)	ND (0.40)	ND (0.40) J	ND (0.40)
Methyl tert butyl ether (MTBE)	ug/L	95	34000	ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50)	0.94 J	ND (0.50)
Methylene chloride	ug/L	50	980	ND (1.0)	ND (1.0) J	ND (1.0)	ND (1.0)	ND (1.0) J	ND (1.0)
o-Xylene	ug/L			ND (0.30)	ND (0.30) J	ND (0.30)	ND (0.30)	ND (0.30) J	ND (0.30)
Styrene	ug/L	800	720	ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50)
Tetrachloroethene	ug/L	30	1100	ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50)
Toluene	ug/L	60	5	ND (0.40)	ND (0.40) J	ND (0.40)	ND (0.40)	ND (0.40) J	ND (0.40)
trans-1,2-Dichloroethene	ug/L	80		ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50)
trans-1,3-Dichloropropene	ug/L			ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50)
Trichloroethene	ug/L	5	200	ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50)
Trichlorofluoromethane (CFC-11)	ug/L	1000		ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50)
Vinyl chloride	ug/L	2		ND (0.40)	ND (0.40) J	ND (0.40)	ND (0.40)	ND (0.40) J	ND (0.40)
Xylenes (total)	ug/L	90	300	ND (0.50)	ND (0.50) J	ND (0.50)	ND (0.50)	ND (0.50) J	ND (0.50)

Table 6a Surface Water Analytical Results 2023 Annual Operations and Monitoring Report Campbell River Waste Management Centre Campbell River, British Columbia

						sv						SW03-17		
Sample Location: Sample ID:				WS-022823-CS-10	WS-030823-CS-12		V-1 WS-051623-CS-02	WS-111523-CS-01	WS-111523-CS-02	WS-022823-CS-08	WS-022823-CS-09		WS-081523-CS-01	WS-111523-CS-03
Sample Date:			BC WQG	02/28/2023	03/08/2023	03/08/2023	05/16/2023	11/15/2023	11/15/2023	02/28/2023	02/28/2023	05/16/2023	08/15/2023	11/15/2023
Parameters	Units	DW a	FAW b			Duplicate			Duplicate		Duplicate			
Field Parameters														
Dissolved Oxygen, Field	mg/L	-	>5	-	_	-	9.19	6.82	6.82	_	-	6.24	6.56	5.53
ORP, Field	millivolts	-	-	310	338	338	276	266	266	286	286	241	272	267
pH, Field	S.U.	-	6.5-9.0	6.37 ^b	5.77 ^b	5.77 ^b	6.06 ^b	6.55	6.55	6.38 ^b	6.38 ^b	6.54	6.68	6.64
Specific Conductance, Field Temperature, Field	uS/cm Deg C	15 AO	 18 (12 spring/fall) (c) (STM)	30 3.50	28 5.01	28 5.01	37 19.53**	32 7.82	32 7.82	1.73	40 1.73	47 22.21 ^{ab}	35 25.72*b	31 7.47
Total dissolved solids, field (TDS)	mg/L NTU		-	20 8.6	18	18 0	240	21	21 1.0	26 28	26 28	30	23 1.4	20 1.7
Turbidity, Field	NTU	(c)	(c)	8.6	0	0	6.0	1.0	1.0	28	28	0.4	1.4	1.7
General Chemistry														
Alkalinity, bicarbonate Alkalinity, carbonate	mg/L mg/L		-	7.8 ND (1.0)	6.3	6.7 ND (1.0)	10.1 ND (1.0)	7.7 ND (1.0)	7.8 ND (1.0)	8.0 ND (1.0)	8.4 ND (1.0)	7.5 ND (1.0)	8.3	7.7 ND (1.0)
Alkalinity, carbonate Alkalinity, hydroxide	mg/L mg/L		-	ND (1.0) ND (1.0)	ND (1.0) ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0) ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0) ND (1.0)	ND (1.0) ND (1.0)
Alkalinity, total (as CaCO3)	mg/L	-	[e] w	7.8	6.3	6.7	10.1 ^b	7.7	7.8	8.0	8.4	7.5	8.3	7.7
Chloride (dissolved)	mg/L uS/cm	**ref only 250 AO	**ref only 150 LTA	3.53 31.8	3.32 28.9	3.32 29.1	3.62 35.6	3.64 32.5	3.64 32.6	3.48 31.9	3.48 31.4	3.52 30.7	4.10 33.7	3.59 31.8
Conductivity Dissolved organic carbon (DOC) (dissolved)	mg/L	=	=	5.86		-	6.33	5.56	5.67	5.57	5.50	5.86	5.80	5.96
Fluoride Hardness	mg/L mg/L	1.5	[b] (STM)	ND (0.020) 9.04	ND (0.020) 7.96	ND (0.020) 8.02	ND (0.020) 11.3	ND (0.020) 9.67	ND (0.020) 9.51	ND (0.020) 9.09	ND (0.020) 8.88	ND (0.020) 8.79	ND (0.020) 9.56	ND (0.020) 9.14
Hardness Hardness, calculation	mg/L mg/L			9.04 8.78	7.96	8.02	11.3	9.67	9.51 9.49 1.24	9.09	8.88 10.8	8.79	9.36	9.14 9.23 1.03
Sulphate (Dissolved)	mg/L	500 AO	[6]	1.00	0.94	0.94	0.35	1.25	1.24	0.88	0.88	0.53	0.78	1.03
Total dissolved solids (TDS)	mg/L	-	-	40	17 J	31 J	33	44	42	39	42	28	34	38
Nutrients														
Ammonia-N Nitrate (as N)	mg/L mg/L	10	[d] 3.0	0.0112 0.0417	0.0126 0.0512 J	0.0117 0.0493 J	0.0624 0.0259	ND (0.0050) 0.0098	ND (0.0050) 0.0094	0.0418 0.0444	0.0408 0.0444	0.0078 0.0072	ND (0.0050) ND (0.0050)	0.0066 0.0121
Nitrite (as N)	mg/L	1	[c]	ND (0.0010)	R	R	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0010)				
Nitrite/Nitrate	mg/L	-	-	0.0417	0.0512 J	0.0493 J	0.0259	0.0098	0.0094	0.0444	0.0444	0.0072	ND (0.0051)	0.0121
Dissolved Metals	1											_		
Aluminum (dissolved)	ug/L	-	[a]	105 J ^b	49.5 ^b	49.5 ^b	80.6 ^b	53 ^b	53.2 ^b	63.3 ^b	59 ^b	48.8	17.7	34.4
Antimony (dissolved) Arsenic (dissolved)	ug/L ug/L	-	=	ND (0.1) 0.13	ND (0.1) ND (0.1)	ND (0.1) ND (0.1)	ND (0.1) 0.24	ND (0.1) 0.14	ND (0.1) 0.13	ND (0.1) ND (0.1)	ND (0.1) 0.12	ND (0.1) 0.14	ND (0.1) 0.17	ND (0.1) 0.14
Barium (dissolved)	ug/L	_ =	-	1.4	1.34	1.35	2.17	1.38	1.33	1.48	1 43	1.51	1.44	1.48
Beryllium (dissolved) Bismuth (dissolved)	ug/L ug/L	-	-	ND (0.02) ND (0.05)	ND (0.02) ND (0.05)	ND (0.02) ND (0.05)	ND (0.02) ND (0.05)							
Bismuth (dissolved) Boron (dissolved)	ug/L ug/L	_	=	ND (10)	ND (10)	ND (10)	ND (0.05) ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
Cadmium (dissolved) Calcium (dissolved)	ug/L ug/L	-	[6]	ND (0.005) 2120	ND (0.005) 1830	ND (0.005) 1880	0.0077 2670	ND (0.005) 2240	ND (0.005) 2240	ND (0.005) 2130	ND (0.005) 2130	ND (0.005) 2080	ND (0.005) 2250	ND (0.005) 2140
Chromium (dissolved)	ug/L		-	6.12 J	0.92	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)					
Cobalt (dissolved)	ug/L	-	-	ND (0.1)	ND (0.1)	ND (0.1)	0.12	ND (0.1) 0.36	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)
Copper (dissolved) Iron (dissolved)	ug/L ug/L	_	350 (STM)	0.38 109	0.27 74	0.22 72	0.39 263	0.36 65	0.34	0.32 174	0.33 168	0.28 98	0.24 42	0.25 48
Lead (dissolved)	ug/L	-	-	ND (0.05)	ND (0.05)	ND (0.05)	0.108	ND (0.05)	ND (0.05)	0.056	0.059	ND (0.05)	ND (0.05)	ND (0.05)
Lithium (dissolved) Magnesium (dissolved)	ug/L ug/L	-	-	ND (1) 910	ND (1) 824	ND (1) 807	ND (1) 1120	ND (1) 991	ND (1) 951	ND (1) 917	ND (1) 864	ND (1) 874	ND (1) 958	ND (1) 923
Manganese (dissolved)	ug/L	-	-	5.14	5.27	5.15	49.3	3.46	3.29	15.9	15.1	8.42	3.06	4.02
Mercury (dissolved) Molybdenum (dissolved)	ug/L ug/L	-	-	ND (0.005) ND (0.05)	ND (0.005) ND (0.05)	ND (0.005) ND (0.05)	ND (0.005) ND (0.05)							
Nickel (dissolved)	ug/L	-	=	2.56 J	0.56	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)					
Phosphorus (dissolved)	ug/L	-	-	ND (50)	ND (50)	ND (50)	ND (50) 155							
Potassium (dissolved) Selenium (dissolved)	ug/L ug/L		-	165 ND (0.05)	140 ND (0.05)	132 ND (0.05)	178 ND (0.05)	199 0.056	195 ND (0.05)	165 ND (0.05)	151 ND (0.05)	150 ND (0.05)	153 ND (0.05)	ND (0.05)
Silicon (dissolved)	ug/L	-	-	3020 ND (0.01)	2540	2570 ND (0.01)	3500 ND (0.01)	2170	2060 ND (0.01)	3880	3600 ND (0.01)	2930 ND (0.01)	1700 ND (0.01)	2020 ND (0.01)
Silver (dissolved) Sodium (dissolved)	ug/L ug/L			ND (0.01) 2590	ND (0.01) 2580	ND (0.01) 2460	ND (0.01) 2910	ND (0.01) 2700	ND (0.01) 2570	ND (0.01) 2640	ND (0.01) 2480	ND (0.01) 2650	ND (0.01) 2820	ND (0.01) 2640
Strontium (dissolved)	ug/L	-	-	8.95	8	8.02	12.7	9.83	9.95	9.34	9.3	9.35	9.85	10.1
Sulphur (dissolved)	ug/L		-	720	ND (500)	ND (500)	ND (500)	ND (500)						
Thallium (dissolved) Tin (dissolved)	ug/L ug/L		_	ND (0.01) ND (0.1)	ND (0.01) ND (0.1)	ND (0.01) ND (0.1)	ND (0.01) ND (0.1)							
Titanium (dissolved)	ug/L		-	0.78	0.78	0.68	2.4	0.94	1.08	1.19	0.98	0.8	ND (0.3)	0.35
Uranium (dissolved)	ug/L	-	-	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)							
Vanadium (dissolved) Zinc (dissolved)	ug/L ug/L	_	-	ND (0.5)	ND (0.5)	ND (0.5) ND (1)	0.78	0.62 ND (1)	0.6 ND (1)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5) ND (1)	ND (0.5) ND (1)
Zirconium (dissolved)	ug/L			ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)							
, , , , , , , , , , , , , , , , , , , ,				,	. ,	. ,	. ,	. ,		, ,	. ,		. ,	
Total Metals														
Aluminum Antimony	ug/L ug/L	9500 6	74	61.7 J ND (0.1)	54 ND (0.1)	53.1 ND (0.1)	159 ND (0.1)	60.2 ND (0.1)	56.9 ND (0.1)	162 ND (0.1)	162 ND (0.1)	50.2 ND (0.1)	22.9 ND (0.1)	36 ND (0.1)
Arsenic	ug/L	10	5	0.14	0.13	0.12	0.29	0.14	0.14	0.18	0.16	0.18	0.18	0.14
Barium	ug/L	-	1000 w	1.54	1.44	1.38	2.58	1.48	1.42	2.88	2.92	1.47	1.5	1.59
Beryllium Biomuth	ug/L ug/L	-	0.13 w	ND (0.02) ND (0.05)	ND (0.02) ND (0.05)	ND (0.02) ND (0.05)	ND (0.02) ND (0.05)							
Bismuth Boron	ug/L	5000	1200	ND (0.05) ND (10)	ND (0.05)	ND (0.05) ND (10)	ND (0.05)	ND (0.05)						
Cadmium	ug/L	5	="	ND (0.005)	ND (0.005)	ND (0.005)	0.009	ND (0.005)	0.0056	0.0139	0.0091	ND (0.005)	ND (0.005)	ND (0.005)
Caesium Calcium	ug/L ug/L	1 :	=	2070	ND (0.01) 1890	ND (0.01) 1920	ND (0.01) 2820	2230	2190	2750	2760	ND (0.01) 2210	2160	2120
Chromium	ug/L ug/L		-	2070 ND (0.5) J	1890 ND (0.5)	1920 ND (0.5)	2820 ND (0.5)	2230 ND (0.5)	2190 ND (0.5)	ND (0.5)	ND (0.5)	2210 ND (0.5)	2160 ND (0.5)	2120 ND (0.5)
Cobalt	ug/L	-	4	ND (0.1)	ND (0.1)	ND (0.1)	0.25	ND (0.1)	ND (0.1)	0.19	0.2	ND (0.1)	ND (0.1)	ND (0.1)
Copper	ug/L	1000 AO 300 AO	[b]	ND (0.5) 107	ND (0.5)	ND (0.5) 94	0.59	ND (0.5)	ND (0.5) 77	1.39	1.36	ND (0.5) 101	ND (0.5) 46	ND (0.5) 64
Iron Lead	ug/L ug/L	300 AO	1000 (STM) [b]	107 ND (0.05)	96 ND (0.05)	94 ND (0.05)	401" 0.252	. 78 0.061	77 0.062	344" 0.65	340° 0.645	101 0.051	46 ND (0.05)	64 ND (0.05)
Lithium	ug/L		-	ND (1)	ND (1)	ND (1)	ND (1)							
Magnesium	ug/L			878	804	798	1100	1020	976	952	959	864	964	955
Manganese Mercury	ug/L ug/L	20 AO	[d]	6.9 ND (0.005)	6.68 ND (0.005)	7.34 ND (0.005)	75.1° ND (0.005)	5.18 ND (0.005)	5.49 ND (0.005)	21.3° ND (0.005)	21.8 ^a ND (0.005)	8.87 ND (0.005)	4.2 ND (0.005)	5.64 ND (0.005)
Molybdenum	ug/L	88	[1] 7600	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)							
Nickel	ug/L	80	[b] w	ND (0.5) J	ND (0.5)	ND (0.5)	0.9	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Phosphorus	ug/L	10 AO for lakes	5	ND (50) ^{ab}	ND (50) ^{ab}	ND (50) ^{ab}	ND (50) ^{ab}	ND (50)**	ND (50) ^{ab}	ND (50)**	ND (50)**	ND (50)**	ND (50)**	ND (50) ^{ab}
Potassium Rubidium	ug/L ug/L		-	137	134 0.21	129 ND (0.2)	177 0.24	191	184	171	172	144 0.22	154	145
Selenium	ug/L	10	2	ND (0.05)	0.051	0.062	0.052	0.061	ND (0.05)	0.062	0.053	ND (0.05)	ND (0.05)	ND (0.05)
Silicon	ug/L	-	-	2900	2440	2460	3470	2160	2100	3720	3660	2750	1740	2000
Silver Sodium	ug/L ug/L	_	[b]	ND (0.01) 2540	ND (0.01) 2510	ND (0.01) 2470	ND (0.01) 2730	ND (0.01) 2700	ND (0.01) 2620	ND (0.01) 2600	ND (0.01) 2680	ND (0.01) 2560	ND (0.01) 2830	ND (0.01) 2700
Strontium Strontium	ug/L ug/L	7000	-	2540 8.8	2510 8.75	2470 8.63	12.4	10	9.88	2600 11.8	2680 11.8	2560 9.62	2830 10.2	10.2
Sulphur	ug/L	-	-	ND (500)	ND (500)	ND (500)	ND (500)	540	ND (500)	720	ND (500)	ND (500)	ND (500)	ND (500)
Tellurium	ug/L	-		-	ND (0.2)	ND (0.2)	ND (0.2)	-	-		-	ND (0.2)	-	
Thallium Thorium	ug/L ug/L		0.8 w SS	ND (0.01)	ND (0.01) ND (0.1)	ND (0.01) ND (0.1)	ND (0.01) ND (0.1)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01) ND (0.1)	ND (0.01)	ND (0.01)
Tin	ug/L	-	-	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)							
Titanium	ug/L	-	-	1.76	1.3	1.11	10.3	1.37	1.57	5.46	5.35	0.9	0.38	0.6
Tungsten Uranium	ug/L ug/L	 20	8.5 w	ND (0.01)	ND (0.1) ND (0.01)	ND (0.1) ND (0.01)	ND (0.1) ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.1) ND (0.01)	ND (0.01)	ND (0.01)
Vanadium	ug/L ug/L		0.0 W	ND (0.01) ND (0.5)	ND (0.01) ND (0.5)	ND (0.01) ND (0.5)	ND (0.01)	ND (0.01) 0.76	ND (0.01) 0.75	ND (0.01) 1.05	ND (0.01) 1.09	ND (0.01) ND (0.5)	ND (0.01) ND (0.5)	ND (0.01) ND (0.5)
Zinc	ug/L	3000 MAC	[6]	ND (3)	ND (3)	ND (3)	ND (3)							
Zirconium	ug/L	-	-	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)							

Table 6b Surface Water Analytical Results 2023 Annual Operations and Monitoring Report Campbell River Waste Management Centre Campbell River, British Columbia

Sample Location:		B.C	CSR		Pond WS 111522 CS 04
Sample ID: Sample Date:			dule 3.2	WS-030823-CS-11 03/03/2023	WS-111523-CS-04 11/15/2023
		DW	FAW		
Parameters	Units	а	b		
Field Parameters Dissolved Oxygen, Field	mg/L				6.49
ORP, Field	millivolts	-	-	239	235
pH, Field Specific Conductance, Field	s.u. uS/cm	-		7.40 379	7.85
Temperature, Field	Deg C	-	-	8.19	259 8.98
Total dissolved solids, field (TDS)	mg/L			246	169
Turbidity, Field	NTU	-	-	46.3	1.2
General Chemistry					
Alkalinity, bicarbonate Alkalinity, carbonate	mg/L mg/L	-	-	39.7 ND (1.0)	44.2 ND (1.0)
Alkalinity, hydroxide	mg/L	-	-	ND (1.0)	ND (1.0)
Alkalinity, total (as CaCO3)	mg/L			39.7	44.2
Chloride (dissolved) Conductivity	mg/L uS/cm	250	1500	50.0 390	9.04 276
Dissolved organic carbon (DOC) (dissolved)	mg/L			-	9.10
Fluoride Hardness	mg/L mg/L	1.5	[b]	ND (0.020) 89.1	ND (0.020) 99.9
Hardness, calculation	mg/L		-	-	100
Sulphate (Dissolved) Total dissolved solids (TDS)	mg/L	500	[b]	29.1 234	54.2 198
Total dissolved solids (TD3)	mg/L	-	-	234	190
Nutrients					
Ammonia-N Nitrate (as N)	mg/L mg/L	10	[a] 400	0.0054 10.9 J ^a	0.0102 4.44
Nitrite (as N)	mg/L	10	[c]	0.0062 J	0.0075
Nitrite/Nitrate	mg/L	10	400	10.9 J ^a	4.45
Dissolved Metals					
Dissolved Metals Aluminum (dissolved)	ug/L	9500		20.4	10.5
Antimony (dissolved)	ug/L	6	90	0.11	0.23
Arsenic (dissolved) Barium (dissolved)	ug/L ug/L	10 1000	50 10000	0.16 4.49	0.21 7.2
Beryllium (dissolved)	ug/L	8	1.5	ND (0.02)	ND (0.02)
Bismuth (dissolved) Boron (dissolved)	ug/L ug/l	5000	12000	ND (0.05)	ND (0.05) 38
Cadmium (dissolved)	ug/L ug/L	5000	[b]	0.0208	0.0232
Calcium (dissolved)	ug/L	 50	10	27000 ND (0.5)	31800
Chromium (dissolved) Cobalt (dissolved) (1)	ug/L ug/L	1	10 40	ND (0.5) ND (0.1)	ND (0.5) 0.1
Copper (dissolved)	ug/L	1500	[b]	2.66	4.59
Iron (dissolved) (2)	ug/L	6500	-	24	ND (10)
Lead (dissolved)	ug/L ug/L	10 8	[b]	ND (0.05)	ND (0.05)
Lithium (dissolved) Magnesium (dissolved)	ug/L ug/L		-	ND (1) 5270	ND (1) 4980
Manganese (dissolved) (3)	ug/L	1500		34.4	0.73
Mercury (dissolved)	ug/L	1	0.25	ND (0.005)	ND (0.005)
Molybdenum (dissolved)	ug/L	250	10000	0.239	0.286
Nickel (dissolved) Phosphorus (dissolved)	ug/L ug/L	80	[b]	ND (0.5) ND (50)	ND (0.5) ND (50)
Potassium (dissolved)	ug/L			1000	2060
Selenium (dissolved)	ug/L	10	20	0.092	0.109
Silicon (dissolved)	ug/L	20		4900 ND (0.04)	8200 ND (0.04)
Silver (dissolved) Sodium (dissolved)	ug/L ug/L	200000	[b]	ND (0.01) 37600	ND (0.01) 8670
Strontium (dissolved)	ug/L	2500		97.4	130
Sulfur (dissolved)	ug/L		-	9330	17200
Thallium (dissolved)	ug/L		3	ND (0.01)	ND (0.01)
Tin (dissolved) Titanium (dissolved)	ug/L ug/L	2500	1000	ND (0.1) 0.69	ND (0.1) ND (0.3)
Uranium (dissolved)	ug/L	20	85	ND (0.01)	ND (0.01)
Vanadium (dissolved)	ug/L	20		ND (0.5)	14.8
Zinc (dissolved)	ug/L	3000	[b]	6.6 ND (0.2)	7.8
Zirconium (dissolved)	ug/L	-	-	ND (0.2)	ND (0.2)
Total Metals					
Aluminum	ug/L	9500	-	299	17.7
Antimony Arsenic	ug/L ug/L	6 10	90 50	0.12 0.24	0.24 0.21
Arsenic Barium	ug/L ug/L	1000	10000	5.37	7.36
Beryllium	ug/L	8	1.5	ND (0.02)	ND (0.02)
Bismuth	ug/L			ND (0.05)	ND (0.05)
Boron Cadmium	ug/L	5000 5	12000	23 0.0246	39 0.0219
Caesium	ug/L ug/L	5	[b]	0.0246 ND (0.01)	-
Calcium	ug/L			26900	31400
Chromium	ug/L	50	10	ND (0.5)	ND (0.5)
Cobalt Copper	ug/L	1 1500	40 [b]	0.24 3.9	0.11 5
Copper Iron	ug/L ug/L	6500	[b]	3.9	5 14
Lead	ug/L	10	[b]	0.313	ND (0.05)
Lithium	ug/L	8	-	ND (1)	ND (1)
Magnesium	ug/L	1500	-	5050 41.5	5280 1.26
Manganese Mercury	ug/L ug/L	1500 1	0.25	41.5 ND (0.005)	1.26 ND (0.005)
Molybdenum	ug/L	250	10000	0.229	0.295
Nickel	ug/L	80	[b]	0.85	0.51
Phosphorus Potassium	ug/L	-	-	ND (50)	ND (50)
Potassium Rubidium	ug/L ug/L	-	-	947 0.64	2050
Selenium	ug/L	10	20	0.081	0.111
Silicon	ug/L		-	5040	8110
Silver	ug/L	20	[b]	0.011	ND (0.01) 8900
Sodium Strontium	ug/L ug/L	200000 2500	-	37600 99.1	8900 132
Sulphur	ug/L		-	9040	18300
Tellurium	ug/L		-	ND (0.2)	
Thallium	ug/L		3	ND (0.01)	ND (0.01)
Thorium Tin	ug/L ug/L	2500	-	ND (0.1) ND (0.1)	ND (0.1)
i in Titanium	ug/L ug/L	2000	1000	ND (0.1) 20.8	ND (0.1) 0.62
Tungsten	ug/L	3		ND (0.1)	-
	ug/L	20	85	0.017	ND (0.01)
Uranium					
Uranium Vanadium Zinc	ug/L ug/L	20 3000	[b]	1.38 8.9	15.8 8.1

Table 7 Page 1 of 1

Analytical Results Tables Notes 2023 Annual Operations and Monitoring Report Campbell River Waste Management Centre Campbell River, British Columbia

BC ENV British Columbia Ministry of Environment and Climate Change Strategy ENV British Columbia Contaminated Sites Regulation (CSR) Schedule 3.2 Generic Numerical Water Standards CSR (2021)ENV British Columbia Approved (March 2021), Working (June 2021) and Source Drinking (December 2020) Water WQG Quality Guidelines (WQG). Most stringent guideline is presented unless otherwise indicated. FAW Guideline/standard for the protection of freshwater aquatic life DW Guideline/standard for the protection of drinking water IW Guideline/standard for the protection of irrigation water. Applies to all soil types. LW Guideline/standard for the protection of livestock water STM Short term maximum WQG FAW (generally less stringent than LTA guidelines) Long term average WQG FAW (generally most stringent guideline). WQGs presented are LTA unless otherwise LTA specified WQG DW WQG FAW CSR DW С **CSR FAW** d Working WQG. Provides benchmarks for those substances that have not vet been fully assessed and endorsed by the ENV Interim Interim WQG developed when insufficient data available to meet the minimum requirement of a full guideline Aesthetic objective. Parameters may impair the taste, smell or colour of water or interfere with the supply of good ΑO quality water. Parameters do not cause adverse health effects. ND Not detected at the associated reporting limit. Estimated concentration. R Rejected result [a] Limit varies with pH. [b] Limit varies with Hardness. [c] Limit varies with Chloride (mg/L). [d] Limit varies with pH and Temperature. Limit varies with Dissolved Calcium. [e] [f] Limit varies with Methyl Mercury. Standard varies with pH, temperature and substance isomer. [h] EXP(1.6-3.327*pH+0.402*pH^2) mg/L calca calcb EXP(0.736*LN(Hardness)-4.943) ug/L 0.04*Hardness ug/L calcc calcd 3.31+(Exp(1.273*LOG(Hardness)-4.704)) ug/L calce 0.0044*Hardness+0.605 mg/L Exp(0.76*LN(Hardness)+1.06) ug/L calch calcf 7.5+(0.75*(Hardness-90)) ug/L Cobalt concentrations in groundwater do not exceed the referenced cobalt interim background groundwater [i] concentration estimate. Standard confirmed in email received from ENV. November 7, 2017. [i] Limit varies with dissolved calcium Limit varies with crop [1] Standard varies with pH, temperature and substance isomer. Consult a director for further advice. {ii} Exceeds indicated standard or guideline Blue text Laboratory detection limit is greater than indicated standard or guideline Background dependant. Comparison to background not complete or background location has not been established. (c) The interim regional background cobalt concentration of 20 ug/L is applied. Note 2, Table 1 BC Protocol 9 for (1) Contaminated Sites, Version 4, February 1, 2023. BC CSR criteria for iron does not apply to the Site as the Site is not used for an industrial or commercial purpose or (2) activity listed under footnote 43 of BC CSR Schedule 3.2. Criteria is voluntarily applied for assessment purposes only. BC CSR criteria for manganese does not apply to the Site as the Site is not used for an industrial or commercial (3) purpose or activity listed under footnote 43 of BC CSR Schedule 3.2. Criteria is voluntarily applied for assessment purposes only. SS Site-specific objective for the lower Columbia River, BC

Turbidity, field WQG applies to water during clear flows or clear water

Cadmium, dissolved WQG LTA applies to water hardnesses between 3.4 and 285 mg/L CaCO3.

Copper, total WQG LTA applies to water hardnesses between 50 and 250 mg/L CaCO3.

Lead, total WQG LTA and STM apply to water hardnesses between 8 and 360 mg/L CaCO3.

Manganese, total WQG LTA applies to water hardnesses between 37 and 450 mg/L CaCO3.

Phosphorous, total (lakes) WQG applies to total phosphorous in lakes where salmonoids are predominant fis

WQG specific to streams with unknown fish distributions

Phosphorous, total (lakes)

WQG applies to total phosphorous in lakes where salmonoids are predominant fish species and during the spring overturn (if residence time of the epilimnetic water exceeds 6 months) or the mean phosphorous epilimnetic growing

season concentration (if time of the epilimnetic water is less than 6 months) residence

WQG specific to buried embryo/alevin life stages of aquatic life (most conservative).

Selenium, total Alert concentration = 1 ug/L.

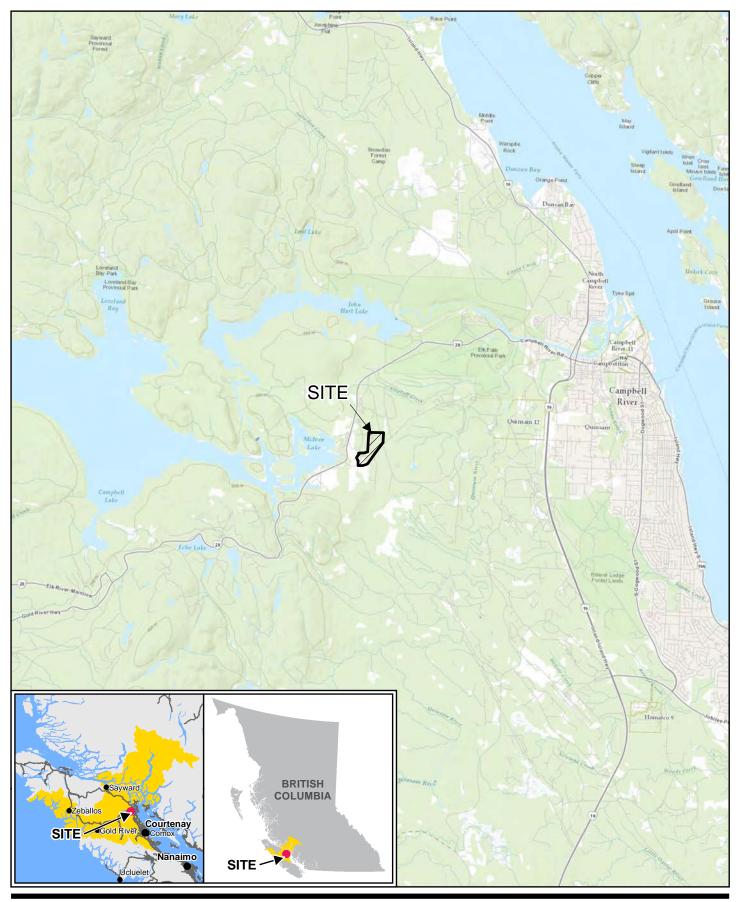
Zinc, total WQG LTA applies to water hardnesses between 90 and 330 mg/L CaCO3.

** Chloride guideline only applies to total Chloride. Guideline has been included for reference only.

Dissolved Oxygen, field

Temperature, field (stream)

Figures





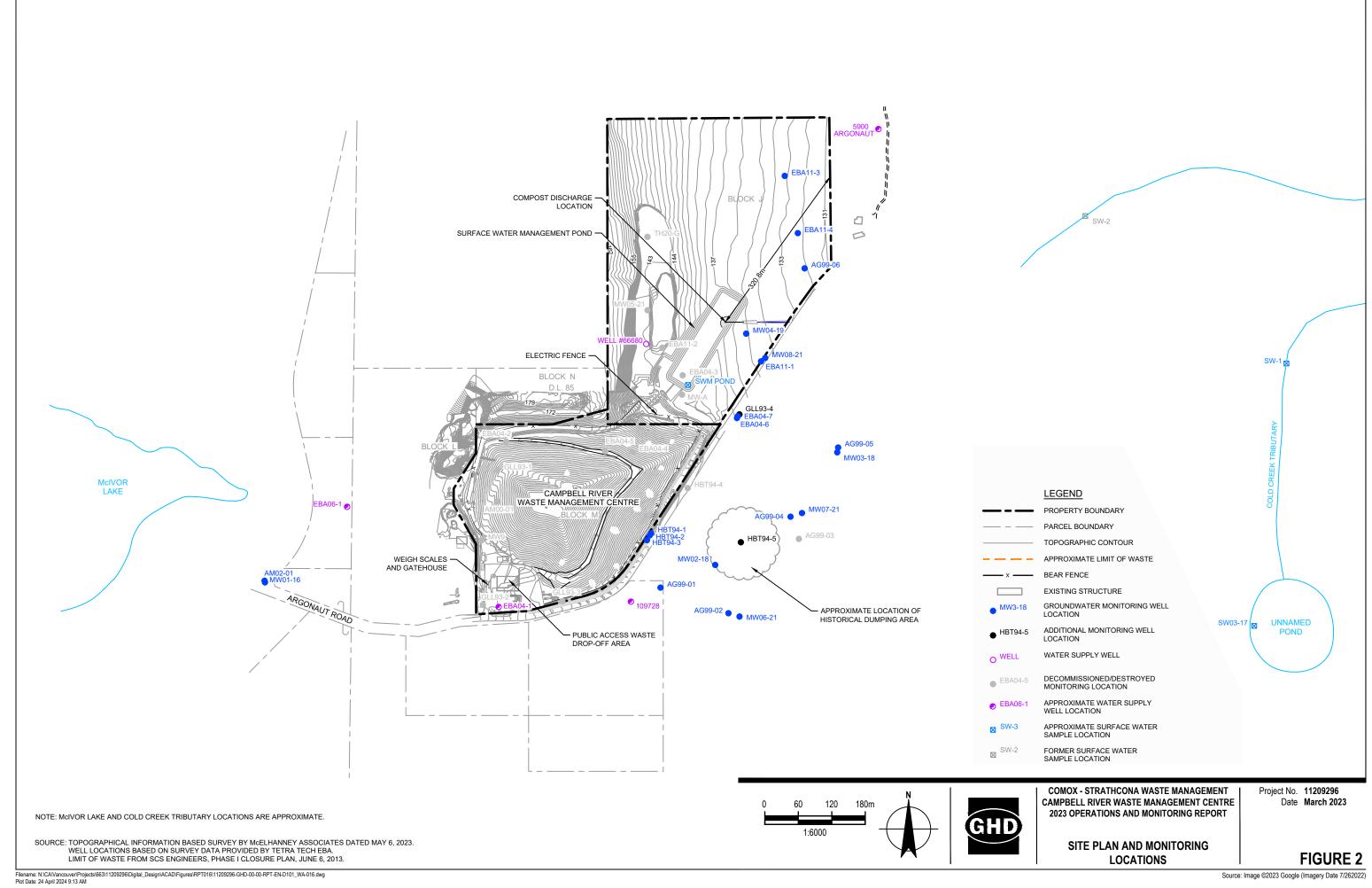
Map Projection: Transverse Mercator Horizontal Datum: North American 1983 Grid: NAD 1983 UTM Zone 10N

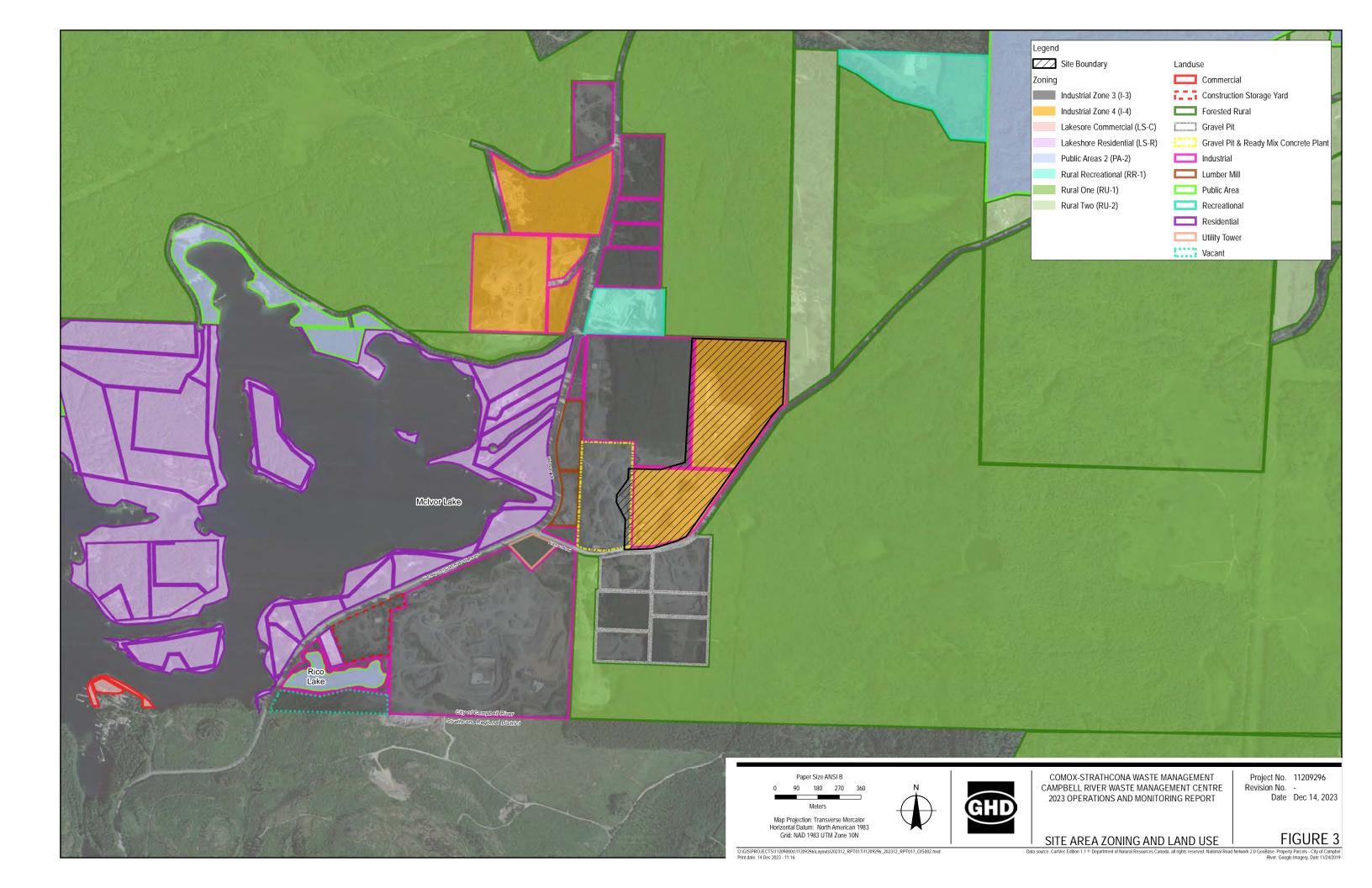


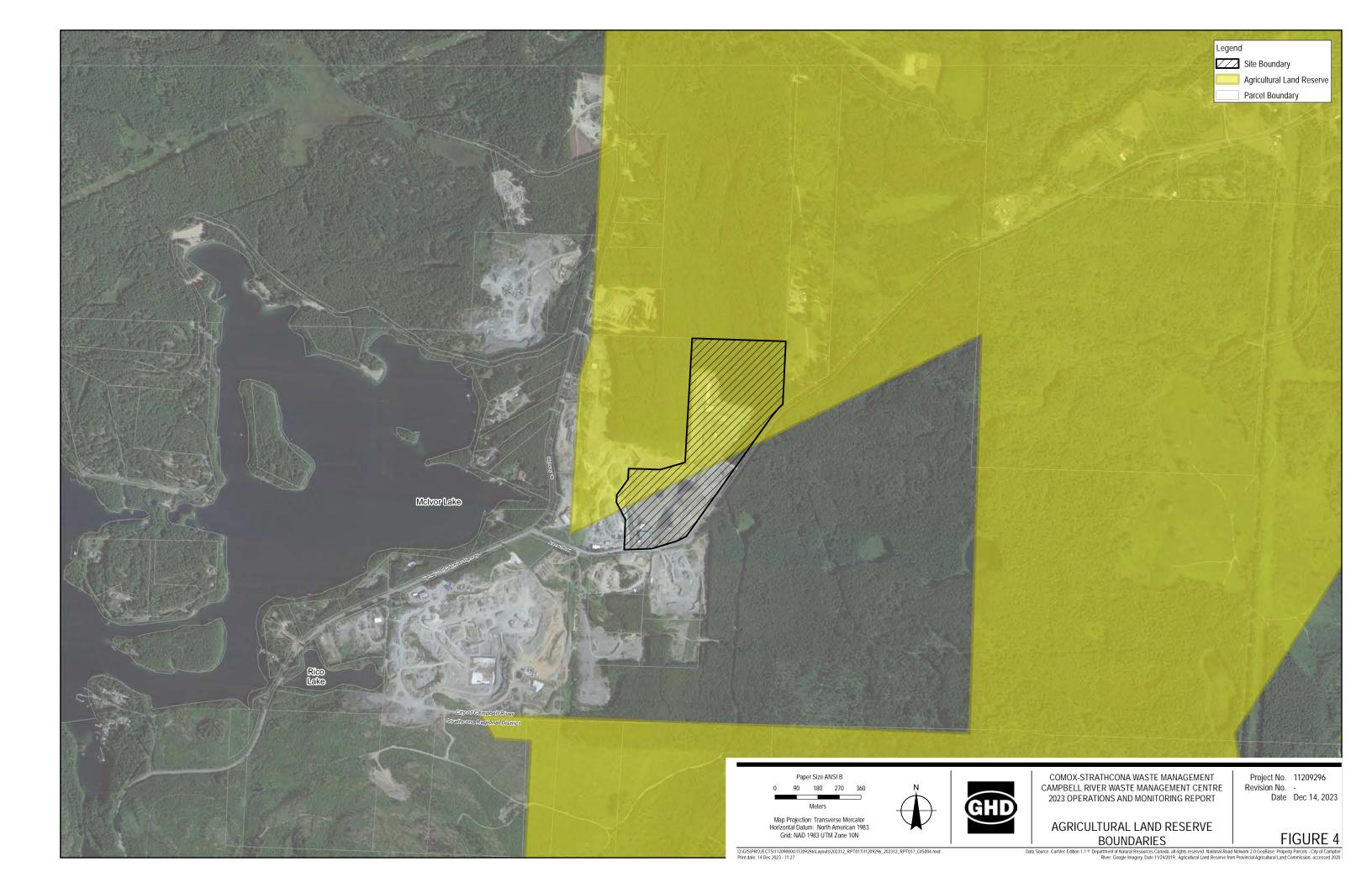
COMOX-STRATHCONA WASTE MANAGEMENT CAMPBELL RIVER WASTE MANAGEMENT CENTRE 2023 OPERATIONS AND MONITORING REPORT

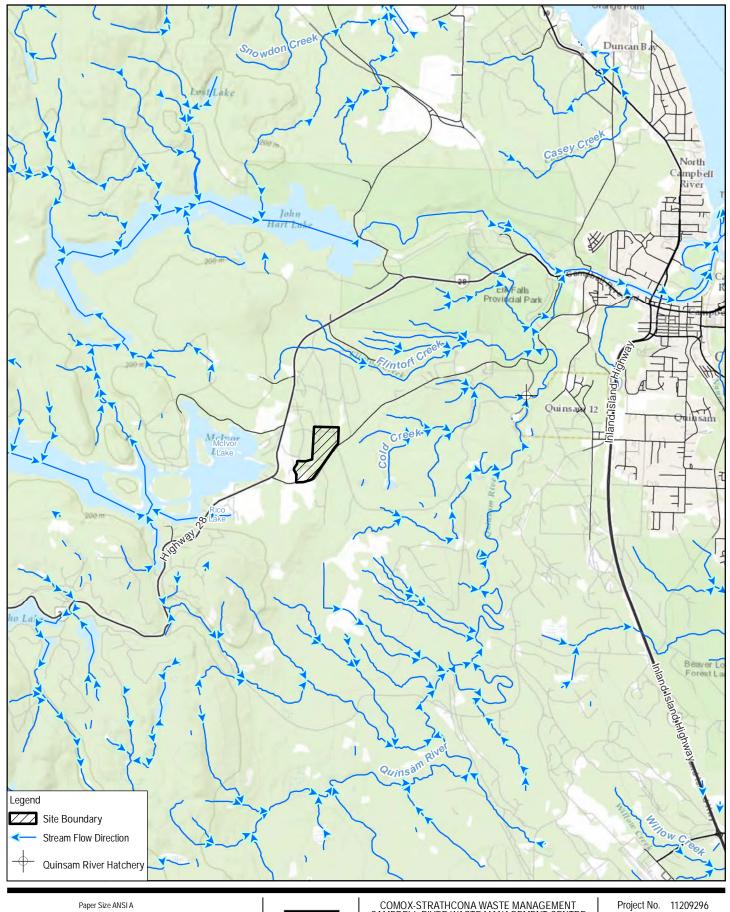
Project No. 11208296 Revision No.

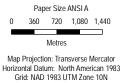
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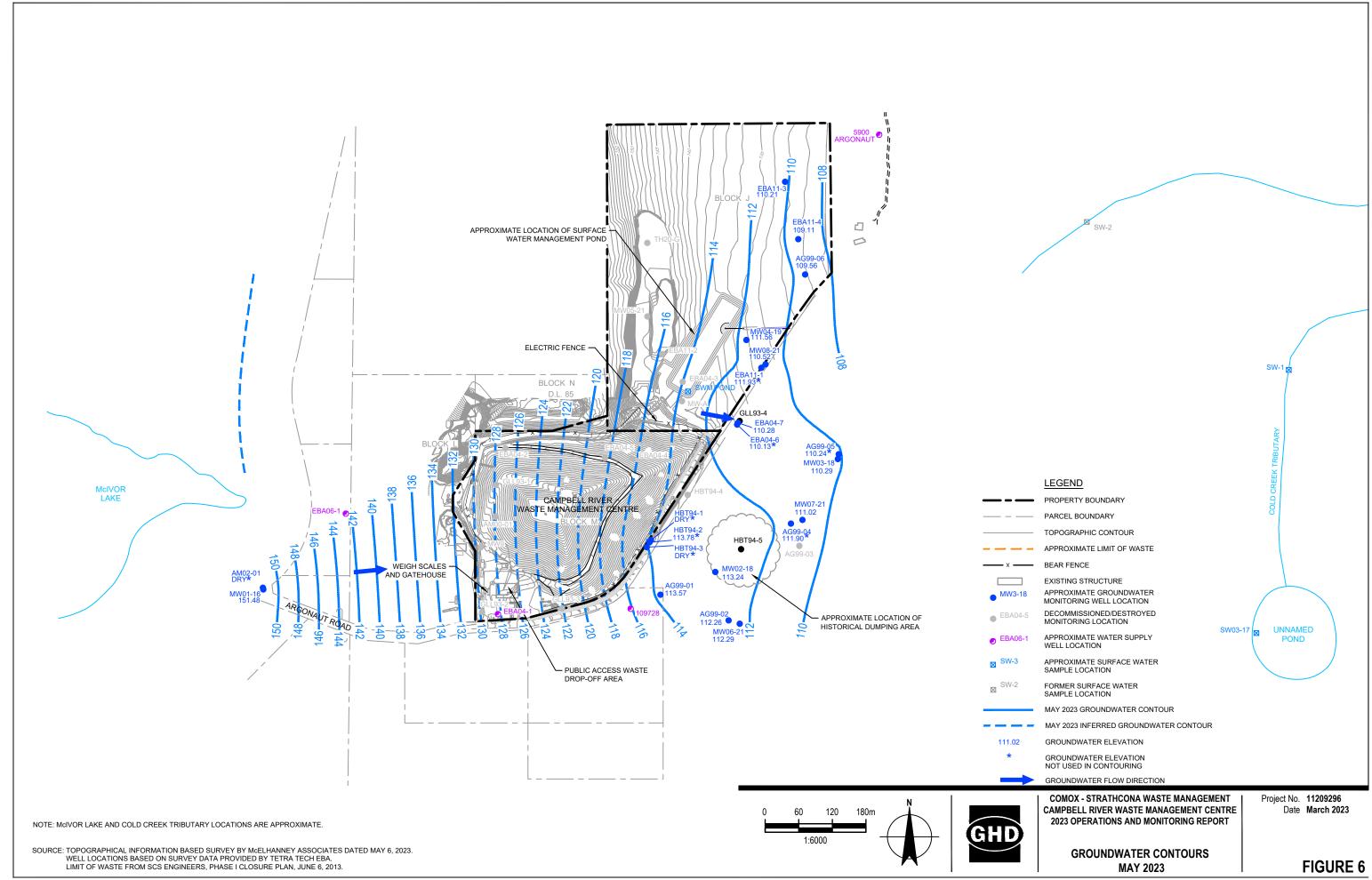
COMOX-STRATHCONA WASTE MANAGEMENT CAMPBELL RIVER WASTE MANAGEMENT CENTRE 2023 OPERATIONS AND MONITORING REPORT

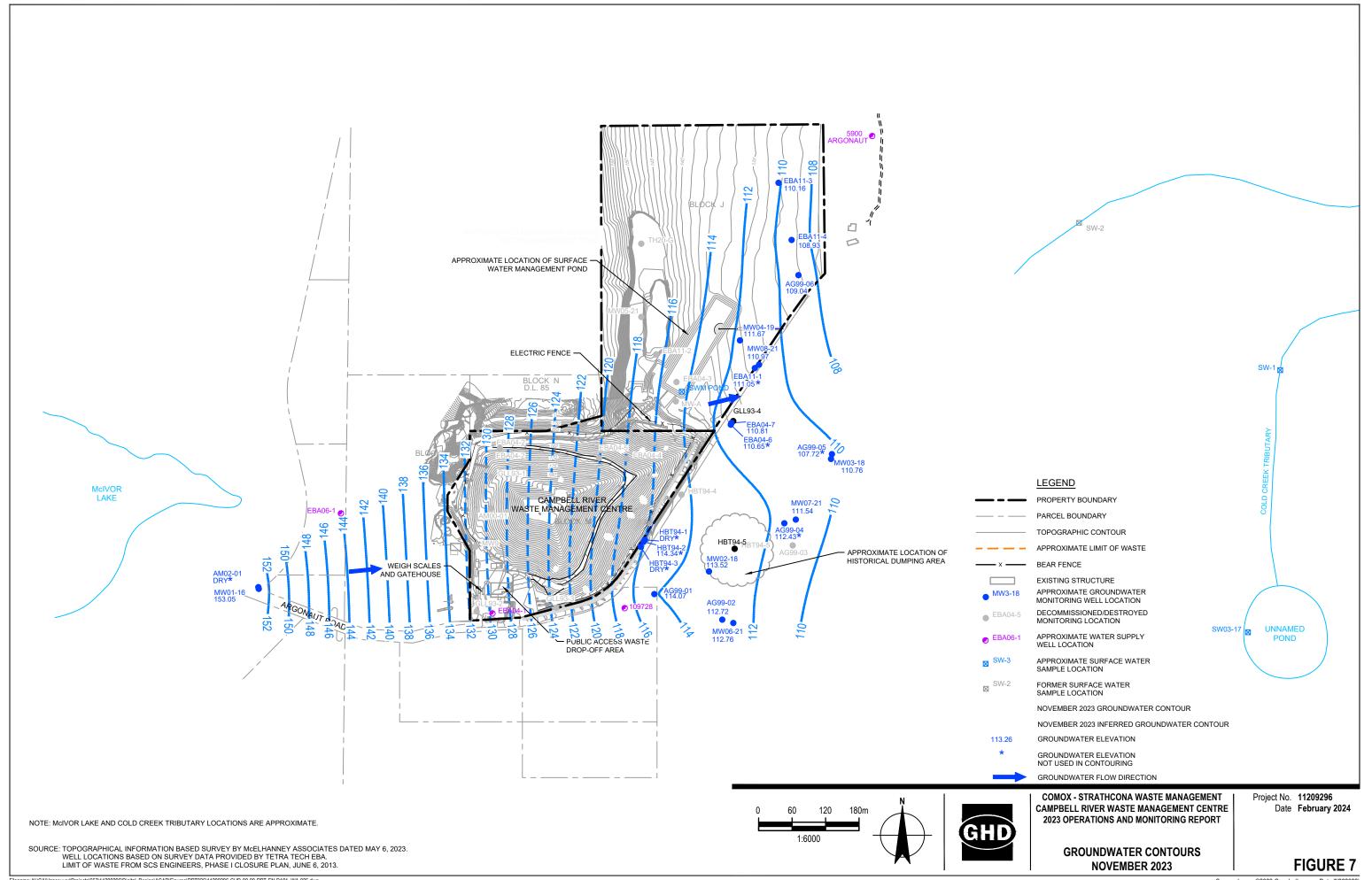
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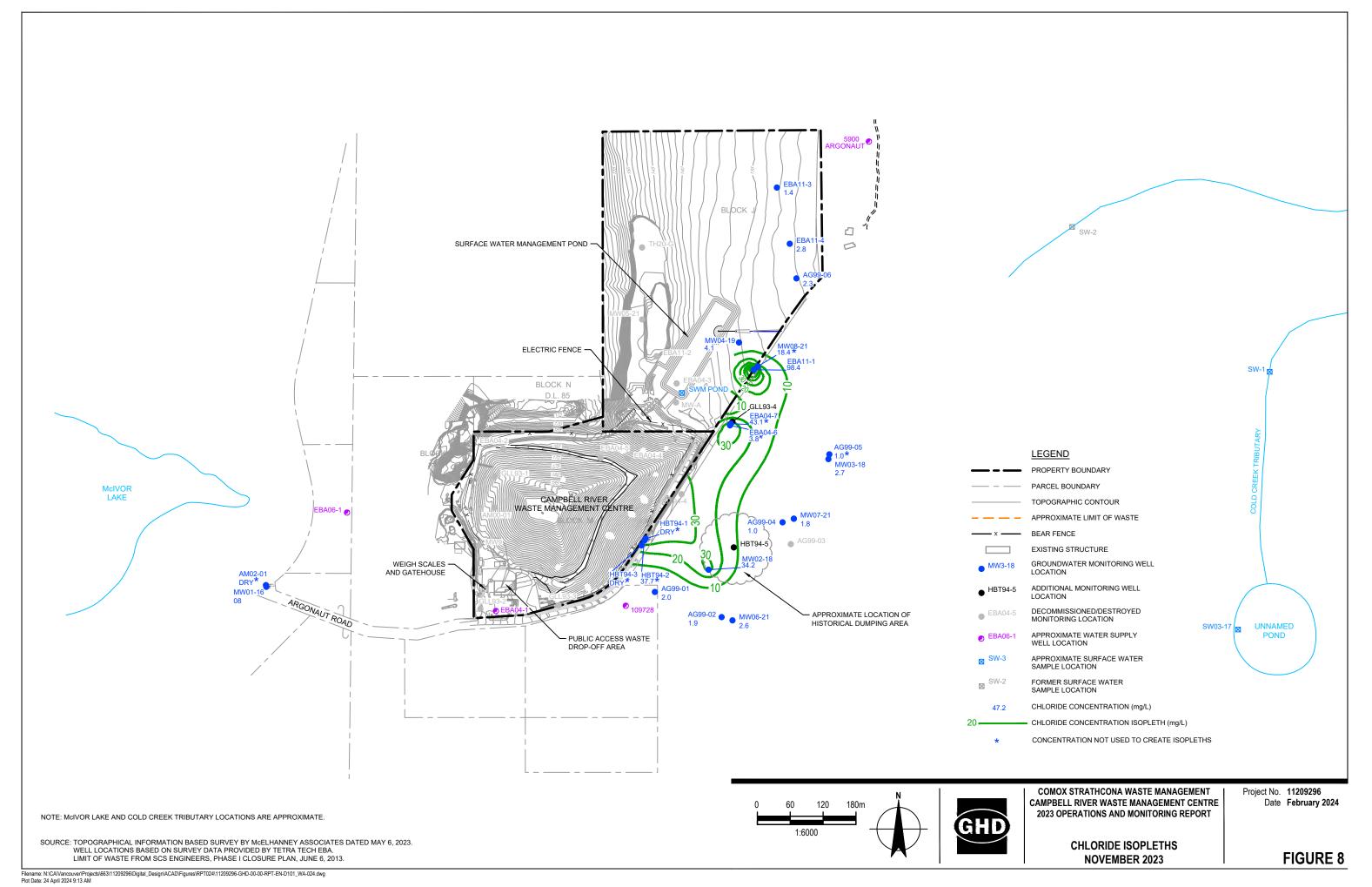
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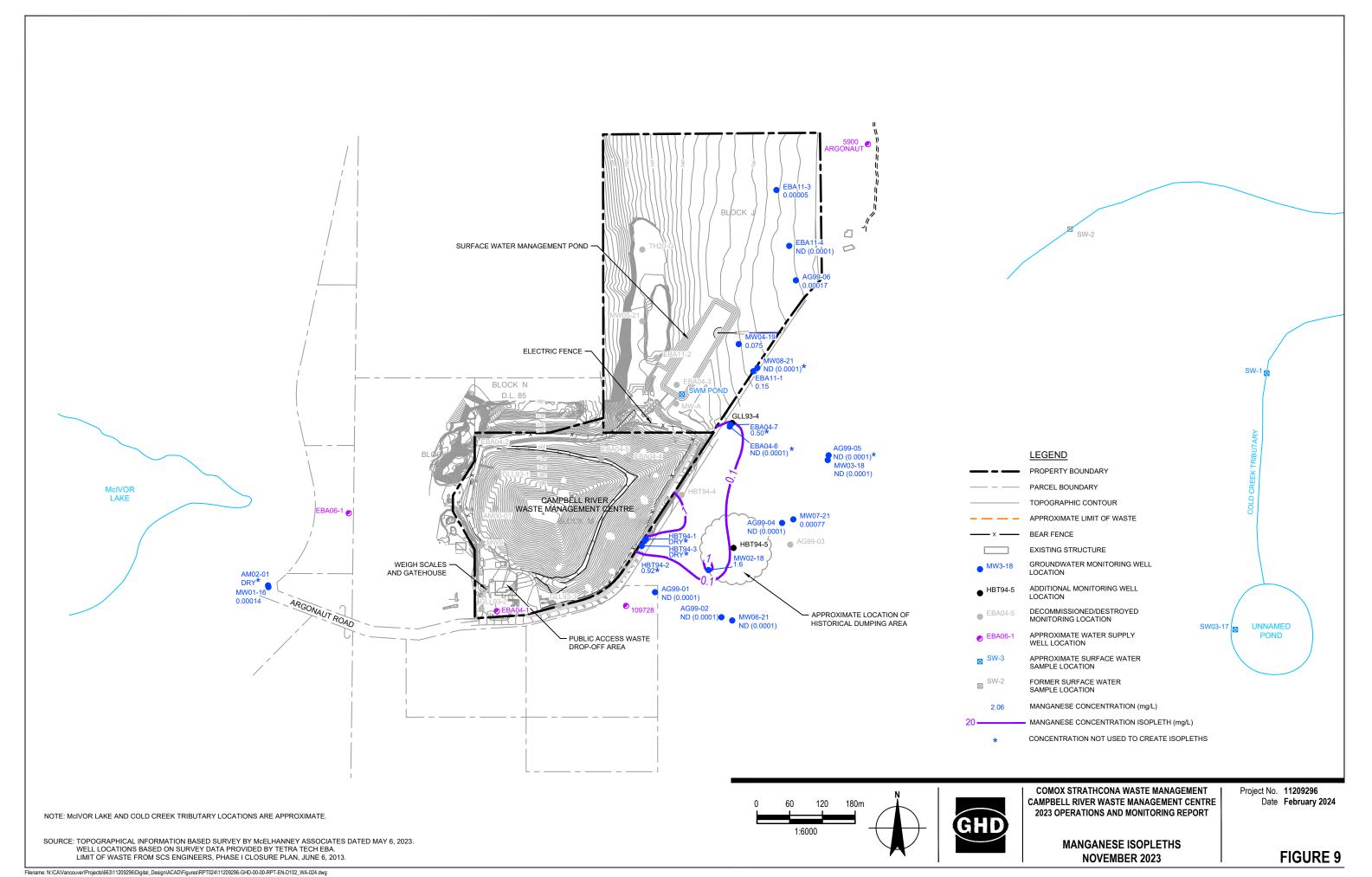
DRAINAGE MAP

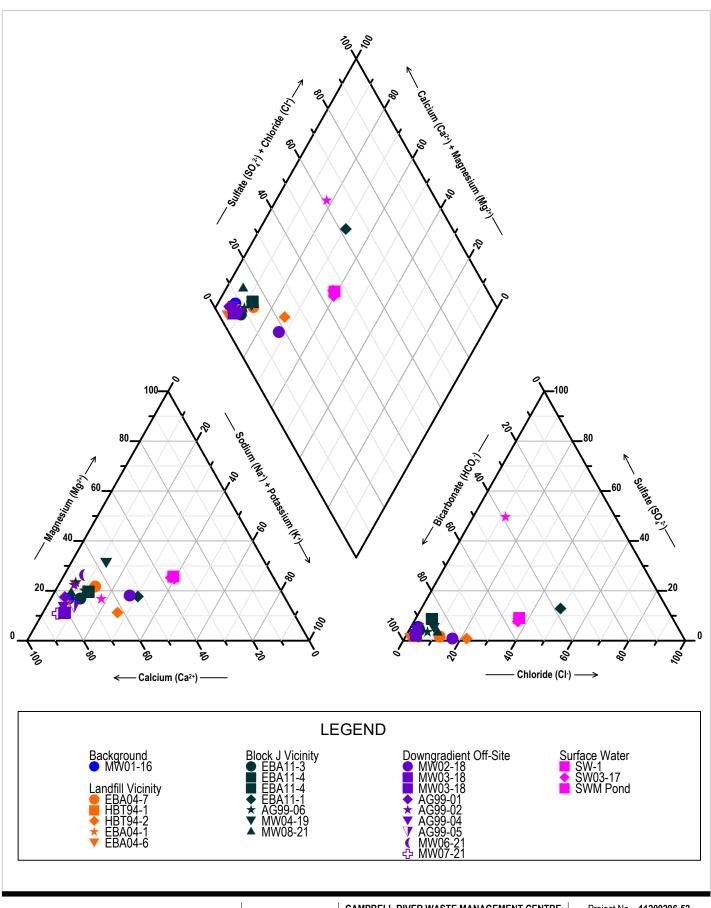
FIGURE 5













CAMPBELL RIVER WASTE MANAGEMENT CENTRE COMOX STRATHCONA WASTE MANAGEMENT 2023 OPERATIONS AND MONITORING REPORT Project No. 11209296-52 Date April 2024

PIPER PLOT - NOVEMBER 2023

FIGURE 10

Appendices

Appendix A

Operational Certificate OC-2401



May 19, 2020

Tracking Number: 371230 Authorization Number: 2401

Comox Valley Regional District 600 Comox Rd Courtenay BC V9N 3P6

Dear Operational Certificate Holder,

Application for Operational Certificate amendments dated March 23, 2018, under the Environmental Management Act

In response to the subject application, and pursuant to Section 16 of the Environmental Management Act, Operational Certificate 2401 (Appendix A) is hereby amended as follows:

1. Subsection 1.4. is amended from:

The location of the facilities for the management of waste and recyclable material to which this operational certificate is applicable is Block C of District Lot 85, Sayward Land District, approximately located as shown on attached Site Plan A.

to:

The location of the facilities for the management of waste and recyclable material to which this operational certificate is applicable is Block M and Block J of District Lot 85, Sayward Land District, approximately located as shown on attached Site Plan A

2. Section 1.5 is added:

1.5 Stormwater

- 1.5.1 The operational certificate holder must manage stormwater such that the stormwater is infiltrated into the ground with the authorized works.
- 1.5.2 The infiltrating stormwater must not include the concentration of any leachate substance in the stormwater greater than the Contaminated

Date issued:
Date amended:
(most recent)

November 29, 1973 May 19, 2020

Luc Lachance, P.Eng

for Director, Environmental Management Act

Authorizations - South Region

- Sites Regulation Generic Numerical Water Standards for Drinking Water (DW) and Aquatic Life (AW) for freshwater for that substance.
- 1.5.3 (a) The operational certificate holder must ensure that the Facility does not cause the concentration of Total Suspended Solids in the stormwater flowing from the Facility Site Boundary to be of worse quality than allowable concentrations specified in the British Columbia Approved and Working Water Quality Guidelines for a 24-hour duration during high flow conditions.
 - (b) The operational certificate holder must cause a Qualified Professional to determine the applicable water use(s) for stormwater discharging from the Landfill Site and the applicable, maximum allowable concentration specified in the British Columbia Approved and Working Water Quality Guidelines and include such determinations in the Annual Operations and Monitoring Report.
 - (c) The director may specify more stringent stormwater quality standards than those set out in this section.
- 1.5.4 The authorized works are mid slope swales, ditches, surface water management pond with energy dissipation and sediment traps, stormwater infiltration area, and related appurtenances approximately located as shown on Site Plan A.
- 1.5.5 The operational certificate holder must ensure that adequate authorized works to manage stormwater are complete and fully operational at all times.
- 1.5.6 The location of stormwater discharge to which this operational certificate is applicable is Block J of District Lot 85, Sayward Land District, approximately located as shown on attached Site Plan A.

3. Subsection 2.0 is added:

2.0 Glossary

The following terms when capitalized in this authorization have the meanings ascribed below. Other terms used in this authorization have the same meaning as those defined in the *Environmental Management Act*, applicable regulations, and the Landfill Criteria, unless the context indicates a contrary intent.

Date issued:
Date amended:
(most recent)

November 29, 1973 May 19, 2020

Luc Lachance, P.Eng

for Director, Environmental Management Act

Authorizations - South Region

"Facility" Means the landfill including all works related to stormwater management in Section 1.5.4.

"Landfill Criteria" means the Landfill Criteria for Municipal Solid Waste, Second Edition, June 2016, as it is amended or replaced from time to time, or other appropriate guidance or regulation in place at the time, as determined by the Director;

- "Qualified Professional" in relation to a duty or function referred to in this Operational Certificate, means an individual who:
 - (a) is registered in British Columbia with a professional organization, is acting under that organization's code of ethics and is subject to disciplinary action by that organization, and
 - (b) through suitable education, experience, accreditation and knowledge, may reasonably be relied on to provide advice within his or her area of expertise, which area of expertise is applicable to the duty or function;

4. Subsection 2.1. is amended from:

All facilities and information, including works, plans, assessments, investigations, surveys, programs and reports, must be certified by qualified professionals.

to:

The operational certificate holder must cause a Qualified Professional to:

- (a) Design and inspect the construction of the Facility, and,
- (b) Certify documents related to the Facility including plans, specifications, drawings, construction reports, assessments, reviews, investigations, studies, surveys, programs, reports and as-built record drawings.
- (c) Submit a completed Declaration of Competency and a Conflict of Interest Disclosure Statement with each document.

Date issued:
Date amended:
(most recent)

November 29, 1973 May 19, 2020

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Authorizations - South Region

5. Subsection 2.2.1 is amended from:

2.2.1 Plans

Site development, operating, leachate management, closure and post closure plans must be submitted to the Regional Waste Manager by December 31, 2003.

to:

- (a) The operational certificate holder must cause a Qualified Professional to certify and submit an up to date DOCP, for the Facility, to the director before January 1, 2022. The landfill closure component of the DOCP must be submitted to the director by October 1, 2020 for approval.
- (b) The DOCP must comply with the requirements of this operational certificate, include the information specified in all the items listed in the Landfill Criteria Section 10.3 Design, Operations and Closure Plan, and, if a Landfill Criteria Upgrading Plan is required pursuant to section 2.7 of this operational certificate, conform with the Landfill Criteria Upgrading Plan.
- (c) The operational certificate holder must cause a Qualified Professional to certify and submit an updated DOCP to the director, as necessary to keep the DOCP up to date, at least once every five years after the date specified in the preceding (a).
- (d) The operational certificate holder must carry out the most recent DOCP and design, construct, operate, inspect, maintain, monitor, and close the Facility, in compliance with most recent DOCP and this operational certificate.

6. Subsection 2.4 is amended from:

When 100,000 tonnes of waste have been discharged at the landfill, an assessment of the potential for landfill gas generation must be submitted to the Regional Waste Manager.

The landfill gas assessment must address, but is not limited to, subsections 4.2 and 6.4 of the Landfill Criteria for Municipal Solid Waste and section 6 of the Guidelines for Environmental Monitoring at Municipal Solid Waste Landfills.

Date issued: November 29, 1973 Date amended: May 19, 2020

(most recent)

Luc Lachance, P.Eng

for Director, Environmental Management Act

Authorizations - South Region

2.4.1 The potential for landfill gas generation is to be re-assessed at least once every 5 years after the initial assessment.

to:

- 2.4.1 The operational certificate holder must ensure that:
 - (a) The Facility does not cause:
 - (i) combustible gas concentrations to exceed the lower explosive limit of methane (5 percent by volume), or a lower concentration specified by the director, in soil at the Landfill Site Boundary;
 - (ii) combustible gas concentrations to exceed 20 percent of the lower explosive limit of methane (1 percent by volume) in any building;
 - (iii) federal, provincial, or local ambient air quality objectives and standards to be exceeded in air at the Landfill Site Boundary.

7. Subsection 2.7. is added:

- (a) The operational certificate holder must cause a Qualified Professional to certify and submit a Landfill Criteria Conformance Review to the director, on or before January 1, 2022.
- (b) The Landfill Criteria Conformance Review must be in accordance with the Landfill Criteria Section 2.2 Conformance of Existing Landfills, and include:
 - (i) A comparison and evaluation of the conformance status of the Facility with all applicable sections of the Landfill Criteria, and,
 - (ii) if non-conformance(s) with the Landfill Criteria are identified, a Landfill Criteria Upgrading Plan, including an action plan and schedule for all proposed upgrades to conform to the Landfill Criteria, and technical and environmental justification for any proposed exceptions from the Landfill Criteria.

Date issued:
Date amended:
(most recent)

November 29, 1973 May 19, 2020

Luc Lachance, P.Eng

for Director, Environmental Management Act

Authorizations - South Region

8. Site Plan A is replaced by the following updated Site Plan A (Appendix B).

All other terms and conditions of the operational certificate remain in full force and effect.

Please note that although a revised operational certificate document has not been produced at this time a copy of this letter is being placed on the permit file, as an addendum to the operational certificate, to formally reflect the amendments.

This operational certificate does not authorize entry upon, crossing over, or use for any purpose of private or Crown lands or works, unless and except as authorized by the owner of such lands or works. The responsibility for obtaining such authority rests with the permittee. This permit is issued pursuant to the provisions of the Environmental Management Act to ensure compliance with Section 120(3) of that statute, which makes it an offence to discharge waste, from a prescribed industry or activity, without proper authorization. It is also the responsibility of the permittee to ensure that all activities conducted under this authorization are carried out with regard to the rights of third parties, and comply with other applicable legislation that may be in force.

This decision may be appealed to the Environmental Appeal Board in accordance with Part 8 of the Environmental Management Act. An appeal must be delivered within 30 days from the date that notice of this decision is given. For further information, please contact the Environmental Appeal Board at (250) 387-3464.

Date issued: Date amended: (most recent) November 29, 1973 May 19, 2020

Luc Lachance, P.Eng

for Director, Environmental Management Act

Authorizations - South Region

PROVINCE OF BRITISH COLUMBIA

Administration of this permit will be carried out by staff from the Environmental Protection Division's Regional Operations Branch. Documents pertinent to the operational certificate are to be submitted by email or electronic transfer to the Director, in accordance with the ministry Data & Report Submissions website at: http://www2.gov.bc.ca/gov/content/environment/waste-management/waste-discharge-authorization/data-and-report-submissions, or as further instructed. If you have any questions or concerns, please contact Authorizations - South at Authorizations.South@gov.bc.ca.

Yours truly,

Luc Lachance, P.Eng

for Director, Environmental Management Act

Authorizations - South Region

ENCL:

Appendix A - Operational Certificate 2401 (December 2, 2003)

Appendix B – Site Plan A (April 22, 2020)

Date issued:
Date amended:
(most recent)

November 29, 1973 May 19, 2020

Luc Lachance, P.Eng

for Director, Environmental Management Act

Authorizations - South Region

Appendix A

Operational Certificate 2401 (December 2, 2003)



Date:

DEC 0 2 2003

File: MR-2401

REGISTERED MAIL

Regional District of Comox-Strathcona 600 Comox Rd Courtenay BC V9N 3P6

Dear Regional District of Comox-Strathcona:

Enclosed is Operational Certificate MR-2401 issued under the provisions of the Waste Management Act. Your attention is respectfully directed to the terms and conditions outlined in the operational certificate. An annual operational certificate fee will be determined according to the Waste Management Operational certificate Fees Regulation.

This operational certificate does not authorise entry upon, crossing over, or use for any purpose of private or Crown lands or works, unless and except as authorised by the owner of such lands or works. The responsibility for obtaining such authority shall rest with the operational certificate holder. This operational certificate is issued pursuant to the provisions of the Waste Management Act to ensure compliance with Section 54(3) of that statute, which makes it an offence to discharge waste without proper authorisation. It is also the responsibility of the operational certificate holder to ensure that all activities conducted under this authorisation are carried out with regard to the rights of third parties, and comply with other applicable legislation that may be in force.

This decision may be appealed to the Environmental Appeal Board. Notice of the appeal must (1) be in writing, (2) include the grounds for appeal, (3) be directed by registered mail or personally delivered to the Chair, Environmental Appeal Board, 4th Floor 836 Yates Street, Victoria, British Columbia, V8V 1X4, (4) be delivered within 30 days from the date notice of the decision is given, and (5) be accompanied by a fee of \$25, payable to the Minister of Finance. For further information, please contact the Environmental Appeal Board at 250 387-3464.

Administration of this operational certificate will be carried out by staff from our regional office located at 2080-A Labieux Road, Nanaimo, British Columbia, V9T 6J9, telephone 250 751-3100. Plans, data and reports pertinent to the operational certificate are to be submitted to the Regional Waste Manager, at this address.

Yours truly,

B. W. Medlar

Assistant Regional Waste Manager

Vancouver Island Region

Enclosure



MINISTRY OF WATER, LAND AND AIR PROTECTION

Vencouver Island Region Environmental Protection 2080-A Lableux Road Nanalmo, British Columbia V9T 6J9

Telephone: (250) 751-3100 Fax: (250) 751-3103

OPERATIONAL CERTIFICATE

MR-02401

Under the Provisions of the Waste Management Act

Regional District of Comox-Strathcona

600 Comox Road

Courtenay, British Columbia

V9N 3P6

is authorised to manage waste and recyclable material from the Regional District of Comox-Strathcona and environs at the Campbell River landfill located on Argonaut Road, Campbell River, British Columbia, subject to the conditions listed below. Contravention of any of these conditions is a violation of the Waste Management Act and may result in prosecution.

1. MANAGEMENT OF WASTE AND RECYCLABLE MATERIAL

1.1. Sanitary Landfill

- 1.1.1. This subsection applies to the discharge of waste to a sanitary landfill.
- 1.1.2. Waste may be discharged to the sanitary landfill shown on attached Site Plan A.
- 1.1.3. The characteristics of the discharge must be municipal solid waste as defined under the *Waste Management Act* and other wastes as approved in writing by the Regional Waste Manager.
- 1.1.4. The authorised works are a sanitary landfill, and related appurtenances approximately located as shown on attached Site Plan A.
- 1.1.5. The authorised works must be complete and in operation on and from the date of this operational certificate.

1.2. Leachate

- 1.2.1. This subsection applies to leachate from the landfill.
- 1.2.2. The characteristics of the leachate must not exceed concentrations set in the British Columbia Approved Water Quality Guidelines (Criteria) and A Compendium of Working Water Quality Guidelines for British Columbia at the property boundary. Where natural background water quality concentrations

DEC 0 2 2903

Date Issued: Date Amended: (most recent) Page: 1 of 4 B. W. Medlar Assistant Regional Waste Manager

OPERATIONAL CERTIFICATE: MR-02401

exceed the aforementioned guidelines, characteristics of the leachate must not exceed background concentrations.

1.3. Entrance facilities

- 1.3.1. The authorised facilities are signs, weigh scales, recyclable material and waste drop-off and storage facilities and related appurtenances.
- 1.3.2. The authorised facilities must be complete and in operation on and from the date of this operational certificate.

1.4. Location of Authorised Facilities

The location of the facilities for the management of waste and recyclable material to which this operational certificate is applicable is Block C of District Lot 85, Sayward Land District, approximately located as shown on attached Site Plan A.

2. GENERAL REQUIREMENTS

2.1. Qualified Professionals

All facilities and information, including works, plans, assessments, investigations, surveys, programs and reports, must be certified by qualified professionals.

2.2. <u>Plans</u>

- 2.2.1. Site development, operating, leachate management, closure and post closure plans must be submitted to the Regional Waste Manager by December 31, 2003.
- 2.2.2. The plans referenced in subsection 2.2.1 must address, but not be limited to, each of the subsections in the *Landfill Criteria for Municipal Solid Waste* including performance, siting, design, operational and closure and post-closure criteria.
- 2.2.3. The facilities must be developed, operated and closed in accordance with the plans referenced in subsection 2.2.1.

2.3. Bear-Proof Facilities

- 2.3.1. Bears must not access putrescible waste at the landfill facility. All putrescible waste that arrives at the landfill facility must be immediately contained within a bear-proof bin or an area enclosed by a bear-proof electric fence. Grass, leaves, weeds, branches and woodwaste are exempt from bear-proofing requirements.
- 2.3.2. A bear-proof electric fence must be installed around the landfill facilities.

DEC 0 2 2003

B. W. Medlar Assistant Regional Waste Manager

Date Amended: (most recent) Page: 2 of 4

Date issued:

OPERATIONAL CERTIFICATE: MR-02401

- 2.3.3. The bear-proof fence must be designed, constructed, operated and maintained to prevent bears from penetrating the fence.
- 2.3.4. The bear-proof electric fence and bear-proof bins must be installed and in operation by March 30, 2004.

2.4. Landfill Gas

- 2.4.1. When 100,000 tonnes of waste have been discharged at the landfill, an assessment of the potential for landfill gas generation must be submitted to the Regional Waste Manager.
- 2.4.2. The landfill gas assessment must address, but is not limited to, subsections 4.2 and 6.4 of the Landfill Criteria for Municipal Solid Waste and section 6 of the Guidelines for Environmental Monitoring at Municipal Solid Waste Landfills.
- 2.4.3. The potential for landfill gas generation is to be re-assessed at least once every 5 years after the initial assessment.

2.5. Seismic and Fault Activity

A report that assesses the risk from seismic and fault activity must be submitted to the Regional Waste Manager by December 31, 2003.

2.6. Additional Facilities or Works

The Regional Waste Manager may require investigations, surveys, and the construction of additional facilities or works including, but not limited to, additional leachate and landfill gas management facilities. The Regional Waste Manager may also amend the requirements of any of the information required by this operational certificate including plans, programs, assessments and reports.

3. MONITORING AND REPORTING

3.1. Monitoring Program

- 3.1.1. A monitoring program must be developed to identify any impacts to the environment and public health from the landfill.
- 3.1.2. The monitoring program must address, but not be limited to, subsections 4.1, 4.2 and 7.15 of the Landfill Criteria for Municipal Solid Waste and the Guidelines for Environmental Monitoring at Municipal Solid Waste Landfills.
- 3.1.3. Monitoring must be conducted in accordance with the monitoring program.

DEC 0 2 2003

Date Issued: Date Amended: (most recent) Page: 3 of 4 B. W. Medlar
Assistant Regional Waste Manager

OPERATIONAL CERTIFICATE: MR-02401

3.2. Annual Operating and Monitoring Report

- 3.2.1. An annual operating and monitoring report for the preceding 12 month period from January 1 to December 31 must be submitted to the Regional Waste Manager by April 30 of each year.
- 3.2.2. The report must include:
 - An executive summary;
 - Tonnage of each type of waste discharged to the landfill for the year;
 - . Remaining site life and capacity;
 - Review of the preceding year of operation, plans for the next year and any new information or proposed changes relating to the facilities and plans;
 - Comparison of the monitoring data with the performance criteria in section 4
 of the Landfill Criteria for Municipal Solid Waste and the Guidelines for
 Environmental Monitoring at Municipal Solid Waste Landfills, interpretation
 of the monitoring data, identification and interpretation of irregularities and
 trends, recommendations, and any proposed changes to the monitoring
 program.

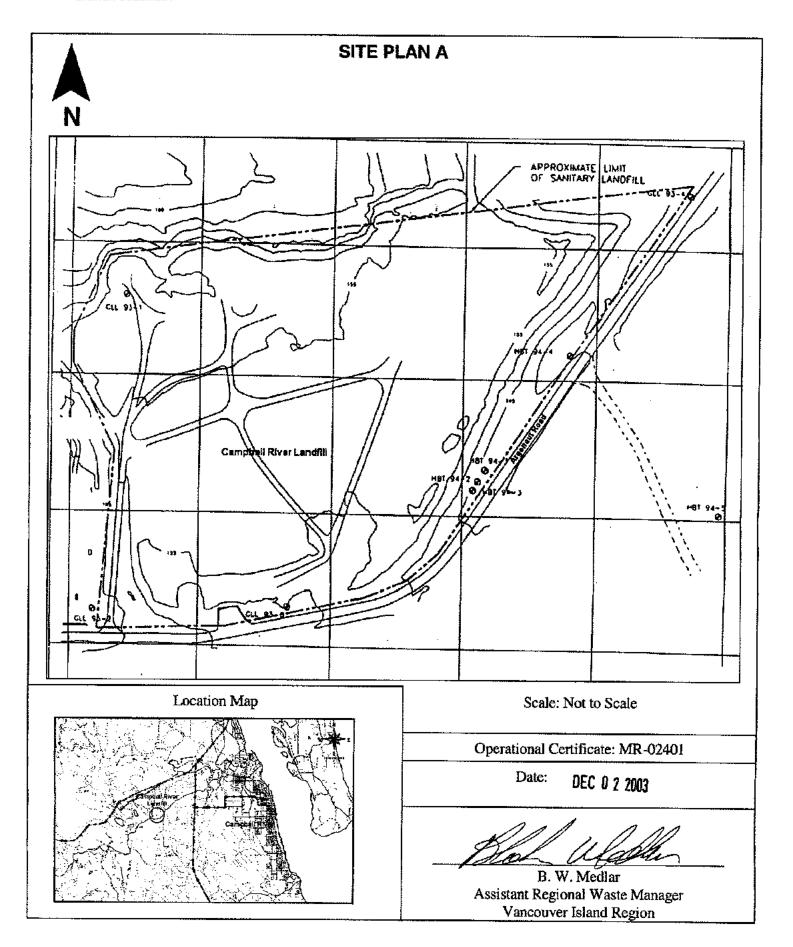
4. SITE CLOSURE

4.1. Closure and Post-Closure Fund

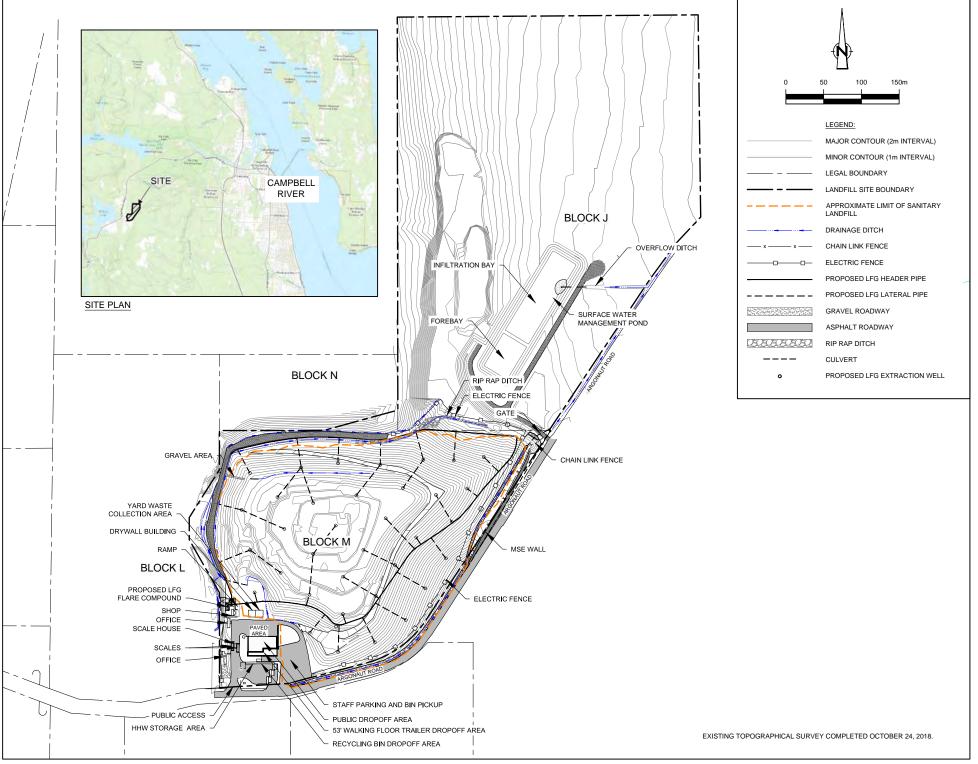
A closure and post-closure financial security trust fund must be built up over time. The closure and post-closure fund must ultimately meet or exceed the estimated closure and post-closure costs plus a reasonable contingency for any remediation that may be required.

DEC 0 2 2003

B. W. Mediar Assistant Regional Waste Manager



Appendix B
Site Plan (April 22,2020)



Appendix B Borehole Logs

GRAPHICS, SYMBOLS AND ABBREVIATIONS ON LOGS

SAMPLE TYPES and TESTS

E	SS	Split Spoon Sample
8	SN	Non-Standard Split Spoon Sample
I	ST	Shelby Tube Sample:
		(unconfined compression or unconsolidated undrained test)
II	DS	Denision Type Sample
ū	PS	Piston Type Sample
Ξ	CS	Continuous Sample
<u>y</u>	GS	Grab Sample
8	WS	Wash Sample
<u>"</u>	BQ	BQ Core Sample
\mathbb{Z}	HQ	HQ Core Sample
<u>Z</u>	NQ	NQ Core Sample
\sum_{i}	DT	Dynamic Penetration Test

PENETRATION RESISTANCES

Standard Penetration Resistance(N Value)

Field Vane Test (undisturbed) Field Vane Test (remoulded)

The number of blows by a 63.6 kg (140 lb) hammer dropped 760 mm (30 in.) required to drive a 50 mm (2 in.) split spoon sampler for a distance of 300 mm (12 in.).

ABBREVIATIONS

DTPL: Drier Than Plastic Limit
APL: About Plastic Limit
WTPL: Wetter Than Plasic Limit
K: Hydraulic Conductivity (m/s)
Cu: Undrained Shear Strength (kPa)
% REC: Percentage of Sample Recovered
% RQD: Indirect Measure of the Number of
Fractures and Soundness of Rock Mass
Approximate Water Table

GRAIN SIZE CLASSIFICATION %

trace, "eg. trace sand" some, "eg. some sand" adjective, "eg. sandy" and, "eg. and sand"	1 - 10 10 - 20 20 - 35 35 - 50
noun, "eg. sand"	>50

Note: Classification Divisions Based on Modified M.I.T. Grain Size Scale

SOIL DESCRIPTIONS

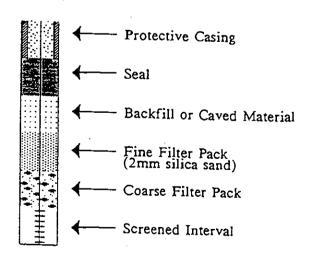
Cohesionless Soils

Relative Density	N	Va	lue
Very loose Loose	0	to	-
Compact		to	
Dense	10 30		
Very Dense		to ver	

Cohesive Soils

Consistency	$C_{\mathbf{u}}(kPa)$	N Value
Very soft	0 to 12	0 to 2
Soft	12 to 25	2 to 4
Firm	25 to 50	4 to 8
Stiff	50 to 100	8 to 15
Very Stiff	100 to 200	15 to 30
Hard	over 200	over 30

MONITOR DETAILS



BOREHOLE LOG PROJECT: 92-746 BOREHOLE: 1 1 of 2

CAMPBELL RIVER SANITARY LANDFILL

CAMPBELL RIVER, BRITISH COLUMBIA

FOR: DISTRICT OF CAMPBELL RIVER

DATE: 11 January 1993

GEOLOGIST SRB
ELEVATION 154.0 m ASL

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		fine to medium subrounded gravel, moist, loose.			X			}		1					-
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	+ +	SAND AND GRAVEL	. :::∤	:::	X]			1						
15		Medium brown fine to medium sand, some fine to	STATE OF	-	Ľ	GS	1			١.					
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BOREHOLE LOG PROJECT: 92-746

CAMPBELL RIVER SANITARY LANDFILL
CAMPBELL RIVER, BRITISH COLUMBIA
FOR: DISTRICT OF CAMPBELL RIVER

BOREHOLE: 1 2 of 2

DATE: 11 January 1993
GEOLOGIST SRB
ELEVATION 154.0 m ASL

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(m) 21 22 23 24 24.8 25 26 27 28.0 28	STRAIL STRAIL	Saturated at 24.80 m. SAND Medium brown fine to medium sand and fine to medium subrounded gravel, moist, compact. Borehole sands cave from 28.00 m to 27.17 m. Borehole terminated at 28.00 m.		N	S S S TYPE	7	X WATE		15 30 45 60	

BOREHOLE LOG PROJECT: 92-746

CAMPBELL RIVER SANITARY LANDFILL

CAMPBELL RIVER, BRITISH COLUMBIA

FOR: DISTRICT OF CAMPBELL RIVER

BOREHOLE: 2 1 of 2

DATE: 12 January 1993

GEOLOGIST SRB

ELEVATION 165.9 m ASL

DEPTH (m)	STRATIGRAPHY	• •	1~ ~ !!!					PLI				
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BOREHOLE LOG PROJECT: 92-746

CAMPBELL RIVER SANITARY LANDFILL

CAMPBELL RIVER, BRITISH COLUMBIA

FOR: DISTRICT OF CAMPBELL RIVER

BOREHOLE: 2 2 of 2

DATE: 12 January 1993

GEOLOGIST SRB

ELEVATION 165.9 m ASL

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27		- Gravel layer at 27.40 m to 28.00 m.		-	X					-	************		
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33					X								
34		Saturated at 33.75 m.			X								
35.3 35 -		Panels I. A.		_	X			-		_			
		Borehole terminated at 35.33 m below ground.											
<u> </u>													

BOREHOLE LOG PROJECT: 92-746

CAMPBELL RIVER SANITARY LANDFILL
CAMPBELL RIVER, BRITISH COLUMBIA
FOR: DISTRICT OF CAMPBELL RIVER

BOREHOLE: 3 1 of 2

DATE: 14 January 1993
GEOLOGIST SRB
ELEVATION 153.6 m ASL

	춫			T			AM	PLI					7 III ASL
DEPTH (m)	STRATIGRAPHY	STRATIGRAPHIC DESCRIPTION	MONITOR	NUMBER -	THERUAL		VALUE	WATER	REC	RQD		/ALUE	WATER CONTENT (%)
	(S)	CAND AND AD INC.		Ž	<u> </u>	i	Z	×	×	×	15	30 45 60	10 20 30 40
1.5		SAND AND GRAVEL PHL Grey fine to medium silty sand fill with some fine subrounded gravel, moist, loose. SAND AND GRAVEL								-	1141141141141141141414141414141414141414		
3 -		Grey to dark brown fine to medium silty sand with refuse to 4.6 m, moist, loose.											
5 -										-			
6.1 6		SAND Dark brown fine to medium sand, some fine to medium gravel, trace silt, moist.		***************************************						•			
9.1 9		SAND AND GRAVEL		*****									
10 -		Dark brown fine to medium sand and fine to coarse gravel, moist, dense.								-		411111111111111111111111111111111111111	
12.2 12 · 12.5		SAND Dark brown fine to medium sand, moist.											
14		SAND AND GRAVEL Alternating layers of medium brown, fine to medium sand and fine to coarse gravel and cobbles, moist, dense.		***************************************									
15 -		·							į				
17													
19													

BOREHOLE LOG PROJECT: 92-746

CAMPBELL RIVER SANITARY LANDFILL

CAMPBELL RIVER, BRITISH COLUMBIA

FOR: DISTRICT OF CAMPBELL RIVER

BOREHOLE: 3 2 of 2

DATE: 14 January 1993

GEOLOGIST SRB

ELEVATION 153.6 m ASL

	}						430				1011		J III ASL
DEPTH (m)	STRATIGRAPHY	STRATIGRAPHIC DESCRIPTION	MONITOR DETAILS & NUMBER	NUMBER	INTERUAL	TYPE	N UALUE WY	Z WATER Z	x REC	x RQO		ALUE 0 45 60	WATER CONTEN (%)
21 - 22 - 23 - 24 - 25 - 26 - 27.0 27 - 28 - 30 - 31 - 31.8		Sand Dark brown to grey fine to medium sand, trace silt, saturated, compact. Borehole terminated at 31.80 m in sand. Stratigraphy logged from auger cuttings.											

BOREHOLE LOG PROJECT: 92-746

CAMPBELL RIVER SANITARY LANDFILL

CAMPBELL RIVER, BRITISH COLUMBIA

FOR: DISTRICT OF CAMPBELL RIVER

BOREHOLE: 4 1 of 1

DATE: 14 January 1993

GEOLOGIST SRB

ELEVATION 146.4 m ASL

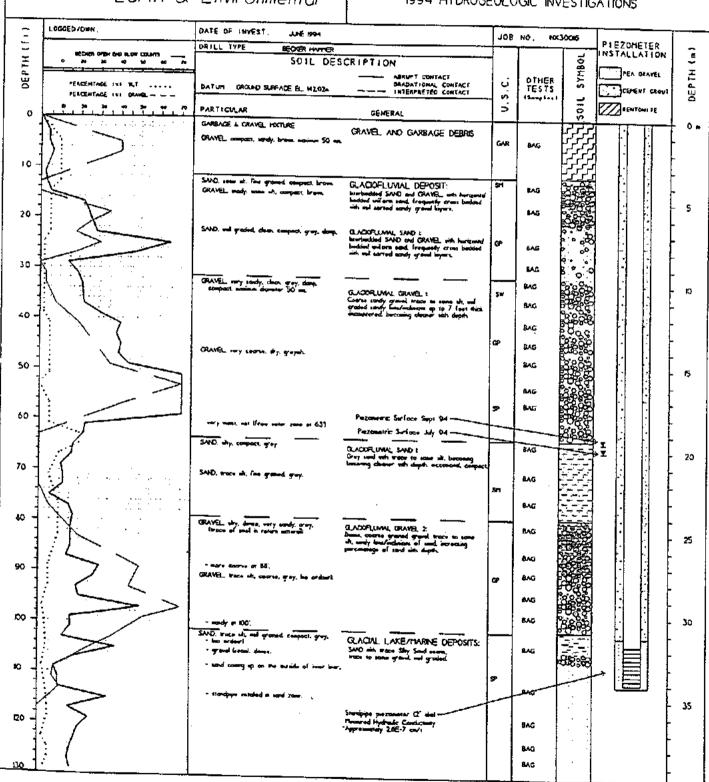
the state of the control of the cont

	7										m ASL
	표		nz			SAM	PLI	<u> </u>			
DEPTH (m)	STRATIGRAPHY	STRATIGRAPHIC DESCRIPTION	MONITOR DETAILS & NUMBER	NUMBER	INTERUBL TYPE	UALUE	WATER	REC	RQD	N VALUE	(%)
	S.	CANTO		Ž	F F	z	×	*	×	15 30 45 60	10 20 30 40
1 -		SAND Medium brown fine to medium sand, trace silt, moist, loose to compact.			X GS X X				-		10 20 30 40
2 -				•	X X				-		
4					XXXXXX				-		
5 -					M .				_		
6 -				-	XXXXXXX				_		
7 - 8 -				- -	X X X				_		
9 -					X X X Gs						
10 -				-	X ·				_		
11 -				•							
12 -		•		•	X X Cs				-		
13 -				-]	•		
15 -				<u> </u>	X				'		
16 -				_	X X X						
17 -		Saturated at 17.1 m.			X X X						
18		Changes to grey in colour below 17.5 m.	ATTACHEMENT OF THE		X X C:	5					
19.4			事	-				1		4	
		Borehole terminated at 19.4 m in sand.	 _	۰	↓		٦	1.	1		



LOG OF BOREHOLE NO. HBT 94-1

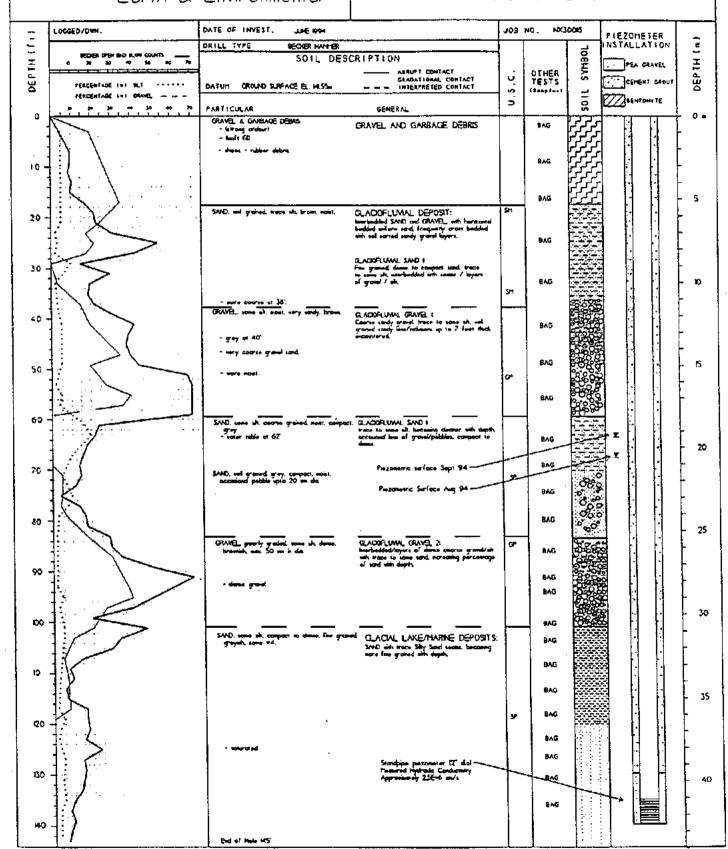
DISTRICT OF CAMPBELL RIVER LANDFILL. ARGONAUT ROAD 1994 HYDROGEOLOGIC INVESTIGATIONS





LOG OF BOREHOLE NO. HET 94-2

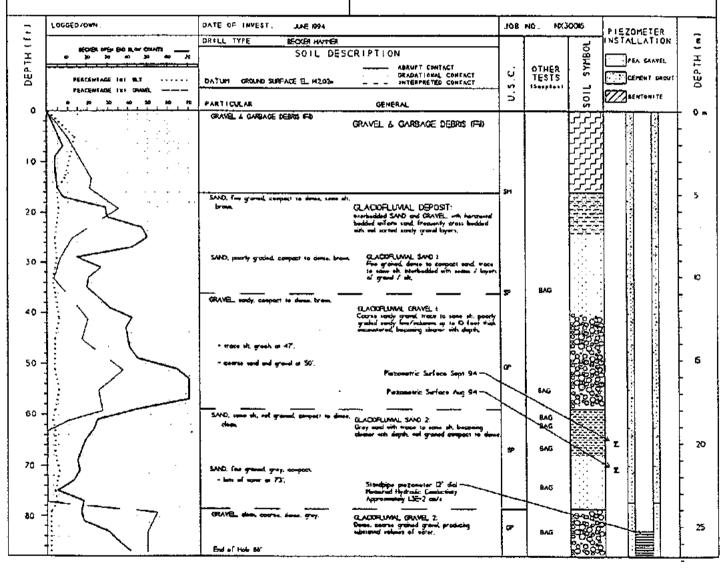
DISTRICT OF CAMPBELL RIVER LANDFILL. ARGONAUT ROAD 1994 HYDROGEOLOGIC INVESTIGATIONS





LOG OF BOREHOLE NO. HBT 94-3

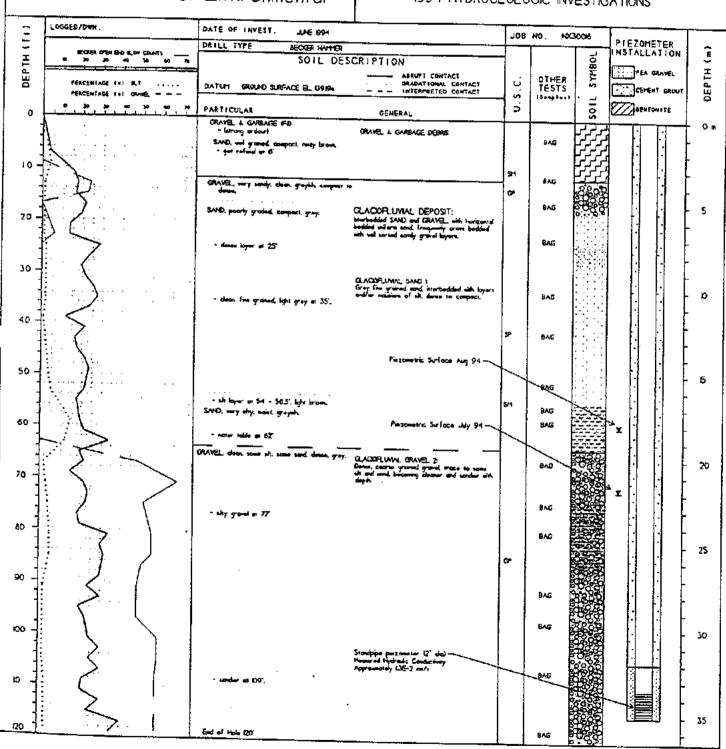
DISTRICT OF CAMPBELL RIVER LANDFILL, ARGONAUT ROAD 1994 HYDROGEOLOGIC INVESTIGATIONS





LOG OF BOREHOLE NO. HBT 94-4

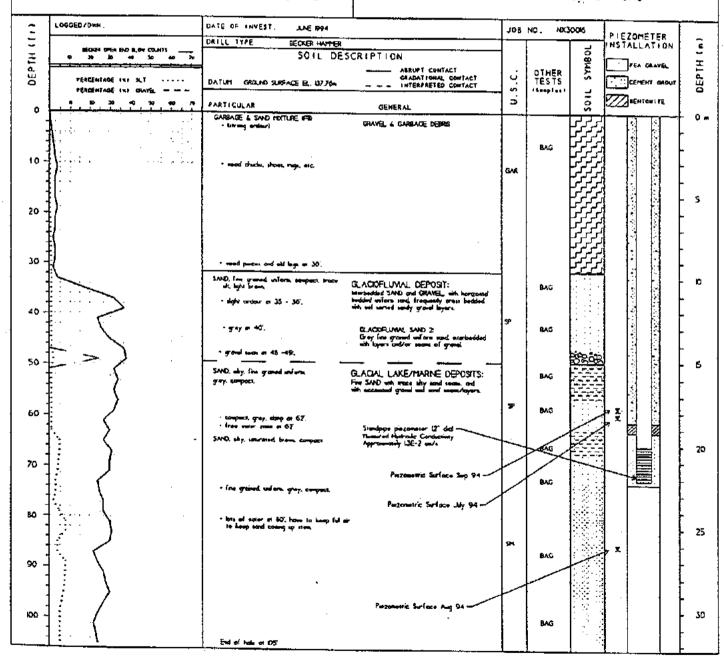
DISTRICT OF CAMPBELL RIVER LANDFILL ARGONAUT ROAD
1994 HYDROGEOLOGIC INVESTIGATIONS





LOG OF BOREHOLE NO. HBT 94-5

DISTRICT OF CAMPBELL RIVER LANDFILL. ARGONAUT ROAD 1994 HYDROGEOLOGIC INVESTIGATIONS



EGION.	AL DIS	TRICT	OF COMOX-STRA	ATHCONA.	Drilling Contract	or: BECK	Drilling		E NO: AG99-	
יייטיני. רודיחת	INAL M	חזואם	RING YELL INSTA	LLATK	Method: Becker			PROJECT	NO: NX2013604	4
JU116J	rrang di	5,1110	THIS TEEL THE	<u>-</u>				ELEVATION	V ;	
AMPL	<u> </u>	F	_ GRAS (SD!L)	GRAS (WATER)					
	<u> </u>		BENTONITE	PEA GRAVEL	ROUGUE	ĺ	្ឋិនលោ 🔟	DRILL CUTTINGS	ELESAND FLERE	: PK
Depth(m)	usc	SOIL SYMBOL		Soil escription	n	SAMPLE TYPE RUN NO	Additional Comments	20 4 20 4	‰ Sand•	SLOTTED PIEZOMETER
5.0 6.0 7.0 - 8.0 - 9.0 - 10.0	SP/G	1 4 4 4 4 4 4 4 4 4 6 6 6 6 6 4 4 4 4 4	moderately oxidiup to 100 mm. SAND AND GRAV graded, damp. SAND - some of graded, damp. GRAVEL AND SA graded, damp.	EL – trace silt, p gravel, trace silt,	/cabbles	02				hamminingingingingingingingingingingingingin
13.0 14.0 15.0 16.0 17.0 19.0	SP NIL	\$50505050505050505050505050505050505050		silt, fine grained,		04				
21.0. 22.0.	0 0 0 0 0 SF .0			silt, fine grained	, 	06				
<u> </u>	i.U 1		D & D11	La Francisca	nmantal		LOGGED BY: JW	α	OMPLETION DEPT	H: 48.5 m
		ΑĠ		& Enviro	mmental		REVIEWED BY: JR	C	MPLETE: 17/06	/99 Page 1
1			Na	naimo, B.C.						2006

e <mark>de la gradicio</mark>ne de la companya de

REGION	al distric	OT OF COMOX-STRATHCONA	Drilling Cont	iractor	BEC	K Drilling	BOREHOLE NO:	AG99-
CITICCA	NAT KONI	TORING WELL INSTALLATIO	Method: Bed	cker Ho	mm	er	PROJECT NO: N	
							ELEVATION:	
SAMPL		3 GR48 (SOIL)						
BACKFI	IL TYPE	BENTONITE PEA O	GRAVEL SLO	UGH		€ GROVI	DRILL CUTTINGS SA	and filter
	ایا	·			-			
ε	USC SYMBOL	Soil		<u> </u>	S	kddittono]	m % Fines M	1
Depth(m)	SY LYS			لبا	RUN N	Additional	20 40 50 ◆≭ Sond ◆	<u>:</u>
Ö	킳	Descrip	tion	SAMPL	₹	Comments	20 40 60	80
	<i>y</i>			S			● 7 Grovei ● 20 40 60	•
	SP Q Q							
- 31.0 -		SAND AND SILT - low plosti	ic. wel.		09		•	111
- 32.0 S	M/ML							1
-33.0			_					
- - 34.0		SAND - some silt, fine grai	ined, wet.		11			•
-							******************************	1
- 35.0	SM R							1.1
- 36.0								
- 37.0	00	SAND — trace silt, fine grai	ined, wet.		12			•
.	60							1
- 38.0	60							•••••••••••••••••••••••••••••••••••••••
- 39.0	00							***************************************
40.0	00			**	13			•
-	SP 000							
-41.0	00							
- 42.0	00						***************************************	
- 43.0	00							
٠	00							+ + + +
-44.0 -	00							111
- 45. 0	44	GRAVEL - little sand, clean,		-	14			<u> </u>
-46.0	33	occasional cobbles/cobble	, wel, frooments up to		'		The state of the s	
- -47.0	CP (120 mm diameter.	nuginana ap					111
-41,0	33						****	
-48.0 -	₹ ₹							-
-49.0		End of Hale at 48.5 m.						
- 50.0								1
- 51.0								
-					.			
- 52.0					l			<u>-</u>
-53.0								
- 54.0								11.
-	1 1							
- 55.0 -								
- 56.0			•					
- -57.0								4
-								
- 58.0 -								
59.0								
60.0								
	ለርፑ	A Earth & Envir	1-1		ίL	OGGED BY: JW	COMPLETION !	DEPTH: /

		T OF COMOX-STRATHCOMA.	Drilling Cont.	roctor: Bi	CK Drilling	6	OREHOLE NO: AG99	_^
400/00/40	IIVCN	ORING WELL INSTALLATIC.	Method: Bec				ROJECT NO: NX201360	
							LEVATION:	_
SAMPLE TY	٦٤	GRAB (SOIL) GRAS (Y/A	TER)			i		_
SACKFILL	η'nξ	BENTONITE PEA GRAV	£r ∭2r0∩	СH	GROUT	ZDRILL CI	JTTINGS SAND FETE	R P
				111				Ţ
E	SYMBOL	Soil		Ja S	4 1 1 1 1 1 1 1 1		# X Fines #	
Depth(m) USC	3				Additional	<u> </u>	20 40 50 80	CI OTTEN
<u> </u>	S	Descripti	on	SAMPLE	Comments	. L	◆% Sond ◆ 20 40 60 80	Ü
	S	1		123			●# Gravet●	
0.0	00	SAND - silty, cobbles, oxidized	, sand is				20 40 60 80	+
- 1.0	00	fine grained.						
20	00		·					
- 3.0	00	SAND — trace silt, fine grained	1	11 D1	}	R		
- 1	60	occasional gravel, damp, poart	y graded.					T
- 4.0	00				[<u>\$</u>		
- 5.0	00				!	<u>š</u>		
- 6.0 SP	6.6					******]
- }	0 0							*
- 7.0 -	00	SAND — some gravel, trace sill	. max 100 mm	- - 4 02				
- 8.0		diameter, damp, poorly graded	, 199 (IIII)	\prod				- 4
- - 9.0	00	,				ļļ		1
-	00				-			•
- 10.0	00	SAND — fine grained, trace sitt	domo	<u> 58</u> 5 03				. 1
- 11.0	0,0	poorly graded.	, oump,					K
- 12.0	000	A 2				ļ <u>.</u>		ŀ
• [k
- 13.0 SP/ML	NA N							1
- 14.0		- silt lenses from 13.7 to 14.9) m.	·		*****		k
- 15.0	<u> </u>	CAMP TOTAL TOTAL TOTAL						١.
- 16.0	00	SAND — some gravel, trace silt poorly graded.	, damp,	<u>₹</u> 04				4
. ;	000	poorly graded.				ļ .		1
- 17.0	e e							
- 18.0	0							;
-19.0 SP	00			0.5		<u> </u>		-
.	00		1					-
20.0	00	SAND - fine to medium graine	t trace eili	06				
21.0	00	ret.	e, nase allt,					
22.0	00							
23.0	1111 -	SIT - come fine and family		07				
· [ML]		SILT — some fine sand, law pla exidized.	siic, moist,	0/		<u>i</u>	.	
- 24.0		SAND AND SILT - low plastic, n		08				
- 25.0	M.	יייט אוט אונו – tow piastic, n	10!51.	SE W		<u> </u> <u> </u> <u> </u>		
26.0			•					
.] [•••••••••••••••••••••••••••••••••••••••	
-27.0 ML/SP			•					1
- 28.0		•			Water encountered at 2	7,7 m		1
29.0					depth.			•
30.0		•						Ŋ
	۷ C C	Forth C. D.		<u> </u>	LOGGED BY: JW		COMPLETION DEPTH: 5	
H	JIL	Earth & Enviror	imental	- 1	REVIEWED BY: JR		COMPLETE: 18/06/99	

			T OF COMOX-STRA		Drilling Contr	octor.	BEC	K Drilling	80	CM BLOHER	AG99	-0
OIT:CCA	NAL	RONIT	ORING WELL INSTA	LLATIC.	Method: Beck	er Ho	т	er	PR	WECT NO. N	X201360	<u>.</u>
									ELE	VATION:		
SAMPLI			宴GRAS (SOIL)	GR49 (WATER	-							
BACKFI		TYPE	BENTONITE	PEA GRAVEL	∭jsLou(GH		<u>ে</u> স্নেত্য	JORILL CUT	NHG5 EUS	ANO FILTE	R PK
		_				أسأ						
[골]		8		Soil		TYP	٤	4 3 3 11 2 1		# % Fines #	6	0
Depth(m)	SS	SYMBOL	_			1 1		Additional	<u>2</u> -	D 40 60	80	SLOTED
- Pe		SOIL	De	escription	n	SAMPLE	RUN	Comments	2:	◆ 7 Sond ∢ 0 40 60		S
_		%				ঠ		VV111111111111		● % Grovel (•	7
30.0		RA	SAND - little silt,	poorly graded.	wet.		09		2	0 40 60	80	+
31.0				, booting 3, 1 1 1,	1104		دی					
-	ŞN											-[1
- 32. 0												14
-33.0		1013				$\perp \bot \!\!\! \bot$					1	1
34.0		00	SAND - troce sil	t, fine grained, w	ret.		10					- 4
34.0		200							:		1	
- 35.0		0,00									.ļlļ	
36.0		00.0										11
- 36.0		600				2.74	11	Rapid drill penetration.				11
- 37.0		00					''	,				k]
38. 0		6.6							1		1-1-1	4
		e e										.l.
- 39.0		a a							ļ <u>.</u>			
4 0.0		600]					+-1-+	-[]
		000									···	
-41.0	SP	0,000							ļ			[4]
-41.0 -42.0 -43.0 -44.0		000							1			
_		000				1	12					
- 43.0		00					14					-14
44.0		00							-+		1	
- 1		00										
- 45.0		80							ļ .			- 4
- 46.0		60				73	13		E		*	
-		000							ļ <u>i</u>			-1
- 47. 0		0.0										
48.0		000										
-		000					14		i			
- 49 .0		474	GRAVEL - some	sond, some cobi	bles clenn		`		7	1		1
- 50.0	GW	4 4	DIVING		U(40, 4100							
- -51.0	G#	44										4
-		ब व		~	-	_						
- 52.0			End of Hole at 5	1.5 m.							4	
- 53.0			Well installed.									
-							1					
- 54.0		1 1				1						
- 55.0											<u>. į </u>	
-					•							
- 56.0									****			
57.0							ļ					
-												
- 58.0									ļ <u>.</u>		+	
- 59.0												
60.0								•	<u>‡</u>			
		(CO)	A Posth 9	Pavinon		<u>F</u>	1	LOCGED BY: JW	<u>. l · </u>	COMPLETION	DEPTH:	<u>51.5</u>
	H	IJЛ	A Earth &	: LUALLOIN	mentar			REVIEWED BY: JR		COMPLETE:		

BOREHOLE NO: AG99-03 REGIONAL DISTRICT OF COMOX-STRATHCONA Drilling Contractor: BECK Drilling PROJECT NO: NX2013604 ADDITIONAL MONITORING WELL INSTALLATIO Method: Becker Hommer ELEVATION: GRAE (SOIL) TOR45 (YATER) SAMPLE TYPE BACKFILL TYPE EX BENTONTE T GROUT TADREL CUTTINGS 154NO FILTER PK . IPEA GRAVEL III)ISLOUCH Depth(11) Soil 웆 Jepth(m) Additional 200 ◆ % Sand ◆ Description Comments 엉 ◆ % Gravel ◆ SAND - some silt, fine to medium grained 0.0 sand, oxidized. - 1.0 SAND - some silt, fine grained, damp, 2.0 grey. - 3.0 01 4.0 SAND - same silt, fine grained sand, 15.0 SM/ALL interbedded silt loyers up to 40 mm thick, 5.0 damp, arey. 20.0 -- 6.0 SAND AND SILT - brow-grey, domp. - 7.0 E 25.0 - 8.0 02 9,0 10.0 GRAVEL - some sand, trace silt, damp, -11.0 subrounded to subangular, max diameter 150 mm, poorly graded. 12.0 03 - 13.0 GRAVEL AND SAND - trace silt, cabbles up - 14.0 to 120 mm diameter recovered, poorly Fast penetration with drill. 15.0 laraded: SAND AND GRAVEL - trace silt, well 16.0 55.0 rounded, well graded, damp. 05 Wet at 16.8 m bgs. 17.0 Coarsening at depth. 18.0 19.0 20.0 GRAVEL - some coorse sand, wet, well Orill penetration rate 上70.0 21.0 GRAVEL AND SAND - poorly graded, cabbles slower. 22.0 up to 150 mm diameter recovered. 23.0 - 24.0 - poor sample recovery. Recovered 25.0 material is cobble sized. 26.0 GRAVEL AND SAND - coarse grained sand, . 27.0 cobbles up to 100 mm diameter recovered. 08 28.0 poorly graded. 29.0 30.0 COMPLETION DEPTH: 53.2 m LOGGED BY: JR AGRA Earth & Environmental COMPLETE: 18/06/99 REVIEWED BY: JW Page 1 of 2 Nanaimo, B.C. 00/03/23 (4:01PU (80NEHOLE)

	_		T OF COMOX-STRA					CK Drilling		NO: AG99	
<u>400)][0</u>	KAL	KOKII	ORING WELL INSTAL	LATIO	Method:	Geoker Ho	mm	er		NO: NX201350	4
					<u> </u>				ELEVATION	l:	
SAMPL		 -	GRAB (SOIL)	CRAB (Y.ATE)							
BACKF	<u> </u>	J.SE	BENTONITE	PÉA GRAVEL		SLOUGH	,	्रिः ३२०५७ 🔀 छ	ORILL CUTTINGS	SAND FLITEF	PK
ĺ		닏				پېر					
Depth(m)	ں	SYMBOL		Soil		1YP	2	Additional	20 40	Fines a 60 80	SLOTTED
듄	SC		D.a.			SAMPLE	₩.			Sond.◆	0
ا ۵		S	De	scriptio:	Π	<u> </u>	~	Comments	20 40	60 80 Gravel •	12
30.0	GP							7	20 40	60 80	<u> </u>
- 31.0	Ψ.	4.4	— well graded.		 -		09				4
-		44							1		14
- 32.0		44									4
- 33.0		474 4.4									1
34.0		4747 4.4									*
- - 35.0	Ġ₩	2727 A G									$\left \cdot \right $
- 36.0		2727				23	10				4
-		3/3					,,,				ij
- 57.0		3/3				-					
- 38.0		44				Ţ					ŀF
- 39.0		27.51				_					
- - 40.0		23	— poarly graded.				12				
-		< 3								1 1 1 1 1 1	1 6
- 41.0		43				1					
- 42.0		3									甘
~43.0			GRAVEL - some of graded.	coodies, little so	ind, poorly	y	13		•		
-44.0	GP	< <	g. aaca.							14.2.4.4. 181.2.4.4.4	Į [
-45.0		< <									
-		~ ~ ~	- increasing sand	content		 					1
- 46.0			are ensured 20110	COMETIC.		1	14			•	∭
- 47.0		1									
- 48.0		33									$\parallel\parallel$
- 49.0		2727	GRAVEL - some s	and, well grade	ed.		15				$\ \ $
٠		45		3	⇒ .		1,7				
- 5 0.0		22	•	-							
-51.0	GW	44									-
- 52.0		44									1
- 53.0		44									
-54.0			End of Hale at 53	.2 m.				Drill penetration rate ver	ry		-
.								slow. Drift bit blocked, withdraw to 50.6 m.		**************************************	
- 55.0						,					1
-56_0											\cdot
-57.0	:										
- 58.0											
- 59.0											
60.0											
			A Earth &				L	LOGGED BY: JR	100.00	ETION DEPTH: 5	1

		CT OF COMOX—STRATHCONA. ITORING WELL INSTALLATIG.	Drilling Cont			BOR	ЭЛОНЭ	AG99.
- ACTION ICHARA	11.024	TOTAL PELL INSTALLATIO.	Melhod: Bec	ker Ham	mer	PRO	JECT NO: NX:	201369
SAMPLE T	YPF	GRAS (SOIL) / JORAB (Y	yren'	····	····	ETEA	'ATION:	
B4CKFILL	TYPE							
1		- FSK GRA	NET ETON	ion	GROUT	DRILL CUTTI	102 [] SAV	ND FILTER
Depth(m)	SOIL SYMBOL	Soil Descripti		SAMPLE TYPE RIIN NO	Additional Comments		#X Fines ## 40 60 #X Sand ## 60 #X Gravel ## 40 50	80 80
0.0		SAND - silty, fine grained, oxi	dized,				40 50	80
20 SM		trace gravel, damp.						
3.0		SAND - little grovel, trace silt						
4.0		graded, damp.	, ""					
-5.0 SW								
-	202			<u> </u>	1		<u> </u>	
- 6.0 -	20	SAND - some gravel, trace sit	t, poorly	- 1 7				
- 7,0 SP	00	graded, damp.		02				
- 8.0	00							
0.0		SAND AND GRAVEL - trace silt		· - 03				
- 10.0 SP/GI	1	graded, damp.	, , , , , , , , , , , , , , , , , , , ,	V3		E	• •	
-11.0	22							
12.0								
13,0	474	GRAVEL — some sand, trace si graded, damp.	lt, well	04		5	•	
14.0	74	2						
	44				ĺ			
ļ	44							
16.0	44			65 0 5		•	• •	
17.0	44							
18.0	0000	SAND - little gravel, wet, poorly	v graded	1				
19.0 P2	000	and ground mad poorly	y gradea.		Water encountered at	19.7		
20.0		•		25.34	m.			
21.0	000		·					•
22.0		GRAVEL AND SAND — medium to poorly graded, wet.	o coorse sond,					
23.0 CP	23	y date, were		07			*	
24.0	77							
		SAND AND GRAVEL — poarly gra	ded, wet.	-				. i j
25.0 SP	00		,	80				-
26.0								
27.0	3 3 6	SAVEL - some road		4				
28.0	₹ ?	RAVEL — some sand, poorly gr	oded, wet.					<u>,</u>
29.0 GP	23			D9		•	-	
0.02	? {							
		Earth & Environ		.!!				

			ICT OF COMOX-STRA		Drilling Cont	ractor. BE	CK Drilling		BOREHOL	E NO: AG9	<u>0</u> _(
ADDITI	JA4C	NCN	ITORING WELL INSTA	LICITALL	Method: Bec	ker Hamn	ner .		PROJECT	NO: NX20136	504
					<u> </u>				ELÉVATIO		_
SAMPI			GRA8 (SOIL)	CORAB (KATER							_
BACKE	1	TYP	BENTONITE	PEA GRAVEL		ICH	€ GROUT	∑308,7T C	SOMETIC	SAND FILT	ER P
Depth(m)	OSO	SOIL SYMBOL	De	Soil scriptio	n	SAMPLE TYPE RUN NO	Additio Comme	,	20 40 20 40	Sond ◆	
30.0		717							20 40	60 80	
-31.0		717				10]				
32.0		1	1								
33.0	ĢΡ	717	1				•				[
- - 34. 0	~ "	14	1					[]			
-		33				353 11					
- 35.0 -		14	Ì								
36.0		33	, ==. 								
- 37.0		44	GRAVEL - little so	ind, well graded	wet.						
- - 38.0	CW	474 4,4				12		9		•	
- 1		40								· · · · · · · · · · · · · · · · · · ·	
- 39.0 -		4.4	GRAVEL - some s	cord soorly are			i				
-40.0		33	· ·	idia, poorly gro	Jed, wel.	25 13			•		
-41.0		23							- X		
- 42.0		रेरे						<u>\$</u>			
- - 43.0	GP	17	GRAVEL - some o	obbles, troce so	nd. poorly						
.]		44	graded.		,	14		•	-1		
- 44.0		4 4									
45.0		**									
-46,0			End of Hole at 45	.4 т.							"
-47.0			Slow drilling. Well installed.								
-48.0			nou moranea.								
.											
49.0			•					ļ <u>.</u>			
-50.0				•							
-51.0											
-52.0	;										
53.0								*****			,,,
· I											
54.0	1										
-55.0			•					<u>-</u>			
56.0		j						<u> </u>			
57.0											
- 1											
58.0											
59.0								11116	••••••••••••••••••••••••••••••••••••••		[
60.0											
	A:	GR	A Earth &	Fauironn	Colone	į.	OCCED BY: JW		COMPLE	ETION DEPTH: 4	15.4

		OF COMOX-STRATHCONA	Drilling Cont			<u>~</u>		BOREHOL	E NO: A	.099-
AUDITURAL	RONHOR	ING WELL INSTALLATION.	Method: Bec	ker Ho	ımme	<u> </u>		PROJECT	NO: NXC):3504
SAMPLE T	oc 5	GRAB (SOIL) GRAB (N					·	ELEVATION	<u>.</u>	
BACKFILL										
B4CKFILL	LILE E	BENTONITE PEA GRA	ver IIIIsron	CH.		€ GROUT	DRILL	CUTTINGS	SW0	FILTER
	点	0 11		닖			i			
Depth(m) USC	SYMBOL	Soil		SAMPLE TYPE	웃	Additional		20 40	Fines m 60	80 80
epth(1 1	Dogorinti	on	1	RUN NO		Γ		Sand •	80
٥	SOL	Descripti	OH	XX.	~	Comments	s ├-	20 40		80
0.0		:a:=			_			20 40	Cravel • 60	80
- 1.0 OL	Ox	idized loam.					ļ	<u> </u>		<u>i</u>
•										
- 2.0	SA	ND AND SILT — fine grained	, low plastic.	-				1-1-1-1		
2.0				222	_,			·		
4.0					01			<u> </u>	D	<u>. </u>
	ШШ							1.1.1.1.		
. 5.0 ME							ļ	<u> </u>		1 1
0.3										
7.0							ļ		<u> </u>	
					.					
8.0 SM	JA SĀ	ND - some silt, fine sond,	moderately		02					-
9.0	Those	dized, dgmp. T AND SAND - fine sond, s		<u> </u>				· · · · · · · · · · · · · · · · · · ·		· · · · · · · · · · · · · · · · · · ·
0.0		T AND SAND — fine sond, s	ilt layers		V				6 B	-
İ	op	prox. 10 to 20 mm thick.								
11.0										4
12.0	Sī	T AND SAND - fine sand, li	 Ille ciav		Ì					
0.6	low	plastic, wet, fragments sh	ow bedding					 		
		d laminations.	--	靐	04		ļ			
14.0 HL										· · · · · · · · · · · · · · · · · · ·
15.0		T - some clay, some fine :	ennd law							
16.0	pło	stic, moist to wet.	sana, to n							
Ì	11111	•		2.2	05			•		
17.0										<u> </u>
18.0										
19.0									-∳∳∳	<u> </u>
	GR.	WEL - little sond, troce sil	l, wet,	RG.	80		<u></u>		Ţİ	<u> </u>
20.0 GP	poq	orly graded.			**			•		
21.0	100 000	ID - some grovel, trace sil								: ··· (*····
22.0	o o d ata	ded, wet.	4 POOLIN		_		-			<u></u>
23.0	000			376	07					**************************************
j	000									j
24.0										
25.0										
26.0 SP	SAV	ID — trace silt, medium to	fine groined.	G _F	08		<u>[</u>			
į	pod boo	riy graded, wet.			~		Ţ <u>.</u>		·	
27.0	000		-				[<u> </u>
28.0	() () () () () () () () () ()								<u> </u>	} -} -
29.0	00									
30.0	00						1		<u> </u>	
		י פו פו או		1	li A	GGED BY: JW		I CONTINUE	TION OF	THE SA
A	ਯKA	Earth & Enviro	nmental		RE			ICOMPLE	TION DEP	iH: 50

400iTi:	JANC	KOM	CT OF COMOX-STRA TORING WELL INSTA		Drilling Control Method: Becke				PF		: NO: NX2013604 : NO: NX2013604		
SAKPI BACKE			GRAS (SOIL) BENTONITE	GRAB (YKATE				[₹. ²]GROUT	WORLL CU	TIMES.	SAND FILTER	211	
ຮູ Depth(m)	o sn	SOIL SYMBOL	De	Soil scriptio	n	SAMPLE TYPE	RUN NO	Additional Comments		20 40 +20 40	Fines = 60 80 Sand • 60 80 Gravel • 60 80	SLOTTED PPEZOMETER	
-31.0 -32.0 -33.0	SP GP/SP	\$\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	SAND - some graves occasional cobble SAND - some grained.	ometer. sond, poorly gro s up to 120 m	ded, meter.		10	Fast drill penetratio Low recovery, slow penetration rate.				**	រញ្ជានេះកញ្ចាននេះបញ្ជាក់ចេញច្រក់កញ្ចាក់ក្រៅកម្មភាពកម្មក្រាល់ទិញពួកកើតក្រាល់កញ្ចាក់កាលប្រហានអ្នកការក្រាល់ការក្រាល់ការប្រការក្រាល់ការការការការការការការការការការការការការក
60.0			A Earth &				I	LOGGED BY: JW		Ioo Ini	TION DEPTH: 50		

f...

SAMPLE TYPE GRAS (SOIL) / GRAVEL SLOUGH GROUT / SOUL CUTTINGS SAMD FILTER P				CT OF COMOX-STRATHCONA	Drilling Controc	lor:	: BE	CK Drilling	18	BOREHOLE	RO:	AGOG		Ē.
SAND - medium grained SAND - same gravet, little sitt, moist, medium grained sand. SAND - same gravet, little sitt, fine grained, wet. SAND - same gravet, little sitt, fine grained, wet. SAND - same gravet, little sitt, fine grained, wet. SAND - same gravet, little sitt, fine grained, wet. SAND - same gravet, little sitt, fine grained, wet. SAND - same gravet, little sitt, fine grained, wet. SAND - same gravet, little sitt, fine grained, wet. SAND - same gravet, little sitt, fine grained, wet. SAND - same gravet, little sitt, fine grained, wet. SAND - same gravet, little sitt, fine grained, wet. SAND - same gravet, little sitt, fine grained, wet. SAND - same gravet, little sitt, fine grained, wet. SAND - same gravet, little sitt, fine grained, wet. SAND - same gravet, little sitt, fine grained, wet. SAND - same gravet, little sitt, fine grained, wet. SAND - same gravet, little sitt, fine grained, wet. SAND - same gravet, little sitt, fine grained, wet. SAND - same grained, wet. SAND - same gravet, little sitt, fine grained, wet. SAND - same gravet, little sitt, fine grained, wet. SAND - same gravet, little sitt, fine grained, wet. SAND - same gravet, little sitt, fine grained, wet. SAND - same gravet, little sitt, fine grained, wet. SAND - same gravet, little sitt, fine grained, wet. SAND - same gravet, little sitt, fine grained, wet. SAND - same gravet, little sitt, fine grained, wet. SAND - same gravet, little sitt, fine grained, wet. SAND - same gravet, little sitt, fine grained, wet. SAND - same gravet, little sitt, fine grained, wet. SAND - same gravet, little sitt, fine grained, wet. SAND - same gravet, little sitt, fine grained, wet. SAND - same gravet, little sitt, fine grained, wet. SAND - same gravet, little sitt, fine grained, wet. SAND - same gravet, little sitt, fine grained, wet. SAND - same gravet, little sitt, fine grained, wet. SAND - same gravet, little sitt, fine grained, little sitt, fine grained, little sitt, fine g	ICITICOCA	141_1	NC)	ACITALLATENI LIEW DRINGT	Method: Becker	Ha	រភាភា	er	F	RUECT IN	O: 10)	<u>201360</u>	- 0	<u>.,</u>
SACKFUL TYPE EMBENTONITE PEACRAVEL IIIISTOUCH DOUBLE COTTINGS SHOT FLITER PEACRAVEL IIIISTOUCH DOUBLE COTTINGS SHOT FLITER PEACRAVEL IIIISTOUCH DOUBLE COMMENTS SHOT FLITER PEACRAVEL IIIISTOUCH DOUBLE COMMENTS SHOT FLITER PEACRAVEL IIIISTOUCH DOUBLE COMMENTS SHOT FLITER PEACRAVEL IIIISTOUCH DOUBLE COMMENTS SHOT FLITER PEACRAVEL IIIISTOUCH DOUBLE COMMENTS SHOT FLITER PEACRAVEL IIIIISTOUCH DOUBLE COMMENTS SHOT FLITER PEACRAVEL IIIISTOUCH DOUBLE COMMENTS SHOT FLITER PEACRAVEL IIIISTOUCH DOUBLE COMMENTS SHOT FLITER PEACRAVEL IIIIISTOUCH DOUBLE COMMENTS SHOT FLITER PEACRAVEL IIIIISTOUCH DOUBLE COMMENTS SHOT FLITER PEACRAVEL IIIIISTOUCH DOUBLE COMMENTS SHOT FLITER PEACRAVEL IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	~		·-		<u> </u>				15	LEVATION:				
Soil Soil					·		<u> </u>							
SAND - medium grained. SAND - medium grained. SAND - medium grained. SAND - medium grained. SAND - medium grained. SAND - medium grained. SAND - medium grained. SAND - medium grained. SAND - medium grained. SAND - medium grained. SAND - medium grained. SAND - medium grained. SAND - medium grained sand. SAND	<u>DAUNTI</u>	<u>. </u>	איו	BENTONITE PEA GRAVEL	[[]]]SFORCH			i GROUT	DRILL C	JTINGS	SA	(O FILTE	R PK	
		OSC			n	SAMPLE TYPE	RUN NO		-	20 40 • 7 5 20 40 • 7 6	60 Sand ◆ 60 iravel ●	80	SLOTTED	PIEZOMETER
-4.0 -5.0 -6.0 -7.0 -8.0 -9.0 -10.0 -11.0 -12.0 -13.0 - grades to fine sand grades to fi	0.0			SAND - medium grained.						20 40	60	80	+	1 4= 1
I I I I I I I I I I I I I I I I I I I	- 4.0 - 5.0 - 6.0 - 7.0 - 8.0 - 9.0 - 10.0 - 11.0 - 12.0 - 13.0 - 14.0 - 15.0 - 16.0 - 17.0 - 18.0 - 19.0 - 20.0 - 21.0 - 22.0 - 23.0 - 24.0 - 25.0 - 27.0			- grades to fine sand. SAND - some gravel, little silt, m medium grained sand. SAND - little silt, fine grained san										<u>មួយ ខ្លួន ខណ្ឌ ខណ្ឌ ខណ្ឌ ខណ្ឌ ខណ្ឌ ខណ្ឌ ខណ្ឌ ខណ្ឌ</u>
30.01					1	1				tana ay ang ang. Samunan ay ang in			1	
						╛,	,							. ₽
AGRA Earth & Environmental LOCCED BY: JW COMPLETION DEPTH: 45.1		AG	RA	Earth & Environm	nental	_				COMPLET	ON DE	PTH: 45	.11	m
Nanaimo, B.C. REVIEWED BY: JR COMPLETE: 18/06/99		_			acritar		R	eviewed by: Jr						

			ICT OF COMOX-STRATHCONA	Drilling Cantr			Duning	BOREHOLE NO: AG	99-0
ACIONII.	JNAL,	RUN	ITORING WELL INSTALLATION	Method: Beck	er Ham	mer		PROJECT NO: NX201	3604
2412			International Control					ELEVATION:	
\$442			GRAB (SOIL) GRAB (WAT	_ <u></u>					
BACK	rli <u>l</u>	7/P(BENTONTE PEA CRAVE	r []]]srond	H		GROUT	DRILL CUTTINGS SAND F	II TER PI
		برا]						
Depth(m)		SYMBOL	Soil			2		# 1 Fines #	-
훒	ક્ષ				(LLI) _		Additional	20 40 60 80	SLOTTED
ڪ		졄	Description	n	SAMPL	2	Comments	◆ % Sand ◆ 20 40 60 80	0
		Ľ	†		2		001111110H03	● % Gravel ●	
30.0			- interbedded fine SAND and SI	LT layers,	0	3	·	20 40 60 80	♦ ;
-31.0			very wet.	-		1			₹.
- 32.0			SILT - some sand, some clay, I	law plastic,	0	4			
- 33.0	•	•	soft.		3 0	5			+
•			SILT - some fine sand, some cl	lay, wet.					
- 34.0						Ī			· · · · · · · · · · · · · · · · · · ·
- 35.0									
- 1									
- 36.0									
- 37.0									
- 38.0									
.									*
39.0			SILT AND SAND - fine sond, wet	occasional	4]				<u> </u>
40.0			silt lense approx. 0.3 m thick sli	aws drill					
41.0		ı	penetration rate.						₹.
	I								
42.0			- low recovery, silty fine SANDS.		4	Ì			¢ .
43.0		ļ	- 104 recovery, sincy time SANDS.]				
44.0	1								4
İ	ſ	-							
45.0	ŀ	ŀ	End of Hole at 45.1 m.	<u> </u>	1				
46.0			Hole sloughed in to 39.3 m, atte	annet to		1			
47.0			redrill, rods blocked.	mpt to				***************************************	
۱۳۰۰۳	- 1		Grout from 39.3 m to 25 m.						
48.0 j	1		Instoll well.						
49.0	1	İ							
50.0	-								<u></u>
ا ندح	ŀ		·						
51.0									•
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<u>a.o </u>								The second secon	
			Earth & Environr			LOGG			1

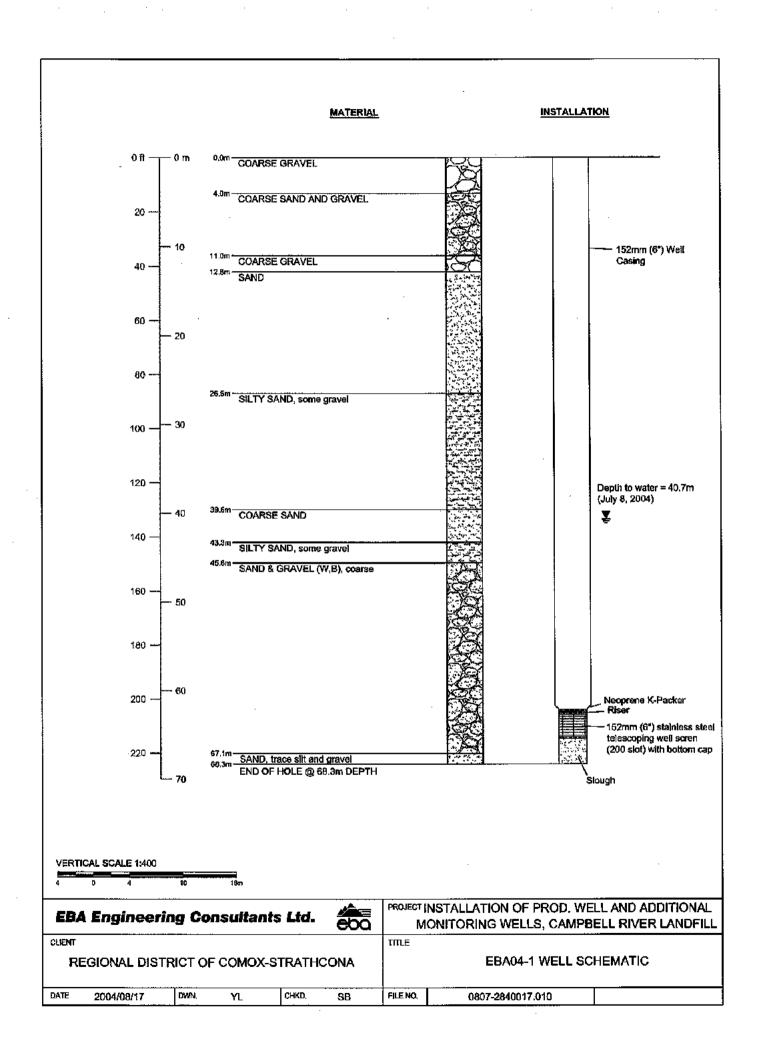
	ISTRICT OF COMOX-STRA		Contractor			BOREHO	LE NO: AMO(
AUD/HDR4L	MONITORING WELL INSTA	LLATIC	Method: Bo	cker Ham	mer, Hollov Stem	PROJECT	NO. 10120255
SAMPLE TY	DE ES anua (agu)		<u>i </u>			ELEVATIO	ЯV:
	_ _	∠IGR48 (WATE			····		
THOMPILE	TYPE BENTONTE	PEA GRAVEL	∭SL0	UGH	[¿_)GROUT	DRILL CUTTINGS	SAND FILT
그 点	c	۲۰۰					
Depth(m) Oil SYMBOL	,	Soil		NS S	Additional		
	Desc	ription		SAMPLE RUN !			
ag IS	Deac	TPUOII		\$ "	Comments	• Recker Hon	nmer Blow Count e
0.0	GARBAGE – plastic, wa	od. raas. etc.		+	······································	100 200	300 400
	, ,	, 				Parale managements.	
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-20 💥							
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- 4.0						•	
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9.0 💥							
₩,	llack sludge with sewag	a adour salad i	F			•	
10.0 💢 0.01	.5 m to 10.7 m bgs.	e ocodi notec	ironi				
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11.0						♣	
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12.0		•				Ì	
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15.0)	
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16.0 💥			.			1	
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18.0 1			<u> </u>	_[
AMEC	Earth & Envi	20222	_1 r · ·	, a I	LOCCED BY: BH	ICONDI (ETION DEPTH:

REGIONAL DISTRICT OF COMOX-STRATHCOMA.	Contractor: BECK Di	rilling	BOREHOLE NO: AMOO	-01
ADDITIONAL MONITORING WELL INSTALLATIC.	Method: Becker Han	· . 	PROJECT NO: MX202550:	
COURT TOTAL			ELEVATION:	
SALIPLE TYPE REPORTED FOR SOME		E coord	IDENT CHARMACE THE COLOR	
BACKFILL TYPE EBENTONITE PEA GRAVEL	∭SLOUGH	€ SROUT Z	DRILL COTTINGS SAND FLETER	, PK
Soil Description	SAMPLE TYPE RUN NO	Additional Comments	Becker Hommer Blow Count 100 200 300 400	SLOTTED PIEZOMETER Depth(ft)
20.0 21.0 22.0 23.0 24.0 25.0 Wood debris. 26.0 Wood debris. 27.0 28.0 29.0	rish.	Dust appearing in cyclone	100 200 300 400	10.00 05.00 15.00
AMEC Earth & Environment	tal Limited	REVIEWED BY: CM	COMPLETE: 21/09/00	1
Nanaimo, B.C.				Page 2 of 3

e and a second control of the contro

		DISTRICT OF COMOX-STR		Contracto	n BECK	Drilling	BOREHO	OMA :CM 3.	<u></u> (11 .
	18.6	C KONSTORING MELL INSTA	LUTIC.	Method: 8	ecker H	ommer, Hallov: Stem	PROJECT	RO: KO120255	0-01 0-01
							ELEVATIO	11	<u> </u>
		NPE GRAB (SOIL)	Zigrab (ylater)) XISP	זי			<u> </u>	
340:4	<u>ां</u> ।	TYPE BENTONTE	PEA GRAVEL	∭SL	OUCH	į. jcRovī	DRILL CUTTINGS	SAND FILT	ER PK
Depth(m)	SOIL SYMBO	Desc	Soil ription		SAMPLE TYPE RIIN NO				SLOTTED EZOMETER
36.0	00	SAND - clean year de	nee weifere ear				Becker Ham 100 200	mer Blow Count • 300 400	· ⁻ ⁻
i	3	<u>al</u>	SAND - clean, very dense, uniform, grey. GRAVEL - some sand, very dense, grey.			Boulder encountered o			
37.0 38.0 40.0 11.0 12.0 3.0 10.0 10.0 10.0 10.0 10.0 10.0 10.	CHANGE CONTRACTOR CONT	End of Hole at 48.5 m. Monitoring well installed. Screen from 33.2 m to Sand from 0 to 30.8 m Bentonite plug from 30.8 Sand from 32.3 m to 48 Borehole located 20 m h 2nd attempt located 10	48.5 m bgs. bgs. 3 m to 32.3 m bg 5.5 m bgs.	js.	G4	36.9 m bgs.			12 13 13 13 14 14 15 15 15 15 15 15 15 15 15 15 15 15 15
0	_			-					₽ 175/
ME	CC	Earth & Envi	ronmenta	<u>-</u>] [i~:	 +	LOCCED BY: 8H	CUMBI LI	ION DEPTH: 48	453 æ
					REVIEWED BY: CM		E: 21/09/00	. TUJ III	

Annual Groundwater Monitoring SECK Drilling and Environmental Services BOREHOLE								
Regio:	nel D	istrict of Comex-Strathcone	Acker Tractor Air Rot			BOREHOLE NO: AMOC-1 PROJECT NO: RX2023506		
				· · · · · · · · · · · · · · · · · · ·		ELEVATION:		
B4.080	-:-:	TUPE BEKTOMITE PEA GRAVEL	[[]]ISLOUGH	igĵisRoUT	EXERCE OVE		··;	
Depth(m)	SOIL SYMBOL		Soi Descrip			- London	SLOTTED PREZOMETER Depth(FL)	
0.0	0000	SAND and GRAVEL - brown, dry,		<u> </u>				
التأءاءاتداء	000	Cobbles to 0,15 m diametre SAND — fine grained, grey, dry SAND and GRAVEL — grey, dry					10.0	
5.0	0.40.2	SAND — medium grained, grey, damp		 				
3 Խոսիսիսիսիսի		SAND — some gravel, medium grained, damp	grey,	, <u>,</u>			20.0	
10.0 10.0							30.0	
	100	SAND — trace silt, medium grained, br	own,				\$3 	
15.0		moist					€50.0	
20.0		SAND — some gravel, medium grained, damp	brown,					
25.0		SAND and GRAVEL — medium grained, damp	brown,		,	·	70.0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
\$0.0 \$0.0		SAND - coarse grained, brown, wet - Groundwater encountered at 25.9 m						
35,0 - 35,0 - 35,0 - 35,0 - 35,0		End of Hole at 33.2 m. Monitoring well installed to 32 m. Screened from 19. 32 m.	8 to				110.0 Harris 120.0	
AME	C	Earth & Environmer	ital Limite	UDGGED BY: ARM CHREVIEWED BY: CT		000815168 0541+: 00081516 (0.05)	73, <u>2</u>	



Monitoring Wells Campbell River Landfill	Drillwell Enterprises Ltd.	BOREHOLE NO: EBAO		
Regional District of Comex-Strathcoma	Drilling Method: Air Rotary	PROJECT NO: 2840017.010		
		ELEVATION:		
BACKFILL TYPE SENTONITE PEA GRA	WEL SLOUGH F. GROUT	ORILL CUTTINGS SAND		
章 65	Soil ription	Field Notes		
GRÄVEL CAP 1.0 WOOD FIBRE CARBAGE SAND & GRAVEL SO		ASING LEFT IN GROUND) DEPTH OF 33.5m.		
EBA Engineering Cons	LOGGED BY: MK	COMPLETION DEPTH:		
EBA Engineering Cons	sultants Ltd. REVIEWED BY: S	COMPLETE: 07/07/0		

	ng Wells Campbell River La		Drillwell Enterp			BOREHOLE NO: EBA04-2			
Regional	District of Comox-Strath	хола	Drilling Method	d: Air Rot	ary			NO: 284001	7.010
							ELEVATION		
BACKFIL	TYPE BENTONITE	PEA GRAVEL	SLONG	H	GROUT	ORILL	CUTTINGS	SANO	
	SUIL STMBUL	Soi Descrip				Fig	eld Not	es	SLOTTED PIEZOMETER Depth(ft)
35.0 36.0 37.0 38.0 40.0 42.0 42.0 44.0 45.0 46.0 47.0 48.0	A SAND & GRAVEL								115.0 1120.0 1125.0 1130.0 113
51.0 51.0 52.0 55.0 55.0 57.0 58.0 59.0									17. 145.0 17. 11. 11. 150.0 17. 11. 11. 150.0 17. 11. 11. 150.0 17. 11. 11. 11. 150.0 17. 170.0 17. 0 170.
83.0 84.0 85.0 66.0 57.0 58.0	END OF HOLE @ 65.5 NOTE: SOILS LOGGED								215.0 220.0 225.0
A CFT	Fraincarin	a Congr	ltanta	K+1	LOGGED BY: M	K SR		Pletion dept Plete: 07/07	
1	. Engineerin	g consu	iraiirg	ьщ.	MEASURED DIS		E-DAN	07707	2012 Page 2 of 2
₹4 /12/16 02:	57PM (SHELLY)								
				1					

Monitoring Wells Campbell	River Landfill	Drillwell Enterprise	s Ltd.	BOREHOLE	NO: EBA04-3
Regional District of Comox	-Strathcona	Drilling Method: Ai			0: 2840017.010
				ELEVATION:	
BACKFILL TYPE BENTK	ontie. Pea gra	NET Bronch	i- ¶GROUT	DRILL CUTTINGS	SAND
_	~	••			يم
Depth(m)	S	oil		Field Notes	
Sept S	Desci	ription			250
SOIL	DCBCI	puon			SIOTIED STORES
SAND				CASING LEFT IN GROUND	
-10 (3.3 -				TO DEPTH OF 11.2m.	
20 00 - 20					
30 200	-				
- 4.0 QXXX	rovel			-	
- ~~ t					
5.0					
SAND AND GR	WEL			1	
- " [*:]					
9.0	•	•			111
10.0				1	
11.0					
13.0 4.					
SILTY SAND					
FINE SAND		***************************************			
16.0 60.0				İ	
17.0 TAS COARSE SAND		·	·· ·· ·	- 	
FINE SAND, so	ıme silt			1	
19.0					
20.0					·
21.0		•			
22.0					
23.0					
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_25.0 [][[]					
26.0					
27.0					
28.0					
29.0					·
E 30.0					
E-31.0					
32.0					
SAND AND GR	AVEL				
34.0					
F 35.0 k			LOGGED BY:		ETION DEPTH: 41.2

Monito	ring	Wells Campbell River Landf	li	Drillwell Enter	prises Ltd	J.	:	BOREHOLE NO: EBA04-3			
Region	al Di	istrict of Comax—Strathcon)	Drilling Metho	d: Air Rot	ary		PROJECT N	O: 2840017.01)	
								ELEVATION:			
BACKE	Ш	TYPE BENTONTE	PEA GRAVEL	STOR	¥H	€. GROUT	ORILL	CUTTINGS	SAND		
Depth(m)	SOIL SYMBOL		Soi Descrip				Fie	eld Note	s	PIEZOMETER	Depth(ft)
35.0 37.0 38.0 40.0 41.0 45.0 46.0 47.0 50.0 50.0 50.0 60.0 60.0 60.0 60.0 60		END OF HOLE © 41.2 m NOTE: SOILS LOGGED BY									120.0 120.0 120.0 130.0 140.0 140.0 140.0 150.0 160.0 160.0 160.0 160.0 160.0 160.0 160.0 160.0 160.0 160.0 160.0 160.0 160.0
70.0					 	li aaarm asi :-		" laave	ETIAN BERTIL 4	<u> </u>	
EB		Engineering	Consu	ltants	Ltd.	Logged by: M Reviewed by:	SB		etion depth: 4 [.] Lete: 07/07/04 1		of 2

		Campbell River La of Comox—Strath		Sonic Drilling Ltd. Drilling Wethod: Son	ic	BOREHOLE NO: PROJECT NO: 2	
						ELEVATION:	
BACKFILI	TYP	BENTONITE	PEA GRAVEL	∭STO∩GH	j. grout	DRILL CUTTINGS S	AND
ج اع	3		Soi	1			
Depth(m)	5					Field Notes	
Depth(m)	200		Descrip	otion			
- 0.0 X - 1.0 X	GAR	BAGE					
- ''' 🛞 - 20 🛞							
- 30 X	X			•			
<u>-</u> 4.0 ⊗	×			,			
<u>-</u> 50 🎇	***					•	
<u>-</u> 6.0 ⊗							
5.0 7.0	X						
-80 X -9.0 X						•	
- 10,0 X	$\ddot{\otimes}$						
11.0	×						
= 12.0							
13.0							
14.0							
- 15.0 X							
- 16.0 X - 17.0 X	\aleph						
18.0	×						
E 19,0 🔆							
20.0	8						
21.0 X	XX SAN	D. fine to medium	n grained, well so				
- 23.0 家 - 23.0 家	locs	ie, damp	n granou, non as				
24.0 S		1					
25.0				<u> </u>			
26.0	SILI Con	, occasional grav pact, moist	ei, trace silt,		4		
27.0	* SAN	D, fine to mediur	n grained, well so	rted			
28.0	, SA	& CLAY with tra D and SAND & G	ce sand RAVEL interloyers				
29.0 - 30.0			•				
_ 31.0 j.	4						
- - 32.0 ₹	1						
33.0							
_34.0 .⁴ = 35.0 ч							
	F-~	Ain a a rim	a Canari	ltonta It.	LOGGED BY: MC	COMPLETION COMPLETE:	(DEPTH:
LDA Wywas	L]]	_	nsnov g	ltants Lte	REVIEWED BY: SE	DAMPLE LE:	in/u//

DEOLOGY	Dyne				· · · · · · · · · · · · · · · · · · ·	177 -3 7 177	ELEVATION:	
BACKFILL	T	BENTONITE	PEA GRAVEL	[[]]]SLOUGH	€ GROUT	DRILL	CUTTINGS SAND	
Depth(m)			Soi	1		TO:	ald Wakan	SLOTTED PIEZOMETER
Depth(m)]					r1e	eld Notes	
SOL			Descrip	otion				PES
35.0								
37.0	N.			•				
-38.0	1							
39.0								
_ 40.0				•	į.	•		
41.0								
- 42.0 4								
- 43.0 4								
44.0	4							11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
45.0	4						•	
45.0								
- 47.0					•			
48.0								
- 49.0								
- ~~~ 4 · · - 50.0 • · ·								
_ 51.0 · •								
52.0								
 53.0 4	\							
54.0			m BELOW SURFA	CE .				(1)
	NOTE: S	OILS LOGGED	by eba staff,					
 56.0								
57.0								
59.0								
80.0								
61.0		•						
62.0								
E 63.0								1.
64.0								
65.0					1			
66.0					Ì			
67.0								
68.0					·			
69.0	-						•	
70.0				W.:	LOGGED BY: MC		COMPLETION DEP	TH: 53.4 m
IEBA	Engir	reerin	g Consul	ltants Lta	REVIEWED BY: SE	B	COMPLETE: 15/0	

vediougi	District of Comax-Strat	I ICORO	Drilling Method: Soni	C			vo: 2840017.	.010
BACKFIL	L TYPE BENTONME	- PEA GRAVEL	 	i- GROUT	Zznow	ELEVATION: L CUTTINGS	SAND	
$ \tau$		- IFEX GIVAVEL	Шэгоон	14- JANOO!		L COTTINGS	E	1
oth(m)		Soi	il			ield Note	ne .	8
Depth(m)	5				ļ f	tera more	<i>1</i> 3	SLOTTED
2 2	,	Descrij	puon					S
- 00 🛭	S CARBAGE				i		<u></u>	
-1.0 X	8		•		1			A
-20 X	×							1
-30 💸	×							
- ^{4.0} ⊗	8							
-5.0 X	8				:			
- 6.0 	×							4
-7.0 XX	X							
-8.D 💸	×							
- 8.0	ૅ				WELL CAREEL	5 11. AE		1
~10.0	≋				WELLSCREEN BENTONITE, W	FULL TO BE		
-11.0 X - -12.0 X	₩				REDRILLED.			
-13.0 X	ቖ							1
- 123	8							
-14.0 X -15.0 X								
-16.0 X	ቖ					•		
- 17.0 X	8							- 4
- 18.0 🛇	₿							*
19.0	&]			
•	SAND & GRAVEL, me sub-angular, compo	edium to coarse gr	rained,					
-20.0 -21.0	. * ann—andmar, comba	KL HIGGE						1.74
-22.0							•	ľ
-23.0 i								
-24.0								
-25.0 i								4
-26.0	. 3							[4
27.0	. i							K
-28.0 N	N SILT & GRAVEL, moi	of			1			4
- 29.0	.4 SAND & GRAVEL, po	orly graded, compa	act,		1			19
30.0	moist							
_ _31.0	4							î
- -32.0	[•]							
33.0								
34.0	:]							
35.0 4.	· <u>·</u>			I AAACTA MA I	<u> </u>	[ANIDI	ETION DEPTH	674
TT 4	Engineerin	~		LOGGED BY: A REVIEWED BY:	rų.		ETE: 07/07/	

Manitoring Wells Compbell River Landfill Regional District of Comox—Strethcone					
BACKE					
Depth(m)					
35 35 35 36 36 37 37 34 35 36 36 36 36 36 36 36 36 36 36 36 36 36					

			moxStratho		Drilling Method: Air	. votal y		PROJECT NO: 2840017.019 ELEVATION:		
BACK	Ш	TYPE E	BENTONITE	PEA GRAVEL	SLOUGH	₄. GROUT	ORALL (
Depth(m)	SOIL SYMBOL			Soi Descrij			Fie	ld Notes	PISTOTTED PEZOMETER	
0.0 - 1.0	23	SAND					CASING LEFT IN		1111	
1.0 2.0 3.0 4.0						-	TO DEPTH OF 26	o.∠m.		
3.0		•								
- 4.0				•			<u>.</u>			
5 .0		SAND, som	ie gravel							
6.0 -7.0	44 44 44 44 44	COARSE G	RAVEL				-			
	44 44									
- 8. 0 - - 9. 0	44									
10.0	27.5	CAMP & F	HED CONT				4			
11.0	۲.	SAND & FI	ner gra vel	-						
12,0	. •									
13.0				-						
14.0										
13.0 14.0 15.0 16.0 17.0		SILTY SAND	5				-			
_ 15,0 		SAND		•						
18.0										
- 18.0										
20.0										
-22.0	2.42	SAND & G	RAVEL, sligh	tly sitty			-			
-23.0 -24.0				,,						
25.0	1	011 701 0011			, .					
- - 26.0		SILTY SAN	D, brown						∐L	
27.0										
28,0 29,0										
-		SAND & G	RAVEL							
30.0 31.0										
-32.0						•				
33.0										
34.0	· :									
- 35.0	<u></u>					LOGGED BY:	<u>I</u> Me	COMPLETION DEPT		
FR	Α .	Ingin	eering	g Consu	ltants Lt	REVIEWED BY	: SB	COMPLETE: 13/07		

the contract of the contract of the contract of the contract of the contract of the contract of the contract of

Monitor	ing	Welfs Campbell River Landi	îll	Drillwell Enter	rprises Ltd	1,	BOREHOLE NO: EBAO4-6				
		istrict of Comex-Strathcan		Drilling Metho	od: Air Rot	tary		PROJECT NO: 2840017.019			
								ELEVATION:			
BACKFI	<u>щ</u>	TYPE BENTONITE	-: PEA GRAVEL	∭slove	Ж	GROUT	DRULL .	CUTTINGS SAND			
Depth(m)	SOIL SYMBOL	·	Soi Descrip				Fi	eld Notes	SLOTTED PIEZOMETER Depth(ft)		
_ 36.0									115.0		
E 36.0						•	1		115.0		
-37.0 . 									N N =		
38.0 -									125.0		
-39.0 - 40.0	•••	END OF HOLE @ 39.6 m	DIT AND CHOCA						125.0		
41.0		NOTE: SOILS LOGGED BY	DRILLWELL ST	AFF.							
- -42.0									135.0		
43.0								•	1 40.0		
									E.,,,		
-44.0 -45.0											
46.0									150.0		
E 47.0									155.0		
48.0											
49.0									140.0 140.0 145.0 150.0 150.0 150.0 150.0 150.0 150.0 150.0 150.0 150.0 150.0		
50.0			•						165,0		
51.0									E.,,		
-52.0 -									 		
53.0									E175A		
54.0 -55.0									E _{180.4}		
E 56 A											
57.0 -58.0									190.4 190.4 190.4 195.4		
- -58.0									190.4		
- 59.0											
60.0								-	195. (
61.0								•	200.6		
62.0											
83.0											
64.0									205.0 E-210.0 E-215.0 E-215.0 E-220.0		
65.0									215.0		
66,0						•					
67.0									E ^{220.4}		
68.0 - 69.0									225.		
F 70.0 L											
ΓPΛ	1	Engineering	Conqui	lt anta	147	LOGGED BY: M	(C	COMPLETION DEPT	H: 39.6 m		
TTTH	. 1	angineering	COHSU	ιταπτε	ъtu.	WESTERED DIS	JU	COWNTERES 13/0/	70 1 Page 2 of 2		

Regional D	strict of Co	mox-Stratho	ола	Drilling Method: Air	Rotery	PROJECT NO): 2840017.0°
			·			ELEVATION:	
BACKFILL	TYPE	BENTONITE	- PEA GRAVEL	∭Sroneh	₄.¹ GROUT	DRILL CUTTINGS [SAND
oth(m) SYMBOL			Soi	1		EV.13 W.L.	
Depth(m) OIL SYMBO						Field Notes	}
SOIL			Descrip	otion			
2 0.0 TO 3	SAND	· · · · · · · · · · · · · · · · · · ·				CASING LEFT IN GROUND TO DEPTH OF 11.2m)
2.0						DEPTH OF 11.2III	
3.0							
E** 🔯	44415	· · · · · · · · · · · · · · · · · · ·		-			
5.0	SAND, son	ne gravel	•				
- 60 TO	COARSE G]	
7.0	SAND & G	RAVEL					
E 9.0						,	
10.0							
[11.0]							
12.0							
13.0							
14.0 4 15.0 1							
16.0	SILTY SAN	D		•]	
17.0	SAND						
18.0							
E 19.0							
20.0 557 - 21.0 557		-					
22.0							
23.0	SAND & G	RAVEL, some	silt		<u> </u>		
24.0							
-25.0 x	SILTY SAN	D. hrnwn	•	<u></u>	······································	4	
26.0 11 27.0 11	OILII WW	D, DIDAN					
28.0							
29.0	SAND & G	GRAVEL.				-	
30.0							
31.0					•		
32.0			m BELOW SURFA			-	
33.0 34.0	NOTE: SO	DILS LOGGED	By Drillwell \$1	TAFF.			
35.0		·			· · · · · · · · · · · · · · · · · · ·		TIALL SECTION
<u></u>			~	ltants Lt	LOGGED BY:	MC COMPLE	TION DEPTH: Te: 17/07/0

Project: Stage 2 PSI						al District		PROJECT NO BOREHOLE NO.		
Location: Block J, CRWMC	Drilling Co	ontra	ctor: [Orillwe	ell E	Interprises		N23101802 - E	3A11-01	
Client: Campbell River, BC	Drilling M	etho	d: Air I	Rotar	у					
SAMPLE TYPE DISTURBED NO RECOV	ERY X	SPT				A-CASING	SHELE	BY TUBE CORE		
BACKFILL TYPE BENTONITE PEA GRAV	EL	SLOU	GH		٠٥٠	GROUT	DRILL	CUTTINGS SAND		
SOIL DESCRIPTION SAND, fine grained, loose, homogeneous, damp, orangeneous, d white	SAMPLE TYPE	OSC	SOIL SYMBOL				NOTES & COMMENTS	EBA11-01	Depth (ft)	
, , , , , , , , , , , , , , , , , , , ,]
SAND, fine to medium grained, loose, moist, grey - Trace silt at 6.1 m - Compact at 8.5 m SAND, fine grained, trace gravel, small, grey - Trace silt at 11.3 m - No silt at 11.7 m - Coarse sand at 14.3 m SAND, fine grained, homogenous moist, brown - Trace small gravel at 15.2 m			SW							0-11-11-11-11-11-11-11-11-11-11-11-11-11
SAND, trace to some silt, very fine grained, moist, grey										60
20										65=
 				***						I▼¬
- Moist to wet at 20.7 m - Saturated at 23.2 m - Saturated at 29.0 m - 30									0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	85
35					Ŀ					115
EDO A TETRA TECH COMPANY				R	EVI	GED BY: MG EWED BY: WING NO: 1		COMPLETION DEF COMPLETE: 11/15 Page 1 of 1		96 m

ocation	: Błock J, CF	nvestigation			-			onal District Il Enterprises		PROJECT NO BOR N23101803 - EB		
	npbell River			Drilling t		-				1N23101003 - EB	MTT-02	_
SAMPLE		DISTURBED	NO RECOVE		SPT	1. AU L	\ulday	A-CASING		LBY TUBE CORE		-
-	LTYPE	BENTONITE	PEA GRAVE	_=	SLOUK	GH		GROUT		LL CUTTINGS SAND		-
7		SCHIONIC	, 5, 6, 6, 7	- 1111		-		<u>G</u>	CA DIG	LE GOTTINGO CO OAND		
Depth (m)		SO DESCRI			SAMPLE TYPE	nsc	SOIL SYMBOL			NOTES & COMMENTS	B EBA11-02	
0	SAND (FILL),	some gravel, fine to	coarse grained, loose,	brown		FILL	***	10-				
- 10 	grey and	o some gravel, fine k brown	o medium grained, loc	se, damp.		SW						
30	- Saturated at SILT, sandy, fi	ne grained, soft, gre		ise,		SM ML						
40	End of hole at					SYY						
1	=							IGGED BY: MO	3	COMPLETION DEP		m
O	00							EVIEWED BY: RAWING NO: 8		COMPLETE: 11/16/ Page 1 of 1	2011	_

Project	t: Stage 2 PSI			Client: Co	mox	Valle	y Reg	ional District		PROJECT NO BOR	EHOLE	NO.
Location	on: Block J, CR\	NMC		Drilling Co	ontra	ctor: [Drillwe	ell Enterprises		N23101802 - EB	A11-03	
Client:	Campbell River	, BC		Drilling M	ethod	d: Air I	Rotar	y				
SAMP	LE TYPE	DISTURBED	NO RECOVE	RY 🔀 S	SPT			A-CASING	SHE	ELBY TUBE CORE		
BACKI	FILL TYPE	BENTONITE	PEA GRAVEL	_ []]	SLOU	GH		GROUT	DRI	ILL CUTTINGS 👯 SAND		
Depth (m)		SOIL DESCRIF	PTION		SAMPLE TYPE	OSC	SOIL SYMBOL			NOTES & COMMENTS	EBA11-03	Depth (ft)
0	\ brown		trace sand, soft, moi	1	A	TOPSO SM					712 712	0 10 10 10 11 11 11 11
_	SILT, trace sand reddish bro	, trace organics, fine	to coarse grained, s	oft, moist,							• •	5를
		stiff, moist, light bro	wn			SC						10를
_												=
	01110 6 4				11							15=
_		-	e, damp, tan coloured	l			****					20=
	- Brown at 6.1 m											~ 3
							****					25
	- Compact at 7.9											<u></u>
10	- Loose at 8.8 m						****					30=
_ 10							****					35=
							****				• •	3
_							• • • • •					40를
												45=
-							****					, T
												50
-						SW	****					3
						SVV						55=
_ [****		÷			60
	SAND, fine to co	arse grained, moist,	grey									3
20							****					_ 65=
2011												▼
7, 20							****					7, 20 1111
per 1	- Saturated at 22	.6 m, trace gravel										¥5=
November 17,							****					evem
Ž												2 0 ∃
							****					85=
												3
							****				: - : ·	90=
_	SILT, sandy, trad	ce gravel, very fine g	rained, soft, saturate	d, grey							* = * :	95
30						SM					* = .	3
_ 30	End of hole at 30).1 m			+		54.4					95
												<u>,, ∃</u>
-												105
												110
-												105 110 110 11 15
35							110	OGGED BY: MG	: : : '	COMPLETION DEP	 TH∙ 30 °	1 15 175 m
6	200						RI	EVIEWED BY:		COMPLETE: 11/17/	<u> 50.</u> 2011	., 0 111
A TETRA	TECH COMPANY							RAWING NO: 2		Page 1 of 1		

Projec	t: Stage 2 PSI							ional District		PROJECT NO BOR	EHOLE	NO.
Location	on: Block J, CR\	NMC		Drilling Co	ontrac	tor: [Orillwe	ell Enterprises		N23101802 - EB	411-04	
Client:	Campbell River	, BC		Drilling Me	ethod	: Air F	Rotar	/				
SAMP	LE TYPE	DISTURBED	NO RECOVE	RY 🔀 S	PT			A-CASING	SHE	LBY TUBE CORE		
BACK	FILL TYPE	BENTONITE	PEA GRAVEL	_ [[]] S	LOUG	iH		GROUT	DRIL	L CUTTINGS 👯 SAND		
Depth (m)		SOII DESCRIF			SAMPLE TYPE	nsc	SOIL SYMBOL			NOTES & COMMENTS	EBA11-04	Depth (ft)
0	SILT, sandy, trac	ce organics, soft, mo	ist, reddish brown	/		ML					71 71	돀
	SAND, fine grain	ied, loose, homogen	ous, moist, tan colou	red								5를
	- Grey at 3.1 m					SW						0
_												60 <u>∃</u>
20	SAND, trace gra	vel, fine to medium	grained, compact									65=
												_ =
— 35 November 17, 2011	SAND, trace gra	vel, trace silt, satura t, saturated, grey grained, some silt, s			-	ML SW ML SM		DGGED BY: MG		COMPLETION DEP		100 100 100 100 100 100 100 100 100 100
4							l Li	EVIEWED BY: MG		COMPLETE: 11/17/2	<u>ı п. 29.</u> М11	υ <i>ι</i> ΠΙ
A TETRA	TECH COMPANY							RAWING NO: 3		Page 1 of 1		



Page 1 of 3

PROJECT NAME: Campbell River Waste Management Centre

PROJECT NUMBER: 056484

CLIENT: Comox Valley Regional District

LOCATION: Campbell River, BC

DATE COMPLETED: 21 June 2016
DRILLING METHOD: Rotosonic (153 mm)

HOLE DESIGNATION: MW01-16

FIELD PERSONNEL: S. Foster

DRILLING CONTRACTOR: Mud Bay Drilling

DEPTH	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV.	BOREHOLE			SAMF	PLE
m BGS	STRATIGNALTIIC DESCRIPTION & REWARKS	m	BONEHOLL	H.	۷AL	(%)	-UE
	NORTHING: 5542091 TOP OF RISE EASTING: 331111 GROUND SURFACE		STICKUP 0.80 M	NUMBER	INTERVAL	REC (%)	'N' VALUE
	OL-SILT, with gravel (organic topsoil), loose, silt to fine gravel, dark brown, dry	185.64	5 4 5 4 5 4 5 4				
1	GW-GRAVEL with cobbles, with silt/fine sand, loose, brown, dry			RS-1		100	
2	- silt and sand with cobbles layer (0.3 m) at 1.83m BGS		BENTONITE CHIP AND	RS-2		100	
3	SP-gravelly SAND, medium sand, minor coarse sand, fine to coarse gravel, light grey, dry	183.50	SOIL CUTTINGS 51 mm Ø PVC RISER PIPE			100	
4 5	SW/GW-SAND and GRAVEL, with cobbles, fine sand, fine to coarse gravel, cobbles, tight, grey, moist			RS-3		100	
6	SW-gravelly SAND, trace cobble, fine sand (less medium, less coarse), fine gravel (less coarse), light grey dry	180.46	■ 152 mm Ø				
3			BOREHOLE	RS-4		100	
10	SP-SAND, fine sand, light brown, slightly moist	175.88					
4	Gr. Gr. W.E., time started, light Brown, Singrity moist	174.97		RS-5		100	
1	GM-SILTY SAND and GRAVEL, silt with fine to coarse sand, with fine to coarse gravel, light grey, dry	3.9					
2	SW/GW-SAND and GRAVEL, trace silt, well graded, fine to coarse sand, fine to coarse gravel, grey, moist	174.06					
3	gravol, groy, molec	, , , , , , , , , , , , , , , , , , ,		RS-6		100	
4		• • • • • • • • • • • • • • • • • • • •					
5	SP-SAND, trace silt, trace gravel, medium to coarse grain sand, fine gravel, brown, moist	171.01					
6	- trace cobble at 16.46m BGS			RS-7		100	
7 8 9			BENTONITE/S CUTTINGS	OIL			
8	SW/GW-SAND and GRAVEL, fine to coarse sand, fine to coarse gravel, trace silt, brown,	167.96	Cornings				
9	moist	。。。。。。。。。。。。。。。。。。。。。。。。。。。。。。。。。。。。。。		RS-8		100	



OVERBURDEN LOG 056484-MW01-16.GPJ CRA_CORP.GDT 22/7/16

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 2 of 3

PROJECT NAME: Campbell River Waste Management Centre

PROJECT NUMBER: 056484

CLIENT: Comox Valley Regional District

LOCATION: Campbell River, BC

HOLE DESIGNATION: MW01-16
DATE COMPLETED: 21 June 2016

DRILLING METHOD: Rotosonic (153 mm)

FIELD PERSONNEL: S. Foster

EPTH	STRATIGRAPHIC DESCRIPTION & REMARKS		ELEV.	BORE	HOLF			SAMF	PLE
n BGS	STRATIGICAL TIC DESCRIPTION & REMARKS		m	BOKE	HOLL	NUMBER	INTERVAL	REC (%)	'N' VALUE
21	GM-GRAVEL (TILL), with silt/fine sand, fine to coarse gravel, fine sand (less medium/coarse), very dense, clumpy, gravel rounded to subrounded, grey to brown, moist - core through boulder at 21.03m BGS		165.52						
23						RS-9		100	
24									
26						RS-10		100	
27						RS-11		100	
28 —	SP-SAND with gravel, fine to coarse sand, fine gravel, subrounded, brown, grey, moist	70-10	157.90			K3-11			
30	SW/GW-SAND and GRAVEL trace silt, trace cobbles, fine to coarse sand, fine to coarse gravel, subrounded, brown, moist - trace cobbles at 29.26m BGS		156.99	I		RS-12			
31	becoming wet at 29.87m BGStrace cobbles at 31.39m BGS								
32						RS-13		100	
33	- increase in silt, return on water, cloudy at 33.22m BGS								
35 36	 orange brown, sandy silt layer, 5 cm thickness at 34.75m BGS slow drilling, hard at 35.05m BGS 				— BENTONITE PELLETS	RS-14		100	
37						RS-15			
38	and till with everyal at 20 04 DOO				— SILICA SAND	K3-13		100	
39	- sandy till with gravel at 39.01m BGS				— 51 mm Ø 10-SLOT PVC SCREEN				

STATIC WATER LEVEL ▼ June 29, 2016



Page 3 of 3

PROJECT NAME: Campbell River Waste Management Centre

PROJECT NUMBER: 056484

CLIENT: Comox Valley Regional District

LOCATION: Campbell River, BC

HOLE DESIGNATION: MW01-16 DATE COMPLETED: 21 June 2016

DRILLING METHOD: Rotosonic (153 mm) FIELD PERSONNEL: S. Foster

DRILLING CONTRACTOR: Mud Bay Drilling

DEPTH	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV.	BOREHOLE			SAME	PLE	
m BGS	CHANNEL DECOME HONG TELEMANTO	m	BONEFICE	NUMBER	NTERVAL	REC (%)	N' VALUE	
-41 -42 -43 -44	END OF BOREHOLE @ 42.37m BGS Monitoring well completed in saturated conditions.	143.58	WELL DETAILS Screened interval: 145.10 to 148.15m 40.84 to 37.80m BGS Length: -3.05m	RS-16		100 REC	^ .N	
45	Initial static water level elevated above normal due to addition of water during drilling. Borehole backfilled with bentonite gravel, and a		Diameter: 51mm Slot Size: 20 Material: SCH. 40 PVC Seal:					
46	Borehole backfilled with bentonite gravel, and a mixture of soil cuttings and bentonite chip.		149.67 to 151.50m 36.27 to 34.44m BGS Material: BENTONITE GRAVEL Sand Pack:					
47			145.10 to 149.67m 40.84 to 36.27m BGS Material: TARGET FILTER SAND 10/20					
49			Seal: 151.50 to 185.94m 34.44 to 0.00m BGS					
50			Material: BENTONITE CHIP AND DRILL CUTTINGS					
-51								
· 52 · 53								
- 54								
- 55								
- 56 - 57								
-58								
- 59								
NC	OTES: MEASURING POINT ELEVATIONS MAY CHANGE; RI STATIC WATER LE			<u> </u>				



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PROJECT NAME: CVRD

PROJECT NUMBER: 056484-02

CLIENT: Comox Valley Regional District

LOCATION: Campbell River, British Columbia

MW02-18 HOLE DESIGNATION:

DATE COMPLETED: 25 July 2018

DRILLING METHOD: Air Rotary

FIELD PERSONNEL: M. Dyck/N. Turl

DEPTH n BGS	STRATIGRAPHIC DESCRIPTION & REMARKS		DEPTH m BGS	MON	IITORIN	IG WELL			SAMF	
II BGS		CASING OF RISER SURFACE	TBD TBD TBD		T		NUMBER	INTERVAL	REC (%)	'N' VALUE
1	SP - SAND, trace gravel, medium grained sand, fine gravel, poorly graded, subangular gravel, brown/grey SP - SAND, medium grain, poorly graded,		1.52			- CONCRETE				
2	grey/brown									
4	SP - SAND, trace silt, fine grained sand, poorly graded, grey/brown		3.05			- Bentonite Chip				
5						Gi III				
7										
3	SW - SAND with gravel, fine to medium grain sand, well graded, subangular gravel, grey/brown		7.62							
9										
10 	GW - GRAVEL with sand, fine gravel, medium		10.67							
12	grain sand, subangular gravel, well graded, grey/brown		12.19							
13	SW - SAND, trace gravel, fine to medium grain sand, fine gravel, well graded, subangular gravel, grey/brown									
14	GW - GRAVEL with sand, medium to coarse grain sand, fine gravel, well graded, subangular gravel, grey/brown		13.72							
15		••	15.24			- BENTONITE CHIP				
16	SP - SAND, trace gravel, medium grain sand, fine gravel, poorly graded, subangular gravel, grey/brown					OI III				
17	- Some gravel content at 16.76m BGS									
18	SP - SAND, fine grain sand, poorly graded,		18.29							
19	brown		40.71							
	OTES: MEASURING POINT ELEVATIONS MAY CHAN	OC. DCC	19.81		×/ATIC	NTADIC				



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PROJECT NAME: CVRD

PROJECT NUMBER: 056484-02

DRILLING CONTRACTOR: Drillwell

CLIENT: Comox Valley Regional District

LOCATION: Campbell River, British Columbia

HOLE DESIGNATION: MW02-18

DATE COMPLETED: 25 July 2018

DRILLING METHOD: Air Rotary

FIELD PERSONNEL: M. Dyck/N. Turl

DRILLER: Scott Burrows

DEPTH m BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH m BGS	MONITORING WELL		T	SAMF		
		111 000		NUMBER	INTERVAL	REC (%)	'N' VALUE	
- 21 - 22 - 23 - 24 - 25 - 26 - 27 - 28 - 29 - 30 - 31 - 32 - 33 - 34 - 35 - 36	SW - SAND with gravel, fine to medium grain sand, well graded, subangular gravel, grey/brown - No gravel at 22.86m BGS SP - SAND, medium to coarse grain sand, poorly graded, grey/brown END OF BOREHOLE @ 32.61m BGS	28.96	WELL DETAILS Screened interval: 30.18 to 31.70m BGS Length: 1.52m Diameter: 51mm Material: PVC Schedule 40 Seal: 0.30 to 29.87m BGS Material: Bentonite chips + 1 bag of bentonite pellets at ~ 22.86 m bgs. Sand Pack: 29.87 to 32.61m BGS	N	<u>'Z</u>	ж.	.7.	
- 37 - 38			Material: 10-20 Sand					
- 39								



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PROJECT NAME: CVRD

PROJECT NUMBER: 056484-02

CLIENT: Comox Valley Regional District

LOCATION: Campbell River, British Columbia

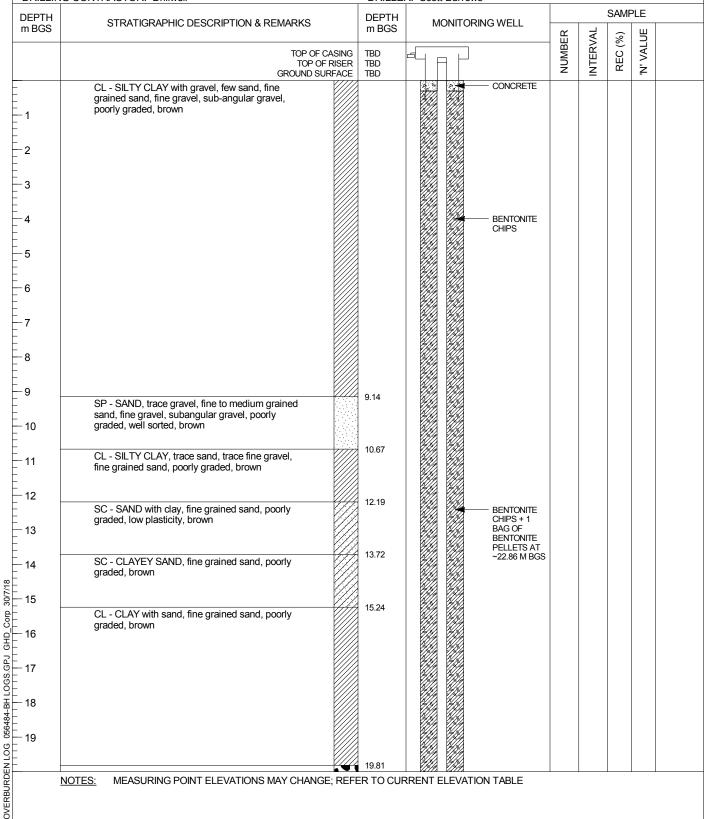
MW03-18 HOLE DESIGNATION:

DATE COMPLETED: 24 July 2018

DRILLING METHOD: Air Rotary

FIELD PERSONNEL: M. Dyck/N. Turl

DRILLING CONTRACTOR: Drillwell DRILLER: Scott Burrows





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PROJECT NAME: CVRD

PROJECT NUMBER: 056484-02

CLIENT: Comox Valley Regional District

LOCATION: Campbell River, British Columbia

DRILLING CONTRACTOR: Drillwell

MW03-18 HOLE DESIGNATION:

DATE COMPLETED: 24 July 2018

DRILLING METHOD: Air Rotary

FIELD PERSONNEL: M. Dyck/N. Turl

DRILLER: Scott Burrows

DEPTH m BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH m BGS	MONITORING WELL		T	SAMF		
111111111111111111111111111111111111111		III BGS		NUMBER	INTERVAL	REC (%)	'N' VALUE	
- 21	GW - GRAVEL with sand, medium to coarse grain sand, fine subangular gravel, well graded, grey	21.34						
- 22	SW - SAND, trace gravel, medium to coarse grained sand, fine to medium gravel, subangular gravel, brown/grey							
23	SW/GW - SAND and GRAVEL, medium to coarse grained sand, fine to medium gravel, subangular gravel, brown/grey	22.86						
- 24	- Dominated by gravel, sand primarily coarse. Gravel with sand. at 24.38m BGS							
- 25	- Dominated by sand, trace gravel. at 25.91m		10-20 SAND					
- 27	END OF BOREHOLE @ 26.52m BGS	26.52	WELL DETAILS Screened interval:					
- 28			24.99 to 26.52m BGS Length: 1.53m Diameter: 51mm					
29			Material: PVC Schedule 40 Seal: 0.30 to 24.69m BGS					
30			Material: Bentonite chips + 1 bag of bentonite pellets at ~ 22.86 m bgs. Sand Pack: 24.53 to 26.52m BGS					
31			Material: 10-20 Sand					
- 32								
-33								
- 34 - 35								
- 36								
- 37								
- 38								
39								
<u>N</u>	IOTES: MEASURING POINT ELEVATIONS MAY CHANGE; R	 EFER TO CUF	RRENT ELEVATION TABLE					



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PROJECT NAME: CRWMC 2019 DRILLING PROGRAM

PROJECT NUMBER: 056484-19

CLIENT: COMOX VALLEY REGIONAL DISTRICT

LOCATION: CAMPBELL RIVER, BC

HOLE DESIGNATION: MW04-19

DATE COMPLETED: 22 October 2019

DRILLING METHOD: Air Rotary
FIELD PERSONNEL: N.Turl

EPTH	STRATIGRAPHIC DESCRIPTION & REMARKS		DEPTH	MONITOR	RING WELL			SAMF	'LE
n BGS						NUMBER	INTERVAL	REC (%)	
0.5	SAND, trace gravel, fine to medium grained sand, fine and coarse grained gravel, light brown, little to no moisture				CEMENT 10/20 FILTER SAND				
					— BENTONITE CHIPS &				
1.0					CHIPS & PELLETS				
1.5									
2.0									
2.5									
3.0	SAND, fine to medium grained, light brown and	• • • •	3.05						
3.5	grey, little to no moisture								
4.0									
4.5		****							
5.0									
5.5		****							
6.0	CAND fine to medium grained trace course		6.10						
6.5	SAND, fine to medium grained, trace coarse grained sand, grey/brown, little to no moisture								
7.0									
7.5		••••							
8.0									
8.5									
9.0	increase of accura and anticity to 44m h		9.14						
7.5 8.0 8.5 9.0 9.5	- increase of coarse sand content at 9.14m bgs								



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PROJECT NAME: CRWMC 2019 DRILLING PROGRAM

PROJECT NUMBER: 056484-19

CLIENT: COMOX VALLEY REGIONAL DISTRICT

LOCATION: CAMPBELL RIVER, BC

HOLE DESIGNATION: MW04-19

DATE COMPLETED: 22 October 2019

DRILLING METHOD: Air Rotary

FIELD PERSONNEL: N.Turl

DEPTH	STRATIGRAPHIC DESCRIPTION & REMARKS		DEPTH	MONITORING WELL		1	SAMF	PLE
m BGS					NUMBER	INTERVAL	REC (%)	
	SAND, trace gravel, fine to medium grained sand, fine and coarse grained gravel, light brown, little to no moisture		10.67					
- - - - - - - - - - - - - - - - - - -	SAND, fine to medium grained, light brown and grey, little to no moisture		12.19					
13.0 - - - - 13.5	SAND, fine to medium grained, trace coarse		13.72					
- 14.0 - 14.5	grained sand, grey/brown, little to no moisture							
- 15.0 - 15.5 - 16.0	SAND, few gravel, fine to coarse grained sand, fine grained gravel, dark brown, little to no moisture		15.24					
- 16.5		*****	16.76					
- 17.0 - 17.5	SAND, fine grained, trace medium grained sand, light brown, slightly moist							
- 18.0			18.29					
- 18.5 - 19.0	SILTY SAND, fine grained sand, brown Began using water to drill, could not determine moisture		10.29					
- 19.5								



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PROJECT NAME: CRWMC 2019 DRILLING PROGRAM

PROJECT NUMBER: 056484-19

CLIENT: COMOX VALLEY REGIONAL DISTRICT

LOCATION: CAMPBELL RIVER, BC

HOLE DESIGNATION: MW04-19

DATE COMPLETED: 22 October 2019

DRILLING METHOD: Air Rotary
FIELD PERSONNEL: N.Turl

DEPTH m BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	D	DEPTH	MONITORING WELL			SAMF	PLE
200					NUMBER	INTERVAL	REC (%)	
20.5								
21.0								
21.5	SAND, fine to medium grained, trace coarse grained sand, grey/brown	21	1.34					
-22.0								
- 22.5								
23.0	SAND, fine to medium grained, brown	22	2.86					
- 23.5								
- 24.0								
- 24.5		× · · · · · · · · · · · · · · · · · · ·						
- 25.0				1				
- 25.5								
- 26.0	- trace coarse sand at 25.91m bgs for 1.52m		5.91					
- 26.5								
- 27.0								
- 27.5								
- 28.0								
- 28.5								
- 29.0	OILTY CAND for a serie 1	28	8.96					
	SILTY SAND, fine grained sand, grey/brown, increase in silt content with depth	28						
- 29.5								



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PROJECT NAME: CRWMC 2019 DRILLING PROGRAM

PROJECT NUMBER: 056484-19

CLIENT: COMOX VALLEY REGIONAL DISTRICT

LOCATION: CAMPBELL RIVER, BC

HOLE DESIGNATION: MW04-19

DATE COMPLETED: 22 October 2019

DRILLING METHOD: Air Rotary

FIELD PERSONNEL: N.Turl

	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH	MONITORING WELL			SAMF	
m BGS				NUMBER	INTERVAL	REC (%)	
- 30.5 - 31.0 - 31.5 - 32.0 - 32.5 - 33.0 - 33.5 - 34.0 - 34.5 - 35.0 - 35.5 - 36.0 - 36.5 - 37.0 - 37.5 - 38.0 - 38.5 - 39.0 - 39.5	END OF BOREHOLE @ 35.36m BGS	35.36	WELL DETAILS Screened interval: 32.31 to 35.36m BGS Length: 3.05m Diameter: 51mm Slot Size: 0.010 Material: SCH. 40 PVC Seal: 0.61 to 32.00m BGS Material: BENTONITE CHIPS Sand Pack: 32.00 to 35.36m BGS Material: 10/20 FILTER SAND				



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PROJECT NAME: CVRD 2021 Drilling Program

PROJECT NUMBER: 11229478

CLIENT: CVRD LOCATION: Campbell River Landfill

HOLE DESIGNATION: MW06-21
DATE COMPLETED: 21 June 2021

DRILLING METHOD: Odex

FIELD PERSONNEL: N. Turl

DEPTH m BGS	STRATIGRAPHIC DESCRIPTION & REMARKS		DEPTH	MONIT	ORING WELL	NUMBER	INTERVAL	REC (%)		
	SAND, poorly graded, fine, medium to dark					Ž	Z Z	RE	'N' Value	
	brown, dry, no odour									
0.5										
1.0										
1.5										
1.5										
2.0										
2.5										
3.0										
	- fine to medium, trace coarse sand									
3.5										
4.0										
4.0										
4.5										
5.0										
5.5										
6.0										
	GRAVELLY SAND, well graded, fine to coarse sand, fine to coarse gravel, angular to subangular, medium brown, dry, no odour		6.10							
6.5	subangular, medium brown, dry, no odour									
0.5										
NC	DTES: MEASURING POINT ELEVATIONS MAY CHA	ANGE; RE	FER TO C	URRENT ELE	EVATION TABLE	-				



Page 2 of 5

PROJECT NAME: CVRD 2021 Drilling Program

PROJECT NUMBER: 11229478

CLIENT: CVRD LOCATION: Campbell River Landfill

HOLE DESIGNATION: MW06-21 DATE COMPLETED: 21 June 2021

n BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH	MONITORING WELL			SAMF	PLE	
				NUMBER	INTERVAL	REC (%)	'N' Value	
7.5 8.0 8.5 9.0 9.5 10.0 11.5 12.0 12.5	- subrounded to rounded, medium to dark brown, moist SAND, poorly graded, fine to medium, medium brown, dry to moist, no odour	12.19						



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PROJECT NAME: CVRD 2021 Drilling Program

PROJECT NUMBER: 11229478

CLIENT: CVRD LOCATION: Campbell River Landfill

HOLE DESIGNATION: MW06-21 DATE COMPLETED: 21 June 2021

DEPTH n BGS	STRATIGRAPHIC DESCRIPTION & RE	MARKS	DEPTH	MONITORING WELL			SAMF	PLE	
II DUS					NUMBER	INTERVAL	REC (%)	'N' Value	
14.5									
15.0									
15.5									
10.0									
16.0									
16.5									
10.5									
17.0									
47.5									
17.5									
18.0									
	- trace gravel, fine to coarse								
18.5									
19.0									
19.5									
20.0									
20.5									
NO	TES: MEASURING POINT ELEVATIONS M	AY CHANGE; RE	FER TO C	URRENT ELEVATION TABLE					



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PROJECT NAME: CVRD 2021 Drilling Program

PROJECT NUMBER: 11229478

CLIENT: CVRD LOCATION: Campbell River Landfill

HOLE DESIGNATION: MW06-21 DATE COMPLETED: 21 June 2021

EPTH	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH	MONITORING WELL			SAMF	PLE	
n BGS				NUMBER	INTERVAL	REC (%)	'N' Value	
21.5 22.0 22.5 23.0 23.5 24.0 24.5 25.0 25.5 26.0 26.5	SILT with SAND, fine, non to low plasticity, light to medium brown, moist, no odour	21.34		2	<u> </u>	~		
27.5	- low to medium plasticity, wet							



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PROJECT NAME: CVRD 2021 Drilling Program

PROJECT NUMBER: 11229478

CLIENT: CVRD LOCATION: Campbell River Landfill

HOLE DESIGNATION: MW06-21 DATE COMPLETED: 21 June 2021

DRILLING METHOD: Odex

FIELD PERSONNEL: N. Turl

DEPTH m BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH	MONITORING WELL	~	1	SAME		
				NUMBER	INTERVAL	REC (%)	'N' Value	
-28.5 -29.0 -29.5 -30.0 -30.5 -31.0 -31.5 -32.0 -32.5 -33.0 -33.5 -34.0	SILTY SAND, fine, slow to rapid dilatency, light to medium brown, wet, no odour	30.48	WELL DETAILS Screened interval: 29.87 to 32.92m BGS Length: 3.05m Diameter: 51mm Slot Size: 0.010 Material: SCH. 40 PVC Seal: 0.61 to 28.65m BGS Material: BENTONITE CHIPS Sand Pack: 28.65 to 32.92m BGS Material: 10/20 FILTER SAND					



Page 1 of 5

PROJECT NAME: CVRD 2021 Drilling Program

PROJECT NUMBER: 11229478

CLIENT: CVRD

HOLE DESIGNATION: MW07-21 DATE COMPLETED: 22 June 2021

DRILLING METHOD: Odex

LOCATION: Campbell River Landfill FIELD PERSONNEL: N. Turl

DEPTH m BGS	STRATIGRAPHIC DESCRIPTION & REMARKS		DEPTH	MONITORING WELL			SAMF		
					NUMBER	INTERVAL	REC (%)	'N' Value	
0.5	GRAVELLY SAND, medium to coarse grained, fine to coarse gravel, subangular to sub rounded, medium to dark brown, dry to moist, no odour								
1.0									
1.5									
2.0									
2.5									
3.0	- fine grained, subangular to rouned, increase in gravel content								
4.0									
4.5									
5.0									
5.5									
6.0	SANDY GRAVEL, fine to coarse gravel, fine to coarse grained, sub angular to well rounded, medium gray, dry to moist, no odour		6.10						
6.5	medium gray, dry to moist, no odour								
NC	OTES: MEASURING POINT ELEVATIONS MAY CHAN	NGE: RE	FER TO C	I <i>V///\ V///\</i> LIRRENT ELEVATION TABLE	 :				



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PROJECT NAME: CVRD 2021 Drilling Program

PROJECT NUMBER: 11229478

CLIENT: CVRD LOCATION: Campbell River Landfill

HOLE DESIGNATION: MW07-21
DATE COMPLETED: 22 June 2021
DRILLING METHOD: Odex

FIELD PERSONNEL: N. Turl

DEPTH m BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH	MONITORING WELL	<u>~</u>		SAMF		
				NUMBER	INTERVAL	REC (%)	'N' Value	
7.5		•						
8.0								
8.5								
9.0	- medium to coarse grained, slate gray, moist							
9.5								
10.0								
10.5								
11.0								
11.5								
12.0	- sub angular to rounded, dark gray							
12.5	g, , 							
13.0								
13.5								
	OTES: MEASURING POINT ELEVATIONS MAY CHANGE							



Page 3 of 5

PROJECT NAME: CVRD 2021 Drilling Program

PROJECT NUMBER: 11229478

CLIENT: CVRD LOCATION: Campbell River Landfill HOLE DESIGNATION: MW07-21 DATE COMPLETED: 22 June 2021

DEPTH m BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH	MONITORING WELL	<u>~</u>	4	SAM		
				NUMBER	INTERVAL	REC (%)	'N' Value	
14.5		. 6.						
15.0	ODANELLY CAND and home to accompanie of	15.24						
15.5	GRAVELLY SAND, medium to coarse grained, fine to coarse gravel, medium gray, sub angular to rounded, moist, no odour, more sandy (medium grained)							
16.0								
16.5								
17.0								
17.5								
18.0								
18.5	 fine to coarse grained, sub angular to well rounded, medium to light gray, more sandy (fine grained) 							
19.0								
19.5								
20.0								
20.5								



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PROJECT NAME: CVRD 2021 Drilling Program

PROJECT NUMBER: 11229478

CLIENT: CVRD LOCATION: Campbell River Landfill HOLE DESIGNATION: MW07-21 DATE COMPLETED: 22 June 2021

DEPTH m BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH	MONITORING WELL			SAME	PLE	
III BG3				NUMBER	INTERVAL	REC (%)	'N' Value	
21.5	SANDY GRAVEL, fine to coarse gravel, trace fine gravel, medium to coarse grained, sub angular to well rounded, medium gray, moist, no odour, more medium grained	21.34						
22.0								
23.0								
23.5								
24.0								
24.5	- trace fine grained, sub angular to rounded, blueish gray, wet, more gravel (greater than 15%)							
25.0								
25.5								
26.0								
26.5								
27.0								
27.5	GRAVELLY SAND, coarse grained, trace medium grained, sub angular to rounded, blueish gray, wet, no odour, more coarse grained sand	27.43	10/20 FILTER					



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PROJECT NAME: CVRD 2021 Drilling Program

PROJECT NUMBER: 11229478

CLIENT: CVRD
LOCATION: Campbell River Landfill

HOLE DESIGNATION: MW07-21 DATE COMPLETED: 22 June 2021

DEPTH m BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH	MONITORING WELL			SAMF	PLE	
11 11 11 11 11				NUMBER	INTERVAL	REC (%)	'N' Value	
28.5 29.0 29.5 30.0 30.5 31.0	END OF BOREHOLE @ 30.48m BGS	30.48	WELL DETAILS Screened interval: 26.52 to 29.57m BGS Length: 3.05m Diameter: 51mm Slot Size: 0.010 Material: SCH. 40 PVC Seal: 0.61 to 26.21m BGS Material: BENTONITE CHIPS Sand Pack: 26.21 to 29.57m BGS Material: 10/20 FILTER SAND					
32.0								
32.5								
33.0								
33.5								
34.0								
34.5								



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PROJECT NAME: CVRD 2021 Drilling Program

PROJECT NUMBER: 11229478

CLIENT: CVRD LOCATION: Campbell River Landfill

HOLE DESIGNATION: MW08-21 DATE COMPLETED: 23 June 2021

m BGS				SAMPLE SAMPLE				
				NUMBER	INTERVAL	REC (%)	'N' Value	
0.5	FILL in ditch							
1.0								
1.5	SAND with GRAVEL and FILL, poorly graded, fine grained, trace medium to coarse grained, fine to coarse gravel, brown, dry, likely fill							
2.0								
2.5								
3.0	SAND, well graded, fine to medium, light gray and brown, no odour		3.05					
3.5		, , , , , , , , , , , , , , , , , , ,						
4.0								
4.5								
5.0								
5.5								
6.0								
6.5								



Page 2 of 7

PROJECT NAME: CVRD 2021 Drilling Program

PROJECT NUMBER: 11229478

CLIENT: CVRD LOCATION: Campbell River Landfill

HOLE DESIGNATION: MW08-21 DATE COMPLETED: 23 June 2021

DEPTH m BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH	MONITORING WELL			SAMF	PLE	
550				NUMBER	INTERVAL	REC (%)	'N' Value	
7.5		0						
8.5		• • • •						
9.0		• • • •						
9.5	- trace gravel, fine grained gravel	• • • •						
10.0		• • • •						
10.5		• • • •						
11.0		• • • •						
11.5		• • • •						
12.0		12.19						
12.5		•						
13.0		o o o o						
13.5		• • • •						
NO	OTES: MEASURING POINT ELEVATIONS MAY CHANGE; R	EFER TO C	URRENT ELEVATION TABLE		•			



Page 3 of 7

PROJECT NAME: CVRD 2021 Drilling Program

PROJECT NUMBER: 11229478

CLIENT: CVRD LOCATION: Campbell River Landfill HOLE DESIGNATION: MW08-21 DATE COMPLETED: 23 June 2021

DEPTH m BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	[DEPTH	MONITORING WELL			SAMF	PLE	
11 11 11 11 11 11 11 11 11 11 11 11 11					NUMBER	INTERVAL	REC (%)	'N' Value	
14.5 15.0 15.5	SAND with GRAVEL, well graded, fine to medium grained, trace coarse grained, fine to coarse gravel, light brown, no odour		15.24						
16.5 17.0 17.5									
18.0 18.5	SAND, poorly graded, fine, brown, no odour	1000000	18.29						
19.5		000000							
20.5									



Page 4 of 7

PROJECT NAME: CVRD 2021 Drilling Program

PROJECT NUMBER: 11229478

CLIENT: CVRD LOCATION: Campbell River Landfill

HOLE DESIGNATION: MW08-21 DATE COMPLETED: 23 June 2021

DEPTH m BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	3	DEPTH	MONITORING WELL			SAMF	PLE	
11 11 11 11 11 11 11 11 11 11 11 11 11					NUMBER	INTERVAL	REC (%)	'N' Value	
21.5 22.0 22.5 23.0 23.5 24.0 24.5 25.0 26.0 26.5 27.0	SILTY SAND, poorly graded, fine, grey and brown, wet, no odour								
27.5	SAND, poorly graded, fine, grey and brown, wet, no odour		27.43						



Page 5 of 7

PROJECT NAME: CVRD 2021 Drilling Program

PROJECT NUMBER: 11229478

CLIENT: CVRD LOCATION: Campbell River Landfill HOLE DESIGNATION: MW08-21 DATE COMPLETED: 23 June 2021

DEPTH m BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH	MONITORING WELL			SAMF	PLE	
III DGS				NUMBER	INTERVAL	REC (%)	'N' Value	
28.5								
29.5								
30.5	SAND with GRAVEL, well graded, fine to medium grained, trace coarse grained, fine to coarse gravel, light brown, no odour	30.48						
31.0	3 , 3 ,							
31.5								
32.0								
32.5								
33.0								
33.5	SANDY SILT, poorly graded, fine, non-plastic, grey and brown, wet and saturated, no odour, liquid like	33.53						
34.0	·							
34.5								



Page 6 of 7

PROJECT NAME: CVRD 2021 Drilling Program

PROJECT NUMBER: 11229478

CLIENT: CVRD LOCATION: Campbell River Landfill

HOLE DESIGNATION: MW08-21 DATE COMPLETED: 23 June 2021

DEPTH m BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH	MONITORING WELL			SAMF	PLE	
III BG3				NUMBER	INTERVAL	REC (%)	'N' Value	
35.5 36.0 36.5 37.0 37.5	SAND, well graded, fine, few medium, trace coarse, grey and brown, wet and saturated, no odour	36.58						
38.5 39.0 39.5 40.0	- medium, few fine		10/20 FILTER SAND					
41.0	NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; F		WELL DETAILS Screened interval: 37.49 to 40.54m BGS Length: 3.05m Diameter: 51mm Slot Size: 0.010 Material: SCH. 40 PVC Seal: 0.61 to 37.19m BGS Material: BENTONITE CHIPS Sand Pack: 37.19 to 40.54m BGS					



Page 7 of 7

PROJECT NAME: CVRD 2021 Drilling Program

PROJECT NUMBER: 11229478

CLIENT: CVRD LOCATION: Campbell River Landfill

HOLE DESIGNATION: MW08-21 DATE COMPLETED: 23 June 2021

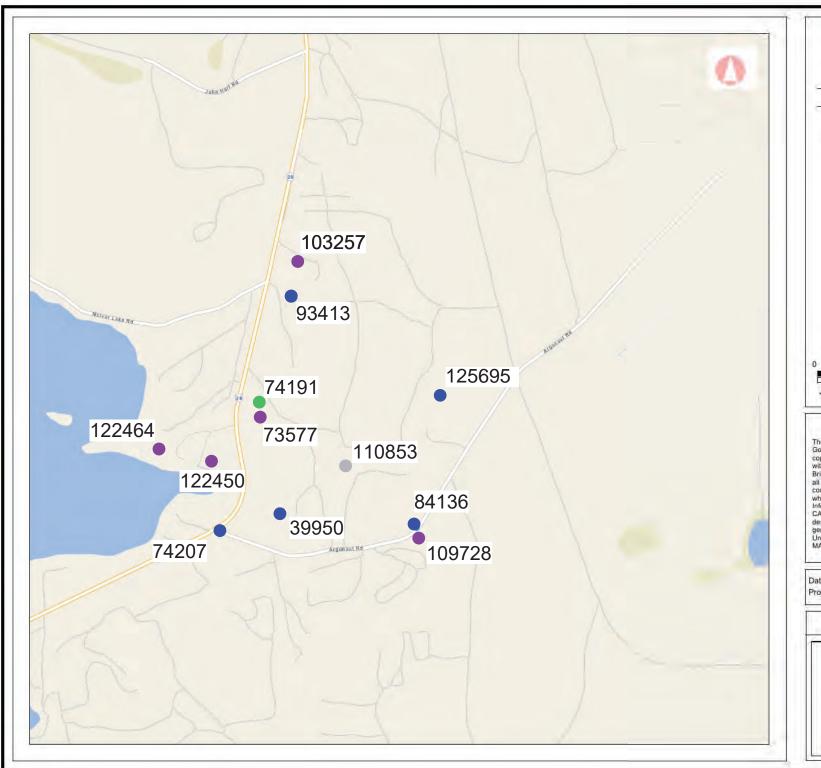
DRILLING METHOD: Odex

FIELD PERSONNEL: N. Turl

DEPTH m BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH	MONITORING WELL			SAMF	PLE	
11 200				NUMBER	INTERVAL	REC (%)	'N' Value	
42.5	END OF BOREHOLE @ 42.67m BGS	• ૾ ઼	Material: 10/20 FILTER SAND					
43.0								
43.5								
44.0								
44.5								
45.0								
45.5								
46.0								
46.5								
47.0								
47.5								
48.0								
48.5								
	OTES: MEASURING POINT ELEVATIONS MAY CHANGE;							L

Appendix C

Well Licenses and Surface Water Points of Diversion





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CAUTION: Maps obtained using this site are not designed to assist in navigation. These maps may be generalized and may not reflect current conditions. Uncharted hazards may exist. DO NOT USE THESE MAPS FOR NAVIGATIONAL PURPOSES.

Datum: NAD83

Projection: WGS_1984_Web_Mercator_Auxillary

Key Map of British Columbia





COLUMBIA Groundwater Wells and Aquifers

Well Summary

Well Tag Number: 39950 Well Identification Plate Number: Owner Name: ISLAND READY MIX

Well Class: **Well Subclass:** Intended Water Use: Commercial and Industrial **Aquifer Number:** 975 **Observation Well Number: Observation Well Status:**

Environmental Monitoring System (EMS) ID:

Alternative specs submitted: No

Licensing Information

Licensed Status: Unlicensed

Licence Number:

Well Status: New

Location Information

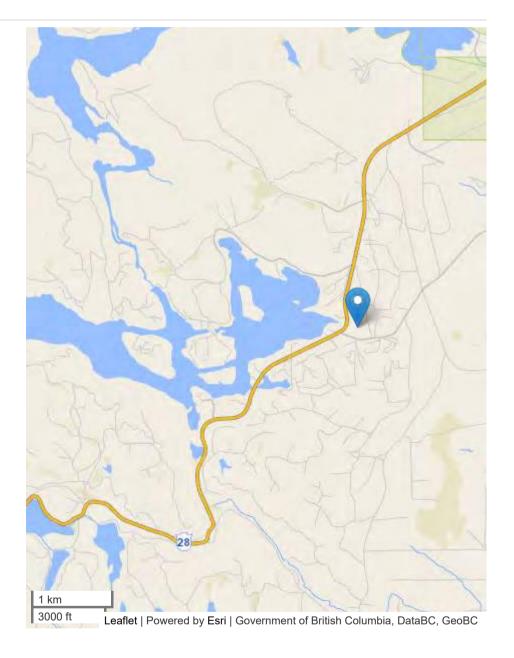
Street Address: GOLD RIVER HIGHWAY NEAR DUMP

Town/City: CAMPBELL RIVER

Legal Description:

Lot	
Plan	
District Lot	
Block	
Section	85
Township	
Range	
Land District	51
Property Identification Description (PID)	

Description of Well Location:



Geographic Coordinates - North American Datum of 1983 (NAD 83)

UTM Easting: 331298

Zone: 10

Longitude: -125.354453 UTM Northing: 5542131

Coordinate Acquisition Code: (50 m accuracy) Digitized from 1:20,000

mapping

Well Activity

Activity	\$	Work Start Date	\$ Work End Date	\$	Drilling Company	\$	Date Entered	\$
			There has been no activity rela	ated	I to this well.			

Read more or ignore

Construction	Construction	Aiteration	Aiteration	Decommission	Decommission	
1978-06-26	1978-06-26					

Well Completion Data

Total Depth Drilled:

Static Water Level (BTOC): 7.00 feet

Well Cap:

Finished Well Depth: 55.00 feet

Estimated Well Yield: 0.000 USGPM

Well Disinfected Status: Not Disinfected

Final Casing Stick Up:

Artesian Flow:

Drilling Method: Other

Depth to Bedrock:

Artesian Pressure:

Orientation of Well: VERTICAL

Ground elevation: Method of determining elevation: Unknown

Lithology

From (ft bgl)	To (ft bgl)	Raw Data	Description	Moisture	Colour	Hardness	Observations	Water Bearing Flow Estimate (USGPM)
0.00	10.00	silty gravel						
10.00	55.00	sand & gravel						
55.00	55.00	sand						

Casing Details

From (ft)	To (ft)	Casing Type	Casing Material	Diameter	Wall Thickness	Drive Shoe
			There are no records to	o show		

Surface Seal and Backfill Details

Surface Seal Material:

Backfill Material Above Surface Seal:

Surface Seal Installation Method:

Backfill Depth:

Surface Seal Thickness: Surface Seal Depth:

Liner Details

Liner Material: Liner Diameter:

Liner from:

Liner Thickness: Liner to:

Liner perforations

From

То

There are no records to show

Screen Details

Intake Method:

Installed Screens

Type: Material: Opening:

Bottom:

From То Diameter **Assembly Type** Slot Size There are no records to show

Well Development

Developed by:

Development Total Duration:

Method of Decommission:

Well Yield

No well yield data available.

Well Decommission Information

Reason for Decommission: **Sealant Material:**

Backfill Material:

Decommission Details:

Alternative Specs Submitted: No

Documents

• WTN 39950_Well Record.pdf

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COLUMBIA Groundwater Wells and Aquifers

Well Summary

Well Tag Number: 73577 Well Identification Plate Number: **Owner Name: FR FRANZEN CONSTUCTI Intended Water Use:** Private Domestic

Well Status: New Well Class: Unknown **Well Subclass: Aquifer Number: 975**

Observation Well Number: Observation Well Status:

Environmental Monitoring System (EMS) ID:

Alternative specs submitted: No

Licensing Information

Licensed Status: Unlicensed

Licence Number:

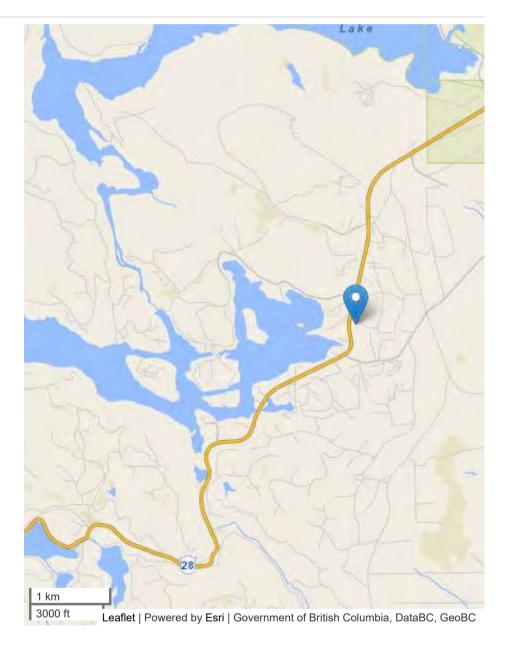
Location Information

Street Address: Town/City:

Legal Description:

Lot	7
Plan	31913
District Lot	
Block	
Section	
Township	
Range	
Land District	51
Property Identification Description (PID)	001125745

Description of Well Location: 4 MILES N OF C R ON GOLD R RD



Geographic Coordinates - North American Datum of 1983 (NAD 83)

UTM Easting: 331232 **Zone:** 10

Longitude: -125.355519 UTM Northing: 5542462 **Coordinate Acquisition Code:**

unknown, accuracy based on parcel size) ICF cadastre, poor or no location sketch, arbitrarily located in

center of parcel

Well Activity

Activity	\$	Work Start Date	Work End Date	\$	Drilling Company	Date Entered	\$
			There has been no activity rel	atec	I to this well.		

Read more or ignore

Construction	Construction	Alteration	Alteration	Decommission	Decommission	
1981-03-09						

Well Completion Data

Total Depth Drilled:

Static Water Level (BTOC): 120.00 feet

Well Cap:

Finished Well Depth: 149.00 feet

Estimated Well Yield: 0.000 USGPM

Well Disinfected Status: Not Disinfected

Final Casing Stick Up: Depth to Bedrock:

Artesian Flow: Artesian Pressure:

Drilling Method: Other **Orientation of Well:** VERTICAL

Ground elevation:

Method of determining elevation: Unknown

Lithology

From (ft bgl)	To (ft bgl)	Raw Data	Description	Moisture	Colour	Hardness	Observations	Water Bearing Flow Estimate (USGPM)
142.00	149.00	WATER BEARING SAND & GRAVEL						
138.00	142.00	WHITE WATER BEARING SAND						
132.00	138.00	BLUE WATER BEARING GRAVEL						
117.00	132.00	BLUE WATER BEARING SAND						
0.00	117.00	BLUE GRAVEL						

Casing Details

From (ft)	To (ft)	Casing Type	Casing Material	Diameter	Wall Thickness	Drive Shoe
			There are no records t	o show		

Surface Seal and Backfill Details

Surface Seal Material:

Backfill Material Above Surface Seal:

Surface Seal Installation Method:

Backfill Depth:

Surface Seal Thickness: Surface Seal Depth:

Liner Details

Liner Material:

Liner Thickness:

Liner perforations
From

То

Liner Diameter: Liner from:

Liner to:

There are no records to show

Screen Details

Intake Method:

Installed Screens

Type: Material: Opening:

Bottom:

From To Diameter Assembly Type Slot Size

There are no records to show

Well Development

Developed by:

Development Total Duration:

Well Yield

No well yield data available.

Decommission Details:

Comments

STEEL CASING, CONTINUOUS, METHOD OF DRILLING = DRILLED

Alternative Specs Submitted: No

Documents

• WTN 73577_Well Record.pdf

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COLUMBIA Groundwater Wells and Aquifers

Well Summary

Well Tag Number: 74191 Well Identification Plate Number: Owner Name: AL & SONS BACKHOE & Intended Water Use: Other

Well Status: New Well Class: Unknown **Well Subclass: Aquifer Number:** 975

Observation Well Number: Observation Well Status:

Environmental Monitoring System (EMS) ID: Alternative specs submitted: No

Licensing Information

Licensed Status: Unlicensed

Licence Number:

Location Information

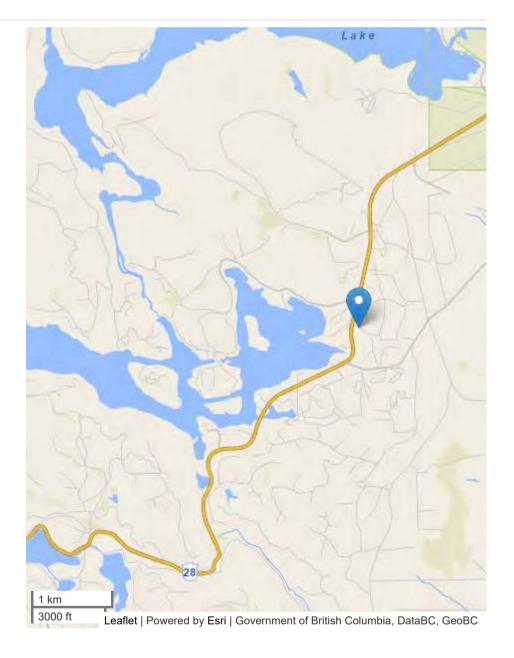
Street Address: GOLD RIVER HIGHWAY

Town/City:

Legal Description:

Lot	2
Plan	47695
District Lot	85
Block	
Section	
Township	
Range	
Land District	51
Property Identification Description (PID)	012474266

Description of Well Location:



Geographic Coordinates - North American Datum of 1983 (NAD 83)

Latitude: 50.010962 **UTM Easting:** 331238 **Zone:** 10

Longitude: -125.355456 UTM Northing: 5542508 **Coordinate Acquisition Code:** unknown, accuracy based on parcel

size) ICF cadastre, poor or no location sketch, arbitrarily located in

center of parcel

Well Activity

Activity	\$ Work Start Date	\$	Work End Date	\$	Drilling Company	\$ Date Entered	\$
			There has been no activity r	elated	I to this well.		

Read more or ignore

Construction	Construction	Aiteration	Alteration	Decommission	Decommission	
1991-10-23	1991-10-23					

Well Completion Data

Total Depth Drilled:

Static Water Level (BTOC): 80.00 feet

Well Cap:

Finished Well Depth: 123.00 feet

Estimated Well Yield: 100.000 USGPM

Well Disinfected Status: Not Disinfected

Final Casing Stick Up: Depth to Bedrock:

Artesian Flow: Artesian Pressure: **Drilling Method:** Other **Orientation of Well: VERTICAL**

Ground elevation:

Method of determining elevation: Unknown

Lithology

From (ft bgl)	To (ft bgl)	Raw Data	Description	Moisture	Colour	Hardness	Observations	Water Bearing Flow Estimate (USGPM)
122.00	124.00	WATER BEARING SAND & GRAVEL						
115.00	122.00	ROCKS & SAND						
100.00	125.00	WATERBEARING SAND & GRAVEL						
85.00	100.00	WATER BEARING SAND & GRAVEL						
75.00	85.00	BROWN SAND & GRAVEL						
50.00	75.00	BROWN SAND & GRAVEL						
20.00	50.00	GREY SAND & GRAVEL						
0.00	20.00	GREY SAND & GRAVEL						

Casing Details

From (ft)	To (ft)	Casing Type	Casing Material	Diameter	Wall Thickness	Drive Shoe
			There are no reco	ords to show		

Surface Seal and Backfill Details

Surface Seal Material:

Backfill Material Above Surface Seal:

Surface Seal Installation Method:

Surface Seal Thickness: Surface Seal Depth:

Liner Details

Liner Material:

Liner Thickness:

From

Liner perforations

Liner Diameter:

То

Liner from: Liner to:

There are no records to show

Screen Details

Intake Method:

Installed Screens

Backfill Depth:

Type: Material: Opening:

Bottom:

From То Diameter **Assembly Type** Slot Size There are no records to show

Well Development

Developed by:

Development Total Duration:

Read more or ignore

Well Decommission Information

Reason for Decommission: Sealant Material:

Decommission Details:

Method of Decommission:

Backfill Material:

Comments

STEEL CASING, 0.0 TO 123.2, 250 THICK, A53 LBS, CONTINUOUS, STAINLESS STEEL, PUMP TEST RATE 100 USGM, 80 FT AFTER 24 HRS METHOD OF DRILLING = DRILLED

Alternative Specs Submitted: No

Documents

• WTN 74191_Well Record.pdf

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COLUMBIA Groundwater Wells and Aquifers

Well Summary

Well Tag Number: 74207
Well Identification Plate Number:
Owner Name: M & S FOREST PRODUCT
Intended Water Use: Commercial and Industrial

Well Status: New Well Class: Unknown Well Subclass: Aquifer Number: 975

Observation Well Number: Observation Well Status:

Environmental Monitoring System (EMS) ID: Alternative specs submitted: No

Licensing Information

Licensed Status: Unlicensed

Licence Number:

Location Information

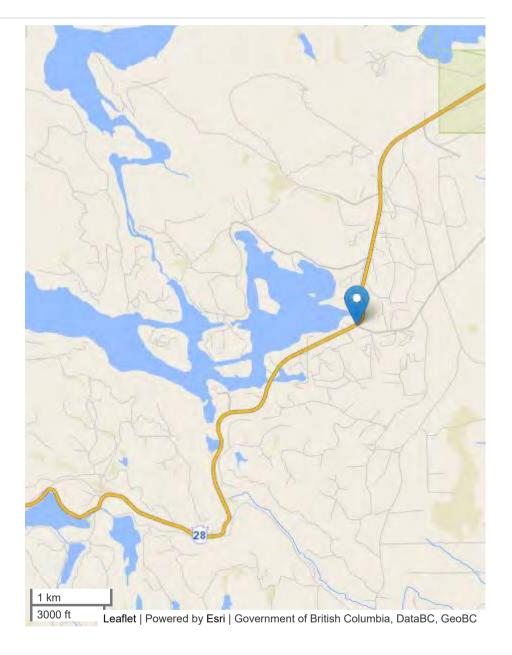
Street Address: GOLD RIVER HIGHWAY

Town/City:

Legal Description:

Lot	
Plan	
District Lot	85
Block	
Section	
Township	
Range	
Land District	51
Property Identification Description (PID)	

Description of Well Location: NEAR UPLAND EXCAVATING



Geographic Coordinates - North American Datum of 1983 (NAD 83)

Latitude: 50.007081 **UTM Easting:** 331083

Zone: 10

Longitude: -125.357429 UTM Northing: 5542081 Coordinate Acquisition Code:

(unknown, accuracy based on parcel size) No ICF cadastre, poor or no location sketch; site located in center

of primary parcel

Well Activity

Activity	\$ Work Start Date	\$	Work End Date	\$	Drilling Company	\$ Date Entered	\$
			There has been no activity r	elated	I to this well.		

Read more or ignore

Construction	Construction	Aiteration	Aiteration	Decommission	Decommission	
1987-05-01	1987-05-01					

Well Completion Data

Total Depth Drilled:

Static Water Level (BTOC): 85.00 feet

Well Cap:

Finished Well Depth: 138.00 feet

Estimated Well Yield: 20.000 USGPM

Method of determining elevation: Unknown

Well Disinfected Status: Not Disinfected

Final Casing Stick Up: Depth to Bedrock: Artesian Flow:

Drilling Method: Other

Ground elevation:

Artesian Pressure:

Orientation of Well: VERTICAL

Lithology

From (ft bgl)	To (ft bgl)	Raw Data	Description	Moisture	Colour	Hardness	Observations	Water Bearing Flow Estimate (USGPM)
100.00	138.00	WB SAND						
93.00	100.00	BROWN WB SAND & GRAVEL						
0.00	93.00	BROWN SAND & GRAVEL						

Casing Details

From (ft)	To (ft)	Casing Type	Casing Material	Diameter	Wall Thickness	Drive Shoe
			There are no records t	o show		

Surface Seal and Backfill Details

Surface Seal Material:

Backfill Material Above Surface Seal:

Surface Seal Installation Method:

Surface Seal Thickness: Surface Seal Depth: **Backfill Depth:**

Liner Details

Liner Material:

Liner Diameter: Liner from: Liner Thickness: Liner to: Liner perforations

From

То

There are no records to show

Screen Details

Intake Method:

Installed Screens

Type: Material: Opening: From To Diameter Assembly Type Slot Size

Opening: There are no records to show Bottom:

Well Development

Developed by:

Development Total Duration:

Well Yield

No well yield data available.

Well Decommission Information

Reason for Decommission: Sealant Material: Method of Decommission:

Backfill Material:

Decommission Details:

Alternative Specs Submitted: No

Documents

• WTN 74207_Well Record.pdf

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COLUMBIA Groundwater Wells and Aquifers

Well Summary

Well Tag Number: 84136
Well Identification Plate Number:
Owner Name: CAMPBELL RIVER LANDFILL
Intended Water Use: Commercial and Industrial

Well Status: New Well Class: Unknown Well Subclass: Aquifer Number: 975

Observation Well Number:
Observation Well Status:
Environmental Monitoring System (EMS) ID:

Alternative specs submitted: No

Licensing Information

Licensed Status: Unlicensed

Licence Number:

Location Information

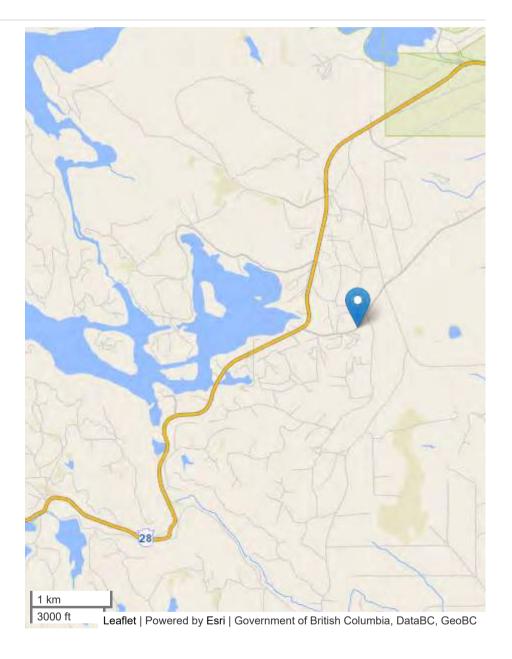
Street Address: 6700 ARGONAUT RD

Town/City:

Legal Description:

Lot	
Plan	
District Lot	
Block	
Section	
Township	
Range	
Land District	
Property Identification Description (PID)	

Description of Well Location:



Geographic Coordinates - North American Datum of 1983 (NAD 83)

Latitude: 50.007172 **UTM Easting:** 331755 **Zone:** 10 Longitude: -125.348054
UTM Northing: 5542070
Coordinate Acquisition Code:
unknown, accuracy based on parcel

size) ICF cadastre, poor or no location sketch, arbitrarily located in

center of parcel

Well Activity

Activity	\$ Work Start Date	\$	Work End Date	\$	Drilling Company	\$ Date Entered	\$
			There has been no activity r	elated	I to this well.		

Read more or ignore

Construction	Construction	Aiteration	Alteration	Decommission	Decommission	
2004-07-05	2004-07-05					

Well Completion Data

Total Depth Drilled: 224.00 feet

Finished Well Depth: 215.00 feet Final Casing Stick Up:

Depth to Bedrock: Ground elevation:

Static Water Level (BTOC):

Estimated Well Yield: 75.000 USGPM

Artesian Flow:
Artesian Pressure:

Method of determining elevation: Unknown

Well Cap: WELDED LID

Well Disinfected Status: Not Disinfected

Drilling Method: Air Rotary **Orientation of Well:** VERTICAL

Lithology

From (ft bgl)	To (ft bgl)	Raw Data	Description	Moisture	Colour	Hardness	Observations	Water Bearing Flow Estimate (USGPM)
0.00	13.00	COARSE GRAVEL						
13.00	36.00	COARSE SAND & GRAVEL						
36.00	42.00	COARSE GRAVEL						
42.00	87.00	BROWN SAND						
87.00	130.00	BROWN SILTY SAND & SOME GRAVEL						
130.00	142.00	CLEAN BROWN COARSE SAND						
142.00	150.00	SLIGHTLY SILTY SAND & GRAVEL						
150.00	220.00	COARSE SAND & GRAVEL (WB)						
220.00	224.00	MORE SAND & SILTYER BROWN WATER						

Casing Details

From (ft	To (ft)) Casing Type	Casing Material	Diameter	Wall Thickness	Drive Shoe

Surface Seal and Backfill Details

Surface Seal Material:

Surface Seal Installation Method:

Surface Seal Thickness: Surface Seal Depth: **Backfill Material Above Surface Seal:**

Backfill Depth:

Liner Details

Liner Material:

Liner Diameter: Liner from: Liner Thickness: Liner to: **Liner perforations**

From To

There are no records to show

Screen Details

Intake Method:

Type: Telescope **Material:** Stainless

Steel
Opening:
Bottom:

Installed Screens

From	То	Diameter	Assembly Type	Slot Size
206.30 ft	215.00 ft	5.50		200.00

Well Development

Developed by:

Development Total Duration:

Read more or ignore

Well Decommission Information

Reason for Decommission: Sealant Material: Decommission Details: Method of Decommission:

Backfill Material:

Comments

CHLORINE MEASUREMENTS TAKEN AT GROUND LEVEL

Alternative Specs Submitted: No

Documents

• WTN 84136_Well Construction.pdf

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COLUMBIA Groundwater Wells and Aquifers

Well Summary

Well Tag Number: 93413

Well Identification Plate Number: 12472
Owner Name: EMCON (MINISTRY OF HIGHWAYS)

Intended Water Use: Commercial and Industrial

HWAYS)

Well Status: Alteration
Well Class: Water Supply
Well Subclass: Non Domestic

Aquifer Number: 975

Observation Well Number: Observation Well Status:

Environmental Monitoring System (EMS) ID:

Alternative specs submitted: No

Licensing Information

Licensed Status: Unlicensed

Licence Number:

Location Information

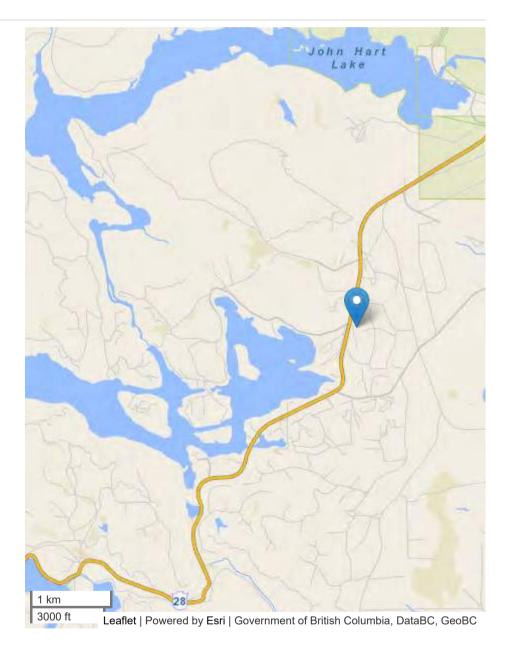
Street Address: 7025 GOLD RIVER HIGHWAY

Town/City:

Legal Description:

85
47

Description of Well Location: BETWEEN BRINE TANK @ SHOP, SE PORTION OF PROPERTY



Geographic Coordinates - North American Datum of 1983 (NAD 83)

Latitude: 50.014176 Lon UTM Easting: 331355 UTM

Zone: 10

Longitude: -125.35398 **UTM Northing:** 5542862

Coordinate Acquisition Code: (10 m accuracy) ICF cadastre and good

location sketch

Well Activity

Activity	1	Work Start Date	\$	Work End Date	ŀ	Drilling Company	\$	Date Entered	\$	
There has been no activity related to this well.										

Read more or ignore

Construction	Construction	Aiteration	Aiteration	Decommission	Decommission	
		2005-12-15	2005-12-15			

Well Completion Data

Total Depth Drilled: 26.00 feet Finished Well Depth: 180.00 feet

Final Casing Stick Up: 24.000 inches

Depth to Bedrock: Ground elevation: Static Water Level (BTOC): 159.00 feet Estimated Well Yield: 10.000 USGPM

Artesian Flow:
Artesian Pressure:

Method of determining elevation: Unknown

Well Cap: PITLESS UNIT & CAP

Well Disinfected Status: Not Disinfected

Drilling Method: Cable Tool **Orientation of Well:** VERTICAL

Lithology

From (ft bgl)	To (ft bgl)	Raw Data	Description	Moisture	Colour	Hardness	Observations	Water Bearing Flow Estimate (USGPM)
160.00	178.00	GRAVEL	medium					
178.00	184.00						FINER & SANDIER AS GOING DEEPER	
184.00	187.00		silty		brown			
187.00	188.00		silty		brown		VERY SILTY	

Casing Details

From (ft)	To (ft)	Casing Type	Casing Material	Diameter	Wall Thickness	Drive Shoe
			There are no records to	o show		

Surface Seal and Backfill Details

Surface Seal Material:

Backfill Material Above Surface Seal:

Surface Seal Installation Method:

Surface Seal Thickness: Surface Seal Depth: **Backfill Depth:**

Liner Details

Liner Material:

Liner Diameter: Liner from: Liner Thickness: Liner to: Liner perforations

From

There are no records to show

То

Screen Details

Intake Method: Type: Telescope

Material: Stainless

Steel

Opening: Continuous

Slot

Bottom: Other

Installed Screens

From	То	Diameter	Assembly Type	Slot Size
180.00 ft	182.00 ft	5.00	RISER_PIPE	
182.00 ft	186.00 ft	5.00	K_PACKER	12.00

Well Development

Developed by:

Development Total Duration:

Well Yield

No well yield data available.

~			-:	ı Det	_:1
100	-0m	mic	SIME	1 1 10	alic.

Comments

MEASUREMENTS FROM GROUND LEVEL. RECOMMENDED PUMPING RATE: 10 USGPM.

Alternative Specs Submitted: No

Documents

• WTN 93413_Well Record.pdf

Disclaimer

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COLUMBIA Groundwater Wells and Aquifers

Well Summary

Well Tag Number: 103257

Well Identification Plate Number: 34915

Owner Name: TIM FLUTER (CONTACT) CAMPBELL

RIVER MOTOCROSS ASSOCIATION

Intended Water Use: Private Domestic

Well Status: New

Well Class: Water Supply Well Subclass: Domestic

Aquifer Number: 975

Observation Well Number:

Observation Well Status:

Environmental Monitoring System (EMS) ID:

Alternative specs submitted: No

Licensing Information

Licensed Status: Unlicensed

Licence Number:

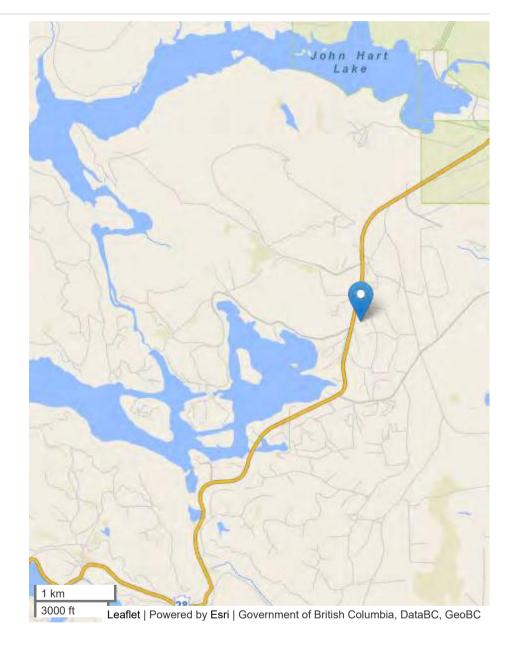
Location Information

Street Address: GOLD RIVER HIGHWAY
Town/City: CAMPBELL RIVER

Legal Description:

Lot	
Plan	
District Lot	
Block	
Section	
Township	
Range	
Land District	
Property Identification Description (PID)	

 $\textbf{Description of Well Location:} \ \mathsf{NOT} \ \mathsf{PROVIDED}$



Geographic Coordinates - North American Datum of 1983 (NAD 83)

Latitude: 50.015273 **UTM Easting:** 331386

Zone: 10

Longitude: -125.3536 UTM Northing: 5542983

Coordinate Acquisition Code: (10 m accuracy) Handheld GPS with accuracy of +/- 10 metres

Well Activity

Activity	\$	Work End Date	\$	Drilling Company	\$ Date Entered	1
		There has been no activity rela	ited	to this well.		

Read more or ignore

Construction	Construction	Aiteration	Alteration	Decommission	Decommission	
2010-08-18	2010-08-20					

Well Completion Data

Total Depth Drilled: 240.00 feet

Finished Well Depth: 239.00 feet Final Casing Stick Up: 30.000 inches

Ground elevation: 599.00

Depth to Bedrock:

Static Water Level (BTOC): 158.00 feet Estimated Well Yield: 50.000 USGPM

Artesian Flow:
Artesian Pressure:

Method of determining elevation: GPS

Well Cap: SIMPLE

Well Disinfected Status: Disinfected

Drilling Method: Air Rotary **Orientation of Well:** VERTICAL

Lithology

From (ft bgl)	To (ft bgl)	Raw Data	Description	Moisture	Colour	Hardness	Observations	Water Bearing Flow Estimate (USGPM)
0.00	170.00	SAND & GRAVEL			brown			
170.00	185.00				brown			
185.00	240.00	WATER-BEARING MEDIUM GRAINED SAND			brown			

Casing Details

From (ft)	To (ft)	Casing Type	Casing Material	Diameter	Wall Thickness	Drive Shoe
0.00	231.17		Steel	6.000	0.219	Installed

Surface Seal and Backfill Details

Surface Seal Material: Bentonite clay and cement

mixture

Surface Seal Installation Method: Poured

Surface Seal Thickness: 1.00 Surface Seal Depth: **Backfill Material Above Surface Seal:**

Backfill Depth:

Liner Details

Liner Material:

Liner Diameter: Liner from: Liner Thickness: Liner to: Liner perforations

From To

There are no records to show

Screen Details

Intake Method: Screen

Type: Telescope **Material:** Stainless

Steel

Opening: Continuous

Slot

Bottom: Other

Installed Screens

From	То	Diameter	Assembly Type	Slot Size
230.17 ft	234.58 ft	5.00	SCREEN	20.00
230.17 ft	ft	5.00	K_PACKER	
234.58 ft	239.00 ft	5.00	SCREEN	15.00

Well Development

Developed by:

Development Total Duration: 5.00 hours

Well Yield

No well yield data available.

Decommis	sion	Deta	ils:
----------	------	------	------

Comments

SCREEN BOTTOM: BLANK. BAILED 10 GPM DREW 1' - DRAWDOWN AVAILABLE 90'.

Alternative Specs Submitted: No

Documents

• WTN 103257_Well Construction.pdf

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COLUMBIA Groundwater Wells and Aquifers

Well Summary

Well Tag Number: 109728 Well Identification Plate Number: 42401 Owner Name: AL+SONS EXCAVATING **Intended Water Use:** Private Domestic

Well Status: New Well Class: Water Supply Well Subclass: Domestic **Aquifer Number:**

Observation Well Number: Observation Well Status: Environmental Monitoring System (EMS) ID: Alternative specs submitted: No

Licensing Information

Licensed Status: Unlicensed

Licence Number:

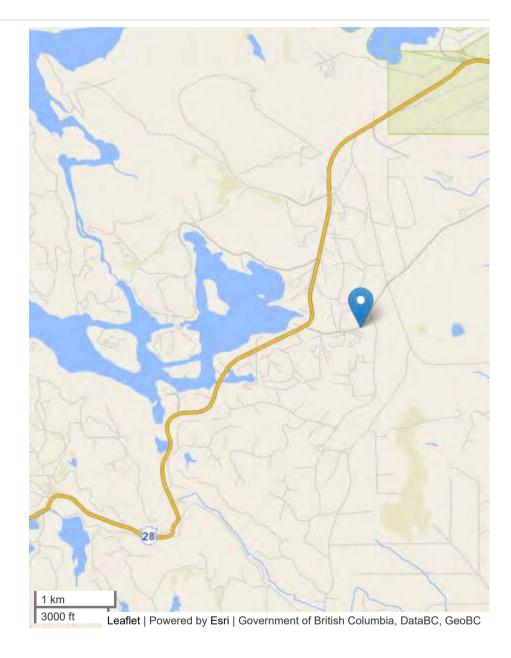
Location Information

Street Address: 6700 ARGONAUT ROAD Town/City: CAMPBELL RIVER

Legal Description:

Lot	85
Plan	
District Lot	
Block	В
Section	
Township	
Range	
Land District	51
Property Identification Description (PID)	

Description of Well Location: NOTHING RECORDED



Geographic Coordinates - North American Datum of 1983 (NAD 83)

UTM Easting: 331760 **Zone:** 10

Longitude: -125.347972 UTM Northing: 5542041

Coordinate Acquisition Code: (10 m accuracy) Handheld GPS with accuracy of +/- 10 metres

Well Activity

1	Activity	\$	Work Start Date	\$	Work End Date		Drilling Company	\$	Date Entered	\$
					There has been no activity related	d	to this well.			

Read more or ignore

Construction	Construction	Aiteration	Alteration	Decommission	Decommission	
2015-01-14	2015-01-15					

Well Completion Data

Total Depth Drilled: 216.00 feet Finished Well Depth: 208.00 feet

Final Casing Stick Up: 20.000 inches Depth to Bedrock:

Ground elevation: 520.00

Static Water Level (BTOC): 110.00 feet Estimated Well Yield: 50.000 USGPM

Artesian Flow:
Artesian Pressure:

Method of determining elevation: GPS

Well Cap: WELDED LID

Well Disinfected Status: Disinfected

Drilling Method: Air Rotary **Orientation of Well:** VERTICAL

Lithology

From (ft bgl)	To (ft bgl)	Raw Data	Description	Moisture	Colour	Hardness	Observations	Water Bearing Flow Estimate (USGPM)
0.00	8.00	GRAVEL AND SILTY SANDY			brown	Medium		
8.00	14.00	GRAVEL			brown	Medium	ZONE WOOD	
14.00	72.00	GRAVEL, SANDY			brown	Medium	LOOSE	
72.00	110.00	SAND,SILTY.			brown	Medium	SILT LAYERS AND GRAVEL LAYERS	
110.00	144.00	SAND			brown	Medium	CLEAN, LOOSE	
144.00	156.00	GRAVEL			brown	Medium	WB,COARSE CLEAN	
156.00	209.00	SAND MED FINE			brown	Medium	WB,CLEAN	
209.00	216.00	SAND,SILTY			brown	Medium	WB,FINE	

Casing Details

From (ft)	To (ft)	ft) Casing Type Casing Material Diam		Diameter	Wall Thickness	Drive Shoe	
0.00	16.00	Steel Removed		10.000		Not Installed	
0.00	216.00		Steel	6.000	0.219	Installed	

Surface Seal and Backfill Details

Surface Seal Material: Bentonite clay Surface Seal Installation Method: Poured Surface Seal Thickness: 2.00

Surface Seal Depth:

Backfill Material Above Surface Seal:

Backfill Depth:

Liner Details

Liner Material: Liner Diameter:

Liner from:

Liner Thickness: Liner to: Liner perforations

From To

There are no records to show

Material: Stainless				, ,	
Steel	197.00 ft	199.00 ft	5.00	K_RISER	
Opening: Continuous Slot	199.00 ft	203.60 ft	5.00	SCREEN	15.00
Bottom: Plug	203.60 ft	208.00 ft	5.00	SCREEN	12.00

Well Development

Developed by: Development Total Duration: 3.00 hours

Well Yield

No well yield data available.

Well Decommission Information

Reason for Decommission: Sealant Material:

Decommission Details:

Method of Decommission: Backfill Material:

Comments

EWELLS SUBMISSION

Alternative Specs Submitted: No

Documents

No additional documentation available for this well.

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COLUMBIA Groundwater Wells and Aquifers

Well Summary

Well Tag Number: 110853 Well Identification Plate Number:

Intended Water Use:

Owner Name: COMOX VALLEY REGIONAL DISTRICT

Well Status: Closure Well Class: Monitoring Well Subclass: Permanent **Aquifer Number:**

Observation Well Number: Observation Well Status:

Environmental Monitoring System (EMS) ID:

Alternative specs submitted: No

Licensing Information

Licensed Status: Unlicensed

Licence Number:

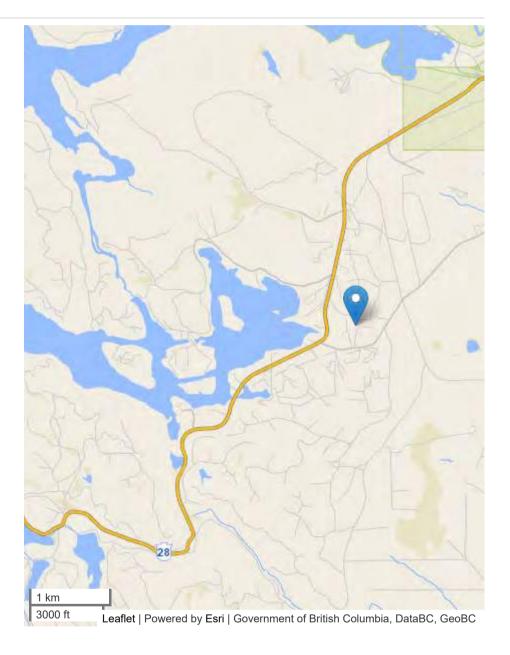
Location Information

Street Address: ARGONAUT ROAD Town/City: CAMPBELL RIVER

Legal Description:

Lot	
Plan	
District Lot	
Block	
Section	
Township	
Range	
Land District	
Property Identification Description (PID)	

Description of Well Location: CLOSURE OF 2" MONITORING WELL



Geographic Coordinates - North American Datum of 1983 (NAD 83)

Longitude: -125.351395 **Latitude:** 50.008985 **UTM Easting:** 331522 UTM Northing: 5542279

Zone: 10 Coordinate Acquisition Code: (10 m

accuracy) Handheld GPS with accuracy of +/- 10 metres

Well Activity

Activity	Work Start Date	\$ Work End Date	\$	Drilling Company	\$	Date Entered	\$
		There has been no activity rela	ited	to this well.			

Read more or ignore

Construction	Construction	Aiteration	Alteration	Decommission	Decommission	
				2013-06-21	2013-06-21	

Well Completion Data

Total Depth Drilled:

Static Water Level (BTOC):

Well Cap:

Finished Well Depth:

Estimated Well Yield:

Well Disinfected Status: Not Disinfected

Final Casing Stick Up: Depth to Bedrock:

Artesian Flow:
Artesian Pressure:

Drilling Method: Air Rotary **Orientation of Well:** VERTICAL

Ground elevation:

Method of determining elevation: Unknown

Lithology

From (ft bgl)	To (ft bgl)	Raw Data	Description	Moisture	Colour	Hardness	Observations	Water Bearing Flow Estimate (USGPM)
							FILLED 2" WELL BORE WITH BENTONITE-CEMENT GROUT	

Casing Details

From (ft)	To (ft)	Casing Type	Casing Material	Diameter	Wall Thickness	Drive Shoe
			There are no records t	o show		

Surface Seal and Backfill Details

Surface Seal Material:

Backfill Material Above Surface Seal:

Surface Seal Installation Method:

Surface Seal Thickness: Surface Seal Depth: Backfill Depth:

Liner Details

Liner Material:

Liner Thickness:

Liner perforations

Liner Diameter: Liner from:

Liner to:

From To

There are no records to show

Screen Details

Intake Method:

Installed Screens

Type: Material: Opening:

Bottom:

From To Diameter Assembly Type Slot Size

There are no records to show

Well Development

Developed by:

Development Total Duration:

Well Yield

No well yield data available.

Well Decommission Information

Reason for Decommission: NOT REQUIRED - AREA

TO BE FILLED

P. DE SILLED

Sealant Material:

Decommission Details: TREMIE

CEMENT/BENTONITE GROUT FROM BOTTOM TO

TOP

Development Total Duration.

Method of Decommission: PUMPED

Backfill Material:

Alternative Specs Submitted: No

Documents

No additional documentation available for this well.

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COLUMBIA Groundwater Wells and Aquifers

Well Summary

Well Tag Number: 122450
Well Identification Plate Number: 62929
Owner Name: GEORGINA McCUBBING
Intended Water Use: Private Domestic

Well Status: New
Well Class: Water Supply
Well Subclass: Not Applicable
Aquifer Number:

Observation Well Number:
Observation Well Status:
Environmental Monitoring System (EMS) ID:
Alternative specs submitted: No

Licensing Information

Licensed Status: Unlicensed

Licence Number:

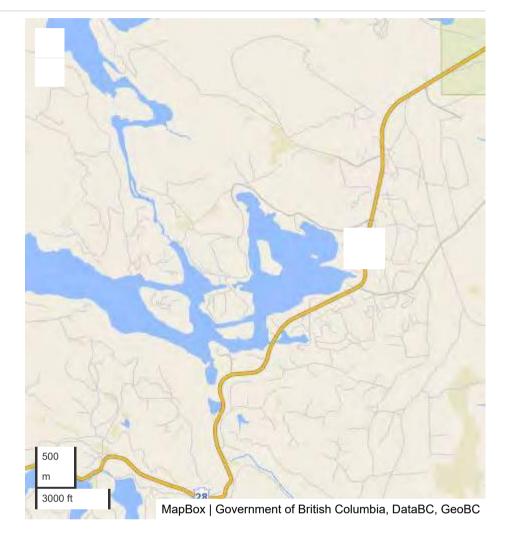
Location Information

Street Address: 7170 GOLD RIVER HWY **Town/City:** CAMPBELL RIVER

Legal Description:

Lot	2
Plan	EPS4410
District Lot	85
Block	
Section	
Township	
Range	
Land District	51
Property Identification Description (PID)	030264227

Description of Well Location:



Geographic Coordinates - North American Datum of 1983 (NAD 83)

Latitude: 50.00919 **UTM Easting:** 331068

Zone: 10

Longitude: -125.35774 **UTM Northing:** 5542316

accuracy of +/- 10 metres

Coordinate Acquisition Code: (10 m accuracy) Handheld GPS with

1/3

Well Activity

Activity	Work Start Date	Work End Date	Drilling Company \$	Date Entered
Construction report	2020-10-15	2020-10-16	Drillwell Enterprises Ltd.	February 11th 2021 at 3:58 PM

Well Work Dates

Start Date of	End Date of	Start Date of	End Date of	Start Date of	End Date of
Construction	Construction	Alteration	Alteration	Decommission	Decommission
2020-10-15	2020-10-16				

https://apps.nrs.gov.bc.ca/gwells/well/122450

Well Completion Data

Total Depth Drilled: 155 feet Finished Well Depth: 155 ft bgl Final Casing Stick Up: 24 inches

Depth to Bedrock: **Ground elevation:** 701 feet Static Water Level: 110 feet btoc Estimated Well Yield: 15 USgpm

Artesian Flow: Artesian Pressure:

Method of determining elevation: GPS

Well Cap: Welded lid

Well Disinfected Status: Disinfected **Drilling Method:** Dual Rotary **Orientation of Well: VERTICAL**

Lithology

From (ft bgl)	To (ft bgl)	Raw Data	Description	Moisture	Colour	Hardness	Observations	Water Bearing Flow Estimate (USGPM)
0	42	Compact gravel		Dry	brown	Dense		
42	112	Gravel, sand			brown	Loose		
112	155	Coarse gravel		Wet	brown	Loose		

Casing Details

From (ft bgl)	To (ft bgl)	Casing Type	Casing Material	Diameter (in)	Wall Thickness (in)	Drive Shoe
0	17		Steel Pulled Out	10		
0	155		Steel	6	0.219	Installed

Surface Seal and Backfill Details

Surface Seal Material: Bentonite clay Surface Seal Installation Method: Poured

Surface Seal Thickness: 2 inches Surface Seal Depth: 17 feet

Backfill Material Above Surface Seal:

Backfill Depth:

Liner Details

Liner Material: Liner Diameter: Liner from:

Liner Thickness: Liner to:

Liner perforations

To (ft bgl) From (ft bgl)

There are no records to show

Screen Details

Intake Method: Open

Bottom Type: Material: Opening:

Bottom:

Installed Screens

From (ft bgl) To (ft bgl) Diameter (in) **Assembly Type** Slot Size There are no records to show

Well Development

Developed by: Air lifting, Surging

Development Total Duration: 1 hours

Well Yield

Estimation Method: Air Lifting

Hydrofracturing Performed: No

Static Water Level Before Test: 110 ft (btoc)

Estimation Rate: 15 USgpm

Drawdown:

Increase in Yield Due to Hydrofracturing:

Estimation Duration: 1 hours

Well Decommission Information

Reason for Decommission: **Sealant Material: Decommission Details:**

Method of Decommission: **Backfill Material:**

Comments

No comments submitted

Alternative Specs Submitted: No

Documents

• WTN 122450 #62929 Georgina McCubbing, 7170 Gold River Hwy, Campbell River.pdf

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COLUMBIA Groundwater Wells and Aquifers

Well Summary

Well Tag Number: 122464

Well Identification Plate Number: 62928

Owner Name: CROWNE PACIFIC DEVELOPMENT

CORP

Intended Water Use: Private Domestic

Well Status: New
Well Class: Water Supply
Well Subclass: Not Applicable

Aquifer Number:

Observation Well Number: Observation Well Status:

Environmental Monitoring System (EMS) ID:

Alternative specs submitted: No

Licensing Information

Licensed Status: Unlicensed

Licence Number:

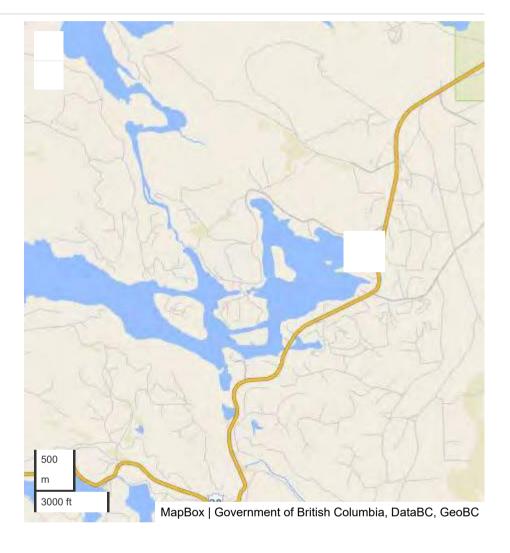
Location Information

Street Address: 7120 GOLD RIVER HWY **Town/City:** CAMPBELL RIVER

Legal Description:

Lot	2
Plan	VIS3140
District Lot	85
Block	
Section	
Township	
Range	
Land District	51
Property Identification Description (PID)	018675867

Description of Well Location:



Geographic Coordinates - North American Datum of 1983 (NAD 83)

Latitude: 50.00953 **UTM Easting:** 330883

Zone: 10

Longitude: -125.36034 **UTM Northing:** 5542360

Coordinate Acquisition Code: (10 m accuracy) Handheld GPS with

accuracy of +/- 10 metres

Well Activity

Activity	Work Start Date	Work End Date	Drilling Company	Date Entered
Construction report	2020-10-19	2020-10-20	Drillwell Enterprises Ltd.	February 12th 2021 at 1:34 PM

Well Work Dates

Start Date of	End Date of	Start Date of	End Date of	Start Date of	End Date of
Construction	Construction	Alteration	Alteration	Decommission	Decommission
2020-10-19	2020-10-20				

https://apps.nrs.gov.bc.ca/gwells/well/122464

Well Completion Data

Total Depth Drilled: 135 feet Finished Well Depth: 123 ft bgl Final Casing Stick Up: 16 inches

Depth to Bedrock: Ground elevation: 658 feet Static Water Level: 73 feet btoc Estimated Well Yield: 30 USgpm

Artesian Flow: Artesian Pressure:

Method of determining elevation: GPS

Well Cap: Welded lid

Well Disinfected Status: Disinfected **Drilling Method:** Dual Rotary **Orientation of Well: VERTICAL**

Lithology

From (ft bgl)	To (ft bgl)	Raw Data	Description	Moisture	Colour	Hardness	Observations	Water Bearing Flow Estimate (USGPM)
0	95	Clean gravel, sand			brown	Loose		
95	125	Coarse gravel		Wet	brown	Loose		
125	135	Sand		Wet	brown	Loose		

Casing Details

From (ft bgl)	To (ft bgl)	Casing Type	Casing Material	Diameter (in)	Wall Thickness (in)	Drive Shoe
0	17		Steel Pulled Out	10		
0	119		Steel	6	0.219	Installed

Surface Seal and Backfill Details

Surface Seal Material: Bentonite clay Surface Seal Installation Method: Poured

Surface Seal Thickness: 2 inches Surface Seal Depth: 17 feet

Backfill Material Above Surface Seal:

Backfill Depth:

Liner Details

Liner Material: Liner Diameter: Liner from:

Liner Thickness: Liner to:

Liner perforations

From (ft bgl) To (ft bgl)

There are no records to show

Screen Details

Intake Method: Screen Type: Telescope **Material:** Stainless

Steel

Opening: Continuous

Slot

Bottom: Other

Installed Screens

From (ft bgl)	To (ft bgl)	Diameter (in)	Assembly Type	Slot Size
117.00	119.00	6.00	K_RISER	
119.00	123.00	6.00	SCREEN	100.00

Well Development

Developed by: Air lifting, Bailing

Development Total Duration: 1 hours

Well Yield

Estimation Method: Air Lifting Static Water Level Before Test: 73 ft (btoc)

Hydrofracturing Performed: No

Estimation Rate: 30 USgpm

Drawdown:

Increase in Yield Due to Hydrofracturing:

Estimation Duration: 1 hours

Well Decommission Information

Reason for Decommission: **Sealant Material: Decommission Details:**

Method of Decommission:

Backfill Material:

Comments

No comments submitted

Alternative Specs Submitted: No

Documents

• WTN 122464 #62928 Crowne Pacific, 7120 Gold River Hwy, Campbell River.pdf

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COLUMBIA Groundwater Wells and Aquifers

Well Summary

Well Tag Number: 125695 Well Identification Plate Number: 66650 Owner Name: Comox Valley Regional District Intended Water Use: Commercial and Industrial

Artesian Condition: No

Well Status: New
Well Class: Water Supply
Well Subclass: Not Applicable
Aquifer Number: 975
Technical Report: N/A

Observation Well Number: Observation Well Status:

Environmental Monitoring System (EMS) ID:

Alternative specs submitted; No

Licensing Information

Licensed Status: Licensed

Licence Number:

Location Information

Street Address: 6300 Argonaut Road **Town/City:** Campbell River

Legal Description:

Lat	
Plan	
District Lat	85
Black	J
Section	
Township	
Range	
Land District	51
Property Identification Description (PID)	

Description of Well Location: PIN 12445651; Campbell River Compost Facility.



Geographic Coordinates - North American Datum of 1983 (NAD 83)

Latitude: 50.01105 **UTM Easting:** 331792

Zone: 10

Langitude: -125.34773 UTM Narthing: 5542500

Coordinate Acquisition Code: (10 m accuracy) Handheld GPS with accuracy of +/- 10 metres

Well Activity

Activity	Work Start Date	Work End Date	Drilling Company \$\Psi\$	Date Entered
Construction report	2022-03-10	2022-03-11	Drillwell Enterprises Ltd.	May 3rd 2022 at 9:13 AM

Well Work Dates

Start Date of	End Date of	Start Date of	End Date of	Start Date of	End Date of
Construction	Construction	Alteration	Alteration	Decommission	Decommission
2022-03-10	2022-03-11				

Well Completion Data

Total Depth Drilled: 135 ft bgl Finished Well Depth: 135 ft bgl Final Casing Stick Up: 24 inches

Depth to Bedrock: Ground elevation: 489 feet Estimated Well Yield: 15 USgpm Well Cap: Welded steel

Well Disinfected Status: Disinfected Drilling Method: Dual Rotary Method of determining elevation: GPS Static Water Level (BTOC): 72 feet btoc

Artegian Flow: Arteslan Pressure (head): Artesian Pressure (PSI): Orientation of Well: VERTICAL

Lithology

Fram (ft bgl)	To (ft bgl)	Raw Data	Description	Maisture	Calaur	Hardness	Observations	Water Bearing Flow Estimate (USGPM)
0	78	sand gravel		Dry	brown	Loose		
78	93	sand with clay		Dry	brown	Loose		
93	135	sand		Wet	brown	Loose		

Casing Details

Fram (ft bgl)	To (ft bgl)	Casing Type	Casing Material	Diameter (in)	Wall Thickness (in)	Drive Shoe
0	17	Steel Removed	Steel Pulled Out	10		
0	130	Production casing	Steel	6	0.219	Installed

Surface Seal and Backfill Details

Surface Seal Material: Bentonite clay Surface Seal Installation Method: Poured Surface Seal Thickness: 2 inches Surface Seal Depth: 17 feet

Backfill Material Above Surface Seal: Backfill Depth:

Liner Details

Liner Material: Liner Diameter: Liner from:

Liner Thickness: Liner to:

Liner perforations Fram (ft bgl) To (ft bgl) There are no records to show

Screen Details

Intake Method: Screen Type: Telescope Material: Stainless Opening: Continuous Slot

Installed Screens Fram (ft bgl) Ta (ft bgl) Diameter (in) Assembly Type Slot Size 128.00 131.00 6.00 K_RISER 131.00 135.00 6.00 **SCREEN** 10.00

Well Development

Developed by: Bailing

Development Total Duration: 1 hours

Well Yield

Battam: Other

Estimation Method: Bailing Statle Water Level Before Test: 72 ft (btoc)

Hydrofracturing Performed: No

Estimation Rate: 15 USgpm

Increase in Yield Due to Hydrofracturing:

Estimation Duration: 1 hours

Well Decommission Information

Reason for Decommission: Sealant Material: Decommission Details:

Method of Decommission: Backfill Material:

Comments

Specific well use = Waste Management; Well xref'd and associated with GW licence application.

Documents

- WTN 125695 Map.pdf
- WTN 125695 Well Construction.pdf

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Appendix D

2022 Closure Fund Memorandum



Technical Memorandum

March 5, 2024

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From	Jeremy Scott, Alex Rorke	Project No.	11209296		
Project Name	CVRD EMP				
Subject	2023 Closure and Post-Closure Estimates Comox Strathcona Waste Management Campbell River, Comox Valley, Gold River, Tahsis, and Zeballos, British Columbia				

1. Introduction

This memorandum has been prepared by GHD Limited (GHD) for the Comox Valley Regional District (CVRD) to present the 2023 closure and post-closure (CPC) estimates for the following Comox Strathcona Solid Waste Management Centres (CSWM) landfills.

- Campbell River
- Comox Valley Waste Management Centre Pidgeon Lake
- Comox Valley Waste Management Centre Bevan Landfill
- Gold River
- Tahsis
- Zeballos
- Sawmill
- Cortes Island no associated costs

Table 1 presents a summary of the CPC cost estimates for each landfill.

2. Calculation Methodology

Landfill CPC estimates have been calculated based on the methodology for calculating landfill liability described in PS 3280 – Asset Retirement Obligations Guide, formerly PS 3270 – Solid Waste Landfill Closure & Post-closure Liability. The following presents a summary of the methodology:

Asset retirement costs are necessary and integral to owning and operating the related tangible capital asset. These costs increase the carrying amount. As asset retirement costs on their initial recording are capitalized and amortized over the period of benefit, changes in their estimate would be accounted for similarly. An accretion expense, which is a change in measurement resulting from the passage of time, results from events of the accounting period. It would be expensed in the period and reported in the statement of operations. An entity will measure and incorporate changes due to the passage of time into

the carrying amount of the liability before measuring changes resulting from a revision to either the timing, the amount of the original estimate of undiscounted cash flows or the discount rate.

There following components that need to be assessed for asset retirement obligations (ARO) landfill liability are:

- 1. Present value (PV) of the ARO liability related to the closure costs, final cover and vegetation, and completing facilities for post-closure activities. PV is calculated using inflated cash flows.
- 2. Determining of the ARO liability related to the post closure maintenance for the years after closure occurred. Inflated cash flows are calculated for each year after closure.
- 3. Total present value based on the inflated cash flows for post closure maintenance. This is determined through the calculation of PVs for each year and summing them.
- 4. Calculation of accretion expenses. This is calculated from the difference of the present value sums of 2022 and 2023. This accounts for Jan 1, 2023, to Dec 31, 2023.
- 5. Book Value at initial obligation date. To properly adapt to PS3280 the book value of the landfill is calculated from the year it started to receive waste. This is calculated using the same tables but adjusting the present value year so that year 0 is the year the landfill opened. The Book value is the sum of the present value costs.
- 6. Amortization of the ARO liability in year 1. This is the Book value of the landfill divided by the total years of useful life (landfill open date to closure date)
- 7. Accumulated Amortization. This is the amortization in year 1 multiplied by the number of years from when the landfill was opened to when PS3280 came into effect (2022)

To allow organizations to more easily adopt to this new methodology, 3 separate transitional provisions are provided for application of PS 3280. These are the retroactive approach, the prospective approach, and the modified retroactive approach. The CVRD has chosen to use the modified retroactive approach. In this provision, the December 31, 2022 balance represents the 2023 opening amount for the liability. ARO is calculated for 2022 and 2023 as if this new methodology was in place during that time.

2.1 Inflation and Discount Rates

All calculations of the present value of CPC costs were completed using the same rates for O&M inflation, construction cost inflation, and discount. The following list presents values and sources for inflation and discount rates applied:

- Construction cost inflation rate applied to forecast construction costs, set to Bank of Canada's target inflation rate of 2% as directed by CVRD
- Discount rate of 4.67% based on the Municipal Finance Authority of BC's (MFA) 30-year indicative lending rate, at December 31, 2022, provided by the CVRD.
- Operations and maintenance inflation rate applied to operations and maintenance costs. Set to Bank of Canada's target inflation rate of 2% as directed by CVRD

Further details on values used for forecasts are presented below for each landfill in turn.

3. Campbell River

Details of the present value calculations for the Campbell River Landfill are presented in Table 2. The CVRD has closed the Campbell River Landfill and stopped accepting waste in May 2022. The following list summarizes the key inputs to the CPC Update:

Annual cost of post closure operations and monitoring of \$30,311

- This was calculated from CVRD cost estimates of 2023 groundwater monitoring and the 2022
 ALS lab costs collected by GHD inflated by 20% to account for industry markups in 2023 and
 CVRD having less of a discount with ALS than GHD.
- Cost of post closure landfill maintenance of \$20,000 every five years.
- Annual cost of post-closure landfill gas collection system operations and maintenance of \$45,000.
 - Provided by CVRD
- 30-year post closure period beginning in 2023.

Item	Amount
Total Closure/Post Closure Costs for Construction and O&M	\$2,379,337
Inflated Closure/Post Closure Costs to year of Expenditure (2% for construction, 2% for O&M)	\$3,288,474
PV of Inflated Closure/ Post Closure Costs (MFA 30-year rate 4.67%)	\$1,630,060
Accretion expense (December 31, 2023)	\$76,124
Book Value at Initial Obligation Date (1999)	\$570,548
Amortization expense (year 1)	\$0
Accumulated Amortization	\$570,548

4. Comox Valley

Details of the present value calculations for the Comox Valley Waste Management Centre landfills are presented in Tables 3, 4 and 8. Separate calculations were developed for the Pidgeon Lake Landfill, Cell 1 of the Engineered Landfill, and the Former Sawmill Landfill.

The following list summarizes the key inputs to the CPC Update for each of the landfills on the CVWMC site:

Pidgeon Lake Landfill (Table 3)

- The Pidgeon Lake Landfill was closed in 2019.
- Annual cost of post closure monitoring of \$15,989.
- Cost of post closure landfill maintenance of \$10,000 every five years.
- Annual cost of post-closure landfill gas collection system operations and maintenance of \$30,000.
- 30-year post closure period began in 2020.

Item	Amount
Total Closure/Post Closure Costs for Construction and O&M	\$1,301,692
Inflated Closure/Post Closure Costs to year of Expenditure (2% for construction, 2% for O&M)	\$1,739,049
PV of Inflated Closure/ Post Closure Costs (MFA 30-year rate 4.67%)	\$924,662
Accretion expense (December 31, 2023)	\$43,182
Book Value at Initial Obligation Date (1977)	\$118,572

Amortization expense (year 1)	\$0
Accumulated Amortization	\$118,572

Bevan Landfill Cell 1 and Cell 2 (Table 4)

- Closure of Cell 1 of the Engineered Landfill is planned to consist of the following works:
 - Cell 1 design for partial closure and gas collection construction at \$430,000 for 2025
 - Cell 1 partial closure construction \$875,000 for 2025
 - Construction of LFG infrastructure (horizontal collection trenches and connections to the headers)
 - \$121,000 in 2026 and \$150,000 in each year from 2027-2032
 - Note: these costs will be extended from 2027 to 2040 in next years reporting.
 - Cell 1 & 2 complete closure construction \$4,942,952 for 2041
 - Final Cover construction for the remainder of Cell 1 and Cell 2 was estimated by GHD using the 3D surface area (81032m2) of the design contours at \$61/m2 as estimated from similar landfill closure projects completed by GHD.
- Annual cost of post closure monitoring of \$30,024.
 - This was calculated from CVRD cost estimates of 2023 groundwater monitoring and the 2022
 ALS lab costs collected by GHD inflated by 20% to account for industry markups in 2023 and
 CVRD having less of a discount with ALS than GHD.
- Cost of post closure landfill maintenance of \$10,000 every five years.
 - This cost is split between the Bevan and the Pidgeon Lake Landfills
- Annual cost of post-closure LFG collection system operations and maintenance of \$97,800.
 - Obtained from CVRD
- Leachate Plant Operation once Cell 2 has been closed
 - Calculated from the 2023 yearly estimate of \$600,000, with \$250,000 of fixed costs and \$350,000 variable depending on the amount of leachate generated. After closure of Cell 2 the amount of leachate generated will gradually decrease down to a rate of approximately 4% compared to full operations.
- Estimated Landfill expected useful life of 18 years. This was calculated based off actual airspace consumed in Cell 1 and Cell 2 from surveys provided by McElhanney prorated to December 31 2023.
 This yearly average was then forecasted to calculate Cell 1 and Cell 2 reaching capacity at the end of 2040.
- 30-year post closure period beginning in 2042.

Item	Amount
Total Closure/Post Closure Costs for Construction and O&M	\$19,797,666
Inflated Closure/Post Closure Costs to year of Expenditure (2% for construction, 2% for O&M)	\$34,587,267
PV of Inflated Closure/ Post Closure Costs (MFA 30-year rate 4.67%)	\$10,465,709
Accretion expense (December 31, 2023)	\$488,749
Book Value at Initial Obligation Date (2017)	\$8,330,240
Amortization expense (year 1)	\$347,093
Accumulated Amortization	\$1,735,467

Former Sawmill Landfill (Table 8)

- The closure date for the Former Sawmill Landfill is uncertain but occurred somewhere between 1992 and 1998.
- For the purposes of the CPC Liability calculations a closure date of 1998 was assumed, the 30-year monitoring period will end in 2028.
- Annual cost of post closure monitoring of \$8,129
- Cost of post closure landfill maintenance of \$5,000 every five years.
- The closure works for this site is complete and the site's permit has been abandoned. The CVRD is implementing annual post-closure inspections and continuing bi-annual monitoring of four groundwater wells and one surface water location.

Item	Amount
Total Closure/Post Closure Costs for Construction and O&M	\$58,773
Inflated Closure/Post Closure Costs to year of Expenditure (2% for construction, 2% for O&M)	\$63,034
PV of Inflated Closure/ Post Closure Costs (MFA 30-year rate 4.67%)	\$53,753
Accretion expense (December 31, 2023)	\$2,510
Book Value at Initial Obligation Date (1997)	\$17,173
Amortization expense (year 1)	\$0
Accumulated Amortization	\$17,173

5. Gold River

Details of the present value calculations for the Gold River Landfill are presented in Table 5. The following list summarizes the key inputs to the CPC Update:

- Closure of the existing landfill footprint beginning in 2030 at \$426,456 and 2030 at \$1,387,367.
- Annual cost of post closure operations and monitoring of \$20,133.
- Cost of post closure landfill maintenance of \$20,000 every five years.
- 30-year post closure period beginning in 2031.

Item	Amount
Total Closure/Post Closure Costs for Construction and O&M	\$2,537,801
Inflated Closure/Post Closure Costs to year of Expenditure (2% for construction, 2% for O&M)	\$3,302,950
PV of Inflated Closure/ Post Closure Costs (MFA 30-year rate 4.67%)	\$1,876,075
Accretion expense (December 31, 2023)	\$87,613
Book Value at Initial Obligation Date (1992)	\$477,072
Amortization expense (year 1)	\$12,555
Accumulated Amortization	\$376,635

6. Tahsis

Details of the present value calculations for the Tahsis Landfill are presented in Table 6. The following list summarizes the key inputs to the CPC Update:

- Closure of the existing landfill footprint in 2031 at \$470,860 and 2031 at \$1,425,580.
- Annual cost of post closure operations and monitoring of \$7,023
- Cost of post closure landfill maintenance of \$20,000 every five years.
- 30-year post closure period beginning in 2032.

ltem	Amount
Total Closure/Post Closure Costs for Construction and O&M	\$2,227,142
Inflated Closure/Post Closure Costs to year of Expenditure (2% for construction, 2% for O&M)	\$2,819,464
PV of Inflated Closure/ Post Closure Costs (MFA 30-year rate 4.67%)	\$1,679,618
Accretion expense (December 31, 2023)	\$78,438
Book Value at Initial Obligation Date (1988)	\$355,840
Amortization expense (year 1)	\$8,275
Accumulated Amortization	\$281,362

7. Zeballos

Details of the present value calculations for the Zeballos Landfill are presented in Table 7. The following list summarizes the key inputs to the CPC Update:

- Closure of the existing landfill footprint in 2029 at \$330,083 and 2029 at \$957,749.
- Annual cost of post closure operations and monitoring of \$11,819.
- Cost of post closure landfill maintenance of \$20,000 every five years.
- 30-year post closure period beginning in 2030.

Item	Amount
Total Closure/Post Closure Costs for Construction and O&M	\$1,762,390
Inflated Closure/Post Closure Costs to year of Expenditure (2% for construction, 2% for O&M)	\$2,238,807
PV of Inflated Closure/ Post Closure Costs (MFA 30-year rate 4.67%)	\$1,343,256
Accretion expense (December 31, 2023)	\$62,730
Book Value at Initial Obligation Date (1987)	\$271,882
Amortization expense (year 1)	\$6,473
Accumulated Amortization	\$226,569

8. Cortes

- The Cortes landfill site was abandoned in 1995 with 100 percent of capacity used.
- Closure of the former landfill footprint occurred in 2019 (final cover improvements).
- Actual total airspace and waste in place unknown.
- The site currently houses a solid waste transfer station.
- There are no annual post closure operations and monitoring costs.
- The CVRD is working with the MOE to abandon the permit for this site. No further closure costs are to be incurred. Therefore, no CPC liability estimate was completed.

Table 1

Cost Estimate Summary 2022

Closure and Post-Closure Fund Estimates Comox Strathcona Solid Waste Management Centres

Landfill	Estimated Closure Year	Years to Closure	C	otal Closure/Post Closure Costs for Construction and O&M	Inflated Closure/Post Closure Costs to year of Expenditure (2% for construction, 2% for O&M)		PV of Inflated Closure/ Post Closure Costs (MFA 30 year rate 4.67%)		% of Capacity used to December 31, 2023		Accretion expense (December 31, 2023)		Book Value at Initial Obligation Date		Amortization expense (year 1)		cumulated ortization	Airspace consumed Dec 2022-2023 (m3)
Campbell River	2022	N/A	\$	2,379,337	\$	3,288,474	\$	1,630,060	100.00%	\$	76,124	\$	570,548	\$	-	\$	570,548	-
Comox Valley Pidgeon Lake	2019	N/A	\$	1,301,692	\$	1,739,049	\$	924,662	100.00%	\$	43,182	\$	118,572	\$	-	\$	118,572	-
Comox Valley Bevan Landfill (Cell 1 &	2041	18	\$	19,797,666	\$	34,587,267	\$	10,465,709	21.80%	\$	488,749	\$	8,330,240	\$	347,093	\$	1,735,467	86,957
Gold River	2030	7	\$	2,537,801	\$	3,302,950	\$	1,876,075		\$	87,613	\$	477,072	\$	12,555	\$	376,635	768
Tahsis	2031	8	\$	2,227,142	\$	2,819,464	\$	1,679,618		\$	78,438	\$	355,840	\$	8,275	\$	281,362	2,039
Zeballos	2029	6	\$	1,762,390	\$	2,238,807	\$	1,343,256		\$	62,730	\$	271,882	\$	6,473	\$	226,569	1,809
Sawmill	1998	N/A	\$	58,773	\$	63,034	\$	53,753	100.00%	\$	2,510	\$	17,173	\$	-	\$	17,173	-
		Subtotal	\$	30,064,801	\$	48,039,045	\$	17,973,134	_	\$	839,345	\$	10,141,328	\$	374,397	\$	3,326,327	

Current year

2023

Table 2: Landfill Liability - Campbell River Waste Management Centre - Retrospective to year of opening

Data:	11/31/2023		
Landfill Cover Option	LLDPE		
Landfill Open Date	1999		
Landfill Closure Date	2022		
Closure Construction Costs (2021\$)	\$ -		
Annual post closure O&M (2023\$)	\$ 30,311	Note 1	Present Value Sum Post Closure
5th year post closure O&M costs (2023\$)	\$ 50,311	Noge 2	\$ 570,548
Annual post closure LFG O&M (2023\$)	\$ 45,000	Note 3	
Construction cost escalation rate	2.0000%	Note 4	
Discount rate	4.67%	Note 5	Ammortization
Inflation rate	2.0000%	Note 6	\$ 24,806.45
		Note 7	Accumulated Ammortization
		Note 7	\$ 570,548.46

Year	Years Since Closure	Years for FV calcs	Years for NPV	Construction Cash Flow	Monitoring/ Maintenance Cash Flow (2023\$)		ash Flow s Inflation	-	Present Value	Decription of Cost		
2019												
2020												
2022	0	0	23									
2023	1	1	24	\$ -	\$ 75,31	1 \$	76,817	\$		Annual O&M		
2024	2	2	25		\$ 75,31		78,354			Annual O&M		
2025	3	3	26		\$ 75,311		79,921	_		Annual O&M		
2026	4	4	27		\$ 75,311		81,519			Annual O&M		
2027	5	5	28		\$ 95,311		105,231	_		Annual O&M plus allowance for 5 year maintenance		
2028	6	6	29		\$ 75,311		84,813	_	- ,-	Annual O&M		
2029	7	7	30		\$ 75,311	1 \$	86,509			Annual O&M		
2030	8	8	31		\$ 75,311		88,239			Annual O&M		
2031	9	9	32		\$ 75,311		90,004	_	20,891	Annual O&M		
2032	10	10	33		\$ 95,311		116,184			Annual O&M plus allowance for 5 year maintenance		
2033	11	11	34		\$ 75,31		93,640	_		Annual O&M		
2034	12	12	35		\$ 75,311		95,513			Annual O&M		
2035	13	13	36		\$ 75,31		97,423	_		Annual O&M		
2036	14	14	37		\$ 75,311		99,372	\$	- ,	Annual O&M		
2037	15	15	38		\$ 95,31		128,276	_		Annual O&M plus allowance for 5 year maintenance		
2038	16	16	39		\$ 75,311		103,386			Annual O&M		
2039	17	17	40		\$ 75,31		105,454	\$	- ,	Annual O&M		
2040	18	18	41		\$ 75,31		107,563	\$	16,556	Annual O&M		
2041	19	19	42		\$ 75,31	1 \$	109,714	\$	16,134	Annual O&M		
2042	20	20	43		\$ 95,311		141,627	\$		Annual O&M plus allowance for 5 year maintenance		
2043	21	21	44		\$ 75,31		114,147	\$	- , -	Annual O&M		
2044	22	22	45		\$ 75,311		116,430			Annual O&M		
2045	23	23	46		\$ 75,31		118,758			Annual O&M		
2046	24	24	47		\$ 75,31		121,133	\$		Annual O&M		
2047	25	25	48		\$ 95,31		156,368			Annual O&M plus allowance for 5 year maintenance		
2048	26	26	49		\$ 75,31		126,027	\$	-, -	Annual O&M		
2049	27	27	50		\$ 75,31		128,548			Annual O&M		
2050	28	28	51		\$ 75,31		131,119			Annual O&M		
2051	29	29	52		\$ 75,31		133,741	_	,	Annual O&M		
2052	30	30	53		\$ 95,31		172,643			Annual O&M plus allowance for 5 year maintenance		
TOTAL C	OST			\$ -	\$ 2,379,337	\$	3,288,474	\$	570,548			

Table 2: Landfill Liability - Campbell River Waste Management Centre

Data:	11/31/2023
Landfill Cover Option	LLDPE
Landfill Closure Date	2022
Closure Construction Costs (2021\$)	\$ -
Annual post closure O&M (2023\$)	\$ 30,311
5th year post closure O&M costs (2023\$)	\$ 50,311
Annual post closure LFG O&M (2023\$)	\$ 45,000
Construction cost escalation rate	2.0000%
Discount rate	4.67%
Inflation rate	2.0000%
Post Closure Accretion Expense	\$ 76,123.82
Total Accretion Expense	\$ 76,123.82

Present Value Sum Post Closure \$ 1,630,060

Note 1 Note 2 Note 3 Note 4 Note 5 Note 6 Note 7 Note 7

Year	Years Since Closure	Years for FV calcs	Years for NPV	Construction Cash Flow	Monito Maintenan Flow (2)	ce Cash		h Flow plus Inflation	Pre	esent Value	Decription of Cost
2019											
2020											
2022	0	0	0								
2023	1	1	1	\$ -	\$	75,311		76,817	\$		Annual O&M
2024	2	2	2		\$	75,311	\$	78,354	\$		Annual O&M
2025	3	3	3		\$	75,311	\$	79,921	\$		Annual O&M
2026	4	4	4		\$	75,311	\$	81,519	\$	67,916	Annual O&M
2027	5	5	5		\$	95,311	\$	105,231	\$	83,759	Annual O&M plus allowance for 5 year maintenance
2028	6	6	6		\$	75,311	\$	84,813	\$	64,495	Annual O&M
2029	7	7	7		\$	75,311	\$	86,509	\$	62,850	Annual O&M
2030	8	8	8		\$	75,311	\$	88,239	\$	61,247	Annual O&M
2031	9	9	9		\$	75,311	\$	90,004	\$	59,684	Annual O&M
2032	10	10	10		\$	95,311	\$	116,184	\$	73,608	Annual O&M plus allowance for 5 year maintenance
2033	11	11	11		\$	75,311	\$	93.640	\$	56.678	Annual O&M
2034	12	12	12		\$	75,311	\$	95,513	\$		Annual O&M
2035	13	13	13		\$	75,311	\$	97,423	\$		Annual O&M
2036	14	14	14		\$	75,311	\$	99,372	\$		Annual O&M
2037					•	,	_	,	Ť		Annual O&M plus allowance for 5 year
2031	15	15	15		\$	95,311	\$	128,276	\$	64,686	maintenance
2038	16	16	16		\$	75,311	\$	103,386	\$	49,809	Annual O&M
2039	17	17	17		\$	75,311	\$	105,454	\$	48,538	Annual O&M
2040	18	18	18		\$	75,311	\$	107,563	\$	47,300	Annual O&M
2041	19	19	19		\$	75,311	\$	109,714	\$		Annual O&M
2042	20	20	20		\$	95,311	\$	141,627	\$		Annual O&M plus allowance for 5 year maintenance
2043	21	21	21		\$	75,311	\$	114,147	\$	43,772	Annual O&M
2044	22	22	22		\$	75,311	\$	116,430	\$		Annual O&M
2045	23	23	23		\$	75,311	\$	118,758	\$		Annual O&M
2046	24	24	24		\$	75,311	\$	121,133	\$		Annual O&M
2047	25	25	25		\$	95,311	\$	156,368	\$	49,957	Annual O&M plus allowance for 5 year maintenance
2048	26	26	26		\$	75,311	\$	126.027	\$	38.467	Annual O&M
2049	27	27	27		\$	75,311	\$	128,548	\$	00,401	Annual O&M
2050	28	28	28		\$	75,311	\$	131,119	\$	36 520	Annual O&M
2050	29	29	29		\$	75,311	\$	133,741	\$	35,529	Annuai O&ivi
2051						·	-		Ť	,	Annual O&M plus allowance for 5 year
OTAL	30 COST	30	30	•	\$	95,311		172,643	\$	43,902	maintenance
UIAL	CUSI			\$ -	\$	2,379,337	\$	3,288,474	\$	1,630,060	

Notes:

(2)

(4)

(6)

(1) Annual post closure operating and maintenance costs include environmental monitoring costs provided by CVRD and lab costs collected by GHD for the landfill in 2022. The lab costs were inflated by 20% to account for industry markups in 2023 and CVRD having less of a discount with ALS than GHD.

5th year post closure operating and maintenance costs include environmental monitoring costs, estimated based on GHD experience at CVRD waste management centres.

(3) Annual Post Closure Landfill Gas System costs provided by CVRD

Construction cost inflation rate applied to forecast construction costs, set to Bank of Canada's target inflation rate of 2% as directed by CVRD

Discount rate of 4.67% based on the Municipal Finance Authority of BC's (MFA) 30-year indicative lending rate, at December 31, 2022, provided by

the CVRD.

Operations and maintenance inflation rate applied to operations and maintenance costs. Set to Bank of Canada's target inflation rate of 2% as directed by CVRD

(7) Closure accretion is calculated from the difference of the present value of two closure costs. The difference is between the sum of the table above and below, where the table below has the present value years artificially adjusted by 1 to account for Jan 1 2023 to Dec 31 2023. Both Closure (construction/design costs) and post closure (O&M) accretion values are calculated and summed together.

Table 2: Landfill Liability - Campbell River Waste Management Centre - Accretion

Data:	11/	31/2023
Landfill Cover Option	L	LDPE
Landfill Closure Date		2022
Post Closure Period (years)		30
Airspace Consumed from Dec 31 2021- May 2022 (m3)		0
Current (May 2022) Cumulative Waste Volume (m3)	2,7	700,000
Remaining unused airspace volume (m3) - capacity vs actual		0
Landfill Capacity at Closure (m3)	2,7	700,000
Closure Construction Costs (2021\$)	\$	-
Annual post closure O&M (2022\$)	\$	30,311
5th year post closure O&M costs (2022\$)	\$	50,311
Annual post closure LFG O&M (2022\$)	\$	45,000
Construction cost escalation rate	2.	0000%
Discount rate	4	1.67%
Inflation rate	2.	0000%

Present Value Sum Post Closure 1,706,184

Year	Years Since Closure	Years for FV calcs	Years for NPV	Construction Cash Flow 2020\$	N	Monitoring/ laintenance Cash Flow (2023\$)	(Cash Flow plus Inflation	Pr	esent Value	Decription of Cost
2023	1	1	0		\$	75,311	\$	76,817	\$	76,817	
2024	2	2	1		\$	75,311	\$	78,354	\$	74,858	Annual O&M
2025	3	3	2		\$	75,311	\$	79,921	\$	72,948	Annual O&M
2026	4	4	3		\$	75,311	\$	81,519	\$	71,088	Annual O&M
2027	5	5	4		\$	95,311	\$	105,231	\$	87,671	Annual O&M plus allowance for 5 year maintenance
2028	6	6	5		\$	75,311	\$	84,813	\$	67,507	Annual O&M
2029	7	7	6		\$	75,311	\$	86,509	\$	65,785	Annual O&M
2030	8	8	7		\$	75,311	\$	88,239	\$	64,107	Annual O&M
2031	9	9	8		\$	75,311	\$	90,004	\$	62,472	Annual O&M
2032	10	10	9		\$	95,311	\$	116,184	\$	77,045	Annual O&M plus allowance for 5 year maintenance
2033	11	11	10		\$	75,311	\$	93,640	\$	59.325	Annual O&M
2034	12	12	11		\$	75,311		95.513		57,812	Annual O&M
2035	13	13	12		\$	75,311	\$	97,423	\$	56,337	Annual O&M
2036	14	14	13		\$	75,311	\$	99,372	\$	54,900	Annual O&M
2037	15	15	14		\$	95,311	\$	128,276	\$	67,707	Annual O&M plus allowance for 5 year maintenance
2038	16	16	15		\$	75,311	\$	103.386	\$		Annual O&M
2039	17	17	16		\$	75,311		105,454	\$		Annual O&M
2040	18	18	17		\$	75,311	\$	107,563	\$	49,509	Annual O&M
2041	19	19	18		\$	75,311	\$	109,714	\$	48,246	Annual O&M
2042	20	20	19		\$	95,311	\$	141,627	\$	59,501	Annual O&M plus allowance for 5 year maintenance
2043	21	21	20		\$	75,311	\$	114,147	\$	45,816	Annual O&M
2044	22	22	21		\$	75,311	\$	116,430	\$		Annual O&M
2045	23	23	22		\$	75,311	\$	118,758	\$	43,509	Annual O&M
2046	24	24	23		\$	75,311	\$	121,133	\$	42,399	Annual O&M
2047	25	25	24		\$	95,311	\$	156,368	\$	52,290	Annual O&M plus allowance for 5 year maintenance
2048	26	26	25		\$	75,311	\$	126,027	\$	40,263	Annual O&M
2049	27	27	26		\$	75,311	\$	128,548	\$		Annual O&M
2050	28	28	27		\$	75,311	\$	131,119	\$		Annual O&M
2051	29	29	28	<u> </u>	\$	75,311	\$	133,741	\$	37,260	Annual O&M
2052	30	30	29		\$	95,311		172,643		-,	Annual O&M plus allowance for 5 year maintenance
TOTAL	COST			\$ -	\$	2,379,337	\$	3,288,474	\$	1,706,184	

Table 3: Landfill Liability - Comox Valley Waste Management Centre - Pidgeon Lake Landfill - Retrospective to year of opening

Data:	11/31/2023
Landfill Cover Option	LLDPE
Landfill Open Date	1977
Landfill Closure Date	2019
Post Closure Period (years)	30
Closure construction costs	\$ -
Annual post closure O&M (2023\$)	\$ 15,989
5th year post closure O&M costs (2023\$)	\$ 25,989
Annual post closure LFG O&M (2023\$)	\$ 30,000
Construction cost escalation rate	2.0000%
Discount rate	4.67%
Inflation rate	2.0000%

Note 1		
Note 2	Present Value Sum Post Closure	
Note 3	\$	118,572
Note 4	Ammortization	
Note 5	\$	2,823.15
Note 6	Accumulated Ammortization	
Note 7	\$	118,572.25
Note 7		

Year	Years Since Closure	Years for FV calcs	Years for NPV	Construction Costs Cash Flow	Ma Ca	onitoring / intenance ash Flow (2023 \$)	Cash Flow plus Inflation			Present Value	Decription of Cost
2019			42								
2020			43								
2021			44								
2022	3	0	45								
2023	4	1	46		\$	45,989	\$	46,908	\$	5,747	Annual O&M plus annual LFG O&M
2024	5	2	47		\$	55,989	\$	58,251	\$	6,818	Annual O&M plus annual LFG O&M plus 5 year maintenance
2025	6	3	48		\$	45,989	\$	48,803	\$	5,457	Annual O&M plus annual LFG O&M
2026	7	4	49		\$	45,989	\$	49,780	\$	5,318	Annual O&M plus annual LFG O&M
2027	8	5	50		\$	45,989	\$	50,775	\$	5,183	Annual O&M plus annual LFG O&M
2028	9	6	51		\$	45,989	\$	51,791	\$	5,050	Annual O&M plus annual LFG O&M
2029	10	7	52		\$	55,989	\$	64,313	\$	5,992	Annual O&M plus annual LFG O&M plus 5 year maintenance
2030	11	8	53		\$	45,989	\$	53,883	\$	4,796	Annual O&M plus annual LFG O&M
2031	12	9	54		\$	45,989	\$	54,961	\$	4,674	Annual O&M plus annual LFG O&M
2032	13	10	55		\$	45,989	\$	56,060	\$	4,554	Annual O&M plus annual LFG O&M
2033	14	11	56		\$	45,989	\$	57,181	\$	4,438	Annual O&M plus annual LFG O&M
2034	15	12	57		\$	55,989	\$	71,007	\$	5,265	Annual O&M plus annual LFG O&M plus 5 year maintenance
2035	16	13	58		\$	45,989	\$	59,491	\$	4,215	Annual O&M plus annual LFG O&M
2036	17	14	59		\$	45,989		60,681	↔		Annual O&M plus annual LFG O&M
2037	18	15	60		\$	45,989	\$	61,895	\$	4,002	Annual O&M plus annual LFG O&M
2038	19	16	61		\$	45,989	\$	63,132			Annual O&M plus annual LFG O&M
2039	20	17	62		\$	55,989	\$	78,398	\$	4,627	Annual O&M plus annual LFG O&M plus 5 year maintenance
2040	21	18	63		\$	45,989	\$	65,683	\$	3,704	Annual O&M plus annual LFG O&M
2041	22	19	64		\$	45,989	\$	66,997	65	3,609	Annual O&M plus annual LFG O&M
2042	23	20	65		\$	45,989	\$	68,337	64)	3,517	Annual O&M plus annual LFG O&M
2043	24	21	66		\$	45,989	\$	69,703	64)	3,428	Annual O&M plus annual LFG O&M
2044	25	22	67		\$	55,989		86,557			Annual O&M plus annual LFG O&M plus 5 year maintenance
2045	26	23	68		\$	45,989	\$	72,519	63)		Annual O&M plus annual LFG O&M
2046	27	24	69		\$	45,989		73,970			Annual O&M plus annual LFG O&M
2047	28	25	70		\$	45,989		75,449			Annual O&M plus annual LFG O&M
2048	29	26	71		\$	45,989		76,958	65	3,012	Annual O&M plus annual LFG O&M
2049	30	27	72		\$	55,989		95,566	65	3,574	Annual O&M plus annual LFG O&M plus 5 year maintenance
TOTAL C	COST			\$ -	\$	1,301,692	\$	1,739,049	\$	118,572	

Table 3: Landfill Liability - Comox Valley Waste Management Centre - Pidgeon Lake Landfill

Data:	11/3	11/31/2023				
Landfill Cover Option	L	LDPE				
Landfill Closure Date	2	019				
Post Closure Period (years)		30				
Closure construction costs	\$					
Annual post closure O&M (2023\$)	\$	15,989				
5th year post closure O&M costs (2023\$)	\$	25,989				
Annual post closure LFG O&M (2023\$)	\$	30,000				
Construction cost escalation rate	2.0	000%				
Discount rate	4.	67%				
Inflation rate	2.0	000%				
Post Closure Accretion Expenses	\$	43,181.73				
Total Accretion Expenses	\$	43,181.73				

Note 1 Note 2 Note 3 Note 4 Note 5 Note 6 Note 7 Note 7

Present Value Sum Post Closure \$ 924.662

Year	Years Since Closure	Years for FV calcs	Years for NPV	Construction Costs Cash Flow	Mainte Mainte Cash (2023	Flow		n Flow plus nflation	P	resent Value	Decription of Cost
2019			0								
2020			0								
2021			0								
2022	3	0	0								
2023	4	1	1		\$	45,989	\$	46,908	\$	44,815	Annual O&M plus annual LFG O&M
2024	5	2	2		\$	55,989	\$	58,251	\$	53,169	Annual O&M plus annual LFG O&M plus 5 year maintenance
2025	6	3	3		\$	45,989	\$	48,803	\$	42,558	Annual O&M plus annual LFG O&M
2026	7	4	4		\$	45,989	\$	49,780	\$	41,473	Annual O&M plus annual LFG O&M
2027	8	5	5		\$	45,989	\$	50,775	\$	40,415	Annual O&M plus annual LFG O&M
2028	9	6	6		\$	45,989	\$	51,791	\$	39,384	Annual O&M plus annual LFG O&M
2029	10	7	7		\$	55.989	\$	64,313	6	46,725	Annual O&M plus annual LFG O&M plus 5 year
2029	10	1	1		Ф	55,989	Ф	64,313	9	46,723	maintenance
2030	11	8	8		\$	45,989		53,883	65	37,400	Annual O&M plus annual LFG O&M
2031	12	9	9		\$	45,989	\$	54,961	\$	36,446	Annual O&M plus annual LFG O&M
2032	13	10	10		\$	45,989	\$	56,060	\$	35,516	Annual O&M plus annual LFG O&M
2033	14	11	11		\$	45,989	\$	57,181	\$		Annual O&M plus annual LFG O&M
2034	15	12	12		\$	55,989	\$	71,007	\$	41,062	Annual O&M plus annual LFG O&M plus 5 year maintenance
2035	16	13	13		\$	45,989	\$	59,491	\$	32,867	Annual O&M plus annual LFG O&M
2036	17	14	14		\$	45,989	\$	60,681	\$	32,029	Annual O&M plus annual LFG O&M
2037	18	15	15		\$	45,989	\$	61,895	\$	31,212	Annual O&M plus annual LFG O&M
2038	19	16	16		\$	45,989		63,132			Annual O&M plus annual LFG O&M
2039	20	17	17		\$	55,989	\$	78,398		36,085	Annual O&M plus annual LFG O&M plus 5 year maintenance
2040	21	18	18		\$	45,989	\$	65,683	\$	28,884	Annual O&M plus annual LFG O&M
2041	22	19	19		\$	45,989	\$	66,997	\$	28,147	Annual O&M plus annual LFG O&M
2042	23	20	20		\$	45,989	\$	68,337	\$	27,429	Annual O&M plus annual LFG O&M
2043	24	21	21		\$	45,989	\$	69,703	\$	26,729	Annual O&M plus annual LFG O&M
2044	25	22	22		\$	55,989	\$	86,557	\$		Annual O&M plus annual LFG O&M plus 5 year maintenance
2045	26	23	23		\$	45,989	\$	72,519	\$		Annual O&M plus annual LFG O&M
2046	27	24	24		\$	45,989	\$	73,970			Annual O&M plus annual LFG O&M
2047	28	25	25		\$	45,989		75,449	\$		Annual O&M plus annual LFG O&M
2048	29	26	26		\$	45,989		76,958			Annual O&M plus annual LFG O&M
2049	30	27	27		\$	55,989	•	95,566	Ė		Appual O&M plus appual LEG O&M plus 5 year
TOTAL	COST	1		\$	- \$ 1.	301,692	\$	1,739,049	\$	924.662	

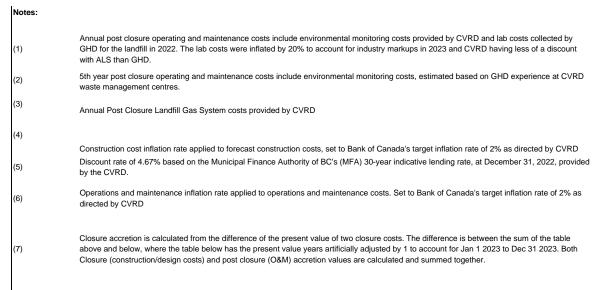


Table 3: Landfill Liability - Comox Valley Waste Management Centre - Pidgeon Lake Landfill - Accretion

Data:	11/31/2023
Landfill Cover Option	LLDPE
Landfill Closure Date	2019
Post Closure Period (years)	30
Closure construction costs	\$
Annual post closure O&M (2022\$)	\$ 15,98
5th year post closure O&M costs (2022\$)	\$ 25,98
Annual post closure LFG O&M (2022\$)	\$ 30,00
Construction cost escalation rate	2.0000%
Discount rate	4.67%
Inflation rate	2.0000%

Present Value Sum Post Closure

967,844

Year	Years Since Closure	Years for FV calcs	Years for NPV	Construction Costs Cash Flow	Ma C	onitoring / intenance ash Flow (2023 \$)	h Flow plus nflation	Pr	esent Value	Decription of Cost
2023	4	1	0		\$	45,989	\$ 46,908	\$	46,908	
2024	5	2	1		\$	55,989	\$ 58,251	\$	55,652	Annual O&M plus annual LFG O&M plus 5 year maintenance
2025	6	3	2		\$	45,989	\$ 48,803	\$	44,546	Annual O&M plus annual LFG O&M
2026	7	4	3		\$	45,989	\$ 49,780	\$	43,409	Annual O&M plus annual LFG O&M
2027	8	5	4		\$	45,989	\$ 50,775	\$	42,302	Annual O&M plus annual LFG O&M
2028	9	6	5		\$	45,989	\$ 51,791	\$	41,223	Annual O&M plus annual LFG O&M
2029	10	7	6		\$	55,989	\$ 64,313	\$	48,907	Annual O&M plus annual LFG O&M plus 5 year maintenance
2030	11	8	7		\$	45.989	\$ 53.883	\$	39.147	Annual O&M plus annual LFG O&M
2031	12	9	8		\$	45,989	\$ 54,961			Annual O&M plus annual LFG O&M
2032	13	10	9		\$	45,989	\$ 56,060			Annual O&M plus annual LFG O&M
2033	14	11	10		\$	45,989	\$ 57.181	\$		Annual O&M plus annual LFG O&M
2034	15	12	11		\$	55,989	\$ 71,007	\$	42,979	Annual O&M plus annual LFG O&M plus 5 year maintenance
2035	16	13	12		\$	45.989	\$ 59.491	\$	34 402	Annual O&M plus annual LFG O&M
2036	17	14	13		\$	45,989	\$ 60,681	\$		Annual O&M plus annual LFG O&M
2037	18	15	14		\$	45,989	\$ 61,895	\$		Annual O&M plus annual LFG O&M
2038	19	16	15		\$	45,989	\$ 63,132			Annual O&M plus annual LFG O&M
2039	20	17	16		\$	55,989	\$ 78,398	\$	37,770	Annual O&M plus annual LFG O&M plus 5 year maintenance
2040	21	18	17		\$	45.989	\$ 65.683	\$	30.233	Annual O&M plus annual LFG O&M
2041	22	19	18		\$	45,989	\$ 66,997	\$		Annual O&M plus annual LFG O&M
2042	23	20	19		\$	45,989	\$ 68,337	\$	28,710	Annual O&M plus annual LFG O&M
2043	24	21	20		\$	45,989	\$ 69,703	\$		Annual O&M plus annual LFG O&M
2044	25	22	21		\$	55,989	\$ 86,557	\$	33,192	Annual O&M plus annual LFG O&M plus 5 year maintenance
2045	26	23	22		\$	45,989	\$ 72,519	\$	26,568	Annual O&M plus annual LFG O&M
2046	27	24	23		\$	45,989	\$ 73,970	\$		Annual O&M plus annual LFG O&M
2047	28	25	24		\$	45,989	\$ 75,449	\$	25,230	Annual O&M plus annual LFG O&M
2048	29	26	25		\$	45,989	\$ 76,958	\$	24,587	Annual O&M plus annual LFG O&M
2049	30	27	26		\$	55,989	\$ 95,566	\$	29,169	Annual O&M plus annual LFG O&M plus 5 year maintenance
TOTAL	COST	<u> </u>		\$	- \$	1,301,692	\$ 1,739,049	\$	967,844	

Table 4: Landfill Liability - CVWMC - Engineered Landfill Cell 1 (Progressive Closure) - retrospective to year of opening

Data:	11/31/2023	
Landfill Cover Option	LLDPE	1
Landfill Open Date	2017	1
Landfill Closure Date (approximate)	2041	1
Post Closure Period (years)	30	1
Closure construction costs (2023\$)	\$ 7,268,952	Note 1
Annual post closure O&M (2023\$)	\$ 30,024	Note 2
5th year post closure O&M costs (2023\$)	\$ 40,024	Note 3
Annual post closure LFG O&M (2023\$)	\$ 97,800	Note 4
Construction cost escalation rate	2.0000%	Note 5
Discount rate	4.67%	Note 6
Inflation rate	2.0000%	Note 7
Closure Accretion Expense		Note 8
Post Closure Accretion Expense		Note 8
Total Accretion Expense - Closure & Post Closure		Note 8

Present Value Sum Closure
\$ 4,046,825
Present Value Sum Post Closure
\$ 4,283,416

Total PV Closure + Post Closure
\$ 8,330,240

Ammortization
\$ 347,093.35
Accumulated Ammortization
\$ 1,735,466.77

Year	Number of Years	Years Since Closure	Years for FV calcs	Years for NPV	Final Cover	Leachate Plant Operation	Construction Costs Cash Flow (2023 \$)	Post Ci Monito Maintenar Flow (oring / nce Cash	h Flow plus Inflation	Present Value	Decription of Cost
2017				0								
2018				1								
2019	3			2								
2020	4			3								
2021				4								
2022	6			5								
2023	7	0	1	6			\$			\$ -	\$	
2024	9		2	7						\$ -	\$	
2025	10		3	8	\$ 1,305,000.00		\$ 1,305,000)		\$ 1,384,876	\$ 961,243	construction + Cell 1 partial closure construction
2026	11		4	9			\$ 121,000)		\$ 130,974		LFG Infrastructure
2027	12		5	10			\$ 150,000)		\$ 165,612		LFG Infrastructure
2028	13		6	11			\$ 150,000)		\$ 168,924		LFG Infrastructure
2029	14		7	12			\$ 150,000)		\$ 172,303		LFG Infrastructure
2030	15		8	13			\$ 150,000)		\$ 175,749		LFG Infrastructure
2031	16		9	14			\$ 150,000)		\$ 179,264		LFG Infrastructure
2032	17		10	15			\$ 150,000)		\$ 182,849	\$ 92,200	LFG Infrastructure
2033	18		11	16						\$ -	\$	landfill still open. Will account for extended LFG costs to 2040 in 2024 reporting.
2034	19		12	17						\$ -	\$	landfill still open
2035	20		13	18						\$ -	\$	landfill still open
2036	21		14	19						\$ -	\$	landfill still open
2037	22		15	20						\$ -	\$	landfill still open
2038	23		16	21						\$ -	\$	landfill still open
2039	24		17	22						\$ -	\$	landfill still open
2040	25		18	23						\$ -	\$	landfill still open
2041	25		19	24	\$ 4,942,952.00		\$ 4,942,952	2		\$ 7,200,948	\$ 2,407,999	Final Cover Closure of Cell 1 & Cell 2
2042	27	1	20	25		\$ 530,000.00		\$	127,824	\$ 977,492	\$ 312,290	Annual O&M + Leachate Plant Operation
2043	28	2	21	26		\$ 530,000.00		\$	127,824	\$ 997,041	\$ 304,323	Annual O&M + Leachate Plant Operation
2044	29	3	22	27		\$ 425,000.00		\$	127,824	\$ 854,654		Annual O&M + Leachate Plant Operation
2045	30	4	23	28		\$ 285,000.00		\$	127,824	\$ 650,982		Annual O&M + Leachate Plant Operation
2046	31	5	24	29		\$ 264,000.00		\$	137,824	\$ 646,308	\$ 172,026	Annual O&M and allowance for 5 year maintenance
2047		6	25	30		\$ 264,000.00		\$	127,824	\$ 642,828		Annual O&M + Leachate Plant Operation
2048	31	7	26	31		\$ 264,000.00		\$	127,824	\$ 655,685	\$ 159,297	
2049		8	27	32		\$ 264,000.00		\$	127,824	\$ 668,799		Annual O&M + Leachate Plant Operation
2050	31	9	28	33		\$ 264,000.00		\$	127,824	\$ 682,175		Annual O&M + Leachate Plant Operation
2051		10	29	34		\$ 264,000.00		\$	137,824	\$ 713,577	\$ 151,177	
2052	31	11	30	35		\$ 264,000.00		\$	127,824	\$ 709,735		Annual O&M + Leachate Plant Operation
2053		12	31	36		\$ 264,000.00		\$	127,824	\$ 723,929		Annual O&M + Leachate Plant Operation
2054		13	32	37		\$ 264,000.00		\$	127,824	\$ 738,408		Annual O&M + Leachate Plant Operation
2055		14	33	38		\$ 264,000.00		\$	127,824	\$ 753,176		Annual O&M + Leachate Plant Operation
2056		15	34	39		\$ 264,000.00		\$	137,824	\$ 787,846	\$ 132,854	
2057		16	35	40		\$ 264,000.00		\$	127,824	\$ 783,604		Annual O&M + Leachate Plant Operation
2058	-	17	36	41		\$ 264,000.00		\$	127,824	\$ 799,276	\$ 123,023	
2059	-	18	37	42		\$ 264,000.00		\$	127,824	\$ 815,262	\$ 119,885	
2060	-	19	38	43 44		\$ 264,000.00		\$	127,824	\$ 831,567	\$ 116,827	
2061	-	20	39			\$ 264,000.00		\$	137,824	\$ 869,846		2 Annual O&M and allowance for 5 year maintenance
2062		21	40 41	45 46		\$ 264,000.00		\$	127,824	\$ 865,162	\$ 110,942	
2063		22 23	41 42	46 47		\$ 264,000.00 \$ 264,000.00		\$	127,824 127,824	\$ 882,466 900.115		2 Annual O&M + Leachate Plant Operation
2064		23	42	48		\$ 264,000.00 \$ 264,000.00		\$	127,824	\$ 900,115	\$ 105,355 \$ 102,667	
		25	43	48 49		\$ 264,000.00		\$	127,824	\$	\$ 102,667	
2066		26	44 45	50		\$ 264,000.00		\$	137,824	\$ 960,380 955,209	\$ 102,602 \$ 97,496	
2067		26	45 46	51		\$ 264,000.00		\$	127,824	\$ 955,209	\$ 97,496	
2068		28	46	52		\$ 264,000.00		\$	127,824	\$ 974,313	\$ 95,000	
2069		28	48	53		\$ 264,000.00		\$	127,824	\$ 1,013,676		Annual O&M + Leachate Plant Operation Annual O&M + Leachate Plant Operation
2070		30	48	54		\$ 264,000.00		\$	137,824	\$ 1,060,337		Annual O&M + Leachate Plant Operation Annual O&M and allowance for 5 year maintenance
TOTAL C	OST.	30	49	54			¢ 7,000,000			\$		
TOTAL	USI					\$ 8,634,000.00	\$ 7,268,952	\$	3,894,714	\$ 34,587,267	\$ 8,330,240	<u> </u>

Table 4: Landfill Liability - CVWMC - Engineered Landfill Cell 1 (Progressive Closure)

Data:	11/31/202	
Landfill Cover Optio	LLDPE	
Landfill Open Dat	2017	
Landfill Closure Date (approximat	2041	
Post Closure Period (vears	30	
Closure construction costs (2023\$	\$ 7,268,95	Note 1
Annual post closure O&M (2023:	\$ 30,02	Note 2
5th year post closure O&M costs (2023	\$ 40,02	Note 3
Annual post closure LFG O&M (2023	\$ 97,80	Note 4
Construction cost escalation rat	2.0000%	Note 5
Discount rate	4.67%	Note 6
Inflation rate	2.0000%	Note 7
Closure Accretion Expense	\$ 237,433.7	Note 8
Post Closure Accretion Expens	\$ 251,314.8	Note 8
Total Aperation Europea Clasura & Boot Clasura	\$ 400 740 6	NIOSO C

Present Value Sum Closur \$ 5,084,2 Present Value Sum Post Closu \$ 5,381,4 Total PV Closure + Post Closur \$ 10.465.70

Year	Years Since Closure	Years for FV calcs	Years for NPV	Final Cover	Leachate Plant Operation	Construction Costs Cash Flow (2023 \$)	Post Closure Monitoring / Maintenance Cash Flow (202 \$)	Cash Flow plus Inflation		Present Value	Decription of Cost
2017			-5								
2018			-4								
2019			-3								
2020			-2								
2021			-1								
2022			0								
2023	0	1 2	2		i	\$		\$ \$. §		randini suii oper
2024 2025		3	3	\$ 1,305,000.0		\$ 1,305,00		\$ 1,384.8	. ş		Cell 1 design for partial closure/gas collection construction + Cell 1 partial closure construc
202€		4	4	3 1.305.000.0		\$ 1,303,00		\$ 1,304,0		1,207,	Cell 1 design for partial closure/das collection construction ± Cell 1 harrial closure construc LFG Intrastructure
2027		5	5			\$ 150.00		\$ 165.6		131	LFG Inirastructuri
2028		6	6			\$ 150,00		\$ 168,9		128,	EFG inirastructure
2029		7	7			\$ 150,00		\$ 172,3			LFG mirastructuri
2030		8	8			\$ 150,00		\$ 175,7		121,	LFG mirastructuri
2031		9	9			\$ 150,00		\$ 179,2			EFG mirastructuri
2032		10 11	10			\$ 150,00		\$ 182,8 \$. 5		landini stili open. Wili account for extended LFG costs to 2040 in 2024 repor
2033		12	12					\$ \$. 9		nandnii suii oper
2035		13	13					Š	. 9		randilii stili oper
203€		14	14					Š	. 9		nandnii siiii oper
2037		15	15					\$. 9		landfill still oper
2038		16	16					\$. 9		landfill still oper
2039		17	17					\$	٠ Ş		landfill still oper
2040		18	18					\$. 9		landfill still oper Final Cover Closure of Cell 1 & Cell
2041	1	19 20	19 20	\$ 4,942,952.0	\$ 530,000.0	\$ 4,942,95	\$ 127.82	\$ 7,200,9 \$ 977.4			Annual O&M + Leachate Plant Operati
2042	2	21	21		\$ 530,000.0		\$ 127.82	\$ 997.0			Annual O&M + Leachate Plant Operati
2044	3	22	22		\$ 425,000.0		\$ 127.82	\$ 854.6			Annual O&M + Leachate Plant Operati
2045	4	23	23		\$ 285,000.0		\$ 127,82	\$ 650,9		227.	Annual O&M + Leachate Plant Operati
204€	5	24	24		\$ 264,000.0		\$ 137,82	\$ 646,3		216,	Annual O&M and allowance for 5 year maintena
2047	6	25	25		\$ 264,000.0		\$ 127,82	\$ 642,8			Annual O&M + Leachate Plant Operati
2048	7	26 27	26 27		\$ 264,000.0		\$ 127,82 \$ 127.82				Annual O&M + Leachate Plant Operati Annual O&M + Leachate Plant Operati
2049 2050	8 9	28	28		\$ 264,000.0 \$ 264,000.0		\$ 127,82 \$ 127.82	\$ 668,7 \$ 682.1			Annual O&M + Leachate Plant Operati Annual O&M + Leachate Plant Operati
2051	10	29	29		\$ 264,000.0		\$ 137.82	\$ 713.5			Annual O&M and allowance for 5 year maintena
2052	11	30	30		\$ 264,000.0		\$ 127.82	\$ 709.7			Annual O&M + Leachate Plant Operati
2053	12	31	31		\$ 264,000.0		\$ 127,82	\$ 723,9			Annual O&M + Leachate Plant Operati
2054	13	32	32		\$ 264,000.0		\$ 127,82				Annual O&M + Leachate Plant Operati
2055	14	33	33		\$ 264,000.0		\$ 127,82	\$ 753,1			Annual O&M + Leachate Plant Operati
205€	15	34	34		\$ 264,000.0		\$ 137,82	\$ 787,8			Annual O&M and allowance for 5 year maintena
2057 2058	16 17	35 36	35 36		\$ 264,000.0 \$ 264,000.0		\$ 127,82 \$ 127.82	\$ 783,6 \$ 799.2			Annual O&M + Leachate Plant Operati Annual O&M + Leachate Plant Operati
2058	17	36	36		\$ 264,000.0		\$ 127,83 \$ 127.83	\$ 799,2			Annual O&M + Leachate Plant Operati
2060	19	38	38		\$ 264,000.0		\$ 127.82	\$ 831.5			Annual O&M + Leachate Plant Operati
2061	20	39	39		\$ 264,000.0		\$ 137.82	\$ 869.8			Annual O&M and allowance for 5 year maintena
2062	21	40	40		\$ 264,000.0		\$ 127,82	\$ 865,1	\$	139,	Annual O&M + Leachate Plant Operati
2063	22	41	41		\$ 264,000.0		\$ 127,82	\$ 882,4			Annual O&M + Leachate Plant Operati
2064	23	42	42		\$ 264,000.0		\$ 127,82	\$ 900,1			Annual O&M + Leachate Plant Operati
2065	24	43	43		\$ 264,000.0		\$ 127,82	\$ 918,1			Annual O&M + Leachate Plant Operati
2066 2067	25 26	44 45	44 45		\$ 264,000.0 \$ 264,000.0		\$ 137,82 \$ 127.82	\$ 960,3 \$ 955,2			Annual O&M and allowance for 5 year maintena Annual O&M + Leachate Plant Operati
2067	26 27	45 46	46		\$ 264,000.0		\$ 127,83 \$ 127.83	\$ 955,2 \$ 974.3			Annual O&M + Leachate Plant Operati
2069	28	46	40		\$ 264,000.0		\$ 127.82	S 974,3			Annual O&M + Leachate Plant Operati
2070	29	48	48		\$ 264,000.0		\$ 127.82	\$ 1.013.6			Annual O&M + Leachate Plant Operati
2071	30	49	49		\$ 264,000.0		\$ 137,82	\$ 1,060,3			Annual O&M and allowance for 5 year maintena
TOTAL C	OST				\$ 8,634,0	00\$ 7,268,9	2\$ 3,894,71			10,465,	709
										,	

Notes:	
(1)	

(5)

(6) (7)

(8)

Construction Closure costs in 2023\$ from CVRD financial plan schedules. Final Cover construction for the remainder of Cell 1 and Cell 2 was estimated by GHD using the 3D surface area of the design contours of 81032m2 at \$61/m2 as estimated from similar landfill closure projects completed by GHD.

Annual post closure operating and maintenance costs include environmental monitoring costs provided by CVRD and lab costs collected by GHD for the landfill in 2022. The lab costs were inflated by 20% to account for industry markups in 2023 and CVRD having less of a discount with ALS than GHD. (2)

(3) 5th year post closure operating and maintenance costs include environmental monitoring costs, estimated based on GHD experience at CVRD waste management centres.

(4)

Annual Post Closure Landfill Gas System costs calculated assuming landfill gas collection system will be finalized in 2024. E was provided by CVRD

Construction cost inflation rate applied to forecast construction costs, set to Bank of Canada's target inflation rate of 2% as directed by CVRD
Discount rate of 4.67% based on the Municipal Finance Authority of BC's (MFA) 30-year indicative lending rate, at December 31, 2022, provided by the CVRD.

Operations and maintenance inflation rate applied to operations and maintenance costs. Set to Bank of Canada's target inflation rate

of 2% as directed by CVRD

Closure accretion is calculated from the difference of the present value of two closure costs. The difference is between the sum of the table above and below, where the table below has the present value years artificially adjusted by 1 to account for Jan 1 2023 to Dec 31 2023. Both Closure (construction/design costs) and post closure (O&M) accretion values are calculated and summed

together.

Internal note:

Instructions on Section PS 3280 - Asset retirement obligations calcs can be found here:

2020 06 PSAS 3280 Asset Retirement Obligations - FINAL (mnp.ca)

Data:	11/	31/202
Landfill Cover Optio	L	LDPE
Landfill Closure Date (approximat		2024
Post Closure Period (years		30
Closure construction costs (2022\$) (2021-2030 P	\$	7,268,9
Annual post closure O&M (2022!	\$	30,0
5th year post closure O&M costs (2022	\$	40,0
Annual post closure LFG O&M (2022	\$	97,8
Construction cost escalation rat	2.	0000%
Discount rate	4	.67%
Inflation rate	2.	0000%

Present Value Sum Closur \$ 5,321,6 Present Value Sum Post Closu \$ 5,632,7

150k is LFG infrastructure from capital plan

Year	Years Since Closure	Years for FV calcs	Years for NPV	Final Cover	Leachate Plant Operation	Construction Costs Cash Flow (2023 \$)	Post Closure Monitoring / Maintenance Cash Flow (202		Flow plus flation		Present Value	Decription of Cost
2023		1	0									
2024		2	1					S		· \$		Cell 1 partial closure constructio
2025		3	2	92		\$ 1,305.00	0	S	1.384.87	766	1.264.	15/11 1 partial closure construction
202€		4	3			\$ 121,00		\$	130,9	\$	114,	Annual O&M
2027		5	4			\$ 150.00		S	165.6	s	137.	Annual O&M
2028		6	5			\$ 150,00	0	\$	168,92	24\$	134,	∯gnual O&M
2029		7	6			\$ 150.00		S	172.3	S	131	Annual O&M and allowance for 5 year maintena
2030		8	7			\$ 150,00		\$	175,7	\$	127,	Annual O&M
2031		9	8			\$ 150,00	0	\$	179,2	346	124,	∯gnual O&M
2032		10	9			\$ 150,00		\$	182,8	\$	121,	Annual O&M
2033		11	10					\$		٠\$		
2034		12	11					\$		- \$		
2035		13	12					\$. \$		
203€		14	13					\$. \$		
2037		15	14					\$		- \$		•
2038		16	15					\$		· \$		
2039		17	16					\$. \$		
2040		18	17					\$		- \$		•
2041		19	18	\$ 4,942,952.0		\$ 4,942,95		\$	7,200,9	\$	3,166,	Final Cover Closure of Cell 1 & Cell
2042	1	20	19		\$ 530,000.0		\$ 127,82	\$	977,4	\$		Annual O&M + Leachate Plant Operati
2043	2	21	20		\$ 530,000.0	0	\$ 127,82	:4\$	997,04	1\$	400,	Agnual O&M + Leachate Plant Operati
2044	3	22	21		\$ 425,000.0		\$ 127,82	\$	854,6	\$	327,	Annual O&M + Leachate Plant Operati
2045	4	23	22		\$ 285,000.0		\$ 127,82	\$	650,9	\$	238,	Annual O&M + Leachate Plant Operati
2046	5	24	23		\$ 264,000.0	0	\$ 137,82	:4\$	646,3)8\$	226,	249nual O&M and allowance for 5 year maintenance
2047	6	25	24		\$ 264,000.0		\$ 127,82	\$	642,8	\$	214,	Annual O&M + Leachate Plant Operati
2048	7	26	25		\$ 264,000.0		\$ 127,82	\$	655,6	\$		Annual O&M + Leachate Plant Operati
2049	8	27	26		\$ 264,000.0	0	\$ 127,82	:4\$	668,79	93\$	204,	Agenual O&M + Leachate Plant Operati
2050	9	28	27		\$ 264,000.0		\$ 127,82	\$	682,1	\$	198,	Annual O&M + Leachate Plant Operati
2051	10	29	28		\$ 264,000.0		\$ 137,82	\$	713,5	\$	198,	Annual O&M and allowance for 5 year maintena
2052	11	30	29		\$ 264,000.0	0	\$ 127,82	4\$	709,73	35\$		Agenual O&M + Leachate Plant Operati
2053	12	31	30		\$ 264,000.0		\$ 127,82	\$	723,9	\$		Annual O&M + Leachate Plant Operati
2054	13	32	31		\$ 264,000.0		\$ 127,82	\$	738,4	\$		Annual O&M + Leachate Plant Operati
2055	14	33	32		\$ 264,000.0	0	\$ 127,82	:4\$	753,17	76\$	174,	Anghual O&M + Leachate Plant Operati
205€	15	34	33		\$ 264,000.0		\$ 137,82	\$	787,8	\$		Annual O&M and allowance for 5 year maintena
2057	16	35	34		\$ 264,000.0		\$ 127,82	\$	783,6	\$		Annual O&M + Leachate Plant Operati
2058	17	36	35		\$ 264,000.0	0	\$ 127,82	:4\$	799,27	76\$		Amgnual O&M + Leachate Plant Operati
2059	18	37	36		\$ 264,000.0		\$ 127,82	\$	815,2	\$		Annual O&M + Leachate Plant Operati
2060	19	38	37		\$ 264,000.0		\$ 127,82	\$	831,5	\$		Annual O&M + Leachate Plant Operati
2061	20	39	38		\$ 264,000.0		\$ 137,82	\$	869,8	\$		Annual O&M and allowance for 5 year maintena
2062	21	40	39		\$ 264,000.0		\$ 127,82	\$	865,1	\$		Annual O&M + Leachate Plant Operati
2063	22	41	40		\$ 264,000.0		\$ 127,82	3	882,4	\$		Annual O&M + Leachate Plant Operati Annual O&M + Leachate Plant Operati
2064	23		41		\$ 264,000.0		\$ 127,82 \$ 127.82	3	900,1	\$		Annual O&M + Leachate Plant Operati
206€	24 25	43 44	42		\$ 264,000.0 \$ 264,000.0		\$ 127,82 \$ 137.82	0	918,1 960.3	9		Annual O&M + Leachate Plant Operati Annual O&M and allowance for 5 year maintena
2067	26	45	44		\$ 264,000.0	0	\$ 137,82	AC.	955.20	AL.	134,	Appual O&M + Leachate Plant Operati
2067	27	45	45		\$ 264,000.0	U	\$ 127,82	40	974.3	- C		Annual O&M + Leachate Plant Operati
2069	28	46	46		\$ 264,000.0		\$ 127,82			ę.		Annual O&M + Leachate Plant Operati
2069	28	48	46		\$ 264,000.0	0	\$ 127,82 \$ 127.82	- AC	1.013.67	Ψ	121,	Annual Oakii + Leachate Plant Operati
2070	30	48	48		\$ 264,000.0	0	\$ 127,82		1,013,67	- Qu		Annual O&M and allowance for 5 year maintena
TOTAL C		49	48		\$ 264,000.0	\$ 7,268,9		46	34,587,26	3	118,	
INIAL	001					a 7,268,9	3,894,7	49	34,587,25		10,954,	NOO

Table 5: Landfill Liability Assessment - Gold River Landfill - Retrospective to year of opening

Data:	11/31/2023		
Landfill Cover Option	GCL	-	
Landfill Open Date	1992		
Landfill Closure Date (approximate)	2030		
Post Closure Period (years)	30		
Closure Costs (2023\$)	\$ 1,813,823	Note 1	Present Value Clo
Annual post closure O&M (2023\$)	\$ 20,133	Note 2	\$
5th year post closure O&M costs (2023\$)	\$ 40,133	Note 3	Present Value Pos
Construction cost escalation rate	2.0000%	Note 4	\$
Discount rate	4.67%	Note 5	Total PV Closure
Inflation rate	2.0000%	Note 6	\$
		1	Ammortization
			\$
			accumulated ami

Present Value Closure Sum
\$ 375,104.06
Present Value Post Closure Sum
\$ 101,967

Total PV Closure + Post Closure
\$ 477,071.51

Ammortization
\$ 12,554.51

accumulated ammortization
\$ 376,635.40

2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037	0 0 0 0 0 0 0 0 0	1 2 3 4 5 6 7 8	30 31 32 33 34 35 36					
2020 2022 2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037	0 0 0 0 0 0 0 0	2 3 4 5 6 7	31 32 33 34 35 36					
2022 2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037	0 0 0 0 0 0 0 0	2 3 4 5 6 7	31 32 33 34 35 36					
2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037	0 0 0 0 0 0 0 0	2 3 4 5 6 7	31 32 33 34 35 36					
2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037	0 0 0 0 0 0 0 0	2 3 4 5 6 7	32 33 34 35 36					
2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037	0 0 0 0 0 0 0	3 4 5 6 7	33 34 35 36					Landfill still open
2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037	0 0 0 0 0 0	4 5 6 7	34 35 36					Landfill still open
2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037	0 0 0 0 0	5 6 7	35 36					Landfill still open
2028 2029 2030 2031 2032 2033 2034 2035 2036 2037	0 0 0 1	6 7	36					Landfill still open
2029 2030 2031 2032 2033 2034 2035 2036 2037	0 0 1	7						Landfill still open
2030 2031 2032 2033 2034 2035 2036 2037	0		^=					Landfill still open
2031 2032 2033 2034 2035 2036 2037	1	8 1	37			-	-	Landfill still open
2032 2033 2034 2035 2036 2037			38	1,813,823		2,125,183		DOC Plan and Closure construction
2033 2034 2035 2036 2037	2	9	39		20,133	24,060		Annual O&M
2034 2035 2036 2037		10	40		20,133	24,542		Annual O&M
2035 2036 2037	3	11	41		20,133	25,032		Annual O&M
2036 2037	4	12	42		20,133	25,533		Annual O&M
2037	5	13	43		40,133	51,916		maintenance
	6	14	44		20,133	26,565		Annual O&M
2038	7	15	45		20,133	27,096	-, -	Annual O&M
	8	16	46		20,133	27,638		Annual O&M
	9	17	47		20,133	28,191	,	Annual O&M
	10	18	48		40,133	57,319		maintenance
	11	19	49		20,133	29,329		Annual O&M
	12	20	50		20,133	29,916		Annual O&M
	13	21	51		20,133	30,514		Annual O&M
	14	22	52		20,133	31,125		Annual O&M
	15	23	53		40,133	63,285		maintenance
	16	24	54		20,133	32,382	, -	Annual O&M
	17	25	55		20,133	33,030		Annual O&M
	18	26	56		20,133	33,690	,	Annual O&M
	19	27	57		20,133	34,364		Annual O&M
	20	28	58		40,133	69,872	,	maintenance
	21	29	59		20,133	35,752		Annual O&M
	22	30	60		20,133	36,467		Annual O&M
	23	31	61		20,133	37,197		Annual O&M
	24	32	62		20,133	37,941	,	Annual O&M
	25	33	63		40,133	77,144	,	maintenance
	26	34	64		20,133	39,474		Annual O&M
	27	35	65		20,133	40,263	, -	Annual O&M
	28	36	66		20,133	41,068		Annual O&M
	29	37	67		20,133	41,890	-	Annual O&M
TOTAL COST	30	38	68	\$1,813,823	40,133 \$723,978	85,173 \$3,302,950	3,823 \$477,072	maintenance

Table 5: Landfill Liability Assessment - Gold River Landfill

Data:	11/31/2023	
Landfill Cover Option	GCL	
Landfill Closure Date (approximate)	2030	
Post Closure Period (years)	30	
Closure Costs (2023\$)	\$ 1,813,823	Note 1
Annual post closure O&M (2023\$)	\$ 20,133	Note 2
5th year post closure O&M costs (2023\$)	\$ 40,133	Note 3
Construction cost escalation rate	2.0000%	Note 4
Discount rate	4.67%	Note 5
Inflation rate	2.0000%	Note 6
Closure Accretion Expenses	\$ 68,886.7	70 Note 7
Post Closure Accretion Expenses	\$ 18,726.0)1 Note 7
Total Accretion Expenses	\$ 87,612.7	70 Note 7

1,475,089.89
400,985
1,876,075.05

Year	Years Since Closure	Years for FV	Years for PV	Construction Cash Flow 2023\$	N	Monitoring/ laintenance Cash Flow (2023\$)	C	Cash Flow plus Inflation	Р	resent Value	Description of Cost
2022			0								
2023	0	1	1								Landfill still open
2024	0	2	2								Landfill still open
2025	0	3	3								Landfill still open
2026	0	4	4								Landfill still open
2027	0	5	5								Landfill still open
2028	0	6	6								Landfill still open
2029	0	7	7				\$	-	\$	-	Landfill still open
2030	0	8	8	\$ 1,813,823			\$	2,125,183	\$	1,475,090	Closure engineering based on option 2 DOC plan + Closure construction
2031	1	9	9		\$	20,133	\$	24,060	\$	15,955	Annual O&M
2032	2	10	10		\$	20,133	\$	24,542	\$	15,548	Annual O&M
2033	3	11	11		\$	20,133	\$	25,032	\$	15,152	Annual O&M
2034	4	12	12		\$	20,133	\$	25,533			Annual O&M
2035	5	13	13		\$	40,133	\$	51,916	\$	28,682	Annual O&M plus allowance for 5 year maintenance
2036	6	14	14		\$	20,133	\$	26,565	\$	14,021	Annual O&M
2037	7	15	15		\$	20,133	\$	27,096			Annual O&M
2038	8	16	16		\$	20,133	\$	27,638	\$		Annual O&M
2039	9	17	17		\$	20,133	\$	28,191	\$		Annual O&M
2040	10	18	18		\$	40,133	\$	57,319	_		Annual O&M plus allowance for 5 year maintenance
2041	11	19	19		\$	20,133	\$	29.329	\$		Annual O&M
2042	12	20	20		\$	20,133	\$	29,916	\$,-	Annual O&M
2043	13	21	21		\$	20,133	\$				Annual O&M
2044	14	22	22		\$	20,133	\$	31,125	\$		Annual O&M
2045	15	23	23		\$	40,133	\$	63,285		22,151	Annual O&M plus allowance for 5 year maintenance
2046	16	24	24		\$	20,133	\$	32,382	\$		Annual O&M
2047	17	25	25		\$	20,133	\$	33,030	\$	10,552	Annual O&M
2048	18	26	26		\$	20,133	\$	33,690	\$	10,283	Annual O&M
2049	19	27	27		\$	20,133	\$	34,364			Annual O&M
2050	20	28	28		\$	40,133	\$	69,872	_		Annual O&M plus allowance for 5 year maintenance
2051	21	29	29		\$	20,133	\$	35,752	\$		Annual O&M
2052	22	30	30		\$	20,133	\$	36,467	\$	9,273	Annual O&M
2053	23	31	31		\$	20,133	\$	37,197	\$		Annual O&M
2054	24	32	32		\$	20,133	\$	37,941	\$		Annual O&M
2055	25	33	33		\$	40,133	\$	77,144	_		Annual O&M plus allowance for 5 year maintenance
2056	26	34	34		\$	20,133	\$	39,474	\$		Annual O&M
2057	27	35	35		\$	20,133	\$	40,263	\$	- 1	Annual O&M
2058	28	36	36		\$	20,133	\$	41,068	\$		Annual O&M
2059	29	37	37		\$	20,133	\$	41,890	_		Annual O&M
2060	30	38	38		\$	40,133	\$	85,173		,	Annual O&M plus allowance for 5 year maintenance
TOTAL C				\$1,813,823	Ψ	\$723,978	Ť	\$3,302,950		\$1,876,075	place and railed for a year maintenance
lotes:				71,010,020		Ţ. _ 0,010		ŢŪ,00 <u>Z</u> ,000	_	Ţ.,O.O,O.O	

Construction Closure costs in 2023\$ from CVRD financial plan schedules.

Annual post closure operating and maintenance costs include environmental monitoring costs provided by CVRD and lab costs collected by GHD for the landfill in 2022. The lab costs were inflated by 20% to account for industry markups in 2023 and CVRD having less of a discount with ALS than GHD.

5th year post closure operating and maintenance costs include environmental monitoring costs, estimated based on GHD experience at CVRD waste management centres.

Construction cost inflation rate applied to forecast construction costs, set to Bank of Canada's target inflation rate of 2% as directed by CVRD Discount rate of 4.67% based on the Municipal Finance Authority of BC's (MFA) 30-year indicative lending rate, at December 31, 2022, provided by the CVRD.

Operations and maintenance inflation rate applied to operations and maintenance costs. Set to Bank of Canada's target inflation rate of 2% as directed by CVRD

Closure accretion is calculated from the difference of the present value of two closure costs. The difference is between the sum of the table above and below, where the table below has the present value years artificially adjusted by 1 to account for Jan 1 2023 to Dec 31 2023. Both Closure (construction/design costs) and post closure (O&M) accretion values are calculated and summed together.

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Table 5: Landfill Liability Assessment - Gold River Landfill - Accretion

Data:	11/31/2023
Landfill Cover Option	GCL
Landfill Closure Date (approximate)	2030
Post Closure Period (years)	30
Closure Costs (2022\$) (2021-2030 PB)	\$ 1,813,823
Annual post closure O&M (2022\$)	\$ 20,133
5th year post closure O&M costs (2022\$)	\$ 40,133
Construction cost escalation rate	2.0000%
Discount rate	4.67%
Inflation rate	2.0000%

Present Value Closure Sum \$ 1,543,976.58 Present Value Post Closure Sum \$ 419,711

Year	Years Since Closure	Years for FV	Years for PV	Construction Cash Flow 2022\$	1	Monitoring/ Maintenance Cash Flow (2022\$)	,	Cash Flow plus Inflation	Pre	esent Value	Description of Cost
2023	0	1	0								
2024	0	2	1								Landfill still open
2025	0	3	2								Landfill still open
2026	0	4	3								Landfill still open
2027	0	5	4								Landfill still open
2028	0	6	5								Landfill still open
2029	0	7	6				\$	-	\$	-	Closure engineering based on option 2 DOC plan
2030	0	8	7	\$ 1,813,823			\$	2,125,183	\$	1,543,977	Closure construction
2031	1	9	8	, , , , , , ,	\$	20,133	\$	24,060	\$		Annual O&M
2032	2	10	9		\$	20,133	\$	24,542	\$	16,274	Annual O&M
2033	3	11	10		\$	20,133	\$	25,032	\$	15,859	Annual O&M
2034	4	12	11		\$	20,133	\$	25,533	\$	15,455	Annual O&M
2035	5	13	12		\$	40,133	\$	51,916	\$	30,022	Annual O&M plus allowance for 5 year maintenance
2036	6	14	13		\$	20,133	\$	26,565	\$		Annual O&M
2037	7	15	14		\$	20,133	\$	27,096	\$	14,302	Annual O&M
2038	8	16	15		\$	20,133	\$	27,638	\$	13,937	Annual O&M
2039	9	17	16		\$	20,133	\$	28,191	\$	13,581	Annual O&M
2040	10	18	17		\$	40,133	\$	57,319	\$	26,383	Annual O&M plus allowance for 5 year maintenance
2041	11	19	18		\$	20,133	\$	29,329	\$		Annual O&M
2042	12	20	19		\$	20,133	\$	29,916	\$	12,568	Annual O&M
2043	13	21	20		\$	20,133	\$	30,514	\$	12,248	Annual O&M
2044	14	22	21		\$	20,133	\$	31,125	\$	11,935	Annual O&M
2045	15	23	22		\$	40,133	\$	63,285	\$	23,185	Annual O&M plus allowance for 5 year maintenance
2046	16	24	23		\$	20,133	\$	32,382	\$	11,334	Annual O&M
2047	17	25	24		\$	20,133	\$	33,030	69	11,045	Annual O&M
2048	18	26	25		\$	20,133	\$	33,690	69	10,763	Annual O&M
2049	19	27	26		\$	20,133	\$	34,364	\$		Annual O&M
2050	20	28	27		\$	40,133	\$	69,872	\$		Annual O&M plus allowance for 5 year maintenance
2051	21	29	28		\$	20,133	\$	35,752	\$		Annual O&M
2052	22	30	29		\$	20,133	\$	36,467	\$		Annual O&M
2053	23	31	30		\$	20,133	\$	37,197	\$		Annual O&M
2054	24	32	31		\$	20,133	\$	37,941	\$		Annual O&M
2055	25	33	32		\$	40,133	\$	77,144	\$		Annual O&M plus allowance for 5 year maintenance
2056	26	34	33		\$	20,133	\$	39,474	\$		Annual O&M
2057	27	35	34		\$	20,133	\$	40,263	\$		Annual O&M
2058	28	36	35		\$	20,133	\$	41,068	\$		Annual O&M
2059	29	37	36		\$	20,133	\$	41,890	\$	-,	Annual O&M
2060	30	38	37		\$	40,133	\$	85,173	\$		Annual O&M plus allowance for 5 year maintenance
TOTAL C	OST			\$1,813,823		\$723,978		\$3,302,950	\$	1,963,688	

Table 6: Landfill Liability Assessment - Tahsis Waste Management Centre - Retrospective to year of opening

Data:	11/31/2023		
Landfill Cover Option	GCL		
Landfill Open Date	1988		
Landfill Closure Date (approximate)	2031		
Post Closure Period (years)	30		
Landfill Capacity at Closure (m3)	114,553		
Closure Costs (2023\$)	\$ 1,896,440	Note 1	Р
Annual post closure O&M (2023\$)	\$ 7,023	Note 2	9
5th year post closure O&M costs (2023\$)	\$ 27,023	Note 3	Р
Construction cost escalation rate	2.0000%	Note 4	9
Discount rate	4.67%	Note 5	T
Inflation rate	2.0000%	Note 6	9
			Α
			9
			A

Present Value Closure Sum	\$ 318,409
Present Value Post Closure Sum	\$ 37,431
Total PV Closure + Post Closure	\$ 355,840
Ammortization	\$ 8,275.35
Accumulated Ammortization	\$ 281.362.02

	Vasus		1							\$ 281,362.02
	V				8.4					·
Year	Years Since Closure	Years for FV	Years for PV	Construction Cash Flow 2023\$	Ma Ca	onitoring/ intenance ash Flow (2023\$)	Cash Flow plus Inflation		Present Value	Description of Cost
2022			34							
2023	0	1	35							Landfill still open
2024	0	2	36				\$ -	\$	-	Landfill still open
2025	0	3	37				\$ -	\$	-	Landfill still open
2026	0	4	38				\$ -	\$	-	Landfill still open
2027	0	5	39				\$ -	\$	-	Landfill still open
2028	0	6	40				\$ -	\$	-	Landfill still open
2029	0	7	41				\$ -	\$	-	Landfill still open
2030	0	8	42				\$ -	\$	-	
2031	0	9	43	\$ 1,896,440			\$ 2,266,421	\$	318,409	Final closure engineering + Final closure construction/final capping
2032	1	10	44		\$	7,023	\$ 8,561	\$	1,149	Annual O&M
2033	2	11	45		\$	7,023	\$ 8,733	\$	1,120	Annual O&M
2034	3	12	46		\$	7,023	\$ 8,907	\$	1,091	Annual O&M
2035	4	13	47		\$	7,023	\$ 9,086	\$	1,063	Annual O&M
		14				,	,	\$,	Annual O&M plus allowance for 5 year
2036	5	14	48		\$	27,023	\$ 35,657	Ф	3,987	maintenance
2037	6	15	49		\$	7,023	\$ 9,453	\$	1,010	Annual O&M
2038	7	16	50		\$	7,023	\$ 9,642	\$	984	Annual O&M
2039	8	17	51		\$	7,023	\$ 9,834	\$	959	Annual O&M
2040	9	18	52		\$	7,023	\$ 10,031	\$	935	Annual O&M
2041	10	19	53		\$	27,023	\$ 39,368	\$	3,504	Annual O&M plus allowance for 5 year maintenance
2042	11	20	54		\$	7,023	\$ 10,436	\$	887	Annual O&M
2043	12	21	55		\$	7,023	\$ 10,645	\$	865	Annual O&M
2044	13	22	56		\$	7,023	\$ 10,858	\$	843	Annual O&M
2045	14	23	57		\$	7,023	\$ 11,075	\$	821	Annual O&M
2046	15	24	58		\$	27,023	\$ 43,465	\$	3,079	Annual O&M plus allowance for 5 year maintenance
2047	16	25	59		\$	7,023	\$ 11,523	\$	780	Annual O&M
2048	17	26	60		\$	7,023	\$ 11,753	\$	760	Annual O&M
2049	18	27	61		\$	7,023	\$ 11,988	\$	741	Annual O&M
2050	19	28	62		\$	7,023	\$ 12,228	\$	722	Annual O&M
2051	20	29	63		\$	27,023	\$ 47,989	\$	2,706	Annual O&M plus allowance for 5 year maintenance
2052	21	30	64		\$	7,023	\$ 12,722	\$	685	Annual O&M
2053	22	31	65		\$	7,023	\$ 12,976	\$	668	Annual O&M
2054	23	32	66		\$	7,023	\$ 13,236	\$	651	Annual O&M
2055	24	33	67		\$	7,023	\$ 13,501	\$	634	Annual O&M
2056	25	34	68		\$	27,023	\$ 52,984	\$	2,378	Annual O&M plus allowance for 5 year maintenance
2057	26	35	69		\$	7,023	\$ 14,046	\$	602	Annual O&M
2058	27	36	70		\$	7,023	\$ 14,327	\$	587	Annual O&M
2059	28	37	71		\$	7,023	\$ 14,613	\$	572	Annual O&M
2060	29	38	72		\$	7,023	\$ 14,906	\$	557	Annual O&M
2061	30	39	73		\$	27,023	\$ 58,499	\$	2,090	Annual O&M plus allowance for 5 year maintenance
OTAL (COST			\$ 1,896,440	\$	330,702	\$ 2,819,464	\$	355,840	

Table 6: Landfill Liability Assessment - Tahsis Waste Management Centre

Data:	11/31/2023	1
Landfill Cover Optior	GCL	1
Landfill Closure Date (approximate	2032	
Post Closure Period (years)	30	
Landfill Capacity at Closure (m3	114,553	
Closure Costs (2023\$)	\$ 1,896,440	Note 1
Annual post closure O&M (2023\$)	\$ 7,023	Note 2
5th year post closure O&M costs (2023\$)	\$ 27,023	Note 3
Construction cost escalation rate	2.0000%	Note 4
Discount rate	4.67%	Note 5
Inflation rate	2.0000%	Note 6
Closure Accretion Expenses	\$ 70,187.14	Note 7
Post Closure Accretion Expenses	\$ 8,251.05	Note 7
Total Accretion Expenses	\$ 78,438.18	Note 7

Present Value Closure Sum	
\$ 1,50	02,937
Present Value Post Closure Sun	
\$ 17	76,682
Total PV Closure + Post Closure	
\$ 1,67	79,618

Year	Years Since Closure	Years for FV	Years for PV	Construction Cash Flow 2023\$	Monitoring/ Maintenance Cash Flow (2023\$)	С	Cash Flow plus Inflation Present Value		esent Value	Description of Cost
2022			0							
2023	0	1	1							Landfill still open
2024	0	2	2			\$		\$	-	Landfill still open
2025	0	3	3			\$		\$	-	Landfill still open
2026	0	4	4			\$		\$	-	Landfill still open
2027	0	5	5			\$		\$	-	Landfill still open
2028	0	6	6			\$		\$	-	Landfill still open
2029	0	7	7			\$		\$	-	Landfill still open
2030	0	8	8			\$	-	\$	-	
2031	0	9	9	\$ 1,896,440		\$	2,266,421	\$	1,502,937	Final closure engineering + Final closure construction/final capping
2032	1	10	10		\$ 7,023	\$	8,561	\$	5,424	Annual O&M
2033	2	11	11		\$ 7,023	\$	8,733	\$	5,286	Annual O&M
2034	3	12	12		\$ 7,023	\$	8,907	\$	5,151	Annual O&M
2035	4	13	13		\$ 7,023	\$	9,086	\$	5,020	Annual O&M
2036	5	14	14		\$ 27,023	\$	35,657	\$	18,821	Annual O&M plus allowance for 5 year maintenance
2037	6	15	15		\$ 7,023	\$	9,453	\$	4,767	Annual O&M
2038	7	16	16		\$ 7,023	\$	9,642	\$	4,645	Annual O&M
2039	8	17	17		\$ 7,023	\$	9,834	\$	4,527	Annual O&IV
2040	9	18	18		\$ 7,023	\$	10,031	\$	4,411	Annual O&M
2041	10	19	19		\$ 27,023	\$	39,368	\$	16,539	Annual O&M plus allowance for 5 year maintenance
2042	11	20	20		\$ 7,023	\$	10,436	\$	4,189	Annual O&M
2043	12	21	21		\$ 7,023	\$	10,645	\$	4,082	Annual O&M
2044	13	22	22		\$ 7,023	\$	10,858	\$	3,978	Annual O&M
2045	14	23	23		\$ 7,023	\$	11,075	\$	3,877	Annual O&M
2046	15	24	24		\$ 27,023	\$	43,465	\$	14,535	Annual O&M plus allowance for 5 year maintenance
2047	16	25	25		\$ 7,023	\$	11,523	\$	3,681	Annual O&M
2048	17	26	26		\$ 7,023	\$	11,753	\$	3,587	Annual O&M
2049	18	27	27		\$ 7,023	\$	11,988	\$	3,496	Annual O&M
2050	19	28	28		\$ 7,023	\$	12,228	\$	3,407	Annual O&M
2051	20	29	29		\$ 27,023	\$	47,989	\$	12,773	Annual O&M plus allowance for 5 year maintenance
2052	21	30	30		\$ 7,023	\$	12,722	\$	3,235	Annual O&M
2053	22	31	31		\$ 7,023	\$	12,976	\$	3,153	Annual O&M
2054	23	32	32		\$ 7,023	\$	13,236	\$	3,072	Annual O&M
2055	24	33	33		\$ 7,023	\$	13,501	\$	2,994	Annual O&N
2056	25	34	34		\$ 27,023	\$	52,984	\$	11,225	Annual O&M plus allowance for 5 year maintenance
2057	26	35	35		\$ 7,023	\$	14,046	\$	2,843	Annual O&M
2058	27	36	36		\$ 7,023	\$	14,327	\$	2,770	Annual O&M
2059	28	37	37		\$ 7,023	\$	14,613	\$	2,700	Annual O&M
2060	29	38	38		\$ 7,023	\$	14,906	\$	2,631	Annual O&M
2061	30	39	39		\$ 27,023	\$	58,499	\$	9,865	Annual O&M plus allowance for 5 year maintenance
TOTAL CO	OST			\$ 1,896,440	\$ 330,702	\$	2,819,464	\$	1,679,618	

Notes:

(3)

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Construction Closure costs in 2023\$ from CVRD financial plan schedules.

Annual post closure operating and maintenance costs include environmental monitoring costs provided by CVRD and lab costs collected by GHD for the landfill in 2022. The lab costs were inflated by 20% to account for industry markups in 2023 and CVRD having less of a discount with ALS than GHD.

5th year post closure operating and maintenance costs include environmental monitoring costs, estimated based on GHD experience at CVRD waste management centres.

Construction cost inflation rate applied to forecast construction costs, set to Bank of Canada's target inflation rate of 2% as directed by CVRD

Discount rate of 4.67% based on the Municipal Finance Authority of BC's (MFA) 30-year indicative lending rate, at December 31, 2022, provided by the CVRD.

Operations and maintenance inflation rate applied to operations and maintenance costs. Set to Bank of Canada's target inflation rate of 2% as directed by CVRD

Closure accretion is calculated from the difference of the present value of two closure costs. The difference is between the sum of the table above and below, where the table below has the present value years artificially adjusted by 1 to account for Jan 1 2023 to Dec 31 2023. Both Closure (construction/design costs) and post closure (O&M) accretion values are calculated and summed together.

Table 6: Landfill Liability Assessment - Tahsis Waste Management Centre - Accretion

Data:	11/31/2023
Landfill Cover Optior	GCL
Landfill Closure Date (approximate	2032
Post Closure Period (years)	30
Airspace Consumed from Dec 31 2021-2022 (m3	0
Current (Dec 2022) waste in place (m3)	114,553
Remaining Airspace (m3	0
Landfill Capacity at Closure (m3	114,553
Closure Costs (2022\$) (2021-2030 PB)	\$ 1,896,440
Annual post closure O&M (2022\$)	\$ 7,023
5th year post closure O&M costs (2022\$)	\$ 27,023
Construction cost escalation rate	2.0000%
Discount rate	4.67%
Inflation rate	2.0000%

Present Value Closure Sum
\$ 1,573,124
Present Value Post Closure Sun
\$ 184,933

Year	Years Since Closure	Years for FV	Years for PV	Construction Cash Flow 2022\$	Monitoring/ Maintenance Cash Flow (2022\$)	Ca	Cash Flow plus Inflation Present		resent Value	Description of Cost
2023	0	1	0							
2024	0	2	1			\$	-	65		Landfill still oper
2025	0	3	2			\$	-	\$	-	Landfill still oper
2026	0	4	3			\$	-	\$	-	Landfill still oper
2027	0	5	4			\$	-	65	-	Landfill still oper
2028	0	6	5			\$	-	\$	-	Landfill still oper
2029	0	7	6			\$	-	\$	-	Landfill still oper
2030	0	8	7			\$	-	\$	-	Final closure engineering (2022\$) based on CVRD revised dates
2031	0	9	8	\$ 1,896,440		\$	2,266,421	\$	1,573,124	Final closure construction/final capping (2022\$)
2032	1	10	9		\$ 7,023	\$	8,561	\$	5,677	Annual O&V
2033	2	11	10		\$ 7,023	\$	8,733	\$	5,533	Annual O&IV
2034	3	12	11		\$ 7,023	\$	8,907	\$	5,391	Annual O&V
2035	4	13	12		\$ 7,023	\$	9,086	\$	5,254	Annual O&V
2036	5	14	13		\$ 27,023	\$	35,657	\$	19,699	Annual O&M plus allowance for 5 year maintenance
2037	6	15	14		\$ 7,023	\$	9,453	\$	4,989	Annual O&V
2038	7	16	15		\$ 7,023	\$	9,642	\$	4,862	Annual O&V
2039	8	17	16		\$ 7,023	\$	9,834	\$	4,738	Annual O&V
2040	9	18	17		\$ 7,023	\$	10,031	\$	4,617	Annual O&V
2041	10	19	18		\$ 27,023	\$	39,368	\$	17,312	Annual O&M plus allowance for 5 year maintenance
2042	11	20	19		\$ 7,023	\$	10,436	\$	4,385	Annual O&V
2043	12	21	20		\$ 7,023	\$	10,645	\$	4,273	Annual O&V
2044	13	22	21		\$ 7,023	\$	10,858	\$	4,164	Annual O&N
2045	14	23	22		\$ 7,023	\$	11,075	\$	4,058	Annual O&V
2046	15	24	23		\$ 27,023	\$	43,465	\$	15,214	Annual O&M plus allowance for 5 year maintenance
2047	16	25	24		\$ 7,023	\$	11,523	\$	3,853	Annual O&N
2048	17	26	25		\$ 7,023	\$	11,753	\$	3,755	Annual O&V
2049	18	27	26		\$ 7,023	\$	11,988	\$	3,659	Annual O&V
2050	19	28	27		\$ 7,023	\$	12,228	\$	3,566	Annual O&N
2051	20	29	28		\$ 27,023	\$	47,989	\$	13,370	Annual O&M plus allowance for 5 year maintenance
2052	21	30	29		\$ 7,023	\$	12,722	\$	3,386	Annual O&V
2053	22	31	30		\$ 7,023	\$	12,976	\$	3,300	Annual O&V
2054	23	32	31		\$ 7,023	\$	13,236	\$	3,216	Annual O&N
2055	24	33	32		\$ 7,023	\$	13,501	\$	3,134	Annual O&V
2056	25	34	33		\$ 27,023	\$	52,984	\$	11,749	Annual O&M plus allowance for 5 year maintenance
2057	26	35	34		\$ 7,023	\$	14,046	\$		Annual O&N
2058	27	36	35		\$ 7,023	\$	14,327	\$	2,900	Annual O&N
2059	28	37	36		\$ 7,023	\$	14,613	\$	2,826	Annual O&V
2060	29	38	37		\$ 7,023	\$	14,906	\$	2,754	Annual O&N
2061	30	39	38		\$ 27,023	\$	58,499	\$	10,325	Annual O&M plus allowance for 5 year maintenance
TOTAL CO	OST			\$ 1,896,440	\$ 330,702	\$	2,819,464	\$	1,758,057	·

Table 7: Landfill Liability Assessment - Zeballos Landfill - Retrospective to year of opening

Data:	11/31/2023		
Landfill Cover Option	GCL		
Landfill Open Date	1987		
Landfill Closure Date (approximate)	2029		Present V
Post Closure Period (years)	30		\$
Landfill Capacity at Closure (m3)	-		Present V
Closure Costs (2023\$)	\$1,287,832.00	Note 1	\$
Annual post closure O&M (2023\$)	\$ 11,819	Note 2	Total PV
5th year post closure O&M costs (2023\$)	\$ 31,819	Note 3	\$
Construction cost escalation rate	2.0000%	Note 4	
Discount rate	4.67%	Note 5	
Inflation rate	2.0000%	Note 6	\$
			Ac
			\$
		1	

Present Value Closure Sum
\$ 217,534

Present Value Post Closure Sum
\$ 54,348

Total PV Closure + Post Closure
\$ 271,882

Ammortization
\$ 6,473.39

Accumulated Amortization
\$ 226,568.53

Year	Years Since Closure	Years for FV	Years for PV	Construction Cash Flow 2023\$	Monitoring/ Maintenance Cash Flow (2023\$)		Cash Flow plus Inflation		Net Present Value		Description of Cost
2022			35								
2023	0	1	36								Landfill still open
2024	0	2	37								Landfill still open
2025	0	3	38								Landfill still open
2026	0	4	39								Landfill still open
2027	0	5	40				_		_		Landfill still open
2028	0	6	41				\$	-	\$	-	Landfill still open
2029	0	7	42	\$ 1,287,832			\$	1,479,314	\$2	17,534	Final closure engineering, option 2 DOC plan + Final closure construction/final capping
2030	1	8	43		\$	11,819	\$	13,847	\$		Annual O&M
2031	2	9	44		\$	11,819	\$	14,124	\$	1,896	Annual O&M
2032	3	10	45		\$	11,819	\$	14,407	\$	1,847	Annual O&M
2033	4	11	46		\$	11,819	\$	14,695	\$	1,800	Annual O&M
2034	5	12	47		\$	31,819	\$	40,354	\$	4,723	Annual O&M plus allowance for 5 year maintenance
2035	6	13	48		\$	11,819	\$	15,289	\$	1,710	Annual O&M
2036	7	14	49		\$	11,819	\$	15,594	\$	1,666	Annual O&M
2037	8	15	50		\$	11,819	\$	15,906	\$		Annual O&M
2038	9	16	51		\$	11,819	\$	16,224	\$	1,582	Annual O&M
2039	10	17	52		\$	31,819	\$	44,554	\$	4,151	Annual O&M plus allowance for 5 year maintenance
2040	11	18	53		\$	11,819	\$	16,880	\$	1,502	Annual O&M
2041	12	19	54		\$	11,819	\$	17,217	\$		Annual O&M
2042	13	20	55		\$	11,819	\$	17,562	\$		Annual O&M
2043	14	21	56		\$	11,819	\$	17,913	\$	1,390	Annual O&M
2044	15	22	57		\$	31,819	\$	49,191	\$	3,648	Annual O&M plus allowance for 5 year maintenance
2045	16	23	58		\$	11,819	\$	18,637	\$	1,320	Annual O&M
2046	17	24	59		\$	11,819	\$	19,009	\$	-,	Annual O&M
2047	18	25	60		\$	11,819	\$	19,390	\$		Annual O&M
2048	19	26	61		\$	11,819	\$	19,777	\$	1,222	Annual O&M
2049	20	27	62		\$	31,819	\$	54,311	\$	3,206	Annual O&M plus allowance for 5 year maintenance
2050	21	28	63		\$	11,819	\$	20,576	\$	1,160	Annual O&M
2051	22	29	64		\$	11,819	\$	20,988	\$, -	Annual O&M
2052	23	30	65		\$	11,819	\$	21,408	\$		Annual O&M
2053	24	31	66		\$	11,819	\$	21,836	\$	1,074	Annual O&M
2054	25	32	67		\$	31,819	\$	59,963	\$	2,817	Annual O&M plus allowance for 5 year maintenance
2055	26	33	68		\$	11,819	\$	22,718	\$	1,020	Annual O&M
2056	27	34	69		\$	11,819	\$	23,172	\$		Annual O&M
2057	28	35	70		\$	11,819	\$	23,636	\$		Annual O&M
2058	29	36	71		\$	11,819	\$	24,109	\$	944	Annual O&M
2059	30	37	72		\$	31,819	\$	66,204	\$	2,476	Annual O&M plus allowance for 5 year maintenance
TOTAL C	OST			\$ 1,287,832	\$	474,558	\$	2,238,807	\$2	71,882	

Table 7: Landfill Liability Assessment - Zeballos Landfill

Data:	11/31/2023
Landfill Cover Optior	GCL
Landfill Open Date	1987
Landfill Closure Date (approximate	2029
Post Closure Period (years)	30
Landfill Capacity at Closure (m3	16,323
Closure Costs (2023\$)	\$ 1,287,832.00 No
Annual post closure O&M (2023\$)	\$ 11,819 No
5th year post closure O&M costs (2023\$)	\$ 31,819 No
Construction cost escalation rate	2.0000% No
Discount rate	4.67% No
Inflation rate	2.0000% No
Closure Accretion Expenses	\$ 50,190.52 No
Post Closure Accretion Expenses	\$ 12,539.52 No
Total Accretion Expenses	\$ 62,730.04 No

Present Value Closure Surr	
\$	1,074,744
Present Value Post Closure Sun	
\$	268,512
Total PV Closure + Post Closur	
\$	1,343,256

Year	Years Since Closure	Years for FV	Years for PV	Construction Cash Flow 2023\$	Monitoring/ Maintenance Cash Flow (2023\$)		Cash Flow plus Net Presen Inflation Value		Net Present Value	Description of Cost
2022			0							
2023	0	1	1							Landfill still open
2024	0	2	2							Landfill still open
2025	0	3	3							Landfill still open
2026	0	4	4							Landfill still open
2027	0	5	5					Г		Landfill still open
2028	0	6	6			\$	-	\$	-	Landfill still open
2000	_	_		A 4.007.000		_	4 470 044	_	4.074.744	Final closure engineering, option 2 DOC plan +
2029	0	7	7	\$ 1,287,832		\$	1,479,314	\$	1,074,744	Final closure construction/final capping
2030	1	8	8		\$ 11,819	\$	13,847	\$	9,611	Annual O&M
2031	2	9	9		\$ 11,819	\$	14,124	\$	9,366	Annual O&M
2032	3	10	10		\$ 11,819	\$	14,407	\$		Annual O&M
2033	4	11	11		\$ 11,819	_	14,695	\$		Annual O&M
2034	5	12	12		\$ 31,819	\$	40,354	\$	23,335	Annual O&M plus allowance for 5 year maintenance
2035	6	13	13		\$ 11.819	\$	15,289	\$	8.447	Annual O&M
2036	7	14	14		\$ 11,819	_	15,594	\$		Annual O&M
2037	8	15	15		\$ 11,819		15,906	\$		Annual O&M
2038	9	16	16		\$ 11,819	_	16,224	\$	-,-	Annual O&M
2039	10	17	17		\$ 31,819		44,554	\$		Annual O&M plus allowance for 5 year maintenance
2040	11	18	18		\$ 11,819	\$	16,880	\$	7,423	Annual O&M
2041	12	19	19		\$ 11,819	\$	17,217	\$	7,233	Annual O&M
2042	13	20	20		\$ 11,819		17,562	\$		Annual O&M
2043	14	21	21		\$ 11,819		17,913	\$		Annual O&M
2044	15	22	22		\$ 31,819	\$	49,191	\$	18,022	Annual O&M plus allowance for 5 year maintenance
2045	16	23	23		\$ 11,819	\$	18,637	\$	6,523	Annual O&M
2046	17	24	24		\$ 11,819		19,009	\$	6,357	Annual O&M
2047	18	25	25		\$ 11,819		19,390	\$	6,195	Annual O&M
2048	19	26	26		\$ 11,819		19,777	\$	6,037	Annual O&M
2049	20	27	27		\$ 31,819		54,311	\$	15,837	Annual O&M plus allowance for 5 year maintenance
2050	21	28	28		\$ 11,819	\$	20,576	\$	5,733	Annual O&M
2051	22	29	29		\$ 11,819	\$	20,988	\$	5,586	Annual O&M
2052	23	30	30		\$ 11,819	\$	21,408	\$	5,444	Annual O&M
2053	24	31	31		\$ 11,819	\$	21,836	\$	5,305	Annual O&M
2054	25	32	32		\$ 31,819	\$	59,963	\$	13,918	Annual O&M plus allowance for 5 year maintenance
2055	26	33	33		\$ 11,819	\$	22,718	\$	5,038	Annual O&M
2056	27	34	34		\$ 11,819	\$	23,172	\$	4,909	Annual O&M
2057	28	35	35		\$ 11,819	\$	23,636	\$	4,784	Annual O&M
2058	29	36	36		\$ 11,819	\$	24,109	\$	4,662	Annual O&M
2059	30	37	37		\$ 31,819	\$	66,204	\$	12,231	Annual O&M plus allowance for 5 year maintenance
TOTAL CO	OST			\$ 1,287,832	\$ 474,558	\$	2,238,807	\$	1,343,256	
Notes:										

Notes:

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Construction Closure costs in 2023\$ from CVRD financial plan schedules.

(1) (2) Annual post closure operating and maintenance costs include environmental monitoring costs provided by CVRD and lab costs collected by GHD for the landfill in 2022. The lab costs were inflated by 20% to account for industry markups in 2023 and CVRD having less of a discount with ALS than

> 5th year post closure operating and maintenance costs include environmental monitoring costs, estimated based on GHD experience at CVR waste management centres.

Construction cost inflation rate applied to forecast construction costs, set to Bank of Canada's target inflation rate of 2% as directed by CVRD Discount rate of 4.67% based on the Municipal Finance Authority of BC's (MFA) 30-year indicative lending rate, at December 31, 2022, provided by the CVRD.

Operations and maintenance inflation rate applied to operations and maintenance costs. Set to Bank of Canada's target inflation rate of 2% as directed by CVRD

Closure accretion is calculated from the difference of the present value of two closure costs. The difference is between the sum of the table above and below, where the table below has the present value years artificially adjusted by 1 to account for Jan 1 2023 to Dec 31 2023. Both Closure (construction/design costs) and post closure (O&M) accretion values are calculated and summed together.

Table 7: Landfill Liability Assessment - Zeballos Landfill - Accretion

Data:	1	1/31/2023		
Landfill Cover Optior		GCL		
Landfill Closure Date (approximate		2029		
Post Closure Period (years)	30			
Airspace Consumed from Dec 31 2021-2022 (m3		-		
Current (Dec 2022) waste in place (m3)		-		
Remaining Airspace (m3		-		
Landfill Capacity at Closure (m3		-		
Closure Costs (2022\$) (2021-2030 PB)	\$	1,287,832		
Annual post closure O&M (2022\$)	\$	11,818.60		
5th year post closure O&M costs (2022\$)	\$	31,818.60		
Construction cost escalation rate		2.0000%		
Discount rate		4.67%		
Inflation rate		2.0000%		
Closure Accretion Expenses				
Post Closure Accretion Expenses				
Total Accretion Expenses				

Present Value Closure Surr \$ 1,124,934
Present Value Post Closure Sum \$ 281,052

Year	Years Since Closure	Years for FV	Years for PV	 nstruction ash Flow 2022\$	Ma C	onitoring/ intenance ash Flow (2022\$)	,	Cash Flow plus Inflation	Net Present Value		Description of Cost
2023	0	1	0								
2024	0	2	1								Landfill still open
2025	0	3	2								Landfill still open
2026	0	4	3								Landfill still open
2027	0	5	4								Landfill still open
2028	0	6	5				\$	-	\$	-	Final closure engineering, option 2 DOC plan
2029	0	7	6	\$ 1,287,832			\$	1,479,314	\$	1,124,934	Final closure construction/final capping
2030	1	8	7		\$	11,819	\$	13,847	\$	10,060	Annual O&M
2031	2	9	8		\$	11,819	\$	14,124	\$	9,804	Annual O&M
2032	3	10	9		\$	11,819	\$	14,407	\$	9,554	Annual O&M
2033	4	11	10		\$	11,819	\$	14,695	\$	9,310	Annual O&M
2034	5	12	11		\$	31,819	\$	40,354	\$	24,425	Annual O&M plus allowance for 5 year maintenance
2035	6	13	12		\$	11,819	\$	15,289	\$	8,841	Annual O&M
2036	7	14	13		\$	11,819	\$	15,594	\$	8,615	Annual O&M
2037	8	15	14		\$	11,819	\$	15,906	\$	8,396	Annual O&M
2038	9	16	15		\$	11,819	\$	16,224	\$	8,182	Annual O&M
2039	10	17	16		\$	31,819	\$	44,554	\$	21,465	Annual O&M plus allowance for 5 year maintenance
2040	11	18	17		\$	11,819	\$	16,880	\$	7,769	Annual O&M
2041	12	19	18		\$	11,819	\$	17,217	\$	7,571	Annual O&M
2042	13	20	19		\$	11,819	\$	17,562	\$	7,378	Annual O&M
2043	14	21	20		\$	11,819	\$	17,913	\$	7,190	Annual O&M
2044	15	22	21		\$	31,819	\$	49,191	\$	18,863	Annual O&M plus allowance for 5 year maintenance
2045	16	23	22		\$	11,819	\$	18,637	\$	6,828	Annual O&M
2046	17	24	23		\$	11,819	\$	19,009	\$	6,654	Annual O&M
2047	18	25	24		\$	11,819	\$	19,390	\$	6,484	Annual O&M
2048	19	26	25		\$	11,819	\$	19,777	\$	6,319	Annual O&M
2049	20	27	26		\$	31,819	\$	54,311	\$	16,577	Annual O&M plus allowance for 5 year maintenance
2050	21	28	27		\$	11,819	\$	20,576	\$	6,000	Annual O&M
2051	22	29	28		\$	11,819	\$	20,988	\$	5,847	Annual O&M
2052	23	30	29		\$	11,819	\$	21,408	\$	5,698	Annual O&M
2053	24	31	30		\$	11,819	\$	21,836	\$	5,553	Annual O&M
2054	25	32	31		\$	31,819	\$	59,963	\$	14,568	Annual O&M plus allowance for 5 year maintenance
2055	26	33	32		\$	11,819	\$	22,718	\$	5,273	Annual O&M
2056	27	34	33		\$	11,819	\$	23,172	\$	5,139	Annual O&M
2057	28	35	34		\$	11,819	\$	23,636	\$	5,007	Annual O&M
2058	29	36	35		\$	11,819	\$	24,109	\$	4,880	Annual O&M
2059	30	37	36		\$	31,819	\$	66,204	\$	12,802	Annual O&M plus allowance for 5 year maintenance
TOTAL CO	OST			\$ 1,287,832	\$	474,558	\$	2,238,807	\$	1,405,986	

Table 8: Landfill Liability Assessment - Field Sawmill Landfill - Retrospective to year of opening

Data:	31-Dec-2023			
Landfill Cover Option				
Landfill Open Date	199	97		
Landfill Closure Date (approximate)	199	98		
Post Closure Period (years)		30		
Closure Costs	\$ -		Present Value P	ost Closure Sum
Annual post closure O&M (2023\$)	\$ 8,12	9 Note 1	\$	17,173
5th year post closure O&M costs (2023\$)	\$ 13,12	9 Note 2	Ammortization	
Construction cost escalation rate	2.0000%	Note 3	\$	17,173.09
Discount rate	4.67%	Note 4	Accumulated An	nmortization
Inflation rate	2.0000%	Note 5	\$	17,173.09

Year	Years Since Closure	Years for FV	Years for PV	Cash Flo	w (20	23\$)	С	ash Flow plus Inflation	Net Present Value	Description of Cost
					N	Monitoring				
				Construction/Other	/M	aintenance (2023\$)				
2022			25			•				
2023	25	1	26		\$	13,129	\$	13,391	\$ 4 N87	Annual O&M plus allowance for 5 year maintenance
2024	26	2	27		\$	8,129	\$	8,457	\$ 2,466	Annual O&M
2025	27	3	28		\$	8,129	\$	8,626	\$ 2,403	Annual O&M
2026	28	4	29		\$ 8,129		\$	8,799	\$ 2,342	Annual O&M
2027	29	5	30		\$	8,129	\$	8,975	\$ 2,282	Annual O&M
2028	30	6	31		\$	13,129	\$	14,785	4 3 500	Annual O&M plus allowance for 5 year maintenance
TOTAL C	COST	•	•	\$ -	\$	58,773	\$	63,034	\$17,173	

Table 8: Landfill Liability Assessment - Field Sawmill Landfill

Data:	31-	Dec-2023
Landfill Cover Option		
Landfill Open Date		1997
Landfill Closure Date (approximate)		1998
Post Closure Period (years)		30
Closure Costs	\$	-
Annual post closure O&M (2023\$)	\$	8,129
5th year post closure O&M costs (2023\$)	\$	13,129
Construction cost escalation rate	2	.0000%
Discount rate		4.67%
Inflation rate	2	.0000%
Post Closure Accretion Expenses	\$	2,510.27
Total Accretion Expenses	\$	2,510.27

Present Value Post Closure Sum
Note 1 \$
Note 2
Note 3
Note 4
Note 5

Note 6

53,753

Year	Years Since Closure	for FV	Years for PV	Cash Flo	ow	(2023\$)		Cash Flow us Inflation	-	t Present Value	Description of Cost
					Ν	Monitoring					
				Constructio	/M	aintenance					
				n/Other	(2023\$)						
2023	25	1	1		\$	13.129	6	13.391	\$	12.794	Annual O&M plus allowance for 5 year
2023	23	'	'	Cash Fi	Ф	\$ 13,129		13,391	9	12,794	maintenance
2024	26	2	2		\$	8,129	\$	8,457	\$	7,719	Annual O&M
2025	27	3	3		\$	8,129	\$	8,626	\$	7,522	Annual O&M
2026	28	4	4		\$	8,129	\$	8,799	\$	7,331	Annual O&M
2027	29	5	5		\$	8,129	\$	8,975	\$	7,144	Annual O&M
2020	30	6	6		4	13.129	9	14 705	6	11.243	Annual O&M plus allowance for 5 year
2028	30	6	6		\$	13,129	\$	14,785	\$	11,243	maintenance
TOTAL (OTAL COST			\$ -	\$	58,773	\$	63,034	\$	53,753	

Notes:

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Annual post closure operating and maintenance costs include environmental monitoring costs provided by CVRD and lab costs collected by GHD for the landfill in 2022. The lab costs were inflated by 20% to account for industry markups in 2023 and CVRD having less of a discount with ALS than GHD.

5th year post closure operating and maintenance costs include environmental monitoring costs, estimated based on GHD experience at CVRD waste management centres.

Construction cost inflation rate applied to forecast construction costs, set to Bank of Canada's target inflation rate of 2% as directed by CVRD

Discount rate of 4.67% based on the Municipal Finance Authority of BC's (MFA) 30-year indicative lending rate, at December 31, 2022, provided by the CVRD.

Operations and maintenance inflation rate applied to operations and maintenance costs. Set to Bank of Canada's target inflation rate of 2% as directed by CVRD

Closure accretion is calculated from the difference of the present value of two closure costs. The difference is between the sum of the table above and below, where the table below has the present value years artificially adjusted by 1 to account for Jan 1 2023 to Dec 31 2023. Both Closure (construction/design costs) and post closure (O&M) accretion values are calculated and summed together.

Table 8: Landfill Liability Assessment - Field Sawmill Landfill - Accretion

Data:	11/	/31/2023
Landfill Cover Option		
Landfill Closure Date (approximate)		1998
Post Closure Period (years)		30
Current (Dec 2022) waste in place (m3)		n/a
Landfill Capacity at Closure (m3)		n/a
Closure Costs	\$	-
Annual post closure O&M (2022\$)	\$	8,129
5th year post closure O&M costs (2022\$)	\$	13,129
Construction cost escalation rate	2.	0000%
Discount rate	4	1.67%
Inflation rate	2.	0000%
Post Closure Accretion Expenses		
Total Accretion Expenses		

Present Value Post Closure Sum \$ 56,263

Year	Years Since Closure		Years for PV	Ca	sh Flo	ow (2	(022\$)		Cash Flow us Inflation	N	et Present Value	Description of Cost
2023	25	1	0				13,129	6	13,391	\$	13,391	Annual O&M plus allowance for 5 year
2023	23	'	U				13,123	9	15,591	Ψ	15,551	maintenance
2024	26	2	1				8,129	\$	8,457	\$	8,080	Annual O&M
2025	27	3	2				8,129	\$	8,626	\$	7,874	Annual O&M
2026	28	4	3				8,129	\$	8,799	\$	7,673	Annual O&M
2027	29	5	4			\$	8,129	\$	8,975	\$	7,477	Annual O&M
2020	30	_	5			Φ.	40.400	6	44.705	4	11.768	Annual O&M plus allowance for 5 year
2028	30	6	5			\$	13,129	Ф	14,785	\$	11,768	maintenance
TOTAL C	COST			\$	-	\$	58,773	\$	63,034	\$	56,263	

Appendix E

2023 Environmental Monitoring Specification

Environmental Monitoring Program Specifications – 2023

PROJECT: Comox Strathcona Waste Management
Campbell River Waste Management Centre

MONITORING STAFF: RESPONSIBILITY

Crystal Stuart Field Lead

LABORATORIES USED: ALS Environmental, Burnaby, BC

AUTHORIZATION: MONITORING EVENT(S)

Feb, May, Aug, Nov

Revision #	Date	Revision	GHD
1	April, 2014	Monitoring spec creation.	MND
2	June, 2014	39950, EBA06-1, and HBT94-4 removed from sampling program. Phosphorus analysis changed to metals analysis instead of colorimetric method.	MND
3	January, 2016	SW-2 added to surface water monitoring program, updated field and database staffing, added WG matrix to field blank.	TE
4	March, 2016	Added dissolved metals analysis to WS schedule to differentiate from total metals when comparing criteria	CR
5	January, 2017	Reduced sampling for VOCs to a semi-annual schedule (February and August).	MND
6	May, 2017	Added SW03-17 and well tag 109728 (domestic well) to the monitoring program. Switched WS metals analyses to low levels analysis.	MND
7	January, 2018	Removed well tag 109728 from monitoring program. Updated project staffing. Added TDS to the parameter list.	NT
8	April, 2019	Removed EBA04-4 and EBA04-3 from monitoring program, as both are inaccessible. Added MW02-18 and MW03-18 to monitoring program (began sampling in August 2018).	NT
9	April, 2020	Added MW04-19 to the monitoring program (began sampling in October 2019). Added sampling the stormwater management pond and recording the water level at Ladore Dam. Updated project staffing.	СТ
10	January, 2021	Updated PM. Removed lab pH from the GW and SW monitoring programs due to the 15-minute holding time. Field pH is more representative of sampling conditions.	NT
11	May, 2021	Removed HBT95-4 and GLL93-4 from the groundwater monitoring program, as per the 2020 Annual O&M Report, as they have consistently been dry for years. Removed EBA11-2 from the groundwater monitoring program since the well was found destroyed in Feb 2021.	NT
12	August, 2021	Added MW06-21, MW07-21 and MW08-21 to the groundwater monitoring program. Installation occurred in June 2021 as part of the 2017 DOCP.	NT
13	February, 2022	Added DOC to the SW monitoring program to be able to use the BLM calculator for copper.	NT

Sampling Schedule Environmental Monitoring Program Specification - 2023

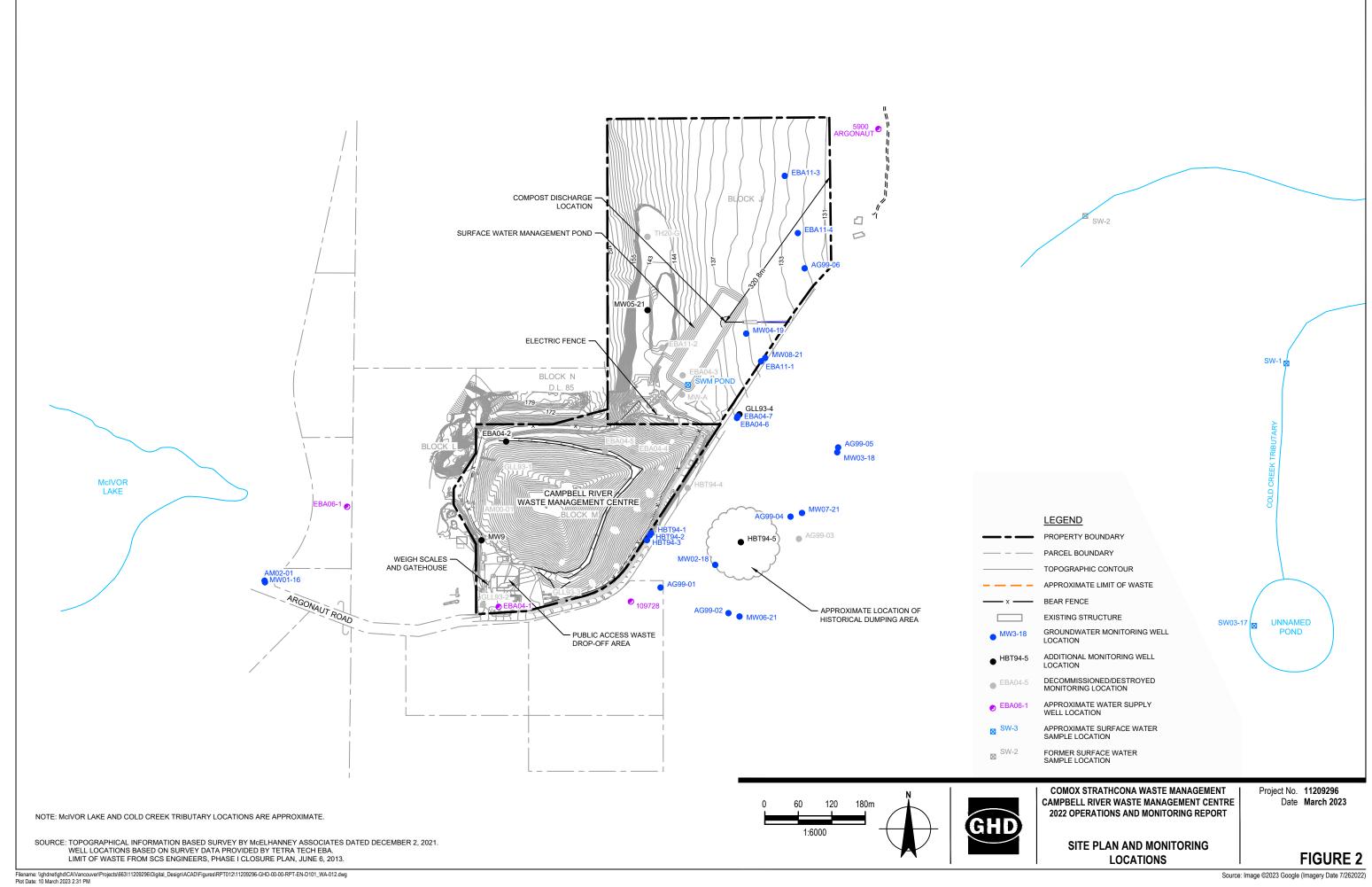
				Quarterly	Semi-annual
Monitoring Location	Monitoring Location Purpose	Sample Matrix	Hydraulic Monitoring	Feb, May, Aug, Nov	Feb, Aug
Groundwater M	Monitoring Program (22 locations)				
AG99-01	Monitor downgradient groundwater quality to the east of the Site, off-Site.	WG	√	Schedule A	-
AG99-02	Monitor downgradient groundwater quality to the east of the landfill, off-Site, deep nested well	WG	V	Schedule A	-
AG99-04	Monitor downgradient groundwater quality to the east of the landfill, off-Site, deep nested well.	WG	√	Schedule A	-
AG99-05	Monitor downgradient groundwater quality to the east of the Site, off-Site, deep nested well.	WG	√	Schedule A	-
AG99-06	Downgradient of the landfill, northeast.	WG	√	Schedule A	Schedule B
MW01-16	Background.	WG	√	Schedule A	Schedule B
AM02-01	Background.	WG	√	Schedule A	Schedule B
EBA04-1	Tap from the building near the scalehouse.	WG	-	Schedule A	-
EBA04-6	Northeast toe of landfill, off-Site.	WG	√	Schedule A	-
EBA04-7	Northeast toe of landfill, off-Site.	WG	√	Schedule A	Schedule B
EBA11-1	Downgradient of the Site to the northeast, off-Site, shallow nested well.	WG	√	Schedule A	Schedule B
EBA11-3	Downgradient of the landfill to the northeast.	WG	√	Schedule A	Schedule B
EBA11-4	Downgradient of the landfill to the northeast.	WG	√	Schedule A	Schedule B
HBT94-1	Downgradient, southeast property line.	WG	√	Schedule A	-
HBT94-2	Downgradient, southeast property line.	WG	√	Schedule A	Schedule B
HBT94-3	Downgradient, southeast property line.	WG	√	Schedule A	-
MW02-18	Downgradient of the Site, east, off-Site.	WG	√	Schedule A	Schedule B
MW03-18	Monitor downgradient groundwater quality to the east of the Site, off-Site, shallow nested well.	WG	√	Schedule A	-
MW04-19	Downgradient of the landfill, northeast.	WG	V	Schedule A	-
MW06-21	Monitor downgradient groundwater quality to the east of the landfill, off-Site, shallow nested well.	WG	√	Schedule A	-
MW07-21	Monitor downgradient groundwater quality to the east of the landfill, off-Site, shallow nested well.	WG	√	Schedule A	-
MW08-21	Downgradient of the Site to the northeast, off-Site, deep nested well.	WG	√	Schedule A	-
Surface Water	Monitoring Program (4 locations)				
SW-1	Cold Creek Tributary.	WS	√	Schedule A	-
SW03-17	Unnamed Pond upstream of SW-1.	WS	√	Schedule A	-
SWM Pond	Surface Water Management Pond.	WS	√	Schedule A	-
Ladore Dam	Ladore Dam Reservoir (see link below).	WS	√	-	-
Field Quality A	ssurance/Quality Control				
Field Blank		WG	-	Schedule A	-
Groundwater D	uplicate	WG	-	Schedule A	Schedule B
Surface Water	Duplicate	WS	-	Schedule A (Feb only)	-
Trip Blank (VO	Cs only)	WG	-	-	Schedule B

https://www.bchydro.com/energy-in-bc/operations/transmission-reservoir-data/previous-reservoir-elevations/vancouver_island/ladore_ldr.html

Table 2Page 2 of 2

Analytical Parameters Environmental Monitoring Program Specification - 2023

Schedule A	Groundwater	Surface Water
Hydraulic Monitoring		
Water level	√	-
Depth to bottom of well	\checkmark	-
Flow	-	$\sqrt{}$
Field Parameters		
Dissolved Oxygen (mg/L)	$\sqrt{}$	V
Oxidation-Reduction Potential (mV)	$\sqrt{}$	V
pH (s.u.)	$\sqrt{}$	$\sqrt{}$
Conductivity (µS/cm)	$\sqrt{}$	$\sqrt{}$
Temperature (deg C)	$\sqrt{}$	$\sqrt{}$
Total Dissolved Solids (mg/L)	$\sqrt{}$	$\sqrt{}$
Turbidity (ntu)	\checkmark	$\sqrt{}$
General Chemistry & Nutrients		
Alkalinity (Speciated)	√	$\sqrt{}$
Chloride (Dissolved)	$\sqrt{}$	\checkmark
Fluoride	\checkmark	$\sqrt{}$
Conductivity	$\sqrt{}$	$\sqrt{}$
Sulphate (Dissolved)	\checkmark	$\sqrt{}$
Total Dissolved Solids (TDS)	$\sqrt{}$	$\sqrt{}$
Ammonia-N	$\sqrt{}$	$\sqrt{}$
Nitrate (as N)	$\sqrt{}$	$\sqrt{}$
Nitrite (as N)	\checkmark	$\sqrt{}$
Nitrate/Nitrite (N+N)	$\sqrt{}$	$\sqrt{}$
Dissolved Organic Carbon (DOC)	-	$\sqrt{}$
Metals		
Dissolved CSR Metals (incl. Hg)	√	√
Dissolved Hardness (as CaCO ₃)	$\sqrt{}$	$\sqrt{}$
Total CSR Metals (incl. Hg)	-	$\sqrt{}$
Schedule B		
VOCs	$\sqrt{}$	-
Petroleum Hydrocarbons		
Total VH (C6-C10)	√	-
Total VPH (C6-C10) less BTEX	V	-



Appendix F

Field Sample Keys and Laboratory Reports

Q1 2023 Field Sample Key Campbell River Waste Management Centre Campbell River, BC

Facility ID	Sample Name	Location	Date	Time	Туре	Matrix	Parent Sample Name	WaterDepth	DepthUnit	DryYesNo	Field pH (s.u.)	Conductivity	Conductivity Unit	Temperature	Temperature Unit	Turbidity (NTU)	ORP	ORP units	TDS	TDS Units
1056484000	WG-030823-CS-58	CAM_MW04-19	03/08/2023	11:30	N	WG		24.600	m BTOR	No	8.19	209	uS/cm	7.99	deg C	1000	226	millivolts	136	mg/L
1056484000	WG-022723-CS-39	CAM_MW01-16	02/27/2023	11:30	N	WG		33.056	m BTOR	No	7.29	75	uS/cm	15.15	deg C	10.9	328	millivolts	49	mg/L
1056484000	CAM_AM02-01~270223	CAM_AM02-01	02/27/2023	07:00	N	WG				Yes										
1056484000	WG-022723-CS-40	CAM_AG99-01	02/27/2023	12:35	N	WG		29.395	m BTOR	No	7.65	226	uS/cm	10.64	deg C	6.7	306	millivolts	147	mg/L
1056484000	WG-022723-CS-41	CAM_EBA04-1	02/27/2023	13:00	N	WG				No	8.41	89	uS/cm	7.35	deg C	19.5	270	millivolts	58	mg/L
1056484000	WG-022723-CS-42	CAM_AG99-02	02/27/2023	14:20	N	WG		27.379	m BTOR	No	8.12	286	uS/cm	10.57	deg C	0.0	268	millivolts	186	mg/L
1056484000	WG-030723-CS-49	CAM_MW06-21	03/07/2023	09:50	N	WG		27.135	m BTOR	No	7.69	185	uS/cm	10.36	deg C	385	260	millivolts	120	mg/L
1056484000	WG-022723-CS-43	CAM_MW02-18	02/27/2023	16:00	N	WG		25.486	m BTOR	No	6.95	522	uS/cm	10.99	deg C	0.0	125	millivolts	334	mg/L
1056484000	WG-022723-CS-44	CAM_MW02-18	02/27/2023	16:05	FD	WGQ	WG-022723-CS-43			No	6.95	522	uS/cm	10.99	deg C	0.0	125	millivolts	334	mg/L
1056484000	WG-022823-CS-45	CAM_EBA11-1	02/28/2023	09:49	N	WG		23.590	m BTOR	No	7.11	1010	uS/cm	8.81	deg C	14.0	264	millivolts	647	mg/L
1056484000	WG-022823-CS-46	CAM_MW08-21	02/28/2023	10:45	N	WG		23.989	m BTOR	No	7.42	492	uS/cm	9.00	deg C	267	282	millivolts	320	mg/L
1056484000	WG-022823-CS-47	CAM_AG99-05	02/28/2023	13:45	N	WG		21.560	m BTOR	No	8.01	164	uS/cm	10.28	deg C	0.0	265	millivolts	107	mg/L
1056484000	WG-022823-CS-48	CAM_MW03-18	02/28/2023	14:10	N	WG		21.516	m BTOR	No	8.10	156	uS/cm	10.65	deg C	0.0	265	millivolts	102	mg/L
1056484000	WG-030723-CS-50	CAM_AG99-04	03/07/2023	11:30	N	WG		24.155	m BTOR	No	8.08	104	uS/cm	11.16	deg C	0.0	256	millivolts	68	mg/L
1056484000	WG-030723-CS-51	CAM_MW07-21	03/07/2023	12:05	N	WG		23.939	m BTOR	No	8.19	136	uS/cm	11.32	deg C	8.4	255	millivolts	80	mg/L
1056484000	WG-030723-CS-52	CAM_AG99-06	03/07/2023	13:55	N	WG		22.958	m BTOR	No	7.56	129	uS/cm	9.26	deg C	222	301	millivolts	84	mg/L
1056484000	WG-030723-CS-53	CAM_EBA11-3	03/07/2023	14:40	N	WG		23.905	m BTOR	No	7.75	126	uS/cm	10.01	deg C	9.1	295	millivolts	82	mg/L
1056484000	WG-030723-CS-54	CAM_EBA11-4	03/07/2023	16:00	N	WG		23.834	m BTOR	No	7.98	121	uS/cm	9.51	deg C	121	286	millivolts	79	mg/L
1056484000	WG-030823-CS-55	CAM_EBA04-6	03/08/2023	10:00	N	WG		25.808	m BTOR	No	7.23	485	uS/cm	10.86	deg C	0.0	295	millivolts	315	mg/L
1056484000	WG-030823-CS-56	CAM_EBA04-6	03/08/2023	10:05	FD	WGQ	WG-030823-CS-55			No	7.23	485	uS/cm	10.86	deg C	0.0	295	millivolts	315	mg/L
1056484000	WG-030823-CS-57	CAM_EBA04-7	03/08/2023	10:45	N	WG		25.718	m BTOR	No	6.84	899	uS/cm	10.70	deg C	0.0	303	millivolts	576	mg/L
1056484000	WG-030823-CS-59	CAM_HBT94-2	03/08/2023	12:55	N	WG		27.991	m BTOR	No	7.20	641	uS/cm	11.86	deg C	5.1	5	millivolts	410	mg/L
1056484000	CAM_HBT94-3~080323	CAM_HBT94-3	03/08/2023	07:00	N	WG				Yes										
1056484000	CAM_HBT94-1~080323	CAM_HBT94-1	03/08/2023	07:00	N	WG				Yes										
1056484000	WG-030823-CS-60	CAM_Field Blank	03/08/2023	17:30	FB	WGQ				No										
1056484000	Trip Blank	CAM_Trip Blank	03/08/2023	17:00	TB	WGQ				No										
1056484000	WS-022823-CS-10	CAM_SW-1	02/28/2023	13:15	N	WS				No	6.37	30	uS/cm	3.50	deg C	8.6	310	millivolts	20	mg/L
1056484000	WS-022823-CS-08	CAM_SW03-17	02/28/2023	12:57	N	WS				No	6.38	40	uS/cm	1.73	deg C	28	286	millivolts	26	mg/L
1056484000	WS-022823-CS-09	CAM_SW03-17	02/28/2023	13:01	FD	WS	WS-022823-CS-08			No	6.38	40	uS/cm	1.73	deg C	28	286	millivolts	26	mg/L
1056484000	WS-022823-CS-11	CAM_SWM Pond	03/08/2023	13:40	N	WS				No	7.40	379	uS/cm	8.19	deg C	46.3	239	millivolts	246	mg/L
1056484000	WS-030823-CS-12	CAM_SW-1	03/08/2023	14:25	N	WS				No	5.77	28	uS/cm	5.01	deg C	0	338	millivolts	18	mg/L
1056484000	WS-030823-CS-13	CAM_SW-1	03/08/2023	14:30	FD	WS	WS-030823-CS-12			No	5.77	28	uS/cm	5.01	deg C	0	338	millivolts	18	mg/L

Q2 2023 Field Sample Key Campbell River Waste Management Centre Campbell River, BC

Facility ID	Sample Name	Location	Date	Time	Type	Matrix	Parent Sample Name	WaterElev	DepthUnit	DryYes	Field pH	Conductivity	Conductivity	Temperature	Temperature	Turbidity	ORP	ORP	Dissolved	DO	TDS	TDS
					Type		r arent Sample Name			No	(s.u.)		Unit	•	Unit	(NTU)		units	Oxygen (DO)	Units	100	Units
1056484000	WG-051023-CS-01	CAM_MW01-16	05/10/2023	10:15	N	WG		35.423	m BTOR	No	7.48	78	uS/cm	19.45	deg C	0.0	255	millivolts			51	mg/L
1056484000	CAM_AM02-01~100523	CAM_AM02-01	05/10/2023	07:00	N	WG				Yes												
1056484000	WG-051023-CS-02	CAM_AG99-01	05/10/2023	11:30	N	WG		30.623	m BTOR	No	7.68	222	uS/cm	12.12	deg C	0.0	248	millivolts			145	mg/L
1056484000	WG-051023-CS-03	CAM_MW06-21	05/10/2023	12:25	N	WG		27.338	m BTOR	No	7.87	179	uS/cm	13.11	deg C	166	234	millivolts			116	mg/L
1056484000	WG-051023-CS-04	CAM_AG99-02	05/10/2023	13:40	N	WG		27.587	m BTOR	No	8.27	190	uS/cm	12.78	deg C	0.0	220	millivolts			124	mg/L
1056484000	WG-051023-CS-05	CAM_AG99-02	05/10/2023	13:45	FD	WGQ	WG-051023-CS-04			No	8.27	190	uS/cm	12.78	deg C	0.0	220	millivolts			124	mg/L
1056484000	WG-051023-CS-06	CAM_MW02-18	05/10/2023	14:45	N	WG		25.551	m BTOR	No	6.97	698	uS/cm	12.85	deg C	0.0	89	millivolts			447	mg/L
1056484000	WG-051623-CS-07	CAM_AG99-05	05/16/2023	10:40	N	WG		21.846	m BTOR	No	7.89	180	uS/cm	13.13	deg C	0.7	224	millivolts			117	mg/L
1056484000	WG-051623-CS-08	CAM_MW03-18	05/16/2023	11:15	N	WG		21.811	m BTOR	No	8.14	134	uS/cm	12.99	deg C	0.0	210	millivolts			87	mg/L
1056484000	WG-051623-CS-09	CAM_AG99-04	05/16/2023	13:05	N	WG		24.537	m BTOR	No	8.14	98	uS/cm	13.65	deg C	0.0	220	millivolts			64	mg/L
1056484000	WG-051623-CS-10	CAM_MW07-21	05/16/2023	13:35	N	WG		24.312	m BTOR	No	8.15	136	uS/cm	14.05	deg C	4.9	219	millivolts			88	mg/L
1056484000	WG-051623-CS-11	CAM_MW08-21	05/16/2023	14:40	N	WG		24.292	m BTOR	No	7.46	476	uS/cm	13.80	deg C	157	256	millivolts			309	mg/L
1056484000	WG-051623-CS-12	CAM_EBA11-1	05/16/2023	15:10	N	WG		22.839	m BTOR	No	7.22	985	uS/cm	11.42	deg C	9.8	232	millivolts			630	mg/L
1056484000	WG-051723-CS-13	CAM_EBA11-3	05/17/2023	09:50	N	WG		23.980	m BTOR	No	7.73	126	uS/cm	11.41	deg C	0.0	230	millivolts			82	mg/L
1056484000	WG-051723-CS-14	CAM_EBA11-4	05/17/2023	10:40	N	WG		24.020	m BTOR	No	7.97	119	uS/cm	11.48	deg C	61.0	220	millivolts			77	mg/L
1056484000	WG-051723-CS-15	CAM_EBA11-4	05/17/2023	10:45	FD	WGQ	WG-051723-CS-14			No	7.97	119	uS/cm	11.48	deg C	61.0	220	millivolts			77	mg/L
1056484000	WG-051723-CS-16	CAM_AG99-06	05/17/2023	11:25	N	WG		23.132	m BTOR	No	7.66	219	uS/cm	12.00	deg C	84.9	241	millivolts			142	mg/L
1056484000	WG-051723-CS-17	CAM_Field Blank	05/17/2023	12:30	FB	WGQ				No												
1056484000	WG-051723-CS-18	CAM_EBA04-1	05/17/2023	12:55	N	WG				No	8.60	87	uS/cm	16.88	deg C	0.0	174	millivolts			56	mg/L
1056484000	WG-051723-CS-19	CAM_MW04-19	05/17/2023	13:20	N	WG		24.764	m BTOR	No	8.35	169	uS/cm	13.07	deg C	1000	210	millivolts			110	mg/L
1056484000	WG-051723-CS-20	CAM_EBA04-7	05/17/2023	14:10	N	WG		26.116	m BTOR	No	7.00	803	uS/cm	13.80	deg C	0.0	244	millivolts			513	mg/L
1056484000	WG-051723-CS-21	CAM_EBA04-6	05/17/2023	14:45	N	WG		26.206	m BTOR	No	7.23	671	uS/cm	14.89	deg C	0.0	239	millivolts			429	mg/L
1056484000	CAM_HBT94-1~170523	CAM_HBT94-1	05/17/2023	07:00	N	WG				Yes												
1056484000	WG-051723-CS-22	CAM_HBT94-2	05/17/2023	16:10	N	WG		28.270	m BTOR	No	7.23	642	uS/cm	14.80	deg C	0.0	-23	millivolts			410	mg/L
1056484000	CAM_HBT94-3~170523	CAM_HBT94-3	05/17/2023	07:00	N	WG				Yes												
1056484000	WS-051623-CS-01	CAM_SW03-17	05/16/2023	09:40	N	WG				No	6.54	47	uS/cm	22.21	deg C	0.4	241	millivolts	6.24	mg/L	30	mg/L
1056484000	WS-051623-CS-02	CAM_SW-1	05/16/2023	10:00	N	WG				No	6.06	37	uS/cm	19.53	deg C	6.0	276	millivolts	9.19	mg/L	240	mg/L
1056484000	CAM SWM Pond~160523	CAM SWM Pond	05/16/2023	07:00	N	WG				Yes												

Q3 2023 Field Sample Key Campbell River Waste Management Centre Campbell River, BC

Facility ID	Sample Name	Location	Date	Time	Туре	Matrix	Parent Sample Name	WaterDepth	DepthUnit	DryYesNo	Field pH (s.u.)	Conductivity	Conductivity Unit	Temperature	Temperature Unit	Turbidity (NTU)	ORP	ORP units	Dissolved Oxygen (DO)	DO . Units	TDS	TDS Units
1056484000	WG-081323-CS-01	CAM MW01-16	08/13/2023	09:40	N	WG		32.515	m BTOR	No	7.40	67	uS/cm	12.26	deg C	2.9	240	millivolts	33: (-,		43	mg/L
1056484000	CAM AM02-01~120823	CAM AM02-01	08/13/2023	07:00	N	WG				Yes					5 -							
1056484000	WG-081323-CS-02	CAM AG99-01	08/13/2023	10:40	N	WG		30.074	m BTOR	No	7.83	192	uS/cm	12.82	deg C	2.0	222	millivolts			125	mg/L
1056484000	WG-081323-CS-03	CAM EBA11-3	08/13/2023	11:35	N	WG		23.991	m BTOR	No	7.90	106	uS/cm	12.07	deg C	2.6	232	millivolts			69	mg/L
1056484000	WG-081323-CS-04	CAM EBA11-3	08/13/2023	11:40	FD	WGQ	WG-081323-CS-03			No	7.90	106	uS/cm	12.07	deg C	2.6	232	millivolts			69	mg/L
1056484000	WG-081323-CS-05	CAM EBA11-4	08/13/2023	12:12	N	WG		24.102	m BTOR	No	8.00	123	uS/cm	11.93	deg C	30.0	236	millivolts			80	mg/L
1056484000	WG-081323-CS-06	CAM AG99-06	08/13/2023	12:50	N	WG		23.479	m BTOR	No	7.90	157	uS/cm	13.11	deg C	48.5	239	millivolts			102	mg/L
1056484000	WG-081323-CS-07	CAM EBA04-7	08/13/2023	13:50	N	WG		25.629	m BTOR	No	7.10	790	uS/cm	13.81	deg C	1.1	242	millivolts			502	mg/L
1056484000	WG-081323-CS-08	CAM EBA04-6	08/13/2023	14:20	N	WG		25.712	m BTOR	No	7.32	593	uS/cm	14.34	deg C	1.0	236	millivolts			379	mg/L
1056484000	WG-081423-CS-09	CAM_MW08-21	08/14/2023	09:25	N	WG		23.835	m BTOR	No	7.45	406	uS/cm	11.59	deg C	58.8	251	millivolts			264	mg/L
1056484000	WG-081423-CS-10	CAM_EBA11-1	08/14/2023	10:00	N	WG		23.552	m BTOR	No	7.32	931	uS/cm	10.46	deg C	1.3	236	millivolts			596	mg/L
1056484000	WG-081423-CS-11	CAM_MW06-21	08/14/2023	11:10	N	WG		26.854	m BTOR	No	7.92	174	uS/cm	12.43	deg C	10.7	238	millivolts			113	mg/L
1056484000	WG-081423-CS-12	CAM_AG99-02	08/14/2023	12:10	N	WG		27.099	m BTOR	No	8.40	146	uS/cm	16.10	deg C	1.7	213	millivolts			95	mg/L
1056484000	WG-081423-CS-13	CAM_MW02-18	08/14/2023	13:35	N	WG		25.321	m BTOR	No	6.87	766	uS/cm	14.07	deg C	0.7	96	millivolts			490	mg/L
1056484000	WG-081423-CS-14	CAM_AG99-04	08/14/2023	14:55	N	WG		24.043	m BTOR	No	8.40	98	uS/cm	13.70	deg C	0.1	182	millivolts			64	mg/L
1056484000	WG-081423-CS-15	CAM_AG99-04	08/14/2023	15:00	FD	WGQ	WG-081423-CS-14			No	8.40	98	uS/cm	13.70	deg C	0.1	182	millivolts			64	mg/L
1056484000	WG-081423-CS-16	CAM_MW07-21	08/14/2023	15:15	N	WG		23.827	m BTOR	No	8.29	157	uS/cm	14.10	deg C	4.9	194	millivolts			102	mg/L
1056484000	WG-081523-CS-17	CAM_AG99-05	08/15/2023	10:00	N	WG		21.404	m BTOR	No	7.43	116	uS/cm	12.01	deg C	1.7	267	millivolts			76	mg/L
1056484000	WG-081523-CS-18	CAM_MW03-18	08/15/2023	10:40	N	WG		21.369	m BTOR	No	8.38	126	uS/cm	13.21	deg C	0.4	214	millivolts			82	mg/L
1056484000	WG-081523-CS-19	CAM_Field Blank	08/15/2023	17:10	FB	WGQ				No												
1056484000	WG-081623-CS-20	CAM_EBA04-1	08/16/2023	08:50	N	WG				No	8.46	85	uS/cm	21.44	deg C	0.5	184	millivolts			55	mg/L
1056484000	WG-081623-CS-21	CAM_EBA04-1	08/16/2023	08:55	FD	WGQ	WG-081623-CS-20			No	8.46	85	uS/cm	21.44	deg C	0.5	184	millivolts			55	mg/L
1056484000	WG-081623-CS-22	CAM_MW04-19	08/16/2023	09:49	N	WG		24.631	m BTOR	No	8.59	132	uS/cm	16.75	deg C	345	185	millivolts			86	mg/L
1056484000	WG-081623-CS-23	CAM_HBT94-2	08/16/2023	11:40	N	WG		27.810	m BTOR	No	7.35	452	uS/cm	17.69	deg C	1.8	1	millivolts			294	mg/L
1056484000	WG-081623-CS-24	CAM_WELL#66650	08/16/2023	12:12	N	WG				No	8.65	112	uS/cm	14.85	deg C	1.8	99	millivolts			73	mg/L
1056484000	CAM_HBT94-1~160823	CAM_HBT94-1	08/16/2023	07:00	N	WG				Yes												
1056484000	CAM_HBT94-3~160823	CAM_HBT94-3	08/16/2023	07:00	N	WG				Yes												
1056484000	WS-081523-CS-01	CAM_SW03-17	08/15/2023	12:49	N	WS				No	6.68	35	uS/cm	25.72	deg C	1.4	272	millivolts	6.56	mg/L	23	mg/L
1056484000	CAM_SW-1~150823	CAM_SW-1	08/15/2023	07:00	N	WS				Yes												
1056484000	CAM SWM Pond~150823	CAM SWM Pond	08/15/2023	07:00	N	WS				Yes												

Q4 2023 Field Sample Key Campbell River Waste Management Centre Campbell River, BC

Facility ID	Sample Name	Location	Date	Time	Туре	Matrix	Parent Sample Name	WaterDepth	DepthUnit	DryYesN o	Field pH (s.u.)	Conductivity	Conductivity Unit	Temperature	Temperature Unit	Turbidity (NTU)	ORP	ORP units	Dissolved Oxygen (DO)	DO Units	TDS	TDS Units
1056484000	WG-111323-CS-01	CAM_MW01-16	11/13/2023	09:30	N	WG		33.846	m BTOR	No	7.33	90	uS/cm	11.38	deg C	3.1	258	millivolts			58	mg/L
1056484000	CAM_AM02-01~131123	CAM_AM02-01	11/13/2023	07:00	N	WG				Yes												
1056484000	WG-111323-CS-02	CAM_AG99-01	11/13/2023	10:25	N	WG		30.119	m BTOR	No	7.72	204	uS/cm	10.67	deg C	3.5	247	millivolts			132	mg/L
1056484000	WG-111323-CS-03	CAM_EBA11-3	11/13/2023	11:10	N	WG		24.028	m BTOR	No	7.88	108	uS/cm	10.16	deg C	3.7	242	millivolts			70	mg/L
1056484000	WG-111323-CS-04	CAM_EBA11-4	11/13/2023	11:40	N	WG		24.205	m BTOR	No	8.05	139	uS/cm	10.04	deg C	25.8	243	millivolts			90	mg/L
1056484000	WG-111323-CS-05	CAM_EBA11-4	11/13/2023	11:45	FD	WGQ	WG-111323-CS-04			No	8.05	139	uS/cm	10.04	deg C	25.8	243	millivolts			90	mg/L
1056484000	WG-111323-CS-06	CAM_AG99-06	11/13/2023	12:20	N	WG		23.647	m BTOR	No	7.93	100	uS/cm	9.74	deg C	26.1	240	millivolts			65	mg/L
1056484000	WG-111323-CS-07	CAM_MW08-21	11/13/2023	14:30	N	WG		23.829	m BTOR	No	7.52	472	uS/cm	9.89	deg C	61.0	252	millivolts			307	mg/L
1056484000	WG-111323-CS-08	CAM_EBA11-1	11/13/2023	15:00	N	WG		23.719	m BTOR	No	7.44	702	uS/cm	9.06	deg C	2.9	248	millivolts			449	mg/L
1056484000	WG-111323-CS-09	CAM_EBA04-6	11/13/2023	15:40	N	WG		25.686	m BTOR	No	7.27	586	uS/cm	10.66	deg C	2.4	237	millivolts			375	mg/L
1056484000	WG-111323-CS-10	CAM_Field Blank	11/13/2023	17:00	FB	WGQ				No												
1056484000	WG-111423-CS-11	CAM_EBA04-7	11/14/2023	09:35	N	WG		25.595	m BTOR	No	6.85	927	uS/cm	10.57	deg C	1.4	262	millivolts			593	mg/L
1056484000	WG-111423-CS-12	CAM_MW04-19	11/14/2023	10:45	N	WG		24.649	m BTOR	No	7.51	114	uS/cm	8.93	deg C	354	202	millivolts			74	mg/L
1056484000	WG-111423-CS-13	CAM_MW06-21	11/14/2023	11:45	N	WG		26.875	m BTOR	No	7.87	181	uS/cm	10.38	deg C	51.8	222	millivolts			118	mg/L
1056484000	WG-111423-CS-14	CAM_AG99-02	11/14/2023	12:40	N	WG		27.130	m BTOR	No	8.34	184	uS/cm	10.91	deg C	1.8	219	millivolts			120	mg/L
1056484000	WG-111423-CS-15	CAM_AG99-02	11/14/2023	12:45	FD	WGQ	WG-111423-CS-14			No	8.34	184	uS/cm	10.91	deg C	1.8	219	millivolts			120	mg/L
1056484000	WG-111523-CS-16	CAM_MW02-18	11/15/2023	09:55	N	WG		25.266	m BTOR	No	6.97	547	uS/cm	11.27	deg C	0.5	93	millivolts			350	mg/L
1056484000	WG-111523-CS-17	CAM_MW07-21	11/15/2023	10:40	N	WG		23.789	m BTOR	No	8.21	165	uS/cm	10.53	deg C	8.7	169	millivolts			107	mg/L
1056484000	WG-111523-CS-18	CAM_AG99-04	11/15/2023	11:25	N	WG		24.009	m BTOR	No	8.31	108	uS/cm	10.25	deg C	0.7	193	millivolts			70	mg/L
1056484000	WG-111523-CS-19	CAM_AG99-05	11/15/2023	14:00	N	WG		24.372	m BTOR	No	8.22	100	uS/cm	10.70	deg C	3.2	240	millivolts			65	mg/L
1056484000	WG-111523-CS-20	CAM_MW03-18	11/15/2023	14:20	N	WG		21.340	m BTOR	No	8.22	221	uS/cm	11.19	deg C	0.3	241	millivolts			144	mg/L
1056484000	WG-111523-CS-21	CAM_MW03-18	11/15/2023	14:25	FD	WGQ	WG-111523-CS-20			No	8.22	221	uS/cm	11.19	deg C	0.3	241	millivolts			144	mg/L
1056484000	WG-111523-CS-22	CAM_WELL#66650	11/15/2023	15:00	N	WG				No	8.81	90	uS/cm	9.57	deg C	2.0	214	millivolts			58	mg/L
1056484000	CAM_HBT94-1~161123	CAM_HBT94-1	11/16/2023	07:00	N	WG				No												
1056484000	CAM_HBT94-3~161123	CAM_HBT94-3	11/16/2023	07:00	N	WG				Yes												
1056484000	WG-111623-CS-23	CAM_HBT94-2	11/16/2023	10:20	N	WG		27.709	m BTOR	No	7.38	468	uS/cm	11.25	deg C	0.0	32	millivolts			304	mg/L
1056484000	WG-111623-CS-24	CAM_EBA04-1	11/16/2023	10:51	N	WG				No	8.57	89	uS/cm	8.16	deg C	0.0	143	millivolts			58	mg/L
1056484000	WS-111523-CS-01	CAM_SW-1	11/15/2023	12:30	N	WS				No	6.55	32	uS/cm	7.82	deg C	1.0	266	millivolts	6.82	mg/L	21	mg/L
1056484000	WS-111523-CS-02	CAM SW-1	11/15/2023	12:35	FD	WSQ	WS-111523-CS-01			No	6.55	32	uS/cm	7.82	deg C	1.0	266	millivolts	6.82	mg/L	21	mg/L
1056484000	WS-111523-CS-03	CAM_SW03-17	11/15/2023	12:49	N	WS				No	6.64	31	uS/cm	7.47	deg C	1.7	267	millivolts	5.53	mg/L	20	mg/L
1056484000	WS-111523-CS-04	CAM_SWM Pond	11/15/2023	15:15	N	WS				No	7.85	259	uS/cm	8.98	deg C	1.2	235	millivolts	6.49	mg/L	169	mg/L
1056484001	CP-111423-CS-01	CAM_CA Pond	11/14/2023	10:30	N	WS				No	7.89	584	uS/cm	7.82	deg C	68.2	199	millivolts	10.65	mg/L	374	mg/L

ALS Canada Ltd.



CERTIFICATE OF ANALYSIS

Work Order : **VA23A4471** Page : 1 of 10

Courtney BC Canada V9N 0G8

Amendment : 1

Client : Comox Valley Regional District Laboratory : Vancouver - Environmental

Contact : Crystal Stuart : Crystal Stuart : Thomas Chang

Address : 770 Harmston Avenue Address : 8081 Lougheed Highway

Burnaby BC Canada V5A 1W9

Telephone : 250-898-3722 Telephone : +1 604 253 4188

 Project
 : 3
 Date Samples Received
 : 01-Mar-2023 10:45

 PO
 : 23-015
 Date Analysis Commenced
 : 01-Mar-2023

C-O-C number : --- Issue Date : 22-Mar-2023 14:36

Sampler : CStuart
Site : CRWMC-Quarterly-GW

Quote number : VA23-COVR100-001

No. of samples received : 6
No. of samples analysed : 6

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
- Surrogate Control Limits

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
Caitlin Macey	Team Leader - Inorganics	Inorganics, Burnaby, British Columbia
Dan Gebert	Laboratory Analyst	Metals, Burnaby, British Columbia
Parnian Sane	Analyst	Metals, Burnaby, British Columbia
Rebecca Sit	Supervisor - Organics Extractions	Organics, Burnaby, British Columbia
Robin Weeks	Team Leader - Metals	Metals, Burnaby, British Columbia

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Work Order : VA23A4471 Amendment 1
Client : Comox Valley Regional District

Project : 3



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
μg/L	micrograms per litre
μS/cm	microsiemens per centimetre
mg/L	milligrams per litre

<: 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 (22/03/2023): This report has been amended to allow the distribution of an Electronic Data Deliverable (EDD) not previously provided. All analysis results are as per the previous report.

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Work Order : VA23A4471 Amendment 1
Client : Comox Valley Regional District

Project :



Sub-Matrix: Water	ient sample ID	WG-022723-CS-	WG-022723-CS-	WG-022723-CS-	WG-022723-CS-	WG-022723-CS-			
(Matrix: Water)					39	40	41	42	43
			Client samp	ling date / time	27-Feb-2023 11:30	27-Feb-2023 12:35	27-Feb-2023 13:00	27-Feb-2023 14:20	27-Feb-2023 16:00
Analyte	CAS Number	Method	LOR	Unit	VA23A4471-001	VA23A4471-002	VA23A4471-003	VA23A4471-004	VA23A4471-005
Physical Tests					Result	Result	Result	Result	Result
Alkalinity, bicarbonate (as CaCO3)		E290	1.0	mg/L	34.4	111	43.2	145	204
Alkalinity, carbonate (as CaCO3)		E290	1.0	mg/L	<1.0	<1.0	<1.0	5.8	<1.0
Alkalinity, hydroxide (as CaCO3)		E290	1.0	mg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Alkalinity, total (as CaCO3)		E290	1.0	mg/L	34.4	111	43.2	151	204
Conductivity		E100	2.0	μS/cm	74.3	217	89.7	282	498
Hardness (as CaCO3), dissolved		EC100	0.60	mg/L	31.8	102	40.3	141	141
Solids, total dissolved [TDS]		E162	10	mg/L	50	139	55	164	248
Anions and Nutrients		2.02		mg/L					2.0
Ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	12.6
Chloride	16887-00-6	E235.CI	0.50	mg/L	0.81	2.13	0.86	1.37	33.6
Fluoride	16984-48-8	E235.F	0.020	mg/L	<0.020	<0.020	<0.020	<0.020	<0.020
Nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	0.0614	0.188	0.0393	0.206	<0.0050
Nitrate + Nitrite (as N)	14797-33-6	EC235.N+N	0.0050	mg/L	0.0614	0.188	0.0393	0.206	<0.0051
Nitrite (as N)	14797-65-0	E235.NO2-L	0.0000	mg/L	<0.0014	<0.0010	<0.0010	<0.0010	<0.0010
Sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	2.35	3.05	2.32	2.61	2.59
Dissolved Metals									
Aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	0.0046	0.0020	0.0030	0.0037	<0.0010
Antimony, dissolved	7440-36-0	E421	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	0.00010	0.00077	0.00046	0.00184	0.00020
Barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.00144	0.00228	0.00041	0.00679	0.0218
Beryllium, dissolved	7440-41-7	E421	0.000020	mg/L	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Bismuth, dissolved	7440-69-9	E421	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron, dissolved	7440-42-8	E421	0.010	mg/L	0.010	<0.010	<0.010	<0.010	0.209
Cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L	<0.000050	<0.0000050	0.0000094	<0.0000050	0.0000676
Calcium, dissolved	7440-70-2	E421	0.050	mg/L	10.4	32.9	13.2	43.5	42.0
Chromium, dissolved	7440-47-3	E421	0.00050	mg/L	<0.00050	0.00057	<0.00050	0.00069	<0.00050
Cobalt, dissolved	7440-48-4	E421	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	0.00088
Copper, dissolved	7440-50-8	E421	0.00020	mg/L	<0.00020	<0.00020	0.00166	<0.00020	0.00841
Iron, dissolved	7439-89-6	E421	0.010	mg/L	<0.010	<0.010	0.024	<0.010	0.022

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Work Order : VA23A4471 Amendment 1
Client : Comox Valley Regional District

Project : 3



Sub-Matrix: Water			Cli	ent sample ID	WG-022723-CS-	WG-022723-CS-	WG-022723-CS-	WG-022723-CS-	WG-022723-CS-
(Matrix: Water)					39	40	41	42	43
	0.001/	Mathad		ling date / time	27-Feb-2023 11:30	27-Feb-2023 12:35	27-Feb-2023 13:00	27-Feb-2023 14:20	27-Feb-2023 16:00
Analyte	CAS Number	Method	LOR	Unit	VA23A4471-001	VA23A4471-002	VA23A4471-003	VA23A4471-004	VA23A4471-005
Dissolved Metals	4.54				Result	Result	Result	Result	Result
Lead, dissolved	7439-92-1	E421	0.000050	mg/L	<0.000050	<0.000050	0.000183	<0.000050	<0.000050
Lithium, dissolved	7439-93-2	E421	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Magnesium, dissolved	7439-95-4	E421	0.100	mg/L	1.42	4.96	1.79	7.96	8.87
Manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.00012	<0.00010	0.00036	<0.00010	1.44
Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.000050
Molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.000210	0.000125	0.000296	0.000082	0.000768
Nickel, dissolved	7440-02-0	E421	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	0.00175
Phosphorus, dissolved	7723-14-0	E421	0.050	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium, dissolved	7440-09-7	E421	0.100	mg/L	0.190	0.815	0.288	1.51	8.54
Selenium, dissolved	7782-49-2	E421	0.000050	mg/L	0.000089	0.000112	0.000098	0.000174	<0.000050
Silicon, dissolved	7440-21-3	E421	0.050	mg/L	4.34	6.11	4.38	6.12	13.2
Silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium, dissolved	7440-23-5	E421	0.050	mg/L	1.14	1.89	1.20	1.89	22.0
Strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.0165	0.0563	0.0208	0.0557	0.198
Sulfur, dissolved	7704-34-9	E421	0.50	mg/L	0.56	0.63	<0.50	0.64	0.72
Thallium, dissolved	7440-28-0	E421	0.000010	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Tin, dissolved	7440-31-5	E421	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium, dissolved	7440-32-6	E421	0.00030	mg/L	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030
Uranium, dissolved	7440-61-1	E421	0.000010	mg/L	<0.000010	0.000102	0.000015	0.000332	0.000220
Vanadium, dissolved	7440-62-2	E421	0.00050	mg/L	0.00191	0.00554	0.00346	0.0176	0.00164
Zinc, dissolved	7440-66-6	E421	0.0010	mg/L	<0.0010	<0.0010	0.0222	<0.0010	<0.0010
Zirconium, dissolved	7440-67-7	E421	0.00020	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Dissolved mercury filtration location		EP509	-	-	Field	Field	Field	Field	Field
Dissolved metals filtration location		EP421	-	-	Field	Field	Field	Field	Field
Volatile Organic Compounds					3 11				
Chlorobenzene	108-90-7	E611C	0.50	μg/L	<0.50				<0.50
Chloromethane	74-87-3	E611C	5.0	μg/L	<5.0				<5.0
Dichlorobenzene, 1,2-	95-50-1	E611C	0.50	μg/L	<0.50				<0.50
Dichlorobenzene, 1,3-	541-73-1	E611C	0.50	μg/L	<0.50				<0.50
Dichlorobenzene, 1,4-	106-46-7	E611C	0.50	μg/L	<0.50				<0.50

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Client : Comox Valley Regional District

Project : 3



Sub-Matrix: Water	ient sample ID	WG-022723-CS-	WG-022723-CS-	WG-022723-CS-	WG-022723-CS-	WG-022723-CS-			
(Matrix: Water)					39	40	41	42	43
			Client samp	ling date / time	27-Feb-2023 11:30	27-Feb-2023 12:35	27-Feb-2023 13:00	27-Feb-2023 14:20	27-Feb-2023 16:00
Analyte	CAS Number	Method	LOR	Unit	VA23A4471-001	VA23A4471-002	VA23A4471-003	VA23A4471-004	VA23A4471-005
					Result	Result	Result	Result	Result
Volatile Organic Compounds	70.07.5	E611C	0.50	ug/l	<0.50				<0.50
Dichloropropane, 1,2-	78-87-5	E611C	0.50 0.75	μg/L	<0.75				<0.75
Dichloropropylene, cis+trans-1,3-	542-75-6	E611C	0.75	μg/L	<0.75				<0.75
Dichloropropylene, cis-1,3-	10061-01-5			μg/L					<0.50
Tetrachloroethane, 1,1,1,2-	630-20-6	E611C	0.50	μg/L	<0.50				
Tetrachloroethane, 1,1,2,2-	79-34-5	E611C	0.20	μg/L	<0.20				<0.20
Trichloroethane, 1,1,2-	79-00-5	E611C	0.50	μg/L	<0.50				<0.50
Trichlorofluoromethane	75-69-4	E611C	0.50	μg/L	<0.50				<0.50
Volatile Organic Compounds [Drycleaning]	50.00.5	F611C	0.50	/1	<0.50				<0.F0
Carbon tetrachloride	56-23-5	E611C	0.50	μg/L	<0.50				<0.50
Chloroethane	75-00-3	E611C	0.50	μg/L	<0.50				<0.50
Dichloroethane, 1,1-	75-34-3	E611C	0.50	μg/L 	<0.50				<0.50
Dichloroethane, 1,2-	107-06-2	E611C	0.50	μg/L 	<0.50				<0.50
Dichloroethylene, 1,1-	75-35-4	E611C	0.50	μg/L 	<0.50				<0.50
Dichloroethylene, cis-1,2-	156-59-2	E611C	0.50	μg/L 	<0.50				<0.50
Dichloroethylene, trans-1,2-	156-60-5	E611C	0.50	μg/L	<0.50				<0.50
Dichloromethane	75-09-2	E611C	1.0	μg/L	<1.0				<1.0
Dichloropropylene, trans-1,3-	10061-02-6	E611C	0.50	μg/L	<0.50				<0.50
Tetrachloroethylene	127-18-4	E611C	0.50	μg/L	<0.50				<0.50
Trichloroethane, 1,1,1-	71-55-6	E611C	0.50	μg/L	<0.50				<0.50
Trichloroethylene	79-01-6	E611C	0.50	μg/L	<0.50				<0.50
Vinyl chloride	75-01-4	E611C	0.40	μg/L	<0.40				<0.40
Volatile Organic Compounds [Fuels]									
Benzene	71-43-2	E611C	0.50	μg/L	<0.50				<0.50
Ethylbenzene	100-41-4	E611C	0.50	μg/L	<0.50				<0.50
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611C	0.50	μg/L	<0.50				<0.50
Styrene	100-42-5	E611C	0.50	μg/L	<0.50				<0.50
Toluene	108-88-3	E611C	0.40	μg/L	<0.40				<0.40
Xylene, m+p-	179601-23-1	E611C	0.40	μg/L	<0.40				<0.40
Xylene, o-	95-47-6	E611C	0.30	μg/L	<0.30				<0.30
Xylenes, total	1330-20-7	E611C	0.50	μg/L	<0.50				<0.50

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Work Order : VA23A4471 Amendment 1
Client : Comox Valley Regional District

Project : 3



Analytical Results

Sub-Matrix: Water			CI	ient sample ID	WG-022723-CS-	WG-022723-CS-	WG-022723-CS-	WG-022723-CS-	WG-022723-CS-
(Matrix: Water)					39	40	41	42	43
			Client samp	ling date / time	27-Feb-2023 11:30	27-Feb-2023 12:35	27-Feb-2023 13:00	27-Feb-2023 14:20	27-Feb-2023 16:00
Analyte	CAS Number	Method	LOR	Unit	VA23A4471-001	VA23A4471-002	VA23A4471-003	VA23A4471-004	VA23A4471-005
					Result	Result	Result	Result	Result
Volatile Organic Compounds [THMs]									
Bromodichloromethane	75-27-4	E611C	0.50	μg/L	<0.50				<0.50
Bromoform	75-25-2	E611C	0.50	μg/L	<0.50				<0.50
Chloroform	67-66-3	E611C	0.50	μg/L	<0.50				<0.50
Dibromochloromethane	124-48-1	E611C	0.50	μg/L	<0.50				<0.50
Hydrocarbons									
VHw (C6-C10)		E581.VH+F1	100	μg/L	<100				<100
VPHw		EC580A	100	μg/L	<100				<100
Hydrocarbons Surrogates									
Dichlorotoluene, 3,4-	95-75-0	E581.VH+F1	1.0	%	116				108
Volatile Organic Compounds Surrogates									
Bromofluorobenzene, 4-	460-00-4	E611C	1.0	%	89.6				86.0
Difluorobenzene, 1,4-	540-36-3	E611C	1.0	%	98.7				98.5

Please refer to the General Comments section for an explanation of any qualifiers detected.

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Page Work Order VA23A4471 Amendment 1 Client Comox Valley Regional District

Project



Sub-Matrix: Water			Cli	ent sample ID	WG-022723-CS-		 	
(Matrix: Water)					44			
			Client samp	ling date / time	27-Feb-2023 16:05		 	
Analyte	CAS Number	Method	LOR	Unit	VA23A4471-006		 	
					Result		 	
Physical Tests								
Alkalinity, bicarbonate (as CaCO3)		E290	1.0	mg/L	203		 	
Alkalinity, carbonate (as CaCO3)		E290	1.0	mg/L	<1.0		 	
Alkalinity, hydroxide (as CaCO3)		E290	1.0	mg/L	<1.0		 	
Alkalinity, total (as CaCO3)		E290	1.0	mg/L	203		 	
Conductivity		E100	2.0	μS/cm	496		 	
Hardness (as CaCO3), dissolved		EC100	0.60	mg/L	139		 	
Solids, total dissolved [TDS]		E162	10	mg/L	248		 	
Anions and Nutrients								
Ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	12.2		 	
Chloride	16887-00-6	E235.CI	0.50	mg/L	33.3		 	
Fluoride	16984-48-8	E235.F	0.020	mg/L	<0.020		 	
Nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	<0.0050		 	
Nitrate + Nitrite (as N)		EC235.N+N	0.0050	mg/L	<0.0051		 	
Nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	<0.0010		 	
Sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	2.64		 	
Dissolved Metals								
Aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	<0.0010		 	
Antimony, dissolved	7440-36-0	E421	0.00010	mg/L	<0.00010		 	
Arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	0.00018		 	
Barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.0212		 	
Beryllium, dissolved	7440-41-7	E421	0.000020	mg/L	<0.000020		 	
Bismuth, dissolved	7440-69-9	E421	0.000050	mg/L	<0.000050		 	
Boron, dissolved	7440-42-8	E421	0.010	mg/L	0.207		 	
Cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L	0.0000613		 	
Calcium, dissolved	7440-70-2	E421	0.050	mg/L	41.8		 	
Chromium, dissolved	7440-47-3	E421	0.00050	mg/L	<0.00050		 	
Cobalt, dissolved	7440-48-4	E421	0.00010	mg/L	0.00086		 	
Copper, dissolved	7440-50-8	E421	0.00020	mg/L	0.00825		 	
Iron, dissolved	7439-89-6	E421	0.010	mg/L	0.022		 	
Lead, dissolved	7439-92-1	E421	0.000050	mg/L	<0.000050		 	
1			•			' '		'

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Work Order : VA23A4471 Amendment 1
Client : Comox Valley Regional District

Project :



(Matrix: Water)								
					44			
			Client sampl	ing date / time	27-Feb-2023 16:05		 	
Analyte	CAS Number	Method	LOR	Unit	VA23A4471-006		 	
					Result		 	
Dissolved Metals								
Lithium, dissolved	7439-93-2	E421	0.0010	mg/L	<0.0010		 	
Magnesium, dissolved	7439-95-4	E421	0.100	mg/L	8.49		 	
Manganese, dissolved	7439-96-5	E421	0.00010	mg/L	1.43		 	
Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050		 	
Molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.000754		 	
Nickel, dissolved	7440-02-0	E421	0.00050	mg/L	0.00169		 	
Phosphorus, dissolved	7723-14-0	E421	0.050	mg/L	<0.050		 	
Potassium, dissolved	7440-09-7	E421	0.100	mg/L	8.40		 	
Selenium, dissolved	7782-49-2	E421	0.000050	mg/L	<0.000050		 	
Silicon, dissolved	7440-21-3	E421	0.050	mg/L	13.1		 	
Silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.000010		 	
Sodium, dissolved	7440-23-5	E421	0.050	mg/L	21.9		 	
Strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.190		 	
Sulfur, dissolved	7704-34-9	E421	0.50	mg/L	0.74		 	
Thallium, dissolved	7440-28-0	E421	0.000010	mg/L	<0.000010		 	
Tin, dissolved	7440-31-5	E421	0.00010	mg/L	<0.00010		 	
Titanium, dissolved	7440-32-6	E421	0.00030	mg/L	<0.00030		 	
Uranium, dissolved	7440-61-1	E421	0.000010	mg/L	0.000221		 	
Vanadium, dissolved	7440-62-2	E421	0.00050	mg/L	0.00158		 	
Zinc, dissolved	7440-66-6	E421	0.0010	mg/L	0.0027		 	
Zirconium, dissolved	7440-67-7	E421	0.00020	mg/L	<0.00020		 	
Dissolved mercury filtration location		EP509	-	-	Field		 	
Dissolved metals filtration location		EP421	-	-	Field		 	
Volatile Organic Compounds						1000		
Chlorobenzene	108-90-7	E611C	0.50	μg/L	<0.50		 	
Chloromethane	74-87-3	E611C	5.0	μg/L	<5.0		 	
Dichlorobenzene, 1,2-	95-50-1	E611C	0.50	μg/L	<0.50		 	
Dichlorobenzene, 1,3-	541-73-1	E611C	0.50	μg/L	<0.50		 	
Dichlorobenzene, 1,4-	106-46-7	E611C	0.50	μg/L	<0.50		 	
Dichloropropane, 1,2-	78-87-5	E611C	0.50	μg/L	<0.50		 	

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Work Order : VA23A4471 Amendment 1
Client : Comox Valley Regional District

Project :



Sub-Matrix: Water			CI	lient sample ID	WG-022723-CS-		 	
(Matrix: Water)					44			
			Client samp	oling date / time	27-Feb-2023 16:05		 	
Analyte	CAS Number	Method	LOR	Unit	VA23A4471-006		 	
					Result		 	
Volatile Organic Compounds								
Dichloropropylene, cis+trans-1,3-	542-75-6	E611C	0.75	μg/L	<0.75		 	
Dichloropropylene, cis-1,3-	10061-01-5	E611C	0.50	μg/L	<0.50		 	
Tetrachloroethane, 1,1,1,2-	630-20-6	E611C	0.50	μg/L	<0.50		 	
Tetrachloroethane, 1,1,2,2-	79-34-5	E611C	0.20	μg/L	<0.20		 	
Trichloroethane, 1,1,2-	79-00-5	E611C	0.50	μg/L	<0.50		 	
Trichlorofluoromethane	75-69-4	E611C	0.50	μg/L	<0.50		 	
Volatile Organic Compounds [Drycleaning]					3			
Carbon tetrachloride	56-23-5	E611C	0.50	μg/L	<0.50		 	
Chloroethane	75-00-3	E611C	0.50	μg/L	<0.50		 	
Dichloroethane, 1,1-	75-34-3	E611C	0.50	μg/L	<0.50		 	
Dichloroethane, 1,2-	107-06-2	E611C	0.50	μg/L	<0.50		 	
Dichloroethylene, 1,1-	75-35-4	E611C	0.50	μg/L	<0.50		 	
Dichloroethylene, cis-1,2-	156-59-2	E611C	0.50	μg/L	<0.50		 	
Dichloroethylene, trans-1,2-	156-60-5	E611C	0.50	μg/L	<0.50		 	
Dichloromethane	75-09-2	E611C	1.0	μg/L	<1.0		 	
Dichloropropylene, trans-1,3-	10061-02-6	E611C	0.50	μg/L	<0.50		 	
Tetrachloroethylene	127-18-4	E611C	0.50	μg/L	<0.50		 	
Trichloroethane, 1,1,1-	71-55-6	E611C	0.50	μg/L	<0.50		 	
Trichloroethylene	79-01-6	E611C	0.50	μg/L	<0.50		 	
Vinyl chloride	75-01-4	E611C	0.40	μg/L	<0.40		 	
Volatile Organic Compounds [Fuels]		1000				1111		
Benzene	71-43-2	E611C	0.50	μg/L	<0.50		 	
Ethylbenzene	100-41-4	E611C	0.50	μg/L	<0.50		 	
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611C	0.50	μg/L	<0.50		 	
Styrene	100-42-5	E611C	0.50	μg/L	<0.50		 	
Toluene	108-88-3	E611C	0.40	μg/L	<0.40		 	
Xylene, m+p-	179601-23-1	E611C	0.40	μg/L	<0.40		 	
Xylene, o-	95-47-6	E611C	0.30	μg/L	<0.30		 	
Xylenes, total	1330-20-7	E611C	0.50	μg/L	<0.50		 	
Volatile Organic Compounds [THMs]								

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Work Order : VA23A4471 Amendment 1
Client : Comox Valley Regional District

Project :



Analytical Results

Sub-Matrix: Water			C	lient sample ID	WG-022723-CS-	 	
(Matrix: Water)					44		
			Client samp	ling date / time	27-Feb-2023 16:05	 	
Analyte	CAS Number	Method	LOR	Unit	VA23A4471-006	 	
					Result	 	
Volatile Organic Compounds [THMs]							
Bromodichloromethane	75-27-4	E611C	0.50	μg/L	<0.50	 	
Bromoform	75-25-2	E611C	0.50	μg/L	<0.50	 	
Chloroform	67-66-3	E611C	0.50	μg/L	<0.50	 	
Dibromochloromethane	124-48-1	E611C	0.50	μg/L	<0.50	 	
Hydrocarbons							
VHw (C6-C10)		E581.VH+F1	100	μg/L	<100	 	
VPHw		EC580A	100	μg/L	<100	 	
Hydrocarbons Surrogates							
Dichlorotoluene, 3,4-	95-75-0	E581.VH+F1	1.0	%	129	 	
Volatile Organic Compounds Surrogates							
Bromofluorobenzene, 4-	460-00-4	E611C	1.0	%	81.4	 	
Difluorobenzene, 1,4-	540-36-3	E611C	1.0	%	98.6	 	

Please refer to the General Comments section for an explanation of any qualifiers detected.

ALS Canada Ltd.



QUALITY CONTROL REPORT

Work Order :VA23A4471

Amendment : 1

Client : Comox Valley Regional District

Contact : Crystal Stuart

Address : 770 Harmston Avenue

Courtney BC Canada V9N 0G8

Telephone

Project : 3
PO : 23-015

C-O-C number : ----

Sampler : CStuart 250-898-3722
Site : CRWMC-Quarterly-GW
Quote number : VA23-COVR100-001

No. of samples received : 6
No. of samples analysed : 6

Page : 1 of 14

Laboratory : Vancouver - Environmental

Account Manager : Thomas Chang

Address : 8081 Lougheed Highway

Burnaby, British Columbia Canada V5A 1W9

Telephone :+1 604 253 4188

Date Samples Received :01-Mar-2023 10:45

Date Analysis Commenced : 01-Mar-2023

Issue Date : 22-Mar-2023 14:36

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
Caitlin Macey	Team Leader - Inorganics	Vancouver Inorganics, Burnaby, British Columbia
Dan Gebert	Laboratory Analyst	Vancouver Metals, Burnaby, British Columbia
Parnian Sane	Analyst	Vancouver Metals, Burnaby, British Columbia
Rebecca Sit	Supervisor - Organics Extractions	Vancouver Organics, Burnaby, British Columbia
Robin Weeks	Team Leader - Metals	Vancouver Metals, Burnaby, British Columbia

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Work Order: VA23A4471 Amendment 1
Client: Comox Valley Regional District

Project :



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.

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Work Order: VA23A4471 Amendment 1
Client: Comox Valley Regional District

Project : 3



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							Labora	atory Duplicate (D	UP) 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: 849773)										
VA23A4421-001	Anonymous	Conductivity		E100	1.0	μS/cm	4040	4040	0.00%	10%	
Physical Tests (QC	Lot: 849776)										
VA23A4424-004	Anonymous	Alkalinity, bicarbonate (as CaCO3)		E290	1.0	mg/L	231	231	0.130%	20%	
		Alkalinity, carbonate (as CaCO3)		E290	1.0	mg/L	<1.0	<1.0	0	Diff <2x LOR	
		Alkalinity, hydroxide (as CaCO3)		E290	1.0	mg/L	<1.0	<1.0	0	Diff <2x LOR	
		Alkalinity, total (as CaCO3)		E290	1.0	mg/L	231	231	0.130%	20%	
Physical Tests (QC	Lot: 850225)										
FJ2300458-001	Anonymous	Solids, total dissolved [TDS]		E162	20	mg/L	234	227	3.25%	20%	
Anions and Nutrien	ts (QC Lot: 849767)										
VA23A4421-001	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	0.0200	mg/L	<0.0200	<0.0200	0	Diff <2x LOR	
Anions and Nutrien	ts (QC Lot: 849768)										
VA23A4421-001	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	0.100	mg/L	0.199	0.201	0.0014	Diff <2x LOR	
Anions and Nutrien	ts (QC Lot: 849769)										
VA23A4424-002	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	15.0	mg/L	304	299	1.44%	20%	
Anions and Nutrien	ts (QC Lot: 849770)										
VA23A4424-002	Anonymous	Fluoride	16984-48-8	E235.F	1.00	mg/L	<1.00	<1.00	0	Diff <2x LOR	
Anions and Nutrien	ts (QC Lot: 849771)										
VA23A4424-002	Anonymous	Chloride	16887-00-6	E235.CI	25.0	mg/L	3420	3360	1.60%	20%	
Anions and Nutrien	ts (QC Lot: 852652)										
VA23A4471-001	WG-022723-CS-39	Ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	
Dissolved Metals (QC Lot: 850164)										
VA23A4432-001	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.0020	mg/L	0.353	0.335	5.21%	20%	
		Antimony, dissolved	7440-36-0	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	
		Arsenic, dissolved	7440-38-2	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	
		Barium, dissolved	7440-39-3	E421	0.00020	mg/L	0.00527	0.00516	2.11%	20%	
		Beryllium, dissolved	7440-41-7	E421	0.000040	mg/L	<0.000040	<0.000040	0	Diff <2x LOR	
		Bismuth, dissolved	7440-69-9	E421	0.000100	mg/L	<0.000100	<0.000100	0	Diff <2x LOR	
		Boron, dissolved	7440-42-8	E421	0.020	mg/L	0.124	0.117	0.006	Diff <2x LOR	
		Cadmium, dissolved	7440-43-9	E421	0.0000100	mg/L	0.000828	0.000817	1.31%	20%	
				1			1		1	1	

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Work Order: VA23A4471 Amendment 1
Client: Comox Valley Regional District

Project :



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	Qualifie
Dissolved Metals (QC Lot: 850164) - cont	inued									
VA23A4432-001	Anonymous	Chromium, dissolved	7440-47-3	E421	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	
		Cobalt, dissolved	7440-48-4	E421	0.00020	mg/L	0.00042	0.00044	0.00002	Diff <2x LOR	
		Copper, dissolved	7440-50-8	E421	0.00040	mg/L	0.00334	0.00340	0.00006	Diff <2x LOR	
		Iron, dissolved	7439-89-6	E421	0.020	mg/L	<0.020	<0.020	0	Diff <2x LOR	
		Lead, dissolved	7439-92-1	E421	0.000100	mg/L	<0.000100	<0.000100	0	Diff <2x LOR	
		Lithium, dissolved	7439-93-2	E421	0.0020	mg/L	0.0455	0.0430	5.80%	20%	
		Magnesium, dissolved	7439-95-4	E421	0.0100	mg/L	39.6	37.7	4.97%	20%	
		Manganese, dissolved	7439-96-5	E421	0.00020	mg/L	0.196	0.191	2.65%	20%	
		Molybdenum, dissolved	7439-98-7	E421	0.000100	mg/L	0.000128	0.000110	0.000018	Diff <2x LOR	
		Nickel, dissolved	7440-02-0	E421	0.00100	mg/L	<0.00100	<0.00100	0	Diff <2x LOR	
		Phosphorus, dissolved	7723-14-0	E421	0.100	mg/L	<0.100	<0.100	0	Diff <2x LOR	
		Potassium, dissolved	7440-09-7	E421	0.100	mg/L	0.965	0.919	0.047	Diff <2x LOR	
		Selenium, dissolved	7782-49-2	E421	0.000100	mg/L	0.000180	0.000169	0.000010	Diff <2x LOR	
		Silicon, dissolved	7440-21-3	E421	0.100	mg/L	1.47	1.35	8.50%	20%	
	S	Silver, dissolved	7440-22-4	E421	0.000020	mg/L	<0.000020	<0.000020	0	Diff <2x LOR	
		Sodium, dissolved	7440-23-5	E421	0.100	mg/L	8.67	8.40	3.15%	20%	
		Strontium, dissolved	7440-24-6	E421	0.00040	mg/L	1.91	1.95	1.75%	20%	
		Sulfur, dissolved	7704-34-9	E421	1.00	mg/L	452	422	6.84%	20%	
		Thallium, dissolved	7440-28-0	E421	0.000020	mg/L	0.000058	0.000059	0.0000007	Diff <2x LOR	
		Tin, dissolved	7440-31-5	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	
		Titanium, dissolved	7440-32-6	E421	0.00060	mg/L	<0.00060	<0.00060	0	Diff <2x LOR	
		Uranium, dissolved	7440-61-1	E421	0.000020	mg/L	0.000034	0.000035	0.000001	Diff <2x LOR	
		Vanadium, dissolved	7440-62-2	E421	0.00100	mg/L	<0.00100	<0.00100	0	Diff <2x LOR	
		Zinc, dissolved	7440-66-6	E421	0.0020	mg/L	0.0220	0.0211	4.24%	20%	
		Zirconium, dissolved	7440-67-7	E421	0.00040	mg/L	<0.00040	<0.00040	0	Diff <2x LOR	
Dissolved Metals (QC Lot: 850498)										1 1
FJ2300425-001	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	
/olatile Organic Co	mpounds (QC Lot: 853	3016)									
VA23A4471-001	WG-022723-CS-39	Benzene	71-43-2	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Bromodichloromethane	75-27-4	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Bromoform	75-25-2	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Carbon tetrachloride	56-23-5	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Chlorobenzene	108-90-7	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Chloroethane	75-00-3	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	

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Client: Comox Valley Regional District

Project :



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
Volatile Organic Co	mpounds (QC Lot: 85	3016) - continued									
VA23A4471-001	WG-022723-CS-39	Chloroform	67-66-3	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Chloromethane	74-87-3	E611C	5.0	μg/L	<5.0	<5.0	0	Diff <2x LOR	
		Dibromochloromethane	124-48-1	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Dichlorobenzene, 1,2-	95-50-1	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Dichlorobenzene, 1,3-	541-73-1	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Dichlorobenzene, 1,4-	106-46-7	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Dichloroethane, 1,1-	75-34-3	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Dichloroethane, 1,2-	107-06-2	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Dichloroethylene, 1,1-	75-35-4	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Dichloroethylene, cis-1,2-	156-59-2	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Dichloroethylene, trans-1,2-	156-60-5	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Dichloromethane	75-09-2	E611C	1.0	μg/L	<1.0	<1.0	0	Diff <2x LOR	
		Dichloropropane, 1,2-	78-87-5	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Dichloropropylene, cis-1,3-	10061-01-5	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Dichloropropylene, trans-1,3-	10061-02-6	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Ethylbenzene	100-41-4	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Styrene	100-42-5	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Tetrachloroethane, 1,1,1,2-	630-20-6	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Tetrachloroethane, 1,1,2,2-	79-34-5	E611C	0.20	μg/L	<0.20	<0.20	0	Diff <2x LOR	
		Tetrachloroethylene	127-18-4	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Toluene	108-88-3	E611C	0.40	μg/L	<0.40	<0.40	0	Diff <2x LOR	
		Trichloroethane, 1,1,1-	71-55-6	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Trichloroethane, 1,1,2-	79-00-5	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Trichloroethylene	79-01-6	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Trichlorofluoromethane	75-69-4	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Vinyl chloride	75-01-4	E611C	0.40	μg/L	<0.40	<0.40	0	Diff <2x LOR	
		Xylene, m+p-	179601-23-1	E611C	0.40	μg/L	<0.40	<0.40	0	Diff <2x LOR	
		Xylene, o-	95-47-6	E611C	0.30	μg/L	<0.30	<0.30	0	Diff <2x LOR	
lydrocarbons (QC	Lot: 853015)										
VA23A4471-001	WG-022723-CS-39	VHw (C6-C10)		E581.VH+F1	100	μg/L	<100	<100	0.0%	30%	

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Client: Comox Valley Regional District

Project :



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

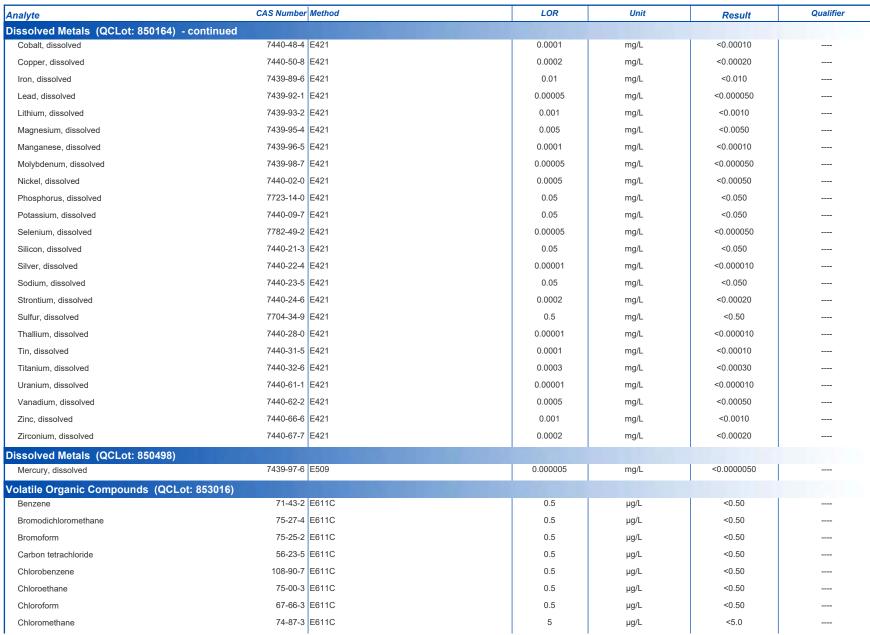
Analyte	CAS Number Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 849773)					
Conductivity	E100	1	μS/cm	1.3	
Physical Tests (QCLot: 849776)					
Alkalinity, bicarbonate (as CaCO3)	E290	1	mg/L	<1.0	
Alkalinity, carbonate (as CaCO3)	E290	1	mg/L	<1.0	
Alkalinity, hydroxide (as CaCO3)	E290	1	mg/L	<1.0	
Alkalinity, total (as CaCO3)	E290	1	mg/L	<1.0	
Physical Tests (QCLot: 850225)					
Solids, total dissolved [TDS]	E162	10	mg/L	<10	
Anions and Nutrients (QCLot: 849767)					
Nitrite (as N)	14797-65-0 E235.NO2-L	0.001	mg/L	<0.0010	
Anions and Nutrients (QCLot: 849768)					
Nitrate (as N)	14797-55-8 E235.NO3-L	0.005	mg/L	<0.0050	
Anions and Nutrients (QCLot: 849769)					
Sulfate (as SO4)	14808-79-8 E235.SO4	0.3	mg/L	<0.30	
Anions and Nutrients (QCLot: 849770)					
Fluoride	16984-48-8 E235.F	0.02	mg/L	<0.020	
Anions and Nutrients (QCLot: 849771)					
Chloride	16887-00-6 E235.CI	0.5	mg/L	<0.50	
Anions and Nutrients (QCLot: 852652)					
Ammonia, total (as N)	7664-41-7 E298	0.005	mg/L	<0.0050	
Dissolved Metals (QCLot: 850164)					
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	
Chromium, dissolved	7440-47-3 E421	0.0005	mg/L	<0.00050	

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Client: Comox Valley Regional District

Project: 3

Sub-Matrix: Water



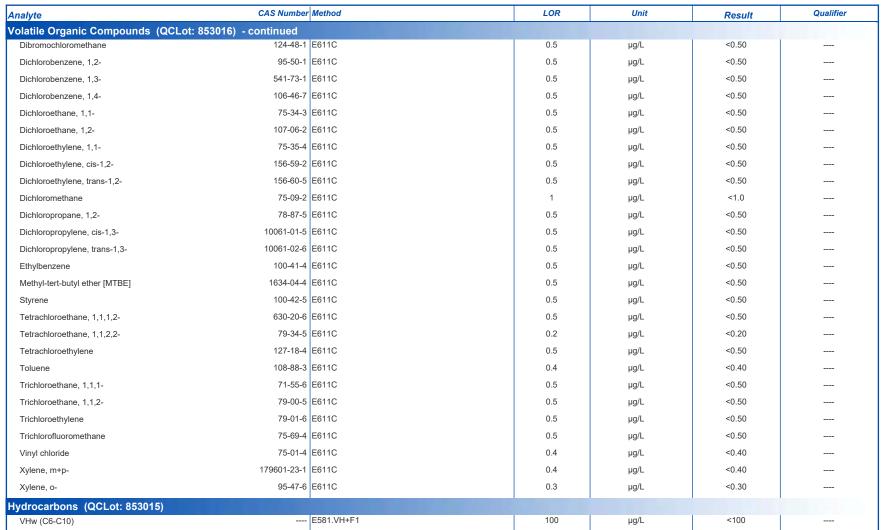


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Client: Comox Valley Regional District

Project : 3

Sub-Matrix: Water





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Work Order: VA23A4471 Amendment 1
Client: Comox Valley Regional District

Project :



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 Co	ntrol Sample (LCS)	Report	
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 849773)									
Conductivity		E100	1	μS/cm	146.9 μS/cm	99.6	90.0	110	
Physical Tests (QCLot: 849776)									
Alkalinity, total (as CaCO3)		E290	1	mg/L	500 mg/L	107	85.0	115	
Physical Tests (QCLot: 850225)									
Solids, total dissolved [TDS]		E162	10	mg/L	1000 mg/L	91.6	85.0	115	
Anions and Nutrients (QCLot: 849767)	14707.05.0	Eggs NOO I	0.004		"		00.0	440	
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	0.5 mg/L	105	90.0	110	
Anions and Nutrients (QCLot: 849768)	14707.55.0	Eggs NOO I	0.005		"		00.0	440	
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: 849769)	44000 70 0	F005 004	0.0				00.0	110	
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	104	90.0	110	
Anions and Nutrients (QCLot: 849770)	10001 10 0	E005 E	0.00				00.0	110	
Fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	92.1	90.0	110	
Anions and Nutrients (QCLot: 849771)	40007.00.0	5005.01	0.5	L 1				110	
Chloride	16887-00-6	E235.CI	0.5	mg/L	100 mg/L	102	90.0	110	
Anions and Nutrients (QCLot: 852652)	7004.44.7	5000	0.005				25.0		
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	94.2	85.0	115	
Dissolved Metals (QCLot: 850164) Aluminum, dissolved	7429-90-5	F421	0.001	mg/L	2 mg/L	102	80.0	120	
Antimony, dissolved	7440-36-0		0.0001	mg/L	1 mg/L	103	80.0	120	
Arsenic, dissolved	7440-38-2		0.0001	mg/L	1 mg/L	104	80.0	120	
Barium, dissolved	7440-39-3		0.0001	mg/L	0.25 mg/L	102	80.0	120	
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	0.1 mg/L	97.2	80.0	120	
Bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	1 mg/L	97.3	80.0	120	
Boron, dissolved	7440-42-8	E421	0.01	mg/L	1 mg/L	89.1	80.0	120	
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	0.1 mg/L	98.8	80.0	120	
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	50 mg/L	98.0	80.0	120	
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	0.25 mg/L	98.0	80.0	120	
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	0.25 mg/L	97.8	80.0	120	
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	0.25 mg/L	97.4	80.0	120	

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Client: Comox Valley Regional District

Project :



Sub-Matrix: Water		Laboratory Control Sample (LCS) Report							
					Spike	Recovery (%)	Recovery	Limits (%)	
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifie
Dissolved Metals (QCLot: 850164) - c	ontinued								
Iron, dissolved	7439-89-6	E421	0.01	mg/L	1 mg/L	98.6	80.0	120	
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	0.5 mg/L	98.0	80.0	120	
Lithium, dissolved	7439-93-2	E421	0.001	mg/L	0.25 mg/L	95.3	80.0	120	
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	50 mg/L	99.3	80.0	120	
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	0.25 mg/L	100	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	99.4	80.0	120	
Phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	10 mg/L	112	80.0	120	
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	50 mg/L	104	80.0	120	
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	1 mg/L	98.1	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	93.6	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	100	80.0	120	
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	50 mg/L	88.2	80.0	120	
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	1 mg/L	97.8	80.0	120	
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	0.5 mg/L	96.2	80.0	120	
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	0.25 mg/L	101	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	102	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	89.4	80.0	120	
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0.0001 mg/L	93.6	80.0	120	
Volatile Organic Compounds (QCLot:	853016)								
Benzene	71-43-2	E611C	0.5	μg/L	100 μg/L	100	70.0	130	
Bromodichloromethane	75-27-4	E611C	0.5	μg/L	100 μg/L	98.8	70.0	130	
Bromoform	75-25-2	E611C	0.5	μg/L	100 μg/L	103	70.0	130	
Carbon tetrachloride	56-23-5	E611C	0.5	μg/L	100 μg/L	99.3	70.0	130	
Chlorobenzene	108-90-7	E611C	0.5	μg/L	100 μg/L	102	70.0	130	
Chloroethane	75-00-3	E611C	0.5	μg/L	100 μg/L	101	60.0	140	
Chloroform	67-66-3	E611C	0.5	μg/L	100 μg/L	96.5	70.0	130	
Chloromethane	74-87-3	E611C	5	μg/L	100 μg/L	106	60.0	140	
Dibromochloromethane	124-48-1	E611C	0.5	μg/L	100 μg/L	100	70.0	130	
Dichlorobenzene, 1,2-	95-50-1	E611C	0.5	μg/L	100 μg/L	107	70.0	130	
Dichlorobenzene, 1,3-	541-73-1	E611C	0.5	μg/L	100 μg/L	99.1	70.0	130	

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Client: Comox Valley Regional District

Project :



CAS Number Continued 106-46-7 75-34-3 107-06-2 75-35-4 156-59-2 156-60-5 75-09-2 78-87-5 10061-01-5 10061-02-6 100-41-4	E611C E611C E611C E611C E611C E611C E611C E611C E611C E611C E611C	0.5 0.5 0.5 0.5 0.5 0.5 0.5 1 0.5 0.5 0.5	ид/L μg/L μg/L μg/L μg/L μg/L μg/L μg/L μg	Spike Concentration 100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L	104 98.6 94.5 97.3 95.2 95.6 99.2	70.0 70.0 70.0 70.0 70.0 70.0 70.0 70.0	Limits (%) High 130 130 130 130 130 130 130 13	Qualifier
106-46-7 75-34-3 107-06-2 75-35-4 156-59-2 156-60-5 75-09-2 78-87-5 10061-01-5 10061-02-6	E611C E611C E611C E611C E611C E611C E611C E611C E611C E611C E611C	0.5 0.5 0.5 0.5 0.5 0.5 1 0.5 0.5	µg/L µg/L µg/L µg/L µg/L µg/L µg/L	100 µg/L 100 µg/L 100 µg/L 100 µg/L 100 µg/L 100 µg/L 100 µg/L	104 98.6 94.5 97.3 95.2 95.6 99.2	70.0 70.0 70.0 70.0 70.0 70.0	130 130 130 130 130 130	
106-46-7 75-34-3 107-06-2 75-35-4 156-59-2 156-60-5 75-09-2 78-87-5 10061-01-5 10061-02-6	E611C E611C E611C E611C E611C E611C E611C E611C E611C	0.5 0.5 0.5 0.5 0.5 1 0.5 0.5	µg/L µg/L µg/L µg/L µg/L µg/L µg/L	100 µg/L 100 µg/L 100 µg/L 100 µg/L 100 µg/L 100 µg/L	98.6 94.5 97.3 95.2 95.6 99.2	70.0 70.0 70.0 70.0 70.0	130 130 130 130 130	
75-34-3 107-06-2 75-35-4 156-59-2 156-60-5 75-09-2 78-87-5 10061-01-5 10061-02-6	E611C E611C E611C E611C E611C E611C E611C E611C E611C	0.5 0.5 0.5 0.5 0.5 1 0.5 0.5	µg/L µg/L µg/L µg/L µg/L µg/L µg/L	100 µg/L 100 µg/L 100 µg/L 100 µg/L 100 µg/L 100 µg/L	98.6 94.5 97.3 95.2 95.6 99.2	70.0 70.0 70.0 70.0 70.0	130 130 130 130 130	
107-06-2 75-35-4 156-59-2 156-60-5 75-09-2 78-87-5 10061-01-5 10061-02-6 100-41-4	E611C E611C E611C E611C E611C E611C E611C E611C	0.5 0.5 0.5 0.5 1 0.5 0.5	μg/L μg/L μg/L μg/L μg/L μg/L	100 µg/L 100 µg/L 100 µg/L 100 µg/L 100 µg/L 100 µg/L	94.5 97.3 95.2 95.6 99.2	70.0 70.0 70.0 70.0	130 130 130 130	
75-35-4 156-59-2 156-60-5 75-09-2 78-87-5 10061-01-5 10061-02-6 100-41-4	E611C E611C E611C E611C E611C E611C	0.5 0.5 0.5 1 0.5 0.5	µg/L µg/L µg/L µg/L µg/L	100 µg/L 100 µg/L 100 µg/L 100 µg/L 100 µg/L	97.3 95.2 95.6 99.2	70.0 70.0 70.0	130 130 130	
156-59-2 156-60-5 75-09-2 78-87-5 10061-01-5 10061-02-6 100-41-4	E611C E611C E611C E611C E611C	0.5 0.5 1 0.5 0.5	µg/L µg/L µg/L µg/L	100 µg/L 100 µg/L 100 µg/L 100 µg/L	95.2 95.6 99.2	70.0 70.0	130 130	
156-60-5 75-09-2 78-87-5 10061-01-5 10061-02-6 100-41-4	E611C E611C E611C E611C E611C	0.5 1 0.5 0.5	μg/L μg/L μg/L	100 μg/L 100 μg/L 100 μg/L	95.6 99.2	70.0	130	
75-09-2 78-87-5 10061-01-5 10061-02-6 100-41-4	E611C E611C E611C E611C	1 0.5 0.5	μg/L μg/L	100 μg/L 100 μg/L	99.2			
78-87-5 10061-01-5 10061-02-6 100-41-4	E611C E611C E611C	0.5 0.5	μg/L	100 μg/L		70.0	130	
10061-01-5 10061-02-6 100-41-4	E611C E611C	0.5			100			
10061-02-6 100-41-4	E611C		μg/L	400 "	100	70.0	130	
100-41-4		0.5		100 μg/L	102	70.0	130	
	E611C		μg/L	100 μg/L	99.1	70.0	130	
4004.04.	20110	0.5	μg/L	100 μg/L	102	70.0	130	
1634-04-4	E611C	0.5	μg/L	100 μg/L	106	70.0	130	
100-42-5	E611C	0.5	μg/L	100 μg/L	102	70.0	130	
630-20-6	E611C	0.5	μg/L	100 μg/L	101	70.0	130	
79-34-5	E611C	0.2	μg/L	100 μg/L	103	70.0	130	
127-18-4	E611C	0.5	μg/L	100 μg/L	108	70.0	130	
108-88-3	E611C	0.4	μg/L	100 μg/L	99.5	70.0	130	
71-55-6	E611C	0.5	μg/L	100 μg/L	101	70.0	130	
79-00-5	E611C	0.5	μg/L	100 μg/L	101	70.0	130	
79-01-6	E611C	0.5	μg/L	100 μg/L	102	70.0	130	
75-69-4	E611C	0.5	μg/L	100 μg/L	94.1	60.0	140	
75-01-4	E611C	0.4	μg/L	100 μg/L	104	60.0	140	
179601-23-1	E611C	0.4	μg/L	200 μg/L	109	70.0	130	
95-47-6	E611C	0.3	μg/L	100 μg/L	104	70.0	130	
	E581.VH+F1	100	μg/L	6310 μg/L	84.1	70.0	130	
	75-69-4 75-01-4 179601-23-1	79-01-6 E611C 75-69-4 E611C 75-01-4 E611C 179601-23-1 E611C 95-47-6 E611C	75-69-4 E611C 0.5 75-01-4 E611C 0.4 179601-23-1 E611C 0.4 95-47-6 E611C 0.3	75-69-4 E611C 0.5 µg/L 75-01-4 E611C 0.4 µg/L 179601-23-1 E611C 0.4 µg/L 95-47-6 E611C 0.3 µg/L	75-69-4 E611C 0.5 μg/L 100 μg/L 75-01-4 E611C 0.4 μg/L 100 μg/L 179601-23-1 E611C 0.4 μg/L 200 μg/L 95-47-6 E611C 0.3 μg/L 100 μg/L	75-69-4 E611C 0.5 μg/L 100 μg/L 94.1 75-01-4 E611C 0.4 μg/L 100 μg/L 104 179601-23-1 E611C 0.4 μg/L 200 μg/L 109 95-47-6 E611C 0.3 μg/L 100 μg/L 104	75-69-4 E611C 0.5 μg/L 100 μg/L 94.1 60.0 75-01-4 E611C 0.4 μg/L 100 μg/L 104 60.0 179601-23-1 E611C 0.4 μg/L 200 μg/L 109 70.0 95-47-6 E611C 0.3 μg/L 100 μg/L 100 μg/L 104 70.0	75-69-4 E611C 0.5 μg/L 100 μg/L 94.1 60.0 140 75-01-4 E611C 0.4 μg/L 100 μg/L 104 60.0 140 179601-23-1 E611C 0.4 μg/L 200 μg/L 109 70.0 130 95-47-6 E611C 0.3 μg/L 100 μg/L 104 70.0 130

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Work Order: VA23A4471 Amendment 1
Client: Comox Valley Regional District

Project :



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: Water				Matrix Spike (MS) Report							
					Sp	ike	Recovery (%)	Recovery	Limits (%)			
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier		
Anions and Nutri	ents (QCLot: 849767)											
VA23A4421-003	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	2.59 mg/L	2.5 mg/L	104	75.0	125			
Anions and Nutri	ents (QCLot: 849768)											
VA23A4421-003	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	12.9 mg/L	12.5 mg/L	103	75.0	125			
Anions and Nutri	ents (QCLot: 849769)											
VA23A4424-003	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	5280 mg/L	5000 mg/L	106	75.0	125			
nions and Nutri	ents (QCLot: 849770)											
VA23A4424-003	Anonymous	Fluoride	16984-48-8	E235.F	49.7 mg/L	50 mg/L	99.5	75.0	125			
Anions and Nutri	ents (QCLot: 849771)											
VA23A4424-003	Anonymous	Chloride	16887-00-6	E235.CI	5220 mg/L	5000 mg/L	104	75.0	125			
Anions and Nutri	ents (QCLot: 852652)									į į		
VA23A4471-002	WG-022723-CS-40	Ammonia, total (as N)	7664-41-7	E298	0.0997 mg/L	0.1 mg/L	99.7	75.0	125			
Dissolved Metals	(QCLot: 850164)											
VA23A4432-002	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.355 mg/L	0.4 mg/L	88.8	70.0	130			
		Antimony, dissolved	7440-36-0	E421	0.0390 mg/L	0.04 mg/L	97.6	70.0	130			
		Arsenic, dissolved	7440-38-2	E421	0.0385 mg/L	0.04 mg/L	96.2	70.0	130			
		Barium, dissolved	7440-39-3	E421	0.0370 mg/L	0.04 mg/L	92.6	70.0	130			
		Beryllium, dissolved	7440-41-7	E421	0.0695 mg/L	0.08 mg/L	86.8	70.0	130			
		Bismuth, dissolved	7440-69-9	E421	0.0168 mg/L	0.02 mg/L	84.1	70.0	130			
		Boron, dissolved	7440-42-8	E421	0.167 mg/L	0.2 mg/L	83.6	70.0	130			
		Cadmium, dissolved	7440-43-9	E421	0.00739 mg/L	0.008 mg/L	92.4	70.0	130			
		Calcium, dissolved	7440-70-2	E421	ND mg/L	8 mg/L	ND	70.0	130			
		Chromium, dissolved	7440-47-3	E421	0.0741 mg/L	0.08 mg/L	92.6	70.0	130			
		Cobalt, dissolved	7440-48-4	E421	0.0365 mg/L	0.04 mg/L	91.2	70.0	130			
		Copper, dissolved	7440-50-8	E421	0.0359 mg/L	0.04 mg/L	89.7	70.0	130			
		Iron, dissolved	7439-89-6	E421	3.72 mg/L	4 mg/L	93.1	70.0	130			
		Lead, dissolved	7439-92-1	E421	0.0366 mg/L	0.04 mg/L	91.6	70.0	130			
		Lithium, dissolved	7439-93-2	E421	0.172 mg/L	0.2 mg/L	85.8	70.0	130			
		Magnesium, dissolved	7439-95-4	E421	ND mg/L	2 mg/L	ND	70.0	130			
		Manganese, dissolved	7439-96-5	E421	ND mg/L	0.04 mg/L	ND	70.0	130			
		Molybdenum, dissolved	7439-98-7	E421	0.0392 mg/L	0.04 mg/L	98.1	70.0	130			

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Work Order: VA23A4471 Amendment 1
Client: Comox Valley Regional District

Project :



Sub-Matrix: Water	b-Matrix: Water						Matrix Spike (MS) Report							
					Spi	ke	Recovery (%)	Recovery	Limits (%)					
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier				
Dissolved Metals	s (QCLot: 850164) - co	ntinued												
VA23A4432-002	Anonymous	Nickel, dissolved	7440-02-0	E421	0.0754 mg/L	0.08 mg/L	94.2	70.0	130					
		Phosphorus, dissolved	7723-14-0	E421	20.0 mg/L	20 mg/L	100	70.0	130					
		Potassium, dissolved	7440-09-7	E421	7.69 mg/L	8 mg/L	96.2	70.0	130					
		Selenium, dissolved	7782-49-2	E421	0.0830 mg/L	0.08 mg/L	104	70.0	130					
		Silicon, dissolved	7440-21-3	E421	17.5 mg/L	20 mg/L	87.3	70.0	130					
		Silver, dissolved	7440-22-4	E421	0.00718 mg/L	0.008 mg/L	89.7	70.0	130					
		Sodium, dissolved	7440-23-5	E421	ND mg/L	4 mg/L	ND	70.0	130					
		Strontium, dissolved	7440-24-6	E421	ND mg/L	0.04 mg/L	ND	70.0	130					
		Sulfur, dissolved	7704-34-9	E421	ND mg/L	40 mg/L	ND	70.0	130					
		Thallium, dissolved	7440-28-0	E421	0.00727 mg/L	0.008 mg/L	90.9	70.0	130					
		Tin, dissolved	7440-31-5	E421	0.0387 mg/L	0.04 mg/L	96.7	70.0	130					
		Titanium, dissolved	7440-32-6	E421	0.0761 mg/L	0.08 mg/L	95.2	70.0	130					
		Uranium, dissolved	7440-61-1	E421	0.00761 mg/L	0.008 mg/L	95.1	70.0	130					
		Vanadium, dissolved	7440-62-2	E421	0.194 mg/L	0.2 mg/L	97.2	70.0	130					
		Zinc, dissolved	7440-66-6	E421	0.743 mg/L	0.8 mg/L	92.9	70.0	130					
		Zirconium, dissolved	7440-67-7	E421	0.0765 mg/L	0.08 mg/L	95.6	70.0	130					
Dissolved Metals	s (QCLot: 850498)													
FJ2300425-002	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000958 mg/L	0.0001 mg/L	95.8	70.0	130					
Volatile Organic	Compounds (QCLot: 8	53016)												
	Compounds (QCLot: 8 WG-022723-CS-43	53016) Benzene	71-43-2	E611C	101 μg/L	100 μg/L	101	60.0	140					
			71-43-2 75-27-4	E611C E611C	101 μg/L 98.8 μg/L	100 μg/L 100 μg/L	101 98.8	60.0 60.0	140 140					
		Benzene												
Volatile Organic VA23A4471-005		Benzene Bromodichloromethane	75-27-4	E611C	98.8 μg/L	100 μg/L	98.8	60.0	140					
		Benzene Bromodichloromethane Bromoform	75-27-4 75-25-2	E611C E611C	98.8 μg/L 98.3 μg/L	100 μg/L 100 μg/L	98.8 98.3	60.0 60.0	140 140					
		Benzene Bromodichloromethane Bromoform Carbon tetrachloride	75-27-4 75-25-2 56-23-5	E611C E611C E611C	98.8 µg/L 98.3 µg/L 102 µg/L	100 μg/L 100 μg/L 100 μg/L	98.8 98.3 102	60.0 60.0 60.0	140 140 140					
		Benzene Bromodichloromethane Bromoform Carbon tetrachloride Chlorobenzene	75-27-4 75-25-2 56-23-5 108-90-7	E611C E611C E611C	98.8 µg/L 98.3 µg/L 102 µg/L 104 µg/L	100 μg/L 100 μg/L 100 μg/L 100 μg/L	98.8 98.3 102 104	60.0 60.0 60.0 60.0	140 140 140 140					
		Benzene Bromodichloromethane Bromoform Carbon tetrachloride Chlorobenzene Chloroethane	75-27-4 75-25-2 56-23-5 108-90-7 75-00-3	E611C E611C E611C E611C	98.8 µg/L 98.3 µg/L 102 µg/L 104 µg/L 98.9 µg/L	100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L	98.8 98.3 102 104 98.9	60.0 60.0 60.0 60.0 50.0	140 140 140 140 150	 				
		Benzene Bromodichloromethane Bromoform Carbon tetrachloride Chlorobenzene Chloroethane Chloroform	75-27-4 75-25-2 56-23-5 108-90-7 75-00-3 67-66-3	E611C E611C E611C E611C E611C	98.8 µg/L 98.3 µg/L 102 µg/L 104 µg/L 98.9 µg/L 96.9 µg/L	100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L	98.8 98.3 102 104 98.9 96.9	60.0 60.0 60.0 60.0 50.0	140 140 140 140 150	 				
		Benzene Bromodichloromethane Bromoform Carbon tetrachloride Chlorobenzene Chloroethane Chloroform Chloromethane	75-27-4 75-25-2 56-23-5 108-90-7 75-00-3 67-66-3 74-87-3	E611C E611C E611C E611C E611C E611C	98.8 µg/L 98.3 µg/L 102 µg/L 104 µg/L 98.9 µg/L 96.9 µg/L 97.3 µg/L 98.5 µg/L	100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L	98.8 98.3 102 104 98.9 96.9 97.3	60.0 60.0 60.0 60.0 50.0 60.0	140 140 140 140 150 140					
		Benzene Bromodichloromethane Bromoform Carbon tetrachloride Chlorobenzene Chloroethane Chloroform Chloromethane Dibromochloromethane	75-27-4 75-25-2 56-23-5 108-90-7 75-00-3 67-66-3 74-87-3 124-48-1	E611C E611C E611C E611C E611C E611C E611C	98.8 µg/L 98.3 µg/L 102 µg/L 104 µg/L 98.9 µg/L 96.9 µg/L 97.3 µg/L	100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L	98.8 98.3 102 104 98.9 96.9 97.3	60.0 60.0 60.0 60.0 50.0 60.0 50.0	140 140 140 140 150 140 150					
		Benzene Bromodichloromethane Bromoform Carbon tetrachloride Chlorobenzene Chloroethane Chloroform Chloromethane Dibromochloromethane Dichlorobenzene, 1,2-	75-27-4 75-25-2 56-23-5 108-90-7 75-00-3 67-66-3 74-87-3 124-48-1 95-50-1	E611C E611C E611C E611C E611C E611C E611C E611C E611C	98.8 µg/L 98.3 µg/L 102 µg/L 104 µg/L 98.9 µg/L 96.9 µg/L 97.3 µg/L 98.5 µg/L 109 µg/L	100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L	98.8 98.3 102 104 98.9 96.9 97.3 98.5 109	60.0 60.0 60.0 50.0 60.0 50.0 60.0	140 140 140 140 150 140 150 140					
		Benzene Bromodichloromethane Bromoform Carbon tetrachloride Chlorobenzene Chloroethane Chloroform Chloromethane Dibromochloromethane Dichlorobenzene, 1,2- Dichlorobenzene, 1,3-	75-27-4 75-25-2 56-23-5 108-90-7 75-00-3 67-66-3 74-87-3 124-48-1 95-50-1 541-73-1	E611C E611C E611C E611C E611C E611C E611C E611C E611C E611C	98.8 µg/L 98.3 µg/L 102 µg/L 104 µg/L 98.9 µg/L 96.9 µg/L 97.3 µg/L 98.5 µg/L 109 µg/L	100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L	98.8 98.3 102 104 98.9 96.9 97.3 98.5 109	60.0 60.0 60.0 50.0 50.0 60.0 60.0	140 140 140 140 150 140 150 140 140					
		Benzene Bromodichloromethane Bromoform Carbon tetrachloride Chlorobenzene Chloroethane Chloroform Chloromethane Dibromochloromethane Dichlorobenzene, 1,2- Dichlorobenzene, 1,3- Dichlorobenzene, 1,4-	75-27-4 75-25-2 56-23-5 108-90-7 75-00-3 67-66-3 74-87-3 124-48-1 95-50-1 541-73-1 106-46-7	E611C E611C E611C E611C E611C E611C E611C E611C E611C E611C E611C E611C	98.8 µg/L 98.3 µg/L 102 µg/L 104 µg/L 98.9 µg/L 96.9 µg/L 97.3 µg/L 98.5 µg/L 109 µg/L 100 µg/L 95.6 µg/L	100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L	98.8 98.3 102 104 98.9 96.9 97.3 98.5 109 100 95.6 98.7	60.0 60.0 60.0 50.0 60.0 50.0 60.0 60.0	140 140 140 140 150 140 150 140 140 140					
		Benzene Bromodichloromethane Bromoform Carbon tetrachloride Chlorobenzene Chloroethane Chloroform Chloromethane Dibromochloromethane Dichlorobenzene, 1,2- Dichlorobenzene, 1,3- Dichlorobenzene, 1,4- Dichloroethane, 1,1-	75-27-4 75-25-2 56-23-5 108-90-7 75-00-3 67-66-3 74-87-3 124-48-1 95-50-1 541-73-1 106-46-7 75-34-3	E611C E611C E611C E611C E611C E611C E611C E611C E611C E611C E611C E611C E611C	98.8 µg/L 98.3 µg/L 102 µg/L 104 µg/L 98.9 µg/L 96.9 µg/L 97.3 µg/L 98.5 µg/L 109 µg/L 100 µg/L	100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L	98.8 98.3 102 104 98.9 96.9 97.3 98.5 109 100 95.6	60.0 60.0 60.0 50.0 60.0 50.0 60.0 60.0	140 140 140 140 150 140 150 140 140 140 140					

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Work Order: VA23A4471 Amendment 1
Client: Comox Valley Regional District

Project : 3



Sub-Matrix: Water							Matrix Spil	ke (MS) Report		
					Spi	ike	Recovery (%)	Recovery	Limits (%)	
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Volatile Organic	Compounds (QCLot	: 853016) - continued								
VA23A4471-005	WG-022723-CS-43	Dichloroethylene, trans-1,2-	156-60-5	E611C	97.9 μg/L	100 μg/L	97.9	60.0	140	
		Dichloromethane	75-09-2	E611C	96.5 μg/L	100 μg/L	96.5	60.0	140	
		Dichloropropane, 1,2-	78-87-5	E611C	100 μg/L	100 μg/L	100	60.0	140	
		Dichloropropylene, cis-1,3-	10061-01-5	E611C	104 μg/L	100 μg/L	104	60.0	140	
		Dichloropropylene, trans-1,3-	10061-02-6	E611C	98.2 μg/L	100 μg/L	98.2	60.0	140	
		Ethylbenzene	100-41-4	E611C	104 μg/L	100 μg/L	104	60.0	140	
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611C	107 μg/L	100 μg/L	107	60.0	140	
		Styrene	100-42-5	E611C	105 μg/L	100 μg/L	105	60.0	140	
		Tetrachloroethane, 1,1,1,2-	630-20-6	E611C	103 μg/L	100 μg/L	103	60.0	140	
		Tetrachloroethane, 1,1,2,2-	79-34-5	E611C	99.5 μg/L	100 μg/L	99.5	60.0	140	
		Tetrachloroethylene	127-18-4	E611C	108 μg/L	100 μg/L	108	60.0	140	
		Toluene	108-88-3	E611C	100 μg/L	100 μg/L	100	60.0	140	
		Trichloroethane, 1,1,1-	71-55-6	E611C	102 μg/L	100 μg/L	102	60.0	140	
		Trichloroethane, 1,1,2-	79-00-5	E611C	99.0 μg/L	100 μg/L	99.0	60.0	140	
		Trichloroethylene	79-01-6	E611C	104 μg/L	100 μg/L	104	60.0	140	
		Trichlorofluoromethane	75-69-4	E611C	99.8 μg/L	100 μg/L	99.8	50.0	150	
		Vinyl chloride	75-01-4	E611C	100 μg/L	100 μg/L	100	50.0	150	
		Xylene, m+p-	179601-23-1	E611C	223 μg/L	200 μg/L	111	60.0	140	
		Xylene, o-	95-47-6	E611C	107 μg/L	100 μg/L	107	60.0	140	
Hydrocarbons (QCLot: 853015)									
VA23A4471-006	WG-022723-CS-44	VHw (C6-C10)		E581.VH+F1	5770 μg/L	6310 µg/L	91.5	60.0	140	



QUALITY CONTROL INTERPRETIVE REPORT

Work Order :**VA23A4471** Page : 1 of 17

Amendment :1

Client : Comox Valley Regional District Laboratory : Vancouver - Environmental

Contact : Crystal Stuart Account Manager : Thomas Chang

Address :770 Harmston Avenue Address :8081 Lougheed Highway

Burnaby, British Columbia Canada V5A 1W9

 Telephone
 : 250-898-3722
 Telephone
 : +1 604 253 4188

 Project
 : 3
 Date Samples Received
 : 01-Mar-2023 10:45

 PO
 : 23-015
 Issue Date
 : 22-Mar-2023 14:36

C-O-C number :---Sampler : CStuart

Site : CRWMC-Quarterly-GW

Quote number : VA23-COVR100-001

No. of samples received :6
No. of samples analysed :6

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.

Courtney BC Canada V9N 0G8

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)

• No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

• No Quality Control Sample Frequency Outliers occur.

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Work Order : VA23A4471 Amendment 1
Client : Comox Valley Regional District

Project :



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	Evalua	ation: x = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group	Method	Sampling Date	Extraction / Preparation				J	Analys	is	
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
WG-022723-CS-39	E298	27-Feb-2023	04-Mar-2023				04-Mar-2023	28 days	5 days	√
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										_
WG-022723-CS-40	E298	27-Feb-2023	04-Mar-2023				04-Mar-2023	28 days	5 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
WG-022723-CS-41	E298	27-Feb-2023	04-Mar-2023				04-Mar-2023	28 days	5 days	√
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
WG-022723-CS-42	E298	27-Feb-2023	04-Mar-2023				04-Mar-2023	28 days	5 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
WG-022723-CS-43	E298	27-Feb-2023	04-Mar-2023				04-Mar-2023	28 days	5 days	*
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
WG-022723-CS-44	E298	27-Feb-2023	04-Mar-2023				04-Mar-2023	28 days	5 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE										
WG-022723-CS-39	E235.CI	27-Feb-2023	01-Mar-2023				02-Mar-2023	28 days	2 days	✓

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Matrix: Water	Evaluation: × = Holding time exceedance ; ✓ = Within Holding Tir									
Analyte Group	Method	Sampling Date	Ext	raction / Pr	eparation			Analys	sis	
Container / Client Sample ID(s)			Preparation Date	Holding Rec	g Times Actual	Eval	Analysis Date	Holding Rec	7 Times Actual	Eval
Anions and Nutrients : Chloride in Water by IC										
HDPE WG-022723-CS-40	E235.Cl	27-Feb-2023	01-Mar-2023				02-Mar-2023	28 days	2 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE WG-022723-CS-41	E235.CI	27-Feb-2023	01-Mar-2023				02-Mar-2023	28 days	2 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE WG-022723-CS-42	E235.Cl	27-Feb-2023	01-Mar-2023				02-Mar-2023	28 days	2 days	4
Anions and Nutrients : Chloride in Water by IC										
HDPE WG-022723-CS-43	E235.CI	27-Feb-2023	01-Mar-2023				02-Mar-2023	28 days	2 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE WG-022723-CS-44	E235.Cl	27-Feb-2023	01-Mar-2023				02-Mar-2023	28 days	2 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE WG-022723-CS-39	E235.F	27-Feb-2023	01-Mar-2023				02-Mar-2023	28 days	2 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE WG-022723-CS-40	E235.F	27-Feb-2023	01-Mar-2023				02-Mar-2023	28 days	2 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE WG-022723-CS-41	E235.F	27-Feb-2023	01-Mar-2023				02-Mar-2023	28 days	2 days	4
Anions and Nutrients : Fluoride in Water by IC										
HDPE WG-022723-CS-42	E235.F	27-Feb-2023	01-Mar-2023				02-Mar-2023	28 days	2 days	✓

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		Evaluation: × = Holding time exceedance ; ✓ = Within Holding Ti								
Method	Sampling Date	Ext	raction / Pr	eparation			Analys	sis		
		Preparation			Eval	Analysis Date			Eval	
		Date	7.00	71010101			7.00	710100		
E235.F	27-Feb-2023	01-Mar-2023				02-Mar-2023	28 days	2 days	✓	
E235.F	27-Feb-2023	01-Mar-2023				02-Mar-2023	28 days	2 days	✓	
E235.NO3-L	27-Feb-2023	01-Mar-2023				02-Mar-2023	3 days	2 days	✓	
E235.NO3-L	27-Feb-2023	01-Mar-2023				02-Mar-2023	3 days	2 days	✓	
F225 NO2 I	27 Feb 2022	04 Mar 2022				00 Mar 2022	2 days	O dovo	√	
E235.NO3-L	27-Feb-2023	01-Mar-2023				02-War-2023	3 days	2 days	•	
			1							
E005 NO.0 I	07 5-1- 0000	04 M 0000				00 M 0000	0.1	0.1	√	
E235.NO3-L	27-Feb-2023	01-Mar-2023				02-Mar-2023	3 days	2 days	•	
E005 NO.0 I	07 5-1- 0000	04 M 0000				00 M 0000	0 4	0 -1	1	
E235.NO3-L	27-Feb-2023	01-Mar-2023				02-War-2023	3 days	2 days	•	
E005 NO. 1	07 5 4 0000	04.140000				00.140000	0.1	0.1		
E235.NO3-L	27-Feb-2023	u1-Mar-2023				u2-Mar-2023	3 days	2 days	✓	
F005 NO0 1	07 5-1-0000	04.14. 0000				00.140005		0.1	,	
E235.NO2-L	27-Feb-2023	01-Mar-2023				02-Mar-2023	3 days	2 days	✓	
	E235.F	E235.NO3-L 27-Feb-2023 E235.NO3-L 27-Feb-2023 E235.NO3-L 27-Feb-2023 E235.NO3-L 27-Feb-2023 E235.NO3-L 27-Feb-2023	E235.F 27-Feb-2023 01-Mar-2023 E235.NO3-L 27-Feb-2023 01-Mar-2023 E235.NO3-L 27-Feb-2023 01-Mar-2023 E235.NO3-L 27-Feb-2023 01-Mar-2023 E235.NO3-L 27-Feb-2023 01-Mar-2023 E235.NO3-L 27-Feb-2023 01-Mar-2023 E235.NO3-L 27-Feb-2023 01-Mar-2023	E235.F 27-Feb-2023 01-Mar-2023 E235.NO3-L 27-Feb-2023 01-Mar-2023 E235.NO3-L 27-Feb-2023 01-Mar-2023 E235.NO3-L 27-Feb-2023 01-Mar-2023 E235.NO3-L 27-Feb-2023 01-Mar-2023 E235.NO3-L 27-Feb-2023 01-Mar-2023 E235.NO3-L 27-Feb-2023 01-Mar-2023	E235.F 27-Feb-2023 01-Mar-2023 E235.F 27-Feb-2023 01-Mar-2023 E235.NO3-L 27-Feb-2023 01-Mar-2023	E235.F 27-Feb-2023 01-Mar-2023 E235.NO3-L 27-Feb-2023 01-Mar-2023 E235.NO3-L 27-Feb-2023 01-Mar-2023 E235.NO3-L 27-Feb-2023 01-Mar-2023 E235.NO3-L 27-Feb-2023 01-Mar-2023 E235.NO3-L 27-Feb-2023 01-Mar-2023 E235.NO3-L 27-Feb-2023 01-Mar-2023 E235.NO3-L 27-Feb-2023 01-Mar-2023	Date Rec Actual E235.F 27-Feb-2023 01-Mar-2023 02-Mar-2023 E235.F 27-Feb-2023 01-Mar-2023 02-Mar-2023 E235.NO3-L 27-Feb-2023 01-Mar-2023 02-Mar-2023 E235.NO3-L 27-Feb-2023 01-Mar-2023 02-Mar-2023 E235.NO3-L 27-Feb-2023 01-Mar-2023 02-Mar-2023 E235.NO3-L 27-Feb-2023 01-Mar-2023 02-Mar-2023 E235.NO3-L 27-Feb-2023 01-Mar-2023 02-Mar-2023	E235.F 27-Feb-2023 01-Mar-2023 02-Mar-2023 28 days E235.NO3-L 27-Feb-2023 01-Mar-2023 02-Mar-2023 3 days E235.NO3-L 27-Feb-2023 01-Mar-2023 02-Mar-2023 3 days E235.NO3-L 27-Feb-2023 01-Mar-2023 02-Mar-2023 3 days E235.NO3-L 27-Feb-2023 01-Mar-2023 02-Mar-2023 3 days E235.NO3-L 27-Feb-2023 01-Mar-2023 02-Mar-2023 3 days	Date Rec Actual Rec Actual E235.F 27-Feb-2023 01-Mar-2023 02-Mar-2023 28 days 2 days E235.F 27-Feb-2023 01-Mar-2023 02-Mar-2023 28 days 2 days E235.NO3-L 27-Feb-2023 01-Mar-2023 02-Mar-2023 3 days 2 days E235.NO3-L 27-Feb-2023 01-Mar-2023 02-Mar-2023 3 days 2 days E235.NO3-L 27-Feb-2023 01-Mar-2023 02-Mar-2023 3 days 2 days E235.NO3-L 27-Feb-2023 01-Mar-2023 02-Mar-2023 3 days 2 days E235.NO3-L 27-Feb-2023 01-Mar-2023 02-Mar-2023 3 days 2 days	

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Matrix: Water	Evaluation: × = Holding time exceedance ; ✓ = Within Holding Ti								Holding Tim	
Analyte Group	Method	Sampling Date	Ext	raction / Pr	eparation			Analys	is	
Container / Client Sample ID(s)			Preparation Date	Holding Rec	g Times Actual	Eval	Analysis Date	Holding Rec	Times Actual	Eval
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE WG-022723-CS-40	E235.NO2-L	27-Feb-2023	01-Mar-2023				02-Mar-2023	3 days	2 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE WG-022723-CS-41	E235.NO2-L	27-Feb-2023	01-Mar-2023				02-Mar-2023	3 days	2 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE WG-022723-CS-42	E235.NO2-L	27-Feb-2023	01-Mar-2023				02-Mar-2023	3 days	2 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE WG-022723-CS-43	E235.NO2-L	27-Feb-2023	01-Mar-2023				02-Mar-2023	3 days	2 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE WG-022723-CS-44	E235.NO2-L	27-Feb-2023	01-Mar-2023				02-Mar-2023	3 days	2 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE WG-022723-CS-39	E235.SO4	27-Feb-2023	01-Mar-2023				02-Mar-2023	28 days	2 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE WG-022723-CS-40	E235.SO4	27-Feb-2023	01-Mar-2023				02-Mar-2023	28 days	2 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE WG-022723-CS-41	E235.SO4	27-Feb-2023	01-Mar-2023				02-Mar-2023	28 days	2 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE WG-022723-CS-42	E235.SO4	27-Feb-2023	01-Mar-2023				02-Mar-2023	28 days	2 days	✓

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Matrix: Water	Evaluation: x = Holding time exceedance; ✓ = Within Holding T								Holding Tim	
Analyte Group	Method	Sampling Date	Ext	raction / Pr	eparation			Analys	is	
Container / Client Sample ID(s)			Preparation Date	Holding Rec	g Times Actual	Eval	Analysis Date	Holding Rec	Times Actual	Eval
Anions and Nutrients : Sulfate in Water by IC										
HDPE WG-022723-CS-43	E235.SO4	27-Feb-2023	01-Mar-2023				02-Mar-2023	28 days	2 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE WG-022723-CS-44	E235.SO4	27-Feb-2023	01-Mar-2023				02-Mar-2023	28 days	2 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid) WG-022723-CS-39	E509	27-Feb-2023	02-Mar-2023				02-Mar-2023	28 days	3 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid) WG-022723-CS-40	E509	27-Feb-2023	02-Mar-2023				02-Mar-2023	28 days	3 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid) WG-022723-CS-41	E509	27-Feb-2023	02-Mar-2023				02-Mar-2023	28 days	3 days	√
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid) WG-022723-CS-42	E509	27-Feb-2023	02-Mar-2023				02-Mar-2023	28 days	3 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid) WG-022723-CS-43	E509	27-Feb-2023	02-Mar-2023				02-Mar-2023	28 days	3 days	√
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid) WG-022723-CS-44	E509	27-Feb-2023	02-Mar-2023				02-Mar-2023	28 days	3 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) WG-022723-CS-39	E421	27-Feb-2023	02-Mar-2023				02-Mar-2023	180 days	3 days	√

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atrix: Water					Eva	aluation: 🗴 =	Holding time exce	edance ; 🕦	/ = Within	Holding T
Analyte Group	Method	Sampling Date	Ext	raction / Pr	eparation			Analys	sis	
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid)										
WG-022723-CS-40	E421	27-Feb-2023	02-Mar-2023				02-Mar-2023	180	3 days	✓
								days		
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid)										
WG-022723-CS-41	E421	27-Feb-2023	02-Mar-2023				02-Mar-2023	180	3 days	✓
								days		
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid)										
WG-022723-CS-42	E421	27-Feb-2023	02-Mar-2023				02-Mar-2023	180	3 days	✓
								days		
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid)										
WG-022723-CS-43	E421	27-Feb-2023	02-Mar-2023				02-Mar-2023	180	3 days	✓
								days		
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid)										
WG-022723-CS-44	E421	27-Feb-2023	02-Mar-2023				02-Mar-2023	180	3 days	✓
								days		
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate)										
WG-022723-CS-39	E581.VH+F1	27-Feb-2023	05-Mar-2023				05-Mar-2023	14 days	6 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate)										
WG-022723-CS-43	E581.VH+F1	27-Feb-2023	05-Mar-2023				05-Mar-2023	14 days	6 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate)										
WG-022723-CS-44	E581.VH+F1	27-Feb-2023	05-Mar-2023				05-Mar-2023	14 days	6 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
WG-022723-CS-39	E290	27-Feb-2023	01-Mar-2023				02-Mar-2023	14 days	2 days	✓

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Matrix: Water	Evaluation: ▼ = Holding time exceedance ; ✓ = Within Holding Time								Holding Time	
Analyte Group	Method	Sampling Date	Ext	raction / Pr	eparation			Analys	is	
Container / Client Sample ID(s)			Preparation Date	Holding Rec	g Times Actual	Eval	Analysis Date	Holding Rec	Times Actual	Eval
Physical Tests : Alkalinity Species by Titration										
HDPE WG-022723-CS-40	E290	27-Feb-2023	01-Mar-2023				02-Mar-2023	14 days	2 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE WG-022723-CS-41	E290	27-Feb-2023	01-Mar-2023				02-Mar-2023	14 days	2 days	✓
Physical Tests : Alkalinity Species by Titration				I						
HDPE WG-022723-CS-42	E290	27-Feb-2023	01-Mar-2023				02-Mar-2023	14 days	2 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE WG-022723-CS-43	E290	27-Feb-2023	01-Mar-2023				02-Mar-2023	14 days	2 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE WG-022723-CS-44	E290	27-Feb-2023	01-Mar-2023				02-Mar-2023	14 days	2 days	✓
Physical Tests : Conductivity in Water										
HDPE WG-022723-CS-39	E100	27-Feb-2023	01-Mar-2023				02-Mar-2023	28 days	2 days	✓
Physical Tests : Conductivity in Water										
HDPE WG-022723-CS-40	E100	27-Feb-2023	01-Mar-2023				02-Mar-2023	28 days	2 days	✓
Physical Tests : Conductivity in Water										
HDPE WG-022723-CS-41	E100	27-Feb-2023	01-Mar-2023				02-Mar-2023	28 days	2 days	✓
Physical Tests : Conductivity in Water										
HDPE WG-022723-CS-42	E100	27-Feb-2023	01-Mar-2023				02-Mar-2023	28 days	2 days	✓

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Matrix: Water	Evaluation: × = Holding time exceedance ; ✓ = Within Holding T								Holding Tim	
Analyte Group	Method	Sampling Date	Ext	traction / Pr				Analys	sis	
Container / Client Sample ID(s)			Preparation Date	Holding Rec	7 Times Actual	Eval	Analysis Date	Holding Rec	7 Times Actual	Eval
Physical Tests : Conductivity in Water										
HDPE WG-022723-CS-43	E100	27-Feb-2023	01-Mar-2023				02-Mar-2023	28 days	2 days	✓
Physical Tests : Conductivity in Water										
HDPE WG-022723-CS-44	E100	27-Feb-2023	01-Mar-2023				02-Mar-2023	28 days	2 days	✓
Physical Tests : TDS by Gravimetry										
HDPE WG-022723-CS-39	E162	27-Feb-2023					03-Mar-2023	7 days	4 days	✓
Physical Tests : TDS by Gravimetry										
HDPE WG-022723-CS-40	E162	27-Feb-2023					03-Mar-2023	7 days	4 days	✓
Physical Tests : TDS by Gravimetry										
HDPE WG-022723-CS-41	E162	27-Feb-2023					03-Mar-2023	7 days	4 days	✓
Physical Tests : TDS by Gravimetry										
HDPE WG-022723-CS-42	E162	27-Feb-2023					03-Mar-2023	7 days	4 days	✓
Physical Tests : TDS by Gravimetry										
HDPE WG-022723-CS-43	E162	27-Feb-2023					03-Mar-2023	7 days	4 days	✓
Physical Tests : TDS by Gravimetry										
HDPE WG-022723-CS-44	E162	27-Feb-2023					03-Mar-2023	7 days	4 days	✓
Volatile Organic Compounds : VOCs (BC List) by Headspace GC-MS										
Glass vial (sodium bisulfate) WG-022723-CS-39	E611C	27-Feb-2023	05-Mar-2023				05-Mar-2023	14 days	6 days	✓

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Matrix: Water					Ev	aluation: 🗴 =	Holding time exce	edance ; 🔻	= Within	Holding Tim
Analyte Group	Method	Sampling Date	Ext	raction / Pr	eparation			Analys	is	
Container / Client Sample ID(s)			Preparation		g Times	Eval	Analysis Date		Times	Eval
			Date	Rec	Actual			Rec	Actual	
Volatile Organic Compounds : VOCs (BC List) by Headspace GC-MS										
Glass vial (sodium bisulfate) WG-022723-CS-43	E611C	27-Feb-2023	05-Mar-2023				05-Mar-2023	14 days	6 days	✓
Volatile Organic Compounds : VOCs (BC List) by Headspace GC-MS										
Glass vial (sodium bisulfate) WG-022723-CS-44	E611C	27-Feb-2023	05-Mar-2023				05-Mar-2023	14 days	6 days	✓
Volatile Organic Compounds [Drycleaning] : VOCs (BC List) by Headspace GC-MS				_						
Glass vial (sodium bisulfate) WG-022723-CS-39	E611C	27-Feb-2023	05-Mar-2023				05-Mar-2023	14 days	6 days	✓
Volatile Organic Compounds [Drycleaning] : VOCs (BC List) by Headspace GC-MS										
Glass vial (sodium bisulfate) WG-022723-CS-43	E611C	27-Feb-2023	05-Mar-2023				05-Mar-2023	14 days	6 days	✓
Volatile Organic Compounds [Drycleaning] : VOCs (BC List) by Headspace GC-MS										
Glass vial (sodium bisulfate) WG-022723-CS-44	E611C	27-Feb-2023	05-Mar-2023				05-Mar-2023	14 days	6 days	✓
Volatile Organic Compounds [Fuels] : VOCs (BC List) by Headspace GC-MS										
Glass vial (sodium bisulfate) WG-022723-CS-39	E611C	27-Feb-2023	05-Mar-2023				05-Mar-2023	14 days	6 days	✓
Volatile Organic Compounds [Fuels] : VOCs (BC List) by Headspace GC-MS										
Glass vial (sodium bisulfate) WG-022723-CS-43	E611C	27-Feb-2023	05-Mar-2023				05-Mar-2023	14 days	6 days	✓
Volatile Organic Compounds [Fuels] : VOCs (BC List) by Headspace GC-MS										
Glass vial (sodium bisulfate) WG-022723-CS-44	E611C	27-Feb-2023	05-Mar-2023				05-Mar-2023	14 days	6 days	✓
Volatile Organic Compounds [THMs] : VOCs (BC List) by Headspace GC-MS				-						
Glass vial (sodium bisulfate) WG-022723-CS-39	E611C	27-Feb-2023	05-Mar-2023				05-Mar-2023	14 days	6 days	✓

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Matrix: Water					E	valuation: × =	Holding time excee	edance ; 🔹	/ = Within	Holding Time
Analyte Group	Method	Sampling Date	Ext	raction / Pr	eparation			Analys	sis	
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Volatile Organic Compounds [THMs] : VOCs (BC List) by Headspace GC-MS										
Glass vial (sodium bisulfate) WG-022723-CS-43	E611C	27-Feb-2023	05-Mar-2023				05-Mar-2023	14 days	6 days	✓
Volatile Organic Compounds [THMs] : VOCs (BC List) by Headspace GC-MS										
Glass vial (sodium bisulfate) WG-022723-CS-44	E611C	27-Feb-2023	05-Mar-2023				05-Mar-2023	14 days	6 days	✓

Legend & Qualifier Definitions

Rec. HT: ALS recommended hold time (see units).

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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.

Analysical Methods Method QC Lof # QC Regulate Actual Expected Evaluation Expected Expected Evaluation Expected Expec	Matrix: Water		Evaluat	ion: 🗴 = QC freque	ency outside spe	ecification; ✓ =	QC frequency wit	hin specification
Albanity Species by Titration E280 849776 1 10 10.0 5.0	Quality Control Sample Type				ount		Frequency (%)	
Alkalinity Species by Titration E200 849776 1 10 10.0 5.0 \(\sqrt{1} \) Alkalinity Species by Titration E208 852552 1 8 12.5 5.0 \(\sqrt{1} \) Alkalinity Species by Titration E208 852552 1 8 12.5 5.0 \(\sqrt{1} \) Alkalinity Species by Titration Total Conductivity in Water by CVAAS E100 849773 1 9 11.1 5.0 \(\sqrt{1} \) Dissolved Mirror in Water by CVAAS E500 850498 1 20 5.0 5.0 \(\sqrt{1} \) Dissolved Mirror in Water by CRC ICPMS E421 850164 1 14 7.1 5.0 \(\sqrt{1} \) Funding in Water by IC (Low Level) E235 F. 849770 1 10 10.0 5.0 \(\sqrt{1} \) Nitrate in Water by IC (Low Level) E235 F. 849770 1 10 10.0 5.0 \(\sqrt{1} \) Nitrate in Water by IC (Low Level) E235 F. 849770 1 13 7.6 5.0 \(\sqrt{1} \) Nitrate in Water by IC (Low Level) E235 F. 849770 1 13 7.6 5.0 \(\sqrt{1} \) Nitrate in Water by IC (Low Level) E235 F. 849770 1 13 7.6 5.0 \(\sqrt{1} \) Nitrate in Water by IC (Low Level) E235 F. 849770 1 13 7.6 5.0 \(\sqrt{1} \) Nitrate in Water by IC (Low Level) E235 F. 849770 1 13 7.6 5.0 \(\sqrt{1} \) Nitrate in Water by IC (Low Level) E235 F. 849770 1 13 7.6 5.0 \(\sqrt{1} \) Nitrate in Water by IC (Low Level) E235 F. 849770 1 10 10.0 5.0 \(\sqrt{1} \) Nitrate in Water by IC (Low Level) E235 F. 849760 1 10 10.0 5.0 \(\sqrt{1} \) Nitrate in Water by IC (Low Level) E235 F. 849760 1 10 10.0 5.0 \(\sqrt{1} \) Nitrate in Water by IC (Low Level) E610 E611	Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation
Ammonia by Fluorescence	Laboratory Duplicates (DUP)							
Chloride in Water by IC	Alkalinity Species by Titration	E290	849776	1	10	10.0	5.0	✓
Endo	Ammonia by Fluorescence	E298	852652	1	8	12.5	5.0	✓
Endo	Chloride in Water by IC	E235.Cl	849771	1	16	6.2	5.0	✓
Dissolved Metals in Water by CRC ICPMS	Conductivity in Water	E100	849773	1	9	11.1	5.0	
Fluoride in Water by IC E235.F 849770 1 10 10.0 5.0	Dissolved Mercury in Water by CVAAS	E509	850498	1	20	5.0	5.0	✓
Nitrate in Water by IC (Low Level)	Dissolved Metals in Water by CRC ICPMS	E421	850164	1	14	7.1	5.0	✓
Nirite in Water by IC (Low Level) E235.NO2-L 849767 1 13 7.6 5.0 ✓ Sulfate in Water by IC E235.SO4 849769 1 10 10.0 5.0 ✓ PE162 850225 1 19 5.2 5.0 ✓ WH and F1 by Headspace GC-FID E581.VH+F1 853015 E611C 850306 1 8 12.5 5.0 ✓ VOC S(BC List) by Headspace GC-FID E581.VH+F1 853016 1 8 12.5 5.0 ✓ Laboratory Control Samples (LCS) Laboratory Control Samples (LCS) Alkalinity Species by Titration E290 849776 1 10 10.0 5.0 ✓ Alkalinity Species by Titration E298 852652 1 8 12.5 5.0 ✓ Chonducitivity in Water by IC E235.CI 849777 1 16 6 2. 5.0 ✓ Conductivity in Water by CVAAS E508 85048 1 20 5.0 5.0 ✓ Dissolved Metals in Water by CR ICPMS E235.F 849770 1 10 10.0 5.0 ✓ PE235.F 849770 1 10 10.0 5.0 ✓ PE335.NO2-L B49767 1 13 7.6 5.0 ✓ Nitrate in Water by IC (Low Level) E235.NO2-L B49776 1 11 7 11 5.0 ✓ PE335.NO2-L B49776 1 11 7 1 5.0 ✓ PE335.NO2-L B49777 1 10 10 10.0 5.0 ✓ PE335.F 849770 1 10 10.0 5.0 ✓ PE335.NO3-L B49768 1 11 7 1 5.0 ✓ PE335.NO3-L B49768 1 11 7 1 5.0 ✓ PE335.NO3-L B49768 1 11 7 1 11 7 1 5.0 ✓ PE335.NO3-L B49776 1 11 7 1 11 7 1 5.0 ✓ PE335.NO3-L B49776 1 11 7 1 11 7 1 11 10 10.0 5.0 ✓ PE335.NO3-L B49776 1 11 10 10.0 5.0 ✓ PE335.NO3-L B4	Fluoride in Water by IC	E235.F	849770	1	10	10.0	5.0	✓
Sulfate in Water by IC E235,SO4 849769 1 10 10.0 5.0 ✓ TDS by Gravimetry E162 880225 1 19 5.2 5.0 ✓ VPH and F1 by Headspace GC-FID E581 \H+F1 853016 1 8 12.5 5.0 ✓ VOCs (BC List) by Headspace GC-MS E611C 853016 1 8 12.5 5.0 ✓ Laboratory Control Samples (LCS) L L 849776 1 10 10.0 5.0 ✓ Armonia by Fluorescence E298 852652 1 8 12.5 5.0 ✓ Armonia by Fluorescence E298 852652 1 8 12.5 5.0 ✓ Chloride in Water by IC E235,CI 849771 1 16 6.2 5.0 ✓ Dissolved Mercury in Water by CVAAS E509 850488 1 20 5.0 5.0 ✓ Dissolved Mercury in Water by CC CIPMS E421 850164 1 </td <td>Nitrate in Water by IC (Low Level)</td> <td>E235.NO3-L</td> <td>849768</td> <td>1</td> <td>13</td> <td>7.6</td> <td>5.0</td> <td>1</td>	Nitrate in Water by IC (Low Level)	E235.NO3-L	849768	1	13	7.6	5.0	1
TDS by Gravimetry	Nitrite in Water by IC (Low Level)	E235.NO2-L	849767	1	13	7.6	5.0	√
VH and F1 by Headspace GC-FID E681.VH+F1 853015 1 7 14.2 5.0 ✓ VOCs (BC List) by Headspace GC-MS E611C 853016 1 8 12.5 5.0 ✓ Alkalinity Species by Titration E290 849776 1 10 10.0 5.0 ✓ Ammonia by Fluorescence E298 852652 1 8 12.5 5.0 ✓ Cloride in Water by IC E235.CI 849771 1 16 6.2 5.0 ✓ Conductivity in Water E100 849773 1 9 11.1 5.0 ✓ Dissolved Mercury in Water by IC CASA E509 850498 1 20 5.0 5.0 ✓ Dissolved Metals in Water by IC CEPMS E421 850164 1 14 7.1 5.0 ✓ Viltrate in Water by IC Cow Level) E235.NO3-1 849769 1 10 10.0 5.0 ✓ Wiltrate in Water by IC Cow Level) E235.NO2-1 <t< td=""><td>Sulfate in Water by IC</td><td>E235.SO4</td><td>849769</td><td>1</td><td>10</td><td>10.0</td><td>5.0</td><td>✓</td></t<>	Sulfate in Water by IC	E235.SO4	849769	1	10	10.0	5.0	✓
VOCs (BC List) by Headspace GC-MS E611C 853016 1 8 12.5 5.0 ✓	TDS by Gravimetry	E162	850225	1	19	5.2	5.0	√
VOCs (BC List) by Headspace GC-MS E611C 853016 1 8 12.5 5.0 ✓	VH and F1 by Headspace GC-FID	E581.VH+F1	853015	1	7	14.2	5.0	√
Alkalinity Species by Titration E290 849776 1 10 10.0 5.0 ✓ Ammonia by Fluorescence E298 852652 1 8 12.5 5.0 ✓ Cholide in Water by IC E235.Cl 849771 1 16 6.2 5.0 ✓ Cholide in Water by IC E100 849773 1 9 11.1 5.0 ✓ Chould: Water by IC E100 849773 1 9 11.1 5.0 ✓ Chould: Water by IC E235.Cl E235.Cl E421 E350164 1 14 7.1 5.0 ✓ Chould: Water by IC E235.Fl E335.Fl	VOCs (BC List) by Headspace GC-MS	E611C	853016	1	8	12.5	5.0	
Ammonia by Fluorescence	Laboratory Control Samples (LCS)							
Chloride in Water by IC E235.Cl 849771 1 16 6.2 5.0 ✓ Conductivity in Water E100 849773 1 9 11.1 5.0 ✓ Dissolved Mercury in Water by CVAAS E609 850498 1 20 5.0 5.0 ✓ Dissolved Metals in Water by CRC ICPMS E421 850164 1 14 7.1 5.0 ✓ Dissolved Metals in Water by IC E235.F 849770 1 10 10.0 5.0 ✓ Dissolved Mercury in Water by IC (Low Level) E235.NO3-L 849768 1 13 7.6 5.0 ✓ Dissolved Mercury in Water by IC (Low Level) E235.NO3-L 849767 1 13 7.6 5.0 ✓ Dissolved Mercury in Water by IC (Low Level) E235.NO3-L 849767 1 13 7.6 5.0 ✓ Dissolved Mercury in Water by IC E235.SO4 849769 1 10 10.0 5.0 ✓ Dissolved Mercury in Water by IC E235.SO4 849769 1 10 10.0 5.0 ✓ Dissolved Mercury in Water by IC E235.SO4 E611C E33016 1 8 12.5 5.0 ✓ Dissolved Mercury in Water by IC E235.Cl 849771 1 16 6.2 5.0 ✓ Dissolved Mercury in Water by IC E235.Cl 849773 1 9 11.1 5.0 ✓ Dissolved Mercury in Water by IC Conductivity in Water by IC E659 850498 1 20 5.0 5.0 ✓ Dissolved Mercury in Water by CCAS E699 850488 1 20 5.0 5.0 ✓ Dissolved Mercury in Water by CCAS E421 850164 1 14 7.1 5.0 ✓ Dissolved Metals in Water by CCICPMS E421 850164 1 14 7.1 5.0 ✓ Dissolved Metals in Water by CCICPMS E421 850164 1 14 7.1 5.0 ✓ Dissolved Metals in Water by CCICPMS E421 850164 1 14 7.1 5.0 ✓ Dissolved Metals in Water by CCICPMS E421 850164 1 14 7.1 5.0 ✓ Dissolved Metals in Water by CCICPMS E421 850164 1 14 7.1 5.0 ✓ Dissolved Metals in Water by CCICPMS E421 850164 1 14 7.1 5.0 ✓ Dissolved Metals in Water by CCICPMS E421 850164 1 14 7.1 5.0 ✓ Dissolved Metals in Water by CCICPMS E421 850164 1 14 7.1 5.0 ✓ Dissolved Metals in Water by CCICPMS E421 850164 1 14 7.1 5.0 ✓ Dissolved Metals in Water by CCICPMS E421 850	Alkalinity Species by Titration	E290	849776	1	10	10.0	5.0	✓
E100 849773 1 9 11.1 5.0 ✓	Ammonia by Fluorescence	E298	852652	1	8	12.5	5.0	✓
Dissolved Mercury in Water by CVAAS E509 850498 1 20 5.0 5.0 ✓	Chloride in Water by IC	E235.Cl	849771	1	16	6.2	5.0	✓
E421 850164 1 14 7.1 5.0 ✓	Conductivity in Water	E100	849773	1	9	11.1	5.0	✓
E421 850164 1	Dissolved Mercury in Water by CVAAS	E509	850498	1	20	5.0	5.0	✓
Nitrate in Water by IC (Low Level) E235.NO3-L 849768 1 13 7.6 5.0 ✓ Nitrite in Water by IC (Low Level) E235.NO2-L 849767 1 13 7.6 5.0 ✓ Sulfate in Water by IC E235.NO2-L 849769 1 10 10.0 5.0 ✓ TDS by Gravimetry E162 850225 1 19 5.2 5.0 ✓ VH and F1 by Headspace GC-FID E581.VH+F1 853015 1 7 14.2 5.0 ✓ VOCs (BC List) by Headspace GC-MS E611C 853016 1 8 12.5 5.0 ✓ Method Blanks (MB) *** B49776 1 10 10.0 5.0 ✓ Alkalinity Species by Titration E298 852652 1 8 12.5 5.0 ✓ Ammonia by Fluorescence E298 852652 1 8 12.5 5.0 ✓ Chloride in Water by IC E235.Cl 849771 1 16 6.2 5.0 ✓ Conductivity in Water E100 <	Dissolved Metals in Water by CRC ICPMS	E421	850164	1	14	7.1	5.0	
Nitrite in Water by IC (Low Level) E235.NO2-L 849767 1 13 7.6 5.0 ✓ Sulfate in Water by IC E235.NO2-L 849769 1 10 10.0 5.0 ✓ TDS by Gravimetry E162 850225 1 19 5.2 5.0 ✓ VH and F1 by Headspace GC-FID E581.VH+F1 853015 1 7 14.2 5.0 ✓ VOCs (BC List) by Headspace GC-MS E611C 853016 1 8 12.5 5.0 ✓ Method Blanks (MB) E290 849776 1 10 10.0 5.0 ✓ Ammonia by Fluorescence E298 852652 1 8 12.5 5.0 ✓ Chloride in Water by IC E235.CI 849771 1 16 6.2 5.0 ✓ Conductivity in Water E100 849773 1 9 11.1 5.0 ✓ Dissolved Mercury in Water by CVAAS E509 850498 1 20	Fluoride in Water by IC	E235.F	849770	1	10	10.0	5.0	✓
Sulfate in Water by IC E235.SO4 849769 1 10 10.0 5.0 ✓ TDS by Gravimetry E162 850225 1 19 5.2 5.0 ✓ VH and F1 by Headspace GC-FID E581.VH+F1 853015 1 7 14.2 5.0 ✓ VOCs (BC List) by Headspace GC-MS E611C 853016 1 8 12.5 5.0 ✓ Method Blanks (MB) Alkalinity Species by Titration E290 849776 1 10 10.0 5.0 ✓ Ammonia by Fluorescence E298 852652 1 8 12.5 5.0 ✓ Chloride in Water by IC E235.Cl 849771 1 16 6.2 5.0 ✓ Conductivity in Water E100 849773 1 9 11.1 5.0 ✓ Dissolved Mercury in Water by CVAAS E509 850498 1 20 5.0 5.0 ✓ Dissolved Metals in Water by CRC ICPMS E421 850164 1 14 7.1 5.0 ✓ <td>Nitrate in Water by IC (Low Level)</td> <td>E235.NO3-L</td> <td>849768</td> <td>1</td> <td>13</td> <td>7.6</td> <td>5.0</td> <td>✓</td>	Nitrate in Water by IC (Low Level)	E235.NO3-L	849768	1	13	7.6	5.0	✓
TDS by Gravimetry E162 850225 1 19 5.2 5.0 ✓ VH and F1 by Headspace GC-FID E581.VH+F1 853015 1 7 14.2 5.0 ✓ VOCs (BC List) by Headspace GC-MS E611C 853016 1 8 12.5 5.0 ✓ Method Blanks (MB) Alkalinity Species by Titration E290 849776 1 10 10.0 5.0 ✓ Ammonia by Fluorescence E298 852652 1 8 12.5 5.0 ✓ Chloride in Water by IC Conductivity in Water E100 849773 1 9 11.1 5.0 ✓ Dissolved Mercury in Water by CRC ICPMS E421 850164 1 14 7.1 5.0 ✓	Nitrite in Water by IC (Low Level)	E235.NO2-L	849767	1	13	7.6	5.0	✓
VH and F1 by Headspace GC-FID E581.VH+F1 853015 1 7 14.2 5.0 ✓ VOCs (BC List) by Headspace GC-MS E611C 853016 1 8 12.5 5.0 ✓ Method Blanks (MB) Alkalinity Species by Titration E290 849776 1 10 10.0 5.0 ✓ Ammonia by Fluorescence E298 852652 1 8 12.5 5.0 ✓ Chloride in Water by IC E235.CI 849771 1 16 6.2 5.0 ✓ Conductivity in Water E100 849773 1 9 11.1 5.0 ✓ Dissolved Mercury in Water by CVAAS E509 850498 1 20 5.0 5.0 ✓ Dissolved Metals in Water by CRC ICPMS E421 850164 1 14 7.1 5.0 ✓	Sulfate in Water by IC	E235.SO4	849769	1	10	10.0	5.0	✓
VOCs (BC List) by Headspace GC-MS E611C 853016 1 8 12.5 5.0 ✓ Method Blanks (MB) Alkalinity Species by Titration E290 849776 1 10 10.0 5.0 ✓ Ammonia by Fluorescence E298 852652 1 8 12.5 5.0 ✓ Chloride in Water by IC E235.Cl 849771 1 16 6.2 5.0 ✓ Conductivity in Water E100 849773 1 9 11.1 5.0 ✓ Dissolved Mercury in Water by CVAAS E509 850498 1 20 5.0 5.0 ✓ Dissolved Metals in Water by CRC ICPMS E421 850164 1 14 7.1 5.0 ✓	TDS by Gravimetry	E162	850225	1	19	5.2	5.0	✓
Method Blanks (MB) Alkalinity Species by Titration E290 849776 1 10 10.0 5.0 ✓ Ammonia by Fluorescence E298 852652 1 8 12.5 5.0 ✓ Chloride in Water by IC E235.Cl 849771 1 16 6.2 5.0 ✓ Conductivity in Water E100 849773 1 9 11.1 5.0 ✓ Dissolved Mercury in Water by CVAAS E509 850498 1 20 5.0 5.0 ✓ Dissolved Metals in Water by CRC ICPMS E421 850164 1 14 7.1 5.0 ✓	VH and F1 by Headspace GC-FID	E581.VH+F1	853015	1	7	14.2	5.0	✓
Alkalinity Species by Titration E290 849776 1 10 10.0 5.0 ✓ Ammonia by Fluorescence E298 852652 1 8 12.5 5.0 ✓ Chloride in Water by IC E235.Cl 849771 1 16 6.2 5.0 ✓ Conductivity in Water E100 849773 1 9 11.1 5.0 ✓ Dissolved Mercury in Water by CVAAS E509 850498 1 20 5.0 5.0 ✓ Dissolved Metals in Water by CRC ICPMS E421 850164 1 14 7.1 5.0 ✓	VOCs (BC List) by Headspace GC-MS	E611C	853016	1	8	12.5	5.0	✓
Ammonia by Fluorescence E298 852652 1 8 12.5 5.0 ✓ Chloride in Water by IC E235.Cl 849771 1 16 6.2 5.0 ✓ Conductivity in Water E100 849773 1 9 11.1 5.0 ✓ Dissolved Mercury in Water by CVAAS E509 850498 1 20 5.0 5.0 ✓ Dissolved Metals in Water by CRC ICPMS E421 850164 1 14 7.1 5.0 ✓	Method Blanks (MB)							
Chloride in Water by IC E235.CI 849771 1 16 6.2 5.0 ✓ Conductivity in Water E100 849773 1 9 11.1 5.0 ✓ Dissolved Mercury in Water by CVAAS E509 850498 1 20 5.0 5.0 ✓ Dissolved Metals in Water by CRC ICPMS E421 850164 1 14 7.1 5.0 ✓	Alkalinity Species by Titration	E290	849776	1	10	10.0	5.0	✓
Conductivity in Water E100 849773 1 9 11.1 5.0 ✓ Dissolved Mercury in Water by CVAAS E509 850498 1 20 5.0 5.0 ✓ Dissolved Metals in Water by CRC ICPMS E421 850164 1 14 7.1 5.0 ✓	Ammonia by Fluorescence	E298	852652	1	8	12.5	5.0	✓
Dissolved Mercury in Water by CVAAS E509 850498 1 20 5.0 5.0 ✓ Dissolved Metals in Water by CRC ICPMS E421 850164 1 14 7.1 5.0 ✓	Chloride in Water by IC	E235.CI	849771	1	16	6.2	5.0	✓
Dissolved Metals in Water by CRC ICPMS	Conductivity in Water	E100	849773	1	9	11.1	5.0	✓
	Dissolved Mercury in Water by CVAAS	E509	850498	1	20	5.0	5.0	✓
	Dissolved Metals in Water by CRC ICPMS	E421	850164	1	14	7.1	5.0	✓
	Fluoride in Water by IC	E235.F	849770	1	10	10.0	5.0	

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Matrix: Water Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification										
Quality Control Sample Type			Co	unt		Frequency (%)				
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation			
Method Blanks (MB) - Continued										
Nitrate in Water by IC (Low Level)	E235.NO3-L	849768	1	13	7.6	5.0	✓			
Nitrite in Water by IC (Low Level)	E235.NO2-L	849767	1	13	7.6	5.0	✓			
Sulfate in Water by IC	E235.SO4	849769	1	10	10.0	5.0	✓			
TDS by Gravimetry	E162	850225	1	19	5.2	5.0	✓			
VH and F1 by Headspace GC-FID	E581.VH+F1	853015	1	7	14.2	5.0	✓			
VOCs (BC List) by Headspace GC-MS	E611C	853016	1	8	12.5	5.0	✓			
Matrix Spikes (MS)										
Ammonia by Fluorescence	E298	852652	1	8	12.5	5.0	✓			
Chloride in Water by IC	E235.CI	849771	1	16	6.2	5.0	✓			
Dissolved Mercury in Water by CVAAS	E509	850498	1	20	5.0	5.0	✓			
Dissolved Metals in Water by CRC ICPMS	E421	850164	1	14	7.1	5.0	✓			
Fluoride in Water by IC	E235.F	849770	1	10	10.0	5.0	✓			
Nitrate in Water by IC (Low Level)	E235.NO3-L	849768	1	13	7.6	5.0	✓			
Nitrite in Water by IC (Low Level)	E235.NO2-L	849767	1	13	7.6	5.0	✓			
Sulfate in Water by IC	E235.SO4	849769	1	10	10.0	5.0	✓			
VH and F1 by Headspace GC-FID	E581.VH+F1	853015	1	7	14.2	5.0	✓			
VOCs (BC List) by Headspace GC-MS	E611C	853016	1	8	12.5	5.0	✓			

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Project :



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	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
	Vancouver -			sample. Conductivity measurements are temperature-compensated to 25°C.
	Environmental			
TDS by Gravimetry	E162	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 $180 \pm 2^{\circ}$ C for 16 hours or to constant weight,
	Vancouver -			with gravimetric measurement of the residue.
	Environmental			
Chloride in Water by IC	E235.CI	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and /or UV detection.
	Vancouver -			
	Environmental			
Fluoride in Water by IC	E235.F	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and /or UV detection.
	Vancouver -			
	Environmental			
Nitrite in Water by IC (Low Level)	E235.NO2-L	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and /or UV detection.
	Vancouver -			
	Environmental			
Nitrate in Water by IC (Low Level)	E235.NO3-L	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and /or UV detection.
	Vancouver -			
	Environmental			
Sulfate in Water by IC	E235.SO4	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and /or UV detection.
	Vancouver -			
	Environmental			
Alkalinity Species by Titration	E290	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
	Vancouver -			alkalinity values.
	Environmental			
Ammonia by Fluorescence	E298	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).
	Vancouver -			This method is approved under US EPA 40 CFR Part 136 (May 2021)
	Environmental			

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E421	Water	APHA 3030B/EPA	144
Vancouver -		6020B (mod)	Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by Collision/Reaction Cell ICPMS.
Environmental			Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
E509	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
Vancouver - Environmental			CVAAS.
E581.VH+F1	Water	BC MOE Lab Manual / CCME PHC in Soil - Tier	Volatile Hydrocarbons (VH and F1) is analyzed by static headspace GC-FID. Samples are prepared in headspace vials and are heated and agitated on the headspace
Vancouver - Environmental		1 (mod)	autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.
E611C Vancouver -	Water	EPA 8260D (mod)	Volatile Organic Compounds (VOCs) are analyzed by static headspace GC-MS. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.
EC100	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
Vancouver - Environmental			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.
EC235.N+N	Water	EPA 300.0	Nitrate and Nitrite (as N) is a calculated parameter. Nitrate and Nitrite (as N) = Nitrite (as N) + Nitrate (as N).
EC580A	Water	BC MOE Lab Manual (VPH in Water and	Volatile Petroleum Hydrocarbons (VPH) is calculated as follows: VPHw = Volatile Hydrocarbons (VH6-10) minus benzene, toluene, ethylbenzene, xylenes (BTEX) and
Vancouver - Environmental		Solids) (mod)	styrene.
Method / Lab	Matrix	Method Reference	Method Descriptions
EP298	Water		Sample preparation for Preserved Nutrients Water Quality Analysis.
Vancouver - Environmental			
EP421	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HNO3.
Vancouver -			
EP509	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HCl.
Vancouver -			
	E509 Vancouver - Environmental E581.VH+F1 Vancouver - Environmental E611C Vancouver - Environmental EC100 Vancouver - Environmental EC235.N+N Vancouver - Environmental EC580A Vancouver - Environmental EC580A Vancouver - Environmental EC580A Vancouver - Environmental EP298 Vancouver - Environmental EP298 Vancouver - Environmental EP421 Vancouver - Environmental EP421 Vancouver - Environmental EP509	E509 Water Vancouver - Environmental E581.VH+F1 Water Vancouver - Environmental E611C Water Vancouver - Environmental EC100 Water Vancouver - Environmental EC235.N+N Water Vancouver - Environmental EC580A Water Vancouver - Environmental Method / Lab Matrix EP298 Water Vancouver - Environmental EP298 Water Vancouver - Environmental EP421 Water Vancouver - Environmental EP421 Water Vancouver - Environmental EP509 Water	E509 Water APHA 3030B/EPA 1631E (mod) Vancouver - Environmental E581.VH+F1 Water BC MOE Lab Manual / CCME PHC in Soil - Tier 1 (mod) Vancouver - Environmental E611C Water EPA 8260D (mod) Vancouver - Environmental EC100 Water APHA 2340B Vancouver - Environmental EC235.N+N Water EPA 300.0 Vancouver - Environmental EC580A Water BC MOE Lab Manual (VPH in Water and Solids) (mod) Method / Lab Matrix Method Reference EP298 Water Vancouver - Environmental EP421 Water APHA 3030B Vancouver - Environmental EP509 Water APHA 3030B

Page : 17 of 17

Work Order : VA23A4471 Amendment 1
Client : Comox Valley Regional District



Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
VOCs Preparation for Headspace Analysis	EP581	Water	EPA 5021A (mod)	Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler. An aliquot of the headspace is then injected into the
	Vancouver -			GC/MS-FID system.
	Environmental			

Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

Affix ALS barcode label here (lab use only)

Page `) of

COC Number: 17 -

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Street:	770 Harmston Avenue	Email 1 or Fax	cstuart@comoxval	leyrd.ca			Date enc	i Time	Requi	red for	all E&	P TAT	9 ;			10	muin-	yy bhim	m		
City/Province:	Courtenay, BC	Email 2		· _		Fortes	te that c	an not b	e perto	rmed a	çeçrel in	to the	Service le	ofoa le	ated, you v	will be co	nteated.	,			
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ALS Sample#	Sample Identification and/or Coordinates		Date	Time	Comple Torse	Ĩ	۾ ا	vione (\$		ž	3			II EU	rwaj.	AWA.	I	j !	흘	NUMBER
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	en from a Regulated DW System?)				ice P	acks		ice C	ubes	9	Custo	dy seal i	ntact	Yes		ב	N	O.		ן נ
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REFER TO BACK	PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION	<u>'l</u> _		TE LABORATOR	RY COPY YELI	OW:	CLIENT	COP			<u> </u>			• 1	· •/I	44		<u> </u>	$\overline{100}$	1 1 7) (((((((((((((((((((
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ALS Canada Ltd.



CERTIFICATE OF ANALYSIS

Work Order : VA23A4568 Page : 1 of 6

Amendment : 1

Client : Comox Valley Regional District Laboratory : Vancouver - Environmental

Contact : Crystal Stuart : Crystal Stuart : Thomas Chang

Address : 770 Harmston Avenue Address : 8081 Lougheed Highway

Burnaby BC Canada V5A 1W9

: 22-Mar-2023 14:35

: 250-898-3722 Telephone : +1 604 253 4188

 Project
 : 3
 Date Samples Received
 : 02-Mar-2023 10:10

 PO
 : 23-015
 Date Analysis Commenced
 : 02-Mar-2023

C-O-C number : ---- Issue Date
Sampler : C Stuart

Courtney BC Canada V9N 0G8

Sampler : C Stuart
Site : CRWMC-Quarterly-GW

Quote number : VA23-COVR100-001

No. of samples received : 4
No. of samples analysed : 4

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
- Surrogate Control Limits

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

Telephone

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	
Erin Sanchez		Metals, Burnaby, British Columbia	
Janice Leung	Supervisor - Organics Instrumentation	Organics, Burnaby, British Columbia	
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia	
Lindsay Gung	Supervisor - Water Chemistry	Inorganics, Burnaby, British Columbia	
Miles Gropen	Department Manager - Inorganics	Inorganics, Burnaby, British Columbia	
Sam Silveira	Lab Assistant	Metals, Burnaby, British Columbia	

Page : 2 of 6

Work Order : VA23A4568 Amendment 1
Client : Comox Valley Regional District

Project : 3



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
μg/L	micrograms per litre
μS/cm	microsiemens per centimetre
mg/L	milligrams per litre

<: 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 (22/03/2023): This report has been amended to allow the distribution of an Electronic Data Deliverable (EDD) not previously provided. 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.

Page : 3 of 6

Work Order : VA23A4568 Amendment 1
Client : Comox Valley Regional District

Project :



Analytical Results

Alkalinity, carbonate (as CaCO3)	WG-022823-CS-	WG-022823-CS-	WG-022823-CS-	WG-022823-CS-	ent sample ID	Cli			Sub-Matrix: Water
CAS Number Method LOR Unit VA23A4568-001 VA23A4568-002 VA23A4568-003 VA23A4568-004	48	47	46	45					(Matrix: Water)
Physical Tests Result Result Result Result	 l				ling date / time	Client samp			
Physical Tests Alkalinity, bicarbonate (as CaCO3)	 VA23A4568-004				Unit	LOR	Method	CAS Number	Analyte
Alkalinity, bicarbonate (as CaCO3)	 Result	Result	Result	Result					
Alkalinity, carbonate (as CaCO3)	70.0		200	200			5000		•
Alkalinity, hydroxide (as CaCO3)					-				
Alkalinity, total (as CaCO3)					ŭ				, ,
Conductivity E100 2.0 μS/cm 991 482 160 156 Hardness (as CaCO3), dissolved EC100 0.60 mg/L 380 226 73.5 72.8 Solids, total dissolved [TDS] E162 10 mg/L 634 295 93 91 Anions and Nutrients					ŭ				, , ,
Hardness (as CaCO3), dissolved EC100 0.60 mg/L 380 226 73.5 72.8 Solids, total dissolved [TDS] E162 10 mg/L 634 295 93 91 Anions and Nutrients					mg/L	1			
Solids, total dissolved [TDS] E162 10 mg/L 634 295 93 91 Anions and Nutrients					μS/cm				Conductivity
Anions and Nutrients					mg/L				Hardness (as CaCO3), dissolved
	 91	93	295	634	mg/L	10	E162		Solids, total dissolved [TDS]
Ammonia, total (as N) 7664-41-7 E298 0.0050 mg/L <0.0050									Anions and Nutrients
	 <0.0050	<0.0050	<0.0050	<0.0050	mg/L	0.0050	E298	7664-41-7	Ammonia, total (as N)
10007-00-01 =================================	 1.26	3.12	19.0		mg/L	0.50	E235.CI	16887-00-6	Chloride
Fluoride 16984-48-8 E235.F 0.020 mg/L <0.100 ^{DLDS} <0.020 <0.020 <0.020	 <0.020	<0.020	<0.020	<0.100 DLDS	mg/L	0.020	E235.F	16984-48-8	Fluoride
Nitrate (as N) 14797-55-8 E235.NO3-L 0.0050 mg/L 14.2 0.986 0.0924 0.161	 0.161	0.0924	0.986	14.2	mg/L	0.0050	E235.NO3-L	14797-55-8	Nitrate (as N)
Nitrate + Nitrite (as N) EC235.N+N 0.0050 mg/L 14.4 0.986 0.0924 0.161	 0.161	0.0924	0.986	14.4	mg/L	0.0050	EC235.N+N		Nitrate + Nitrite (as N)
Nitrite (as N) 14797-65-0 E235.NO2-L 0.0010 mg/L 0.217 <0.0010 <0.0010 <0.0010	 <0.0010	<0.0010	<0.0010	0.217	mg/L	0.0010	E235.NO2-L	14797-65-0	Nitrite (as N)
Sulfate (as SO4) 14808-79-8 E235.SO4 0.30 mg/L 47.2 6.31 2.13 2.12	 2.12	2.13	6.31	47.2	mg/L	0.30	E235.SO4	14808-79-8	Sulfate (as SO4)
Dissolved Metals									Dissolved Metals
Aluminum, dissolved 7429-90-5 E421 0.0010 mg/L 0.0015 0.0043 0.0033 0.0047	 0.0047	0.0033	0.0043	0.0015	mg/L	0.0010	E421	7429-90-5	Aluminum, dissolved
Antimony, dissolved 7440-36-0 E421 0.00010 mg/L <0.00010 <0.00010 <0.00010	 <0.00010	<0.00010	<0.00010	<0.00010	mg/L	0.00010	E421	7440-36-0	Antimony, dissolved
Arsenic, dissolved 7440-38-2 E421 0.00010 mg/L 0.00014 <0.00010	 0.00052	0.00027	<0.00010	0.00014	mg/L	0.00010	E421	7440-38-2	Arsenic, dissolved
Barium, dissolved 7440-39-3 E421 0.00010 mg/L 0.0138 0.00870 0.00115 0.00182	 0.00182	0.00115	0.00870	0.0138	mg/L	0.00010	E421	7440-39-3	Barium, dissolved
Beryllium, dissolved 7440-41-7 E421 0.000020 mg/L <0.000020 <0.000020 <0.000020 <0.000020	 <0.000020	<0.000020	<0.000020	<0.000020	mg/L	0.000020	E421	7440-41-7	Beryllium, dissolved
Bismuth, dissolved 7440-69-9 E421 0.000050 mg/L <0.000050 <0.000050 <0.000050 <0.000050	 <0.000050	<0.000050	<0.000050	<0.000050	mg/L	0.000050	E421	7440-69-9	Bismuth, dissolved
Boron, dissolved 7440-42-8 E421 0.010 mg/L 0.148 0.017 <0.010 0.035	 0.035	<0.010	0.017	0.148	mg/L	0.010	E421	7440-42-8	Boron, dissolved
Cadmium, dissolved 7440-43-9 E421 0.0000050 mg/L 0.0000405 <0.0000050	 <0.0000050	<0.0000050	<0.0000050	0.0000405	mg/L	0.0000050	E421	7440-43-9	Cadmium, dissolved
Calcium, dissolved 7440-70-2 E421 0.050 mg/L 111 70.1 24.8 25.6	 25.6	24.8	70.1	111	mg/L	0.050	E421	7440-70-2	Calcium, dissolved
Chromium, dissolved 7440-47-3 E421 0.00050 mg/L < 0.00050	 <0.00050	<0.00050	0.00166	<0.00050	mg/L	0.00050	E421	7440-47-3	Chromium, dissolved
Cobalt, dissolved 7440-48-4 E421 0.00010 mg/L 0.00074 <0.00010	 <0.00010	<0.00010	<0.00010	0.00074	mg/L	0.00010	E421	7440-48-4	Cobalt, dissolved
Copper, dissolved 7440-50-8 E421 0.00020 mg/L 0.00509 0.00020 0.00044 0.00028	 0.00028	0.00044	0.00020	0.00509	mg/L	0.00020	E421	7440-50-8	Copper, dissolved
Iron, dissolved 7439-89-6 E421 0.010 mg/L <0.010	<0.010	<0.010	<0.010	<0.010	-	0.010	F421	7/30 80 6	Iron dissolved

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Work Order : VA23A4568 Amendment 1
Client : Comox Valley Regional District

Project :



Analytical Results

Sub-Matrix: Water			Cli	ent sample ID	WG-022823-CS-	WG-022823-CS-	WG-022823-CS-	WG-022823-CS-	
(Matrix: Water)					45	46	47	48	
	040 Marri	Mathad	Client sampl	ling date / time Unit	28-Feb-2023 09:49 VA23A4568-001	28-Feb-2023 10:45 VA23A4568-002	28-Feb-2023 13:45 VA23A4568-003	28-Feb-2023 14:10 VA23A4568-004	
Analyte	CAS Number	Method	LUR	Unit					
Dissolved Metals					Result	Result	Result	Result	
Lead, dissolved	7439-92-1	E421	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	
Lithium, dissolved	7439-93-2	E421	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	
Magnesium, dissolved	7439-95-4	E421	0.100	mg/L	24.9	12.5	2.82	2.16	
Manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.565	0.00016	<0.00010	<0.00010	
Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	<0.000050	<0.0000050	
Molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.000096	<0.000050	0.000089	0.000106	
Nickel, dissolved	7440-02-0	E421	0.00050	mg/L	0.00134	<0.00050	<0.00050	<0.00050	
Phosphorus, dissolved	7723-14-0	E421	0.050	mg/L	<0.050	<0.050	<0.050	<0.050	
Potassium, dissolved	7440-09-7	E421	0.100	mg/L	1.52	1.30	0.459	0.508	
Selenium, dissolved	7782-49-2	E421	0.000050	mg/L	0.000156	0.000155	0.000090	0.000127	
Silicon, dissolved	7440-21-3	E421	0.050	mg/L	8.84	8.09	4.21	4.26	
Silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	
Sodium, dissolved	7440-23-5	E421	0.050	mg/L	42.1	8.06	2.09	2.31	
Strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.297	0.172	0.0422	0.0417	
Sulfur, dissolved	7704-34-9	E421	0.50	mg/L	17.6	2.70	0.96	1.03	
Thallium, dissolved	7440-28-0	E421	0.000010	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	
Tin, dissolved	7440-31-5	E421	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	
Titanium, dissolved	7440-32-6	E421	0.00030	mg/L	<0.00030	<0.00030	<0.00030	<0.00030	
Uranium, dissolved	7440-61-1	E421	0.000010	mg/L	0.000881	0.000343	0.000062	0.000056	
Vanadium, dissolved	7440-62-2	E421	0.00050	mg/L	0.00332	0.00181	0.00214	0.00253	
Zinc, dissolved	7440-66-6	E421	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	
Zirconium, dissolved	7440-67-7	E421	0.00020	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	
Dissolved mercury filtration location		EP509	-	-	Field	Field	Field	Field	
Dissolved metals filtration location		EP421	-	-	Field	Field	Field	Field	
Volatile Organic Compounds					3 1 1 1 1				
Chlorobenzene	108-90-7	E611C	0.50	μg/L	<0.50	<0.50			
Chloromethane	74-87-3	E611C	5.0	μg/L	<5.0	<5.0			
Dichlorobenzene, 1,2-	95-50-1	E611C	0.50	μg/L	<0.50	<0.50			
Dichlorobenzene, 1,3-	541-73-1	E611C	0.50	μg/L	<0.50	<0.50			
Dichlorobenzene, 1,4-	106-46-7	E611C	0.50	μg/L	<0.50	<0.50			

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Work Order : VA23A4568 Amendment 1
Client : Comox Valley Regional District

Project : 3



Analytical Results

Sub-Matrix: Water			Cl	ient sample ID	WG-022823-CS-	WG-022823-CS-	WG-022823-CS-	WG-022823-CS-	
(Matrix: Water)					45	46	47	48	
Analyte	CAS Number	Method	Client samp	ling date / time Unit	28-Feb-2023 09:49 VA23A4568-001	28-Feb-2023 10:45 VA23A4568-002	28-Feb-2023 13:45 VA23A4568-003	28-Feb-2023 14:10 VA23A4568-004	
				ľ	Result	Result	Result	Result	
Volatile Organic Compounds					3 11 1				
Dichloropropane, 1,2-	78-87-5	E611C	0.50	μg/L	<0.50	<0.50			
Dichloropropylene, cis+trans-1,3-	542-75-6	E611C	0.75	μg/L	<0.75	<0.75			
Dichloropropylene, cis-1,3-	10061-01-5	E611C	0.50	μg/L	<0.50	<0.50			
Tetrachloroethane, 1,1,1,2-	630-20-6	E611C	0.50	μg/L	<0.50	<0.50			
Tetrachloroethane, 1,1,2,2-	79-34-5	E611C	0.20	μg/L	<0.20	<0.20			
Trichloroethane, 1,1,2-	79-00-5	E611C	0.50	μg/L	<0.50	<0.50			
Trichlorofluoromethane	75-69-4	E611C	0.50	μg/L	<0.50	<0.50			
Volatile Organic Compounds [Drycleaning]									
Carbon tetrachloride	56-23-5	E611C	0.50	μg/L	<0.50	<0.50			
Chloroethane	75-00-3	E611C	0.50	μg/L	<0.50	<0.50			
Dichloroethane, 1,1-	75-34-3	E611C	0.50	μg/L	<0.50	<0.50			
Dichloroethane, 1,2-	107-06-2	E611C	0.50	μg/L	<0.50	<0.50			
Dichloroethylene, 1,1-	75-35-4	E611C	0.50	μg/L	<0.50	<0.50			
Dichloroethylene, cis-1,2-	156-59-2	E611C	0.50	μg/L	<0.50	<0.50			
Dichloroethylene, trans-1,2-	156-60-5	E611C	0.50	μg/L	<0.50	<0.50			
Dichloromethane	75-09-2	E611C	1.0	μg/L	<1.0	<1.0			
Dichloropropylene, trans-1,3-	10061-02-6	E611C	0.50	μg/L	<0.50	<0.50			
Tetrachloroethylene	127-18-4	E611C	0.50	μg/L	<0.50	<0.50			
Trichloroethane, 1,1,1-	71-55-6	E611C	0.50	μg/L	<0.50	<0.50			
Trichloroethylene	79-01-6	E611C	0.50	μg/L	<0.50	<0.50			
Vinyl chloride	75-01-4	E611C	0.40	μg/L	<0.40	<0.40			
Volatile Organic Compounds [Fuels]					3 1 1				
Benzene	71-43-2	E611C	0.50	μg/L	<0.50	<0.50			
Ethylbenzene	100-41-4	E611C	0.50	μg/L	<0.50	<0.50			
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611C	0.50	μg/L	<0.50	<0.50			
Styrene	100-42-5	E611C	0.50	μg/L	<0.50	<0.50			
Toluene	108-88-3	E611C	0.40	μg/L	<0.40	<0.40			
Xylene, m+p-	179601-23-1	E611C	0.40	μg/L	<0.40	<0.40			
Xylene, o-	95-47-6	E611C	0.30	μg/L	<0.30	<0.30			
Xylenes, total	1330-20-7	E611C	0.50	μg/L	<0.50	<0.50			

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Work Order : VA23A4568 Amendment 1
Client : Comox Valley Regional District

Project :



Analytical Results

Sub-Matrix: Water			CI	ient sample ID	WG-022823-CS-	WG-022823-CS-	WG-022823-CS-	WG-022823-CS-	
(Matrix: Water)					45	46	47	48	
				ling date / time	28-Feb-2023 09:49	28-Feb-2023 10:45	28-Feb-2023 13:45	28-Feb-2023 14:10	
Analyte	CAS Number	Method	LOR	Unit	VA23A4568-001	VA23A4568-002	VA23A4568-003	VA23A4568-004	
					Result	Result	Result	Result	
Volatile Organic Compounds [THMs]									
Bromodichloromethane	75-27-4	E611C	0.50	μg/L	<0.50	<0.50			
Bromoform	75-25-2	E611C	0.50	μg/L	<0.50	<0.50			
Chloroform	67-66-3	E611C	0.50	μg/L	<0.50	<0.50			
Dibromochloromethane	124-48-1	E611C	0.50	μg/L	<0.50	<0.50			
Hydrocarbons									
VHw (C6-C10)		E581.VH+F1	100	μg/L	<100	<100			
VPHw		EC580A	100	μg/L	<100	<100			
Hydrocarbons Surrogates									
Dichlorotoluene, 3,4-	95-75-0	E581.VH+F1	1.0	%	94.7	98.1			
Volatile Organic Compounds Surrogates									
Bromofluorobenzene, 4-	460-00-4	E611C	1.0	%	85.0	88.8			
Difluorobenzene, 1,4-	540-36-3	E611C	1.0	%	101	99.9			

Please refer to the General Comments section for an explanation of any qualifiers detected.

ALS Canada Ltd.



QUALITY CONTROL REPORT

Work Order :VA23A4568

Amendment : 1

Client : Comox Valley Regional District

Contact : Crystal Stuart

Address : 770 Harmston Avenue

Courtney BC Canada V9N 0G8

Telephone : Project : 3

PO : 23-015

C-O-C number : ----

Sampler : C Stuart 250-898-3722
Site : CRWMC-Quarterly-GW

Quote number : VA23-COVR100-001

No. of samples received : 4

No. of samples analysed : 4

Page : 1 of 16

Laboratory : Vancouver - Environmental

Account Manager : Thomas Chang

Address : 8081 Lougheed Highway

Burnaby, British Columbia Canada V5A 1W9

Telephone :+1 604 253 4188

Date Samples Received :02-Mar-2023 10:10

Date Analysis Commenced : 02-Mar-2023

Issue Date : 22-Mar-2023 14:35

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	
Erin Sanchez		Vancouver Metals, Burnaby, British Columbia	
Janice Leung	Supervisor - Organics Instrumentation	Vancouver Organics, Burnaby, British Columbia	
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Vancouver Metals, Burnaby, British Columbia	
Lindsay Gung	Supervisor - Water Chemistry	Vancouver Inorganics, Burnaby, British Columbia	
Miles Gropen	Department Manager - Inorganics	Vancouver Inorganics, Burnaby, British Columbia	
Sam Silveira	Lab Assistant	Vancouver Metals, Burnaby, British Columbia	

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Work Order: VA23A4568 Amendment 1
Client: Comox Valley Regional District

Project :



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.

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Work Order: VA23A4568 Amendment 1
Client: Comox Valley Regional District

Project :



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: 851303)										
VA23A4515-001	Anonymous	Alkalinity, bicarbonate (as CaCO3)		E290	1.0	mg/L	195	197	0.919%	20%	
		Alkalinity, carbonate (as CaCO3)		E290	1.0	mg/L	<1.0	<1.0	0	Diff <2x LOR	
		Alkalinity, hydroxide (as CaCO3)		E290	1.0	mg/L	<1.0	<1.0	0	Diff <2x LOR	
		Alkalinity, total (as CaCO3)		E290	1.0	mg/L	195	197	0.919%	20%	
Physical Tests (QC	Lot: 851304)										
VA23A4515-001	Anonymous	Conductivity		E100	2.0	μS/cm	393	395	0.508%	10%	
Physical Tests (QC	Lot: 851329)										
VA23A4467-002	Anonymous	Solids, total dissolved [TDS]		E162	20	mg/L	810	822	1.59%	20%	
Physical Tests (QC	Lot: 853269)										
VA23A3735-001	Anonymous	Solids, total dissolved [TDS]		E162	13	mg/L	103	94	9	Diff <2x LOR	
Physical Tests (QC	Lot: 853957)										
VA23A4568-004	WG-022823-CS-48	Solids, total dissolved [TDS]		E162	13	mg/L	91	97	6	Diff <2x LOR	
Anions and Nutrien	ts (QC Lot: 851296)										
VA23A4515-001	Anonymous	Fluoride	16984-48-8	E235.F	0.020	mg/L	0.194	0.193	0.001	Diff <2x LOR	
Anions and Nutrien	ts (QC Lot: 851297)										
VA23A4515-001	Anonymous	Chloride	16887-00-6	E235.CI	0.50	mg/L	5.25	5.26	0.202%	20%	
Anions and Nutrien	ts (QC Lot: 851298)										
VA23A4515-001	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	1.70	1.70	0.0681%	20%	
Anions and Nutrien	ts (QC Lot: 851299)										
VA23A4515-001	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	0.0012	0.0013	0.0001	Diff <2x LOR	
Anions and Nutrien	ts (QC Lot: 851300)				1115						
VA23A4515-001	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	6.91	6.92	0.156%	20%	
Anions and Nutrien	ts (QC Lot: 853170)										
VA23A4566-001	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	0.313	0.325	3.95%	20%	
Dissolved Metals (QC Lot: 851089)										
FJ2300461-001	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	
Dissolved Metals (QC Lot: 851238)										
FJ2300438-001	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	0.0034	0.0035	0.00010	Diff <2x LOR	
		Antimony, dissolved	7440-36-0	E421	0.00010	mg/L	0.00010	0.00011	0.000003	Diff <2x LOR	
		Arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	

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Work Order: VA23A4568 Amendment 1
Client: Comox Valley Regional District



Sub-Matrix: Water	utrix: 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	Qualifie		
Dissolved Metals (QC Lot: 851238) - cont	inued											
FJ2300438-001	Anonymous	Barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.0603	0.0620	2.72%	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	0.017	0.017	0.0001	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	172	171	0.703%	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	<0.00010	<0.00010	0	Diff <2x LOR			
		Copper, dissolved	7440-50-8	E421	0.00020	mg/L	<0.00020	0.00026	0.00006	Diff <2x LOR			
		Iron, dissolved	7439-89-6	E421	0.010	mg/L	0.013	0.013	0.0006	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	0.0376	0.0368	2.16%	20%			
		Magnesium, dissolved	7439-95-4	E421	0.0050	mg/L	98.9	99.9	0.979%	20%			
		Manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.00976	0.0100	2.66%	20%			
		Molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.000142	0.000143	0.0000010	Diff <2x LOR			
		Nickel, dissolved	7440-02-0	E421	0.00050	mg/L	0.00135	0.00137	0.00002	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	2.87	2.92	1.80%	20%			
		Selenium, dissolved	7782-49-2	E421	0.000050	mg/L	0.00137	0.00146	6.05%	20%			
		Silicon, dissolved	7440-21-3	E421	0.050	mg/L	1.56	1.54	1.25%	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	15.1	15.5	2.40%	20%			
		Strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.316	0.313	0.826%	20%			
		Sulfur, dissolved	7704-34-9	E421	0.50	mg/L	247	247	0.0160%	20%			
		Thallium, dissolved	7440-28-0	E421	0.000010	mg/L	<0.000010	<0.000010	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			
		Uranium, dissolved	7440-61-1	E421	0.000010	mg/L	0.00597	0.00605	1.34%	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	0.00030	mg/L	<0.00030	<0.00030	0	Diff <2x LOR			
/olatile Organi <u>c Co</u>	mpounds (QC Lot: 85	3619)											
VA23A4568-001	WG-022823-CS-45	Benzene	71-43-2	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR			
		Bromodichloromethane	75-27-4	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR			

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Work Order: VA23A4568 Amendment 1
Client: Comox Valley Regional District



ub-Matrix: Water	Client comple ID	Ampliato	CAS Number	Mathad	LOR	Unit		tory Duplicate (D		Dunlinet-	Ouglië
aboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifie
	mpounds (QC Lot: 853	619) - continued									
A23A4568-001	WG-022823-CS-45	Bromoform	75-25-2	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Carbon tetrachloride	56-23-5	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Chlorobenzene	108-90-7	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Chloroethane	75-00-3	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Chloroform	67-66-3	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Chloromethane	74-87-3	E611C	5.0	μg/L	<5.0	<5.0	0	Diff <2x LOR	
		Dibromochloromethane	124-48-1	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Dichlorobenzene, 1,2-	95-50-1	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Dichlorobenzene, 1,3-	541-73-1	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Dichlorobenzene, 1,4-	106-46-7	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Dichloroethane, 1,1-	75-34-3	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Dichloroethane, 1,2-	107-06-2	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Dichloroethylene, 1,1-	75-35-4	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Dichloroethylene, cis-1,2-	156-59-2	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Dichloroethylene, trans-1,2-	156-60-5	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Dichloromethane	75-09-2	E611C	1.0	μg/L	<1.0	<1.0	0	Diff <2x LOR	
		Dichloropropane, 1,2-	78-87-5	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Dichloropropylene, cis-1,3-	10061-01-5	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Dichloropropylene, trans-1,3-	10061-02-6	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Ethylbenzene	100-41-4	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Styrene	100-42-5	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Tetrachloroethane, 1,1,1,2-	630-20-6	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Tetrachloroethane, 1,1,2,2-	79-34-5	E611C	0.20	μg/L	<0.20	<0.20	0	Diff <2x LOR	
		Tetrachloroethylene	127-18-4	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Toluene	108-88-3	E611C	0.40	μg/L	<0.40	<0.40	0	Diff <2x LOR	
		Trichloroethane, 1,1,1-	71-55-6	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Trichloroethane, 1,1,2-	79-00-5	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Trichloroethylene	79-01-6	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Trichlorofluoromethane	75-69-4	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Vinyl chloride	75-01-4	E611C	0.40	μg/L	<0.40	<0.40	0	Diff <2x LOR	
		Xylene, m+p-	179601-23-1	E611C	0.40	μg/L	<0.40	<0.40	0	Diff <2x LOR	
		Xylene, o-	95-47-6	E611C	0.30	μg/L	<0.30	<0.30	0	Diff <2x LOR	

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Work Order: VA23A4568 Amendment 1
Client: Comox Valley Regional District



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	
Hydrocarbons (QC	Lot: 853618) - continued									The state of		
VA23A4568-001	WG-022823-CS-45	VHw (C6-C10)		E581.VH+F1	100	μg/L	<100	<100	0.0%	30%		

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Work Order: VA23A4568 Amendment 1
Client: Comox Valley Regional District

Project :



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

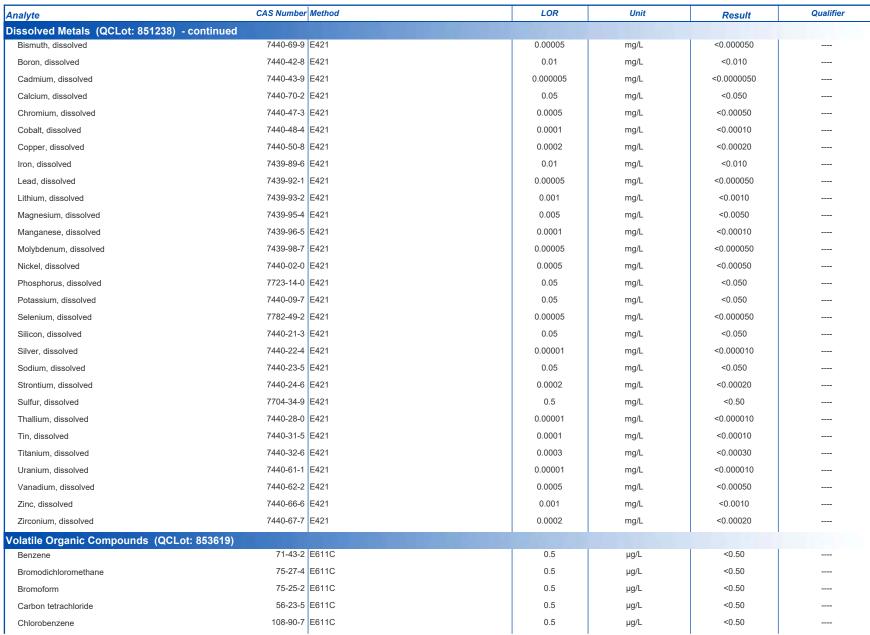
Analyte	CAS Number Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 851303)					
Alkalinity, bicarbonate (as CaCO3)	E290	1	mg/L	<1.0	
Alkalinity, carbonate (as CaCO3)	E290	1	mg/L	<1.0	
Alkalinity, hydroxide (as CaCO3)	E290	1	mg/L	<1.0	
Alkalinity, total (as CaCO3)	E290	1	mg/L	<1.0	
Physical Tests (QCLot: 851304)					
Conductivity	E100	1	μS/cm	<1.0	
Physical Tests (QCLot: 851329)					
Solids, total dissolved [TDS]	E162	10	mg/L	<10	
Physical Tests (QCLot: 853269)					
Solids, total dissolved [TDS]	E162	10	mg/L	<10	
Physical Tests (QCLot: 853957)					
Solids, total dissolved [TDS]	E162	10	mg/L	<10	
Anions and Nutrients (QCLot: 851296)					
Fluoride	16984-48-8 E235.F	0.02	mg/L	<0.020	
Anions and Nutrients (QCLot: 851297)					
Chloride	16887-00-6 E235.CI	0.5	mg/L	<0.50	
Anions and Nutrients (QCLot: 851298)					
Nitrate (as N)	14797-55-8 E235.NO3-L	0.005	mg/L	<0.0050	
Anions and Nutrients (QCLot: 851299)					
Nitrite (as N)	14797-65-0 E235.NO2-L	0.001	mg/L	<0.0010	
Anions and Nutrients (QCLot: 851300)					
Sulfate (as SO4)	14808-79-8 E235.SO4	0.3	mg/L	<0.30	
nions and Nutrients (QCLot: 853170)					
Ammonia, total (as N)	7664-41-7 E298	0.005	mg/L	<0.0050	
Dissolved Metals (QCLot: 851089)					
Mercury, dissolved	7439-97-6 E509	0.000005	mg/L	<0.0000050	
Dissolved Metals (QCLot: 851238)					
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	

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Sub-Matrix: Water





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Sub-Matrix: Water

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Volatile Organic Compounds (QCLo	t: 853619) - continued					
Chloroethane	75-00-3	E611C	0.5	μg/L	<0.50	
Chloroform	67-66-3	E611C	0.5	μg/L	<0.50	
Chloromethane	74-87-3	E611C	5	μg/L	<5.0	
Dibromochloromethane	124-48-1	E611C	0.5	μg/L	<0.50	
Dichlorobenzene, 1,2-	95-50-1	E611C	0.5	μg/L	<0.50	
Dichlorobenzene, 1,3-	541-73-1	E611C	0.5	μg/L	<0.50	
Dichlorobenzene, 1,4-	106-46-7	E611C	0.5	μg/L	<0.50	
Dichloroethane, 1,1-	75-34-3	E611C	0.5	μg/L	<0.50	
Dichloroethane, 1,2-	107-06-2	E611C	0.5	μg/L	<0.50	
Dichloroethylene, 1,1-	75-35-4	E611C	0.5	μg/L	<0.50	
Dichloroethylene, cis-1,2-	156-59-2	E611C	0.5	μg/L	<0.50	
Dichloroethylene, trans-1,2-	156-60-5	E611C	0.5	μg/L	<0.50	
Dichloromethane	75-09-2	E611C	1	μg/L	<1.0	
Dichloropropane, 1,2-	78-87-5	E611C	0.5	μg/L	<0.50	
Dichloropropylene, cis-1,3-	10061-01-5	E611C	0.5	μg/L	<0.50	
Dichloropropylene, trans-1,3-	10061-02-6	E611C	0.5	μg/L	<0.50	
Ethylbenzene	100-41-4	E611C	0.5	μg/L	<0.50	
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611C	0.5	μg/L	<0.50	
Styrene	100-42-5	E611C	0.5	μg/L	<0.50	
Tetrachloroethane, 1,1,1,2-	630-20-6	E611C	0.5	μg/L	<0.50	
Tetrachloroethane, 1,1,2,2-	79-34-5	E611C	0.2	μg/L	<0.20	
Tetrachloroethylene	127-18-4	E611C	0.5	μg/L	<0.50	
Toluene	108-88-3	E611C	0.4	μg/L	<0.40	
Trichloroethane, 1,1,1-	71-55-6	E611C	0.5	μg/L	<0.50	
Trichloroethane, 1,1,2-	79-00-5	E611C	0.5	μg/L	<0.50	
Trichloroethylene	79-01-6	E611C	0.5	μg/L	<0.50	
Trichlorofluoromethane	75-69-4	E611C	0.5	μg/L	<0.50	
Vinyl chloride	75-01-4	E611C	0.4	μg/L	<0.40	
Xylene, m+p-	179601-23-1	E611C	0.4	μg/L	<0.40	
Xylene, o-	95-47-6	E611C	0.3	μg/L	<0.30	
Hydrocarbons (QCLot: 853618)						
VHw (C6-C10)		E581.VH+F1	100	μg/L	<100	

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Project :



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 Co	ntrol Sample (LCS)	Report	
					Spike	Recovery (%)	Recovery	Limits (%)	
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 851303)									
Alkalinity, total (as CaCO3)		E290	1	mg/L	500 mg/L	108	85.0	115	
Physical Tests (QCLot: 851304)									
Conductivity		E100	1	μS/cm	146.9 μS/cm	101	90.0	110	
Physical Tests (QCLot: 851329)									
Solids, total dissolved [TDS]		E162	10	mg/L	1000 mg/L	103	85.0	115	
Physical Tests (QCLot: 853269)									
Solids, total dissolved [TDS]		E162	10	mg/L	1000 mg/L	107	85.0	115	
Physical Tests (QCLot: 853957)									
Solids, total dissolved [TDS]		E162	10	mg/L	1000 mg/L	93.2	85.0	115	
Anions and Nutrients (QCLot: 851296)									
Fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	103	90.0	110	
Anions and Nutrients (QCLot: 851297)									
Chloride	16887-00-6	E235.CI	0.5	mg/L	100 mg/L	101	90.0	110	
Anions and Nutrients (QCLot: 851298)									
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: 851299)									
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: 851300)									
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	102	90.0	110	
Anions and Nutrients (QCLot: 853170)									
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	103	85.0	115	
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0.0001 mg/L	98.3	80.0	120	
Dissolved Metals (QCLot: 851238)									
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	98.5	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	99.0	80.0	120	
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	0.1 mg/L	93.3	80.0	120	
Bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	1 mg/L	99.0	80.0	120	
Boron, dissolved	7440-42-8	E421	0.01	mg/L	1 mg/L	94.8	80.0	120	

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Sub-Matrix: Water					Laboratory Control Sample (LCS) Report						
					Spike	Recovery (%)	Recovery	Limits (%)			
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier		
Dissolved Metals (QCLot: 851238) - continue											
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	94.9	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	97.2	0.08	120			
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	0.25 mg/L	97.1	0.08	120			
Iron, dissolved	7439-89-6	E421	0.01	mg/L	1 mg/L	100	0.08	120			
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	0.5 mg/L	99.4	0.08	120			
Lithium, dissolved	7439-93-2	E421	0.001	mg/L	0.25 mg/L	91.3	80.0	120			
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	50 mg/L	107	80.0	120			
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	0.25 mg/L	98.6	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	96.9	80.0	120			
Phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	10 mg/L	93.5	80.0	120			
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	50 mg/L	98.8	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	103	80.0	120			
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	0.1 mg/L	91.6	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	102	80.0	120			
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	50 mg/L	108	80.0	120			
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	1 mg/L	99.5	80.0	120			
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	0.5 mg/L	96.0	80.0	120			
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	0.25 mg/L	95.3	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	100	80.0	120			
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	0.5 mg/L	90.3	80.0	120			
Zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	0.1 mg/L	90.5	80.0	120			
Volatile Organic Compounds (QCLot: 853619											
Benzene	71-43-2	E611C	0.5	μg/L	100 μg/L	112	70.0	130			
Bromodichloromethane	75-27-4	E611C	0.5	μg/L	100 μg/L	101	70.0	130			
Bromoform	75-25-2	E611C	0.5	μg/L	100 μg/L	99.9	70.0	130			
Carbon tetrachloride	56-23-5	E611C	0.5	μg/L	100 μg/L	109	70.0	130			
Chlorobenzene	108-90-7	E611C	0.5	μg/L	100 μg/L	108	70.0	130			
Chloroethane	75-00-3	E611C	0.5	μg/L	100 μg/L	104	60.0	140			
Chloroform	67-66-3	E611C	0.5	μg/L	100 μg/L	107	70.0	130			
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Sub-Matrix: Water	Laboratory Control Sample (LCS) Report								
					Spike	Recovery (%)	Recovery	Limits (%)	
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 8	3619) - continued								
Chloromethane	74-87-3	E611C	5	μg/L	100 μg/L	98.3	60.0	140	
Dibromochloromethane	124-48-1	E611C	0.5	μg/L	100 μg/L	96.2	70.0	130	
Dichlorobenzene, 1,2-	95-50-1	E611C	0.5	µg/L	100 μg/L	107	70.0	130	
Dichlorobenzene, 1,3-	541-73-1	E611C	0.5	µg/L	100 μg/L	111	70.0	130	
Dichlorobenzene, 1,4-	106-46-7	E611C	0.5	µg/L	100 μg/L	110	70.0	130	
Dichloroethane, 1,1-	75-34-3	E611C	0.5	μg/L	100 μg/L	110	70.0	130	
Dichloroethane, 1,2-	107-06-2	E611C	0.5	μg/L	100 μg/L	102	70.0	130	
Dichloroethylene, 1,1-	75-35-4	E611C	0.5	μg/L	100 μg/L	112	70.0	130	
Dichloroethylene, cis-1,2-	156-59-2	E611C	0.5	μg/L	100 μg/L	108	70.0	130	
Dichloroethylene, trans-1,2-	156-60-5	E611C	0.5	μg/L	100 μg/L	110	70.0	130	
Dichloromethane	75-09-2	E611C	1	μg/L	100 μg/L	107	70.0	130	
Dichloropropane, 1,2-	78-87-5	E611C	0.5	μg/L	100 μg/L	108	70.0	130	
Dichloropropylene, cis-1,3-	10061-01-5	E611C	0.5	μg/L	100 μg/L	101	70.0	130	
Dichloropropylene, trans-1,3-	10061-02-6	E611C	0.5	μg/L	100 μg/L	101	70.0	130	
Ethylbenzene	100-41-4	E611C	0.5	μg/L	100 μg/L	106	70.0	130	
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611C	0.5	μg/L	100 μg/L	112	70.0	130	
Styrene	100-42-5	E611C	0.5	μg/L	100 μg/L	99.2	70.0	130	
Tetrachloroethane, 1,1,1,2-	630-20-6	E611C	0.5	μg/L	100 μg/L	101	70.0	130	
Tetrachloroethane, 1,1,2,2-	79-34-5	E611C	0.2	μg/L	100 μg/L	99.4	70.0	130	
Tetrachloroethylene	127-18-4	E611C	0.5	μg/L	100 μg/L	107	70.0	130	
Toluene	108-88-3	E611C	0.4	μg/L	100 μg/L	108	70.0	130	
Trichloroethane, 1,1,1-	71-55-6	E611C	0.5	μg/L	100 μg/L	109	70.0	130	
Trichloroethane, 1,1,2-	79-00-5	E611C	0.5	μg/L	100 μg/L	98.2	70.0	130	
Trichloroethylene	79-01-6	E611C	0.5	μg/L	100 μg/L	108	70.0	130	
Trichlorofluoromethane	75-69-4	E611C	0.5	μg/L	100 μg/L	117	60.0	140	
Vinyl chloride	75-01-4	E611C	0.4	μg/L	100 μg/L	99.6	60.0	140	
Xylene, m+p-	179601-23-1	E611C	0.4	μg/L	200 μg/L	114	70.0	130	
Xylene, o-	95-47-6	E611C	0.3	μg/L	100 μg/L	108	70.0	130	
Hydrocarbons (QCLot: 853618)									
VHw (C6-C10)		E581.VH+F1	100	μg/L	6310 μg/L	88.9	70.0	130	

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Project :



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		
					Spi	ike	Recovery (%)	Recovery	Limits (%)	
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Anions and Nutr	ients (QCLot: 851296)									
VA23A4633-001	Anonymous	Fluoride	16984-48-8	E235.F	5.09 mg/L	5 mg/L	102	75.0	125	
Anions and Nutr	ients (QCLot: 851297)									
VA23A4633-001	Anonymous	Chloride	16887-00-6	E235.CI	502 mg/L	500 mg/L	100	75.0	125	
Anions and Nutr	ients (QCLot: 851298)									
VA23A4633-001	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	12.6 mg/L	12.5 mg/L	101	75.0	125	
Anions and Nutr	ients (QCLot: 851299)									
VA23A4633-001	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	2.50 mg/L	2.5 mg/L	99.9	75.0	125	
Anions and Nutr	ients (QCLot: 851300)	100000000000000000000000000000000000000								
VA23A4633-001	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	498 mg/L	500 mg/L	99.5	75.0	125	
Anions and Nutr	ients (QCLot: 853170)									
VA23A4566-002	Anonymous	Ammonia, total (as N)	7664-41-7	E298	ND mg/L	0.1 mg/L	ND	75.0	125	MS-B
Dissolved Metals	(QCLot: 851089)									
FJ2300461-002	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000975 mg/L	0.0001 mg/L	97.5	70.0	130	
Dissolved Metals	s (QCLot: 851238)	100000000000000000000000000000000000000								
FJ2300438-002	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.373 mg/L	0.4 mg/L	93.3	70.0	130	
		Antimony, dissolved	7440-36-0	E421	0.0395 mg/L	0.04 mg/L	98.7	70.0	130	
		Arsenic, dissolved	7440-38-2	E421	0.0393 mg/L	0.04 mg/L	98.2	70.0	130	
		Barium, dissolved	7440-39-3	E421	ND mg/L	0.02 mg/L	ND	70.0	130	
		Beryllium, dissolved	7440-41-7	E421	0.0718 mg/L	0.08 mg/L	89.7	70.0	130	
		Bismuth, dissolved	7440-69-9	E421	0.0173 mg/L	0.02 mg/L	86.3	70.0	130	
		Boron, dissolved	7440-42-8	E421	0.191 mg/L	0.2 mg/L	95.7	70.0	130	
		Cadmium, dissolved	7440-43-9	E421	0.00765 mg/L	0.008 mg/L	95.6	70.0	130	
		Calcium, dissolved	7440-70-2	E421	ND mg/L	4 mg/L	ND	70.0	130	
		Chromium, dissolved	7440-47-3	E421	0.0743 mg/L	0.08 mg/L	92.9	70.0	130	
		Cobalt, dissolved	7440-48-4	E421	0.0370 mg/L	0.04 mg/L	92.6	70.0	130	
		Copper, dissolved	7440-50-8	E421	0.0356 mg/L	0.04 mg/L	89.0	70.0	130	
		Iron, dissolved	7439-89-6	E421	3.81 mg/L	4 mg/L	95.3	70.0	130	
		Lead, dissolved	7439-92-1	E421	0.0378 mg/L	0.04 mg/L	94.5	70.0	130	
	T.	Lithium, dissolved	7439-93-2	E421	0.174 mg/L	0.2 mg/L	86.9	70.0	130	1

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Project 3



Sub-Matrix: Water							Matrix Spik	e (MS) Report		
					Spi	ke	Recovery (%)	Recovery	Limits (%)	
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
	(QCLot: 851238) -	continued								
FJ2300438-002	Anonymous	Magnesium, dissolved	7439-95-4	E421	ND mg/L	1 mg/L	ND	70.0	130	
		Manganese, dissolved	7439-96-5	E421	ND mg/L	0.04 mg/L	ND	70.0	130	
		Molybdenum, dissolved	7439-98-7	E421	0.0405 mg/L	0.04 mg/L	101	70.0	130	
		Nickel, dissolved	7440-02-0	E421	0.0694 mg/L	0.08 mg/L	86.8	70.0	130	
		Phosphorus, dissolved	7723-14-0	E421	18.8 mg/L	20 mg/L	94.1	70.0	130	
		Potassium, dissolved	7440-09-7	E421	7.11 mg/L	8 mg/L	88.9	70.0	130	
		Selenium, dissolved	7782-49-2	E421	ND mg/L	0.04 mg/L	ND	70.0	130	
		Silicon, dissolved	7440-21-3	E421	18.9 mg/L	20 mg/L	94.3	70.0	130	
		Silver, dissolved	7440-22-4	E421	0.00741 mg/L	0.008 mg/L	92.6	70.0	130	
		Sodium, dissolved	7440-23-5	E421	ND mg/L	2 mg/L	ND	70.0	130	
		Strontium, dissolved	7440-24-6	E421	ND mg/L	0.02 mg/L	ND	70.0	130	
		Sulfur, dissolved	7704-34-9	E421	ND mg/L	20 mg/L	ND	70.0	130	
		Thallium, dissolved	7440-28-0	E421	0.00742 mg/L	0.008 mg/L	92.8	70.0	130	
		Tin, dissolved	7440-31-5	E421	0.0372 mg/L	0.04 mg/L	93.1	70.0	130	
		Titanium, dissolved	7440-32-6	E421	0.0735 mg/L	0.08 mg/L	91.9	70.0	130	
		Uranium, dissolved	7440-61-1	E421	ND mg/L	0.004 mg/L	ND	70.0	130	
		Vanadium, dissolved	7440-62-2	E421	0.194 mg/L	0.2 mg/L	96.8	70.0	130	
		Zinc, dissolved	7440-66-6	E421	0.675 mg/L	0.8 mg/L	84.4	70.0	130	
		Zirconium, dissolved	7440-67-7	E421	0.0798 mg/L	0.08 mg/L	99.8	70.0	130	
olatile Organic	Compounds (QCLo	t: 853619)								
VA23A4598-001	Anonymous	Benzene	71-43-2	E611C	117 µg/L	100 μg/L	117	60.0	140	
		Bromodichloromethane	75-27-4	E611C	99.3 μg/L	100 μg/L	99.3	60.0	140	
		Bromoform	75-25-2	E611C	93.3 μg/L	100 μg/L	93.3	60.0	140	
		Carbon tetrachloride	56-23-5	E611C	116 µg/L	100 μg/L	116	60.0	140	
		Chlorobenzene	108-90-7	E611C	110 µg/L	100 μg/L	110	60.0	140	
		Chloroethane	75-00-3	E611C	111 μg/L	100 μg/L	111	50.0	150	
		Chloroform	67-66-3	E611C	110 μg/L	100 μg/L	110	60.0	140	
		Chloromethane	74-87-3	E611C	108 μg/L	100 μg/L	108	50.0	150	
		Dibromochloromethane	124-48-1	E611C	93.2 μg/L	100 μg/L	93.2	60.0	140	
		Dichlorobenzene, 1,2-	95-50-1	E611C	105 μg/L	100 μg/L	105	60.0	140	
		Dichlorobenzene, 1,3-	541-73-1	E611C	113 μg/L	100 μg/L	113	60.0	140	
		Dichlorobenzene, 1,4-	106-46-7	E611C	111 µg/L	100 μg/L	111	60.0	140	
		Dichloroethane, 1,1-	75-34-3	E611C	114 μg/L	100 μg/L	114	60.0	140	
		Dichloroethane, 1,2-	107-06-2	E611C	101 μg/L	100 μg/L	101	60.0	140	
				i i	1		i l			1

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Project : 3



Sub-Matrix: Water						Matrix Spike (MS) Report						
					Spi	ke	Recovery (%)	Recovery	Limits (%)			
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier		
Volatile Organic	Compounds (QCLo	t: 853619) - continued										
VA23A4598-001	Anonymous	Dichloroethylene, cis-1,2-	156-59-2	E611C	112 µg/L	100 μg/L	112	60.0	140			
		Dichloroethylene, trans-1,2-	156-60-5	E611C	118 µg/L	100 μg/L	118	60.0	140			
		Dichloromethane	75-09-2	E611C	111 μg/L	100 μg/L	111	60.0	140			
		Dichloropropane, 1,2-	78-87-5	E611C	109 μg/L	100 μg/L	109	60.0	140			
		Dichloropropylene, cis-1,3-	10061-01-5	E611C	99.1 μg/L	100 μg/L	99.1	60.0	140			
		Dichloropropylene, trans-1,3-	10061-02-6	E611C	98.8 μg/L	100 μg/L	98.8	60.0	140			
		Ethylbenzene	100-41-4	E611C	110 μg/L	100 μg/L	110	60.0	140			
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611C	109 μg/L	100 μg/L	109	60.0	140			
		Styrene	100-42-5	E611C	96.1 μg/L	100 μg/L	96.1	60.0	140			
		Tetrachloroethane, 1,1,1,2-	630-20-6	E611C	100 μg/L	100 μg/L	100	60.0	140			
		Tetrachloroethane, 1,1,2,2-	79-34-5	E611C	89.2 μg/L	100 μg/L	89.2	60.0	140			
		Tetrachloroethylene	127-18-4	E611C	117 μg/L	100 μg/L	117	60.0	140			
		Toluene	108-88-3	E611C	114 μg/L	100 μg/L	114	60.0	140			
		Trichloroethane, 1,1,1-	71-55-6	E611C	115 μg/L	100 μg/L	115	60.0	140			
		Trichloroethane, 1,1,2-	79-00-5	E611C	95.3 μg/L	100 μg/L	95.3	60.0	140			
		Trichloroethylene	79-01-6	E611C	113 μg/L	100 μg/L	113	60.0	140			
		Trichlorofluoromethane	75-69-4	E611C	127 μg/L	100 μg/L	127	50.0	150			
		Vinyl chloride	75-01-4	E611C	111 µg/L	100 μg/L	111	50.0	150			
		Xylene, m+p-	179601-23-1	E611C	241 μg/L	200 μg/L	120	60.0	140			
		Xylene, o-	95-47-6	E611C	110 µg/L	100 μg/L	110	60.0	140			
Hydrocarbons (QCLot: 853618)											
VA23A4568-002	WG-022823-CS-46	VHw (C6-C10)		E581.VH+F1	5020 μg/L	6310 µg/L	79.5	60.0	140			

Qualifiers

Qualifier Description

MS-B Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.



QUALITY CONTROL INTERPRETIVE REPORT

Work Order : **VA23A4568** Page : 1 of 14

Amendment :1

Client : Comox Valley Regional District Laboratory : Vancouver - Environmental

Contact : Crystal Stuart Account Manager : Thomas Chang

Address :770 Harmston Avenue Address :8081 Lougheed Highway

Courtney BC Canada V9N 0G8 Burnaby, British Columbia Canada V5A 1W9

 Telephone
 : 250-898-3722
 Telephone
 : +1 604 253 4188

 Project
 : 3
 Date Samples Received
 : 02-Mar-2023 10:10

Site : CRWMC-Quarterly-GW

: C Stuart

Quote number : VA23-COVR100-001

No. of samples received :4
No. of samples analysed :4

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

Sampler

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)

• No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

• No Quality Control Sample Frequency Outliers occur.

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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

Container / Client Sample ID(s)										
			Preparation	Holding	g Times	Eval	Analysis Date	Holding	Times	Eval
			Date	Rec	Actual			Rec	Actual	
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
WG-022823-CS-45	E298	28-Feb-2023	07-Mar-2023				07-Mar-2023	28 days	7 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										,
WG-022823-CS-46	E298	28-Feb-2023	07-Mar-2023				07-Mar-2023	28 days	7 days	✓
Anions and Nutrients : Ammonia by Fluorescence				ı						
Amber glass total (sulfuric acid)	E298	28-Feb-2023	07-Mar-2023				07-Mar-2023	00 4	7 -1	√
WG-022823-CS-47	E290	20-Feb-2023	07-Mar-2023				07-Mar-2023	28 days	7 days	•
Anions and Nutrients : Ammonia by Fluorescence				I	1 1			T		
Amber glass total (sulfuric acid) WG-022823-CS-48	E298	28-Feb-2023	07-Mar-2023				07-Mar-2023	28 days	7 days	√
WO-022020-00-40	2200	201 05 2020	07-Wai-2020				07-Wai-2020	20 days	r days	·
Anions and Nutrients : Chloride in Water by IC										
HDPE										
WG-022823-CS-47	E235.CI	28-Feb-2023	03-Mar-2023				03-Mar-2023	28 days	2 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE										
WG-022823-CS-48	E235.CI	28-Feb-2023	03-Mar-2023				03-Mar-2023	28 days	2 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE										
WG-022823-CS-45	E235.CI	28-Feb-2023	03-Mar-2023				03-Mar-2023	28 days	3 days	✓

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Client : Comox Valley Regional District



Matrix: Water					Ev	⁄aluation: ≭ =	Holding time exce	edance ; 🕥	= Within	Holding Tim
Analyte Group	Method	Sampling Date	Ext	raction / Pr	eparation			Analys	sis	
Container / Client Sample ID(s)			Preparation Date	Holding Rec	g Times Actual	Eval	Analysis Date	Holding Rec	7 Times Actual	Eval
Anions and Nutrients : Chloride in Water by IC										
HDPE WG-022823-CS-46	E235.CI	28-Feb-2023	03-Mar-2023				03-Mar-2023	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE WG-022823-CS-47	E235.F	28-Feb-2023	03-Mar-2023				03-Mar-2023	28 days	2 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE WG-022823-CS-48	E235.F	28-Feb-2023	03-Mar-2023				03-Mar-2023	28 days	2 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE WG-022823-CS-45	E235.F	28-Feb-2023	03-Mar-2023				03-Mar-2023	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE WG-022823-CS-46	E235.F	28-Feb-2023	03-Mar-2023				03-Mar-2023	28 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE WG-022823-CS-47	E235.NO3-L	28-Feb-2023	03-Mar-2023				03-Mar-2023	3 days	2 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE WG-022823-CS-48	E235.NO3-L	28-Feb-2023	03-Mar-2023				03-Mar-2023	3 days	2 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE WG-022823-CS-45	E235.NO3-L	28-Feb-2023	03-Mar-2023				03-Mar-2023	3 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE WG-022823-CS-46	E235.NO3-L	28-Feb-2023	03-Mar-2023				03-Mar-2023	3 days	3 days	✓

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Matrix: Water					E۱	aluation: 🗴 =	Holding time excee	edance ; 🕥	= Within	Holding Tim
Analyte Group	Method	Sampling Date	Ex	traction / Pr	eparation			Analys	sis	
Container / Client Sample ID(s)			Preparation Date	Holding Rec	Times Actual	Eval	Analysis Date	Holding Rec	7 Times Actual	Eval
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE WG-022823-CS-47	E235.NO2-L	28-Feb-2023	03-Mar-2023				03-Mar-2023	3 days	2 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE WG-022823-CS-48	E235.NO2-L	28-Feb-2023	03-Mar-2023				03-Mar-2023	3 days	2 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE WG-022823-CS-45	E235.NO2-L	28-Feb-2023	03-Mar-2023				03-Mar-2023	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE WG-022823-CS-46	E235.NO2-L	28-Feb-2023	03-Mar-2023				03-Mar-2023	3 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE WG-022823-CS-47	E235.SO4	28-Feb-2023	03-Mar-2023				03-Mar-2023	28 days	2 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE WG-022823-CS-48	E235.SO4	28-Feb-2023	03-Mar-2023				03-Mar-2023	28 days	2 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE WG-022823-CS-45	E235.SO4	28-Feb-2023	03-Mar-2023				03-Mar-2023	28 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE WG-022823-CS-46	E235.SO4	28-Feb-2023	03-Mar-2023				03-Mar-2023	28 days	3 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid) WG-022823-CS-45	E509	28-Feb-2023	02-Mar-2023				02-Mar-2023	28 days	2 days	✓

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Matrix: Water					Ev	aluation: × =	Holding time exce	edance ; 🔻	= Within	Holding Ti
Analyte Group	Method	Sampling Date	Ext	raction / Pr	eparation			Analys	is	
Container / Client Sample ID(s)			Preparation Date	Holding Rec	g Times Actual	Eval	Analysis Date	Holding Rec	Times Actual	Eval
Dissolved Metals : Dissolved Mercury in Water by CVAAS			Date	7100	7 totaar			7100	7 lotaur	
Glass vial dissolved (hydrochloric acid)										
WG-022823-CS-46	E509	28-Feb-2023	02-Mar-2023				02-Mar-2023	28 days	2 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid) WG-022823-CS-47	E509	28-Feb-2023	02-Mar-2023				02-Mar-2023	28 days	2 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid) WG-022823-CS-48	E509	28-Feb-2023	02-Mar-2023				02-Mar-2023	28 days	2 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid)										
WG-022823-CS-45	E421	28-Feb-2023	03-Mar-2023				04-Mar-2023	180 days	4 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) WG-022823-CS-46	E421	28-Feb-2023	03-Mar-2023				04-Mar-2023	180 days	4 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid)										
WG-022823-CS-47	E421	28-Feb-2023	03-Mar-2023				04-Mar-2023	180 days	4 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) WG-022823-CS-48	E421	28-Feb-2023	03-Mar-2023				04-Mar-2023	180 days	4 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate)	E581.VH+F1	28-Feb-2023	06-Mar-2023				06-Mar-2023	14 days	6 days	√
WG-022823-CS-45	EUO1.VH+F1	Z0-F6D-ZUZ3	00-ivial-2023				00-ivial-2023	14 days	6 days	•
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate) WG-022823-CS-46	E581.VH+F1	28-Feb-2023	06-Mar-2023				06-Mar-2023	14 days	6 days	✓

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Matrix: Water					Ev	aluation: 🗴 =	Holding time exce	edance ; 🕥	= Within	Holding Tim
Analyte Group	Method	Sampling Date	Ext	raction / Pr				Analys	is	
Container / Client Sample ID(s)			Preparation Date	Holding Rec	g Times Actual	Eval	Analysis Date	Holding Rec	Times Actual	Eval
Physical Tests : Alkalinity Species by Titration										
HDPE WG-022823-CS-45	E290	28-Feb-2023	03-Mar-2023				03-Mar-2023	14 days	3 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE WG-022823-CS-46	E290	28-Feb-2023	03-Mar-2023				03-Mar-2023	14 days	3 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE WG-022823-CS-47	E290	28-Feb-2023	03-Mar-2023				03-Mar-2023	14 days	3 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE WG-022823-CS-48	E290	28-Feb-2023	03-Mar-2023				03-Mar-2023	14 days	3 days	✓
Physical Tests : Conductivity in Water										
HDPE WG-022823-CS-45	E100	28-Feb-2023	03-Mar-2023				03-Mar-2023	28 days	3 days	✓
Physical Tests : Conductivity in Water										
HDPE WG-022823-CS-46	E100	28-Feb-2023	03-Mar-2023				03-Mar-2023	28 days	3 days	✓
Physical Tests : Conductivity in Water										
HDPE WG-022823-CS-47	E100	28-Feb-2023	03-Mar-2023				03-Mar-2023	28 days	3 days	✓
Physical Tests : Conductivity in Water										
HDPE WG-022823-CS-48	E100	28-Feb-2023	03-Mar-2023				03-Mar-2023	28 days	3 days	✓
Physical Tests : TDS by Gravimetry										
HDPE WG-022823-CS-45	E162	28-Feb-2023					04-Mar-2023	7 days	4 days	✓

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atrix: Water					Εν	⁄aluation: ≍ =	Holding time excee	edance ; 🕦	/ = Within	Holding Ti
nalyte Group	Method	Sampling Date	Ex	traction / Pr	eparation			Analys	sis	
Container / Client Sample ID(s)			Preparation		Times	Eval	Analysis Date	Holding	Times	Eval
			Date	Rec	Actual			Rec	Actual	
hysical Tests : TDS by Gravimetry										
HDPE										
WG-022823-CS-46	E162	28-Feb-2023					04-Mar-2023	7 days	4 days	✓
hysical Tests : TDS by Gravimetry										
HDPE										
WG-022823-CS-47	E162	28-Feb-2023					07-Mar-2023	7 days	7 days	✓
hysical Tests : TDS by Gravimetry										
HDPE	E162	28-Feb-2023					07-Mar-2023	7 days	7 days	1
WG-022823-CS-48	E102	28-Feb-2023					07-Mar-2023	7 days	7 days	•
olatile Organic Compounds : VOCs (BC List) by Headspace GC-MS				<u> </u>			1			
Glass vial (sodium bisulfate) WG-022823-CS-45	E611C	28-Feb-2023	06-Mar-2023				06-Mar-2023	14 days	6 days	1
WG-022023-CS-45	LOTIC	20-1 eb-2025	00-Mai-2023				00-IVIAI-2023	14 days	0 days	•
alatila Comunia Comunia de NOCa (DO Liab los Handaras CO MO										
olatile Organic Compounds : VOCs (BC List) by Headspace GC-MS Glass vial (sodium bisulfate)				<u> </u>			I	<u> </u>		
WG-022823-CS-46	E611C	28-Feb-2023	06-Mar-2023				06-Mar-2023	14 days	6 days	1
170 022020 00 10	20110	20 1 02 2020	00 ma. 2020				00 2020		o days	
olatile Organic Compounds [Drycleaning] : VOCs (BC List) by Headspace GC-MS										
Glass vial (sodium bisulfate)										
WG-022823-CS-45	E611C	28-Feb-2023	06-Mar-2023				06-Mar-2023	14 days	6 days	✓
								,	1	
olatile Organic Compounds [Drycleaning] : VOCs (BC List) by Headspace GC-MS										
Glass vial (sodium bisulfate)										
WG-022823-CS-46	E611C	28-Feb-2023	06-Mar-2023				06-Mar-2023	14 days	6 days	✓
olatile Organic Compounds [Fuels] : VOCs (BC List) by Headspace GC-MS										
Glass vial (sodium bisulfate)										
WG-022823-CS-45	E611C	28-Feb-2023	06-Mar-2023				06-Mar-2023	14 days	6 days	✓
olatile Organic Compounds [Fuels] : VOCs (BC List) by Headspace GC-MS										
Glass vial (sodium bisulfate)										
WG-022823-CS-46	E611C	28-Feb-2023	06-Mar-2023				06-Mar-2023	14 days	6 days	✓

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Project :



Matrix: Water					E۱	/aluation: ≭ =	Holding time exce	edance ; 🕦	= Within	Holding Time
Analyte Group	Method	Sampling Date	Ext	raction / Pr	eparation			Analys	sis	
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Volatile Organic Compounds [THMs] : VOCs (BC List) by Headspace GC-MS										
Glass vial (sodium bisulfate) WG-022823-CS-45	E611C	28-Feb-2023	06-Mar-2023				06-Mar-2023	14 days	6 days	✓
Volatile Organic Compounds [THMs] : VOCs (BC List) by Headspace GC-MS										
Glass vial (sodium bisulfate) WG-022823-CS-46	E611C	28-Feb-2023	06-Mar-2023				06-Mar-2023	14 days	6 days	✓

Legend & Qualifier Definitions

Rec. HT: ALS recommended hold time (see units).

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Project :



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.

Quality Central Cample Type		•		ency outside sp			•
Quality Control Sample Type	Method	QC Lot #	QC	ount Regular	Actual	Frequency (%) Expected	Evaluation
Analytical Methods	Metriod	QC Lot #	QC	Regulai	Actual	Expected	Lvaluation
Laboratory Duplicates (DUP)							
Alkalinity Species by Titration	E290	851303	1	20	5.0	5.0	✓
Ammonia by Fluorescence	E298	853170	1	13	7.6	5.0	✓
Chloride in Water by IC	E235.Cl	851297	1	20	5.0	5.0	✓
Conductivity in Water	E100	851304	1	20	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	851089	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	851238	1	20	5.0	5.0	✓
Fluoride in Water by IC	E235.F	851296	1	11	9.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	851298	1	20	5.0	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	851299	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	851300	1	20	5.0	5.0	✓
TDS by Gravimetry	E162	851329	3	53	5.6	5.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	853618	1	5	20.0	5.0	✓
VOCs (BC List) by Headspace GC-MS	E611C	853619	1	4	25.0	5.0	✓
Laboratory Control Samples (LCS)							
Alkalinity Species by Titration	E290	851303	1	20	5.0	5.0	1
Ammonia by Fluorescence	E298	853170	1	13	7.6	5.0	1
Chloride in Water by IC	E235.CI	851297	1	20	5.0	5.0	1
Conductivity in Water	E100	851304	1	20	5.0	5.0	1
Dissolved Mercury in Water by CVAAS	E509	851089	1	20	5.0	5.0	1
Dissolved Metals in Water by CRC ICPMS	E421	851238	1	20	5.0	5.0	1
Fluoride in Water by IC	E235.F	851296	1	11	9.0	5.0	1
Nitrate in Water by IC (Low Level)	E235.NO3-L	851298	1	20	5.0	5.0	1
Nitrite in Water by IC (Low Level)	E235.NO2-L	851299	1	20	5.0	5.0	1
Sulfate in Water by IC	E235.SO4	851300	1	20	5.0	5.0	1
TDS by Gravimetry	E162	851329	3	53	5.6	5.0	1
VH and F1 by Headspace GC-FID	E581.VH+F1	853618	1	5	20.0	5.0	1
VOCs (BC List) by Headspace GC-MS	E611C	853619	1	4	25.0	5.0	1
Method Blanks (MB)							
Alkalinity Species by Titration	E290	851303	1	20	5.0	5.0	1
Ammonia by Fluorescence	E298	853170	1	13	7.6	5.0	✓
Chloride in Water by IC	E235.Cl	851297	1	20	5.0	5.0	1
Conductivity in Water	E100	851304	1	20	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	851089	1	20	5.0	5.0	1
Dissolved Metals in Water by CRC ICPMS	E421	851238	1	20	5.0	5.0	✓
Fluoride in Water by IC	E235.F	851296	1	11	9.0	5.0	✓

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Project



Matrix: Water	Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification							
Quality Control Sample Type			Co	ount		Frequency (%)		
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation	
Method Blanks (MB) - Continued								
Nitrate in Water by IC (Low Level)	E235.NO3-L	851298	1	20	5.0	5.0	✓	
Nitrite in Water by IC (Low Level)	E235.NO2-L	851299	1	20	5.0	5.0	✓	
Sulfate in Water by IC	E235.SO4	851300	1	20	5.0	5.0	✓	
TDS by Gravimetry	E162	851329	3	53	5.6	5.0	✓	
VH and F1 by Headspace GC-FID	E581.VH+F1	853618	1	5	20.0	5.0	✓	
VOCs (BC List) by Headspace GC-MS	E611C	853619	1	4	25.0	5.0	✓	
Matrix Spikes (MS)								
Ammonia by Fluorescence	E298	853170	1	13	7.6	5.0	✓	
Chloride in Water by IC	E235.CI	851297	1	20	5.0	5.0	✓	
Dissolved Mercury in Water by CVAAS	E509	851089	1	20	5.0	5.0	✓	
Dissolved Metals in Water by CRC ICPMS	E421	851238	1	20	5.0	5.0	✓	
Fluoride in Water by IC	E235.F	851296	1	11	9.0	5.0	✓	
Nitrate in Water by IC (Low Level)	E235.NO3-L	851298	1	20	5.0	5.0	✓	
Nitrite in Water by IC (Low Level)	E235.NO2-L	851299	1	20	5.0	5.0	✓	
Sulfate in Water by IC	E235.SO4	851300	1	20	5.0	5.0	✓	
VH and F1 by Headspace GC-FID	E581.VH+F1	853618	1	5	20.0	5.0	✓	
VOCs (BC List) by Headspace GC-MS	E611C	853619	1	4	25.0	5.0	✓	

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Project :



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	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
	Vancouver -			sample. Conductivity measurements are temperature-compensated to 25°C.
	Environmental			
TDS by Gravimetry	E162	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 $180 \pm 2^{\circ}$ C for 16 hours or to constant weight,
	Vancouver -			with gravimetric measurement of the residue.
	Environmental			
Chloride in Water by IC	E235.CI	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and /or UV detection.
	Vancouver -			
	Environmental			
Fluoride in Water by IC	E235.F	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and /or UV detection.
	Vancouver -			
	Environmental			
Nitrite in Water by IC (Low Level)	E235.NO2-L	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and /or UV detection.
	Vancouver -			
	Environmental			
Nitrate in Water by IC (Low Level)	E235.NO3-L	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and /or UV detection.
	Vancouver -			
	Environmental			
Sulfate in Water by IC	E235.SO4	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and /or UV detection.
	Vancouver -			
	Environmental			
Alkalinity Species by Titration	E290	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
	Vancouver -			alkalinity values.
	Environmental			
Ammonia by Fluorescence	E298	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).
	Vancouver -			This method is approved under US EPA 40 CFR Part 136 (May 2021)
	Environmental			

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Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Dissolved Metals in Water by CRC ICPMS	E421	Water	APHA 3030B/EPA	Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by
			6020B (mod)	Collision/Reaction Cell ICPMS.
	Vancouver -			
	Environmental			Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered
D: 1 1 1 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2		107.7		by this method.
Dissolved Mercury in Water by CVAAS	E509	Water	APHA 3030B/EPA	Water samples are filtered (0.45 um), preserved with HCI, then undergo a cold-oxidation
	1/		1631E (mod)	using bromine monochloride prior to reduction with stannous chloride, and analyzed by
	Vancouver - Environmental			CVAAS.
VH and F1 by Headspace GC-FID	E581.VH+F1	Water	BC MOE Lab Manual /	Volatile Hydrocarbons (VH and F1) is analyzed by static headspace GC-FID. Samples
VIT and T T by Fleadspace GG-F ID	E301.VП+F1	Water	CCME PHC in Soil - Tier	are prepared in headspace vials and are heated and agitated on the headspace
	Vancouver -		1 (mod)	autosampler, causing VOCs to partition between the aqueous phase and the
	Environmental		i (iiiou)	headspace in accordance with Henry's law.
VOCs (BC List) by Headspace GC-MS	E611C	Water	EPA 8260D (mod)	Volatile Organic Compounds (VOCs) are analyzed by static headspace GC-MS.
, , , ,	200		,	Samples are prepared in headspace vials and are heated and agitated on the
	Vancouver -			headspace autosampler, causing VOCs to partition between the aqueous phase and
	Environmental			the headspace in accordance with Henry's law.
Dissolved Hardness (Calculated)	EC100	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
	Vancouver -			to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially
	Environmental			calculated from dissolved Calcium and Magnesium concentrations, because it is a
				property of water due to dissolved divalent cations.
Nitrate and Nitrite (as N) (Calculation)	EC235.N+N	Water	EPA 300.0	Nitrate and Nitrite (as N) is a calculated parameter. Nitrate and Nitrite (as N) = Nitrite (as
				N) + Nitrate (as N).
	Vancouver -			
VDU. VII DTEV Churana	Environmental	Motor	DO 14051 1 14	V 1 (1) D (1) 1 1 1 1 (1) (1) (1) 1 1 1 1 1 1 1
VPH: VH-BTEX-Styrene	EC580A	Water	BC MOE Lab Manual	Volatile Petroleum Hydrocarbons (VPH) is calculated as follows: VPHw = Volatile
	Vancouver -		(VPH in Water and	Hydrocarbons (VH6-10) minus benzene, toluene, ethylbenzene, xylenes (BTEX) and
	Environmental		Solids) (mod)	styrene.
Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Ammonia	EP298	Water		Sample preparation for Preserved Nutrients Water Quality Analysis.
	Vancouver -			
	Environmental			
Dissolved Metals Water Filtration	EP421	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HNO3.
	Vanagunar			
	Vancouver - Environmental			
Dissolved Mercury Water Filtration	Environmental EP509	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HCl.
Disserted Merodry Water Fill auton	EL908	v v a t G i	7.1.7.7.0000	Trace, samples are interest (0.40 arr), and preserved with Front
	Vancouver -			
	Environmental			

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Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
VOCs Preparation for Headspace Analysis	EP581	Water	EPA 5021A (mod)	Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler. An aliquot of the headspace is then injected into the
	Vancouver -			GC/MS-FID system.
	Environmental			

ALS Environmental

Chain of Custody (COC) / Analytical Request Form

Affix ALS barcode label here

COC Number: 17 -

Pege of

FINAL SHIPMENT RECEPTION (lab use only)

Canada Toll Free: 1 800 668 9878 www.alsglobal.com Report To Contact and company name below will appear on the final report Report Format / Distribution Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply) Company: Comox Valley Regional District Select Report Format: PDF PDF PECEL M EDD (DIGITAL) Standard TAT if received by 3 pm - business days - no surcharges apply Regular (R) Crystal Stuart Contact: Quality Control (QC) Report with Report 🛮 🗹 YES 📋 NO 4 day [P4-20%] 1 Business day [E1 - 100%] 250-898-3722 Compare Results to Criteria on Report - provide details below if box checked Phone: 3 day [P3-26%] 📋 Same Day, Weekend or Statutory holiday [E2 -200% Select Distribution: 🗹 EMAIL 📋 MAIL 📑 FAX 2 day (P2-50%) (Laboratory opening fees may apply) } Company address below will appear on the final report Street: 770 Harmston Avenue Date and Time Required for all E&P TATe: dd-marm-yy ahimm Email 1 or Fax cstuart@comoxvalleyrd.ca City/Province: Courtenay, BC Emeil 2 For tasts that can not be performed according to the service level selected, you will be contacted V9N 0G8 Postal Code: Email 3 Analysis Request ☑ YES □ NO Invoice To Same as Report To Invoice Distribution Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below ☑ YES 🔲 NO Copy of Invoice with Report Select Invoice Distribution: 🗹 EMAIL 🔲 MAIL 🔲 FAX Email 1 or Fax Company: Hardne Contact: Email 2 Oll and Gas Required Fields (client use) **Project Information** NO3) N+N (including Hg. ALS Account #1 Quote #: VA23-COVR100-001 PO# FE/Cost Center Job#: Major/Minor Code: Routing Code: Š PO / AFE: 23-015 Requisitioner: SAMPLES ON HOLD SD: CRWMC - Quarterly - GW .ocation: S ALS Lab Work Order # (lab use only): ALS Contact: Selam W. Sampler ions (C), I ALS Sample # Sample Identification and/or Coordinates Date Time Sample Type (lab use only) (This description will appear on the report) (dd-mmm-yy) (hth:mm) 38-E1433 ଠମଧ୍ୟ 46 । ७ ५ ऽ Environmental Division 13 45 Vancouver Work Order Reference VA23A4568 Telephone: +1 604 253 4188

1 11 11 11 11 11 11 11 11 11 11 11 11 1		
Drinking Water (DW) Samples ¹ (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below	SAMPLE CONDITION AS RECEIVED (lab use only)
Drinking Water (DW) Samplet (Client use)	(electronic GOC only)	Frozen SIF Observations Ver No.
re samples taken from a Regulated DW System?		ics Packs: No ilce Cubes Custody seal intact 2 Yes;
☐ YES ☐ NO		Cooling Initiated [4]
re samples for human consumption/ use?		HANGE IMITIAL COCKER TEMPERATURES COCKER TEMPE
☐ YES ☐ NO		

INITIAL SHIPMENT RECEPTION (lab use only)

VEXE 1 1000 10 10

SHIPMENT RELEASE (client use)

WHITE - LABORATORY COPY YELLOW - CLIENT CO

35PF 2017 PRO

Time:

ALS Canada Ltd.



CERTIFICATE OF ANALYSIS

Work Order : VA23A4596 Page : 1 of 6

Courtney BC Canada V9N 0G8

Amendment : 1

Address

C-O-C number

Client : Comox Valley Regional District Laboratory : Vancouver - Environmental

Contact : Crystal Stuart : Crystal Stuart : Thomas Chang

: 770 Harmston Avenue Address : 8081 Lougheed Highway

Burnaby BC Canada V5A 1W9

: 22-Mar-2023 14:37

 Telephone
 : 250-898-3722
 Telephone
 : +1 604 253 4188

 Project
 : 3
 Date Samples Received
 : 02-Mar-2023 10:10

PO : 23-015 Date Analysis Commenced : 02-Mar-2023

Sampler : C Stuart

Site : CRWMC-Quartely-SW
Quote number : VA23-COVR100-001

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).

Issue Date

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
Delson Resende	Lab Assistant	Metals, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia
Miles Gropen	Department Manager - Inorganics	Inorganics, Burnaby, British Columbia
Owen Cheng		Metals, Burnaby, British Columbia
Sam Silveira	Lab Assistant	Metals, Burnaby, British Columbia

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Client : Comox Valley Regional District

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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
μS/cm	microsiemens per centimetre
mg/L	milligrams per litre

<: 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 (22/03/2023): This report has been amended to allow the distribution of an Electronic Data Deliverable (EDD) not previously provided. All analysis results are as per the previous report.

Qualifiers

Qualifier	Description
DTC	Dissolved concentration exceeds total. Results were confirmed by re-analysis.

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Analytical Results

Sub-Matrix: Water			Cli	ient sample ID	WS-	WS-	WS-	
(Matrix: Water)					022823-CS-08	022823-CS-09	022823-CS-10	
			Client samp	ling date / time	28-Feb-2023 12:57	28-Feb-2023 13:01	28-Feb-2023 13:15	
Analyte	CAS Number	Method	LOR	Unit	VA23A4596-001	VA23A4596-002	VA23A4596-003	
					Result	Result	Result	
Physical Tests								
Alkalinity, bicarbonate (as CaCO3)		E290	1.0	mg/L	8.0	8.4	7.8	
Alkalinity, carbonate (as CaCO3)		E290	1.0	mg/L	<1.0	<1.0	<1.0	
Alkalinity, hydroxide (as CaCO3)		E290	1.0	mg/L	<1.0	<1.0	<1.0	
Alkalinity, total (as CaCO3)		E290	1.0	mg/L	8.0	8.4	7.8	
Conductivity		E100	2.0	μS/cm	31.9	31.4	31.8	
Hardness (as CaCO3), dissolved		EC100	0.60	mg/L	9.09	8.88	9.04	
Hardness (as CaCO3), from total Ca/Mg		EC100A	0.60	mg/L	10.8	10.8	8.78	
Solids, total dissolved [TDS]		E162	10	mg/L	39	42	40	
Anions and Nutrients								
Ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	0.0418	0.0408	0.0112	
Chloride	16887-00-6	E235.CI	0.50	mg/L	3.48	3.48	3.53	
Fluoride	16984-48-8	E235.F	0.020	mg/L	<0.020	<0.020	<0.020	
Nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	0.0444	0.0444	0.0417	
Nitrate + Nitrite (as N)		EC235.N+N	0.0050	mg/L	0.0444	0.0444	0.0417	
Nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	<0.0010	<0.0010	<0.0010	
Sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	0.88	0.88	1.00	
Organic / Inorganic Carbon	100				7			
Carbon, dissolved organic [DOC]		E358-L	0.50	mg/L	5.57	5.50	5.86	
Total Metals								
Aluminum, total	7429-90-5	E420	0.0030	mg/L	0.162	0.162	0.0617	
Antimony, total	7440-36-0	E420	0.00010	mg/L	<0.00010	<0.00010	<0.00010	
Arsenic, total	7440-38-2	E420	0.00010	mg/L	0.00018	0.00016	0.00014	
Barium, total	7440-39-3	E420	0.00010	mg/L	0.00288	0.00292	0.00154	
Beryllium, total	7440-41-7	E420	0.000020	mg/L	<0.000020	<0.000020	<0.000020	
Bismuth, total	7440-69-9	E420	0.000050	mg/L	<0.000050	<0.000050	<0.000050	
Boron, total	7440-42-8	E420	0.010	mg/L	<0.010	<0.010	<0.010	
Cadmium, total	7440-43-9	E420	0.0000050	mg/L	0.0000139	0.0000091	<0.0000050	
Calcium, total	7440-70-2	E420	0.050	mg/L	2.75	2.76	2.07	
Cobalt, total	7440-48-4	E420	0.00010	mg/L	0.00019	0.00020	<0.00010	
•			•			•	•	•

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Analytical Results

Sub-Matrix: Water			Cli	ent sample ID	WS-	WS-	WS-	
(Matrix: Water)					022823-CS-08	022823-CS-09	022823-CS-10	
			·	ling date / time	28-Feb-2023 12:57	28-Feb-2023 13:01	28-Feb-2023 13:15	
Analyte	CAS Number	Method	LOR	Unit	VA23A4596-001	VA23A4596-002	VA23A4596-003	
					Result	Result	Result	
Total Metals Copper, total	7440-50-8	E420	0.00050	mg/L	0.00139	0.00136	<0.00050	
Iron, total	7439-89-6	E420	0.010	mg/L	0.344	0.340	0.107	
Lead, total	7439-99-0	E420	0.000050	mg/L	0.000650	0.000645	<0.000050	
Lithium, total	7439-93-2	E420	0.0010	mg/L	<0.0010	<0.0010	<0.0010	
Magnesium, total	7439-95-4	E420	0.100	mg/L	0.952	0.959	0.878	
Manganese, total	7439-95-4	E420	0.00010	mg/L	0.0213	0.0218	0.00690	
Mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.0000050	<0.0000050	<0.000050	
Molybdenum, total	7439-98-7	E420	0.000050	mg/L	<0.000050	<0.000050	<0.000050	
Nickel, total	7440-02-0	E420	0.00050	mg/L	<0.00050	<0.00050	<0.00050	
Phosphorus, total	7723-14-0	E420	0.050	mg/L	<0.050	<0.050	<0.050	
Potassium, total	7440-09-7	E420	0.100	mg/L	0.171	0.172	0.137	
Selenium, total	7782-49-2	E420	0.000050	mg/L	0.000062	0.000053	<0.000050	
Silicon, total	7440-21-3	E420	0.10	mg/L	3.72	3.66	2.90	
Silver, total	7440-22-4	E420	0.000010	mg/L	<0.000010	<0.000010	<0.000010	
Sodium, total	7440-23-5	E420	0.050	mg/L	2.60	2.68	2.54	
Strontium, total	7440-24-6	E420	0.00020	mg/L	0.0118	0.0118	0.00880	
Sulfur, total	7704-34-9	E420	0.50	mg/L	0.72	<0.50	<0.50	
Thallium, total	7440-28-0	E420	0.000010	mg/L	<0.000010	<0.000010	<0.000010	
Tin, total	7440-31-5	E420	0.00010	mg/L	<0.00010	<0.00010	<0.00010	
Titanium, total	7440-32-6	E420	0.00030	mg/L	0.00546	0.00535	0.00176	
Uranium, total	7440-61-1	E420	0.000010	mg/L	<0.000010	<0.000010	<0.000010	
Vanadium, total	7440-62-2	E420	0.00050	mg/L	0.00105	0.00109	<0.00050	
Zinc, total	7440-66-6	E420	0.0030	mg/L	<0.0030	<0.0030	<0.0030	
Zirconium, total	7440-67-7	E420	0.00020	mg/L	<0.00020	<0.00020	<0.00020	
Chromium, total	7440-47-3	E420	0.00050	mg/L	<0.00050	<0.00050	<0.00050	
Dissolved Metals	THE INCOME					1 7 7 7 1 1 1 1 2		
Aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	0.0633	0.0590	0.105 ^{dtc}	
Antimony, dissolved	7440-36-0	E421	0.00010	mg/L	<0.00010	<0.00010	<0.00010	
Arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	<0.00010	0.00012	0.00013	
Barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.00148	0.00143	0.00140	

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Client : Comox Valley Regional District

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Analytical Results

Sub-Matrix: Water			Cli	ient sample ID	WS-	WS-	WS-	
(Matrix: Water)					022823-CS-08	022823-CS-09	022823-CS-10	
			·	ling date / time	28-Feb-2023 12:57	28-Feb-2023 13:01	28-Feb-2023 13:15	
Analyte	CAS Number	Method	LOR	Unit	VA23A4596-001	VA23A4596-002	VA23A4596-003	
					Result	Result	Result	
Dissolved Metals		F.101	0.000000		0.00000	0.00000	0.00000	
Beryllium, dissolved	7440-41-7	E421	0.000020	mg/L	<0.000020	<0.000020	<0.000020	
Bismuth, dissolved	7440-69-9	E421	0.000050	mg/L	<0.000050	<0.000050	<0.000050	
Boron, dissolved	7440-42-8	E421	0.010	mg/L	<0.010	<0.010	<0.010	
Cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L	<0.0000050	<0.0000050	<0.0000050	
Calcium, dissolved	7440-70-2	E421	0.050	mg/L	2.13	2.13	2.12	
Chromium, dissolved	7440-47-3	E421	0.00050	mg/L	<0.00050	<0.00050	0.00612 ^{DTC}	
Cobalt, dissolved	7440-48-4	E421	0.00010	mg/L	<0.00010	<0.00010	<0.00010	
Copper, dissolved	7440-50-8	E421	0.00020	mg/L	0.00032	0.00033	0.00038	
Iron, dissolved	7439-89-6	E421	0.010	mg/L	0.174	0.168	0.109	
Lead, dissolved	7439-92-1	E421	0.000050	mg/L	0.000056	0.000059	<0.000050	
Lithium, dissolved	7439-93-2	E421	0.0010	mg/L	<0.0010	<0.0010	<0.0010	
Magnesium, dissolved	7439-95-4	E421	0.100	mg/L	0.917	0.864	0.910	
Manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.0159	0.0151	0.00514	
Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	<0.0000050	
Molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	<0.000050	<0.000050	<0.000050	
Nickel, dissolved	7440-02-0	E421	0.00050	mg/L	<0.00050	<0.00050	0.00256 DTC	
Phosphorus, dissolved	7723-14-0	E421	0.050	mg/L	<0.050	<0.050	<0.050	
Potassium, dissolved	7440-09-7	E421	0.100	mg/L	0.165	0.151	0.165	
Selenium, dissolved	7782-49-2	E421	0.000050	mg/L	<0.000050	<0.000050	<0.000050	
Silicon, dissolved	7440-21-3	E421	0.050	mg/L	3.88	3.60	3.02	
Silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.000010	<0.000010	<0.000010	
Sodium, dissolved	7440-23-5	E421	0.050	mg/L	2.64	2.48	2.59	
Strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.00934	0.00930	0.00895	
Sulfur, dissolved	7704-34-9	E421	0.50	mg/L	<0.50	<0.50	0.72	
Thallium, dissolved	7440-28-0	E421	0.000010	mg/L	<0.000010	<0.000010	<0.00010	
Tin, dissolved	7440-31-5	E421	0.00010	mg/L	<0.00010	<0.00010	<0.00010	
Titanium, dissolved	7440-31-5	E421	0.00030	mg/L	0.00119	0.00098	0.00078	
Uranium, dissolved	7440-61-1	E421	0.000010	mg/L	<0.000010	<0.000010	<0.00010	
Vanadium, dissolved	7440-62-2	E421	0.00050	mg/L	<0.00050	<0.00050	<0.00050	
Zinc, dissolved	7440-62-2 7440-66-6	E421	0.00030	mg/L	0.0014	0.0015	0.0025	
Z.1110, 413301V64	/ 440-00-0	L74 I	0.0010	mg/L	0.0014	0.0010	0.0020	

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Work Order : VA23A4596 Amendment 1
Client : Comox Valley Regional District

Project : 3



Analytical Results

Sub-Matrix: Water			CI	ient sample ID	WS-	WS-	WS-	
(Matrix: Water)					022823-CS-08	022823-CS-09	022823-CS-10	
			Client samp	ling date / time	28-Feb-2023 12:57	28-Feb-2023 13:01	28-Feb-2023 13:15	
Analyte	CAS Number	Method	LOR	Unit	VA23A4596-001	VA23A4596-002	VA23A4596-003	
					Result	Result	Result	
Dissolved Metals								
Zirconium, dissolved	7440-67-7	E421	0.00020	mg/L	<0.00020	<0.00020	<0.00020	
Dissolved mercury filtration location		EP509	-	-	Field	Field	Field	
Dissolved metals filtration location		EP421	-	-	Field	Field	Field	

Please refer to the General Comments section for an explanation of any qualifiers detected.

ALS Canada Ltd.



QUALITY CONTROL REPORT

Work Order :VA23A4596

Amendment : 1

Client : Comox Valley Regional District

Contact : Crystal Stuart

Address : 770 Harmston Avenue

Courtney BC Canada V9N 0G8

Telephone : 3

PO : 23-015

C-O-C number : ----

Sampler : C Stuart 250-898-3722

Site : CRWMC-Quartely-SW
Quote number : VA23-COVR100-001

No. of samples received : 3
No. of samples analysed : 3

Page : 1 of 14

Laboratory : Vancouver - Environmental

Account Manager : Thomas Chang

Address : 8081 Lougheed Highway

Burnaby, British Columbia Canada V5A 1W9

Telephone :+1 604 253 4188

Date Samples Received :02-Mar-2023 10:10

Date Analysis Commenced : 02-Mar-2023

Issue Date : 22-Mar-2023 14:37

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
Delson Resende	Lab Assistant	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
Owen Cheng		Vancouver Metals, Burnaby, British Columbia
Sam Silveira	Lab Assistant	Vancouver Metals, Burnaby, British Columbia

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Work Order: VA23A4596 Amendment 1
Client: Comox Valley Regional District

Project :



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.

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Client: Comox Valley Regional District

Project :



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: 851256)												
VA23A4574-003	Anonymous	Alkalinity, bicarbonate (as CaCO3)		E290	1.0	mg/L	950	946	0.437%	20%			
		Alkalinity, carbonate (as CaCO3)		E290	1.0	mg/L	35.1	36.4	3.39%	20%			
		Alkalinity, hydroxide (as CaCO3)		E290	1.0	mg/L	<1.0	<1.0	0	Diff <2x LOR			
		Alkalinity, total (as CaCO3)		E290	1.0	mg/L	985	982	0.298%	20%			
Physical Tests (QC	Lot: 851257)			114 115									
VA23A4574-003	Anonymous	Conductivity		E100	2.0	μS/cm	3930	3900	0.766%	10%			
Physical Tests (QC	Lot: 853269)												
VA23A3735-001	Anonymous	Solids, total dissolved [TDS]		E162	13	mg/L	103	94	9	Diff <2x LOR			
Anions and Nutrien	ts (QC Lot: 851249)												
VA23A4574-001	Anonymous	Fluoride	16984-48-8	E235.F	0.400	mg/L	<0.400	<0.400	0	Diff <2x LOR			
Anions and Nutrien	its (QC Lot: 851250)												
VA23A4574-001	Anonymous	Chloride	16887-00-6	E235.CI	10.0	mg/L	529	527	0.502%	20%			
Anions and Nutrien	ts (QC Lot: 851252)												
VA23A4574-001	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	0.100	mg/L	11.2	11.2	0.134%	20%			
Anions and Nutrien	its (QC Lot: 851253)												
VA23A4574-001	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	0.0200	mg/L	0.465	0.463	0.502%	20%			
Anions and Nutrien	ts (QC Lot: 851254)			114 115									
VA23A4574-001	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	6.00	mg/L	10.7	10.6	0.07	Diff <2x LOR			
Anions and Nutrien	ts (QC Lot: 853246)												
VA23A4596-001	WS- 022823-CS-08	Ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	0.0418	0.0469	0.0051	Diff <2x LOR			
Organic / Inorganic	Carbon (QC Lot: 853	3247)											
VA23A4596-001	WS- 022823-CS-08	Carbon, dissolved organic [DOC]		E358-L	0.50	mg/L	5.57	5.94	6.46%	20%			
Total Metals (QC L	ot: 851236)												
VA23A4560-001	Anonymous	Aluminum, total	7429-90-5	E420	0.0030	mg/L	0.303	0.293	3.23%	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	0.00057	0.00057	0.000002	Diff <2x LOR			
		Barium, total	7440-39-3	E420	0.00010	mg/L	0.0168	0.0164	2.76%	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	0.012	0.012	0.0003	Diff <2x LOR			

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Work Order: VA23A4596 Amendment 1
Client: Comox Valley Regional District



Sub-Matrix: Water	-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 Lo	ot: 851236) - continued											
VA23A4560-001	Anonymous	Cadmium, total	7440-43-9	E420	0.0000050	mg/L	0.0000126	0.0000140	0.0000013	Diff <2x LOR		
		Calcium, total	7440-70-2	E420	0.050	mg/L	15.2	14.8	2.54%	20%		
		Chromium, total	7440-47-3	E420	0.00050	mg/L	0.00060	0.00054	0.00006	Diff <2x LOR		
		Cobalt, total	7440-48-4	E420	0.00010	mg/L	0.00021	0.00021	0.000002	Diff <2x LOR		
		Copper, total	7440-50-8	E420	0.00050	mg/L	0.00136	0.00131	0.00004	Diff <2x LOR		
		Iron, total	7439-89-6	E420	0.010	mg/L	0.449	0.440	2.10%	20%		
		Lead, total	7439-92-1	E420	0.000050	mg/L	0.000287	0.000279	0.000008	Diff <2x LOR		
		Lithium, total	7439-93-2	E420	0.0010	mg/L	0.0011	0.0011	0.0000001	Diff <2x LOR		
		Magnesium, total	7439-95-4	E420	0.0050	mg/L	5.02	4.96	1.30%	20%		
		Manganese, total	7439-96-5	E420	0.00010	mg/L	0.0184	0.0183	0.218%	20%		
		Molybdenum, total	7439-98-7	E420	0.000050	mg/L	0.000807	0.000784	2.88%	20%		
		Nickel, total	7440-02-0	E420	0.00050	mg/L	0.00112	0.00110	0.00001	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	1.35	1.36	0.586%	20%		
		Selenium, total	7782-49-2	E420	0.000050	mg/L	0.000098	0.000103	0.000004	Diff <2x LOR		
		Silicon, total	7440-21-3	E420	0.10	mg/L	3.78	3.82	0.932%	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	15.4	15.5	0.341%	20%		
		Strontium, total	7440-24-6	E420	0.00020	mg/L	0.0847	0.0826	2.46%	20%		
		Sulfur, total	7704-34-9	E420	0.50	mg/L	4.54	4.21	0.32	Diff <2x LOR		
		Thallium, total	7440-28-0	E420	0.000010	mg/L	<0.000010	<0.000010	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	0.0121	0.0117	3.63%	20%		
		Uranium, total	7440-61-1	E420	0.000010	mg/L	0.000243	0.000248	1.96%	20%		
		Vanadium, total	7440-62-2	E420	0.00050	mg/L	0.00123	0.00124	0.000010	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	0.00023	0.00022	0.000007	Diff <2x LOR		
Total Metals (QC Lo	ot: 851265)				7 -							
VA23A4565-001	Anonymous	Mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR		
Dissolved Metals (C	QC Lot: 851241)											
VA23A4565-001	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	0.0018	0.0012	0.0006	Diff <2x LOR		
		Antimony, dissolved	7440-36-0	E421	0.00010	mg/L	0.00791	0.00802	1.31%	20%		
		Arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	0.0128	0.0129	0.716%	20%		
		Barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.0230	0.0234	1.78%	20%		

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Client: Comox Valley Regional District



b-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 (C	QC Lot: 851241) - cont	inued										
VA23A4565-001	Anonymous	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	0.010	<0.010	0.0003	Diff <2x LOR		
		Cadmium, dissolved	7440-43-9	E421	0.0000300	mg/L	<0.0000300	<0.0000300	0	Diff <2x LOR		
		Calcium, dissolved	7440-70-2	E421	0.050	mg/L	131	126	3.92%	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	<0.00010	<0.00010	0	Diff <2x LOR		
		Copper, dissolved	7440-50-8	E421	0.00020	mg/L	0.00030	0.00032	0.00002	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	0.0058	0.0054	0.0003	Diff <2x LOR		
		Magnesium, dissolved	7439-95-4	E421	0.0050	mg/L	6.29	6.23	0.983%	20%		
		Manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.00328	0.00334	1.80%	20%		
		Molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.0666	0.0657	1.42%	20%		
		Nickel, dissolved	7440-02-0	E421	0.00050	mg/L	0.00266	0.00276	0.00010	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	0.676	0.677	0.273%	20%		
		Selenium, dissolved	7782-49-2	E421	0.000050	mg/L	0.00671	0.00664	0.965%	20%		
		Silicon, dissolved	7440-21-3	E421	0.050	mg/L	2.40	2.36	1.83%	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	2.83	2.80	1.02%	20%		
		Strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.779	0.774	0.744%	20%		
		Sulfur, dissolved	7704-34-9	E421	0.50	mg/L	81.4	77.2	5.24%	20%		
		Thallium, dissolved	7440-28-0	E421	0.000010	mg/L	0.000126	0.000132	5.42%	20%		
		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		
		Uranium, dissolved	7440-61-1	E421	0.000010	mg/L	0.0717	0.0733	2.20%	20%		
		Vanadium, dissolved	7440-62-2	E421	0.00050	mg/L	0.00271	0.00270	0.00001	Diff <2x LOR		
		Zinc, dissolved	7440-66-6	E421	0.0010	mg/L	0.0076	0.0072	0.0004	Diff <2x LOR		
		Zirconium, dissolved	7440-67-7	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR		
issolved Metals (C	C Lot: 851348)				1 1							
A23A4577-017	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	0.0000118	0.0000117	0.0000001	Diff <2x LOR		

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Work Order: VA23A4596 Amendment 1
Client: Comox Valley Regional District

Project :



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

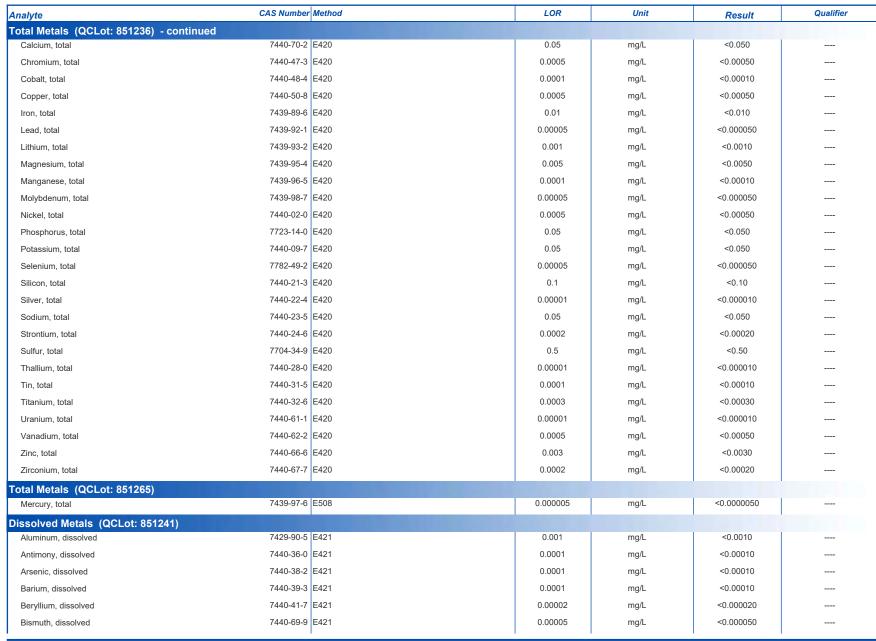
Analyte	CAS Number Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 851256)					
Alkalinity, bicarbonate (as CaCO3)	E290	1	mg/L	<1.0	
Alkalinity, carbonate (as CaCO3)	E290	1	mg/L	<1.0	
Alkalinity, hydroxide (as CaCO3)	E290	1	mg/L	<1.0	
Alkalinity, total (as CaCO3)	E290	1	mg/L	<1.0	
Physical Tests (QCLot: 851257)					
Conductivity	E100	1	μS/cm	<1.0	
Physical Tests (QCLot: 853269)					
Solids, total dissolved [TDS]	E162	10	mg/L	<10	
Anions and Nutrients (QCLot: 851249)					
Fluoride	16984-48-8 E235.F	0.02	mg/L	<0.020	
Anions and Nutrients (QCLot: 851250)					
Chloride	16887-00-6 E235.CI	0.5	mg/L	<0.50	
Anions and Nutrients (QCLot: 851252)					
Nitrate (as N)	14797-55-8 E235.NO3-L	0.005	mg/L	<0.0050	
Anions and Nutrients (QCLot: 851253)					
Nitrite (as N)	14797-65-0 E235.NO2-L	0.001	mg/L	<0.0010	
Anions and Nutrients (QCLot: 851254)					
Sulfate (as SO4)	14808-79-8 E235.SO4	0.3	mg/L	<0.30	
Anions and Nutrients (QCLot: 853246)					
Ammonia, total (as N)	7664-41-7 E298	0.005	mg/L	<0.0050	
Organic / Inorganic Carbon (QCLot: 853					
Carbon, dissolved organic [DOC]	E358-L	0.5	mg/L	<0.50	
Total Metals (QCLot: 851236)					
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	<0.000050	

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Client: Comox Valley Regional District

Project : 3

Sub-Matrix: Water



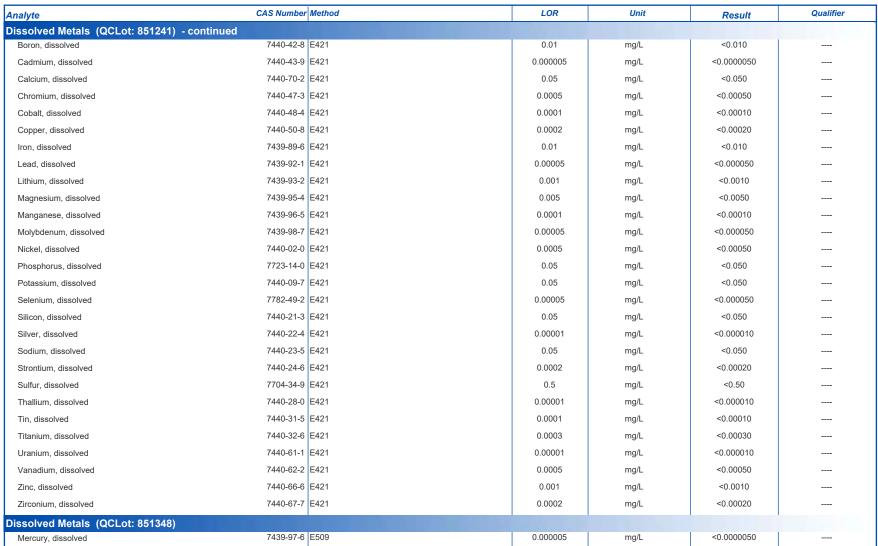


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Client: Comox Valley Regional District

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Sub-Matrix: Water





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Client: Comox Valley Regional District

Project :



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	Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 851256)									
Alkalinity, total (as CaCO3)		E290	1	mg/L	500 mg/L	108	85.0	115	
Physical Tests (QCLot: 851257)									
Conductivity		E100	1	μS/cm	146.9 μS/cm	101	90.0	110	
Physical Tests (QCLot: 853269)									
folids, total dissolved [TDS]		E162	10	mg/L	1000 mg/L	107	85.0	115	
Anions and Nutrients (QCLot: 851249)	10001.10.0	5005 5	0.00						
fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	99.4	90.0	110	
nions and Nutrients (QCLot: 851250)	1007.00	5005.01	0.5						
hloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	102	90.0	110	
nions and Nutrients (QCLot: 851252)									
itrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	2.5 mg/L	103	90.0	110	
nions and Nutrients (QCLot: 851253)									
itrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	0.5 mg/L	99.8	90.0	110	
nions and Nutrients (QCLot: 851254)									
ulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	103	90.0	110	
nions and Nutrients (QCLot: 853246)									
mmonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	90.5	85.0	115	
Organic / Inorganic Carbon (QCLot: 853247)		E050 I	0.5		0.57		00.0	400	
arbon, dissolved organic [DOC]		E358-L	0.5	mg/L	8.57 mg/L	110	80.0	120	
otal Metals (QCLot: 851236)	7429-90-5	F420	0.003	mg/L	2 mg/L	106	80.0	120	
ntimony, total	7440-36-0		0.0001	mg/L	1 mg/L	104	80.0	120	
rsenic, total	7440-38-2		0.0001	mg/L	1 mg/L	103	80.0	120	
arium, total	7440-39-3		0.0001	mg/L	0.25 mg/L	99.9	80.0	120	
eryllium, total	7440-41-7		0.00002	mg/L	0.1 mg/L	105	80.0	120	
ismuth, total	7440-69-9		0.00005	mg/L	1 mg/L	103	80.0	120	
oron, total	7440-42-8		0.01	mg/L	1 mg/L	108	80.0	120	
Cadmium, total	7440-43-9		0.000005	mg/L	0.1 mg/L	101	80.0	120	
Calcium, total	7440-70-2		0.05	mg/L	50 mg/L	109	80.0	120	

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Sub-Matrix: Water						Laboratory Control Sample (LCS) Report						
					Spike	Recovery (%)	Recovery	Limits (%)				
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier			
Total Metals (QCLot: 851236) - cont	tinued											
Chromium, total	7440-47-3	E420	0.0005	mg/L	0.25 mg/L	100	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	99.5	80.0	120				
Iron, total	7439-89-6	E420	0.01	mg/L	1 mg/L	113	80.0	120				
Lead, total	7439-92-1	E420	0.00005	mg/L	0.5 mg/L	103	80.0	120				
Lithium, total	7439-93-2	E420	0.001	mg/L	0.25 mg/L	107	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	104	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	98.5	80.0	120				
Phosphorus, total	7723-14-0	E420	0.05	mg/L	10 mg/L	110	80.0	120				
Potassium, total	7440-09-7	E420	0.05	mg/L	50 mg/L	111	80.0	120				
Selenium, total	7782-49-2	E420	0.00005	mg/L	1 mg/L	100	80.0	120				
Silicon, total	7440-21-3	E420	0.1	mg/L	10 mg/L	105	80.0	120				
Silver, total	7440-22-4	E420	0.00001	mg/L	0.1 mg/L	95.2	80.0	120				
Sodium, total	7440-23-5	E420	0.05	mg/L	50 mg/L	104	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	108	80.0	120				
Thallium, total	7440-28-0	E420	0.00001	mg/L	1 mg/L	104	80.0	120				
Tin, total	7440-31-5	E420	0.0001	mg/L	0.5 mg/L	99.0	80.0	120				
Titanium, total	7440-32-6	E420	0.0003	mg/L	0.25 mg/L	96.8	80.0	120				
Uranium, total	7440-61-1	E420	0.00001	mg/L	0.005 mg/L	106	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	97.3	80.0	120				
Zirconium, total	7440-67-7	E420	0.0002	mg/L	0.1 mg/L	98.4	80.0	120				
Total Metals (QCLot: 851265)												
Mercury, total	7439-97-6	E508	0.000005	mg/L	0.0001 mg/L	99.8	80.0	120				
•				Ū	3.							
Dissolved Metals (QCLot: 851241)									17			
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	2 mg/L	96.8	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	99.8	80.0	120				
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	0.25 mg/L	96.9	80.0	120				
Beryllium, dissolved	7440-41-7		0.00002	mg/L	0.1 mg/L	97.0	80.0	120				
Bismuth, dissolved	7440-69-9		0.00005	mg/L	1 mg/L	97.9	80.0	120				
Boron, dissolved	7440-42-8		0.01	mg/L	1 mg/L	96.5	80.0	120				
	3 42 0	I	3.0.		i iligit	00.0	23.0	1				

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Sub-Matrix: Water						Laboratory Control Sample (LCS) Report						
					Spike	Recovery (%)	Recovery	Limits (%)				
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier			
Dissolved Metals (QCLot: 851241) - co	ontinued											
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	98.6	80.0	120				
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	0.25 mg/L	94.8	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	95.7	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	102	80.0	120				
Lithium, dissolved	7439-93-2	E421	0.001	mg/L	0.25 mg/L	96.3	80.0	120				
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	50 mg/L	99.7	80.0	120				
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	0.25 mg/L	95.6	80.0	120				
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	0.25 mg/L	101	80.0	120				
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	0.5 mg/L	95.4	80.0	120				
Phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	10 mg/L	97.6	80.0	120				
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	50 mg/L	98.6	80.0	120				
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	1 mg/L	94.0	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	97.6	80.0	120				
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	50 mg/L	99.5	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	96.9	80.0	120				
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	1 mg/L	102	80.0	120				
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	0.5 mg/L	95.0	80.0	120				
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	0.25 mg/L	95.4	80.0	120				
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	0.005 mg/L	112	80.0	120				
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	0.5 mg/L	96.2	80.0	120				
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	0.5 mg/L	94.2	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	0.0001 mg/L	96.4	80.0	120				

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Project : 3



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						
					Sp	ike	Recovery (%)	Recovery	Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier	
Anions and Nutri	ents (QCLot: 851249)										
VA23A4574-002	Anonymous	Fluoride	16984-48-8	E235.F	50.1 mg/L	50 mg/L	100	75.0	125		
Anions and Nutri	ents (QCLot: 851250)										
VA23A4574-002	Anonymous	Chloride	16887-00-6	E235.Cl	4970 mg/L	5000 mg/L	99.4	75.0	125		
Anions and Nutri	ents (QCLot: 851252)										
VA23A4574-002	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	125 mg/L	125 mg/L	99.9	75.0	125		
Anions and Nutri	ents (QCLot: 851253)										
VA23A4574-002	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	24.7 mg/L	25 mg/L	98.8	75.0	125		
Anions and Nutri	ents (QCLot: 851254)	The state of the s									
VA23A4574-002	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	5020 mg/L	5000 mg/L	100	75.0	125		
Anions and Nutri	ents (QCLot: 853246)										
VA23A4596-002	WS- 022823-CS-09	Ammonia, total (as N)	7664-41-7	E298	0.0930 mg/L	0.1 mg/L	93.0	75.0	125		
Organic / Inorgar	nic Carbon (QCLot: 85	3247)									
VA23A4596-002	WS- 022823-CS-09	Carbon, dissolved organic [DOC]		E358-L	ND mg/L	5 mg/L	ND	70.0	130		
Total Metals (QC	Lot: 851236)					J. J.					
VA23A4560-002	Anonymous	Aluminum, total	7429-90-5	E420	ND mg/L	0.2 mg/L	ND	70.0	130		
	,	Antimony, total	7440-36-0	E420	0.0184 mg/L	0.02 mg/L	91.8	70.0	130		
		Arsenic, total	7440-38-2	E420	0.0181 mg/L	0.02 mg/L	90.7	70.0	130		
		Barium, total	7440-39-3	E420	0.0174 mg/L	0.02 mg/L	86.8	70.0	130		
		Beryllium, total	7440-41-7	E420	0.0387 mg/L	0.04 mg/L	96.7	70.0	130		
		Bismuth, total	7440-69-9	E420	0.00948 mg/L	0.01 mg/L	94.8	70.0	130		
		Boron, total	7440-42-8	E420	0.098 mg/L	0.1 mg/L	98.2	70.0	130		
		Cadmium, total	7440-43-9	E420	0.00387 mg/L	0.004 mg/L	96.8	70.0	130		
		Calcium, total	7440-70-2	E420	ND mg/L	4 mg/L	ND	70.0	130		
		Chromium, total	7440-47-3	E420	0.0362 mg/L	0.04 mg/L	90.4	70.0	130		
		Cobalt, total	7440-48-4	E420	0.0184 mg/L	0.02 mg/L	92.0	70.0	130		
		Copper, total	7440-50-8	E420	0.0185 mg/L	0.02 mg/L	92.3	70.0	130		
		Iron, total	7439-89-6	E420	1.82 mg/L	2 mg/L	90.8	70.0	130		
		Lead, total	7439-92-1	E420	0.0187 mg/L	0.02 mg/L	93.7	70.0	130		
	1	Lithium, total	7439-93-2	E420	0.0955 mg/L	0.1 mg/L	95.5	70.0	130		

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ub-Matrix: Water					Matrix Spike (MS) Report							
					Spi	ike	Recovery (%)	Recovery	Limits (%)			
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier		
Total Metals (QC	Lot: 851236) - conti	inued										
VA23A4560-002	Anonymous	Magnesium, total	7439-95-4	E420	ND mg/L	1 mg/L	ND	70.0	130			
		Manganese, total	7439-96-5	E420	0.0188 mg/L	0.02 mg/L	93.8	70.0	130			
		Molybdenum, total	7439-98-7	E420	0.0185 mg/L	0.02 mg/L	92.5	70.0	130			
		Nickel, total	7440-02-0	E420	0.0364 mg/L	0.04 mg/L	91.1	70.0	130			
		Phosphorus, total	7723-14-0	E420	9.66 mg/L	10 mg/L	96.6	70.0	130			
		Potassium, total	7440-09-7	E420	3.68 mg/L	4 mg/L	92.0	70.0	130			
		Selenium, total	7782-49-2	E420	0.0383 mg/L	0.04 mg/L	95.7	70.0	130			
		Silicon, total	7440-21-3	E420	8.96 mg/L	10 mg/L	89.6	70.0	130			
		Silver, total	7440-22-4	E420	0.00366 mg/L	0.004 mg/L	91.5	70.0	130			
		Sodium, total	7440-23-5	E420	ND mg/L	2 mg/L	ND	70.0	130			
		Strontium, total	7440-24-6	E420	ND mg/L	0.02 mg/L	ND	70.0	130			
		Sulfur, total	7704-34-9	E420	18.5 mg/L	20 mg/L	92.4	70.0	130			
		Thallium, total	7440-28-0	E420	0.00377 mg/L	0.004 mg/L	94.3	70.0	130			
		Tin, total	7440-31-5	E420	0.0184 mg/L	0.02 mg/L	92.0	70.0	130			
		Titanium, total	7440-32-6	E420	0.0356 mg/L	0.04 mg/L	89.1	70.0	130			
		Uranium, total	7440-61-1	E420	0.00389 mg/L	0.004 mg/L	97.4	70.0	130			
		Vanadium, total	7440-62-2	E420	0.0951 mg/L	0.1 mg/L	95.1	70.0	130			
		Zinc, total	7440-66-6	E420	0.368 mg/L	0.4 mg/L	92.0	70.0	130			
		Zirconium, total	7440-67-7	E420	0.0361 mg/L	0.04 mg/L	90.3	70.0	130			
otal Metals (QC	Lot: 851265)											
VA23A4565-002	Anonymous	Mercury, total	7439-97-6	E508	0.0000989 mg/L	0.0001 mg/L	98.9	70.0	130			
Dissolved Metals	(QCLot: 851241)											
VA23A4565-002	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.199 mg/L	0.2 mg/L	99.6	70.0	130			
		Antimony, dissolved	7440-36-0	E421	0.0190 mg/L	0.02 mg/L	95.0	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	0.02 mg/L	ND	70.0	130			
		Beryllium, dissolved	7440-41-7	E421	0.0384 mg/L	0.04 mg/L	95.9	70.0	130			
		Bismuth, dissolved	7440-69-9	E421	0.00882 mg/L	0.01 mg/L	88.2	70.0	130			
		Boron, dissolved	7440-42-8	E421	0.100 mg/L	0.1 mg/L	100	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	4 mg/L	ND	70.0	130			
		Chromium, dissolved	7440-47-3	E421	0.0389 mg/L	0.04 mg/L	97.3	70.0	130			
		Cobalt, dissolved	7440-48-4	E421	0.0192 mg/L	0.02 mg/L	96.3	70.0	130			
		Copper, dissolved	7440-50-8	E421	0.0188 mg/L	0.02 mg/L	94.2	70.0	130			
	1	Iron, dissolved	7439-89-6	E421	1.85 mg/L	2 mg/L	92.5	70.0	130			

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Sub-Matrix: Water	b-Matrix: Water						Matrix Spike (MS) Report						
					Sp	ike	Recovery (%)	Recovery	Limits (%)				
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier			
Dissolved Metals	(QCLot: 851241) -	continued											
VA23A4565-002	Anonymous	Lead, dissolved	7439-92-1	E421	0.0190 mg/L	0.02 mg/L	95.1	70.0	130				
		Lithium, dissolved	7439-93-2	E421	0.0928 mg/L	0.1 mg/L	92.8	70.0	130				
		Magnesium, dissolved	7439-95-4	E421	ND mg/L	1 mg/L	ND	70.0	130				
		Manganese, dissolved	7439-96-5	E421	0.0194 mg/L	0.02 mg/L	97.0	70.0	130				
		Molybdenum, dissolved	7439-98-7	E421	ND mg/L	0.02 mg/L	ND	70.0	130				
		Nickel, dissolved	7440-02-0	E421	0.0381 mg/L	0.04 mg/L	95.2	70.0	130				
		Phosphorus, dissolved	7723-14-0	E421	10.4 mg/L	10 mg/L	104	70.0	130				
		Potassium, dissolved	7440-09-7	E421	4.09 mg/L	4 mg/L	102	70.0	130				
		Selenium, dissolved	7782-49-2	E421	0.0404 mg/L	0.04 mg/L	101	70.0	130				
		Silicon, dissolved	7440-21-3	E421	8.87 mg/L	10 mg/L	88.7	70.0	130				
		Silver, dissolved	7440-22-4	E421	0.00376 mg/L	0.004 mg/L	94.0	70.0	130				
		Sodium, dissolved	7440-23-5	E421	ND mg/L	2 mg/L	ND	70.0	130				
		Strontium, dissolved	7440-24-6	E421	ND mg/L	0.02 mg/L	ND	70.0	130				
		Sulfur, dissolved	7704-34-9	E421	ND mg/L	20 mg/L	ND	70.0	130				
		Thallium, dissolved	7440-28-0	E421	0.00376 mg/L	0.004 mg/L	94.1	70.0	130				
		Tin, dissolved	7440-31-5	E421	0.0193 mg/L	0.02 mg/L	96.4	70.0	130				
		Titanium, dissolved	7440-32-6	E421	0.0397 mg/L	0.04 mg/L	99.3	70.0	130				
		Uranium, dissolved	7440-61-1	E421	ND mg/L	0.004 mg/L	ND	70.0	130				
		Vanadium, dissolved	7440-62-2	E421	0.101 mg/L	0.1 mg/L	101	70.0	130				
		Zinc, dissolved	7440-66-6	E421	0.388 mg/L	0.4 mg/L	97.0	70.0	130				
		Zirconium, dissolved	7440-67-7	E421	0.0387 mg/L	0.04 mg/L	96.8	70.0	130				
Dissolved Metals	(QCLot: 851348)						T. In the second						
VA23A4577-018	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000945 mg/L	0.0001 mg/L	94.5	70.0	130				



QUALITY CONTROL INTERPRETIVE REPORT

Work Order : **VA23A4596** Page : 1 of 12

Amendment :1

Client : Comox Valley Regional District Laboratory : Vancouver - Environmental

Contact : Crystal Stuart Account Manager : Thomas Chang

Address :770 Harmston Avenue Address :8081 Lougheed Highway

Burnaby, British Columbia Canada V5A 1W9

 Telephone
 :250-898-3722
 Telephone
 :+1 604 253 4188

 Project
 :3
 Date Samples Received
 : 02-Mar-2023 10:10

 PO
 : 23-015
 Issue Date
 : 22-Mar-2023 14:37

C-O-C number :---Sampler : C Stuart

Site : CRWMC-Quartely-SW

Quote number : VA23-COVR100-001

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.

Courtney BC Canada V9N 0G8

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)

• No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

• No Quality Control Sample Frequency Outliers occur.

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Work Order : VA23A4596 Amendment 1
Client : Comox Valley Regional District

Project :

Matrix: Water

HDPE

WS- 022823-CS-08

Analyte Group



Evaluation: **x** = Holding time exceedance; ✓ = Within Holding Time

Analysis

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.

Sampling Date

Method

E235.F

Extraction / Preparation

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.

Container / Client Sample ID(s) **Holding Times** Eval Analysis Date Holding Times Eval Preparation Rec Actual Rec Actual Date Anions and Nutrients: Ammonia by Fluorescence Amber glass total (sulfuric acid) WS- 022823-CS-08 E298 28 days ✓ 28-Feb-2023 05-Mar-2023 07-Mar-2023 7 days Anions and Nutrients: Ammonia by Fluorescence Amber glass total (sulfuric acid) WS- 022823-CS-09 E298 28-Feb-2023 05-Mar-2023 07-Mar-2023 28 days 7 days ----Anions and Nutrients : Ammonia by Fluorescence Amber glass total (sulfuric acid) E298 28-Feb-2023 ✓ WS-022823-CS-10 05-Mar-2023 07-Mar-2023 28 days 7 days Anions and Nutrients : Chloride in Water by IC HDPE 28 days 2 days WS- 022823-CS-08 E235.CI 28-Feb-2023 02-Mar-2023 02-Mar-2023 Anions and Nutrients : Chloride in Water by IC HDPE WS- 022823-CS-09 E235.CI 28-Feb-2023 02-Mar-2023 02-Mar-2023 28 days 2 days 1 Anions and Nutrients : Chloride in Water by IC HDPE E235.CI 28-Feb-2023 02-Mar-2023 WS-022823-CS-10 02-Mar-2023 28 days 2 days Anions and Nutrients : Fluoride in Water by IC

28-Feb-2023

02-Mar-2023

✓

28 days 2 days

02-Mar-2023

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Project



Matrix: Water Evaluation: x = Holding time exceedance ; ✓ = Within Holding									Holding Tim	
Analyte Group	Method	Sampling Date	Ext	raction / Pr	eparation			Analys	is	
Container / Client Sample ID(s)			Preparation Date	Holding Rec	g Times Actual	Eval	Analysis Date	Holding Rec	Times Actual	Eval
Anions and Nutrients : Fluoride in Water by IC										
HDPE WS- 022823-CS-09	E235.F	28-Feb-2023	02-Mar-2023				02-Mar-2023	28 days	2 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE WS- 022823-CS-10	E235.F	28-Feb-2023	02-Mar-2023				02-Mar-2023	28 days	2 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE WS- 022823-CS-08	E235.NO3-L	28-Feb-2023	02-Mar-2023				02-Mar-2023	3 days	2 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE WS- 022823-CS-09	E235.NO3-L	28-Feb-2023	02-Mar-2023				02-Mar-2023	3 days	2 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE WS- 022823-CS-10	E235.NO3-L	28-Feb-2023	02-Mar-2023				02-Mar-2023	3 days	2 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE WS- 022823-CS-08	E235.NO2-L	28-Feb-2023	02-Mar-2023				02-Mar-2023	3 days	2 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE WS- 022823-CS-09	E235.NO2-L	28-Feb-2023	02-Mar-2023				02-Mar-2023	3 days	2 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE WS- 022823-CS-10	E235.NO2-L	28-Feb-2023	02-Mar-2023				02-Mar-2023	3 days	2 days	4
Anions and Nutrients : Sulfate in Water by IC										
HDPE WS- 022823-CS-08	E235.SO4	28-Feb-2023	02-Mar-2023				02-Mar-2023	28 days	2 days	✓

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Project



Matrix: Water					Ev	/aluation: ≭ =	Holding time excee	edance ; 🔻	= Within	Holding Tim
Analyte Group	Method	Sampling Date	Ext	raction / Pr	reparation			Analys	sis	
Container / Client Sample ID(s)			Preparation	Holdin	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
WS- 022823-CS-09	E235.SO4	28-Feb-2023	02-Mar-2023				02-Mar-2023	28 days	2 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
WS- 022823-CS-10	E235.SO4	28-Feb-2023	02-Mar-2023				02-Mar-2023	28 days	2 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)	E509	00 Fab 0000	03-Mar-2023				03-Mar-2023	20 day:-	O days	1
WS- 022823-CS-08	E509	28-Feb-2023	03-Mar-2023				03-IVIAT-2023	28 days	2 days	•
Dissolved Metals : Dissolved Mercury in Water by CVAAS				I						
Glass vial dissolved (hydrochloric acid) WS- 022823-CS-09	E509	28-Feb-2023	03-Mar-2023				03-Mar-2023	28 days	2 days	√
WS- 022823-CS-09	E309	26-Feb-2023	03-Mai-2023				03-War-2023	20 days	2 days	•
Direct Mark Direct Mark 1 Mark 1 COVA 40										
Dissolved Metals : Dissolved Mercury in Water by CVAAS Glass vial dissolved (hydrochloric acid)				<u> </u>			<u> </u>		<u> </u>	
WS- 022823-CS-10	E509	28-Feb-2023	03-Mar-2023				03-Mar-2023	28 days	2 davs	✓
022020 00 .0									, -	
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid)										
WS- 022823-CS-08	E421	28-Feb-2023	03-Mar-2023				03-Mar-2023	180	4 days	✓
								days		
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid)										
WS- 022823-CS-09	E421	28-Feb-2023	03-Mar-2023				03-Mar-2023	180	4 days	✓
								days		
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS									`	
HDPE dissolved (nitric acid)										
WS- 022823-CS-10	E421	28-Feb-2023	03-Mar-2023				03-Mar-2023	180	4 days	✓
								days		
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Leve	el)								•	
Amber glass dissolved (sulfuric acid)										
WS- 022823-CS-08	E358-L	28-Feb-2023	05-Mar-2023				05-Mar-2023	28 days	5 days	✓

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Client : Comox Valley Regional District



Matrix: Water					Ev	⁄aluation: ≭ =	Holding time exce	edance ; 🕥	/ = Within	Holding Tim
Analyte Group	Method	Sampling Date	Ext	raction / Pr	eparation			Analys	sis	
Container / Client Sample ID(s)			Preparation Date	Holding Rec	g Times Actual	Eval	Analysis Date	Holding Rec	g Times Actual	Eval
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)									
Amber glass dissolved (sulfuric acid) WS- 022823-CS-09	E358-L	28-Feb-2023	05-Mar-2023				05-Mar-2023	28 days	5 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)									
Amber glass dissolved (sulfuric acid) WS- 022823-CS-10	E358-L	28-Feb-2023	05-Mar-2023				05-Mar-2023	28 days	5 days	√
Physical Tests : Alkalinity Species by Titration										
HDPE WS- 022823-CS-08	E290	28-Feb-2023	02-Mar-2023				03-Mar-2023	14 days	2 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE WS- 022823-CS-09	E290	28-Feb-2023	02-Mar-2023				03-Mar-2023	14 days	2 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE WS- 022823-CS-10	E290	28-Feb-2023	02-Mar-2023				03-Mar-2023	14 days	2 days	✓
Physical Tests : Conductivity in Water										
HDPE WS- 022823-CS-08	E100	28-Feb-2023	02-Mar-2023				03-Mar-2023	28 days	2 days	✓
Physical Tests : Conductivity in Water										
HDPE WS- 022823-CS-09	E100	28-Feb-2023	02-Mar-2023				03-Mar-2023	28 days	2 days	✓
Physical Tests : Conductivity in Water										
HDPE WS- 022823-CS-10	E100	28-Feb-2023	02-Mar-2023				03-Mar-2023	28 days	2 days	4
Physical Tests : TDS by Gravimetry										
HDPE WS- 022823-CS-08	E162	28-Feb-2023					07-Mar-2023	7 days	7 days	√

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Client : Comox Valley Regional District

Project :



nalyte Group	Method	Sampling Date	Evt	traction / Pr			= Holding time exceedance; ✓ = Within F Analysis			
Container / Client Sample ID(s)	Wetriod	Sampling Date				Fire	Analysis Data			
Container / Client Sample ID(s)			Preparation	Rec	g Times Actual	Eval	Analysis Date	Rec	7 Times Actual	Eval
			Date	Rec	Actual			Rec	Actual	
Physical Tests : TDS by Gravimetry										
HDPE										
WS- 022823-CS-09	E162	28-Feb-2023					07-Mar-2023	7 days	7 days	✓
hysical Tests : TDS by Gravimetry										
HDPE										
WS- 022823-CS-10	E162	28-Feb-2023					07-Mar-2023	7 days	7 days	✓
otal Metals : Total Mercury in Water by CVAAS Glass vial total (hydrochloric acid)				T T			I	I		
WS- 022823-CS-08	E508	28-Feb-2023	02-Mar-2023				02-Mar-2023	28 days	2 days	✓
WG- 022023-CG-00	2500	20-1 65-2023	02-IVIAI-2020				02-Wai-2023	20 days	2 days	•
otal Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid)										
WS- 022823-CS-09	E508	28-Feb-2023	02-Mar-2023				02-Mar-2023	28 days	2 days	✓
otal Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid)				T T			I	I		
WS- 022823-CS-10	E508	28-Feb-2023	02-Mar-2023				02-Mar-2023	28 days	2 days	1
W3- U22023-U3-1U	L300	20-1 60-2023	02-IVIAI-2023				02-Wai-2025	20 days	2 days	•
otal Metals : Total metals in Water by CRC ICPMS										
HDPE total (nitric acid)										
WS- 022823-CS-08	E420	28-Feb-2023	04-Mar-2023				05-Mar-2023	180	5 days	✓
								days		
otal Metals : Total metals in Water by CRC ICPMS										
HDPE total (nitric acid)										
WS- 022823-CS-09	E420	28-Feb-2023	04-Mar-2023				05-Mar-2023	180	5 days	✓
								days		
otal Metals : Total metals in Water by CRC ICPMS								-		
HDPE total (nitric acid)										
WS- 022823-CS-10	E420	28-Feb-2023	04-Mar-2023				05-Mar-2023	180	5 days	✓
					1			days		

Legend & Qualifier Definitions

Rec. HT: ALS recommended hold time (see units).

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Client : Comox Valley Regional District

Project :



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.

Quality Control Sample Type		·	ion: × = QC frequ	ount	· ·	Frequency (%	•
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation
Laboratory Duplicates (DUP)						,	
Alkalinity Species by Titration	E290	851256	1	15	6.6	5.0	✓
Ammonia by Fluorescence	E298	853246	1	19	5.2	5.0	<u> </u>
Chloride in Water by IC	E235.CI	851250	1	19	5.2	5.0	<u> </u>
Conductivity in Water	E100	851257	1	15	6.6	5.0	<u> </u>
Dissolved Mercury in Water by CVAAS	E509	851348	1	20	5.0	5.0	<u> </u>
Dissolved Metals in Water by CRC ICPMS	E421	851241	1	20	5.0	5.0	<u> </u>
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	853247	1	19	5.2	5.0	<u> </u>
Fluoride in Water by IC	E235.F	851249	1	16	6.2	5.0	<u>√</u>
Nitrate in Water by IC (Low Level)	E235.NO3-L	851252	1	16	6.2	5.0	<u> </u>
Nitrite in Water by IC (Low Level)	E235.NO2-L	851253	1	16	6.2	5.0	<u> </u>
Sulfate in Water by IC	E235.SO4	851254	1	16	6.2	5.0	<u> </u>
TDS by Gravimetry	E162	853269	1	20	5.0	5.0	√
Total Mercury in Water by CVAAS	E508	851265	1	16	6.2	5.0	√
Total metals in Water by CRC ICPMS	E420	851236	1	20	5.0	5.0	✓
Laboratory Control Samples (LCS)							
Alkalinity Species by Titration	E290	851256	1	15	6.6	5.0	1
Ammonia by Fluorescence	E298	853246	1	19	5.2	5.0	1
Chloride in Water by IC	E235.Cl	851250	1	19	5.2	5.0	✓
Conductivity in Water	E100	851257	1	15	6.6	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	851348	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	851241	1	20	5.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	853247	1	19	5.2	5.0	✓
Fluoride in Water by IC	E235.F	851249	1	16	6.2	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	851252	1	16	6.2	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	851253	1	16	6.2	5.0	✓
Sulfate in Water by IC	E235.SO4	851254	1	16	6.2	5.0	✓
TDS by Gravimetry	E162	853269	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	851265	1	16	6.2	5.0	✓
Total metals in Water by CRC ICPMS	E420	851236	1	20	5.0	5.0	✓
Method Blanks (MB)							
Alkalinity Species by Titration	E290	851256	1	15	6.6	5.0	✓
Ammonia by Fluorescence	E298	853246	1	19	5.2	5.0	✓
Chloride in Water by IC	E235.Cl	851250	1	19	5.2	5.0	✓
Conductivity in Water	E100	851257	1	15	6.6	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	851348	1	20	5.0	5.0	1

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Client : Comox Valley Regional District



Matrix: Water	Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification								
Quality Control Sample Type		· ·	Co	ount		Frequency (%)			
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation		
Method Blanks (MB) - Continued									
Dissolved Metals in Water by CRC ICPMS	E421	851241	1	20	5.0	5.0	✓		
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	853247	1	19	5.2	5.0	✓		
Fluoride in Water by IC	E235.F	851249	1	16	6.2	5.0	✓		
Nitrate in Water by IC (Low Level)	E235.NO3-L	851252	1	16	6.2	5.0	✓		
Nitrite in Water by IC (Low Level)	E235.NO2-L	851253	1	16	6.2	5.0	✓		
Sulfate in Water by IC	E235.SO4	851254	1	16	6.2	5.0	✓		
TDS by Gravimetry	E162	853269	1	20	5.0	5.0	✓		
Total Mercury in Water by CVAAS	E508	851265	1	16	6.2	5.0	✓		
Total metals in Water by CRC ICPMS	E420	851236	1	20	5.0	5.0	✓		
Matrix Spikes (MS)									
Ammonia by Fluorescence	E298	853246	1	19	5.2	5.0	✓		
Chloride in Water by IC	E235.Cl	851250	1	19	5.2	5.0	✓		
Dissolved Mercury in Water by CVAAS	E509	851348	1	20	5.0	5.0	✓		
Dissolved Metals in Water by CRC ICPMS	E421	851241	1	20	5.0	5.0	✓		
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	853247	1	19	5.2	5.0	✓		
Fluoride in Water by IC	E235.F	851249	1	16	6.2	5.0	✓		
Nitrate in Water by IC (Low Level)	E235.NO3-L	851252	1	16	6.2	5.0	✓		
Nitrite in Water by IC (Low Level)	E235.NO2-L	851253	1	16	6.2	5.0	✓		
Sulfate in Water by IC	E235.SO4	851254	1	16	6.2	5.0	✓		
Total Mercury in Water by CVAAS	E508	851265	1	16	6.2	5.0	✓		
Total metals in Water by CRC ICPMS	E420	851236	1	20	5.0	5.0	✓		

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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	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
	Vancouver -			sample. Conductivity measurements are temperature-compensated to 25°C.
	Environmental			
TDS by Gravimetry	E162	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,
	Vancouver -			with gravimetric measurement of the residue.
	Environmental	100	ED4 000 4 (1)	
Chloride in Water by IC	E235.Cl	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
	Vancouver -			
	Environmental			
Fluoride in Water by IC	E235.F	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV
				detection.
	Vancouver -			
	Environmental			
litrite in Water by IC (Low Level)	E235.NO2-L	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and /or UV detection.
	Vancouver -			
	Environmental			
Nitrate in Water by IC (Low Level)	E235.NO3-L	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and /or UV detection.
	Vancouver -			
	Environmental			
Sulfate in Water by IC	E235.SO4	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
	Vancouver -			
	Environmental			
Alkalinity Species by Titration	E290	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
	Vancouver -			alkalinity values.
	Environmental			airaiiiity valuos.
Ammonia by Fluorescence	E298	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).
	Vancouver -		2010	This method is approved under US EPA 40 CFR Part 136 (May 2021)
	Environmental			This medica is approved under 00 Li A 40 of IVI art 100 (May 2021)
	Limioimental			

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Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Dissolved Organic Carbon by Combustion (Low Level)	E358-L Vancouver - Environmental	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).
Total metals in Water by CRC ICPMS	E420 Vancouver - Environmental	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 Vancouver - Environmental	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 Vancouver - Environmental	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 Vancouver - Environmental	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 Vancouver - Environmental	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 Vancouver - Environmental	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.
Nitrate and Nitrite (as N) (Calculation)	EC235.N+N Vancouver - Environmental	Water	EPA 300.0	Nitrate and Nitrite (as N) is a calculated parameter. Nitrate and Nitrite (as N) = Nitrite (as N) + Nitrate (as N).
Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Ammonia	EP298	Water		Sample preparation for Preserved Nutrients Water Quality Analysis.

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Work Order : VA23A4596 Amendment 1
Client : Comox Valley Regional District



Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
	Vancouver -			
	Environmental			
Preparation for Dissolved Organic Carbon for	EP358	Water	APHA 5310 B (mod)	Preparation for Dissolved Organic Carbon
Combustion				
	Vancouver -			
	Environmental			
Dissolved Metals Water Filtration	EP421	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HNO3.
	Vancouver -			
	Environmental			
Dissolved Mercury Water Filtration	EP509	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HCl.
	Vancouver -			
	Environmental			

ALS Environmental

Chain of Custody (COC) / Analytical Request Form

Affix ALS barcode label here

COC Number: 17 -

Page of

Canada Toll Free: 1 800 668 9878 www.alsglobal.com Contact and company name below will appear on the final report Report To Report Format / Distribution Select Service Level Below - Contact your AM to confirm all ESP TATs (surcharges may apply) Comox Valley Regional District Select Report Format: PDF P EXCEL 2 E00 (DIGITAL) Company Regular [R]
Standard TAT if received by 3 pm - business days - no surchardes apply Crystal Stuart Contact: 4 day [P4-20%] 1 Susiness day [E1 - 100%] 250-698-3722 Compare Results to Oriteria on Report - provide details below if box checked Phone: 3 day [P3-25%] Same Day, Weekend or Statutory holiday [E2 -200%] ☑ BMAIL ☐ MAIL ☐ FAX Select Distribution: Company address below will appear on the final report 2 day (P2-50%) (Laboratory opening fees may apply)) 770 Harmston Avenue Street Email 1 or Fax cstuart@comoxyalleyrd.ca Date and Time Required for all E&P TATS: dd-marm-yy hitianin City/Province: Courtenay, BC Email 2 For tests that can not be performed according to the service level selected, you will be contacted Postal Code: V9N 0G8 Email 3 Analysis Request nvoice Ta Same as Report To ☑ YES ☐ KO Inveice Distribution Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below Copy of Invoice with Report 🖸 YES 🗌 NO Select Invoice Distribution: 🖸 EMAIL. 🔲 MAIL 🗇 FAX Email 1 or Eax Company: Hardness) Contact Email 2 Project Information Oil and Gas Required Fields (client use) SO4, NO2, NO3) N+N Metals (including Hg. - (including Hg. ALS Account # / Quote #: VA23-COVR100-001 AFE/Cost Center: PO# Job#: .⋜ Routing Code: Majer/Minor Code: PO / AFE: 23-015 Requisitioner: NAMPLES ON HOLD SD: CRWMC - Quarterly - SW Location: ALS Lab Work Order # (lab use only): ALS Contact: Selam W. ű ġ 88 ALS Sample # Sample Identification and/or Coordinates Date Time 100 Sample Type (lab use only) (This description will appear on the report) (dd-mmm-yy) (hh:mm) <u> みなふりょく - とら - めり</u> **W.A.**.Mi \circ 022823-CS-**Environmental Division** Vancouver Work Order Reference J÷ VA23A4596 Tetephone: +1 604 253 4168 SAMPLE CONDITION AS RECEIVED THE CHIPPER CHIPP Special instructions / Specify Criteria to add on report by clicking on the drop-down list below Drinking Water (DW) Samples (client use) (electronic COC only) SIF Observations Frozen Are samples taken from a Regulated DW System? ce Packs | Ne Cubes M Custody seal intact Yes ☐ YES ☐ NO Are samples for human consumption/ use? TES | NO MITTAL SHIPMENT RECEPTION (lab use only) SHIPMENT RELEASE (client use) FINAL SHIPMENT RECEPTION (lab use only) Refeated b Received by:

ALS Canada Ltd.



CERTIFICATE OF ANALYSIS

Work Order : **VA23A5076** Page : 1 of 10

Amendment : 1

Client : Comox Valley Regional District Laboratory : Vancouver - Environmental

Contact : Crystal Stuart Account Manager : Thomas Chang

Address : 770 Harmston Avenue Address : 8081 Lougheed Highway

Burnaby BC Canada V5A 1W9

Telephone : 250-898-3722 Telephone : +1 604 253 4188

 Project
 : 3
 Date Samples Received
 : 09-Mar-2023 09:10

 PO
 : 23-015
 Date Analysis Commenced
 : 10-Mar-2023

Sampler : Crystal Stuart

Courtney BC Canada V9N 0G8

Site : CRWMC-Quarterly-GW
Quote number : VA23-COVR100-001

No. of samples received : 6
No. of samples analysed : 6

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
- Surrogate Control Limits

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
Janice Leung	Supervisor - Organics Instrumentation	Organics, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia
Lindsay Gung	Supervisor - Water Chemistry	Inorganics, Burnaby, British Columbia
Parnian Sane	Analyst	Metals, Burnaby, British Columbia
Tracy Harley	Supervisor - Water Quality Instrumentation	Inorganics, Burnaby, British Columbia

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Client : Comox Valley Regional District

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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
μg/L	micrograms per litre
μS/cm	microsiemens per centimetre
mg/L	milligrams per litre

<: 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 (22/03/2023): This report has been amended to allow the distribution of an Electronic Data Deliverable (EDD) not previously provided. All analysis results are as per the previous report.

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Work Order : VA23A5076 Amendment 1
Client : Comox Valley Regional District

Project :



Sub-Matrix: Water			Cli	ient sample ID	WG-030723-CS-	WG-030723-CS-	WG-030723-CS-	WG-030723-CS-	WG-030723-CS-
(Matrix: Water)					49	50	51	52	53
			Client samp	ling date / time	07-Mar-2023 09:50	07-Mar-2023 11:30	07-Mar-2023 12:05	07-Mar-2023 13:55	07-Mar-2023 14:40
Analyte	CAS Number	Method	LOR	Unit	VA23A5076-001	VA23A5076-002	VA23A5076-003	VA23A5076-004	VA23A5076-005
					Result	Result	Result	Result	Result
Physical Tests									
Alkalinity, bicarbonate (as CaCO3)		E290	1.0	mg/L	90.8	50.4	67.3	60.2	55.8
Alkalinity, carbonate (as CaCO3)		E290	1.0	mg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Alkalinity, hydroxide (as CaCO3)		E290	1.0	mg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Alkalinity, total (as CaCO3)		E290	1.0	mg/L	90.8	50.4	67.3	60.2	55.8
Conductivity		E100	2.0	μS/cm	185	105	137	146	124
Hardness (as CaCO3), dissolved		EC100	0.60	mg/L	93.9	51.7	68.8	70.3	59.5
Solids, total dissolved [TDS]		E162	10	mg/L	120	68	78	89	87
Anions and Nutrients									
Ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	<0.0050	<0.0050	<0.0050	0.0050	0.0055
Chloride	16887-00-6	E235.CI	0.50	mg/L	2.56	1.08	1.20	8.09	4.22
Fluoride	16984-48-8	E235.F	0.020	mg/L	0.022	<0.020	<0.020	0.021	<0.020
Nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	0.586	0.123	0.140	0.172	0.230
Nitrate + Nitrite (as N)		EC235.N+N	0.0050	mg/L	0.586	0.123	0.140	0.172	0.230
Nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	1.79	2.33	2.37	2.72	2.51
Dissolved Metals					3 1				
Aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	0.0062	0.0060	0.0056	0.0641	0.0019
Antimony, dissolved	7440-36-0	E421	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	0.00030	0.00031	0.00033	0.00013	0.00020
Barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.00756	0.00073	0.00151	0.00618	0.00063
Beryllium, dissolved	7440-41-7	E421	0.000020	mg/L	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Bismuth, dissolved	7440-69-9	E421	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron, dissolved	7440-42-8	E421	0.010	mg/L	<0.010	<0.010	0.014	<0.010	<0.010
Cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Calcium, dissolved	7440-70-2	E421	0.050	mg/L	27.0	18.0	24.7	22.0	19.4
Chromium, dissolved	7440-47-3	E421	0.00050	mg/L	0.00253	<0.00050	<0.00050	0.00076	<0.00050
Cobalt, dissolved	7440-48-4	E421	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Copper, dissolved	7440-50-8	E421	0.00020	mg/L	<0.00020	0.00023	0.00021	0.00746	0.00088
Iron, dissolved	7439-89-6	E421	0.010	mg/L	<0.010	<0.010	<0.010	0.050	<0.010
T.			1	, ,				ı	ı

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Work Order : VA23A5076 Amendment 1
Client : Comox Valley Regional District

Project :



Sub-Matrix: Water			Cli	ent sample ID	WG-030723-CS-	WG-030723-CS-	WG-030723-CS-	WG-030723-CS-	WG-030723-CS-
(Matrix: Water)					49	50	51	52	53
	CAS Nurshau	Method	Client samp	ling date / time Unit	07-Mar-2023 09:50 VA23A5076-001	07-Mar-2023 11:30 VA23A5076-002	07-Mar-2023 12:05 VA23A5076-003	07-Mar-2023 13:55 VA23A5076-004	07-Mar-2023 14:40 VA23A5076-005
Analyte	CAS Number	Metriod	LOR	Onit .	Result	Result	Result	Result	Result
Dissolved Metals	100000	- 10			Result	Result	Result	Result	Result
Lead, dissolved	7439-92-1	E421	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Lithium, dissolved	7439-93-2	E421	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Magnesium, dissolved	7439-95-4	E421	0.100	mg/L	6.43	1.64	1.72	3.73	2.69
Manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.00010	<0.00010	<0.00010	0.00196	<0.00010
Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.000152	0.000115	0.000115	0.000102	0.000128
Nickel, dissolved	7440-02-0	E421	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus, dissolved	7723-14-0	E421	0.050	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium, dissolved	7440-09-7	E421	0.100	mg/L	0.481	0.280	0.382	0.272	0.281
Selenium, dissolved	7782-49-2	E421	0.000050	mg/L	0.000117	0.000113	0.000128	0.000064	0.000150
Silicon, dissolved	7440-21-3	E421	0.050	mg/L	6.12	3.94	4.16	4.81	4.34
Silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium, dissolved	7440-23-5	E421	0.050	mg/L	2.53	1.61	1.93	2.82	2.39
Strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.0451	0.0283	0.0395	0.0507	0.0332
Sulfur, dissolved	7704-34-9	E421	0.50	mg/L	<0.50	0.66	0.68	0.78	0.69
Thallium, dissolved	7440-28-0	E421	0.000010	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Tin, dissolved	7440-31-5	E421	0.00010	mg/L	<0.00010	<0.00010	<0.00010	0.00012	<0.00010
Titanium, dissolved	7440-32-6	E421	0.00030	mg/L	<0.00030	<0.00030	<0.00030	0.00200	<0.00030
Uranium, dissolved	7440-61-1	E421	0.000010	mg/L	0.000261	0.000025	0.000039	0.000122	0.000041
Vanadium, dissolved	7440-62-2	E421	0.00050	mg/L	0.00593	0.00247	0.00239	0.00329	0.00370
Zinc, dissolved	7440-66-6	E421	0.0010	mg/L	<0.0010	<0.0010	<0.0010	0.0021	<0.0010
Zirconium, dissolved	7440-67-7	E421	0.00020	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Dissolved mercury filtration location		EP509	-	-	Field	Field	Field	Field	Field
Dissolved metals filtration location		EP421	-	-	Field	Field	Field	Field	Field
Volatile Organic Compounds									
Chlorobenzene	108-90-7	E611C	0.50	μg/L				<0.50	<0.50
Chloromethane	74-87-3	E611C	5.0	μg/L				<5.0	<5.0
Dichlorobenzene, 1,2-	95-50-1	E611C	0.50	μg/L				<0.50	<0.50
Dichlorobenzene, 1,3-	541-73-1	E611C	0.50	μg/L				<0.50	<0.50
Dichlorobenzene, 1,4-	106-46-7	E611C	0.50	μg/L				<0.50	<0.50

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Work Order : VA23A5076 Amendment 1
Client : Comox Valley Regional District

Project : 3



Client sampling date / Sime Crie	Sub-Matrix: Water			CI	ient sample ID	WG-030723-CS-	WG-030723-CS-	WG-030723-CS-	WG-030723-CS-	WG-030723-CS-
CAS Number Method LOR Unit VAZ2A5676-001 VAZ2A5676-002 VAZ2A5676-003 VAZ2A5676	(Matrix: Water)					49	50	51	52	53
Part Pasult Pa						09:50	11:30	12:05	13:55	14:40
Volatile Organic Compounds Volatile Orga	Analyte	CAS Number	Method	LOR	Unit					
Dichloropropagene, 1.2- 78-87-5 E611C 0.50 µg/L						Result	Result	Result	Result	Result
Dichloropropylene, cis+trans-1,3- 542-75-6 E611C 0.75 µg/L .		79 97 5	E611C	0.50	ua/l				<0.50	<0.50
Dichloropropylene, cis-1,3-										
Tetrachloroethane, 1,1,1,2-	· ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' '									
Tetrachloroethane, 1,1,2,2- 79-34-5 Fef11C										
Trichloroethane, 1,1,2- 79-00-5 E611C 0.50 μg/L										
Trichlorofluoromethane										
Volatile Organic Compounds Drycleaning Carbon tetrachloride 56.23.5 E611C 0.50 μg/L .										
Carbon tetrachloride		75-03-4	200	0.00	₽9/ L					
Chloroethane 75-0-3 E611C 0.50 μg/L		56-23-5	E611C	0.50	ua/L				<0.50	<0.50
Dichloroethane, 1,1-										
Dichloroethane, 1,2- 107-06-2 E611C 0.50 μg/L <0.50 <0.50 Dichloroethylene, 1,1- 75-35-4 E611C 0.50 μg/L <0.50 <0.50 Dichloroethylene, 1,1- <0.50 <0.50 <0.50 Dichloroethylene, trans-1,2- 156-69-2 E611C 0.50 μg/L <0.50 <0.50 Dichloroethylene, trans-1,2- 156-60-5 E611C 0.50 μg/L <0.50 <0.50 Dichloroptyoplene, trans-1,3- 10061-02-6 E611C 0.50 μg/L <0.50 <0.50 Dichloroptyoplene, trans-1,3- 10061-02-6 E611C 0.50 μg/L <0.50 <0.50 Trichloroethylene 127-18-4 E611C 0.50 μg/L <0.50 <0.50 Trichloroethylene 79-01-6 E611C 0.50 μg/L <0.50 <0.50 Trichloroethylene 79-01-6 E611C 0.50 μg/L <0.50 <0.50 Trichloroethylene 79-01-6 E611C 0.50 μg/L <0.50 <0.50 Trichloroethylene 79-01-6 E611C 0.50 μg/L <0.50 <0.50 Trichloroethylene 79-01-6 E611C 0.50 μg/L <0.50 <0.50 Trichloroethylene 79-01-6 E611C 0.50 μg/L <0.50 <0.50 Trichloroethylene 79-01-6 E611C 0.50 μg/L <0.50 <0.50 Trichloroethylene 79-01-6 E611C 0.50 μg/L <0.50 <0.50 Trichloroethylene 79-01-6 E611C 0.50 μg/L <0.50 <0.50 Trichloroethylene 79-01-6 E611C 0.50 μg/L <0.50 <0.50 Trichloroethylene 79-01-6 E611C 0.50 μg/L <0.50 <0.50 Trichloroethylene 79-01-6 E611C 0.50 μg/L <0.50 <0.50 Trichloroethylene 79-01-6 E611C 0.50 μg/L <0.50 <0.50 Trichloroethylene 79-01-6 E611C 0.50 μg/L <0.50 <0.50 Trichloroethylene 79-01-6 E611C 0.50 μg/L <0.50 <0.50 Trichloroethylene 79-01-6 E611C 0.50 μg/L <0.50 <0.50 Trichloroethylene										
Dichloroethylene, 1,1-	· ·									
Dichloroethylene, cis-1,2-	· ·									
Dichloroethylene, trans-1,2-	* ' '								<0.50	
Dichloromethane 75-09-2 E611C 1.0 μg/L	Dichloroethylene, trans-1,2-		E611C	0.50					<0.50	<0.50
Dichloropropylene, trans-1,3- 10061-02-6 E611C 0.50 μg/L			E611C	1.0					<1.0	<1.0
Tetrachloroethylene 127-18-4 E611C 0.50 μg/L	Dichloropropylene, trans-1,3-		E611C	0.50					<0.50	<0.50
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	Tetrachloroethylene		E611C	0.50					<0.50	<0.50
Trichloroethylene 79-01-6 E611C 0.50 μg/L <0.50	Trichloroethane, 1,1,1-	71-55-6	E611C	0.50	μg/L				<0.50	<0.50
Vinyl chloride 75-01-4 E611C 0.40 μg/L < 0.40	Trichloroethylene		E611C	0.50					<0.50	<0.50
Benzene 71-43-2 E611C 0.50 μg/L < 0.50	Vinyl chloride	75-01-4	E611C	0.40					<0.40	<0.40
Benzene 71-43-2 E611C 0.50 μg/L < 0.50	Volatile Organic Compounds [Fuels]						1777			1000
Methyl-tert-butyl ether [MTBE] 1634-04-4 E611C 0.50 μg/L < 0.50		71-43-2	E611C	0.50	μg/L				<0.50	<0.50
Styrene 100-42-5 E611C 0.50 μg/L < 0.50	Ethylbenzene	100-41-4	E611C	0.50	μg/L				<0.50	<0.50
Toluene 108-88-3 E611C 0.40 μg/L <	Methyl-tert-butyl ether [MTBE]	1634-04-4	E611C	0.50	μg/L				<0.50	<0.50
Xylene, m+p- 179601-23-1 E611C 0.40 μg/L <0.40	Styrene	100-42-5	E611C	0.50	μg/L				<0.50	<0.50
Xylene, ο- 95-47-6 E611C 0.30 μg/L < <0.30 <0.30	Toluene	108-88-3	E611C	0.40	μg/L				<0.40	<0.40
	Xylene, m+p-	179601-23-1	E611C	0.40	μg/L				<0.40	<0.40
N	Xylene, o-	95-47-6	E611C	0.30	μg/L				<0.30	<0.30
Xylenes, total 1330-20-7 E611C 0.50 µg/L <0.50 <0.50	Xylenes, total	1330-20-7	E611C	0.50	μg/L				<0.50	<0.50

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Work Order : VA23A5076 Amendment 1
Client : Comox Valley Regional District

Project : 3



Analytical Results

Sub-Matrix: Water			CI	ient sample ID	WG-030723-CS-	WG-030723-CS-	WG-030723-CS-	WG-030723-CS-	WG-030723-CS-
(Matrix: Water)					49	50	51	52	53
			Client samp	ling date / time	07-Mar-2023 09:50	07-Mar-2023 11:30	07-Mar-2023 12:05	07-Mar-2023 13:55	07-Mar-2023 14:40
Analyte	CAS Number	Method	LOR	Unit	VA23A5076-001	VA23A5076-002	VA23A5076-003	VA23A5076-004	VA23A5076-005
					Result	Result	Result	Result	Result
Volatile Organic Compounds [THMs]									
Bromodichloromethane	75-27-4	E611C	0.50	μg/L				<0.50	<0.50
Bromoform	75-25-2	E611C	0.50	μg/L				<0.50	<0.50
Chloroform	67-66-3	E611C	0.50	μg/L				<0.50	<0.50
Dibromochloromethane	124-48-1	E611C	0.50	μg/L				<0.50	<0.50
Hydrocarbons									
VHw (C6-C10)		E581.VH+F1	100	μg/L				<100	<100
VPHw		EC580A	100	μg/L				<100	<100
Hydrocarbons Surrogates									
Dichlorotoluene, 3,4-	95-75-0	E581.VH+F1	1.0	%				84.3	82.7
Volatile Organic Compounds Surrogates									
Bromofluorobenzene, 4-	460-00-4	E611C	1.0	%				104	105
Difluorobenzene, 1,4-	540-36-3	E611C	1.0	%				100	99.7

Please refer to the General Comments section for an explanation of any qualifiers detected.

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Work Order : VA23A5076 Amendment 1
Client : Comox Valley Regional District

Project :



Cale Cale	Sub-Matrix: Water			Cl	ient sample ID	WG-030723-CS-		 	
15:00	(Matrix: Water)					54			
Physical Yests				Client samp	ling date / time			 	
Physical Tests Alkalinity, Dicarbonate (as CaCO3)	Analyte	CAS Number	Method	LOR	Unit	VA23A5076-006		 	
Alkalinity, bicarbonate (as CaCO3)						Result		 	
Alkalinity, carbonate (as CaCO3)	Physical Tests								
Alkalinity, hydroxide (as CaCO3)	Alkalinity, bicarbonate (as CaCO3)		E290	1.0	mg/L	50.9		 	
Alkalinity, total (as CaCO3)	Alkalinity, carbonate (as CaCO3)		E290	1.0	mg/L	<1.0		 	
Conductivity E100 2.0 μS/cm 121	Alkalinity, hydroxide (as CaCO3)		E290	1.0	mg/L	<1.0		 	
Hardness (as CaCO3), dissolved EC100 0.60 mg/L 53.6	Alkalinity, total (as CaCO3)		E290	1.0	mg/L	50.9		 	
Solids, total dissolved [TDS]	Conductivity		E100	2.0	μS/cm	121		 	
Annons and Nutrients Ammonia, total (as N) 7684-41-7 E298 0.0050 mg/L <0.0050	Hardness (as CaCO3), dissolved		EC100	0.60	mg/L	53.6		 	
Ammonia, total (as N) 7664-41-7 E298 0.0050 mg/L <0.0050 mg/L 5.59	Solids, total dissolved [TDS]		E162	10	mg/L	72		 	
Chloride 16887-00-6 E235.Cl 0.50 mg/L 5.59	Anions and Nutrients	100					1000		
Fluoride	Ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	<0.0050		 	
Nitrate (as N) 14797-55-8 E235 NO3-L 0.0050 mg/L 0.277	Chloride	16887-00-6	E235.CI	0.50	mg/L	5.59		 	
Nitrate + Nitrite (as N) — EC235.N+N 0.0050 mg/L 0.277 — </th <th>Fluoride</th> <th>16984-48-8</th> <th>E235.F</th> <th>0.020</th> <th>mg/L</th> <th>0.021</th> <th></th> <th> </th> <th></th>	Fluoride	16984-48-8	E235.F	0.020	mg/L	0.021		 	
Nitrite (as N) 14797-65-0 layer E235.NO2-L bright (as SO4) 0.0010 mg/L bright (as SO4)	Nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	0.277		 	
Sulfate (as SO4) 14808-79-8 E235.SO4 0.30 mg/L 2.22	Nitrate + Nitrite (as N)		EC235.N+N	0.0050	mg/L	0.277		 	
Dissolved Metals Aluminum, dissolved 7429-90-5 E421 0.0010 mg/L 0.0038	Nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	<0.0010		 	
Aluminum, dissolved 7429-90-5 E421 0.0010 mg/L 0.0038	Sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	2.22		 	
Antimony, dissolved 7440-36-0 F421 0.00010 mg/L 0.00200 Barium, dissolved 7440-39-3 F421 0.00010 mg/L 0.00137 Beryllium, dissolved 7440-41-7 F421 0.00020 mg/L 0.00020 mg/L 0.00020 Bismuth, dissolved 7440-49-9 F421 0.000050 mg/L 0.00050 mg/L 0.00050 Boron, dissolved 7440-42-8 F421 0.000050 mg/L 0.00050 mg/L 0.00050 Cadmium, dissolved 7440-43-9 F421 0.000050 mg/L 0.000050 mg/L 0.000050 Cadmium, dissolved 7440-43-9 F421 0.000050 mg/L 0.000050 mg/L 0.000050 Cadmium, dissolved 7440-70-2 F421 0.000050 mg/L 17.0 Chromium, dissolved 7440-43-3 F421 0.00050 mg/L 0.00194 Cobalt, dissolved 7440-48-4 F421 0.00000 mg/L 0.00010 Copper, dissolved 7440-50-8 F421 0.00020 mg/L 0.00020 Copper, dissolved 7439-89-6 F421 0.00000 mg/L 0.00000 Councid mg/L 0.00000 Councid mg/L 0.00010 Councid mg/L 0.00010 Councid mg/L 0.00010 Councid mg/L 0.00010 Councid mg/L 0.00020 Councid mg/L 0.00020 Councid mg/L 0.00010 Councid mg/L 0.0002	Dissolved Metals	100							
Arsenic, dissolved 7440-38-2 E421 0.00010 mg/L 0.00200	Aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	0.0038		 	
Barium, dissolved	Antimony, dissolved	7440-36-0	E421	0.00010	mg/L	<0.00010		 	
Beryllium, dissolved	Arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	0.00200		 	
Bismuth, dissolved 7440-69-9 E421 0.000050 mg/L <0.000050	Barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.00137		 	
Boron, dissolved 7440-42-8 E421 0.010 mg/L <0.010	Beryllium, dissolved	7440-41-7	E421	0.000020	mg/L	<0.000020		 	
Cadmium, dissolved 7440-43-9 E421 0.0000050 mg/L <0.000050	Bismuth, dissolved	7440-69-9	E421	0.000050	mg/L	<0.000050		 	
Calcium, dissolved 7440-70-2 E421 0.050 mg/L 17.0	Boron, dissolved	7440-42-8	E421	0.010	mg/L	<0.010		 	
Chromium, dissolved 7440-47-3 E421 0.00050 mg/L 0.00194	Cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L	<0.0000050		 	
Cobalt, dissolved 7440-48-4 E421 0.00010 mg/L <0.00010	Calcium, dissolved	7440-70-2	E421	0.050	mg/L	17.0		 	
Copper, dissolved 7440-50-8 E421 0.00020 mg/L <0.00020	Chromium, dissolved	7440-47-3	E421	0.00050	mg/L	0.00194		 	
Iron, dissolved 7439-89-6 E421 0.010 mg/L <0.010	Cobalt, dissolved	7440-48-4	E421	0.00010	mg/L	<0.00010		 	
Iron, dissolved 7439-89-6 E421 0.010 mg/L <0.010	Copper, dissolved	7440-50-8	E421	0.00020	mg/L	<0.00020		 	
	Iron, dissolved	7439-89-6	E421	0.010		<0.010		 	
	Lead, dissolved		E421	0.000050	mg/L	<0.000050		 	

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Work Order : VA23A5076 Amendment 1
Client : Comox Valley Regional District

Project : 3



Sub-Matrix: Water			Cli	ient sample ID	WG-030723-CS-	 	
(Matrix: Water)					54		
			Client samp	ling date / time	07-Mar-2023 16:00	 	
Analyte	CAS Number	Method	LOR	Unit	VA23A5076-006	 	
					Result	 	
Dissolved Metals							
Lithium, dissolved	7439-93-2	E421	0.0010	mg/L	<0.0010	 	
Magnesium, dissolved	7439-95-4	E421	0.100	mg/L	2.71	 	
Manganese, dissolved	7439-96-5	E421	0.00010	mg/L	<0.00010	 	
Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	 	
Molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.000094	 	
Nickel, dissolved	7440-02-0	E421	0.00050	mg/L	<0.00050	 	
Phosphorus, dissolved	7723-14-0	E421	0.050	mg/L	<0.050	 	
Potassium, dissolved	7440-09-7	E421	0.100	mg/L	0.821	 	
Selenium, dissolved	7782-49-2	E421	0.000050	mg/L	0.000255	 	
Silicon, dissolved	7440-21-3	E421	0.050	mg/L	5.71	 	
Silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.000010	 	
Sodium, dissolved	7440-23-5	E421	0.050	mg/L	2.97	 	
Strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.0319	 	
Sulfur, dissolved	7704-34-9	E421	0.50	mg/L	<0.50	 	
Thallium, dissolved	7440-28-0	E421	0.000010	mg/L	<0.000010	 	
Tin, dissolved	7440-31-5	E421	0.00010	mg/L	<0.00010	 	
Titanium, dissolved	7440-32-6	E421	0.00030	mg/L	<0.00030	 	
Uranium, dissolved	7440-61-1	E421	0.000010	mg/L	0.000282	 	
Vanadium, dissolved	7440-62-2	E421	0.00050	mg/L	0.0164	 	
Zinc, dissolved	7440-66-6	E421	0.0010	mg/L	<0.0010	 	
Zirconium, dissolved	7440-67-7	E421	0.00020	mg/L	<0.00020	 	
Dissolved mercury filtration location		EP509	-	-	Field	 	
Dissolved metals filtration location		EP421	-	-	Field	 	
Volatile Organic Compounds							
Chlorobenzene	108-90-7	E611C	0.50	μg/L	<0.50	 	
Chloromethane	74-87-3	E611C	5.0	μg/L	<5.0	 	
Dichlorobenzene, 1,2-	95-50-1	E611C	0.50	μg/L	<0.50	 	
Dichlorobenzene, 1,3-	541-73-1	E611C	0.50	μg/L	<0.50	 	
Dichlorobenzene, 1,4-	106-46-7	E611C	0.50	μg/L	<0.50	 	
Dichloropropane, 1,2-	78-87-5	E611C	0.50	μg/L	<0.50	 	

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Work Order : VA23A5076 Amendment 1
Client : Comox Valley Regional District

Project :



Sub-Matrix: Water			CI	ient sample ID	WG-030723-CS-		 	
(Matrix: Water)					54		 	
			Client samp	ling date / time	07-Mar-2023 16:00		 	
Analyte	CAS Number	Method	LOR	Unit	VA23A5076-006		 	
					Result		 	
Volatile Organic Compounds								
Dichloropropylene, cis+trans-1,3-	542-75-6	E611C	0.75	μg/L	<0.75		 	
Dichloropropylene, cis-1,3-	10061-01-5	E611C	0.50	μg/L	<0.50		 	
Tetrachloroethane, 1,1,1,2-	630-20-6	E611C	0.50	μg/L	<0.50		 	
Tetrachloroethane, 1,1,2,2-	79-34-5	E611C	0.20	μg/L	<0.20		 	
Trichloroethane, 1,1,2-	79-00-5	E611C	0.50	μg/L	<0.50		 	
Trichlorofluoromethane	75-69-4	E611C	0.50	μg/L	<0.50		 	
Volatile Organic Compounds [Drycleaning]								
Carbon tetrachloride	56-23-5	E611C	0.50	μg/L	<0.50		 	
Chloroethane	75-00-3	E611C	0.50	μg/L	<0.50		 	
Dichloroethane, 1,1-	75-34-3	E611C	0.50	μg/L	<0.50		 	
Dichloroethane, 1,2-	107-06-2	E611C	0.50	μg/L	<0.50		 	
Dichloroethylene, 1,1-	75-35-4	E611C	0.50	μg/L	<0.50		 	
Dichloroethylene, cis-1,2-	156-59-2	E611C	0.50	μg/L	<0.50		 	
Dichloroethylene, trans-1,2-	156-60-5	E611C	0.50	μg/L	<0.50		 	
Dichloromethane	75-09-2	E611C	1.0	μg/L	<1.0		 	
Dichloropropylene, trans-1,3-	10061-02-6	E611C	0.50	μg/L	<0.50		 	
Tetrachloroethylene	127-18-4	E611C	0.50	μg/L	<0.50		 	
Trichloroethane, 1,1,1-	71-55-6	E611C	0.50	μg/L	<0.50		 	
Trichloroethylene	79-01-6	E611C	0.50	μg/L	<0.50		 	
Vinyl chloride	75-01-4	E611C	0.40	μg/L	<0.40		 	
Volatile Organic Compounds [Fuels]								
Benzene	71-43-2	E611C	0.50	μg/L	<0.50		 	
Ethylbenzene	100-41-4	E611C	0.50	μg/L	<0.50		 	
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611C	0.50	μg/L	<0.50		 	
Styrene	100-42-5	E611C	0.50	μg/L	<0.50		 	
Toluene	108-88-3	E611C	0.40	μg/L	<0.40		 	
Xylene, m+p-	179601-23-1	E611C	0.40	μg/L	<0.40		 	
Xylene, o-	95-47-6	E611C	0.30	μg/L	<0.30		 	
Xylenes, total	1330-20-7	E611C	0.50	μg/L	<0.50		 	
Volatile Organic Compounds [THMs]						777711111		

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Work Order : VA23A5076 Amendment 1
Client : Comox Valley Regional District

Project :



Analytical Results

Sub-Matrix: Water			CI	ient sample ID	WG-030723-CS-	 	
(Matrix: Water)					54		
			Client samp	ling date / time	07-Mar-2023 16:00	 	
Analyte	CAS Number	Method	LOR	Unit	VA23A5076-006	 	
					Result	 	
Volatile Organic Compounds [THMs]							
Bromodichloromethane	75-27-4	E611C	0.50	μg/L	<0.50	 	
Bromoform	75-25-2	E611C	0.50	μg/L	<0.50	 	
Chloroform	67-66-3	E611C	0.50	μg/L	<0.50	 	
Dibromochloromethane	124-48-1	E611C	0.50	μg/L	<0.50	 	
Hydrocarbons							
VHw (C6-C10)		E581.VH+F1	100	μg/L	<100	 	
VPHw		EC580A	100	μg/L	<100	 	
Hydrocarbons Surrogates							
Dichlorotoluene, 3,4-	95-75-0	E581.VH+F1	1.0	%	78.8	 	
Volatile Organic Compounds Surrogates							
Bromofluorobenzene, 4-	460-00-4	E611C	1.0	%	93.0	 	
Difluorobenzene, 1,4-	540-36-3	E611C	1.0	%	97.9	 	

Please refer to the General Comments section for an explanation of any qualifiers detected.

ALS Canada Ltd.



QUALITY CONTROL REPORT

Work Order :VA23A5076

Amendment :1

Client : Comox Valley Regional District

Contact : Crystal Stuart

Address :770 Harmston Avenue

Courtney BC Canada V9N 0G8

Telephone

Project : 3 PO :23-015

C-O-C number

: Crystal Stuart₂₅₀₋₈₉₈₋₃₇₂₂ Sampler Site CRWMC-Quarterly-GW

: VA23-COVR100-001 No. of samples received : 6

No. of samples analysed 6 Page : 1 of 19

Laboratory : Vancouver - Environmental

Account Manager : Thomas Chang

Address :8081 Lougheed Highway

Burnaby, British Columbia Canada V5A 1W9

Telephone :+1 604 253 4188 Date Samples Received :09-Mar-2023 09:10

Date Analysis Commenced : 10-Mar-2023

Issue Date : 22-Mar-2023 14:38

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

Quote number

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
Janice Leung	Supervisor - Organics Instrumentation	Vancouver Organics, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Vancouver Metals, Burnaby, British Columbia
Lindsay Gung	Supervisor - Water Chemistry	Vancouver Inorganics, Burnaby, British Columbia
Parnian Sane	Analyst	Vancouver Metals, Burnaby, British Columbia
Tracy Harley	Supervisor - Water Quality Instrumentation	Vancouver Inorganics, Burnaby, British Columbia

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Work Order: VA23A5076 Amendment 1
Client: Comox Valley Regional District

Project :



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.

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Work Order: VA23A5076 Amendment 1
Client: Comox Valley Regional District

Project : 3



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							Labora	tory Duplicate (D	UP) 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: 858577)										
KS2300688-001	Anonymous	Conductivity		E100	2.0	μS/cm	2500	2470	1.21%	10%	
Physical Tests (QC	Lot: 858578)	The state of the s									
VA23A5076-003	WG-030723-CS-51	Alkalinity, bicarbonate (as CaCO3)		E290	1.0	mg/L	67.3	67.3	0.00%	20%	
		Alkalinity, carbonate (as CaCO3)		E290	1.0	mg/L	<1.0	<1.0	0	Diff <2x LOR	
		Alkalinity, hydroxide (as CaCO3)		E290	1.0	mg/L	<1.0	<1.0	0	Diff <2x LOR	
		Alkalinity, total (as CaCO3)		E290	1.0	mg/L	67.3	67.3	0.00%	20%	
Physical Tests (QC	Lot: 862935)										
KS2300710-001	Anonymous	Solids, total dissolved [TDS]		E162	20	mg/L	8210	7940	3.29%	20%	
Anions and Nutrien	ts (QC Lot: 858570)										
VA23A5135-001	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	
Anions and Nutrien	ts (QC Lot: 858571)				1110						
VA23A5135-001	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	
Anions and Nutrien	ts (QC Lot: 858572)				7 1 1 1 1 1 1						
VA23A5135-001	Anonymous	Chloride	16887-00-6	E235.CI	0.50	mg/L	<0.50	<0.50	0	Diff <2x LOR	
Anions and Nutrien	ts (QC Lot: 858573)				7 1 1 1 1 1 1						
VA23A5135-001	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	1.48	1.45	0.03	Diff <2x LOR	
Anions and Nutrien	ts (QC Lot: 858574)				7 1 1 1 1 1 1						
VA23A5135-001	Anonymous	Fluoride	16984-48-8	E235.F	0.020	mg/L	0.034	0.034	0.0001	Diff <2x LOR	
Anions and Nutrien	ts (QC Lot: 859757)										
VA23A4889-001	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	<5.0 μg/L	<0.0050	0	Diff <2x LOR	
Dissolved Metals (QC Lot: 858601)										
VA23A5076-001	WG-030723-CS-49	Aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	0.0062	0.0050	0.0012	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	0.00030	0.00027	0.00003	Diff <2x LOR	
		Barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.00756	0.00755	0.0232%	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	27.0	27.6	2.09%	20%	

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Work Order: VA23A5076 Amendment 1
Client: Comox Valley Regional District



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	Qualifie
Dissolved Metals (C	QC Lot: 858601) - contir	nued									
VA23A5076-001	WG-030723-CS-49	Chromium, dissolved	7440-47-3	E421	0.00050	mg/L	0.00253	0.00253	0.000001	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	<0.0010	<0.0010	0	Diff <2x LOR	
		Magnesium, dissolved	7439-95-4	E421	0.100	mg/L	6.43	6.28	2.39%	20%	
		Manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.00010	0.00011	0.00001	Diff <2x LOR	
		Molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.000152	0.000148	0.000004	Diff <2x LOR	
		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	0.100	mg/L	0.481	0.479	0.002	Diff <2x LOR	
		Selenium, dissolved	7782-49-2	E421	0.000050	mg/L	0.000117	0.000109	0.000008	Diff <2x LOR	
		Silicon, dissolved	7440-21-3	E421	0.050	mg/L	6.12	6.28	2.49%	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	2.53	2.57	1.53%	20%	
		Strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.0451	0.0442	2.04%	20%	
		Sulfur, dissolved	7704-34-9	E421	0.50	mg/L	<0.50	0.55	0.05	Diff <2x LOR	
		Thallium, dissolved	7440-28-0	E421	0.000010	mg/L	<0.000010	<0.000010	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	
		Uranium, dissolved	7440-61-1	E421	0.000010	mg/L	0.000261	0.000249	4.87%	20%	
		Vanadium, dissolved	7440-62-2	E421	0.00050	mg/L	0.00593	0.00581	2.02%	20%	
		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 (C	QC Lot: 859285)				11						1 1
KS2300711-001	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	
/olatile Organic Co	olatile Organic Compounds (QC Lot: 862536)										
VA23A5076-004	WG-030723-CS-52	Benzene	71-43-2	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Bromodichloromethane	75-27-4	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Bromoform	75-25-2	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Carbon tetrachloride	56-23-5	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Chlorobenzene	108-90-7	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Chloroethane	75-00-3	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	

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ub-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		
/olatile Organic Co	mpounds (QC Lot: 862	536) - continued											
/A23A5076-004	WG-030723-CS-52	Chloroform	67-66-3	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR			
		Chloromethane	74-87-3	E611C	5.0	μg/L	<5.0	<5.0	0	Diff <2x LOR			
		Dibromochloromethane	124-48-1	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR			
		Dichlorobenzene, 1,2-	95-50-1	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR			
		Dichlorobenzene, 1,3-	541-73-1	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR			
		Dichlorobenzene, 1,4-	106-46-7	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR			
		Dichloroethane, 1,1-	75-34-3	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR			
		Dichloroethane, 1,2-	107-06-2	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR			
		Dichloroethylene, 1,1-	75-35-4	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR			
		Dichloroethylene, cis-1,2-	156-59-2	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR			
		Dichloroethylene, trans-1,2-	156-60-5	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR			
		Dichloromethane	75-09-2	E611C	1.0	μg/L	<1.0	<1.0	0	Diff <2x LOR			
		Dichloropropane, 1,2-	78-87-5	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR			
		Dichloropropylene, cis-1,3-	10061-01-5	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR			
	Dichloropropylene, trans-1,3-	10061-02-6	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR				
		Ethylbenzene	100-41-4	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR			
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR			
		Styrene	100-42-5	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR			
		Tetrachloroethane, 1,1,1,2-	630-20-6	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR			
		Tetrachloroethane, 1,1,2,2-	79-34-5	E611C	0.20	μg/L	<0.20	<0.20	0	Diff <2x LOR			
		Tetrachloroethylene	127-18-4	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR			
		Toluene	108-88-3	E611C	0.40	μg/L	<0.40	<0.40	0	Diff <2x LOR			
		Trichloroethane, 1,1,1-	71-55-6	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR			
		Trichloroethane, 1,1,2-	79-00-5	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR			
		Trichloroethylene	79-01-6	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR			
		Trichlorofluoromethane	75-69-4	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR			
		Vinyl chloride	75-01-4	E611C	0.40	μg/L	<0.40	<0.40	0	Diff <2x LOR			
		Xylene, m+p-	179601-23-1	E611C	0.40	μg/L	<0.40	<0.40	0	Diff <2x LOR			
		Xylene, o-	95-47-6	E611C	0.30	μg/L	<0.30	<0.30	0	Diff <2x LOR			
olatile Organic Co	mpounds (QC Lot: 864												
/A23A5076-006	WG-030723-CS-54	Benzene	71-43-2	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR			
		Bromodichloromethane	75-27-4	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR			
		Bromoform	75-25-2	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR			
		Carbon tetrachloride	56-23-5	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR			

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Sub-Matrix: Water					Laboratory Duplicate (DUP) Report						
aboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifie
olatile Organic Con	npounds (QC Lot: 8643	32) - continued									
A23A5076-006	WG-030723-CS-54	Chlorobenzene	108-90-7	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Chloroethane	75-00-3	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Chloroform	67-66-3	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Chloromethane	74-87-3	E611C	5.0	μg/L	<5.0	<5.0	0	Diff <2x LOR	
		Dibromochloromethane	124-48-1	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Dichlorobenzene, 1,2-	95-50-1	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Dichlorobenzene, 1,3-	541-73-1	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Dichlorobenzene, 1,4-	106-46-7	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Dichloroethane, 1,1-	75-34-3	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Dichloroethane, 1,2-	107-06-2	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Dichloroethylene, 1,1-	75-35-4	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Dichloroethylene, cis-1,2-	156-59-2	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Dichloroethylene, trans-1,2-	156-60-5	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Dichloromethane	75-09-2	E611C	1.0	μg/L	<1.0	<1.0	0	Diff <2x LOR	
		Dichloropropane, 1,2-	78-87-5	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Dichloropropylene, cis-1,3-	10061-01-5	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Dichloropropylene, trans-1,3-	10061-02-6	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Ethylbenzene	100-41-4	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Styrene	100-42-5	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Tetrachloroethane, 1,1,1,2-	630-20-6	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Tetrachloroethane, 1,1,2,2-	79-34-5	E611C	0.20	μg/L	<0.20	<0.20	0	Diff <2x LOR	
		Tetrachloroethylene	127-18-4	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Toluene	108-88-3	E611C	0.40	μg/L	<0.40	<0.40	0	Diff <2x LOR	
		Trichloroethane, 1,1,1-	71-55-6	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Trichloroethane, 1,1,2-	79-00-5	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Trichloroethylene	79-01-6	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Trichlorofluoromethane	75-69-4	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Vinyl chloride	75-01-4	E611C	0.40	μg/L	<0.40	<0.40	0	Diff <2x LOR	
		Xylene, m+p-	179601-23-1	E611C	0.40	μg/L	<0.40	<0.40	0	Diff <2x LOR	
		Xylene, o-	95-47-6	E611C	0.30	μg/L	<0.30	<0.30	0	Diff <2x LOR	
ydrocarbons (QC I	Lot: 862534)										
Tarecursons (QC)	Anonymous	VHw (C6-C10)		E581.VH+F1	100	μg/L	140	170	17.2%	30%	

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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
Hydrocarbons (QC	Lot: 864331) - continued									The state of	
VA23A5076-006	WG-030723-CS-54	VHw (C6-C10)		E581.VH+F1	100	μg/L	<100	<100	0.0%	30%	

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Client: Comox Valley Regional District

Project :



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

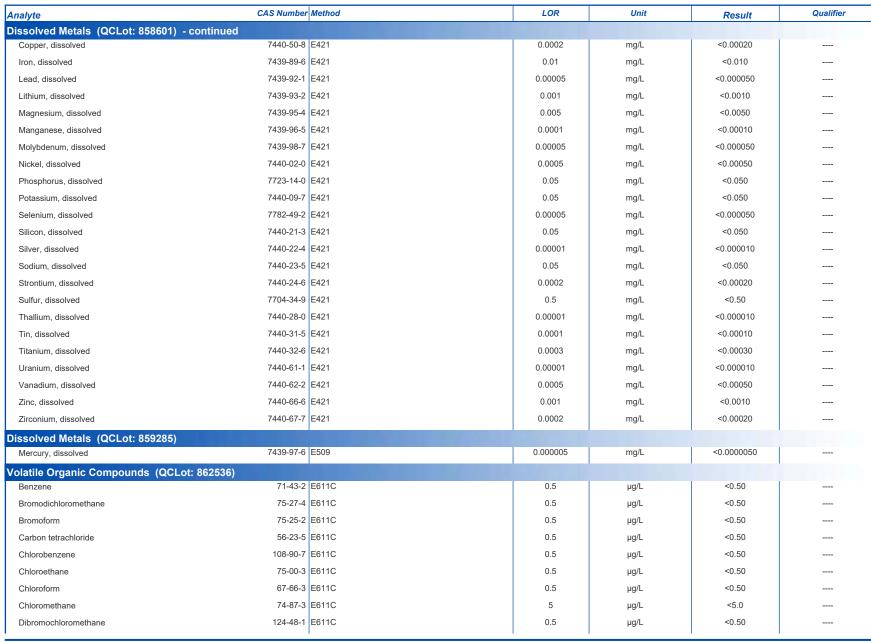
Analyte	CAS Number Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 858577)					
Conductivity	E100	1	μS/cm	1.3	
Physical Tests (QCLot: 858578)					
Alkalinity, bicarbonate (as CaCO3)	E290	1	mg/L	<1.0	
Alkalinity, carbonate (as CaCO3)	E290	1	mg/L	<1.0	
Alkalinity, hydroxide (as CaCO3)	E290	1	mg/L	<1.0	
Alkalinity, total (as CaCO3)	E290	1	mg/L	<1.0	
Physical Tests (QCLot: 862935)					
Solids, total dissolved [TDS]	E162	10	mg/L	<10	
Anions and Nutrients (QCLot: 858570)					
Nitrate (as N)	14797-55-8 E235.NO3-L	0.005	mg/L	<0.0050	
Anions and Nutrients (QCLot: 858571)					
Nitrite (as N)	14797-65-0 E235.NO2-L	0.001	mg/L	<0.0010	
Anions and Nutrients (QCLot: 858572)					
Chloride	16887-00-6 E235.CI	0.5	mg/L	<0.50	
Anions and Nutrients (QCLot: 858573)					
Sulfate (as SO4)	14808-79-8 E235.SO4	0.3	mg/L	<0.30	
Anions and Nutrients (QCLot: 858574)					
Fluoride	16984-48-8 E235.F	0.02	mg/L	<0.020	
Anions and Nutrients (QCLot: 859757)					
Ammonia, total (as N)	7664-41-7 E298	0.005	mg/L	<0.0050	
Dissolved Metals (QCLot: 858601)					
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	
Chromium, dissolved	7440-47-3 E421	0.0005	mg/L	<0.00050	
Cobalt, dissolved	7440-48-4 E421	0.0001	mg/L	<0.00010	

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Project: 3

Sub-Matrix: Water

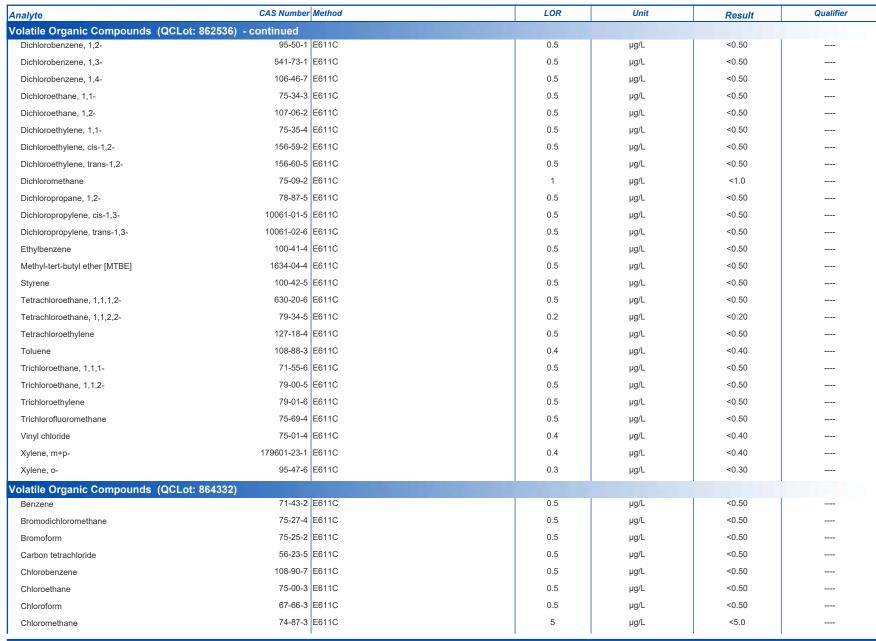


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Project : 3

Sub-Matrix: Water

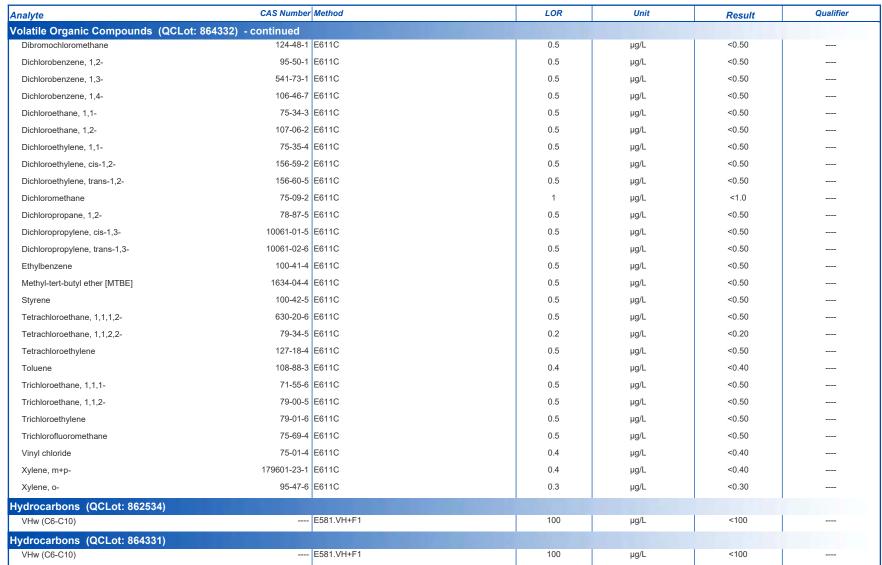


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Work Order: VA23A5076 Amendment 1
Client: Comox Valley Regional District

Project : 3

Sub-Matrix: Water



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Client: Comox Valley Regional District

Project :



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 Co	ntrol Sample (LCS)	Report	
					Spike	Recovery (%)	Recovery	Limits (%)	
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 858577)									
Conductivity		E100	1	μS/cm	146.9 μS/cm	98.4	90.0	110	
Physical Tests (QCLot: 858578)									
Alkalinity, total (as CaCO3)		E290	1	mg/L	500 mg/L	109	85.0	115	
Physical Tests (QCLot: 862935)									
Solids, total dissolved [TDS]		E162	10	mg/L	1000 mg/L	101	85.0	115	
Anions and Nutrients (QCLot: 858570)									
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: 858571)									1
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	0.5 mg/L	103	90.0	110	
Anions and Nutrients (QCLot: 858572)									
Chloride	16887-00-6	E235.CI	0.5	mg/L	100 mg/L	102	90.0	110	
Anions and Nutrients (QCLot: 858573)									
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	104	90.0	110	
Anions and Nutrients (QCLot: 858574)									
Fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	104	90.0	110	
Anions and Nutrients (QCLot: 859757)									
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	102	85.0	115	
Dissolved Metals (QCLot: 858601)									
Aluminum, dissolved	7429-90-5		0.001	mg/L	2 mg/L	99.2	80.0	120	
Antimony, dissolved	7440-36-0		0.0001	mg/L	1 mg/L	106	80.0	120	
Arsenic, dissolved	7440-38-2		0.0001	mg/L	1 mg/L	103	80.0	120	
Barium, dissolved	7440-39-3		0.0001	mg/L	0.25 mg/L	95.3	80.0	120	
Beryllium, dissolved	7440-41-7		0.00002	mg/L	0.1 mg/L	94.4	80.0	120	
Bismuth, dissolved	7440-69-9		0.00005	mg/L	1 mg/L	111	80.0	120	
Boron, dissolved	7440-42-8		0.01	mg/L	1 mg/L	94.9	80.0	120	
Cadmium, dissolved	7440-43-9		0.000005	mg/L	0.1 mg/L	97.4	80.0	120	
Calcium, dissolved	7440-70-2		0.05	mg/L	50 mg/L	101	80.0	120	
Chromium, dissolved	7440-47-3		0.0005	mg/L	0.25 mg/L	100	80.0	120	
Cobalt, dissolved	7440-48-4		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	97.3	80.0	120	

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Sub-Matrix: Water					Laboratory Co	ontrol Sample (LCS)	Report	
				Spike	Recovery (%)	Recovery	Limits (%)	
Analyte	CAS Number Metho	d LOR	Unit	Concentration	LCS	Low	High	Qualifie
Dissolved Metals (QCLot: 858601) - continue	ed							
Iron, dissolved	7439-89-6 E421	0.01	mg/L	1 mg/L	97.9	80.0	120	
Lead, dissolved	7439-92-1 E421	0.00005	mg/L	0.5 mg/L	99.3	80.0	120	
Lithium, dissolved	7439-93-2 E421	0.001	mg/L	0.25 mg/L	91.3	80.0	120	
Magnesium, dissolved	7439-95-4 E421	0.005	mg/L	50 mg/L	99.6	80.0	120	
Manganese, dissolved	7439-96-5 E421	0.0001	mg/L	0.25 mg/L	100	80.0	120	
Molybdenum, dissolved	7439-98-7 E421	0.00005	mg/L	0.25 mg/L	101	80.0	120	
Nickel, dissolved	7440-02-0 E421	0.0005	mg/L	0.5 mg/L	99.5	80.0	120	
Phosphorus, dissolved	7723-14-0 E421	0.05	mg/L	10 mg/L	100	80.0	120	
Potassium, dissolved	7440-09-7 E421	0.05	mg/L	50 mg/L	95.9	80.0	120	
Selenium, dissolved	7782-49-2 E421	0.00005	mg/L	1 mg/L	98.3	80.0	120	
Silicon, dissolved	7440-21-3 E421	0.05	mg/L	10 mg/L	99.9	80.0	120	
Silver, dissolved	7440-22-4 E421	0.00001	mg/L	0.1 mg/L	95.8	80.0	120	
Sodium, dissolved	7440-23-5 E421	0.05	mg/L	50 mg/L	109	80.0	120	
Strontium, dissolved	7440-24-6 E421	0.0002	mg/L	0.25 mg/L	97.9	80.0	120	
Sulfur, dissolved	7704-34-9 E421	0.5	mg/L	50 mg/L	89.6	80.0	120	
Thallium, dissolved	7440-28-0 E421	0.00001	mg/L	1 mg/L	104	80.0	120	
Tin, dissolved	7440-31-5 E421	0.0001	mg/L	0.5 mg/L	96.8	80.0	120	
Titanium, dissolved	7440-32-6 E421	0.0003	mg/L	0.25 mg/L	97.4	80.0	120	
Uranium, dissolved	7440-61-1 E421	0.00001	mg/L	0.005 mg/L	104	80.0	120	
Vanadium, dissolved	7440-62-2 E421	0.0005	mg/L	0.5 mg/L	99.0	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	92.9	80.0	120	
Mercury, dissolved	7439-97-6 E509	0.000005	mg/L	0.0001 mg/L	102	80.0	120	
								4
Volatile Organic Compounds (QCLot: 862536 Benzene	71-43-2 E611C	0.5	μg/L	100 μg/L	108	70.0	130	
Bromodichloromethane	75-27-4 E611C		μg/L	100 μg/L	106	70.0	130	
Bromoform	75-25-2 E611C		μg/L	100 μg/L	106	70.0	130	
Carbon tetrachloride	56-23-5 E611C		μg/L	100 μg/L	121	70.0	130	
Chlorobenzene	108-90-7 E611C		μg/L	100 μg/L	108	70.0	130	
Chloroethane	75-00-3 E611C		μg/L	100 μg/L 100 μg/L	118	60.0	140	
Chloroform	67-66-3 E611C		μg/L	1	108	70.0	130	
Chloromethane	74-87-3 E611C		μg/L	100 μg/L	114	60.0	140	
Dibromochloromethane	124-48-1 E611C		μg/L	100 μg/L	109	70.0	130	
	95-50-1 E611C			100 μg/L		70.0	130	
Dichlorobenzene, 1,2-			μg/L	100 μg/L	110			
Dichlorobenzene, 1,3-	541-73-1 E611C	0.5	μg/L	100 μg/L	117	70.0	130	

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Work Order: VA23A5076 Amendment 1
Client: Comox Valley Regional District



Sub-Matrix: Water						Laboratory Co	ontrol Sample (LCS)	Report	
					Spike	Recovery (%)	Recovery	Limits (%)	
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifie
Volatile Organic Compounds (QCL	ot: 862536) - continued								
Dichlorobenzene, 1,4-	106-46-7	E611C	0.5	μg/L	100 μg/L	115	70.0	130	
Dichloroethane, 1,1-	75-34-3	E611C	0.5	μg/L	100 μg/L	98.1	70.0	130	
Dichloroethane, 1,2-	107-06-2	E611C	0.5	μg/L	100 μg/L	100	70.0	130	
Dichloroethylene, 1,1-	75-35-4	E611C	0.5	μg/L	100 μg/L	114	70.0	130	
Dichloroethylene, cis-1,2-	156-59-2	E611C	0.5	μg/L	100 μg/L	106	70.0	130	
Dichloroethylene, trans-1,2-	156-60-5	E611C	0.5	μg/L	100 μg/L	110	70.0	130	
Dichloromethane	75-09-2	E611C	1	μg/L	100 μg/L	106	70.0	130	
Dichloropropane, 1,2-	78-87-5	E611C	0.5	μg/L	100 μg/L	101	70.0	130	
Dichloropropylene, cis-1,3-	10061-01-5	E611C	0.5	μg/L	100 μg/L	104	70.0	130	
Dichloropropylene, trans-1,3-	10061-02-6	E611C	0.5	μg/L	100 μg/L	106	70.0	130	
Ethylbenzene	100-41-4	E611C	0.5	μg/L	100 μg/L	115	70.0	130	
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611C	0.5	μg/L	100 μg/L	108	70.0	130	
Styrene	100-42-5	E611C	0.5	μg/L	100 μg/L	107	70.0	130	
Tetrachloroethane, 1,1,1,2-	630-20-6	E611C	0.5	μg/L	100 μg/L	112	70.0	130	
Tetrachloroethane, 1,1,2,2-	79-34-5	E611C	0.2	μg/L	100 μg/L	93.3	70.0	130	
Tetrachloroethylene	127-18-4	E611C	0.5	μg/L	100 μg/L	126	70.0	130	
Toluene	108-88-3	E611C	0.4	μg/L	100 μg/L	111	70.0	130	
Trichloroethane, 1,1,1-	71-55-6	E611C	0.5	μg/L	100 μg/L	115	70.0	130	
Trichloroethane, 1,1,2-	79-00-5	E611C	0.5	μg/L	100 μg/L	101	70.0	130	
Trichloroethylene	79-01-6	E611C	0.5	μg/L	100 μg/L	120	70.0	130	
Trichlorofluoromethane	75-69-4	E611C	0.5	μg/L	100 μg/L	107	60.0	140	
Vinyl chloride	75-01-4	E611C	0.4	μg/L	100 μg/L	118	60.0	140	
Xylene, m+p-	179601-23-1	E611C	0.4	μg/L	200 μg/L	114	70.0	130	
Xylene, o-	95-47-6	E611C	0.3	μg/L	100 μg/L	111	70.0	130	
Volatile Organic Compounds (QCL	ot: 964222\				194 191				
Benzene	71-43-2	E611C	0.5	μg/L	100 μg/L	94.2	70.0	130	
Bromodichloromethane	75-27-4	E611C	0.5	μg/L	100 μg/L	93.8	70.0	130	
Bromoform	75-25-2	E611C	0.5	μg/L	100 μg/L	111	70.0	130	
Carbon tetrachloride	56-23-5		0.5	μg/L	100 µg/L	100	70.0	130	
Chlorobenzene	108-90-7		0.5	μg/L	100 μg/L	99.4	70.0	130	
Chloroethane	75-00-3		0.5	μg/L	100 μg/L	97.4	60.0	140	
Chloroform	67-66-3		0.5	μg/L	100 μg/L	101	70.0	130	
Chloromethane	74-87-3		5	μg/L	100 µg/L	101	60.0	140	
Dibromochloromethane	124-48-1		0.5	μg/L	100 μg/L	103	70.0	130	
Dichlorobenzene, 1,2-	95-50-1		0.5	μg/L	100 μg/L	104	70.0	130	
Dichlorobenzene, 1,3-	541-73-1		0.5	μg/L	100 μg/L	105	70.0	130	
516111616565126116, 1,0-	341-73-1	1	0.0	M3/ -	100 μg/L	103	70.0	100	

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Work Order: VA23A5076 Amendment 1
Client: Comox Valley Regional District



b-Matrix: Water					Laboratory Control Sample (LCS) Report						
					Spike	Recovery (%)	Recovery	Limits (%)			
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier		
Volatile Organic Compounds (QCLot:	864332) - continued										
Dichlorobenzene, 1,4-	106-46-7	E611C	0.5	μg/L	100 μg/L	104	70.0	130			
Dichloroethane, 1,1-	75-34-3	E611C	0.5	μg/L	100 μg/L	93.6	70.0	130			
Dichloroethane, 1,2-	107-06-2	E611C	0.5	μg/L	100 μg/L	95.4	70.0	130			
Dichloroethylene, 1,1-	75-35-4	E611C	0.5	μg/L	100 μg/L	99.6	70.0	130			
Dichloroethylene, cis-1,2-	156-59-2	E611C	0.5	μg/L	100 μg/L	91.5	70.0	130			
Dichloroethylene, trans-1,2-	156-60-5	E611C	0.5	μg/L	100 μg/L	102	70.0	130			
Dichloromethane	75-09-2	E611C	1	μg/L	100 μg/L	90.6	70.0	130			
Dichloropropane, 1,2-	78-87-5	E611C	0.5	μg/L	100 μg/L	91.6	70.0	130			
Dichloropropylene, cis-1,3-	10061-01-5	E611C	0.5	μg/L	100 μg/L	92.0	70.0	130			
Dichloropropylene, trans-1,3-	10061-02-6	E611C	0.5	μg/L	100 μg/L	93.2	70.0	130			
Ethylbenzene	100-41-4	E611C	0.5	μg/L	100 μg/L	102	70.0	130			
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611C	0.5	μg/L	100 μg/L	104	70.0	130			
Styrene	100-42-5	E611C	0.5	μg/L	100 μg/L	101	70.0	130			
Tetrachloroethane, 1,1,1,2-	630-20-6	E611C	0.5	μg/L	100 μg/L	100	70.0	130			
Tetrachloroethane, 1,1,2,2-	79-34-5	E611C	0.2	μg/L	100 μg/L	100	70.0	130			
Tetrachloroethylene	127-18-4	E611C	0.5	μg/L	100 μg/L	106	70.0	130			
Toluene	108-88-3	E611C	0.4	μg/L	100 μg/L	100	70.0	130			
Trichloroethane, 1,1,1-	71-55-6	E611C	0.5	μg/L	100 μg/L	103	70.0	130			
Trichloroethane, 1,1,2-	79-00-5	E611C	0.5	μg/L	100 μg/L	97.4	70.0	130			
Trichloroethylene	79-01-6	E611C	0.5	μg/L	100 μg/L	95.6	70.0	130			
Trichlorofluoromethane	75-69-4	E611C	0.5	μg/L	100 μg/L	98.7	60.0	140			
Vinyl chloride	75-01-4	E611C	0.4	μg/L	100 μg/L	100	60.0	140			
Xylene, m+p-	179601-23-1	E611C	0.4	μg/L	200 μg/L	102	70.0	130			
Xylene, o-	95-47-6	E611C	0.3	μg/L	100 μg/L	102	70.0	130			
Hydrocarbons (QCLot: 862534)											
VHw (C6-C10)		E581.VH+F1	100	μg/L	6310 µg/L	105	70.0	130			
Hydrocarbons (QCLot: 864331)											
VHw (C6-C10)		E581.VH+F1	100	μg/L	6310 μg/L	99.8	70.0	130			

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Work Order: VA23A5076 Amendment 1
Client: Comox Valley Regional District

Project : 3



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 Spik	e (MS) Report		
					Spi	ike	Recovery (%)	Recovery	Limits (%)	
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
	ents (QCLot: 858570)									
VA23A5139-001	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	12.4 mg/L	12.5 mg/L	99.2	75.0	125	
Anions and Nutri	ents (QCLot: 858571)									T I
VA23A5139-001	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	2.48 mg/L	2.5 mg/L	99.2	75.0	125	
Anions and Nutri	ents (QCLot: 858572)									
VA23A5139-001	Anonymous	Chloride	16887-00-6	E235.CI	495 mg/L	500 mg/L	99.0	75.0	125	
nions and Nutri	ents (QCLot: 858573)									T
VA23A5139-001	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	494 mg/L	500 mg/L	98.7	75.0	125	
Anions and Nutri	ents (QCLot: 858574)									
VA23A5139-001	Anonymous	Fluoride	16984-48-8	E235.F	5.11 mg/L	5 mg/L	102	75.0	125	
Anions and Nutri	ents (QCLot: 859757)				The state of the s	5g/ =	.,,_			
VA23A5076-001	WG-030723-CS-49	Ammonia, total (as N)	7664-41-7	E298	0.0996 mg/L	0.1 mg/L	99.6	75.0	125	
	(QCLot: 858601)		7004417	2200	0.0000 Hig/L	0.1 mg/L	00.0	70.0	120	
VA23A5076-002	WG-030723-CS-50	Aluminum, dissolved	7429-90-5	E421	0.175 mg/L	0.2 mg/L	87.6	70.0	130	
V/120/100/0 002		Antimony, dissolved	7440-36-0	E421	0.175 mg/L 0.0182 mg/L	0.2 mg/L 0.02 mg/L	91.0	70.0	130	
		Arsenic, dissolved	7440-38-2	E421	0.0182 mg/L 0.0183 mg/L	0.02 mg/L 0.02 mg/L	91.5	70.0	130	
		Barium, dissolved	7440-39-3	E421	0.0103 mg/L 0.0178 mg/L	0.02 mg/L	89.2	70.0	130	
		Beryllium, dissolved	7440-41-7	E421	0.0176 mg/L 0.0376 mg/L	0.02 mg/L 0.04 mg/L	94.1	70.0	130	
		Bismuth, dissolved	7440-41-7	E421	0.0376 Hig/L 0.00887 mg/L	0.04 mg/L 0.01 mg/L	88.7	70.0	130	
		Boron, dissolved	7440-42-8	E421	0.00887 Hg/L 0.093 mg/L	0.01 mg/L	92.8	70.0	130	
		Cadmium, dissolved	7440-43-9	E421	0.093 Hg/L 0.00370 mg/L	0.1111g/L 0.004 mg/L	92.6	70.0	130	
		Calcium, dissolved	7440-70-2	E421	ND mg/L	4 mg/L	ND	70.0	130	
		Chromium, dissolved	7440-70-2	E421	0.0361 mg/L	0.04 mg/L	90.3	70.0	130	
		Cobalt, dissolved	7440-47-3	E421	0.0301 mg/L 0.0182 mg/L	0.04 mg/L 0.02 mg/L	90.9	70.0	130	
		Copper, dissolved	7440-50-8	E421		, and the second		70.0	130	
		Iron, dissolved	7439-89-6	E421	0.0184 mg/L	0.02 mg/L	91.8 92.6	70.0	130	
		Lead, dissolved	7439-69-6		1.85 mg/L	2 mg/L		70.0		
		Lithium, dissolved		E421	0.0186 mg/L	0.02 mg/L	93.0		130	
		Magnesium, dissolved	7439-93-2	E421	0.0956 mg/L	0.1 mg/L	95.6	70.0	130	
		Manganese, dissolved	7439-95-4	E421	ND mg/L	1 mg/L	ND 04.4	70.0	130	
		Molybdenum, dissolved	7439-96-5 7439-98-7	E421 E421	0.0188 mg/L 0.0185 mg/L	0.02 mg/L 0.02 mg/L	94.1 92.4	70.0 70.0	130 130	

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Work Order: VA23A5076 Amendment 1
Client: Comox Valley Regional District



Sub-Matrix: Water				Matrix Spike (MS) Report							
					Spi	ike	Recovery (%)	Recovery	Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier	
Dissolved Metals	(QCLot: 858601) - c	ontinued									
VA23A5076-002	WG-030723-CS-50	Nickel, dissolved	7440-02-0	E421	0.0374 mg/L	0.04 mg/L	93.4	70.0	130		
		Phosphorus, dissolved	7723-14-0	E421	9.38 mg/L	10 mg/L	93.8	70.0	130		
		Potassium, dissolved	7440-09-7	E421	3.63 mg/L	4 mg/L	90.8	70.0	130		
		Selenium, dissolved	7782-49-2	E421	0.0393 mg/L	0.04 mg/L	98.3	70.0	130		
		Silicon, dissolved	7440-21-3	E421	8.76 mg/L	10 mg/L	87.6	70.0	130		
		Silver, dissolved	7440-22-4	E421	0.00374 mg/L	0.004 mg/L	93.6	70.0	130		
		Sodium, dissolved	7440-23-5	E421	1.84 mg/L	2 mg/L	91.9	70.0	130		
		Strontium, dissolved	7440-24-6	E421	ND mg/L	0.02 mg/L	ND	70.0	130		
		Sulfur, dissolved	7704-34-9	E421	18.8 mg/L	20 mg/L	94.2	70.0	130		
		Thallium, dissolved	7440-28-0	E421	0.00379 mg/L	0.004 mg/L	94.8	70.0	130		
		Tin, dissolved	7440-31-5	E421	0.0183 mg/L	0.02 mg/L	91.5	70.0	130		
		Titanium, dissolved	7440-32-6	E421	0.0370 mg/L	0.04 mg/L	92.6	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	0.0909 mg/L	0.1 mg/L	90.9	70.0	130		
		Zinc, dissolved	7440-66-6	E421	0.391 mg/L	0.4 mg/L	97.7	70.0	130		
		Zirconium, dissolved	7440-67-7	E421	0.0388 mg/L	0.04 mg/L	97.0	70.0	130		
Dissolved Metals	(QCLot: 859285)										
VA23A5007-001	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000997 mg/L	0.0001 mg/L	99.7	70.0	130		
Volatile Organic	Compounds (QCLot:	862536)									
VA23A5076-005	WG-030723-CS-53	Benzene	71-43-2	E611C	113 µg/L	100 μg/L	113	60.0	140		
		Bromodichloromethane	75-27-4	E611C	110 μg/L	100 μg/L	110	60.0	140		
		Bromoform	75-25-2	E611C	110 μg/L	100 μg/L	110	60.0	140		
		Carbon tetrachloride	56-23-5	E611C	132 μg/L	100 μg/L	132	60.0	140		
		Chlorobenzene	108-90-7	E611C	110 μg/L	100 μg/L	110	60.0	140		
									150		
		Chloroethane	75-00-3	E611C	122 μg/L	100 μg/L	122	50.0	150		
		Chloroform				100 μg/L 100 μg/L	122 113	50.0 60.0	140		
			75-00-3	E611C	122 μg/L						
		Chloroform	75-00-3 67-66-3	E611C	122 μg/L 113 μg/L	100 μg/L	113	60.0	140		
		Chloroform Chloromethane	75-00-3 67-66-3 74-87-3	E611C E611C E611C	122 μg/L 113 μg/L 127 μg/L	100 μg/L 100 μg/L	113 127	60.0 50.0	140 150		
		Chloroform Chloromethane Dibromochloromethane	75-00-3 67-66-3 74-87-3 124-48-1	E611C E611C E611C E611C	122 μg/L 113 μg/L 127 μg/L 118 μg/L	100 μg/L 100 μg/L 100 μg/L	113 127 118	60.0 50.0 60.0	140 150 140		
		Chloroform Chloromethane Dibromochloromethane Dichlorobenzene, 1,2-	75-00-3 67-66-3 74-87-3 124-48-1 95-50-1	E611C E611C E611C E611C	122 µg/L 113 µg/L 127 µg/L 118 µg/L 115 µg/L	100 µg/L 100 µg/L 100 µg/L 100 µg/L	113 127 118 115	60.0 50.0 60.0 60.0	140 150 140 140		
		Chloroform Chloromethane Dibromochloromethane Dichlorobenzene, 1,2- Dichlorobenzene, 1,3-	75-00-3 67-66-3 74-87-3 124-48-1 95-50-1 541-73-1	E611C E611C E611C E611C E611C	122 µg/L 113 µg/L 127 µg/L 118 µg/L 115 µg/L 117 µg/L	100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L	113 127 118 115 117	60.0 50.0 60.0 60.0	140 150 140 140 140		
		Chloroform Chloromethane Dibromochloromethane Dichlorobenzene, 1,2- Dichlorobenzene, 1,3- Dichlorobenzene, 1,4-	75-00-3 67-66-3 74-87-3 124-48-1 95-50-1 541-73-1 106-46-7	E611C E611C E611C E611C E611C E611C E611C	122 μg/L 113 μg/L 127 μg/L 118 μg/L 115 μg/L 117 μg/L 116 μg/L	100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L	113 127 118 115 117 116	60.0 50.0 60.0 60.0 60.0	140 150 140 140 140		
		Chloroform Chloromethane Dibromochloromethane Dichlorobenzene, 1,2- Dichlorobenzene, 1,3- Dichlorobenzene, 1,4- Dichloroethane, 1,1-	75-00-3 67-66-3 74-87-3 124-48-1 95-50-1 541-73-1 106-46-7 75-34-3	E611C E611C E611C E611C E611C E611C E611C E611C	122 µg/L 113 µg/L 127 µg/L 118 µg/L 115 µg/L 117 µg/L 116 µg/L 111 µg/L	100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L	113 127 118 115 117 116	60.0 50.0 60.0 60.0 60.0 60.0	140 150 140 140 140 140	 	

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Work Order: VA23A5076 Amendment 1
Client: Comox Valley Regional District



Sub-Matrix: Water							Matrix Spil	ke (MS) Report		
					Spi	ke	Recovery (%)	Recovery	Limits (%)	
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Volatile Organic	Compounds (QCLot	: 862536) - continued								
VA23A5076-005	WG-030723-CS-53	Dichloroethylene, trans-1,2-	156-60-5	E611C	110 μg/L	100 μg/L	110	60.0	140	
		Dichloromethane	75-09-2	E611C	107 μg/L	100 μg/L	107	60.0	140	
		Dichloropropane, 1,2-	78-87-5	E611C	104 μg/L	100 μg/L	104	60.0	140	
		Dichloropropylene, cis-1,3-	10061-01-5	E611C	96.8 μg/L	100 μg/L	96.8	60.0	140	
		Dichloropropylene, trans-1,3-	10061-02-6	E611C	92.4 μg/L	100 μg/L	92.4	60.0	140	
		Ethylbenzene	100-41-4	E611C	119 µg/L	100 μg/L	119	60.0	140	
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611C	108 μg/L	100 μg/L	108	60.0	140	
		Styrene	100-42-5	E611C	111 µg/L	100 μg/L	111	60.0	140	
		Tetrachloroethane, 1,1,1,2-	630-20-6	E611C	120 μg/L	100 μg/L	120	60.0	140	
		Tetrachloroethane, 1,1,2,2-	79-34-5	E611C	99.2 μg/L	100 μg/L	99.2	60.0	140	
		Tetrachloroethylene	127-18-4	E611C	139 μg/L	100 μg/L	139	60.0	140	
		Toluene	108-88-3	E611C	114 μg/L	100 μg/L	114	60.0	140	
		Trichloroethane, 1,1,1-	71-55-6	E611C	121 μg/L	100 μg/L	121	60.0	140	
		Trichloroethane, 1,1,2-	79-00-5	E611C	103 μg/L	100 μg/L	103	60.0	140	
		Trichloroethylene	79-01-6	E611C	132 µg/L	100 μg/L	132	60.0	140	
		Trichlorofluoromethane	75-69-4	E611C	137 μg/L	100 μg/L	137	50.0	150	
		Vinyl chloride	75-01-4	E611C	129 μg/L	100 μg/L	129	50.0	150	
		Xylene, m+p-	179601-23-1	E611C	238 μg/L	200 μg/L	119	60.0	140	
		Xylene, o-	95-47-6	E611C	117 μg/L	100 μg/L	117	60.0	140	
/olatile Organic	Compounds (QCLot	: 864332)								
VA23A5142-002	Anonymous	Benzene	71-43-2	E611C	92.2 μg/L	100 μg/L	92.2	60.0	140	
		Bromodichloromethane	75-27-4	E611C	93.8 μg/L	100 μg/L	93.8	60.0	140	
		Bromoform	75-25-2	E611C	113 µg/L	100 μg/L	113	60.0	140	
		Carbon tetrachloride	56-23-5	E611C	94.6 μg/L	100 μg/L	94.6	60.0	140	
		Chlorobenzene	108-90-7	E611C	93.7 μg/L	100 μg/L	93.7	60.0	140	
		Chloroethane	75-00-3	E611C	90.9 μg/L	100 μg/L	90.9	50.0	150	
		Chloroform	67-66-3	E611C	98.5 μg/L	100 μg/L	98.5	60.0	140	
		Chloromethane	74-87-3	E611C	89.1 μg/L	100 μg/L	89.1	50.0	150	
		Dibromochloromethane	124-48-1	E611C	105 μg/L	100 μg/L	105	60.0	140	
		Dichlorobenzene, 1,2-	95-50-1	E611C	94.6 µg/L	100 μg/L	94.6	60.0	140	
		Dichlorobenzene, 1,3-	541-73-1	E611C	88.0 µg/L	100 μg/L	88.0	60.0	140	
		Dichlorobenzene, 1,4-	106-46-7	E611C	88.0 µg/L	100 μg/L	88.0	60.0	140	
		Dichloroethane, 1,1-	75-34-3	E611C	90.5 μg/L	100 μg/L	90.5	60.0	140	
				1	1				I	1
		Dichloroethane, 1,2-	107-06-2	E611C	96.8 μg/L	100 μg/L	96.8	60.0	140	

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Sub-Matrix: Water							Matrix Spil	ke (MS) Report		
					Spi	ke	Recovery (%)	Recovery	Limits (%)	
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Volatile Organic	Compounds (QCLot	: 864332) - continued								
VA23A5142-002	Anonymous	Dichloroethylene, cis-1,2-	156-59-2	E611C	87.4 μg/L	100 μg/L	87.4	60.0	140	
		Dichloroethylene, trans-1,2-	156-60-5	E611C	90.4 μg/L	100 μg/L	90.4	60.0	140	
		Dichloromethane	75-09-2	E611C	89.2 μg/L	100 μg/L	89.2	60.0	140	
		Dichloropropane, 1,2-	78-87-5	E611C	91.3 μg/L	100 μg/L	91.3	60.0	140	
		Dichloropropylene, cis-1,3-	10061-01-5	E611C	77.5 μg/L	100 μg/L	77.5	60.0	140	
		Dichloropropylene, trans-1,3-	10061-02-6	E611C	68.9 μg/L	100 μg/L	68.9	60.0	140	
		Ethylbenzene	100-41-4	E611C	92.4 μg/L	100 μg/L	92.4	60.0	140	
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611C	99.8 μg/L	100 μg/L	99.8	60.0	140	
		Styrene	100-42-5	E611C	93.1 μg/L	100 μg/L	93.1	60.0	140	
		Tetrachloroethane, 1,1,1,2-	630-20-6	E611C	96.0 μg/L	100 μg/L	96.0	60.0	140	
		Tetrachloroethane, 1,1,2,2-	79-34-5	E611C	104 μg/L	100 μg/L	104	60.0	140	
		Tetrachloroethylene	127-18-4	E611C	96.2 μg/L	100 μg/L	96.2	60.0	140	
		Toluene	108-88-3	E611C	92.6 μg/L	100 μg/L	92.6	60.0	140	
		Trichloroethane, 1,1,1-	71-55-6	E611C	94.0 μg/L	100 μg/L	94.0	60.0	140	
		Trichloroethane, 1,1,2-	79-00-5	E611C	97.9 μg/L	100 μg/L	97.9	60.0	140	
		Trichloroethylene	79-01-6	E611C	88.6 µg/L	100 μg/L	88.6	60.0	140	
		Trichlorofluoromethane	75-69-4	E611C	96.2 μg/L	100 μg/L	96.2	50.0	150	
		Vinyl chloride	75-01-4	E611C	88.0 µg/L	100 μg/L	88.0	50.0	150	
		Xylene, m+p-	179601-23-1	E611C	188 μg/L	200 μg/L	94.0	60.0	140	
		Xylene, o-	95-47-6	E611C	94.5 μg/L	100 μg/L	94.5	60.0	140	
Hydrocarbons (QCLot: 862534)									
VA23A4862-003	Anonymous	VHw (C6-C10)		E581.VH+F1	5650 μg/L	6310 µg/L	89.6	60.0	140	
Hydrocarbons (QCLot: 864331)									
VA23A5134-001	Anonymous	VHw (C6-C10)		E581.VH+F1	5080 μg/L	6310 µg/L	80.6	60.0	140	



QUALITY CONTROL INTERPRETIVE REPORT

Work Order : **VA23A5076** Page : 1 of 17

Amendment :1

Client : Comox Valley Regional District Laboratory : Vancouver - Environmental

Contact : Crystal Stuart Account Manager : Thomas Chang

Address :770 Harmston Avenue Address :8081 Lougheed Highway

Burnaby, British Columbia Canada V5A 1W9

 Telephone
 :250-898-3722
 Telephone
 :+1 604 253 4188

 Project
 :3
 Date Samples Received
 : 09-Mar-2023 09:10

 PO
 : 23-015
 Issue Date
 : 22-Mar-2023 14:39

C-O-C number : ----

Sampler : Crystal Stuart

Site : CRWMC-Quarterly-GW
Quote number : VA23-COVR100-001

No. of samples received :6
No. of samples analysed :6

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.

Courtney BC Canada V9N 0G8

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

<u>No</u> Quality Control Sample Frequency Outliers occur.

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Project :



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					Ev	/aluation: ≭ =	Holding time exce	edance ; 🕥	✓ = Within	Holding Tim
Analyte Group	Method	Sampling Date	Ext	raction / Pr	eparation			Analys	sis	
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) WG-030723-CS-49	E298	07-Mar-2023	10-Mar-2023				13-Mar-2023	28 days	6 days	√
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) WG-030723-CS-50	E298	07-Mar-2023	10-Mar-2023				13-Mar-2023	28 days	6 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) WG-030723-CS-51	E298	07-Mar-2023	10-Mar-2023				13-Mar-2023	28 days	6 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) WG-030723-CS-52	E298	07-Mar-2023	10-Mar-2023				13-Mar-2023	28 days	6 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) WG-030723-CS-53	E298	07-Mar-2023	10-Mar-2023				13-Mar-2023	28 days	6 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) WG-030723-CS-54	E298	07-Mar-2023	10-Mar-2023				13-Mar-2023	28 days	6 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE WG-030723-CS-52	E235.CI	07-Mar-2023	10-Mar-2023				10-Mar-2023	28 days	2 days	✓

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Matrix: Water					Ev	aluation: 🗴 =	Holding time exce	edance ; 🔻	= Within	Holding Tin
Analyte Group	Method	Sampling Date	Ext	raction / Pr	eparation			Analys	is	
Container / Client Sample ID(s)			Preparation Date	Holding Rec	g Times Actual	Eval	Analysis Date	Holding Rec	Times Actual	Eval
Anions and Nutrients : Chloride in Water by IC			Date	7100	Hotaar			7100	Hotaur	
HDPE WG-030723-CS-53	E235.CI	07-Mar-2023	10-Mar-2023				10-Mar-2023	28 days	2 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE WG-030723-CS-54	E235.Cl	07-Mar-2023	10-Mar-2023				10-Mar-2023	28 days	2 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE WG-030723-CS-49	E235.CI	07-Mar-2023	10-Mar-2023				10-Mar-2023	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE WG-030723-CS-50	E235.CI	07-Mar-2023	10-Mar-2023				10-Mar-2023	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE WG-030723-CS-51	E235.Cl	07-Mar-2023	10-Mar-2023				10-Mar-2023	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE WG-030723-CS-52	E235.F	07-Mar-2023	10-Mar-2023				10-Mar-2023	28 days	2 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE WG-030723-CS-53	E235.F	07-Mar-2023	10-Mar-2023				10-Mar-2023	28 days	2 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE WG-030723-CS-54	E235.F	07-Mar-2023	10-Mar-2023				10-Mar-2023	28 days	2 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE WG-030723-CS-49	E235.F	07-Mar-2023	10-Mar-2023				10-Mar-2023	28 days	3 days	✓

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Matrix: Water					Ev	aluation: 🗴 =	Holding time exce	edance ; 🔻	/ = Within	Holding Time
Analyte Group	Method	Sampling Date	Ext	raction / Pr	eparation			Analys	sis	
Container / Client Sample ID(s)			Preparation Date	Holding Rec	g Times Actual	Eval	Analysis Date	Holding Rec	7 Times Actual	Eval
Anions and Nutrients : Fluoride in Water by IC										
HDPE WG-030723-CS-50	E235.F	07-Mar-2023	10-Mar-2023				10-Mar-2023	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE WG-030723-CS-51	E235.F	07-Mar-2023	10-Mar-2023				10-Mar-2023	28 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE WG-030723-CS-52	E235.NO3-L	07-Mar-2023	10-Mar-2023				10-Mar-2023	3 days	2 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE WG-030723-CS-53	E235.NO3-L	07-Mar-2023	10-Mar-2023				10-Mar-2023	3 days	2 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE WG-030723-CS-54	E235.NO3-L	07-Mar-2023	10-Mar-2023				10-Mar-2023	3 days	2 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE WG-030723-CS-49	E235.NO3-L	07-Mar-2023	10-Mar-2023				10-Mar-2023	3 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE WG-030723-CS-50	E235.NO3-L	07-Mar-2023	10-Mar-2023				10-Mar-2023	3 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)								1	1	
HDPE WG-030723-CS-51	E235.NO3-L	07-Mar-2023	10-Mar-2023				10-Mar-2023	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE WG-030723-CS-52	E235.NO2-L	07-Mar-2023	10-Mar-2023				10-Mar-2023	3 days	2 days	✓

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Matrix: Water					Ev	aluation: 🗴 =	Holding time exce	edance ; 🔻	= Within	Holding Tin
Analyte Group	Method	Sampling Date	Ext	raction / Pr	eparation			Analys	is	
Container / Client Sample ID(s)			Preparation Date	Holding Rec	g Times Actual	Eval	Analysis Date	Holding Rec	Times Actual	Eval
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE WG-030723-CS-53	E235.NO2-L	07-Mar-2023	10-Mar-2023				10-Mar-2023	3 days	2 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE WG-030723-CS-54	E235.NO2-L	07-Mar-2023	10-Mar-2023				10-Mar-2023	3 days	2 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE WG-030723-CS-49	E235.NO2-L	07-Mar-2023	10-Mar-2023				10-Mar-2023	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE WG-030723-CS-50	E235.NO2-L	07-Mar-2023	10-Mar-2023				10-Mar-2023	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE WG-030723-CS-51	E235.NO2-L	07-Mar-2023	10-Mar-2023				10-Mar-2023	3 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE WG-030723-CS-52	E235.SO4	07-Mar-2023	10-Mar-2023				10-Mar-2023	28 days	2 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE WG-030723-CS-53	E235.SO4	07-Mar-2023	10-Mar-2023				10-Mar-2023	28 days	2 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE WG-030723-CS-54	E235.SO4	07-Mar-2023	10-Mar-2023				10-Mar-2023	28 days	2 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE WG-030723-CS-49	E235.SO4	07-Mar-2023	10-Mar-2023				10-Mar-2023	28 days	3 days	✓

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Matrix: Water					Ev	aluation: 🗴 =	Holding time exce	edance ; 🔻	= Within	Holding Tin
Analyte Group	Method	Sampling Date	Ext	raction / Pr	eparation		Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Rec	g Times Actual	Eval	Analysis Date	Holding Rec	Times Actual	Eval
Anions and Nutrients : Sulfate in Water by IC										
HDPE WG-030723-CS-50	E235.SO4	07-Mar-2023	10-Mar-2023				10-Mar-2023	28 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE WG-030723-CS-51	E235.SO4	07-Mar-2023	10-Mar-2023				10-Mar-2023	28 days	3 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid) WG-030723-CS-49	E509	07-Mar-2023	10-Mar-2023				10-Mar-2023	28 days	3 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid) WG-030723-CS-50	E509	07-Mar-2023	10-Mar-2023				10-Mar-2023	28 days	3 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid) WG-030723-CS-51	E509	07-Mar-2023	10-Mar-2023				10-Mar-2023	28 days	3 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid) WG-030723-CS-52	E509	07-Mar-2023	10-Mar-2023				10-Mar-2023	28 days	3 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid) WG-030723-CS-53	E509	07-Mar-2023	10-Mar-2023				10-Mar-2023	28 days	3 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid) WG-030723-CS-54	E509	07-Mar-2023	10-Mar-2023				10-Mar-2023	28 days	3 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) WG-030723-CS-49	E421	07-Mar-2023	10-Mar-2023				11-Mar-2023	180 days	4 days	✓

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Matrix: Water	Evaluation: x = Holding time exceedance; ✓ = Within Holding Time										
Analyte Group	Method	Sampling Date	Ext	traction / Pr	eparation			Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Rec	Times Actual	Eval	Analysis Date	Holding Rec	g Times Actual	Eval	
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS			Date	1100	7 1010101			7.00	1 1000.01		
HDPE dissolved (nitric acid) WG-030723-CS-50	E421	07-Mar-2023	10-Mar-2023				11-Mar-2023	180 days	4 days	✓	
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS											
HDPE dissolved (nitric acid) WG-030723-CS-51	E421	07-Mar-2023	10-Mar-2023				11-Mar-2023	180 days	4 days	√	
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS											
HDPE dissolved (nitric acid) WG-030723-CS-52	E421	07-Mar-2023	10-Mar-2023				11-Mar-2023	180 days	4 days	√	
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS											
HDPE dissolved (nitric acid) WG-030723-CS-53	E421	07-Mar-2023	10-Mar-2023				11-Mar-2023	180 days	4 days	√	
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS											
HDPE dissolved (nitric acid) WG-030723-CS-54	E421	07-Mar-2023	10-Mar-2023				11-Mar-2023	180 days	4 days	✓	
Hydrocarbons : VH and F1 by Headspace GC-FID											
Glass vial (sodium bisulfate) WG-030723-CS-52	E581.VH+F1	07-Mar-2023	14-Mar-2023				14-Mar-2023	14 days	7 days	✓	
Hydrocarbons : VH and F1 by Headspace GC-FID											
Glass vial (sodium bisulfate) WG-030723-CS-53	E581.VH+F1	07-Mar-2023	14-Mar-2023				14-Mar-2023	14 days	7 days	✓	
Hydrocarbons : VH and F1 by Headspace GC-FID											
Glass vial (sodium bisulfate) WG-030723-CS-54	E581.VH+F1	07-Mar-2023	15-Mar-2023				15-Mar-2023	14 days	8 days	✓	
Physical Tests : Alkalinity Species by Titration											
HDPE WG-030723-CS-52	E290	07-Mar-2023	10-Mar-2023				10-Mar-2023	14 days	2 days	√	

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Matrix: Water	Evaluation: x = Holding time exceedance ; ✓ = Within Holding Time											
Analyte Group	Method	Sampling Date	Ext	raction / Pr	eparation			Analys	Analysis			
Container / Client Sample ID(s)			Preparation Date	Holding Rec	g Times Actual	Eval	Analysis Date	Holding Rec	Times Actual	Eval		
Physical Tests : Alkalinity Species by Titration												
HDPE WG-030723-CS-53	E290	07-Mar-2023	10-Mar-2023				10-Mar-2023	14 days	2 days	4		
Physical Tests : Alkalinity Species by Titration												
HDPE WG-030723-CS-54	E290	07-Mar-2023	10-Mar-2023				10-Mar-2023	14 days	2 days	✓		
Physical Tests : Alkalinity Species by Titration												
HDPE WG-030723-CS-49	E290	07-Mar-2023	10-Mar-2023				10-Mar-2023	14 days	3 days	✓		
Physical Tests : Alkalinity Species by Titration												
HDPE WG-030723-CS-50	E290	07-Mar-2023	10-Mar-2023				10-Mar-2023	14 days	3 days	✓		
Physical Tests : Alkalinity Species by Titration												
HDPE WG-030723-CS-51	E290	07-Mar-2023	10-Mar-2023				10-Mar-2023	14 days	3 days	✓		
Physical Tests : Conductivity in Water												
HDPE WG-030723-CS-52	E100	07-Mar-2023	10-Mar-2023				10-Mar-2023	28 days	2 days	4		
Physical Tests : Conductivity in Water												
HDPE WG-030723-CS-53	E100	07-Mar-2023	10-Mar-2023				10-Mar-2023	28 days	2 days	✓		
Physical Tests : Conductivity in Water												
HDPE WG-030723-CS-54	E100	07-Mar-2023	10-Mar-2023				10-Mar-2023	28 days	2 days	✓		
Physical Tests : Conductivity in Water				-								
HDPE WG-030723-CS-49	E100	07-Mar-2023	10-Mar-2023				10-Mar-2023	28 days	3 days	4		

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Matrix: Water	Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time										
Analyte Group	Method	Sampling Date	Ext	raction / Pr			Analysis				
Container / Client Sample ID(s)			Preparation		g Times	Eval	Analysis Date	Holding		Eval	
			Date	Rec	Actual			Rec	Actual		
Physical Tests : Conductivity in Water				I							
HDPE WG-030723-CS-50	E100	07-Mar-2023	10-Mar-2023				10-Mar-2023	28 days	3 days	✓	
Dhusical Tests - Candusticity in Water											
Physical Tests : Conductivity in Water HDPE											
WG-030723-CS-51	E100	07-Mar-2023	10-Mar-2023				10-Mar-2023	28 days	3 days	✓	
Physical Tests : TDS by Gravimetry											
HDPE											
WG-030723-CS-49	E162	07-Mar-2023					15-Mar-2023	7 days	8 days	± EHT	
Physical Tests : TDS by Gravimetry											
HDPE	E400	07.14									
WG-030723-CS-50	E162	07-Mar-2023					15-Mar-2023	7 days	8 days	# EHT	
Physical Tests : TDS by Gravimetry											
HDPE WG-030723-CS-51	E162	07-Mar-2023					15-Mar-2023	7 days	8 days	x EHT	
Physical Tests : TDS by Gravimetry											
HDPE											
WG-030723-CS-52	E162	07-Mar-2023					15-Mar-2023	7 days	8 days	# EHT	
Physical Tests : TDS by Gravimetry											
HDPE											
WG-030723-CS-53	E162	07-Mar-2023					15-Mar-2023	7 days	8 days	# EHT	
Physical Tests : TDS by Gravimetry										LIII	
HDPE											
WG-030723-CS-54	E162	07-Mar-2023					15-Mar-2023	7 days	8 days	*	
Volatile Organic Compounds : VOCs (BC List) by Headspace GC-MS											
Glass vial (sodium bisulfate)											
WG-030723-CS-52	E611C	07-Mar-2023	14-Mar-2023				14-Mar-2023	14 days	7 days	✓	

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Matrix: Water					Ev	aluation: 🗴 =	Holding time exce	edance ; 🔻	= Within	Holding Tim		
Analyte Group	Method	Sampling Date	Ext	raction / Pr	eparation			Analys	is			
Container / Client Sample ID(s)			Preparation Date	Holding Rec	Times Actual	Eval	Analysis Date	Holding Rec	7 Times Actual	Eval		
Volatile Organic Compounds : VOCs (BC List) by Headspace GC-MS				1								
Glass vial (sodium bisulfate) WG-030723-CS-53	E611C	07-Mar-2023	14-Mar-2023				14-Mar-2023	14 days	7 days	✓		
Volatile Organic Compounds : VOCs (BC List) by Headspace GC-MS												
Glass vial (sodium bisulfate) WG-030723-CS-54	E611C	07-Mar-2023	15-Mar-2023				15-Mar-2023	14 days	8 days	✓		
Volatile Organic Compounds [Drycleaning] : VOCs (BC List) by Headspace GC-MS												
Glass vial (sodium bisulfate) WG-030723-CS-52	E611C	07-Mar-2023	14-Mar-2023				14-Mar-2023	14 days	7 days	4		
Volatile Organic Compounds [Drycleaning] : VOCs (BC List) by Headspace GC-MS												
Glass vial (sodium bisulfate) WG-030723-CS-53	E611C	07-Mar-2023	14-Mar-2023				14-Mar-2023	14 days	7 days	4		
Volatile Organic Compounds [Drycleaning] : VOCs (BC List) by Headspace GC-MS												
Glass vial (sodium bisulfate) WG-030723-CS-54	E611C	07-Mar-2023	15-Mar-2023				15-Mar-2023	14 days	8 days	✓		
Volatile Organic Compounds [Fuels] : VOCs (BC List) by Headspace GC-MS												
Glass vial (sodium bisulfate) WG-030723-CS-52	E611C	07-Mar-2023	14-Mar-2023				14-Mar-2023	14 days	7 days	✓		
Volatile Organic Compounds [Fuels] : VOCs (BC List) by Headspace GC-MS												
Glass vial (sodium bisulfate) WG-030723-CS-53	E611C	07-Mar-2023	14-Mar-2023				14-Mar-2023	14 days	7 days	✓		
Volatile Organic Compounds [Fuels] : VOCs (BC List) by Headspace GC-MS								1				
Glass vial (sodium bisulfate) WG-030723-CS-54	E611C	07-Mar-2023	15-Mar-2023				15-Mar-2023	14 days	8 days	✓		
Volatile Organic Compounds [THMs] : VOCs (BC List) by Headspace GC-MS												
Glass vial (sodium bisulfate) WG-030723-CS-52	E611C	07-Mar-2023	14-Mar-2023				14-Mar-2023	14 days	7 days	✓		

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Matrix: Water Evaluation: ★ = Holding time exceedance; ✓ = Within Holding Time											
Analyte Group	Method	Sampling Date	Ex	traction / Pr	eparation			Analys	ysis		
Container / Client Sample ID(s)			Preparation	Holding	Holding Times		Analysis Date	Holding	g Times	Eval	
			Date	Rec	Actual			Rec	Actual		
Volatile Organic Compounds [THMs] : VOCs (BC List) by Headspace GC-MS											
Glass vial (sodium bisulfate) WG-030723-CS-53	E611C	07-Mar-2023	14-Mar-2023				14-Mar-2023	14 days	7 days	~	
Volatile Organic Compounds [THMs] : VOCs (BC List) by Headspace GC-MS											
Glass vial (sodium bisulfate) WG-030723-CS-54	F611C	07-Mar-2023	15-Mar-2023				15-Mar-2023	14 days	8 days	1	

Legend & Qualifier Definitions

EHT: Exceeded ALS recommended hold time prior to analysis.

Rec. HT: ALS recommended hold time (see units).

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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.

Acadystacin Methods Method QC Lot # QC Regulatir Actual Expected Evaluation Ev	Matrix: Water	ecification; ✓ =	QC frequency wit	thin specification				
Alkalimity Species by Trianson E280 858578 1 10 10.0 5.0	Quality Control Sample Type				ount		Frequency (%))
Alkalinty Species by Titration E200 858578 1 10 10.0 5.0	Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation
Ammonia by Fluorescence E288 B59757 1 19 5.2 5.0	Laboratory Duplicates (DUP)							
Chloride in Water by IC	Alkalinity Species by Titration	E290	858578	1	10	10.0	5.0	✓
Endough yin Water by CAMAS E509 858577 1 18 5.5 5.0 \$Dissolved Metals in Water by CRC ICPMS E421 858601 1 13 7.6 5.0 \$\sqrt{Dissolved Metals in Water by IC E235.F 858574 1 9 11.1 5.0 \$\sqrt{Dissolved Metals in Water by IC E235.F 858574 1 9 11.1 5.0 \$\sqrt{Dissolved Metals in Water by IC E235.F 858574 1 9 11.1 5.0 \$\sqrt{Dissolved Metals in Water by IC E235.F 858574 1 9 11.1 5.0 \$\sqrt{Dissolved Metals in Water by IC E235.F 858574 1 12 8.3 5.0 \$\sqrt{Dissolved Metals in Water by IC E235.F 858573 1 11 9.0 5.0 \$\sqrt{Dissolved Metals in Water by IC E235.F 858573 1 11 9.0 5.0 \$\sqrt{Dissolved Metals in Water by IC E235.F 858573 1 11 9.0 5.0 \$\sqrt{Dissolved Metals in Water by IC E235.F 858573 1 11 9.0 5.0 \$\sqrt{Dissolved Metals in Water by IC E335.F 858573 1 11 9.0 5.0 \$\sqrt{Dissolved Metals in Water by IC E335.F 858573 1 10 10.0 \$\sqrt{Dissolved Metals in Water by IC E335.F 858574 1 19 5.2 5.0 \$\sqrt{Dissolved Metals in Water by IC E235.F 858577 1 19 5.2 5.0 \$\sqrt{Dissolved Metals in Water by IC E235.F 858577 1 19 5.2 5.0 \$\sqrt{Dissolved Metals in Water by IC E235.F 858574 1 10 10.0 \$\sqrt{Dissolved Metals in Water by IC E235.F 858574 1 9 11.1 5.0 \$\sqrt{Dissolved Metals in Water by IC E235.F 858574 1 9 11.1 5.0 \$\sqrt{Dissolved Metals in Water by IC E235.F 858574 1 9 11.1 5.0 \$\sqrt{Dissolved Metals in Water by IC E235.F 858574 1 9 11.1 5.0 \$\sqrt{Dissolved Metals in Water by IC E235.F 858574 1 9 11.1 5.0 \$\sqrt{Dissolved Metals in Water by IC E235.F 858574 1 9 11.1 5.0 \$\sqrt{Dissolved Metals in Water by IC E235.F 858574 1 9 11.1 5.0 \$\sqrt{Dissolved Metals in Water by IC E235.F 858574 1 9 11.1 5.0 \$\sqrt{Dissolved Metals in Water by IC E235.F 858574 1	Ammonia by Fluorescence	E298	859757	1	19	5.2	5.0	✓
Endough yin Water by CAMAS E509 858577 1 18 5.5 5.0 \$Dissolved Metals in Water by CRC ICPMS E421 858601 1 13 7.6 5.0 \$\sqrt{Dissolved Metals in Water by IC E235.F 858574 1 9 11.1 5.0 \$\sqrt{Dissolved Metals in Water by IC E235.F 858574 1 9 11.1 5.0 \$\sqrt{Dissolved Metals in Water by IC E235.F 858574 1 9 11.1 5.0 \$\sqrt{Dissolved Metals in Water by IC E235.F 858574 1 9 11.1 5.0 \$\sqrt{Dissolved Metals in Water by IC E235.F 858574 1 12 8.3 5.0 \$\sqrt{Dissolved Metals in Water by IC E235.F 858573 1 11 9.0 5.0 \$\sqrt{Dissolved Metals in Water by IC E235.F 858573 1 11 9.0 5.0 \$\sqrt{Dissolved Metals in Water by IC E235.F 858573 1 11 9.0 5.0 \$\sqrt{Dissolved Metals in Water by IC E235.F 858573 1 11 9.0 5.0 \$\sqrt{Dissolved Metals in Water by IC E335.F 858573 1 11 9.0 5.0 \$\sqrt{Dissolved Metals in Water by IC E335.F 858573 1 10 10.0 \$\sqrt{Dissolved Metals in Water by IC E335.F 858574 1 19 5.2 5.0 \$\sqrt{Dissolved Metals in Water by IC E235.F 858577 1 19 5.2 5.0 \$\sqrt{Dissolved Metals in Water by IC E235.F 858577 1 19 5.2 5.0 \$\sqrt{Dissolved Metals in Water by IC E235.F 858574 1 10 10.0 \$\sqrt{Dissolved Metals in Water by IC E235.F 858574 1 9 11.1 5.0 \$\sqrt{Dissolved Metals in Water by IC E235.F 858574 1 9 11.1 5.0 \$\sqrt{Dissolved Metals in Water by IC E235.F 858574 1 9 11.1 5.0 \$\sqrt{Dissolved Metals in Water by IC E235.F 858574 1 9 11.1 5.0 \$\sqrt{Dissolved Metals in Water by IC E235.F 858574 1 9 11.1 5.0 \$\sqrt{Dissolved Metals in Water by IC E235.F 858574 1 9 11.1 5.0 \$\sqrt{Dissolved Metals in Water by IC E235.F 858574 1 9 11.1 5.0 \$\sqrt{Dissolved Metals in Water by IC E235.F 858574 1 9 11.1 5.0 \$\sqrt{Dissolved Metals in Water by IC E235.F 858574 1	Chloride in Water by IC	E235.CI	858572	1	12	8.3	5.0	✓
Dissolved Metals in Water by CRC ICPMS	Conductivity in Water	E100	858577	1	18	5.5	5.0	
Fluoride in Water by IC	Dissolved Mercury in Water by CVAAS	E509	859285	1	20	5.0	5.0	✓
Nitrate in Water by IC (Low Level) E235.NO3-L 888570 1 20 5.0 5.0 ✓ Nitrite in Water by IC (Low Level) E235.NO2-L 888571 1 12 8.3 5.0 ✓ S0504 S88573 1 11 9.0 5.0 ✓ TDS by Gravimetry E162 882935 1 20 5.0 5.0 ✓ What and F1 by Headspace GC-FID E811.VH+F1 882534 2 25 8.0 5.0 ✓ What and F1 by Headspace GC-FID E811.VH+F1 882534 2 25 8.0 5.0 ✓ What and F1 by Headspace GC-FID E811.VH+F1 882534 2 13 15.3 5.0 ✓ What and F1 by Headspace GC-FID E811.VH+F1 882534 2 13 15.3 5.0 ✓ What and F1 by Headspace GC-MS E611C 882536 2 13 15.3 5.0 ✓ What and E1 by Headspace GC-MS E611C E825.CI	Dissolved Metals in Water by CRC ICPMS	E421	858601	1	13	7.6	5.0	✓
Nitrite in Water by IC (Low Level) E235.NO2-L 858571 1 12 8.3 5.0 ✓ Sulfate in Water by IC E235.SO4 858573 1 11 9.0 5.0 √ WH and F1 by Headspace GC-FID E581.WH+F1 862534 2 25 8.0 5.0 ✓ WH and F1 by Headspace GC-FID E581.WH+F1 862534 2 25 8.0 5.0 ✓ WOS (8 CL List) by Headspace GC-FID E581.WH+F1 862534 2 25 8.0 5.0 ✓ WOS (8 CL List) by Headspace GC-FID E581.WH+F1 862534 2 13 15.3 5.0 ✓ Laboratory Control Samples (LCS) Laboratory Control Samples (LCS) Rammonia by Fluorescence E298 859757 1 19 5.2 5.0 ✓ Conductivity in Water Chonde in Water by IC E235.CI 858572 1 12 8.3 5.0 ✓ Conductivity in Water E100 858577 1 18 5.5 5.0 ✓ Conductivity in Water E100 858577 1 18 5.5 5.0 ✓ Conductivity in Water by CVAAS E599 859255 1 20 5.0 5.0 ✓ Conductivity in Water by CRC ICPMS E421 858601 1 13 7.6 5.0 ✓ Nitrite in Water by IC (Low Level) Rizabi In Water by IC (Low Level) Rizabi In Water by IC (Low Level) E235.NO3-L 858571 1 12 8.3 5.0 ✓ Nitrite in Water by IC (Low Level) E235.NO3-L 858573 1 11 12 8.3 5.0 ✓ Nitrite in Water by IC (Low Level) E235.NO3-L 858571 1 10 11 12 8.3 5.0 ✓ Nitrite in Water by IC (Low Level) E235.NO3-L 858571 1 10 11 12 8.3 5.0 ✓ Nitrite in Water by IC (Low Level) E235.NO3-L 858573 1 11 12 8.3 5.0 ✓ Nitrite in Water by IC (Low Level) E235.NO3-L 858571 1 11 12 8.3 5.0 ✓ Nitrite in Water by IC (Low Level) E235.NO3-L 858573 1 11 10 10 50 50 ✓ Nitrite in Water by IC (Low Level) E235.NO3-L 858573 1 11 10 50 50 ✓ Nitrite in Water by IC (Low Level) E235.NO3-L 858573 1 11 10 50 50 ✓ Nitrite in Water by IC (Low Level) E235.NO3-L 858573 1 11 10 50 50 ✓ Nitrite in Water by IC (Low Level) E235.NO3-L 858571 1 10 50 50 50 ✓ Nitrite in Water by IC (Low Level) E235.NO3-L 858573 1 11 10 50 50 50 ✓ Nitrite in Water by IC (Low Level) E235.NO3-L 858573 1 11 10 10 10 10 10 10 10 10	Fluoride in Water by IC	E235.F	858574	1	9	11.1	5.0	✓
Sulfate in Water by IC E235.SO4 858573 1	Nitrate in Water by IC (Low Level)	E235.NO3-L	858570	1	20	5.0	5.0	√
TDS by Gravimetry	Nitrite in Water by IC (Low Level)	E235.NO2-L	858571	1	12	8.3	5.0	√
VH and F1 by Headspace GC-FID E681.VH+F1 862534 2 25 8.0 5.0 ✓ VOCs (BC List) by Headspace GC-MS E611C 862536 2 13 15.3 5.0 ✓ Laboratory Control Samples (LCS) Section of Samples (LCS)	Sulfate in Water by IC	E235.SO4	858573	1	11	9.0	5.0	
VCDCs (BC List) by Headspace GC-MS Laboratory Control Samples (LCS) Laboratory Control Samples (LCS) Naminal Species by Titration E290 858578 1 10 10 10.0 5.0 ✓ Ammonia by Fluorescence E298 859757 1 199 5.2 5.0 ✓ Chloride in Water by IC Conductivity in Water Dissolved Mercury in Water by CVAAS E509 858577 1 188 5.5 5.0 ✓ Conductivity in Water by CVAAS E509 858577 1 188 5.5 5.0 ✓ Dissolved Mercury in Water by CVCAS E421 858601 1 10 13 7.6 5.0 ✓ Dissolved Metals in Water by CRC ICPMS E421 858601 1 1 13 7.6 5.0 ✓ Pluoride in Water by IC E235.FF 858574 1 9 11.1 5.0 ✓ Nitritae in Water by IC (Low Level) E235.NO3-L 858570 1 120 5.0 5.0 5.0 ✓ Nitritae in Water by IC (Low Level) E235.NO3-L 858571 1 120 858571 1 120 858571 1 120 858571 1 120 858571 1 120 858571 1 120 858571 1 120 858571 1 120 858571 1 110 858571 1 110 858571 1 110 858571 1 110 858571 858573 1 111 90 50 4 VOCs (BC List) by Headspace GC-FIID E831.WH+P1 862534 862935 1 100 858573 1 111 90 50 4 VOCs (BC List) by Headspace GC-FIID E831.WH+P1 862534 2 255 80 50 4 Well-wall Fits the water by IC RESH VH+P1 862536 862937 1 19 5.2 5.0 ✓ Well-wall Fits the water by IC RESH VH-P1 862536 862537 1 19 5.2 5.0 ✓ Well-wall Fits the water by IC RESH VH-P1 862537 1 19 5.2 5.0 ✓ Well-wall Fits the water by IC RESH VH-P1 862536 862537 1 19 5.2 5.0 ✓ Well-wall Fits the water by IC RESH VH-P1 862536 862537 1 19 5.2 5.0 ✓ Well-wall Fits the water by IC RESH VH-P1 862536 862537 1 19 5.2 5.0 ✓ Well-wall Fits the water by IC IC RESH Well-wall Fits the water by IC IC RESH Well-wall Fits the water by IC IC RESH Well-wall Fits the water by IC IC RESH Well-wall Fits the water by IC IC RESH Well-wall Fits the water by IC IC RESH Well-wall Fits the water by IC RESH Well-wall Fits the water by IC IC RESH Well-wall Fits the water by IC RESH Well-wall Fits the water by IC IC RESH Well-wall Fits the water by IC IC RESH Well-wall Fits the water by IC IC RESH	TDS by Gravimetry	E162	862935	1	20	5.0	5.0	√
VCDCs (BC List) by Headspace GC-MS Laboratory Control Samples (LCS) Laboratory Control Samples (LCS) Naminal Species by Titration E290 858578 1 10 10 10.0 5.0 ✓ Ammonia by Fluorescence E298 859757 1 199 5.2 5.0 ✓ Chloride in Water by IC Conductivity in Water Dissolved Mercury in Water by CVAAS E509 858577 1 188 5.5 5.0 ✓ Conductivity in Water by CVAAS E509 858577 1 188 5.5 5.0 ✓ Dissolved Mercury in Water by CVCAS E421 858601 1 10 13 7.6 5.0 ✓ Dissolved Metals in Water by CRC ICPMS E421 858601 1 1 13 7.6 5.0 ✓ Pluoride in Water by IC E235.FF 858574 1 9 11.1 5.0 ✓ Nitritae in Water by IC (Low Level) E235.NO3-L 858570 1 120 5.0 5.0 5.0 ✓ Nitritae in Water by IC (Low Level) E235.NO3-L 858571 1 120 858571 1 120 858571 1 120 858571 1 120 858571 1 120 858571 1 120 858571 1 120 858571 1 120 858571 1 110 858571 1 110 858571 1 110 858571 1 110 858571 858573 1 111 90 50 4 VOCs (BC List) by Headspace GC-FIID E831.WH+P1 862534 862935 1 100 858573 1 111 90 50 4 VOCs (BC List) by Headspace GC-FIID E831.WH+P1 862534 2 255 80 50 4 Well-wall Fits the water by IC RESH VH+P1 862536 862937 1 19 5.2 5.0 ✓ Well-wall Fits the water by IC RESH VH-P1 862536 862537 1 19 5.2 5.0 ✓ Well-wall Fits the water by IC RESH VH-P1 862537 1 19 5.2 5.0 ✓ Well-wall Fits the water by IC RESH VH-P1 862536 862537 1 19 5.2 5.0 ✓ Well-wall Fits the water by IC RESH VH-P1 862536 862537 1 19 5.2 5.0 ✓ Well-wall Fits the water by IC RESH VH-P1 862536 862537 1 19 5.2 5.0 ✓ Well-wall Fits the water by IC IC RESH Well-wall Fits the water by IC IC RESH Well-wall Fits the water by IC IC RESH Well-wall Fits the water by IC IC RESH Well-wall Fits the water by IC IC RESH Well-wall Fits the water by IC IC RESH Well-wall Fits the water by IC RESH Well-wall Fits the water by IC IC RESH Well-wall Fits the water by IC RESH Well-wall Fits the water by IC IC RESH Well-wall Fits the water by IC IC RESH Well-wall Fits the water by IC IC RESH	VH and F1 by Headspace GC-FID	E581.VH+F1	862534	2	25	8.0	5.0	✓
Alkalinity Species by Titration E290 858578 1 10 10.0 5.0 ✓	VOCs (BC List) by Headspace GC-MS	E611C	862536	2	13	15.3	5.0	
Ammonia by Fluorescence E298 859757 1 19 5.2 5.0 ✓ Chloride in Water by IC E235.CI 858572 1 12 8.3 5.0 ✓ Conductivity in Water E100 858577 1 18 5.5 5.0 ✓ Dissolved Mercury in Water by CVAAS E509 859285 1 20 5.0 5.0 ✓ Dissolved Metals in Water by CRC ICPMS E421 858601 1 13 7.6 5.0 ✓ Dissolved Metals in Water by CRC ICPMS E421 858601 1 13 7.6 5.0 ✓ Nitrate in Water by IC E235.F 858574 1 9 11.1 5.0 ✓ Nitrate in Water by IC (Low Level) E235.NO3-L 858570 1 20 5.0 5.0 ✓ Nitrate in Water by IC (Low Level) E235.NO2-L 858571 1 12 8.3 5.0 ✓ TDS by Gravimetry E162 862935 1 10 5.0 ✓ NH and F1 by Headspace GC-FID E581.VH+F1 862534 2 25 8.0 5.0 ✓ WH and F1 by Headspace GC-MS E611C 862536 2 13 15.3 5.0 ✓ Method Blanks (MB) Ammonia by Fluorescence E298 859757 1 18 5.5 5.0 ✓ Conductivity in Water by IC E235.CI 858577 1 19 5.2 5.0 ✓ Conductivity in Water by IC E235.CI 858577 1 19 5.2 5.0 ✓ Conductivity in Water by IC E235.CI 858577 1 18 5.5 5.0 ✓ Conductivity in Water by IC E100 858577 1 18 5.5 5.0 ✓ Conductivity in Water by IC E100 858577 1 18 5.5 5.0 ✓ Dissolved Metals in Water by IC E100 858577 1 18 5.5 5.0 ✓ Dissolved Metals in Water by IC E100 858577 1 18 5.5 5.0 ✓ Dissolved Metals in Water by IC E100 858577 1 18 5.5 5.0 ✓ Dissolved Metals in Water by IC E100 858577 1 18 5.5 5.0 ✓ Dissolved Metals in Water by IC E100 858577 1 18 5.5 5.0 ✓ Dissolved Metals in Water by IC E100 858577 1 18 5.5 5.0 ✓ Dissolved Metals in Water by IC E100 858577 1 18 5.5 5.0 ✓ Dissolved Metals in Water by IC E100 858577 1 18 5.5 5.0 ✓ Dissolved Metals in Water by IC E100 858577 1 18 5.5 5.0 ✓ Dissolved Metals in Water by CRC ICPMS	Laboratory Control Samples (LCS)							
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E100 858577 1 18 5.5 5.0 ✓	Ammonia by Fluorescence	E298	859757	1	19	5.2	5.0	✓
Dissolved Mercury in Water by CVAAS E509 859285 1 20 5.0 5.0 ✓ Dissolved Metals in Water by CRC ICPMS E421 858601 1 13 7.6 5.0 ✓ Fluoride in Water by IC E235.F 858574 1 9 11.1 5.0 ✓ Nitrate in Water by IC (Low Level) E235.NO3-L 858570 1 20 5.0 5.0 ✓ Nitrate in Water by IC (Low Level) E235.NO3-L 858571 1 12 8.3 5.0 ✓ Sulfate in Water by IC E235.SO4 858573 1 11 9 11 9 11.1 5.0 ✓ Notitie in Water by IC (Low Level) E235.SO4 858573 1 11 9 5.0 5.0 ✓ Notitie in Water by IC E235.SO4 858573 1 11 9 5.0 5.0 ✓ Notitie in Water by IC E235.SO4 858573 1 10 10 5.0 ✓ Notitie in Water by IC E581.VH+F1 862534 2 25 8.0 5.0 ✓ Notos (BC List) by Headspace GC-FID E581.VH+F1 862534 2 25 8.0 5.0 ✓ Notos (BC List) by Headspace GC-MS E611C 862536 2 13 15.3 5.0 ✓ Method Blanks (MB) Alkalinity Species by Titration E290 858578 1 10 10.0 5.0 ✓ Ammonia by Fluorescence E298 859757 1 19 5.2 5.0 ✓ Conductivity in Water E100 858577 1 18 5.5 5.0 ✓ Conductivity in Water E100 858577 1 18 5.5 5.0 ✓ Dissolved Mercury in Water by CNAS E509 859285 1 20 5.0 5.0 ✓ Dissolved Metals in Water by CRC ICPMS	Chloride in Water by IC	E235.CI	858572	1	12	8.3	5.0	✓
E421 858601 1 13 7.6 5.0 ✓	Conductivity in Water	E100	858577	1	18	5.5	5.0	✓
E421 858601 1 13 7.6 5.0 ✓	Dissolved Mercury in Water by CVAAS	E509	859285	1	20	5.0	5.0	√
Nitrate in Water by IC (Low Level)	Dissolved Metals in Water by CRC ICPMS	E421	858601	1	13	7.6	5.0	
Nitrite in Water by IC (Low Level) E235.NO2-L E235.SO4 E235.SO	Fluoride in Water by IC	E235.F	858574	1	9	11.1	5.0	✓
Sulfate in Water by IC E235,SO4 858573 1 11 9.0 5.0 ✓ TDS by Gravimetry E162 862935 1 20 5.0 5.0 ✓ VH and F1 by Headspace GC-FID E581.VH+F1 862534 2 25 8.0 5.0 ✓ VOCs (BC List) by Headspace GC-MS E611C 862536 2 13 15.3 5.0 ✓ Method Blanks (MB) Alkalinity Species by Titration E290 858578 1 10 10.0 5.0 ✓ Ammonia by Fluorescence E298 859757 1 19 5.2 5.0 ✓ Chloride in Water by IC E235.Cl 858572 1 12 8.3 5.0 ✓ Conductivity in Water E100 858577 1 18 5.5 5.0 ✓ Dissolved Mercury in Water by CVAAS E509 859285 1 20 5.0 5.0 ✓ Dissolved Metals in Water by CRC ICPMS E421 <td< td=""><td>Nitrate in Water by IC (Low Level)</td><td>E235.NO3-L</td><td>858570</td><td>1</td><td>20</td><td>5.0</td><td>5.0</td><td>✓</td></td<>	Nitrate in Water by IC (Low Level)	E235.NO3-L	858570	1	20	5.0	5.0	✓
TDS by Gravimetry E162 862935 1 20 5.0 5.0 ✓ VH and F1 by Headspace GC-FID VVCS (BC List) by Headspace GC-MS E611C 862534 2 25 8.0 5.0 ✓ Wethod Blanks (MB) Alkalinity Species by Titration E290 858578 1 10 10.0 5.0 ✓ Ammonia by Fluorescence E298 859757 1 19 5.2 5.0 ✓ Chloride in Water by IC Conductivity in Water E100 858577 1 18 5.5 5.0 ✓ Dissolved Mercury in Water by CVAAS E509 858601 1 13 7.6 5.0 ✓ Dissolved Metals in Water by CRC ICPMS	Nitrite in Water by IC (Low Level)	E235.NO2-L	858571	1	12	8.3	5.0	✓
VH and F1 by Headspace GC-FID E581.VH+F1 862534 2 25 8.0 5.0 ✓ VOCs (BC List) by Headspace GC-MS E611C 862536 2 13 15.3 5.0 ✓ Method Blanks (MB) Alkalinity Species by Titration E290 858578 1 10 10.0 5.0 ✓ Ammonia by Fluorescence E298 859757 1 19 5.2 5.0 ✓ Chloride in Water by IC E235.CI 858572 1 12 8.3 5.0 ✓ Conductivity in Water E100 858577 1 18 5.5 5.0 ✓ Dissolved Mercury in Water by CVAAS E509 859285 1 20 5.0 5.0 ✓ Dissolved Metals in Water by CRC ICPMS E421 858601 1 13 7.6 5.0 ✓	Sulfate in Water by IC	E235.SO4	858573	1	11	9.0	5.0	✓
VOCs (BC List) by Headspace GC-MS E611C 862536 2 13 15.3 5.0 ✓ Method Blanks (MB) Alkalinity Species by Titration E290 858578 1 10 10.0 5.0 ✓ Ammonia by Fluorescence E298 859757 1 19 5.2 5.0 ✓ Chloride in Water by IC E235.CI 858572 1 12 8.3 5.0 ✓ Conductivity in Water E100 858577 1 18 5.5 5.0 ✓ Dissolved Mercury in Water by CVAAS E509 859285 1 20 5.0 5.0 ✓ Dissolved Metals in Water by CRC ICPMS E421 858601 1 13 7.6 5.0 ✓	TDS by Gravimetry	E162	862935	1	20	5.0	5.0	✓
Method Blanks (MB) Alkalinity Species by Titration E290 858578 1 10 10.0 5.0 ✓ Ammonia by Fluorescence E298 859757 1 19 5.2 5.0 ✓ Chloride in Water by IC E235.Cl 858572 1 12 8.3 5.0 ✓ Conductivity in Water E100 858577 1 18 5.5 5.0 ✓ Dissolved Mercury in Water by CVAAS E509 859285 1 20 5.0 5.0 ✓ Dissolved Metals in Water by CRC ICPMS E421 858601 1 13 7.6 5.0 ✓	VH and F1 by Headspace GC-FID	E581.VH+F1	862534	2	25	8.0	5.0	✓
Alkalinity Species by Titration E290 858578 1 10 10.0 5.0 ✓ Ammonia by Fluorescence E298 859757 1 19 5.2 5.0 ✓ Chloride in Water by IC E235.Cl 858572 1 12 8.3 5.0 ✓ Conductivity in Water E100 858577 1 18 5.5 5.0 ✓ Dissolved Mercury in Water by CVAAS E509 859285 1 20 5.0 5.0 ✓ Dissolved Metals in Water by CRC ICPMS E421 858601 1 13 7.6 5.0 ✓	VOCs (BC List) by Headspace GC-MS	E611C	862536	2	13	15.3	5.0	✓
Ammonia by Fluorescence E298 859757 1 19 5.2 5.0 ✓ Chloride in Water by IC E235.Cl 858572 1 12 8.3 5.0 ✓ Conductivity in Water E100 858577 1 18 5.5 5.0 ✓ Dissolved Mercury in Water by CVAAS E509 859285 1 20 5.0 5.0 ✓ Dissolved Metals in Water by CRC ICPMS E421 858601 1 13 7.6 5.0 ✓	Method Blanks (MB)							
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Conductivity in Water E100 858577 1 18 5.5 5.0 ✓ Dissolved Mercury in Water by CVAAS E509 859285 1 20 5.0 5.0 ✓ Dissolved Metals in Water by CRC ICPMS E421 858601 1 13 7.6 5.0 ✓	Ammonia by Fluorescence	E298	859757	1	19	5.2	5.0	✓
Dissolved Mercury in Water by CVAAS E509 859285 1 20 5.0 5.0 ✓ Dissolved Metals in Water by CRC ICPMS E421 858601 1 13 7.6 5.0 ✓	Chloride in Water by IC	E235.Cl	858572	1	12	8.3	5.0	✓
Dissolved Metals in Water by CRC ICPMS E421 858601 1 13 7.6 5.0 ✓	Conductivity in Water	E100	858577	1	18	5.5	5.0	✓
	Dissolved Mercury in Water by CVAAS	E509	859285	1	20	5.0	5.0	✓
Fluoride in Water by IC E235.F 858574 1 9 11.1 5.0 ✓	Dissolved Metals in Water by CRC ICPMS	E421	858601	1	13	7.6	5.0	✓
	Fluoride in Water by IC	E235.F	858574	1	9	11.1	5.0	✓

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Matrix: Water	Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification.											
Quality Control Sample Type			Co	ount		Frequency (%)						
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation					
Method Blanks (MB) - Continued												
Nitrate in Water by IC (Low Level)	E235.NO3-L	858570	1	20	5.0	5.0	✓					
Nitrite in Water by IC (Low Level)	E235.NO2-L	858571	1	12	8.3	5.0	✓					
Sulfate in Water by IC	E235.SO4	858573	1	11	9.0	5.0	✓					
TDS by Gravimetry	E162	862935	1	20	5.0	5.0	✓					
VH and F1 by Headspace GC-FID	E581.VH+F1	862534	2	25	8.0	5.0	✓					
VOCs (BC List) by Headspace GC-MS	E611C	862536	2	13	15.3	5.0	✓					
Matrix Spikes (MS)												
Ammonia by Fluorescence	E298	859757	1	19	5.2	5.0	✓					
Chloride in Water by IC	E235.CI	858572	1	12	8.3	5.0	✓					
Dissolved Mercury in Water by CVAAS	E509	859285	1	20	5.0	5.0	✓					
Dissolved Metals in Water by CRC ICPMS	E421	858601	1	13	7.6	5.0	✓					
Fluoride in Water by IC	E235.F	858574	1	9	11.1	5.0	✓					
Nitrate in Water by IC (Low Level)	E235.NO3-L	858570	1	20	5.0	5.0	✓					
Nitrite in Water by IC (Low Level)	E235.NO2-L	858571	1	12	8.3	5.0	✓					
Sulfate in Water by IC	E235.SO4	858573	1	11	9.0	5.0	✓					
VH and F1 by Headspace GC-FID	E581.VH+F1	862534	2	25	8.0	5.0	✓					
VOCs (BC List) by Headspace GC-MS	E611C	862536	2	13	15.3	5.0	✓					

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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	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
	Vancouver -			sample. Conductivity measurements are temperature-compensated to 25°C.
	Environmental			
TDS by Gravimetry	E162	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 $180 \pm 2^{\circ}$ C for 16 hours or to constant weight,
	Vancouver -			with gravimetric measurement of the residue.
	Environmental			
Chloride in Water by IC	E235.CI	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and /or UV detection.
	Vancouver -			
	Environmental			
Fluoride in Water by IC	E235.F	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and /or UV detection.
	Vancouver -			
	Environmental			
Nitrite in Water by IC (Low Level)	E235.NO2-L	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and /or UV detection.
	Vancouver -			
	Environmental			
Nitrate in Water by IC (Low Level)	E235.NO3-L	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and /or UV detection.
	Vancouver -			
	Environmental			
Sulfate in Water by IC	E235.SO4	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and /or UV detection.
	Vancouver -			
	Environmental			
Alkalinity Species by Titration	E290	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
	Vancouver -			alkalinity values.
	Environmental			
Ammonia by Fluorescence	E298	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).
	Vancouver -			This method is approved under US EPA 40 CFR Part 136 (May 2021)
	Environmental			

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Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Dissolved Metals in Water by CRC ICPMS	E421	Water	APHA 3030B/EPA 6020B (mod)	Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by Collision/Reaction Cell ICPMS.
	Vancouver -			
	Environmental			Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered
				by this method.
Dissolved Mercury in Water by CVAAS	E509	Water	APHA 3030B/EPA	Water samples are filtered (0.45 um), preserved with HCl, then undergo a cold-oxidation
			1631E (mod)	using bromine monochloride prior to reduction with stannous chloride, and analyzed by
	Vancouver -			CVAAS.
	Environmental			
VH and F1 by Headspace GC-FID	E581.VH+F1	Water	BC MOE Lab Manual /	Volatile Hydrocarbons (VH and F1) is analyzed by static headspace GC-FID. Samples
			CCME PHC in Soil - Tier	are prepared in headspace vials and are heated and agitated on the headspace
	Vancouver -		1 (mod)	autosampler, causing VOCs to partition between the aqueous phase and the
	Environmental			headspace in accordance with Henry's law.
VOCs (BC List) by Headspace GC-MS	E611C	Water	EPA 8260D (mod)	Volatile Organic Compounds (VOCs) are analyzed by static headspace GC-MS.
				Samples are prepared in headspace vials and are heated and agitated on the
	Vancouver -			headspace autosampler, causing VOCs to partition between the aqueous phase and
	Environmental			the headspace in accordance with Henry's law.
Dissolved Hardness (Calculated)	EC100	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
	Vancouver -			to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially
	Environmental			calculated from dissolved Calcium and Magnesium concentrations, because it is a
				property of water due to dissolved divalent cations.
Nitrate and Nitrite (as N) (Calculation)	EC235.N+N	Water	EPA 300.0	Nitrate and Nitrite (as N) is a calculated parameter. Nitrate and Nitrite (as N) = Nitrite (as N) + Nitrate (as N).
	Vancouver -			
	Environmental			
VPH: VH-BTEX-Styrene	EC580A	Water	BC MOE Lab Manual (VPH in Water and	Volatile Petroleum Hydrocarbons (VPH) is calculated as follows: VPHw = Volatile Hydrocarbons (VH6-10) minus benzene, toluene, ethylbenzene, xylenes (BTEX) and
	Vancouver -		Solids) (mod)	styrene.
	Environmental			
Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Ammonia	EP298	Water		Sample preparation for Preserved Nutrients Water Quality Analysis.
	Vancouver -			
	Environmental			
Dissolved Metals Water Filtration	EP421	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HNO3.
	LI 721			
	Vancouver -			
	Environmental			
Dissolved Mercury Water Filtration	EP509	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HCl.
	Vancouver -			
	Environmental			
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Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
VOCs Preparation for Headspace Analysis	EP581	Water	EPA 5021A (mod)	Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler. An aliquot of the headspace is then injected into the
	Vancouver -			GC/MS-FID system.
	Environmental			

ALS Environmental

Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

Affix ALS barcode label here

COC Number: 17 -

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REFER TO BACK	PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION	'	WHI	TE - LABORATO	RY COPY YEL	LOW -	CHEN	T COPS									4		—	SEPT 2	D12 FROM

ALS Canada Ltd.



CERTIFICATE OF ANALYSIS

 Work Order
 : VA23A5217
 Page
 : 1 of 10

Amendment : 1

Address

Client : Comox Valley Regional District Laboratory : Vancouver - Environmental

Contact : Crystal Stuart : Thomas Chang

: 770 Harmston Avenue Address : 8081 Lougheed Highway

Courtney BC Canada V9N 0G8 Burnaby BC Canada V5A 1W9

Telephone : 250-898-3722 Telephone : +1 604 253 4188

 Project
 : 3
 Date Samples Received
 : 10-Mar-2023 09:50

 PO
 : 23-015
 Date Analysis Commenced
 : 11-Mar-2023

Sampler : Crystal Stuart

Site : CRWMC-Quarterly-GW
Quote number : VA23-COVR100-001

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
- Surrogate Control Limits

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	
Alex Thornton	Analyst	Metals, Burnaby, British Columbia	
Anshim Anshim	Lab Assistant	Metals, Burnaby, British Columbia	
Janice Leung	Supervisor - Organics Instrumentation	Organics, Burnaby, British Columbia	
Kim Jensen	Department Manager - Metals	Inorganics, Burnaby, British Columbia	
Kim Jensen	Department Manager - Metals	Metals, Burnaby, British Columbia	
Lindsay Gung	Supervisor - Water Chemistry	Inorganics, Burnaby, British Columbia	

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Work Order : VA23A5217 Amendment 1
Client : Comox Valley Regional District

Project : 3



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
μg/L	micrograms per litre
μS/cm	microsiemens per centimetre
mg/L	milligrams per litre

<: 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 (22/03/2023): This report has been amended to allow the distribution of an Electronic Data Deliverable (EDD) not previously provided. 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.

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Work Order : VA23A5217 Amendment 1
Client : Comox Valley Regional District

Project :



Sub-Matrix: Water			CI	ient sample ID	WG-030823-CS-	WG-030823-CS-	WG-030823-CS-	TRIP BLANK	WG-030823-CS-
(Matrix: Water)					55	56	57		58
			Client samp	ling date / time	08-Mar-2023 10:00	08-Mar-2023 10:05	08-Mar-2023 10:45	08-Mar-2023 17:00	08-Mar-2023 11:30
Analyte	CAS Number	Method	LOR	Unit	VA23A5217-001	VA23A5217-002	VA23A5217-003	VA23A5217-004	VA23A5217-005
					Result	Result	Result	Result	Result
Physical Tests		F200	4.0		252	252	1 200	44.0	405
Alkalinity, bicarbonate (as CaCO3)		E290	1.0	mg/L	252	253	323	<1.0	105
Alkalinity, carbonate (as CaCO3)		E290	1.0	mg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Alkalinity, hydroxide (as CaCO3)		E290	1.0	mg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Alkalinity, total (as CaCO3)		E290	1.0	mg/L	252	254	323	<1.0	105
Conductivity		E100	2.0	μS/cm	466	469	841	<2.0	198
Hardness (as CaCO3), dissolved		EC100	0.60	mg/L	252	257	424	<0.60	90.8
Solids, total dissolved [TDS]		E162	10	mg/L	269	289	535	<10	122
Anions and Nutrients									
Ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	<0.0050	<0.0050	0.0122	<0.0050	0.0222
Chloride	16887-00-6	E235.CI	0.50	mg/L	2.58	2.56	63.1	<0.50	5.99
Fluoride	16984-48-8	E235.F	0.020	mg/L	<0.020	<0.020	<0.100 DLDS	<0.020	<0.020
Nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	1.70	1.69	9.68	<0.0050	0.219
Nitrate + Nitrite (as N)		EC235.N+N	0.0050	mg/L	1.70	1.69	9.68	<0.0051	0.220
Nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	<0.0010	<0.0010	<0.0050 DLDS	<0.0010	0.0012
Sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	2.04	2.02	11.7	<0.30	5.10
Dissolved Metals									
Aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	0.0014	0.0011	0.0010	<0.0010	0.0048
Antimony, dissolved	7440-36-0	E421	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	<0.00010	<0.00010	0.00012	<0.00010	0.00017
Barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.00585	0.00598	0.0157	<0.00010	0.00454
Beryllium, dissolved	7440-41-7	E421	0.000020	mg/L	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Bismuth, dissolved	7440-69-9	E421	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron, dissolved	7440-42-8	E421	0.010	mg/L	0.034	0.035	0.174	<0.010	<0.010
Cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L	0.0000083	0.0000054	0.0000561	<0.0000050	<0.0000050
Calcium, dissolved	7440-70-2	E421	0.050	mg/L	76.0	77.8	127	<0.050	23.7
Chromium, dissolved	7440-47-3	E421	0.00050	mg/L	0.00124	0.00126	<0.00050	<0.00050	0.00780
Cobalt, dissolved	7440-48-4	E421	0.00010	mg/L	<0.00010	<0.00010	0.00036	<0.00010	<0.00010
Copper, dissolved	7440-50-8	E421	0.00020	mg/L	<0.00020	<0.00020	0.00208	<0.00020	<0.00020
Iron, dissolved	7439-89-6	E421	0.010	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010
11011, 410001704	1455-05-0	- 121	1 0.010	mg/L	-0.010			1 .0.010	1 .0.010

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Work Order : VA23A5217 Amendment 1
Client : Comox Valley Regional District

Project :



Sub-Matrix: Water			Cli	ent sample ID	WG-030823-CS-	WG-030823-CS-	WG-030823-CS-	TRIP BLANK	WG-030823-CS-
(Matrix: Water)					55	56	57		58
		Client sampling date / time			08-Mar-2023 10:00	08-Mar-2023 10:05	08-Mar-2023 10:45	08-Mar-2023 17:00	08-Mar-2023 11:30
Analyte	CAS Number	Method	LOR	Unit	VA23A5217-001	VA23A5217-002	VA23A5217-003	VA23A5217-004	VA23A5217-005
					Result	Result	Result	Result	Result
Dissolved Metals	7100.00	E404	0.000050		10.000050	40 0000E0	*0.000050	*0.000050	*0.000000
Lead, dissolved	7439-92-1	E421	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Lithium, dissolved	7439-93-2	E421	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Magnesium, dissolved	7439-95-4	E421	0.100	mg/L	15.2	15.2	25.9	<0.100	7.68
Manganese, dissolved	7439-96-5	E421	0.00010	mg/L	<0.00010	<0.00010	0.369	<0.00010	<0.00010
Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	<0.000050	<0.000050	0.000099	<0.000050	0.000092
Nickel, dissolved	7440-02-0	E421	0.00050	mg/L	<0.00050	<0.00050	0.00110	<0.00050	<0.00050
Phosphorus, dissolved	7723-14-0	E421	0.050	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium, dissolved	7440-09-7	E421	0.100	mg/L	1.26	1.24	2.26	<0.100	0.772
Selenium, dissolved	7782-49-2	E421	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	0.000255
Silicon, dissolved	7440-21-3	E421	0.050	mg/L	11.4	11.3	12.6	<0.050	7.31
Silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium, dissolved	7440-23-5	E421	0.050	mg/L	6.26	6.23	24.8	<0.050	4.87
Strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.181	0.172	0.323	<0.00020	0.0685
Sulfur, dissolved	7704-34-9	E421	0.50	mg/L	0.75	0.83	4.32	<0.50	1.48
Thallium, dissolved	7440-28-0	E421	0.000010	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Tin, dissolved	7440-31-5	E421	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium, dissolved	7440-32-6	E421	0.00030	mg/L	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030
Uranium, dissolved	7440-61-1	E421	0.000010	mg/L	0.000188	0.000196	0.000747	<0.000010	0.000309
Vanadium, dissolved	7440-62-2	E421	0.00050	mg/L	0.00165	0.00163	0.00161	<0.00050	0.00406
Zinc, dissolved	7440-66-6	E421	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Zirconium, dissolved	7440-67-7	E421	0.00020	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Dissolved mercury filtration location		EP509	-	-	Field	Field	Field	Field	Field
Dissolved metals filtration location		EP421	-	-	Field	Field	Field	Field	Field
Volatile Organic Compounds									
Chlorobenzene	108-90-7	E611C	0.50	μg/L			<0.50	<0.50	
Chloromethane	74-87-3	E611C	5.0	μg/L			<5.0	<5.0	
Dichlorobenzene, 1,2-	95-50-1	E611C	0.50	μg/L			<0.50	<0.50	
Dichlorobenzene, 1,3-	541-73-1	E611C	0.50	μg/L			<0.50	<0.50	
Dichlorobenzene, 1,4-	106-46-7	E611C	0.50	μg/L			<0.50	<0.50	

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Work Order : VA23A5217 Amendment 1
Client : Comox Valley Regional District

Project : 3



Sub-Matrix: Water			CI	ient sample ID	WG-030823-CS-	WG-030823-CS-	WG-030823-CS-	TRIP BLANK	WG-030823-CS-
(Matrix: Water)					55	56	57		58
Analyte	CAS Number	Method	Client samp	ling date / time Unit	08-Mar-2023 10:00 VA23A5217-001	08-Mar-2023 10:05 VA23A5217-002	08-Mar-2023 10:45 VA23A5217-003	08-Mar-2023 17:00 VA23A5217-004	08-Mar-2023 11:30 VA23A5217-005
					Result	Result	Result	Result	Result
Volatile Organic Compounds	N/A					1777			
Dichloropropane, 1,2-	78-87-5	E611C	0.50	μg/L			<0.50	<0.50	
Dichloropropylene, cis+trans-1,3-	542-75-6	E611C	0.75	μg/L			<0.75	<0.75	
Dichloropropylene, cis-1,3-	10061-01-5	E611C	0.50	μg/L			<0.50	<0.50	
Tetrachloroethane, 1,1,1,2-	630-20-6	E611C	0.50	μg/L			<0.50	<0.50	
Tetrachloroethane, 1,1,2,2-	79-34-5	E611C	0.20	μg/L			<0.20	<0.20	
Trichloroethane, 1,1,2-	79-00-5	E611C	0.50	μg/L			<0.50	<0.50	
Trichlorofluoromethane	75-69-4	E611C	0.50	μg/L			<0.50	<0.50	
Volatile Organic Compounds [Drycleaning]									16911
Carbon tetrachloride	56-23-5	E611C	0.50	μg/L			<0.50	<0.50	
Chloroethane	75-00-3	E611C	0.50	μg/L			<0.50	<0.50	
Dichloroethane, 1,1-	75-34-3	E611C	0.50	μg/L			<0.50	<0.50	
Dichloroethane, 1,2-	107-06-2	E611C	0.50	μg/L			<0.50	<0.50	
Dichloroethylene, 1,1-	75-35-4	E611C	0.50	μg/L			<0.50	<0.50	
Dichloroethylene, cis-1,2-	156-59-2	E611C	0.50	μg/L			<0.50	<0.50	
Dichloroethylene, trans-1,2-	156-60-5	E611C	0.50	μg/L			<0.50	<0.50	
Dichloromethane	75-09-2	E611C	1.0	μg/L			<1.0	<1.0	
Dichloropropylene, trans-1,3-	10061-02-6	E611C	0.50	μg/L			<0.50	<0.50	
Tetrachloroethylene	127-18-4	E611C	0.50	μg/L			<0.50	<0.50	
Trichloroethane, 1,1,1-	71-55-6	E611C	0.50	μg/L			<0.50	<0.50	
Trichloroethylene	79-01-6	E611C	0.50	μg/L			<0.50	<0.50	
Vinyl chloride	75-01-4	E611C	0.40	μg/L			<0.40	<0.40	
Volatile Organic Compounds [Fuels]						1777			
Benzene	71-43-2	E611C	0.50	μg/L			<0.50	<0.50	
Ethylbenzene	100-41-4	E611C	0.50	μg/L			<0.50	<0.50	
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611C	0.50	μg/L			<0.50	<0.50	
Styrene	100-42-5	E611C	0.50	μg/L			<0.50	<0.50	
Toluene	108-88-3	E611C	0.40	μg/L			<0.40	<0.40	
Xylene, m+p-	179601-23-1	E611C	0.40	μg/L			<0.40	<0.40	
Xylene, o-	95-47-6	E611C	0.30	μg/L			<0.30	<0.30	
Xylenes, total	1330-20-7	E611C	0.50	μg/L			<0.50	<0.50	

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Client : Comox Valley Regional District

Project : 3



Analytical Results

Sub-Matrix: Water			CI	ient sample ID	WG-030823-CS-	WG-030823-CS-	WG-030823-CS-	TRIP BLANK	WG-030823-CS-
(Matrix: Water)					55	56	57		58
				ling date / time	08-Mar-2023 10:00	08-Mar-2023 10:05	08-Mar-2023 10:45	08-Mar-2023 17:00	08-Mar-2023 11:30
Analyte	CAS Number	Method	LOR	Unit	VA23A5217-001	VA23A5217-002	VA23A5217-003	VA23A5217-004	VA23A5217-005
					Result	Result	Result	Result	Result
Volatile Organic Compounds [THMs]									
Bromodichloromethane	75-27-4	E611C	0.50	μg/L			<0.50	<0.50	
Bromoform	75-25-2	E611C	0.50	μg/L			<0.50	<0.50	
Chloroform	67-66-3	E611C	0.50	μg/L			<0.50	<0.50	
Dibromochloromethane	124-48-1	E611C	0.50	μg/L			<0.50	<0.50	
Hydrocarbons									
VHw (C6-C10)		E581.VH+F1	100	μg/L			<100	<100	
VPHw		EC580A	100	μg/L			<100	<100	
Hydrocarbons Surrogates									
Dichlorotoluene, 3,4-	95-75-0	E581.VH+F1	1.0	%			111	107	
Volatile Organic Compounds Surrogates									
Bromofluorobenzene, 4-	460-00-4	E611C	1.0	%			70.2	75.0	
Difluorobenzene, 1,4-	540-36-3	E611C	1.0	%			96.2	96.8	

Please refer to the General Comments section for an explanation of any qualifiers detected.

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Work Order : VA23A5217 Amendment 1
Client : Comox Valley Regional District

Project :



Sub-Matrix: Water			Cl	ient sample ID	WG-030823-CS-	WG-030823-CS-	 	
(Matrix: Water)					59	60		
	Client sampling date / time						 	
Analyte	CAS Number	Method	LOR	Unit	VA23A5217-006	VA23A5217-007	 	
					Result	Result	 	
Physical Tests								
Alkalinity, bicarbonate (as CaCO3)		E290	1.0	mg/L	254	<1.0	 	
Alkalinity, carbonate (as CaCO3)		E290	1.0	mg/L	<1.0	<1.0	 	
Alkalinity, hydroxide (as CaCO3)		E290	1.0	mg/L	<1.0	<1.0	 	
Alkalinity, total (as CaCO3)		E290	1.0	mg/L	254	<1.0	 	
Conductivity		E100	2.0	μS/cm	612	<2.0	 	
Hardness (as CaCO3), dissolved		EC100	0.60	mg/L	250	<0.60	 	
Solids, total dissolved [TDS]		E162	10	mg/L	357	<10	 	
Anions and Nutrients								
Ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	7.02	0.0098	 	
Chloride	16887-00-6	E235.CI	0.50	mg/L	47.5	<0.50	 	
Fluoride	16984-48-8	E235.F	0.020	mg/L	<0.020	<0.020	 	
Nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	0.0404	<0.0050	 	
Nitrate + Nitrite (as N)		EC235.N+N	0.0050	mg/L	0.0404	<0.0051	 	
Nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	<0.0010	<0.0010	 	
Sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	2.87	<0.30	 	
Dissolved Metals								
Aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	0.0041	<0.0010	 	
Antimony, dissolved	7440-36-0	E421	0.00010	mg/L	<0.00010	<0.00010	 	
Arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	0.00166	<0.00010	 	
Barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.0174	<0.00010	 	
Beryllium, dissolved	7440-41-7	E421	0.000020	mg/L	<0.000020	<0.000020	 	
Bismuth, dissolved	7440-69-9	E421	0.000050	mg/L	<0.000050	<0.000050	 	
Boron, dissolved	7440-42-8	E421	0.010	mg/L	0.150	<0.010	 	
Cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L	0.0000480	<0.0000050	 	
Calcium, dissolved	7440-70-2	E421	0.050	mg/L	84.8	<0.050	 	
Chromium, dissolved	7440-47-3	E421	0.00050	mg/L	<0.00050	<0.00050	 	
Cobalt, dissolved	7440-48-4	E421	0.00010	mg/L	0.00018	<0.00010	 	
Copper, dissolved	7440-50-8	E421	0.00020	mg/L	0.00026	<0.00020	 	
Iron, dissolved	7439-89-6	E421	0.010	mg/L	0.371	<0.010	 	
Lead, dissolved	7439-92-1	E421	0.000050	mg/L	<0.000050	<0.000050	 	
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Work Order : VA23A5217 Amendment 1
Client : Comox Valley Regional District

Project :



Magnesium, dissolved	Sub-Matrix: Water			Cli	ent sample ID	WG-030823-CS-	WG-030823-CS-	 	
12-55 17-30	(Matrix: Water)					59	60		
Dissolved Metals				Client samp	ling date / time			 	
Dissolved Metals	Analyte	CAS Number	Method	LOR	Unit	VA23A5217-006	VA23A5217-007	 	
Lithium, dissolved						Result	Result	 	
Magnesium, dissolved 7439-95-4 E421 0.100 mg/L 9.30 <0.100	Dissolved Metals								
Marganese, dissolved	Lithium, dissolved	7439-93-2	E421	0.0010	mg/L	<0.0010	<0.0010	 	
Mercury, dissolved 7439-97-6 E509 0.0000050 mg/L <0.0000050	Magnesium, dissolved	7439-95-4	E421	0.100	mg/L	9.30	<0.100	 	
Molybdenum, dissolved	Manganese, dissolved	7439-96-5	E421	0.00010	mg/L	1.42	<0.00010	 	
Nickel, dissolved	Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.000050	 	
Phosphorus, dissolved	Molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.000132	<0.000050	 	
Potassium, dissolved	Nickel, dissolved	7440-02-0	E421	0.00050	mg/L	0.00138	<0.00050	 	
Selenium, dissolved 7782-49-2	Phosphorus, dissolved	7723-14-0	E421	0.050	mg/L	<0.050	<0.050	 	
Silicon, dissolved	Potassium, dissolved	7440-09-7	E421	0.100	mg/L	5.26	<0.100	 	
Silver, dissolved	Selenium, dissolved	7782-49-2	E421	0.000050	mg/L	<0.000050	<0.000050	 	
Sodium, dissolved 7440-23-5 E421 0.050 mg/L 25.2 <0.050	Silicon, dissolved	7440-21-3	E421	0.050	mg/L	7.91	<0.050	 	
Strontium, dissolved T440-24-6 E421 0.00020 mg/L 0.265 <0.00020	Silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.000010	<0.000010	 	
Sulfur, dissolved	Sodium, dissolved	7440-23-5	E421	0.050	mg/L	25.2	<0.050	 	
Thallium, dissolved 7440-28-0 E421 0.000010 mg/L <0.000010 <0.000010	Strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.265	<0.00020	 	
Tin, dissolved 7440-31-5 E421 0.00010 mg/L <0.00010 <0.00010	Sulfur, dissolved	7704-34-9	E421	0.50	mg/L	1.12	<0.50	 	
Titanium, dissolved 7440-32-6 E421 0.00030 mg/L <0.00030	Thallium, dissolved	7440-28-0	E421	0.000010	mg/L	<0.000010	<0.000010	 	
Uranium, dissolved 7440-61-1 E421 0.000010 mg/L 0.000110 <0.00010	Tin, dissolved	7440-31-5	E421	0.00010	mg/L	<0.00010	<0.00010	 	
Vanadium, dissolved 7440-62-2 E421 0.00050 mg/L <0.00050	Titanium, dissolved	7440-32-6	E421	0.00030	mg/L	<0.00030	<0.00030	 	
Zinc, dissolved 7440-66-6 E421 0.0010 mg/L <0.0010 <0.0010	Uranium, dissolved	7440-61-1	E421	0.000010	mg/L	0.000110	<0.000010	 	
Zirconium, dissolved 7440-67-7 E421 0.00020 mg/L <0.00020 <0.00020	Vanadium, dissolved	7440-62-2	E421	0.00050	mg/L	<0.00050	<0.00050	 	
Dissolved mercury filtration location	Zinc, dissolved	7440-66-6	E421	0.0010	mg/L	<0.0010	<0.0010	 	
Dissolved metals filtration location	Zirconium, dissolved	7440-67-7	E421	0.00020	mg/L	<0.00020	<0.00020	 	
Volatile Organic Compounds Chlorobenzene 108-90-7 E611C 0.50 μg/L <0.50	Dissolved mercury filtration location		EP509	-	-	Field	Field	 	
	Dissolved metals filtration location		EP421	-	-	Field	Field	 	
Chloromethane 74-87-3 E611C 5.0 μg/L <5.0	Volatile Organic Compounds								
Dichlorobenzene, 1,2- 95-50-1 E611C 0.50 μg/L <0.50	Chlorobenzene	108-90-7	E611C	0.50	μg/L	<0.50		 	
	Chloromethane	74-87-3	E611C	5.0	μg/L	<5.0		 	
Dichlorobenzene, 1,3-	Dichlorobenzene, 1,2-	95-50-1	E611C	0.50	μg/L	<0.50		 	
	Dichlorobenzene, 1,3-	541-73-1	E611C	0.50	μg/L	<0.50		 	
Dichlorobenzene, 1,4- 106-46-7 E611C 0.50 μg/L <0.50	Dichlorobenzene, 1,4-	106-46-7	E611C	0.50	μg/L	<0.50		 	
Dichloropropane, 1,2- 78-87-5 E611C 0.50 μg/L <0.50	Dichloropropane, 1,2-	78-87-5	E611C	0.50	μg/L	<0.50		 	

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Sub-Matrix: Water			CI	lient sample ID	WG-030823-CS-	WG-030823-CS-	 	
(Matrix: Water)					59	60		
			Client samp	lling date / time	08-Mar-2023 12:55	08-Mar-2023 17:30	 	
Analyte	CAS Number	Method	LOR	Unit	VA23A5217-006	VA23A5217-007	 	
					Result	Result	 	
Volatile Organic Compounds								
Dichloropropylene, cis+trans-1,3-	542-75-6	E611C	0.75	μg/L	<0.75		 	
Dichloropropylene, cis-1,3-	10061-01-5	E611C	0.50	μg/L	<0.50		 	
Tetrachloroethane, 1,1,1,2-	630-20-6	E611C	0.50	μg/L	<0.50		 	
Tetrachloroethane, 1,1,2,2-	79-34-5	E611C	0.20	μg/L	<0.20		 	
Trichloroethane, 1,1,2-	79-00-5	E611C	0.50	μg/L	<0.50		 	
Trichlorofluoromethane	75-69-4	E611C	0.50	μg/L	<0.50		 	
Volatile Organic Compounds [Drycleaning]								
Carbon tetrachloride	56-23-5	E611C	0.50	μg/L	<0.50		 	
Chloroethane	75-00-3	E611C	0.50	μg/L	<0.50		 	
Dichloroethane, 1,1-	75-34-3	E611C	0.50	μg/L	<0.50		 	
Dichloroethane, 1,2-	107-06-2	E611C	0.50	μg/L	<0.50		 	
Dichloroethylene, 1,1-	75-35-4	E611C	0.50	μg/L	<0.50		 	
Dichloroethylene, cis-1,2-	156-59-2	E611C	0.50	μg/L	<0.50		 	
Dichloroethylene, trans-1,2-	156-60-5	E611C	0.50	μg/L	<0.50		 	
Dichloromethane	75-09-2	E611C	1.0	μg/L	<1.0		 	
Dichloropropylene, trans-1,3-	10061-02-6	E611C	0.50	μg/L	<0.50		 	
Tetrachloroethylene	127-18-4	E611C	0.50	μg/L	<0.50		 	
Trichloroethane, 1,1,1-	71-55-6	E611C	0.50	μg/L	<0.50		 	
Trichloroethylene	79-01-6	E611C	0.50	μg/L	<0.50		 	
Vinyl chloride	75-01-4	E611C	0.40	μg/L	<0.40		 	
Volatile Organic Compounds [Fuels]		100			3 111			14-6-71
Benzene	71-43-2	E611C	0.50	μg/L	<0.50		 	
Ethylbenzene	100-41-4	E611C	0.50	μg/L	<0.50		 	
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611C	0.50	μg/L	<0.50		 	
Styrene	100-42-5	E611C	0.50	μg/L	<0.50		 	
Toluene	108-88-3	E611C	0.40	μg/L	<0.40		 	
Xylene, m+p-	179601-23-1	E611C	0.40	μg/L	<0.40		 	
Xylene, o-	95-47-6	E611C	0.30	μg/L	<0.30		 	
Xylenes, total	1330-20-7	E611C	0.50	μg/L	<0.50		 	
Volatile Organic Compounds [THMs]					3 100			

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Client : Comox Valley Regional District

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Analytical Results

Sub-Matrix: Water			CI	ient sample ID	WG-030823-CS-	WG-030823-CS-	 	
(Matrix: Water)					59	60		
			Client samp	ling date / time	08-Mar-2023 12:55	08-Mar-2023 17:30	 	
Analyte	CAS Number	Method	LOR	Unit	VA23A5217-006	VA23A5217-007	 	
					Result	Result	 	
Volatile Organic Compounds [THMs]								
Bromodichloromethane	75-27-4	E611C	0.50	μg/L	<0.50		 	
Bromoform	75-25-2	E611C	0.50	μg/L	<0.50		 	
Chloroform	67-66-3	E611C	0.50	μg/L	<0.50		 	
Dibromochloromethane	124-48-1	E611C	0.50	μg/L	<0.50		 	
Hydrocarbons								
VHw (C6-C10)		E581.VH+F1	100	μg/L	<100		 	
VPHw		EC580A	100	μg/L	<100		 	
Hydrocarbons Surrogates								
Dichlorotoluene, 3,4-	95-75-0	E581.VH+F1	1.0	%	93.4		 	
Volatile Organic Compounds Surrogates								
Bromofluorobenzene, 4-	460-00-4	E611C	1.0	%	73.1		 	
Difluorobenzene, 1,4-	540-36-3	E611C	1.0	%	96.9		 	

Please refer to the General Comments section for an explanation of any qualifiers detected.

ALS Canada Ltd.



QUALITY CONTROL REPORT

Work Order :VA23A5217

Amendment : 1

Client : Comox Valley Regional District

Contact : Crystal Stuart

Address : 770 Harmston Avenue

Courtney BC Canada V9N 0G8

Telephone : 3

PO : 23-015

C-O-C number :--

Sampler : Crystal Stuart₂₅₀₋₈₉₈₋₃₇₂₂
Site : CRWMC-Quarterly-GW
Quote number : VA23-COVR100-001

No. of samples received : 7
No. of samples analysed : 7

Page : 1 of 14

Laboratory : Vancouver - Environmental

Account Manager : Thomas Chang

Address : 8081 Lougheed Highway

Burnaby, British Columbia Canada V5A 1W9

Telephone :+1 604 253 4188

Date Samples Received :10-Mar-2023 09:50

Date Analysis Commenced : 11-Mar-2023

Issue Date : 22-Mar-2023 14:33

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	
Alex Thornton	Analyst	Vancouver Metals, Burnaby, British Columbia	
Anshim Anshim	Lab Assistant	Vancouver Metals, Burnaby, British Columbia	
Janice Leung	Supervisor - Organics Instrumentation	Vancouver Organics, Burnaby, British Columbia	
Kim Jensen	Department Manager - Metals	Vancouver Inorganics, Burnaby, British Columbia	
Kim Jensen	Department Manager - Metals	Vancouver Metals, Burnaby, British Columbia	
Lindsay Gung	Supervisor - Water Chemistry	Vancouver Inorganics, Burnaby, British Columbia	

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Client: Comox Valley Regional District

Project :



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.

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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							Labora	atory Duplicate (D	UP) 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											
VA23A5217-003	WG-030823-CS-57	Conductivity		E100	2.0	μS/cm	841	846	0.593%	10%	
Physical Tests (QC	Lot: 860423)										
VA23A5217-003	WG-030823-CS-57	Alkalinity, bicarbonate (as CaCO3)		E290	1.0	mg/L	323	326	0.709%	20%	
		Alkalinity, carbonate (as CaCO3)		E290	1.0	mg/L	<1.0	<1.0	0	Diff <2x LOR	
		Alkalinity, hydroxide (as CaCO3)		E290	1.0	mg/L	<1.0	<1.0	0	Diff <2x LOR	
		Alkalinity, total (as CaCO3)		E290	1.0	mg/L	323	326	0.709%	20%	
Physical Tests (QC	Lot: 864178)										
KS2300749-003	Anonymous	Solids, total dissolved [TDS]		E162	10	mg/L	<10	<10	0	Diff <2x LOR	
Anions and Nutrien	ts (QC Lot: 860425)										
VA23A5293-001	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	169	169	0.134%	20%	
Anions and Nutrien	ts (QC Lot: 860426)										
VA23A5293-001	Anonymous	Chloride	16887-00-6	E235.CI	0.50	mg/L	3.48	3.47	0.004	Diff <2x LOR	
Anions and Nutrien	ts (QC Lot: 860427)										
VA23A5293-001	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	0.870	0.868	0.235%	20%	
Anions and Nutrien	ts (QC Lot: 860428)										
VA23A5293-001	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	
Anions and Nutrien	ts (QC Lot: 860429)										
VA23A5293-001	Anonymous	Fluoride	16984-48-8	E235.F	0.020	mg/L	0.359	0.358	0.0825%	20%	
Anions and Nutrien	ts (QC Lot: 863783)										
VA23A5217-001	WG-030823-CS-55	Ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	
Dissolved Metals (QC Lot: 860018)										
VA23A5208-001	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	0.0337	0.0327	3.12%	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	<0.00010	<0.00010	0	Diff <2x LOR	
		Barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.0182	0.0181	0.574%	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		4.76	4.73		20%	

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Work Order: VA23A5217 Amendment 1
Client: Comox Valley Regional District



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 (C	QC Lot: 860018) - conti	nued									
VA23A5208-001	Anonymous	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	0.00022	0.00021	0.00002	Diff <2x LOR	
		Iron, dissolved	7439-89-6	E421	0.010	mg/L	0.030	0.029	0.0008	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	0.0050	mg/L	0.451	0.443	1.76%	20%	
		Manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.00216	0.00202	6.95%	20%	
		Molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.000235	0.000248	0.000013	Diff <2x LOR	
		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	0.426	0.417	0.008	Diff <2x LOR	
		Selenium, dissolved	7782-49-2	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	
		Silicon, dissolved	7440-21-3	E421	0.050	mg/L	2.08	2.02	2.63%	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	0.986	0.973	1.30%	20%	
		Strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.0541	0.0560	3.49%	20%	
		Sulfur, dissolved	7704-34-9	E421	0.50	mg/L	1.43	1.35	0.08	Diff <2x LOR	
		Thallium, dissolved	7440-28-0	E421	0.000010	mg/L	<0.000010	<0.000010	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	
		Uranium, dissolved	7440-61-1	E421	0.000010	mg/L	0.000061	0.000062	0.000002	Diff <2x LOR	
		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	0.00030	mg/L	<0.00030	<0.00030	0	Diff <2x LOR	
Dissolved Metals (C	C L ot: 862689)										
VA23A5197-002	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	
Dissolved Metals (C	QC Lot: 862690)										
VA23A5217-007	WG-030823-CS-60	Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	
	mpounds (QC Lot: 865	363)									
VA23A5198-001	Anonymous	Benzene	71-43-2	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Bromodichloromethane	75-27-4	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Bromoform	75-25-2	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Carbon tetrachloride	56-23-5	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	

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Work Order: VA23A5217 Amendment 1
Client: Comox Valley Regional District



Sub-Matrix: Water							Labora	tory Duplicate (D	иР) кероп		
aboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifie
olatile Organic Co	mpounds (QC Lot: 868	5363) - continued									
A23A5198-001	Anonymous	Chlorobenzene	108-90-7	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Chloroethane	75-00-3	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Chloroform	67-66-3	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Chloromethane	74-87-3	E611C	5.0	μg/L	<5.0	<5.0	0	Diff <2x LOR	
		Dibromochloromethane	124-48-1	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Dichlorobenzene, 1,2-	95-50-1	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Dichlorobenzene, 1,3-	541-73-1	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Dichlorobenzene, 1,4-	106-46-7	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Dichloroethane, 1,1-	75-34-3	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Dichloroethane, 1,2-	107-06-2	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Dichloroethylene, 1,1-	75-35-4	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Dichloroethylene, cis-1,2-	156-59-2	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Dichloroethylene, trans-1,2-	156-60-5	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Dichloromethane	75-09-2	E611C	1.0	μg/L	<1.0	<1.0	0	Diff <2x LOR	
		Dichloropropane, 1,2-	78-87-5	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Dichloropropylene, cis-1,3-	10061-01-5	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Dichloropropylene, trans-1,3-	10061-02-6	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Ethylbenzene	100-41-4	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Styrene	100-42-5	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Tetrachloroethane, 1,1,1,2-	630-20-6	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Tetrachloroethane, 1,1,2,2-	79-34-5	E611C	0.20	μg/L	<0.20	<0.20	0	Diff <2x LOR	
		Tetrachloroethylene	127-18-4	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Toluene	108-88-3	E611C	0.40	μg/L	<0.40	<0.40	0	Diff <2x LOR	
		Trichloroethane, 1,1,1-	71-55-6	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Trichloroethane, 1,1,2-	79-00-5	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Trichloroethylene	79-01-6	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Trichlorofluoromethane	75-69-4	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Vinyl chloride	75-01-4	E611C	0.40	μg/L	<0.40	<0.40	0	Diff <2x LOR	
		Xylene, m+p-	179601-23-1	E611C	0.40	μg/L	<0.40	<0.40	0	Diff <2x LOR	
		Xylene, o-	95-47-6	E611C	0.30	μg/L	<0.30	<0.30	0	Diff <2x LOR	
ydrocarbons (QC	Lot: 865362)									III III	
A23A5198-001	Anonymous	VHw (C6-C10)		E581.VH+F1	100	μg/L	<100	<100	0.0%	30%	

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Client: Comox Valley Regional District

Project :



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

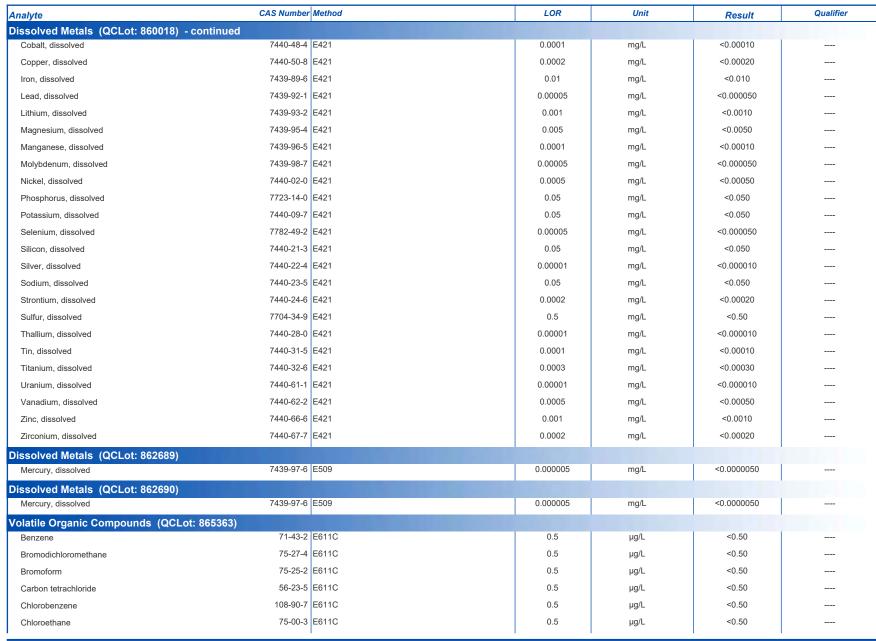
Analyte	CAS Number Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 860422)					
Conductivity	E100	1	μS/cm	1.2	
Physical Tests (QCLot: 860423)					
Alkalinity, bicarbonate (as CaCO3)	E290	1	mg/L	<1.0	
Alkalinity, carbonate (as CaCO3)	E290	1	mg/L	<1.0	
Alkalinity, hydroxide (as CaCO3)	E290	1	mg/L	<1.0	
Alkalinity, total (as CaCO3)	E290	1	mg/L	<1.0	
Physical Tests (QCLot: 864178)					
Solids, total dissolved [TDS]	E162	10	mg/L	<10	
Anions and Nutrients (QCLot: 860425)					
Sulfate (as SO4)	14808-79-8 E235.SO4	0.3	mg/L	<0.30	
Anions and Nutrients (QCLot: 860426)					
Chloride	16887-00-6 E235.CI	0.5	mg/L	<0.50	
Anions and Nutrients (QCLot: 860427)					
Nitrate (as N)	14797-55-8 E235.NO3-L	0.005	mg/L	<0.0050	
Anions and Nutrients (QCLot: 860428)					
Nitrite (as N)	14797-65-0 E235.NO2-L	0.001	mg/L	<0.0010	
Anions and Nutrients (QCLot: 860429)					
Fluoride	16984-48-8 E235.F	0.02	mg/L	<0.020	
Anions and Nutrients (QCLot: 863783)					
Ammonia, total (as N)	7664-41-7 E298	0.005	mg/L	<0.0050	
Dissolved Metals (QCLot: 860018)					
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	<0.000050	
Calcium, dissolved	7440-70-2 E421	0.05	mg/L	<0.050	
Chromium, dissolved	7440-47-3 E421	0.0005	mg/L	<0.00050	

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Project: 3

Sub-Matrix: Water



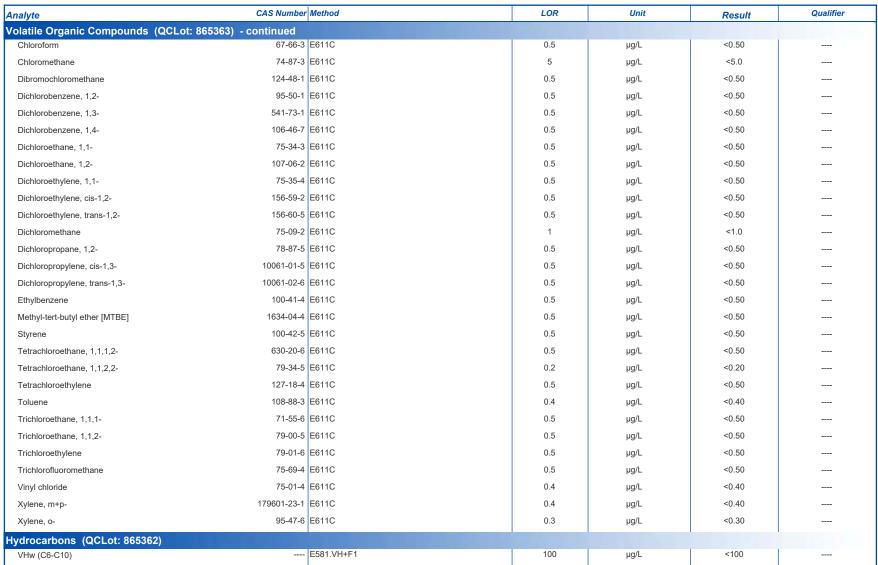


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Project : 3

Sub-Matrix: Water





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Client: Comox Valley Regional District

Project :



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 Co	ntrol Sample (LCS)	Report	
					Spike	Recovery (%)	Recovery	Limits (%)	
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 860422)									
Conductivity		E100	1	μS/cm	146.9 μS/cm	99.6	90.0	110	
Physical Tests (QCLot: 860423)									
Alkalinity, total (as CaCO3)		E290	1	mg/L	500 mg/L	106	85.0	115	
Physical Tests (QCLot: 864178)									
Solids, total dissolved [TDS]		E162	10	mg/L	1000 mg/L	101	85.0	115	
Anions and Nutrients (QCLot: 860425)	14000 70 0	E005 004	0.0				00.0	440	
Sulfate (as SO4)	14808-79-8	E235.SU4	0.3	mg/L	100 mg/L	104	90.0	110	
Anions and Nutrients (QCLot: 860426)									
Chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	102	90.0	110	
Anions and Nutrients (QCLot: 860427)									
Nitrate (as N)	14/9/-55-8	E235.NO3-L	0.005	mg/L	2.5 mg/L	102	90.0	110	
Anions and Nutrients (QCLot: 860428)		Teas was a	0.004						
Nitrite (as N)	14/97-65-0	E235.NO2-L	0.001	mg/L	0.5 mg/L	102	90.0	110	
Anions and Nutrients (QCLot: 860429)									
Fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	102	90.0	110	
Anions and Nutrients (QCLot: 863783)		E000	0.005	L 6			25.0		
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	99.8	85.0	115	
Di 1 1 1 1 (00) (000)	1								
Dissolved Metals (QCLot: 860018) Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	2 mg/L	98.3	80.0	120	
Antimony, dissolved	7440-36-0		0.0001	mg/L	1 mg/L	98.4	80.0	120	
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	1 mg/L	98.7	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	95.0	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	100	80.0	120	
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	0.1 mg/L	96.2	80.0	120	
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	50 mg/L	97.0	80.0	120	
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	0.25 mg/L	97.6	80.0	120	
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	0.25 mg/L	96.2	80.0	120	
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	0.25 mg/L	94.6	80.0	120	

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Sub-Matrix: Water						Laboratory Co	ntrol Sample (LCS)	Report	
					Spike	Recovery (%)	Recovery	Limits (%)	
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifie
Dissolved Metals (QCLot: 860018) - continued									
Iron, dissolved	7439-89-6	E421	0.01	mg/L	1 mg/L	99.2	80.0	120	
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	0.5 mg/L	95.5	80.0	120	
Lithium, dissolved	7439-93-2	E421	0.001	mg/L	0.25 mg/L	90.7	80.0	120	
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	50 mg/L	97.3	80.0	120	
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	0.25 mg/L	94.5	80.0	120	
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	0.25 mg/L	97.8	80.0	120	
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	0.5 mg/L	96.8	80.0	120	
Phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	10 mg/L	95.2	80.0	120	
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	50 mg/L	99.4	80.0	120	
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	1 mg/L	96.3	80.0	120	
Silicon, dissolved	7440-21-3	E421	0.05	mg/L	10 mg/L	97.6	80.0	120	
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	0.1 mg/L	99.4	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	101	80.0	120	
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	50 mg/L	97.3	80.0	120	
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	1 mg/L	96.2	80.0	120	
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	0.5 mg/L	96.5	80.0	120	
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	0.25 mg/L	93.5	80.0	120	
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	0.005 mg/L	97.2	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	97.6	80.0	120	
Zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	0.1 mg/L	92.8	80.0	120	
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0.0001 mg/L	102	80.0	120	
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0.0001 mg/L	101	80.0	120	
Volatile Organic Compounds (QCLot: 865363)	A 1 1 1 1 1 1								7
Benzene	71-43-2	E611C	0.5	μg/L	100 μg/L	104	70.0	130	
Bromodichloromethane	75-27-4	E611C	0.5	μg/L	100 μg/L	97.9	70.0	130	
Bromoform	75-25-2	E611C	0.5	μg/L	100 μg/L	104	70.0	130	
Carbon tetrachloride	56-23-5	E611C	0.5	μg/L	100 μg/L	99.3	70.0	130	
Chlorobenzene	108-90-7	E611C	0.5	μg/L	100 μg/L	106	70.0	130	
Chloroethane	75-00-3	E611C	0.5	μg/L	100 μg/L	106	60.0	140	
Chloroform	67-66-3	E611C	0.5	μg/L	100 μg/L	98.4	70.0	130	
Chloromethane	74-87-3	E611C	5	μg/L	100 μg/L	103	60.0	140	
Dibromochloromethane	124-48-1	E611C	0.5	μg/L	100 μg/L	98.4	70.0	130	
Dichlorobenzene, 1,2-	95-50-1	E611C	0.5	μg/L	100 μg/L	111	70.0	130	

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CAS Number 541-73-1 106-46-7 75-34-3 107-06-2 75-35-4 156-59-2 156-60-5 75-09-2 78-87-5 10061-01-5	E611C E611C E611C E611C E611C E611C E611C	0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5	ипіt µg/L µg/L µg/L µg/L µg/L µg/L µg/L µg/L	Spike Concentration 100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L	98.6 108 102 91.2 102 95.4	70.0 70.0 70.0 70.0 70.0 70.0 70.0	130 130 130 130 130 130 130	Qualifier
5) - continued 541-73-1 106-46-7 75-34-3 107-06-2 75-35-4 156-59-2 156-60-5 75-09-2 78-87-5 10061-01-5	E611C E611C E611C E611C E611C E611C E611C	0.5 0.5 0.5 0.5 0.5 0.5	µg/L µg/L µg/L µg/L µg/L µg/L	100 µg/L 100 µg/L 100 µg/L 100 µg/L 100 µg/L 100 µg/L	98.6 108 102 91.2 102 95.4	70.0 70.0 70.0 70.0 70.0 70.0	130 130 130 130 130	
541-73-1 106-46-7 75-34-3 107-06-2 75-35-4 156-59-2 156-60-5 75-09-2 78-87-5 10061-01-5	E611C E611C E611C E611C E611C E611C	0.5 0.5 0.5 0.5 0.5	µg/L µg/L µg/L µg/L µg/L	100 µg/L 100 µg/L 100 µg/L 100 µg/L 100 µg/L	108 102 91.2 102 95.4	70.0 70.0 70.0 70.0 70.0	130 130 130 130	
541-73-1 106-46-7 75-34-3 107-06-2 75-35-4 156-59-2 156-60-5 75-09-2 78-87-5 10061-01-5	E611C E611C E611C E611C E611C E611C	0.5 0.5 0.5 0.5 0.5	µg/L µg/L µg/L µg/L µg/L	100 µg/L 100 µg/L 100 µg/L 100 µg/L 100 µg/L	108 102 91.2 102 95.4	70.0 70.0 70.0 70.0 70.0	130 130 130 130	
75-34-3 107-06-2 75-35-4 156-59-2 156-60-5 75-09-2 78-87-5 10061-01-5	E611C E611C E611C E611C E611C	0.5 0.5 0.5 0.5	µg/L µg/L µg/L µg/L µg/L	. 0 100 µg/L 100 µg/L 100 µg/L 100 µg/L	102 91.2 102 95.4	70.0 70.0 70.0 70.0	130 130 130	
107-06-2 75-35-4 156-59-2 156-60-5 75-09-2 78-87-5 10061-01-5	E611C E611C E611C E611C E611C	0.5 0.5 0.5 0.5	μg/L μg/L μg/L μg/L	100 µg/L 100 µg/L 100 µg/L	91.2 102 95.4	70.0 70.0 70.0	130 130	
75-35-4 156-59-2 156-60-5 75-09-2 78-87-5 10061-01-5	E611C E611C E611C E611C	0.5 0.5 0.5	μg/L μg/L μg/L	100 μg/L 100 μg/L	102 95.4	70.0 70.0	130	
156-59-2 156-60-5 75-09-2 78-87-5 10061-01-5	E611C E611C E611C	0.5 0.5	μg/L μg/L	100 μg/L	95.4	70.0		
156-60-5 75-09-2 78-87-5 10061-01-5	E611C E611C	0.5	μg/L	, ,			130	
75-09-2 78-87-5 10061-01-5	E611C			100 ug/l		1		
78-87-5 10061-01-5		1		100 µg/L	91.2	70.0	130	
10061-01-5	E611C		μg/L	100 μg/L	96.3	70.0	130	
		0.5	μg/L	100 μg/L	99.7	70.0	130	
	E611C	0.5	μg/L	100 μg/L	88.7	70.0	130	
10061-02-6	E611C	0.5	μg/L	100 μg/L	86.5	70.0	130	
100-41-4	E611C	0.5	μg/L	100 μg/L	101	70.0	130	
1634-04-4	E611C	0.5	μg/L	100 μg/L	106	70.0	130	
100-42-5	E611C	0.5	μg/L	100 µg/L	98.1	70.0	130	
630-20-6	E611C	0.5	μg/L	100 μg/L	102	70.0	130	
79-34-5	E611C	0.2	μg/L	100 μg/L	108	70.0	130	
127-18-4	E611C	0.5	μg/L	100 μg/L	110	70.0	130	
108-88-3	E611C	0.4	μg/L	100 µg/L	102	70.0	130	
71-55-6	E611C	0.5	μg/L	100 μg/L	98.3	70.0	130	
79-00-5	E611C	0.5	μg/L	100 μg/L	102	70.0	130	
79-01-6	E611C	0.5	μg/L	100 μg/L	103	70.0	130	
75-69-4	E611C	0.5	μg/L	100 μg/L	107	60.0	140	
75-01-4	E611C	0.4	μg/L	100 μg/L	102	60.0	140	
179601-23-1	E611C	0.4	μg/L		114	70.0	130	
95-47-6	E611C	0.3	μg/L	100 μg/L	106	70.0	130	
	E581.VH+F1	100	μg/L	6310 μg/L	77.1	70.0	130	
	100-41-4 1634-04-4 100-42-5 630-20-6 79-34-5 127-18-4 108-88-3 71-55-6 79-00-5 79-01-6 75-69-4 75-01-4 179601-23-1 95-47-6	10061-02-6 100-41-4 1634-04-4 1604-2-5 100-42-5 16011C 100-42-5 16011C 100-42-5 16011C 127-18-4 16011C 127-18-4 16011C 108-88-3 16011C 179-00-5 16011C 179-00-5 16011C 179-01-6 16011C 179-01-6 179-01-6 16011C 179-01-4 179-01-23-1 195-47-6 16011C 179-01-23-1 195-47-6 16011C	100-41-4 E611C 0.5 1634-04-4 E611C 0.5 100-42-5 E611C 0.5 630-20-6 E611C 0.5 79-34-5 E611C 0.2 127-18-4 E611C 0.5 108-88-3 E611C 0.4 71-55-6 E611C 0.5 79-00-5 E611C 0.5 79-01-6 E611C 0.5 75-01-4 E611C 0.5 75-01-4 E611C 0.4 95-47-6 E611C 0.3	100-41-4 E611C	100-41-4 E611C	100-41-4 E611C	100-41-4 E611C	100-41-4 E611C

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Client: Comox Valley Regional District

Project :



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		•	•	iiilou, buonground lovor	TX OPINO TO VOI.		Matrix Spike	e (MS) Report		
					Sp	ike	Recovery (%)	Recovery	Limits (%)	
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Anions and Nutri	ents (QCLot: 860425)									
VA23A5293-002	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	ND mg/L	100 mg/L	ND	75.0	125	
Anions and Nutri	ents (QCLot: 860426)									
VA23A5293-002	Anonymous	Chloride	16887-00-6	E235.CI	114 mg/L	100 mg/L	114	75.0	125	
Anions and Nutri	ents (QCLot: 860427)									
VA23A5293-002	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	2.86 mg/L	2.5 mg/L	114	75.0	125	
Anions and Nutri	ents (QCLot: 860428)									
VA23A5293-002	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	0.578 mg/L	0.5 mg/L	116	75.0	125	
Anions and Nutri	ents (QCLot: 860429)									T I
VA23A5293-002	Anonymous	Fluoride	16984-48-8	E235.F	1.17 mg/L	1 mg/L	117	75.0	125	
Anions and Nutri	ents (QCLot: 863783)									
VA23A5217-002	WG-030823-CS-56	Ammonia, total (as N)	7664-41-7	E298	0.102 mg/L	0.1 mg/L	102	75.0	125	
Dissolved Metals	(QCLot: 860018)									T I
VA23A5208-002	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.188 mg/L	0.2 mg/L	93.8	70.0	130	
		Antimony, dissolved	7440-36-0	E421	0.0193 mg/L	0.02 mg/L	96.7	70.0	130	
		Arsenic, dissolved	7440-38-2	E421	0.0189 mg/L	0.02 mg/L	94.5	70.0	130	
		Barium, dissolved	7440-39-3	E421	0.0190 mg/L	0.02 mg/L	95.1	70.0	130	
		Beryllium, dissolved	7440-41-7	E421	0.0382 mg/L	0.04 mg/L	95.6	70.0	130	
		Bismuth, dissolved	7440-69-9	E421	0.00873 mg/L	0.01 mg/L	87.3	70.0	130	
		Boron, dissolved	7440-42-8	E421	0.098 mg/L	0.1 mg/L	97.8	70.0	130	
		Cadmium, dissolved	7440-43-9	E421	0.00386 mg/L	0.004 mg/L	96.4	70.0	130	
		Calcium, dissolved	7440-70-2	E421	ND mg/L	4 mg/L	ND	70.0	130	
		Chromium, dissolved	7440-47-3	E421	0.0379 mg/L	0.04 mg/L	94.6	70.0	130	
		Cobalt, dissolved	7440-48-4	E421	0.0186 mg/L	0.02 mg/L	93.1	70.0	130	
		Copper, dissolved	7440-50-8	E421	0.0180 mg/L	0.02 mg/L	90.2	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	0.0184 mg/L	0.02 mg/L	91.8	70.0	130	
		Lithium, dissolved	7439-93-2	E421	0.0906 mg/L	0.1 mg/L	90.6	70.0	130	
		Magnesium, dissolved	7439-95-4	E421	ND mg/L	1 mg/L	ND	70.0	130	
		Manganese, dissolved	7439-96-5	E421	0.0187 mg/L	0.02 mg/L	93.6	70.0	130	
	1	Molybdenum, dissolved	7439-98-7	E421	0.0190 mg/L	0.02 mg/L	94.8	70.0	130	

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Work Order: VA23A5217 Amendment 1
Client: Comox Valley Regional District



Sub-Matrix: Water							Matrix Spik	re (MS) Report		
					Spi	ike	Recovery (%)	Recovery	Limits (%)	
aboratory sample	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifie
issolved Metals	(QCLot: 860018) - (continued								
VA23A5208-002	Anonymous	Nickel, dissolved	7440-02-0	E421	0.0377 mg/L	0.04 mg/L	94.3	70.0	130	
		Phosphorus, dissolved	7723-14-0	E421	9.38 mg/L	10 mg/L	93.8	70.0	130	
		Potassium, dissolved	7440-09-7	E421	4.23 mg/L	4 mg/L	106	70.0	130	
		Selenium, dissolved	7782-49-2	E421	0.0378 mg/L	0.04 mg/L	94.6	70.0	130	
		Silicon, dissolved	7440-21-3	E421	9.25 mg/L	10 mg/L	92.5	70.0	130	
		Silver, dissolved	7440-22-4	E421	0.00390 mg/L	0.004 mg/L	97.4	70.0	130	
		Sodium, dissolved	7440-23-5	E421	ND mg/L	2 mg/L	ND	70.0	130	
		Strontium, dissolved	7440-24-6	E421	ND mg/L	0.02 mg/L	ND	70.0	130	
		Sulfur, dissolved	7704-34-9	E421	19.0 mg/L	20 mg/L	94.8	70.0	130	
		Thallium, dissolved	7440-28-0	E421	0.00364 mg/L	0.004 mg/L	91.1	70.0	130	
		Tin, dissolved	7440-31-5	E421	0.0192 mg/L	0.02 mg/L	96.2	70.0	130	
		Titanium, dissolved	7440-32-6	E421	0.0357 mg/L	0.04 mg/L	89.2	70.0	130	
		Uranium, dissolved	7440-61-1	E421	0.00382 mg/L	0.004 mg/L	95.5	70.0	130	
		Vanadium, dissolved	7440-62-2	E421	0.0938 mg/L	0.1 mg/L	93.8	70.0	130	
		Zinc, dissolved	7440-66-6	E421	0.373 mg/L	0.4 mg/L	93.2	70.0	130	
		Zirconium, dissolved	7440-67-7	E421	0.0391 mg/L	0.04 mg/L	97.7	70.0	130	
Dissolved Metals	(QCLot: 862689)									
VA23A5197-003	Anonymous	Mercury, dissolved	7439-97-6	E509	0.000100 mg/L	0.0001 mg/L	100	70.0	130	
issolved Metals	(QCLot: 862690)									
VA23A5220-001	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000956 mg/L	0.0001 mg/L	95.6	70.0	130	
olatile Organic (Compounds (QCLot	: 865363)								
/A23A5217-003	WG-030823-CS-57	Benzene	71-43-2	E611C	107 µg/L	100 μg/L	107	60.0	140	
		Bromodichloromethane	75-27-4	E611C	101 μg/L	100 μg/L	101	60.0	140	
		Bromoform	75-25-2	E611C	98.9 μg/L	100 μg/L	98.9	60.0	140	
		Carbon tetrachloride	56-23-5	E611C	100 μg/L	100 μg/L	100	60.0	140	
		Chlorobenzene	108-90-7	E611C	109 μg/L	100 μg/L	109	60.0	140	
		Chloroethane	75-00-3	E611C	108 µg/L	100 μg/L	108	50.0	150	
		Chloroform	67-66-3	E611C	101 μg/L	100 μg/L	101	60.0	140	
		Chloromethane	74-87-3	E611C	106 μg/L	100 μg/L	106	50.0	150	
		Dibromochloromethane	124-48-1	E611C	102 μg/L	100 μg/L	102	60.0	140	
		Dichlorobenzene, 1,2-	95-50-1	E611C	105 μg/L	100 μg/L	105	60.0	140	
		Dichlorobenzene, 1,3-	541-73-1	E611C	94.1 μg/L	100 μg/L	94.1	60.0	140	
		Dichlorobenzene, 1,4-	106-46-7	E611C	103 μg/L	100 µg/L	103	60.0	140	
	T	Dichloroethane, 1,1-	75-34-3	 E611C	103 µg/L	100 μg/L	103	60.0	140	I .

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Work Order: VA23A5217 Amendment 1
Client: Comox Valley Regional District



Sub-Matrix: Water							Matrix Spil	re (MS) Report		
					Spi	ike	Recovery (%)	Recovery	Limits (%)	
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Volatile Organic	Compounds (QCLo	t: 865363) - continued								
VA23A5217-003	WG-030823-CS-57	Dichloroethane, 1,2-	107-06-2	E611C	93.6 μg/L	100 μg/L	93.6	60.0	140	
		Dichloroethylene, 1,1-	75-35-4	E611C	103 μg/L	100 μg/L	103	60.0	140	
		Dichloroethylene, cis-1,2-	156-59-2	E611C	98.1 μg/L	100 μg/L	98.1	60.0	140	
		Dichloroethylene, trans-1,2-	156-60-5	E611C	103 μg/L	100 μg/L	103	60.0	140	
		Dichloromethane	75-09-2	E611C	98.1 μg/L	100 μg/L	98.1	60.0	140	
		Dichloropropane, 1,2-	78-87-5	E611C	103 μg/L	100 μg/L	103	60.0	140	
		Dichloropropylene, cis-1,3-	10061-01-5	E611C	92.7 μg/L	100 μg/L	92.7	60.0	140	
		Dichloropropylene, trans-1,3-	10061-02-6	E611C	88.4 µg/L	100 μg/L	88.4	60.0	140	
		Ethylbenzene	100-41-4	E611C	104 μg/L	100 μg/L	104	60.0	140	
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611C	109 μg/L	100 μg/L	109	60.0	140	
		Styrene	100-42-5	E611C	101 μg/L	100 μg/L	101	60.0	140	
		Tetrachloroethane, 1,1,1,2-	630-20-6	E611C	106 μg/L	100 μg/L	106	60.0	140	
		Tetrachloroethane, 1,1,2,2-	79-34-5	E611C	103 µg/L	100 μg/L	103	60.0	140	
		Tetrachloroethylene	127-18-4	E611C	112 µg/L	100 μg/L	112	60.0	140	
		Toluene	108-88-3	E611C	105 μg/L	100 μg/L	105	60.0	140	
		Trichloroethane, 1,1,1-	71-55-6	E611C	100 μg/L	100 μg/L	100	60.0	140	
		Trichloroethane, 1,1,2-	79-00-5	E611C	106 μg/L	100 μg/L	106	60.0	140	
		Trichloroethylene	79-01-6	E611C	106 μg/L	100 μg/L	106	60.0	140	
		Trichlorofluoromethane	75-69-4	E611C	108 μg/L	100 μg/L	108	50.0	150	
		Vinyl chloride	75-01-4	E611C	104 μg/L	100 µg/L	104	50.0	150	
		Xylene, m+p-	179601-23-1	E611C	232 µg/L	200 μg/L	116	60.0	140	
		Xylene, o-	95-47-6	E611C	110 μg/L	100 μg/L	110	60.0	140	
lydrocarbons (QCLot: 865362)									
VA23A5217-004	TRIP BLANK	VHw (C6-C10)		E581.VH+F1	4920 μg/L	6310 µg/L	77.9	60.0	140	



QUALITY CONTROL INTERPRETIVE REPORT

Work Order : **VA23A5217** Page : 1 of 18

Amendment :1

Client : Comox Valley Regional District Laboratory : Vancouver - Environmental

Contact : Crystal Stuart Account Manager : Thomas Chang

Address :770 Harmston Avenue Address :8081 Lougheed Highway

Courtney BC Canada V9N 0G8 Burnaby, British Columbia Canada V5A 1W9

 Telephone
 : 250-898-3722
 Telephone
 : +1 604 253 4188

 Project
 : 3
 Date Samples Received
 : 10-Mar-2023 09:50

 PO
 : 23-015
 Issue Date
 : 22-Mar-2023 14:34

C-O-C number

Sampler : Crystal Stuart

Site : CRWMC-Quarterly-GW
Quote number : VA23-COVR100-001

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

<u>No</u> Quality Control Sample Frequency Outliers occur.

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Work Order : VA23A5217 Amendment 1
Client : Comox Valley Regional District

Project :



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 F							
Analyte Group	Method	Sampling Date	Ext	raction / Pr	eparation			Analys	sis	
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
TRIP BLANK	E298	08-Mar-2023	15-Mar-2023				15-Mar-2023	28 days	7 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
WG-030823-CS-55	E298	08-Mar-2023	15-Mar-2023				15-Mar-2023	28 days	7 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
WG-030823-CS-56	E298	08-Mar-2023	15-Mar-2023				15-Mar-2023	28 days	7 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
WG-030823-CS-57	E298	08-Mar-2023	15-Mar-2023				15-Mar-2023	28 days	7 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
WG-030823-CS-58	E298	08-Mar-2023	15-Mar-2023				15-Mar-2023	28 days	7 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
WG-030823-CS-59	E298	08-Mar-2023	15-Mar-2023				15-Mar-2023	28 days	7 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
WG-030823-CS-60	E298	08-Mar-2023	15-Mar-2023				15-Mar-2023	28 days	7 days	✓

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Matrix: Water					Ev	aluation: 🗴 =	Holding time exce	edance ; 🕦	= Within	Holding Tin
Analyte Group	Method	Sampling Date	Ext	raction / Pr	eparation			Analys	is	
Container / Client Sample ID(s)			Preparation Date	Holding Rec	g Times Actual	Eval	Analysis Date	Holding Rec	Times Actual	Eval
Anions and Nutrients : Chloride in Water by IC										
HDPE TRIP BLANK	E235.Cl	08-Mar-2023	11-Mar-2023				11-Mar-2023	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE WG-030823-CS-55	E235.Cl	08-Mar-2023	11-Mar-2023				11-Mar-2023	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE WG-030823-CS-56	E235.CI	08-Mar-2023	11-Mar-2023				11-Mar-2023	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE WG-030823-CS-57	E235.Cl	08-Mar-2023	11-Mar-2023				11-Mar-2023	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE WG-030823-CS-58	E235.CI	08-Mar-2023	11-Mar-2023				11-Mar-2023	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE WG-030823-CS-59	E235.CI	08-Mar-2023	11-Mar-2023				11-Mar-2023	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE WG-030823-CS-60	E235.Cl	08-Mar-2023	11-Mar-2023				11-Mar-2023	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE TRIP BLANK	E235.F	08-Mar-2023	11-Mar-2023				11-Mar-2023	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE WG-030823-CS-55	E235.F	08-Mar-2023	11-Mar-2023				11-Mar-2023	28 days	3 days	✓

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Matrix: Water		Evaluation: × = Holding time exceedance ; √ = W								Holding Tim
Analyte Group	Method	Sampling Date	Ext	raction / Pr	eparation			Analys	sis	
Container / Client Sample ID(s)			Preparation Date	Holding Rec	g Times Actual	Eval	Analysis Date	Holding Rec	7 Times Actual	Eval
Anions and Nutrients : Fluoride in Water by IC										
HDPE WG-030823-CS-56	E235.F	08-Mar-2023	11-Mar-2023				11-Mar-2023	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE WG-030823-CS-57	E235.F	08-Mar-2023	11-Mar-2023				11-Mar-2023	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE WG-030823-CS-58	E235.F	08-Mar-2023	11-Mar-2023				11-Mar-2023	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE WG-030823-CS-59	E235.F	08-Mar-2023	11-Mar-2023				11-Mar-2023	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE WG-030823-CS-60	E235.F	08-Mar-2023	11-Mar-2023				11-Mar-2023	28 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE TRIP BLANK	E235.NO3-L	08-Mar-2023	11-Mar-2023				11-Mar-2023	3 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE WG-030823-CS-55	E235.NO3-L	08-Mar-2023	11-Mar-2023				11-Mar-2023	3 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE WG-030823-CS-56	E235.NO3-L	08-Mar-2023	11-Mar-2023				11-Mar-2023	3 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE WG-030823-CS-57	E235.NO3-L	08-Mar-2023	11-Mar-2023				11-Mar-2023	3 days	3 days	✓

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Work Order : VA23A5217 Amendment 1
Client : Comox Valley Regional District



Matrix: Water					Εν	/aluation: 🗴 =	Holding time excee	edance ; 🖠	✓ = Within	Holding Tim
Analyte Group	Method	Sampling Date	Ext	raction / Pr	eparation			Analys	sis	
Container / Client Sample ID(s)			Preparation Date	Holding Rec	Times Actual	Eval	Analysis Date	Holding Rec	g Times Actual	Eval
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE WG-030823-CS-58	E235.NO3-L	08-Mar-2023	11-Mar-2023				11-Mar-2023	3 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE WG-030823-CS-59	E235.NO3-L	08-Mar-2023	11-Mar-2023				11-Mar-2023	3 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE WG-030823-CS-60	E235.NO3-L	08-Mar-2023	11-Mar-2023				11-Mar-2023	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE TRIP BLANK	E235.NO2-L	08-Mar-2023	11-Mar-2023				11-Mar-2023	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE WG-030823-CS-55	E235.NO2-L	08-Mar-2023	11-Mar-2023				11-Mar-2023	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE WG-030823-CS-56	E235.NO2-L	08-Mar-2023	11-Mar-2023				11-Mar-2023	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE WG-030823-CS-57	E235.NO2-L	08-Mar-2023	11-Mar-2023				11-Mar-2023	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE WG-030823-CS-58	E235.NO2-L	08-Mar-2023	11-Mar-2023				11-Mar-2023	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE WG-030823-CS-59	E235.NO2-L	08-Mar-2023	11-Mar-2023				11-Mar-2023	3 days	3 days	✓

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Matrix: Water					Ev	/aluation: 🗴 =	Holding time exce	edance ; 🔹	= Within	Holding Tin
Analyte Group	Method	Sampling Date	Ext	raction / Pr	eparation			Analys	is	
Container / Client Sample ID(s)			Preparation Date	Holding Rec	g Times Actual	Eval	Analysis Date	Holding Rec	Times Actual	Eval
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE WG-030823-CS-60	E235.NO2-L	08-Mar-2023	11-Mar-2023				11-Mar-2023	3 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE TRIP BLANK	E235.SO4	08-Mar-2023	11-Mar-2023				11-Mar-2023	28 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE WG-030823-CS-55	E235.SO4	08-Mar-2023	11-Mar-2023				11-Mar-2023	28 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE WG-030823-CS-56	E235.SO4	08-Mar-2023	11-Mar-2023				11-Mar-2023	28 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE WG-030823-CS-57	E235.SO4	08-Mar-2023	11-Mar-2023				11-Mar-2023	28 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE WG-030823-CS-58	E235.SO4	08-Mar-2023	11-Mar-2023				11-Mar-2023	28 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE WG-030823-CS-59	E235.SO4	08-Mar-2023	11-Mar-2023				11-Mar-2023	28 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE WG-030823-CS-60	E235.SO4	08-Mar-2023	11-Mar-2023				11-Mar-2023	28 days	3 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid) TRIP BLANK	E509	08-Mar-2023	14-Mar-2023				14-Mar-2023	28 days	6 days	✓

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Matrix: Water					Εν	/aluation: 🗴 =	Holding time exce	edance ; 🔹	/ = Within	Holding Tir
Analyte Group	Method	Sampling Date	Ext	raction / Pr	eparation			Analys	sis	
Container / Client Sample ID(s)			Preparation		g Times	Eval	Analysis Date		7 Times	Eval
Direct and the Direct and the second with a second			Date	Rec	Actual			Rec	Actual	
Dissolved Metals : Dissolved Mercury in Water by CVAAS Glass vial dissolved (hydrochloric acid)										
WG-030823-CS-55	E509	08-Mar-2023	14-Mar-2023				14-Mar-2023	28 days	6 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid) WG-030823-CS-56	E509	08-Mar-2023	14-Mar-2023				14-Mar-2023	28 days	6 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS				<u>'</u>					'	
Glass vial dissolved (hydrochloric acid) WG-030823-CS-57	E509	08-Mar-2023	14-Mar-2023				14-Mar-2023	28 days	6 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid) WG-030823-CS-58	E509	08-Mar-2023	14-Mar-2023				14-Mar-2023	28 days	6 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS								1		
Glass vial dissolved (hydrochloric acid) WG-030823-CS-59	E509	08-Mar-2023	14-Mar-2023				14-Mar-2023	28 days	6 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid) WG-030823-CS-60	E509	08-Mar-2023	14-Mar-2023				14-Mar-2023	28 days	6 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) TRIP BLANK	E421	08-Mar-2023	11-Mar-2023				13-Mar-2023	180 days	5 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) WG-030823-CS-55	E421	08-Mar-2023	11-Mar-2023				13-Mar-2023	180 days	5 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) WG-030823-CS-56	E421	08-Mar-2023	11-Mar-2023				13-Mar-2023	180 days	5 days	✓

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Matrix: Water					Ev	aluation: 🗴 =	Holding time exce	edance ; 🔻	= Within	Holding Ti
Analyte Group	Method	Sampling Date	Ext	raction / Pr	eparation			Analys	is	
Container / Client Sample ID(s)			Preparation Date	Holding Rec	g Times Actual	Eval	Analysis Date	Holding Rec	Times Actual	Eval
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS			Buto							
HDPE dissolved (nitric acid) WG-030823-CS-57	E421	08-Mar-2023	11-Mar-2023				13-Mar-2023	180 days	5 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) WG-030823-CS-58	E421	08-Mar-2023	11-Mar-2023				13-Mar-2023	180 days	5 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) WG-030823-CS-59	E421	08-Mar-2023	11-Mar-2023				13-Mar-2023	180 days	5 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) WG-030823-CS-60	E421	08-Mar-2023	11-Mar-2023				13-Mar-2023	180 days	5 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate) TRIP BLANK	E581.VH+F1	08-Mar-2023	16-Mar-2023				16-Mar-2023	14 days	8 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate) WG-030823-CS-57	E581.VH+F1	08-Mar-2023	16-Mar-2023				16-Mar-2023	14 days	8 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate) WG-030823-CS-59	E581.VH+F1	08-Mar-2023	16-Mar-2023				16-Mar-2023	14 days	8 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE TRIP BLANK	E290	08-Mar-2023	11-Mar-2023				13-Mar-2023	14 days	5 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE WG-030823-CS-55	E290	08-Mar-2023	11-Mar-2023				13-Mar-2023	14 days	5 days	✓

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Matrix: Water					Ev	/aluation: ≭ =	Holding time excee	edance ; 🔻	= Within	Holding Time
Analyte Group	Method	Sampling Date	Ext	raction / Pr	eparation			Analys	is	
Container / Client Sample ID(s)			Preparation Date	Holding Rec	7 Times Actual	Eval	Analysis Date	Holding Rec	Times Actual	Eval
Physical Tests : Alkalinity Species by Titration										
HDPE WG-030823-CS-56	E290	08-Mar-2023	11-Mar-2023				13-Mar-2023	14 days	5 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE WG-030823-CS-57	E290	08-Mar-2023	11-Mar-2023				13-Mar-2023	14 days	5 days	✓
Physical Tests : Alkalinity Species by Titration				I						
HDPE WG-030823-CS-58	E290	08-Mar-2023	11-Mar-2023				13-Mar-2023	14 days	5 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE WG-030823-CS-59	E290	08-Mar-2023	11-Mar-2023				13-Mar-2023	14 days	5 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE WG-030823-CS-60	E290	08-Mar-2023	11-Mar-2023				13-Mar-2023	14 days	5 days	✓
Physical Tests : Conductivity in Water										
HDPE TRIP BLANK	E100	08-Mar-2023	11-Mar-2023				13-Mar-2023	28 days	5 days	✓
Physical Tests : Conductivity in Water										
HDPE WG-030823-CS-55	E100	08-Mar-2023	11-Mar-2023				13-Mar-2023	28 days	5 days	✓
Physical Tests : Conductivity in Water										
HDPE WG-030823-CS-56	E100	08-Mar-2023	11-Mar-2023				13-Mar-2023	28 days	5 days	✓
Physical Tests : Conductivity in Water										
HDPE WG-030823-CS-57	E100	08-Mar-2023	11-Mar-2023				13-Mar-2023	28 days	5 days	✓

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Matrix: Water					Ev	aluation: 🗴 =	Holding time exce	edance ; 🔻	/ = Within	Holding Tin
Analyte Group	Method	Sampling Date	Ext	raction / Pr				Analys	sis	
Container / Client Sample ID(s)			Preparation Date	Holding Rec	g Times Actual	Eval	Analysis Date	Holding Rec	g Times Actual	Eval
Physical Tests : Conductivity in Water										
HDPE WG-030823-CS-58	E100	08-Mar-2023	11-Mar-2023				13-Mar-2023	28 days	5 days	✓
Physical Tests : Conductivity in Water										
HDPE WG-030823-CS-59	E100	08-Mar-2023	11-Mar-2023				13-Mar-2023	28 days	5 days	✓
Physical Tests : Conductivity in Water										
HDPE WG-030823-CS-60	E100	08-Mar-2023	11-Mar-2023				13-Mar-2023	28 days	5 days	✓
Physical Tests : TDS by Gravimetry										
HDPE WG-030823-CS-55	E162	08-Mar-2023					16-Mar-2023	7 days	8 days	* EHT
Physical Tests : TDS by Gravimetry										
HDPE WG-030823-CS-56	E162	08-Mar-2023					16-Mar-2023	7 days	8 days	* EHT
Physical Tests : TDS by Gravimetry										
HDPE WG-030823-CS-57	E162	08-Mar-2023					16-Mar-2023	7 days	8 days	* EHT
Physical Tests : TDS by Gravimetry										
HDPE WG-030823-CS-58	E162	08-Mar-2023					16-Mar-2023	7 days	8 days	≭ EHT
Physical Tests : TDS by Gravimetry										
HDPE WG-030823-CS-59	E162	08-Mar-2023					16-Mar-2023	7 days	8 days	* EHT
Physical Tests : TDS by Gravimetry										
HDPE TRIP BLANK	E162	08-Mar-2023					16-Mar-2023	7 days	8 days	×

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Matrix: Water					Ev	aluation: 🗴 =	Holding time exce	edance ; 🛚	= Within	Holding Tir
Analyte Group	Method	Sampling Date	Ext	raction / Pr	eparation			Analys	is	
Container / Client Sample ID(s)			Preparation		g Times	Eval	Analysis Date		Times	Eval
			Date	Rec	Actual			Rec	Actual	
Physical Tests : TDS by Gravimetry										
HDPE										
WG-030823-CS-60	E162	08-Mar-2023					16-Mar-2023	7 days	8 days	sc .
Volatile Organic Compounds : VOCs (BC List) by Headspace GC-MS										
Glass vial (sodium bisulfate)	E611C	08-Mar-2023	16-Mar-2023				40 M 2002	44 -	8 days	1
TRIP BLANK	EDITO	08-IVIAT-2023	16-Mar-2023				16-Mar-2023	14 days	8 days	•
NATIONAL PROPERTY OF THE PROPE										
Volatile Organic Compounds : VOCs (BC List) by Headspace GC-MS Glass vial (sodium bisulfate)										
WG-030823-CS-57	E611C	08-Mar-2023	16-Mar-2023				16-Mar-2023	14 days	8 days	1
								,		
Volatile Organic Compounds : VOCs (BC List) by Headspace GC-MS										
Glass vial (sodium bisulfate)										
WG-030823-CS-59	E611C	08-Mar-2023	16-Mar-2023				16-Mar-2023	14 days	8 days	✓
Volatile Organic Compounds [Drycleaning] : VOCs (BC List) by Headspace GC-MS										
Glass vial (sodium bisulfate)										
TRIP BLANK	E611C	08-Mar-2023	16-Mar-2023				16-Mar-2023	14 days	8 days	✓
Volatile Organic Compounds [Drycleaning] : VOCs (BC List) by Headspace GC-MS				I						
Glass vial (sodium bisulfate) WG-030823-CS-57	E611C	08-Mar-2023	16-Mar-2023				16-Mar-2023	14 days	8 days	1
WG-030023-GG-37	20110	00 Mai 2020	10-Wai-2020				10-11101-2020	14 days	o days	·
Volatile Organic Compounds [Drycleaning] : VOCs (BC List) by Headspace GC-MS										
Glass vial (sodium bisulfate)										
WG-030823-CS-59	E611C	08-Mar-2023	16-Mar-2023				16-Mar-2023	14 days	8 days	✓
Volatile Organic Compounds [Fuels] : VOCs (BC List) by Headspace GC-MS										
Glass vial (sodium bisulfate)										
TRIP BLANK	E611C	08-Mar-2023	16-Mar-2023				16-Mar-2023	14 days	8 days	✓
Volatile Organic Compounds [Fuels] : VOCs (BC List) by Headspace GC-MS										
Glass vial (sodium bisulfate)	F0440	00 M 0000	40.140000				40.140022	44.1	0.1	,
WG-030823-CS-57	E611C	08-Mar-2023	16-Mar-2023				16-Mar-2023	14 days	୪ days	✓

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Matrix: Water					Ev	/aluation: ≭ =	Holding time excee	edance ; 🕥	✓ = Within	Holding Tim
Analyte Group	Method	Sampling Date	Ext	raction / Pr	eparation			Analys	sis	
Container / Client Sample ID(s)			Preparation Holding Times Eval A		Analysis Date	Date Holding Times		Eval		
			Date	Rec	Actual			Rec	Actual	
Volatile Organic Compounds [Fuels] : VOCs (BC List) by Headspace GC-MS										
Glass vial (sodium bisulfate)										
WG-030823-CS-59	E611C	08-Mar-2023	16-Mar-2023				16-Mar-2023	14 days	8 days	✓
Volatile Organic Compounds [THMs] : VOCs (BC List) by Headspace GC-MS										
Glass vial (sodium bisulfate)										
TRIP BLANK	E611C	08-Mar-2023	16-Mar-2023				16-Mar-2023	14 days	8 days	✓
Volatile Organic Compounds [THMs] : VOCs (BC List) by Headspace GC-MS										
Glass vial (sodium bisulfate)										
WG-030823-CS-57	E611C	08-Mar-2023	16-Mar-2023				16-Mar-2023	14 days	8 days	✓
Volatile Organic Compounds [THMs] : VOCs (BC List) by Headspace GC-MS										
Glass vial (sodium bisulfate)										
WG-030823-CS-59	E611C	08-Mar-2023	16-Mar-2023				16-Mar-2023	14 days	8 days	✓

Legend & Qualifier Definitions

EHT: Exceeded ALS recommended hold time prior to analysis.

Rec. HT: ALS recommended hold time (see units).

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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.

Quality Control Sample Type			Co	ount		Frequency (%)
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation
Laboratory Duplicates (DUP)							
Alkalinity Species by Titration	E290	860423	1	20	5.0	5.0	1
Ammonia by Fluorescence	E298	863783	1	15	6.6	5.0	1
Chloride in Water by IC	E235.Cl	860426	1	20	5.0	5.0	1
Conductivity in Water	E100	860422	1	10	10.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	862689	2	29	6.9	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	860018	1	20	5.0	5.0	✓
Fluoride in Water by IC	E235.F	860429	1	20	5.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	860427	1	20	5.0	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	860428	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	860425	1	20	5.0	5.0	✓
TDS by Gravimetry	E162	864178	1	20	5.0	5.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	865362	1	20	5.0	5.0	✓
VOCs (BC List) by Headspace GC-MS	E611C	865363	1	15	6.6	5.0	✓
Laboratory Control Samples (LCS)							
Alkalinity Species by Titration	E290	860423	1	20	5.0	5.0	1
Ammonia by Fluorescence	E298	863783	1	15	6.6	5.0	✓
Chloride in Water by IC	E235.CI	860426	1	20	5.0	5.0	✓
Conductivity in Water	E100	860422	1	10	10.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	862689	2	29	6.9	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	860018	1	20	5.0	5.0	✓
Fluoride in Water by IC	E235.F	860429	1	20	5.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	860427	1	20	5.0	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	860428	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	860425	1	20	5.0	5.0	✓
TDS by Gravimetry	E162	864178	1	20	5.0	5.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	865362	1	20	5.0	5.0	✓
VOCs (BC List) by Headspace GC-MS	E611C	865363	1	15	6.6	5.0	✓
Method Blanks (MB)							
Alkalinity Species by Titration	E290	860423	1	20	5.0	5.0	1
Ammonia by Fluorescence	E298	863783	1	15	6.6	5.0	✓
Chloride in Water by IC	E235.CI	860426	1	20	5.0	5.0	✓
Conductivity in Water	E100	860422	1	10	10.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	862689	2	29	6.9	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	860018	1	20	5.0	5.0	✓
Fluoride in Water by IC	E235.F	860429	1	20	5.0	5.0	✓

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Matrix: Water	trix: Water Evaluation: × = QC frequency outside specification; √ = QC frequency within specificat								
Quality Control Sample Type			Co	ount	Frequency (%)				
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation		
Method Blanks (MB) - Continued									
Nitrate in Water by IC (Low Level)	E235.NO3-L	860427	1	20	5.0	5.0	✓		
Nitrite in Water by IC (Low Level)	E235.NO2-L	860428	1	20	5.0	5.0	✓		
Sulfate in Water by IC	E235.SO4	860425	1	20	5.0	5.0	✓		
TDS by Gravimetry	E162	864178	1	20	5.0	5.0	✓		
VH and F1 by Headspace GC-FID	E581.VH+F1	865362	1	20	5.0	5.0	✓		
VOCs (BC List) by Headspace GC-MS	E611C	865363	1	15	6.6	5.0	✓		
Matrix Spikes (MS)									
Ammonia by Fluorescence	E298	863783	1	15	6.6	5.0	✓		
Chloride in Water by IC	E235.Cl	860426	1	20	5.0	5.0	✓		
Dissolved Mercury in Water by CVAAS	E509	862689	2	29	6.9	5.0	✓		
Dissolved Metals in Water by CRC ICPMS	E421	860018	1	20	5.0	5.0	✓		
Fluoride in Water by IC	E235.F	860429	1	20	5.0	5.0	✓		
Nitrate in Water by IC (Low Level)	E235.NO3-L	860427	1	20	5.0	5.0	✓		
Nitrite in Water by IC (Low Level)	E235.NO2-L	860428	1	20	5.0	5.0	✓		
Sulfate in Water by IC	E235.SO4	860425	1	20	5.0	5.0	✓		
VH and F1 by Headspace GC-FID	E581.VH+F1	865362	1	20	5.0	5.0	✓		
VOCs (BC List) by Headspace GC-MS	E611C	865363	1	15	6.6	5.0	✓		

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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	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
	Vancouver -			sample. Conductivity measurements are temperature-compensated to 25°C.
	Environmental			
TDS by Gravimetry	E162	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 $180 \pm 2^{\circ}$ C for 16 hours or to constant weight,
	Vancouver -			with gravimetric measurement of the residue.
	Environmental			
Chloride in Water by IC	E235.CI	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and /or UV detection.
	Vancouver -			
	Environmental			
Fluoride in Water by IC	E235.F	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and /or UV detection.
	Vancouver -			detection.
	Environmental			
Nitrite in Water by IC (Low Level)	E235.NO2-L	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and /or UV detection.
	Vancouver -			
	Environmental			
Nitrate in Water by IC (Low Level)	E235.NO3-L	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and /or UV detection.
	Vancouver -			
	Environmental			
Sulfate in Water by IC	E235.SO4	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and /or UV detection.
	Vancouver -			
	Environmental			
Alkalinity Species by Titration	E290	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
	Vancouver -			alkalinity values.
	Environmental			
Ammonia by Fluorescence	E298	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).
	Vancouver -			This method is approved under US EPA 40 CFR Part 136 (May 2021)
	Environmental			

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Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Dissolved Metals in Water by CRC ICPMS	E421	Water	APHA 3030B/EPA	Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by
			6020B (mod)	Collision/Reaction Cell ICPMS.
	Vancouver -			
	Environmental			Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered
D: 1 1 1 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2		107.7		by this method.
Dissolved Mercury in Water by CVAAS	E509	Water	APHA 3030B/EPA	Water samples are filtered (0.45 um), preserved with HCI, then undergo a cold-oxidation
	\/		1631E (mod)	using bromine monochloride prior to reduction with stannous chloride, and analyzed by
	Vancouver - Environmental			CVAAS.
VH and F1 by Headspace GC-FID	E581.VH+F1	Water	BC MOE Lab Manual /	Volatile Hydrocarbons (VH and F1) is analyzed by static headspace GC-FID. Samples
VIT and T T by Fleadspace GG-F ID	E301.VП+F1	Water	CCME PHC in Soil - Tier	are prepared in headspace vials and are heated and agitated on the headspace
	Vancouver -		1 (mod)	autosampler, causing VOCs to partition between the aqueous phase and the
	Environmental		i (iiiou)	headspace in accordance with Henry's law.
VOCs (BC List) by Headspace GC-MS	E611C	Water	EPA 8260D (mod)	Volatile Organic Compounds (VOCs) are analyzed by static headspace GC-MS.
, , , ,	200		,	Samples are prepared in headspace vials and are heated and agitated on the
	Vancouver -			headspace autosampler, causing VOCs to partition between the aqueous phase and
	Environmental			the headspace in accordance with Henry's law.
Dissolved Hardness (Calculated)	EC100	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
	Vancouver -			to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially
	Environmental			calculated from dissolved Calcium and Magnesium concentrations, because it is a
				property of water due to dissolved divalent cations.
Nitrate and Nitrite (as N) (Calculation)	EC235.N+N	Water	EPA 300.0	Nitrate and Nitrite (as N) is a calculated parameter. Nitrate and Nitrite (as N) = Nitrite (as
				N) + Nitrate (as N).
	Vancouver -			
VDU. VII DTEV Churana	Environmental	Motor	DO 14051 1 14	VI (1) D () (1) (1) (1) (1) (1) (1) (1) (1) (1)
VPH: VH-BTEX-Styrene	EC580A	Water	BC MOE Lab Manual	Volatile Petroleum Hydrocarbons (VPH) is calculated as follows: VPHw = Volatile
	Vancouver -		(VPH in Water and	Hydrocarbons (VH6-10) minus benzene, toluene, ethylbenzene, xylenes (BTEX) and
	Environmental		Solids) (mod)	styrene.
Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Ammonia	EP298	Water		Sample preparation for Preserved Nutrients Water Quality Analysis.
	Vancouver -			
	Environmental			
Dissolved Metals Water Filtration	EP421	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HNO3.
	Vanagunar			
	Vancouver - Environmental			
Dissolved Mercury Water Filtration	Environmental EP509	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HCl.
Disserted Merodry Water Fill auton	EL908	v v a t G i	7.1.7.7.0000	Trace samples are intered (0.40 am), and preserved with Fior.
	Vancouver -			
	Environmental			

18 of 18 VA23A5217 Amendment 1 Work Order : Client Comox Valley Regional District



Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
VOCs Preparation for Headspace Analysis	EP581	Water	EPA 5021A (mod)	Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler. An aliquot of the headspace is then injected into the
	Vancouver -			GC/MS-FID system.
	Environmental			

all of these are in Chaln of Custody (COC) / Analytical Request Form

Affix ALS barcode label here

(lab use only)

COC Number: 17 -

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B4-T-	www.alsolobal.com						_			(
Report To	 	slow will appear on the final report						Select Service Level Below - Contact your AM to confirm all E&P TATs (eurcharges may apply)														
Company:	Comox Valley Regional District		Select Report Format: Por Doce				Regular [R] Standard TAT if received by 3 pm - Distincts days - no surcharges apply \$\frac{\gamma}{2} \text{ 4 day [P4-20%]} \frac{\gamma}{2} \text{ 1 Business day [E4 - 100%]}															
Contact	Crystal Stuart		Quality Control (QC) Report with Report YES NO				į	1 -	-	-	_	- 1				•						
Phone:	250-898-3722				:_			3 day	-	-	=-	-	Ĭ	Same	Day, W	/eeken:	d or Statutory holiday [E2 -200% g fees may apply)]			П		
	Company address below will appea	ar on the final report		tion		raa.	4	2 day	_						ratory	opening	_					
Street;	770 Harmston Avenue			cetuárt@comoxya	alleyrd.ca		<u> </u>	Dale and	Time	Requir	ed for	세 68	PTAT	A;			3r- :	ALC: Y	y to a t			
City/Province:	Courtenay, BC		Email 2				For tes	ats that c	in Hot b	e perio	med a	eibnood -	g to the			ted, you v	will be con	taçlırd,				
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ALS Sample #	Sample ide	ntification and/or Coordinates		Date	Time	1	Ę	§	2	1		용.	S/V	'					Divisi	^~	1	Ü
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Drinking	Water (DW) Samples ¹ (client u	Special Instructions /		add on report by <i>c</i> ik ctronic COC only)	aking on the arop	-down liet pelow	Froze			П	O/W	_		bserva		Yes	J (lab t	JE GIT	No			$\overline{}$
Are samples take	en from a Regulated DW System?						4	acks	П	lce Cu	ıbes	_	_		i intact		. 6	í	No.		Ē	;
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Released by			Received by:		Date:		Time	 1	Rece	ived b	y:	<u> </u>		т.	Date:					Time:		—
Street	$\langle \langle \rangle \kappa \omega \times W \rangle$	1/09/2023 1000					l						3	<u> </u>		MAR	10	<u> 2023 </u>		Time:	Dan	n
REFER TO BACK	PAGE FOR ALS LOCATIONS AND	SAMPLING INFORMATION		WHI	ITE - LABORATOR	RY COPY YEL	LOW-	CLIENT	COP	Y											SEPT ZIM?	FROM

ALS Canada Ltd.



CERTIFICATE OF ANALYSIS

Work Order : VA23A5220 Page : 1 of 6

Courtney BC Canada V9N 0G8

Amendment : 2

Client : Comox Valley Regional District Laboratory : Vancouver - Environmental

Contact : Crystal Stuart : Crystal Stuart : Thomas Chang

Address : 770 Harmston Avenue Address : 8081 Lougheed Highway

Burnaby BC Canada V5A 1W9

: 250-898-3722 Telephone : +1 604 253 4188

 Project
 : 3
 Date Samples Received
 : 10-Mar-2023 09:50

 PO
 : 23-015
 Date Analysis Commenced
 : 11-Mar-2023

Sampler : Crystal Stuart

Site : CRWMC-Quarterly-SW
Quote number : VA23-COVR100-001

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

Telephone

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
Alex Thornton	Analyst	Metals, Burnaby, British Columbia
Anshim Anshim	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
Lindsay Gung	Supervisor - Water Chemistry	Inorganics, Burnaby, British Columbia
Robin Weeks	Team Leader - Metals	Metals, Burnaby, British Columbia
Sam Silveira	Lab Assistant	Metals, Burnaby, British Columbia

Page : 2 of 6

Work Order : VA23A5220 Amendment 2
Client : Comox Valley Regional District

Project · 3



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
μS/cm	microsiemens per centimetre
mg/L	milligrams per litre

<: 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 (16/03/2023): This report has been amended to alter the site details, project reference code or order number. All analysis results are as per the previous report.

Page : 3 of 6 Work Order : VA23A

Work Order : VA23A5220 Amendment 2
Client : Comox Valley Regional District

Project :



Sub-Matrix: Water			Cli	ient sample ID	WG-030823-CS-	WG-030823-CS-	WG-030823-CS-	
(Matrix: Water)					11	12	13	
			Client samp	ling date / time	03-Mar-2023 13:40	03-Mar-2023 14:25	03-Mar-2023 14:30	
Analyte	CAS Number	Method	LOR	Unit	VA23A5220-001	VA23A5220-002	VA23A5220-003	
					Result	Result	Result	
Physical Tests		5000	1.0	a a	20.7		0.7	
Alkalinity, bicarbonate (as CaCO3)		E290	1.0	mg/L	39.7	6.3	6.7	
Alkalinity, carbonate (as CaCO3)		E290	1.0	mg/L	<1.0	<1.0	<1.0	
Alkalinity, hydroxide (as CaCO3)		E290	1.0	mg/L	<1.0	<1.0	<1.0	
Alkalinity, total (as CaCO3)		E290	1.0	mg/L	39.7	6.3	6.7	
Conductivity		E100	2.0	μS/cm	390	28.9	29.1	
Hardness (as CaCO3), dissolved		EC100	0.60	mg/L	89.1	7.96	8.02	
Solids, total dissolved [TDS]		E162	10	mg/L	234	17	31	
Anions and Nutrients								
Ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	0.0054	0.0126	0.0117	
Chloride	16887-00-6	E235.CI	0.50	mg/L	50.0	3.32	3.32	
Fluoride	16984-48-8	E235.F	0.020	mg/L	<0.020	<0.020	<0.020	
Nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	10.9	0.0512	0.0493	
Nitrate + Nitrite (as N)		EC235.N+N	0.0050	mg/L	10.9	0.0512	0.0493	
Nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	0.0062	<0.0010	<0.0010	
Sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	29.1	0.94	0.94	
Total Metals								
Aluminum, total	7429-90-5	E420	0.0030	mg/L	0.299	0.0540	0.0531	
Antimony, total	7440-36-0	E420	0.00010	mg/L	0.00012	<0.00010	<0.00010	
Arsenic, total	7440-38-2	E420	0.00010	mg/L	0.00024	0.00013	0.00012	
Barium, total	7440-39-3	E420	0.00010	mg/L	0.00537	0.00144	0.00138	
Beryllium, total	7440-41-7	E420	0.000020	mg/L	<0.000020	<0.000020	<0.000020	
Bismuth, total	7440-69-9	E420	0.000050	mg/L	<0.000050	<0.000050	<0.000050	
Boron, total	7440-42-8	E420	0.010	mg/L	0.023	<0.010	<0.010	
Cadmium, total	7440-43-9	E420	0.0000050	mg/L	0.0000246	<0.0000050	<0.0000050	
Calcium, total	7440-70-2	E420	0.050	mg/L	26.9	1.89	1.92	
Cesium, total	7440-46-2	E420	0.000010	mg/L	<0.000010	<0.000010	<0.000010	
Chromium, total	7440-47-3	E420	0.00050	mg/L	<0.00050	<0.00050	<0.00050	
Cobalt, total	7440-48-4	E420	0.00010	mg/L	0.00024	<0.00010	<0.00010	
Copper, total	7440-50-8	E420	0.00050	mg/L	0.00390	<0.00050	<0.00050	
asker, tom	7440-30-0	0	1	9/∟	3.33000	1.55555	3.30000	

Page : 4 of 6

Work Order : VA23A5220 Amendment 2
Client : Comox Valley Regional District

Project :



Sub-Matrix: Water			Cli	ent sample ID	WG-030823-CS-	WG-030823-CS-	WG-030823-CS-	
(Matrix: Water)					11	12	13	
			Client samp	ling date / time	03-Mar-2023 13:40	03-Mar-2023 14:25	03-Mar-2023 14:30	
Analyte	CAS Number	Method	LOR	Unit	VA23A5220-001	VA23A5220-002	VA23A5220-003	
					Result	Result	Result	
Total Metals								
Iron, total	7439-89-6	E420	0.010	mg/L	0.306	0.096	0.094	
Lead, total	7439-92-1	E420	0.000050	mg/L	0.000313	<0.000050	<0.000050	
Lithium, total	7439-93-2	E420	0.0010	mg/L	<0.0010	<0.0010	<0.0010	
Magnesium, total	7439-95-4	E420	0.0050	mg/L	5.05	0.804	0.798	
Manganese, total	7439-96-5	E420	0.00010	mg/L	0.0415	0.00668	0.00734	
Mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.0000050	<0.0000050	<0.0000050	
Molybdenum, total	7439-98-7	E420	0.000050	mg/L	0.000229	<0.000050	<0.000050	
Nickel, total	7440-02-0	E420	0.00050	mg/L	0.00085	<0.00050	<0.00050	
Phosphorus, total	7723-14-0	E420	0.050	mg/L	<0.050	<0.050	<0.050	
Potassium, total	7440-09-7	E420	0.050	mg/L	0.947	0.134	0.129	
Rubidium, total	7440-17-7	E420	0.00020	mg/L	0.00064	0.00021	<0.00020	
Selenium, total	7782-49-2	E420	0.000050	mg/L	0.000081	0.000051	0.000062	
Silicon, total	7440-21-3	E420	0.10	mg/L	5.04	2.44	2.46	
Silver, total	7440-22-4	E420	0.000010	mg/L	0.000011	<0.000010	<0.000010	
Sodium, total	7440-23-5	E420	0.050	mg/L	37.6	2.51	2.47	
Strontium, total	7440-24-6	E420	0.00020	mg/L	0.0991	0.00875	0.00863	
Sulfur, total	7704-34-9	E420	0.50	mg/L	9.04	<0.50	<0.50	
Tellurium, total	13494-80-9	E420	0.00020	mg/L	<0.00020	<0.00020	<0.00020	
Thallium, total	7440-28-0	E420	0.000010	mg/L	<0.000010	<0.000010	<0.000010	
Thorium, total	7440-29-1	E420	0.00010	mg/L	<0.00010	<0.00010	<0.00010	
Tin, total	7440-31-5	E420	0.00010	mg/L	<0.00010	<0.00010	<0.00010	
Titanium, total	7440-32-6	E420	0.00030	mg/L	0.0208	0.00130	0.00111	
Tungsten, total	7440-33-7	E420	0.00010	mg/L	<0.00010	<0.00010	<0.00010	
Uranium, total	7440-61-1	E420	0.000010	mg/L	0.000017	<0.000010	<0.000010	
Vanadium, total	7440-62-2	E420	0.00050	mg/L	0.00138	<0.00050	<0.00050	
Zinc, total	7440-66-6	E420	0.0030	mg/L	0.0089	<0.0030	<0.0030	
Zirconium, total	7440-67-7	E420	0.00020	mg/L	<0.00020	<0.00020	<0.00020	
Dissolved Metals								
Aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	0.0204	0.0495	0.0495	
Antimony, dissolved	7440-36-0	E421	0.00010	mg/L	0.00011	<0.00010	<0.00010	
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Page : 5 of 6

Work Order : VA23A5220 Amendment 2
Client : Comox Valley Regional District

Project :



Sub-Matrix: Water			Cli	ient sample ID	WG-030823-CS-	WG-030823-CS-	WG-030823-CS-	
(Matrix: Water)					11	12	13	
				ling date / time	03-Mar-2023 13:40	03-Mar-2023 14:25	03-Mar-2023 14:30	
Analyte	CAS Number	Method	LOR	Unit	VA23A5220-001	VA23A5220-002	VA23A5220-003	
					Result	Result	Result	
Dissolved Metals	7440.20.0	E421	0.00010	ma/l	0.00016	<0.00010	<0.00010	
Arsenic, dissolved Barium, dissolved	7440-38-2	E421	0.00010	mg/L	0.00018	0.00134	0.0010	
, ·	7440-39-3	E421	0.00010	mg/L	<0.000449	<0.000134	<0.00033	
Beryllium, dissolved	7440-41-7			mg/L				
Bismuth, dissolved	7440-69-9	E421	0.000050	mg/L	<0.000050	<0.000050	<0.000050	
Boron, dissolved	7440-42-8	E421 E421	0.010	mg/L	0.022 0.0000208	<0.010 <0.000050	<0.010	
Cadmium, dissolved	7440-43-9		0.0000050	mg/L			<0.0000050	
Calcium, dissolved	7440-70-2	E421	0.050	mg/L	27.0	1.83	1.88	
Chromium, dissolved	7440-47-3	E421	0.00050	mg/L	<0.00050	0.00092	<0.00050	
Cobalt, dissolved	7440-48-4	E421	0.00010	mg/L	<0.00010	<0.00010	<0.00010	
Copper, dissolved	7440-50-8	E421	0.00020	mg/L	0.00266	0.00027	0.00022	
Iron, dissolved	7439-89-6	E421	0.010	mg/L	0.024	0.074	0.072	
Lead, dissolved	7439-92-1	E421	0.000050	mg/L	<0.000050	<0.000050	<0.000050	
Lithium, dissolved	7439-93-2	E421	0.0010	mg/L	<0.0010	<0.0010	<0.0010	
Magnesium, dissolved	7439-95-4	E421	0.100	mg/L	5.27	0.824	0.807	
Manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.0344	0.00527	0.00515	
Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	<0.0000050	
Molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.000239	<0.000050	<0.000050	
Nickel, dissolved	7440-02-0	E421	0.00050	mg/L	<0.00050	0.00056	<0.00050	
Phosphorus, dissolved	7723-14-0	E421	0.050	mg/L	<0.050	<0.050	<0.050	
Potassium, dissolved	7440-09-7	E421	0.100	mg/L	1.00	0.140	0.132	
Selenium, dissolved	7782-49-2	E421	0.000050	mg/L	0.000092	<0.000050	<0.000050	
Silicon, dissolved	7440-21-3	E421	0.050	mg/L	4.90	2.54	2.57	
Silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.000010	<0.000010	<0.000010	
Sodium, dissolved	7440-23-5	E421	0.050	mg/L	37.6	2.58	2.46	
Strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.0974	0.00800	0.00802	
Sulfur, dissolved	7704-34-9	E421	0.50	mg/L	9.33	<0.50	<0.50	
Thallium, dissolved	7440-28-0	E421	0.000010	mg/L	<0.000010	<0.000010	<0.000010	
Tin, dissolved	7440-31-5	E421	0.00010	mg/L	<0.00010	<0.00010	<0.00010	
Titanium, dissolved	7440-32-6	E421	0.00030	mg/L	0.00069	0.00078	0.00068	
Uranium, dissolved	7440-61-1	E421	0.000010	mg/L	<0.000010	<0.000010	<0.000010	

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Client : Comox Valley Regional District

Project : 3



Analytical Results

Sub-Matrix: Water			CI	ient sample ID	WG-030823-CS-	WG-030823-CS-	WG-030823-CS-	
(Matrix: Water)					11	12	13	
			Client samp	ling date / time	03-Mar-2023 13:40	03-Mar-2023 14:25	03-Mar-2023 14:30	
Analyte	CAS Number	Method	LOR	Unit	VA23A5220-001	VA23A5220-002	VA23A5220-003	
					Result	Result	Result	
Dissolved Metals								
Vanadium, dissolved	7440-62-2	E421	0.00050	mg/L	<0.00050	<0.00050	<0.00050	
Zinc, dissolved	7440-66-6	E421	0.0010	mg/L	0.0066	0.0012	<0.0010	
Zirconium, dissolved	7440-67-7	E421	0.00020	mg/L	<0.00020	<0.00020	<0.00020	
Dissolved mercury filtration location		EP509	-	-	Field	Field	Field	
Dissolved metals filtration location		EP421	-	-	Field	Field	Field	

Please refer to the General Comments section for an explanation of any qualifiers detected.

ALS Canada Ltd.



QUALITY CONTROL REPORT

Work Order Page : 1 of 16 :VA23A5220

Amendment :2

Client : Comox Valley Regional District Laboratory : Vancouver - Environmental

Contact : Crystal Stuart **Account Manager** : Thomas Chang

> Address :8081 Lougheed Highway

> > Burnaby, British Columbia Canada V5A 1W9

Telephone :+1 604 253 4188 Date Samples Received : 10-Mar-2023 09:50

> **Date Analysis Commenced** :11-Mar-2023

Issue Date : 22-Mar-2023 14:40

Address :770 Harmston Avenue

Courtney BC Canada V9N 0G8 Telephone

Project : 3 PO :23-015 C-O-C number

: Crystal Stuart₂₅₀₋₈₉₈₋₃₇₂₂ Sampler Site : CRWMC-Quarterly-SW Quote number : VA23-COVR100-001

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	
Alex Thornton	Analyst	Vancouver Metals, Burnaby, British Columbia	
Anshim Anshim	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	
Lindsay Gung	Supervisor - Water Chemistry	Vancouver Inorganics, Burnaby, British Columbia	
Robin Weeks	Team Leader - Metals	Vancouver Metals, Burnaby, British Columbia	
Sam Silveira	Lab Assistant	Vancouver Metals, Burnaby, British Columbia	

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Project :



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.

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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	ub-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: 859948)													
KS2300731-007	Anonymous	Solids, total dissolved [TDS]		E162	20	mg/L	518	553	6.44%	20%				
Physical Tests (QC	Lot: 860422)													
VA23A5217-003	Anonymous	Conductivity		E100	2.0	μS/cm	841	846	0.593%	10%				
Physical Tests (QC	Lot: 860423)	The state of the s												
VA23A5217-003	Anonymous	Alkalinity, bicarbonate (as CaCO3)		E290	1.0	mg/L	323	326	0.709%	20%				
		Alkalinity, carbonate (as CaCO3)		E290	1.0	mg/L	<1.0	<1.0	0	Diff <2x LOR				
		Alkalinity, hydroxide (as CaCO3)		E290	1.0	mg/L	<1.0	<1.0	0	Diff <2x LOR				
		Alkalinity, total (as CaCO3)		E290	1.0	mg/L	323	326	0.709%	20%				
Anions and Nutrien	ts (QC Lot: 860425)				1.0									
VA23A5293-001	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	169	169	0.134%	20%				
Anions and Nutrien	ts (QC Lot: 860426)													
VA23A5293-001	Anonymous	Chloride	16887-00-6	E235.CI	0.50	mg/L	3.48	3.47	0.004	Diff <2x LOR				
Anions and Nutrien	ts (QC Lot: 860427)													
VA23A5293-001	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	0.870	0.868	0.235%	20%				
Anions and Nutrien	ts (QC Lot: 860428)				1.0									
VA23A5293-001	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR				
Anions and Nutrien	ts (QC Lot: 860429)													
VA23A5293-001	Anonymous	Fluoride	16984-48-8	E235.F	0.020	mg/L	0.359	0.358	0.0825%	20%				
Anions and Nutrien	ts (QC Lot: 863783)	The state of the s												
VA23A5217-001	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR				
Total Metals (QC Lo	ot: 860115)	The state of the s												
VA23A5191-001	Anonymous	Aluminum, total	7429-90-5	E420	0.0030	mg/L	0.0926	0.0907	2.10%	20%				
		Antimony, total	7440-36-0	E420	0.00010	mg/L	0.00013	0.00013	0.000004	Diff <2x LOR				
		Arsenic, total	7440-38-2	E420	0.00010	mg/L	0.00038	0.00042	0.00004	Diff <2x LOR				
		Barium, total	7440-39-3	E420	0.00010	mg/L	0.0153	0.0154	0.352%	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	0.022	0.022	0.0003	Diff <2x LOR				
		Cadmium, total	7440-43-9	E420	0.0000050	mg/L	0.0000244	0.0000232	0.0000012	Diff <2x LOR				
		Calcium, total	7440-70-2	E420	0.050	mg/L	36.0	34.3	4.82%	20%				

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ub-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
otal Metals (QC Lo	ot: 860115) - continued										
/A23A5191-001	Anonymous	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	0.00020	0.00020	0.000002	Diff <2x LOR	
		Copper, total	7440-50-8	E420	0.00050	mg/L	0.00218	0.00214	0.00005	Diff <2x LOR	
		Iron, total	7439-89-6	E420	0.010	mg/L	0.296	0.299	0.952%	20%	
		Lead, total	7439-92-1	E420	0.000050	mg/L	0.000059	0.000058	0.0000007	Diff <2x LOR	
		Lithium, total	7439-93-2	E420	0.0010	mg/L	0.0010	0.0011	0.00002	Diff <2x LOR	
		Magnesium, total	7439-95-4	E420	0.0050	mg/L	14.2	14.3	0.608%	20%	
		Manganese, total	7439-96-5	E420	0.00010	mg/L	0.173	0.176	1.66%	20%	
		Molybdenum, total	7439-98-7	E420	0.000050	mg/L	0.00358	0.00376	4.78%	20%	
		Nickel, total	7440-02-0	E420	0.00050	mg/L	0.00080	0.00082	0.00002	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	1.40	1.41	0.668%	20%	
		Rubidium, total	7440-17-7	E420	0.00020	mg/L	0.00054	0.00051	0.00003	Diff <2x LOR	
		Selenium, total	7782-49-2	E420	0.000050	mg/L	0.000121	0.000139	0.000018	Diff <2x LOR	
		Silicon, total	7440-21-3	E420	0.10	mg/L	5.94	5.98	0.684%	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	66.6	66.5	0.128%	20%	
		Strontium, total	7440-24-6	E420	0.00020	mg/L	0.156	0.160	2.65%	20%	
		Sulfur, total	7704-34-9	E420	0.50	mg/L	5.56	5.42	2.54%	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	0.00410	0.00422	2.87%	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	0.000386	0.000384	0.572%	20%	
		Vanadium, total	7440-62-2	E420	0.00050	mg/L	0.00061	0.00064	0.00002	Diff <2x LOR	
		Zinc, total	7440-66-6	E420	0.0030	mg/L	0.0171	0.0169	0.0002	Diff <2x LOR	
		Zirconium, total	7440-67-7	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	
otal Metals (QC Lo	ot: 862964)										
/A23A5220-001	WG-030823-CS-11	Mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	
Dissolved Metals (C	QC Lot: 861621)										
/A23A5242-001	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	0.0155	0.0146	5.92%	20%	

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ub-Matrix: Water				Matrix: Water					Laboratory Duplicate (DUP) Report						
aboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifie				
ssolved Metals (QC Lot: 861621) - con	tinued													
A23A5242-001	Anonymous	Antimony, dissolved	7440-36-0	E421	0.00010	mg/L	0.00053	0.00056	0.00003	Diff <2x LOR					
		Arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	0.00371	0.00365	1.71%	20%					
		Barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.0233	0.0227	2.70%	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	0.039	0.040	0.001	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	51.8	54.3	4.59%	20%					
		Chromium, dissolved	7440-47-3	E421	0.00050	mg/L	0.00136	0.00142	0.00006	Diff <2x LOR					
		Cobalt, dissolved	7440-48-4	E421	0.00010	mg/L	0.00020	0.00021	0.000009	Diff <2x LOR					
		Copper, dissolved	7440-50-8	E421	0.00020	mg/L	0.00090	0.00082	0.00007	Diff <2x LOR					
		Iron, dissolved	7439-89-6	E421	0.010	mg/L	0.160	0.162	1.14%	20%					
		Lead, dissolved	7439-92-1	E421	0.000050	mg/L	0.000056	0.000057	0.0000009	Diff <2x LOR					
		Lithium, dissolved	7439-93-2	E421	0.0010	mg/L	0.128	0.130	2.11%	20%					
		Magnesium, dissolved	7439-95-4	E421	0.0050	mg/L	9.43	9.40	0.271%	20%					
		Manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.0818	0.0826	0.986%	20%					
		Molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.00209	0.00207	0.904%	20%					
		Nickel, dissolved	7440-02-0	E421	0.00050	mg/L	0.00185	0.00185	0.0000004	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	3.79	3.81	0.572%	20%					
		Selenium, dissolved	7782-49-2	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR					
		Silicon, dissolved	7440-21-3	E421	0.050	mg/L	3.32	3.35	0.948%	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	70.0	70.8	1.03%	20%					
		Strontium, dissolved	7440-24-6	E421	0.00020	mg/L	1.55	1.53	1.31%	20%					
		Sulfur, dissolved	7704-34-9	E421	0.50	mg/L	58.5	58.8	0.522%	20%					
		Thallium, dissolved	7440-28-0	E421	0.000010	mg/L	<0.000010	<0.000010	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					
		Uranium, dissolved	7440-61-1	E421	0.000010	mg/L	0.000849	0.000835	1.69%	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	0.0014	0.0012	0.0002	Diff <2x LOR					
		Zirconium, dissolved	7440-67-7	E421	0.00030	mg/L	<0.00030	<0.00030	0	Diff <2x LOR					

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Sub-Matrix: Water	b-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 (C	QC Lot: 862690) - continu	ued											
VA23A5217-007	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.000050	0	Diff <2x LOR			

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Project :



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

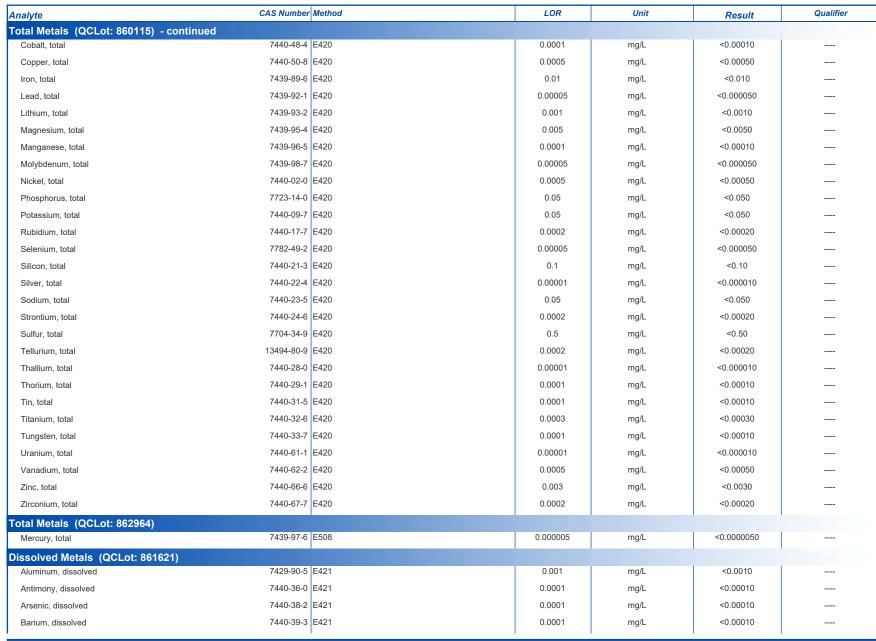
Analyte	CAS Number Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 859948)					
Solids, total dissolved [TDS]	E162	10	mg/L	<10	
Physical Tests (QCLot: 860422)					
Conductivity	E100	1	μS/cm	1.2	
Physical Tests (QCLot: 860423)	The second second				
Alkalinity, bicarbonate (as CaCO3)	E290	1	mg/L	<1.0	
Alkalinity, carbonate (as CaCO3)	E290	1	mg/L	<1.0	
Alkalinity, hydroxide (as CaCO3)	E290	1	mg/L	<1.0	
Alkalinity, total (as CaCO3)	E290	1	mg/L	<1.0	
Anions and Nutrients (QCLot: 860425)					
Sulfate (as SO4)	14808-79-8 E235.SO4	0.3	mg/L	<0.30	
Anions and Nutrients (QCLot: 860426)					
Chloride	16887-00-6 E235.CI	0.5	mg/L	<0.50	
nions and Nutrients (QCLot: 860427)	TANKS OF THE RESIDENCE				
Nitrate (as N)	14797-55-8 E235.NO3-L	0.005	mg/L	<0.0050	
nions and Nutrients (QCLot: 860428)					
Nitrite (as N)	14797-65-0 E235.NO2-L	0.001	mg/L	<0.0010	
nions and Nutrients (QCLot: 860429)	TANKS OF THE STREET				
Fluoride	16984-48-8 E235.F	0.02	mg/L	<0.020	
nions and Nutrients (QCLot: 863783)					
Ammonia, total (as N)	7664-41-7 E298	0.005	mg/L	<0.0050	
otal Metals (QCLot: 860115)	TANKS OF THE STREET				
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	<0.000050	
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	

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Sub-Matrix: Water





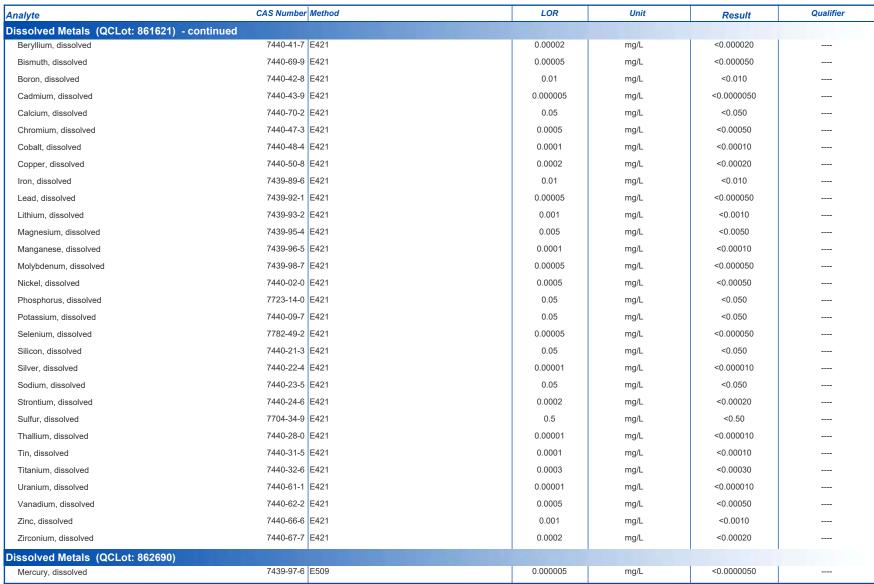
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3

Project :

Sub-Matrix: Water



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Project :



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 Co	ntrol Sample (LCS)	Report	
				Spike	Recovery (%)	Recovery	Limits (%)	
Analyte CAS	Number Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 859948)								
Solids, total dissolved [TDS]	E162	10	mg/L	1000 mg/L	92.5	85.0	115	
Physical Tests (QCLot: 860422)								
Conductivity	E100	1	μS/cm	146.9 μS/cm	99.6	90.0	110	
Physical Tests (QCLot: 860423)								
Alkalinity, total (as CaCO3)	E290	1	mg/L	500 mg/L	106	85.0	115	
Anions and Nutrients (QCLot: 860425)								
Sulfate (as SO4) 148	08-79-8 E235.SO4	0.3	mg/L	100 mg/L	104	90.0	110	
Anions and Nutrients (QCLot: 860426)								
Chloride 168	87-00-6 E235.CI	0.5	mg/L	100 mg/L	102	90.0	110	
Anions and Nutrients (QCLot: 860427)								
Vitrate (as N)	97-55-8 E235.NO3-L	0.005	mg/L	2.5 mg/L	102	90.0	110	
Anions and Nutrients (QCLot: 860428)								
Nitrite (as N)	97-65-0 E235.NO2-L	0.001	mg/L	0.5 mg/L	102	90.0	110	
Anions and Nutrients (QCLot: 860429)								
Fluoride 169	84-48-8 E235.F	0.02	mg/L	1 mg/L	102	90.0	110	
Anions and Nutrients (QCLot: 863783)								
Ammonia, total (as N) 76	64-41-7 E298	0.005	mg/L	0.2 mg/L	99.8	85.0	115	
Total Metals (QCLot: 860115)	00.00.5	0.000					100	
	29-90-5 E420	0.003	mg/L	2 mg/L	103	80.0	120	
	40-36-0 E420	0.0001	mg/L	1 mg/L	105	80.0	120	
,	40-38-2 E420	0.0001	mg/L	1 mg/L	101	80.0	120	
•	40-39-3 E420	0.0001	mg/L	0.25 mg/L	103	80.0	120	
	40-41-7 E420	0.00002 0.00005	mg/L	0.1 mg/L	98.0	80.0 80.0	120 120	
,	40-69-9 E420		mg/L	1 mg/L	98.0	80.0	120 120	
	40-42-8 E420	0.01	mg/L	1 mg/L	98.8	80.0	120 120	
•	40-43-9 E420	0.000005 0.05	mg/L	0.1 mg/L	100	80.0	120 120	
-	40-70-2 E420	0.0001	mg/L	50 mg/L	99.1	80.0	120 120	
•	40-46-2 E420		mg/L	0.05 mg/L	102			
-	40-47-3 E420	0.0005	mg/L	0.25 mg/L	97.9	80.0	120	
Cobalt, total 74	40-48-4 E420	0.0001	mg/L	0.25 mg/L	98.8	80.0	120	

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Analyte Total Metals (QCLot: 860115) - continued Copper, total	CAS Number	Method			Spike	Recovery (%)	Recovery	Limits (%)		
Total Metals (QCLot: 860115) - continued	CAS Number	Method			Spike Recovery (%) Recovery Limits (%)					
			LOR	Unit	Concentration	LCS	Low	High	Qualifier	
Copper, total										
	7440-50-8	E420	0.0005	mg/L	0.25 mg/L	94.8	80.0	120		
Iron, total	7439-89-6	E420	0.01	mg/L	1 mg/L	104	80.0	120		
Lead, total	7439-92-1	E420	0.00005	mg/L	0.5 mg/L	98.2	80.0	120		
Lithium, total	7439-93-2	E420	0.001	mg/L	0.25 mg/L	95.0	80.0	120		
Magnesium, total	7439-95-4	E420	0.005	mg/L	50 mg/L	98.6	80.0	120		
Manganese, total	7439-96-5	E420	0.0001	mg/L	0.25 mg/L	96.8	80.0	120		
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	0.25 mg/L	101	80.0	120		
Nickel, total	7440-02-0	E420	0.0005	mg/L	0.5 mg/L	98.5	80.0	120		
Phosphorus, total	7723-14-0	E420	0.05	mg/L	10 mg/L	96.1	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	99.4	80.0	120		
Selenium, total	7782-49-2	E420	0.00005	mg/L	1 mg/L	100.0	80.0	120		
Silicon, total	7440-21-3	E420	0.1	mg/L	10 mg/L	102	80.0	120		
Silver, total	7440-22-4	E420	0.00001	mg/L	0.1 mg/L	103	80.0	120		
Sodium, total	7440-23-5	E420	0.05	mg/L	50 mg/L	104	80.0	120		
Strontium, total	7440-24-6	E420	0.0002	mg/L	0.25 mg/L	106	80.0	120		
Sulfur, total	7704-34-9	E420	0.5	mg/L	50 mg/L	95.6	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	98.4	80.0	120		
Thorium, total	7440-29-1	E420	0.0001	mg/L	0.1 mg/L	97.1	80.0	120		
Tin, total	7440-31-5	E420	0.0001	mg/L	0.5 mg/L	100	80.0	120		
Titanium, total	7440-32-6	E420	0.0003	mg/L	0.25 mg/L	95.6	80.0	120		
Tungsten, total	7440-33-7	E420	0.0001	mg/L	0.1 mg/L	99.8	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	98.1	80.0	120		
Zinc, total	7440-66-6	E420	0.003	mg/L	0.5 mg/L	100	80.0	120		
Zirconium, total	7440-67-7	E420	0.0002	mg/L	0.1 mg/L	97.0	80.0	120		
Total Metals (QCLot: 862964)										
Mercury, total	7439-97-6	E508	0.000005	mg/L	0.0001 mg/L	101	80.0	120		
Dissolved Metals (QCLot: 861621)	11.0									
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	2 mg/L	103	80.0	120		
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	1 mg/L	102	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	101	80.0	120		
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	0.1 mg/L	102	80.0	120		

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Project



		b-Matrix: Water					Laboratory Control Sample (LCS) Report						
					Spike	Recovery (%)	Recovery	Limits (%)					
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier				
Dissolved Metals (QCLot: 861621) - co	ontinued												
Bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	1 mg/L	99.9	80.0	120					
Boron, dissolved	7440-42-8	E421	0.01	mg/L	1 mg/L	96.9	80.0	120					
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	0.1 mg/L	99.3	80.0	120					
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	50 mg/L	98.0	80.0	120					
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	0.25 mg/L	98.8	80.0	120					
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	0.25 mg/L	99.1	80.0	120					
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	0.25 mg/L	96.5	80.0	120					
Iron, dissolved	7439-89-6	E421	0.01	mg/L	1 mg/L	92.3	80.0	120					
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	0.5 mg/L	96.3	80.0	120					
Lithium, dissolved	7439-93-2	E421	0.001	mg/L	0.25 mg/L	99.8	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	100.0	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	97.6	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	105	80.0	120					
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	1 mg/L	95.7	80.0	120					
Silicon, dissolved	7440-21-3	E421	0.05	mg/L	10 mg/L	99.3	80.0	120					
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	0.1 mg/L	96.0	80.0	120					
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	50 mg/L	107	80.0	120					
Strontium, dissolved	7440-24-6	E421	0.0002	mg/L	0.25 mg/L	96.0	80.0	120					
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	50 mg/L	112	80.0	120					
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	1 mg/L	106	80.0	120					
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	0.5 mg/L	98.8	80.0	120					
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	0.25 mg/L	98.9	80.0	120					
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	0.005 mg/L	97.3	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	100	80.0	120					
Zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	0.1 mg/L	92.4	80.0	120					
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0.0001 mg/L	101	80.0	120					
I													

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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.

ub-Matrix: Water			Matrix Spike (MS) Report							
					Sp	ike	Recovery (%)	Recovery	Limits (%)	
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Anions and Nutri	ents (QCLot: 860425)									
VA23A5293-002	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	ND mg/L	100 mg/L	ND	75.0	125	
Anions and Nutri	ents (QCLot: 860426)									
VA23A5293-002	Anonymous	Chloride	16887-00-6	E235.CI	114 mg/L	100 mg/L	114	75.0	125	
Anions and Nutri	ents (QCLot: 860427)									
VA23A5293-002	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	2.86 mg/L	2.5 mg/L	114	75.0	125	
nions and Nutri	ents (QCLot: 860428)									
VA23A5293-002	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	0.578 mg/L	0.5 mg/L	116	75.0	125	
nions and Nutri	ents (QCLot: 860429)									
VA23A5293-002	Anonymous	Fluoride	16984-48-8	E235.F	1.17 mg/L	1 mg/L	117	75.0	125	
Anions and Nutri	ents (QCLot: 863783)									i i
VA23A5217-002	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.102 mg/L	0.1 mg/L	102	75.0	125	
otal Metals (QC	Lot: 860115)									(i ii
VA23A5191-002	Anonymous	Aluminum, total	7429-90-5	E420	ND mg/L	0.2 mg/L	ND	70.0	130	
		Antimony, total	7440-36-0	E420	0.0194 mg/L	0.02 mg/L	97.2	70.0	130	
		Arsenic, total	7440-38-2	E420	0.0200 mg/L	0.02 mg/L	100	70.0	130	
		Barium, total	7440-39-3	E420	0.0205 mg/L	0.02 mg/L	103	70.0	130	
		Beryllium, total	7440-41-7	E420	0.0377 mg/L	0.04 mg/L	94.3	70.0	130	
		Bismuth, total	7440-69-9	E420	0.00950 mg/L	0.01 mg/L	95.0	70.0	130	
		Boron, total	7440-42-8	E420	0.096 mg/L	0.1 mg/L	96.6	70.0	130	
		Cadmium, total	7440-43-9	E420	0.00399 mg/L	0.004 mg/L	99.7	70.0	130	
		Calcium, total	7440-70-2	E420	ND mg/L	4 mg/L	ND	70.0	130	
		Cesium, total	7440-46-2	E420	0.00963 mg/L	0.01 mg/L	96.3	70.0	130	
		Chromium, total	7440-47-3	E420	0.0395 mg/L	0.04 mg/L	98.8	70.0	130	
		Cobalt, total	7440-48-4	E420	0.0193 mg/L	0.02 mg/L	96.7	70.0	130	
		Copper, total	7440-50-8	E420	0.0192 mg/L	0.02 mg/L	96.1	70.0	130	
		Iron, total	7439-89-6	E420	1.90 mg/L	2 mg/L	95.0	70.0	130	
		Lead, total	7439-92-1	E420	0.0191 mg/L	0.02 mg/L	95.6	70.0	130	
		Lithium, total	7439-93-2	E420	0.0898 mg/L	0.1 mg/L	89.8	70.0	130	
		Magnesium, total	7439-95-4	E420	ND mg/L	1 mg/L	ND	70.0	130	
	I	Manganese, total	7439-96-5	E420	ND mg/L	0.02 mg/L	ND	70.0	130	

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Sub-Matrix: Water	ub-Matrix: Water				Matrix Spike (MS) Report						
					Spi	ke	Recovery (%)	Recovery	Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier	
Total Metals (QC	Lot: 860115) - conti	nued									
VA23A5191-002	Anonymous	Molybdenum, total	7439-98-7	E420	0.0195 mg/L	0.02 mg/L	97.4	70.0	130		
		Nickel, total	7440-02-0	E420	0.0392 mg/L	0.04 mg/L	98.0	70.0	130		
		Phosphorus, total	7723-14-0	E420	9.46 mg/L	10 mg/L	94.6	70.0	130		
		Potassium, total	7440-09-7	E420	4.23 mg/L	4 mg/L	106	70.0	130		
		Rubidium, total	7440-17-7	E420	0.0190 mg/L	0.02 mg/L	95.2	70.0	130		
		Selenium, total	7782-49-2	E420	0.0397 mg/L	0.04 mg/L	99.3	70.0	130		
		Silicon, total	7440-21-3	E420	8.57 mg/L	10 mg/L	85.7	70.0	130		
		Silver, total	7440-22-4	E420	0.00402 mg/L	0.004 mg/L	100	70.0	130		
		Sodium, total	7440-23-5	E420	ND mg/L	2 mg/L	ND	70.0	130		
		Strontium, total	7440-24-6	E420	ND mg/L	0.02 mg/L	ND	70.0	130		
		Sulfur, total	7704-34-9	E420	18.3 mg/L	20 mg/L	91.5	70.0	130		
		Tellurium, total	13494-80-9	E420	0.0378 mg/L	0.04 mg/L	94.4	70.0	130		
		Thallium, total	7440-28-0	E420	0.00389 mg/L	0.004 mg/L	97.2	70.0	130		
		Thorium, total	7440-29-1	E420	0.0165 mg/L	0.02 mg/L	82.4	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	ND mg/L	0.04 mg/L	ND	70.0	130		
		Tungsten, total	7440-33-7	E420	0.0202 mg/L	0.02 mg/L	101	70.0	130		
		Uranium, total	7440-61-1	E420	0.00398 mg/L	0.004 mg/L	99.5	70.0	130		
		Vanadium, total	7440-62-2	E420	0.0974 mg/L	0.1 mg/L	97.4	70.0	130		
		Zinc, total	7440-66-6	E420	0.382 mg/L	0.4 mg/L	95.6	70.0	130		
		Zirconium, total	7440-67-7	E420	0.0381 mg/L	0.04 mg/L	95.2	70.0	130		
otal Metals (QC	Lot: 862964)										
VA23A5220-002	WG-030823-CS-12	Mercury, total	7439-97-6	E508	0.0000978 mg/L	0.0001 mg/L	97.8	70.0	130		
Dissolved Metals	(QCLot: 861621)										
VA23A5243-002	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.194 mg/L	0.2 mg/L	97.0	70.0	130		
		Antimony, dissolved	7440-36-0	E421	0.0187 mg/L	0.02 mg/L	93.4	70.0	130		
		Arsenic, dissolved	7440-38-2	E421	0.0193 mg/L	0.02 mg/L	96.6	70.0	130		
		Barium, dissolved	7440-39-3	E421	0.0197 mg/L	0.02 mg/L	98.6	70.0	130		
		Beryllium, dissolved	7440-41-7	E421	0.0386 mg/L	0.04 mg/L	96.6	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	0.100 mg/L	0.1 mg/L	99.6	70.0	130		
		Cadmium, dissolved	7440-43-9	E421	0.00395 mg/L	0.004 mg/L	98.7	70.0	130		
		Calcium, dissolved	7440-70-2	E421	3.77 mg/L	4 mg/L	94.3	70.0	130		
		Chromium, dissolved	7440-47-3	E421	0.0383 mg/L	0.04 mg/L	95.7	70.0	130		
	1	Cobalt, dissolved	7440-48-4	E421	0.0192 mg/L	0.02 mg/L	95.8	70.0	130		

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Sub-Matrix: Water	ıb-Matrix: Water			Matrix Spike (MS) Report						
					Sp	ike	Recovery (%)	Recovery	Limits (%)	
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Dissolved Metals	(QCLot: 861621) -	continued								
VA23A5243-002	Anonymous	Copper, dissolved	7440-50-8	E421	0.0191 mg/L	0.02 mg/L	95.7	70.0	130	
		Iron, dissolved	7439-89-6	E421	1.90 mg/L	2 mg/L	95.2	70.0	130	
		Lead, dissolved	7439-92-1	E421	0.0189 mg/L	0.02 mg/L	94.7	70.0	130	
		Lithium, dissolved	7439-93-2	E421	0.0992 mg/L	0.1 mg/L	99.2	70.0	130	
		Magnesium, dissolved	7439-95-4	E421	0.968 mg/L	1 mg/L	96.8	70.0	130	
		Manganese, dissolved	7439-96-5	E421	0.0192 mg/L	0.02 mg/L	96.2	70.0	130	
		Molybdenum, dissolved	7439-98-7	E421	0.0192 mg/L	0.02 mg/L	95.8	70.0	130	
		Nickel, dissolved	7440-02-0	E421	0.0374 mg/L	0.04 mg/L	93.6	70.0	130	
		Phosphorus, dissolved	7723-14-0	E421	9.30 mg/L	10 mg/L	93.0	70.0	130	
		Potassium, dissolved	7440-09-7	E421	3.97 mg/L	4 mg/L	99.2	70.0	130	
		Selenium, dissolved	7782-49-2	E421	0.0391 mg/L	0.04 mg/L	97.9	70.0	130	
		Silicon, dissolved	7440-21-3	E421	9.35 mg/L	10 mg/L	93.5	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	2.00 mg/L	2 mg/L	100	70.0	130	
		Strontium, dissolved	7440-24-6	E421	0.0195 mg/L	0.02 mg/L	97.4	70.0	130	
		Sulfur, dissolved	7704-34-9	E421	19.3 mg/L	20 mg/L	96.5	70.0	130	
		Thallium, dissolved	7440-28-0	E421	0.00379 mg/L	0.004 mg/L	94.7	70.0	130	
		Tin, dissolved	7440-31-5	E421	0.0190 mg/L	0.02 mg/L	95.0	70.0	130	
		Titanium, dissolved	7440-32-6	E421	0.0381 mg/L	0.04 mg/L	95.2	70.0	130	
		Uranium, dissolved	7440-61-1	E421	0.00371 mg/L	0.004 mg/L	92.8	70.0	130	
		Vanadium, dissolved	7440-62-2	E421	0.0960 mg/L	0.1 mg/L	96.0	70.0	130	
		Zinc, dissolved	7440-66-6	E421	0.388 mg/L	0.4 mg/L	97.0	70.0	130	
		Zirconium, dissolved	7440-67-7	E421	0.0399 mg/L	0.04 mg/L	99.7	70.0	130	
	(QCLot: 862690)									
VA23A5220-001	WG-030823-CS-11	Mercury, dissolved	7439-97-6	E509	0.0000956 mg/L	0.0001 mg/L	95.6	70.0	130	



QUALITY CONTROL INTERPRETIVE REPORT

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Amendment :2

Client : Comox Valley Regional District Laboratory : Vancouver - Environmental

Contact : Crystal Stuart Account Manager : Thomas Chang

Address : 770 Harmston Avenue Address : 8081 Lougheed Highway

Burnaby, British Columbia Canada V5A 1W9

 Telephone
 : 250-898-3722
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 Project
 : 3
 Date Samples Received
 : 10-Mar-2023 09:50

 PO
 : 23-015
 Issue Date
 : 22-Mar-2023 14:40

C-O-C number : ----

Sampler : Crystal Stuart

Site : CRWMC-Quarterly-SW Quote number : VA23-COVR100-001

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.

Courtney BC Canada V9N 0G8

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

<u>No</u> Quality Control Sample Frequency Outliers occur.

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Matrix: Water



Evaluation: **x** = Holding time exceedance; ✓ = Within Holding Time

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.

Analyte Group Sampling Date Extraction / Preparation Analysis Method Container / Client Sample ID(s) **Holding Times** Eval Analysis Date Holding Times Eval Preparation Rec Actual Rec Actual Date Anions and Nutrients: Ammonia by Fluorescence Amber glass total (sulfuric acid) E298 28 days 12 days ✓ WG-030823-CS-11 03-Mar-2023 15-Mar-2023 15-Mar-2023 Anions and Nutrients : Ammonia by Fluorescence Amber glass total (sulfuric acid) WG-030823-CS-12 E298 03-Mar-2023 15-Mar-2023 15-Mar-2023 28 days 12 days ----Anions and Nutrients : Ammonia by Fluorescence Amber glass total (sulfuric acid) E298 03-Mar-2023 ✓ WG-030823-CS-13 15-Mar-2023 15-Mar-2023 28 days 12 days Anions and Nutrients : Chloride in Water by IC HDPE WG-030823-CS-11 E235.CI 03-Mar-2023 11-Mar-2023 11-Mar-2023 28 days 8 davs Anions and Nutrients : Chloride in Water by IC HDPE WG-030823-CS-12 E235.CI 03-Mar-2023 11-Mar-2023 11-Mar-2023 28 days 8 days 1 Anions and Nutrients : Chloride in Water by IC HDPE E235.CI 03-Mar-2023 11-Mar-2023 WG-030823-CS-13 11-Mar-2023 28 days 8 days Anions and Nutrients : Fluoride in Water by IC **HDPE** E235.F 11-Mar-2023 28 days 8 days ✓ WG-030823-CS-11 03-Mar-2023 11-Mar-2023

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Matrix: Water					Ev	aluation: 🗴 =	Holding time exce	edance ; 🔻	= Within	Holding Tim
Analyte Group	Method	Sampling Date	Ext	traction / Pr	eparation			Analys	is	
Container / Client Sample ID(s)			Preparation Date	Holding Rec	7 Times Actual	Eval	Analysis Date	Holding Rec	Times Actual	Eval
Anions and Nutrients : Fluoride in Water by IC										
HDPE WG-030823-CS-12	E235.F	03-Mar-2023	11-Mar-2023				11-Mar-2023	28 days	8 days	4
Anions and Nutrients : Fluoride in Water by IC										
HDPE WG-030823-CS-13	E235.F	03-Mar-2023	11-Mar-2023				11-Mar-2023	28 days	8 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE WG-030823-CS-11	E235.NO3-L	03-Mar-2023	11-Mar-2023				11-Mar-2023	3 days	8 days	# EHTR-FM
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE WG-030823-CS-12	E235.NO3-L	03-Mar-2023	11-Mar-2023				11-Mar-2023	3 days	8 days	# EHTR-FM
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE WG-030823-CS-13	E235.NO3-L	03-Mar-2023	11-Mar-2023				11-Mar-2023	3 days	8 days	* EHTR-FM
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE WG-030823-CS-11	E235.NO2-L	03-Mar-2023	11-Mar-2023				11-Mar-2023	3 days	8 days	¥ EHTR-FM
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE WG-030823-CS-12	E235.NO2-L	03-Mar-2023	11-Mar-2023				11-Mar-2023	3 days	8 days	# EHTR-FM
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE WG-030823-CS-13	E235.NO2-L	03-Mar-2023	11-Mar-2023				11-Mar-2023	3 days	8 days	* EHTR-FM
Anions and Nutrients : Sulfate in Water by IC										
HDPE WG-030823-CS-11	E235.SO4	03-Mar-2023	11-Mar-2023				11-Mar-2023	28 days	8 days	✓

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				Eva	aluation: 🗴 =	Holding time exce	edance ; 🔻	= Within	Holding I
Method	Sampling Date	Ext	raction / Pr	eparation			Analysis		
		Preparation			Eval	Analysis Date			Eval
		Date	Rec	Actual			Rec	Actual	
E235.SO4	03-Mar-2023	11-Mar-2023				11-Mar-2023	28 days	8 days	✓
			<u> </u>						
F235 SO4	03-Mar-2023	11-Mar-2023				11-Mar-2023	28 days	8 days	1
2200.001	00 Mai 2020	11 Mai 2020				11 Mai 2020	20 dayo	dayo	•
E509	03-Mar-2023	14-Mar-2023				14-Mar-2023	28 days	11 days	✓
			I						
E500	03 Mar 2023	14 Mar 2022				14 Mar 2022	20 daya	11 dovo	1
E309	03-IVIAI-2023	14-Mai-2023				14-Mar-2023	26 days	Truays	•
E509	03-Mar-2023	14-Mar-2023				14-Mar-2023	28 days	11 days	✓
			I						
E404	02 Mar 2022	12 Mar 2022				14 Mar 2022	400	10 daya	✓
E421	03-IVIAI-2023	13-Mai-2023				14-Mai-2023		10 days	•
							uays		
E421	03-Mar-2023	13-Mar-2023				14-Mar-2023	180	10 days	✓
							days		
E421	03-Mar-2023	13-Mar-2023				14-Mar-2023	180	10 days	✓
							days		
F000	00 M 0000	44.14 0000				40.14 0000			
E290	03-Mar-2023	11-Mar-2023				13-Mar-2023	14 days	10 days	✓
	E235.SO4 E235.SO4 E509 E509 E421 E421	E235.SO4 03-Mar-2023 E509 03-Mar-2023 E509 03-Mar-2023 E509 03-Mar-2023 E421 03-Mar-2023 E421 03-Mar-2023	E235.SO4 03-Mar-2023 11-Mar-2023 E509 03-Mar-2023 14-Mar-2023 E509 03-Mar-2023 14-Mar-2023 E421 03-Mar-2023 13-Mar-2023 E421 03-Mar-2023 13-Mar-2023	E235.SO4 03-Mar-2023 11-Mar-2023 E235.SO4 03-Mar-2023 11-Mar-2023 E509 03-Mar-2023 14-Mar-2023 E509 03-Mar-2023 14-Mar-2023 E509 03-Mar-2023 14-Mar-2023 E421 03-Mar-2023 13-Mar-2023 E421 03-Mar-2023 13-Mar-2023 E421 03-Mar-2023 13-Mar-2023	Method Sampling Date Extraction / Preparation Preparation Date Rec Actual	Method Sampling Date Extraction / Preparation Preparation Rec Holding Times Rec Eval E235.SO4 03-Mar-2023 11-Mar-2023 E235.SO4 03-Mar-2023 11-Mar-2023 E509 03-Mar-2023 14-Mar-2023 E509 03-Mar-2023 14-Mar-2023 E509 03-Mar-2023 14-Mar-2023 E421 03-Mar-2023 13-Mar-2023 E421 03-Mar-2023 13-Mar-2023	Method Sampling Date Extraction / Preparation Date Holding Times Rec Eval Analysis Date E235.SO4 03-Mar-2023 11-Mar-2023 11-Mar-2023 E235.SO4 03-Mar-2023 11-Mar-2023 11-Mar-2023 E509 03-Mar-2023 14-Mar-2023 14-Mar-2023 E509 03-Mar-2023 14-Mar-2023 14-Mar-2023 E509 03-Mar-2023 14-Mar-2023 14-Mar-2023 E421 03-Mar-2023 13-Mar-2023 14-Mar-2023 E421 03-Mar-2023 13-Mar-2023 14-Mar-2023	Method Sampling Date Extraction / Preparation Date Holding Times Rec Actual Eval Analysis Date Holding Rec Holding Rec Actual E235.SO4 03-Mar-2023 11-Mar-2023 11-Mar-2023 28 days E235.SO4 03-Mar-2023 11-Mar-2023 11-Mar-2023 28 days E509 03-Mar-2023 14-Mar-2023 14-Mar-2023 28 days E509 03-Mar-2023 14-Mar-2023 14-Mar-2023 28 days E509 03-Mar-2023 14-Mar-2023 14-Mar-2023 28 days E421 03-Mar-2023 13-Mar-2023 14-Mar-2023 28 days E421 03-Mar-2023 13-Mar-2023 14-Mar-2023 180 days E421 03-Mar-2023 13-Mar-2023 14-Mar-2023 180 days	Preparation Date Holding Times Rec Actual Analysis Date Holding Times Rec Actual

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Matrix: Water					Ev	/aluation: 🗴 =	Holding time exce	edance ; 🔻	= Within	Holding Tin
Analyte Group	Method	Sampling Date	Ext	raction / Pr	eparation			Analysis		
Container / Client Sample ID(s)			Preparation Date	Holding Rec	g Times Actual	Eval	Analysis Date	Holding Rec	Times Actual	Eval
Physical Tests : Alkalinity Species by Titration										
HDPE WG-030823-CS-12	E290	03-Mar-2023	11-Mar-2023				13-Mar-2023	14 days	10 days	4
Physical Tests : Alkalinity Species by Titration										
HDPE WG-030823-CS-13	E290	03-Mar-2023	11-Mar-2023				13-Mar-2023	14 days	10 days	✓
Physical Tests : Conductivity in Water										
HDPE WG-030823-CS-11	E100	03-Mar-2023	11-Mar-2023				13-Mar-2023	28 days	10 days	✓
Physical Tests : Conductivity in Water										
HDPE WG-030823-CS-12	E100	03-Mar-2023	11-Mar-2023				13-Mar-2023	28 days	10 days	✓
Physical Tests : Conductivity in Water										
HDPE WG-030823-CS-13	E100	03-Mar-2023	11-Mar-2023				13-Mar-2023	28 days	10 days	✓
Physical Tests : TDS by Gravimetry										
HDPE WG-030823-CS-11	E162	03-Mar-2023					12-Mar-2023	7 days	9 days	* EHTL
Physical Tests : TDS by Gravimetry										
HDPE WG-030823-CS-12	E162	03-Mar-2023					12-Mar-2023	7 days	9 days	x EHTL
Physical Tests : TDS by Gravimetry										
HDPE WG-030823-CS-13	E162	03-Mar-2023					12-Mar-2023	7 days	9 days	# EHTL
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid) WG-030823-CS-11	E508	03-Mar-2023	14-Mar-2023				14-Mar-2023	28 days	11 days	✓

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Analyte Group	Method	Sampling Date	Ex	traction / Pi	reparation			Analys	sis	
Container / Client Sample ID(s)			Preparation	Holdin	g Times	Eval	Analysis Date	Holding	Times	Eval
			Date	Rec	Actual			Rec	Actual	
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid)	5500	00 M 0000	44.14 0000				44.14 0000	00.1	44.1	
WG-030823-CS-12	E508	03-Mar-2023	14-Mar-2023				14-Mar-2023	28 days	11 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid)										
WG-030823-CS-13	E508	03-Mar-2023	14-Mar-2023				14-Mar-2023	28 days	11 days	✓
Total Metals : Total metals in Water by CRC ICPMS										
HDPE total (nitric acid)										
WG-030823-CS-11	E420	03-Mar-2023	11-Mar-2023				12-Mar-2023	180	9 days	✓
								days		
Total Metals : Total metals in Water by CRC ICPMS				1						
HDPE total (nitric acid)	F400	22.14								,
WG-030823-CS-12	E420	03-Mar-2023	11-Mar-2023				12-Mar-2023	180	9 days	✓
								days		
Total Metals : Total metals in Water by CRC ICPMS										
HDPE total (nitric acid)										
WG-030823-CS-13	E420	03-Mar-2023	11-Mar-2023				12-Mar-2023	180	9 days	✓
								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).

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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.

Acalysis Method QC Let # QC Regular Actual Expected Evaluation Evaluation Evaluatio	Matrix: Water		Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification									
Albamintory Duplicates (OUP)	Quality Control Sample Type				ount		Frequency (%))				
Alkallmity Species by Titration	Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation				
Ammonia by Fluorescence	Laboratory Duplicates (DUP)											
Ammonia by Fluorescence E28	Alkalinity Species by Titration	E290	860423	1	20	5.0	5.0	✓				
Endo 880422 1 10 10.0 5.0 ✓	Ammonia by Fluorescence	E298	863783	1	15	6.6	5.0					
Dissolved Mercury in Water by CVAAS E509 B82690 1 9 11.1 5.0 ✓ Dissolved Metals in Water by CRC ICPMS E421 861621 1 20 5.0 5.0 ✓ Fluoride in Water by IC E235.F 860429 1 20 5.0 5.0 ✓ Nitrate in Water by IC (Low Level) E235.NO3-L 860427 1 20 5.0 5.0 ✓ Nitrate in Water by IC (Low Level) E235.NO3-L 860428 1 20 5.0 5.0 ✓ Sulfate in Water by IC (Low Level) E235.SO4 860428 1 20 5.0 5.0 ✓ Sulfate in Water by IC (Low Level) E235.SO4 860425 1 20 5.0 5.0 ✓ TOS by Gravimetry E162 859948 1 199 5.2 5.0 5.0 ✓ Total metals in Water by CRC ICPMS E420 860115 1 15 6.6 5.0 ✓ Total metals in Water by CRC ICPMS E236.C 860428 1 20 5.0 5.0 ✓ Total metals in Water by CRC ICPMS E239. 860428 1 20 5.0 5.0 ✓ Total metals in Water by CRC ICPMS E230. 860428 1 1 20 5.0 5.0 ✓ Total metals in Water by CRC ICPMS E230. 860428 1 1 20 5.0 5.0 ✓ Total metals in Water by CRC ICPMS E230. 860428 1 1 20 5.0 5.0 ✓ Total metals in Water by CRC ICPMS E420 860115 1 15 6.6 5.0 ✓ Chloride in Water by IC (Low Level) E235.C 860428 1 1 20 5.0 5.0 ✓ Chloride in Water by IC (Low Level) E235.C 860428 1 1 20 5.0 5.0 ✓ Chloride in Water by IC (Low Level) E235.C 860428 1 1 20 5.0 5.0 ✓ Chloride in Water by IC (Low Level) E235.C 860429 1 1 10 10.0 5.0 ✓ Dissolved Metals in Water by CRC ICPMS E421 861621 1 20 5.0 5.0 5.0 ✓ Nitrate in Water by IC (Low Level) E235.NO3-L 860427 1 20 5.0 5.0 ✓ Nitrate in Water by IC (Low Level) E235.NO3-L 860428 1 20 5.0 5.0 ✓ TOS by Gravimetry by IC (Low Level) E235.NO3-L 860428 1 20 5.0 5.0 ✓ TOS by Gravimetry by IC (Low Level) E235.NO3-L 860428 1 1 20 5.0 5.0 ✓ Total Metals in Water by IC (Low Level) E235.NO3-L 860428 1 1 20 5.0 5.0 ✓ Total metals in Water by IC (Low Level) E235.NO3-L 860428 1 1 20 5.0 5.0 ✓ Total metals in Water by IC (Low Level) E235.NO3-L 860428 1 1 20 5.0 5.0 ✓ Total metals in Water by IC (Low Level) E235.NO3-L 860428 1 1 20 5.0 5.0 ✓ Total Metals by ICR Level By ICR Level By ICR Level By ICR Level By ICR Level By ICR Level By ICR Level By ICR Level By ICR Le	Chloride in Water by IC	E235.CI	860426	1	20	5.0	5.0	✓				
Dissolved Metals in Water by CRC ICPMS	Conductivity in Water	E100	860422	1	10	10.0	5.0	✓				
Fluoride in Water by IC E235.F 880429 1 20 5.0 5.0 √	Dissolved Mercury in Water by CVAAS	E509	862690	1	9	11.1	5.0	✓				
Nitrate in Water by IC (Low Level) E235 NO3-L 860427 1 20 5.0 5.0 ✓ Nitrite in Water by IC (Low Level) E235 NO3-L 860428 1 20 5.0 5.0 ✓ Solfate in Water by IC (Low Level) E235 SO4 860428 1 20 5.0 5.0 ✓ Solfate in Water by IC (Low Level) E235 SO4 860428 1 1 20 5.0 5.0 ✓ Solfate in Water by IC (Low Level) E235 SO4 860428 1 1 19 5.2 5.0 ✓ Total Mercury Water by CVAAS E508 862964 1 1 20 5.0 5.0 ✓ Total Mercury Water by CVAAS E508 862964 1 1 15 6.6 5.0 ✓ Laboratory Control Samples (LCS) Ammonia by Fluorescence E298 863783 1 1 15 6.6 5.0 ✓ Chloride in Water by IC (Low Level) E235 CI 860428 1 20 5.0 5.0 ✓ Chloride in Water by IC (Low Level) E235 CI 860428 E421 860429 1 1 0 10.0 5.0 ✓ Dissolved Mercury in Water by CRC ICPMS E421 860429 1 20 5.0 5.0 5.0 ✓ Fluoride in Water by IC (Low Level) E235 FNO3-L E336 FNO3-L E336 FNO3-L E336 FNO3-L E336 FNO3-L E336 FNO3-L E336 FNO3-L E336 FNO3-	Dissolved Metals in Water by CRC ICPMS	E421	861621	1	20	5.0	5.0	✓				
Nitrite in Water by IC (Low Level) E235.NO2-L 860428 1 20 5.0 5.0 ✓ Sulfate in Water by IC E235.SO4 860425 1 20 5.0 5.0 ✓ 5.0 ✓ Total Mercury in Water by CVAAS E508 862964 1 19 5.2 5.0 ✓ Total Mercury in Water by CVAAS E508 862964 1 10 20 5.0 5.0 ✓ Total metals in Water by CRC ICPMS E420 860115 1 15 6.6 5.0 ✓ Total metals in Water by CRC ICPMS E230 Refull Species by Titration Ammonia by Fluorescence E298 863733 1 15 6.6 5.0 ✓ Ammonia by Fluorescence E298 Refull Species by Titration E290 860423 1 1 20 5.0 5.0 5.0 ✓ Conductivity in Water by CRC ICPMS E235.CI 860426 1 20 5.0 5.0 ✓ Conductivity in Water by CRC ICPMS E350.CONDUCTIVITY in Water by CRC ICPMS E411 B100 B60422 1 10 10.0 5.0 ✓ Dissolved Mercary in Water by CRC ICPMS E421 B61621 1 20 5.0 5.0 5.0 ✓ Dissolved Mercary in Water by IC (Low Level) E235.F 860429 1 20 5.0 5.0 ✓ Nitrite in Water by IC (Low Level) E235.NO3-L 860427 Nitrite in Water by IC (Low Level) E235.NO3-L 860427 Refull Species by IC (Low Level) E235.NO3-L 860427 Refull Species by IC (Low Level) E235.NO3-L 860427 Refull Species by IC (Low Level) E235.NO3-L 860428 1 20 5.0 5.0 ✓ Nitrite in Water by IC (Low Level) E235.NO3-L 860428 1 1 20 5.0 5.0 ✓ Nitrite in Water by IC (Low Level) E235.NO3-L 860427 Refull Species by IC (Low Level) E235.NO3-L 860428 1 1 20 5.0 5.0 ✓ Nitrite in Water by IC (Low Level) E235.NO3-L 860428 1 1 20 5.0 5.0 ✓ Nitrite in Water by IC (Low Level) E235.NO3-L 860428 1 1 20 5.0 5.0 ✓ Nitrite in Water by IC (Low Level) E235.NO3-L 860428 1 1 19 5.2 5.0 ✓ No 5.0 ✓ Nitrite in Water by IC (Low Level) E235.NO3-L 860428 1 1 20 5.0 5.0 5.0 ✓ No 5.	Fluoride in Water by IC	E235.F	860429	1	20	5.0	5.0	✓				
Sulfate in Water by IC E235.SO4	Nitrate in Water by IC (Low Level)	E235.NO3-L	860427	1	20	5.0	5.0	√				
TDS by Gravimetry	Nitrite in Water by IC (Low Level)	E235.NO2-L	860428	1	20	5.0	5.0	✓				
Total Mercury in Water by CVAAS E508 E420 E420 E610 E6	Sulfate in Water by IC	E235.SO4	860425	1	20	5.0	5.0	✓				
Total Mercury in Water by CVAAS E508 E420 E420 E6015 1 15 6.6 5.0 ✓ Total metals in Water by CRC ICPMS E420 E6015 Total metals in Water by CRC ICPMS E290 B60423 1 20 5.0 5.0 ✓ Ammonia by Fluorescence E298 B63783 1 15 6.6 5.0 ✓ E298 B63783 1 15 6.6 5.0 ✓ Conductivity in Water by IC Conductivity in Water by IC E100 B60422 1 10 10.0 5.0 ✓ Conductivity in Water by CVAAS E509 B60428 E421 B61621 1 20 5.0 5.0 ✓ Conductivity in Water by CRC ICPMS E421 B61621 E235.F 860429 1 20 5.0 5.0 ✓ Fluoride in Water by IC (Low Level) Sulfate in Water by IC (Low Level) E235.NO2-L 860425 E102 E235.NO2-L 860426 1 20 5.0 5.0 ✓ Sulfate in Water by IC (Low Level) E325.NO2-L 860426 E102 E235.NO3-L 860427 E102 E235.NO3-L 860427 E103 E235.NO3-L 860427 E104 E235.NO3-L 860428 E105 E235.NO3-L 860428 E106 E235.NO3-L 860428 E107 E235.NO3-L 860428 E108 E208	TDS by Gravimetry	E162	859948	1	19	5.2	5.0	√				
Total metals in Water by CRC ICPMS E420 860115 1 15 6.6 5.0 ✓	Total Mercury in Water by CVAAS	E508	862964	1	20	5.0	5.0					
Laboratory Control Samples (LCS) Alkalinity Species by Titration E290 860423 1 20 5.0 5.0 ✓ Alkalinity Species by Titration E298 863783 1 15 6.6 5.0 ✓ Chloride in Water by IC E238.Cl 860426 1 20 5.0 5.0 ✓ Conductivity in Water E100 860422 1 10 10.0 5.0 ✓ Dissolved Mercury in Water by CROHS E509 862690 1 9 11.1 5.0 ✓ Dissolved Metals in Water by CROHS E421 861621 1 20 5.0 5.0 ✓ Pluoride in Water by IC Cow Level) E235.F 860429 1 20 5.0 5.0 ✓ Nitrate in Water by IC Cow Level) E235.NO3-L 860427 1 20 5.0 5.0 ✓ Sulfate in Water by IC Cow Level) E235.NO3-L 860425 1 20 5.0 5.0 ✓ Sulfate in Water by IC	Total metals in Water by CRC ICPMS	E420	860115	1	15	6.6	5.0					
Ammonia by Fluorescence	Laboratory Control Samples (LCS)											
Chloride in Water by IC Conductivity in Water E235.CI 860426 1 20 5.0 5.0 √ Conductivity in Water E100 860422 1 100 10.0 5.0 √ Dissolved Mercury in Water by CVAAS E509 862690 1 9 11.1 5.0 √ Dissolved Metals in Water by CRC ICPMS E421 861621 1 20 5.0 5.0 √ Dissolved Metals in Water by CRC ICPMS E421 861621 1 20 5.0 5.0 √ Dissolved Metals in Water by IC Conductivity in Water by IC Conductivit	Alkalinity Species by Titration	E290	860423	1	20	5.0	5.0	✓				
Conductivity in Water E100 860422 1 10 10.0 5.0 ✓	Ammonia by Fluorescence	E298	863783	1	15	6.6	5.0	✓				
Dissolved Mercury in Water by CVAAS E509 862690 1 9 11.1 5.0 √	Chloride in Water by IC	E235.CI	860426	1	20	5.0	5.0	✓				
E421 861621 1 20 5.0 5.0 ✓	Conductivity in Water	E100	860422	1	10	10.0	5.0	✓				
E421 861621 1 20 5.0 5.0 ✓	Dissolved Mercury in Water by CVAAS	E509	862690	1	9	11.1	5.0	√				
Nitrate in Water by IC (Low Level) E235.NO3-L 860427 1 20 5.0 5.0 ✓ Nitrite in Water by IC (Low Level) E235.NO2-L 860428 1 20 5.0 5.0 ✓ Sulfate in Water by IC (Low Level) E235.NO4 860425 1 20 5.0 5.0 ✓ TDS by Gravimetry E162 859948 1 19 5.2 5.0 ✓ Total Mercury in Water by CRC ICPMS E420 860115 1 15 6.6 5.0 ✓ Method Blanks (MB) Alkalinity Species by Titration E290 860423 1 15 6.6 5.0 ✓ Ammonia by Fluorescence E298 863783 1 15 6.6 5.0 ✓ Chloride in Water by IC E235.CI 860426 1 20 5.0 5.0 ✓ Conductivity in Water E100 860422 1 10 10 10 10 5.0 ✓ Dissolved Mercury in Water by CRC ICPMS E421 861621 1 20 5.0 5.0 ✓ 6.6 5.0 ✓ 6.6 6.5 6.6 6.5 6.6 6.5 6.6 6.5 6.6	Dissolved Metals in Water by CRC ICPMS	E421	861621	1	20	5.0	5.0					
Nitrite in Water by IC (Low Level) E235.NO2-L 860428 1 20 5.0 5.0 ✓ Sulfate in Water by IC E235.SO4 860425 1 20 5.0 5.0 ✓ TDS by Gravimetry E162 859948 1 19 5.2 5.0 ✓ Total Mercury in Water by CVAAS E508 862964 1 20 5.0 5.0 ✓ Total metals in Water by CRC ICPMS E420 860115 1 15 6.6 5.0 ✓ Method Blanks (MB) BE290 860423 1 20 5.0 5.0 ✓ Ammonia by Fluorescence E298 863783 1 15 6.6 5.0 ✓ Chloride in Water by IC E235.CI 860426 1 20 5.0 5.0 ✓ Conductivity in Water E100 860422 1 10 10.0 5.0 ✓ Dissolved Mercury in Water by CVAAS E509 862690 1 9	Fluoride in Water by IC	E235.F	860429	1	20	5.0	5.0	✓				
Sulfate in Water by IC E235.SO4 860425 1 20 5.0 5.0 ✓ TDS by Gravimetry E162 859948 1 19 5.2 5.0 ✓ Total Mercury in Water by CVAAS E508 862964 1 20 5.0 5.0 ✓ Total metals in Water by CRC ICPMS E420 860115 1 15 6.6 5.0 ✓ Method Blanks (MB) B420 860423 1 20 5.0 5.0 ✓ Ammonia by Fluorescence E298 863783 1 15 6.6 5.0 ✓ Chloride in Water by IC E235.Cl 860426 1 20 5.0 5.0 ✓ Conductivity in Water E100 860422 1 10 10.0 5.0 ✓ Dissolved Mercury in Water by CVAAS E509 862690 1 9 11.1 5.0 ✓ Dissolved Metals in Water by CRC ICPMS E421 861621 1 20 5.	Nitrate in Water by IC (Low Level)	E235.NO3-L	860427	1	20	5.0	5.0	✓				
TDS by Gravimetry E162 859948 1 19 5.2 5.0 ✓ Total Mercury in Water by CVAAS E508 862964 1 20 5.0 5.0 ✓ Total metals in Water by CRC ICPMS E420 860115 1 15 6.6 5.0 ✓ Method Blanks (MB) Alkalinity Species by Titration E290 860423 1 20 5.0 5.0 ✓ Ammonia by Fluorescence E298 863783 1 15 6.6 5.0 ✓ Chloride in Water by IC E235.Cl 860426 1 20 5.0 5.0 ✓ Conductivity in Water E100 860422 1 10 10 10 5.0 ✓ Dissolved Mercury in Water by CRC ICPMS E421 861621 1 20 5.0 5.0 ✓ 6.0 6.0 6.0 6.0 6.0 6.0 6.0	Nitrite in Water by IC (Low Level)	E235.NO2-L	860428	1	20	5.0	5.0	✓				
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Method Blanks (MB) Alkalinity Species by Titration E290 860423 1 20 5.0 5.0 ✓ Ammonia by Fluorescence E298 863783 1 15 6.6 5.0 ✓ Chloride in Water by IC E235.Cl 860426 1 20 5.0 5.0 ✓ Conductivity in Water E100 860422 1 10 10.0 5.0 ✓ Dissolved Mercury in Water by CVAAS E509 862690 1 9 11.1 5.0 ✓ Dissolved Metals in Water by CRC ICPMS E421 861621 1 20 5.0 5.0 ✓	Total Mercury in Water by CVAAS	E508	862964	1	20	5.0	5.0	✓				
Alkalinity Species by Titration E290 860423 1 20 5.0 5.0 ✓ Ammonia by Fluorescence E298 863783 1 15 6.6 5.0 ✓ Chloride in Water by IC E235.Cl 860426 1 20 5.0 5.0 ✓ Conductivity in Water E100 860422 1 10 10.0 5.0 ✓ Dissolved Mercury in Water by CVAAS E509 862690 1 9 11.1 5.0 ✓ Dissolved Metals in Water by CRC ICPMS E421 861621 1 20 5.0 5.0 ✓	Total metals in Water by CRC ICPMS	E420	860115	1	15	6.6	5.0	✓				
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Dissolved Metals in Water by CRC ICPMS E421 861621 1 20 5.0 5.0 ✓	Conductivity in Water	E100	860422	1	10	10.0	5.0	✓				
	Dissolved Mercury in Water by CVAAS	E509	862690	1	9	11.1	5.0	✓				
Fluoride in Water by IC E235.F 860429 1 20 5.0 5.0 ✓	Dissolved Metals in Water by CRC ICPMS	E421	861621	1	20	5.0	5.0	✓				
	Fluoride in Water by IC	E235.F	860429	1	20	5.0	5.0	✓				

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Work Order : VA23A5220 Amendment 2
Client : Comox Valley Regional District



Matrix: Water	Evaluation: x = QC frequency outside specification; ✓ = QC frequency within specification								
Quality Control Sample Type			Co	ount	Frequency (%)				
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation		
Method Blanks (MB) - Continued									
Nitrate in Water by IC (Low Level)	E235.NO3-L	860427	1	20	5.0	5.0	✓		
Nitrite in Water by IC (Low Level)	E235.NO2-L	860428	1	20	5.0	5.0	✓		
Sulfate in Water by IC	E235.SO4	860425	1	20	5.0	5.0	✓		
TDS by Gravimetry	E162	859948	1	19	5.2	5.0	✓		
Total Mercury in Water by CVAAS	E508	862964	1	20	5.0	5.0	✓		
Total metals in Water by CRC ICPMS	E420	860115	1	15	6.6	5.0	✓		
Matrix Spikes (MS)									
Ammonia by Fluorescence	E298	863783	1	15	6.6	5.0	✓		
Chloride in Water by IC	E235.CI	860426	1	20	5.0	5.0	✓		
Dissolved Mercury in Water by CVAAS	E509	862690	1	9	11.1	5.0	✓		
Dissolved Metals in Water by CRC ICPMS	E421	861621	1	20	5.0	5.0	✓		
Fluoride in Water by IC	E235.F	860429	1	20	5.0	5.0	✓		
Nitrate in Water by IC (Low Level)	E235.NO3-L	860427	1	20	5.0	5.0	✓		
Nitrite in Water by IC (Low Level)	E235.NO2-L	860428	1	20	5.0	5.0	✓		
Sulfate in Water by IC	E235.SO4	860425	1	20	5.0	5.0	✓		
Total Mercury in Water by CVAAS	E508	862964	1	20	5.0	5.0	✓		
Total metals in Water by CRC ICPMS	E420	860115	1	15	6.6	5.0	✓		

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Work Order : VA23A5220 Amendment 2
Client : Comox Valley Regional District

Project :



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	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
	Vancouver -			sample. Conductivity measurements are temperature-compensated to 25°C.
	Environmental			
TDS by Gravimetry	E162	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 $180 \pm 2^{\circ}$ C for 16 hours or to constant weight,
	Vancouver -			with gravimetric measurement of the residue.
	Environmental			
Chloride in Water by IC	E235.CI	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and /or UV detection.
	Vancouver -			
	Environmental			
Fluoride in Water by IC	E235.F	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and /or UV detection.
	Vancouver -			
	Environmental			
Nitrite in Water by IC (Low Level)	E235.NO2-L	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and /or UV detection.
	Vancouver -			
	Environmental			
Nitrate in Water by IC (Low Level)	E235.NO3-L	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and /or UV detection.
	Vancouver -			
	Environmental			
Sulfate in Water by IC	E235.SO4	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and /or UV detection.
	Vancouver -			
	Environmental			
Alkalinity Species by Titration	E290	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
	Vancouver -			alkalinity values.
	Environmental			
Ammonia by Fluorescence	E298	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).
	Vancouver -			This method is approved under US EPA 40 CFR Part 136 (May 2021)
	Environmental			

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Work Order : VA23A5220 Amendment 2
Client : Comox Valley Regional District



Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Total metals in Water by CRC ICPMS	E420 Vancouver -	Water	EPA 200.2/6020B (mod)	Water samples are digested with nitric and hydrochloric acids, and analyzed by Collision/Reaction Cell ICPMS.
	Environmental			Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
Dissolved Metals in Water by CRC ICPMS	E421	Water	APHA 3030B/EPA 6020B (mod)	Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by Collision/Reaction Cell ICPMS.
	Vancouver - Environmental			Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
Total Mercury in Water by CVAAS	E508 Vancouver -	Water	EPA 1631E (mod)	Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS
	Environmental	100		
Dissolved Mercury in Water by CVAAS	E509	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
	Vancouver -			CVAAS.
Dissolved Hardness (Calculated)	Environmental EC100	Water	APHA 2340B	
Dissolved Hardness (Calculated)	Vancouver - Environmental	vvatei	ALTIA 2040B	"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
	Liiviioiiiieiitai			property of water due to dissolved divalent cations.
Nitrate and Nitrite (as N) (Calculation)	EC235.N+N	Water	EPA 300.0	Nitrate and Nitrite (as N) is a calculated parameter. Nitrate and Nitrite (as N) = Nitrite (as N) + Nitrate (as N).
	Vancouver -			
	Environmental			
Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Ammonia	EP298	Water		Sample preparation for Preserved Nutrients Water Quality Analysis.
	Vancouver -			
	Environmental			
Dissolved Metals Water Filtration	EP421	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HNO3.
	Vancouver -			
	Environmental			
Dissolved Mercury Water Filtration	EP509	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HCl.
	Vancouver -			
•	Environmental	1		

ALS Environmental

Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

Affix ALS barcode label here

(iab use only)

COC Number: 17 -

Page of

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Report To	Contact and company name below will appear on the final report	Report Format / Distribution				Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)																
Company:	Comox Valley Regional District	Select Report Format: ☑ PDF ☑ EXCEL ☑ EDD (DIGITAL)				Regular [R] Standard TAT If received by 3 pm - business days - no surcharges apply																
Contact:	Crystal Stuart	Quality Control	Quality Control (QC) Report with Report 🔀 YES 🗌 NO				\$ 4 day [P4-20%]					SUCT	1 Bu	Business day [E1 - 100%]								
Phone:	250-898-3722	Compare Results to Criteria on Report - provide details below if box checked				[1 g : 3 day [P3-25%] 📋					Same Day, Weekend or Statutory holiday [E2 -2						E2 -2	00%				
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City/Province:	Courtenay, BC	Email 2				For tasks that can not be performed according to the service level sciented, you will be contacted.																
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ALS Canada Ltd.



CERTIFICATE OF ANALYSIS

: 1 of 6

Work Order : VA23B0448 Page

Client : Comox Valley Regional District Laboratory : Vancouver - Environmental

Contact : Crystal Stuart : Thomas Chang

Address : 770 Harmston Avenue Address : 8081 Lougheed Highway

Courtney BC Canada V9N 0G8 Burnaby BC Canada V5A 1W9

 Telephone
 : 250-898-3722
 Telephone
 : +1 604 253 4188

 Project
 : 22
 Date Samples Received
 : 12-May-2023 12:15

 Project
 : 22
 Date Samples Received
 : 12-May-2023 12:15

 PO
 : 23-015
 Date Analysis Commenced
 : 13-May-2023

 C-O-C number
 : -- Issue Date
 : 19-May-2023 16:04

Sampler : Crystal Stuart

Site : CRWMC - Quarterly - GW

Quote number : VA23-COVR100-001

No. of samples received : 6
No. of samples analysed : 6

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
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia
Miles Gropen	Department Manager - Inorganics	Inorganics, Burnaby, British Columbia
Sam Silveira	Lab Assistant	Metals, Burnaby, British Columbia

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Work Order : VA23B0448

Client : Comox Valley Regional District

Project : 2



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
μS/cm	microsiemens per centimetre
mg/L	milligrams per litre

<: 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.

Page : 3 of 6 Work Order : VA23B0448

Client : Comox Valley Regional District

Project : 22



Sub-Matrix: Groundwater			Cli	ient sample ID	WG-051023-CS-	WG-051023-CS-	WG-051023-CS-	WG-051023-CS-	WG-051023-CS-
(Matrix: Water)					01	02	03	04	05
			Client sampi	ling date / time	10-May-2023 10:15	10-May-2023 11:30	10-May-2023 12:25	10-May-2023 13:40	10-May-2023 13:45
Analyte	CAS Number	Method/Lab	LOR	Unit	VA23B0448-001	VA23B0448-002	VA23B0448-003	VA23B0448-004	VA23B0448-005
Plant I To d					Result	Result	Result	Result	Result
Physical Tests Alkalinity, bicarbonate (as CaCO3)	E	290/VA	1.0	mg/L	37.3	113	90.1	97.9	98.0
Alkalinity, carbonate (as CaCO3)		290/VA	1.0	mg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Alkalinity, hydroxide (as CaCO3)		290/VA	1.0	mg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Alkalinity, total (as CaCO3)		290/VA	1.0	mg/L	37.3	113	90.1	97.9	98.0
Conductivity		100/VA	2.0	μS/cm	79.9	223	186	197	197
Hardness (as CaCO3), dissolved		C100/VA	0.60	mg/L	36.1	111	89.7	96.1	95.1
Solids, total dissolved [TDS]		162/VA	10	mg/L	63	154	123	120	122
Anions and Nutrients				9					
Ammonia, total (as N)	7664-41-7 E	298/VA	0.0050	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Chloride	16887-00-6 E		0.50	mg/L	1.03	2.49	2.72	1.48	1.48
Fluoride	16984-48-8 E		0.020	mg/L	<0.020	<0.020	0.025	<0.020	<0.020
Nitrate (as N)	14797-55-8 E		0.0050	mg/L	0.0770	0.228	0.650	0.193	0.193
Nitrate + Nitrite (as N)	E	C235.N+N/V	0.0050	mg/L	0.0770	0.228	0.650	0.193	0.193
Nitrite (as N)	14797-65-0 E	235.NO2-L/V	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Sulfate (as SO4)	14808-79-8 E	235.SO4/VA	0.30	mg/L	2.53	3.22	2.09	2.70	2.71
Dissolved Metals									
Aluminum, dissolved	7429-90-5 E	421/VA	0.0010	mg/L	0.0023	0.0026	0.0035	0.0044	0.0048
Antimony, dissolved	7440-36-0 E		0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic, dissolved	7440-38-2 E		0.00010	mg/L	<0.00010	0.00068	0.00027	0.00189	0.00195
Barium, dissolved	7440-39-3 E	421/VA	0.00010	mg/L	0.00129	0.00219	0.00745	0.00433	0.00439
Beryllium, dissolved	7440-41-7 E	421/VA	0.000020	mg/L	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Bismuth, dissolved	7440-69-9 E	421/VA	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron, dissolved	7440-42-8 E		0.010	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010
Cadmium, dissolved	7440-43-9 E		0.0000050	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Calcium, dissolved	7440-70-2 E		0.050	mg/L	11.9	35.8	25.9	29.8	29.2
Chromium, dissolved	7440-47-3 E		0.00050	mg/L	<0.00050	0.00057	0.00259	0.00052	0.00055
Cobalt, dissolved	7440-48-4 E	421/VA	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010

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Client : Comox Valley Regional District

Project : 2



Analytical Results

Sub-Matrix: Groundwater	ient sample ID	WG-051023-CS-	WG-051023-CS-	WG-051023-CS-	WG-051023-CS-	WG-051023-CS-		
(Matrix: Water)				01	02	03	04	05
			ling date / time	10-May-2023 10:15	10-May-2023 11:30	10-May-2023 12:25	10-May-2023 13:40	10-May-2023 13:45
Analyte CAS Numl	er Method/Lab	LOR	Unit	VA23B0448-001	VA23B0448-002	VA23B0448-003	VA23B0448-004	VA23B0448-005
				Result	Result	Result	Result	Result
Dissolved Metals	Taxa a sa							
	8 E421/VA	0.00020	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	6 E421/VA	0.010	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010
	1 E421/VA	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
	2 E421/VA	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	4 E421/VA	0.100	mg/L	1.56	5.32	6.08	5.27	5.38
Manganese, dissolved 7439-96	5 E421/VA	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
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	0.000164	0.000106	0.000164	0.000106	0.000105
Nickel, dissolved 7440-02	.0 E421/VA	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus, dissolved 7723-14	.0 E421/VA	0.050	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium, dissolved 7440-09	.7 E421/VA	0.100	mg/L	0.176	0.795	0.497	1.18	1.21
Selenium, dissolved 7782-49	2 E421/VA	0.000050	mg/L	0.000109	0.000094	0.000125	0.000200	0.000224
Silicon, dissolved 7440-21	3 E421/VA	0.050	mg/L	4.28	6.43	6.61	6.10	6.07
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	1.11	1.87	2.33	1.53	1.54
Strontium, dissolved 7440-24	6 E421/VA	0.00020	mg/L	0.0176	0.0570	0.0425	0.0389	0.0397
Sulfur, dissolved 7704-34	9 E421/VA	0.50	mg/L	0.70	1.01	0.56	0.80	0.82
Thallium, dissolved 7440-28	0 E421/VA	0.000010	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
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	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030
Uranium, dissolved 7440-61	1 E421/VA	0.000010	mg/L	<0.000010	0.000107	0.000237	0.000197	0.000192
Vanadium, dissolved 7440-62	2 E421/VA	0.00050	mg/L	0.00159	0.00512	0.00613	0.0180	0.0185
Zinc, dissolved 7440-66	6 E421/VA	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	7 E421/VA	0.00020	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
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.

Please refer to the Accreditation section for an explanation of analyte accreditations.

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Client : Comox Valley Regional District

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ALS

Sub-Matrix: Groundwater			Cli	ent sample ID	WG-051023-CS-	 	
(Matrix: Water)					06		
			Client sampl	ling date / time	10-May-2023 14:45	 	
Analyte	CAS Number	Method/Lab	LOR	Unit	VA23B0448-006	 	
					Result	 	
Physical Tests							
Alkalinity, bicarbonate (as CaCO3)		E290/VA	1.0	mg/L	291	 	
Alkalinity, carbonate (as CaCO3)		E290/VA	1.0	mg/L	<1.0	 	
Alkalinity, hydroxide (as CaCO3)		E290/VA	1.0	mg/L	<1.0	 	
Alkalinity, total (as CaCO3)		E290/VA	1.0	mg/L	291	 	
Conductivity		E100/VA	2.0	μS/cm	691	 	
Hardness (as CaCO3), dissolved		EC100/VA	0.60	mg/L	220	 	
Solids, total dissolved [TDS]		E162/VA	10	mg/L	354	 	
Anions and Nutrients					3		
Ammonia, total (as N)	7664-41-7	E298/VA	0.0050	mg/L	14.9	 	
Chloride	16887-00-6	E235.CI/VA	0.50	mg/L	47.4	 	
Fluoride	16984-48-8	E235.F/VA	0.020	mg/L	<0.100 DLDS	 	
Nitrate (as N)	14797-55-8	E235.NO3-L/V	0.0050	mg/L	<0.0250 DLDS	 	
Nitrate + Nitrite (as N)		A EC235.N+N/V	0.0050	mg/L	<0.0255	 	
Nitrite (as N)		E235.NO2-L/V A	0.0010	mg/L	<0.0050 DLDS	 	
Sulfate (as SO4)	14808-79-8	E235.SO4/VA	0.30	mg/L	2.11	 	
Dissolved Metals							
Aluminum, dissolved	7429-90-5	E421/VA	0.0010	mg/L	0.0011	 	
Antimony, dissolved	7440-36-0		0.00010	mg/L	<0.00010	 	
Arsenic, dissolved	7440-38-2	E421/VA	0.00010	mg/L	0.00021	 	
Barium, dissolved	7440-39-3	E421/VA	0.00010	mg/L	0.0329	 	
Beryllium, dissolved	7440-41-7	E421/VA	0.000020	mg/L	<0.000020	 	
Bismuth, dissolved	7440-69-9	E421/VA	0.000050	mg/L	<0.000050	 	
Boron, dissolved	7440-42-8	E421/VA	0.010	mg/L	0.222	 	
Cadmium, dissolved	7440-43-9		0.0000050	mg/L	0.0000869	 	
Calcium, dissolved	7440-70-2		0.050	mg/L	65.9	 	
Chromium, dissolved	7440-47-3		0.00050	mg/L	<0.00050	 	
Cobalt, dissolved	7440-48-4		0.00010	mg/L	0.00120	 	
Copper, dissolved	7440-50-8		0.00020	mg/L	0.00869	 	

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Client : Comox Valley Regional District

Project : 2



Analytical Results

Sub-Matrix: Groundwater		CI	ient sample ID	WG-051023-CS-	 	
(Matrix: Water)		-		06		
(manya wator)		Client samp	ling date / time	10-May-2023 14:45	 	
Analyte	CAS Number Method/Lab	LOR	Unit	VA23B0448-006	 	
				Result	 	
Dissolved Metals						
Iron, dissolved	7439-89-6 E421/VA	0.010	mg/L	0.035	 	
Lead, dissolved	7439-92-1 E421/VA	0.000050	mg/L	<0.000050	 	
Lithium, dissolved	7439-93-2 E421/VA	0.0010	mg/L	<0.0010	 	
Magnesium, dissolved	7439-95-4 E421/VA	0.100	mg/L	13.4	 	
Manganese, dissolved	7439-96-5 E421/VA	0.00010	mg/L	2.12	 	
Mercury, dissolved	7439-97-6 E509/VA	0.0000050	mg/L	0.0000052	 	
Molybdenum, dissolved	7439-98-7 E421/VA	0.000050	mg/L	0.000636	 	
Nickel, dissolved	7440-02-0 E421/VA	0.00050	mg/L	0.00175	 	
Phosphorus, dissolved	7723-14-0 E421/VA	0.050	mg/L	<0.050	 	
Potassium, dissolved	7440-09-7 E421/VA	0.100	mg/L	10.0	 	
Selenium, dissolved	7782-49-2 E421/VA	0.000050	mg/L	<0.000050	 	
Silicon, dissolved	7440-21-3 E421/VA	0.050	mg/L	14.2	 	
Silver, dissolved	7440-22-4 E421/VA	0.000010	mg/L	<0.000010	 	
Sodium, dissolved	7440-23-5 E421/VA	0.050	mg/L	27.5	 	
Strontium, dissolved	7440-24-6 E421/VA	0.00020	mg/L	0.304	 	
Sulfur, dissolved	7704-34-9 E421/VA	0.50	mg/L	0.80	 	
Thallium, dissolved	7440-28-0 E421/VA	0.000010	mg/L	<0.000010	 	
Tin, dissolved	7440-31-5 E421/VA	0.00010	mg/L	<0.00010	 	
Titanium, dissolved	7440-32-6 E421/VA	0.00030	mg/L	<0.00030	 	
Uranium, dissolved	7440-61-1 E421/VA	0.000010	mg/L	0.000365	 	
Vanadium, dissolved	7440-62-2 E421/VA	0.00050	mg/L	0.00164	 	
Zinc, dissolved	7440-66-6 E421/VA	0.0010	mg/L	<0.0010	 	
Zirconium, dissolved	7440-67-7 E421/VA	0.00020	mg/L	<0.00020	 	
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.

Please refer to the Accreditation section for an explanation of analyte accreditations.

ALS Canada Ltd.



QUALITY CONTROL REPORT

Work Order :VA23B0448

Client : Comox Valley Regional District

Contact : Crystal Stuart

Address : 770 Harmston Avenue

Courtney BC Canada V9N 0G8

Telephone :

Project : 22 PO : 23-015

C-O-C number :----

Sampler : Crystal Stuart₂₅₀₋₈₉₈₋₃₇₂₂
Site : CRWMC - Quarterly - GW

Quote number : VA23-COVR100-001

No. of samples received : 6
No. of samples analysed : 6

Page : 1 of 10

Laboratory : Vancouver - Environmental

Account Manager : Thomas Chang

Address : 8081 Lougheed Highway

Burnaby, British Columbia Canada V5A 1W9

Telephone :+1 604 253 4188

Date Samples Received : 12-May-2023 12:15

Date Analysis Commenced : 13-May-2023

Issue Date : 19-May-2023 16:04

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
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Vancouver Metals, Burnaby, British Columbia
Miles Gropen	Department Manager - Inorganics	Vancouver Inorganics, Burnaby, British Columbia
Sam Silveira	Lab Assistant	Vancouver Metals, Burnaby, British Columbia

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Client : Comox Valley Regional District

Project : 2



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.

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Client : Comox Valley Regional District

Project : 2



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	boratory sample ID Client sample ID Analyte CAS Number Method nysical Tests (QC Lot: 937083) A23B0267-001 Anonymous Conductivity E100 nysical Tests (QC Lot: 937084)						Labora	ntory Duplicate (D	UP) 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: 937083)										
VA23B0267-001	Anonymous	Conductivity		E100	2.0	μS/cm	104	104	0.0962%	10%	
Physical Tests (QC	Lot: 937084)	The state of the s									
VA23B0267-001	Anonymous	Alkalinity, bicarbonate (as CaCO3)		E290	1.0	mg/L	44.9	44.9	0.00%	20%	
		Alkalinity, carbonate (as CaCO3)		E290	1.0	mg/L	<1.0	<1.0	0	Diff <2x LOR	
		Alkalinity, hydroxide (as CaCO3)		E290	1.0	mg/L	<1.0	<1.0	0	Diff <2x LOR	
		Alkalinity, total (as CaCO3)		E290	1.0	mg/L	44.9	44.9	0.00%	20%	
Physical Tests (QC	Lot: 942918)										
KS2301553-001	Anonymous	Solids, total dissolved [TDS]		E162	20	mg/L	776	758	2.35%	20%	
Anions and Nutrien	ts (QC Lot: 937075)										
VA23B0267-001	Anonymous	Chloride	16887-00-6	E235.CI	0.50	mg/L	0.59	0.59	0.006	Diff <2x LOR	
Anions and Nutrien	ts (QC Lot: 937076)										
VA23B0267-001	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	
Anions and Nutrien	ts (QC Lot: 937078)										
VA23B0267-001	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	6.94	6.92	0.284%	20%	
Anions and Nutrien	ts (QC Lot: 937080)				11111						
VA23B0267-001	Anonymous	Fluoride	16984-48-8	E235.F	0.020	mg/L	0.052	0.053	0.0009	Diff <2x LOR	
Anions and Nutrien	ts (QC Lot: 937081)										
VA23B0489-001	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	0.0058	<0.0050	0.0008	Diff <2x LOR	
Anions and Nutrien	ts (QC Lot: 944615)										
VA23B0366-002	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.250	mg/L	13.1	13.3	1.31%	20%	
Dissolved Metals (QC Lot: 936306)										
VA23B0403-048	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	0.0159	0.0156	2.00%	20%	
		Antimony, dissolved	7440-36-0	E421	0.00010	mg/L	0.00166	0.00168	1.41%	20%	
		Arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	0.00031	0.00033	0.00002	Diff <2x LOR	
		Barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.0311	0.0316	1.41%	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	0.011	0.011	0.00002	Diff <2x LOR	
		Cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L	0.0000888	0.0000858	3.40%	20%	
		Calcium, dissolved	7440-70-2	E421	0.050	mg/L	53.0	52.9	0.173%	20%	

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Client : Comox Valley Regional District



ub-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 (C	QC Lot: 936306) - con	inued											
VA23B0403-048	Anonymous	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	0.00054	0.00055	0.000006	Diff <2x LOR			
		Copper, dissolved	7440-50-8	E421	0.00020	mg/L	0.00606	0.00607	0.157%	20%			
		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	0.0060	0.0059	0.0001	Diff <2x LOR			
		Magnesium, dissolved	7439-95-4	E421	0.100	mg/L	4.58	4.61	0.772%	20%			
		Manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.0843	0.0859	1.82%	20%			
		Molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.00182	0.00182	0.442%	20%			
		Nickel, dissolved	7440-02-0	E421	0.00050	mg/L	0.00090	0.00093	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	0.100	mg/L	1.54	1.57	2.09%	20%			
		Selenium, dissolved	7782-49-2	E421	0.000050	mg/L	0.000672	0.000602	11.0%	20%			
		Silicon, dissolved	7440-21-3	E421	0.050	mg/L	1.56	1.55	0.442%	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	4.00	4.02	0.471%	20%			
		Strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.321	0.324	0.907%	20%			
		Sulfur, dissolved	7704-34-9	E421	0.50	mg/L	33.8	33.2	1.90%	20%			
		Thallium, dissolved	7440-28-0	E421	0.000010	mg/L	<0.000010	<0.000010	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			
		Uranium, dissolved	7440-61-1	E421	0.000010	mg/L	0.000089	0.000092	0.000003	Diff <2x LOR			
		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	0.0049	0.0052	0.0002	Diff <2x LOR			
		Zirconium, dissolved	7440-67-7	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR			
issolved Metals (C	QC Lot: 944322)												
/A23B0426-020	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.000050	<0.0000050	0	Diff <2x LOR			
issolved Metals (C	QC Lot: 944323)												
/A23B0448-003	WG-051023-CS-03	Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.000050	<0.0000050	0	Diff <2x LOR			

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 Work Order
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 VA23B0448

Client : Comox Valley Regional District

Project :

ALS

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: 937083)					
Conductivity	E100	1	μS/cm	<1.0	
Physical Tests (QCLot: 937084)					
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, total (as CaCO3)	E290	1	mg/L	<1.0	
Physical Tests (QCLot: 942918)					
Solids, total dissolved [TDS]	E162	10	mg/L	<10	
Anions and Nutrients (QCLot: 937075)					
Chloride	16887-00-6 E235.CI	0.5	mg/L	<0.50	
Anions and Nutrients (QCLot: 937076)					
Nitrite (as N)	14797-65-0 E235.NO2-L	0.001	mg/L	<0.0010	
Anions and Nutrients (QCLot: 937078)					
Sulfate (as SO4)	14808-79-8 E235.SO4	0.3	mg/L	<0.30	
Anions and Nutrients (QCLot: 937080)					
Fluoride	16984-48-8 E235.F	0.02	mg/L	<0.020	
Anions and Nutrients (QCLot: 937081)					
Nitrate (as N)	14797-55-8 E235.NO3-L	0.005	mg/L	<0.0050	
Anions and Nutrients (QCLot: 944615)					
Ammonia, total (as N)	7664-41-7 E298	0.005	mg/L	<0.0050	
Dissolved Metals (QCLot: 936306)					
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	
Chromium, dissolved	7440-47-3 E421	0.0005	mg/L	<0.00050	
Cobalt, dissolved	7440-48-4 E421	0.0001	mg/L	<0.00010	

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Client : Comox Valley Regional District

Project : 22

Sub-Matrix: Water



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 Work Order :
 VA23B0448

Client : Comox Valley Regional District

Project : 2



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 Co.	ntrol Sample (LCS)	Report	
				Spike	Recovery (%)	Recovery	Limits (%)	
Analyte CAS	Number Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 937083)								
Conductivity	E100	1	μS/cm	146.9 μS/cm	98.7	90.0	110	
Physical Tests (QCLot: 937084)								
Alkalinity, total (as CaCO3)	E290	1	mg/L	500 mg/L	107	85.0	115	
Physical Tests (QCLot: 942918)								
Solids, total dissolved [TDS]	E162	10	mg/L	1000 mg/L	103	85.0	115	
Anions and Nutrients (QCLot: 937075)								
Chloride 16	387-00-6 E235.CI	0.5	mg/L	100 mg/L	105	90.0	110	
Anions and Nutrients (QCLot: 937076)								
Nitrite (as N) 14	797-65-0 E235.NO2-L	0.001	mg/L	0.5 mg/L	104	90.0	110	
Anions and Nutrients (QCLot: 937078)								
Sulfate (as SO4) 14	808-79-8 E235.SO4	0.3	mg/L	100 mg/L	107	90.0	110	
Anions and Nutrients (QCLot: 937080)								
Fluoride 169	984-48-8 E235.F	0.02	mg/L	1 mg/L	106	90.0	110	
Anions and Nutrients (QCLot: 937081)								
Nitrate (as N) 14	797-55-8 E235.NO3-L	0.005	mg/L	2.5 mg/L	106	90.0	110	
Anions and Nutrients (QCLot: 944615)								
Ammonia, total (as N)	664-41-7 E298	0.005	mg/L	0.2 mg/L	90.8	85.0	115	
Dissolved Metals (QCLot: 936306)	100 00 5 5 5 10 1						100	
,	129-90-5 E421	0.001	mg/L	2 mg/L	108	80.0	120	
,,	140-36-0 E421	0.0001	mg/L	1 mg/L	110	80.0	120	
,	140-38-2 E421	0.0001	mg/L	1 mg/L	109	80.0	120	
,	140-39-3 E421	0.0001	mg/L	0.25 mg/L	107	80.0	120	
,	140-41-7 E421	0.00002 0.00005	mg/L	0.1 mg/L	110	80.0 80.0	120 120	
,	140-69-9 E421		mg/L	1 mg/L	108	80.0	120 120	
	140-42-8 E421	0.01	mg/L	1 mg/L	115	80.0	120 120	
-	140-43-9 E421	0.000005 0.05	mg/L	0.1 mg/L	109	80.0	120 120	
-	140-70-2 E421	0.005	mg/L	50 mg/L	111	80.0	120 120	
-	140-47-3 E421		mg/L	0.25 mg/L	105			
•	140-48-4 E421	0.0001	mg/L	0.25 mg/L	106	80.0	120	
Copper, dissolved 74	140-50-8 E421	0.0002	mg/L	0.25 mg/L	106	80.0	120	

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 Work Order
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 VA23B0448

Client : Comox Valley Regional District



Sub-Matrix: Water	Laboratory Control Sample (LCS) Report								
					Spike	Recovery (%)	Recovery	Limits (%)	
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Dissolved Metals (QCLot: 936306) - c	continued								
Iron, dissolved	7439-89-6	E421	0.01	mg/L	1 mg/L	117	80.0	120	
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	0.5 mg/L	108	80.0	120	
Lithium, dissolved	7439-93-2	E421	0.001	mg/L	0.25 mg/L	107	80.0	120	
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	50 mg/L	109	80.0	120	
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	0.25 mg/L	109	80.0	120	
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	0.25 mg/L	108	80.0	120	
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	0.5 mg/L	106	80.0	120	
Phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	10 mg/L	109	80.0	120	
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	50 mg/L	106	80.0	120	
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	1 mg/L	115	80.0	120	
Silicon, dissolved	7440-21-3	E421	0.05	mg/L	10 mg/L	114	80.0	120	
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	0.1 mg/L	101	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	107	80.0	120	
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	50 mg/L	101	80.0	120	
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	1 mg/L	113	80.0	120	
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	0.5 mg/L	109	80.0	120	
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	0.25 mg/L	102	80.0	120	
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	0.005 mg/L	107	80.0	120	
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	0.5 mg/L	109	80.0	120	
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	0.5 mg/L	103	80.0	120	
Zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	0.1 mg/L	104	80.0	120	
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0.0001 mg/L	96.8	80.0	120	
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0.0001 mg/L	97.1	80.0	120	
-					Ĭ				

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Client : Comox Valley Regional District

Project : 2



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	•	inploof may be easpeet to blue. He	•	-	Matrix Spike (MS) Report							
					Spi	ike	Recovery (%)	Recovery	Limits (%)			
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier		
	ents (QCLot: 937075)											
VA23B0267-001	Anonymous	Chloride	16887-00-6	E235.CI	103 mg/L	100 mg/L	103	75.0	125			
Anions and Nutri	ents (QCLot: 937076)											
VA23B0267-001	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	0.506 mg/L	0.5 mg/L	101	75.0	125			
Anions and Nutri	ents (QCLot: 937078)	1.75										
VA23B0267-001	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	103 mg/L	100 mg/L	103	75.0	125			
Anions and Nutri	ents (QCLot: 937080)	1000								T I		
VA23B0489-002	Anonymous	Fluoride	16984-48-8	E235.F	1.04 mg/L	1 mg/L	104	75.0	125			
Anions and Nutri	ents (QCLot: 937081)									f n		
VA23B0489-002	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	2.61 mg/L	2.5 mg/L	104	75.0	125			
Anions and Nutri	ents (QCLot: 944615)											
VA23B0366-008	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0944 mg/L	0.1 mg/L	94.4	75.0	125			
Dissolved Metals	(QCLot: 936306)				0.000111113/2	g						
VA23B0403-049	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.194 mg/L	0.2 mg/L	97.3	70.0	130			
7, 2020 100 0 10	, ,	Antimony, dissolved	7429-30-3	E421	0.194 mg/L 0.0194 mg/L	0.2 mg/L	96.9	70.0	130			
		Arsenic, dissolved	7440-38-2	E421	0.0192 mg/L	0.02 mg/L	96.1	70.0	130			
		Barium, dissolved	7440-39-3	E421	0.0178 mg/L	0.02 mg/L	88.9	70.0	130			
		Beryllium, dissolved	7440-41-7	E421	0.0395 mg/L	0.04 mg/L	98.8	70.0	130			
		Bismuth, dissolved	7440-69-9	E421	0.00921 mg/L	0.01 mg/L	92.1	70.0	130			
		Boron, dissolved	7440-42-8	E421	0.103 mg/L	0.1 mg/L	103	70.0	130			
		Cadmium, dissolved	7440-43-9	E421	0.00389 mg/L	0.004 mg/L	97.2	70.0	130			
		Calcium, dissolved	7440-70-2	E421	ND mg/L	4 mg/L	ND	70.0	130			
		Chromium, dissolved	7440-47-3	E421	0.0387 mg/L	0.04 mg/L	96.8	70.0	130			
		Cobalt, dissolved	7440-48-4	E421	0.0194 mg/L	0.02 mg/L	97.0	70.0	130			
		Copper, dissolved	7440-50-8	E421	0.0192 mg/L	0.02 mg/L	95.9	70.0	130			
		Iron, dissolved	7439-89-6	E421	1.90 mg/L	2 mg/L	95.0	70.0	130			
		Lead, dissolved	7439-92-1	E421	0.0198 mg/L	0.02 mg/L	99.0	70.0	130			
		Lithium, dissolved	7439-93-2	E421	0.0974 mg/L	0.1 mg/L	97.4	70.0	130			
		Magnesium, dissolved	7439-95-4	E421	ND mg/L	1 mg/L	ND	70.0	130			
		Manganese, dissolved	7439-96-5	E421	0.0191 mg/L	0.02 mg/L	95.5	70.0	130			
	T	Molybdenum, dissolved	7439-98-7	E421	0.0194 mg/L	0.02 mg/L	97.2	70.0	130			

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Client : Comox Valley Regional District



Sub-Matrix: Water						Matrix Spike (MS) Report							
					Spi	ike	Recovery (%)	Recovery	Limits (%)				
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier			
Dissolved Metals	(QCLot: 936306) - co	ontinued											
VA23B0403-049	Anonymous	Nickel, dissolved	7440-02-0	E421	0.0386 mg/L	0.04 mg/L	96.6	70.0	130				
		Phosphorus, dissolved	7723-14-0	E421	9.36 mg/L	10 mg/L	93.6	70.0	130				
		Potassium, dissolved	7440-09-7	E421	3.82 mg/L	4 mg/L	95.6	70.0	130				
		Selenium, dissolved	7782-49-2	E421	0.0420 mg/L	0.04 mg/L	105	70.0	130				
		Silicon, dissolved	7440-21-3	E421	9.24 mg/L	10 mg/L	92.4	70.0	130				
		Silver, dissolved	7440-22-4	E421	0.00390 mg/L	0.004 mg/L	97.4	70.0	130				
		Sodium, dissolved	7440-23-5	E421	1.94 mg/L	2 mg/L	97.0	70.0	130				
		Strontium, dissolved	7440-24-6	E421	ND mg/L	0.02 mg/L	ND	70.0	130				
		Sulfur, dissolved	7704-34-9	E421	19.3 mg/L	20 mg/L	96.5	70.0	130				
		Thallium, dissolved	7440-28-0	E421	0.00394 mg/L	0.004 mg/L	98.5	70.0	130				
		Tin, dissolved	7440-31-5	E421	0.0198 mg/L	0.02 mg/L	98.9	70.0	130				
		Titanium, dissolved	7440-32-6	E421	0.0371 mg/L	0.04 mg/L	92.7	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	0.0972 mg/L	0.1 mg/L	97.2	70.0	130				
		Zinc, dissolved	7440-66-6	E421	0.376 mg/L	0.4 mg/L	94.1	70.0	130				
		Zirconium, dissolved	7440-67-7	E421	0.0400 mg/L	0.04 mg/L	100	70.0	130				
Dissolved Metals	(QCLot: 944322)												
VA23B0426-021	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000941 mg/L	0.0001 mg/L	94.1	70.0	130				
Dissolved Metals	(QCLot: 944323)												
VA23B0448-004	WG-051023-CS-04	Mercury, dissolved	7439-97-6	E509	0.0000942 mg/L	0.0001 mg/L	94.2	70.0	130				



QUALITY CONTROL INTERPRETIVE REPORT

Work Order : **VA23B0448** Page : 1 of 14

Client : Comox Valley Regional District Laboratory : Vancouver - Environmental

Contact : Crystal Stuart Account Manager : Thomas Chang

Address : 770 Harmston Avenue Address : 8081 Lougheed Highway

Courtney BC Canada V9N 0G8 Burnaby, British Columbia Canada V5A 1W9

Telephone :250-898-3722 Telephone :+1 604 253 4188

 Project
 : 22
 Date Samples Received
 : 12-May-2023 12:15

 PO
 : 23-015
 Issue Date
 : 19-May-2023 16:04

 C-O-C number

Sampler : Crystal Stuart

Site : CRWMC - Quarterly - GW

Quote number : VA23-COVR100-001

No. of samples received :6
No. of samples analysed :6

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 Mathead Displayation autilians assum

- 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) ■ No Analysis Holding Time Outliers exist.

Outliers: Frequency of Quality Control Samples • No Quality Control Sample Frequency Outliers occur.

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Client : Comox Valley Regional District

Project : 22



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					Ev	/aluation: × =	Holding time exce	edance ; •	/ = Within	Holding Time
Analyte Group	Method	Sampling Date	Ext	raction / Pr	eparation			Analys	sis	
Container / Client Sample ID(s)			Preparation Holding Times Eval Analysis Date Holdin		Holding	g Times	Eval			
			Date	Rec	Actual			Rec	Actual	
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
WG-051023-CS-01	E298	10-May-2023	18-May-2023				18-May-2023	28 days	8 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
WG-051023-CS-02	E298	10-May-2023	18-May-2023				18-May-2023	28 days	8 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)	5000	40.14 0000								
WG-051023-CS-03	E298	10-May-2023	18-May-2023				18-May-2023	28 days	8 days	✓
Anions and Nutrients : Ammonia by Fluorescence				I						
Amber glass total (sulfuric acid) WG-051023-CS-04	E298	10-May-2023	18-May-2023				18-May-2023	28 days	9 daya	1
WG-051023-CS-04	E290	10-iviay-2023	10-iviay-2023				10-May-2023	20 days	o days	•
Anions and Nutrients : Ammonia by Fluorescence Amber glass total (sulfuric acid)				I	l					
WG-051023-CS-05	E298	10-May-2023	18-May-2023				18-May-2023	28 days	8 days	✓
WO-031025-00-03	2200	10 May 2020	10-111ay-2020				10-101ay-2020	20 days	o days	·
Aniana and Nutrianta - Ammania by Elyarosaanaa										
Anions and Nutrients : Ammonia by Fluorescence Amber glass total (sulfuric acid)										
WG-051023-CS-06	E298	10-May-2023	18-May-2023				18-May-2023	28 days	8 davs	✓
		, _	, ,-				,20		,, c	
Anions and Nutrients : Chloride in Water by IC										
HDPE							1			
WG-051023-CS-01	E235.CI	10-May-2023	13-May-2023				13-May-2023	28 days	3 days	✓
		'	•						,	

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Client : Comox Valley Regional District



Matrix: Water					Ev	aluation: 🗴 =	Holding time exce	edance ; 🔻	= Within	Holding Tim
Analyte Group	Method	Sampling Date	Ext	raction / Pr	eparation			Analys	is	
Container / Client Sample ID(s)			Preparation Date	Holding Rec	g Times Actual	Eval	Analysis Date	Holding Rec	Times Actual	Eval
Anions and Nutrients : Chloride in Water by IC			Buto							
HDPE WG-051023-CS-02	E235.Cl	10-May-2023	13-May-2023				13-May-2023	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE WG-051023-CS-03	E235.CI	10-May-2023	13-May-2023				13-May-2023	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE WG-051023-CS-04	E235.Cl	10-May-2023	13-May-2023				13-May-2023	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE WG-051023-CS-05	E235.Cl	10-May-2023	13-May-2023				13-May-2023	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE WG-051023-CS-06	E235.CI	10-May-2023	13-May-2023				13-May-2023	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE WG-051023-CS-01	E235.F	10-May-2023	13-May-2023				13-May-2023	28 days	3 days	4
Anions and Nutrients : Fluoride in Water by IC										
HDPE WG-051023-CS-02	E235.F	10-May-2023	13-May-2023				13-May-2023	28 days	3 days	√
Anions and Nutrients : Fluoride in Water by IC										
HDPE WG-051023-CS-03	E235.F	10-May-2023	13-May-2023				13-May-2023	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE WG-051023-CS-04	E235.F	10-May-2023	13-May-2023				13-May-2023	28 days	3 days	✓

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Matrix: Water					Ev	aluation: 🗴 =	Holding time exce	edance ; 🔻	= Within	Holding Tin
Analyte Group	Method	Sampling Date	Ext	raction / Pr	eparation					
Container / Client Sample ID(s)			Preparation Date	Holding Times Rec Actual		Eval	Analysis Date	Holding Rec	Times Actual	Eval
Anions and Nutrients : Fluoride in Water by IC										
HDPE WG-051023-CS-05	E235.F	10-May-2023	13-May-2023				13-May-2023	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE WG-051023-CS-06	E235.F	10-May-2023	13-May-2023				13-May-2023	28 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE WG-051023-CS-01	E235.NO3-L	10-May-2023	13-May-2023				13-May-2023	3 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE WG-051023-CS-02	E235.NO3-L	10-May-2023	13-May-2023				13-May-2023	3 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE WG-051023-CS-03	E235.NO3-L	10-May-2023	13-May-2023				13-May-2023	3 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE WG-051023-CS-04	E235.NO3-L	10-May-2023	13-May-2023				13-May-2023	3 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE WG-051023-CS-05	E235.NO3-L	10-May-2023	13-May-2023				13-May-2023	3 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE WG-051023-CS-06	E235.NO3-L	10-May-2023	13-May-2023				13-May-2023	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE WG-051023-CS-01	E235.NO2-L	10-May-2023	13-May-2023				13-May-2023	3 days	3 days	✓

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Matrix: Water					E۱	/aluation: 🗴 =	Holding time exce	edance ; 🕦	= Within	Holding Tin
Analyte Group	Method	Sampling Date	Ext	raction / Pr	reparation			Analys	sis	
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
WG-051023-CS-02	E235.NO2-L	10-May-2023	13-May-2023				13-May-2023	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
WG-051023-CS-03	E235.NO2-L	10-May-2023	13-May-2023				13-May-2023	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
WG-051023-CS-04	E235.NO2-L	10-May-2023	13-May-2023				13-May-2023	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
WG-051023-CS-05	E235.NO2-L	10-May-2023	13-May-2023				13-May-2023	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
WG-051023-CS-06	E235.NO2-L	10-May-2023	13-May-2023				13-May-2023	3 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
WG-051023-CS-01	E235.SO4	10-May-2023	13-May-2023				13-May-2023	28 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
WG-051023-CS-02	E235.SO4	10-May-2023	13-May-2023				13-May-2023	28 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
WG-051023-CS-03	E235.SO4	10-May-2023	13-May-2023				13-May-2023	28 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC								-		
HDPE										
WG-051023-CS-04	E235.SO4	10-May-2023	13-May-2023				13-May-2023	28 days	3 days	✓
				1						

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Matrix: Water					Ev	aluation: 🗴 =	Holding time exce	edance ; 🔻	/ = Within	Holding Ti
Analyte Group	Method	Sampling Date	Ext	raction / Pr	eparation			is		
Container / Client Sample ID(s)			Preparation		g Times	Eval	Analysis Date		Times	Eval
			Date	Rec	Actual			Rec	Actual	
Anions and Nutrients : Sulfate in Water by IC										
HDPE	5005.004	40.14 0000								,
WG-051023-CS-05	E235.SO4	10-May-2023	13-May-2023				13-May-2023	28 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
WG-051023-CS-06	E235.SO4	10-May-2023	13-May-2023				13-May-2023	28 days	3 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)										
WG-051023-CS-01	E509	10-May-2023	18-May-2023				18-May-2023	28 days	8 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)										
WG-051023-CS-02	E509	10-May-2023	18-May-2023				18-May-2023	28 days	8 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)										
WG-051023-CS-03	E509	10-May-2023	18-May-2023				18-May-2023	28 days	8 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)										,
WG-051023-CS-04	E509	10-May-2023	18-May-2023				18-May-2023	28 days	8 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)										
WG-051023-CS-05	E509	10-May-2023	18-May-2023				18-May-2023	28 days	8 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)										
WG-051023-CS-06	E509	10-May-2023	18-May-2023				18-May-2023	28 days	8 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid)										
WG-051023-CS-01	E421	10-May-2023	14-May-2023				15-May-2023	180 days	5 days	✓

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flatrix: Water					Ev	aluation: 🗴 =	Holding time excee	edance ; 🕦	= Within	Holding Tir
Analyte Group	Method	Sampling Date	Ext	raction / Pi	reparation			Analys	sis	
Container / Client Sample ID(s)			Preparation	Holdin	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid)										
WG-051023-CS-02	E421	10-May-2023	14-May-2023				15-May-2023	180	5 days	✓
								days		
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid)										
WG-051023-CS-03	E421	10-May-2023	14-May-2023				15-May-2023	180	5 days	✓
								days		
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid)										
WG-051023-CS-04	E421	10-May-2023	14-May-2023				15-May-2023	180	5 days	✓
								days		
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid)										
WG-051023-CS-05	E421	10-May-2023	14-May-2023				15-May-2023	180	5 days	✓
								days		
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid)										
WG-051023-CS-06	E421	10-May-2023	14-May-2023				15-May-2023	180	5 days	✓
								days		
Physical Tests : Alkalinity Species by Titration										
HDPE										
WG-051023-CS-01	E290	10-May-2023	13-May-2023				15-May-2023	14 days	5 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
WG-051023-CS-02	E290	10-May-2023	13-May-2023				15-May-2023	14 days	5 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
WG-051023-CS-03	E290	10-May-2023	13-May-2023				15-May-2023	14 days	5 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
WG-051023-CS-04	E290	10-May-2023	13-May-2023				15-May-2023	14 days	5 days	✓

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Matrix: Water					Ev	aluation: 🗴 =	Holding time exce	edance ; 🕥	= Within	Holding Tin
Analyte Group	Method	Sampling Date	Ext	raction / Pr	eparation			Analys	sis	
Container / Client Sample ID(s)			Preparation Date	Holding Times Rec Actual		Eval	Analysis Date	Holding Rec	g Times Actual	Eval
Physical Tests : Alkalinity Species by Titration										
HDPE WG-051023-CS-05	E290	10-May-2023	13-May-2023				15-May-2023	14 days	5 days	4
Physical Tests : Alkalinity Species by Titration										
HDPE WG-051023-CS-06	E290	10-May-2023	13-May-2023				15-May-2023	14 days	5 days	✓
Physical Tests : Conductivity in Water										
HDPE WG-051023-CS-01	E100	10-May-2023	13-May-2023				15-May-2023	28 days	5 days	✓
Physical Tests : Conductivity in Water										
HDPE WG-051023-CS-02	E100	10-May-2023	13-May-2023				15-May-2023	28 days	5 days	✓
Physical Tests : Conductivity in Water										
HDPE WG-051023-CS-03	E100	10-May-2023	13-May-2023				15-May-2023	28 days	5 days	✓
Physical Tests : Conductivity in Water										
HDPE WG-051023-CS-04	E100	10-May-2023	13-May-2023				15-May-2023	28 days	5 days	4
Physical Tests : Conductivity in Water										
HDPE WG-051023-CS-05	E100	10-May-2023	13-May-2023				15-May-2023	28 days	5 days	√
Physical Tests : Conductivity in Water										
HDPE WG-051023-CS-06	E100	10-May-2023	13-May-2023				15-May-2023	28 days	5 days	✓
Physical Tests : TDS by Gravimetry				-						
HDPE WG-051023-CS-01	E162	10-May-2023					17-May-2023	7 days	7 days	✓

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Analyte Group	Method	Sampling Date	Ex	traction / Pr	eparation			Analys	sis	
Container / Client Sample ID(s)						Eval	Analysis Date		g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Physical Tests : TDS by Gravimetry										
HDPE WG-051023-CS-02	E162	10-May-2023					17-May-2023	7 days	7 days	✓
Physical Tests : TDS by Gravimetry										
HDPE WG-051023-CS-03	E162	10-May-2023					17-May-2023	7 days	7 days	✓
Physical Tests : TDS by Gravimetry										
HDPE WG-051023-CS-04	E162	10-May-2023					17-May-2023	7 days	7 days	✓
hysical Tests : TDS by Gravimetry										
HDPE WG-051023-CS-05	E162	10-May-2023					17-May-2023	7 days	7 days	✓
Physical Tests : TDS by Gravimetry										
HDPE WG-051023-CS-06	E162	10-May-2023					17-May-2023	7 days	7 days	✓

Legend & Qualifier Definitions

Rec. HT: ALS recommended hold time (see units).

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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	on: × = QC freque	ency outside spe	ecification; ✓ = 0	QC frequency wit	hin specification
Quality Control Sample Type			Co	ount		Frequency (%,)
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation
Laboratory Duplicates (DUP)							
Alkalinity Species by Titration	E290	937084	1	18	5.5	5.0	✓
Ammonia by Fluorescence	E298	944615	1	20	5.0	5.0	✓
Chloride in Water by IC	E235.CI	937075	1	18	5.5	5.0	✓
Conductivity in Water	E100	937083	1	18	5.5	5.0	√
Dissolved Mercury in Water by CVAAS	E509	944323	2	40	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	936306	1	20	5.0	5.0	√
Fluoride in Water by IC	E235.F	937080	1	17	5.8	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	937081	1	16	6.2	5.0	√
Nitrite in Water by IC (Low Level)	E235.NO2-L	937076	1	18	5.5	5.0	√
Sulfate in Water by IC	E235.SO4	937078	1	18	5.5	5.0	✓
TDS by Gravimetry	E162	942918	1	20	5.0	5.0	√
Laboratory Control Samples (LCS)							
Alkalinity Species by Titration	E290	937084	1	18	5.5	5.0	1
Ammonia by Fluorescence	E298	944615	1	20	5.0	5.0	<u>√</u>
Chloride in Water by IC	E235.Cl	937075	1	18	5.5	5.0	<u>√</u>
Conductivity in Water	E100	937083	1	18	5.5	5.0	<u>√</u>
Dissolved Mercury in Water by CVAAS	E509	944323	2	40	5.0	5.0	√
Dissolved Metals in Water by CRC ICPMS	E421	936306	1	20	5.0	5.0	√
Fluoride in Water by IC	E235.F	937080	1	17	5.8	5.0	√
Nitrate in Water by IC (Low Level)	E235.NO3-L	937081	1	16	6.2	5.0	√
Nitrite in Water by IC (Low Level)	E235.NO2-L	937076	1	18	5.5	5.0	√
Sulfate in Water by IC	E235.SO4	937078	1	18	5.5	5.0	✓
TDS by Gravimetry	E162	942918	1	20	5.0	5.0	√
Method Blanks (MB)							
Alkalinity Species by Titration	E290	937084	1	18	5.5	5.0	✓
Ammonia by Fluorescence	E298	944615	1	20	5.0	5.0	<u>√</u>
Chloride in Water by IC	E235.CI	937075	1	18	5.5	5.0	√
Conductivity in Water	E100	937083	1	18	5.5	5.0	√
Dissolved Mercury in Water by CVAAS	E509	944323	2	40	5.0	5.0	<u>√</u>
Dissolved Metals in Water by CRC ICPMS	E421	936306	1	20	5.0	5.0	<u>√</u>
Fluoride in Water by IC	E235.F	937080	1	17	5.8	5.0	<u>√</u>
Nitrate in Water by IC (Low Level)	E235.NO3-L	937081	1	16	6.2	5.0	√
Nitrite in Water by IC (Low Level)	E235.NO2-L	937076	1	18	5.5	5.0	<u>√</u>
Sulfate in Water by IC	E235.SO4	937078	1	18	5.5	5.0	<u>√</u>
TDS by Gravimetry	E162	942918	1	20	5.0	5.0	<u>√</u>

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Matrix: Water	rix: Water Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification								
Quality Control Sample Type		Co	ount		Frequency (%))			
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation		
Matrix Spikes (MS)									
Ammonia by Fluorescence	E298	944615	1	20	5.0	5.0	✓		
Chloride in Water by IC	E235.CI	937075	1	18	5.5	5.0	✓		
Dissolved Mercury in Water by CVAAS	E509	944323	2	40	5.0	5.0	✓		
Dissolved Metals in Water by CRC ICPMS	E421	936306	1	20	5.0	5.0	✓		
Fluoride in Water by IC	E235.F	937080	1	17	5.8	5.0	✓		
Nitrate in Water by IC (Low Level)	E235.NO3-L	937081	1	16	6.2	5.0	✓		
Nitrite in Water by IC (Low Level)	E235.NO2-L	937076	1	18	5.5	5.0	✓		
Sulfate in Water by IC	E235.SO4	937078	1	18	5.5	5.0	✓		

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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	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
	Vancouver -			sample. Conductivity measurements are temperature-compensated to 25°C.
	Environmental			
TDS by Gravimetry	E162	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,
	Vancouver -			with gravimetric measurement of the residue.
	Environmental	144.4	ED4 000 4 (1)	
Chloride in Water by IC	E235.Cl	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
	Vancouver -			
	Environmental			
Fluoride in Water by IC	E235.F	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV
				detection.
	Vancouver -			
	Environmental			
Nitrite in Water by IC (Low Level)	E235.NO2-L	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and /or UV detection.
	Vancouver -			
	Environmental			
Nitrate in Water by IC (Low Level)	E235.NO3-L	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and /or UV detection.
	Vancouver -			
	Environmental			
Sulfate in Water by IC	E235.SO4	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
	Vancouver -			
	Environmental			
Alkalinity Species by Titration	E290	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
	Vancouver -			alkalinity values.
	Environmental			airaiiiity valuos.
Ammonia by Fluorescence	E298	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).
	Vancouver -		2010	This method is approved under US EPA 40 CFR Part 136 (May 2021)
	Environmental			This medica is approved under 00 Li A 40 of IVI art 100 (May 2021)
	Limioimental			

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Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Dissolved Metals in Water by CRC ICPMS	E421	Water	APHA 3030B/EPA 6020B (mod)	Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by Collision/Reaction Cell ICPMS.
	Vancouver -			
	Environmental			Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
Dissolved Mercury in Water by CVAAS	E509	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
	Vancouver -		1001E (mod)	CVAAS.
	Environmental			Ovano.
Dissolved Hardness (Calculated)	EC100 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
	Environmental			calculated from dissolved Calcium and Magnesium concentrations, because it is a
				property of water due to dissolved divalent cations.
Nitrate and Nitrite (as N) (Calculation)	EC235.N+N	Water	EPA 300.0	Nitrate and Nitrite (as N) is a calculated parameter. Nitrate and Nitrite (as N) = Nitrite (as N) + Nitrate (as N).
	Vancouver -			, , ,
	Environmental			
Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Ammonia	EP298	Water		Sample preparation for Preserved Nutrients Water Quality Analysis.
	Vancouver -			
	Environmental			
Dissolved Metals Water Filtration	EP421	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HNO3.
	Vancouver -			
	Environmental			
Dissolved Mercury Water Filtration	EP509	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HCl.
	Vancouver -			
	Environmental			

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Company:	Cornox Valley Regional District		Select Report Fo	ormat: 🕢 PDF 🗔	Excel 🖸 Exc	(DIGITAL)		Regu	lar (R	j Ø	Standa	nd TAT i	receive	d by 3 pa	m - busin	ess day	s - nó su	rcharges	арру		
Contact;	Crystal Stuart		Quality Control ((QC) Report with Re	eport ☑ YES (] NO	الم ع	4 day (P4-20	%] [)	E S	1 Bu	siness	day [f	1 - 10	10%]				
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Street;	770 Harmston Avenue		Email 1 or Fax	cstuart@comoxyall	eyrd.ca		0	ate and I	ine R	quired 1	or all £	SP TAT	.			ć,	t-mane	-yy 785	: የብብኑ		
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Are samples take	en from a Regulated DW System?	1 1 1 a.		· · · · -			ica P	acks w	3. (e Cub	•	K Eus	tody 5	eal inte	ict (* 48)	68			No	1	
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ALS Canada Ltd.

Address



CERTIFICATE OF ANALYSIS

Work Order : **VA23B0946** Page : 1 of 6

Client : Comox Valley Regional District Laboratory : Vancouver - Environmental

Contact : Crystal Stuart Account Manager : Thomas Chang

: 770 Harmston Avenue Address : 8081 Lougheed Highway

Courtney BC Canada V9N 0G8 Burnaby BC Canada V5A 1W9

Issue Date

: 25-May-2023 09:08

Telephone : 250-898-3722 Telephone : +1 604 253 4188

 Project
 : 22
 Date Samples Received
 : 18-May-2023 09:50

 PO
 : 23-015
 Date Analysis Commenced
 : 19-May-2023

C-O-C number : ---Sampler : ----

Site : CRWMC - Quarterly - SW

Quote number : VA23-COVR100-001

No. of samples received : 2

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
Delson Resende	Lab Assistant	Metals, Burnaby, British Columbia
Elke Tabora		Inorganics, Calgary, Alberta
Harpreet Chawla	Team Leader - Inorganics	Inorganics, Calgary, Alberta
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia
Owen Cheng		Metals, Burnaby, British Columbia
Sam Silveira	Lab Assistant	Metals, Burnaby, British Columbia
Tracy Harley	Supervisor - Water Quality Instrumentation	Inorganics, Burnaby, British Columbia

Page : 2 of 6

Work Order : VA23B0946

Client : Comox Valley Regional District

Project : 22



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
μS/cm	microsiemens per centimetre
mg/L	milligrams per litre

<: 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.

Page : 3 of 6 Work Order : VA23B0946

Client : Comox Valley Regional District

Project : 22



Sub-Matrix: Surface Water			Cli	ient sample ID	WS-051623-C5-	WS-051623-C5-	 	
(Matrix: Water)					01	02		
			Client samp	ling date / time	16-May-2023 09:40	16-May-2023 10:00	 	
Analyte	CAS Number	Method/Lab	LOR	Unit	VA23B0946-001	VA23B0946-002	 	
					Result	Result	 	
Physical Tests								
Alkalinity, bicarbonate (as CaCO3)		E290/VA	1.0	mg/L	7.5	10.1	 	
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, total (as CaCO3)		E290/VA	1.0	mg/L	7.5	10.1	 	
Conductivity		E100/VA	2.0	μS/cm	30.7	35.6	 	
Hardness (as CaCO3), dissolved		EC100/VA	0.60	mg/L	8.79	11.3	 	
Solids, total dissolved [TDS]		E162/VA	10	mg/L	28	33	 	
Anions and Nutrients					3			
Ammonia, total (as N)	7664-41-7	E298/CG	0.0050	mg/L	0.0078	0.0624	 	
Chloride	16887-00-6	E235.CI/VA	0.50	mg/L	3.52	3.62	 	
Fluoride	16984-48-8	E235.F/VA	0.020	mg/L	<0.020	<0.020	 	
Nitrate (as N)	14797-55-8	E235.NO3-L/V	0.0050	mg/L	0.0072	0.0259	 	
Nitrate + Nitrite (as N)		A EC235.N+N/V	0.0050	mg/L	0.0072	0.0259	 	
Nitrite (as N)	14797-65-0	E235.NO2-L/V A	0.0010	mg/L	<0.0010	<0.0010	 	
Sulfate (as SO4)	14808-79-8	E235.SO4/VA	0.30	mg/L	0.53	0.35	 	
Organic / Inorganic Carbon								
Carbon, dissolved organic [DOC]		E358-L/CG	0.50	mg/L	5.86	6.33	 	
Total Metals								
Aluminum, total	7429-90-5	E420/VA	0.0030	mg/L	0.0502	0.159	 	
Antimony, total	7440-36-0	E420/VA	0.00010	mg/L	<0.00010	<0.00010	 	
Arsenic, total	7440-38-2	E420/VA	0.00010	mg/L	0.00018	0.00029	 	
Barium, total	7440-39-3	E420/VA	0.00010	mg/L	0.00147	0.00258	 	
Beryllium, total	7440-41-7	E420/VA	0.000020	mg/L	<0.000020	<0.000020	 	
Bismuth, total	7440-69-9	E420/VA	0.000050	mg/L	<0.000050	<0.000050	 	
Boron, total	7440-42-8	E420/VA	0.010	mg/L	<0.010	<0.010	 	
Cadmium, total	7440-43-9	E420/VA	0.0000050	mg/L	<0.0000050	0.0000090	 	
Calcium, total	7440-70-2	E420/VA	0.050	mg/L	2.21	2.82	 	
			'	•				

Page : 4 of 6 Work Order : VA23B0946

Client : Comox Valley Regional District

Project : 2

ALS

Analytical Nesults							
Sub-Matrix: Surface Water		CI	lient sample ID	WS-051623-C5-	WS-051623-C5-	 	
(Matrix: Water)				01	02		
			oling date / time	16-May-2023 09:40	16-May-2023 10:00	 	
Analyte	CAS Number Method/Lab	LOR	Unit	VA23B0946-001	VA23B0946-002	 	
				Result	Result	 	
Total Metals	F-10004	0.000010		0.000010	0.000040		
Cesium, total	7440-46-2 E420/VA	0.000010	mg/L	<0.000010	<0.000010	 	
Chromium, total	7440-47-3 E420/VA	0.00050	mg/L	<0.00050	<0.00050	 	
Cobalt, total	7440-48-4 E420/VA	0.00010	mg/L	<0.00010	0.00025	 	
Copper, total	7440-50-8 E420/VA	0.00050	mg/L	<0.00050	0.00059	 	
Iron, total	7439-89-6 E420/VA	0.010	mg/L	0.101	0.401	 	
Lead, total	7439-92-1 E420/VA	0.000050	mg/L	0.000051	0.000252	 	
Lithium, total	7439-93-2 E420/VA	0.0010	mg/L	<0.0010	<0.0010	 	
Magnesium, total	7439-95-4 E420/VA	0.0050	mg/L	0.864	1.10	 	
Manganese, total	7439-96-5 E420/VA	0.00010	mg/L	0.00887	0.0751	 	
Mercury, total	7439-97-6 E508/VA	0.0000050	mg/L	<0.0000050	<0.0000050	 	
Molybdenum, total	7439-98-7 E420/VA	0.000050	mg/L	<0.000050	<0.000050	 	
Nickel, total	7440-02-0 E420/VA	0.00050	mg/L	<0.00050	0.00090	 	
Phosphorus, total	7723-14-0 E420/VA	0.050	mg/L	<0.050	<0.050	 	
Potassium, total	7440-09-7 E420/VA	0.050	mg/L	0.144	0.177	 	
Rubidium, total	7440-17-7 E420/VA	0.00020	mg/L	0.00022	0.00024	 	
Selenium, total	7782-49-2 E420/VA	0.000050	mg/L	<0.000050	0.000052	 	
Silicon, total	7440-21-3 E420/VA	0.10	mg/L	2.75	3.47	 	
Silver, total	7440-22-4 E420/VA	0.000010	mg/L	<0.000010	<0.000010	 	
Sodium, total	7440-23-5 E420/VA	0.050	mg/L	2.56	2.73	 	
Strontium, total	7440-24-6 E420/VA	0.00020	mg/L	0.00962	0.0124	 	
Sulfur, total	7704-34-9 E420/VA	0.50	mg/L	<0.50	<0.50	 	
Tellurium, total	13494-80-9 E420/VA	0.00020	mg/L	<0.00020	<0.00020	 	
Thallium, total	7440-28-0 E420/VA	0.000010	mg/L	<0.000010	<0.000010	 	
Thorium, total	7440-29-1 E420/VA	0.00010	mg/L	<0.00010	<0.00010	 	
Tin, total	7440-31-5 E420/VA	0.00010	mg/L	<0.00010	<0.00010	 	
Titanium, total	7440-32-6 E420/VA	0.00030	mg/L	0.00090	0.0103	 	
Tungsten, total	7440-33-7 E420/VA	0.00010	mg/L	<0.00010	<0.00010	 	
Uranium, total	7440-61-1 E420/VA	0.000010	mg/L	<0.000010	<0.000010	 	
Vanadium, total	7440-62-2 E420/VA	0.00050	mg/L	<0.00050	0.00110	 	
Zinc, total	7440-66-6 E420/VA	0.0030	mg/L	<0.0030	<0.0030	 	
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Page : 5 of 6 Work Order : VA23B0946

Client : Comox Valley Regional District

Project : 22

ALS

Analytical Nesults					· · · · · · · · · · · · · · · · · · ·		
Sub-Matrix: Surface Water		CI	ient sample ID	WS-051623-C5-	WS-051623-C5-	 	
(Matrix: Water)				01	02		
			ling date / time	16-May-2023 09:40	16-May-2023 10:00	 	
Analyte	CAS Number Method/Lab	LOR	Unit	VA23B0946-001	VA23B0946-002	 	
Total Metals				Result	Result		
Zirconium, total	7440-67-7 E420/VA	0.00020	mg/L	<0.00020	<0.00020	 	
Dissolved Metals			J				
Aluminum, dissolved	7429-90-5 E421/VA	0.0010	mg/L	0.0488	0.0806	 	
Antimony, dissolved	7440-36-0 E421/VA	0.00010	mg/L	<0.00010	<0.00010	 	
Arsenic, dissolved	7440-38-2 E421/VA	0.00010	mg/L	0.00014	0.00024	 	
Barium, dissolved	7440-39-3 E421/VA	0.00010	mg/L	0.00151	0.00217	 	
Beryllium, dissolved	7440-41-7 E421/VA	0.000020	mg/L	<0.000020	<0.00020	 	
Bismuth, dissolved	7440-69-9 E421/VA	0.000050	mg/L	<0.000050	<0.000050	 	
Boron, dissolved	7440-42-8 E421/VA	0.010	mg/L	<0.010	<0.010	 	
Cadmium, dissolved	7440-43-9 E421/VA	0.0000050	mg/L	<0.0000050	0.0000077	 	
Calcium, dissolved	7440-70-2 E421/VA	0.050	mg/L	2.08	2.67	 	
Chromium, dissolved	7440-47-3 E421/VA	0.00050	mg/L	<0.00050	<0.00050	 	
Cobalt, dissolved	7440-48-4 E421/VA	0.00010	mg/L	<0.00010	0.00012	 	
Copper, dissolved	7440-50-8 E421/VA	0.00020	mg/L	0.00028	0.00039	 	
Iron, dissolved	7439-89-6 E421/VA	0.010	mg/L	0.098	0.263	 	
Lead, dissolved	7439-92-1 E421/VA	0.000050	mg/L	<0.000050	0.000108	 	
Lithium, dissolved	7439-93-2 E421/VA	0.0010	mg/L	<0.0010	<0.0010	 	
Magnesium, dissolved	7439-95-4 E421/VA	0.100	mg/L	0.874	1.12	 	
Manganese, dissolved	7439-96-5 E421/VA	0.00010	mg/L	0.00842	0.0493	 	
Mercury, dissolved	7439-97-6 E509/VA	0.0000050	mg/L	<0.0000050	<0.000050	 	
Molybdenum, dissolved	7439-98-7 E421/VA	0.000050	mg/L	<0.000050	<0.000050	 	
Nickel, dissolved	7440-02-0 E421/VA	0.00050	mg/L	<0.00050	<0.00050	 	
Phosphorus, dissolved	7723-14-0 E421/VA	0.050	mg/L	<0.050	<0.050	 	
Potassium, dissolved	7440-09-7 E421/VA	0.100	mg/L	0.150	0.178	 	
Selenium, dissolved	7782-49-2 E421/VA	0.000050	mg/L	<0.000050	<0.000050	 	
Silicon, dissolved	7440-21-3 E421/VA	0.050	mg/L	2.93	3.50	 	
Silver, dissolved	7440-22-4 E421/VA	0.000010	mg/L	<0.000010	<0.000010	 	
Sodium, dissolved	7440-23-5 E421/VA	0.050	mg/L	2.65	2.91	 	
Strontium, dissolved	7440-24-6 E421/VA	0.00020	mg/L	0.00935	0.0127	 	
Sulfur, dissolved	7704-34-9 E421/VA	0.50	mg/L	<0.50	<0.50	 	
1	7707-07-0	1	9, =		1		l l

Page : 6 of 6

Work Order : VA23B0946

Client : Comox Valley Regional District

Project : 2



Analytical Results

Sub-Matrix: Surface Water			CI	ient sample ID	WS-051623-C5-	WS-051623-C5-	 	
(Matrix: Water)					01	02		
			Client samp	ling date / time	16-May-2023 09:40	16-May-2023 10:00	 	
Analyte	CAS Number	Method/Lab	LOR	Unit	VA23B0946-001	VA23B0946-002	 	
					Result	Result	 	
Dissolved Metals								
Thallium, dissolved	7440-28-0	E421/VA	0.000010	mg/L	<0.000010	<0.000010	 	
Tin, dissolved	7440-31-5	E421/VA	0.00010	mg/L	<0.00010	<0.00010	 	
Titanium, dissolved	7440-32-6	E421/VA	0.00030	mg/L	0.00080	0.00240	 	
Uranium, dissolved	7440-61-1	E421/VA	0.000010	mg/L	<0.000010	<0.000010	 	
Vanadium, dissolved	7440-62-2	E421/VA	0.00050	mg/L	<0.00050	0.00078	 	
Zinc, dissolved	7440-66-6	E421/VA	0.0010	mg/L	0.0010	0.0012	 	
Zirconium, dissolved	7440-67-7	E421/VA	0.00020	mg/L	<0.00020	<0.00020	 	
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.

Please refer to the Accreditation section for an explanation of analyte accreditations.

ALS Canada Ltd.



QUALITY CONTROL REPORT

Work Order : VA23B0946 Page : 1 of 16

Client : Comox Valley Regional District Laboratory : Vancouver - Environmental

Contact : Crystal Stuart Account Manager : Thomas Chang

:770 Harmston Avenue Address :8081 Lougheed Highway

Burnaby, British Columbia Canada V5A 1W9

 Telephone
 :+1 604 253 4188

 Project
 :22

 Date Samples Received
 :18-May-2023 09:50

PO : 23-015 Date Analysis Commenced : 19-May-2023

C-O-C number : 25-May-2023 09:08

Sampler :---- 250-898-3722

Site : CRWMC - Quarterly - SW

Quote number : VA23-COVR100-001

No. of samples received : 2

Courtney BC Canada V9N 0G8

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

Address

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
Delson Resende	Lab Assistant	Vancouver Metals, Burnaby, British Columbia
Elke Tabora		Calgary Inorganics, Calgary, Alberta
Harpreet Chawla	Team Leader - Inorganics	Calgary Inorganics, Calgary, Alberta
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Vancouver Metals, Burnaby, British Columbia
Owen Cheng		Vancouver Metals, Burnaby, British Columbia
Sam Silveira	Lab Assistant	Vancouver Metals, Burnaby, British Columbia
Tracy Harley	Supervisor - Water Quality Instrumentation	Vancouver Inorganics, Burnaby, British Columbia

Page : 2 of 16 Work Order : VA23B0946

Client : Comox Valley Regional District

Project : 2



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.

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Client : Comox Valley Regional District

Project : 2



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: 946670)											
VA23B0796-002	Anonymous	Alkalinity, bicarbonate (as CaCO3)		E290	1.0	mg/L	59.6	60.1	0.835%	20%		
		Alkalinity, carbonate (as CaCO3)		E290	1.0	mg/L	<1.0	<1.0	0	Diff <2x LOR		
		Alkalinity, hydroxide (as CaCO3)		E290	1.0	mg/L	<1.0	<1.0	0	Diff <2x LOR		
		Alkalinity, total (as CaCO3)		E290	1.0	mg/L	59.6	60.1	0.835%	20%		
Physical Tests (QC	Lot: 946671)				1111							
VA23B0796-002	Anonymous	Conductivity		E100	2.0	μS/cm	143	142	0.914%	10%		
Physical Tests (QC	Lot: 950057)											
VA23B0816-006	Anonymous	Solids, total dissolved [TDS]		E162	13	mg/L	74	78	3	Diff <2x LOR		
Anions and Nutrien	ts (QC Lot: 946672)											
VA23B0813-001	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	6.10	6.09	0.0567%	20%		
Anions and Nutrien	ts (QC Lot: 946673)											
VA23B0813-001	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	0.0057	0.0064	0.0007	Diff <2x LOR		
Anions and Nutrien	ts (QC Lot: 946674)											
VA23B0813-001	Anonymous	Fluoride	16984-48-8	E235.F	0.020	mg/L	0.197	0.195	0.002	Diff <2x LOR		
Anions and Nutrien	ts (QC Lot: 946675)											
VA23B0813-001	Anonymous	Chloride	16887-00-6	E235.CI	0.50	mg/L	1.30	1.30	0.003	Diff <2x LOR		
Anions and Nutrien	ts (QC Lot: 946676)											
VA23B0813-001	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	90.6	90.3	0.319%	20%		
Anions and Nutrien	ts (QC Lot: 949276)											
SK2302171-002	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	0.221	0.219	0.728%	20%		
Organic / Inorganic	Carbon (QC Lot: 94930	99)										
VA23B0946-001	WS-051623-C5-01	Carbon, dissolved organic [DOC]		E358-L	0.50	mg/L	5.86	6.06	3.36%	20%		
Total Metals (QC Lo	ot: 945337)											
VA23B0861-001	Anonymous	Aluminum, total	7429-90-5	E420	0.0030	mg/L	0.0437	0.0368	17.1%	20%		
		Antimony, total	7440-36-0	E420	0.00010	mg/L	0.00064	0.00062	0.00001	Diff <2x LOR		
		Arsenic, total	7440-38-2	E420	0.00010	mg/L	0.00035	0.00032	0.00002	Diff <2x LOR		
		Barium, total	7440-39-3	E420	0.00010	mg/L	0.268	0.266	0.584%	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	0.010	0.010	0.00004	Diff <2x LOR		

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ub-Matrix: Water							Labora	tory Duplicate (D	UP) Report		
aboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
otal Metals (QC Lo	ot: 945337) - continued										
A23B0861-001	Anonymous	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	106	104	1.70%	20%	
		Cesium, total	7440-46-2	E420	0.000010	mg/L	0.000393	0.000389	1.10%	20%	
		Chromium, total	7440-47-3	E420	0.00050	mg/L	0.00399	0.00407	0.00008	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	0.0121	0.0116	3.87%	20%	
		Iron, total	7439-89-6	E420	0.010	mg/L	0.083	0.086	0.003	Diff <2x LOR	
		Lead, total	7439-92-1	E420	0.000050	mg/L	0.000155	0.000156	0.000002	Diff <2x LOR	
		Lithium, total	7439-93-2	E420	0.0010	mg/L	0.0351	0.0343	2.22%	20%	
		Magnesium, total	7439-95-4	E420	0.0050	mg/L	0.492	0.480	2.45%	20%	
		Manganese, total	7439-96-5	E420	0.00010	mg/L	0.0112	0.0110	1.74%	20%	
		Molybdenum, total	7439-98-7	E420	0.000050	mg/L	0.0257	0.0257	0.102%	20%	
		Nickel, total	7440-02-0	E420	0.00050	mg/L	0.00089	0.00090	0.000006	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	7.42	7.21	2.94%	20%	
		Rubidium, total	7440-17-7	E420	0.00020	mg/L	0.0225	0.0222	1.20%	20%	
		Selenium, total	7782-49-2	E420	0.000050	mg/L	0.000934	0.000907	2.88%	20%	
		Silicon, total	7440-21-3	E420	0.10	mg/L	1.57	1.54	1.93%	20%	
		Silver, total	7440-22-4	E420	0.000010	mg/L	0.000011	0.000010	0.0000009	Diff <2x LOR	
		Sodium, total	7440-23-5	E420	0.050	mg/L	24.1	23.9	0.743%	20%	
		Strontium, total	7440-24-6	E420	0.00020	mg/L	1.03	1.02	0.636%	20%	
		Sulfur, total	7704-34-9	E420	0.50	mg/L	35.9	35.8	0.293%	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	0.00015	0.00014	0.00001	Diff <2x LOR	
		Titanium, total	7440-32-6	E420	0.00030	mg/L	0.00221	0.00185	0.00036	Diff <2x LOR	
		Tungsten, total	7440-33-7	E420	0.00010	mg/L	0.0189	0.0192	1.37%	20%	
		Uranium, total	7440-61-1	E420	0.000010	mg/L	0.000189	0.000195	3.09%	20%	
		Vanadium, total	7440-62-2	E420	0.00050	mg/L	0.00072	0.00070	0.00002	Diff <2x LOR	
		Zinc, total	7440-66-6	E420	0.0030	mg/L	0.0033	0.0034	0.0001	Diff <2x LOR	
		Zirconium, total	7440-67-7	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	
otal Metals (QC Lo	ot: 950920)										
A23B0857-001	Anonymous	Mercury, total	7439-97-6	E508	0.0000050	mg/L	0.0000104	0.0000099	0.0000005	Diff <2x LOR	

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Sub-Matrix: Water							Labora	tory Duplicate (D	UP) Report		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifie
Dissolved Metals (QC Lot: 945297)										
VA23B0853-001	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	0.0023	0.0023	0.00005	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	0.120	0.123	2.60%	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	<0.010	<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	33.2	33.9	2.21%	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	<0.00010	<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	<0.0010	<0.0010	0	Diff <2x LOR	
		Magnesium, dissolved	7439-95-4	E421	0.0050	mg/L	5.11	5.09	0.440%	20%	
		Manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.00018	0.00016	0.00002	Diff <2x LOR	
		Molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.00204	0.00202	0.861%	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	0.917	0.955	4.07%	20%	
		Selenium, dissolved	7782-49-2	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	
		Silicon, dissolved	7440-21-3	E421	0.050	mg/L	2.29	2.29	0.00177%	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	0.737	0.735	0.221%	20%	
		Strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.273	0.277	1.46%	20%	
		Sulfur, dissolved	7704-34-9	E421	0.50	mg/L	1.33	1.43	0.10	Diff <2x LOR	
		Thallium, dissolved	7440-28-0	E421	0.000010	mg/L	<0.000010	<0.000010	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	
		Uranium, dissolved	7440-61-1	E421	0.000010	mg/L	0.000369	0.000367	0.597%	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	

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Sub-Matrix: Water	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 (C	C Lot: 949348)												
VA23B0937-007	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR			

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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

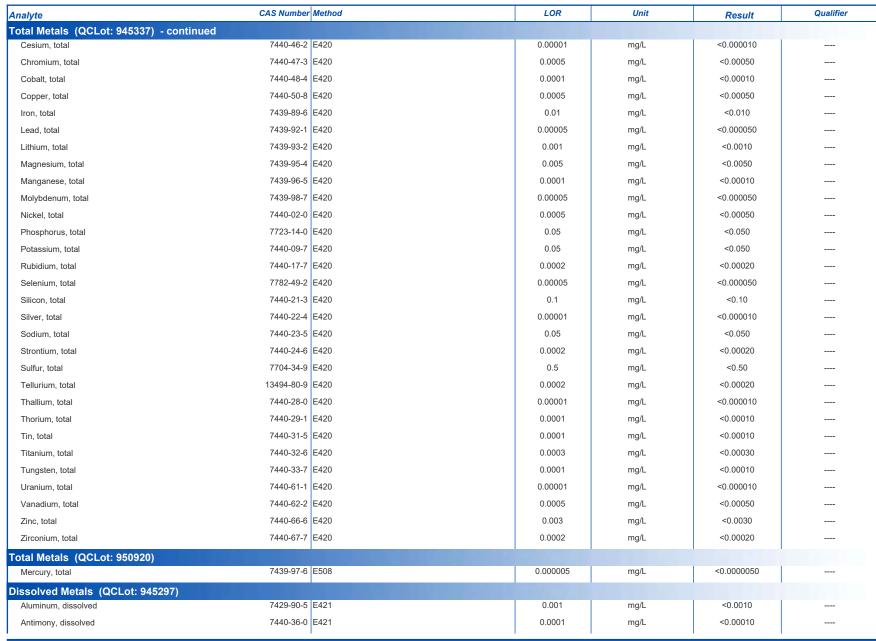
Analyte	CAS Number Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 946670)					
Alkalinity, bicarbonate (as CaCO3)	E290	1	mg/L	<1.0	
Alkalinity, carbonate (as CaCO3)	E290	1	mg/L	<1.0	
Alkalinity, hydroxide (as CaCO3)	E290	1	mg/L	<1.0	
Alkalinity, total (as CaCO3)	E290	1	mg/L	<1.0	
hysical Tests (QCLot: 946671)					
Conductivity	E100	1	μS/cm	1.1	
hysical Tests (QCLot: 950057)					
Solids, total dissolved [TDS]	E162	10	mg/L	<10	
nions and Nutrients (QCLot: 946672)					
Nitrate (as N)	14797-55-8 E235.NO3-L	0.005	mg/L	<0.0050	
nions and Nutrients (QCLot: 946673)					
Nitrite (as N)	14797-65-0 E235.NO2-L	0.001	mg/L	<0.0010	
nions and Nutrients (QCLot: 946674)					
Fluoride	16984-48-8 E235.F	0.02	mg/L	<0.020	
nions and Nutrients (QCLot: 946675)					
Chloride	16887-00-6 E235.CI	0.5	mg/L	<0.50	
nions and Nutrients (QCLot: 946676)					
Sulfate (as SO4)	14808-79-8 E235.SO4	0.3	mg/L	<0.30	
nions and Nutrients (QCLot: 949276)					
Ammonia, total (as N)	7664-41-7 E298	0.005	mg/L	<0.0050	
rganic / Inorganic Carbon (QCLot: 9493					
Carbon, dissolved organic [DOC]	E358-L	0.5	mg/L	<0.50	
otal Metals (QCLot: 945337)					
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	

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Sub-Matrix: Water



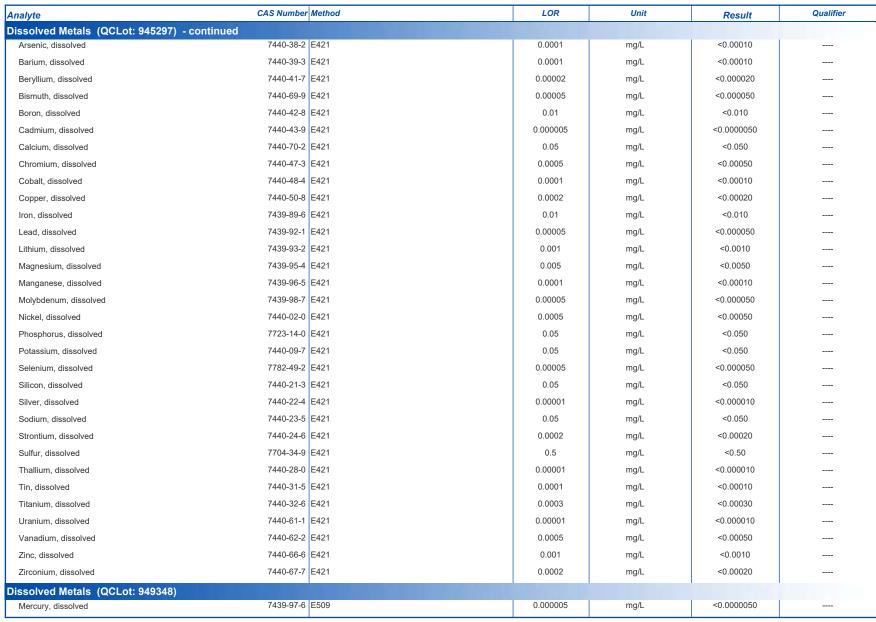


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Sub-Matrix: Water





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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 Co.	ntrol Sample (LCS)	Report	
					Spike	Recovery (%)	Recovery	Limits (%)	
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 946670)									
Alkalinity, total (as CaCO3)		E290	1	mg/L	500 mg/L	106	85.0	115	
Physical Tests (QCLot: 946671)									
Conductivity		E100	1	μS/cm	146.9 μS/cm	96.0	90.0	110	
Physical Tests (QCLot: 950057)									
Solids, total dissolved [TDS]		E162	10	mg/L	1000 mg/L	90.9	85.0	115	
nions and Nutrients (QCLot: 946672)									
itrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	2.5 mg/L	100	90.0	110	
nions and Nutrients (QCLot: 946673)									
itrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	0.5 mg/L	100.0	90.0	110	
nions and Nutrients (QCLot: 946674)									
uoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	99.4	90.0	110	
nions and Nutrients (QCLot: 946675)									
hloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	102	90.0	110	
nions and Nutrients (QCLot: 946676)									
ulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	103	90.0	110	
nions and Nutrients (QCLot: 949276)									
mmonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	98.4	85.0	115	
Organic / Inorganic Carbon (QCLot: 949309)									
arbon, dissolved organic [DOC]		E358-L	0.5	mg/L	8.57 mg/L	100	80.0	120	
otal Metals (QCLot: 945337)	7429-90-5	E400	0.000			00.0	80.0	120	
luminum, total	7429-90-5 7440-36-0		0.003 0.0001	mg/L	2 mg/L	99.2	80.0	120	
ntimony, total rsenic, total	7440-36-0 7440-38-2		0.0001	mg/L	1 mg/L	101 103	80.0	120	
arium, total	7440-36-2		0.0001	mg/L mg/L	1 mg/L 0.25 mg/L	99.7	80.0	120	
eryllium, total	7440-39-3		0.0001	mg/L	0.25 mg/L 0.1 mg/L	109	80.0	120	
ismuth, total	7440-41-7		0.00002	mg/L	0.1 mg/L 1 mg/L	97.0	80.0	120	
oron, total	7440-09-9		0.0003	mg/L	_	109	80.0	120	
cadmium, total	7440-43-9		0.000005	mg/L	1 mg/L 0.1 mg/L	100	80.0	120	
,	7440-43-9		0.05		_	104	80.0	120	
Calcium, total	1440-10-2	L-720	0.03	mg/L	50 mg/L	104	00.0	120	

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Sub-Matrix: Water						Laboratory Cor	ntrol Sample (LCS)	Report	
					Spike	Recovery (%)	Recovery	Limits (%)	
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Total Metals (QCLot: 945337) - continu	ed								
Cesium, total	7440-46-2	E420	0.00001	mg/L	0.05 mg/L	96.7	80.0	120	
Chromium, total	7440-47-3	E420	0.0005	mg/L	0.25 mg/L	98.9	80.0	120	
Cobalt, total	7440-48-4	E420	0.0001	mg/L	0.25 mg/L	98.3	80.0	120	
Copper, total	7440-50-8	E420	0.0005	mg/L	0.25 mg/L	96.0	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	98.4	80.0	120	
Lithium, total	7439-93-2	E420	0.001	mg/L	0.25 mg/L	102	80.0	120	
Magnesium, total	7439-95-4	E420	0.005	mg/L	50 mg/L	99.1	80.0	120	
Manganese, total	7439-96-5	E420	0.0001	mg/L	0.25 mg/L	102	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	96.7	80.0	120	
Phosphorus, total	7723-14-0	E420	0.05	mg/L	10 mg/L	109	80.0	120	
Potassium, total	7440-09-7	E420	0.05	mg/L	50 mg/L	102	80.0	120	
Rubidium, total	7440-17-7	E420	0.0002	mg/L	0.1 mg/L	104	80.0	120	
Selenium, total	7782-49-2	E420	0.00005	mg/L	1 mg/L	95.6	80.0	120	
Silicon, total	7440-21-3	E420	0.1	mg/L	10 mg/L	109	80.0	120	
Silver, total	7440-22-4	E420	0.00001	mg/L	0.1 mg/L	93.7	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	97.7	80.0	120	
Sulfur, total	7704-34-9	E420	0.5	mg/L	50 mg/L	97.1	80.0	120	
Tellurium, total	13494-80-9	E420	0.0002	mg/L	0.1 mg/L	101	80.0	120	
Thallium. total	7440-28-0		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	94.3	80.0	120	
Tin, total	7440-31-5	E420	0.0001	mg/L	0.5 mg/L	98.1	80.0	120	
Titanium, total	7440-32-6		0.0003	mg/L	0.25 mg/L	97.6	80.0	120	
Tungsten, total	7440-33-7		0.0001	mg/L	0.1 mg/L	92.8	80.0	120	
Uranium, total	7440-61-1		0.00001	mg/L	0.11 mg/L 0.005 mg/L	96.6	80.0	120	
Vanadium, total	7440-62-2		0.0005	mg/L	0.5 mg/L	99.1	80.0	120	
Zinc, total	7440-66-6		0.003	mg/L	0.5 mg/L	99.3	80.0	120	
Zirconium, total	7440-67-7		0.0002	mg/L	0.5 mg/L 0.1 mg/L	95.0	80.0	120	
	1440-01-1		0.0002	9, =	J. i mg/L	55.0	33.0	.20	
Total Metals (QCLot: 950920)	7439-97-6	E508	0.000005	ma/l	0.0004	104	80.0	120	
Mercury, total	1439-91-0	LJ00	0.000005	mg/L	0.0001 mg/L	104	60.0	120	
Dissolved Metals (QCLot: 945297)									
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	2 mg/L	102	80.0	120	
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	1 mg/L	95.0	80.0	120	

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Client : Comox Valley Regional District



Sub-Matrix: Water						Laboratory Co	ntrol Sample (LCS)	Report	
					Spike	Recovery (%)	Recovery	Limits (%)	
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Dissolved Metals (QCLot: 945297) - contin	ued								
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	102	80.0	120	
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	0.1 mg/L	98.1	80.0	120	
Bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	1 mg/L	95.8	80.0	120	
Boron, dissolved	7440-42-8	E421	0.01	mg/L	1 mg/L	99.5	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	96.6	80.0	120	
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	0.25 mg/L	97.0	80.0	120	
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	0.25 mg/L	98.6	80.0	120	
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	0.25 mg/L	96.6	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	95.6	80.0	120	
Lithium, dissolved	7439-93-2	E421	0.001	mg/L	0.25 mg/L	104	80.0	120	
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	50 mg/L	103	80.0	120	
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	0.25 mg/L	99.6	80.0	120	
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	0.25 mg/L	96.2	80.0	120	
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	0.5 mg/L	96.2	80.0	120	
Phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	10 mg/L	93.8	80.0	120	
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	50 mg/L	98.4	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	108	80.0	120	
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	0.1 mg/L	90.2	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	100	80.0	120	
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	50 mg/L	102	80.0	120	
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	1 mg/L	95.8	80.0	120	
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	0.5 mg/L	94.1	80.0	120	
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	0.25 mg/L	101	80.0	120	
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	0.005 mg/L	98.2	80.0	120	
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	0.5 mg/L	98.6	80.0	120	
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	0.5 mg/L	97.7	80.0	120	
Zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	0.1 mg/L	93.1	80.0	120	
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0.0001 mg/L	107	80.0	120	
I									

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Client : Comox Valley Regional District

Project : 2



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	e (MS) Report		
					Spi	ke	Recovery (%)	Recovery	Limits (%)	
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
	ents (QCLot: 946672)									
VA23B0813-002	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	2.54 mg/L	2.5 mg/L	102	75.0	125	
Anions and Nutri	ents (QCLot: 946673)									
VA23B0813-002	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	0.506 mg/L	0.5 mg/L	101	75.0	125	
Anions and Nutri	ents (QCLot: 946674)									
VA23B0813-002	Anonymous	Fluoride	16984-48-8	E235.F	1.01 mg/L	1 mg/L	101	75.0	125	
Anions and Nutri	ents (QCLot: 946675)									
VA23B0813-002	Anonymous	Chloride	16887-00-6	E235.CI	102 mg/L	100 mg/L	102	75.0	125	
Anions and Nutri	ents (QCLot: 946676)									
VA23B0813-002	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	103 mg/L	100 mg/L	103	75.0	125	
Anions and Nutri	ents (QCLot: 949276)									
SK2302173-001	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.104 mg/L	0.1 mg/L	104	75.0	125	
Organic / Inorgar	nic Carbon (QCLot: 949	309)								
VA23B0946-001	WS-051623-C5-01	Carbon, dissolved organic [DOC]		E358-L	ND mg/L	5 mg/L	ND	70.0	130	
Total Metals (QC	Lot: 945337)									
VA23B0861-002	Anonymous	Aluminum, total	7429-90-5	E420	0.186 mg/L	0.2 mg/L	92.8	70.0	130	
		Antimony, total	7440-36-0	E420	0.0182 mg/L	0.02 mg/L	91.0	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	0.0188 mg/L	0.02 mg/L	94.2	70.0	130	
		Beryllium, total	7440-41-7	E420	0.0394 mg/L	0.04 mg/L	98.6	70.0	130	
		Bismuth, total	7440-69-9	E420	0.00976 mg/L	0.01 mg/L	97.6	70.0	130	
		Boron, total	7440-42-8	E420	0.097 mg/L	0.1 mg/L	97.3	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	3.91 mg/L	4 mg/L	97.7	70.0	130	
		Cesium, total	7440-46-2	E420	0.00934 mg/L	0.01 mg/L	93.4	70.0	130	
		Chromium, total	7440-47-3	E420	0.0380 mg/L	0.04 mg/L	95.0	70.0	130	
		Cobalt, total	7440-48-4	E420	0.0191 mg/L	0.02 mg/L	95.6	70.0	130	
		Copper, total	7440-50-8	E420	0.0190 mg/L	0.02 mg/L	94.9	70.0	130	
		Iron, total	7439-89-6	E420	1.87 mg/L	2 mg/L	93.4	70.0	130	
		Lead, total	7439-92-1	E420	0.0189 mg/L	0.02 mg/L	94.4	70.0	130	

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Client : Comox Valley Regional District



Sub-Matrix: Water							Matrix Spik	e (MS) Report		
					Spi	ike	Recovery (%)	Recovery	Limits (%)	
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
	CLot: 945337) - cont	inued								
VA23B0861-002	Anonymous	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	0.938 mg/L	1 mg/L	93.8	70.0	130	
		Manganese, total	7439-96-5	E420	0.0195 mg/L	0.02 mg/L	97.4	70.0	130	
		Molybdenum, total	7439-98-7	E420	0.0188 mg/L	0.02 mg/L	94.3	70.0	130	
		Nickel, total	7440-02-0	E420	0.0382 mg/L	0.04 mg/L	95.4	70.0	130	
		Phosphorus, total	7723-14-0	E420	9.27 mg/L	10 mg/L	92.7	70.0	130	
		Potassium, total	7440-09-7	E420	3.85 mg/L	4 mg/L	96.3	70.0	130	
		Rubidium, total	7440-17-7	E420	0.0183 mg/L	0.02 mg/L	91.3	70.0	130	
		Selenium, total	7782-49-2	E420	0.0359 mg/L	0.04 mg/L	89.7	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	0.00383 mg/L	0.004 mg/L	95.9	70.0	130	
		Sodium, total	7440-23-5	E420	1.90 mg/L	2 mg/L	95.2	70.0	130	
		Strontium, total	7440-24-6	E420	0.0193 mg/L	0.02 mg/L	96.3	70.0	130	
		Sulfur, total	7704-34-9	E420	18.9 mg/L	20 mg/L	94.6	70.0	130	
		Tellurium, total	13494-80-9	E420	0.0389 mg/L	0.04 mg/L	97.3	70.0	130	
		Thallium, total	7440-28-0	E420	0.00375 mg/L	0.004 mg/L	93.8	70.0	130	
		Thorium, total	7440-29-1	E420	0.0197 mg/L	0.02 mg/L	98.7	70.0	130	
		Tin, total	7440-31-5	E420	0.0189 mg/L	0.02 mg/L	94.5	70.0	130	
		Titanium, total	7440-32-6	E420	0.0378 mg/L	0.04 mg/L	94.4	70.0	130	
		Tungsten, total	7440-33-7	E420	0.0177 mg/L	0.02 mg/L	88.4	70.0	130	
		Uranium, total	7440-61-1	E420	0.00369 mg/L	0.004 mg/L	92.3	70.0	130	
		Vanadium, total	7440-62-2	E420	0.0943 mg/L	0.1 mg/L	94.3	70.0	130	
		Zinc, total	7440-66-6	E420	0.383 mg/L	0.4 mg/L	95.7	70.0	130	
		Zirconium, total	7440-67-7	E420	0.0380 mg/L	0.04 mg/L	95.0	70.0	130	
otal Metals (QC	CLot: 950920)									
VA23B0934-001	Anonymous	Mercury, total	7439-97-6	E508	0.000105 mg/L	0.0001 mg/L	105	70.0	130	
issolved Metals	s (QCLot: 945297)									
VA23B0853-002	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.196 mg/L	0.2 mg/L	98.1	70.0	130	
		Antimony, dissolved	7440-36-0	E421	0.0188 mg/L	0.02 mg/L	93.8	70.0	130	
		Arsenic, dissolved	7440-38-2	E421	0.0195 mg/L	0.02 mg/L	97.7	70.0	130	
		Barium, dissolved	7440-39-3	E421	ND mg/L	0.02 mg/L	ND	70.0	130	
		Beryllium, dissolved	7440-41-7	E421	0.0376 mg/L	0.04 mg/L	94.0	70.0	130	
		Bismuth, dissolved	7440-69-9	E421	0.00894 mg/L	0.01 mg/L	89.4	70.0	130	
		Boron, dissolved	7440-42-8	E421	0.096 mg/L	0.1 mg/L	96.4	70.0	130	
	1	Cadmium, dissolved	7440-43-9	E421	0.00387 mg/L	0.004 mg/L	96.8	70.0	130	

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Client : Comox Valley Regional District



Sub-Matrix: Water	p-Matrix: Water				Matrix Spike (MS) Report						
					Sp	ike	Recovery (%)	Recovery	Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier	
Dissolved Metals	(QCLot: 945297) -	continued									
VA23B0853-002	Anonymous	Calcium, dissolved	7440-70-2	E421	ND mg/L	4 mg/L	ND	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	0.0188 mg/L	0.02 mg/L	94.3	70.0	130		
		Copper, dissolved	7440-50-8	E421	0.0193 mg/L	0.02 mg/L	96.4	70.0	130		
		Iron, dissolved	7439-89-6	E421	1.96 mg/L	2 mg/L	97.8	70.0	130		
		Lead, dissolved	7439-92-1	E421	0.0184 mg/L	0.02 mg/L	92.0	70.0	130		
		Lithium, dissolved	7439-93-2	E421	0.0965 mg/L	0.1 mg/L	96.5	70.0	130		
		Magnesium, dissolved	7439-95-4	E421	ND mg/L	1 mg/L	ND	70.0	130		
		Manganese, dissolved	7439-96-5	E421	0.0198 mg/L	0.02 mg/L	99.3	70.0	130		
		Molybdenum, dissolved	7439-98-7	E421	0.0193 mg/L	0.02 mg/L	96.5	70.0	130		
		Nickel, dissolved	7440-02-0	E421	0.0378 mg/L	0.04 mg/L	94.4	70.0	130		
		Phosphorus, dissolved	7723-14-0	E421	9.83 mg/L	10 mg/L	98.3	70.0	130		
		Potassium, dissolved	7440-09-7	E421	3.87 mg/L	4 mg/L	96.8	70.0	130		
		Selenium, dissolved	7782-49-2	E421	0.0381 mg/L	0.04 mg/L	95.3	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	0.00383 mg/L	0.004 mg/L	95.7	70.0	130		
		Sodium, dissolved	7440-23-5	E421	1.99 mg/L	2 mg/L	99.6	70.0	130		
		Strontium, dissolved	7440-24-6	E421	ND mg/L	0.02 mg/L	ND	70.0	130		
		Sulfur, dissolved	7704-34-9	E421	20.3 mg/L	20 mg/L	102	70.0	130		
		Thallium, dissolved	7440-28-0	E421	0.00368 mg/L	0.004 mg/L	91.9	70.0	130		
		Tin, dissolved	7440-31-5	E421	0.0190 mg/L	0.02 mg/L	95.0	70.0	130		
		Titanium, dissolved	7440-32-6	E421	0.0395 mg/L	0.04 mg/L	98.8	70.0	130		
		Uranium, dissolved	7440-61-1	E421	0.00359 mg/L	0.004 mg/L	89.9	70.0	130		
		Vanadium, dissolved	7440-62-2	E421	0.0977 mg/L	0.1 mg/L	97.7	70.0	130		
		Zinc, dissolved	7440-66-6	E421	0.376 mg/L	0.4 mg/L	94.0	70.0	130		
		Zirconium, dissolved	7440-67-7	E421	0.0389 mg/L	0.04 mg/L	97.4	70.0	130		
Dissolved Metals	(QCLot: 949348)										
VA23B0937-008	Anonymous	Mercury, dissolved	7439-97-6	E509	0.000102 mg/L	0.0001 mg/L	102	70.0	130		



QUALITY CONTROL INTERPRETIVE REPORT

Work Order : **VA23B0946** Page : 1 of 11

Client : Comox Valley Regional District Laboratory : Vancouver - Environmental

Contact : Crystal Stuart Account Manager : Thomas Chang

Address :770 Harmston Avenue Address :8081 Lougheed Highway

Burnaby, British Columbia Canada V5A 1W9

 Telephone
 : 250-898-3722
 Telephone
 : +1 604 253 4188

 Project
 : 22
 Date Samples Received
 : 18-May-2023 09:50

Site : CRWMC - Quarterly - SW
Quote number : VA23-COVR100-001

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

Sampler

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.

Courtney BC Canada V9N 0G8

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 Mother Displays published account

- 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.

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Client : Comox Valley Regional District

Project : 22



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					Ev	/aluation: × =	Holding time exce	edance ; 🛚	/ = Within	Holding Tim
Analyte Group	Method	Sampling Date	Ext	raction / Pr	eparation			Analys	sis	
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
WS-051623-C5-01	E298	16-May-2023	22-May-2023				22-May-2023	28 days	6 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
WS-051623-C5-02	E298	16-May-2023	22-May-2023				22-May-2023	28 days	6 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE										
WS-051623-C5-01	E235.CI	16-May-2023	19-May-2023				19-May-2023	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE										
WS-051623-C5-02	E235.CI	16-May-2023	19-May-2023				19-May-2023	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE	5005 5	40.14 0000								,
WS-051623-C5-01	E235.F	16-May-2023	19-May-2023				19-May-2023	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE	F005 F	40 May 2000	40 M 2000				40 M 0000	00 4	0 -1	√
WS-051623-C5-02	E235.F	16-May-2023	19-May-2023				19-May-2023	28 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE	E235.NO3-L	16-May-2023	19-May-2023				19-May-2023	2 days	3 days	1
WS-051623-C5-01	E235.NU3-L	10-ividy-2023	19-IVIAY-2023				19-iviay-2023	3 days	o uays	•

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Client : Comox Valley Regional District



					· araarronn	reruning unite extee	oddiioo ,	***************************************	n Holding Tir
Method	Sampling Date	Ext	traction / Pi	eparation			Analys	sis	
		Preparation	Holdin	g Times	Eval	Analysis Date	Holding	g Times	Eval
		Date	Rec	Actual			Rec	Actual	
E235.NO3-L	16-May-2023	19-May-2023				19-May-2023	3 days	3 days	✓
E235.NO2-L	16-May-2023	19-May-2023				19-May-2023	3 days	3 days	✓
E235.NO2-L	16-May-2023	19-May-2023				19-May-2023	3 days	3 days	✓
E235.SO4	16-May-2023	19-May-2023				19-May-2023	28 days	3 days	✓
5005.004	40.14 0000	40.14 0000				40.14 0000	00.1		
E235.SO4	16-May-2023	19-May-2023				19-May-2023	28 days	3 days	√
									I
E500	16 May 2022	00 M 0000	0.00	0		00 M 0000	400.00		*
E309	16-Way-2023	22-May-2023		o nrs		22-May-2023			EHTR-FM
			1115		LITTIX-I IVI		1115	1115	LITTIX-I IV
E500	16-May-2023	22-May-2023	0.00	7 hre		22-May-2023	120.20	0.00	*
2509	10-Way-2025	22-Way-2020		7 1113		22-Way-2023			EHTR-FM
			1113				1113	1113	
E421	16-May-2023	20-May-2023				22-Mav-2023	180	6 davs	✓
		20						o aayo	·
E421	16-Mav-2023	20-May-2023				22-Mav-2023	180	6 davs	1
	.,					,		,5	
	E235.NO3-L E235.NO2-L E235.NO2-L E235.SO4 E509 E509	E235.NO2-L 16-May-2023 E235.NO2-L 16-May-2023 E235.SO4 16-May-2023 E235.SO4 16-May-2023 E509 16-May-2023 E421 16-May-2023	E235.NO2-L 16-May-2023 19-May-2023 E235.NO2-L 16-May-2023 19-May-2023 E235.SO4 16-May-2023 19-May-2023 E509 16-May-2023 22-May-2023 E421 16-May-2023 20-May-2023	E235.NO3-L 16-May-2023 19-May-2023 E235.NO2-L 16-May-2023 19-May-2023 E235.NO2-L 16-May-2023 19-May-2023 E235.SO4 16-May-2023 19-May-2023 E235.SO4 16-May-2023 19-May-2023 E509 16-May-2023 22-May-2023 0.02 hrs E509 16-May-2023 22-May-2023 E509 16-May-2023 22-May-2023	E235.NO3-L 16-May-2023 19-May-2023 E235.NO2-L 16-May-2023 19-May-2023 E235.NO2-L 16-May-2023 19-May-2023 E235.SO4 16-May-2023 19-May-2023 E235.SO4 16-May-2023 19-May-2023 E509 16-May-2023 22-May-2023 0.02 hrs hrs E509 16-May-2023 22-May-2023 0.02 hrs E421 16-May-2023 20-May-2023	Preparation Date Holding Times Rec Actual E235.NO3-L 16-May-2023 19-May-2023 E235.NO2-L 16-May-2023 19-May-2023 E235.NO2-L 16-May-2023 19-May-2023 E235.SO4 16-May-2023 19-May-2023 E509 16-May-2023 22-May-2023 0.02 hrs 6 hrs EHTR-FM E509 16-May-2023 22-May-2023 0.02 hrs 7 hrs EHTR-FM E421 16-May-2023 20-May-2023	Preparation Date Holding Times Rec Eval Analysis Date E235.NO3-L 16-May-2023 19-May-2023 19-May-2023 E235.NO2-L 16-May-2023 19-May-2023 19-May-2023 E235.NO2-L 16-May-2023 19-May-2023 19-May-2023 E235.SO4 16-May-2023 19-May-2023 19-May-2023 E509 16-May-2023 22-May-2023 0.02 hrs 6 hrs ** 22-May-2023 E509 16-May-2023 22-May-2023 0.02 hrs 7 hrs * 22-May-2023 E421 16-May-2023 20-May-2023 22-May-2023	Preparation Date Holding Times Rec Eval Analysis Date Holding Rec E235.NO3-L 16-May-2023 19-May-2023 19-May-2023 3 days E235.NO2-L 16-May-2023 19-May-2023 19-May-2023 3 days E235.NO2-L 16-May-2023 19-May-2023 19-May-2023 3 days E235.SO4 16-May-2023 19-May-2023 19-May-2023 28 days E509 16-May-2023 22-May-2023 0.02 hrs 6 hrs * * * 22-May-2023 -138.29 hrs E509 16-May-2023 22-May-2023 0.02 hrs 7 hrs * * 22-May-2023 -138.29 hrs E421 16-May-2023 20-May-2023 22-May-2023 -138.29 hrs	Preparation Date Holding Times Rec Actual

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atrix: Water					Ev	aluation: 🗴 =	Holding time exce	edance ; 🕦	= Within	Holding Ti
Analyte Group	Method	Sampling Date	Ext	raction / Pr	eparation			Analys		
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Leve	el)									
Amber glass dissolved (sulfuric acid)										
WS-051623-C5-01	E358-L	16-May-2023	22-May-2023				23-May-2023	28 days	7 days	✓
Organic / Inorganic Carbon: Dissolved Organic Carbon by Combustion (Low Leve	el)									
Amber glass dissolved (sulfuric acid)	50501	40.14 0000						00.1		,
WS-051623-C5-02	E358-L	16-May-2023	22-May-2023				23-May-2023	28 days	7 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE WS-051623-C5-01	E290	16-May-2023	19-May-2023				20-May-2023	14 days	4 days	1
WS-051623-C5-01	E290	16-Way-2023	19-iviay-2023				20-May-2023	14 days	4 days	•
Physical Tests : Alkalinity Species by Titration HDPE				I						
WS-051623-C5-02	E290	16-May-2023	19-May-2023				20-May-2023	14 days	4 days	√
W3-031023-C3-02	L230	10-iviay-2025	19-Way-2023				20-iviay-2023	14 days	4 uays	•
Newsian Tanta - Conductivity in Mater										
Physical Tests : Conductivity in Water HDPE							<u> </u>	T		
WS-051623-C5-01	E100	16-May-2023	19-May-2023				20-May-2023	28 days	4 days	1
		, , , ,	, ,						,	
Physical Tests : Conductivity in Water										
HDPE										
WS-051623-C5-02	E100	16-May-2023	19-May-2023				20-May-2023	28 days	4 days	✓
Physical Tests : TDS by Gravimetry										
HDPE										
WS-051623-C5-01	E162	16-May-2023					23-May-2023	7 days	7 days	✓
Physical Tests : TDS by Gravimetry										
HDPE										
WS-051623-C5-02	E162	16-May-2023					23-May-2023	7 days	7 days	✓
otal Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid)										
WS-051623-C5-01	E508	16-May-2023	23-May-2023				23-May-2023	28 days	7 days	✓

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Client : Comox Valley Regional District

Total Metals : Total metals in Water by CRC ICPMS

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Matrix: Water



Evaluation: **x** = Holding time exceedance ; ✓ = Within Holding Time

Extraction / Preparation Analyte Group Sampling Date Analysis Method Container / Client Sample ID(s) **Holding Times** Preparation **Holding Times** Eval Analysis Date Eval Rec Actual Rec Actual Date **Total Metals: Total Mercury in Water by CVAAS** Glass vial total (hydrochloric acid) WS-051623-C5-02 E508 16-May-2023 23-May-2023 23-May-2023 28 days 7 days 1

WS-051623-C5-01	E420	16-May-2023	19-May-2023	 	21-May-2023	180 days	5 days	√
Total Metals : Total metals in Water by CRC ICPMS								
HDPE total (nitric acid)								
WS-051623-C5-02	E420	16-May-2023	19-May-2023	 	21-May-2023	180	5 days	✓
						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).

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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.

Quality Control Sample Type		·	Co	ount		hin specificatio	
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Frequency (%) Expected	Evaluation
Laboratory Duplicates (DUP)						•	
Alkalinity Species by Titration	E290	946670	1	13	7.6	5.0	✓
Ammonia by Fluorescence	E298	949276	1	20	5.0	5.0	√
Chloride in Water by IC	E235.Cl	946675	1	9	11.1	5.0	√
Conductivity in Water	E100	946671	1	17	5.8	5.0	<u>√</u>
Dissolved Mercury in Water by CVAAS	E509	949348	1	20	5.0	5.0	1
Dissolved Metals in Water by CRC ICPMS	E421	945297	1	20	5.0	5.0	1
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	949309	1	20	5.0	5.0	1
Fluoride in Water by IC	E235.F	946674	1	8	12.5	5.0	1
Nitrate in Water by IC (Low Level)	E235.NO3-L	946672	1	19	5.2	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	946673	1	10	10.0	5.0	✓
Sulfate in Water by IC	E235.SO4	946676	1	8	12.5	5.0	✓
TDS by Gravimetry	E162	950057	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	950920	1	20	5.0	5.0	✓
Total metals in Water by CRC ICPMS	E420	945337	1	20	5.0	5.0	✓
Laboratory Control Samples (LCS)							
Alkalinity Species by Titration	E290	946670	1	13	7.6	5.0	1
Ammonia by Fluorescence	E298	949276	1	20	5.0	5.0	✓
Chloride in Water by IC	E235.Cl	946675	1	9	11.1	5.0	✓
Conductivity in Water	E100	946671	1	17	5.8	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	949348	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	945297	1	20	5.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	949309	1	20	5.0	5.0	✓
Fluoride in Water by IC	E235.F	946674	1	8	12.5	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	946672	1	19	5.2	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	946673	1	10	10.0	5.0	✓
Sulfate in Water by IC	E235.SO4	946676	1	8	12.5	5.0	✓
TDS by Gravimetry	E162	950057	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	950920	1	20	5.0	5.0	✓
Total metals in Water by CRC ICPMS	E420	945337	1	20	5.0	5.0	✓
Method Blanks (MB)							
Alkalinity Species by Titration	E290	946670	1	13	7.6	5.0	✓
Ammonia by Fluorescence	E298	949276	1	20	5.0	5.0	✓
Chloride in Water by IC	E235.CI	946675	1	9	11.1	5.0	✓
Conductivity in Water	E100	946671	1	17	5.8	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	949348	1	20	5.0	5.0	1

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Matrix: Water Evaluation: × = QC frequency outside specification; ✓ = QC frequency within sp									
Quality Control Sample Type			Co	ount		Frequency (%)			
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation		
Method Blanks (MB) - Continued									
Dissolved Metals in Water by CRC ICPMS	E421	945297	1	20	5.0	5.0	✓		
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	949309	1	20	5.0	5.0	✓		
Fluoride in Water by IC	E235.F	946674	1	8	12.5	5.0	✓		
Nitrate in Water by IC (Low Level)	E235.NO3-L	946672	1	19	5.2	5.0	✓		
Nitrite in Water by IC (Low Level)	E235.NO2-L	946673	1	10	10.0	5.0	✓		
Sulfate in Water by IC	E235.SO4	946676	1	8	12.5	5.0	✓		
TDS by Gravimetry	E162	950057	1	20	5.0	5.0	✓		
Total Mercury in Water by CVAAS	E508	950920	1	20	5.0	5.0	✓		
Total metals in Water by CRC ICPMS	E420	945337	1	20	5.0	5.0	✓		
Matrix Spikes (MS)									
Ammonia by Fluorescence	E298	949276	1	20	5.0	5.0	✓		
Chloride in Water by IC	E235.Cl	946675	1	9	11.1	5.0	✓		
Dissolved Mercury in Water by CVAAS	E509	949348	1	20	5.0	5.0	✓		
Dissolved Metals in Water by CRC ICPMS	E421	945297	1	20	5.0	5.0	✓		
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	949309	1	20	5.0	5.0	✓		
Fluoride in Water by IC	E235.F	946674	1	8	12.5	5.0	✓		
Nitrate in Water by IC (Low Level)	E235.NO3-L	946672	1	19	5.2	5.0	✓		
Nitrite in Water by IC (Low Level)	E235.NO2-L	946673	1	10	10.0	5.0	✓		
Sulfate in Water by IC	E235.SO4	946676	1	8	12.5	5.0	✓		
Total Mercury in Water by CVAAS	E508	950920	1	20	5.0	5.0	✓		
Total metals in Water by CRC ICPMS	E420	945337	1	20	5.0	5.0	✓		

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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	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
	Vancouver -			sample. Conductivity measurements are temperature-compensated to 25°C.
	Environmental			
TDS by Gravimetry	E162	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,
	Vancouver -			with gravimetric measurement of the residue.
	Environmental			
Chloride in Water by IC	E235.CI	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and /or UV detection.
	Vancouver -			
	Environmental			
Fluoride in Water by IC	E235.F	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
	Vancouver -			
	Environmental			
Nitrite in Water by IC (Low Level)	E235.NO2-L	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
	Vancouver -			
	Environmental			
Nitrate in Water by IC (Low Level)	E235.NO3-L	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
	Vancouver -			
	Environmental			
Sulfate in Water by IC	E235.SO4	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and /or UV detection.
	Vancouver -			
	Environmental			
Alkalinity Species by Titration	E290	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
	Vancouver -			alkalinity values.
	Environmental			·
Ammonia by Fluorescence	E298	Water	Method Fialab 100,	Ammonia in water is determined by automated continuous flow analysis with membrane
•			2018	diffusion and fluorescence detection, after reaction with OPA (ortho-phthalaldehyde).
	Calgary - Environmental			This method is approved under US EPA 40 CFR Part 136 (May 2021)

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Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Dissolved Organic Carbon by Combustion (Low Level)	E358-L Calgary - Environmental	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).
Total metals in Water by CRC ICPMS	E420 Vancouver - Environmental	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 Vancouver - Environmental	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 Vancouver - Environmental	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 Vancouver - Environmental	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 Vancouver - Environmental	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.
Nitrate and Nitrite (as N) (Calculation)	EC235.N+N Vancouver - Environmental	Water	EPA 300.0	Nitrate and Nitrite (as N) is a calculated parameter. Nitrate and Nitrite (as N) = Nitrite (as N) + Nitrate (as N).
Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Ammonia	EP298 Calgary - Environmental	Water		Sample preparation for Preserved Nutrients Water Quality Analysis.
Preparation for Dissolved Organic Carbon for Combustion	EP358 Calgary - Environmental	Water	APHA 5310 B (mod)	Preparation for Dissolved Organic Carbon
Dissolved Metals Water Filtration	EP421	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HNO3.

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Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
	Vancouver -			
	Environmental			
Dissolved Mercury Water Filtration	EP509	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HCl.
	Vancouver -			
	Environmental			

ALS Environmental

Chain of Custody (COC) / Analytical Request Form

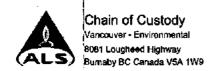
Affix ALS barcode label here

COC Number: 17 -

Page of

Canada Toll Free: 1 800 668 9878

www.aisolobal.com Contact and company name below will appear on the final report Report Format / Distribution Select Service Level Below - Contact your All to confirm all E&P TAT's (surcharges may apply) Report To Comox Valley Regional District Select Report Format: 🕡 PDF 🕝 EXCEL 🗹 EDD (DIGITAL) Company: Regular [R] Standard TAT if received by 3 pm - business days - no surcharges apply Crystal Stuart Quality Control (QC) Report with Report 🔃 YES 🗍 NO. Contact: 4 day (P4-20%) 1 Business day [E1 - 100%] 250-898-3722 Company Results to Criteria on Report - provide details below if box checked 3 day [P3-25%] Phone: Same Day, Weekend or Statutory holiday [E2 -200%] Company address below will appear on the final report Select Distribution: 🗹 BNAIL 📋 MAIL 📋 FAX 2 day [P2-60%] (Laboratory opening fees may apply)] 770 Harmston Avenue Email 1 or Fax cstuart@comoxvalleyrd.ca Street: Date and Time Required for all EEP TATS: 66-maintyy na rea City/Province: Courtenay, BC Email 2 or tests that can not be performed appointing to the service level adjacted, you will be confected. V9N 0G8 Email 3 Postal Code: **Analysis Request** ☑ YES ☐ NO Invoice Distribution Same as Report To Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below nvoice To ☑ YES ☐ NO Copy of Invoice with Report Select Invoice Distribution: 🗵 EMAIL 🗍 MAIL 📝 FAX Email 1 or Fax Сотралу: Contact: Email 2 Project Information Oll and Gas Required Fields (client use) (including Hg. N+N (EON Ÿ ALS Account #/ Quote #: VA23-COVR100-001 AFE/Cost Center: PO# മാ Routing Code: Job #: Major/Minor Code: 8 PO / AFE: 23-015 Requisitioner: SAMPLES ON HOLD LSD: CRWMC - Quarterly - SW Location: ŝ otal CSR Metals ALS Lab Work Order# (lab use only): | ALS Contact: Selam W. inions (Cl. Date ALS Sample # Sample Identification and/or Coordinates Time Sample Type (lab use only) (This description will appear on the report) (dd-mmm-yy) (hh:mm) 1940 \b-Ma-2) 1000 Environmental Division Vancouver Work Order Reference 1025 Telephone: +1 604 253 4198 SAMPLE CONDITION AS RECEIVED (lab use only) affy Criteria to add on report by clicking on the drop-down list below Drinking Water (DW) Sample SIF Observations Yes (electronic COC only) 1 Are samples taken from a Regulated DW System? ce Packs 🕝 loe Cubes 📝 Custody seal intact 🗎 Yes 🕏 ☐ YES ☐ NO Cooling Initiated 19 PARTINAL COOLER TEMPERATURES COMME INITIAL COOLER TEMPERATURES IC Are samples for human consumption/ use? YES NO FINAL SHIPMENT RECEPTION (lab use only) SHIPMENT RELEASE (cilent use) INITIAL SHIPMENT RECEPTION (lab use only) Received by: Received by Time: Released 507 REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION WHITE - LABORATORY COPY



PREVIEW COC

Destination Lab:	Calgary	Due Date: 26/05/2023	Relinquished By
Address:	2559 29th Street NE Calgary AB Canada T1Y 785	HT Explry: Consignment company and Number	Date/Time
Client. Work Order Number:	Comox Valley Regional District VA23B0946	Consignment company and rumber	Received By
Original Receipt Date/	· · · · · · · · · · · · · · · · · · ·		Date/Time
18/05/2023 10:50	1-11-		Receipt Temp

ALS Lab (D	Bottle Code	Matrix	Submatrix	Container Type	Test Codes	Task Remarks
VA23B0946	001-AB	Water		Amber glass total (suffuric acid)	E298, EP298	
VA23B0946	002-AB	Water	1	Amber glass total (suffuric acid)	E298, EP298	
VA23B0946	001-AC	Water		Amber glass dissolved (sulfuric acid)	E358-L, EP358	
VA23B0946	002-AC	Water		Amber glass dissolved (sulfuric acid)	E358-L, EP358	

Environmental

Chain of Custody (COC) / Analytical Request Form

Affix ALS barcode label here

COC Number: 17 -

Canada Toll Free: 1 800 668 9878

	www.arsgropar.com			### <u></u>	化烷基二甲磺酰甲基甲基		694. Ti - 244	. 20	W. 2015		•										
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ALS Canada Ltd.



CERTIFICATE OF ANALYSIS

Work Order : VA23B0953 Page : 1 of 6

Client : Comox Valley Regional District Laboratory : Vancouver - Environmental

Account Manager Contact : Crystal Stuart : Thomas Chang

Address : 770 Harmston Avenue Address : 8081 Lougheed Highway

> Courtney BC Canada V9N 0G8 Burnaby BC Canada V5A 1W9

> > : 24-May-2023 17:18

Telephone : 250-898-3722 Telephone : +1 604 253 4188

Project : 22 Date Samples Received : 18-May-2023 09:50 PO : 23-015 **Date Analysis Commenced** : 19-May-2023 C-O-C number Issue Date

Sampler

Site : CRWMC - Quarterly - GW Quote number : VA23-COVR100-001

No. of samples received : 6 No. of samples analysed : 6

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
Delson Resende	Lab Assistant	Metals, Burnaby, British Columbia
Harpreet Chawla	Team Leader - Inorganics	Inorganics, Calgary, Alberta
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia
Owen Cheng		Metals, Burnaby, British Columbia
Tracy Harley	Supervisor - Water Quality Instrumentation	Inorganics, Burnaby, British Columbia

Page : 2 of 6

Work Order : VA23B0953

Client : Comox Valley Regional District

Project : 2



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
μS/cm	microsiemens per centimetre
mg/L	milligrams per litre

<: 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.

Page : 3 of 6 Work Order : VA23B0953

Client : Comox Valley Regional District

Project : 22



Analytical Results

Sub-Matrix: Groundwater			Cli	ient sample ID	WG-051623 -	WG-051623 -	WG-051623 -	WG-051623 -	WG-051623 -
(Matrix: Water)					CS - 07	CS - 08	CS - 09	CS - 10	CS - 11
			·	ling date / time	16-May-2023 10:40	16-May-2023 11:15	16-May-2023 13:05	16-May-2023 13:35	16-May-2023 14:40
Analyte	CAS Number	Method/Lab	LOR	Unit	VA23B0953-001	VA23B0953-002	VA23B0953-003	VA23B0953-004	VA23B0953-005
					Result	Result	Result	Result	Result
Physical Tests									
Alkalinity, bicarbonate (as CaCO3)		E290/VA	1.0	mg/L	93.6	67.7	49.2	68.6	226
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, total (as CaCO3)		E290/VA	1.0	mg/L	93.6	67.7	49.2	68.6	226
Conductivity		E100/VA	2.0	μS/cm	184	135	100	138	478
Hardness (as CaCO3), dissolved		EC100/VA	0.60	mg/L	88.0	60.8	44.8	65.2	230
Solids, total dissolved [TDS]		E162/VA	10	mg/L	98	76	59	79	272
Anions and Nutrients									
Ammonia, total (as N)	7664-41-7		0.0050	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Chloride	16887-00-6	E235.CI/VA	0.50	mg/L	2.73	1.26	1.07	1.35	23.4
Fluoride	16984-48-8	E235.F/VA	0.020	mg/L	<0.020	<0.020	<0.020	<0.020	<0.020
Nitrate (as N)	14797-55-8	E235.NO3-L/V	0.0050	mg/L	0.104	0.141	0.0992	0.135	0.819
Nitrate + Nitrite (as N)		A EC235.N+N/V	0.0050	mg/L	0.104	0.141	0.0992	0.135	0.819
Nitrite (as N)	14797-65-0	E235.NO2-L/V A	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	1.85	1.96	1.85	1.95	6.25
Dissolved Metals									
Aluminum, dissolved	7429-90-5	E421/VA	0.0010	mg/L	0.0034	0.0054	0.0053	0.0059	0.0198
Antimony, dissolved	7440-36-0	E421/VA	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic, dissolved	7440-38-2	E421/VA	0.00010	mg/L	0.00025	0.00060	0.00040	0.00036	<0.00010
Barium, dissolved	7440-39-3	E421/VA	0.00010	mg/L	0.00139	0.00159	0.00071	0.00200	0.00892
Beryllium, dissolved	7440-41-7	E421/VA	0.000020	mg/L	<0.000020	<0.000020	<0.000020	<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	0.031	0.024	<0.010	0.013	0.014
Cadmium, dissolved	7440-43-9	E421/VA	0.0000050	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Calcium, dissolved	7440-70-2	E421/VA	0.050	mg/L	29.6	21.4	15.3	23.2	72.6
Chromium, dissolved	7440-47-3	E421/VA	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	0.00200
Cobalt, dissolved	7440-48-4	E421/VA	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010

Page : 4 of 6 Work Order : VA23B0953

Client : Comox Valley Regional District

Project : 22



Analytical Results

Sub-Matrix: Groundwater			Cli	ent sample ID	WG-051623 -	WG-051623 -	WG-051623 -	WG-051623 -	WG-051623 -
(Matrix: Water)					CS - 07	CS - 08	CS - 09	CS - 10	CS - 11
			Client sampling date / time		16-May-2023 10:40	16-May-2023 11:15	16-May-2023 13:05	16-May-2023 13:35	16-May-2023 14:40
Analyte	CAS Number	Method/Lab	LOR	Unit	VA23B0953-001	VA23B0953-002	VA23B0953-003	VA23B0953-004	VA23B0953-005
					Result	Result	Result	Result	Result
Dissolved Metals									
Copper, dissolved	7440-50-8 ^E		0.00020	mg/L	0.00087	<0.00020	<0.00020	0.00024	<0.00020
Iron, dissolved	7439-89-6 E		0.010	mg/L	<0.010	<0.010	<0.010	<0.010	0.026
Lead, dissolved	7439-92-1 ^E		0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Lithium, dissolved	7439-93-2 ^E		0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Magnesium, dissolved	7439-95-4 ^E		0.100	mg/L	3.42	1.80	1.61	1.76	11.9
Manganese, dissolved	7439-96-5 E	E421/VA	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	0.00050
Mercury, dissolved	7439-97-6 E	E509/VA	0.0000050	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum, dissolved	7439-98-7 E	E421/VA	0.000050	mg/L	0.000060	0.000152	0.000116	0.000123	<0.000050
Nickel, dissolved	7440-02-0 E	E421/VA	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus, dissolved	7723-14-0 E	E421/VA	0.050	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium, dissolved	7440-09-7 E	E421/VA	0.100	mg/L	0.504	0.516	0.287	0.433	1.30
Selenium, dissolved	7782-49-2 E	E421/VA	0.000050	mg/L	0.000088	0.000142	0.000106	0.000114	0.000137
Silicon, dissolved	7440-21-3 E	E421/VA	0.050	mg/L	4.75	4.61	4.26	4.72	8.74
Silver, dissolved	7440-22-4 E		0.000010	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium, dissolved	7440-23-5 E	E421/VA	0.050	mg/L	2.09	2.73	1.36	1.78	6.17
Strontium, dissolved	7440-24-6 E	E421/VA	0.00020	mg/L	0.0495	0.0362	0.0252	0.0384	0.180
Sulfur, dissolved	7704-34-9 E	E421/VA	0.50	mg/L	1.13	1.06	0.89	0.82	2.73
Thallium, dissolved	7440-28-0 E	E421/VA	0.000010	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Tin, dissolved	7440-31-5 E	E421/VA	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium, dissolved	7440-32-6 E		0.00030	mg/L	<0.00030	<0.00030	<0.00030	<0.00030	0.00088
Uranium, dissolved	7440-61-1 E		0.000010	mg/L	0.000098	0.000044	0.000024	0.000039	0.000342
Vanadium, dissolved	7440-62-2 E	E421/VA	0.00050	mg/L	0.00202	0.00280	0.00283	0.00255	0.00170
Zinc, dissolved	7440-66-6		0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Zirconium, dissolved	7440-67-7 E		0.00020	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Dissolved mercury filtration location		EP509/VA	-	-	Field	Field	Field	Field	Field
Dissolved metals filtration location	E	EP421/VA	-	-	Field	Field	Field	Field	Field

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.

Page : 5 of 6 Work Order : VA23B0953

Client : Comox Valley Regional District

Project : 22

ALS

Analytical Results

Sub-Matrix: Groundwater			Cl	ient sample ID	WG-051623 -		 	
(Matrix: Water)					CS - 12			
			Client samp	ling date / time	16-May-2023 15:10		 	
Analyte	CAS Number	Method/Lab	LOR	Unit	VA23B0953-006		 	
					Result		 	
Physical Tests								
Alkalinity, bicarbonate (as CaCO3)		E290/VA	1.0	mg/L	162		 	
Alkalinity, carbonate (as CaCO3)		E290/VA	1.0	mg/L	<1.0		 	
Alkalinity, hydroxide (as CaCO3)		E290/VA	1.0	mg/L	<1.0		 	
Alkalinity, total (as CaCO3)		E290/VA	1.0	mg/L	162		 	
Conductivity		E100/VA	2.0	μS/cm	1020		 	
Hardness (as CaCO3), dissolved		EC100/VA	0.60	mg/L	339		 	
Solids, total dissolved [TDS]		E162/VA	10	mg/L	748		 	
Anions and Nutrients					3 11 1			
Ammonia, total (as N)	7664-41-7	E298/CG	0.0050	mg/L	<0.0050		 	
Chloride	16887-00-6	E235.CI/VA	0.50	mg/L	152		 	
Fluoride	16984-48-8	E235.F/VA	0.020	mg/L	<0.100 DLDS		 	
Nitrate (as N)	14797-55-8	E235.NO3-L/V	0.0050	mg/L	27.2		 	
Nitrate + Nitrite (as N)		A EC235.N+N/V	0.0050	mg/L	27.3		 	
(42 14)		A		9/ =				
Nitrite (as N)	14797-65-0	E235.NO2-L/V	0.0010	mg/L	0.135		 	
		A						
Sulfate (as SO4)	14808-79-8	E235.SO4/VA	0.30	mg/L	30.0		 	
Dissolved Metals								
Aluminum, dissolved	7429-90-5		0.0010	mg/L	0.0014		 	
Antimony, dissolved	7440-36-0		0.00010	mg/L	<0.00010		 	
Arsenic, dissolved	7440-38-2		0.00010	mg/L	0.00014		 	
Barium, dissolved	7440-39-3		0.00010	mg/L	0.0152		 	
Beryllium, dissolved	7440-41-7		0.000020	mg/L	<0.000020		 	
Bismuth, dissolved	7440-69-9		0.000050	mg/L	<0.000050		 	
Boron, dissolved	7440-42-8		0.010	mg/L	0.145		 	
Cadmium, dissolved	7440-43-9		0.0000050	mg/L	0.0000316		 	
Calcium, dissolved	7440-70-2	E421/VA	0.050	mg/L	101		 	
Chromium, dissolved	7440-47-3	E421/VA	0.00050	mg/L	<0.00050		 	
Cobalt, dissolved	7440-48-4	E421/VA	0.00010	mg/L	0.00058		 	
Copper, dissolved	7440-50-8	E421/VA	0.00020	mg/L	0.00377		 	
•		•	•			•		'

Page : 6 of 6

Work Order : VA23B0953

Client : Comox Valley Regional District

Project : 2



Analytical Results

Modeline Modeline	7 many trous recourses						
Client sampling date / time 18-May-2023	Sub-Matrix: Groundwater		CI	lient sample ID		 	
Name	(Matrix: Water)				CS - 12		
			Client samp	oling date / time	•	 	
Dissolved Metals Tran, dissolved 7439-89-6 E421/NA 0.000050 mg/L <0.00050 mg/L <0.00050 mg/L <0.00050 mg/L <0.00050 mg/L <0.00050 mg/L <0.00050 mg/L <0.00050 mg/L <0.00050 mg/L <0.00050 mg/L <0.00050 mg/L <0.00050 mg/L <0.00050 mg/L <0.00050 mg/L <0.00050 mg/L <0.00050 mg/L <0.00050 mg/L <0.00050 mg/L <0.00050 mg/L <0.00050 mg/L <0.00050 mg/L <0.000550 mg/L <0.000550 mg/L <0.000550 mg/L <0.000550 mg/L <0.000550 mg/L <0.000550 mg/L <0.000550 mg/L <0.000550 mg/L <0.000550 mg/L <0.000550 mg/L <0.000550 mg/L <0.000550 mg/L <0.000550 mg/L <0.000550 mg/L <0.000550 mg/L <0.000550 mg/L <0.000550 mg/L <0.000550 mg/L <0.000550 mg/L <0.000550 mg/L <0.000550 mg/L <0.000550 mg/L <0.000550 mg/L <0.000550 mg/L <0.000550 mg/L <0.000550 mg/L <0.000550 mg/L <0.000550 mg/L <0.000550 mg/L <0.000550 mg/L <0.000550 mg/L <0.00550 mg/L <0.00550 mg/L <0.00550 mg/L <0.00550 mg/L <0.00550 mg/L <0.00550 mg/L <0.00550 mg/L <0.00550 mg/L <0.00550 mg/L <0.00550 mg/L <0.00550 mg/L <0.00550 mg/L <0.00550 mg/L <0.00550 mg/L <0.00550 mg/L <0.00550 mg/L <0.00550 mg/L <0.00550 mg/L <0.00550 mg/L <0.00550 mg/L <0.00550 mg/L <0.00550 mg/L <0.00550 mg/L <0.00550 mg/L <0.00550 mg/L <0.00550 mg/L <0.00550 mg/L <0.00550 mg/L <0.00550 mg/L <0.00550 mg/L <0.00550 mg/L <0.00550 mg/L <0.00550 mg/L <0.00550 mg/L <0.00550 mg/L <0.00550 mg/L <0.00550 mg/L <0.00550 mg/L <0.00550 mg/L <0.00550 mg/L <0.00550 mg/L <0.00550 mg/L <0.00550 mg/L <0.00550 mg/L <0.00550 mg/L <0.00550 mg/L <0.00550 mg/L <0.00550 mg/L <0.00550 mg/L <0.00550 mg/L <0.00550 mg/L <0.00550 mg/L <0.00550 mg/L <0.00550 mg/L <0.00550 mg/L <0.00550 mg/L <0.00550	Analyte	CAS Number Method/Lab	LOR	Unit	VA23B0953-006	 	
Image Imag					Result	 	
Lead, dissolved 7439-92-1 E421/VA 0.000050 mg/L <0.000050	Dissolved Metals						
Lithlum, dissolved 7439-93-2 E21/VA 0.010 mg/L <0.0110	Iron, dissolved		0.010	mg/L	<0.010	 	
Magnesium, dissolved 7439-965 E421/VA 0.100 mg/L 21.0	Lead, dissolved		0.000050	mg/L	<0.000050	 	
Manganese, dissolved 7439-96-5 E421/VA 0.00010 mg/L 0.193	Lithium, dissolved		0.0010	mg/L	<0.0010	 	
Mercury, dissolved 7439-97-8 E509/VA 0.0000500 mg/L <0.000050	Magnesium, dissolved	7439-95-4 E421/VA	0.100	mg/L	21.0	 	
Molybdenum, dissolved 7439-98-7 E421/VA 0.000050 mg/L 0.000067	Manganese, dissolved	7439-96-5 E421/VA	0.00010	mg/L	0.193	 	
Nickel, dissolved 7440-02-0 E421/VA 0.00050 mg/L 0.00105	Mercury, dissolved	7439-97-6 E509/VA	0.0000050	mg/L	<0.0000050	 	
Phosphorus, dissolved 7723-14-0 E421/VA 0.050 mg/L <0.050	Molybdenum, dissolved	7439-98-7 E421/VA	0.000050	mg/L	0.000067	 	
Potassium, dissolved 7440-09-7 E421/VA 0.100 mg/L 1.72 <	Nickel, dissolved	7440-02-0 E421/VA	0.00050	mg/L	0.00105	 	
Selenium, dissolved 7782-49-2 E421/VA 0.000050 mg/L 0.000074	Phosphorus, dissolved	7723-14-0 E421/VA	0.050	mg/L	<0.050	 	
Silicon, dissolved 7440-21-3 E421/VA 0.050 mg/L 9.95 <th< th=""><th>Potassium, dissolved</th><th>7440-09-7 E421/VA</th><th>0.100</th><th>mg/L</th><th>1.72</th><th> </th><th> </th></th<>	Potassium, dissolved	7440-09-7 E421/VA	0.100	mg/L	1.72	 	
Sliver, dissolved 7440-224 E421/VA 0.00010 mg/L <0.00010	Selenium, dissolved	7782-49-2 E421/VA	0.000050	mg/L	0.000074	 	
Sodium, dissolved 7440-23-5 E421/VA 0.050 mg/L 56.2	Silicon, dissolved	7440-21-3 E421/VA	0.050	mg/L	9.95	 	
Strontium, dissolved 7440-24-6 6421/VA 0.00020 mg/L 0.292	Silver, dissolved	7440-22-4 E421/VA	0.000010	mg/L	<0.000010	 	
Sulfur, dissolved 7704-34-9 E421/VA 0.50 mg/L 13.0 <th< th=""><th>Sodium, dissolved</th><th>7440-23-5 E421/VA</th><th>0.050</th><th>mg/L</th><th>56.2</th><th> </th><th> </th></th<>	Sodium, dissolved	7440-23-5 E421/VA	0.050	mg/L	56.2	 	
Thallium, dissolved 7440-28-0 E421/VA 0.00010 mg/L <0.00010	Strontium, dissolved	7440-24-6 E421/VA	0.00020	mg/L	0.292	 	
Tin, dissolved 7440-31-5 E421/VA 0.00010 mg/L <0.00010	Sulfur, dissolved	7704-34-9 E421/VA	0.50	mg/L	13.0	 	
Titanium, dissolved 7440-32-6 E421/VA 0.00030 mg/L <0.00030	Thallium, dissolved	7440-28-0 E421/VA	0.000010	mg/L	<0.000010	 	
Uranium, dissolved 7440-61-1 E421/VA 0.00010 mg/L 0.000595	Tin, dissolved	7440-31-5 E421/VA	0.00010	mg/L	<0.00010	 	
Vanadium, dissolved 7440-62-2 E421/VA 0.00050 mg/L 0.00287	Titanium, dissolved	7440-32-6 E421/VA	0.00030	mg/L	<0.00030	 	
Zinc, dissolved 7440-66-6 E421/VA 0.0010 mg/L <0.0010	Uranium, dissolved	7440-61-1 E421/VA	0.000010	mg/L	0.000595	 	
Zirconium, dissolved 7440-67-7 E421/VA 0.00020 mg/L <0.00020	Vanadium, dissolved	7440-62-2 E421/VA	0.00050	mg/L	0.00287	 	
Dissolved mercury filtration location EP509/VA Field Field	Zinc, dissolved	7440-66-6 E421/VA	0.0010	mg/L	<0.0010	 	
Dissolved mercury filtration location EP509/VA Field Field	Zirconium, dissolved	7440-67-7 E421/VA	0.00020	mg/L	<0.00020	 	
Dissolved metals filtration location EP421/VA - - Field	Dissolved mercury filtration location		-	-	Field	 	
	Dissolved metals filtration location	EP421/VA	-	-	Field	 	

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.

ALS Canada Ltd.



QUALITY CONTROL REPORT

Page

Work Order :VA23B0953

Courtney BC Canada V9N 0G8

Client : Comox Valley Regional District Laboratory : Vancouver - Environmental

Contact : Crystal Stuart Account Manager : Thomas Chang

: 770 Harmston Avenue Address : 8081 Lougheed Highway

Burnaby, British Columbia Canada V5A 1W9

: 1 of 10

Telephone : Telephone : +1 604 253 4188

 Project
 : 22
 Date Samples Received
 : 18-May-2023 09:50

 PO
 : 23-015
 Date Analysis Commenced
 : 19-May-2023

C-O-C number : 24-May-2023 17:18

Sampler :--- 250-898-3722

Site : CRWMC - Quarterly - GW

Quote number :VA23-COVR100-001

No. of samples analysed : 6

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:

: 6

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

No. of samples received

Address

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
Delson Resende	Lab Assistant	Vancouver Metals, Burnaby, British Columbia
Harpreet Chawla	Team Leader - Inorganics	Calgary Inorganics, Calgary, Alberta
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Vancouver Metals, Burnaby, British Columbia
Owen Cheng		Vancouver Metals, Burnaby, British Columbia
Tracy Harley	Supervisor - Water Quality Instrumentation	Vancouver Inorganics, Burnaby, British Columbia

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Client : Comox Valley Regional District

Project : 2



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.

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Client : Comox Valley Regional District

Project : 2



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: 946280)												
VA23B0892-011	Anonymous	Conductivity		E100	2.0	μS/cm	606	606	0.00%	10%			
Physical Tests (QC	Lot: 946281)												
VA23B0892-011	Anonymous	Alkalinity, bicarbonate (as CaCO3)		E290	1.0	mg/L	103	104	0.970%	20%			
		Alkalinity, carbonate (as CaCO3)		E290	1.0	mg/L	<1.0	<1.0	0	Diff <2x LOR			
		Alkalinity, hydroxide (as CaCO3)		E290	1.0	mg/L	<1.0	<1.0	0	Diff <2x LOR			
		Alkalinity, total (as CaCO3)		E290	1.0	mg/L	103	104	0.970%	20%			
Physical Tests (QC	Lot: 950057)												
VA23B0816-006	Anonymous	Solids, total dissolved [TDS]		E162	13	mg/L	74	78	3	Diff <2x LOR			
Anions and Nutrien	ts (QC Lot: 946272)												
VA23B0923-001	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	0.0789	0.0804	1.93%	20%			
Anions and Nutrien	ts (QC Lot: 946273)												
KS2301607-001	Anonymous	Chloride	16887-00-6	E235.CI	0.50	mg/L	0.61	0.61	0.0009	Diff <2x LOR			
Anions and Nutrien	ts (QC Lot: 946274)												
KS2301607-001	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR			
Anions and Nutrien	ts (QC Lot: 946276)												
KS2301607-001	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	5.55	5.48	1.23%	20%			
Anions and Nutrien	ts (QC Lot: 946277)												
VA23B0923-001	Anonymous	Fluoride	16984-48-8	E235.F	0.020	mg/L	0.023	0.027	0.004	Diff <2x LOR			
Anions and Nutrien	ts (QC Lot: 950201)												
VA23B0953-001	WG-051623 - CS - 07	Ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR			
Dissolved Metals (QC Lot: 945297)												
VA23B0853-001	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	0.0023	0.0023	0.00005	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	0.120	0.123	2.60%	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	<0.010	<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			1								

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Client : Comox Valley Regional District



Sub-Matrix: Water							Labora	tory Duplicate (D	UP) 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 (C	QC Lot: 945297) - cont	inued									
VA23B0853-001	Anonymous	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	<0.00020	<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	<0.0010	<0.0010	0	Diff <2x LOR	
		Magnesium, dissolved	7439-95-4	E421	0.0050	mg/L	5.11	5.09	0.440%	20%	
		Manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.00018	0.00016	0.00002	Diff <2x LOR	
		Molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.00204	0.00202	0.861%	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	0.917	0.955	4.07%	20%	
		Selenium, dissolved	7782-49-2	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	
		Silicon, dissolved	7440-21-3	E421	0.050	mg/L	2.29	2.29	0.00177%	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	0.737	0.735	0.221%	20%	
		Strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.273	0.277	1.46%	20%	
		Sulfur, dissolved	7704-34-9	E421	0.50	mg/L	1.33	1.43	0.10	Diff <2x LOR	
		Thallium, dissolved	7440-28-0	E421	0.000010	mg/L	<0.000010	<0.000010	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	
		Uranium, dissolved	7440-61-1	E421	0.000010	mg/L	0.000369	0.000367	0.597%	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 (C	QC Lot: 949348)									THE STATE	
VA23B0937-007	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	

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Client : Comox Valley Regional District

Project : 2



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

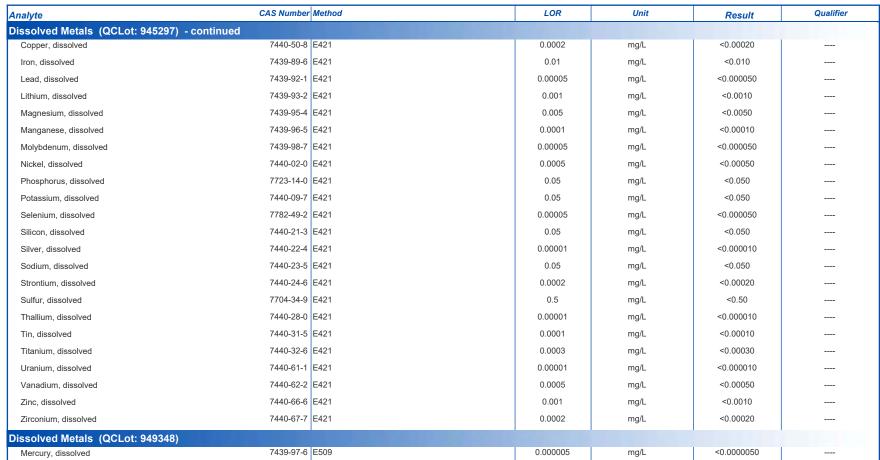
Analyte	CAS Number Method		LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 946280)						
Conductivity	E100		1	μS/cm	1.2	
Physical Tests (QCLot: 946281)						
Alkalinity, bicarbonate (as CaCO3)	E290		1	mg/L	1.0	
Alkalinity, carbonate (as CaCO3)	E290		1	mg/L	<1.0	
Alkalinity, hydroxide (as CaCO3)	E290		1	mg/L	<1.0	
Alkalinity, total (as CaCO3)	E290		1	mg/L	1.0	
Physical Tests (QCLot: 950057)						
Solids, total dissolved [TDS]	E162		10	mg/L	<10	
Anions and Nutrients (QCLot: 946272)						
Nitrate (as N)	14797-55-8 E235.NO	3-L	0.005	mg/L	<0.0050	
Anions and Nutrients (QCLot: 946273)						
Chloride	16887-00-6 E235.CI		0.5	mg/L	<0.50	
Anions and Nutrients (QCLot: 946274)						
Nitrite (as N)	14797-65-0 E235.NO	2-L	0.001	mg/L	<0.0010	
Anions and Nutrients (QCLot: 946276)						
Sulfate (as SO4)	14808-79-8 E235.SO	ļ	0.3	mg/L	<0.30	
Anions and Nutrients (QCLot: 946277)						
Fluoride	16984-48-8 E235.F		0.02	mg/L	<0.020	
Anions and Nutrients (QCLot: 950201)						
Ammonia, total (as N)	7664-41-7 E298		0.005	mg/L	<0.0050	
Dissolved Metals (QCLot: 945297)						
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	<0.000050	
Calcium, dissolved	7440-70-2 E421		0.05	mg/L	<0.050	
Chromium, dissolved	7440-47-3 E421		0.0005	mg/L	<0.00050	
Cobalt, dissolved	7440-48-4 E421		0.0001	mg/L	<0.00010	

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Client : Comox Valley Regional District

Project : 22

Sub-Matrix: Water





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Client : Comox Valley Regional District

Project : 2



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 Co	ntrol Sample (LCS)	Report	
					Spike	Recovery (%)	Recovery	Limits (%)	
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 946280)									
Conductivity		E100	1	μS/cm	146.9 μS/cm	94.6	90.0	110	
Physical Tests (QCLot: 946281)									
Alkalinity, total (as CaCO3)		E290	1	mg/L	500 mg/L	106	85.0	115	
Physical Tests (QCLot: 950057)									
Solids, total dissolved [TDS]		E162	10	mg/L	1000 mg/L	90.9	85.0	115	
Anions and Nutrients (QCLot: 946272)									
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	2.5 mg/L	101	90.0	110	
Anions and Nutrients (QCLot: 946273)									1
Chloride	16887-00-6	E235.CI	0.5	mg/L	100 mg/L	100	90.0	110	
Anions and Nutrients (QCLot: 946274)									
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: 946276)									
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	101	90.0	110	
Anions and Nutrients (QCLot: 946277)									
Fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	97.9	90.0	110	
Anions and Nutrients (QCLot: 950201)									
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	100	85.0	115	
Dissolved Metals (QCLot: 945297)									
Aluminum, dissolved	7429-90-5		0.001	mg/L	2 mg/L	102	80.0	120	
Antimony, dissolved	7440-36-0		0.0001	mg/L	1 mg/L	95.0	80.0	120	
Arsenic, dissolved	7440-38-2		0.0001	mg/L	1 mg/L	102	80.0	120	
Barium, dissolved	7440-39-3		0.0001	mg/L	0.25 mg/L	102	80.0	120	
Beryllium, dissolved	7440-41-7		0.00002	mg/L	0.1 mg/L	98.1	80.0	120	
Bismuth, dissolved	7440-69-9		0.00005	mg/L	1 mg/L	95.8	80.0	120	
Boron, dissolved	7440-42-8		0.01	mg/L	1 mg/L	99.5	80.0	120	
Cadmium, dissolved	7440-43-9		0.000005	mg/L	0.1 mg/L	101	80.0	120	
Calcium, dissolved	7440-70-2		0.05	mg/L	50 mg/L	96.6	80.0	120	
Chromium, dissolved	7440-47-3		0.0005	mg/L	0.25 mg/L	97.0	80.0	120	
Cobalt, dissolved	7440-48-4		0.0001	mg/L	0.25 mg/L	98.6	80.0	120	
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	0.25 mg/L	96.6	80.0	120	

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 Work Order
 :
 VA23B0953

Client : Comox Valley Regional District



Sub-Matrix: Water						Laboratory Co	ontrol Sample (LCS)	Report	
					Spike	Recovery (%)	Recovery	Limits (%)	
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Dissolved Metals (QCLot: 945297) - c	ontinued								
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	95.6	80.0	120	
Lithium, dissolved	7439-93-2	E421	0.001	mg/L	0.25 mg/L	104	80.0	120	
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	50 mg/L	103	80.0	120	
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	0.25 mg/L	99.6	80.0	120	
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	0.25 mg/L	96.2	80.0	120	
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	0.5 mg/L	96.2	80.0	120	
Phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	10 mg/L	93.8	80.0	120	
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	50 mg/L	98.4	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	108	80.0	120	
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	0.1 mg/L	90.2	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	100	80.0	120	
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	50 mg/L	102	80.0	120	
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	1 mg/L	95.8	80.0	120	
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	0.5 mg/L	94.1	80.0	120	
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	0.25 mg/L	101	80.0	120	
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	0.005 mg/L	98.2	80.0	120	
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	0.5 mg/L	98.6	80.0	120	
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	0.5 mg/L	97.7	80.0	120	
Zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	0.1 mg/L	93.1	80.0	120	
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0.0001 mg/L	107	80.0	120	

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Client : Comox Valley Regional District

Project : 2



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 Spik	e (MS) Report		
					Spi	ike	Recovery (%)	Recovery	Limits (%)	
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
	ents (QCLot: 946272)									
VA23B0923-002	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	2.44 mg/L	2.5 mg/L	97.8	75.0	125	
Anions and Nutri	ents (QCLot: 946273)									T I
VA23B0923-002	Anonymous	Chloride	16887-00-6	E235.CI	112 mg/L	100 mg/L	112	75.0	125	
Anions and Nutri	ents (QCLot: 946274)									
VA23B0923-002	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	0.494 mg/L	0.5 mg/L	98.9	75.0	125	
Anions and Nutri	ents (QCLot: 946276)									T
VA23B0923-002	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	114 mg/L	100 mg/L	114	75.0	125	
Anions and Nutri	ents (QCLot: 946277)									Ť I
VA23B0923-002	Anonymous	Fluoride	16984-48-8	E235.F	1.11 mg/L	1 mg/L	111	75.0	125	
Anions and Nutri	ents (QCLot: 950201)				in ingr					T
VA23B0953-002	WG-051623 - CS - 08	Ammonia, total (as N)	7664-41-7	E298	0.108 mg/L	0.1 mg/L	108	75.0	125	
	(QCLot: 945297)		7004 417	2200	0.100 mg/L	0.1111g/L	100	70.0	- 120	†
VA23B0853-002	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.196 mg/L	0.2 mg/L	98.1	70.0	130	
VA23D0030-002	7 thonymous	Antimony, dissolved	7429-90-5 7440-36-0	E421	0.196 mg/L 0.0188 mg/L	0.2 mg/L 0.02 mg/L	93.8	70.0	130	
		Arsenic, dissolved	7440-38-2	E421	0.0186 mg/L 0.0195 mg/L	0.02 mg/L 0.02 mg/L	97.7	70.0	130	
		Barium, dissolved	7440-39-3	E421	ND mg/L	0.02 mg/L	ND	70.0	130	
		Beryllium, dissolved	7440-41-7	E421	0.0376 mg/L	0.02 mg/L 0.04 mg/L	94.0	70.0	130	
		Bismuth, dissolved	7440-69-9	E421	0.0376 mg/L 0.00894 mg/L	0.04 mg/L 0.01 mg/L	89.4	70.0	130	
		Boron, dissolved	7440-69-9	E421		_	96.4	70.0	130	
		Cadmium, dissolved	7440-43-9	E421	0.096 mg/L 0.00387 mg/L	0.1 mg/L 0.004 mg/L	96.8	70.0	130	
		Calcium, dissolved	7440-70-2	E421	ND mg/L	4 mg/L	ND	70.0	130	
		Chromium, dissolved	7440-70-2	E421	0.0392 mg/L	0.04 mg/L	98.0	70.0	130	
		Cobalt, dissolved	7440-48-4	E421	0.0392 mg/L 0.0188 mg/L	0.04 mg/L 0.02 mg/L	94.3	70.0	130	
		Copper, dissolved	7440-50-8	E421	0.0188 mg/L 0.0193 mg/L	_		70.0	130	
		Iron, dissolved	7439-89-6	E421		0.02 mg/L	96.4 97.8	70.0	130	
		Lead, dissolved	7439-69-6		1.96 mg/L	2 mg/L		70.0		
		Lithium, dissolved		E421	0.0184 mg/L	0.02 mg/L	92.0		130	
		Magnesium, dissolved	7439-93-2	E421	0.0965 mg/L	0.1 mg/L	96.5	70.0	130	
		Manganese, dissolved	7439-95-4	E421	ND mg/L	1 mg/L	ND	70.0	130	
		Molybdenum, dissolved	7439-96-5 7439-98-7	E421 E421	0.0198 mg/L 0.0193 mg/L	0.02 mg/L 0.02 mg/L	99.3 96.5	70.0 70.0	130 130	

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Client : Comox Valley Regional District



Sub-Matrix: Water							Matrix Spil	ke (MS) Report		
					Spi	ike	Recovery (%)	Recovery	Limits (%)	
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Dissolved Metals	(QCLot: 945297) - c	continued								
VA23B0853-002	Anonymous	Nickel, dissolved	7440-02-0	E421	0.0378 mg/L	0.04 mg/L	94.4	70.0	130	
		Phosphorus, dissolved	7723-14-0	E421	9.83 mg/L	10 mg/L	98.3	70.0	130	
		Potassium, dissolved	7440-09-7	E421	3.87 mg/L	4 mg/L	96.8	70.0	130	
		Selenium, dissolved	7782-49-2	E421	0.0381 mg/L	0.04 mg/L	95.3	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	0.00383 mg/L	0.004 mg/L	95.7	70.0	130	
		Sodium, dissolved	7440-23-5	E421	1.99 mg/L	2 mg/L	99.6	70.0	130	
		Strontium, dissolved	7440-24-6	E421	ND mg/L	0.02 mg/L	ND	70.0	130	
		Sulfur, dissolved	7704-34-9	E421	20.3 mg/L	20 mg/L	102	70.0	130	
		Thallium, dissolved	7440-28-0	E421	0.00368 mg/L	0.004 mg/L	91.9	70.0	130	
		Tin, dissolved	7440-31-5	E421	0.0190 mg/L	0.02 mg/L	95.0	70.0	130	
		Titanium, dissolved	7440-32-6	E421	0.0395 mg/L	0.04 mg/L	98.8	70.0	130	
		Uranium, dissolved	7440-61-1	E421	0.00359 mg/L	0.004 mg/L	89.9	70.0	130	
		Vanadium, dissolved	7440-62-2	E421	0.0977 mg/L	0.1 mg/L	97.7	70.0	130	
		Zinc, dissolved	7440-66-6	E421	0.376 mg/L	0.4 mg/L	94.0	70.0	130	
		Zirconium, dissolved	7440-67-7	E421	0.0389 mg/L	0.04 mg/L	97.4	70.0	130	
Dissolved Metals	(QCLot: 949348)									
VA23B0937-008	Anonymous	Mercury, dissolved	7439-97-6	E509	0.000102 mg/L	0.0001 mg/L	102	70.0	130	



QUALITY CONTROL INTERPRETIVE REPORT

Work Order : **VA23B0953** Page : 1 of 14

Client : Comox Valley Regional District Laboratory : Vancouver - Environmental

Contact : Crystal Stuart Account Manager : Thomas Chang

Address :770 Harmston Avenue Address :8081 Lougheed Highway

Burnaby, British Columbia Canada V5A 1W9

 Telephone
 : 250-898-3722
 Telephone
 : +1 604 253 4188

 Project
 : 22
 Date Samples Received
 : 18-May-2023 09:50

Site : CRWMC - Quarterly - GW
Quote number : VA23-COVR100-001

No. of samples received :6
No. of samples analysed :6

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

Sampler

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.

Courtney BC Canada V9N 0G8

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.

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Client : Comox Valley Regional District

Project : 22

Matrix: Water

WG-051623 - CS - 07



Evaluation: **x** = Holding time exceedance; ✓ = Within Holding Time

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.

Analyte Group	Method	Sampling Date	Ext	traction / Pr	reparation			Analys	sis	
Container / Client Sample ID(s)			Preparation	Holdin	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
WG-051623 - CS - 07	E298	16-May-2023	23-May-2023				23-May-2023	28 days	7 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
WG-051623 - CS - 08	E298	16-May-2023	23-May-2023				23-May-2023	28 days	7 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)	F000	40.14 0000								,
WG-051623 - CS - 09	E298	16-May-2023	23-May-2023				23-May-2023	28 days	7 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
WG-051623 - CS - 10	E298	16-May-2023	23-May-2023				23-May-2023	28 days	7 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
WG-051623 - CS - 11	E298	16-May-2023	23-May-2023				23-May-2023	28 days	7 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										,
WG-051623 - CS - 12	E298	16-May-2023	23-May-2023				23-May-2023	28 days	7 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE										

16-May-2023

19-May-2023

E235.CI

28 days 3 days

19-May-2023

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Client : Comox Valley Regional District



Matrix: Water					Ev	aluation: 🗴 =	Holding time exce	edance ; 🔻	= Within	Holding Tin
Analyte Group	Method	Sampling Date	Ext	raction / Pr	eparation			Analys	is	
Container / Client Sample ID(s)			Preparation		Times	Eval	Analysis Date		Times	Eval
			Date	Rec	Actual			Rec	Actual	
Anions and Nutrients : Chloride in Water by IC HDPE										
WG-051623 - CS - 08	E235.CI	16-May-2023	19-May-2023				19-May-2023	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE WG-051623 - CS - 09	E235.Cl	16-May-2023	19-May-2023				19-May-2023	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE WG-051623 - CS - 10	E235.Cl	16-May-2023	19-May-2023				19-May-2023	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE WG-051623 - CS - 11	E235.Cl	16-May-2023	19-May-2023				19-May-2023	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE WG-051623 - CS - 12	E235.Cl	16-May-2023	19-May-2023				19-May-2023	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE WG-051623 - CS - 07	E235.F	16-May-2023	19-May-2023				19-May-2023	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE WG-051623 - CS - 08	E235.F	16-May-2023	19-May-2023				19-May-2023	28 days	3 days	√
Anions and Nutrients : Fluoride in Water by IC										
HDPE WG-051623 - CS - 09	E235.F	16-May-2023	19-May-2023				19-May-2023	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC				-						
HDPE WG-051623 - CS - 10	E235.F	16-May-2023	19-May-2023				19-May-2023	28 days	3 days	✓

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Client : Comox Valley Regional District



Matrix: Water					Εν	/aluation: 🗴 =	Holding time exce	edance ; 🕦	✓ = Within	Holding Tim
Analyte Group	Method	Sampling Date	Ext	raction / Pr	eparation			Analys	sis	
Container / Client Sample ID(s)			Preparation Date	Holding Rec	g Times Actual	Eval	Analysis Date	Holding Rec	7 Times Actual	Eval
Anions and Nutrients : Fluoride in Water by IC										
HDPE WG-051623 - CS - 11	E235.F	16-May-2023	19-May-2023				19-May-2023	28 days	3 days	√
Anions and Nutrients : Fluoride in Water by IC										
HDPE WG-051623 - CS - 12	E235.F	16-May-2023	19-May-2023				19-May-2023	28 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE WG-051623 - CS - 07	E235.NO3-L	16-May-2023	19-May-2023				19-May-2023	3 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE WG-051623 - CS - 08	E235.NO3-L	16-May-2023	19-May-2023				19-May-2023	3 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE WG-051623 - CS - 09	E235.NO3-L	16-May-2023	19-May-2023				19-May-2023	3 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE WG-051623 - CS - 10	E235.NO3-L	16-May-2023	19-May-2023				19-May-2023	3 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE WG-051623 - CS - 11	E235.NO3-L	16-May-2023	19-May-2023				19-May-2023	3 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)				1						
HDPE WG-051623 - CS - 12	E235.NO3-L	16-May-2023	19-May-2023				19-May-2023	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE WG-051623 - CS - 07	E235.NO2-L	16-May-2023	19-May-2023				19-May-2023	3 days	3 days	✓

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Client : Comox Valley Regional District



Matrix: Water					Eva	aluation: 🗴 =	Holding time exce	edance ; 🕦	✓ = Within	Holding Ti
Analyte Group	Method	Sampling Date	Ext	raction / Pr	eparation			Analys	sis	
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
WG-051623 - CS - 08	E235.NO2-L	16-May-2023	19-May-2023				19-May-2023	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
WG-051623 - CS - 09	E235.NO2-L	16-May-2023	19-May-2023				19-May-2023	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
WG-051623 - CS - 10	E235.NO2-L	16-May-2023	19-May-2023				19-May-2023	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
WG-051623 - CS - 11	E235.NO2-L	16-May-2023	19-May-2023				19-May-2023	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
WG-051623 - CS - 12	E235.NO2-L	16-May-2023	19-May-2023				19-May-2023	3 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
WG-051623 - CS - 07	E235.SO4	16-May-2023	19-May-2023				19-May-2023	28 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
WG-051623 - CS - 08	E235.SO4	16-May-2023	19-May-2023				19-May-2023	28 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
WG-051623 - CS - 09	E235.SO4	16-May-2023	19-May-2023				19-May-2023	28 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
WG-051623 - CS - 10	E235.SO4	16-May-2023	19-May-2023				19-May-2023	28 days	3 days	✓

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Client : Comox Valley Regional District



Matrix: Water					Ev	aluation: 🗴 =	Holding time exce	edance ; 🕦	/ = Within	Holding Ti
Analyte Group	Method	Sampling Date	Ext	raction / Pr	eparation			Analys	sis	
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
WG-051623 - CS - 11	E235.SO4	16-May-2023	19-May-2023				19-May-2023	28 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
WG-051623 - CS - 12	E235.SO4	16-May-2023	19-May-2023				19-May-2023	28 days	3 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)	E509	16 May 2022	22 May 2022				22 May 2022	20 days	6 days	1
WG-051623 - CS - 07	E509	16-May-2023	22-May-2023				22-May-2023	28 days	6 days	•
Dissolved Metals : Dissolved Mercury in Water by CVAAS				<u> </u>						
Glass vial dissolved (hydrochloric acid) WG-051623 - CS - 08	E509	16-May-2023	22-May-2023				22-May-2023	28 days	6 days	1
WG-051023 - CS - 06	L309	10-iviay-2023	22-iviay-2023				22-May-2023	20 uays	0 uays	•
Disable d Matala a Disable d Manager in Water Inc OVA A C										
Dissolved Metals : Dissolved Mercury in Water by CVAAS Glass vial dissolved (hydrochloric acid)				<u> </u>			I	T		
WG-051623 - CS - 09	E509	16-May-2023	22-May-2023				22-May-2023	28 days	6 days	✓
			,,						J, -	
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)										
WG-051623 - CS - 10	E509	16-May-2023	22-May-2023				22-May-2023	28 days	6 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)										
WG-051623 - CS - 11	E509	16-May-2023	22-May-2023				22-May-2023	28 days	6 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
WG-051623 - CS - 12	E509	16-May-2023	22-May-2023				22-May-2023	28 days	6 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid)										
WG-051623 - CS - 07	E421	16-May-2023	20-May-2023				22-May-2023	180	6 days	✓
		1						days		

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				E	/aluation. 🔻 –	Holding time exce	edance,	= vvitnir	i Holding Tir
Method	Sampling Date	Ex	traction / Pr	eparation			Analys	sis	
		Preparation			Eval	Analysis Date			Eval
		Date	Rec	Actual			Rec	Actual	
F421	16-May-2023	20-May-2023				22-May-2023	180	6 days	✓
		20 May 2020				22 May 2020	days	o dayo	·
E421	16-May-2023	20-May-2023				22-May-2023	180 days	6 days	✓
E421	16-May-2023	20-May-2023				22-May-2023	180 days	6 days	✓
E421	16-May-2023	20-May-2023				22-May-2023	180 days	6 days	✓
E421	16-May-2023	20-May-2023	51 hrs	1.83 hrs	EHTR-FM	22-May-2023	-84.53 hrs	51 hrs	EHTR-FM
E290	16-May-2023	19-May-2023				20-May-2023	14 days	4 days	✓
	40.14	40.14				00.14		.	
E290	16-May-2023	19-May-2023				20-May-2023	14 days	4 days	✓
E290	16-May-2023	19-May-2023				20-May-2023	14 days	4 days	✓
E290	16-May-2023	19-May-2023				20-May-2023	14 days	4 days	✓
	E421	E421 16-May-2023 E421 16-May-2023 E421 16-May-2023 E421 16-May-2023 E421 16-May-2023 E421 16-May-2023 E290 16-May-2023	E421 16-May-2023 20-May-2023 E421 16-May-2023 20-May-2023 E421 16-May-2023 20-May-2023 E421 16-May-2023 20-May-2023 E421 16-May-2023 19-May-2023 E290 16-May-2023 19-May-2023 E290 16-May-2023 19-May-2023	E421 16-May-2023 20-May-2023 E421 16-May-2023 20-May-2023 E421 16-May-2023 20-May-2023 E421 16-May-2023 20-May-2023 E421 16-May-2023 20-May-2023 51 hrs E290 16-May-2023 19-May-2023 E290 16-May-2023 19-May-2023 E290 16-May-2023 19-May-2023	Method Sampling Date Extraction / Preparation Date Holding Times Rec Actual E421 16-May-2023 20-May-2023 E421 16-May-2023 20-May-2023 E421 16-May-2023 20-May-2023 E421 16-May-2023 20-May-2023 51 hrs 1.83 hrs E421 16-May-2023 19-May-2023 E290 16-May-2023 19-May-2023 E290 16-May-2023 19-May-2023 E290 16-May-2023 19-May-2023	Method Sampling Date Extraction / Preparation Preparation Preparation Rec Holding Times Actual Eval E421 16-May-2023 20-May-2023 E421 16-May-2023 20-May-2023 E421 16-May-2023 20-May-2023 E421 16-May-2023 20-May-2023 E421 16-May-2023 20-May-2023 51 hrs 1.83 hrs * EHTR-FM E290 16-May-2023 19-May-2023 E290 16-May-2023 19-May-2023	Method Sampling Date Extraction / Preparation Date Holding Times Rec Eval Analysis Date E421 16-May-2023 20-May-2023 22-May-2023 E421 16-May-2023 20-May-2023 22-May-2023 E421 16-May-2023 20-May-2023 22-May-2023 E421 16-May-2023 20-May-2023 22-May-2023 E421 16-May-2023 20-May-2023 22-May-2023 E421 16-May-2023 20-May-2023 51 hrs 1.83 hrs ** EHTR-FM 20-May-2023 E290 16-May-2023 19-May-2023 20-May-2023 E290 16-May-2023 19-May-2023 20-May-2023	Method Sampling Date Extraction / Preparation Date Holding Times Rec Actual Eval Analysis Date Holding Rec Holding Rec Actual E421 16-May-2023 20-May-2023	Preparation Date Holding Times Rec Actual Analysis Date Holding Times Rec Actual

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Matrix: Water					Ev	aluation: × =	Holding time exce	edance ; 🔹	/ = Within	Holding Tir
Analyte Group	Method	Sampling Date	Ext	traction / Pi	eparation			Analys	sis	
Container / Client Sample ID(s)			Preparation	Holdin	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Physical Tests : Alkalinity Species by Titration										
HDPE										
WG-051623 - CS - 11	E290	16-May-2023	19-May-2023				20-May-2023	14 days	4 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
WG-051623 - CS - 12	E290	16-May-2023	19-May-2023				20-May-2023	14 days	4 days	✓
Physical Tests : Conductivity in Water										
HDPE										
WG-051623 - CS - 07	E100	16-May-2023	19-May-2023				20-May-2023	28 days	4 days	✓
Physical Tests : Conductivity in Water										
HDPE	E400	40.14 0000								
WG-051623 - CS - 08	E100	16-May-2023	19-May-2023				20-May-2023	28 days	4 days	✓
Physical Tests : Conductivity in Water										
HDPE	E400	40.14 0000	40.14 0000					00.1		
WG-051623 - CS - 09	E100	16-May-2023	19-May-2023				20-May-2023	28 days	4 days	✓
Physical Tests : Conductivity in Water										
HDPE	E100	40 May 2000	40.140000				00.140000	00 1	4 1	✓
WG-051623 - CS - 10	E100	16-May-2023	19-May-2023				20-May-2023	28 days	4 days	•
Physical Tests : Conductivity in Water				T				_		
HDPE WG-051623 - CS - 11	E100	16-May-2023	19-May-2023				20-May-2023	28 days	4 days	✓
WG-051025 - C5 - 11	E100	10-May-2023	19-iviay-2023				20-iviay-2023	20 uays	4 uays	•
Physical Tests : Conductivity in Water				T T	<u> </u>		<u> </u>	T		
HDPE WG-051623 - CS - 12	E100	16-May-2023	19-May-2023				20-May-2023	28 days	4 days	1
WG-031023 - G3 - 12	L 100	10-111ay-2023	13-111ay-2023				20-iviay-2023	20 days	+ uays	•
Physical Tests : TDS by Gravimetry HDPE										
WG-051623 - CS - 07	E162	16-May-2023					23-May-2023	7 days	7 days	√
WG-03 1023 - 03 - UI	L 102	10-111ay-2023					23-iviay-2023	1 days	r uays	•

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Client : Comox Valley Regional District

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Analyte Group	Method	Sampling Date	Ext	raction / Pi	reparation		Analysis			
Container / Client Sample ID(s)			Preparation	Holdin	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Physical Tests : TDS by Gravimetry										
HDPE										
WG-051623 - CS - 08	E162	16-May-2023					23-May-2023	7 days	7 days	✓
Physical Tests : TDS by Gravimetry										
HDPE										
WG-051623 - CS - 09	E162	16-May-2023					23-May-2023	7 days	7 days	✓
Physical Tests : TDS by Gravimetry										
HDPE	E400	40.14 0000					00.14		- .	1
WG-051623 - CS - 10	E162	16-May-2023					23-May-2023	7 days	7 days	•
Physical Tests : TDS by Gravimetry				I						
HDPE WG-051623 - CS - 11	E162	16-May-2023					23-May-2023	7 days	7 days	1
WG-031023 - C3 - 11	L 102	10-iviay-2023					23-Way-2023	1 days	1 uays	•
Physical Tests - TDO by Ossilinator										
Physical Tests : TDS by Gravimetry HDPE										
	F162	16-May-2023					23-May-2023	7 days	7 days	1
WG-051623 - CS - 12	E162	16-May-2023					23-May-2023	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).

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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	on: × = QC freque	ency outside spe	ecification; ✓ = 0	QC frequency wit	hin specification
Quality Control Sample Type				ount		Frequency (%))
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation
Laboratory Duplicates (DUP)							
Alkalinity Species by Titration	E290	946281	1	18	5.5	5.0	✓
Ammonia by Fluorescence	E298	950201	1	10	10.0	5.0	✓
Chloride in Water by IC	E235.CI	946273	1	18	5.5	5.0	✓
Conductivity in Water	E100	946280	1	18	5.5	5.0	√
Dissolved Mercury in Water by CVAAS	E509	949348	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	945297	1	20	5.0	5.0	√
Fluoride in Water by IC	E235.F	946277	1	11	9.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	946272	1	19	5.2	5.0	√
Nitrite in Water by IC (Low Level)	E235.NO2-L	946274	1	18	5.5	5.0	√
Sulfate in Water by IC	E235.SO4	946276	1	18	5.5	5.0	√
TDS by Gravimetry	E162	950057	1	20	5.0	5.0	√
Laboratory Control Samples (LCS)							
Alkalinity Species by Titration	E290	946281	1	18	5.5	5.0	1
Ammonia by Fluorescence	E298	950201	1	10	10.0	5.0	√
Chloride in Water by IC	E235.CI	946273	1	18	5.5	5.0	√
Conductivity in Water	E100	946280	1	18	5.5	5.0	<u>√</u>
Dissolved Mercury in Water by CVAAS	E509	949348	1	20	5.0	5.0	√
Dissolved Metals in Water by CRC ICPMS	E421	945297	1	20	5.0	5.0	√
Fluoride in Water by IC	E235.F	946277	1	11	9.0	5.0	<u>√</u>
Nitrate in Water by IC (Low Level)	E235.NO3-L	946272	1	19	5.2	5.0	√
Nitrite in Water by IC (Low Level)	E235.NO2-L	946274	1	18	5.5	5.0	√
Sulfate in Water by IC	E235.SO4	946276	1	18	5.5	5.0	✓
TDS by Gravimetry	E162	950057	1	20	5.0	5.0	√
Method Blanks (MB)							
Alkalinity Species by Titration	E290	946281	1	18	5.5	5.0	✓
Ammonia by Fluorescence	E298	950201	1	10	10.0	5.0	<u>√</u>
Chloride in Water by IC	E235.CI	946273	1	18	5.5	5.0	√
Conductivity in Water	E100	946280	1	18	5.5	5.0	√
Dissolved Mercury in Water by CVAAS	E509	949348	1	20	5.0	5.0	<u>√</u>
Dissolved Metals in Water by CRC ICPMS	E421	945297	1	20	5.0	5.0	√
Fluoride in Water by IC	E235.F	946277	1	11	9.0	5.0	<u>√</u>
Nitrate in Water by IC (Low Level)	E235.NO3-L	946272	1	19	5.2	5.0	√
Nitrite in Water by IC (Low Level)	E235.NO2-L	946274	1	18	5.5	5.0	<u>-</u> ✓
Sulfate in Water by IC	E235.SO4	946276	1	18	5.5	5.0	√
TDS by Gravimetry	E162	950057	1	20	5.0	5.0	√

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Matrix: Water Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification										
Quality Control Sample Type					Frequency (%)					
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation			
Matrix Spikes (MS)										
Ammonia by Fluorescence	E298	950201	1	10	10.0	5.0	✓			
Chloride in Water by IC	E235.Cl	946273	1	18	5.5	5.0	✓			
Dissolved Mercury in Water by CVAAS	E509	949348	1	20	5.0	5.0	✓			
Dissolved Metals in Water by CRC ICPMS	E421	945297	1	20	5.0	5.0	✓			
Fluoride in Water by IC	E235.F	946277	1	11	9.0	5.0	✓			
Nitrate in Water by IC (Low Level)	E235.NO3-L	946272	1	19	5.2	5.0	✓			
Nitrite in Water by IC (Low Level)	E235.NO2-L	946274	1	18	5.5	5.0	✓			
Sulfate in Water by IC	E235.SO4	946276	1	18	5.5	5.0	✓			

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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 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.
	Environmental			sample. Conductivity measurements are temperature-compensated to 25 C.
TDS by Gravimetry	E162	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,
	Vancouver - Environmental			with gravimetric measurement of the residue.
Chloride in Water by IC	E235.CI	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
	Vancouver -			
	Environmental			
Fluoride in Water by IC	E235.F	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and /or UV detection.
	Vancouver -			
	Environmental			
Nitrite in Water by IC (Low Level)	E235.NO2-L	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and /or UV detection.
	Vancouver -			
	Environmental			
Nitrate in Water by IC (Low Level)	E235.NO3-L	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and /or UV detection.
	Vancouver -			
	Environmental			
Sulfate in Water by IC	E235.SO4	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and /or UV detection.
	Vancouver -			
	Environmental			
Alkalinity Species by Titration	E290	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
	Vancouver -			alkalinity values.
	Environmental			
Ammonia by Fluorescence	E298	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).
	Calgary - Environmental			This method is approved under US EPA 40 CFR Part 136 (May 2021)
Dissolved Metals in Water by CRC ICPMS	E421	Water	APHA 3030B/EPA 6020B (mod)	Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by Collision/Reaction Cell ICPMS.
	Vancouver -		` ′	
	Environmental			Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered
				by this method.

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Client : Comox Valley Regional District



Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Dissolved Mercury in Water by CVAAS	E509	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
	Vancouver -			CVAAS.
	Environmental			
Dissolved Hardness (Calculated)	EC100	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
	Vancouver -			to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially
	Environmental			calculated from dissolved Calcium and Magnesium concentrations, because it is a property of water due to dissolved divalent cations.
Nitrate and Nitrite (as N) (Calculation)	EC235.N+N	Water	EPA 300.0	Nitrate and Nitrite (as N) is a calculated parameter. Nitrate and Nitrite (as N) = Nitrite (as N) + Nitrate (as N).
	Vancouver -			
	Environmental			
Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Ammonia	EP298	Water		Sample preparation for Preserved Nutrients Water Quality Analysis.
	Calgary - Environmental			
Dissolved Metals Water Filtration	EP421	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HNO3.
	Vancouver -			
	Environmental			
Dissolved Mercury Water Filtration	EP509	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HCl.
	Vancouver -			
	Environmental			

ALS Environmental

Chain of Custody (COC) / Analytical Request Form

Affix ALS barcode label here

COC Number: 17 -

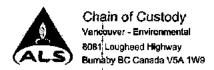
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Marin Santa	<u> </u>				l			<u> </u>	J		<u> </u>	<u> </u>							-	<u>(</u>
Drinking	Drinking Water (DW) Samples' (client use) Special Instructions / Specify Criteria to add on report by chicking on the drop-down list below (electronic COC only)				Froz	T CA	<i>∴</i>	SA 6	MPLE	CON	DITION .	AS REC	EIVED (I	lab use c		No.		J.		
Are samples tak	taken from a Regulated DW System?				ice i	acks	3	e Cube	Ď	Cust	dy seal	intact		, dit		No I		3		
	res 🗍 no						Cool	ing init	aled 1			24								
Are samples for	human consumption/ use?													13 16	Z. FIN	AL COOLE	R TEMP	FRATURE	s c,a	A ji
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REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COL

10 18/5/23



Destination Lab:	Calgary	Due Date: 26/05/2023
Address:	2559 29th Street NE Calgary AB Canada	HT Expiry:
Client: Work Order Number:	T1Y 785 Comox Valley Regional District VA23B0953	Consignment company and Number
Original Receipt Date/T 18/05/2023 10:50	ime Instructions Received	

Relinquished By	
Date/Time	
Received By	
Date/Time	
Receipt Temp	

ALS Lab ID	Bottle Code	Matrix	Submatrix	Container Type	Test Codes	Task Remarks
VA23B0953	001-AB	Water	Groundwat er	Amber glass total (sulfuric acid)	E298, EP298	
VA23B0953	002-AB	Water	Groundwat er	Amber glass total (sulfuric acid)	E298, EP298	
VA23B0953	003-AB	Water	Groundwat er	Amber glass total (sulfuric acid)	E298, EP296	
VA23B0953	004-AB	Water	1	Amber glass total (suffurio acid)	E298, EP298	
VA2380953	005-AB	Water	Groundwat er	Amber glass total (sulfuric acid)	E298, EP298	
VA23B0953	006-AB	Water		Amber glass total (sulfuric acid)	E298, EP298	

ALS Canada Ltd.



CERTIFICATE OF ANALYSIS

Work Order : VA23B1186 Page : 1 of 6

Client : Comox Valley Regional District Laboratory : Vancouver - Environmental

Account Manager Contact : Crystal Stuart : Thomas Chang

Address : 770 Harmston Avenue Address : 8081 Lougheed Highway

> Courtney BC Canada V9N 0G8 Burnaby BC Canada V5A 1W9

> > : 29-May-2023 09:05

Telephone : 250-898-3722 Telephone : +1 604 253 4188

Project : 22 Date Samples Received : 19-May-2023 09:30 PO : 23-015 **Date Analysis Commenced** : 19-May-2023 Issue Date

C-O-C number Sampler : CS

: VA23-COVR100-001

Site : CRWMC - Quarterly - GW

No. of samples received : 10 No. of samples analysed : 10

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

Quote number

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	
Erin Sanchez		Metals, Burnaby, British Columbia	
Kevin Baxter	Team Leader - Inorganics	Inorganics, Calgary, Alberta	
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia	
Kim Jensen	Department Manager - Metals	Inorganics, Burnaby, British Columbia	
Robin Weeks	Team Leader - Metals	Metals, Burnaby, British Columbia	
Sam Silveira	Lab Assistant	Metals, Burnaby, British Columbia	

Page : 2 of 6

Work Order : VA23B1186

Client : Comox Valley Regional District

Project : 2



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
μS/cm	microsiemens per centimetre
mg/L	milligrams per litre

<: 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.

Page : 3 of 6 Work Order : VA23B1186

Client : Comox Valley Regional District

Project : 22



Analytical Results

Sub-Matrix: Water			Cli	ient sample ID	WG-051723-CS-	WG-051723-CS-	WG-051723-CS-	WG-051723-CS-	WG-051723-CS-
(Matrix: Water)					13	14	15	16	17
			Client samp	ling date / time	17-May-2023 09:50	17-May-2023 10:40	17-May-2023 10:45	17-May-2023 11:25	17-May-2023 12:30
Analyte	CAS Number	Method/Lab	LOR	Unit	VA23B1186-001	VA23B1186-002	VA23B1186-003	VA23B1186-004	VA23B1186-005
					Result	Result	Result	Result	Result
Physical Tests									
Alkalinity, bicarbonate (as CaCO3)		E290/VA	1.0	mg/L	55.3	53.2	52.0	65.2	<1.0
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, total (as CaCO3)		E290/VA	1.0	mg/L	55.3	53.2	52.0	65.2	<1.0
Conductivity		E100/VA	2.0	μS/cm	118	118	120	210	<2.0
Hardness (as CaCO3), dissolved		EC100/VA	0.60	mg/L	55.7	51.0	49.4	100	<0.60
Solids, total dissolved [TDS]		E162/VA	10	mg/L	81	77	84	151	<10
Anions and Nutrients						10000			
Ammonia, total (as N)	7664-41-7	E298/CG	0.0050	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Chloride	16887-00-6	E235.CI/VA	0.50	mg/L	3.74	4.95	4.95	26.0	<0.50
Fluoride	16984-48-8	E235.F/VA	0.020	mg/L	<0.020	<0.020	<0.020	<0.020	<0.020
Nitrate (as N)	14797-55-8	E235.NO3-L/V	0.0050	mg/L	0.280	0.245	0.246	0.0996	<0.0050
Nitrate + Nitrite (as N)		A EC235.N+N/V	0.0050	mg/L	0.280	0.245	0.246	0.0996	<0.0051
Nitrite (as N)	14797-65-0	E235.NO2-L/V A	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	2.40	1.75	1.75	1.43	<0.30
Dissolved Metals					3				
Aluminum, dissolved	7429-90-5	E421/VA	0.0010	mg/L	0.0017	0.0033	0.0024	0.0024	<0.0010
Antimony, dissolved	7440-36-0	E421/VA	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic, dissolved	7440-38-2	E421/VA	0.00010	mg/L	0.00020	0.00214	0.00216	0.00014	<0.00010
Barium, dissolved	7440-39-3	E421/VA	0.00010	mg/L	0.00048	0.00148	0.00143	0.00313	<0.00010
Beryllium, dissolved	7440-41-7	E421/VA	0.000020	mg/L	<0.000020	<0.000020	<0.000020	<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	<0.010	<0.010	<0.010	<0.010
Cadmium, dissolved	7440-43-9	E421/VA	0.0000050	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Calcium, dissolved	7440-70-2	E421/VA	0.050	mg/L	18.0	15.9	15.4	30.6	<0.050
Chromium, dissolved	7440-47-3		0.00050	mg/L	<0.00050	0.00197	0.00208	0.00070	<0.00050
Cobalt, dissolved	7440-48-4		0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010

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Client : Comox Valley Regional District

Project : 2



Analytical Results

Sub-Matrix: Water		CI	ient sample ID	WG-051723-CS-	WG-051723-CS-	WG-051723-CS-	WG-051723-CS-	WG-051723-CS-
(Matrix: Water)				13	14	15	16	17
			ling date / time	17-May-2023 09:50	17-May-2023 10:40	17-May-2023 10:45	17-May-2023 11:25	17-May-2023 12:30
Analyte CAS Nur	ber Method/Lab	LOR	Unit	VA23B1186-001	VA23B1186-002	VA23B1186-003	VA23B1186-004	VA23B1186-005
				Result	Result	Result	Result	Result
Dissolved Metals								
	₀₋₈ E421/VA	0.00020	mg/L	<0.00020	<0.00020	<0.00020	0.00036	<0.00020
	9-6 E421/VA	0.010	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010
	₂₋₁ E421/VA	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
	3-2 E421/VA	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	5-4 E421/VA	0.100	mg/L	2.62	2.75	2.65	5.87	<0.100
Manganese, dissolved 7439-	6-5 E421/VA	0.00010	mg/L	<0.00010	<0.00010	<0.00010	0.00018	<0.00010
Mercury, dissolved 7439-	7-6 E509/VA	0.0000050	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum, dissolved 7439-	₃₋₇ E421/VA	0.000050	mg/L	0.000147	0.000109	0.000118	0.000080	<0.000050
Nickel, dissolved 7440-	₂₋₀ E421/VA	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus, dissolved 7723-	₄₋₀ E421/VA	0.050	mg/L	<0.050	0.050	0.053	<0.050	<0.050
Potassium, dissolved 7440-	9-7 E421/VA	0.100	mg/L	0.312	0.815	0.788	0.365	<0.100
Selenium, dissolved 7782-	9-2 E421/VA	0.000050	mg/L	0.000154	0.000280	0.000331	0.000185	<0.000050
Silicon, dissolved 7440-	1-3 E421/VA	0.050	mg/L	4.71	6.24	6.22	5.18	<0.050
Silver, dissolved 7440-	2-4 E421/VA	0.000010	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium, dissolved 7440-	3-5 E421/VA	0.050	mg/L	2.18	2.75	2.67	3.32	<0.050
Strontium, dissolved 7440-	4-6 E421/VA	0.00020	mg/L	0.0322	0.0301	0.0293	0.0749	<0.00020
Sulfur, dissolved 7704-	1-9 E421/VA	0.50	mg/L	0.88	0.75	0.65	0.52	<0.50
Thallium, dissolved 7440-	₃₋₀ E421/VA	0.000010	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Tin, dissolved 7440-	1-5 E421/VA	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium, dissolved 7440-	₂₋₆ E421/VA	0.00030	mg/L	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030
Uranium, dissolved 7440-	1-1 E421/VA	0.000010	mg/L	0.000037	0.000263	0.000262	0.000146	<0.000010
Vanadium, dissolved 7440-	2-2 E421/VA	0.00050	mg/L	0.00381	0.0177	0.0173	0.00324	<0.00050
Zinc, dissolved 7440-	6-6 E421/VA	0.0010	mg/L	<0.0010	<0.0010	<0.0010	0.0022	<0.0010
	7-7 E421/VA	0.00020	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
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.

Please refer to the Accreditation section for an explanation of analyte accreditations.

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Client : Comox Valley Regional District

Project : 22

ALS

Analytical Results

Sub-Matrix: Water			Cli	ent sample ID	WG-051723-CS-	WG-051723-CS-	WG-051723-CS-	WG-051723-CS-	WG-051723-CS-
(Matrix: Water)					18	19	20	21	22
			Client samp	ling date / time	17-May-2023 12:55	17-May-2023 13:20	17-May-2023 14:10	17-May-2023 14:45	17-May-2023 16:10
Analyte	CAS Number	Method/Lab	LOR	Unit	VA23B1186-006	VA23B1186-007	VA23B1186-008	VA23B1186-009	VA23B1186-010
					Result	Result	Result	Result	Result
Physical Tests									
Alkalinity, bicarbonate (as CaCO3)		E290/VA	1.0	mg/L	42.8	75.9	283	323	238
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, total (as CaCO3)		E290/VA	1.0	mg/L	42.8	75.9	283	323	238
Conductivity		E100/VA	2.0	μS/cm	86.7	161	780	623	593
Hardness (as CaCO3), dissolved		EC100/VA	0.60	mg/L	38.0	73.5	348	343	223
Solids, total dissolved [TDS]		E162/VA	10	mg/L	56	108	525	416	355
Anions and Nutrients									
Ammonia, total (as N)	7664-41-7	E298/CG	0.0050	mg/L	<0.0050	0.0165	0.0109	<0.0050	6.86
Chloride	16887-00-6	E235.CI/VA	0.50	mg/L	0.84	5.39	54.7	10.9	49.2
Fluoride	16984-48-8	E235.F/VA	0.020	mg/L	<0.020	<0.020	<0.100 DLDS	<0.020	<0.020
Nitrate (as N)	14797-55-8	E235.NO3-L/V	0.0050	mg/L	0.0490	0.239	15.6	3.37	0.0241
		A							
Nitrate + Nitrite (as N)		EC235.N+N/V	0.0050	mg/L	0.0490	0.239	15.6	3.37	0.0259
Nitrite (as N)	14707 65 0	A 525 NO2 LA/	0.0010	mg/L	<0.0010	<0.0010	<0.0050 DLDS	<0.0010	0.0018
Nutre (as N)	14797-65-0	E235.NO2-L/V Δ	0.0010	IIIg/L	<0.0010	<0.0010	<0.0030	<0.0010	0.0010
Sulfate (as SO4)	14808-79-8	E235.SO4/VA	0.30	mg/L	1.90	4.54	11.2	14.2	3.16
Dissolved Metals									
Aluminum, dissolved	7429-90-5	E421/VA	0.0010	mg/L	0.0047	0.0064	<0.0010	0.0011	0.0032
Antimony, dissolved	7440-36-0	E421/VA	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic, dissolved	7440-38-2	E421/VA	0.00010	mg/L	0.00080	0.00022	0.00010	0.00011	0.00167
Barium, dissolved	7440-39-3		0.00010	mg/L	0.00044	0.00438	0.0141	0.00865	0.0186
Beryllium, dissolved	7440-41-7		0.000020	mg/L	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Bismuth, dissolved	7440-69-9		0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron, dissolved	7440-42-8		0.010	mg/L	<0.010	<0.010	0.119	0.069	0.161
Cadmium, dissolved	7440-43-9		0.0000050	mg/L	0.0000078	<0.0000050	0.0000387	0.0000108	0.0000603
Calcium, dissolved	7440-70-2		0.050	mg/L	12.4	19.3	101	103	74.9
Chromium, dissolved	7440-47-3		0.00050	mg/L	0.00067	0.00748	<0.00050	<0.00050	<0.00050
Cobalt, dissolved	7440-48-4		0.00010	mg/L	<0.00010	<0.00010	0.00024	<0.00010	0.00020
Copper, dissolved	7440-50-8		0.00020	mg/L	0.00145	<0.00020	0.00133	0.00090	0.00028
	1440-00-0		0.00020	mg/L	0.00170	0.00020	0.00100	0.0000	0.00020

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Work Order : VA23B1186

Client : Comox Valley Regional District

Project : 2

ALS

Analytical Results

Sub-Matrix: Water			Cli	ent sample ID	WG-051723-CS-	WG-051723-CS-	WG-051723-CS-	WG-051723-CS-	WG-051723-CS-
(Matrix: Water)					18	19	20	21	22
	242.44	Method/Lab	Client samp	ling date / time Unit	17-May-2023 12:55 VA23B1186-006	17-May-2023 13:20 VA23B1186-007	17-May-2023 14:10 VA23B1186-00 8	17-May-2023 14:45 VA23B1186-009	17-May-2023 16:10 VA23B1186-010
Analyte	CAS Number	Welliou/Lab	LOR	Onii.	Result	Result	Result	Result	Result
Dissolved Metals					Nesuit	Nesuit	Nesuit	rtesuit	Nesuit
Iron, dissolved	7439-89-6	E421/VA	0.010	mg/L	0.033	<0.010	<0.010	<0.010	0.389
Lead, dissolved	7439-92-1		0.000050	mg/L	0.000225	<0.000050	<0.000050	<0.000050	<0.000050
Lithium, dissolved	7439-93-2		0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Magnesium, dissolved	7439-95-4		0.100	mg/L	1.72	6.14	23.2	20.9	8.69
Manganese, dissolved	7439-96-5	E421/VA	0.00010	mg/L	0.00040	<0.00010	0.309	0.00016	1.34
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	0.000168	0.000105	0.000110	<0.000050	0.000140
Nickel, dissolved	7440-02-0	E421/VA	0.00050	mg/L	<0.00050	<0.00050	0.00075	<0.00050	0.00172
Phosphorus, dissolved	7723-14-0	E421/VA	0.050	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium, dissolved	7440-09-7	E421/VA	0.100	mg/L	0.269	0.755	2.20	1.51	5.04
Selenium, dissolved	7782-49-2	E421/VA	0.000050	mg/L	0.000119	0.000252	<0.000050	<0.000050	<0.000050
Silicon, dissolved	7440-21-3	E421/VA	0.050	mg/L	5.19	7.83	12.8	12.9	8.86
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	1.30	4.07	22.8	7.37	27.3
Strontium, dissolved	7440-24-6	E421/VA	0.00020	mg/L	0.0201	0.0649	0.278	0.227	0.244
Sulfur, dissolved	7704-34-9	E421/VA	0.50	mg/L	0.60	1.34	4.33	4.91	1.17
Thallium, dissolved	7440-28-0	E421/VA	0.000010	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
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	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030
Uranium, dissolved	7440-61-1	E421/VA	0.000010	mg/L	0.000018	0.000221	0.000743	0.000330	0.000111
Vanadium, dissolved	7440-62-2	E421/VA	0.00050	mg/L	0.00481	0.00450	0.00167	0.00170	<0.00050
Zinc, dissolved	7440-66-6		0.0010	mg/L	0.0154	<0.0010	<0.0010	<0.0010	<0.0010
Zirconium, dissolved	7440-67-7	E421/VA	0.00020	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
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.

Please refer to the Accreditation section for an explanation of analyte accreditations.

ALS Canada Ltd.



QUALITY CONTROL REPORT

Work Order : VA23B1186 Page : 1 of 14

Client : Comox Valley Regional District Laboratory : Vancouver - Environmental

Contact : Crystal Stuart Account Manager : Thomas Chang

:770 Harmston Avenue Address :8081 Lougheed Highway

Burnaby, British Columbia Canada V5A 1W9

Telephone : Telephone : +1 604 253 4188

 Project
 : 22
 Date Samples Received
 : 19-May-2023 09:30

 PO
 : 23-015
 Date Analysis Commenced
 : 19-May-2023

C-O-C number : ____ Issue Date : 29-May-2023 09:05

Sampler : CS 250-898-3722

Site : CRWMC - Quarterly - GW

Quote number : VA23-COVR100-001

No. of samples received : 10

No. of samples analysed : 10

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

Courtney BC Canada V9N 0G8

- 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

Address

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
Erin Sanchez		Vancouver Metals, Burnaby, British Columbia
Kevin Baxter	Team Leader - Inorganics	Calgary Inorganics, Calgary, Alberta
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Vancouver Metals, Burnaby, British Columbia
Kim Jensen	Department Manager - Metals	Vancouver Inorganics, Burnaby, British Columbia
Robin Weeks	Team Leader - Metals	Vancouver Metals, Burnaby, British Columbia
Sam Silveira	Lab Assistant	Vancouver Metals, Burnaby, British Columbia

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Client : Comox Valley Regional District

Project : 2



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.

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Client : Comox Valley Regional District

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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).

ub-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: 947696)												
VA23B1186-001	WG-051723-CS-13	Conductivity		E100	2.0	μS/cm	118	119	0.758%	10%			
Physical Tests (QC	Lot: 948320)												
VA23B1186-004	WG-051723-CS-16	Conductivity		E100	2.0	μS/cm	210	209	0.477%	10%			
Physical Tests (QC	Lot: 948321)												
VA23B1186-004	WG-051723-CS-16	Alkalinity, bicarbonate (as CaCO3)		E290	1.0	mg/L	65.2	65.0	0.461%	20%			
		Alkalinity, carbonate (as CaCO3)		E290	1.0	mg/L	<1.0	<1.0	0	Diff <2x LOR			
		Alkalinity, hydroxide (as CaCO3)		E290	1.0	mg/L	<1.0	<1.0	0	Diff <2x LOR			
		Alkalinity, total (as CaCO3)		E290	1.0	mg/L	65.2	65.0	0.461%	20%			
Physical Tests (QC	Lot: 948512)												
FJ2301129-001	Anonymous	Conductivity		E100	2.0	μS/cm	660	642	2.76%	10%			
Physical Tests (QC	Lot: 948513)												
FJ2301129-001	Anonymous	Alkalinity, bicarbonate (as CaCO3)		E290	1.0	mg/L	214	210	1.98%	20%			
		Alkalinity, carbonate (as CaCO3)		E290	1.0	mg/L	<1.0	<1.0	0	Diff <2x LOR			
		Alkalinity, hydroxide (as CaCO3)		E290	1.0	mg/L	<1.0	<1.0	0	Diff <2x LOR			
		Alkalinity, total (as CaCO3)		E290	1.0	mg/L	214	210	1.98%	20%			
Physical Tests (QC	Lot: 951213)												
VA23B1179-011	Anonymous	Solids, total dissolved [TDS]		E162	20	mg/L	781	805	3.09%	20%			
Physical Tests (QC	Lot: 951913)	The second second											
FJ2301101-002	Anonymous	Solids, total dissolved [TDS]		E162	20	mg/L	155	166	10	Diff <2x LOR			
Anions and Nutrien	ts (QC Lot: 947683)	The second second											
VA23B1186-001	WG-051723-CS-13	Nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	0.280	0.282	0.713%	20%			
Anions and Nutrien	ts (QC Lot: 947684)	The state of the s											
VA23B0904-001	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	0.0053	0.0053	0.00005	Diff <2x LOR			
Anions and Nutrien	ts (QC Lot: 947686)												
VA23B1186-001	WG-051723-CS-13	Chloride	16887-00-6	E235.CI	0.50	mg/L	3.74	3.76	0.02	Diff <2x LOR			
Anions and Nutrien	ts (QC Lot: 947691)	The second second											
VA23B1186-001	WG-051723-CS-13	Sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	2.40	2.41	0.006	Diff <2x LOR			
Anions and Nutrien	ts (QC Lot: 947692)												
VA23B1186-001	WG-051723-CS-13	Fluoride	16984-48-8	E235.F	0.020	mg/L	<0.020	<0.020	0	Diff <2x LOR			
Anions and Nutrion	ts (QC Lot: 948312)												

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Client : Comox Valley Regional District



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	Qualifie
Anions and Nutrient	ts (QC Lot: 948312) - co	ntinued									
VA23B0819-006	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	0.0173	0.0174	0.813%	20%	
Anions and Nutrient	ts (QC Lot: 948314)										
VA23B1145-001	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	0.500	mg/L	<0.500	<0.500	0	Diff <2x LOR	
Anions and Nutrient	ts (QC Lot: 948315)	The state of the s									
VA23B1145-001	Anonymous	Fluoride	16984-48-8	E235.F	2.00	mg/L	<2.00	<2.00	0	Diff <2x LOR	
Anions and Nutrient	ts (QC Lot: 948316)	The state of the s									
VA23B1145-001	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	30.0	mg/L	1040	1040	0.0870%	20%	
Anions and Nutrient	ts (QC Lot: 948317)										
VA23B1145-001	Anonymous	Chloride	16887-00-6	E235.CI	50.0	mg/L	8220	8250	0.378%	20%	
Anions and Nutrient	ts (QC Lot: 948504)				THE S						
VA23B1145-003	Anonymous	Chloride	16887-00-6	E235.CI	0.50	mg/L	15.2	15.3	0.526%	20%	
Anions and Nutrient	ts (QC Lot: 948505)				11-0						
VA23B1145-003	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	0.0061	0.0059	0.0002	Diff <2x LOR	
Anions and Nutrient	ts (QC Lot: 948506)				1100						
VA23B1145-003	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	
Anions and Nutrient	ts (QC Lot: 948507)				11						
VA23B1145-003	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	21.3	21.5	0.743%	20%	
Anions and Nutrient	ts (QC Lot: 948509)										
VA23B1145-003	Anonymous	Fluoride	16984-48-8	E235.F	0.020	mg/L	0.089	0.088	0.0005	Diff <2x LOR	
Anions and Nutrient	ts (QC Lot: 952640)				7 1						7
FJ2301133-001	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	0.0053	<0.0050	0.0003	Diff <2x LOR	
Dissolved Metals (C	OC Lot: 947783)				111-						
VA23B1186-001	WG-051723-CS-13	Aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	0.0017	0.0016	0.00002	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	0.00019	0.000003	Diff <2x LOR	
		Barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.00048	0.00047	0.000006	Diff <2x LOR	
		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	18.0	17.6	2.20%	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	<0.00010	<0.00010	0	Diff <2x LOR	
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Client : Comox Valley Regional District



ub-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: 947783) - cont	tinued									
VA23B1186-001	WG-051723-CS-13	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	2.62	2.61	0.616%	20%	
		Manganese, dissolved	7439-96-5	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	
		Molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.000147	0.000132	0.000015	Diff <2x LOR	
		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	0.100	mg/L	0.312	0.312	0.00005	Diff <2x LOR	
		Selenium, dissolved	7782-49-2	E421	0.000050	mg/L	0.000154	0.000184	0.000030	Diff <2x LOR	
		Silicon, dissolved	7440-21-3	E421	0.050	mg/L	4.71	4.68	0.465%	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	2.18	2.24	2.83%	20%	
		Strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.0322	0.0317	1.72%	20%	
		Sulfur, dissolved	7704-34-9	E421	0.50	mg/L	0.88	0.81	0.08	Diff <2x LOR	
		Thallium, dissolved	7440-28-0	E421	0.000010	mg/L	<0.000010	<0.000010	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	
		Uranium, dissolved	7440-61-1	E421	0.000010	mg/L	0.000037	0.000039	0.000001	Diff <2x LOR	
		Vanadium, dissolved	7440-62-2	E421	0.00050	mg/L	0.00381	0.00378	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: 949460)										
VA23B1146-017	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	
Dissolved Metals (The second secon									4	
VA23B1186-008	WG-051723-CS-20	Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	

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Client : Comox Valley Regional District

Project :



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: 947695)					
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, total (as CaCO3)	E290	1	mg/L	<1.0	
hysical Tests (QCLot: 947696)					
Conductivity	E100	1	μS/cm	1.1	
Physical Tests (QCLot: 948320)					
Conductivity	E100	1	μS/cm	<1.0	
Physical Tests (QCLot: 948321)					
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, total (as CaCO3)	E290	1	mg/L	<1.0	
hysical Tests (QCLot: 948512)					
Conductivity	E100	1	μS/cm	1.0	
Physical Tests (QCLot: 948513)					
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, total (as CaCO3)	E290	1	mg/L	<1.0	
hysical Tests (QCLot: 951213)					
Solids, total dissolved [TDS]	E162	10	mg/L	<10	
hysical Tests (QCLot: 951913)					
Solids, total dissolved [TDS]	E162	10	mg/L	<10	
Anions and Nutrients (QCLot: 947683)					
Nitrate (as N)	14797-55-8 E235.NO3-L	0.005	mg/L	<0.0050	
nions and Nutrients (QCLot: 947684)					
Nitrite (as N)	14797-65-0 E235.NO2-L	0.001	mg/L	<0.0010	
nions and Nutrients (QCLot: 947686)					
Chloride	16887-00-6 E235.CI	0.5	mg/L	<0.50	
Anions and Nutrients (QCLot: 947691)					
Sulfate (as SO4)	14808-79-8 E235.SO4	0.3	mg/L	<0.30	

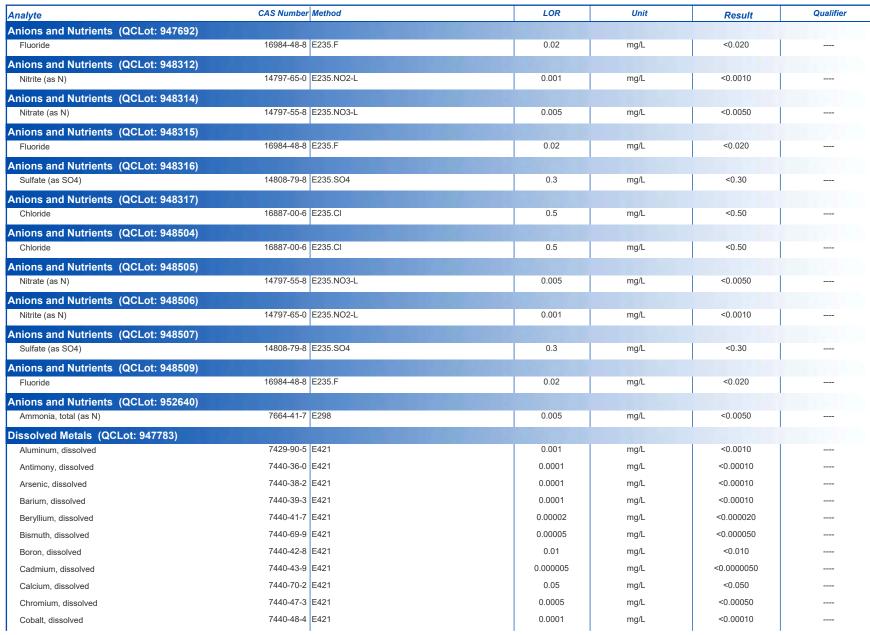
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 VA23B1186

Client : Comox Valley Regional District

Project : 2

Sub-Matrix: Water





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Client : Comox Valley Regional District

Project : 22

Sub-Matrix: Water





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Project : 2



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 Con	trol Sample (LCS)	Report	
					Spike	Recovery (%)	Recovery	Limits (%)	
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 947695)									
Alkalinity, total (as CaCO3)		E290	1	mg/L	500 mg/L	106	85.0	115	
Physical Tests (QCLot: 947696)									
Conductivity		E100	1	μS/cm	146.9 μS/cm	96.5	90.0	110	
Physical Tests (QCLot: 948320)									
Conductivity		E100	1	μS/cm	146.9 μS/cm	104	90.0	110	
Physical Tests (QCLot: 948321)		5000					05.0	445	
Alkalinity, total (as CaCO3)		E290	1	mg/L	500 mg/L	112	85.0	115	
Physical Tests (QCLot: 948512)		E400	1	u.C./ove	440.0.0/	07.5	00.0	110	
Conductivity		E100	1	μS/cm	146.9 μS/cm	97.5	90.0	110	
Physical Tests (QCLot: 948513) Alkalinity, total (as CaCO3)	<u></u>	E290	1	ma/l	500 //	400	85.0	115	
		E290	'	mg/L	500 mg/L	106	65.0	115	
Physical Tests (QCLot: 951213) Solids, total dissolved [TDS]		E162	10	ma/l	4000	00.5	85.0	115	
		E 102	10	mg/L	1000 mg/L	99.5	65.0	115	
Physical Tests (QCLot: 951913) Solids, total dissolved [TDS]	<u></u>	E162	10	mg/L	1000 mg/L	97.3	85.0	115	
Solids, total dissolved [TDS]		102	10	mg/L	1000 mg/L	97.5	03.0	113	
Anions and Nutrients (QCLot: 947683)									7
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: 947684)				1111111					
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	0.5 mg/L	99.5	90.0	110	
Anions and Nutrients (QCLot: 947686)									T
Chloride	16887-00-6	E235.CI	0.5	mg/L	100 mg/L	102	90.0	110	
Anions and Nutrients (QCLot: 947691)									
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	102	90.0	110	
Anions and Nutrients (QCLot: 947692)									
Fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	97.2	90.0	110	
Anions and Nutrients (QCLot: 948312)									
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	0.5 mg/L	97.3	90.0	110	
Anions and Nutrients (QCLot: 948314)									
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	2.5 mg/L	101	90.0	110	
Anions and Nutrients (QCLot: 948315)									
Fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	99.9	90.0	110	

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Client : Comox Valley Regional District



Sub-Matrix: Water					Laboratory Co	ntrol Sample (LCS)	Report	
				Spike	Recovery (%)	Recovery	Limits (%)	
Analyte	CAS Number Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Anions and Nutrients (QCLot: 948316)								
Sulfate (as SO4)	14808-79-8 E235.SO4	0.3	mg/L	100 mg/L	102	90.0	110	
Anions and Nutrients (QCLot: 948317)								
Chloride	16887-00-6 E235.CI	0.5	mg/L	100 mg/L	101	90.0	110	
Anions and Nutrients (QCLot: 948504)								
Chloride	16887-00-6 E235.CI	0.5	mg/L	100 mg/L	102	90.0	110	
Anions and Nutrients (QCLot: 948505)								
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: 948506)								
Nitrite (as N)	14797-65-0 E235.NO2-L	0.001	mg/L	0.5 mg/L	102	90.0	110	
Anions and Nutrients (QCLot: 948507)								
Sulfate (as SO4)	14808-79-8 E235.SO4	0.3	mg/L	100 mg/L	104	90.0	110	
Anions and Nutrients (QCLot: 948509)			1 1 1 1 1 1					
Fluoride	16984-48-8 E235.F	0.02	mg/L	1 mg/L	101	90.0	110	
Anions and Nutrients (QCLot: 952640)								
Ammonia, total (as N)	7664-41-7 E298	0.005	mg/L	0.2 mg/L	99.4	85.0	115	
Dissolved Metals (QCLot: 947783)								
Aluminum, dissolved	7429-90-5 E421	0.001	mg/L	2 mg/L	102	80.0	120	
Antimony, dissolved	7440-36-0 E421	0.0001	mg/L	1 mg/L	97.3	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	101	80.0	120	
Beryllium, dissolved	7440-41-7 E421	0.00002	mg/L	0.1 mg/L	95.9	80.0	120	
Bismuth, dissolved	7440-69-9 E421	0.00005	mg/L	1 mg/L	93.6	80.0	120	
Boron, dissolved	7440-42-8 E421	0.01	mg/L	1 mg/L	90.5	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	97.3	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	98.5	80.0	120	
Copper, dissolved	7440-50-8 E421	0.0002	mg/L	0.25 mg/L	95.2	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	93.6	80.0	120	
Lithium, dissolved	7439-93-2 E421	0.001	mg/L	0.25 mg/L	96.0	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	98.0	80.0	120	
Molybdenum, dissolved	7439-98-7 E421	0.00005	mg/L	0.25 mg/L	101	80.0	120	
Nickel, dissolved	7440-02-0 E421	0.0005	mg/L	0.5 mg/L	96.9	80.0	120	

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Client : Comox Valley Regional District



Sub-Matrix: Water						Laboratory Co	ontrol Sample (LCS)	Report	
					Spike	Recovery (%)	Recovery	Limits (%)	
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Dissolved Metals (QCLot: 947783) - con	tinued								
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	101	80.0	120	
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	1 mg/L	98.3	80.0	120	
Silicon, dissolved	7440-21-3	E421	0.05	mg/L	10 mg/L	105	80.0	120	
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	0.1 mg/L	97.6	80.0	120	
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	50 mg/L	100	80.0	120	
Strontium, dissolved	7440-24-6	E421	0.0002	mg/L	0.25 mg/L	99.6	80.0	120	
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	50 mg/L	95.2	80.0	120	
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	1 mg/L	96.1	80.0	120	
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	0.5 mg/L	94.4	80.0	120	
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	0.25 mg/L	96.6	80.0	120	
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	0.005 mg/L	96.0	80.0	120	
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	0.5 mg/L	99.9	80.0	120	
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	0.5 mg/L	102	80.0	120	
Zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	0.1 mg/L	97.3	80.0	120	
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0.0001 mg/L	107	80.0	120	
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0.0001 mg/L	107	80.0	120	

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Client : Comox Valley Regional District

Project : 2



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 Spik	e (MS) Report		
					Spi	ke	Recovery (%)	Recovery	Limits (%)	
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Anions and Nutr	ients (QCLot: 947683)									
VA23B1186-001	WG-051723-CS-13	Nitrate (as N)	14797-55-8	E235.NO3-L	2.54 mg/L	2.5 mg/L	102	75.0	125	
Anions and Nutr	ients (QCLot: 947684)									f
VA23B0819-002	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	0.505 mg/L	0.5 mg/L	101	75.0	125	
Anions and Nutr	ients (QCLot: 947686)									
VA23B1186-001	WG-051723-CS-13	Chloride	16887-00-6	E235.CI	101 mg/L	100 mg/L	101	75.0	125	
Anions and Nutr	ients (QCLot: 947691)									
VA23B1186-001	WG-051723-CS-13	Sulfate (as SO4)	14808-79-8	E235.SO4	99.6 mg/L	100 mg/L	99.6	75.0	125	
Anions and Nutr	ients (QCLot: 948312)									
VA23B0819-007	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 Nutr	ients (QCLot: 948314)									
VA23B1145-001	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	252 mg/L	250 mg/L	101	75.0	125	
Anions and Nutr	ients (QCLot: 948315)									
VA23B1145-001	Anonymous	Fluoride	16984-48-8	E235.F	102 mg/L	100 mg/L	102	75.0	125	
Anions and Nutr	ients (QCLot: 948316)									
VA23B1145-001	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	10100 mg/L	10000 mg/L	101	75.0	125	
Anions and Nutr	ients (QCLot: 948317)									
VA23B1145-001	Anonymous	Chloride	16887-00-6	E235.Cl	9900 mg/L	10000 mg/L	99.0	75.0	125	
Anions and Nutr	ients (QCLot: 948504)									Ľ.
VA23B1145-004	Anonymous	Chloride	16887-00-6	E235.Cl	105 mg/L	100 mg/L	105	75.0	125	
Anions and Nutr	ients (QCLot: 948505)									
VA23B1145-004	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	2.64 mg/L	2.5 mg/L	106	75.0	125	
Anions and Nutr	ients (QCLot: 948506)									
VA23B1145-004	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	0.510 mg/L	0.5 mg/L	102	75.0	125	
Anions and Nutr	ients (QCLot: 948507)									1
VA23B1145-004	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	105 mg/L	100 mg/L	105	75.0	125	
Anions and Nutr	ients (QCLot: 948509)									
VA23B1145-004	Anonymous	Fluoride	16984-48-8	E235.F	1.04 mg/L	1 mg/L	104	75.0	125	

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Client : Comox Valley Regional District



Sub-Matrix: Water							Matrix Spik	re (MS) Report		
					Spi	ike	Recovery (%)	Recovery	Limits (%)	
Laboratory sample	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifie
	ents (QCLot: 952640									
RG2300564-002	Anonymous	Ammonia, total (as N)	7664-41-7	E298	ND mg/L	0.1 mg/L	ND	75.0	125	
Dissolved Metals	(QCLot: 947783)									
VA23B1186-002	WG-051723-CS-14	Aluminum, dissolved	7429-90-5	E421	0.200 mg/L	0.2 mg/L	99.9	70.0	130	
		Antimony, dissolved	7440-36-0	E421	0.0200 mg/L	0.02 mg/L	99.8	70.0	130	
		Arsenic, dissolved	7440-38-2	E421	0.0199 mg/L	0.02 mg/L	99.4	70.0	130	
		Barium, dissolved	7440-39-3	E421	0.0200 mg/L	0.02 mg/L	100	70.0	130	
		Beryllium, dissolved	7440-41-7	E421	0.0381 mg/L	0.04 mg/L	95.3	70.0	130	
		Bismuth, dissolved	7440-69-9	E421	0.00853 mg/L	0.01 mg/L	85.3	70.0	130	
		Boron, dissolved	7440-42-8	E421	0.089 mg/L	0.1 mg/L	89.2	70.0	130	
		Cadmium, dissolved	7440-43-9	E421	0.00399 mg/L	0.004 mg/L	99.7	70.0	130	
		Calcium, dissolved	7440-70-2	E421	ND mg/L	4 mg/L	ND	70.0	130	
		Chromium, dissolved	7440-47-3	E421	0.0406 mg/L	0.04 mg/L	101	70.0	130	
		Cobalt, dissolved	7440-48-4	E421	0.0194 mg/L	0.02 mg/L	97.0	70.0	130	
		Copper, dissolved	7440-50-8	E421	0.0193 mg/L	0.02 mg/L	96.3	70.0	130	
		Iron, dissolved	7439-89-6	E421	1.92 mg/L	2 mg/L	95.9	70.0	130	
		Lead, dissolved	7439-92-1	E421	0.0186 mg/L	0.02 mg/L	92.9	70.0	130	
		Lithium, dissolved	7439-93-2	E421	0.0914 mg/L	0.1 mg/L	91.4	70.0	130	
		Magnesium, dissolved	7439-95-4	E421	ND mg/L	1 mg/L	ND	70.0	130	
		Manganese, dissolved	7439-96-5	E421	0.0196 mg/L	0.02 mg/L	97.8	70.0	130	
		Molybdenum, dissolved	7439-98-7	E421	0.0204 mg/L	0.02 mg/L	102	70.0	130	
		Nickel, dissolved	7440-02-0	E421	0.0391 mg/L	0.04 mg/L	97.6	70.0	130	
		Phosphorus, dissolved	7723-14-0	E421	10.4 mg/L	10 mg/L	104	70.0	130	
		Potassium, dissolved	7440-09-7	E421	4.02 mg/L	4 mg/L	100	70.0	130	
		Selenium, dissolved	7782-49-2	E421	0.0403 mg/L	0.04 mg/L	101	70.0	130	
		Silicon, dissolved	7440-21-3	E421	9.77 mg/L	10 mg/L	97.7	70.0	130	
		Silver, dissolved	7440-22-4	E421	0.00423 mg/L	0.004 mg/L	106	70.0	130	
		Sodium, dissolved	7440-23-5	E421	ND mg/L	2 mg/L	ND	70.0	130	
		Strontium, dissolved	7440-24-6	E421	ND mg/L	0.02 mg/L	ND	70.0	130	
		Sulfur, dissolved	7704-34-9	E421	20.1 mg/L	20 mg/L	101	70.0	130	
		Thallium, dissolved	7440-28-0	E421	0.00371 mg/L	0.004 mg/L	92.8	70.0	130	
		Tin, dissolved	7440-31-5	E421	0.0194 mg/L	0.02 mg/L	97.1	70.0	130	
		Titanium, dissolved	7440-32-6	E421	0.0391 mg/L	0.02 mg/L	97.6	70.0	130	
		Uranium, dissolved	7440-61-1	E421	0.00360 mg/L	0.004 mg/L	89.9	70.0	130	
		Vanadium, dissolved	7440-62-2	E421	0.0988 mg/L	0.1 mg/L	98.8	70.0	130	
		Zinc, dissolved	7440-66-6	E421	0.415 mg/L	0.4 mg/L	104	70.0	130	

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Client : Comox Valley Regional District



Sub-Matrix: Water	Sub-Matrix: Water				Matrix Spike (MS) Report								
					Spi	ke	Recovery (%)	Recovery	Limits (%)				
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier			
Dissolved Metals	(QCLot: 947783) - cont	inued											
VA23B1186-002	WG-051723-CS-14	Zirconium, dissolved	7440-67-7	E421	0.0403 mg/L	0.04 mg/L	101	70.0	130				
Dissolved Metals	(QCLot: 949460)												
VA23B1146-018	Anonymous	Mercury, dissolved	7439-97-6	E509	0.000104 mg/L	0.0001 mg/L	104	70.0	130				
Dissolved Metals	(QCLot: 949461)												
VA23B1186-009	WG-051723-CS-21	Mercury, dissolved	7439-97-6	E509	0.000108 mg/L	0.0001 mg/L	108	70.0	130				



QUALITY CONTROL INTERPRETIVE REPORT

Work Order : **VA23B1186** Page : 1 of 19

Client : Comox Valley Regional District Laboratory : Vancouver - Environmental

Contact : Crystal Stuart Account Manager : Thomas Chang

Address :770 Harmston Avenue Address :8081 Lougheed Highway

Burnaby, British Columbia Canada V5A 1W9

 Telephone
 :250-898-3722
 Telephone
 :+1 604 253 4188

 Project
 :22
 Date Samples Received
 : 19-May-2023 09:30

Site : CRWMC - Quarterly - GW
Quote number : VA23-COVR100-001

:CS

No. of samples received :10

No. of samples analysed :10

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

Sampler

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.

Courtney BC Canada V9N 0G8

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

Juniers . Quanty Control Sample

- 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) ■ No Analysis Holding Time Outliers exist.

Outliers: Frequency of Quality Control Samples • No Quality Control Sample Frequency Outliers occur.

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Client : Comox Valley Regional District

Project : 22



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					E۱	⁄aluation: ≭ = l	Holding time excee	edance ; 🔻	= Within	Holding Tim
Analyte Group	Method	Sampling Date	Ext	raction / Pr	eparation			Analys	is	
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	Times	Eval
			Date	Rec	Actual			Rec	Actual	
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) WG-051723-CS-13	E298	17-May-2023	24-May-2023				24-May-2023	28 days	7 days	4
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) WG-051723-CS-14	E298	17-May-2023	24-May-2023				24-May-2023	28 days	7 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) WG-051723-CS-15	E298	17-May-2023	24-May-2023				24-May-2023	28 days	7 days	1
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) WG-051723-CS-16	E298	17-May-2023	24-May-2023				24-May-2023	28 days	7 days	1
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) WG-051723-CS-17	E298	17-May-2023	24-May-2023				24-May-2023	28 days	7 days	1
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) WG-051723-CS-18	E298	17-May-2023	24-May-2023				24-May-2023	28 days	7 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) WG-051723-CS-19	E298	17-May-2023	24-May-2023				24-May-2023	28 days	7 days	✓

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Client : Comox Valley Regional District



Matrix: Water					Ev	aluation: 🗴 =	Holding time exce	edance ; 🔹	= Within	Holding Tim
Analyte Group	Method	Sampling Date	Ext	raction / Pr	eparation			Analys	is	
Container / Client Sample ID(s)			Preparation Date	Holding Rec	g Times Actual	Eval	Analysis Date	Holding Rec	Times Actual	Eval
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) WG-051723-CS-20	E298	17-May-2023	24-May-2023				24-May-2023	28 days	7 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) WG-051723-CS-21	E298	17-May-2023	24-May-2023				24-May-2023	28 days	7 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) WG-051723-CS-22	E298	17-May-2023	24-May-2023				24-May-2023	28 days	7 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE WG-051723-CS-13	E235.Cl	17-May-2023	19-May-2023				20-May-2023	28 days	2 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE WG-051723-CS-14	E235.Cl	17-May-2023	20-May-2023				20-May-2023	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE WG-051723-CS-15	E235.Cl	17-May-2023	20-May-2023				20-May-2023	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE WG-051723-CS-16	E235.Cl	17-May-2023	20-May-2023				20-May-2023	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE WG-051723-CS-17	E235.Cl	17-May-2023	20-May-2023				20-May-2023	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE WG-051723-CS-18	E235.Cl	17-May-2023	20-May-2023				20-May-2023	28 days	3 days	✓

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Client : Comox Valley Regional District



Matrix: Water					Ev	aluation: 🗴 =	Holding time exce	edance ; 🔹	= Within	Holding Tim
Analyte Group	Method	Sampling Date	Ext	raction / Pr	eparation			Analys	is	
Container / Client Sample ID(s)			Preparation Date	Holding Rec	g Times Actual	Eval	Analysis Date	Holding Rec	Times Actual	Eval
Anions and Nutrients : Chloride in Water by IC										
HDPE WG-051723-CS-19	E235.CI	17-May-2023	20-May-2023				20-May-2023	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE WG-051723-CS-20	E235.Cl	17-May-2023	20-May-2023				20-May-2023	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE WG-051723-CS-21	E235.Cl	17-May-2023	20-May-2023				20-May-2023	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE WG-051723-CS-22	E235.Cl	17-May-2023	20-May-2023				20-May-2023	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE WG-051723-CS-13	E235.F	17-May-2023	19-May-2023				20-May-2023	28 days	2 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE WG-051723-CS-14	E235.F	17-May-2023	20-May-2023				20-May-2023	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE WG-051723-CS-15	E235.F	17-May-2023	20-May-2023				20-May-2023	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE WG-051723-CS-16	E235.F	17-May-2023	20-May-2023				20-May-2023	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE WG-051723-CS-17	E235.F	17-May-2023	20-May-2023				20-May-2023	28 days	3 days	✓

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Client : Comox Valley Regional District



Matrix: Water					Ev	/aluation: 🗴 =	Holding time exce	edance ; 🕦	= Within	Holding Tin
Analyte Group	Method	Sampling Date	Ext	raction / Pr	reparation			Analys	sis	
Container / Client Sample ID(s)			Preparation Date	Holding Rec	g Times Actual	Eval	Analysis Date	Holding Rec	Times Actual	Eval
Anions and Nutrients : Fluoride in Water by IC										
HDPE WG-051723-CS-18	E235.F	17-May-2023	20-May-2023				20-May-2023	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE WG-051723-CS-19	E235.F	17-May-2023	20-May-2023				20-May-2023	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE WG-051723-CS-20	E235.F	17-May-2023	20-May-2023				20-May-2023	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE WG-051723-CS-21	E235.F	17-May-2023	20-May-2023				20-May-2023	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE WG-051723-CS-22	E235.F	17-May-2023	20-May-2023				20-May-2023	28 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE WG-051723-CS-13	E235.NO3-L	17-May-2023	19-May-2023				20-May-2023	3 days	2 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE WG-051723-CS-14	E235.NO3-L	17-May-2023	20-May-2023				20-May-2023	3 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE WG-051723-CS-15	E235.NO3-L	17-May-2023	20-May-2023				20-May-2023	3 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE WG-051723-CS-16	E235.NO3-L	17-May-2023	20-May-2023				20-May-2023	3 days	3 days	✓

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Client : Comox Valley Regional District



Matrix: Water					E۱	/aluation: 🗴 =	Holding time excee	edance ; 🖠	✓ = Within	Holding Tim
Analyte Group	Method	Sampling Date	Ex	traction / Pr	eparation			Analys	sis	
Container / Client Sample ID(s)			Preparation Date	Holding Rec	7 Times Actual	Eval	Analysis Date	Holding Rec	g Times Actual	Eval
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE WG-051723-CS-17	E235.NO3-L	17-May-2023	20-May-2023				20-May-2023	3 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE WG-051723-CS-18	E235.NO3-L	17-May-2023	20-May-2023				20-May-2023	3 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE WG-051723-CS-19	E235.NO3-L	17-May-2023	20-May-2023				20-May-2023	3 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE WG-051723-CS-20	E235.NO3-L	17-May-2023	20-May-2023				20-May-2023	3 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE WG-051723-CS-21	E235.NO3-L	17-May-2023	20-May-2023				20-May-2023	3 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE WG-051723-CS-22	E235.NO3-L	17-May-2023	20-May-2023				20-May-2023	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE WG-051723-CS-13	E235.NO2-L	17-May-2023	19-May-2023				20-May-2023	3 days	2 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE WG-051723-CS-14	E235.NO2-L	17-May-2023	20-May-2023				20-May-2023	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE WG-051723-CS-15	E235.NO2-L	17-May-2023	20-May-2023				20-May-2023	3 days	3 days	✓

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Matrix: Water					Ev	/aluation: 🗴 =	Holding time exce	edance ; 🔹	✓ = Within	Holding Tim
Analyte Group	Method	Sampling Date	Ext	raction / Pi	reparation			Analys	sis	
Container / Client Sample ID(s)			Preparation	Holdin	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
WG-051723-CS-16	E235.NO2-L	17-May-2023	20-May-2023				20-May-2023	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
WG-051723-CS-17	E235.NO2-L	17-May-2023	20-May-2023				20-May-2023	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										غ د
WG-051723-CS-18	E235.NO2-L	17-May-2023	20-May-2023				20-May-2023	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
WG-051723-CS-19	E235.NO2-L	17-May-2023	20-May-2023				20-May-2023	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE	5005 1100 1	47.14 0000	00.14 0000							,
WG-051723-CS-20	E235.NO2-L	17-May-2023	20-May-2023				20-May-2023	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE	E235.NO2-L	47 M 2022	00.140000				00.140000	0.1	0.1	√
WG-051723-CS-21	E235.NO2-L	17-May-2023	20-May-2023				20-May-2023	3 days	3 days	•
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE WG-051723-CS-22	E235.NO2-L	17-May-2023	20-May-2023				20-May-2023	3 days	3 days	√
WG-051725-C5-22	E235.NO2-L	17-iviay-2023	20-iviay-2023				20-iviay-2023	3 days	3 days	•
Anions and Nutrients : Sulfate in Water by IC				I			1			
HDPE WG-051723-CS-13	E235.SO4	17-May-2023	19-May-2023				20-May-2023	28 days	2 days	✓
WO-001120-00-10	L200.004	17-Way-2023	10-111ay-2020				20-iviay-2023	20 days	2 days	•
A 1000 A 100 A 100 A 100 A 100 A 100 A 100 A 100 A 100 A 100 A 100 A 100 A 100 A 100 A 100 A 100 A 100 A 100 A										
Anions and Nutrients : Sulfate in Water by IC HDPE										
WG-051723-CS-14	E235.SO4	17-May-2023	20-May-2023				20-May-2023	28 days	3 days	1
VVO-03 17 20-00-14	2200.004	17-Way-2020	20-141ay-2020				20-iviay-2023	20 days	Juays	•

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Matrix: Water	Evaluation: x = Holding time exceedance ; ✓ = Within Holding Time											
Analyte Group	Method	Sampling Date	Ext	raction / Pr	eparation			Analysis				
Container / Client Sample ID(s)			Preparation Date	Holding Rec	g Times Actual	Eval	Analysis Date	Holding Rec	Times Actual	Eval		
Anions and Nutrients : Sulfate in Water by IC												
HDPE WG-051723-CS-15	E235.SO4	17-May-2023	20-May-2023				20-May-2023	28 days	3 days	4		
Anions and Nutrients : Sulfate in Water by IC												
HDPE WG-051723-CS-16	E235.SO4	17-May-2023	20-May-2023				20-May-2023	28 days	3 days	✓		
Anions and Nutrients : Sulfate in Water by IC												
HDPE WG-051723-CS-17	E235.SO4	17-May-2023	20-May-2023				20-May-2023	28 days	3 days	√		
Anions and Nutrients : Sulfate in Water by IC												
HDPE WG-051723-CS-18	E235.SO4	17-May-2023	20-May-2023				20-May-2023	28 days	3 days	✓		
Anions and Nutrients : Sulfate in Water by IC												
HDPE WG-051723-CS-19	E235.SO4	17-May-2023	20-May-2023				20-May-2023	28 days	3 days	✓		
Anions and Nutrients : Sulfate in Water by IC												
HDPE WG-051723-CS-20	E235.SO4	17-May-2023	20-May-2023				20-May-2023	28 days	3 days	√		
Anions and Nutrients : Sulfate in Water by IC												
HDPE WG-051723-CS-21	E235.SO4	17-May-2023	20-May-2023				20-May-2023	28 days	3 days	✓		
Anions and Nutrients : Sulfate in Water by IC												
HDPE WG-051723-CS-22	E235.SO4	17-May-2023	20-May-2023				20-May-2023	28 days	3 days	✓		
Dissolved Metals : Dissolved Mercury in Water by CVAAS												
Glass vial dissolved (hydrochloric acid) WG-051723-CS-13	E509	17-May-2023	22-May-2023				22-May-2023	28 days	5 days	✓		

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Method	Sampling Date				Evaluation: ▼ = Holding time exceedance ; ✓ = Within Holding Tim												
	Sampling Date	EXI	raction / Pr	eparation			Analys	is									
		Preparation	Holding	g Times	Eval	Analysis Date	Holding	Times	Eval								
		Date	Rec	Actual			Rec	Actual									
E509	17-May-2023	22-May-2023				22-May-2023	28 days	5 days	✓								
E509	17-May-2023	22-May-2023				22-May-2023	28 days	5 days	✓								
F500	47.140000	00.140000				00.140000	00 1	F 4	,								
E509	17-May-2023	22-May-2023				22-May-2023	28 days	5 days	✓								
E509	17-May-2023	22-May-2023				22-May-2023	28 days	5 days	✓								
									,								
E509	17-May-2023	22-May-2023				22-May-2023	28 days	5 days	✓								
E509	17-May-2023	22-May-2023				22-May-2023	28 days	5 days	✓								
E509	17-May-2023	22-May-2023				22-May-2023	28 days	5 days	✓								
E509	17-May-2023	22-May-2023				22-May-2023	28 days	5 days	✓								
									_								
E509	17-May-2023	22-May-2023				22-May-2023	28 days	5 days	✓								
	E509 E509 E509 E509	E509 17-May-2023 E509 17-May-2023 E509 17-May-2023 E509 17-May-2023 E509 17-May-2023	E509 17-May-2023 22-May-2023 E509 17-May-2023 22-May-2023 E509 17-May-2023 22-May-2023 E509 17-May-2023 22-May-2023 E509 17-May-2023 22-May-2023 E509 17-May-2023 22-May-2023 E509 17-May-2023 22-May-2023	E509 17-May-2023 22-May-2023 E509 17-May-2023 22-May-2023 E509 17-May-2023 22-May-2023 E509 17-May-2023 22-May-2023 E509 17-May-2023 22-May-2023 E509 17-May-2023 22-May-2023 E509 17-May-2023 22-May-2023	E509 17-May-2023 22-May-2023 E509 17-May-2023 22-May-2023 E509 17-May-2023 22-May-2023 E509 17-May-2023 22-May-2023 E509 17-May-2023 22-May-2023 E509 17-May-2023 22-May-2023 E509 17-May-2023 22-May-2023 E509 17-May-2023 22-May-2023	E509 17-May-2023 22-May-2023 E509 17-May-2023 22-May-2023 E509 17-May-2023 22-May-2023 E509 17-May-2023 22-May-2023 E509 17-May-2023 22-May-2023 E509 17-May-2023 22-May-2023 E509 17-May-2023 22-May-2023 E509 17-May-2023 22-May-2023 E509 17-May-2023 22-May-2023	E509 17-May-2023 22-May-2023 22-May-2023 E509 17-May-2023 22-May-2023 22-May-2023 E509 17-May-2023 22-May-2023 22-May-2023 E509 17-May-2023 22-May-2023 22-May-2023 E509 17-May-2023 22-May-2023 22-May-2023 E509 17-May-2023 22-May-2023 22-May-2023 E509 17-May-2023 22-May-2023 22-May-2023 E509 17-May-2023 22-May-2023 22-May-2023	E509 17-May-2023 22-May-2023 22-May-2023 28 days E509 17-May-2023 22-May-2023 22-May-2023 28 days E509 17-May-2023 22-May-2023 22-May-2023 28 days E509 17-May-2023 22-May-2023 22-May-2023 28 days E509 17-May-2023 22-May-2023 22-May-2023 28 days E509 17-May-2023 22-May-2023 22-May-2023 28 days E509 17-May-2023 22-May-2023 22-May-2023 28 days	E509 17-May-2023 22-May-2023 22-May-2023 28 days 5 days E509 17-May-2023 22-May-2023 22-May-2023 28 days 5 days E509 17-May-2023 22-May-2023 22-May-2023 28 days 5 days E509 17-May-2023 22-May-2023 22-May-2023 28 days 5 days E509 17-May-2023 22-May-2023 22-May-2023 28 days 5 days E509 17-May-2023 22-May-2023 22-May-2023 28 days 5 days E509 17-May-2023 22-May-2023 22-May-2023 28 days 5 days E509 17-May-2023 22-May-2023 22-May-2023 28 days 5 days								

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Matrix: Water	Evaluation: × = Holding time exceedance ; √ = Within Holding											
Analyte Group	Method	Sampling Date	Ext	traction / Pr	eparation			Analys	sis			
Container / Client Sample ID(s)			Preparation		g Times	Eval	Analysis Date		g Times	Eval		
			Date	Rec	Actual			Rec	Actual			
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS												
HDPE dissolved (nitric acid) WG-051723-CS-13	E421	17-May-2023	23-May-2023				24-May-2023	180 days	7 days	✓		
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS												
HDPE dissolved (nitric acid) WG-051723-CS-14	E421	17-May-2023	23-May-2023				24-May-2023	180 days	7 days	✓		
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS												
HDPE dissolved (nitric acid) WG-051723-CS-15	E421	17-May-2023	23-May-2023				24-May-2023	180 days	7 days	✓		
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS												
HDPE dissolved (nitric acid) WG-051723-CS-16	E421	17-May-2023	23-May-2023				24-May-2023	180 days	7 days	✓		
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS												
HDPE dissolved (nitric acid) WG-051723-CS-17	E421	17-May-2023	23-May-2023				24-May-2023	180 days	7 days	4		
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS												
HDPE dissolved (nitric acid) WG-051723-CS-18	E421	17-May-2023	23-May-2023				24-May-2023	180 days	7 days	✓		
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS												
HDPE dissolved (nitric acid) WG-051723-CS-19	E421	17-May-2023	23-May-2023				24-May-2023	180 days	7 days	4		
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS									<u>'</u>			
HDPE dissolved (nitric acid) WG-051723-CS-20	E421	17-May-2023	23-May-2023				24-May-2023	180 days	7 days	✓		
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS												
HDPE dissolved (nitric acid) WG-051723-CS-21	E421	17-May-2023	23-May-2023				24-May-2023	180 days	7 days	✓		

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Matrix: Water	Evaluation: × = Holding time exceedance ; ✓ = Within Holding T												
Analyte Group	Method	Sampling Date	Ext	raction / Pr	reparation			Analys	is				
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	Times	Eval			
			Date	Rec	Actual			Rec	Actual				
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS													
HDPE dissolved (nitric acid)													
WG-051723-CS-22	E421	17-May-2023	23-May-2023				24-May-2023	180	7 days	✓			
								days					
Physical Tests : Alkalinity Species by Titration													
HDPE													
WG-051723-CS-13	E290	17-May-2023	19-May-2023				21-May-2023	14 days	4 days	✓			
Physical Tests : Alkalinity Species by Titration													
HDPE													
WG-051723-CS-14	E290	17-May-2023	20-May-2023				21-May-2023	14 days	4 days	✓			
Physical Tests : Alkalinity Species by Titration													
HDPE													
WG-051723-CS-15	E290	17-May-2023	20-May-2023				21-May-2023	14 days	4 days	✓			
		Ť	ĺ				,		1				
Physical Tests : Alkalinity Species by Titration													
HDPE													
WG-051723-CS-16	E290	17-May-2023	20-May-2023				21-May-2023	14 days	4 days	✓			
		Í	ĺ				,		1				
Physical Tests : Alkalinity Species by Titration													
HDPE								Τ					
WG-051723-CS-17	E290	17-May-2023	20-May-2023				21-May-2023	14 days	4 days	✓			
		Í	, , , , ,						, ,				
Physical Tests : Alkalinity Species by Titration													
HDPE				l									
WG-051723-CS-18	E290	17-May-2023	20-May-2023				21-May-2023	14 days	4 days	1			
		,							, -				
Physical Tests : Alkalinity Species by Titystian													
Physical Tests : Alkalinity Species by Titration HDPE													
WG-051723-CS-19	E290	17-May-2023	20-May-2023				21-May-2023	14 days	4 days	1			
							2		,0	-			
Division Trade Albeliate Occasion by Titurdon													
Physical Tests : Alkalinity Species by Titration HDPE													
WG-051723-CS-20	E290	17-May-2023	20-May-2023				21-May-2023	14 days	4 days	√			
VVO-001120-00-20	2200	17-Way-2020	20-111ay-2020				21-Way-2023	1- days	- uays	•			

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Matrix: Water	Evaluation: × = Holding time exceedance ; ✓ = Within Holding												
Analyte Group	Method	Sampling Date	Ext	raction / Pr	eparation			Analys	Analysis				
Container / Client Sample ID(s)			Preparation	Holdin	g Times	Eval	Analysis Date	Holding	g Times	Eval			
			Date	Rec	Actual			Rec	Actual				
Physical Tests : Alkalinity Species by Titration													
HDPE													
WG-051723-CS-21	E290	17-May-2023	20-May-2023				21-May-2023	14 days	4 days	✓			
										ı			
Physical Tests : Alkalinity Species by Titration													
HDPE													
WG-051723-CS-22	E290	17-May-2023	20-May-2023				21-May-2023	14 days	4 days	✓			
Physical Tests : Conductivity in Water													
HDPE													
WG-051723-CS-13	E100	17-May-2023	19-May-2023				21-May-2023	28 days	4 days	✓			
Physical Tests : Conductivity in Water													
HDPE													
WG-051723-CS-14	E100	17-May-2023	20-May-2023				21-May-2023	28 days	4 days	✓			
Physical Tests : Conductivity in Water													
HDPE													
WG-051723-CS-15	E100	17-May-2023	20-May-2023				21-May-2023	28 days	4 days	✓			
Physical Tests : Conductivity in Water													
HDPE													
WG-051723-CS-16	E100	17-May-2023	20-May-2023				21-May-2023	28 days	4 days	✓			
									-				
Physical Tests : Conductivity in Water													
HDPE								T					
WG-051723-CS-17	E100	17-May-2023	20-May-2023				21-May-2023	28 days	4 days	✓			
		'	j						,				
Physical Tests : Conductivity in Water													
HDPE							I						
WG-051723-CS-18	E100	17-May-2023	20-May-2023				21-May-2023	28 days	4 days	1			
		,					,		, -				
Dhysical Tests - Candustivity in Water													
Physical Tests : Conductivity in Water HDPE													
WG-051723-CS-19	E100	17-May-2023	20-May-2023				21-May-2023	28 days	4 days	√			
110-001120-00-10	2.00	. r may 2020	20-141dy-2020				2 1-1VIGY-2020	_o days	ruuys	•			
	1												

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Matrix: Water	Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time												
Analyte Group	Method	Sampling Date	Ext	raction / Pr	eparation			Analys	sis				
Container / Client Sample ID(s)			Preparation Date	Holding Rec	g Times Actual	Eval	Analysis Date	Holding Rec	g Times Actual	Eval			
Physical Tests : Conductivity in Water													
HDPE WG-051723-CS-20	E100	17-May-2023	20-May-2023				21-May-2023	28 days	4 days	4			
Physical Tests : Conductivity in Water													
HDPE WG-051723-CS-21	E100	17-May-2023	20-May-2023				21-May-2023	28 days	4 days	✓			
Physical Tests : Conductivity in Water													
HDPE WG-051723-CS-22	E100	17-May-2023	20-May-2023				21-May-2023	28 days	4 days	✓			
Physical Tests : TDS by Gravimetry													
HDPE WG-051723-CS-17	E162	17-May-2023					23-May-2023	7 days	5 days	✓			
Physical Tests : TDS by Gravimetry													
HDPE WG-051723-CS-18	E162	17-May-2023					23-May-2023	7 days	5 days	✓			
Physical Tests : TDS by Gravimetry													
HDPE WG-051723-CS-19	E162	17-May-2023					23-May-2023	7 days	5 days	√			
Physical Tests : TDS by Gravimetry													
HDPE WG-051723-CS-20	E162	17-May-2023					23-May-2023	7 days	5 days	✓			
Physical Tests : TDS by Gravimetry													
HDPE WG-051723-CS-13	E162	17-May-2023					23-May-2023	7 days	6 days	✓			
Physical Tests : TDS by Gravimetry													
HDPE WG-051723-CS-14	E162	17-May-2023					23-May-2023	7 days	6 days	✓			

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Matrix: Water					E	/aluation: ≭ =	Holding time excee	edance ; •	✓ = Within	Holding Tir
Analyte Group	Method	Sampling Date	Ext	traction / Pr	reparation			Analys	sis	
Container / Client Sample ID(s)			Preparation	Holding	g Times Eval		Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Physical Tests : TDS by Gravimetry										
HDPE										
WG-051723-CS-15	E162	17-May-2023					23-May-2023	7 days	6 days	✓
Physical Tests : TDS by Gravimetry										
HDPE										
WG-051723-CS-16	E162	17-May-2023					23-May-2023	7 days	6 days	✓
Physical Tests : TDS by Gravimetry										
HDPE										
WG-051723-CS-21	E162	17-May-2023					24-May-2023	7 days	7 days	✓
Physical Tests : TDS by Gravimetry				1						
HDPE										
WG-051723-CS-22	E162	17-May-2023					24-May-2023	7 days	7 days	✓

Legend & Qualifier Definitions

Rec. HT: ALS recommended hold time (see units).

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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.

Quality Control Sample Type			Co	ount		Frequency (%)
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation
Laboratory Duplicates (DUP)						-	
Alkalinity Species by Titration	E290	947695	2	16	12.5	5.0	✓
Ammonia by Fluorescence	E298	952640	1	20	5.0	5.0	1
Chloride in Water by IC	E235.Cl	947686	3	22	13.6	5.0	√
Conductivity in Water	E100	947696	3	15	20.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	949460	2	40	5.0	5.0	1
Dissolved Metals in Water by CRC ICPMS	E421	947783	1	19	5.2	5.0	1
Fluoride in Water by IC	E235.F	947692	3	19	15.7	5.0	1
Nitrate in Water by IC (Low Level)	E235.NO3-L	947683	3	33	9.0	5.0	1
Nitrite in Water by IC (Low Level)	E235.NO2-L	947684	3	47	6.3	5.0	1
Sulfate in Water by IC	E235.SO4	947691	3	26	11.5	5.0	✓
TDS by Gravimetry	E162	951213	2	40	5.0	5.0	1
Laboratory Control Samples (LCS)							
Alkalinity Species by Titration	E290	947695	3	16	18.7	5.0	1
Ammonia by Fluorescence	E298	952640	1	20	5.0	5.0	1
Chloride in Water by IC	E235.CI	947686	3	22	13.6	5.0	√
Conductivity in Water	E100	947696	3	15	20.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	949460	2	40	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	947783	1	19	5.2	5.0	✓
Fluoride in Water by IC	E235.F	947692	3	19	15.7	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	947683	3	33	9.0	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	947684	3	47	6.3	5.0	✓
Sulfate in Water by IC	E235.SO4	947691	3	26	11.5	5.0	✓
TDS by Gravimetry	E162	951213	2	40	5.0	5.0	✓
Method Blanks (MB)							
Alkalinity Species by Titration	E290	947695	3	16	18.7	5.0	✓
Ammonia by Fluorescence	E298	952640	1	20	5.0	5.0	✓
Chloride in Water by IC	E235.CI	947686	3	22	13.6	5.0	✓
Conductivity in Water	E100	947696	3	15	20.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	949460	2	40	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	947783	1	19	5.2	5.0	✓
Fluoride in Water by IC	E235.F	947692	3	19	15.7	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	947683	3	33	9.0	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	947684	3	47	6.3	5.0	✓
Sulfate in Water by IC	E235.SO4	947691	3	26	11.5	5.0	✓
TDS by Gravimetry	E162	951213	2	40	5.0	5.0	1

Page : 17 of 19 Work Order : VA23B1186

Client : Comox Valley Regional District



Matrix: Water														
Quality Control Sample Type			Co	ount		Frequency (%)							
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation							
Matrix Spikes (MS)														
Ammonia by Fluorescence	E298	952640	1	20	5.0	5.0	✓							
Chloride in Water by IC	E235.CI	947686	3	22	13.6	5.0	✓							
Dissolved Mercury in Water by CVAAS	E509	949460	2	40	5.0	5.0	✓							
Dissolved Metals in Water by CRC ICPMS	E421	947783	1	19	5.2	5.0	✓							
Fluoride in Water by IC	E235.F	947692	2	19	10.5	5.0	✓							
Nitrate in Water by IC (Low Level)	E235.NO3-L	947683	3	33	9.0	5.0	✓							
Nitrite in Water by IC (Low Level)	E235.NO2-L	947684	3	47	6.3	5.0	✓							
Sulfate in Water by IC	E235.SO4	947691	3	26	11.5	5.0	✓							

Page : 18 of 19 Work Order : VA23B1186

Client : Comox Valley Regional District

Project : 22



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	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
	Vancouver -			sample. Conductivity measurements are temperature-compensated to 25°C.
	Environmental			
TDS by Gravimetry	E162	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,
	Vancouver -			with gravimetric measurement of the residue.
	Environmental			
Chloride in Water by IC	E235.CI	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and /or UV detection.
	Vancouver -			
	Environmental			
Fluoride in Water by IC	E235.F	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and /or UV detection.
	Vancouver -			
	Environmental			
Nitrite in Water by IC (Low Level)	E235.NO2-L	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
	Vancouver -			
	Environmental			
Nitrate in Water by IC (Low Level)	E235.NO3-L	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and /or UV detection.
	Vancouver -			
	Environmental			
Sulfate in Water by IC	E235.SO4	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
	Vancouver -			
	Environmental			
Alkalinity Species by Titration	E290	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
	Vancouver -			alkalinity values.
	Environmental			
Ammonia by Fluorescence	E298	Water	Method Fialab 100,	Ammonia in water is determined by automated continuous flow analysis with membrane
	Calgary - Environmental		2018	diffusion and fluorescence detection, after reaction with OPA (ortho-phthalaldehyde). This method is approved under US EPA 40 CFR Part 136 (May 2021)
Dissolved Metals in Water by CRC ICPMS	E421	Water	APHA 3030B/EPA 6020B (mod)	Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by Collision/Reaction Cell ICPMS.
	Vancouver -			
	Environmental			Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered

Page : 19 of 19 Work Order : VA23B1186

Client : Comox Valley Regional District



Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Dissolved Mercury in Water by CVAAS	E509	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
	Vancouver -			CVAAS.
	Environmental			
Dissolved Hardness (Calculated)	EC100	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
	Vancouver -			to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially
	Environmental			calculated from dissolved Calcium and Magnesium concentrations, because it is a property of water due to dissolved divalent cations.
Nitrate and Nitrite (as N) (Calculation)	EC235.N+N	Water	EPA 300.0	Nitrate and Nitrite (as N) is a calculated parameter. Nitrate and Nitrite (as N) = Nitrite (as N) + Nitrate (as N).
	Vancouver -			
	Environmental			
Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Ammonia	EP298	Water		Sample preparation for Preserved Nutrients Water Quality Analysis.
	Calgary - Environmental			
Dissolved Metals Water Filtration	EP421	Water	АРНА 3030В	Water samples are filtered (0.45 um), and preserved with HNO3.
	Vancouver -			
	Environmental			
Dissolved Mercury Water Filtration	EP509	Water	АРНА 3030В	Water samples are filtered (0.45 um), and preserved with HCl.
	Vancouver -			
	Environmental			

ALS

Chain of Custody (COC) / Analytical Request Form

Affix ALS barcode label here

GOC Number: 17 -

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Environmental

Canada Toll Free: 1 800 668 9878

www.alsglobal.com																						
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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.

ALS Canada Ltd.

Contact

Address



CERTIFICATE OF ANALYSIS

: 24-Aug-2023 15:49

Work Order : **VA23B8799** Page : 1 of 10

Client : Comox Valley Regional District Laboratory : ALS Environmental - Vancouver

: Crystal Stuart Account Manager : Thomas Chang

: 770 Harmston Avenue Address : 8081 Lougheed Highway

 Courtney BC Canada V9N 0G8
 Burnaby BC Canada V5A 1W9

 Telephone
 : 250-898-3722
 Telephone
 : +1 604 253 4188

 Project
 : 3-2
 Date Samples Received
 : 15-Aug-2023 09:35

 PO
 : 23-015
 Date Analysis Commenced
 : 16-Aug-2023

C-O-C number : ---- Issue Date

Sampler : C.Stuart
Site : CRWMC-Quarterly-GW

Quote number : VA23-COVR100-001

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
- Surrogate Control Limits

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
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia
Kim Jensen	Department Manager - Metals	Inorganics, Burnaby, British Columbia
Ophelia Chiu	Department Manager - Organics	Organics, Burnaby, British Columbia
Owen Cheng		Metals, Burnaby, British Columbia
Sukhman Khosa	Lab Assistant	Metals, Burnaby, British Columbia

Page : 2 of 10 Work Order : VA23B8799

Client : Comox Valley Regional District

Project : 3-2

ALS

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
μg/L	micrograms per litre
μS/cm	microsiemens per centimetre
mg/L	milligrams per litre

<: 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.

Sample Comments

Sample	Client Id	Comment
VA23B8799-003	WG-081323-CS-03	VA23B8799-003 and -004: Low level DCM result; LOR raised to lowest BC CSR standard.
VA23B8799-004	WG-081323-CS-04	VA23B8799-003 and -004: Low level DCM result; LOR raised to lowest BC CSR standard.

Qualifiers

Qualifier	Description
DLDS	Detection Limit Raised: Dilution required due to high Dissolved Solids / Electrical
	Conductivity.
RRR	Refer to report comments for issues regarding this analysis.

Page : 3 of 10 Work Order : VA23B8799

Client : Comox Valley Regional District

Project : 3-2

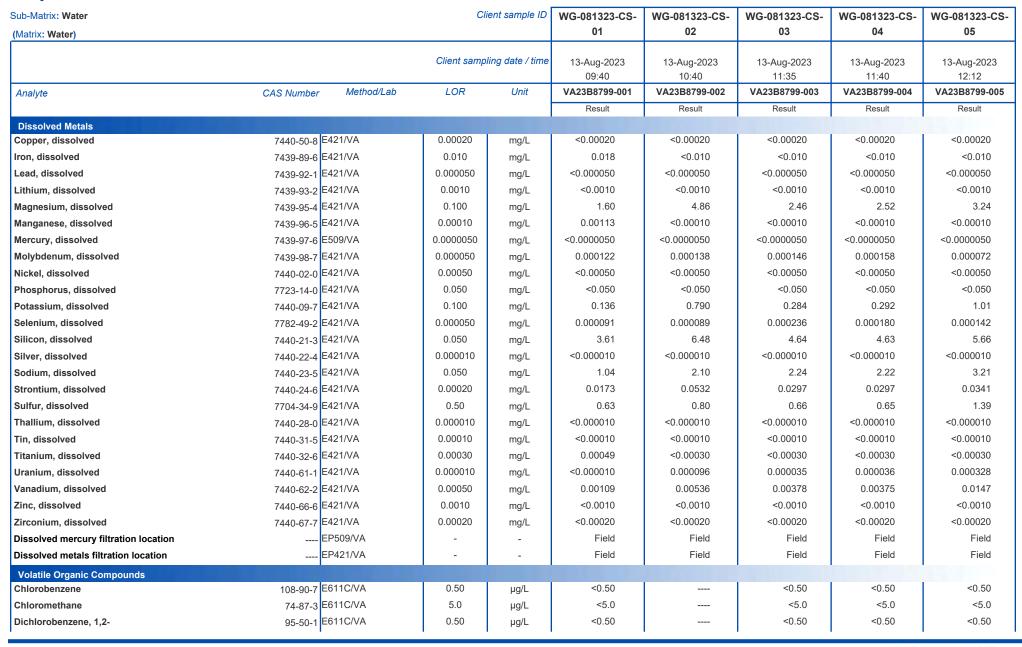


Sub-Matrix: Water			Cli	ent sample ID	WG-081323-CS-	WG-081323-CS-	WG-081323-CS-	WG-081323-CS-	WG-081323-CS-
(Matrix: Water)					01	02	03	04	05
			Client samp	ling date / time	13-Aug-2023 09:40	13-Aug-2023 10:40	13-Aug-2023 11:35	13-Aug-2023 11:40	13-Aug-2023 12:12
Analyte	CAS Number	Method/Lab	LOR	Unit	VA23B8799-001	VA23B8799-002	VA23B8799-003	VA23B8799-004	VA23B8799-005
					Result	Result	Result	Result	Result
Physical Tests									
Alkalinity, bicarbonate (as CaCO3)		E290/VA	1.0	mg/L	35.8	106	53.9	54.0	57.4
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, total (as CaCO3)		E290/VA	1.0	mg/L	35.8	106	53.9	54.0	57.4
Conductivity		E100/VA	2.0	μS/cm	75.9	207	114	114	131
Hardness (as CaCO3), dissolved		EC100/VA	0.60	mg/L	34.0	99.2	50.6	49.8	54.8
Solids, total dissolved [TDS]		E162/VA	10	mg/L	57	130	80	85	90
Anions and Nutrients						10000			
Ammonia, total (as N)	7664-41-7	E298/VA	0.0050	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Chloride	16887-00-6	E235.CI/VA	0.50	mg/L	0.88	2.48	1.94	1.94	3.01
Fluoride	16984-48-8	E235.F/VA	0.020	mg/L	<0.020	<0.020	<0.020	<0.020	<0.020
Nitrate (as N)	14797-55-8	E235.NO3-L/V	0.0050	mg/L	0.0686	0.187	0.106	0.105	0.534
Nitrate + Nitrite (as N)		A EC235.N+N/V	0.0050	mg/L	0.0686	0.187	0.106	0.105	0.534
Nitrite (as N)	14797-65-0	E235.NO2-L/V A	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	2.12	2.44	2.29	2.29	4.34
Dissolved Metals									
Aluminum, dissolved	7429-90-5	E421/VA	0.0010	mg/L	0.0085	0.0044	0.0014	0.0014	0.0089
Antimony, dissolved	7440-36-0	E421/VA	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic, dissolved	7440-38-2	E421/VA	0.00010	mg/L	<0.00010	0.00074	0.00021	0.00021	0.00168
Barium, dissolved	7440-39-3	E421/VA	0.00010	mg/L	0.00111	0.00212	0.00042	0.00043	0.00167
Beryllium, dissolved	7440-41-7	E421/VA	0.000020	mg/L	<0.000020	<0.000020	<0.000020	<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	<0.010	<0.010	<0.010	<0.010
Cadmium, dissolved	7440-43-9	E421/VA	0.0000050	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Calcium, dissolved	7440-70-2	E421/VA	0.050	mg/L	11.0	31.7	16.2	15.8	16.6
Chromium, dissolved	7440-47-3	E421/VA	0.00050	mg/L	<0.00050	0.00056	<0.00050	<0.00050	0.00075
Cobalt, dissolved	7440-48-4	E421/VA	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010

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Client : Comox Valley Regional District

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ALS

Sub-Matrix: Water		C	lient sample ID	WG-081323-CS-	WG-081323-CS-	WG-081323-CS-	WG-081323-CS-	WG-081323-CS-
(Matrix: Water)				01	02	03	04	05
		Client samp	oling date / time	13-Aug-2023 09:40	13-Aug-2023 10:40	13-Aug-2023 11:35	13-Aug-2023 11:40	13-Aug-2023 12:12
Analyte	CAS Number Method/Lab	LOR	Unit	VA23B8799-001	VA23B8799-002	VA23B8799-003	VA23B8799-004	VA23B8799-005
				Result	Result	Result	Result	Result
Volatile Organic Compounds								
Dichlorobenzene, 1,3-	541-73-1 E611C/VA	0.50	μg/L	<0.50		<0.50	<0.50	<0.50
Dichlorobenzene, 1,4-	106-46-7 E611C/VA	0.50	μg/L	<0.50		<0.50	<0.50	<0.50
Dichloropropane, 1,2-	78-87-5 E611C/VA	0.50	μg/L	<0.50		<0.50	<0.50	<0.50
Dichloropropylene, cis+trans-1,3-	542-75-6 E611C/VA	0.75	μg/L	<0.75		<0.75	<0.75	<0.75
Dichloropropylene, cis-1,3-	10061-01-5 E611C/VA	0.50	μg/L	<0.50		<0.50	<0.50	<0.50
Tetrachloroethane, 1,1,1,2-	630-20-6 E611C/VA	0.50	μg/L	<0.50		<0.50	<0.50	<0.50
Tetrachloroethane, 1,1,2,2-	79-34-5 E611C/VA	0.20	μg/L	<0.20		<0.20	<0.20	<0.20
Trichloroethane, 1,1,2-	79-00-5 E611C/VA	0.50	μg/L	<0.50		<0.50	<0.50	<0.50
Trichlorofluoromethane	75-69-4 E611C/VA	0.50	μg/L	<0.50		<0.50	<0.50	<0.50
Volatile Organic Compounds [Drycleaning]								
Carbon tetrachloride	56-23-5 E611C/VA	0.50	μg/L	<0.50		<0.50	<0.50	<0.50
Chloroethane	75-00-3 <mark>E611C/VA</mark>	0.50	μg/L	<0.50		<0.50	<0.50	<0.50
Dichloroethane, 1,1-	75-34-3 <mark>E611C/VA</mark>	0.50	μg/L	<0.50		<0.50	<0.50	<0.50
Dichloroethane, 1,2-	107-06-2 E611C/VA	0.50	μg/L	<0.50		<0.50	<0.50	<0.50
Dichloroethylene, 1,1-	75-35-4 <mark>E611C/VA</mark>	0.50	μg/L	<0.50		<0.50	<0.50	<0.50
Dichloroethylene, cis-1,2-	156-59-2 E611C/VA	0.50	μg/L	< 0.50		<0.50	<0.50	<0.50
Dichloroethylene, trans-1,2-	156-60-5 E611C/VA	0.50	μg/L	< 0.50		<0.50	<0.50	<0.50
Dichloromethane	75-09-2 E611C/VA	1.0	μg/L	<1.0		<50.0 RRR	<50.0 RRR	<1.0
Dichloropropylene, trans-1,3-	10061-02-6 E611C/VA	0.50	μg/L	< 0.50		<0.50	<0.50	<0.50
Tetrachloroethylene	127-18-4 E611C/VA	0.50	μg/L	< 0.50		<0.50	<0.50	<0.50
Trichloroethane, 1,1,1-	71-55-6 E611C/VA	0.50	μg/L	<0.50		<0.50	<0.50	<0.50
Trichloroethylene	79-01-6 E611C/VA	0.50	μg/L	<0.50		<0.50	<0.50	<0.50
Vinyl chloride	75-01-4 E611C/VA	0.40	μg/L	<0.40		<0.40	<0.40	<0.40
Volatile Organic Compounds [Fuels]								16-6-11
Benzene	71-43-2 E611C/VA	0.50	μg/L	<0.50		<0.50	<0.50	<0.50
Ethylbenzene	100-41-4 E611C/VA	0.50	μg/L	<0.50		<0.50	<0.50	<0.50
Methyl-tert-butyl ether [MTBE]	1634-04-4 E611C/VA	0.50	μg/L	<0.50		<0.50	<0.50	<0.50
Styrene	100-42-5 E611C/VA	0.50	μg/L	<0.50		<0.50	<0.50	<0.50
Toluene	108-88-3 E611C/VA	0.40	μg/L	<0.40		<0.40	<0.40	<0.40
Xylene, m+p-	179601-23-1 E611C/VA	0.40	μg/L	<0.40		<0.40	<0.40	<0.40
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Analytical Results

Sub-Matrix: Water			Ci	lient sample ID	WG-081323-CS-	WG-081323-CS-	WG-081323-CS-	WG-081323-CS-	WG-081323-CS-
(Matrix: Water)					01	02	03	04	05
			Client samp	oling date / time	13-Aug-2023 09:40	13-Aug-2023 10:40	13-Aug-2023 11:35	13-Aug-2023 11:40	13-Aug-2023 12:12
Analyte	CAS Number	Method/Lab	LOR	Unit	VA23B8799-001	VA23B8799-002	VA23B8799-003	VA23B8799-004	VA23B8799-005
				İ	Result	Result	Result	Result	Result
Volatile Organic Compounds [Fuels]									
Xylene, o-	95-47-6 E	611C/VA	0.30	μg/L	<0.30		<0.30	<0.30	<0.30
Xylenes, total	1330-20-7 E	611C/VA	0.50	μg/L	<0.50		<0.50	<0.50	<0.50
Volatile Organic Compounds [THMs]									
Bromodichloromethane	75-27-4 E	611C/VA	0.50	μg/L	<0.50		<0.50	<0.50	<0.50
Bromoform	75-25-2 E	611C/VA	0.50	μg/L	<0.50		<0.50	<0.50	<0.50
Chloroform	67-66-3 E	611C/VA	0.50	μg/L	<0.50		<0.50	<0.50	<0.50
Dibromochloromethane	124-48-1 E	611C/VA	0.50	μg/L	<0.50		<0.50	<0.50	<0.50
Hydrocarbons									
VHw (C6-C10)		581.VH+F1/ 'A	100	μg/L	<100		<100	<100	<100
VPHw	E	C580A/VA	100	μg/L	<100		<100	<100	<100
Hydrocarbons Surrogates									
Dichlorotoluene, 3,4-		581.VH+F1/ ⁄A	1.0	%	100		91.5	107	110
Volatile Organic Compounds Surrogates									
Bromofluorobenzene, 4-	460-00-4 E		1.0	%	88.6		87.2	88.9	89.5
Difluorobenzene, 1,4-	540-36-3 E	611C/VA	1.0	%	104		103	103	104

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.

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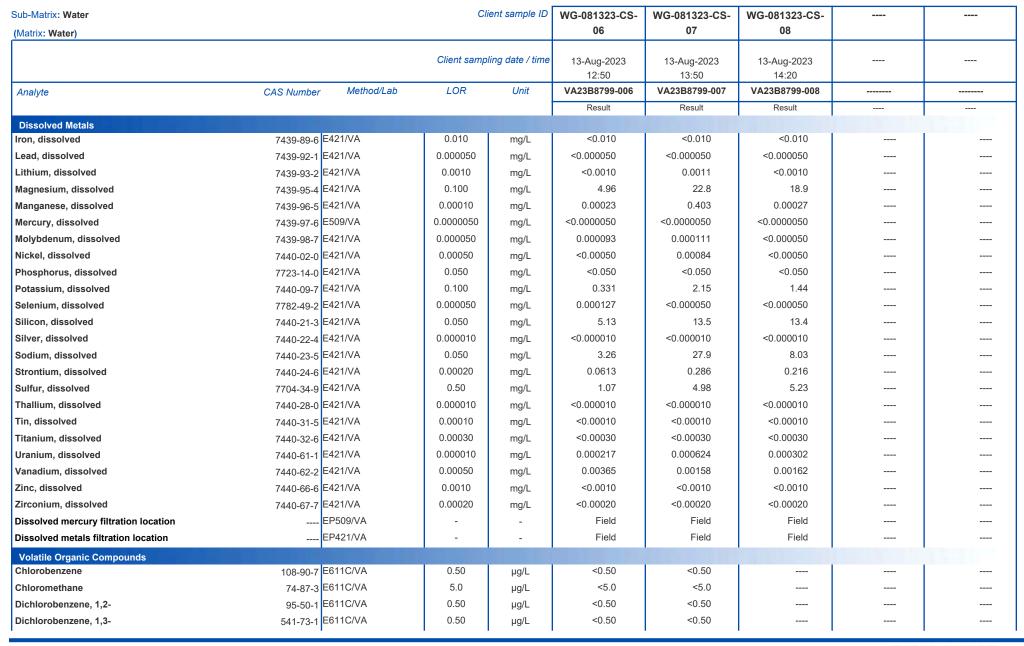
Project : 3-2

Sub-Matrix: Water			Cli	ent sample ID	WG-081323-CS-	WG-081323-CS-	WG-081323-CS-	
(Matrix: Water)					06	07	08	
			Client samp	ling date / time	13-Aug-2023 12:50	13-Aug-2023 13:50	13-Aug-2023 14:20	
Analyte	CAS Number	Method/Lab	LOR	Unit	VA23B8799-006	VA23B8799-007	VA23B8799-008	
				Ì	Result	Result	Result	
Physical Tests								
Alkalinity, bicarbonate (as CaCO3)		E290/VA	1.0	mg/L	77.9	313	317	
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, total (as CaCO3)		E290/VA	1.0	mg/L	77.9	313	317	
Conductivity		E100/VA	2.0	μS/cm	167	862	640	
Hardness (as CaCO3), dissolved		EC100/VA	0.60	mg/L	82.4	371	316	
Solids, total dissolved [TDS]		E162/VA	10	mg/L	106	568	391	
Anions and Nutrients								
Ammonia, total (as N)	7664-41-7	E298/VA	0.0050	mg/L	<0.0050	0.0110	<0.0050	
Chloride	16887-00-6	E235.CI/VA	0.50	mg/L	4.47	61.9	10.2	
Fluoride	16984-48-8	E235.F/VA	0.020	mg/L	<0.020	<0.100 DLDS	<0.020	
Nitrate (as N)	14797-55-8	E235.NO3-L/V	0.0050	mg/L	0.269	12.4	4.88	
Nitrate + Nitrite (as N)		A EC235.N+N/V	0.0050	mg/L	0.269	12.4	4.88	
Nitrite (as N)	14797-65-0	A E235.NO2-L/V A	0.0010	mg/L	<0.0010	<0.0050 DLDS	<0.0010	
Sulfate (as SO4)	14808-79-8	E235.SO4/VA	0.30	mg/L	2.62	10.1	13.6	
Dissolved Metals								
Aluminum, dissolved	7429-90-5	E421/VA	0.0010	mg/L	0.0036	0.0016	<0.0010	
Antimony, dissolved	7440-36-0	E421/VA	0.00010	mg/L	<0.00010	<0.00010	<0.00010	
Arsenic, dissolved	7440-38-2	E421/VA	0.00010	mg/L	0.00016	0.00012	0.00011	
Barium, dissolved	7440-39-3	E421/VA	0.00010	mg/L	0.00050	0.0144	0.00785	
Beryllium, dissolved	7440-41-7	E421/VA	0.000020	mg/L	<0.000020	<0.000020	<0.000020	
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	0.152	0.127	
Cadmium, dissolved	7440-43-9	E421/VA	0.0000050	mg/L	<0.0000050	0.0000429	0.0000102	
Calcium, dissolved	7440-70-2	E421/VA	0.050	mg/L	24.8	111	95.2	
Chromium, dissolved	7440-47-3	E421/VA	0.00050	mg/L	0.00093	<0.00050	<0.00050	
Cobalt, dissolved	7440-48-4		0.00010	mg/L	<0.00010	0.00026	<0.00010	
Copper, dissolved	7440-50-8	E421/VA	0.00020	mg/L	0.00021	0.00148	0.00084	

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Client : Comox Valley Regional District

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Sub-Matrix: Water		C	lient sample ID	WG-081323-CS-	WG-081323-CS-	WG-081323-CS-	
(Matrix: Water)				06	07	08	
		Client samp	oling date / time	13-Aug-2023 12:50	13-Aug-2023 13:50	13-Aug-2023 14:20	
Analyte	CAS Number Method/Lab	LOR	Unit	VA23B8799-006	VA23B8799-007	VA23B8799-008	
				Result	Result	Result	
Volatile Organic Compounds							
Dichlorobenzene, 1,4-	106-46-7 E611C/VA	0.50	μg/L	<0.50	<0.50		
Dichloropropane, 1,2-	78-87-5 E611C/VA	0.50	μg/L	<0.50	<0.50		
Dichloropropylene, cis+trans-1,3-	542-75-6 E611C/VA	0.75	μg/L	<0.75	<0.75		
Dichloropropylene, cis-1,3-	10061-01-5 E611C/VA	0.50	μg/L	<0.50	<0.50		
Tetrachloroethane, 1,1,1,2-	630-20-6 E611C/VA	0.50	μg/L	<0.50	<0.50		
Tetrachloroethane, 1,1,2,2-	79-34-5 E611C/VA	0.20	μg/L	<0.20	<0.20		
Trichloroethane, 1,1,2-	79-00-5 E611C/VA	0.50	μg/L	<0.50	<0.50		
Trichlorofluoromethane	75-69-4 E611C/VA	0.50	μg/L	<0.50	<0.50		
Volatile Organic Compounds [Drycleaning]							
Carbon tetrachloride	56-23-5 E611C/VA	0.50	μg/L	<0.50	<0.50		
Chloroethane	75-00-3 E611C/VA	0.50	μg/L	<0.50	<0.50		
Dichloroethane, 1,1-	75-34-3 E611C/VA	0.50	μg/L	<0.50	<0.50		
Dichloroethane, 1,2-	107-06-2 E611C/VA	0.50	μg/L	<0.50	<0.50		
Dichloroethylene, 1,1-	75-35-4 E611C/VA	0.50	μg/L	<0.50	<0.50		
Dichloroethylene, cis-1,2-	156-59-2 E611C/VA	0.50	μg/L	<0.50	<0.50		
Dichloroethylene, trans-1,2-	156-60-5 E611C/VA	0.50	μg/L	<0.50	<0.50		
Dichloromethane	75-09-2 E611C/VA	1.0	μg/L	<1.0	<1.0		
Dichloropropylene, trans-1,3-	10061-02-6 E611C/VA	0.50	μg/L	<0.50	<0.50		
Tetrachloroethylene	127-18-4 E611C/VA	0.50	μg/L	<0.50	<0.50		
Trichloroethane, 1,1,1-	71-55-6 E611C/VA	0.50	μg/L	<0.50	<0.50		
Trichloroethylene	79-01-6 E611C/VA	0.50	μg/L	<0.50	<0.50		
Vinyl chloride	75-01-4 E611C/VA	0.40	μg/L	<0.40	<0.40		
Volatile Organic Compounds [Fuels]							
Benzene	71-43-2 E611C/VA	0.50	μg/L	<0.50	<0.50		
Ethylbenzene	100-41-4 E611C/VA	0.50	μg/L	<0.50	<0.50		
Methyl-tert-butyl ether [MTBE]	1634-04-4 E611C/VA	0.50	μg/L	<0.50	<0.50		
Styrene	100-42-5 E611C/VA	0.50	μg/L	<0.50	<0.50		
Toluene	108-88-3 E611C/VA	0.40	μg/L	<0.40	<0.40		
Xylene, m+p-	179601-23-1 E611C/VA	0.40	μg/L	<0.40	<0.40		
Xylene, o-	95-47-6 E611C/VA	0.30	μg/L	<0.30	<0.30		
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Project : 3-2



Analytical Results

Sub-Matrix: Water			CI	ient sample ID	WG-081323-CS-	WG-081323-CS-	WG-081323-CS-	
(Matrix: Water)					06	07	08	
			Client samp	ling date / time	13-Aug-2023 12:50	13-Aug-2023 13:50	13-Aug-2023 14:20	
Analyte	CAS Number	Method/Lab	LOR	Unit	VA23B8799-006	VA23B8799-007	VA23B8799-008	
					Result	Result	Result	
Volatile Organic Compounds [Fuels]								
Xylenes, total	1330-20-7	E611C/VA	0.50	μg/L	<0.50	<0.50		
Volatile Organic Compounds [THMs]								
Bromodichloromethane	75-27-4	E611C/VA	0.50	μg/L	<0.50	<0.50		
Bromoform	75-25-2	E611C/VA	0.50	μg/L	<0.50	<0.50		
Chloroform	67-66-3	E611C/VA	0.50	μg/L	<0.50	<0.50		
Dibromochloromethane	124-48-1	E611C/VA	0.50	μg/L	<0.50	<0.50		
Hydrocarbons								
VHw (C6-C10)		E581.VH+F1/ VA	100	μg/L	<100	<100		
VPHw		EC580A/VA	100	μg/L	<100	<100		
Hydrocarbons Surrogates								
Dichlorotoluene, 3,4-		E581.VH+F1/ VA	1.0	%	104	104		
Volatile Organic Compounds Surrogates								
Bromofluorobenzene, 4-	460-00-4	E611C/VA	1.0	%	88.6	88.8		
Difluorobenzene, 1,4-	540-36-3	E611C/VA	1.0	%	104	103		

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.

ALS Canada Ltd.



QUALITY CONTROL REPORT

Work Order : VA23B8799 Page : 1 of 14

Client : Comox Valley Regional District Laboratory : ALS Environmental - Vancouver

Contact : Crystal Stuart Account Manager : Thomas Chang

:770 Harmston Avenue Address :8081 Lougheed Highway

Burnaby, British Columbia Canada V5A 1W9

: Telephone :+1 604 253 4188

Date Samples Received : 15-Aug-2023 09:35

Date Analysis Commenced : 16-Aug-2023

Issue Date : 24-Aug-2023 15:50

Sampler : C.Stuart 250-898-3722

: 3-2

:23-015

Site : CRWMC-Quarterly-GW
Quote number : VA23-COVR100-001

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

Courtney BC Canada V9N 0G8

- 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

Address

Telephone

C-O-C number

Project

PO

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
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Vancouver Metals, Burnaby, British Columbia
Kim Jensen	Department Manager - Metals	Vancouver Inorganics, Burnaby, British Columbia
Ophelia Chiu	Department Manager - Organics	Vancouver Organics, Burnaby, British Columbia
Owen Cheng		Vancouver Metals, Burnaby, British Columbia
Sukhman Khosa	Lab Assistant	Vancouver Metals, Burnaby, British Columbia

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Client : Comox Valley Regional District

Project : 3-



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.

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Project : 3-



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							Labora	atory Duplicate (D	OUP) 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: 1088859)										
WR2300868-007	Anonymous	Alkalinity, bicarbonate (as CaCO3)		E290	1.0	mg/L	34.2	34.3	0.294%	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, total (as CaCO3)		E290	1.0	mg/L	34.2	34.3	0.294%	20%	
Physical Tests (QC	Lot: 1088860)	The state of the s									
WR2300868-007	Anonymous	Conductivity		E100	2.0	μS/cm	2140	2140	0.00%	10%	
Physical Tests (QC	Lot: 1091270)	The state of the s									
FJ2302008-003	Anonymous	Solids, total dissolved [TDS]		E162	20	mg/L	394	388	1.66%	20%	
Anions and Nutrien	ts (QC Lot: 1088862)										
WR2300868-007	Anonymous	Fluoride	16984-48-8	E235.F	0.400	mg/L	<0.400	<0.400	0	Diff <2x LOR	
Anions and Nutrien	ts (QC Lot: 1088863)				1 1 1						
WR2300868-007	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	6.00	mg/L	1400	1400	0.696%	20%	
Anions and Nutrien	ts (QC Lot: 1088864)										
WR2300868-007	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	0.100	mg/L	0.224	0.216	0.0071	Diff <2x LOR	
Anions and Nutrien	ts (QC Lot: 1088865)										
WR2300868-007	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	0.0200	mg/L	<0.0200	<0.0200	0	Diff <2x LOR	
Anions and Nutrien	ts (QC Lot: 1088866)										
WR2300868-007	Anonymous	Chloride	16887-00-6	E235.CI	10.0	mg/L	<10.0	<10.0	0	Diff <2x LOR	
Anions and Nutrien	ts (QC Lot: 1091089)										
VA23B8799-001	WG-081323-CS-01	Ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	
Dissolved Metals (QC Lot: 1086460)										
VA23B8739-021	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	<0.0010	0.0012	0.0002	Diff <2x LOR	
		Antimony, dissolved	7440-36-0	E421	0.00010	mg/L	0.00025	0.00025	0.0000002	Diff <2x LOR	
		Arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	0.0102	0.0101	1.11%	20%	
		Barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.0291	0.0289	0.608%	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	<0.010	<0.010	0	Diff <2x LOR	
		Cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L	0.0000478	0.0000459	0.0000018	Diff <2x LOR	
		Calcium, dissolved	7440-70-2	E421	0.050	mg/L	73.7	72.2	2.00%	20%	
		Salsium, dissolved	1 1 0 - 2		0.000	g/ L	10.7	, 2.2	2.0070	2070	

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ub-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 (0	QC Lot: 1086460) - con	tinued									
VA23B8739-021	Anonymous	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	0.00162	0.00161	0.990%	20%	
		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	0.013	0.013	0.0001	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	0.0013	0.0013	0.000007	Diff <2x LOR	
		Magnesium, dissolved	7439-95-4	E421	0.0050	mg/L	13.0	13.2	1.73%	20%	
		Manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.226	0.225	0.350%	20%	
		Molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.000765	0.000765	0.0734%	20%	
		Nickel, dissolved	7440-02-0	E421	0.00050	mg/L	0.00604	0.00613	1.57%	20%	
		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	1.14	1.13	0.801%	20%	
		Selenium, dissolved	7782-49-2	E421	0.000050	mg/L	0.000631	0.000682	7.70%	20%	
		Silicon, dissolved	7440-21-3	E421	0.050	mg/L	2.93	2.93	0.194%	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	1.38	1.37	0.805%	20%	
		Strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.214	0.211	1.28%	20%	
		Sulfur, dissolved	7704-34-9	E421	0.50	mg/L	19.4	19.5	0.488%	20%	
		Thallium, dissolved	7440-28-0	E421	0.000010	mg/L	0.000016	0.000016	0.0000002	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	
		Uranium, dissolved	7440-61-1	E421	0.000010	mg/L	0.00120	0.00120	0.764%	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 (C					115		11 11				
VA23B8747-004	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	
	mpounds (QC Lot: 109										
/A23B8777-001	Anonymous	Benzene	71-43-2	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Bromodichloromethane	75-27-4	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Bromoform	75-25-2	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Carbon tetrachloride	56-23-5	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Chlorobenzene	108-90-7	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Chloroethane	75-00-3	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	

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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	
	mpounds (QC Lot: 10	96040) - continued										
VA23B8777-001	Anonymous	Chloroform	67-66-3	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR		
		Chloromethane	74-87-3	E611C	5.0	μg/L	<5.0	<5.0	0	Diff <2x LOR		
		Dibromochloromethane	124-48-1	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR		
		Dichlorobenzene, 1,2-	95-50-1	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR		
		Dichlorobenzene, 1,3-	541-73-1	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR		
		Dichlorobenzene, 1,4-	106-46-7	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR		
		Dichloroethane, 1,1-	75-34-3	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR		
		Dichloroethane, 1,2-	107-06-2	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR		
		Dichloroethylene, 1,1-	75-35-4	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR		
		Dichloroethylene, cis-1,2-	156-59-2	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR		
		Dichloroethylene, trans-1,2-	156-60-5	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR		
		Dichloromethane	75-09-2	E611C	1.0	μg/L	<1.0	<1.0	0	Diff <2x LOR		
		Dichloropropane, 1,2-	78-87-5	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR		
		Dichloropropylene, cis-1,3-	10061-01-5	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR		
		Dichloropropylene, trans-1,3-	10061-02-6	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR		
		Ethylbenzene	100-41-4	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR		
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR		
		Styrene	100-42-5	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR		
		Tetrachloroethane, 1,1,1,2-	630-20-6	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR		
		Tetrachloroethane, 1,1,2,2-	79-34-5	E611C	0.20	μg/L	<0.20	<0.20	0	Diff <2x LOR		
		Tetrachloroethylene	127-18-4	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR		
		Toluene	108-88-3	E611C	0.40	μg/L	<0.40	<0.40	0	Diff <2x LOR		
		Trichloroethane, 1,1,1-	71-55-6	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR		
		Trichloroethane, 1,1,2-	79-00-5	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR		
		Trichloroethylene	79-01-6	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR		
		Trichlorofluoromethane	75-69-4	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR		
		Vinyl chloride	75-01-4	E611C	0.40	μg/L	<0.40	<0.40	0	Diff <2x LOR		
		Xylene, m+p-	179601-23-1	E611C	0.40	μg/L	<0.40	<0.40	0	Diff <2x LOR		
		Xylene, o-	95-47-6	E611C	0.30	μg/L	<0.30	<0.30	0	Diff <2x LOR		
lydrocarbons (QC	Lot: 1096039)											
VA23B8777-001	Anonymous	VHw (C6-C10)		E581.VH+F1	100	μg/L	<100	<100	0.0%	30%		

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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

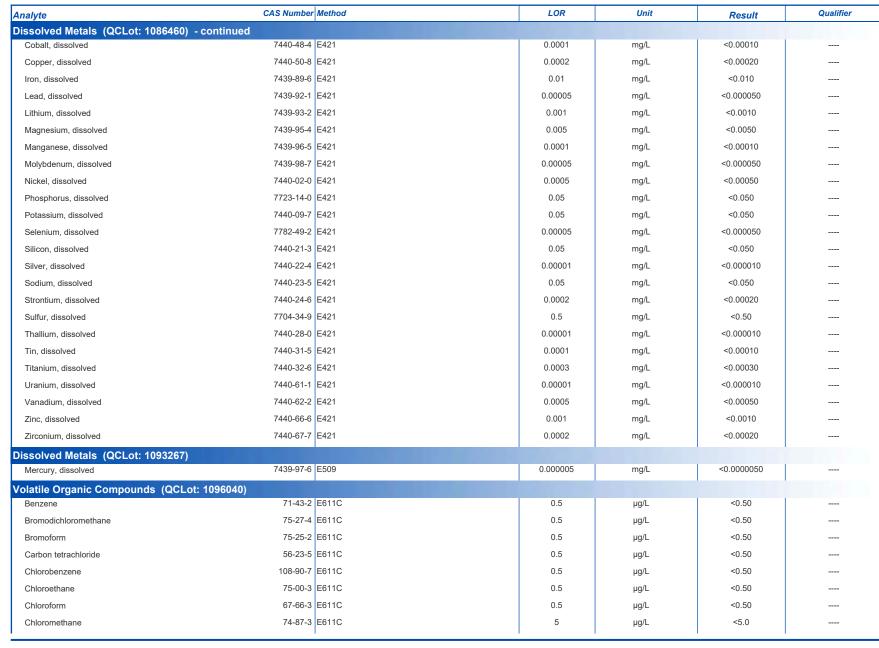
Analyte	CAS Number Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 1088859)					
Alkalinity, bicarbonate (as CaCO3)	E290	1	mg/L	<1.0	
Alkalinity, carbonate (as CaCO3)	E290	1	mg/L	<1.0	
Alkalinity, hydroxide (as CaCO3)	E290	1	mg/L	<1.0	
Alkalinity, total (as CaCO3)	E290	1	mg/L	<1.0	
Physical Tests (QCLot: 1088860)					
Conductivity	E100	1	μS/cm	<1.0	
Physical Tests (QCLot: 1091270)					
Solids, total dissolved [TDS]	E162	10	mg/L	<10	
Anions and Nutrients (QCLot: 1088862)					
Fluoride	16984-48-8 E235.F	0.02	mg/L	<0.020	
Anions and Nutrients (QCLot: 1088863)					
Sulfate (as SO4)	14808-79-8 E235.SO4	0.3	mg/L	<0.30	
Anions and Nutrients (QCLot: 1088864)					
Nitrate (as N)	14797-55-8 E235.NO3-L	0.005	mg/L	<0.0050	
Anions and Nutrients (QCLot: 1088865)					
Nitrite (as N)	14797-65-0 E235.NO2-L	0.001	mg/L	<0.0010	
Anions and Nutrients (QCLot: 1088866)					
Chloride	16887-00-6 E235.CI	0.5	mg/L	<0.50	
Anions and Nutrients (QCLot: 1091089)					
Ammonia, total (as N)	7664-41-7 E298	0.005	mg/L	<0.0050	
Dissolved Metals (QCLot: 1086460)					
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	<0.000050	
Calcium, dissolved	7440-70-2 E421	0.05	mg/L	<0.050	
Chromium, dissolved	7440-47-3 E421	0.0005	mg/L	<0.00050	

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Sub-Matrix: Water



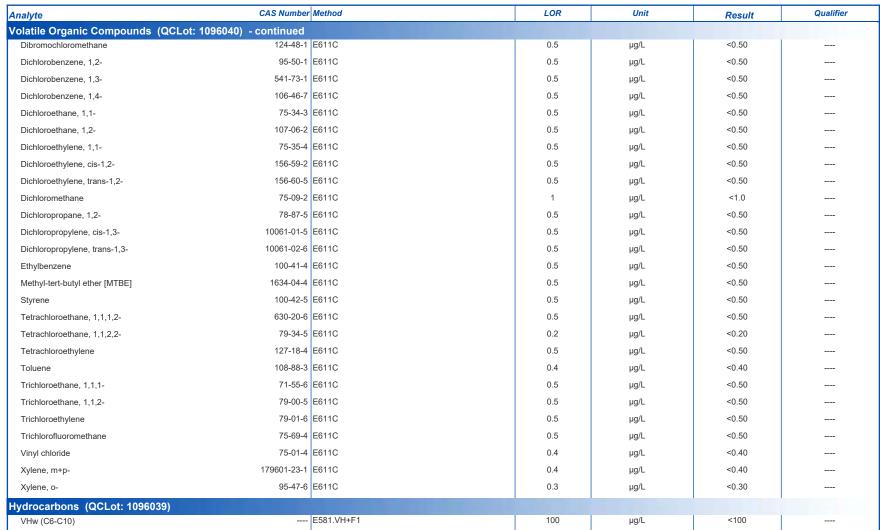


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Sub-Matrix: Water





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ALS

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 Co.	ntrol Sample (LCS)	Report	
					Spike	Recovery (%)	Recovery	Limits (%)	
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 1088859)									
Alkalinity, total (as CaCO3)		E290	1	mg/L	500 mg/L	111	85.0	115	
Physical Tests (QCLot: 1088860)	11111								
Conductivity		E100	1	μS/cm	146.9 μS/cm	100	90.0	110	
Physical Tests (QCLot: 1091270)									
Solids, total dissolved [TDS]		E162	10	mg/L	1000 mg/L	101	85.0	115	
Anions and Nutrients (QCLot: 1088862)									
Fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	99.4	90.0	110	
Anions and Nutrients (QCLot: 1088863)									
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	102	90.0	110	
Anions and Nutrients (QCLot: 1088864)	11.00								
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: 1088865)									
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: 1088866)									
Chloride	16887-00-6	E235.CI	0.5	mg/L	100 mg/L	102	90.0	110	
Anions and Nutrients (QCLot: 1091089)									
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	96.2	85.0	115	
Dissolved Metals (QCLot: 1086460)									
Aluminum, dissolved	7429-90-5		0.001	mg/L	2 mg/L	107	80.0	120	
Antimony, dissolved	7440-36-0		0.0001	mg/L	1 mg/L	108	80.0	120	
Arsenic, dissolved	7440-38-2		0.0001	mg/L	1 mg/L	108	80.0	120	
Barium, dissolved	7440-39-3		0.0001	mg/L	0.25 mg/L	107	80.0	120	
Beryllium, dissolved	7440-41-7		0.00002	mg/L	0.1 mg/L	104	80.0	120	
Bismuth, dissolved	7440-69-9		0.00005	mg/L	1 mg/L	100	80.0	120	
Boron, dissolved	7440-42-8		0.01	mg/L	1 mg/L	105	80.0	120	
Cadmium, dissolved	7440-43-9		0.000005	mg/L	0.1 mg/L	103	80.0	120	
Calcium, dissolved	7440-70-2		0.05	mg/L	50 mg/L	103	80.0	120	
Chromium, dissolved	7440-47-3		0.0005	mg/L	0.25 mg/L	104	80.0	120	
Cobalt, dissolved	7440-48-4		0.0001	mg/L	0.25 mg/L	105	80.0	120	
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	0.25 mg/L	102	80.0	120	

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Sub-Matrix: Water						Laboratory Co	ontrol Sample (LCS)	Report	
					Spike	Recovery (%)	Recovery	Limits (%)	
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifie
Dissolved Metals (QCLot: 1086460) - c	continued								
Iron, dissolved	7439-89-6	E421	0.01	mg/L	1 mg/L	119	80.0	120	
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	0.5 mg/L	104	80.0	120	
Lithium, dissolved	7439-93-2	E421	0.001	mg/L	0.25 mg/L	113	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	106	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	104	80.0	120	
Phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	10 mg/L	114	80.0	120	
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	50 mg/L	107	80.0	120	
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	1 mg/L	106	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	101	80.0	120	
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	50 mg/L	114	80.0	120	
Strontium, dissolved	7440-24-6	E421	0.0002	mg/L	0.25 mg/L	112	80.0	120	
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	50 mg/L	98.8	80.0	120	
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	1 mg/L	103	80.0	120	
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	0.5 mg/L	102	80.0	120	
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	0.25 mg/L	105	80.0	120	
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	0.005 mg/L	105	80.0	120	
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	0.5 mg/L	104	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	104	80.0	120	
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0.0001 mg/L	103	80.0	120	
					Ů				
Volatile Organic Compounds (QCLot:	1096040)								
Benzene	71-43-2	E611C	0.5	μg/L	100 μg/L	99.0	70.0	130	
Bromodichloromethane	75-27-4	E611C	0.5	μg/L	100 μg/L	86.6	70.0	130	
Bromoform	75-25-2	E611C	0.5	μg/L	100 μg/L	92.2	70.0	130	
Carbon tetrachloride	56-23-5	E611C	0.5	μg/L	100 μg/L	100	70.0	130	
Chlorobenzene	108-90-7	E611C	0.5	μg/L	100 μg/L	100	70.0	130	
Chloroethane	75-00-3	E611C	0.5	μg/L	100 μg/L	105	60.0	140	
Chloroform	67-66-3	E611C	0.5	μg/L	100 μg/L	89.0	70.0	130	
Chloromethane	74-87-3	E611C	5	μg/L	100 μg/L	83.0	60.0	140	
Dibromochloromethane	124-48-1	E611C	0.5	μg/L	100 μg/L	88.0	70.0	130	
Dichlorobenzene, 1,2-	95-50-1	E611C	0.5	μg/L	100 μg/L	100	70.0	130	
Dichlorobenzene, 1,3-	541-73-1	E611C	0.5	μg/L	100 μg/L	109	70.0	130	

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Client : Comox Valley Regional District



Sub-Matrix: Water						Laboratory Co.	ntrol Sample (LCS)	Report	
					Spike	Recovery (%)	Recovery	Limits (%)	
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Volatile Organic Compounds (QCLot:	1096040) - continued								
Dichlorobenzene, 1,4-	106-46-7	E611C	0.5	μg/L	100 μg/L	108	70.0	130	
Dichloroethane, 1,1-	75-34-3	E611C	0.5	μg/L	100 μg/L	102	70.0	130	
Dichloroethane, 1,2-	107-06-2	E611C	0.5	μg/L	100 μg/L	79.7	70.0	130	
Dichloroethylene, 1,1-	75-35-4	E611C	0.5	μg/L	100 μg/L	103	70.0	130	
Dichloroethylene, cis-1,2-	156-59-2	E611C	0.5	μg/L	100 μg/L	95.8	70.0	130	
Dichloroethylene, trans-1,2-	156-60-5	E611C	0.5	μg/L	100 μg/L	107	70.0	130	
Dichloromethane	75-09-2	E611C	1	μg/L	100 μg/L	96.0	70.0	130	
Dichloropropane, 1,2-	78-87-5	E611C	0.5	μg/L	100 μg/L	100	70.0	130	
Dichloropropylene, cis-1,3-	10061-01-5	E611C	0.5	μg/L	100 μg/L	90.4	70.0	130	
Dichloropropylene, trans-1,3-	10061-02-6	E611C	0.5	μg/L	100 μg/L	93.0	70.0	130	
Ethylbenzene	100-41-4	E611C	0.5	μg/L	100 μg/L	103	70.0	130	
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611C	0.5	μg/L	100 μg/L	104	70.0	130	
Styrene	100-42-5	E611C	0.5	μg/L	100 μg/L	94.6	70.0	130	
Tetrachloroethane, 1,1,1,2-	630-20-6	E611C	0.5	μg/L	100 μg/L	95.9	70.0	130	
Tetrachloroethane, 1,1,2,2-	79-34-5	E611C	0.2	μg/L	100 μg/L	87.8	70.0	130	
Tetrachloroethylene	127-18-4	E611C	0.5	μg/L	100 μg/L	111	70.0	130	
Toluene	108-88-3	E611C	0.4	μg/L	100 μg/L	98.3	70.0	130	
Trichloroethane, 1,1,1-	71-55-6	E611C	0.5	μg/L	100 μg/L	96.9	70.0	130	
Trichloroethane, 1,1,2-	79-00-5	E611C	0.5	μg/L	100 μg/L	84.6	70.0	130	
Trichloroethylene	79-01-6	E611C	0.5	μg/L	100 μg/L	110	70.0	130	
Trichlorofluoromethane	75-69-4	E611C	0.5	μg/L	100 μg/L	72.6	60.0	140	
Vinyl chloride	75-01-4	E611C	0.4	μg/L	100 μg/L	90.2	60.0	140	
Xylene, m+p-	179601-23-1	E611C	0.4	μg/L	200 μg/L	109	70.0	130	
Xylene, o-	95-47-6	E611C	0.3	μg/L	100 μg/L	102	70.0	130	
Hydrocarbons (QCLot: 1096039)									T T
VHw (C6-C10)		E581.VH+F1	100	μg/L	6310 μg/L	95.8	70.0	130	

Page : 12 of 14 Work Order : VA23B8799

Client : Comox Valley Regional District

Project : 3-2



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 Spik	e (MS) Report		
					Spi	ike	Recovery (%)	Recovery	Limits (%)	
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
	ents (QCLot: 1088862)									
WR2300868-008	Anonymous	Fluoride	16984-48-8	E235.F	1.03 mg/L	1 mg/L	103	75.0	125	
Anions and Nutri	ents (QCLot: 1088863)									T I
WR2300868-008	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	101 mg/L	100 mg/L	101	75.0	125	
Anions and Nutri	ents (QCLot: 1088864)									
WR2300868-008	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	2.58 mg/L	2.5 mg/L	103	75.0	125	
nions and Nutri	ents (QCLot: 1088865)	The second second								
WR2300868-008	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	0.513 mg/L	0.5 mg/L	103	75.0	125	
Anions and Nutri	ents (QCLot: 1088866)									T I
WR2300868-008	Anonymous	Chloride	16887-00-6	E235.CI	103 mg/L	100 mg/L	103	75.0	125	
Anions and Nutri	ents (QCLot: 1091089)									
VA23B8799-002	WG-081323-CS-02	Ammonia, total (as N)	7664-41-7	E298	0.101 mg/L	0.1 mg/L	101	75.0	125	
Dissolved Metals	(QCLot: 1086460)					- 3				T
VA23B8739-022	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.198 mg/L	0.2 mg/L	98.8	70.0	130	
		Antimony, dissolved	7440-36-0	E421	0.0195 mg/L	0.02 mg/L	97.7	70.0	130	
		Arsenic, dissolved	7440-38-2	E421	0.0208 mg/L	0.02 mg/L	104	70.0	130	
		Barium, dissolved	7440-39-3	E421	0.0199 mg/L	0.02 mg/L	99.5	70.0	130	
		Beryllium, dissolved	7440-41-7	E421	0.0390 mg/L	0.04 mg/L	97.5	70.0	130	
		Bismuth, dissolved	7440-69-9	E421	0.00866 mg/L	0.01 mg/L	86.6	70.0	130	
		Boron, dissolved	7440-42-8	E421	0.098 mg/L	0.1 mg/L	98.4	70.0	130	
		Cadmium, dissolved	7440-43-9	E421	0.00377 mg/L	0.004 mg/L	94.2	70.0	130	
		Calcium, dissolved	7440-70-2	E421	ND mg/L	4 mg/L	ND	70.0	130	
		Chromium, dissolved	7440-47-3	E421	0.0384 mg/L	0.04 mg/L	96.0	70.0	130	
		Cobalt, dissolved	7440-48-4	E421	0.0187 mg/L	0.02 mg/L	93.4	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	1.80 mg/L	2 mg/L	90.2	70.0	130	
		Lead, dissolved	7439-92-1	E421	0.0185 mg/L	0.02 mg/L	92.6	70.0	130	
		Lithium, dissolved	7439-93-2	E421	0.0975 mg/L	0.1 mg/L	97.5	70.0	130	
		Magnesium, dissolved	7439-95-4	E421	ND mg/L	1 mg/L	ND	70.0	130	
		Manganese, dissolved	7439-96-5	E421	ND mg/L	0.02 mg/L	ND	70.0	130	
	T.	Molybdenum, dissolved	7439-98-7	E421	0.0191 mg/L	0.02 mg/L	95.7	70.0	130	I

Page : 13 of 14 Work Order : VA23B8799

Client : Comox Valley Regional District



Sub-Matrix: Water							Matrix Spik	re (MS) Report		
					Spi	ike	Recovery (%)	Recovery	Limits (%)	
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifie
	(QCLot: 1086460)	- continued								
VA23B8739-022	Anonymous	Nickel, dissolved	7440-02-0	E421	0.0364 mg/L	0.04 mg/L	91.1	70.0	130	
		Phosphorus, dissolved	7723-14-0	E421	10.7 mg/L	10 mg/L	107	70.0	130	
		Potassium, dissolved	7440-09-7	E421	4.00 mg/L	4 mg/L	99.9	70.0	130	
		Selenium, dissolved	7782-49-2	E421	0.0448 mg/L	0.04 mg/L	112	70.0	130	
		Silicon, dissolved	7440-21-3	E421	9.04 mg/L	10 mg/L	90.4	70.0	130	
		Silver, dissolved	7440-22-4	E421	0.00391 mg/L	0.004 mg/L	97.8	70.0	130	
		Sodium, dissolved	7440-23-5	E421	2.04 mg/L	2 mg/L	102	70.0	130	
		Strontium, dissolved	7440-24-6	E421	ND mg/L	0.02 mg/L	ND	70.0	130	
		Sulfur, dissolved	7704-34-9	E421	ND mg/L	20 mg/L	ND	70.0	130	
		Thallium, dissolved	7440-28-0	E421	0.00369 mg/L	0.004 mg/L	92.3	70.0	130	
		Tin, dissolved	7440-31-5	E421	0.0188 mg/L	0.02 mg/L	94.1	70.0	130	
		Titanium, dissolved	7440-32-6	E421	0.0379 mg/L	0.04 mg/L	94.8	70.0	130	
		Uranium, dissolved	7440-61-1	E421	ND mg/L	0.004 mg/L	ND	70.0	130	
		Vanadium, dissolved	7440-62-2	E421	0.0966 mg/L	0.1 mg/L	96.6	70.0	130	
		Zinc, dissolved	7440-66-6	E421	0.368 mg/L	0.4 mg/L	92.1	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: 1093267)									
VA23B8747-005	Anonymous	Mercury, dissolved	7439-97-6	E509	0.000102 mg/L	0.0001 mg/L	102	70.0	130	
olatile Organic	Compounds (QCLot	t: 1096040)								
	Compounds (QCLot	t: 1096040) Benzene	71-43-2	E611C	107 µg/L	100 μg/L	107	60.0	140	
			71-43-2 75-27-4	E611C		100 μg/L 100 μg/L	107 97.9		140 140	
		Benzene			107 μg/L	· -		60.0		
		Benzene Bromodichloromethane	75-27-4	E611C	107 μg/L 97.9 μg/L	100 μg/L	97.9	60.0 60.0	140	
		Benzene Bromodichloromethane Bromoform	75-27-4 75-25-2	E611C	107 µg/L 97.9 µg/L 97.7 µg/L	100 μg/L 100 μg/L	97.9 97.7	60.0 60.0 60.0	140 140	
		Benzene Bromodichloromethane Bromoform Carbon tetrachloride	75-27-4 75-25-2 56-23-5	E611C E611C E611C	107 µg/L 97.9 µg/L 97.7 µg/L 103 µg/L	100 μg/L 100 μg/L 100 μg/L	97.9 97.7 103	60.0 60.0 60.0 60.0	140 140 140	
		Benzene Bromodichloromethane Bromoform Carbon tetrachloride Chlorobenzene	75-27-4 75-25-2 56-23-5 108-90-7	E611C E611C E611C	107 µg/L 97.9 µg/L 97.7 µg/L 103 µg/L 105 µg/L	100 μg/L 100 μg/L 100 μg/L 100 μg/L	97.9 97.7 103 105	60.0 60.0 60.0 60.0 60.0	140 140 140 140	
		Benzene Bromodichloromethane Bromoform Carbon tetrachloride Chlorobenzene Chloroethane	75-27-4 75-25-2 56-23-5 108-90-7 75-00-3	E611C E611C E611C E611C	107 µg/L 97.9 µg/L 97.7 µg/L 103 µg/L 105 µg/L 110 µg/L	100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L	97.9 97.7 103 105 110	60.0 60.0 60.0 60.0 60.0 50.0	140 140 140 140 150	
		Benzene Bromodichloromethane Bromoform Carbon tetrachloride Chlorobenzene Chloroethane Chloroform	75-27-4 75-25-2 56-23-5 108-90-7 75-00-3 67-66-3	E611C E611C E611C E611C E611C	107 µg/L 97.9 µg/L 97.7 µg/L 103 µg/L 105 µg/L 110 µg/L 103 µg/L	100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L	97.9 97.7 103 105 110	60.0 60.0 60.0 60.0 60.0 50.0	140 140 140 140 150	
		Benzene Bromodichloromethane Bromoform Carbon tetrachloride Chlorobenzene Chloroethane Chloroform Chloromethane	75-27-4 75-25-2 56-23-5 108-90-7 75-00-3 67-66-3 74-87-3	E611C E611C E611C E611C E611C E611C	107 µg/L 97.9 µg/L 97.7 µg/L 103 µg/L 105 µg/L 110 µg/L 103 µg/L 88.4 µg/L	100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L	97.9 97.7 103 105 110 103 88.4	60.0 60.0 60.0 60.0 60.0 50.0 60.0	140 140 140 140 150 140	
		Benzene Bromodichloromethane Bromoform Carbon tetrachloride Chlorobenzene Chloroethane Chloroform Chloromethane Dibromochloromethane	75-27-4 75-25-2 56-23-5 108-90-7 75-00-3 67-66-3 74-87-3 124-48-1	E611C E611C E611C E611C E611C E611C E611C	107 µg/L 97.9 µg/L 97.7 µg/L 103 µg/L 105 µg/L 110 µg/L 103 µg/L 88.4 µg/L	100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L	97.9 97.7 103 105 110 103 88.4 96.6	60.0 60.0 60.0 60.0 60.0 50.0 60.0 50.0	140 140 140 140 150 140 150	
		Benzene Bromodichloromethane Bromoform Carbon tetrachloride Chlorobenzene Chloroethane Chloroform Chloromethane Dibromochloromethane Dichlorobenzene, 1,2-	75-27-4 75-25-2 56-23-5 108-90-7 75-00-3 67-66-3 74-87-3 124-48-1 95-50-1	E611C E611C E611C E611C E611C E611C E611C E611C	107 µg/L 97.9 µg/L 97.7 µg/L 103 µg/L 105 µg/L 110 µg/L 103 µg/L 104 µg/L 105 µg/L 107 µg/L 108.4 µg/L 108 µg/L	100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L	97.9 97.7 103 105 110 103 88.4 96.6 103	60.0 60.0 60.0 60.0 60.0 50.0 60.0 60.0	140 140 140 140 150 140 150 140	
		Benzene Bromodichloromethane Bromoform Carbon tetrachloride Chlorobenzene Chloroethane Chloroform Chloromethane Dibromochloromethane Dichlorobenzene, 1,2- Dichlorobenzene, 1,3-	75-27-4 75-25-2 56-23-5 108-90-7 75-00-3 67-66-3 74-87-3 124-48-1 95-50-1 541-73-1	E611C E611C E611C E611C E611C E611C E611C E611C E611C E611C	107 µg/L 97.9 µg/L 97.7 µg/L 103 µg/L 105 µg/L 110 µg/L 103 µg/L 103 µg/L 88.4 µg/L 96.6 µg/L 103 µg/L	100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L	97.9 97.7 103 105 110 103 88.4 96.6 103	60.0 60.0 60.0 60.0 60.0 50.0 60.0 60.0	140 140 140 140 150 140 150 140 140	
		Benzene Bromodichloromethane Bromoform Carbon tetrachloride Chlorobenzene Chloroethane Chloroform Chloromethane Dibromochloromethane Dichlorobenzene, 1,2- Dichlorobenzene, 1,3- Dichlorobenzene, 1,4-	75-27-4 75-25-2 56-23-5 108-90-7 75-00-3 67-66-3 74-87-3 124-48-1 95-50-1 541-73-1 106-46-7	E611C E611C E611C E611C E611C E611C E611C E611C E611C E611C E611C	107 µg/L 97.9 µg/L 97.7 µg/L 103 µg/L 105 µg/L 110 µg/L 103 µg/L 88.4 µg/L 96.6 µg/L 106 µg/L 107 µg/L	100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L	97.9 97.7 103 105 110 103 88.4 96.6 103 106	60.0 60.0 60.0 60.0 60.0 50.0 60.0 60.0	140 140 140 140 150 140 150 140 140	
VA23B8777-002		Benzene Bromodichloromethane Bromoform Carbon tetrachloride Chlorobenzene Chloroethane Chloroform Chloromethane Dibromochloromethane Dichlorobenzene, 1,2- Dichlorobenzene, 1,3- Dichlorobenzene, 1,4- Dichloroethane, 1,1-	75-27-4 75-25-2 56-23-5 108-90-7 75-00-3 67-66-3 74-87-3 124-48-1 95-50-1 541-73-1 106-46-7 75-34-3	E611C E611C E611C E611C E611C E611C E611C E611C E611C E611C E611C E611C E611C	107 µg/L 97.9 µg/L 97.7 µg/L 103 µg/L 105 µg/L 110 µg/L 103 µg/L 103 µg/L 88.4 µg/L 96.6 µg/L 106 µg/L 107 µg/L	100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L	97.9 97.7 103 105 110 103 88.4 96.6 103 106 107 109	60.0 60.0 60.0 60.0 60.0 50.0 60.0 60.0	140 140 140 140 150 140 150 140 140 140	

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Client : Comox Valley Regional District



Sub-Matrix: Water							Matrix Spil	ke (MS) Report		
					Spi	ike	Recovery (%)	Recovery	Limits (%)	
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Volatile Organic	Compounds (QCLot	t: 1096040) - continued								İ
VA23B8777-002	Anonymous	Dichloroethylene, trans-1,2-	156-60-5	E611C	112 µg/L	100 μg/L	112	60.0	140	
		Dichloromethane	75-09-2	E611C	107 μg/L	100 μg/L	107	60.0	140	
		Dichloropropane, 1,2-	78-87-5	E611C	112 μg/L	100 μg/L	112	60.0	140	
		Dichloropropylene, cis-1,3-	10061-01-5	E611C	104 μg/L	100 μg/L	104	60.0	140	
		Dichloropropylene, trans-1,3-	10061-02-6	E611C	103 μg/L	100 μg/L	103	60.0	140	
		Ethylbenzene	100-41-4	E611C	101 μg/L	100 μg/L	101	60.0	140	
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611C	107 μg/L	100 μg/L	107	60.0	140	
		Styrene	100-42-5	E611C	97.1 μg/L	100 μg/L	97.1	60.0	140	
		Tetrachloroethane, 1,1,1,2-	630-20-6	E611C	99.8 µg/L	100 μg/L	99.8	60.0	140	
		Tetrachloroethane, 1,1,2,2-	79-34-5	E611C	94.2 µg/L	100 μg/L	94.2	60.0	140	
		Tetrachloroethylene	127-18-4	E611C	108 μg/L	100 µg/L	108	60.0	140	
		Toluene	108-88-3	E611C	98.6 μg/L	100 μg/L	98.6	60.0	140	
		Trichloroethane, 1,1,1-	71-55-6	E611C	99.7 μg/L	100 µg/L	99.7	60.0	140	
		Trichloroethane, 1,1,2-	79-00-5	E611C	93.0 μg/L	100 μg/L	93.0	60.0	140	
		Trichloroethylene	79-01-6	E611C	116 µg/L	100 μg/L	116	60.0	140	
		Trichlorofluoromethane	75-69-4	E611C	137 μg/L	100 μg/L	137	50.0	150	
		Vinyl chloride	75-01-4	E611C	93.7 μg/L	100 μg/L	93.7	50.0	150	
		Xylene, m+p-	179601-23-1	E611C	216 μg/L	200 μg/L	108	60.0	140	
		Xylene, o-	95-47-6	E611C	103 μg/L	100 μg/L	103	60.0	140	
Hydrocarbons (QCLot: 1096039)									
VA23B8777-003	Anonymous	VHw (C6-C10)		E581.VH+F1	5470 μg/L	6310 μg/L	86.7	60.0	140	



QUALITY CONTROL INTERPRETIVE REPORT

Work Order : **VA23B8799** Page : 1 of 21

Client : Comox Valley Regional District Laboratory : ALS Environmental - Vancouver

Contact : Crystal Stuart Account Manager : Thomas Chang

Address :770 Harmston Avenue Address :8081 Lougheed Highway

Burnaby, British Columbia Canada V5A 1W9

 Telephone
 :250-898-3722
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 :+1 604 253 4188

 Project
 :3-2
 Date Samples Received
 : 15-Aug-2023 09:35

PO : 23-015 Issue Date : 24-Aug-2023 15:50 C-O-C number : ----

Site : CRWMC-Quarterly-GW

: C.Stuart

Quote number : VA23-COVR100-001

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

Sampler

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.

Courtney BC Canada V9N 0G8

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

NI Matter of Discourse and Commencer

- 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.

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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 exce						/ = Within	Holding Tir
Analyte Group	Method	Sampling Date	Ext	raction / Pr	eparation			Analys	sis	
Container / Client Sample ID(s)			Preparation	Holdin	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) WG-081323-CS-01	E298	13-Aug-2023	17-Aug-2023	28 days	4 days	1	20-Aug-2023	28 days	7 days	√
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) WG-081323-CS-02	E298	13-Aug-2023	17-Aug-2023	28 days	4 days	1	20-Aug-2023	28 days	7 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) WG-081323-CS-03	E298	13-Aug-2023	17-Aug-2023	28 days	4 days	✓	20-Aug-2023	28 days	7 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) WG-081323-CS-04	E298	13-Aug-2023	17-Aug-2023	28 days	4 days	✓	20-Aug-2023	28 days	7 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) WG-081323-CS-05	E298	13-Aug-2023	17-Aug-2023	28 days	4 days	✓	20-Aug-2023	28 days	7 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) WG-081323-CS-06	E298	13-Aug-2023	17-Aug-2023	28 days	4 days	✓	20-Aug-2023	28 days	7 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) WG-081323-CS-07	E298	13-Aug-2023	17-Aug-2023	28 days	4 days	✓	20-Aug-2023	28 days	7 days	*

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HDPE

WG-081323-CS-02



nalyte Group	Method	Sampling Date	EXT	raction / Pr	reparation			Analys	is	
Container / Client Sample ID(s)			Preparation Date	Holdin Rec	g Times Actual	Eval	Analysis Date	Holding Rec	7 Times Actual	Eval
nions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) WG-081323-CS-08	E298	13-Aug-2023	17-Aug-2023	28 days	4 days	✓	20-Aug-2023	28 days	7 days	1
nions and Nutrients : Chloride in Water by IC										
HDPE WG-081323-CS-07	E235.CI	13-Aug-2023	16-Aug-2023	28 days	3 days	✓	17-Aug-2023	28 days	3 days	✓
nions and Nutrients : Chloride in Water by IC										
HDPE WG-081323-CS-08	E235.CI	13-Aug-2023	16-Aug-2023	28 days	3 days	✓	17-Aug-2023	28 days	3 days	✓
nions and Nutrients : Chloride in Water by IC										
H DPE WG-081323-CS-03	E235.CI	13-Aug-2023	16-Aug-2023	28 days	3 days	✓	17-Aug-2023	28 days	4 days	✓
nions and Nutrients : Chloride in Water by IC										
HDPE WG-081323-CS-04	E235.CI	13-Aug-2023	16-Aug-2023	28 days	3 days	✓	17-Aug-2023	28 days	4 days	✓
nions and Nutrients : Chloride in Water by IC										
HDPE WG-081323-CS-05	E235.CI	13-Aug-2023	16-Aug-2023	28 days	3 days	✓	17-Aug-2023	28 days	4 days	✓
nions and Nutrients : Chloride in Water by IC										
HDPE WG-081323-CS-06	E235.CI	13-Aug-2023	16-Aug-2023	28 days	3 days	✓	17-Aug-2023	28 days	4 days	✓
nions and Nutrients : Chloride in Water by IC										
HDPE WG-081323-CS-01	E235.CI	13-Aug-2023	16-Aug-2023	28 days	4 days	✓	17-Aug-2023	28 days	4 days	✓

13-Aug-2023

16-Aug-2023

4 days

28 days

E235.CI

✓

28 days 4 days

17-Aug-2023

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Analyte Group	Method	Sampling Date	Ex	traction / Pi	reparation			Analys	is	
Container / Client Sample ID(s)		'	Preparation	Holdin	g Times	Eval	Analysis Date	Holding	Times	Eval
			Date	Rec	Actual			Rec	Actual	
nions and Nutrients : Fluoride in Water by IC										
HDPE WG-081323-CS-07	E235.F	13-Aug-2023	16-Aug-2023	28 days	3 days	✓	17-Aug-2023	28 days	3 days	✓
nions and Nutrients : Fluoride in Water by IC										
H DPE WG-081323-CS-08	E235.F	13-Aug-2023	16-Aug-2023	28 days	3 days	✓	17-Aug-2023	28 days	3 days	✓
nions and Nutrients : Fluoride in Water by IC										
HDPE WG-081323-CS-03	E235.F	13-Aug-2023	16-Aug-2023	28 days	3 days	✓	17-Aug-2023	28 days	4 days	✓
nions and Nutrients : Fluoride in Water by IC										
HDPE WG-081323-CS-04	E235.F	13-Aug-2023	16-Aug-2023	28 days	3 days	✓	17-Aug-2023	28 days	4 days	✓
nions and Nutrients : Fluoride in Water by IC										
H DPE WG-081323-CS-05	E235.F	13-Aug-2023	16-Aug-2023	28 days	3 days	✓	17-Aug-2023	28 days	4 days	✓
nions and Nutrients : Fluoride in Water by IC										
HDPE WG-081323-CS-06	E235.F	13-Aug-2023	16-Aug-2023	28 days	3 days	✓	17-Aug-2023	28 days	4 days	✓
nions and Nutrients : Fluoride in Water by IC										
HDPE WG-081323-CS-01	E235.F	13-Aug-2023	16-Aug-2023	28 days	4 days	✓	17-Aug-2023	28 days	4 days	✓
nions and Nutrients : Fluoride in Water by IC										
HDPE WG-081323-CS-02	E235.F	13-Aug-2023	16-Aug-2023	28 days	4 days	✓	17-Aug-2023	28 days	4 days	✓
nions and Nutrients : Nitrate in Water by IC (Low Level)										
IDPE										
WG-081323-CS-07	E235.NO3-L	13-Aug-2023	16-Aug-2023	3 days	3 days	✓	17-Aug-2023	3 days	3 days	✓

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Matrix: Water					Ev	valuation: ≭ =	Holding time excee	edance ; •	✓ = Within	Holding Tim
Analyte Group	Method	Sampling Date	Ext	raction / Pr	reparation			Analys	is	
Container / Client Sample ID(s)			Preparation	Holdin	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
WG-081323-CS-08	E235.NO3-L	13-Aug-2023	16-Aug-2023	3 days	3 days	✓	17-Aug-2023	3 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
WG-081323-CS-03	E235.NO3-L	13-Aug-2023	16-Aug-2023	3 days	3 days	✓	17-Aug-2023	3 days	4 days	32
										EHT
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
WG-081323-CS-04	E235.NO3-L	13-Aug-2023	16-Aug-2023	3 days	3 days	✓	17-Aug-2023	3 days	4 days	*
										EHT
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
WG-081323-CS-05	E235.NO3-L	13-Aug-2023	16-Aug-2023	3 days	3 days	1	17-Aug-2023	3 days	4 days	*
			-	_			_			EHT
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
WG-081323-CS-06	E235.NO3-L	13-Aug-2023	16-Aug-2023	3 days	3 days	1	17-Aug-2023	3 days	4 days	*
			Ü		,		J		1	EHT
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
WG-081323-CS-01	E235.NO3-L	13-Aug-2023	16-Aug-2023	3 days	4 days	*	17-Aug-2023	3 days	4 days	×
			3			EHT	3	'		EHT
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
WG-081323-CS-02	E235.NO3-L	13-Aug-2023	16-Aug-2023	3 days	4 days	32	17-Aug-2023	3 days	4 davs	×
WG 001025 00 02	2200.1100 2	10 / tag 2020	10 / tag 2020	o dayo	raayo	EHT	17 7 tag 2020	o dayo	raayo	EHT
A terror IAI (1) (a IAI) (b IAI) (b IAI) (b IAI)										
Anions and Nutrients : Nitrite in Water by IC (Low Level) HDPE				I			I			
WG-081323-CS-07	E235.NO2-L	13-Aug-2023	16-Aug-2023	3 days	3 days	√	17-Aug-2023	3 days	3 days	1
VV Q-00 1020-01	L200.INO2-L	10-Aug-2023	10-Aug-2023	Juays	Juays	,	17-Aug-2023	Juays	Juays	•
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE	E235.NO2-L	13-Aug-2023	16 Aug 2022	2 days	2 days	√	17 Au ~ 2022	2 days	2 deve	1
WG-081323-CS-08	EZ33.NUZ-L	13-Aug-2023	16-Aug-2023	3 days	3 days	•	17-Aug-2023	3 days	3 days	*

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Matrix: Water					Ev	/aluation: 🗴 =	Holding time exce	edance ; 🔻	✓ = Within	Holding Tin
Analyte Group	Method	Sampling Date	Ext	traction / Pr	eparation			Analys	sis	
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
WG-081323-CS-03	E235.NO2-L	13-Aug-2023	16-Aug-2023	3 days	3 days	✓	17-Aug-2023	3 days	4 days	×
										EHT
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
WG-081323-CS-04	E235.NO2-L	13-Aug-2023	16-Aug-2023	3 days	3 days	✓	17-Aug-2023	3 days	4 days	æ
										EHT
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
WG-081323-CS-05	E235.NO2-L	13-Aug-2023	16-Aug-2023	3 days	3 days	✓	17-Aug-2023	3 days	4 days	sc .
										EHT
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
WG-081323-CS-06	E235.NO2-L	13-Aug-2023	16-Aug-2023	3 days	3 days	✓	17-Aug-2023	3 days	4 days	*
										EHT
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
WG-081323-CS-01	E235.NO2-L	13-Aug-2023	16-Aug-2023	3 days	4 days	3C	17-Aug-2023	3 days	4 days	3¢
						EHT				EHT
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
WG-081323-CS-02	E235.NO2-L	13-Aug-2023	16-Aug-2023	3 days	4 days	*	17-Aug-2023	3 days	4 days	*
						EHT				EHT
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
WG-081323-CS-07	E235.SO4	13-Aug-2023	16-Aug-2023	28	3 days	✓	17-Aug-2023	28 days	3 days	✓
				days						
Anions and Nutrients : Sulfate in Water by IC				1				1		
HDPE	I									
WG-081323-CS-08	E235.SO4	13-Aug-2023	16-Aug-2023	28	3 days	✓	17-Aug-2023	28 days	3 days	✓
				days						
Anions and Nutrients : Sulfate in Water by IC										
HDPE	I									
WG-081323-CS-03	E235.SO4	13-Aug-2023	16-Aug-2023	28	3 days	✓	17-Aug-2023	28 days	4 days	✓
	1	1 1	-	1 1	1 7			1	1 1	

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Analyte Group	Method	Sampling Date	Ext	raction / Pi	reparation			Analys	is	
Container / Client Sample ID(s)		, ,	Preparation	Holdin	g Times	Eval	Analysis Date	Holding	Times	Eval
, ,,			Date	Rec	Actual		7 many one 2 and	Rec	Actual	
nions and Nutrients : Sulfate in Water by IC										
HDPE										
WG-081323-CS-04	E235.SO4	13-Aug-2023	16-Aug-2023	28 days	3 days	✓	17-Aug-2023	28 days	4 days	√
nions and Nutrients : Sulfate in Water by IC										
HDPE										
WG-081323-CS-05	E235.SO4	13-Aug-2023	16-Aug-2023	28 days	3 days	✓	17-Aug-2023	28 days	4 days	√
nions and Nutrients : Sulfate in Water by IC										
HDPE										
WG-081323-CS-06	E235.SO4	13-Aug-2023	16-Aug-2023	28 days	3 days	✓	17-Aug-2023	28 days	4 days	✓
nions and Nutrients : Sulfate in Water by IC										
HDPE	5005.004	40. 4 0000	40.4 0000			,	47.4 0000	00.1		,
WG-081323-CS-01	E235.SO4	13-Aug-2023	16-Aug-2023	28 days	4 days	✓	17-Aug-2023	28 days	4 days	✓
nions and Nutrients : Sulfate in Water by IC										
HDPE	5005.004	40.4 0000	40.4 0000			,	47.4 0000	00.1		,
WG-081323-CS-02	E235.SO4	13-Aug-2023	16-Aug-2023	28 days	4 days	✓	17-Aug-2023	28 days	4 days	✓
issolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)	5500	40.4 0000				,				
WG-081323-CS-07	E509	13-Aug-2023	19-Aug-2023	28 days	5 days	✓	19-Aug-2023	28 days	5 days	✓
issolved Metals : Dissolved Mercury in Water by CVAAS				uays						
Glass vial - dissolved (lab preserved)										
WG-081323-CS-08	E509	13-Aug-2023	19-Aug-2023	28	5 days	✓	19-Aug-2023	28 days	5 days	1
				days						
issolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)	5500	40. 4	40 4 0000		0 4	,	40. 4 2000	00 4	0 -1	,
WG-081323-CS-01	E509	13-Aug-2023	19-Aug-2023	28 days	6 days	✓	19-Aug-2023	28 days	6 days	✓
issolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
WG-081323-CS-02	E509	13-Aug-2023	19-Aug-2023	28	6 days	✓	19-Aug-2023	28 days	6 days	✓
				days						

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		1				aluation: × =	1			
Analyte Group	Method	Sampling Date		traction / Pre				Analys		
Container / Client Sample ID(s)			Preparation	Holding		Eval	Analysis Date		Times	Eval
			Date	Rec	Actual			Rec	Actual	
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved) WG-081323-CS-03	E509	13-Aug-2023	19-Aug-2023	28 days	6 days	✓	19-Aug-2023	28 days	6 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved) WG-081323-CS-04	E509	13-Aug-2023	19-Aug-2023	28 days	6 days	✓	19-Aug-2023	28 days	6 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved) WG-081323-CS-05	E509	13-Aug-2023	19-Aug-2023	28 days	6 days	✓	19-Aug-2023	28 days	6 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved) WG-081323-CS-06	E509	13-Aug-2023	19-Aug-2023	28 days	6 days	✓	19-Aug-2023	28 days	6 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS								1		
HDPE - dissolved (lab preserved) WG-081323-CS-01	E421	13-Aug-2023	16-Aug-2023	180 days	3 days	✓	17-Aug-2023	180 days	4 days	√
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) WG-081323-CS-02	E421	13-Aug-2023	16-Aug-2023	180 days	3 days	✓	17-Aug-2023	180 days	4 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) WG-081323-CS-03	E421	13-Aug-2023	16-Aug-2023	180 days	3 days	✓	17-Aug-2023	180 days	4 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS							•			
HDPE - dissolved (lab preserved) WG-081323-CS-04	E421	13-Aug-2023	16-Aug-2023	180 days	3 days	✓	17-Aug-2023	180 days	4 days	4
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) WG-081323-CS-05	E421	13-Aug-2023	16-Aug-2023	180 days	3 days	✓	17-Aug-2023	180 days	4 days	✓

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nalyte Group	Method	Sampling Date	Ext	traction / Pi	reparation			Analys	is	
Container / Client Sample ID(s)		, ,	Preparation	Holdin	g Times	Eval	Analysis Date	Holding	Times	Eval
			Date	Rec	Actual			Rec	Actual	
issolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
WG-081323-CS-06	E421	13-Aug-2023	16-Aug-2023	180 days	3 days	✓	17-Aug-2023	180 days	4 days	✓
issolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
WG-081323-CS-07	E421	13-Aug-2023	16-Aug-2023	180 days	3 days	✓	17-Aug-2023	180 days	4 days	✓
issolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)	_,									
WG-081323-CS-08	E421	13-Aug-2023	16-Aug-2023	180 days	3 days	✓	17-Aug-2023	180 days	4 days	✓
ydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate)						,				
WG-081323-CS-03	E581.VH+F1	13-Aug-2023	21-Aug-2023	14 days	8 days	✓	22-Aug-2023	14 days	9 days	✓
ydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate)										
WG-081323-CS-04	E581.VH+F1	13-Aug-2023	21-Aug-2023	14	8 days	✓	22-Aug-2023	14 days	9 days	✓
				days						
ydrocarbons : VH and F1 by Headspace GC-FID				1						
Glass vial (sodium bisulfate)	E581.VH+F1	13-Aug-2023	24 Aug 2022	4.4	8 days	✓	22-Aug-2023	14 days	9 days	√
WG-081323-CS-05	E301.VH*F1	13-Aug-2023	21-Aug-2023	14 days	o days	•	22-Aug-2023	14 days	9 days	•
lydrocarbons : VH and F1 by Headspace GC-FID				uays						
Glass vial (sodium bisulfate)							I			
WG-081323-CS-06	E581.VH+F1	13-Aug-2023	21-Aug-2023	14	8 days	✓	22-Aug-2023	14 days	9 days	1
			J	days					-	
ydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate)										
WG-081323-CS-07	E581.VH+F1	13-Aug-2023	21-Aug-2023	14	8 days	✓	22-Aug-2023	14 days	9 days	✓
				days						
ydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate)						_				
WG-081323-CS-01	E581.VH+F1	13-Aug-2023	21-Aug-2023	14	9 days	✓	22-Aug-2023	14 days	9 days	✓
				days						

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Matrix: Water Analyte Group	Method	Sampling Date	Evi	raction / Pro			Holding time excee	Analys		9
·	Metriod	Sampling Date			•	F. of	Analosis Data			E I
Container / Client Sample ID(s)			Preparation		Times	Eval	Analysis Date		Times	Eval
			Date	Rec	Actual			Rec	Actual	
Physical Tests : Alkalinity Species by Titration										
HDPE WG-081323-CS-02	E290	13-Aug-2023	16-Aug-2023	14 days	3 days	1	16-Aug-2023	14 days	3 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE WG-081323-CS-03	E290	13-Aug-2023	16-Aug-2023	14 days	3 days	✓	16-Aug-2023	14 days	3 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE WG-081323-CS-04	E290	13-Aug-2023	16-Aug-2023	14 days	3 days	✓	16-Aug-2023	14 days	3 days	√
Physical Tests : Alkalinity Species by Titration										
HDPE WG-081323-CS-05	E290	13-Aug-2023	16-Aug-2023	14 days	3 days	✓	16-Aug-2023	14 days	3 days	✓
Physical Tests : Alkalinity Species by Titration				,						
HDPE WG-081323-CS-06	E290	13-Aug-2023	16-Aug-2023	14 days	3 days	✓	16-Aug-2023	14 days	3 days	√
Physical Tests : Alkalinity Species by Titration										
HDPE WG-081323-CS-07	E290	13-Aug-2023	16-Aug-2023	14 days	3 days	✓	16-Aug-2023	14 days	3 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE WG-081323-CS-08	E290	13-Aug-2023	16-Aug-2023	14 days	3 days	✓	16-Aug-2023	14 days	3 days	√
Physical Tests : Alkalinity Species by Titration										
HDPE WG-081323-CS-01	E290	13-Aug-2023	16-Aug-2023	14 days	4 days	✓	16-Aug-2023	14 days	4 days	√
Physical Tests : Conductivity in Water								·		
HDPE WG-081323-CS-02	E100	13-Aug-2023	16-Aug-2023	28 days	3 days	✓	16-Aug-2023	28 days	3 days	✓

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Client : Comox Valley Regional District



Matrix: Water		Evalua	ation: 🗴 =	Holding time exceedance ; ✓ = Within Holding Time

HDPE WG-081323-CS-08 E100 13-Aug-2023 16-Aug-2023 28 days 3 days ✓ 16-Aug-2023 28 days 3 days ✓ 16-Aug-2023 28 days 3 days ✓ 16-Aug-2023 28 days 3 days ✓ 16-Aug-2023 28 days 4 days ✓ 16-Aug-2023 28 days 4 days ✓ 16-Aug-2023 28 days 4 days ✓ 16-Aug-2023 28 days 4 days ✓ 16-Aug-2023 28 days 4 days ✓ 16-Aug-2023 28 days 4 days ✓ 16-Aug-2023 28 days 4 days ✓ 16-Aug-2023 1	Analyte Group	Method	Sampling Date	Ext	raction / Pr	reparation			Analys	is	
Physical Tests : Conductivity in Water HDPE H	Container / Client Sample ID(s)			Preparation	Holdin	g Times	Eval	Analysis Date	Holding	Times	Eval
First Firs				Date	Rec	Actual			Rec	Actual	
MG-081323-CS-03	Physical Tests : Conductivity in Water										
Physical Tests : Conductivity in Water HDPE WG-081323-CS-04 E100 13-Aug-2023 16-Aug-2023 28 3 days ✓ 16-Aug-2023 28 days 3 days ✓ 3	HDPE										
Physical Tests : Conductivity in Water	WG-081323-CS-03	E100	13-Aug-2023	16-Aug-2023	28	3 days	✓	16-Aug-2023	28 days	3 days	✓
Figure F					days						
Figure F	Physical Tests : Conductivity in Water										
Physical Tests : Conductivity in Water											
Physical Tests : Conductivity in Water HDPE WG-081323-CS-06 E100 13-Aug-2023 16-Aug-2023 28	WG-081323-CS-04	E100	13-Aug-2023	16-Aug-2023	28	3 days	✓	16-Aug-2023	28 days	3 days	✓
HDPE WG-081323-CS-05 E100 13-Aug-2023 16-Aug-2023 28 3 days \(\sqrt{16-Aug-2023} \) 28 days \(\sqrt{3} \) 3 days \(\sqrt{16-Aug-2023} \) 28 days \(\sqrt{3} \) 3 days \(\sqrt{16-Aug-2023} \) 28 days \(\sqrt{3} \) 3 days \(\sqrt{16-Aug-2023} \) 28 days \(\sqrt{3} \) 3 days \(\sqrt{16-Aug-2023} \) 28 days \(\sqrt{3} \) 3 days \(\sqrt{16-Aug-2023} \) 28 days \(\sqrt{3} \) 3 days \(\sqrt{16-Aug-2023} \) 28 days \(\sqrt{3} \) 3 days \(\sqrt{16-Aug-2023} \) 28 days \(\sqrt{3} \) 3 days \(\sqrt{16-Aug-2023} \) 28 days \(\sqrt{3} \) 3 days \(\sqrt{16-Aug-2023} \) 28 days \(\sqrt{3} \) 3 days \(\sqrt{16-Aug-2023} \) 28 days \(\sqrt{3} \) 3 days \(\sqrt{16-Aug-2023} \) 28 days \(\sqrt{3} \) 3 days \(\sqrt{16-Aug-2023} \) 28 days \(\sqrt{3} \) 3 days \(\sqrt{16-Aug-2023} \) 28 days \(\sqrt{3} \) 3 days \(\sqrt{16-Aug-2023} \) 28 days \(\sqrt{3} \) 3 days \(\sqrt{16-Aug-2023} \) 28 days \(\sqrt{16-Aug-2023} \) 28 days \(days						
HDPE WG-081323-CS-05 E100 13-Aug-2023 16-Aug-2023 28 3 days \(\sqrt{16-Aug-2023} \) 28 days \(\sqrt{3} \) 3 days \(\sqrt{16-Aug-2023} \) 28 days \(\sqrt{3} \) 3 days \(\sqrt{16-Aug-2023} \) 28 days \(\sqrt{3} \) 3 days \(\sqrt{16-Aug-2023} \) 28 days \(\sqrt{3} \) 3 days \(\sqrt{16-Aug-2023} \) 28 days \(\sqrt{3} \) 3 days \(\sqrt{16-Aug-2023} \) 28 days \(\sqrt{3} \) 3 days \(\sqrt{16-Aug-2023} \) 28 days \(\sqrt{3} \) 3 days \(\sqrt{16-Aug-2023} \) 28 days \(\sqrt{3} \) 3 days \(\sqrt{16-Aug-2023} \) 28 days \(\sqrt{3} \) 3 days \(\sqrt{16-Aug-2023} \) 28 days \(\sqrt{3} \) 3 days \(\sqrt{16-Aug-2023} \) 28 days \(\sqrt{3} \) 3 days \(\sqrt{16-Aug-2023} \) 28 days \(\sqrt{3} \) 3 days \(\sqrt{16-Aug-2023} \) 28 days \(\sqrt{3} \) 3 days \(\sqrt{16-Aug-2023} \) 28 days \(\sqrt{3} \) 3 days \(\sqrt{16-Aug-2023} \) 28 days \(\sqrt{3} \) 3 days \(\sqrt{16-Aug-2023} \) 28 days \(\sqrt{16-Aug-2023} \) 28 days \(Physical Tests : Conductivity in Water										
Physical Tests : Conductivity in Water HDPE WG-081323-CS-06 E100 13-Aug-2023 16-Aug-2023 28 days 3 days ✓ 16-Aug-2023 28 days 3 days	HDPE										
Physical Tests : Conductivity in Water HDPE BE100 13-Aug-2023 16-Aug-2023 28 days 3 days ✓ 16-Aug-2023 28 days 3 days ✓ Physical Tests : Conductivity in Water HDPE WG-081323-CS-07 E100 13-Aug-2023 16-Aug-2023 28 days 3 days ✓ 16-Aug-2023 28 days 3 days ✓ Physical Tests : Conductivity in Water HDPE B100 13-Aug-2023 16-Aug-2023 28 days 3 days ✓ 16-Aug-2023 28 days 3 days ✓ Physical Tests : Conductivity in Water HDPE WG-081323-CS-01 E100 13-Aug-2023 16-Aug-2023 28 days 4 days ✓ 16-Aug-2023 28 days 4 days ✓ WG-081323-CS-01 E100 13-Aug-2023 16-Aug-2023 28 days ✓ 16-Aug-2023 28 days ✓ 16-Aug-2023 28 days ✓ 16-Aug-2023 28 days ✓ 16-Aug-2023 28 days ✓	WG-081323-CS-05	E100	13-Aug-2023	16-Aug-2023	28	3 days	✓	16-Aug-2023	28 days	3 days	✓
HDPE					days						
HDPE	Physical Tests : Conductivity in Water										
Physical Tests : Conductivity in Water HDPE											
Physical Tests : Conductivity in Water HDPE	WG-081323-CS-06	E100	13-Aug-2023	16-Aug-2023	28	3 days	✓	16-Aug-2023	28 days	3 days	✓
HDPE WG-081323-CS-07 E100 13-Aug-2023 16-Aug-2023 28 3 days ✓ 16-Aug-2023 28 days 3 days ✓ 16-Aug					days						
MG-081323-CS-07	Physical Tests : Conductivity in Water				_						
Physical Tests : Conductivity in Water HDPE WG-081323-CS-08 E100 13-Aug-2023 16-Aug-2023 28	HDPE										
Physical Tests : Conductivity in Water	WG-081323-CS-07	E100	13-Aug-2023	16-Aug-2023	28	3 days	✓	16-Aug-2023	28 days	3 days	✓
HDPE WG-081323-CS-08 E100 13-Aug-2023 16-Aug-2023 28 days 3 days ✓ 16-Aug-2023 28 days 3 days ✓ Physical Tests : Conductivity in Water HDPE WG-081323-CS-01 E100 13-Aug-2023 16-Aug-2023 28 days 4 days ✓ 16-Aug-2023 28 days 4 days ✓ Physical Tests : TDS by Gravimetry WG-081323-CS-05 E162 13-Aug-2023 18-Aug-2023 7 days 4 days ✓ Physical Tests : TDS by Gravimetry HDPE B162 13-Aug-2023 18-Aug-2023 7 days 4 days ✓					days						
WG-081323-CS-08 E100 13-Aug-2023 16-Aug-2023 28 days 3 days ✓ 16-Aug-2023 28 days 3 days ✓ Physical Tests : Conductivity in Water HDPE WG-081323-CS-01 E100 13-Aug-2023 16-Aug-2023 28 days ✓ 16-Aug-2023 28 days ✓ Physical Tests : TDS by Gravimetry WG-081323-CS-05 E162 13-Aug-2023 18-Aug-2023 7 days ✓ Physical Tests : TDS by Gravimetry HDPE B162 13-Aug-2023 18-Aug-2023 7 days ✓ Physical Tests : TDS by Gravimetry	Physical Tests : Conductivity in Water										
Physical Tests : Conductivity in Water HDPE WG-081323-CS-01 E100 13-Aug-2023 16-Aug-2023 28	HDPE										
Physical Tests : Conductivity in Water HDPE WG-081323-CS-01 E100 13-Aug-2023 16-Aug-2023 28 days 4 days ✓ 16-Aug-2023 28 days 4 days ✓ Physical Tests : TDS by Gravimetry WG-081323-CS-05 E162 13-Aug-2023 18-Aug-2023 7 days 4 days ✓ Physical Tests : TDS by Gravimetry HDPE B162 <t< td=""><td>WG-081323-CS-08</td><td>E100</td><td>13-Aug-2023</td><td>16-Aug-2023</td><td>28</td><td>3 days</td><td>✓</td><td>16-Aug-2023</td><td>28 days</td><td>3 days</td><td>✓</td></t<>	WG-081323-CS-08	E100	13-Aug-2023	16-Aug-2023	28	3 days	✓	16-Aug-2023	28 days	3 days	✓
HDPE WG-081323-CS-01 E100 13-Aug-2023 16-Aug-2023 28 days 4 days ✓ 16-Aug-2023 28 days 4 days ✓ Physical Tests : TDS by Gravimetry WG-081323-CS-05 E162 13-Aug-2023 18-Aug-2023 7 days 4 days ✓ Physical Tests : TDS by Gravimetry HDPE Image: Color of the color of the					days						
WG-081323-CS-01 E100 13-Aug-2023 16-Aug-2023 28 days 4 days ✓ 16-Aug-2023 28 days 4 days ✓ Physical Tests : TDS by Gravimetry WG-081323-CS-05 E162 13-Aug-2023 18-Aug-2023 7 days 4 days ✓ Physical Tests : TDS by Gravimetry HDPE Image: Physical Tests in the color of	Physical Tests : Conductivity in Water										
Physical Tests : TDS by Gravimetry HDPE E162 13-Aug-2023 18-Aug-2023 7 days 4 days ✓ Physical Tests : TDS by Gravimetry HDPE Image: Physical Tests in the property of the physical Tests in the phys											
Physical Tests : TDS by Gravimetry HDPE WG-081323-CS-05 E162 13-Aug-2023 18-Aug-2023 7 days 4 days ✓ Physical Tests : TDS by Gravimetry HDPE Image: Physical Tests in the physical Tests in	WG-081323-CS-01	E100	13-Aug-2023	16-Aug-2023	_	4 days	✓	16-Aug-2023	28 days	4 days	✓
HDPE WG-081323-CS-05 E162 13-Aug-2023 18-Aug-2023 7 days 4 days ✓ Physical Tests: TDS by Gravimetry HDPE Image: Physical Tests in the physical Tests in the					days						
WG-081323-CS-05 E162 13-Aug-2023 18-Aug-2023 7 days 4 days ✓ Physical Tests: TDS by Gravimetry HDPE Image: Control of the physical Tests of	Physical Tests : TDS by Gravimetry										
Physical Tests: TDS by Gravimetry HDPE											
HDPE	WG-081323-CS-05	E162	13-Aug-2023					18-Aug-2023	7 days	4 days	✓
HDPE											
	Physical Tests : TDS by Gravimetry										
WG-081323-CS-06	··-·	F400	40.4								,
	WG-081323-CS-06	上162	13-Aug-2023					18-Aug-2023	7 days	4 days	✓

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Client : Comox Valley Regional District



Analyte Group	Method	Sampling Date	Evi	raction / Pi				Analys	= Within	
Container / Client Sample ID(s)	Method	Sampling Date			•	First	Anatoria Data			FI
Container / Cilent Sample ID(s)			Preparation Date	Rec	g Times Actual	Eval	Analysis Date	Rec	7 Times Actual	Eval
hysical Tests : TDS by Gravimetry										
HDPE WG-081323-CS-07	E162	13-Aug-2023					18-Aug-2023	7 days	4 days	✓
Physical Tests : TDS by Gravimetry										
HDPE WG-081323-CS-08	E162	13-Aug-2023					18-Aug-2023	7 days	4 days	✓
hysical Tests : TDS by Gravimetry										
HDPE WG-081323-CS-01	E162	13-Aug-2023					18-Aug-2023	7 days	5 days	✓
Physical Tests : TDS by Gravimetry										
HDPE WG-081323-CS-02	E162	13-Aug-2023					18-Aug-2023	7 days	5 days	✓
Physical Tests : TDS by Gravimetry										
HDPE WG-081323-CS-03	E162	13-Aug-2023					18-Aug-2023	7 days	5 days	✓
hysical Tests : TDS by Gravimetry										
HDPE WG-081323-CS-04	E162	13-Aug-2023					18-Aug-2023	7 days	5 days	✓
olatile Organic Compounds : VOCs (BC List) by Headspace GC-MS										
Glass vial (sodium bisulfate) WG-081323-CS-03	E611C	13-Aug-2023	21-Aug-2023	14 days	8 days	✓	22-Aug-2023	14 days	9 days	✓
/olatile Organic Compounds : VOCs (BC List) by Headspace GC-MS										
Glass vial (sodium bisulfate) WG-081323-CS-04	E611C	13-Aug-2023	21-Aug-2023	14 days	8 days	✓	22-Aug-2023	14 days	9 days	✓
olatile Organic Compounds : VOCs (BC List) by Headspace GC-MS										
Glass vial (sodium bisulfate) WG-081323-CS-05	E611C	13-Aug-2023	21-Aug-2023	14 days	8 days	✓	22-Aug-2023	14 days	9 days	✓

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Client : Comox Valley Regional District



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nalyte Group	Method	Sampling Date		Extraction / Preparation				Analys		
Container / Client Sample ID(s)			Preparation Date	Rec	g Times Actual	Eval	Analysis Date	Rec	Actual	Eval
olatile Organic Compounds : VOCs (BC List) by Headspace GC-MS										
Glass vial (sodium bisulfate) WG-081323-CS-06	E611C	13-Aug-2023	21-Aug-2023	14 days	8 days	✓	22-Aug-2023	14 days	9 days	✓
olatile Organic Compounds : VOCs (BC List) by Headspace GC-MS										
Glass vial (sodium bisulfate) WG-081323-CS-07	E611C	13-Aug-2023	21-Aug-2023	14 days	8 days	✓	22-Aug-2023	14 days	9 days	✓
olatile Organic Compounds : VOCs (BC List) by Headspace GC-MS										
Glass vial (sodium bisulfate) WG-081323-CS-01	E611C	13-Aug-2023	21-Aug-2023	14 days	9 days	✓	22-Aug-2023	14 days	9 days	✓
olatile Organic Compounds [Drycleaning] : VOCs (BC List) by Headspace GC-M	S									
Glass vial (sodium bisulfate) WG-081323-CS-03	E611C	13-Aug-2023	21-Aug-2023	14 days	8 days	✓	22-Aug-2023	14 days	9 days	✓
olatile Organic Compounds [Drycleaning] : VOCs (BC List) by Headspace GC-M	S									
Glass vial (sodium bisulfate) WG-081323-CS-04	E611C	13-Aug-2023	21-Aug-2023	14 days	8 days	✓	22-Aug-2023	14 days	9 days	4
olatile Organic Compounds [Drycleaning] : VOCs (BC List) by Headspace GC-M	S									
Glass vial (sodium bisulfate) WG-081323-CS-05	E611C	13-Aug-2023	21-Aug-2023	14 days	8 days	✓	22-Aug-2023	14 days	9 days	✓
olatile Organic Compounds [Drycleaning] : VOCs (BC List) by Headspace GC-M	S									
Glass vial (sodium bisulfate) WG-081323-CS-06	E611C	13-Aug-2023	21-Aug-2023	14 days	8 days	✓	22-Aug-2023	14 days	9 days	✓
olatile Organic Compounds [Drycleaning] : VOCs (BC List) by Headspace GC-M	S									
Glass vial (sodium bisulfate) WG-081323-CS-07	E611C	13-Aug-2023	21-Aug-2023	14 days	8 days	✓	22-Aug-2023	14 days	9 days	✓
olatile Organic Compounds [Drycleaning] : VOCs (BC List) by Headspace GC-M	S									
Glass vial (sodium bisulfate) WG-081323-CS-01	E611C	13-Aug-2023	21-Aug-2023	14 days	9 days	✓	22-Aug-2023	14 days	9 days	1

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Matrix: Water	Mother	Sampling Date	Eve	traction / Pr			Holding time excee	Analys		
Analyte Group	Method	Sampling Date	'							
Container / Client Sample ID(s)			Preparation Date	Rec	g Times Actual	Eval	Analysis Date	Rec	Actual	Eval
Volatile Organic Compounds [Fuels] : VOCs (BC List) by Headspace G	C-MS		Date	7.00	710100			1.00	710100	
Glass vial (sodium bisulfate)										
WG-081323-CS-03	E611C	13-Aug-2023	21-Aug-2023	14 days	8 days	✓	22-Aug-2023	14 days	9 days	✓
Volatile Organic Compounds [Fuels] : VOCs (BC List) by Headspace G	C-MS									
Glass vial (sodium bisulfate) WG-081323-CS-04	E611C	13-Aug-2023	21-Aug-2023	14 days	8 days	✓	22-Aug-2023	14 days	9 days	✓
Volatile Organic Compounds [Fuels] : VOCs (BC List) by Headspace G	C-MS									
Glass vial (sodium bisulfate) WG-081323-CS-05	E611C	13-Aug-2023	21-Aug-2023	14 days	8 days	✓	22-Aug-2023	14 days	9 days	✓
Volatile Organic Compounds [Fuels] : VOCs (BC List) by Headspace G	C-MS									
Glass vial (sodium bisulfate) WG-081323-CS-06	E611C	13-Aug-2023	21-Aug-2023	14 days	8 days	✓	22-Aug-2023	14 days	9 days	✓
Volatile Organic Compounds [Fuels] : VOCs (BC List) by Headspace G	C-MS									
Glass vial (sodium bisulfate) WG-081323-CS-07	E611C	13-Aug-2023	21-Aug-2023	14 days	8 days	✓	22-Aug-2023	14 days	9 days	✓
Volatile Organic Compounds [Fuels] : VOCs (BC List) by Headspace G	C-MS									
Glass vial (sodium bisulfate) WG-081323-CS-01	E611C	13-Aug-2023	21-Aug-2023	14 days	9 days	✓	22-Aug-2023	14 days	9 days	✓
Volatile Organic Compounds [THMs] : VOCs (BC List) by Headspace G	C-MS									
Glass vial (sodium bisulfate) WG-081323-CS-03	E611C	13-Aug-2023	21-Aug-2023	14 days	8 days	✓	22-Aug-2023	14 days	9 days	✓
Volatile Organic Compounds [THMs] : VOCs (BC List) by Headspace G	C-MS			1						
Glass vial (sodium bisulfate) WG-081323-CS-04	E611C	13-Aug-2023	21-Aug-2023	14 days	8 days	✓	22-Aug-2023	14 days	9 days	✓
Volatile Organic Compounds [THMs] : VOCs (BC List) by Headspace G	C-MS									
Glass vial (sodium bisulfate) WG-081323-CS-05	E611C	13-Aug-2023	21-Aug-2023	14 days	8 days	✓	22-Aug-2023	14 days	9 days	✓

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Project : 3-2



Matrix: Water Evaluation: ▼ = Holding time exceedance; ✓ = Within Holding Time

1.11							roruming unite exteet	,		
Analyte Group	Method	Sampling Date	Exti	raction / Pr	eparation			Analys	sis	
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Volatile Organic Compounds [THMs] : VOCs (BC List) by Headspace GC-MS										
Glass vial (sodium bisulfate)										
WG-081323-CS-06	E611C	13-Aug-2023	21-Aug-2023	14	8 days	✓	22-Aug-2023	14 days	9 days	✓
				days						
Volatile Organic Compounds [THMs] : VOCs (BC List) by Headspace GC-MS										
Glass vial (sodium bisulfate)										
WG-081323-CS-07	E611C	13-Aug-2023	21-Aug-2023	14	8 days	✓	22-Aug-2023	14 days	9 days	✓
				days						
Volatile Organic Compounds [THMs] : VOCs (BC List) by Headspace GC-MS										
Glass vial (sodium bisulfate)										
WG-081323-CS-01	E611C	13-Aug-2023	21-Aug-2023	14	9 days	✓	22-Aug-2023	14 days	9 days	✓
				days						

Legend & Qualifier Definitions

EHT: Exceeded ALS recommended hold time prior to analysis.

Rec. HT: ALS recommended hold time (see units).

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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.

Acalysic Methods	Matrix: Water		Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification									
Albalinity Species by Titration E290 1088859 1 14 7.1 5.0	Quality Control Sample Type						Frequency (%)					
Alkalinity Species by Titration	Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation				
Ammonia by Fluorescence	Laboratory Duplicates (DUP)											
Chloride in Water by IC	Alkalinity Species by Titration	E290	1088859	1	14	7.1	5.0	✓				
Conductivity in Water by CVAAS	Ammonia by Fluorescence	E298	1091089	1	18	5.5	5.0	✓				
Dissolved Mercury in Water by CRC ICPMS	Chloride in Water by IC	E235.CI	1088866	1	14	7.1	5.0	✓				
Dissolved Metals in Water by CRC ICPMS	Conductivity in Water	E100	1088860	1	14	7.1	5.0	√				
Fluoride in Water by IC E235.F 1088862 1 14 7.1 5.0 ✓	Dissolved Mercury in Water by CVAAS	E509	1093267	1	18	5.5	5.0	✓				
Nitrate in Water by IC (Low Level) E235.NO3-L 1088864 1 14 7.1 5.0 \$ Nitrate in Water by IC (Low Level) E235.NO3-L 1088865 1 14 7.1 5.0 \$ Sulfate in Water by IC (Low Level) E235.NO3-L 1088863 1 14 7.1 5.0 \$ Sulfate in Water by IC (Low Level) E235.NO3-L E811-VH+F1 1098030 1 11 9.0 5.0 \$ VOX (BC List) by Headspace GC-FID E811-VH+F1 1098030 E611C 1098040 1 11 9.0 5.0 \$ VOX (BC List) by Headspace GC-MS E611C 1098040 1 11 9.0 5.0 \$ VOX (BC List) by Headspace GC-MS E611C 1098040 1 14 7.1 5.0 \$ Ammonia by Fluorescence E298 1091089 1088859 1 14 7.1 5.0 \$ Conductivity in Water by IC (Low Level) E235.CI 1088866 1 14 7.1 5.0 \$ Dissolved Mercury in Water by CRC ICPMS E421 1088662 1 14 7.1 5.0 \$ Dissolved Mercury in Water by IC (Low Level) E235.FI 1088662 E235.FI 1088663 1 14 7.1 5.0 \$ Nitrate in Water by IC (Low Level) E235.NO3-L E235.NO3-L E335.NO3-L E335.NO3-L E336.NO3-L E33	Dissolved Metals in Water by CRC ICPMS	E421	1086460	1	18	5.5	5.0	√				
Nitrite in Water by IC (Low Level) E235.NO2-L 1088865 1 14 7.1 5.0 ✓ Sulfate in Water by IC E235.SO4 1088865 1 14 7.1 5.0 ✓ Sulfate in Water by IC E235.SO4 1088863 1 14 7.1 5.0 ✓ What off I by Headspace GC-FID E581.VH+F1 1096039 1 11 9.0 5.0 ✓ VOC S(BC List) by Headspace GC-FID E581.VH+F1 1096039 1 11 9.0 5.0 ✓ VOC S(BC List) by Headspace GC-FID E581.VH+F1 1096039 1 11 9.0 5.0 ✓ VOC S(BC List) by Headspace GC-FID E581.VH+F1 1096039 1 11 9.0 5.0 ✓ VOC S(BC List) by Headspace GC-FID E285.CI E296 1088869 1 14 7.1 5.0 ✓ Conductivity in Water by IC E235.CI 1088866 1 14 7.1 5.0 ✓ Conductivity in Water by CVAAS E599 1093267 1 18 5.5 5.0 ✓ Dissolved Metals in Water by CR ICPMS E235.FI 1088862 1 14 7.1 5.0 ✓ Dissolved Metals by IC (Low Level) E235.NO3-L Nitrite in Water by IC (Low Level) E235.NO3-L 1088865 1 14 7.1 5.0 ✓ Nitrite in Water by IC (Low Level) E235.SO4 1088865 1 14 7.1 5.0 ✓ Nitrite in Water by IC (Low Level) E235.SO4 1088865 1 14 7.1 5.0 ✓ Nitrite in Water by IC (Low Level) E235.SO4 1088865 1 14 7.1 5.0 ✓ Nitrite in Water by IC (Low Level) E235.SO4 1088865 1 14 7.1 5.0 ✓ Nitrite in Water by IC (Low Level) E235.SO4 1088865 1 14 7.1 5.0 ✓ Nitrite in Water by IC (Low Level) E235.SO4 1088865 1 14 7.1 5.0 ✓ Nitrite in Water by IC (Low Level) E235.SO4 1088865 1 14 7.1 5.0 ✓ Nitrite in Water by IC (Low Level) E235.SO4 1088865 1 14 7.1 5.0 ✓ Nitrite in Water by IC (Low Level) E235.SO4 1088865 1 14 7.1 5.0 ✓ Nitrite in Water by IC (Low Level) E235.SO4 1088865 1 14 7.1 5.0 ✓ Nitrite in Water by IC (Low Level) E235.SO4 1088865 1 14 7.1 5.0 ✓ Nitrite in Water by IC (Low Level) E235.SO4 1088865 1 14 7.1 5.0 ✓ Nitrite in Water by IC (Low Level) E235.SO4 1088866 1 14 7.1 5.0 ✓ Nitrite in Water by IC (Low Level) E235.SO4 1088865 1 14 7.1 5.0 ✓ Nitrite in Water by IC (Low Level) E235.SO4 1088866 1 14 7.1 5.0	Fluoride in Water by IC	E235.F	1088862	1	14	7.1	5.0	√				
Sulfate in Water by IC E235.SO4 1088863 1 14 7.1 5.0 ✓ TDS by Gravimetry E162 1091270 1 16 6.2 5.0 ✓ Hand F1 by Headspace GC-FID E681.H+F1 1096039 1 111 9.0 5.0 ✓ C0Cs (BC List) by Headspace GC-MS E611C 1096040 1 11 9.0 5.0 ✓ Laboratory Control Samples (LCS) Ralkalinity Species by Tiltration E290 1088869 1 14 7.1 5.0 ✓ Ammonia by Fluorescence E298 1091089 1 18 5.5 5.0 ✓ Chloride in Water by IC Conductivity in Water Dissolved Metals in Water by CRC (CPMS) E421 1086460 1 14 7.1 5.0 ✓ Dissolved Metals in Water by CRC (LCPMS) Ralkalinity Species by ITiltation E235.NO3-L 1088864 1 14 7.1 5.0 ✓ Ralkalinity Species by ITiltation E235.NO3-L 1088865 1 14 7.1 5.0 ✓ Ralkalinity Species by ITiltation E235.NO3-L 1088865 1 14 7.1 5.0 ✓ Ralkalinity Species by ITiltation E235.NO3-L 1088865 1 14 7.1 5.0 ✓ Ralkalinity Species by ITiltation E235.NO3-L 1088866 1 14 7.1 5.0 ✓ Ralkalinity Species by ITiltation E235.NO3-L 1088865 1 14 7.1 5.0 ✓ Ralkalinity Species by ITiltation E235.NO3-L 1088865 1 14 7.1 5.0 ✓ Ralkalinity Species by ITiltation E235.NO3-L 1088865 1 14 7.1 5.0 ✓ Ralkalinity Species by ITiltation E235.NO3-L 1088866 1 14 7.1 5.0 ✓ Ralkalinity Species by ITiltation E235.NO3-L 1088866 1 14 7.1 5.0 ✓ Ralkalinity Species by ITiltation E235.NO3-L 1088866 1 14 7.1 5.0 ✓ Ralkalinity Species by ITiltation E235.NO3-L 1088866 1 14 7.1 5.0 ✓ Ralkalinity Species by ITiltation E230 1088869 1 14 7.1 5.0 ✓ Ralkalinity Species by ITiltation E230 1088866 1 14 7.1 5.0 ✓ Ralkalinity Species by ITiltation E230 1088860 1 14 7.1 5.0 ✓ Ralkalinity Species by ITiltation E230 1088860 1 14 7.1 5.0 ✓ Ralkalinity Species by ITiltation E230 1088860 1 14 7.1 5.0 ✓ Ralkalinity Species by ITiltation E230 1088860 1 14 7.1 5.0 ✓ Ralkalinity Species by ITiltation E230 1088860 1 14 7.1 5.0 ✓ Ralkalinity Species by ITiltation E230 1088860 1 14 7.1 5.0 ✓ Ralkalinity Species by ITiltation Ralkalinity Species by ITiltation E230 1088860 1 14 7.1 5.0 ✓ R	Nitrate in Water by IC (Low Level)	E235.NO3-L	1088864	1	14	7.1	5.0	√				
TDS by Gravimetry	Nitrite in Water by IC (Low Level)	E235.NO2-L	1088865	1	14	7.1	5.0	√				
VH and F1 by Headspace GC-FID E681.VH+F1 1096039 1 11 9.0 5.0 ✓ VOCs (BC List) by Headspace GC-MS E611C 1096040 1 11 9.0 5.0 ✓ Alkalinity Species by Titration E290 1088859 1 14 7.1 5.0 ✓ Ammonia by Fluorescence E298 1091089 1 18 5.5 5.0 ✓ Cloride in Water by IC E235.CI 1088866 1 14 7.1 5.0 ✓ Cloride in Water by IC E235.CI 1088866 1 14 7.1 5.0 ✓ Dissolved Mercury in Water by CXAS E509 1093267 1 18 5.5 5.0 ✓ Dissolved Metals in Water by IC CLOw Level) E235.NO3-L 1088862 1 14 7.1 5.0 ✓ Viltrate in Water by IC Clow Level) E235.NO3-L 1088863 1 14 7.1 5.0 ✓ Sulfate in Water by IC Clow Level) E235.	Sulfate in Water by IC	E235.SO4	1088863	1	14	7.1	5.0	<u>√</u>				
VH and F1 by Headspace GC-FID E581.VH+F1 1096039 1 11 9.0 5.0 ✓ VOCs (BC List) by Headspace GC-MS E6110 1096040 1 11 9.0 5.0 ✓ Alkalinity Species by Titration E290 1088859 1 14 7.1 5.0 ✓ Armmonia by Fluorescence E298 1091089 1 18 5.5 5.0 ✓ Cloride in Water by IC E235.Cl 1088868 1 14 7.1 5.0 ✓ Cloride in Water by IC Conductivity in Water E100 1088860 1 14 7.1 5.0 ✓ Dissolved Mercury in Water by CXAS E509 1093267 1 18 5.5 5.0 ✓ Dissolved Metals in Water by IC CLOW Level) E235.NO3.L 1088862 1 14 7.1 5.0 ✓ Nitrate in Water by IC CLOW Level) E235.NO3.L 1088864 1 14 7.1 5.0 ✓ Sulfate in Water by IC CLOW Level) <t< td=""><td>TDS by Gravimetry</td><td>E162</td><td>1091270</td><td>1</td><td>16</td><td>6.2</td><td>5.0</td><td>√</td></t<>	TDS by Gravimetry	E162	1091270	1	16	6.2	5.0	√				
Alkalinity Species by Titration E290 1088859 1	VH and F1 by Headspace GC-FID	E581.VH+F1	1096039	1	11	9.0	5.0					
Alkalinity Species by Titration E290 1088859 1 14 7.1 5.0 ✓ Ammonia by Fluorescence E298 1091089 1 18 5.5 5.0 ✓ Chloride in Water by IC E235.Cl 1088866 1 14 7.1 5.0 ✓ Conductivity in Water E100 1088866 1 14 7.1 5.0 ✓ Conductivity in Water E100 1088866 1 14 7.1 5.0 ✓ Conductivity in Water by CVAAS E509 1093267 1 18 5.5 5.0 ✓ Conductivity in Water by CRC ICPMS E421 1086460 1 18 5.5 5.0 ✓ Conductivity in Water by CRC ICPMS E421 1086460 1 18 5.5 5.0 ✓ Conductivity in Water by IC (Low Level) E235.NO3-L 1088862 1 14 7.1 5.0 ✓ Conductivity in Water by IC (Low Level) E235.NO3-L 1088864 1 14 7.1 5.0 ✓ Conductivity in Water by IC (Low Level) E235.NO3-L 1088865 1 14 7.1 5.0 ✓ Conductivity in Water by IC (Low Level) E235.NO3-L 1088865 1 14 7.1 5.0 ✓ Conductivity in Water by IC (Low Level) E235.NO3-L 1088865 1 14 7.1 5.0 ✓ Conductivity in Water by IC (Low Level) E235.NO3-L 1088865 1 14 7.1 5.0 ✓ Conductivity in Water by IC (Low Level) E235.NO3-L 1088865 1 14 7.1 5.0 ✓ Conductivity in Water by IC (Low Level) E235.NO3-L 1088865 1 14 7.1 5.0 ✓ Conductivity in Water by IC (Low Level) E235.NO3-L 1088865 1 14 7.1 5.0 ✓ Conductivity in Water by IC (Low Level) E235.NO3-L 1088869 1 14 7.1 5.0 ✓ Conductivity in Water by IC E235.Cl 1088866 1 14 7.1 5.0 ✓ Conductivity in Water by IC E235.Cl 1088860 1 14 7.1 5.0 ✓ Conductivity in Water by IC E235.Cl 1088860 1 14 7.1 5.0 ✓ Conductivity in Water by IC E235.Cl 1088860 1 14 7.1 5.0 ✓ Conductivity in Water by IC E235.Cl 1088860 1 14 7.1 5.0 ✓ Conductivity in Water by IC E235.Cl 1088860 1 14 7.1 5.0 ✓ Conductivity in Water by IC E235.Cl 1088860 1 14 7.1 5.0 ✓ Conductivity in Water by IC In It It It It It It It	VOCs (BC List) by Headspace GC-MS	E611C	1096040	1	11	9.0	5.0					
Ammonia by Fluorescence	Laboratory Control Samples (LCS)							-				
Chloride in Water by IC Conductivity in Water E235.CI 1088866 1 144 7.1 5.0 ✓ Conductivity in Water E100 1088860 1 144 7.1 5.0 ✓ Dissolved Mercury in Water by CVAAS E509 1093267 1 188 5.5 5.0 ✓ Dissolved Metals in Water by CRC ICPMS E421 1086460 1 1 18 5.5 5.0 ✓ Dissolved Metals in Water by CRC ICPMS E421 1086460 1 1 18 5.5 5.0 ✓ Dissolved Metals in Water by IC Conductivity in Water by IC (Low Level) E235.F 1088862 1 1 14 7.1 5.0 ✓ Nitrate in Water by IC (Low Level) E235.NO3-L 1088864 1 14 7.1 5.0 ✓ Nitrate in Water by IC (Low Level) E235.NO2-L 1088865 1 14 7.1 5.0 ✓ Sulfate in Water by IC Conductivity in Water by IC CONDUCTIONS E421 108660 1 1 18 5.5 5.0 ✓ Dissolved Metals in Water by IC RC ICPMS	Alkalinity Species by Titration	E290	1088859	1	14	7.1	5.0	✓				
E100	Ammonia by Fluorescence	E298	1091089	1	18	5.5	5.0	✓				
Dissolved Mercury in Water by CVAAS E509 1093267 1 18 5.5 5.0 ✓	Chloride in Water by IC	E235.CI	1088866	1	14	7.1	5.0	✓				
E421 1086460 1 18 5.5 5.0 ✓	Conductivity in Water	E100	1088860	1	14	7.1	5.0	✓				
Fluoride in Water by IC E235.F 1088862 1 14 7.1 5.0 √	Dissolved Mercury in Water by CVAAS	E509	1093267	1	18	5.5	5.0	✓				
Nitrate in Water by IC (Low Level) E235.NO3-L 1088864 1 14 7.1 5.0 ✓ Nitrite in Water by IC (Low Level) E235.NO2-L 1088865 1 14 7.1 5.0 ✓ E35.NO2-L 1088865 1 14 7.1 5.0 ✓ E35.NO2-L 1088863 1 14 7.1 5.0 ✓ E35.NO2-L 1088863 1 14 7.1 5.0 ✓ E35.NO2-L E35.NO2-L E35.NO2-L E35.NO2-L E388.SO4 1088863 1 14 7.1 5.0 ✓ E35.NO3-L E35.N	Dissolved Metals in Water by CRC ICPMS	E421	1086460	1	18	5.5	5.0	✓				
Nitrite in Water by IC (Low Level) E235.NO2-L 1088865 1 14 7.1 5.0 ✓ Sulfate in Water by IC E235.SO4 1088863 1 14 7.1 5.0 ✓ TDS by Gravimetry E162 1091270 1 16 6.2 5.0 ✓ VH and F1 by Headspace GC-FID E581.VH+F1 1096039 1 11 9.0 5.0 ✓ VOCs (BC List) by Headspace GC-MS E611C 1096040 1 11 9.0 5.0 ✓ Method Blanks (MB) BE290 1088859 1 14 7.1 5.0 ✓ Ammonia by Fluorescence E298 1091089 1 18 5.5 5.0 ✓ Chloride in Water by IC E235.CI 1088866 1 14 7.1 5.0 ✓ Conductivity in Water E100 1088860 1 14 7.1 5.0 ✓ Dissolved Mercury in Water by CVAAS E509 1093267 1 18 <td>Fluoride in Water by IC</td> <td>E235.F</td> <td>1088862</td> <td>1</td> <td>14</td> <td>7.1</td> <td>5.0</td> <td>✓</td>	Fluoride in Water by IC	E235.F	1088862	1	14	7.1	5.0	✓				
Sulfate in Water by IC E235.SO4 1088863 1 14 7.1 5.0 ✓ TDS by Gravimetry E162 1091270 1 16 6.2 5.0 ✓ VH and F1 by Headspace GC-FID E581.VH+F1 1096039 1 11 9.0 5.0 ✓ VOCs (BC List) by Headspace GC-MS E611C 1096040 1 11 9.0 5.0 ✓ Method Blanks (MB) Alkalinity Species by Titration E290 1088859 1 14 7.1 5.0 ✓ Ammonia by Fluorescence E298 1091089 1 18 5.5 5.0 ✓ Chloride in Water by IC E235.Cl 1088866 1 14 7.1 5.0 ✓ Conductivity in Water E100 1088860 1 14 7.1 5.0 ✓ Dissolved Mercury in Water by CVAAS E509 1093267 1 18 5.5 5.0 ✓ Dissolved Metals in Water by CRC ICPMS E421 1086460 1 18 5.5 5.0 ✓	Nitrate in Water by IC (Low Level)	E235.NO3-L	1088864	1	14	7.1	5.0	✓				
TDS by Gravimetry E162 1091270 1 16 6.2 5.0 ✓ VH and F1 by Headspace GC-FID VH and F1 by Headspace GC-FID VOCs (BC List) by Headspace GC-MS E611C 1096040 1 11 9.0 5.0 ✓ Method Blanks (MB) Alkalinity Species by Titration E290 1088859 1 14 7.1 5.0 ✓ Ammonia by Fluorescence E298 1091089 1 18 5.5 5.0 ✓ Chloride in Water by IC Conductivity in Water E100 1088860 1 14 7.1 5.0 ✓ Dissolved Mercury in Water by CRC ICPMS E421 1086460 1 18 5.5 5.0 ✓ Dissolved Metals in Water by CRC ICPMS	Nitrite in Water by IC (Low Level)	E235.NO2-L	1088865	1	14	7.1	5.0	✓				
VH and F1 by Headspace GC-FID E581.VH+F1 1096039 1 11 9.0 5.0 ✓ VOCs (BC List) by Headspace GC-MS E611C 1096040 1 11 9.0 5.0 ✓ Method Blanks (MB) Alkalinity Species by Titration E290 1088859 1 14 7.1 5.0 ✓ Ammonia by Fluorescence E298 1091089 1 18 5.5 5.0 ✓ Chloride in Water by IC E235.CI 1088866 1 14 7.1 5.0 ✓ Conductivity in Water E100 1088860 1 14 7.1 5.0 ✓ Dissolved Mercury in Water by CVAAS E509 1093267 1 18 5.5 5.0 ✓ Dissolved Metals in Water by CRC ICPMS E421 1086460 1 18 5.5 5.0 ✓	Sulfate in Water by IC	E235.SO4	1088863	1	14	7.1	5.0	✓				
VOCs (BC List) by Headspace GC-MS E611C 1096040 1 11 9.0 5.0 ✓ Method Blanks (MB) Alkalinity Species by Titration E290 1088859 1 14 7.1 5.0 ✓ Ammonia by Fluorescence E298 1091089 1 18 5.5 5.0 ✓ Chloride in Water by IC E235.CI 1088866 1 14 7.1 5.0 ✓ Conductivity in Water E100 1088860 1 14 7.1 5.0 ✓ Dissolved Mercury in Water by CVAAS E509 1093267 1 18 5.5 5.0 ✓ Dissolved Metals in Water by CRC ICPMS E421 1086460 1 18 5.5 5.0 ✓	TDS by Gravimetry	E162	1091270	1	16	6.2	5.0	✓				
Method Blanks (MB) Alkalinity Species by Titration E290 1088859 1 14 7.1 5.0 ✓ Ammonia by Fluorescence E298 1091089 1 18 5.5 5.0 ✓ Chloride in Water by IC E235.CI 1088866 1 14 7.1 5.0 ✓ Conductivity in Water E100 1088860 1 14 7.1 5.0 ✓ Dissolved Mercury in Water by CVAAS E509 1093267 1 18 5.5 5.0 ✓ Dissolved Metals in Water by CRC ICPMS E421 1086460 1 18 5.5 5.0 ✓	VH and F1 by Headspace GC-FID	E581.VH+F1	1096039	1	11	9.0	5.0	✓				
Alkalinity Species by Titration E290 1088859 1 14 7.1 5.0 ✓ Ammonia by Fluorescence E298 1091089 1 18 5.5 5.0 ✓ Chloride in Water by IC E235.Cl 1088866 1 14 7.1 5.0 ✓ Conductivity in Water E100 1088860 1 14 7.1 5.0 ✓ Dissolved Mercury in Water by CVAAS E509 1093267 1 18 5.5 5.0 ✓ Dissolved Metals in Water by CRC ICPMS E421 1086460 1 18 5.5 5.0 ✓	VOCs (BC List) by Headspace GC-MS	E611C	1096040	1	11	9.0	5.0	✓				
Ammonia by Fluorescence E298 1091089 1 18 5.5 5.0 ✓ Chloride in Water by IC E235.Cl 1088866 1 14 7.1 5.0 ✓ Conductivity in Water E100 1088860 1 14 7.1 5.0 ✓ Dissolved Mercury in Water by CVAAS E509 1093267 1 18 5.5 5.0 ✓ Dissolved Metals in Water by CRC ICPMS E421 1086460 1 18 5.5 5.0 ✓	Method Blanks (MB)											
Chloride in Water by IC E235.Cl 1088866 1 14 7.1 5.0 ✓ Conductivity in Water E100 1088860 1 14 7.1 5.0 ✓ Dissolved Mercury in Water by CVAAS E509 1093267 1 18 5.5 5.0 ✓ Dissolved Metals in Water by CRC ICPMS E421 1086460 1 18 5.5 5.0 ✓	Alkalinity Species by Titration	E290	1088859	1	14	7.1	5.0	✓				
Conductivity in Water E100 1088860 1 14 7.1 5.0 ✓ Dissolved Mercury in Water by CVAAS E509 1093267 1 18 5.5 5.0 ✓ Dissolved Metals in Water by CRC ICPMS E421 1086460 1 18 5.5 5.0 ✓	Ammonia by Fluorescence	E298	1091089	1	18	5.5	5.0	✓				
Dissolved Mercury in Water by CVAAS E509 1093267 1 18 5.5 5.0 ✓ Dissolved Metals in Water by CRC ICPMS E421 1086460 1 18 5.5 5.0 ✓	Chloride in Water by IC	E235.Cl	1088866	1	14	7.1	5.0	✓				
Dissolved Metals in Water by CRC ICPMS	Conductivity in Water	E100	1088860	1	14	7.1	5.0	✓				
,	Dissolved Mercury in Water by CVAAS	E509	1093267	1	18	5.5	5.0	✓				
Fluoride in Water by IC E235.F 1088862 1 14 7.1 5.0 √	Dissolved Metals in Water by CRC ICPMS	E421	1086460	1	18	5.5	5.0	✓				
	Fluoride in Water by IC	E235.F	1088862	1	14	7.1	5.0	✓				

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Matrix: Water		Evaluati	on: × = QC freque	ency outside spe	ecification; ✓ =	QC frequency wit	thin specification
Quality Control Sample Type		Co	ount	Frequency (%)			
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation
Method Blanks (MB) - Continued							
Nitrate in Water by IC (Low Level)	E235.NO3-L	1088864	1	14	7.1	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1088865	1	14	7.1	5.0	✓
Sulfate in Water by IC	E235.SO4	1088863	1	14	7.1	5.0	✓
TDS by Gravimetry	E162	1091270	1	16	6.2	5.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	1096039	1	11	9.0	5.0	✓
VOCs (BC List) by Headspace GC-MS	E611C	1096040	1	11	9.0	5.0	✓
Matrix Spikes (MS)							
Ammonia by Fluorescence	E298	1091089	1	18	5.5	5.0	✓
Chloride in Water by IC	E235.Cl	1088866	1	14	7.1	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1093267	1	18	5.5	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1086460	1	18	5.5	5.0	✓
Fluoride in Water by IC	E235.F	1088862	1	14	7.1	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1088864	1	14	7.1	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1088865	1	14	7.1	5.0	✓
Sulfate in Water by IC	E235.SO4	1088863	1	14	7.1	5.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	1096039	1	11	9.0	5.0	✓
VOCs (BC List) by Headspace GC-MS	E611C	1096040	1	11	9.0	5.0	✓

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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	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
	ALS Environmental -			sample. Conductivity measurements are temperature-compensated to 25°C.
	Vancouver			campio. Conductivity incucaronionic are temporature compensated to 20°C.
TDS by Gravimetry	E162	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 $180 \pm 2^{\circ}\text{C}$ for 16 hours or to constant weight,
	ALS Environmental -			with gravimetric measurement of the residue.
	Vancouver			
Chloride in Water by IC	E235.CI	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and /or UV detection.
	ALS Environmental -			
	Vancouver			
Fluoride in Water by IC	E235.F	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
	ALS Environmental -			
	Vancouver			
Nitrite in Water by IC (Low Level)	E235.NO2-L	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
	ALS Environmental -			
	Vancouver			
Nitrate in Water by IC (Low Level)	E235.NO3-L	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and /or UV detection.
	ALS Environmental -			
	Vancouver			
Sulfate in Water by IC	E235.SO4	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
	ALS Environmental -			
	Vancouver			
Alkalinity Species by Titration	E290	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
	ALS Environmental -			alkalinity values.
	Vancouver			anianny raises.
Ammonia by Fluorescence	E298	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).
	ALS Environmental -			This method is approved under US EPA 40 CFR Part 136 (May 2021)
	Vancouver			
	Variouvci			

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Client : Comox Valley Regional District



ALS Environmental Vancouver Dissolved Mercury in Water by CVAAS E509 Mater APHA 3030B/EPA 1831E (mod) Water samples are filtered (0.45 um), preserved with HCl, then undergo a cold-oxidatic using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS. Water and F1 by Headspace GC-FID E581/H+F1 ALS Environmental Vancouver ALS Environmental Vancouver ALS Environmental Vancouver ALS Environmental Vancouver ALS Environmental Vancouver ALS Environmental Vancouver ALS Environmental Vancouver Water E611C Water ALS Environmental Vancouver Water ALS Environmental Vancouver Water ALS Environmental Vancouver Water APHA 2340B APHA 2340B APHA 2340B APHA 2340B Nitrate and Nitrite (as N) (Calculation) EC235.N+N Water ALS Environmental Vancouver Water ALS Environmental Vancouver ALS Environmental Vanco	Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Dissolved Mircury in Water by CVAAS E509 Water APHA 3030B/EPA Water samples are filtered (0.45 um), preserved with HCL, then undergo a cold-oxidatic using bromine monochloride prior to reduction with stannous chloride, and analyzed by CAAS. VH and F1 by Headspace GC-FID E551.VH+F1 ALS Environmental-Vanocurver ALS Environmental-Vanocurver ALS Environmental-Vanocurver Water GCMC EAb Manual / CCME PHC in Soil - Tier 1 (mod) I (mod) Water FA 82600 (mod) ALS Environmental-Vanocurver Water ALS Environmental-Vanocurver Wat	Dissolved Metals in Water by CRC ICPMS	ALS Environmental -	Water		
ALS Environmental - Vancouver Water SC MOE Lab Manual / COME PHC in Soil - Tier and promine monochloride prior to reduction with stannous chloride, and analyzed be CVAS. UNAS. Water SC MOE Lab Manual / COME PHC in Soil - Tier and public property of the Come PhC with the headspace of the come property of the come property of water due to dissolved diseilent and magnesium concentrations. Perparation for Ammonia Perparation Methods ALS Environmental - Vancouver Valuer EPA 8260 (mod) Volatile Phydrocarbons (VH and F1) is analyzed by static headspace GC-FID. Sample prepared in headspace with an are prepared in headspace with an are prepared in headspace with the property of the COME PHC method have been me including response factor and linearity requirements. VOCs (BC List) by Headspace GC-MS E611C Water EPA 8260D (mod) Volatile Phydrocarbons (VPL on the Come PhC method have been me including response factor and linearity requirements. VOCs (BC List) by Headspace GC-MS E611C Water EPA 8260D (mod) Volatile Phgrocarbons (PHCs) are validated to comp fully with the Reference Method for the Come PhC method have been me including response factor and linearity requirements. VOCs (BC List) by Headspace GC-MS E611C Water EPA 8260D (mod) Volatile Pegroe components factor and linearity requirements. VOCs (BC List) by Headspace GC-MS E611C Water EPA 8260D (mod) Volatile Pegroe components factor and linearity requirements. VOCs (BC List) by Headspace GC-MS E611C Water EPA 8260D (mod) Volatile Pegroe components (PLCs) and property of water due to dissolved division and Magnesium concentrations, expressed in CaCO3 aquivalents. "Total Hardness" relability and magnesium concentrations, expressed in CaCO3 aquivalents. "Total Hardness" relability and magnesium concentrations, expressed in CaCO3 aquivalents. "Total Hardness" relability and magnesium concentrations, expressed in CaCO3 aquivalents. "Total Hardness" relability and Magnesium concentrations, expressed in CaCO3 a		Vancouver			·
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tiuly with the Reference Method for the Canada-Wride Standard for PHC. Unles qualified, all required quality control criteria of the CCME PHC method have been me including response factor and linearity requirements. Wotate PHA 8260D (mod) Volatile Organic Compounds (VOCs) are analyzed by static headspace GC-MI Samples are prepared in headspace valish and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law. Dissolved Hardness (Calculated) EC100 Water APHA 2340B "Hardness (as CaCO3), dissolved" is calculated from the sum of dissolved Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. "Total Hardness' refer to the sum of Calcium and Magnesium concentrations, because it is property of water due to dissolved divalent calculated from the sum of Magnesium concentrations, because it is property of water due to dissolved divalent calculated from the sum of dissolved Calcium and Magnesium concentrations, because it is property of water due to dissolved divalent calculated from the sum of dissolved calcium and Magnesium concentrations, because it is property of water due to dissolved divalent calculated from the sum of dissolved calcium and Magnesium concentrations, because it is property of water due to dissolved divalent calculated from the sum of dissolved calcium and Magnesium concentrations, because it is property of water due to dissolved divalent calculated from the sum of dissolved Calcium and Magnesium concentrations, because it is property of water due to dissolved divalent calculated. VPH: VH-BTEX-Styrene EC35.N+N ALS Environmental - Vancouver VPH: VH-BTEX-Styrene EC580A Method / Lab Matrix Method Reference Method Pescriptons Sample preparation for Preceived Nutrients Water Quality Analysis. ALS Environmental - Vancouver Dissolved Metals Water Filtration EP421 Water APHA 3030B Water APHA 303					autosampler, causing VOCs to partition between the aqueous phase and the
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ALS Environmental Vancouver Dissolved Hardness (Calculated) EC100 Water APHA 2340B ALS Environmental Vancouver ALS Environmental Vancouver Nitrate and Nitrite (as N) (Calculation) EC235.N+N ALS Environmental Vancouver Nitrate and Nitrite (as N) (Calculation) EC235.N+N ALS Environmental Vancouver Nitrate and Nitrite (as N) (Calculation) EC235.N+N ALS Environmental Vancouver VPH: VH-BTEX-Styrene EC580A Water BC MOE Lab Manual (VPH in Water and Solids) (mod) VPH: WH-BTEX-Styrene ALS Environmental Vancouver VPH: Water BC Mod Lab Marix Method Reference Method Reference Method Reference Method Reference Method Reference Method Reference Method Descriptions Water Sample preparation for Preserved Nutrients Water Quality Analysis. Dissolved Metals Water Filtration EP421 Water APHA 3030B Water samples are filtered (0.45 um), and preserved with HNO3.	VOCs (BC List) by Headspace GC-MS	E611C	Water	EPA 8260D (mod)	Volatile Organic Compounds (VOCs) are analyzed by static headspace GC-MS.
Dissolved Hardness (Calculated) EC100 ALS Environmental - Vancouver ALS Environmental - Vancouver Nitrate and Nitrite (as N) (Calculation) EC235.N+N ALS Environmental - Vancouver Nitrate and Nitrite (as N) (Calculation) EC35.N+N ALS Environmental - Vancouver VPH: VH-BTEX-Styrene EC580A ALS Environmental - Vancouver Preparation Methods Method / Lab Method / Lab Method / Lab Matrix Method Reference Method Descriptions ALS Environmental - Vancouver Preparation for Ammonia EP28 ALS Environmental - Vancouver Water APHA 3030B Water Sample preparation for Preserved Nutrients Water Quality Analysis. Water Sample preparation for Preserved with HNO3. Water Sample sare filtered (0.45 um), and preserved with HNO3.		ALS Environmental -			headspace autosampler, causing VOCs to partition between the aqueous phase and
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ALS Environmental - Vancouver VPH: VH-BTEX-Styrene EC580A ALS Environmental - Vancouver Water BC MOE Lab Manual (VPH in Water and Solids) (mod) VPH: VH-BTEX-Styrene EC580A ALS Environmental - Vancouver Water Method / Lab Matrix Method Reference Method Descriptions Preparation for Ammonia EP298 ALS Environmental - Vancouver Water Dissolved Metals Water Filtration EP421 ALS Environmental - ALS Environmental - Vancouver Water APHA 3030B Water samples are filtered (0.45 um), and preserved with HNO3.		Vancouver			calculated from dissolved Calcium and Magnesium concentrations, because it is a property of water due to dissolved divalent cations.
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VPH: VH-BTEX-Styrene EC580A ALS Environmental - Vancouver Preparation Methods Preparation for Ammonia EP298 ALS Environmental - Vancouver Water Dissolved Metals Water Filtration EP421 ALS Environmental - Vancouver Water BC MOE Lab Manual (VPH in Water and Solids) (mod) Water BC MOE Lab Manual (VPH in Water and Solids) (mod) Water Method Petroleum Hydrocarbons (VPH) is calculated as follows: VPHw = Volation Hydrocarbons (VH6-10) minus benzene, toluene, ethylbenzene, xylenes (BTEX) are styrene. Sample preparation for Preserved Nutrients Water Quality Analysis. Water Sample preparation for Preserved Nutrients Water Quality Analysis. Water Samples are filtered (0.45 um), and preserved with HNO3.					
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	Dissolved Metals Water Filtration		Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HNO3.
Vancouver					
		Vancouver			

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Client : Comox Valley Regional District



Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Dissolved Mercury Water Filtration	EP509	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HCl.
	ALS Environmental - Vancouver			
VOCs Preparation for Headspace Analysis	EP581 ALS Environmental - Vancouver	Water	EPA 5021A (mod)	Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler. An aliquot of the headspace is then injected into the GC/MS-FID system.

Chain of Custody (COC) / Analytical Request Form

Affix ALS barcode label here

COC Number: 17 -

Environmental

Canada Toli Free: 1 800 668 9878

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REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

Failure to complete all portions of this form may delay analysis. Please till 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 COCY6rm.

ALS Canada Ltd.

Contact

Address



CERTIFICATE OF ANALYSIS

Work Order : **VA23B9056** Page : 1 of 8

Client : Comox Valley Regional District Laboratory : ALS Environmental - Vancouver

: Crystal Stuart Account Manager : Thomas Chang

: 770 Harmston Avenue Address : 8081 Lougheed Highway

Courtney BC Canada V9N 0G8 Burnaby BC Canada V5A 1W9

Telephone : 250-898-3722 Telephone : +1 604 253 4188

 Project
 : 3-2
 Date Samples Received
 : 16-Aug-2023 12:20

 PO
 : 23-015
 Date Analysis Commenced
 : 17-Aug-2023

C-O-C number : --- Issue Date : 23-Aug-2023 13:08

Sampler : C.Stuart

Site : CRWMC-Quaterly-GW

Quote number : VA23-COVR100-001

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
- Surrogate Control Limits

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
Brieanna Allen	Production/Validation Manager	Inorganics, Burnaby, British Columbia
Delson Resende	Lab Assistant	Metals, Burnaby, British Columbia
Janice Leung	Supervisor - Organics Instrumentation	Organics, Burnaby, British Columbia
Kim Jensen	Department Manager - Metals	Metals, Burnaby, British Columbia
Sam Silveira	Lab Assistant	Metals, Burnaby, British Columbia

Page : 2 of 8

Work Order : VA23B9056

Client : Comox Valley Regional District

Project : 3-2



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
μg/L	micrograms per litre
μS/cm	microsiemens per centimetre
mg/L	milligrams per litre

<: 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.

Page : 3 of 8 Work Order : VA23B9056

Client : Comox Valley Regional District

Project : 3-2



Sub-Matrix: Water			Cli	ient sample ID	WG-081423-C5-	WG-081423-C5-	WG-081423-C5-	WG-081423-C5-	WG-081423-C5-
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			·	ling date / time	14-Aug-2023 09:25	14-Aug-2023 10:00	14-Aug-2023 11:10	14-Aug-2023 12:10	14-Aug-2023 13:35
Analyte	CAS Number	Method/Lab	LOR	Unit	VA23B9056-001	VA23B9056-002	VA23B9056-003	VA23B9056-004	VA23B9056-005
					Result	Result	Result	Result	Result
Physical Tests		E000#/#	4.0		100	100	04.0	70.0	054
Alkalinity, bicarbonate (as CaCO3)		E290/VA	1.0	mg/L	192	162	91.9	78.8	354
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, total (as CaCO3)		E290/VA	1.0	mg/L	192	162	91.9	78.8	354
Conductivity		E100/VA	2.0	μS/cm	393	964	181	156	800
Hardness (as CaCO3), dissolved		EC100/VA	0.60	mg/L	223	361	94.4	83.8	292
Solids, total dissolved [TDS]		E162/VA	10	mg/L	279	696	118	121	421
Anions and Nutrients									
Ammonia, total (as N)	7664-41-7		0.0050	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	19.9
Chloride	16887-00-6		0.50	mg/L	15.1	131	2.58	1.72	56.5
Fluoride	16984-48-8	E235.F/VA	0.020	mg/L	<0.020	<0.100 DLDS	0.026	<0.020	<0.020
Nitrate (as N)	14797-55-8	E235.NO3-L/V	0.0050	mg/L	1.14	26.9	0.610	0.209	<0.0050
Nitrate + Nitrite (as N)		A EC235.N+N/V	0.0050	mg/L	1.14	27.0	0.610	0.209	<0.0051
Nitrite (as N)	14797-65-0	E235.NO2-L/V A	0.0010	mg/L	<0.0010	0.0672	<0.0010	<0.0010	0.0023
Sulfate (as SO4)	14808-79-8	E235.SO4/VA	0.30	mg/L	6.15	35.4	2.10	3.05	3.54
Dissolved Metals	100				3 1				1-9-11
Aluminum, dissolved	7429-90-5	E421/VA	0.0010	mg/L	0.0066	0.0011	0.147	0.0060	<0.0010
Antimony, dissolved	7440-36-0	E421/VA	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic, dissolved	7440-38-2	E421/VA	0.00010	mg/L	<0.00010	0.00013	0.00029	0.00196	0.00021
Barium, dissolved	7440-39-3	E421/VA	0.00010	mg/L	0.00744	0.0146	0.00848	0.00366	0.0461
Beryllium, dissolved	7440-41-7	E421/VA	0.000020	mg/L	<0.000020	<0.000020	<0.000020	<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	0.014	0.148	<0.010	<0.010	0.208
Cadmium, dissolved	7440-43-9	E421/VA	0.0000050	mg/L	<0.0000050	0.0000363	<0.0000050	<0.0000050	0.0000989
Calcium, dissolved	7440-70-2		0.050	mg/L	70.9	109	27.2	26.2	88.0
Chromium, dissolved	7440-47-3		0.00050	mg/L	0.00200	<0.00050	0.00273	0.00055	<0.00050
Cobalt, dissolved	7440-48-4		0.00010	mg/L	<0.00010	0.00061	0.00016	<0.00010	0.00154

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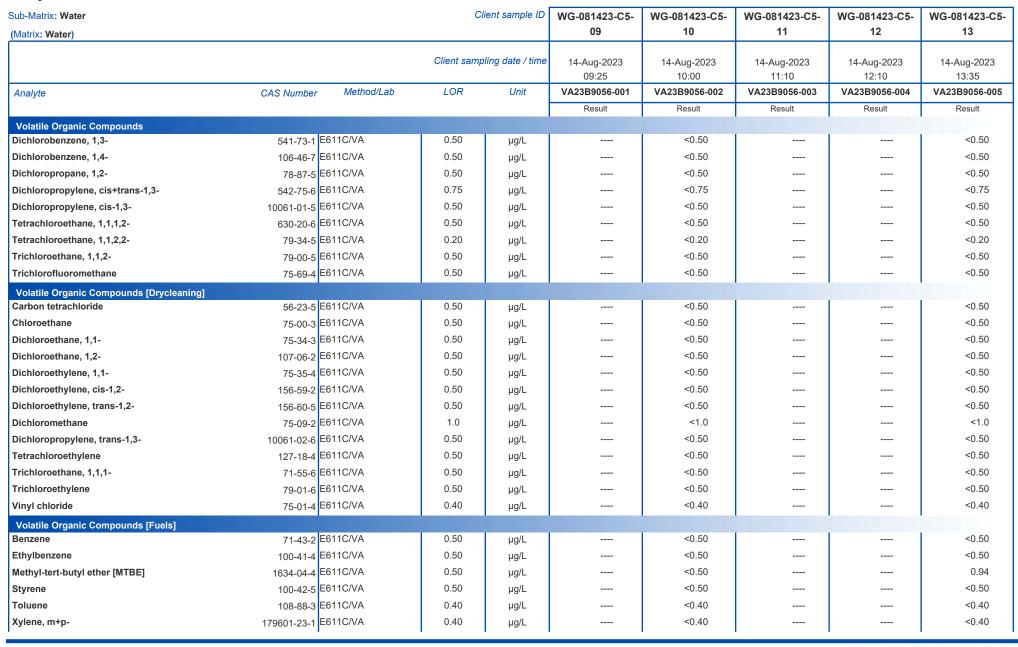
ALS

Dissolved Metals CAS Number Copper, dissolved 7440-50-8 E42 Iron, dissolved 7439-89-6 E42 Lead, dissolved 7439-92-1 E42 Lithium, dissolved 7439-93-2 E42	21/VA 21/VA 21/VA 21/VA	Client sample LOR 0.00020 0.010 0.000050 0.0010 0.100	mg/L mg/L mg/L	09 14-Aug-2023 09:25 VA23B9056-001 Result <0.00020 <0.010	10 14-Aug-2023 10:00 VA23B9056-002 Result 0.00359 <0.010	11 14-Aug-2023	12 14-Aug-2023 12:10 VA23B9056-004 Result	13 14-Aug-2023 13:35 VA23B9056-005 Result 0.00925
Dissolved Metals Copper, dissolved 7440-50-8 E42 Iron, dissolved 7439-89-6 E42 Lead, dissolved 7439-92-1 E42 Lithium, dissolved 7439-93-2 E42	21/VA 21/VA 21/VA 21/VA 21/VA	0.00020 0.010 0.000050 0.0010	Unit mg/L mg/L mg/L	09:25 VA23B9056-001 Result <0.00020 <0.010	10:00 VA23B9056-002 Result 0.00359	11:10 VA23B9056-003 Result	12:10 VA23B9056-004 Result	13:35 VA23B9056-005 Result
Dissolved Metals Copper, dissolved 7440-50-8 E42 Iron, dissolved 7439-89-6 E42 Lead, dissolved 7439-92-1 E42 Lithium, dissolved 7439-93-2 E42	21/VA 21/VA 21/VA 21/VA 21/VA	0.00020 0.010 0.000050 0.0010	mg/L mg/L mg/L	Result <0.00020 <0.010	Result 0.00359	Result 0.00093	Result	Result
Copper, dissolved 7440-50-8 E42 Iron, dissolved 7439-89-6 E42 Lead, dissolved 7439-92-1 E42 Lithium, dissolved 7439-93-2 E42	21/VA 21/VA 21/VA 21/VA	0.010 0.000050 0.0010	mg/L mg/L	<0.00020 <0.010	0.00359	0.00093		
Copper, dissolved 7440-50-8 E42 Iron, dissolved 7439-89-6 E42 Lead, dissolved 7439-92-1 E42 Lithium, dissolved 7439-93-2 E42	21/VA 21/VA 21/VA 21/VA	0.010 0.000050 0.0010	mg/L mg/L	<0.010			<0.00020	0.00025
Iron, dissolved 7439-89-6 E42 Lead, dissolved 7439-92-1 E42 Lithium, dissolved 7439-93-2 E42	21/VA 21/VA 21/VA 21/VA	0.010 0.000050 0.0010	mg/L mg/L	<0.010			<0.00020	0 00005
Lead, dissolved 7439-92-1 E42 Lithium, dissolved 7439-93-2 E42	21/VA 21/VA 21/VA	0.000050 0.0010	mg/L		<0.010	0.004		0.00925
Lithium, dissolved 7439-93-2 E42	21/VA 21/VA	0.0010	-	<0.0000E0		0.201	<0.010	0.026
l I	21/VA		100 cr /1	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
		0.100	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Magnesium, dissolved 7439-95-4 E42	21/VA	0.100	mg/L	11.2	21.6	6.42	4.47	17.5
Manganese, dissolved 7439-96-5 E42		0.00010	mg/L	0.00010	0.279	0.00754	<0.00010	2.95
Mercury, dissolved 7439-97-6 E50	09/VA	0.0000050	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum, dissolved 7439-98-7	21/VA	0.000050	mg/L	<0.000050	0.000070	0.000153	0.000132	0.000632
Nickel, dissolved 7440-02-0 E42	21/VA	0.00050	mg/L	<0.00050	0.00106	<0.00050	<0.00050	0.00199
Phosphorus, dissolved 7723-14-0 E42	21/VA	0.050	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium, dissolved 7440-09-7	21/VA	0.100	mg/L	1.20	1.74	0.510	1.05	12.4
Selenium, dissolved 7782-49-2 E42	21/VA	0.000050	mg/L	0.000186	0.000072	0.000101	0.000200	<0.000050
Silicon, dissolved 7440-21-3 E42	21/VA	0.050	mg/L	8.29	9.83	6.74	5.68	14.8
Silver, dissolved 7440-22-4 E42	21/VA	0.000010	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium, dissolved 7440-23-5	21/VA	0.050	mg/L	5.78	59.6	2.50	1.53	30.3
Strontium, dissolved 7440-24-6 E42	21/VA	0.00020	mg/L	0.167	0.302	0.0468	0.0328	0.411
Sulfur, dissolved 7704-34-9 E42	21/VA	0.50	mg/L	2.01	13.0	<0.50	0.62	1.26
Thallium, dissolved 7440-28-0 E42	21/VA	0.000010	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Tin, dissolved 7440-31-5 E42	21/VA	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium, dissolved 7440-32-6 E42	21/VA	0.00030	mg/L	<0.00030	<0.00030	0.0110	<0.00030	<0.00030
Uranium, dissolved 7440-61-1 E42	21/VA	0.000010	mg/L	0.000320	0.000506	0.000265	0.000108	0.000479
Vanadium, dissolved 7440-62-2 E42	21/VA	0.00050	mg/L	0.00167	0.00308	0.00666	0.0190	0.00172
Zinc, dissolved 7440-66-6 E42	21/VA	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Zirconium, dissolved 7440-67-7		0.00020	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	509/VA	-	-	Field	Field	Field	Field	Field
Dissolved metals filtration location EP4	421/VA	-	-	Field	Field	Field	Field	Field
Volatile Organic Compounds	10000							
Chlorobenzene 108-90-7 E61	11C/VA	0.50	μg/L		<0.50			<0.50
Chloromethane 74-87-3 E61		5.0	μg/L		<5.0			<5.0
Dichlorobenzene, 1,2- 95-50-1	11C/VA	0.50	μg/L		<0.50			<0.50

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Analytical Results

Sub-Matrix: Water			Ci	lient sample ID	WG-081423-C5-	WG-081423-C5-	WG-081423-C5-	WG-081423-C5-	WG-081423-C5-
(Matrix: Water)					09	10	11	12	13
			Client samp	oling date / time	14-Aug-2023 09:25	14-Aug-2023 10:00	14-Aug-2023 11:10	14-Aug-2023 12:10	14-Aug-2023 13:35
Analyte	CAS Number	Method/Lab	LOR	Unit	VA23B9056-001	VA23B9056-002	VA23B9056-003	VA23B9056-004	VA23B9056-005
				İ	Result	Result	Result	Result	Result
Volatile Organic Compounds [Fuels]									
Xylene, o-	95-47-6 E	611C/VA	0.30	μg/L		<0.30			<0.30
Xylenes, total	1330-20-7 E	611C/VA	0.50	μg/L		<0.50			<0.50
Volatile Organic Compounds [THMs]									
Bromodichloromethane	75-27-4 E	611C/VA	0.50	μg/L		<0.50			<0.50
Bromoform	75-25-2 E	611C/VA	0.50	μg/L		<0.50			<0.50
Chloroform	67-66-3 E	611C/VA	0.50	μg/L		<0.50			<0.50
Dibromochloromethane	124-48-1 E	611C/VA	0.50	μg/L		<0.50			<0.50
Hydrocarbons									
VHw (C6-C10)		581.VH+F1/ A	100	μg/L		<100			<100
VPHw	E	C580A/VA	100	μg/L		<100			<100
Hydrocarbons Surrogates									
Dichlorotoluene, 3,4-	95-75-0 E V	581.VH+F1/ 'A	1.0	%		101			98.8
Volatile Organic Compounds Surrogates									
Bromofluorobenzene, 4-	460-00-4 E		1.0	%		91.2			89.8
Difluorobenzene, 1,4-	540-36-3 E	611C/VA	1.0	%		99.0			99.0

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.

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ALS

Sub-Matrix: Water			Cli	ient sample ID	WG-081423-C5-	WG-081423-C5-	WG-081423-C5-	
(Matrix: Water)					14	15	16	
			Client samp	ling date / time	14-Aug-2023 14:55	14-Aug-2023 15:00	14-Aug-2023 15:15	
Analyte	CAS Number	Method/Lab	LOR	Unit	VA23B9056-006	VA23B9056-007	VA23B9056-008	
					Result	Result	Result	
Physical Tests								
Alkalinity, bicarbonate (as CaCO3)		E290/VA	1.0	mg/L	52.8	52.3	86.0	
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, total (as CaCO3)		E290/VA	1.0	mg/L	52.8	52.3	86.0	
Conductivity		E100/VA	2.0	μS/cm	107	106	168	
Hardness (as CaCO3), dissolved		EC100/VA	0.60	mg/L	55.1	53.2	89.1	
Solids, total dissolved [TDS]		E162/VA	10	mg/L	82	75	109	
Anions and Nutrients								
Ammonia, total (as N)	7664-41-7	E298/VA	0.0050	mg/L	<0.0050	<0.0050	<0.0050	
Chloride	16887-00-6	E235.CI/VA	0.50	mg/L	1.23	1.22	1.77	
Fluoride	16984-48-8	E235.F/VA	0.020	mg/L	<0.020	<0.020	<0.020	
Nitrate (as N)	14797-55-8	E235.NO3-L/V	0.0050	mg/L	0.124	0.122	0.159	
		A						
Nitrate + Nitrite (as N)		EC235.N+N/V	0.0050	mg/L	0.124	0.122	0.159	
Niduida (og NI)	4.4707.05.0	A	0.0010	/I	<0.0010	<0.0010	<0.0010	
Nitrite (as N)	14/9/-65-0	E235.NO2-L/V	0.0010	mg/L	<0.0010	<0.0010	<0.0010	
Sulfate (as SO4)	14808-79-8	E235.SO4/VA	0.30	mg/L	2.48	2.44	2.48	
Dissolved Metals								
Aluminum, dissolved	7429-90-5	E421/VA	0.0010	mg/L	0.0048	0.0045	0.0073	
Antimony, dissolved	7440-36-0	E421/VA	0.00010	mg/L	<0.00010	<0.00010	<0.00010	
Arsenic, dissolved	7440-38-2	E421/VA	0.00010	mg/L	0.00036	0.00037	0.00032	
Barium, dissolved	7440-39-3		0.00010	mg/L	0.00071	0.00070	0.00248	
Beryllium, dissolved	7440-41-7		0.000020	mg/L	<0.000020	<0.000020	<0.000020	
Bismuth, dissolved	7440-69-9		0.000050	mg/L	<0.000050	<0.000050	<0.000050	
Boron, dissolved	7440-42-8		0.010	mg/L	<0.010	<0.010	0.011	
Cadmium, dissolved	7440-43-9		0.0000050	mg/L	<0.000050	<0.0000050	<0.0000050	
Calcium, dissolved	7440-70-2		0.050	mg/L	19.3	18.6	32.1	
Chromium, dissolved	7440-47-3		0.00050	mg/L	<0.00050	<0.00050	0.00072	
Cobalt, dissolved	7440-48-4		0.00010	mg/L	<0.00010	<0.00010	<0.00010	
Copper, dissolved	7440-50-8		0.00020	mg/L	<0.00020	<0.00020	0.00052	
	7-4-0-00-0		1113020	9, ⊏		1.13020		l

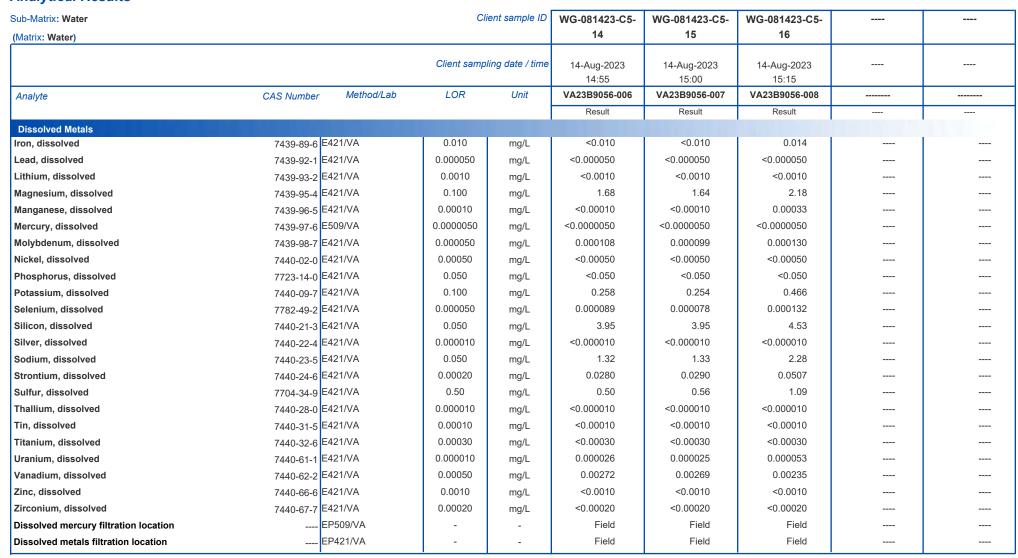
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Analytical Results



Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.

ALS Canada Ltd.



QUALITY CONTROL REPORT

Work Order : VA23B9056 Page : 1 of 14

Client : Comox Valley Regional District Laboratory : ALS Environmental - Vancouver

Contact : Crystal Stuart Account Manager : Thomas Chang

: 770 Harmston Avenue Address : 8081 Lougheed Highway

Burnaby, British Columbia Canada V5A 1W9

: Telephone :+1 604 253 4188

Date Samples Received : 16-Aug-2023 12:20

Date Analysis Commenced : 17-Aug-2023

Issue Date : 23-Aug-2023 13:08

Telephone : Project : 3-2

PO : 23-015 C-O-C number :----

Sampler : C.Stuart 250-898-3722

Site : CRWMC-Quaterly-GW
Quote number : VA23-COVR100-001

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

Courtney BC Canada V9N 0G8

- 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

Address

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
Brieanna Allen	Production/Validation Manager	Vancouver Inorganics, Burnaby, British Columbia
Delson Resende	Lab Assistant	Vancouver Metals, Burnaby, British Columbia
Janice Leung	Supervisor - Organics Instrumentation	Vancouver Organics, Burnaby, British Columbia
Kim Jensen	Department Manager - Metals	Vancouver Metals, Burnaby, British Columbia
Sam Silveira	Lab Assistant	Vancouver Metals, Burnaby, British Columbia

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Client : Comox Valley Regional District

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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.

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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							Labora	atory Duplicate (D	OUP) 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: 1090462)										
WR2300874-001	Anonymous	Conductivity		E100	2.0	μS/cm	297	293	1.36%	10%	
Physical Tests (QC	Lot: 1090463)										
WR2300874-001	Anonymous	Alkalinity, bicarbonate (as CaCO3)		E290	1.0	mg/L	137	136	0.367%	200%	
		Alkalinity, carbonate (as CaCO3)		E290	1.0	mg/L	4.4	4.4	0.00%	200%	
		Alkalinity, hydroxide (as CaCO3)		E290	1.0	mg/L	<1.0	<1.0	0.00%	200%	
		Alkalinity, total (as CaCO3)		E290	1.0	mg/L	141	140	0.355%	20%	
Physical Tests (QC	Lot: 1096069)				1 1 1						
VA23B9015-004	Anonymous	Solids, total dissolved [TDS]		E162	20	mg/L	384	380	1.18%	20%	
Anions and Nutrien	ts (QC Lot: 1090454)										
VA23B9060-001	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	1.50	mg/L	431	428	0.475%	20%	
Anions and Nutrien	ts (QC Lot: 1090455)				1 1 1						
VA23B9060-001	Anonymous	Chloride	16887-00-6	E235.CI	2.50	mg/L	<2.50	<2.50	0	Diff <2x LOR	
Anions and Nutrien	ts (QC Lot: 1090456)										
VA23B9060-001	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	0.0250	mg/L	0.0477	0.0499	0.0022	Diff <2x LOR	
Anions and Nutrien	ts (QC Lot: 1090457)				1 1 1						
VA23B9060-001	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	
Anions and Nutrien	ts (QC Lot: 1090458)										
VA23B9060-001	Anonymous	Fluoride	16984-48-8	E235.F	0.100	mg/L	0.214	0.218	0.005	Diff <2x LOR	
Anions and Nutrien	ts (QC Lot: 1093312)										
VA23B9056-001	WG-081423-C5-09	Ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	
Dissolved Metals (QC Lot: 1090617)										
KS2303039-001	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	0.0020	0.0022	0.0002	Diff <2x LOR	
		Antimony, dissolved	7440-36-0	E421	0.00010	mg/L	0.104	0.104	0.293%	20%	
		Arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	0.00103	0.00101	2.04%	20%	
		Barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.0268	0.0274	1.96%	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	0.014	0.014	0.0002	Diff <2x LOR	
		Cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L	0.0130	0.0129	0.162%	20%	
		Calcium, dissolved	7440-70-2	E421	0.050	mg/L	97.0	96.9	0.0242%	20%	
	1	,			1						l .

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 VA23B9056

Client : Comox Valley Regional District



Sub-Matrix: Water							Labora	tory Duplicate (D	UP) Report		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifie
Dissolved Metals (C	QC Lot: 1090617) - conti	nued									
KS2303039-001	Anonymous	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	0.00015	0.00015	0.0000004	Diff <2x LOR	
		Copper, dissolved	7440-50-8	E421	0.00020	mg/L	0.00037	0.00036	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	0.00731	0.00732	0.0802%	20%	
		Lithium, dissolved	7439-93-2	E421	0.0010	mg/L	0.0072	0.0072	0.00002	Diff <2x LOR	
		Magnesium, dissolved	7439-95-4	E421	0.0050	mg/L	26.8	26.9	0.0455%	20%	
		Manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.127	0.128	0.792%	20%	
		Molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.000248	0.000270	0.000022	Diff <2x LOR	
		Nickel, dissolved	7440-02-0	E421	0.00050	mg/L	0.00278	0.00286	0.00008	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	1.23	1.23	0.614%	20%	
		Selenium, dissolved	7782-49-2	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	
		Silicon, dissolved	7440-21-3	E421	0.050	mg/L	3.65	3.58	1.99%	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	3.02	2.98	1.28%	20%	
		Strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.476	0.471	1.13%	20%	
		Sulfur, dissolved	7704-34-9	E421	0.50	mg/L	63.9	62.9	1.59%	20%	
		Thallium, dissolved	7440-28-0	E421	0.000010	mg/L	0.000123	0.000126	2.38%	20%	
		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	
		Uranium, dissolved	7440-61-1	E421	0.000010	mg/L	0.000278	0.000279	0.186%	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	1.59	1.58	0.618%	20%	
		Zirconium, dissolved	7440-67-7	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	
Dissolved Metals (C	QC Lot: 1095947)				11						
VA23B9024-005	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	
/olatile Organic Co	mpounds (QC Lot: 1096	538)									
KS2303089-002	Anonymous	Benzene	71-43-2	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Bromodichloromethane	75-27-4	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Bromoform	75-25-2	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Carbon tetrachloride	56-23-5	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Chlorobenzene	108-90-7	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Chloroethane	75-00-3	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	

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Client : Comox Valley Regional District



ub-Matrix: Water							Labora	atory Duplicate (D	UP) Report		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Volatile Organic Co	mpounds (QC Lot: 10	96538) - continued									
KS2303089-002	Anonymous	Chloroform	67-66-3	E611C	0.50	μg/L	7.76	6.96	10.9%	30%	
		Chloromethane	74-87-3	E611C	5.0	μg/L	<5.0	<5.0	0	Diff <2x LOR	
		Dibromochloromethane	124-48-1	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Dichlorobenzene, 1,2-	95-50-1	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Dichlorobenzene, 1,3-	541-73-1	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Dichlorobenzene, 1,4-	106-46-7	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Dichloroethane, 1,1-	75-34-3	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Dichloroethane, 1,2-	107-06-2	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Dichloroethylene, 1,1-	75-35-4	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Dichloroethylene, cis-1,2-	156-59-2	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Dichloroethylene, trans-1,2-	156-60-5	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Dichloromethane	75-09-2	E611C	1.0	μg/L	<1.0	<1.0	0	Diff <2x LOR	
		Dichloropropane, 1,2-	78-87-5	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Dichloropropylene, cis-1,3-	10061-01-5	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Dichloropropylene, trans-1,3-	10061-02-6	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Ethylbenzene	100-41-4	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Styrene	100-42-5	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Tetrachloroethane, 1,1,1,2-	630-20-6	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Tetrachloroethane, 1,1,2,2-	79-34-5	E611C	0.20	μg/L	<0.20	<0.20	0	Diff <2x LOR	
		Tetrachloroethylene	127-18-4	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Toluene	108-88-3	E611C	0.40	μg/L	<0.40	<0.40	0	Diff <2x LOR	
		Trichloroethane, 1,1,1-	71-55-6	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Trichloroethane, 1,1,2-	79-00-5	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Trichloroethylene	79-01-6	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Trichlorofluoromethane	75-69-4	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Vinyl chloride	75-01-4	E611C	0.40	μg/L	<0.40	<0.40	0	Diff <2x LOR	
		Xylene, m+p-	179601-23-1	E611C	0.40	μg/L	<0.40	<0.40	0	Diff <2x LOR	
		Xylene, o-	95-47-6	E611C	0.30	μg/L	<0.30	<0.30	0	Diff <2x LOR	
ydrocarbons (QC	Lot: 1096539)										
S2303089-002	Anonymous	VHw (C6-C10)		E581.VH+F1	100	μg/L	<100	<100	0.0%	30%	

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Client : Comox Valley Regional District

Project : 3-



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

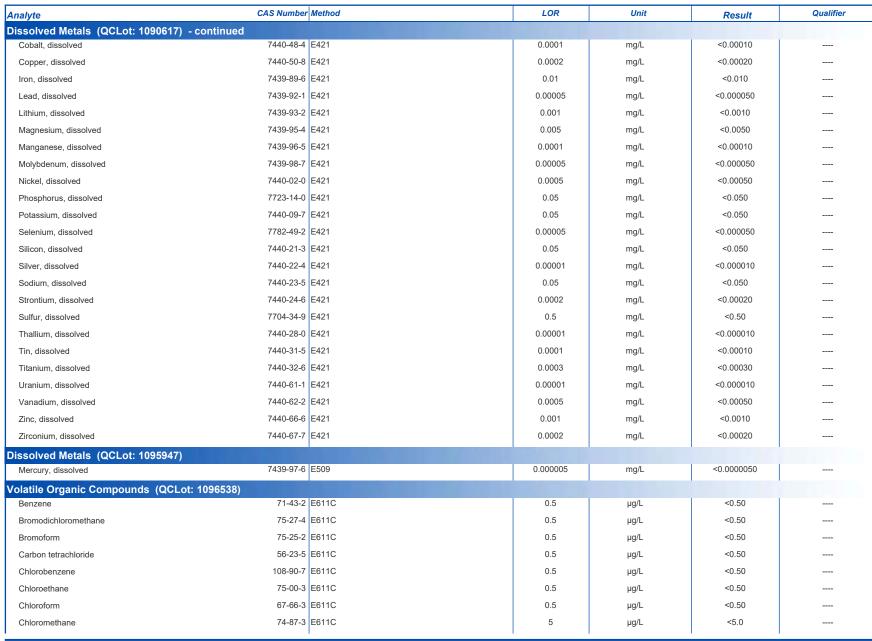
Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 1090462)						
Conductivity		E100	1	μS/cm	1.0	
Physical Tests (QCLot: 1090463)						
Alkalinity, bicarbonate (as CaCO3)		E290	1	mg/L	<1.0	
Alkalinity, carbonate (as CaCO3)		E290	1	mg/L	<1.0	
Alkalinity, hydroxide (as CaCO3)		E290	1	mg/L	<1.0	
Alkalinity, total (as CaCO3)		E290	1	mg/L	<1.0	
Physical Tests (QCLot: 1096069)						
Solids, total dissolved [TDS]		E162	10	mg/L	<10	
Anions and Nutrients (QCLot: 1090454)						
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	
Anions and Nutrients (QCLot: 1090455)						
Chloride	16887-00-6	E235.CI	0.5	mg/L	<0.50	
Anions and Nutrients (QCLot: 1090456)						
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	<0.0050	
Anions and Nutrients (QCLot: 1090457)						
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	<0.0010	
Anions and Nutrients (QCLot: 1090458)						
Fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	
Anions and Nutrients (QCLot: 1093312)						
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	
Dissolved Metals (QCLot: 1090617)						
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	
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	<0.00050	

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Client : Comox Valley Regional District

Project : 3-2

Sub-Matrix: Water



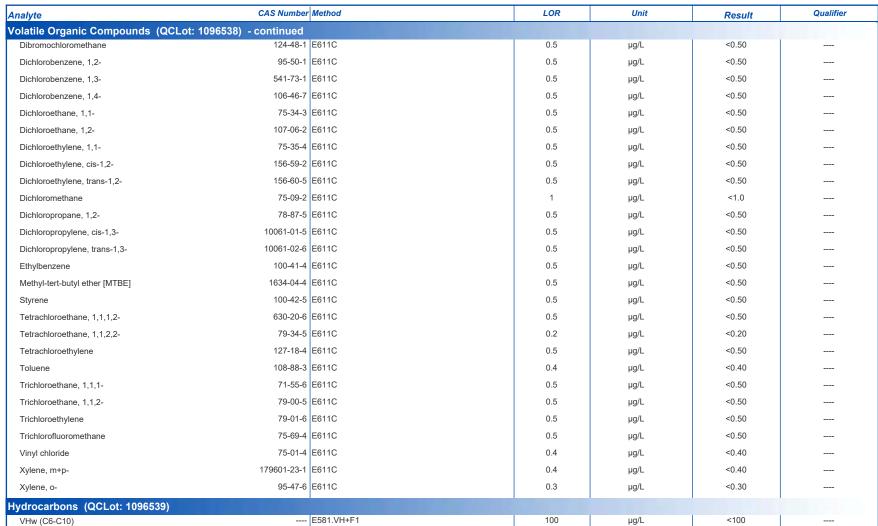


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Client : Comox Valley Regional District

Project : 3-2

Sub-Matrix: Water





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Client : Comox Valley Regional District

Project : 3-



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 Co	ntrol Sample (LCS)	Report	
					Spike	Recovery (%)	Recovery	Limits (%)	
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 1090462)									
Conductivity		E100	1	μS/cm	146.9 μS/cm	97.6	90.0	110	
Physical Tests (QCLot: 1090463)									
Alkalinity, total (as CaCO3)		E290	1	mg/L	500 mg/L	109	85.0	115	
Physical Tests (QCLot: 1096069)									
Solids, total dissolved [TDS]		E162	10	mg/L	1000 mg/L	103	85.0	115	
Anions and Nutrients (QCLot: 1090454)									
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	103	90.0	110	
Anions and Nutrients (QCLot: 1090455)									
Chloride	16887-00-6	E235.CI	0.5	mg/L	100 mg/L	101	90.0	110	
Anions and Nutrients (QCLot: 1090456)									
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	2.5 mg/L	101	90.0	110	
Anions and Nutrients (QCLot: 1090457)									
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	0.5 mg/L	97.7	90.0	110	
Anions and Nutrients (QCLot: 1090458)									
Fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	97.5	90.0	110	
Anions and Nutrients (QCLot: 1093312)									
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	94.4	85.0	115	
Dissolved Metals (QCLot: 1090617)									
Aluminum, dissolved	7429-90-5		0.001	mg/L	2 mg/L	100	80.0	120	
Antimony, dissolved	7440-36-0		0.0001	mg/L	1 mg/L	109	80.0	120	
Arsenic, dissolved	7440-38-2		0.0001	mg/L	1 mg/L	101	80.0	120	
Barium, dissolved	7440-39-3		0.0001	mg/L	0.25 mg/L	102	80.0	120	
Beryllium, dissolved	7440-41-7		0.00002	mg/L	0.1 mg/L	98.6	80.0	120	
Bismuth, dissolved	7440-69-9		0.00005	mg/L	1 mg/L	102	80.0	120	
Boron, dissolved	7440-42-8		0.01	mg/L	1 mg/L	87.6	80.0	120	
Cadmium, dissolved	7440-43-9		0.000005	mg/L	0.1 mg/L	97.6	80.0	120	
Calcium, dissolved	7440-70-2		0.05	mg/L	50 mg/L	99.4	80.0	120	
Chromium, dissolved	7440-47-3		0.0005	mg/L	0.25 mg/L	99.4	80.0	120	
Cobalt, dissolved	7440-48-4		0.0001	mg/L	0.25 mg/L	98.4	80.0	120	
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	0.25 mg/L	94.1	80.0	120	

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Client : Comox Valley Regional District



Sub-Matrix: Water		Laboratory Control Sample (LCS) Report							
					Spike	Recovery (%)	Recovery	Limits (%)	
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifie
Dissolved Metals (QCLot: 1090617) -	continued					The state of			
Iron, dissolved	7439-89-6	E421	0.01	mg/L	1 mg/L	94.7	80.0	120	
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	0.5 mg/L	98.9	80.0	120	
Lithium, dissolved	7439-93-2	E421	0.001	mg/L	0.25 mg/L	97.7	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	97.6	80.0	120	
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	0.25 mg/L	99.3	80.0	120	
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	0.5 mg/L	96.0	80.0	120	
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	101	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	107	80.0	120	
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	0.1 mg/L	91.9	80.0	120	
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	50 mg/L	109	80.0	120	
Strontium, dissolved	7440-24-6	E421	0.0002	mg/L	0.25 mg/L	98.2	80.0	120	
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	50 mg/L	93.6	80.0	120	
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	1 mg/L	100	80.0	120	
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	0.5 mg/L	97.2	80.0	120	
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	0.25 mg/L	96.3	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	99.6	80.0	120	
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	0.5 mg/L	93.6	80.0	120	
Zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	0.1 mg/L	102	80.0	120	
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0.0001 mg/L	100	80.0	120	
Volatile Organic Compounds (QCLot:	1096538)								
Benzene	71-43-2	E611C	0.5	μg/L	100 μg/L	99.1	70.0	130	
Bromodichloromethane	75-27-4	E611C	0.5	μg/L	100 μg/L	96.4	70.0	130	
Bromoform	75-25-2	E611C	0.5	μg/L	100 μg/L	94.4	70.0	130	
Carbon tetrachloride	56-23-5	E611C	0.5	μg/L	100 μg/L	102	70.0	130	
Chlorobenzene	108-90-7	E611C	0.5	μg/L	100 μg/L	104	70.0	130	
Chloroethane	75-00-3	E611C	0.5	μg/L	100 μg/L	94.6	60.0	140	
Chloroform	67-66-3	E611C	0.5	μg/L	100 μg/L	97.7	70.0	130	
Chloromethane	74-87-3	E611C	5	μg/L	100 μg/L	85.8	60.0	140	
Dibromochloromethane	124-48-1	E611C	0.5	μg/L	100 μg/L	94.0	70.0	130	
Dichlorobenzene, 1,2-	95-50-1	E611C	0.5	μg/L	100 μg/L	103	70.0	130	
Dichlorobenzene, 1,3-	541-73-1	E611C	0.5	μg/L	100 μg/L	108	70.0	130	

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Client : Comox Valley Regional District



Sub-Matrix: Water						Laboratory Co.	ntrol Sample (LCS)	Report	
					Spike	Recovery (%)	Recovery	Limits (%)	
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Volatile Organic Compounds (QCLot:	1096538) - continued								
Dichlorobenzene, 1,4-	106-46-7	E611C	0.5	μg/L	100 μg/L	108	70.0	130	
Dichloroethane, 1,1-	75-34-3	E611C	0.5	μg/L	100 μg/L	99.3	70.0	130	
Dichloroethane, 1,2-	107-06-2	E611C	0.5	μg/L	100 μg/L	92.4	70.0	130	
Dichloroethylene, 1,1-	75-35-4	E611C	0.5	μg/L	100 μg/L	99.8	70.0	130	
Dichloroethylene, cis-1,2-	156-59-2	E611C	0.5	μg/L	100 μg/L	97.9	70.0	130	
Dichloroethylene, trans-1,2-	156-60-5	E611C	0.5	μg/L	100 μg/L	102	70.0	130	
Dichloromethane	75-09-2	E611C	1	μg/L	100 μg/L	95.8	70.0	130	
Dichloropropane, 1,2-	78-87-5	E611C	0.5	μg/L	100 μg/L	98.4	70.0	130	
Dichloropropylene, cis-1,3-	10061-01-5	E611C	0.5	μg/L	100 μg/L	95.6	70.0	130	
Dichloropropylene, trans-1,3-	10061-02-6	E611C	0.5	μg/L	100 μg/L	96.2	70.0	130	
Ethylbenzene	100-41-4	E611C	0.5	μg/L	100 μg/L	102	70.0	130	
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611C	0.5	μg/L	100 μg/L	105	70.0	130	
Styrene	100-42-5	E611C	0.5	μg/L	100 μg/L	99.3	70.0	130	
Гetrachloroethane, 1,1,1,2-	630-20-6	E611C	0.5	μg/L	100 μg/L	98.4	70.0	130	
Гetrachloroethane, 1,1,2,2-	79-34-5	E611C	0.2	μg/L	100 μg/L	93.0	70.0	130	
 Tetrachloroethylene	127-18-4	E611C	0.5	μg/L	100 μg/L	103	70.0	130	
Гoluene	108-88-3	E611C	0.4	μg/L	100 μg/L	101	70.0	130	
Frichloroethane, 1,1,1-	71-55-6	E611C	0.5	μg/L	100 μg/L	101	70.0	130	
Γrichloroethane, 1,1,2-	79-00-5	E611C	0.5	μg/L	100 μg/L	93.4	70.0	130	
Trichloroethylene	79-01-6	E611C	0.5	μg/L	100 μg/L	102	70.0	130	
Trichlorofluoromethane	75-69-4	E611C	0.5	μg/L	100 μg/L	109	60.0	140	
/inyl chloride	75-01-4	E611C	0.4	μg/L	100 μg/L	90.7	60.0	140	
Kylene, m+p-	179601-23-1	E611C	0.4	μg/L	200 μg/L	108	70.0	130	
Kylene, o-	95-47-6	E611C	0.3	μg/L	100 μg/L	103	70.0	130	
Hydrocarbons (QCLot: 1096539)	1111111								
/Hw (C6-C10)		E581.VH+F1	100	μg/L	6310 µg/L	97.1	70.0	130	

Page : 12 of 14 Work Order : VA23B9056

Client : Comox Valley Regional District

Project : 3-2



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	•	mploof may be easjeet to slae. It	-	-	TX OPINO TO VOI.		Matrix Spike	(MS) Report		
					Spi	ike	Recovery (%)	Recovery	Limits (%)	
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
	ients (QCLot: 1090454)									
VA23B9060-002	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	107 mg/L	100 mg/L	107	75.0	125	
Anions and Nutri	ients (QCLot: 1090455)									
VA23B9060-002	Anonymous	Chloride	16887-00-6	E235.Cl	105 mg/L	100 mg/L	105	75.0	125	
Anions and Nutri	ients (QCLot: 1090456)									
VA23B9060-002	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	2.66 mg/L	2.5 mg/L	106	75.0	125	
Anions and Nutri	ients (QCLot: 1090457)									
VA23B9060-002	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	0.512 mg/L	0.5 mg/L	102	75.0	125	
Anions and Nutri	ients (QCLot: 1090458)									1
VA23B9060-002	Anonymous	Fluoride	16984-48-8	E235.F	1.02 mg/L	1 mg/L	102	75.0	125	
Anions and Nutri	ients (QCLot: 1093312)									
VA23B9056-002	WG-081423-C5-10	Ammonia, total (as N)	7664-41-7	E298	0.100 mg/L	0.1 mg/L	100	75.0	125	
Dissolved Metals	(QCLot: 1090617)									
KS2303039-002	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.179 mg/L	0.2 mg/L	89.4	70.0	130	
		Antimony, dissolved	7440-36-0	E421	0.0194 mg/L	0.02 mg/L	97.1	70.0	130	
		Arsenic, dissolved	7440-38-2	E421	0.0183 mg/L	0.02 mg/L	91.4	70.0	130	
		Barium, dissolved	7440-39-3	E421	0.0187 mg/L	0.02 mg/L	93.5	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	0.00868 mg/L	0.01 mg/L	86.8	70.0	130	
		Boron, dissolved	7440-42-8	E421	0.092 mg/L	0.1 mg/L	92.3	70.0	130	
		Cadmium, dissolved	7440-43-9	E421	0.00381 mg/L	0.004 mg/L	95.2	70.0	130	
		Calcium, dissolved	7440-70-2	E421	ND mg/L	4 mg/L	ND	70.0	130	
		Chromium, dissolved	7440-47-3	E421	0.0379 mg/L	0.04 mg/L	94.9	70.0	130	
		Cobalt, dissolved	7440-48-4	E421	0.0188 mg/L	0.02 mg/L	93.8	70.0	130	
		Copper, dissolved	7440-50-8	E421	0.0182 mg/L	0.02 mg/L	90.8	70.0	130	
		Iron, dissolved	7439-89-6	E421	1.82 mg/L	2 mg/L	91.2	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	0.102 mg/L	0.1 mg/L	102	70.0	130	
		Magnesium, dissolved	7439-95-4	E421	ND mg/L	1 mg/L	ND	70.0	130	
		Manganese, dissolved	7439-96-5	E421	ND mg/L	0.02 mg/L	ND	70.0	130	
		Molybdenum, dissolved	7439-98-7	 E421	0.0185 mg/L	0.02 mg/L	92.5	70.0	130	

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Client : Comox Valley Regional District



Sub-Matrix: Water							Matrix Spik	e (MS) Report		
					Spi	ike	Recovery (%)	Recovery	Limits (%)	
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifie
	(QCLot: 1090617)	- continued								
KS2303039-002	Anonymous	Nickel, dissolved	7440-02-0	E421	0.0370 mg/L	0.04 mg/L	92.6	70.0	130	
		Phosphorus, dissolved	7723-14-0	E421	9.15 mg/L	10 mg/L	91.5	70.0	130	
		Potassium, dissolved	7440-09-7	E421	3.78 mg/L	4 mg/L	94.4	70.0	130	
		Selenium, dissolved	7782-49-2	E421	0.0395 mg/L	0.04 mg/L	98.7	70.0	130	
		Silicon, dissolved	7440-21-3	E421	9.36 mg/L	10 mg/L	93.6	70.0	130	
		Silver, dissolved	7440-22-4	E421	0.00368 mg/L	0.004 mg/L	92.0	70.0	130	
		Sodium, dissolved	7440-23-5	E421	2.06 mg/L	2 mg/L	103	70.0	130	
		Strontium, dissolved	7440-24-6	E421	ND mg/L	0.02 mg/L	ND	70.0	130	
		Sulfur, dissolved	7704-34-9	E421	19.8 mg/L	20 mg/L	99.1	70.0	130	
		Thallium, dissolved	7440-28-0	E421	0.00350 mg/L	0.004 mg/L	87.6	70.0	130	
		Tin, dissolved	7440-31-5	E421	0.0187 mg/L	0.02 mg/L	93.4	70.0	130	
		Titanium, dissolved	7440-32-6	E421	0.0369 mg/L	0.04 mg/L	92.3	70.0	130	
		Uranium, dissolved	7440-61-1	E421	0.00362 mg/L	0.004 mg/L	90.5	70.0	130	
		Vanadium, dissolved	7440-62-2	E421	0.0929 mg/L	0.1 mg/L	92.9	70.0	130	
		Zinc, dissolved	7440-66-6	E421	0.366 mg/L	0.4 mg/L	91.4	70.0	130	
		Zirconium, dissolved	7440-67-7	E421	0.0405 mg/L	0.04 mg/L	101	70.0	130	
Dissolved Metals	(QCLot: 1095947)									
VA23B9024-006	Anonymous	Mercury, dissolved	7439-97-6	E509	0.000104 mg/L	0.0001 mg/L	104	70.0	130	
olatile Organic	Compounds (QCLot	: 1096538)								
KS2303089-002	Anonymous	Benzene	71-43-2	E611C	105 μg/L	100 μg/L	105	60.0	140	
		Bromodichloromethane	75-27-4	E611C	101 μg/L	100 μg/L	101	60.0	140	
		Bromoform								
		Bromolomi	75-25-2	E611C	96.2 μg/L	100 μg/L	96.2	60.0	140	
		Carbon tetrachloride	75-25-2 56-23-5	E611C	96.2 μg/L 106 μg/L	100 μg/L 100 μg/L	96.2 106	60.0 60.0	140 140	
					1					
		Carbon tetrachloride	56-23-5	E611C	106 μg/L	100 μg/L	106	60.0	140	
		Carbon tetrachloride Chlorobenzene	56-23-5 108-90-7	E611C E611C	106 μg/L 105 μg/L	100 μg/L 100 μg/L	106 105	60.0 60.0	140 140	
		Carbon tetrachloride Chlorobenzene Chloroethane	56-23-5 108-90-7 75-00-3	E611C E611C E611C	106 µg/L 105 µg/L 102 µg/L	100 μg/L 100 μg/L 100 μg/L	106 105 102	60.0 60.0 50.0	140 140 150	
		Carbon tetrachloride Chlorobenzene Chloroethane Chloroform	56-23-5 108-90-7 75-00-3 67-66-3	E611C E611C E611C E611C	106 μg/L 105 μg/L 102 μg/L 107 μg/L	100 μg/L 100 μg/L 100 μg/L 100 μg/L	106 105 102 107	60.0 60.0 50.0 60.0	140 140 150 140	
		Carbon tetrachloride Chlorobenzene Chloroethane Chloroform Chloromethane	56-23-5 108-90-7 75-00-3 67-66-3 74-87-3	E611C E611C E611C E611C	106 μg/L 105 μg/L 102 μg/L 107 μg/L 91.2 μg/L	100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L	106 105 102 107 91.2	60.0 60.0 50.0 60.0 50.0	140 140 150 140 150	
		Carbon tetrachloride Chlorobenzene Chloroethane Chloroform Chloromethane Dibromochloromethane	56-23-5 108-90-7 75-00-3 67-66-3 74-87-3 124-48-1	E611C E611C E611C E611C E611C	106 µg/L 105 µg/L 102 µg/L 107 µg/L 91.2 µg/L 95.9 µg/L	100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L	106 105 102 107 91.2 95.9	60.0 60.0 50.0 60.0 50.0	140 140 150 140 150	
		Carbon tetrachloride Chlorobenzene Chloroethane Chloroform Chloromethane Dibromochloromethane Dichlorobenzene, 1,2-	56-23-5 108-90-7 75-00-3 67-66-3 74-87-3 124-48-1 95-50-1	E611C E611C E611C E611C E611C E611C	106 µg/L 105 µg/L 102 µg/L 107 µg/L 91.2 µg/L 95.9 µg/L 103 µg/L	100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L	106 105 102 107 91.2 95.9 103	60.0 60.0 50.0 60.0 50.0 60.0	140 140 150 140 150 140	
		Carbon tetrachloride Chlorobenzene Chloroethane Chloroform Chloromethane Dibromochloromethane Dichlorobenzene, 1,2- Dichlorobenzene, 1,3-	56-23-5 108-90-7 75-00-3 67-66-3 74-87-3 124-48-1 95-50-1 541-73-1	E611C E611C E611C E611C E611C E611C E611C E611C	106 µg/L 105 µg/L 102 µg/L 107 µg/L 91.2 µg/L 95.9 µg/L 103 µg/L	100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L	106 105 102 107 91.2 95.9 103 108	60.0 60.0 50.0 60.0 50.0 60.0 60.0	140 140 150 140 150 140 140	
		Carbon tetrachloride Chlorobenzene Chloroethane Chloroform Chloromethane Dibromochloromethane Dichlorobenzene, 1,2- Dichlorobenzene, 1,3- Dichlorobenzene, 1,4-	56-23-5 108-90-7 75-00-3 67-66-3 74-87-3 124-48-1 95-50-1 541-73-1 106-46-7	E611C E611C E611C E611C E611C E611C E611C E611C E611C	106 µg/L 105 µg/L 102 µg/L 107 µg/L 91.2 µg/L 95.9 µg/L 103 µg/L 108 µg/L	100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L	106 105 102 107 91.2 95.9 103 108	60.0 60.0 50.0 60.0 50.0 60.0 60.0 60.0	140 140 150 140 150 140 140 140	
		Carbon tetrachloride Chlorobenzene Chloroethane Chloroform Chloromethane Dibromochloromethane Dichlorobenzene, 1,2- Dichlorobenzene, 1,3- Dichlorobenzene, 1,4- Dichloroethane, 1,1-	56-23-5 108-90-7 75-00-3 67-66-3 74-87-3 124-48-1 95-50-1 541-73-1 106-46-7 75-34-3	E611C E611C E611C E611C E611C E611C E611C E611C E611C E611C	106 µg/L 105 µg/L 102 µg/L 107 µg/L 91.2 µg/L 95.9 µg/L 103 µg/L 108 µg/L 108 µg/L	100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L	106 105 102 107 91.2 95.9 103 108 108	60.0 60.0 50.0 60.0 50.0 60.0 60.0 60.0	140 140 150 140 150 140 140 140 140	

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Client : Comox Valley Regional District



Sub-Matrix: Water							Matrix Spil	ke (MS) Report		
					Spi	ike	Recovery (%)	Recovery	Limits (%)	
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Volatile Organic	Compounds (QCLo	t: 1096538) - continued								
KS2303089-002	Anonymous	Dichloroethylene, trans-1,2-	156-60-5	E611C	105 μg/L	100 μg/L	105	60.0	140	
		Dichloromethane	75-09-2	E611C	100 μg/L	100 μg/L	100	60.0	140	
		Dichloropropane, 1,2-	78-87-5	E611C	104 μg/L	100 μg/L	104	60.0	140	
		Dichloropropylene, cis-1,3-	10061-01-5	E611C	101 μg/L	100 μg/L	101	60.0	140	
		Dichloropropylene, trans-1,3-	10061-02-6	E611C	97.0 μg/L	100 μg/L	97.0	60.0	140	
		Ethylbenzene	100-41-4	E611C	106 μg/L	100 μg/L	106	60.0	140	
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611C	110 µg/L	100 μg/L	110	60.0	140	
		Styrene	100-42-5	E611C	101 μg/L	100 μg/L	101	60.0	140	
		Tetrachloroethane, 1,1,1,2-	630-20-6	E611C	100 μg/L	100 μg/L	100	60.0	140	
		Tetrachloroethane, 1,1,2,2-	79-34-5	E611C	93.1 μg/L	100 μg/L	93.1	60.0	140	
		Tetrachloroethylene	127-18-4	E611C	104 μg/L	100 μg/L	104	60.0	140	
		Toluene	108-88-3	E611C	105 μg/L	100 μg/L	105	60.0	140	
		Trichloroethane, 1,1,1-	71-55-6	E611C	106 μg/L	100 μg/L	106	60.0	140	
		Trichloroethane, 1,1,2-	79-00-5	E611C	95.6 μg/L	100 μg/L	95.6	60.0	140	
		Trichloroethylene	79-01-6	E611C	106 μg/L	100 μg/L	106	60.0	140	
		Trichlorofluoromethane	75-69-4	E611C	130 μg/L	100 μg/L	130	50.0	150	
		Vinyl chloride	75-01-4	E611C	97.8 μg/L	100 μg/L	97.8	50.0	150	
		Xylene, m+p-	179601-23-1	E611C	220 μg/L	200 μg/L	110	60.0	140	
		Xylene, o-	95-47-6	E611C	106 μg/L	100 μg/L	106	60.0	140	
ydrocarbons (QCLot: 1096539)									
KS2303089-003	Anonymous	VHw (C6-C10)		E581.VH+F1	5600 μg/L	6310 µg/L	88.8	60.0	140	



QUALITY CONTROL INTERPRETIVE REPORT

Work Order : **VA23B9056** Page : 1 of 19

Client : Comox Valley Regional District Laboratory : ALS Environmental - Vancouver

Contact : Crystal Stuart Account Manager : Thomas Chang

Address :770 Harmston Avenue Address :8081 Lougheed Highway

Burnaby, British Columbia Canada V5A 1W9

 Telephone
 :250-898-3722
 Telephone
 :+1 604 253 4188

 Project
 :3-2
 Date Samples Received
 : 16-Aug-2023 12:20

PO : 23-015 Issue Date : 23-Aug-2023 13:08 C-O-C number : ----

Site : CRWMC-Quaterly-GW

: C.Stuart

Quote number : VA23-COVR100-001

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

Sampler

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.

Courtney BC Canada V9N 0G8

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) ■ No Analysis Holding Time Outliers exist.

Outliers: Frequency of Quality Control Samples • No Quality Control Sample Frequency Outliers occur.

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Client : Comox Valley Regional District

Project : 3-2



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					Ev	⁄aluation: × =	Holding time exce	edance ; •	= Within	Holding Time
Analyte Group	Method	Sampling Date	Ext	raction / Pre	eparation			Analys	sis	
Container / Client Sample ID(s)			Preparation Date	Holding Rec	Times Actual	Eval	Analysis Date	Holding Rec	7 Times Actual	Eval
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) WG-081423-C5-09	E298	14-Aug-2023	19-Aug-2023	28 days	5 days	✓	22-Aug-2023	28 days	8 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) WG-081423-C5-10	E298	14-Aug-2023	19-Aug-2023	28 days	5 days	✓	22-Aug-2023	28 days	8 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) WG-081423-C5-11	E298	14-Aug-2023	19-Aug-2023	28 days	5 days	✓	22-Aug-2023	28 days	8 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) WG-081423-C5-12	E298	14-Aug-2023	19-Aug-2023	28 days	5 days	✓	22-Aug-2023	28 days	8 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) WG-081423-C5-13	E298	14-Aug-2023	19-Aug-2023	28 days	5 days	✓	22-Aug-2023	28 days	8 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) WG-081423-C5-14	E298	14-Aug-2023	19-Aug-2023	28 days	5 days	✓	22-Aug-2023	28 days	8 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) WG-081423-C5-15	E298	14-Aug-2023	19-Aug-2023	28 days	5 days	✓	22-Aug-2023	28 days	8 days	✓

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Client : Comox Valley Regional District



August Consum		0		raction / Pr				A1 -	io	
Analyte Group	Method	Sampling Date						Analys		
Container / Client Sample ID(s)			Preparation Date	Holding Rec	g Times Actual	Eval	Analysis Date	Rec Rec	Times Actual	Eva
nions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) WG-081423-C5-16	E298	14-Aug-2023	19-Aug-2023	28 days	5 days	✓	22-Aug-2023	28 days	8 days	✓
nions and Nutrients : Chloride in Water by IC										
HDPE WG-081423-C5-09	E235.CI	14-Aug-2023	17-Aug-2023	28 days	3 days	✓	17-Aug-2023	28 days	3 days	✓
nions and Nutrients : Chloride in Water by IC										
HDPE WG-081423-C5-10	E235.CI	14-Aug-2023	17-Aug-2023	28 days	3 days	✓	17-Aug-2023	28 days	3 days	✓
nions and Nutrients : Chloride in Water by IC										
HDPE WG-081423-C5-11	E235.CI	14-Aug-2023	17-Aug-2023	28 days	3 days	✓	17-Aug-2023	28 days	3 days	✓
nions and Nutrients : Chloride in Water by IC										
HDPE WG-081423-C5-12	E235.CI	14-Aug-2023	17-Aug-2023	28 days	3 days	✓	17-Aug-2023	28 days	3 days	✓
nions and Nutrients : Chloride in Water by IC										
HDPE WG-081423-C5-13	E235.CI	14-Aug-2023	17-Aug-2023	28 days	3 days	✓	17-Aug-2023	28 days	3 days	✓
nions and Nutrients : Chloride in Water by IC										
HDPE WG-081423-C5-14	E235.CI	14-Aug-2023	17-Aug-2023	28 days	3 days	✓	17-Aug-2023	28 days	3 days	✓
nions and Nutrients : Chloride in Water by IC										
HDPE WG-081423-C5-15	E235.CI	14-Aug-2023	17-Aug-2023	28 days	3 days	✓	17-Aug-2023	28 days	3 days	✓
nions and Nutrients : Chloride in Water by IC										
HDPE WG-081423-C5-16	E235.CI	14-Aug-2023	17-Aug-2023	28 days	3 days	✓	17-Aug-2023	28 days	3 days	✓

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Client : Comox Valley Regional District



nalyte Group	Method	Sampling Date	Evi	raction / Pr				edance ; • Analys	ie	
Container / Client Sample ID(s)	Metriod	Sampling Date				Eval	Analysis Data			Eva
Container / Cheft Sample 10(8)			Preparation Date	Rec	g Times Actual	Evai	Analysis Date	Rec	7 Times Actual	Eva
nions and Nutrients : Fluoride in Water by IC										
HDPE WG-081423-C5-09	E235.F	14-Aug-2023	17-Aug-2023	28 days	3 days	✓	17-Aug-2023	28 days	3 days	1
nions and Nutrients : Fluoride in Water by IC										
HDPE WG-081423-C5-10	E235.F	14-Aug-2023	17-Aug-2023	28 days	3 days	✓	17-Aug-2023	28 days	3 days	✓
nions and Nutrients : Fluoride in Water by IC										
HDPE WG-081423-C5-11	E235.F	14-Aug-2023	17-Aug-2023	28 days	3 days	✓	17-Aug-2023	28 days	3 days	✓
nions and Nutrients : Fluoride in Water by IC										
HDPE WG-081423-C5-12	E235.F	14-Aug-2023	17-Aug-2023	28 days	3 days	✓	17-Aug-2023	28 days	3 days	✓
nions and Nutrients : Fluoride in Water by IC										
H DPE WG-081423-C5-13	E235.F	14-Aug-2023	17-Aug-2023	28 days	3 days	✓	17-Aug-2023	28 days	3 days	✓
nions and Nutrients : Fluoride in Water by IC										
H DPE WG-081423-C5-14	E235.F	14-Aug-2023	17-Aug-2023	28 days	3 days	✓	17-Aug-2023	28 days	3 days	✓
nions and Nutrients : Fluoride in Water by IC										
HDPE WG-081423-C5-15	E235.F	14-Aug-2023	17-Aug-2023	28 days	3 days	✓	17-Aug-2023	28 days	3 days	✓
nions and Nutrients : Fluoride in Water by IC										
H DPE WG-081423-C5-16	E235.F	14-Aug-2023	17-Aug-2023	28 days	3 days	✓	17-Aug-2023	28 days	3 days	√
nions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE WG-081423-C5-09	E235.NO3-L	14-Aug-2023	17-Aug-2023	3 days	3 days	✓	17-Aug-2023	3 days	3 days	✓

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nalyte Group	Method	Sampling Date	Fv	traction / Pr	enaration			Analys	sis	
Container / Client Sample ID(s)	Metriod	Sampling Date			g Times	Eval	Analysis Date		g Times	Eval
container / Cheft Cample 15(3)			Preparation Date	Rec	Actual	⊏vai	Arialysis Date	Rec	Actual	⊏vai
nions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE WG-081423-C5-10	E235.NO3-L	14-Aug-2023	17-Aug-2023	3 days	3 days	✓	17-Aug-2023	3 days	3 days	✓
nions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE WG-081423-C5-11	E235.NO3-L	14-Aug-2023	17-Aug-2023	3 days	3 days	✓	17-Aug-2023	3 days	3 days	✓
nions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE WG-081423-C5-12	E235.NO3-L	14-Aug-2023	17-Aug-2023	3 days	3 days	✓	17-Aug-2023	3 days	3 days	✓
nions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE WG-081423-C5-13	E235.NO3-L	14-Aug-2023	17-Aug-2023	3 days	3 days	✓	17-Aug-2023	3 days	3 days	1
nions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE WG-081423-C5-14	E235.NO3-L	14-Aug-2023	17-Aug-2023	3 days	3 days	✓	17-Aug-2023	3 days	3 days	4
nions and Nutrients : Nitrate in Water by IC (Low Level)										
IDPE WG-081423-C5-15	E235.NO3-L	14-Aug-2023	17-Aug-2023	3 days	3 days	✓	17-Aug-2023	3 days	3 days	1
nions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE WG-081423-C5-16	E235.NO3-L	14-Aug-2023	17-Aug-2023	3 days	3 days	✓	17-Aug-2023	3 days	3 days	4
nions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE WG-081423-C5-09	E235.NO2-L	14-Aug-2023	17-Aug-2023	3 days	3 days	✓	17-Aug-2023	3 days	3 days	1
nions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE WG-081423-C5-10	E235.NO2-L	14-Aug-2023	17-Aug-2023	3 days	3 days	✓	17-Aug-2023	3 days	3 days	1

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Analyte Group	Method	Sampling Date	Fx	traction / Pi	enaration		T	Analys	is	
Container / Client Sample ID(s)	Wethou	Sampling Date			g Times	Eval	Analysis Date	Holding		Eval
Container, Charle Gampio 15(C)			Preparation Date	Rec	Actual	Lvai	Allalysis Date	Rec	Actual	Lvai
nions and Nutrients : Nitrite in Water by IC (Low Level)			Buto							
HDPE										
WG-081423-C5-11	E235.NO2-L	14-Aug-2023	17-Aug-2023	3 days	3 days	✓	17-Aug-2023	3 days	3 days	✓
nions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE	F225 NO2 I	44 4 2002	47 4 2022	0 -1	0 4	✓	47 A	0 4	0 4	1
WG-081423-C5-12	E235.NO2-L	14-Aug-2023	17-Aug-2023	3 days	3 days	•	17-Aug-2023	3 days	3 days	•
nions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE WG-081423-C5-13	E235.NO2-L	14-Aug-2023	17-Aug-2023	3 days	3 days	✓	17-Aug-2023	3 days	3 days	✓
WG-061423-C3-13	L233.1102-L	14-Aug-2025	17-Aug-2020	5 days	3 days	•	17-Aug-2020	Juays	3 days	•
nions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE WG-081423-C5-14	E235.NO2-L	14-Aug-2023	17-Aug-2023	3 days	3 days	✓	17-Aug-2023	3 days	3 days	√
WG-001423-C3-14	L200.NO2-L	147 tag 2020	17-Aug-2020	5 days	3 days	•	17-Aug-2020	o days	3 days	•
nions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE WG-081423-C5-15	E235.NO2-L	14-Aug-2023	17-Aug-2023	3 days	3 days	✓	17-Aug-2023	3 days	3 days	√
WG-001425-05-15	L233.1102-L	14-Aug-2025	17-Aug-2020	5 days	3 days	•	17-Aug-2020	Juays	3 days	•
nions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE WG-081423-C5-16	E235.NO2-L	14-Aug-2023	17-Aug-2023	3 days	3 days	1	17-Aug-2023	3 days	3 days	1
WG-001423-C3-10	L200.NO2-L	147 tag 2020	17-Aug-2020	5 days	3 days	•	17-Aug-2020	o days	3 days	·
nions and Nutrients : Sulfate in Water by IC										
HDPE WG-081423-C5-09	E235.SO4	14-Aug-2023	17-Aug-2023	28	3 days	✓	17-Aug-2023	28 days	3 days	√
WO-001423-03-09	2200.004	147 tug 2020	17-7 tag-2020	days	o days	ŕ	17-7 tag-2020	20 days	o days	Ť
nions and Nutrients : Sulfate in Water by IC										
HDPE WG-081423-C5-10	E235.SO4	14-Aug-2023	17-Aug-2023	28	3 days	✓	17-Aug-2023	28 days	3 days	√
VVG-00 1420-00-10	L233.304	14-Aug-2023	17-Aug-2023	days	Juays	•	17-Aug-2023	20 days	Juays	•
nions and Nutrients : Sulfate in Water by IC										
HDPE	F205 004	44 4 2002	47 4 0000		0.1		47 A 0000	00.1	0.1	,
WG-081423-C5-11	E235.SO4	14-Aug-2023	17-Aug-2023	28	3 days	✓	17-Aug-2023	28 days	ა aays	✓

days

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Analyte Group	Method	Sampling Date	Ext	raction / Pi	reparation		Analysis			
Container / Client Sample ID(s)		Camping Date	Preparation	Holdin	g Times	Eval	Analysis Date	Holding Tin	Times	Eval
			Date	Rec	Actual	Lvai	Analysis Date	Rec	Actual	Lvai
Anions and Nutrients : Sulfate in Water by IC										
HDPE WG-081423-C5-12	E235.SO4	14-Aug-2023	17-Aug-2023	28	3 days	✓	17-Aug-2023	28 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC				days						
HDPE							I			
WG-081423-C5-13	E235.SO4	14-Aug-2023	17-Aug-2023	28 days	3 days	✓	17-Aug-2023	28 days	3 days	✓
nions and Nutrients : Sulfate in Water by IC										
HDPE WG-081423-C5-14	E235.SO4	14-Aug-2023	17-Aug-2023	28 days	3 days	✓	17-Aug-2023	28 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE WG-081423-C5-15	E235.SO4	14-Aug-2023	17-Aug-2023	28 days	3 days	4	17-Aug-2023	28 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE WG-081423-C5-16	E235.SO4	14-Aug-2023	17-Aug-2023	28 days	3 days	4	17-Aug-2023	28 days	3 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved) WG-081423-C5-09	E509	14-Aug-2023	21-Aug-2023	28 days	7 days	✓	21-Aug-2023	28 days	7 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved) WG-081423-C5-10	E509	14-Aug-2023	21-Aug-2023	28 days	7 days	✓	21-Aug-2023	28 days	7 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved) WG-081423-C5-11	E509	14-Aug-2023	21-Aug-2023	28 days	7 days	4	21-Aug-2023	28 days	7 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved) WG-081423-C5-12	E509	14-Aug-2023	21-Aug-2023	28 days	7 days	1	21-Aug-2023	28 days	7 days	✓

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Matrix: Water Evaluation: ▼ = Holding time exceedance; ✓ = Within Holding Time

Matrix: Water					L\	raiuation. * =	Holding time exce	euance,	- vviti iii i	Holding Time
Analyte Group	Method	Sampling Date	Ext	traction / Pr	reparation			Analys	sis	
Container / Client Sample ID(s)			Preparation	Holding Times		Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
WG-081423-C5-13	E509	14-Aug-2023	21-Aug-2023	28	7 days	✓	21-Aug-2023	28 days	7 days	✓
				days						
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
WG-081423-C5-14	E509	14-Aug-2023	21-Aug-2023	28	7 days	✓	21-Aug-2023	28 days	7 days	✓
				days						
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)							1			
WG-081423-C5-15	E509	14-Aug-2023	21-Aug-2023	28	7 days	✓	21-Aug-2023	28 days	7 days	✓
				days						
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
WG-081423-C5-16	E509	14-Aug-2023	21-Aug-2023	28	7 days	1	21-Aug-2023	28 days	7 days	✓
		Ŭ	3	days						
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS				,						
HDPE - dissolved (lab preserved)							<u> </u>			
WG-081423-C5-09	E421	14-Aug-2023	19-Aug-2023	180	5 days	✓	19-Aug-2023	180	5 days	✓
		J	3 3	days	,			days		
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS				,				,		
HDPE - dissolved (lab preserved)										
WG-081423-C5-10	E421	14-Aug-2023	19-Aug-2023	180	5 davs	1	19-Aug-2023	180	5 days	✓
170 001120 00 10			.0 / tag 2020	days	o days		10 7 kg 2020	days	o aayo	
Discolved Matela - Discolved Matela in Water by CDC ICDMS				aayo				44,5		
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS HDPE - dissolved (lab preserved)				<u> </u>						
WG-081423-C5-11	E421	14-Aug-2023	19-Aug-2023	180	5 days	√	19-Aug-2023	180	5 days	√
WO 001420-00-11		117 tag 2020	10 / tag 2020	days	o dayo	·	10 / kg 2020	days	o dayo	·
				uays				uays		
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS							1			
HDPE - dissolved (lab preserved) WG-081423-C5-12	E421	14-Aug-2023	19-Aug-2023	180	5 days	√	19-Aug-2023	100	5 days	✓
WG-001423-C5-12	E421	14-Aug-2023	19-Aug-2023		5 uays	•	19-Aug-2023	180	5 uays	•
				days				days		
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)	E404	44.40000	40.4 0055				40.4 0055			,
WG-081423-C5-13	E421	14-Aug-2023	19-Aug-2023	180	5 days	✓	19-Aug-2023	180	5 days	✓
				days				days		

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Analyte Group	Method	Sampling Date	Extraction / Preparation				= Holding time exceedance ; ✓ = Within F			
Container / Client Sample ID(s)	Welliou	Sampling Date				Firel		Holding Times		
			Preparation Date	Rec	g Times Actual	Eval	Analysis Date	Rec	Actual	Eval
issolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) WG-081423-C5-14	E421	14-Aug-2023	19-Aug-2023	180 days	5 days	✓	19-Aug-2023	180 days	5 days	✓
issolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) WG-081423-C5-15	E421	14-Aug-2023	19-Aug-2023	180 days	5 days	✓	19-Aug-2023	180 days	5 days	✓
issolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) WG-081423-C5-16	E421	14-Aug-2023	19-Aug-2023	180 days	5 days	✓	19-Aug-2023	180 days	5 days	✓
lydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate) WG-081423-C5-10	E581.VH+F1	14-Aug-2023	22-Aug-2023	14 days	8 days	✓	22-Aug-2023	14 days	8 days	✓
lydrocarbons : VH and F1 by Headspace GC-FID									1	
Glass vial (sodium bisulfate) WG-081423-C5-13	E581.VH+F1	14-Aug-2023	22-Aug-2023	14 days	8 days	✓	22-Aug-2023	14 days	8 days	✓
hysical Tests : Alkalinity Species by Titration							•			
HDPE WG-081423-C5-09	E290	14-Aug-2023	17-Aug-2023	14 days	3 days	✓	18-Aug-2023	14 days	4 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE WG-081423-C5-10	E290	14-Aug-2023	17-Aug-2023	14 days	3 days	✓	18-Aug-2023	14 days	4 days	✓
hysical Tests : Alkalinity Species by Titration										
HDPE WG-081423-C5-11	E290	14-Aug-2023	17-Aug-2023	14 days	3 days	✓	18-Aug-2023	14 days	4 days	✓
hysical Tests : Alkalinity Species by Titration										
HDPE WG-081423-C5-12	E290	14-Aug-2023	17-Aug-2023	14 days	3 days	✓	18-Aug-2023	14 days	4 days	✓

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Matrix: Water		Evaluation: × =	Holding time exceedance ; ✓ = Within Holding Time

Propagation Propagation	Analyte Group	Method	Method Sampling Date Extraction / Preparation					Analysis			
Post Post	Container / Client Sample ID(s)			Preparation	Holdin	g Times	Eval	Analysis Date	Holding	Times	Eval
Mary Mary				Date	Rec	Actual			Rec	Actual	
MyG-081423-C5-13 May - MyG-081423-C5-13 MyG-081423-C5-14 Myg-08123 Myg-081423-C5-14 Myg-08123 Myg-081423-C5-14 Myg-081423-C5-14 Myg-081423-C5-14 Myg-081423-C5-15 Myg-081423-C5-15 Myg-081423-C5-15 Myg-081423-C5-15 Myg-081423-C5-15 Myg-081423-C5-15 Myg-081423-C5-16	Physical Tests : Alkalinity Species by Titration										
Physical Tests : Alkalinity Species by Titration Part											
Physical Tests : Alkalinity Species by Titration E290	WG-081423-C5-13	E290	14-Aug-2023	17-Aug-2023		3 days	✓	18-Aug-2023	14 days	4 days	✓
No. No.					days						
MG-081423-C5-14 E290	Physical Tests : Alkalinity Species by Titration										
Physical Tests : Alkalinity Species by Titration							,				,
Physical Tests : Alkalinity Species by Titration	WG-081423-C5-14	E290	14-Aug-2023	17-Aug-2023		3 days	✓	18-Aug-2023	14 days	4 days	✓
No					days						
Mic-081423-C5-15 E290											
Physical Tests : Alkalinity Species by Titration		F000	44.40000	47 A 0000		0.1		40. 4 0000	44 1	4 1	
Physical Tests : Alkalinity Species by Titration	WG-081423-C5-15	E290	14-Aug-2023	17-Aug-2023		3 days	4	18-Aug-2023	14 days	4 days	*
HOPE WG-081423-C5-16 E290 14-Aug-2023 17-Aug-2023 14 3 days					days						
NG-081423-C5-16 E290 14-Aug-2023 17-Aug-2023 14 days 3 days ✓ 18-Aug-2023 14 days 4 days ✓ 18-Aug-2023 14 days ✓ 18-Aug-2023 14 days ✓ 18-Aug-2023											
Physical Tests : Conductivity in Water		F200	14 Aug 2022	47 A 2022		0 4		40 4 2022	44 -	4 -1	,
Physical Tests : Conductivity in Water	WG-081423-C5-16	E290	14-Aug-2023	17-Aug-2023		3 days	,	18-Aug-2023	14 days	4 days	,
HDPE WG-081423-C5-09 RE100 14-Aug-2023 17-Aug-2023 28 days 3 days 4					days						
MG-081423-C5-09					l l	I					
Physical Tests : Conductivity in Water		E100	14 Aug 2023	17 Aug 2023	00	3 days	1	18 Aug 2023	28 days	4 days	,
Physical Tests : Conductivity in Water	WG-001425-C5-09	L100	14-Aug-2023	17-Aug-2023		3 days	,	10-Aug-2023	20 days	4 uays	, i
HDPE WG-081423-C5-10 E100 14-Aug-2023 17-Aug-2023 28 days days					uays						
MG-081423-C5-10 E100 14-Aug-2023 17-Aug-2023 28 days days								I			
Physical Tests : Conductivity in Water HDPE		F100	14-Aug-2023	17-Aug-2023	28	3 days	1	18-Aug-2023	28 days	4 days	/
Physical Tests : Conductivity in Water HDPE WG-081423-C5-11 E100 14-Aug-2023 17-Aug-2023 28 days 3 days ✓ 18-Aug-2023 28 days 4 days ✓ Physical Tests : Conductivity in Water HDPE WG-081423-C5-12 E100 14-Aug-2023 17-Aug-2023 28 days ✓ 18-Aug-2023 28 days 4 days ✓ Physical Tests : Conductivity in Water E100 14-Aug-2023 17-Aug-2023 28 days ✓ 18-Aug-2023 28 days ✓ HDPE WG-081423-C5-13 E100 14-Aug-2023 17-Aug-2023 28 days ✓ 18-Aug-2023 28 days ✓	WO-001420-00-10	2100	117 tag 2020	17-7 tag-2020		o days	,	10-7 tug-2020	20 days	+ days	·
HDPE WG-081423-C5-11 E100 14-Aug-2023 17-Aug-2023 28 days 4 days ✓ 18-Aug-2023 28 days 4 days ✓ Physical Tests : Conductivity in Water HDPE WG-081423-C5-12 E100 14-Aug-2023 17-Aug-2023 28 days 3 days ✓ 18-Aug-2023 28 days 4 days ✓ Physical Tests : Conductivity in Water HDPE WG-081423-C5-12 E100 14-Aug-2023 17-Aug-2023 28 days 4 days ✓ 18-Aug-2023 28 days 4 days ✓ 18-Aug-2023 28 days 4 days ✓ Physical Tests : Conductivity in Water HDPE WG-081423-C5-13	Physical Tests - Conductivity in Weter				aayo						
WG-081423-C5-11	•										
Physical Tests : Conductivity in Water E100 14-Aug-2023 17-Aug-2023 28 days 3 days ✓ 18-Aug-2023 28 days 4 days ✓ Physical Tests : Conductivity in Water E100 14-Aug-2023 17-Aug-2023 28 days ✓ 18-Aug-2023 28 days ✓ HDPE WG-081423-C5-13 E100 14-Aug-2023 17-Aug-2023 28 days ✓ 18-Aug-2023 28 days ✓		E100	14-Aug-2023	17-Aug-2023	28	3 days	✓	18-Aug-2023	28 days	4 days	✓
Physical Tests : Conductivity in Water HDPE WG-081423-C5-12 E100 14-Aug-2023 17-Aug-2023 28 days 3 days ✓ 18-Aug-2023 28 days 4 days ✓ Physical Tests : Conductivity in Water HDPE WG-081423-C5-13 E100 14-Aug-2023 17-Aug-2023 28 days ✓ 18-Aug-2023 28 days ✓			3	3		,		3		Í	
HDPE WG-081423-C5-12 E100 14-Aug-2023 17-Aug-2023 28 days 3 days ✓ 18-Aug-2023 28 days 4 days ✓ Physical Tests : Conductivity in Water HDPE WG-081423-C5-13 E100 14-Aug-2023 17-Aug-2023 28 days ✓ 18-Aug-2023 28 days ✓ days ✓	Physical Tests : Conductivity in Water				,						
WG-081423-C5-12 E100 14-Aug-2023 17-Aug-2023 28 days 3 days ✓ 18-Aug-2023 28 days 4 days ✓ Physical Tests: Conductivity in Water HDPE WG-081423-C5-13 E100 14-Aug-2023 17-Aug-2023 28 days ✓ 18-Aug-2023 28 days ✓	-										
Physical Tests : Conductivity in Water HDPE WG-081423-C5-13 E100 14-Aug-2023 17-Aug-2023 28 3 days ✓ 18-Aug-2023 28 days ✓		E100	14-Aug-2023	17-Aug-2023	28	3 days	✓	18-Aug-2023	28 days	4 days	1
Physical Tests : Conductivity in Water HDPE E100 14-Aug-2023 17-Aug-2023 28 3 days ✓ 18-Aug-2023 28 days ✓				2]		,	
HDPE Best Process Best P	Physical Tests : Conductivity in Water										
	WG-081423-C5-13	E100	14-Aug-2023	17-Aug-2023	28	3 days	✓	18-Aug-2023	28 days	4 days	✓
					days						

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nalyte Group	Method	Sampling Date	Ex	raction / P	reparation		Analysis			
Container / Client Sample ID(s)			Preparation Date	Holdin Rec	g Times Actual	Eval	Analysis Date	Holding Rec	Times Actual	Eval
hysical Tests : Conductivity in Water							•			
HDPE WG-081423-C5-14	E100	14-Aug-2023	17-Aug-2023	28 days	3 days	✓	18-Aug-2023	28 days	4 days	1
hysical Tests : Conductivity in Water										
HDPE WG-081423-C5-15	E100	14-Aug-2023	17-Aug-2023	28 days	3 days	✓	18-Aug-2023	28 days	4 days	✓
hysical Tests : Conductivity in Water										
HDPE WG-081423-C5-16	E100	14-Aug-2023	17-Aug-2023	28 days	3 days	✓	18-Aug-2023	28 days	4 days	✓
hysical Tests : TDS by Gravimetry										
HDPE WG-081423-C5-09	E162	14-Aug-2023					21-Aug-2023	7 days	7 days	✓
hysical Tests : TDS by Gravimetry										
HDPE WG-081423-C5-10	E162	14-Aug-2023					21-Aug-2023	7 days	7 days	✓
hysical Tests : TDS by Gravimetry										
HDPE WG-081423-C5-11	E162	14-Aug-2023					21-Aug-2023	7 days	7 days	✓
hysical Tests : TDS by Gravimetry										
HDPE WG-081423-C5-12	E162	14-Aug-2023					21-Aug-2023	7 days	7 days	~
hysical Tests : TDS by Gravimetry									<u> </u>	<u> </u>
HDPE WG-081423-C5-13	E162	14-Aug-2023					21-Aug-2023	7 days	7 days	✓
nysical Tests : TDS by Gravimetry										
HDPE	E162	14-Aug-2023					24 Aug 2022	7 dov-	7 dov-	1
WG-081423-C5-14	□102	14-Aug-2023					21-Aug-2023	7 days	7 days	*

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Analyte Group	Method	Sampling Date		reparation		4 / 5 /	Analysis			
Container / Client Sample ID(s)			Preparation	<u> </u>	g Times	Eval	Analysis Date		Times	Eval
			Date	Rec	Actual			Rec	Actual	
Physical Tests : TDS by Gravimetry				I			I			
HDPE WG-081423-C5-15	E162	14-Aug-2023					21-Aug-2023	7 days	7 days	✓
Physical Tests : TDS by Gravimetry										
HDPE										
WG-081423-C5-16	E162	14-Aug-2023					21-Aug-2023	7 days	7 days	✓
olatile Organic Compounds : VOCs (BC List) by Headspace GC-MS										
Glass vial (sodium bisulfate) WG-081423-C5-10	E611C	14-Aug-2023	22-Aug-2023	14 days	8 days	✓	22-Aug-2023	14 days	8 days	✓
/olatile Organic Compounds : VOCs (BC List) by Headspace GC-MS										
Glass vial (sodium bisulfate) WG-081423-C5-13	E611C	14-Aug-2023	22-Aug-2023	14 days	8 days	✓	22-Aug-2023	14 days	8 days	✓
/olatile Organic Compounds [Drycleaning] : VOCs (BC List) by Headspace GC-	MS									
Glass vial (sodium bisulfate) WG-081423-C5-10	E611C	14-Aug-2023	22-Aug-2023	14 days	8 days	✓	22-Aug-2023	14 days	8 days	✓
/olatile Organic Compounds [Drycleaning] : VOCs (BC List) by Headspace GC-	MS									
Glass vial (sodium bisulfate) WG-081423-C5-13	E611C	14-Aug-2023	22-Aug-2023	14 days	8 days	✓	22-Aug-2023	14 days	8 days	✓
/olatile Organic Compounds [Fuels] : VOCs (BC List) by Headspace GC-MS										
Glass vial (sodium bisulfate) WG-081423-C5-10	E611C	14-Aug-2023	22-Aug-2023	14 days	8 days	✓	22-Aug-2023	14 days	8 days	✓
/olatile Organic Compounds [Fuels] : VOCs (BC List) by Headspace GC-MS										
Glass vial (sodium bisulfate) WG-081423-C5-13	E611C	14-Aug-2023	22-Aug-2023	14 days	8 days	✓	22-Aug-2023	14 days	8 days	✓
/olatile Organic Compounds [THMs] : VOCs (BC List) by Headspace GC-MS										
Glass vial (sodium bisulfate) WG-081423-C5-10	E611C	14-Aug-2023	22-Aug-2023	14	8 days	√	22-Aug-2023	14 days	8 days	√

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Matrix: Water Evaluation: × = Holding time exceedance; ✓ = Within Holding Time

Evaluation: " - Holding time exceedance; " - Within Holding Time											
Analyte Group	Method	Sampling Date	Exti	raction / Pr	eparation			Analys	is		
Container / Client Sample ID(s)			Preparation	Holding Times Eval		ing Times Eval Analysis Date Holding Ti		Holding Times		Eval	
			Date	Rec	Actual			Rec	Actual		
Volatile Organic Compounds [THMs] : VOCs (BC List) by Headspace GC-MS	Volatile Organic Compounds [THMs] : VOCs (BC List) by Headspace GC-MS										
Glass vial (sodium bisulfate) WG-081423-C5-13	E611C	14-Aug-2023	22-Aug-2023	14 days	8 days	✓	22-Aug-2023	14 days	8 days	✓	

Legend & Qualifier Definitions

Rec. HT: ALS recommended hold time (see units).

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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.

Quality Control Sample Type				ency outside spo ount		Frequency (%	<u> </u>
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation
	Wether	QO 250 H			7101447	ZXPOOLOG	
Laboratory Duplicates (DUP) Alkalinity Species by Titration	F200	1090463	1 1	11	9.0	5.0	
Ammonia by Fluorescence	E290	1093312	1	18	5.5	5.0	√
Chloride in Water by IC	E298			19	5.5	5.0	√
•	E235.CI	1090455	1		5.5		√
Conductivity in Water	E100	1090462	1	18		5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1095947	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1090617	1	19	5.2	5.0	✓
Fluoride in Water by IC	E235.F	1090458	1	19	5.2	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1090456	1	19	5.2	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1090457	1	19	5.2	5.0	✓
Sulfate in Water by IC	E235.SO4	1090454	1	19	5.2	5.0	✓
TDS by Gravimetry	E162	1096069	1	20	5.0	5.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	1096539	1	15	6.6	5.0	✓
VOCs (BC List) by Headspace GC-MS	E611C	1096538	1	16	6.2	5.0	✓
Laboratory Control Samples (LCS)							
Alkalinity Species by Titration	E290	1090463	1	11	9.0	5.0	✓
Ammonia by Fluorescence	E298	1093312	1	18	5.5	5.0	✓
Chloride in Water by IC	E235.CI	1090455	1	19	5.2	5.0	✓
Conductivity in Water	E100	1090462	1	18	5.5	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1095947	1	20	5.0	5.0	1
Dissolved Metals in Water by CRC ICPMS	E421	1090617	1	19	5.2	5.0	1
Fluoride in Water by IC	E235.F	1090458	1	19	5.2	5.0	1
Nitrate in Water by IC (Low Level)	E235.NO3-L	1090456	1	19	5.2	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1090457	1	19	5.2	5.0	1
Sulfate in Water by IC	E235.SO4	1090454	1	19	5.2	5.0	1
TDS by Gravimetry	E162	1096069	1	20	5.0	5.0	1
VH and F1 by Headspace GC-FID	E581.VH+F1	1096539	1	15	6.6	5.0	1
VOCs (BC List) by Headspace GC-MS	E611C	1096538	1	16	6.2	5.0	1
Method Blanks (MB)							
Alkalinity Species by Titration	E290	1090463	1	11	9.0	5.0	1
Ammonia by Fluorescence	E298	1093312	1	18	5.5	5.0	✓
Chloride in Water by IC	E235.CI	1090455	1	19	5.2	5.0	√
Conductivity in Water	E100	1090462	1	18	5.5	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1095947	1	20	5.0	5.0	√
Dissolved Metals in Water by CRC ICPMS	E421	1090617	1	19	5.2	5.0	✓
Fluoride in Water by IC	E235.F	1090458	1	19	5.2	5.0	✓

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Matrix: Water Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification.										
Quality Control Sample Type			Co	ount	Frequency (%)					
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation			
Method Blanks (MB) - Continued										
Nitrate in Water by IC (Low Level)	E235.NO3-L	1090456	1	19	5.2	5.0	✓			
Nitrite in Water by IC (Low Level)	E235.NO2-L	1090457	1	19	5.2	5.0	✓			
Sulfate in Water by IC	E235.SO4	1090454	1	19	5.2	5.0	✓			
TDS by Gravimetry	E162	1096069	1	20	5.0	5.0	✓			
VH and F1 by Headspace GC-FID	E581.VH+F1	1096539	1	15	6.6	5.0	✓			
VOCs (BC List) by Headspace GC-MS	E611C	1096538	1	16	6.2	5.0	✓			
Matrix Spikes (MS)										
Ammonia by Fluorescence	E298	1093312	1	18	5.5	5.0	✓			
Chloride in Water by IC	E235.CI	1090455	1	19	5.2	5.0	✓			
Dissolved Mercury in Water by CVAAS	E509	1095947	1	20	5.0	5.0	✓			
Dissolved Metals in Water by CRC ICPMS	E421	1090617	1	19	5.2	5.0	✓			
Fluoride in Water by IC	E235.F	1090458	1	19	5.2	5.0	✓			
Nitrate in Water by IC (Low Level)	E235.NO3-L	1090456	1	19	5.2	5.0	✓			
Nitrite in Water by IC (Low Level)	E235.NO2-L	1090457	1	19	5.2	5.0	✓			
Sulfate in Water by IC	E235.SO4	1090454	1	19	5.2	5.0	✓			
VH and F1 by Headspace GC-FID	E581.VH+F1	1096539	1	15	6.6	5.0	✓			
VOCs (BC List) by Headspace GC-MS	E611C	1096538	1	16	6.2	5.0	✓			

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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	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
	ALS Environmental -			sample. Conductivity measurements are temperature-compensated to 25°C.
	Vancouver			campio. Conductivity incucaronionic are temporature compensated to 20°C.
TDS by Gravimetry	E162	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 $180 \pm 2^{\circ}\text{C}$ for 16 hours or to constant weight,
	ALS Environmental -			with gravimetric measurement of the residue.
	Vancouver			
Chloride in Water by IC	E235.CI	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and /or UV detection.
	ALS Environmental -			
	Vancouver			
Fluoride in Water by IC	E235.F	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
	ALS Environmental -			
	Vancouver			
litrite in Water by IC (Low Level)	E235.NO2-L	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
	ALS Environmental -			
	Vancouver			
Nitrate in Water by IC (Low Level)	E235.NO3-L	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and /or UV detection.
	ALS Environmental -			
	Vancouver			
Sulfate in Water by IC	E235.SO4	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
	ALS Environmental -			
	Vancouver			
Alkalinity Species by Titration	E290	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
	ALS Environmental -			alkalinity values.
	Vancouver			anianny raises.
mmonia by Fluorescence	E298	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).
	ALS Environmental -			This method is approved under US EPA 40 CFR Part 136 (May 2021)
	Vancouver			
	Valiodayoi			

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ALS Environmental Vancouver Dissolved Mercury in Water by CVAAS E509 Mater APHA 3030B/EPA 1831E (mod) Velent Manual / Combination (re. Sulfur): Sulfide and volatile sulfur species may not be recovere by this method. Water samples are filtered (0.45 um), preserved with HCl, then undergo a coid-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS. Water ALS Environmental - Vancouver ALS Environmental - Vancouver ALS Environmental - Vancouver ALS Environmental - Vancouver Water ALS Environmental - Vancouver Water E611C Water ALS Environmental - Vancouver Water ALS Environmental - Vancouver Water ALS Environmental - Vancouver Water ALS Environmental - Vancouver ALS Environmental - Vancouver Water ALS Environmental - Vancouver ALS Environmental - Vancouver ALS Environmental - Vancouver ALS Environmental - Vancouver ALS Environmental - Vancouver ALS Environmental - Vancouver EC100 Water ALS Environmental - Vancouver ALS Environmental - Vanc	Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Dissolved Mirrory in Water by CVAAS E509 Water APHA 3030B/EPA 1631E (mod) ALS Environmental- Vanoouver Water ALS Environmental- Vanoouver Water ALS Environmental- Vanoouver ALS Environmental- Vanoouver ALS Environmental- Vanoouver Water ALS Environmental- Vanoouver Water ALS Environmental- Vanoouver Water ALS Environmental- Vanoouver Water ALS Environmental- Vanoouver Water ALS Environmental- Vanoouver Water ALS Environmental- Vanoouver Water ALS Environmental- Vanoouver Water ALS Environmental- Vanoouver Water ALS Environmental- Vanoouver Water ALS Environmental- Vanoouver Water ALS Environmental- Vanoouver Dissolved Hardness (Calculated) EC100 Water ALS Environmental- Vanoouver Water ALS Environmental- Vanoouver Dissolved Metals Water Filtration EC355 N+N ALS Environmental- Vanoouver Water ALS Environmental- Vanoouver ALS Environmental- V	Dissolved Metals in Water by CRC ICPMS	ALS Environmental -	Water		
ALS Environmental - Vancouver Water Schild Water Schild Water Schild Water Schild Water Schild Water Schild Water Schild Water Schild Water Schild Water Schild Water Schild Water Schild Water Water Schild Water Schild Water Water Water Schild Water Water Schild Water		Vancouver			·
ALS Environmental Vancouver Whater ALS Environmental Vancouver ALS Environmental Vanc	Dissolved Mercury in Water by CVAAS	E509	Water		Water samples are filtered (0.45 um), preserved with HCl, then undergo a cold-oxidation
Set Water ALS Environmental Vancouver Water ALS Environmenta				Too 12 (mod)	
ALS Environmental-Vancouver ALS Environmenta	VH and F1 by Headspace GC-FID		Water		Volatile Hydrocarbons (VH and F1) is analyzed by static headspace GC-FID. Samples
VOCs (BC List) by Headspace GC-MS E611C Water EPA 8260D (mod) Volatile Organic Compounds (VOCs) are analyzed by static headspace GC-MS samples are prepared in headspace in additional prequirements. Vancouver Dissolved Hardness (Calculated) EC100 ALS Environmental - Vancouver ALS Environmental - Vancouver Nitrate and Nitrite (as N) (Calculation) EC235.N+N ALS Environmental - Vancouver VPH: VH-BTEX-Styrene EC580A ALS Environmental - Vancouver VPH: VH-BTEX-Styrene EPA 8260D (mod) EP28 Water APHA 3303B Figure are filtered (0.45 um), and preserved with HNO3. Filtration for Ammonia EP28 Water APHA 3303B Water APHA 3303B Water samples are filtered (0.45 um), and preserved with HNO3.					autosampler, causing VOCs to partition between the aqueous phase and the
ALS Environmental - Vancouver Dissolved Hardness (Calculated) EC 100 APHA 2340B APHA 2340B Thereadspace in a coordance with Henry's law. ALS Environmental - Vancouver ALS Environmental - Vancouver ALS Environmental - Vancouver Nitrate and Nitrite (as N) (Calculation) EC 235.N+N ALS Environmental - Vancouver Nitrate and Nitrite (as N) (Calculation) EC 235.N+N ALS Environmental - Vancouver EPA 300.0 Nitrate and Nitrite (as N) is a calculated parameter. Nitrate and Nitrite (as N) is a calculated from the sum of dissolved Vivaled Parameter. Nitrate and Nitrite (as N) is a calculated from the sum of dissolved Vivaled Parameter. Nitrate and Nitrite (as N) is a calculated parameter. Nitrate and Nitrite (as N) is a calculated parame					Analytical methods for CCME Petroleum Hydrocarbons (PHCs) are validated to comply fully with the Reference Method for the Canada-Wide Standard for PHC. Unless qualified, all required quality control criteria of the CCME PHC method have been met, including response factor and linearity requirements.
ALS Environmental Vancouver Dissolved Hardness (Calculated) EC100 Water APHA 2340B ALS Environmental Vancouver ALS Environmental Vancouver Nitrate and Nitrite (as N) (Calculation) EC235.N+N ALS Environmental Vancouver Nitrate and Nitrite (as N) (Calculation) EC235.N+N ALS Environmental Vancouver Water BC MOB Lab Manual (VPH in Water and Solids) (mod) VPH: VH-BTEX-Styrene EC580A ALS Environmental Vancouver VPH: Water BC Mob Lab Manual (VPH in Water and Solids) (mod) Preparation for Ammonia EP298 Water APHA 3030B Water Sample preparation for Preserved Nutrients Water Quality Analysis. Nater Sample preparation for Preserved Nutrients Water Quality Analysis. Nater Sample preparation for Preserved With HNO3. Nater Sample preparation for Preserved With HNO3.	VOCs (BC List) by Headspace GC-MS	E611C	Water	EPA 8260D (mod)	Volatile Organic Compounds (VOCs) are analyzed by static headspace GC-MS.
Dissolved Hardness (Calculated) EC100 ALS Environmental - Vancouver ALS Environmental - Vancouver Nitrate and Nitrite (as N) (Calculation) EC235.N+N ALS Environmental - Vancouver Nitrate and Nitrite (as N) (Calculation) EC35.N+N ALS Environmental - Vancouver VPH: VH-BTEX-Styrene EC580A ALS Environmental - Vancouver Preparation Methods Method / Lab Method / Lab Method / Lab Matrix Method Reference Method Descriptions ALS Environmental - Vancouver Preparation for Ammonia EP298 ALS Environmental - Vancouver Water APHA 3030B Water Sample preparation for Preserved Nutrients Water Quality Analysis. Water Sample are filtered (0.45 um), and preserved with HNO3.		ALS Environmental -			headspace autosampler, causing VOCs to partition between the aqueous phase and
Magnesium concentrations, expressed in CaCO3 equivalents. Total Hardness' refer to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentiall calculated from dissolved Calcium and Magnesium concentrations, because it is property of water due to dissolved divalent cations. Nitrate and Nitrite (as N) (Calculation) EC235.N+N ALS Environmental - Vancouver VPH: VH-BTEX-Styrene EC580A ALS Environmental - Vancouver VPH: VH-BTEX-Styrene EC580A ALS Environmental - Vancouver VPH: VH-BTEX-Styrene EC580A ALS Environmental - Vancouver Water ALS Environmental - Vancouver Water BC MOE Lab Manual (VPH in Water and Solids) (mod) Solids) (mod) Solids) (mod) Solids) (mod) EP298 Water Method Reference Method Descriptions Dissolved Metals Water Filtration EP421 Water APHA 3030B Water samples are filtered (0.45 um), and preserved with HNO3.		Vancouver			the headspace in accordance with Henry's law.
Vancouver Vancouver Very discover dissolved Calcium and Magnesium concentrations, because it is property of water due to dissolved divalent cations. Nitrate and Nitrite (as N) (Calculation) EC235.N+N ALS Environmental - Vancouver VPH: VH-BTEX-Styrene EC580A ALS Environmental - Vancouver Vancouver Vancouver Vancouver Vancouver Vancouver Vancouver Vancouver Vancouver Vancouver Vancouver Vancouver Vancouver Vancouver Vancouver Vancouver Value Method Reference Method Descriptions Sample preparation for Preserved Nutrients Water Quality Analysis. Dissolved Metals Water Filtration EP421 Water APHA 3030B Water samples are filtered (0.45 um), and preserved with HNO3.	Dissolved Hardness (Calculated)	EC100	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
Preparation Methods Preparation for Ammonia EP235.N+N Method / Lab Method / Lab Method / Lab ALS Environmental - Vancouver Water Preparation for Ammonia EP288 ALS Environmental - Vancouver Water BC MOE Lab Manual (VPH in Water and Solids) (mod) Solids) (mod) Sample preparation for Preserved Nutrients Water Quality Analysis. Preparation for Preserved With HNO3. ALS Environmental - Vancouver Water APHA 3030B Water samples are filtered (0.45 um), and preserved with HNO3.		ALS Environmental -			to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially
ALS Environmental - Vancouver VPH: VH-BTEX-Styrene EC580A ALS Environmental - Vancouver Water BC MOE Lab Manual (VPH in Water and Solids) (mod) VPH: VH-BTEX-Styrene EC580A ALS Environmental - Vancouver Vancouver Preparation Methods Method / Lab Matrix Method Reference Method Descriptions Preparation for Ammonia EP298 ALS Environmental - Vancouver Dissolved Metals Water Filtration EP421 ALS Environmental - ALS Environmental - Vancouver Water APHA 3030B Water samples are filtered (0.45 um), and preserved with HNO3.		Vancouver			calculated from dissolved Calcium and Magnesium concentrations, because it is a property of water due to dissolved divalent cations.
VPH: VH-BTEX-Styrene EC580A ALS Environmental - Vancouver Water BC MOE Lab Manual (VPH in Water and Solids) (mod) Preparation Methods Preparation for Ammonia EP298 ALS Environmental - Vancouver Water ALS Environmental - Vancouver Water ALS Environmental - Vancouver Water ALS Environmental - Vancouver Water ALS Environmental - Vancouver Water ALS Environmental - Vancouver Water APHA 3030B Water samples are filtered (0.45 um), and preserved with HNO3.	Nitrate and Nitrite (as N) (Calculation)	EC235.N+N	Water	EPA 300.0	Nitrate and Nitrite (as N) is a calculated parameter. Nitrate and Nitrite (as N) = Nitrite (as N) + Nitrate (as N).
VPH: VH-BTEX-Styrene EC580A ALS Environmental - Vancouver Preparation Methods Preparation for Ammonia EP298 ALS Environmental - Vancouver Water Dissolved Metals Water Filtration EP421 ALS Environmental - Vancouver Water BC MOE Lab Manual (VPH in Water and Solids) (mod) Water BC MOE Lab Manual (VPH in Water and Solids) (mod) Water Method Petroleum Hydrocarbons (VPH) is calculated as follows: VPHw = Volation Hydrocarbons (VH6-10) minus benzene, toluene, ethylbenzene, xylenes (BTEX) and styrene. Sample preparation for Preserved Nutrients Water Quality Analysis. Water Sample preparation for Preserved Nutrients Water Quality Analysis. Water samples are filtered (0.45 um), and preserved with HNO3.					
ALS Environmental - Vancouver Preparation Methods Method / Lab Matrix Method Reference Method Descriptions Preparation for Ammonia EP298 Water ALS Environmental - Vancouver Dissolved Metals Water Filtration EP421 Water APHA 3030B Water samples are filtered (0.45 um), and preserved with HNO3.	VPH: VH-BTEX-Styrene		Water		Volatile Petroleum Hydrocarbons (VPH) is calculated as follows: VPHw = Volatile
Preparation Methods Method / Lab Matrix Method Reference Method Descriptions Preparation for Ammonia EP298 Water ALS Environmental - Vancouver Dissolved Metals Water Filtration EP421 Water APHA 3030B Water samples are filtered (0.45 um), and preserved with HNO3. ALS Environmental - APHA 3030B		ALS Environmental -		`	
Preparation for Ammonia EP298 Water ALS Environmental - Vancouver Dissolved Metals Water Filtration EP421 Water APHA 3030B Water samples are filtered (0.45 um), and preserved with HNO3. ALS Environmental -				collas) (moa)	styrene.
ALS Environmental - Vancouver Dissolved Metals Water Filtration EP421 Water APHA 3030B Water samples are filtered (0.45 um), and preserved with HNO3. ALS Environmental -	Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Vancouver Dissolved Metals Water Filtration EP421 Water APHA 3030B Water samples are filtered (0.45 um), and preserved with HNO3. ALS Environmental -	Preparation for Ammonia	EP298	Water		Sample preparation for Preserved Nutrients Water Quality Analysis.
Dissolved Metals Water Filtration EP421 Water APHA 3030B Water samples are filtered (0.45 um), and preserved with HNO3. ALS Environmental -					
	Dissolved Metals Water Filtration		Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HNO3.
Vancouver					
		Vancouver			

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Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Dissolved Mercury Water Filtration	EP509	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HCl.
	ALS Environmental - Vancouver			
VOCs Preparation for Headspace Analysis	EP581 ALS Environmental - Vancouver	Water	EPA 5021A (mod)	Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler. An aliquot of the headspace is then injected into the GC/MS-FID system.

ALS

Chain of Custody (COC) / Analytical Request Form

Affix ALS barcode label here

COC Number: 17 -

Page of

LS) Environmental

Canada Toll Free: 1 800 668 9878

	www.alsglobal.com																			
Report To	Contact and company name below will appear on the final report		Report Format	/ Distribution			Select	Servi	ce Le	rei Bel	OW -	Contac	t your AN	to cont	firm all	E&P TAT	e (eur	harges	пау арг	ply)
Company:	Comox Valley Regional District	Select Report F	ormat 🖸 PDF [] 5x0er [] ec	O (DIGITAL)		Reg	jular ([R]	⊘ S t	andax	TAT #	eceived by	3 pm - b	usiness	days - no s	urcharge	s apply	,	
Contact:	Crystal Stuart	Quality Control	(QC) Report with Re	eport 🗹 YES	□ NO	F 60	4 day	P4-	20%]			ENCY	1 Busine	ess day	/ [E1 -	100%]				
Phone:	250-898-3722	Compare Resu	its to Criteria on Report	provide details belo	w if trox checked:	BOR	3 day	[P3-2	25%]							or Statut			2 -200	% _
	Company address below will appear on the final report	Select Distribut	ion: 🖸 EMAIL	☐ MAIL ☐	FAX)	2 day					_		ory ope	ening I	fees may	apply)1		
Street:	770 Harmston Avenue	Email 1 or Fax	cstuart@comoxval	leyrd.ca		: C	ate and	Time	Requi	ed for	all E&	P TATS	₩			ដល់ការសារា	ткуу А	ermen		
City/Province:	Courtenay, BC	Email 2			<u> </u>	For tes	te that c	an not t	e perfo	rmed ac	cordin	g to the				be contack	ed.			
Postal Code:	V9N 0G8	Email 3				Analysis Request														
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Drinking	Water (DW) Samples¹ (client use)		ctronic COC only)	,		Froz	71	1	ž, je.,	4. 1			bservatio	****	Yes .	<u></u>	O COMP	e No		
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REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY

YELLOW - CLIENT COPY

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 an 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.

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ALS Canada Ltd.



CERTIFICATE OF ANALYSIS

Work Order : VA23B9075 Page : 1 of 6

Amendment : 1

Client Laboratory : Comox Valley Regional District : ALS Environmental - Vancouver

: Crystal Stuart **Account Manager** : Thomas Chang Contact

Address Address : 770 Harmston Avenue : 8081 Lougheed Highway

Burnaby BC Canada V5A 1W9

: 18-Aug-2023

Date Analysis Commenced

Metals, Burnaby, British Columbia

: 250-898-3722 Telephone : +1 604 253 4188

Project : 3-2 Date Samples Received : 17-Aug-2023 10:10 23-015

C-O-C number Issue Date : 24-Aug-2023 10:25

Sampler : C.Stuart

Site : CRWMC-Quaterly-SW+GW

Courtney BC Canada V9N 0G8

Quote number : VA23-COVR100-001

No. of samples received : 4 No. of samples analysed : 4

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

Sam Silveira

Telephone

PO

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Lab Assistant

Signatories Laboratory Department **Position** Kevin Duarte Supervisor - Metals ICP Instrumentation Metals, Burnaby, British Columbia Lindsay Gung Supervisor - Water Chemistry Inorganics, Burnaby, British Columbia Page : 2 of 6

Work Order : VA23B9075 Amendment 1
Client : Comox Valley Regional District

Project : 3-2



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
μS/cm	microsiemens per centimetre
mg/L	milligrams per litre

<: 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 (24/08/2023): This report has been amended as a result of misinterpretation of sample identification numbers (IDs). All analysis results are as per the previous report.

Page : 3 of 6

Work Order : VA23B9075 Amendment 1
Client : Comox Valley Regional District

Project : 3-2



Analytical Results

Sub-Matrix: Water			Cli	ent sample ID	WG-081523-CS-	WG-081523-CS-	WS-081523-CS-	WG-081523-CS-	
(Matrix: Water)					17	18	01	19	
				ling date / time	15-Aug-2023 10:00	15-Aug-2023 10:40	15-Aug-2023 12:49	15-Aug-2023 17:10	
Analyte	CAS Number	Method/Lab	LOR	Unit	VA23B9075-001	VA23B9075-002	VA23B9075-003	VA23B9075-004	
					Result	Result	Result	Result	
Physical Tests		E000#44			22.4	22.2			
Alkalinity, bicarbonate (as CaCO3)		E290/VA	1.0	mg/L	62.4	66.2	8.3	<1.0	
Alkalinity, carbonate (as CaCO3)		E290/VA	1.0	mg/L	<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	
Alkalinity, total (as CaCO3)		E290/VA	1.0	mg/L	62.4	66.2	8.3	<1.0	
Conductivity		E100/VA	2.0	μS/cm	123	129	33.7	<2.0	
Hardness (as CaCO3), dissolved		EC100/VA	0.60	mg/L	60.3	60.8	9.56	<0.60	
Hardness (as CaCO3), from total Ca/Mg		EC100A/VA	0.60	mg/L			9.36		
Solids, total dissolved [TDS]		E162/VA	10	mg/L	76	80	34	<10	
Anions and Nutrients									
Ammonia, total (as N)	7664-41-7	E298/VA	0.0050	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	
Chloride	16887-00-6	E235.CI/VA	0.50	mg/L	1.16	1.29	4.10	<0.50	
Fluoride	16984-48-8	E235.F/VA	0.020	mg/L	<0.020	<0.020	<0.020	<0.020	
Nitrate (as N)	14797-55-8	E235.NO3-L/V	0.0050	mg/L	0.0730	0.114	<0.0050	<0.0050	
Nitrate + Nitrite (as N)		A EC235.N+N/V	0.0050	mg/L	0.0730	0.114	<0.0051	<0.0051	
Nitrite (as N)	14797-65-0	A E235.NO2-L/V	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	
Sulfate (as SO4)	14808-79-8	A E235.SO4/VA	0.30	mg/L	2.00	1.99	0.78	<0.30	
Organic / Inorganic Carbon									
Carbon, dissolved organic [DOC]		E358-L/VA	0.50	mg/L			5.80		
Total Metals									
Aluminum, total	7429-90-5		0.0030	mg/L			0.0229		
Antimony, total	7440-36-0		0.00010	mg/L			<0.00010		
Arsenic, total	7440-38-2		0.00010	mg/L			0.00018		
Barium, total	7440-39-3		0.00010	mg/L			0.00150		
Beryllium, total	7440-41-7		0.000020	mg/L			<0.000020		
Bismuth, total	7440-69-9		0.000050	mg/L			<0.000050		
Boron, total	7440-42-8		0.010	mg/L			<0.010		
Cadmium, total	7440-43-9	E420/VA	0.0000050	mg/L			<0.0000050		

Page : 4 of 6

Work Order : VA23B9075 Amendment 1
Client : Comox Valley Regional District

Project : 3-



Analytical Results

Sub-Matrix: Water			Cli	ent sample ID	WG-081523-CS-	WG-081523-CS-	WS-081523-CS-	WG-081523-CS-	
(Matrix: Water)					17	18	01	19	
Analyte	CAS Number	Method/Lab	Client sampl	ing date / time Unit	15-Aug-2023 10:00 VA23B9075-001	15-Aug-2023 10:40 VA23B9075-002	15-Aug-2023 12:49 VA23B9075-003	15-Aug-2023 17:10 VA23B9075-004	
,					Result	Result	Result	Result	
Total Metals		10000							
Calcium, total	7440-70-2 E42	20/VA	0.050	mg/L			2.16		
Cobalt, total	7440-48-4 E42	20/VA	0.00010	mg/L			<0.00010		
Copper, total	7440-50-8 E42	20/VA	0.00050	mg/L			<0.00050		
Iron, total	7439-89-6 E42		0.010	mg/L			0.046		
Lead, total	7439-92-1 E42	20/VA	0.000050	mg/L			<0.000050		
Lithium, total	7439-93-2 E42	20/VA	0.0010	mg/L			<0.0010		
Magnesium, total	7439-95-4 E42	20/VA	0.100	mg/L			0.964		
Manganese, total	7439-96-5 E42	20/VA	0.00010	mg/L			0.00420		
Mercury, total	7439-97-6 E50	08/VA	0.0000050	mg/L			<0.0000050		
Molybdenum, total	7439-98-7 E42	20/VA	0.000050	mg/L			<0.000050		
Nickel, total	7440-02-0 E42	20/VA	0.00050	mg/L			<0.00050		
Phosphorus, total	7723-14-0 E42	20/VA	0.050	mg/L			<0.050		
Potassium, total	7440-09-7 E42	20/VA	0.100	mg/L			0.154		
Selenium, total	7782-49-2 E42	20/VA	0.000050	mg/L			<0.000050		
Silicon, total	7440-21-3 E42	20/VA	0.10	mg/L			1.74		
Silver, total	7440-22-4 E42	20/VA	0.000010	mg/L			<0.000010		
Sodium, total	7440-23-5 E42	20/VA	0.050	mg/L			2.83		
Strontium, total	7440-24-6 E42	20/VA	0.00020	mg/L			0.0102		
Sulfur, total	7704-34-9 E42	20/VA	0.50	mg/L			<0.50		
Thallium, total	7440-28-0 E42	20/VA	0.000010	mg/L			<0.000010		
Tin, total	7440-31-5 E42	20/VA	0.00010	mg/L			<0.00010		
Titanium, total	7440-32-6 E42	20/VA	0.00030	mg/L			0.00038		
Uranium, total	7440-61-1 E42	20/VA	0.000010	mg/L			<0.000010		
Vanadium, total	7440-62-2 E42	20/VA	0.00050	mg/L			<0.00050		
Zinc, total	7440-66-6 E42	20/VA	0.0030	mg/L			<0.0030		
Zirconium, total	7440-67-7 E42	20/VA	0.00020	mg/L			<0.00020		
Chromium, total	7440-47-3 E42	20/VA	0.00050	mg/L			<0.00050		
Dissolved Metals		10000				777			
Aluminum, dissolved	7429-90-5 E42		0.0010	mg/L	0.0054	0.0050	0.0177	<0.0010	
Antimony, dissolved	7440-36-0 E42	21/VA	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	

Page : 5 of 6

Work Order : VA23B9075 Amendment 1
Client : Comox Valley Regional District

Project : 3-



Analytical Results

Sub-Matrix: Water		Cl	ient sample ID	WG-081523-CS-	WG-081523-CS-	WS-081523-CS-	WG-081523-CS-	
(Matrix: Water)				17	18	01	19	
		Client samp	ling date / time	15-Aug-2023 10:00	15-Aug-2023 10:40	15-Aug-2023 12:49	15-Aug-2023 17:10	
Analyte	CAS Number Method/Lab	LOR	Unit	VA23B9075-001	VA23B9075-002	VA23B9075-003	VA23B9075-004	
				Result	Result	Result	Result	
Dissolved Metals								
Arsenic, dissolved	7440-38-2 E421/VA	0.00010	mg/L	0.00025	0.00063	0.00017	<0.00010	
Barium, dissolved	7440-39-3 E421/VA	0.00010	mg/L	0.00095	0.00166	0.00144	<0.00010	
Beryllium, dissolved	7440-41-7 E421/VA	0.000020	mg/L	<0.000020	<0.000020	<0.000020	<0.000020	
Bismuth, dissolved	7440-69-9 E421/VA	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	
Boron, dissolved	7440-42-8 E421/VA	0.010	mg/L	0.026	0.016	<0.010	<0.010	
Cadmium, dissolved	7440-43-9 E421/VA	0.0000050	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	
Calcium, dissolved	7440-70-2 E421/VA	0.050	mg/L	20.5	21.6	2.25	<0.050	
Chromium, dissolved	7440-47-3 E421/VA	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	
Cobalt, dissolved	7440-48-4 E421/VA	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	
Copper, dissolved	7440-50-8 E421/VA	0.00020	mg/L	0.00041	<0.00020	0.00024	<0.00020	
Iron, dissolved	7439-89-6 E421/VA	0.010	mg/L	<0.010	<0.010	0.042	<0.010	
Lead, dissolved	7439-92-1 E421/VA	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	
Lithium, dissolved	7439-93-2 E421/VA	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	
Magnesium, dissolved	7439-95-4 E421/VA	0.100	mg/L	2.21	1.67	0.958	<0.100	
Manganese, dissolved	7439-96-5 E421/VA	0.00010	mg/L	<0.00010	<0.00010	0.00306	<0.00010	
Mercury, dissolved	7439-97-6 E509/VA	0.0000050	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	
Molybdenum, dissolved	7439-98-7 E421/VA	0.000050	mg/L	0.000128	0.000154	<0.000050	<0.000050	
Nickel, dissolved	7440-02-0 E421/VA	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	
Phosphorus, dissolved	7723-14-0 E421/VA	0.050	mg/L	<0.050	<0.050	<0.050	<0.050	
Potassium, dissolved	7440-09-7 E421/VA	0.100	mg/L	0.425	0.526	0.153	<0.100	
Selenium, dissolved	7782-49-2 E421/VA	0.000050	mg/L	0.000098	0.000125	<0.000050	<0.000050	
Silicon, dissolved	7440-21-3 E421/VA	0.050	mg/L	4.26	4.30	1.70	<0.050	
Silver, dissolved	7440-22-4 E421/VA	0.000010	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	
Sodium, dissolved	7440-23-5 E421/VA	0.050	mg/L	1.78	2.88	2.82	<0.050	
Strontium, dissolved	7440-24-6 E421/VA	0.00020	mg/L	0.0307	0.0334	0.00985	<0.00020	
Sulfur, dissolved	7704-34-9 E421/VA	0.50	mg/L	0.74	0.64	<0.50	<0.50	
Thallium, dissolved	7440-28-0 E421/VA	0.000010	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	
Tin, dissolved	7440-31-5 E421/VA	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	
Titanium, dissolved	7440-32-6 E421/VA	0.00030	mg/L	<0.00030	<0.00030	<0.00030	<0.00030	
Uranium, dissolved	7440-61-1 E421/VA	0.000010	mg/L	0.000048	0.000041	<0.000010	<0.000010	
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Page : 6 of 6

Work Order : VA23B9075 Amendment 1
Client : Comox Valley Regional District

Project : 3-2



Analytical Results

Sub-Matrix: Water			CI	ient sample ID	WG-081523-CS-	WG-081523-CS-	WS-081523-CS-	WG-081523-CS-	
(Matrix: Water)					17	18	01	19	
			Client samp	ling date / time	15-Aug-2023 10:00	15-Aug-2023 10:40	15-Aug-2023 12:49	15-Aug-2023 17:10	
Analyte	CAS Number	Method/Lab	LOR	Unit	VA23B9075-001	VA23B9075-002	VA23B9075-003	VA23B9075-004	
					Result	Result	Result	Result	
Dissolved Metals									
Vanadium, dissolved	7440-62-2	E421/VA	0.00050	mg/L	0.00226	0.00313	<0.00050	<0.00050	
Zinc, dissolved	7440-66-6	E421/VA	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	
Zirconium, dissolved	7440-67-7	E421/VA	0.00020	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	
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 result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.

ALS Canada Ltd.



QUALITY CONTROL REPORT

Work Order :VA23B9075

Amendment : 1

Client : Comox Valley Regional District

Contact : Crystal Stuart

Address : 770 Harmston Avenue

Courtney BC Canada V9N 0G8

Telephone

Project : 3-2 PO : 23-015

C-O-C number : ----

Sampler : C.Stuart 250-898-3722
Site : CRWMC-Quaterly-SW+GW

Quote number : VA23-COVR100-001

No. of samples received : 4
No. of samples analysed : 4

Page : 1 of 15

Laboratory : ALS Environmental - Vancouver

Account Manager : Thomas Chang

Address : 8081 Lougheed Highway

Burnaby, British Columbia Canada V5A 1W9

Telephone :+1 604 253 4188

Date Samples Received :17-Aug-2023 10:10

Date Analysis Commenced : 18-Aug-2023

Issue Date : 24-Aug-2023 10:25

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
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Vancouver Metals, Burnaby, British Columbia
Lindsay Gung	Supervisor - Water Chemistry	Vancouver Inorganics, Burnaby, British Columbia
Sam Silveira	Lab Assistant	Vancouver Metals, Burnaby, British Columbia

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Work Order: VA23B9075 Amendment 1
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Project : 3-2



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.

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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							Labora	ntory Duplicate (D	UP) 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: 1091199)										
VA23B8982-001	Anonymous	Alkalinity, bicarbonate (as CaCO3)		E290	1.0	mg/L	115	116	0.173%	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, total (as CaCO3)		E290	1.0	mg/L	115	116	0.173%	20%	
Physical Tests (QC	Lot: 1091200)										
VA23B8982-001	Anonymous	Conductivity		E100	2.0	μS/cm	7380	7280	1.36%	10%	
Physical Tests (QC	Lot: 1096479)										
KS2303018-001	Anonymous	Solids, total dissolved [TDS]		E162	20	mg/L	814	829	1.82%	20%	
Anions and Nutrien	ts (QC Lot: 1091202)										
VA23B8982-001	Anonymous	Fluoride	16984-48-8	E235.F	1.00	mg/L	1.08	1.04	0.041	Diff <2x LOR	
Anions and Nutrien	ts (QC Lot: 1091203)										
VA23B8982-001	Anonymous	Chloride	16887-00-6	E235.CI	25.0	mg/L	69.4	68.4	1.07	Diff <2x LOR	
Anions and Nutrien	ts (QC Lot: 1091205)										
VA23B8982-001	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	0.250	mg/L	0.358	0.355	0.0033	Diff <2x LOR	
Anions and Nutrien	ts (QC Lot: 1091206)										
VA23B8982-001	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	0.0500	mg/L	<0.0500	<0.0500	0	Diff <2x LOR	
Anions and Nutrien	ts (QC Lot: 1091207)										
VA23B8982-001	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	15.0	mg/L	4060	4040	0.638%	20%	
Anions and Nutrien	ts (QC Lot: 1094366)										
VA23B8724-001	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	0.0162	0.0157	0.0004	Diff <2x LOR	
Organic / Inorganic	Carbon (QC Lot: 109	4370)									
VA23B9075-003	WS-081523-CS-01	Carbon, dissolved organic [DOC]		E358-L	0.50	mg/L	5.80	6.07	4.48%	20%	
Total Metals (QC Lo	ot: 1090986)										
VA23B8995-001	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	0.0121	0.0117	3.09%	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	

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Sub-Matrix: Water	ter					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 Lo	ot: 1090986) - continue	d												
VA23B8995-001	Anonymous	Cadmium, total	7440-43-9	E420	0.0000050	mg/L	0.0000060	0.0000057	0.0000003	Diff <2x LOR				
		Calcium, total	7440-70-2	E420	0.050	mg/L	10.7	10.7	0.0586%	20%				
		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	0.0721	0.0711	1.49%	20%				
		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	0.000939	0.000964	2.59%	20%				
		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	0.383	0.385	0.572%	20%				
		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	0.000288	0.000280	0.000008	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	0.540	0.532	1.49%	20%				
		Selenium, total	7782-49-2	E420	0.000050	mg/L	0.000076	0.000112	0.000037	Diff <2x LOR				
		Silicon, total	7440-21-3	E420	0.10	mg/L	2.56	2.53	1.07%	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	1.55	1.55	0.106%	20%				
		Strontium, total	7440-24-6	E420	0.00020	mg/L	0.0590	0.0587	0.499%	20%				
		Sulfur, total	7704-34-9	E420	0.50	mg/L	3.79	3.80	0.01	Diff <2x LOR				
		Thallium, total	7440-28-0	E420	0.000010	mg/L	<0.000010	<0.000010	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				
		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	0.0074	0.0075	0.0001	Diff <2x LOR				
		Zirconium, total	7440-67-7	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR				
Total Metals (QC Lo	ot: 1095545)				1 3									
VA23B8982-003	Anonymous	Mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR				
Dissolved Metals (G														
VA23B9075-001	WG-081523-CS-17	Aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	0.0054	0.0051	0.0003	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	0.00025	0.00027	0.00002	Diff <2x LOR				
		Barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.00095	0.00095	0.000001	Diff <2x LOR				

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Sub-Matrix: Water				Laboratory Duplicate (DUP) Report							
aboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Dissolved Metals (C	QC Lot: 1091114) - cont	nued									
/A23B9075-001	WG-081523-CS-17	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	0.026	0.026	0.0007	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	20.5	20.6	0.278%	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	<0.00010	<0.00010	0	Diff <2x LOR	
		Copper, dissolved	7440-50-8	E421	0.00020	mg/L	0.00041	0.00040	0.000010	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	2.21	2.12	4.18%	20%	
		Manganese, dissolved	7439-96-5	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	
		Molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.000128	0.000134	0.000007	Diff <2x LOR	
		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	0.100	mg/L	0.425	0.423	0.002	Diff <2x LOR	
		Selenium, dissolved	7782-49-2	E421	0.000050	mg/L	0.000098	0.000126	0.000029	Diff <2x LOR	
		Silicon, dissolved	7440-21-3	E421	0.050	mg/L	4.26	4.26	0.165%	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	1.78	1.67	6.58%	20%	
		Strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.0307	0.0320	4.38%	20%	
		Sulfur, dissolved	7704-34-9	E421	0.50	mg/L	0.74	0.80	0.06	Diff <2x LOR	
		Thallium, dissolved	7440-28-0	E421	0.000010	mg/L	<0.000010	<0.000010	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	
		Uranium, dissolved	7440-61-1	E421	0.000010	mg/L	0.000048	0.000049	0.000001	Diff <2x LOR	
		Vanadium, dissolved	7440-62-2	E421	0.00050	mg/L	0.00226	0.00222	0.00004	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	
issolved Metals (C	C Lot: 1095947)										
A23B9024-005	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	
issolved Metals (C	CC Lot: 1095948)										
/A23B9075-004	WG-081523-CS-19	Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.000050	<0.0000050	0	Diff <2x LOR	

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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

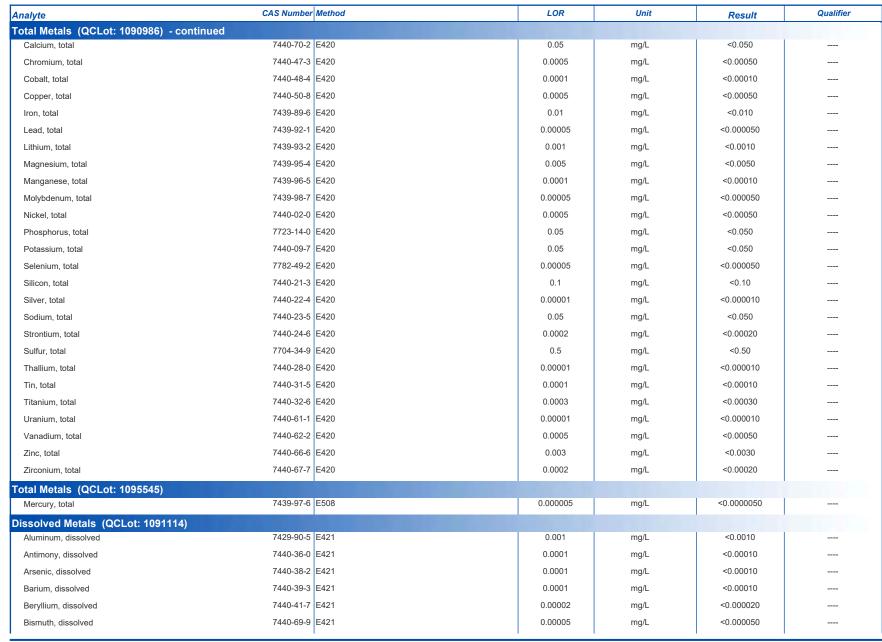
Analyte	CAS Number Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 1091199)					
Alkalinity, bicarbonate (as CaCO3)	E290	1	mg/L	<1.0	
Alkalinity, carbonate (as CaCO3)	E290	1	mg/L	<1.0	
Alkalinity, hydroxide (as CaCO3)	E290	1	mg/L	<1.0	
Alkalinity, total (as CaCO3)	E290	1	mg/L	<1.0	
Physical Tests (QCLot: 1091200)					
Conductivity	E100	1	μS/cm	1.2	
Physical Tests (QCLot: 1096479)					
Solids, total dissolved [TDS]	E162	10	mg/L	<10	
Anions and Nutrients (QCLot: 1091202)					
Fluoride	16984-48-8 E235.F	0.02	mg/L	<0.020	
Anions and Nutrients (QCLot: 1091203)					
Chloride	16887-00-6 E235.CI	0.5	mg/L	<0.50	
Anions and Nutrients (QCLot: 1091205)					
Nitrate (as N)	14797-55-8 E235.NO3-L	0.005	mg/L	<0.0050	
Anions and Nutrients (QCLot: 1091206)					
Nitrite (as N)	14797-65-0 E235.NO2-L	0.001	mg/L	<0.0010	
Anions and Nutrients (QCLot: 1091207)					
Sulfate (as SO4)	14808-79-8 E235.SO4	0.3	mg/L	<0.30	
Anions and Nutrients (QCLot: 1094366)					
Ammonia, total (as N)	7664-41-7 E298	0.005	mg/L	<0.0050	
Organic / Inorganic Carbon (QCLot: 109					
Carbon, dissolved organic [DOC]	E358-L	0.5	mg/L	<0.50	
Fotal Metals (QCLot: 1090986)					
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	<0.000050	

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Sub-Matrix: Water



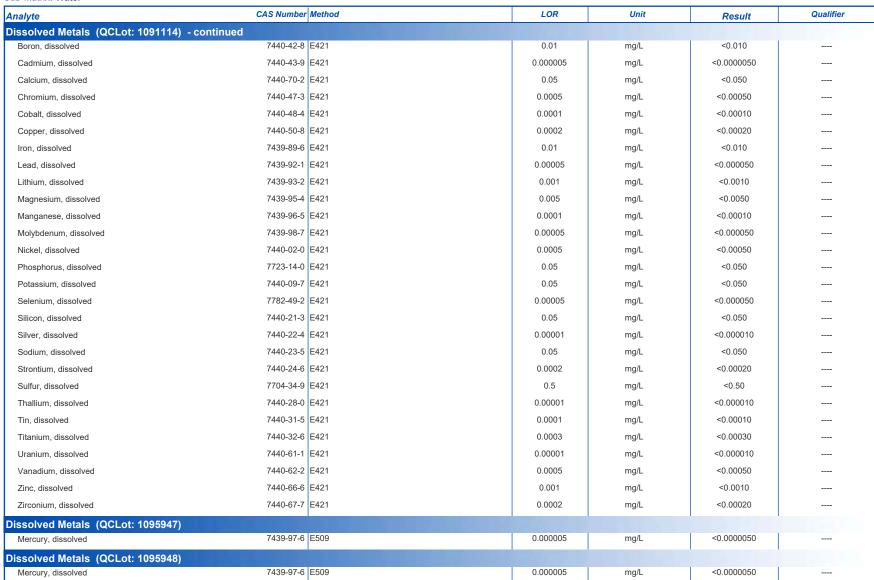


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Sub-Matrix: Water





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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.

Spike Recovery (%) Recovery (%	Sub-Matrix: Water						Laboratory Co	ntrol Sample (LCS)	Report	
Physical Tests (QCLot: 109199)						Spike	Recovery (%)	Recovery	Limits (%)	
Albaharity, Iolar (as CaCO3) E290 1 mg/L 500 mg/L 109 85.0 115	Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Asalanity, Isala (as CaCO3) E390 1 mg/L 500 mg/L 109 85.0 115	Physical Tests (QCLot: 1091199)									
Conductivity Final			E290	1	mg/L	500 mg/L	109	85.0	115	
Physical Tosts (QCLot: 1096479) Solids, total dissolved [TDS]	Physical Tests (QCLot: 1091200)									
Salids, total dissolved [TDS]	Conductivity		E100	1	μS/cm	146.9 μS/cm	96.2	90.0	110	
Anions and Nutrients (QCLot: 1091203) Chloride 16887-00-6 E235.F 0.0.2 mg/L 1 mg/L 102 90.0 110 Anions and Nutrients (QCLot: 1091203) Chloride 16887-00-6 E235.Cl 0.5 mg/L 100 mg/L 101 90.0 110 Anions and Nutrients (QCLot: 1091205) Nitrile (as N) 14797-55-8 E235.NO3-L 0.005 mg/L 2.5 mg/L 102 90.0 110 Anions and Nutrients (QCLot: 1091206) Nitrile (as N) 14797-65-8 E235.NO3-L 0.001 mg/L 0.5 mg/L 96.9 90.0 110 Anions and Nutrients (QCLot: 1091207) Silfile (as SO4) 14808-79-8 E235.SO4 0.3 mg/L 100 mg/L 103 90.0 110 Anions and Nutrients (QCLot: 1091207) Silfile (as SO4) 7684-41-7 E298 0.005 mg/L 0.2 mg/L 98.0 85.0 115 Organic Inorganic Carbon (QCLot: 1094366) Animonia, total (as N) 7684-41-7 E298 0.005 mg/L 0.2 mg/L 98.0 85.0 115 Organic Inorganic Carbon (QCLot: 1094370) Carbon, dissolved organic (DOC) E38-L 0.5 mg/L 97.6 80.0 120 Total Motal's (QCLot: 1099986) Aluminum, total 7440-36-0 E420 0.0001 mg/L 1 mg/L 199.9 80.0 120 Animum, total 7440-38-2 E420 0.0001 mg/L 1 mg/L 99.9 80.0 120 Earlyilum, total 7440-38-3 E420 0.0001 mg/L 1 mg/L 99.9 80.0 120 Earlyilum, total 7440-38-3 E420 0.0001 mg/L 0.25 mg/L 102 80.0 120 Earlyilum, total 7440-38-7 E420 0.0001 mg/L 0.25 mg/L 102 80.0 120 Earlyilum, total 7440-38-7 E420 0.0001 mg/L 0.25 mg/L 102 80.0 120 Earlyilum, total 7440-38-7 E420 0.0001 mg/L 0.25 mg/L 102 80.0 120 Earlyilum, total 7440-41-7 E420 0.00002 mg/L 0.1 mg/L 101 80.0 120	Physical Tests (QCLot: 1096479)									
Fluoride 16984-48-8 E235.F 0.02 mg/L 1 mg/L 102 90.0 110	Solids, total dissolved [TDS]		E162	10	mg/L	1000 mg/L	109	85.0	115	
Fluoride 16984-48-8 E235.F 0.02 mg/L 1 mg/L 102 90.0 110										
Anions and Nutrients (QCLot: 1091203) Chloride 16887-00-6 E235.Cl 0.5 mg/L 100 mg/L 101 90.0 110 Anions and Nutrients (QCLot: 1091205) Nitrate (as N) 14797-55-8 E235.NO3-L 0.005 mg/L 2.5 mg/L 96.9 90.0 110 Anions and Nutrients (QCLot: 1091206) Nitrate (as SO4) 14797-65-0 E235.NO3-L 0.001 mg/L 0.5 mg/L 96.9 90.0 110 Anions and Nutrients (QCLot: 1091207) Sulfate (as SO4) 14808-79-8 E235.SO4 0.3 mg/L 100 mg/L 103 90.0 110 Anions and Nutrients (QCLot: 1094366) Animonia, total (as N) 7684-41-7 E298 0.005 mg/L 0.2 mg/L 98.0 85.0 115 Organic / Inorganic Carbon (QCLot: 1094370) Carbon, dissolved organic (DOC) E358-L 0.5 mg/L 8.57 mg/L 97.6 80.0 120 Total Metals (QCLot: 109086) Aluminum, total 7429-0.5 E420 0.003 mg/L 2 mg/L 99.2 80.0 120 Antimony, total 7440-38-2 E420 0.0001 mg/L 1 mg/L 102 80.0 120 Barlum, total 7440-38-2 E420 0.0001 mg/L 1 mg/L 102 80.0 120 Barlum, total 7440-38-3 E420 0.0001 mg/L 1 mg/L 102 80.0 120 Barlum, total 7440-38-3 E420 0.0001 mg/L 0.25 mg/L 1 mg/L 99.9 80.0 120 Barlum, total 7440-38-3 E420 0.0001 mg/L 1 mg/L 102 80.0 120 Barlum, total 7440-38-3 E420 0.0001 mg/L 0.25 mg/L 102 80.0 120 Barlum, total 7440-38-3 E420 0.0001 mg/L 0.25 mg/L 102 80.0 120 Barlum, total 7440-38-3 E420 0.0001 mg/L 0.25 mg/L 102 80.0 120 Barlum, total 7440-38-3 E420 0.0001 mg/L 0.25 mg/L 102 80.0 120 Barlum, total 7440-38-3 E420 0.0001 mg/L 0.25 mg/L 102 80.0 120 Barlum, total 7440-38-3 E420 0.0001 mg/L 0.25 mg/L 102 80.0 120										
Chloride 16887-00-6 2235.Cl 0.5 mg/L 100 mg/L 101 90.0 110 90.0 90.0 110 90.0 9	Fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	102	90.0	110	
Anions and Nutrients (QCLot: 1091205) Nitrate (as N) 14797-55-8 E35 NO3-L										
Nitrate (as N) 14797-55-8 E235 NO3-L 0.005 mg/L 2.5 mg/L 102 90.0 110	Chloride	16887-00-6	E235.CI	0.5	mg/L	100 mg/L	101	90.0	110	
Anions and Nutrients (QCLot: 1091206) Nitrie (as N) 14797-65-0 E235.NO2-L 0.001 mg/L 0.5 mg/L 96.9 90.0 110 Anions and Nutrients (QCLot: 1091207) Sulfate (as SO4) 14808-79-8 E235.SO4 0.3 mg/L 100 mg/L 103 90.0 110 Anions and Nutrients (QCLot: 1094366) Armonia, total (as N) 7684-41-7 E298 0.005 mg/L 0.2 mg/L 98.0 85.0 115 Organic / Inorganic Carbon (QCLot: 1094370) Carbon, dissolved organic [DOC] E358-L 0.5 mg/L 8.57 mg/L 97.6 80.0 120 Total Metals (QCLot: 1090986) Altuminum, total 7429-90-5 E420 0.003 mg/L 2 mg/L 99.2 80.0 120 Arsenic, total 7440-38-2 E420 0.0001 mg/L 1 mg/L 102 80.0 120 Barium, total 7440-39-3 E420 0.0001 mg/L 1 mg/L 99.9 80.0 120 Barium, total 7440-39-3 E420 0.0001 mg/L 1 mg/L 102 80.0 120 Barium, total 7440-39-3 E420 0.0001 mg/L 0.25 mg/L 102 80.0 120 Barium, total 7440-39-3 E420 0.0001 mg/L 0.25 mg/L 102 80.0 120 Barium, total 7440-39-3 E420 0.0001 mg/L 0.25 mg/L 102 80.0 120 Barium, total 7440-41-7 E420 0.0001 mg/L 0.25 mg/L 102 80.0 120 Barium, total 7440-41-7 E420 0.0001 mg/L 0.25 mg/L 101 80.0 120										
Nitrite (as N) 14797-65-0 E235.NO2-L 0.001 mg/L 0.5 mg/L 96.9 90.0 110	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: 1091207) Sulfate (as SO4) 14808-79-8 E235.SO4 0.3 mg/L 100 mg/L 103 90.0 110 Anions and Nutrients (QCLot: 1094366) Ammonia, total (as N) 7664-41-7 E298 0.005 mg/L 0.2 mg/L 98.0 85.0 115 Organic / Inorganic Carbon (QCLot: 1094370) Carbon, dissolved organic [DOC] E358-L 0.5 mg/L 8.57 mg/L 97.6 80.0 120 Total Metals (QCLot: 1090986) Auminum, total 7429-90-5 E420 0.003 mg/L 2 mg/L 99.2 80.0 120 Antimony, total 7440-38-2 E420 0.0001 mg/L 1 mg/L 102 80.0 120 Arsenic, total 7440-38-3 E420 0.0001 mg/L 1 mg/L 99.9 80.0 120 Barjum, total 7440-39-3 E420 0.0001 mg/L 1 mg/L 99.9 80.0 120 Barjum, total 7440-41-7 E420 0.0001 mg/L 0.25 mg/L 102 80.0 120 Beryllium, total 7440-41-7 E420 0.0002 mg/L 0.1 mg/L 102 80.0 120 Beryllium, total 7440-41-7 E420 0.00002 mg/L 0.1 mg/L 102 80.0 120	Anions and Nutrients (QCLot: 1091206)									
Sulfate (as SO4) 14808-79-8 E235.SO4 0.3 mg/L 100 mg/L 103 90.0 110	Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	0.5 mg/L	96.9	90.0	110	
Anions and Nutrients (QCLot: 1094366) Ammonia, total (as N) 7664-41-7 E298 0.005 mg/L 0.2 mg/L 98.0 85.0 115 Organic / Inorganic Carbon (QCLot: 1094370) Carbon, dissolved organic [DOC] E358-L 0.5 mg/L 8.57 mg/L 97.6 80.0 120 Total Metals (QCLot: 1090986) Aluminum, total 7429-90-5 E420 0.003 mg/L 2 mg/L 99.2 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 99.9 80.0 120 Barium, total 7440-39-3 E420 0.0001 mg/L 1 mg/L 99.9 80.0 120 Barium, total 7440-39-5 E420 0.0001 mg/L 0.25 mg/L 102 80.0 120 Beryllium, total 7440-41-7 E420 0.0002 mg/L 0.1 mg/L 101 80.0 120										
Ammonia, total (as N) 7664-41-7 E298 0.005 mg/L 0.2 mg/L 98.0 85.0 115 Organic / Inorganic Carbon (QCLot: 1094370) Carbon, dissolved organic [DOC] E358-L 0.5 mg/L 8.57 mg/L 97.6 80.0 120 Total Metals (QCLot: 1090986) Aluminum, total 7429-90-5 E420 0.003 mg/L 2 mg/L 99.2 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 99.9 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 0.0001 mg/L 0.25 mg/L 102 80.0 120 Beryllium, total 7440-41-7 E420 0.0002 mg/L 0.1 mg/L 101 80.0 120 Beryllium, total 101 80.0 120	Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	103	90.0	110	
Organic / Inorganic Carbon (QCLot: 1094370) Carbon, dissolved organic [DOC] E358-L 0.5 mg/L 8.57 mg/L 97.6 80.0 120 Total Metals (QCLot: 1090986) Aluminum, total 7429-90-5 E420 0.003 mg/L 2 mg/L 99.2 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 99.9 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 101 80.0 120										
Carbon, dissolved organic [DOC] E358-L 0.5 mg/L 8.57 mg/L 97.6 80.0 120 Total Metals (QCLot: 1090986) Aluminum, total 7429-90-5 E420 0.003 mg/L 2 mg/L 99.2 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 99.9 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 0.0002 mg/L 0.1 mg/L 101 80.0 120	Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	98.0	85.0	115	
Carbon, dissolved organic [DOC] E358-L 0.5 mg/L 8.57 mg/L 97.6 80.0 120 Total Metals (QCLot: 1090986) Aluminum, total 7429-90-5 E420 0.003 mg/L 2 mg/L 99.2 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 99.9 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 0.0002 mg/L 0.1 mg/L 101 80.0 120										
Total Metals (QCLot: 1090986) Aluminum, total 7429-90-5 E420 0.003 mg/L 2 mg/L 99.2 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 99.9 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 101 80.0 120			5050.1	0.5	"			20.0	400	
Aluminum, total 7429-90-5 E420 0.003 mg/L 2 mg/L 99.2 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 99.9 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 101 80.0 120	Carbon, dissolved organic [DOC]		E358-L	0.5	mg/L	8.57 mg/L	97.6	80.0	120	
Aluminum, total 7429-90-5 E420 0.003 mg/L 2 mg/L 99.2 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 99.9 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 101 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 99.9 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 0.0002 mg/L 0.1 mg/L 101 80.0 120		7/20-90-5	E420	0.003	mg/l	2 mg/l	00.2	80.0	120	
Arsenic, total 7440-38-2 E420 0.0001 mg/L 1 mg/L 99.9 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 0.0002 mg/L 0.1 mg/L 101 80.0 120	, and the second second second second second second second second second second second second second second se					_				
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 101 80.0 120						_				
Beryllium, total 7440-41-7 E420 0.00002 mg/L 0.1 mg/L 101 80.0 120					_	, and the second				
					_	,				
DISMUTI, TOTAL 1 Mg/L 97,4 80.0 120	Bismuth, total	7440-69-9		0.00005	mg/L	1 mg/L	97.4	80.0	120	
Boron, total 7440-42-8 E420 0.01 mg/L 1 mg/L 102 80.0 120	, in the second				_	, and the second				
Cadmium, total 7440-43-9 E420 0.00005 mg/L 0.1 mg/L 95.5 80.0 120		7440-43-9	E420	0.000005	-	, and the second	_	80.0	120	
Calcium, total 7440-70-2 E420 0.05 mg/L 50 mg/L 102 80.0 120		7440-70-2	E420	0.05	_	_		80.0	120	

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Project 3-2



Sub-Matrix: Water						Laboratory Co.	ntrol Sample (LCS)	Report	
					Spike	Recovery (%)	Recovery	Limits (%)	
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Total Metals (QCLot: 1090986) - continu	ued								
Chromium, total	7440-47-3	E420	0.0005	mg/L	0.25 mg/L	97.6	80.0	120	
Cobalt, total	7440-48-4	E420	0.0001	mg/L	0.25 mg/L	94.8	80.0	120	
Copper, total	7440-50-8	E420	0.0005	mg/L	0.25 mg/L	92.8	80.0	120	
Iron, total	7439-89-6	E420	0.01	mg/L	1 mg/L	98.6	80.0	120	
Lead, total	7439-92-1	E420	0.00005	mg/L	0.5 mg/L	100.0	80.0	120	
Lithium, total	7439-93-2	E420	0.001	mg/L	0.25 mg/L	100	80.0	120	
Magnesium, total	7439-95-4	E420	0.005	mg/L	50 mg/L	97.4	80.0	120	
Manganese, total	7439-96-5	E420	0.0001	mg/L	0.25 mg/L	97.0	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	96.0	80.0	120	
Phosphorus, total	7723-14-0	E420	0.05	mg/L	10 mg/L	106	80.0	120	
Potassium, total	7440-09-7	E420	0.05	mg/L	50 mg/L	103	80.0	120	
Selenium, total	7782-49-2	E420	0.00005	mg/L	1 mg/L	100.0	80.0	120	
Silicon, total	7440-21-3	E420	0.1	mg/L	10 mg/L	108	80.0	120	
Silver, total	7440-22-4	E420	0.00001	mg/L	0.1 mg/L	94.6	80.0	120	
Sodium, total	7440-23-5	E420	0.05	mg/L	50 mg/L	98.5	80.0	120	
Strontium, total	7440-24-6	E420	0.0002	mg/L	0.25 mg/L	101	80.0	120	
Sulfur, total	7704-34-9	E420	0.5	mg/L	50 mg/L	97.1	80.0	120	
Thallium, total	7440-28-0	E420	0.00001	mg/L	1 mg/L	100	80.0	120	
Tin, total	7440-31-5	E420	0.0001	mg/L	0.5 mg/L	98.4	80.0	120	
Titanium, total	7440-32-6	E420	0.0003	mg/L	0.25 mg/L	96.2	80.0	120	
Uranium, total	7440-61-1	E420	0.00001	mg/L	0.005 mg/L	97.6	80.0	120	
Vanadium, total	7440-62-2	E420	0.0005	mg/L	0.5 mg/L	96.7	80.0	120	
Zinc, total	7440-66-6		0.003	mg/L	0.5 mg/L	92.0	80.0	120	
Zirconium, total	7440-67-7		0.0002	mg/L	0.1 mg/L	101	80.0	120	
		nem je da e							
Total Metals (QCLot: 1095545) Mercury, total	7439-97-6	E508	0.000005	mg/L	0.0001 mg/L	99.8	80.0	120	
···-·· / ,				3	0.0001g/2	00.0			
Dissolved Metals (QCLot: 1091114)				100					
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	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		0.0001	mg/L	0.25 mg/L	102	80.0	120	
Beryllium, dissolved	7440-41-7		0.00002	mg/L	0.1 mg/L	101	80.0	120	
Bismuth, dissolved	7440-69-9		0.00005	mg/L	1 mg/L	99.3	80.0	120	
Boron, dissolved	7440-42-8		0.01	mg/L	1 mg/L	103	80.0	120	

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Project 3-2



Sub-Matrix: Water						Laboratory Con	trol Sample (LCS)	Report	
					Spike	Recovery (%)	Recovery	Limits (%)	
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Dissolved Metals (QCLot: 1091114) - c	continued								
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	0.1 mg/L	96.8	80.0	120	
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	50 mg/L	104	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	99.5	80.0	120	
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	0.25 mg/L	93.3	80.0	120	
Iron, dissolved	7439-89-6	E421	0.01	mg/L	1 mg/L	106	80.0	120	
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	0.5 mg/L	101	80.0	120	
Lithium, dissolved	7439-93-2	E421	0.001	mg/L	0.25 mg/L	104	80.0	120	
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	50 mg/L	99.8	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	97.1	80.0	120	
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	0.5 mg/L	96.6	80.0	120	
Phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	10 mg/L	94.3	80.0	120	
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	50 mg/L	98.6	80.0	120	
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	1 mg/L	98.9	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	90.5	80.0	120	
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	50 mg/L	99.0	80.0	120	
Strontium, dissolved	7440-24-6	E421	0.0002	mg/L	0.25 mg/L	94.5	80.0	120	
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	50 mg/L	89.5	80.0	120	
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	1 mg/L	97.8	80.0	120	
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	0.5 mg/L	93.2	80.0	120	
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	0.25 mg/L	98.6	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	100	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	95.0	80.0	120	
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0.0001 mg/L	100	80.0	120	
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0.0001 mg/L	97.9	80.0	120	
1									

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Work Order: VA23B9075 Amendment 1
Client: Comox Valley Regional District

Project : 3-



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		
					Spi	ke	Recovery (%)	Recovery	Limits (%)	
Laboratory sample	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
	ents (QCLot: 1091202)									1
VA23B8982-002	Anonymous	Fluoride	16984-48-8	E235.F	52.9 mg/L	50 mg/L	106	75.0	125	
Anions and Nutri	ents (QCLot: 1091203)									1
VA23B8982-002	Anonymous	Chloride	16887-00-6	E235.CI	5160 mg/L	5000 mg/L	103	75.0	125	
Anions and Nutri	ents (QCLot: 1091205)									
VA23B8982-002	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	130 mg/L	125 mg/L	104	75.0	125	
Anions and Nutri	ents (QCLot: 1091206)									
VA23B8982-002	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	24.9 mg/L	25 mg/L	99.7	75.0	125	
Anions and Nutri	ents (QCLot: 1091207)									
VA23B8982-002	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	5140 mg/L	5000 mg/L	103	75.0	125	
Anions and Nutri	ents (QCLot: 1094366)									
VA23B8894-040	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0950 mg/L	0.1 mg/L	95.0	75.0	125	
Organic / Inorgar	nic Carbon (QCLot: 109	4370)								
VA23B9083-001	Anonymous	Carbon, dissolved organic [DOC]		E358-L	ND mg/L	5 mg/L	ND	70.0	130	
Total Metals (QC	Lot: 1090986)									1
VA23B8995-002	Anonymous	Aluminum, total	7429-90-5	E420	0.196 mg/L	0.2 mg/L	98.3	70.0	130	
		Antimony, total	7440-36-0	E420	0.0188 mg/L	0.02 mg/L	94.1	70.0	130	
		Arsenic, total	7440-38-2	E420	0.0188 mg/L	0.02 mg/L	94.2	70.0	130	
		Barium, total	7440-39-3	E420	0.0192 mg/L	0.02 mg/L	95.9	70.0	130	
		Beryllium, total	7440-41-7	E420	0.0396 mg/L	0.04 mg/L	98.9	70.0	130	
		Bismuth, total	7440-69-9	E420	0.00958 mg/L	0.01 mg/L	95.8	70.0	130	
		Boron, total	7440-42-8	E420	0.100 mg/L	0.1 mg/L	99.7	70.0	130	
		Cadmium, total	7440-43-9	E420	0.00381 mg/L	0.004 mg/L	95.2	70.0	130	
		Calcium, total	7440-70-2	E420	ND mg/L	4 mg/L	ND	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	0.0192 mg/L	0.02 mg/L	96.1	70.0	130	
		Copper, total	7440-50-8	E420	ND mg/L	0.02 mg/L	ND	70.0	130	
		Iron, total	7439-89-6	E420	1.91 mg/L	2 mg/L	95.4	70.0	130	
		Lead, total	7439-92-1	E420	0.0195 mg/L	0.02 mg/L	97.3	70.0	130	
	1	Lithium, total	7439-93-2	E420	0.0982 mg/L	0.1 mg/L	98.2	70.0	130	

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Project 3-2



Sub-Matrix: Water							Matrix Spil	ke (MS) Report		
					Spi	ike	Recovery (%)	Recovery	Limits (%)	
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Total Metals (QC	Lot: 1090986) - con	tinued								
VA23B8995-002	Anonymous	Magnesium, total	7439-95-4	E420	0.965 mg/L	1 mg/L	96.5	70.0	130	
		Manganese, total	7439-96-5	E420	0.0192 mg/L	0.02 mg/L	96.0	70.0	130	
		Molybdenum, total	7439-98-7	E420	0.0188 mg/L	0.02 mg/L	93.9	70.0	130	
		Nickel, total	7440-02-0	E420	0.0389 mg/L	0.04 mg/L	97.3	70.0	130	
		Phosphorus, total	7723-14-0	E420	9.46 mg/L	10 mg/L	94.6	70.0	130	
		Potassium, total	7440-09-7	E420	3.99 mg/L	4 mg/L	99.7	70.0	130	
		Selenium, total	7782-49-2	E420	0.0406 mg/L	0.04 mg/L	101	70.0	130	
		Silicon, total	7440-21-3	E420	9.57 mg/L	10 mg/L	95.7	70.0	130	
		Silver, total	7440-22-4	E420	0.00381 mg/L	0.004 mg/L	95.3	70.0	130	
		Sodium, total	7440-23-5	E420	1.87 mg/L	2 mg/L	93.5	70.0	130	
		Strontium, total	7440-24-6	E420	ND mg/L	0.02 mg/L	ND	70.0	130	
		Sulfur, total	7704-34-9	E420	19.7 mg/L	20 mg/L	98.7	70.0	130	
		Thallium, total	7440-28-0	E420	0.00391 mg/L	0.004 mg/L	97.9	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	0.0379 mg/L	0.04 mg/L	94.7	70.0	130	
		Uranium, total	7440-61-1	E420	0.00386 mg/L	0.004 mg/L	96.4	70.0	130	
		Vanadium, total	7440-62-2	E420	0.0952 mg/L	0.1 mg/L	95.2	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	0.0404 mg/L	0.04 mg/L	101	70.0	130	
otal Metals (QC	Lot: 1095545)									
VA23B9024-001	Anonymous	Mercury, total	7439-97-6	E508	0.0000974 mg/L	0.0001 mg/L	97.4	70.0	130	
Dissolved Metals	(QCLot: 1091114)									
VA23B9075-002	WG-081523-CS-18	Aluminum, dissolved	7429-90-5	E421	0.195 mg/L	0.2 mg/L	97.4	70.0	130	
		Antimony, dissolved	7440-36-0	E421	0.0190 mg/L	0.02 mg/L	95.2	70.0	130	
		Arsenic, dissolved	7440-38-2	E421	0.0191 mg/L	0.02 mg/L	95.6	70.0	130	
		Barium, dissolved	7440-39-3	E421	0.0205 mg/L	0.02 mg/L	103	70.0	130	
		Beryllium, dissolved	7440-41-7	E421	0.0388 mg/L	0.04 mg/L	97.0	70.0	130	
		Bismuth, dissolved	7440-69-9	E421	0.00959 mg/L	0.01 mg/L	95.9	70.0	130	
		Boron, dissolved	7440-42-8	E421	0.093 mg/L	0.1 mg/L	92.8	70.0	130	
		Cadmium, dissolved	7440-43-9	E421	0.00395 mg/L	0.004 mg/L	98.8	70.0	130	
		Calcium, dissolved	7440-70-2	E421	ND mg/L	4 mg/L	ND	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	0.0195 mg/L	0.02 mg/L	97.5	70.0	130	
		Copper, dissolved	7440-50-8	E421	0.0184 mg/L	0.02 mg/L	92.0	70.0	130	
	T .	Iron, dissolved	7439-89-6	E421	1.94 mg/L	2 mg/L	97.2	70.0	130	

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Project 3-2



Sub-Matrix: Water							Matrix Spil	re (MS) Report		
					Sp	ike	Recovery (%)	Recovery	Limits (%)	
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Dissolved Metals	(QCLot: 1091114)	- continued								
VA23B9075-002	WG-081523-CS-18	Lead, dissolved	7439-92-1	E421	0.0193 mg/L	0.02 mg/L	96.5	70.0	130	
		Lithium, dissolved	7439-93-2	E421	0.0968 mg/L	0.1 mg/L	96.8	70.0	130	
		Magnesium, dissolved	7439-95-4	E421	ND mg/L	1 mg/L	ND	70.0	130	
		Manganese, dissolved	7439-96-5	E421	0.0195 mg/L	0.02 mg/L	97.7	70.0	130	
		Molybdenum, dissolved	7439-98-7	E421	0.0193 mg/L	0.02 mg/L	96.3	70.0	130	
		Nickel, dissolved	7440-02-0	E421	0.0384 mg/L	0.04 mg/L	96.1	70.0	130	
		Phosphorus, dissolved	7723-14-0	E421	9.35 mg/L	10 mg/L	93.5	70.0	130	
		Potassium, dissolved	7440-09-7	E421	3.76 mg/L	4 mg/L	93.9	70.0	130	
		Selenium, dissolved	7782-49-2	E421	0.0385 mg/L	0.04 mg/L	96.2	70.0	130	
		Silicon, dissolved	7440-21-3	E421	9.44 mg/L	10 mg/L	94.4	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	2 mg/L	ND	70.0	130	
		Strontium, dissolved	7440-24-6	E421	ND mg/L	0.02 mg/L	ND	70.0	130	
		Sulfur, dissolved	7704-34-9	E421	18.9 mg/L	20 mg/L	94.3	70.0	130	
		Thallium, dissolved	7440-28-0	E421	0.00388 mg/L	0.004 mg/L	97.0	70.0	130	
		Tin, dissolved	7440-31-5	E421	0.0188 mg/L	0.02 mg/L	94.0	70.0	130	
		Titanium, dissolved	7440-32-6	E421	0.0385 mg/L	0.04 mg/L	96.2	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	0.0971 mg/L	0.1 mg/L	97.1	70.0	130	
		Zinc, dissolved	7440-66-6	E421	0.389 mg/L	0.4 mg/L	97.3	70.0	130	
		Zirconium, dissolved	7440-67-7	E421	0.0382 mg/L	0.04 mg/L	95.6	70.0	130	
issolved Metals	(QCLot: 1095947)									
VA23B9024-006	Anonymous	Mercury, dissolved	7439-97-6	E509	0.000104 mg/L	0.0001 mg/L	104	70.0	130	
Dissolved Metals	(QCLot: 1095948)									
VA23B9084-001	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000983 mg/L	0.0001 mg/L	98.3	70.0	130	



QUALITY CONTROL INTERPRETIVE REPORT

Work Order : **VA23B9075** Page : 1 of 13

Amendment :1

Client : Comox Valley Regional District Laboratory : ALS Environmental - Vancouver

Contact : Crystal Stuart Account Manager : Thomas Chang

: 770 Harmston Avenue Address : 8081 Lougheed Highway

Burnaby, British Columbia Canada V5A 1W9

 Telephone
 : 250-898-3722
 Telephone
 : +1 604 253 4188

 Project
 : 3-2
 Date Samples Received
 : 17-Aug-2023 10:10

 PO
 : 23-015
 Issue Date
 : 24-Aug-2023 10:25

C-O-C number :---Sampler : C.Stuart

Site : CRWMC-Quaterly-SW+GW

Quote number ; VA23-COVR100-001

No. of samples received :4
No. of samples analysed :4

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

Address

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.

Courtney BC Canada V9N 0G8

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)

• No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

• No Quality Control Sample Frequency Outliers occur.

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Work Order · VA23B9075 Amendment 1 Client Comox Valley Regional District

Project

Matrix: Water

WG-081523-CS-17



Evaluation: **x** = Holding time exceedance; ✓ = Within Holding Time

18-Aug-2023

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.

E235.CI

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.

Analyte Group	Method	Sampling Date	Ext	traction / Pi	reparation			Analys	is	
Container / Client Sample ID(s)			Preparation Date	Holdin Rec	g Times Actual	Eval	Analysis Date	Holding Rec	Times Actual	Eval
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) WG-081523-CS-17	E298	15-Aug-2023	20-Aug-2023	28 days	5 days	✓	21-Aug-2023	28 days	6 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) WG-081523-CS-18	E298	15-Aug-2023	20-Aug-2023	28 days	5 days	✓	21-Aug-2023	28 days	6 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) WG-081523-CS-19	E298	15-Aug-2023	20-Aug-2023	28 days	5 days	✓	21-Aug-2023	28 days	6 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) WS-081523-CS-01	E298	15-Aug-2023	20-Aug-2023	28 days	5 days	✓	21-Aug-2023	28 days	6 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE WG-081523-CS-19	E235.CI	15-Aug-2023	18-Aug-2023	28 days	2 days	✓	18-Aug-2023	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE WS-081523-CS-01	E235.CI	15-Aug-2023	18-Aug-2023	28 days	2 days	✓	18-Aug-2023	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE										

15-Aug-2023

18-Aug-2023

3 days

28 days 28 days 3 days

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Project



Method	Sampling Date	Ext		Analysis					
		Preparation	Holding	g Times	Eval	Analysis Date	Holding	g Times	Eval
		Date	Rec	Actual			Rec	Actual	
E235.CI	15-Aug-2023	18-Aug-2023	28	3 days	✓	18-Aug-2023	28 days	3 days	✓
			days						
E235.F	15-Aug-2023	18-Aug-2023	28	2 days	✓	18-Aug-2023	28 days	3 days	✓
			days						
E235.F	15-Aug-2023	18-Aug-2023	28	2 days	✓	18-Aug-2023	28 days	3 days	✓
			days						
E235.F	15-Aug-2023	18-Aug-2023	28	3 days	✓	18-Aug-2023	28 days	3 days	✓
			days						
T									
E235.F	15-Aug-2023	18-Aug-2023	28	3 days	✓	18-Aug-2023	28 days	3 days	✓
			days						
T									
E235.NO3-L	15-Aug-2023	18-Aug-2023	3 days	2 days	✓	18-Aug-2023	3 days	3 days	✓
	_	· ·		,				,	
1									
E235.NO3-L	15-Aug-2023	18-Aug-2023	3 davs	2 davs	✓	18-Aug-2023	3 davs	3 davs	✓
			, -	, -			, -	J, -	
						I			
E235.NO3-I	15-Aug-2023	18-Aug-2023	3 days	3 davs	√	18-Aug-2023	3 days	3 days	√
	107.65 2020	. 3 / 2020	3 44,0	,5	·	107.009 2020	3 44,0	3 44,3	•
F235 NO3-I	15-Aug-2023	18-Aug-2023	3 days	3 days	1	18-Aug-2023	3 days	3 days	✓
LZUU.INUU-L	10-7 tag-2020	10-Aug-2023	o uays	o uayo		10-Aug-2023	o uays	Juays	•
	E235.F E235.F E235.F E235.F	E235.CI 15-Aug-2023 E235.F 15-Aug-2023 E235.F 15-Aug-2023 E235.F 15-Aug-2023 E235.NO3-L 15-Aug-2023 E235.NO3-L 15-Aug-2023	E235.Cl 15-Aug-2023 18-Aug-2023 E235.F 15-Aug-2023 18-Aug-2023 E235.F 15-Aug-2023 18-Aug-2023 E235.F 15-Aug-2023 18-Aug-2023 E235.NO3-L 15-Aug-2023 18-Aug-2023 E235.NO3-L 15-Aug-2023 18-Aug-2023	Preparation Date Holding Rec E235.Cl 15-Aug-2023 18-Aug-2023 28 days E235.F 15-Aug-2023 18-Aug-2023 28 days E235.F 15-Aug-2023 18-Aug-2023 28 days E235.F 15-Aug-2023 18-Aug-2023 28 days E235.F 15-Aug-2023 18-Aug-2023 3 days E235.NO3-L 15-Aug-2023 18-Aug-2023 3 days E235.NO3-L 15-Aug-2023 18-Aug-2023 3 days E235.NO3-L 15-Aug-2023 18-Aug-2023 3 days	Preparation Date Holding Times Rec Actual	Preparation Date Holding Times Rec Eval E235.Cl 15-Aug-2023 18-Aug-2023 28 days 3 days ✓ E235.F 15-Aug-2023 18-Aug-2023 28 days 2 days ✓ E235.F 15-Aug-2023 18-Aug-2023 28 days 3 days ✓ E235.F 15-Aug-2023 18-Aug-2023 28 days 3 days ✓ E235.F 15-Aug-2023 18-Aug-2023 28 days 3 days ✓ E235.NO3-L 15-Aug-2023 18-Aug-2023 3 days 2 days ✓ E235.NO3-L 15-Aug-2023 18-Aug-2023 3 days 2 days ✓ E235.NO3-L 15-Aug-2023 18-Aug-2023 3 days 2 days ✓	Preparation Date Holding Times Rec Eval Analysis Date E235.CI 15-Aug-2023 18-Aug-2023 28 days 3 days ✓ 18-Aug-2023 E235.F 15-Aug-2023 18-Aug-2023 28 days 2 days ✓ 18-Aug-2023 E235.F 15-Aug-2023 18-Aug-2023 28 days 3 days ✓ 18-Aug-2023 E235.F 15-Aug-2023 18-Aug-2023 28 days 3 days ✓ 18-Aug-2023 E235.F 15-Aug-2023 18-Aug-2023 28 days 3 days ✓ 18-Aug-2023 E235.NO3-L 15-Aug-2023 18-Aug-2023 3 days 2 days ✓ 18-Aug-2023 E235.NO3-L 15-Aug-2023 18-Aug-2023 3 days 2 days ✓ 18-Aug-2023 E235.NO3-L 15-Aug-2023 18-Aug-2023 3 days 2 days ✓ 18-Aug-2023	Preparation Date Holding Times Rec Eval Analysis Date Holding Rec E235.CI 15-Aug-2023 18-Aug-2023 28 days 3 days ✓ 18-Aug-2023 28 days E235.F 15-Aug-2023 18-Aug-2023 28 days ✓ 18-Aug-2023 28 days E235.F 15-Aug-2023 18-Aug-2023 28 days ✓ 18-Aug-2023 28 days E235.F 15-Aug-2023 18-Aug-2023 28 days ✓ 18-Aug-2023 28 days E235.F 15-Aug-2023 18-Aug-2023 28 days ✓ 18-Aug-2023 28 days E235.NO3-L 15-Aug-2023 18-Aug-2023 3 days ✓ 18-Aug-2023 3 days E235.NO3-L 15-Aug-2023 18-Aug-2023 3 days ✓ 18-Aug-2023 3 days E235.NO3-L 15-Aug-2023 18-Aug-2023 3 days ✓ 18-Aug-2023 3 days	Preparation Date Holding Times Rec Eval Analysis Date Holding Times Rec Actual E235.CI 15-Aug-2023 18-Aug-2023 28 days 3 days ✓ 18-Aug-2023 28 days 3 days E235.F 15-Aug-2023 18-Aug-2023 28 days 2 days ✓ 18-Aug-2023 28 days 3 days E235.F 15-Aug-2023 18-Aug-2023 28 days 2 days ✓ 18-Aug-2023 28 days 3 days E235.F 15-Aug-2023 18-Aug-2023 28 days 3 days ✓ 18-Aug-2023 28 days 3 days E235.F 15-Aug-2023 18-Aug-2023 28 days 3 days ✓ 18-Aug-2023 28 days 3 days E235.NO3-L 15-Aug-2023 18-Aug-2023 3 days 2 days ✓ 18-Aug-2023 3 days 3 days E235.NO3-L 15-Aug-2023 18-Aug-2023 3 days 2 days ✓ 18-Aug-2023 3 days 3 days E235.NO3-L 15-Aug-2023 18-Aug-2023 3

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Project



nalyte Group	Method	Sampling Date	Ex	traction / Pr	reparation		Analysis			
Container / Client Sample ID(s)		J sampaning z and	Preparation Holding Times			Eval	Analysis Date	Holding Times		Eval
,			Date	Rec	Actual		/ "a.yo.o Dato	Rec	Actual	
nions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE WG-081523-CS-19	E235.NO2-L	15-Aug-2023	18-Aug-2023	3 days	2 days	✓	18-Aug-2023	3 days	3 days	✓
nions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE WS-081523-CS-01	E235.NO2-L	15-Aug-2023	18-Aug-2023	3 days	2 days	4	18-Aug-2023	3 days	3 days	✓
nions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE WG-081523-CS-17	E235.NO2-L	15-Aug-2023	18-Aug-2023	3 days	3 days	✓	18-Aug-2023	3 days	3 days	✓
nions and Nutrients : Nitrite in Water by IC (Low Level)										
MG-081523-CS-18	E235.NO2-L	15-Aug-2023	18-Aug-2023	3 days	3 days	✓	18-Aug-2023	3 days	3 days	✓
nions and Nutrients : Sulfate in Water by IC										
HDPE WG-081523-CS-19	E235.SO4	15-Aug-2023	18-Aug-2023	28 days	2 days	✓	18-Aug-2023	28 days	3 days	✓
nions and Nutrients : Sulfate in Water by IC										
HDPE WS-081523-CS-01	E235.SO4	15-Aug-2023	18-Aug-2023	28 days	2 days	✓	18-Aug-2023	28 days	3 days	✓
nions and Nutrients : Sulfate in Water by IC										
HDPE WG-081523-CS-17	E235.SO4	15-Aug-2023	18-Aug-2023	28 days	3 days	✓	18-Aug-2023	28 days	3 days	✓
nions and Nutrients : Sulfate in Water by IC										
HDPE WG-081523-CS-18	E235.SO4	15-Aug-2023	18-Aug-2023	28 days	3 days	√	18-Aug-2023	28 days	3 days	✓
ssolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved) WG-081523-CS-17	E509	15-Aug-2023	21-Aug-2023	28 days	6 days	✓	21-Aug-2023	28 days	6 days	✓

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Work Order : VA23B9075 Amendment 1
Client : Comox Valley Regional District

Project : 3-2



Matrix: **Water**Evaluation: **x** = Holding time exceedance; ✓ = Within Holding Time

Matrix: Water						raiuation. * =	nolding time exce	cuarice , •	- *************************************	Holding Hill	
Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis				
Container / Client Sample ID(s)			Preparation Holdin		g Times	Eval	Analysis Date	Holding Times		Eval	
			Date	Rec	Actual			Rec	Actual		
Dissolved Metals : Dissolved Mercury in Water by CVAAS											
Glass vial - dissolved (lab preserved)											
WG-081523-CS-18	E509	15-Aug-2023	21-Aug-2023	28	6 days	✓	21-Aug-2023	28 days	6 days	✓	
				days							
Dissolved Metals : Dissolved Mercury in Water by CVAAS											
Glass vial - dissolved (lab preserved)	T										
WG-081523-CS-19	E509	15-Aug-2023	21-Aug-2023	28	6 days	✓	21-Aug-2023	28 days	6 days	✓	
				days				-	-		
Dissolved Metals : Dissolved Mercury in Water by CVAAS				,							
Glass vial - dissolved (lab preserved)							<u> </u>				
WS-081523-CS-01	E509	15-Aug-2023	21-Aug-2023	28	6 days	✓	21-Aug-2023	28 days	6 days	✓	
		ŭ	Ü	days			Ŭ	,	,		
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS				aayo							
HDPE - dissolved (lab preserved)					<u> </u>		<u> </u>				
WG-081523-CS-17	E421	15-Aug-2023	20-Aug-2023	180	5 days	✓	22-Aug-2023	180	7 days	✓	
WG-081323-C3-17	L421	15-Aug-2025	20-Aug-2023		Juays	Ť	22-Aug-2023		1 uays	•	
				days				days			
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS											
HDPE - dissolved (lab preserved)	E404	45 A 2022	20 4 2022			,	00 4 0000		7 -1	✓	
WG-081523-CS-18	E421	15-Aug-2023	20-Aug-2023	180	5 days	✓	22-Aug-2023	180	7 days	▼	
				days				days			
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS											
HDPE - dissolved (lab preserved)											
WG-081523-CS-19	E421	15-Aug-2023	20-Aug-2023	180	5 days	✓	22-Aug-2023	180	7 days	✓	
				days				days			
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS											
HDPE - dissolved (lab preserved)											
WS-081523-CS-01	E421	15-Aug-2023	20-Aug-2023	180	5 days	✓	22-Aug-2023	180	7 days	✓	
				days				days			
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Leve	el)										
Amber glass dissolved (sulfuric acid)											
WS-081523-CS-01	E358-L	15-Aug-2023	20-Aug-2023	28	5 days	✓	21-Aug-2023	28 days	6 days	✓	
			_	days	-		_		_		
Physical Tests : Alkalinity Species by Titration											
HDPE											
WG-081523-CS-19	E290	15-Aug-2023	18-Aug-2023	14	2 days	✓	18-Aug-2023	14 days	3 davs	✓	
33.320 00 10		2020	.07.09 2020	days					2 22,0		
				uays							

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Physical Tests: TDS by Gravimetry

WG-081523-CS-17

HDPE

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Matrix: Water Evaluation: **x** = Holding time exceedance ; ✓ = Within Holding Time Extraction / Preparation Analysis Analyte Group Method Sampling Date Container / Client Sample ID(s) Preparation **Holding Times** Eval Analysis Date **Holding Times** Eval Rec Actual Rec Actual Date Physical Tests: Alkalinity Species by Titration HDPE E290 15-Aug-2023 1 18-Aug-2023 1 18-Aug-2023 2 days 14 days 3 days WS-081523-CS-01 14 days **Physical Tests: Alkalinity Species by Titration HDPE** WG-081523-CS-17 E290 15-Aug-2023 18-Aug-2023 3 days 1 18-Aug-2023 14 days 3 days 1 14 days Physical Tests : Alkalinity Species by Titration HDPE E290 15-Aug-2023 18-Aug-2023 3 days 1 18-Aug-2023 14 days 3 days 1 WG-081523-CS-18 14 days Physical Tests : Conductivity in Water HDPE 1 WG-081523-CS-19 E100 15-Aug-2023 18-Aug-2023 28 2 days 18-Aug-2023 28 days 3 days 1 days Physical Tests : Conductivity in Water **HDPE** E100 15-Aug-2023 18-Aug-2023 1 18-Aug-2023 28 days 3 days 1 WS-081523-CS-01 2 days 28 days **Physical Tests: Conductivity in Water** HDPE E100 1 1 WG-081523-CS-17 15-Aug-2023 18-Aug-2023 28 3 days 18-Aug-2023 28 days 3 days days Physical Tests : Conductivity in Water HDPE WG-081523-CS-18 E100 15-Aug-2023 18-Aug-2023 3 days 18-Aug-2023 28 days 1 3 days 28 days Physical Tests : TDS by Gravimetry HDPE ✓ WG-081523-CS-19 E162 15-Aug-2023 22-Aug-2023 7 days 6 days

15-Aug-2023

E162

7 days

1

22-Aug-2023

7 days

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Matrix: Water Evaluation: ★ = Holding time exceedance; ✓ = Within Holding Time

Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis				
Container / Client Sample ID(s)			Preparation	Holdin	g Times	Eval	Analysis Date	Holding	Times	Eval	
			Date	Rec	Actual			Rec	Actual		
Physical Tests : TDS by Gravimetry											
HDPE WG-081523-CS-18	E162	15-Aug-2023					22-Aug-2023	7 days	7 days	✓	
Physical Tests : TDS by Gravimetry											
HDPE WS-081523-CS-01	E162	15-Aug-2023					22-Aug-2023	7 days	7 days	✓	
Total Metals : Total Mercury in Water by CVAAS											
Glass vial - total (lab preserved) WS-081523-CS-01	E508	15-Aug-2023	21-Aug-2023	28 days	6 days	✓	21-Aug-2023	28 days	6 days	✓	
Total Metals : Total Metals in Water by CRC ICPMS											
HDPE - total (lab preserved) WS-081523-CS-01	E420	15-Aug-2023	18-Aug-2023	180 days	3 days	✓	19-Aug-2023	180 days	4 days	✓	

Legend & Qualifier Definitions

Rec. HT: ALS recommended hold time (see units).

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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.

Quality Control Sample Type		·	_	ount		hin specification	
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Frequency (%) Expected	Evaluation
Laboratory Duplicates (DUP)						-	
Alkalinity Species by Titration	E290	1091199	1	20	5.0	5.0	✓
Ammonia by Fluorescence	E298	1094366	1	20	5.0	5.0	1
Chloride in Water by IC	E235.CI	1091203	1	15	6.6	5.0	1
Conductivity in Water	E100	1091200	1	20	5.0	5.0	√
Dissolved Mercury in Water by CVAAS	E509	1095947	2	40	5.0	5.0	1
Dissolved Metals in Water by CRC ICPMS	E421	1091114	1	19	5.2	5.0	1
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1094370	1	15	6.6	5.0	1
Fluoride in Water by IC	E235.F	1091202	1	8	12.5	5.0	1
Nitrate in Water by IC (Low Level)	E235.NO3-L	1091205	1	19	5.2	5.0	1
Nitrite in Water by IC (Low Level)	E235.NO2-L	1091206	1	15	6.6	5.0	1
Sulfate in Water by IC	E235.SO4	1091207	1	15	6.6	5.0	1
TDS by Gravimetry	E162	1096479	1	19	5.2	5.0	✓
Total Mercury in Water by CVAAS	E508	1095545	1	20	5.0	5.0	1
Total Metals in Water by CRC ICPMS	E420	1090986	1	20	5.0	5.0	✓
Laboratory Control Samples (LCS)							
Alkalinity Species by Titration	E290	1091199	1	20	5.0	5.0	1
Ammonia by Fluorescence	E298	1094366	1	20	5.0	5.0	✓
Chloride in Water by IC	E235.Cl	1091203	1	15	6.6	5.0	1
Conductivity in Water	E100	1091200	1	20	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1095947	2	40	5.0	5.0	1
Dissolved Metals in Water by CRC ICPMS	E421	1091114	1	19	5.2	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1094370	1	15	6.6	5.0	✓
Fluoride in Water by IC	E235.F	1091202	1	8	12.5	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1091205	1	19	5.2	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1091206	1	15	6.6	5.0	1
Sulfate in Water by IC	E235.SO4	1091207	1	15	6.6	5.0	✓
TDS by Gravimetry	E162	1096479	1	19	5.2	5.0	✓
Total Mercury in Water by CVAAS	E508	1095545	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1090986	1	20	5.0	5.0	✓
Method Blanks (MB)							
Alkalinity Species by Titration	E290	1091199	1	20	5.0	5.0	1
Ammonia by Fluorescence	E298	1094366	1	20	5.0	5.0	√
Chloride in Water by IC	E235.CI	1091203	1	15	6.6	5.0	1
Conductivity in Water	E100	1091200	1	20	5.0	5.0	√
Dissolved Mercury in Water by CVAAS	E509	1095947	2	40	5.0	5.0	1

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ix: Water Evaluation: × = QC frequency outside specification; ✓ = QC frequency within sp									
Quality Control Sample Type			Co	ount	Frequency (%)				
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation		
Method Blanks (MB) - Continued									
Dissolved Metals in Water by CRC ICPMS	E421	1091114	1	19	5.2	5.0	✓		
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1094370	1	15	6.6	5.0	✓		
Fluoride in Water by IC	E235.F	1091202	1	8	12.5	5.0	✓		
Nitrate in Water by IC (Low Level)	E235.NO3-L	1091205	1	19	5.2	5.0	✓		
Nitrite in Water by IC (Low Level)	E235.NO2-L	1091206	1	15	6.6	5.0	✓		
Sulfate in Water by IC	E235.SO4	1091207	1	15	6.6	5.0	✓		
TDS by Gravimetry	E162	1096479	1	19	5.2	5.0	✓		
Total Mercury in Water by CVAAS	E508	1095545	1	20	5.0	5.0	✓		
Total Metals in Water by CRC ICPMS	E420	1090986	1	20	5.0	5.0	✓		
Matrix Spikes (MS)									
Ammonia by Fluorescence	E298	1094366	1	20	5.0	5.0	✓		
Chloride in Water by IC	E235.CI	1091203	1	15	6.6	5.0	✓		
Dissolved Mercury in Water by CVAAS	E509	1095947	2	40	5.0	5.0	✓		
Dissolved Metals in Water by CRC ICPMS	E421	1091114	1	19	5.2	5.0	✓		
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1094370	1	15	6.6	5.0	✓		
Fluoride in Water by IC	E235.F	1091202	1	8	12.5	5.0	✓		
Nitrate in Water by IC (Low Level)	E235.NO3-L	1091205	1	19	5.2	5.0	✓		
Nitrite in Water by IC (Low Level)	E235.NO2-L	1091206	1	15	6.6	5.0	✓		
Sulfate in Water by IC	E235.SO4	1091207	1	15	6.6	5.0	✓		
Total Mercury in Water by CVAAS	E508	1095545	1	20	5.0	5.0	✓		
Total Metals in Water by CRC ICPMS	E420	1090986	1	20	5.0	5.0	√		

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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	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
	ALS Environmental -			sample. Conductivity measurements are temperature-compensated to 25°C.
	Vancouver			
TDS by Gravimetry	E162	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,
	ALS Environmental -			with gravimetric measurement of the residue.
	Vancouver			
Chloride in Water by IC	E235.CI	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and /or UV detection.
	ALS Environmental -			
	Vancouver			
Fluoride in Water by IC	E235.F	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and /or UV detection.
	ALS Environmental -			
	Vancouver			
Nitrite in Water by IC (Low Level)	E235.NO2-L	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and /or UV detection.
	ALS Environmental -			
	Vancouver			
Nitrate in Water by IC (Low Level)	E235.NO3-L	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and /or UV detection.
	ALS Environmental -			
	Vancouver			
Sulfate in Water by IC	E235.SO4	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and /or UV detection.
	ALS Environmental -			
	Vancouver			
Alkalinity Species by Titration	E290	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
	ALS Environmental -			alkalinity values.
	Vancouver			
Ammonia by Fluorescence	E298	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).
	ALS Environmental -			This method is approved under US EPA 40 CFR Part 136 (May 2021)
	Vancouver			. , , ,

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Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
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).
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.
Nitrate and Nitrite (as N) (Calculation)	EC235.N+N ALS Environmental - Vancouver	Water	EPA 300.0	Nitrate and Nitrite (as N) is a calculated parameter. Nitrate and Nitrite (as N) = Nitrite (as N) + Nitrate (as N).
Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Ammonia	EP298	Water		Sample preparation for Preserved Nutrients Water Quality Analysis.

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Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
	ALS Environmental -			
	Vancouver			
Preparation for Dissolved Organic Carbon for	EP358	Water	APHA 5310 B (mod)	Preparation for Dissolved Organic Carbon
Combustion				
	ALS Environmental -			
	Vancouver			
Dissolved Metals Water Filtration	EP421	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HNO3.
	ALS Environmental -			
	Vancouver			
Dissolved Mercury Water Filtration	EP509	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HCl.
	ALS Environmental -			
	Vancouver			

ALS

Chain of Custody (COC) / Analytical Request Form

Affix ALS barcode label here

1	COC Number.	17 -	
		١.	

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www.alsglobal.com Contact and company name below will appear on the final report Report Format / Distribution Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply) Report To Regular (R) Standard TAT if required by 3 pm - business days - no surcharges apply Comox Valley Regional District Select Report Format: 7 PDF 7 PKS 7 EDD (DIGITAL) Company: Crystal Stuart Quality Control (QC) Report with Report 🛮 🖸 YES 🔲 NO Contact: 4 day IP4-20%1 1 Business day [E1 - 100%] 250-898-3722 Compare Results to Criteria on Report - provide details below if box checked 3 day (P3-25%) | | Phone: Same Day, Weekend or Statutory holiday [E2 -200% (Laboratory opening fees may apply) Company address below will appear on the final report Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX 2 day [P2-60%] 770 Harmeton Avenue . Date and Time Received for all ESP TATE: dd-mmm-yy hinmm Fmail.1 or Fay | cstuart@comexvallevrd.ca City/Province: Courtenay, BC Email 2 or tests that can not be performed according to the service level selected, you will be contacted. Postal Code: V9N OG8 Analysis Request €mali 3 17 YES □ NO Invoice Distribution Indicate Filtered (F). Preserved (P) or Filtered and Preserved (F/P) below nvoice To Same as Report To ☑ YES ☐ NO Select Invoice Distribution: 🔽 EMAIL 🔲 MAIL 📝 FAX Copy of Invoice with Report Company: Email 1 or Fax (including Hg, Hardness) **Environmental Division** Contact: Email 2 Protect Information Oil and Gas Required Fields (client use) 10年9月 NO3) N+N Vancouver Work Order Reference ALS Account # / Quote # VA23-COVR100-001 AFE/Cost Center: Routing Code: Majorfillinor Code ğ PO / AFE: 23-015 Requisitioner: CRWMC - Quarterly - SW SD: Location \$Q ALS Lab Work Order # (lab use only): ALS Contact: Selam W. Samplera õ Sample Identification and/or Coordinates ALS Sample # Date Time Semple Type (lab use only) (This description will appear on the report) (dd-mmm-yv) (bb:mm) wate Telephone: +1 604 253 4188 IN 40 12:49 -0. N. SANS SAMPLE CONDITION AS RECEIVED (lab use only) Special instructions / Specify Criteria to add on report by clicking on the drop-down list below Drinking Water (DW) Samples¹ (client use) (electronic COC only) SIF Observations STYes Are samples taken from a Regulated DW System? ice Packs Lice Cubes Custody seal intact ☐ YES ☐ NO FINAL COOLER, TEMPERATURES C Are samples for human consumption/ use? YES 🔲 NO WITIAL SHIPMENT RECEPTION (lab use only) SHIPMENT RELEASE (client use) FINAL SHIPMENT RECEPTION (lab use only) Time: 10 10 as WHITE - LABORATORY COPY

ALS Canada Ltd.

Contact

Address



CERTIFICATE OF ANALYSIS

Work Order : **VA23B9297** Page : 1 of 8

Client : Comox Valley Regional District Laboratory : ALS Environmental - Vancouver

: Crystal Stuart Account Manager : Thomas Chang

: 770 Harmston Avenue Address : 8081 Lougheed Highway

Courtney BC Canada V9N 0G8 Burnaby BC Canada V5A 1W9

Telephone : 250-898-3722 Telephone : +1 604 253 4188

 Project
 : 3-2
 Date Samples Received
 : 18-Aug-2023 11:45

 PO
 : 23-015
 Date Analysis Commenced
 : 19-Aug-2023

 C-O-C number
 : -- Issue Date
 : 25-Aug-2023 09:41

Sampler : Crystal Stuart

Site : CRWMC-Quarterly-GW
Quote number : VA23-COVR100-001

No. of samples received : 6
No. of samples analysed : 6

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
- Surrogate Control Limits

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
Janice Leung	Supervisor - Organics Instrumentation	Organics, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia
Kim Jensen	Department Manager - Metals	Inorganics, Burnaby, British Columbia
Ophelia Chiu	Department Manager - Organics	Organics, Burnaby, British Columbia
Tony Nguyen	Analyst	Metals, Burnaby, British Columbia

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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
μg/L	micrograms per litre
μS/cm	microsiemens per centimetre
mg/L	milligrams per litre

<: 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

VA23B9297-005,-006 Low level DCM result; LOR raised to lowest BC CSR standard.

Qualifiers

Qualifier	Description
DLCI	Detection Limit Raised: Chromatographic interference due to co-elution.
RRR	Refer to report comments for issues regarding this analysis.

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Sub-Matrix: Water			Cli	ient sample ID	WG-081623-C5-	WG-081623-C5-	WG-081623-C5-	WG-081623-C5-	WG-081623-C5-
(Matrix: Water)					20	21	22	23	24
			Client samp	ling date / time	16-Aug-2023 08:50	16-Aug-2023 08:55	16-Aug-2023 09:49	16-Aug-2023 11:40	16-Aug-2023 12:12
Analyte	CAS Number	Method/Lab	LOR	Unit	VA23B9297-001	VA23B9297-002	VA23B9297-003	VA23B9297-004	VA23B9297-005
					Result	Result	Result	Result	Result
Physical Tests		E000#/#	4.0		40.0	40.0	00.4	005	50.4
Alkalinity, bicarbonate (as CaCO3)		E290/VA	1.0	mg/L	43.8	43.8	63.4	205	53.1
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, total (as CaCO3)		E290/VA	1.0	mg/L	43.8	43.8	63.4	205	53.1
Conductivity		E100/VA	2.0	μS/cm	85.6	84.9	134	464	103
Hardness (as CaCO3), dissolved		EC100/VA	0.60	mg/L	43.8	42.9	65.6	179	54.6
Solids, total dissolved [TDS]		E162/VA	10	mg/L	69	59	102	273	72
Anions and Nutrients									
Ammonia, total (as N)	7664-41-7		0.0050	mg/L	<0.0050	<0.0050	<0.0050	5.76	<0.0050
Chloride	16887-00-6		0.50	mg/L	0.84	0.83	4.33	35.1	0.75
Fluoride	16984-48-8	E235.F/VA	0.020	mg/L	<0.020	<0.020	<0.020	<0.040 DLCI	<0.020
Nitrate (as N)	14797-55-8	E235.NO3-L/V	0.0050	mg/L	0.0673	0.0666	0.221	<0.0050	0.0592
Nitrate + Nitrite (as N)		A EC235.N+N/V	0.0050	mg/L	0.0673	0.0666	0.221	<0.0051	0.0592
Nitrite (as N)	14797-65-0	A E235.NO2-L/V	0.0010	mg/L	<0.0010	<0.0010	<0.0010	0.0035	<0.0010
Sulfate (as SO4)	14808-79-8	E235.SO4/VA	0.30	mg/L	2.00	2.00	3.27	1.84	1.97
Dissolved Metals									
Aluminum, dissolved	7429-90-5		0.0010	mg/L	0.0053	0.0048	0.0177	0.0038	0.0106
Antimony, dissolved	7440-36-0		0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic, dissolved	7440-38-2		0.00010	mg/L	0.00028	0.00027	0.00031	0.00148	0.00058
Barium, dissolved	7440-39-3	E421/VA	0.00010	mg/L	0.00046	0.00049	0.00307	0.0127	0.00139
Beryllium, dissolved	7440-41-7	E421/VA	0.000020	mg/L	<0.000020	<0.000020	<0.000020	<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	<0.010	<0.010	0.187	<0.010
Cadmium, dissolved	7440-43-9	E421/VA	0.0000050	mg/L	0.0000063	0.0000072	<0.0000050	0.0000405	<0.0000050
Calcium, dissolved	7440-70-2	E421/VA	0.050	mg/L	14.7	14.4	17.8	60.7	18.9
Chromium, dissolved	7440-47-3		0.00050	mg/L	<0.00050	<0.00050	0.00675	<0.00050	<0.00050
Cobalt, dissolved	7440-48-4	E421/VA	0.00010	mg/L	<0.00010	<0.00010	<0.00010	0.00017	<0.00010

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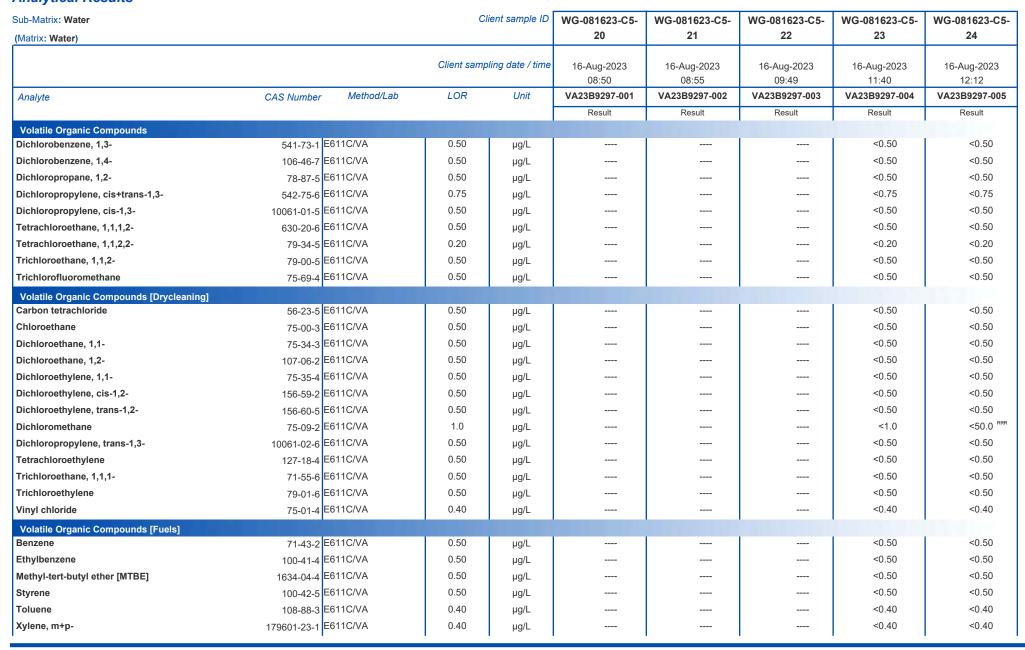
ALS

Sub-Matrix: Water		CI	ient sample ID	WG-081623-C5-	WG-081623-C5-	WG-081623-C5-	WG-081623-C5-	WG-081623-C5-
(Matrix: Water)				20	21	22	23	24
Analyte	CAS Number Method/Lab	Client samp	ling date / time Unit	16-Aug-2023 08:50 VA23B9297-001	16-Aug-2023 08:55 VA23B9297-002	16-Aug-2023 09:49 VA23B9297-00 3	16-Aug-2023 11:40 VA23B9297-004	16-Aug-2023 12:12 VA23B9297-005
Analyte	CAS Number Wellow Lab	LON	Onne	Result	Result	Result	Result	Result
Dissolved Metals					The state of the s		T TOO SEE	- Toodaic
Copper, dissolved	7440-50-8 E421/VA	0.00020	mg/L	0.00188	0.00183	<0.00020	0.00022	<0.00020
Iron, dissolved	7439-89-6 E421/VA	0.010	mg/L	0.012	0.011	<0.010	0.278	<0.010
Lead, dissolved	7439-92-1 E421/VA	0.000050	mg/L	0.000121	0.000115	<0.000050	<0.000050	<0.000050
Lithium, dissolved	7439-93-2 E421/VA	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Magnesium, dissolved	7439-95-4 E421/VA	0.100	mg/L	1.72	1.69	5.13	6.63	1.81
Manganese, dissolved	7439-96-5 E421/VA	0.00010	mg/L	0.00024	0.00022	0.00015	1.16	0.00012
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	0.000197	0.000161	0.000125	0.000125	0.000161
Nickel, dissolved	7440-02-0 E421/VA	0.00050	mg/L	<0.00050	<0.00050	<0.00050	0.00087	<0.00050
Phosphorus, dissolved	7723-14-0 E421/VA	0.050	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium, dissolved	7440-09-7 E421/VA	0.100	mg/L	0.231	0.217	0.681	4.43	0.341
Selenium, dissolved	7782-49-2 E421/VA	0.000050	mg/L	0.000092	0.000104	0.000288	<0.000050	0.000111
Silicon, dissolved	7440-21-3 E421/VA	0.050	mg/L	3.64	3.71	7.86	8.72	3.69
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	1.11	1.10	3.94	23.4	1.16
Strontium, dissolved	7440-24-6 E421/VA	0.00020	mg/L	0.0222	0.0211	0.0604	0.182	0.0258
Sulfur, dissolved	7704-34-9 E421/VA	0.50	mg/L	1.01	1.00	1.58	1.28	1.05
Thallium, dissolved	7440-28-0 E421/VA	0.000010	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
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	<0.00030	<0.00030	0.00034	<0.00030	<0.00030
Uranium, dissolved	7440-61-1 E421/VA	0.000010	mg/L	0.000012	0.000011	0.000144	0.000069	0.000035
Vanadium, dissolved	7440-62-2 E421/VA	0.00050	mg/L	0.00225	0.00220	0.00536	<0.00050	0.00303
Zinc, dissolved	7440-66-6 E421/VA	0.0010	mg/L	0.0150	0.0146	<0.0010	<0.0010	<0.0010
Zirconium, dissolved	7440-67-7 E421/VA	0.00020	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Dissolved mercury filtration location	EP509/VA	-	-	Field	Field	Field	Field	Field
Dissolved metals filtration location	EP421/VA	-	-	Field	Field	Field	Field	Field
Volatile Organic Compounds				3 1	THE PART OF THE PA			
Chlorobenzene	108-90-7 E611C/VA	0.50	μg/L				<0.50	<0.50
Chloromethane	74-87-3 E611C/VA	5.0	μg/L				<5.0	<5.0
Dichlorobenzene, 1,2-	95-50-1 E611C/VA	0.50	μg/L				<0.50	<0.50

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Analytical Results

Sub-Matrix: Water		Clie	Client sample ID		WG-081623-C5-	WG-081623-C5-	WG-081623-C5-	WG-081623-C5-
(Matrix: Water)			20	21	22	23	24	
		Client samplir	ng date / time	16-Aug-2023 08:50	16-Aug-2023 08:55	16-Aug-2023 09:49	16-Aug-2023 11:40	16-Aug-2023 12:12
Analyte	CAS Number Method/L	ab LOR	Unit	VA23B9297-001	VA23B9297-002	VA23B9297-003	VA23B9297-004	VA23B9297-005
				Result	Result	Result	Result	Result
Volatile Organic Compounds [Fuels]								
Xylene, o-	95-47-6 E611C/VA	0.30	μg/L				<0.30	<0.30
Xylenes, total	1330-20-7 E611C/VA	0.50	μg/L				<0.50	<0.50
Volatile Organic Compounds [THMs]								
Bromodichloromethane	75-27-4 E611C/VA	0.50	μg/L				<0.50	<0.50
Bromoform	75-25-2 E611C/VA	0.50	μg/L				<0.50	<0.50
Chloroform	67-66-3 E611C/VA	0.50	μg/L				<0.50	<0.50
Dibromochloromethane	124-48-1 E611C/VA	0.50	μg/L				<0.50	<0.50
Hydrocarbons				3 1				
VHw (C6-C10)	E581.VH+F1/ VA	100	μg/L				<100	<100
VPHw	EC580A/VA	100	μg/L				<100	<100
Hydrocarbons Surrogates								
Dichlorotoluene, 3,4-	95-75-0 E581.VH+F1/ VA	1.0	%				70.0	117
Volatile Organic Compounds Surrogates								
Bromofluorobenzene, 4-	460-00-4 E611C/VA	1.0	%				90.4	92.4
Difluorobenzene, 1,4-	540-36-3 E611C/VA	1.0	%				103	105

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.

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Client : Comox Valley Regional District

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Sub-Matrix: Water			CI	ient sample ID	Trip Blank		 	
(Matrix: Water)								
			Client samp	ling date / time	16-Aug-2023 00:00		 	
Analyte	CAS Number	Method/Lab	LOR	Unit	VA23B9297-006		 	
					Result		 	
Volatile Organic Compounds								
Chlorobenzene		E611C/VA	0.50	μg/L	<0.50		 	
Chloromethane		E611C/VA	5.0	μg/L	<5.0		 	
Dichlorobenzene, 1,2-	95-50-1	E611C/VA	0.50	μg/L	<0.50		 	
Dichlorobenzene, 1,3-	541-73-1	E611C/VA	0.50	μg/L	<0.50		 	
Dichlorobenzene, 1,4-	106-46-7	E611C/VA	0.50	μg/L	<0.50		 	
Dichloropropane, 1,2-	78-87-5	E611C/VA	0.50	μg/L	<0.50		 	
Dichloropropylene, cis+trans-1,3-	542-75-6	E611C/VA	0.75	μg/L	<0.75		 	
Dichloropropylene, cis-1,3-	10061-01-5	E611C/VA	0.50	μg/L	<0.50		 	
Tetrachloroethane, 1,1,1,2-	630-20-6	E611C/VA	0.50	μg/L	<0.50		 	
Tetrachloroethane, 1,1,2,2-	79-34-5	E611C/VA	0.20	μg/L	<0.20		 	
Trichloroethane, 1,1,2-	79-00-5	E611C/VA	0.50	μg/L	<0.50		 	
Trichlorofluoromethane	75-69-4	E611C/VA	0.50	μg/L	<0.50		 	
Volatile Organic Compounds [Drycleaning]					3 111			
Carbon tetrachloride	56-23-5	E611C/VA	0.50	μg/L	<0.50		 	
Chloroethane	75-00-3	E611C/VA	0.50	μg/L	<0.50		 	
Dichloroethane, 1,1-	75-34-3	E611C/VA	0.50	μg/L	<0.50		 	
Dichloroethane, 1,2-	107-06-2	E611C/VA	0.50	μg/L	<0.50		 	
Dichloroethylene, 1,1-	75-35-4	E611C/VA	0.50	μg/L	<0.50		 	
Dichloroethylene, cis-1,2-	156-59-2	E611C/VA	0.50	μg/L	<0.50		 	
Dichloroethylene, trans-1,2-	156-60-5	E611C/VA	0.50	μg/L	<0.50		 	
Dichloromethane		E611C/VA	1.0	μg/L	<50.0 RRR		 	
Dichloropropylene, trans-1,3-	10061-02-6	E611C/VA	0.50	μg/L	<0.50		 	
Tetrachloroethylene		E611C/VA	0.50	μg/L	<0.50		 	
Trichloroethane, 1,1,1-	71-55-6	E611C/VA	0.50	μg/L	<0.50		 	
Trichloroethylene		E611C/VA	0.50	μg/L	<0.50		 	
Vinyl chloride		E611C/VA	0.40	μg/L	<0.40		 	
Volatile Organic Compounds [Fuels]						10000		
Benzene	71-43-2	E611C/VA	0.50	μg/L	<0.50		 	
Ethylbenzene		E611C/VA	0.50	μg/L	<0.50		 	
Methyl-tert-butyl ether [MTBE]	1634-04-4		0.50	μg/L	<0.50		 	
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Analytical Results

Sub-Matrix: Water		Cli	ient sample ID	Trip Blank	 	
(Matrix: Water)						
		Client samp	ling date / time	16-Aug-2023 00:00	 	
Analyte	CAS Number Method/Lab	LOR	Unit	VA23B9297-006	 	
				Result	 	
Volatile Organic Compounds [Fuels]						
Styrene	100-42-5 E611C/VA	0.50	μg/L	<0.50	 	
Toluene	108-88-3 E611C/VA	0.40	μg/L	<0.40	 	
Xylene, m+p-	179601-23-1 E611C/VA	0.40	μg/L	<0.40	 	
Xylene, o-	95-47-6 E611C/VA	0.30	μg/L	<0.30	 	
Xylenes, total	1330-20-7 E611C/VA	0.50	μg/L	<0.50	 	
Volatile Organic Compounds [THMs]						
Bromodichloromethane	75-27-4 E611C/VA	0.50	μg/L	<0.50	 	
Bromoform	75-25-2 E611C/VA	0.50	μg/L	<0.50	 	
Chloroform	67-66-3 E611C/VA	0.50	μg/L	<0.50	 	
Dibromochloromethane	124-48-1 E611C/VA	0.50	μg/L	<0.50	 	
Hydrocarbons				2		
VHw (C6-C10)	E581.VH+F1/ VA	100	μg/L	<100	 	
VPHw	EC580A/VA	100	μg/L	<100	 	
Hydrocarbons Surrogates				2		
Dichlorotoluene, 3,4-	95-75-0 E581.VH+F1/ VA	1.0	%	118	 	
Volatile Organic Compounds Surrogates						
Bromofluorobenzene, 4-	460-00-4 E611C/VA	1.0	%	93.2	 	
Difluorobenzene, 1,4-	540-36-3 E611C/VA	1.0	%	103	 	

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.

ALS Canada Ltd.



QUALITY CONTROL REPORT

Work Order : VA23B9297 Page : 1 of 14

Client : Comox Valley Regional District Laboratory : ALS Environmental - Vancouver

Contact : Crystal Stuart Account Manager : Thomas Chang

: 770 Harmston Avenue Address : 8081 Lougheed Highway

Burnaby, British Columbia Canada V5A 1W9

none : Telephone :+1 604 253 4188

Date Samples Received : 18-Aug-2023 11:45

Date Analysis Commenced : 19-Aug-2023

Issue Date : 25-Aug-2023 09:41

Telephone : Project : 3-2

PO : 23-015 C-O-C number :----

Sampler : Crystal Stuart₂₅₀₋₈₉₈₋₃₇₂₂
Site : CRWMC-Quarterly-GW
Quote number : VA23-COVR100-001

No. of samples received : 6
No. of samples analysed : 6

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

Courtney BC Canada V9N 0G8

- 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

Address

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
Janice Leung	Supervisor - Organics Instrumentation	Vancouver Organics, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Vancouver Metals, Burnaby, British Columbia
Kim Jensen	Department Manager - Metals	Vancouver Inorganics, Burnaby, British Columbia
Ophelia Chiu	Department Manager - Organics	Vancouver Organics, Burnaby, British Columbia
Tony Nguyen	Analyst	Vancouver Metals, Burnaby, British Columbia

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Client : Comox Valley Regional District

Project : 3-



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.

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Client : Comox Valley Regional District

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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							Labora	ntory Duplicate (D	UP) 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: 1093336)										
VA23B9236-003	Anonymous	Alkalinity, bicarbonate (as CaCO3)		E290	1.0	mg/L	14.0	13.9	0.717%	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, total (as CaCO3)		E290	1.0	mg/L	14.0	13.9	0.717%	20%	
Physical Tests (QC	Lot: 1093337)										
VA23B9236-003	Anonymous	Conductivity		E100	2.0	μS/cm	1170	1170	0.171%	10%	
Physical Tests (QC	Lot: 1099790)										
VA23B9102-001	Anonymous	Solids, total dissolved [TDS]		E162	20	mg/L	2600	2570	1.39%	20%	
Anions and Nutrien	ts (QC Lot: 1093338)										
VA23B9236-001	Anonymous	Fluoride	16984-48-8	E235.F	0.100	mg/L	0.857	0.867	0.010	Diff <2x LOR	
Anions and Nutrien	ts (QC Lot: 1093339)										
VA23B9236-001	Anonymous	Chloride	16887-00-6	E235.CI	2.50	mg/L	23.8	24.0	0.23	Diff <2x LOR	
Anions and Nutrien	ts (QC Lot: 1093340)										
VA23B9236-001	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	0.0250	mg/L	3.56	3.61	1.41%	20%	
Anions and Nutrien	ts (QC Lot: 1093341)				1 1 1						f n
VA23B9236-001	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	0.0050	mg/L	0.0754	0.0789	4.55%	20%	
Anions and Nutrien	ts (QC Lot: 1093342)										
VA23B9236-001	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	1.50	mg/L	493	494	0.107%	20%	
Anions and Nutrien	ts (QC Lot: 1098556)										
VA23B9297-001	WG-081623-C5-20	Ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	
Dissolved Metals (QC Lot: 1093125)										
FJ2302063-007	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.0030	mg/L	0.0056	0.0056	0.00001	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	0.00394	0.00402	2.05%	20%	
		Barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.109	0.107	1.75%	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	0.122	0.125	2.62%	20%	
		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	115	123	6.55%	20%	

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Client : Comox Valley Regional District



Sub-Matrix: Water							Labora	tory Duplicate (D	UP) 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 (C	QC Lot: 1093125) - con	tinued									
FJ2302063-007	Anonymous	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	<0.00020	<0.00020	0	Diff <2x LOR	
		Iron, dissolved	7439-89-6	E421	0.010	mg/L	4.14	4.20	1.55%	20%	
		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	0.112	0.119	5.80%	20%	
		Magnesium, dissolved	7439-95-4	E421	0.100	mg/L	142	140	1.24%	20%	
		Manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.122	0.119	2.78%	20%	
		Molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.00107	0.00109	1.74%	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	0.818	0.798	2.43%	20%	
		Potassium, dissolved	7440-09-7	E421	0.050	mg/L	2.61	2.62	0.440%	20%	
		Selenium, dissolved	7782-49-2	E421	0.000050	mg/L	0.000641	0.000627	2.28%	20%	
		Silicon, dissolved	7440-21-3	E421	0.050	mg/L	4.40	4.34	1.35%	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	15.8	15.6	0.948%	20%	
		Strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.637	0.670	5.01%	20%	
		Sulfur, dissolved	7704-34-9	E421	0.50	mg/L	130	127	2.59%	20%	
		Thallium, dissolved	7440-28-0	E421	0.000010	mg/L	<0.000010	<0.000010	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	0.0100	mg/L	<0.0100	<0.0100	0	Diff <2x LOR	
		Uranium, dissolved	7440-61-1	E421	0.000010	mg/L	0.000371	0.000390	5.16%	20%	
		Vanadium, dissolved	7440-62-2	E421	0.00050	mg/L	0.00163	0.00158	0.00005	Diff <2x LOR	
		Zinc, dissolved	7440-66-6	E421	0.0010	mg/L	0.0027	0.0027	0.00008	Diff <2x LOR	
		Zirconium, dissolved	7440-67-7	E421	0.00030	mg/L	0.00041	0.00044	0.00003	Diff <2x LOR	
Dissolved Metals (C											
VA23B9277-005	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	
	mpounds (QC Lot: 110										
/A23B8675-010	Anonymous	Benzene	71-43-2	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Bromodichloromethane	75-27-4	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Bromoform	75-25-2	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Carbon tetrachloride	56-23-5	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Chlorobenzene	108-90-7	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Chloroethane	75-00-3	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	

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Client : Comox Valley Regional District



Sub-Matrix: Water							Labora	tory Duplicate (D	UP) Report		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
	mpounds (QC Lot: 11	01517) - continued									
VA23B8675-010	Anonymous	Chloroform	67-66-3	E611C	0.50	μg/L	2.11	2.00	0.11	Diff <2x LOR	
		Chloromethane	74-87-3	E611C	5.0	μg/L	<5.0	<5.0	0	Diff <2x LOR	
		Dibromochloromethane	124-48-1	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Dichlorobenzene, 1,2-	95-50-1	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Dichlorobenzene, 1,3-	541-73-1	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Dichlorobenzene, 1,4-	106-46-7	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Dichloroethane, 1,1-	75-34-3	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Dichloroethane, 1,2-	107-06-2	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Dichloroethylene, 1,1-	75-35-4	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Dichloroethylene, cis-1,2-	156-59-2	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Dichloroethylene, trans-1,2-	156-60-5	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Dichloromethane	75-09-2	E611C	1.0	μg/L	<1.0	<1.0	0	Diff <2x LOR	
		Dichloropropane, 1,2-	78-87-5	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Dichloropropylene, cis-1,3-	10061-01-5	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Dichloropropylene, trans-1,3-	10061-02-6	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Ethylbenzene	100-41-4	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Styrene	100-42-5	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Tetrachloroethane, 1,1,1,2-	630-20-6	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Tetrachloroethane, 1,1,2,2-	79-34-5	E611C	0.20	μg/L	<0.20	<0.20	0	Diff <2x LOR	
		Tetrachloroethylene	127-18-4	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Toluene	108-88-3	E611C	0.40	μg/L	<0.40	<0.40	0	Diff <2x LOR	
		Trichloroethane, 1,1,1-	71-55-6	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Trichloroethane, 1,1,2-	79-00-5	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Trichloroethylene	79-01-6	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Trichlorofluoromethane	75-69-4	E611C	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		Vinyl chloride	75-01-4	E611C	0.40	μg/L	<0.40	<0.40	0	Diff <2x LOR	
		Xylene, m+p-	179601-23-1	E611C	0.40	μg/L	<0.40	<0.40	0	Diff <2x LOR	
		Xylene, o-	95-47-6	E611C	0.30	μg/L	<0.30	<0.30	0	Diff <2x LOR	
Hydrocarbons (QC	Lot: 1101518)										
VA23B8675-010	Anonymous	VHw (C6-C10)		E581.VH+F1	100	μg/L	<100	<100	0.0%	30%	

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Client : Comox Valley Regional District

Project : 3-



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: 1093336)					
Alkalinity, bicarbonate (as CaCO3)	E290	1	mg/L	1.1	
Alkalinity, carbonate (as CaCO3)	E290	1	mg/L	<1.0	
Alkalinity, hydroxide (as CaCO3)	E290	1	mg/L	<1.0	
Alkalinity, total (as CaCO3)	E290	1	mg/L	1.1	
Physical Tests (QCLot: 1093337)					
Conductivity	E100	1	μS/cm	1.1	
Physical Tests (QCLot: 1099790)					
Solids, total dissolved [TDS]	E162	10	mg/L	<10	
Anions and Nutrients (QCLot: 1093338)					
Fluoride	16984-48-8 E235.F	0.02	mg/L	<0.020	
Anions and Nutrients (QCLot: 1093339)					
Chloride	16887-00-6 E235.CI	0.5	mg/L	<0.50	
Anions and Nutrients (QCLot: 1093340)	A STATE OF THE RESIDENCE OF THE STATE OF THE				
Nitrate (as N)	14797-55-8 E235.NO3-L	0.005	mg/L	<0.0050	
Anions and Nutrients (QCLot: 1093341)	A STATE OF THE RESIDENCE OF THE STATE OF THE				
Nitrite (as N)	14797-65-0 E235.NO2-L	0.001	mg/L	<0.0010	
Anions and Nutrients (QCLot: 1093342)					
Sulfate (as SO4)	14808-79-8 E235.SO4	0.3	mg/L	<0.30	
Anions and Nutrients (QCLot: 1098556)					
Ammonia, total (as N)	7664-41-7 E298	0.005	mg/L	<0.0050	
Dissolved Metals (QCLot: 1093125)					
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	
Chromium, dissolved	7440-47-3 E421	0.0005	mg/L	<0.00050	

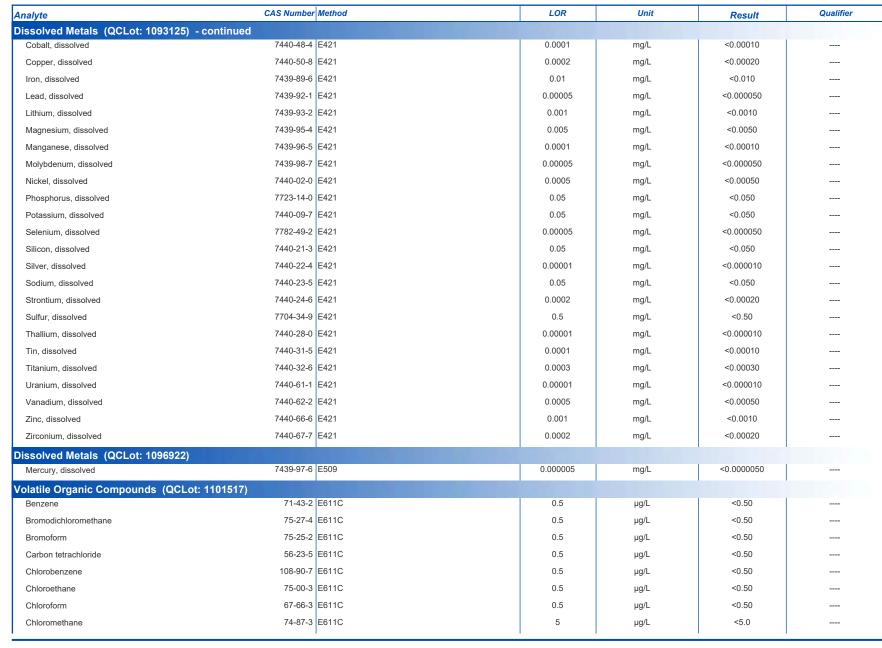
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Client : Comox Valley Regional District

Project : 3-2

Sub-Matrix: Water



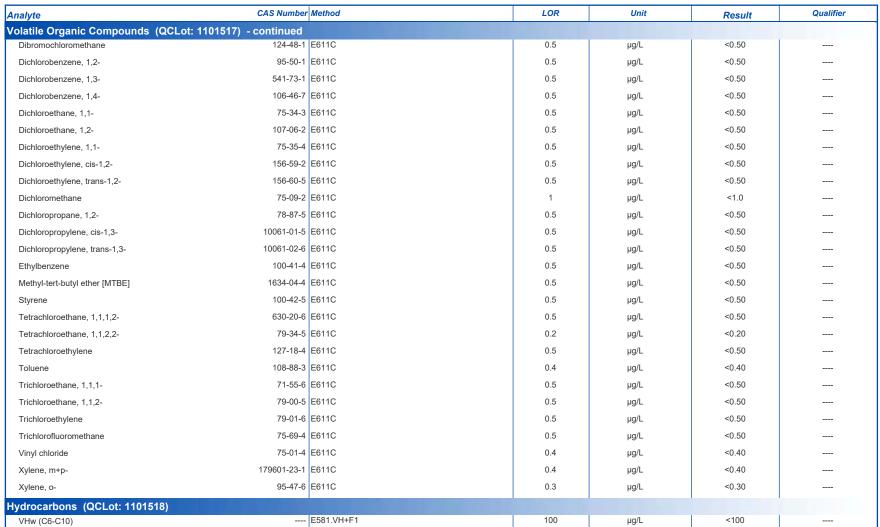


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Client : Comox Valley Regional District

Project : 3-2

Sub-Matrix: Water



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ALS

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 Co.	ntrol Sample (LCS)	Report	
					Spike	Recovery (%)	Recovery	Limits (%)	
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 1093336)									
Alkalinity, total (as CaCO3)		E290	1	mg/L	500 mg/L	111	85.0	115	
Physical Tests (QCLot: 1093337)	1111								
Conductivity		E100	1	μS/cm	146.9 μS/cm	96.7	90.0	110	
Physical Tests (QCLot: 1099790)									
Solids, total dissolved [TDS]		E162	10	mg/L	1000 mg/L	102	85.0	115	
Anions and Nutrients (QCLot: 1093338)									
Fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	102	90.0	110	
Anions and Nutrients (QCLot: 1093339)									
Chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	101	90.0	110	
Anions and Nutrients (QCLot: 1093340)									
litrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	2.5 mg/L	102	90.0	110	
Anions and Nutrients (QCLot: 1093341)									
litrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	0.5 mg/L	97.4	90.0	110	
Anions and Nutrients (QCLot: 1093342)									
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	103	90.0	110	
Anions and Nutrients (QCLot: 1098556)									
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	100.0	85.0	115	
Dissolved Metals (QCLot: 1093125)									
Aluminum, dissolved	7429-90-5		0.001	mg/L	2 mg/L	100.0	80.0	120	
Antimony, dissolved	7440-36-0		0.0001	mg/L	1 mg/L	97.8	80.0	120	
Arsenic, dissolved	7440-38-2		0.0001	mg/L	1 mg/L	105	80.0	120	
Barium, dissolved	7440-39-3		0.0001	mg/L	0.25 mg/L	93.1	80.0	120	
Beryllium, dissolved	7440-41-7		0.00002	mg/L	0.1 mg/L	94.3	80.0	120	
dismuth, dissolved	7440-69-9		0.00005	mg/L	1 mg/L	102	80.0	120	
Boron, dissolved	7440-42-8		0.01	mg/L	1 mg/L	99.4	80.0	120	
Cadmium, dissolved	7440-43-9		0.000005	mg/L	0.1 mg/L	99.7	80.0	120	
Calcium, dissolved	7440-70-2		0.05	mg/L	50 mg/L	101	80.0	120	
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	0.25 mg/L	97.0	80.0	120	
Cobalt, dissolved	7440-48-4		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	97.5	80.0	120	

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Client : Comox Valley Regional District



Sub-Matrix: Water						Laboratory Co	ntrol Sample (LCS)	Report	
					Spike	Recovery (%)	Recovery	Limits (%)	
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifie
Dissolved Metals (QCLot: 1093125) - c	ontinued					The state of			
Iron, dissolved	7439-89-6	E421	0.01	mg/L	1 mg/L	104	80.0	120	
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	0.5 mg/L	93.8	80.0	120	
Lithium, dissolved	7439-93-2	E421	0.001	mg/L	0.25 mg/L	94.6	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	104	80.0	120	
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	0.25 mg/L	99.0	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	103	80.0	120	
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	50 mg/L	97.0	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	108	80.0	120	
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	0.1 mg/L	92.4	80.0	120	
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	50 mg/L	111	80.0	120	
Strontium, dissolved	7440-24-6	E421	0.0002	mg/L	0.25 mg/L	98.3	80.0	120	
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	50 mg/L	118	80.0	120	
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	1 mg/L	97.6	80.0	120	
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	0.5 mg/L	98.6	80.0	120	
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	0.25 mg/L	97.8	80.0	120	
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	0.005 mg/L	97.7	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	98.4	80.0	120	
Zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	0.1 mg/L	95.0	80.0	120	
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0.0001 mg/L	106	80.0	120	
Volatile Organic Compounds (QCLot: 1									
Benzene	71-43-2	E611C	0.5	μg/L	100 μg/L	98.7	70.0	130	
Bromodichloromethane	75-27-4		0.5	μg/L	100 μg/L	92.8	70.0	130	
Bromoform	75-25-2	E611C	0.5	μg/L	100 μg/L	89.6	70.0	130	
Carbon tetrachloride	56-23-5	E611C	0.5	μg/L	100 μg/L	103	70.0	130	
Chlorobenzene	108-90-7	E611C	0.5	μg/L	100 μg/L	100	70.0	130	
Chloroethane	75-00-3	E611C	0.5	μg/L	100 μg/L	99.8	60.0	140	
Chloroform	67-66-3	E611C	0.5	μg/L	100 μg/L	97.1	70.0	130	
Chloromethane	74-87-3	E611C	5	μg/L	100 μg/L	99.2	60.0	140	
Dibromochloromethane	124-48-1	E611C	0.5	μg/L	100 μg/L	91.1	70.0	130	
Dichlorobenzene, 1,2-	95-50-1	E611C	0.5	μg/L	100 μg/L	101	70.0	130	
Dichlorobenzene, 1,3-	541-73-1	E611C	0.5	μg/L	100 μg/L	107	70.0	130	

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Sub-Matrix: Water						Laboratory Co.	ntrol Sample (LCS)	Report	
					Spike	Recovery (%)	Recovery	Limits (%)	
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 1	1101517) - continued								
Dichlorobenzene, 1,4-	106-46-7	E611C	0.5	μg/L	100 μg/L	107	70.0	130	
Dichloroethane, 1,1-	75-34-3	E611C	0.5	μg/L	100 μg/L	96.5	70.0	130	
Dichloroethane, 1,2-	107-06-2	E611C	0.5	μg/L	100 μg/L	89.3	70.0	130	
Dichloroethylene, 1,1-	75-35-4	E611C	0.5	μg/L	100 μg/L	103	70.0	130	
Dichloroethylene, cis-1,2-	156-59-2	E611C	0.5	μg/L	100 μg/L	96.9	70.0	130	
Dichloroethylene, trans-1,2-	156-60-5	E611C	0.5	μg/L	100 μg/L	104	70.0	130	
Dichloromethane	75-09-2	E611C	1	μg/L	100 μg/L	93.5	70.0	130	
Dichloropropane, 1,2-	78-87-5	E611C	0.5	μg/L	100 μg/L	95.5	70.0	130	
Dichloropropylene, cis-1,3-	10061-01-5	E611C	0.5	μg/L	100 μg/L	95.2	70.0	130	
Dichloropropylene, trans-1,3-	10061-02-6	E611C	0.5	μg/L	100 μg/L	93.6	70.0	130	
Ethylbenzene	100-41-4	E611C	0.5	μg/L	100 μg/L	104	70.0	130	
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611C	0.5	μg/L	100 μg/L	105	70.0	130	
Styrene	100-42-5	E611C	0.5	μg/L	100 μg/L	100	70.0	130	
Tetrachloroethane, 1,1,1,2-	630-20-6	E611C	0.5	μg/L	100 μg/L	94.6	70.0	130	
Tetrachloroethane, 1,1,2,2-	79-34-5	E611C	0.2	μg/L	100 μg/L	87.8	70.0	130	
Tetrachloroethylene	127-18-4	E611C	0.5	μg/L	100 μg/L	109	70.0	130	
Toluene	108-88-3	E611C	0.4	μg/L	100 μg/L	101	70.0	130	
Trichloroethane, 1,1,1-	71-55-6	E611C	0.5	μg/L	100 μg/L	101	70.0	130	
Trichloroethane, 1,1,2-	79-00-5	E611C	0.5	μg/L	100 μg/L	88.6	70.0	130	
Trichloroethylene	79-01-6	E611C	0.5	μg/L	100 μg/L	104	70.0	130	
Trichlorofluoromethane	75-69-4	E611C	0.5	μg/L	100 μg/L	102	60.0	140	
Vinyl chloride	75-01-4	E611C	0.4	μg/L	100 μg/L	104	60.0	140	
Xylene, m+p-	179601-23-1	E611C	0.4	μg/L	200 μg/L	106	70.0	130	
Xylene, o-	95-47-6	E611C	0.3	μg/L	100 μg/L	102	70.0	130	
Hydrocarbons (QCLot: 1101518)									
VHw (C6-C10)		E581.VH+F1	100	μg/L	6310 μg/L	82.2	70.0	130	

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Project : 3-2



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		inploof may be easpeet to blue. He	•	-	TX OPIRO TOVOI.		Matrix Spike	(MS) Report		
					Spi	ike	Recovery (%)	Recovery	Limits (%)	
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
	ents (QCLot: 1093338)									
VA23B9236-002	Anonymous	Fluoride	16984-48-8	E235.F	5.06 mg/L	5 mg/L	101	75.0	125	
Anions and Nutri	ents (QCLot: 1093339)									
VA23B9236-002	Anonymous	Chloride	16887-00-6	E235.CI	490 mg/L	500 mg/L	98.0	75.0	125	
Anions and Nutri	ents (QCLot: 1093340)									
VA23B9236-002	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	12.2 mg/L	12.5 mg/L	97.3	75.0	125	
Anions and Nutri	ents (QCLot: 1093341)	1000								
VA23B9236-002	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	2.38 mg/L	2.5 mg/L	95.4	75.0	125	
Anions and Nutri	ents (QCLot: 1093342)	The second second								
VA23B9236-002	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	ND mg/L	500 mg/L	ND	75.0	125	
Anions and Nutri	ents (QCLot: 1098556)									
VA23B9297-002	WG-081623-C5-21	Ammonia, total (as N)	7664-41-7	E298	0.102 mg/L	0.1 mg/L	102	75.0	125	
Dissolved Metals	(QCLot: 1093125)	1000								
FJ2302063-008	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.194 mg/L	0.2 mg/L	96.8	70.0	130	
		Antimony, dissolved	7440-36-0	E421	0.0193 mg/L	0.02 mg/L	96.6	70.0	130	
		Arsenic, dissolved	7440-38-2	E421	0.0199 mg/L	0.02 mg/L	99.6	70.0	130	
		Barium, dissolved	7440-39-3	E421	ND mg/L	0.02 mg/L	ND	70.0	130	
		Beryllium, dissolved	7440-41-7	E421	0.0371 mg/L	0.04 mg/L	92.7	70.0	130	
		Bismuth, dissolved	7440-69-9	E421	0.00861 mg/L	0.01 mg/L	86.1	70.0	130	
		Boron, dissolved	7440-42-8	E421	ND mg/L	0.1 mg/L	ND	70.0	130	
		Cadmium, dissolved	7440-43-9	E421	0.00391 mg/L	0.004 mg/L	97.8	70.0	130	
		Calcium, dissolved	7440-70-2	E421	ND mg/L	4 mg/L	ND	70.0	130	
		Chromium, dissolved	7440-47-3	E421	0.0385 mg/L	0.04 mg/L	96.3	70.0	130	
		Cobalt, dissolved	7440-48-4	E421	0.0187 mg/L	0.02 mg/L	93.4	70.0	130	
		Copper, dissolved	7440-50-8	E421	0.0163 mg/L	0.02 mg/L	81.4	70.0	130	
		Iron, dissolved	7439-89-6	E421	ND mg/L	2 mg/L	ND	70.0	130	
		Lead, dissolved	7439-92-1	E421	0.0171 mg/L	0.02 mg/L	85.3	70.0	130	
		Lithium, dissolved	7439-93-2	E421	ND mg/L	0.1 mg/L	ND	70.0	130	
		Magnesium, dissolved	7439-95-4	E421	ND mg/L	1 mg/L	ND	70.0	130	
		Manganese, dissolved	7439-96-5	E421	ND mg/L	0.02 mg/L	ND	70.0	130	
		Molybdenum, dissolved	7439-98-7	 E421	0.0198 mg/L	0.02 mg/L	99.1	70.0	130	

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Client : Comox Valley Regional District



Sub-Matrix: Water							Matrix Spik	re (MS) Report		
					Sp	ike	Recovery (%)	Recovery	Limits (%)	
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Dissolved Metals	(QCLot: 1093125) -	continued								
FJ2302063-008	Anonymous	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	10.9 mg/L	10 mg/L	109	70.0	130	
		Potassium, dissolved	7440-09-7	E421	3.86 mg/L	4 mg/L	96.4	70.0	130	
		Selenium, dissolved	7782-49-2	E421	0.0442 mg/L	0.04 mg/L	110	70.0	130	
		Silicon, dissolved	7440-21-3	E421	9.63 mg/L	10 mg/L	96.3	70.0	130	
		Silver, dissolved	7440-22-4	E421	0.00377 mg/L	0.004 mg/L	94.3	70.0	130	
		Sodium, dissolved	7440-23-5	E421	ND mg/L	2 mg/L	ND	70.0	130	
		Strontium, dissolved	7440-24-6	E421	ND mg/L	0.02 mg/L	ND	70.0	130	
		Sulfur, dissolved	7704-34-9	E421	ND mg/L	20 mg/L	ND	70.0	130	
		Thallium, dissolved	7440-28-0	E421	0.00353 mg/L	0.004 mg/L	88.3	70.0	130	
		Tin, dissolved	7440-31-5	E421	0.0194 mg/L	0.02 mg/L	97.1	70.0	130	
		Titanium, dissolved	7440-32-6	E421	0.0382 mg/L	0.04 mg/L	95.4	70.0	130	
		Uranium, dissolved	7440-61-1	E421	0.00366 mg/L	0.004 mg/L	91.4	70.0	130	
		Vanadium, dissolved	7440-62-2	E421	0.0979 mg/L	0.1 mg/L	97.9	70.0	130	
		Zinc, dissolved	7440-66-6	E421	0.361 mg/L	0.4 mg/L	90.3	70.0	130	
		Zirconium, dissolved	7440-67-7	E421	0.0413 mg/L	0.04 mg/L	103	70.0	130	
Dissolved Metals	(QCLot: 1096922)									
VA23B9277-006	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000969 mg/L	0.0001 mg/L	96.9	70.0	130	
Volatile Organic	Compounds (QCLot:	1101517)								
VA23B9297-004	WG-081623-C5-23	Benzene	71-43-2	E611C	102 μg/L	100 μg/L	102	60.0	140	
		Bromodichloromethane	75-27-4	E611C	94.4 μg/L	100 μg/L	94.4	60.0	140	
		Bromoform	75-25-2	E611C	82.8 µg/L	100 μg/L	82.8	60.0	140	
		Carbon tetrachloride	56-23-5	E611C	108 μg/L	100 μg/L	108	60.0	140	
		Chlorobenzene	108-90-7	E611C	100 μg/L	100 μg/L	100	60.0	140	
		Chlorobenzene Chloroethane	108-90-7 75-00-3	E611C E611C		100 μg/L 100 μg/L	100 104	60.0 50.0	140 150	
					100 μg/L					
		Chloroethane	75-00-3	E611C	100 μg/L 104 μg/L	100 μg/L	104	50.0	150	
		Chloroethane Chloroform	75-00-3 67-66-3	E611C	100 μg/L 104 μg/L 100 μg/L	100 μg/L 100 μg/L	104 100	50.0 60.0	150 140	
		Chloroethane Chloroform Chloromethane	75-00-3 67-66-3 74-87-3	E611C E611C E611C	100 μg/L 104 μg/L 100 μg/L 104 μg/L	100 μg/L 100 μg/L 100 μg/L	104 100 104	50.0 60.0 50.0	150 140 150	
		Chloroethane Chloroform Chloromethane Dibromochloromethane	75-00-3 67-66-3 74-87-3 124-48-1	E611C E611C E611C E611C	100 μg/L 104 μg/L 100 μg/L 104 μg/L 88.8 μg/L	100 μg/L 100 μg/L 100 μg/L 100 μg/L	104 100 104 88.8	50.0 60.0 50.0 60.0	150 140 150 140	
		Chloroethane Chloroform Chloromethane Dibromochloromethane Dichlorobenzene, 1,2-	75-00-3 67-66-3 74-87-3 124-48-1 95-50-1	E611C E611C E611C E611C	100 μg/L 104 μg/L 100 μg/L 104 μg/L 88.8 μg/L 97.4 μg/L	100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L	104 100 104 88.8 97.4	50.0 60.0 50.0 60.0	150 140 150 140 140	
		Chloroethane Chloroform Chloromethane Dibromochloromethane Dichlorobenzene, 1,2- Dichlorobenzene, 1,3-	75-00-3 67-66-3 74-87-3 124-48-1 95-50-1 541-73-1	E611C E611C E611C E611C E611C	100 μg/L 104 μg/L 100 μg/L 104 μg/L 88.8 μg/L 97.4 μg/L 103 μg/L	100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L	104 100 104 88.8 97.4 103	50.0 60.0 50.0 60.0 60.0	150 140 150 140 140	
		Chloroethane Chloroform Chloromethane Dibromochloromethane Dichlorobenzene, 1,2- Dichlorobenzene, 1,3- Dichlorobenzene, 1,4-	75-00-3 67-66-3 74-87-3 124-48-1 95-50-1 541-73-1 106-46-7	E611C E611C E611C E611C E611C E611C	100 μg/L 104 μg/L 100 μg/L 104 μg/L 88.8 μg/L 97.4 μg/L 103 μg/L	100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L	104 100 104 88.8 97.4 103	50.0 60.0 50.0 60.0 60.0 60.0	150 140 150 140 140 140	
		Chloroethane Chloroform Chloromethane Dibromochloromethane Dichlorobenzene, 1,2- Dichlorobenzene, 1,3- Dichlorobenzene, 1,4- Dichloroethane, 1,1-	75-00-3 67-66-3 74-87-3 124-48-1 95-50-1 541-73-1 106-46-7 75-34-3	E611C E611C E611C E611C E611C E611C E611C E611C	100 μg/L 104 μg/L 100 μg/L 104 μg/L 88.8 μg/L 97.4 μg/L 103 μg/L 101 μg/L	100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L	104 100 104 88.8 97.4 103 102	50.0 60.0 50.0 60.0 60.0 60.0 60.0	150 140 150 140 140 140 140	

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Client : Comox Valley Regional District



Sub-Matrix: Water							Matrix Spil	ke (MS) Report		
					Spi	ike	Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Volatile Organic	Compounds (QCLot	t: 1101517) - continued								
VA23B9297-004	WG-081623-C5-23	Dichloroethylene, trans-1,2-	156-60-5	E611C	110 μg/L	100 μg/L	110	60.0	140	
		Dichloromethane	75-09-2	E611C	95.1 μg/L	100 μg/L	95.1	60.0	140	
		Dichloropropane, 1,2-	78-87-5	E611C	96.9 μg/L	100 μg/L	96.9	60.0	140	
		Dichloropropylene, cis-1,3-	10061-01-5	E611C	95.3 μg/L	100 μg/L	95.3	60.0	140	
		Dichloropropylene, trans-1,3-	10061-02-6	E611C	88.9 µg/L	100 μg/L	88.9	60.0	140	
		Ethylbenzene	100-41-4	E611C	105 μg/L	100 μg/L	105	60.0	140	
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611C	106 μg/L	100 μg/L	106	60.0	140	
		Styrene	100-42-5	E611C	98.6 μg/L	100 μg/L	98.6	60.0	140	
		Tetrachloroethane, 1,1,1,2-	630-20-6	E611C	94.1 µg/L	100 μg/L	94.1	60.0	140	
		Tetrachloroethane, 1,1,2,2-	79-34-5	E611C	83.2 µg/L	100 μg/L	83.2	60.0	140	
		Tetrachloroethylene	127-18-4	E611C	112 μg/L	100 μg/L	112	60.0	140	
		Toluene	108-88-3	E611C	102 μg/L	100 μg/L	102	60.0	140	
		Trichloroethane, 1,1,1-	71-55-6	E611C	106 μg/L	100 μg/L	106	60.0	140	
		Trichloroethane, 1,1,2-	79-00-5	E611C	85.5 μg/L	100 μg/L	85.5	60.0	140	
		Trichloroethylene	79-01-6	E611C	108 μg/L	100 μg/L	108	60.0	140	
		Trichlorofluoromethane	75-69-4	E611C	107 μg/L	100 μg/L	107	50.0	150	
		Vinyl chloride	75-01-4	E611C	110 μg/L	100 μg/L	110	50.0	150	
		Xylene, m+p-	179601-23-1	E611C	215 μg/L	200 μg/L	108	60.0	140	
		Xylene, o-	95-47-6	E611C	102 μg/L	100 μg/L	102	60.0	140	
lydrocarbons (QCLot: 1101518)									
VA23B9474-022	Anonymous	VHw (C6-C10)		E581.VH+F1	4810 μg/L	6310 µg/L	76.3	60.0	140	



QUALITY CONTROL INTERPRETIVE REPORT

Work Order : **VA23B9297** Page : 1 of 16

Client : Comox Valley Regional District Laboratory : ALS Environmental - Vancouver

Contact : Crystal Stuart Account Manager : Thomas Chang

Address :770 Harmston Avenue Address :8081 Lougheed Highway

Burnaby, British Columbia Canada V5A 1W9

 Telephone
 : 250-898-3722
 Telephone
 : +1 604 253 4188

 Project
 : 3-2
 Date Samples Received
 : 18-Aug-2023 11:45

 PO
 : 23-015
 Issue Date
 : 25-Aug-2023 09:41

PO : 23-015 Issue Date
C-O-C number -----

Sampler : Crystal Stuart

Site : CRWMC-Quarterly-GW

Courtney BC Canada V9N 0G8

Quote number : VA23-COVR100-001

No. of samples received :6
No. of samples analysed :6

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 Mathad Blank value autliers assure

- 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) ■ No Analysis Holding Time Outliers exist.

Outliers: Frequency of Quality Control Samples • No Quality Control Sample Frequency Outliers occur.

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Client : Comox Valley Regional District

Project : 3-2



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	: × = Hold	ing time exce	edance ; 🔻	= Within	Holding Tim
Analyte Group	Method	Sampling Date	Ext	raction / Prepai	ration			Analys	is	
Container / Client Sample ID(s)			Preparation Date	Holding Til	mes Eva	nl Ai	nalysis Date	Holding Rec	7 Times Actual	Eval
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) WG-081623-C5-20	E298	16-Aug-2023	23-Aug-2023	28 7 days	days ✓	23	3-Aug-2023	28 days	7 days	√
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) WG-081623-C5-21	E298	16-Aug-2023	23-Aug-2023	28 7 days	days ✓	23	3-Aug-2023	28 days	7 days	√
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) WG-081623-C5-22	E298	16-Aug-2023	23-Aug-2023	28 7 days	days ✓	23	3-Aug-2023	28 days	7 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) WG-081623-C5-23	E298	16-Aug-2023	23-Aug-2023	28 7 days	days ✓	23	3-Aug-2023	28 days	7 days	*
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) WG-081623-C5-24	E298	16-Aug-2023	23-Aug-2023	28 7 days	days ✓	23	3-Aug-2023	28 days	7 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE WG-081623-C5-20	E235.CI	16-Aug-2023	19-Aug-2023	28 3 days	days ✓	19	9-Aug-2023	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE WG-081623-C5-21	E235.CI	16-Aug-2023	19-Aug-2023	28 3 days	days ✓	19	9-Aug-2023	28 days	3 days	√

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Anions and Nutrients : Fluoride in Water by IC

Anions and Nutrients : Fluoride in Water by IC

Anions and Nutrients : Nitrate in Water by IC (Low Level)

HDPE

HDPE

HDPE

WG-081623-C5-23

WG-081623-C5-24

WG-081623-C5-20

Client : Comox Valley Regional District

Project : 3-2

Matrix: Water



Evaluation: **x** = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group	Method	Sampling Date	e Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Anions and Nutrients : Chloride in Water by IC										
HDPE WG-081623-C5-22	E235.CI	16-Aug-2023	19-Aug-2023	28 days	3 days	✓	19-Aug-2023	28 days	3 days	√
Anions and Nutrients : Chloride in Water by IC										
HDPE WG-081623-C5-23	E235.CI	16-Aug-2023	19-Aug-2023	28 days	3 days	✓	19-Aug-2023	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE WG-081623-C5-24	E235.CI	16-Aug-2023	19-Aug-2023	28 days	3 days	✓	19-Aug-2023	28 days	3 days	4
Anions and Nutrients : Fluoride in Water by IC										
HDPE WG-081623-C5-20	E235.F	16-Aug-2023	19-Aug-2023	28 days	3 days	✓	19-Aug-2023	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE WG-081623-C5-21	E235.F	16-Aug-2023	19-Aug-2023	28 days	3 days	✓	19-Aug-2023	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE WG-081623-C5-22	E235.F	16-Aug-2023	19-Aug-2023	28 days	3 days	✓	19-Aug-2023	28 days	3 days	✓

16-Aug-2023

16-Aug-2023

16-Aug-2023

19-Aug-2023

19-Aug-2023

19-Aug-2023

3 days

3 days

3 days

✓

✓

28 days

28 days

3 days

19-Aug-2023

19-Aug-2023

19-Aug-2023

28 days 3 days

28 days 3 days

3 days 3 days

E235.F

E235.F

E235.NO3-L

✓

✓

✓

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Client : Comox Valley Regional District



nalyte Group	Method	Sampling Date	Extraction / Preparation				= Holding time exceedance; ✓ = Within H			
Container / Client Sample ID(s)	Metriod	Sampling Date	,			Fuel	Analysis Data	Holding Times		Eval
Container / Cheft Sample ID(s)			Preparation Date	Rec	Actual	Eval	Analysis Date	Rec	Actual	Evai
nions and Nutrients : Nitrate in Water by IC (Low Level)			24.0							
HDPE WG-081623-C5-21	E235.NO3-L	16-Aug-2023	19-Aug-2023	3 days	3 days	✓	19-Aug-2023	3 days	3 days	✓
nions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE WG-081623-C5-22	E235.NO3-L	16-Aug-2023	19-Aug-2023	3 days	3 days	✓	19-Aug-2023	3 days	3 days	✓
nions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE WG-081623-C5-23	E235.NO3-L	16-Aug-2023	19-Aug-2023	3 days	3 days	✓	19-Aug-2023	3 days	3 days	✓
nions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE WG-081623-C5-24	E235.NO3-L	16-Aug-2023	19-Aug-2023	3 days	3 days	✓	19-Aug-2023	3 days	3 days	✓
nions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE WG-081623-C5-20	E235.NO2-L	16-Aug-2023	19-Aug-2023	3 days	3 days	✓	19-Aug-2023	3 days	3 days	✓
nions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE WG-081623-C5-21	E235.NO2-L	16-Aug-2023	19-Aug-2023	3 days	3 days	✓	19-Aug-2023	3 days	3 days	✓
nions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE WG-081623-C5-22	E235.NO2-L	16-Aug-2023	19-Aug-2023	3 days	3 days	✓	19-Aug-2023	3 days	3 days	✓
nions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE WG-081623-C5-23	E235.NO2-L	16-Aug-2023	19-Aug-2023	3 days	3 days	4	19-Aug-2023	3 days	3 days	1
nions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE WG-081623-C5-24	E235.NO2-L	16-Aug-2023	19-Aug-2023	3 days	3 days	✓	19-Aug-2023	3 days	3 days	✓

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Client : Comox Valley Regional District

Project : 3-2



Analyte Group	Method	Sampling Date	ppling Date Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation	Holdin	g Times	Eval	Analysis Date	Holding	Times	Eval
			Date	Rec	Actual	2707		Rec	Actual	
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
WG-081623-C5-20	E235.SO4	16-Aug-2023	19-Aug-2023	28 days	3 days	✓	19-Aug-2023	28 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC				dayo						
HDPE										
WG-081623-C5-21	E235.SO4	16-Aug-2023	19-Aug-2023	28 days	3 days	✓	19-Aug-2023	28 days	3 days	✓
nions and Nutrients : Sulfate in Water by IC										
HDPE	F00- 22 /	40.4	40.4			,	40.4.00==	00.1		
WG-081623-C5-22	E235.SO4	16-Aug-2023	19-Aug-2023	28 days	3 days	✓	19-Aug-2023	28 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE	E225 CO4	40 4 2002	40. 4 0000		0.1	,	40. 4 0000	00.1	0.1	,
WG-081623-C5-23	E235.SO4	16-Aug-2023	19-Aug-2023	28 days	3 days	✓	19-Aug-2023	28 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE						_				
WG-081623-C5-24	E235.SO4	16-Aug-2023	19-Aug-2023	28 days	3 days	✓	19-Aug-2023	28 days	3 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)	F500	40.40000						00.1		
WG-081623-C5-20	E509	16-Aug-2023	22-Aug-2023	28 days	6 days	✓	22-Aug-2023	28 days	6 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
WG-081623-C5-21	E509	16-Aug-2023	22-Aug-2023	28 days	6 days	✓	22-Aug-2023	28 days	6 days	✓
issolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)	F500	16 A 2002	22 4 2022	6.5	6 deres	1	22 Av- 2000	20 4	6 de	1
WG-081623-C5-22	E509	16-Aug-2023	22-Aug-2023	28 days	6 days	∀	22-Aug-2023	28 days	6 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS								1		
Glass vial - dissolved (lab preserved)										
WG-081623-C5-23	E509	16-Aug-2023	22-Aug-2023	28	6 days	✓	22-Aug-2023	28 days	6 days	✓

days

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Matrix: Water	Evaluation: × = Holding time exceedance; ✓ = Within Holding Time

Analyte Group	Method	Sampling Date	Ext	raction / Pi	reparation		Analysis			
Container / Client Sample ID(s)			Preparation	Holdin	g Times	Eval	Analysis Date	Holding Times		Eval
			Date	Rec	Actual			Rec	Actual	
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)						,				,
WG-081623-C5-24	E509	16-Aug-2023	22-Aug-2023	28	6 days	✓	22-Aug-2023	28 days	6 days	✓
				days						
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS				I			I	1		
HDPE - dissolved (lab preserved) WG-081623-C5-20	E421	16-Aug-2023	20-Aug-2023	180	4 days	√	22-Aug-2023	180	6 days	✓
WG 001020 00 20		10 / tag 2020	20 / lug 2020	days	raayo		22 / tag 2020	days	o dayo	·
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS				,-				,-		
HDPE - dissolved (lab preserved)										
WG-081623-C5-21	E421	16-Aug-2023	20-Aug-2023	180	4 days	✓	22-Aug-2023	180	6 days	✓
				days				days		
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
WG-081623-C5-22	E421	16-Aug-2023	20-Aug-2023	180	4 days	✓	22-Aug-2023	180	6 days	✓
				days				days		
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) WG-081623-C5-23	E421	16-Aug-2023	20-Aug-2023	180	4 days	1	22-Aug-2023	180	6 days	√
WG-061023-C3-23	L421	10-Aug-2023	20-Aug-2023	days	4 days	,	22-Aug-2023	days	0 days	•
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS				days				days		
HDPE - dissolved (lab preserved)										
WG-081623-C5-24	E421	16-Aug-2023	20-Aug-2023	180	4 days	✓	22-Aug-2023	180	6 days	✓
				days				days	-	
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate)										
Trip Blank	E581.VH+F1	16-Aug-2023	24-Aug-2023	14	8 days	✓	24-Aug-2023	14 days	8 days	✓
				days						
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate)	E581.VH+F1	16-Aug-2023	24-Aug-2023		0 days	√	24-Aug-2023	14 days	8 days	√
WG-081623-C5-23	E581.VH+F1	16-Aug-2023	24-Aug-2023	14	8 days	•	24-Aug-2023	14 days	8 days	*
III Land Land William Feld at the Land Co. FIR.				days						
Hydrocarbons : VH and F1 by Headspace GC-FID Glass vial (sodium bisulfate)										
WG-081623-C5-24	E581.VH+F1	16-Aug-2023	24-Aug-2023	14	8 days	✓	24-Aug-2023	14 days	8 days	✓
				days	,2			,-	,, 0	
				-,-						

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Physical Tests : Conductivity in Water

Physical Tests : Conductivity in Water

Physical Tests : Conductivity in Water

Physical Tests : Conductivity in Water

WG-081623-C5-20

WG-081623-C5-21

WG-081623-C5-22

WG-081623-C5-23

HDPE

HDPE

HDPE

HDPE

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Matrix: Water



Analyte Group	Method	Sampling Date	Ext	traction / Pi	reparation			Analysis		
Container / Client Sample ID(s)			Preparation Hole		g Times	Eval	Analysis Date	Holding Times		Eval
			Date	Rec	Actual			Rec	Actual	
Physical Tests : Alkalinity Species by Titration										
HDPE										
WG-081623-C5-20	E290	16-Aug-2023	19-Aug-2023	14	3 days	✓	19-Aug-2023	14 days	3 days	✓
				days						
Physical Tests : Alkalinity Species by Titration										
HDPE										
WG-081623-C5-21	E290	16-Aug-2023	19-Aug-2023	14	3 days	✓	19-Aug-2023	14 days	3 days	✓
				days						
Physical Tests : Alkalinity Species by Titration										
HDPE										
WG-081623-C5-22	E290	16-Aug-2023	19-Aug-2023	14	3 days	✓	19-Aug-2023	14 days	3 days	✓
				days						
Physical Tests : Alkalinity Species by Titration										
HDPE										
WG-081623-C5-23	E290	16-Aug-2023	19-Aug-2023	14	3 days	✓	19-Aug-2023	14 days	3 days	✓
				days						
Physical Tests : Alkalinity Species by Titration										
HDPE										
WG-081623-C5-24	E290	16-Aug-2023	19-Aug-2023	14	3 days	✓	19-Aug-2023	14 days	3 days	✓

16-Aug-2023

16-Aug-2023

16-Aug-2023

16-Aug-2023

E100

E100

E100

E100

days

28

days

28 days

28 days

28 days 3 days

1

19-Aug-2023

19-Aug-2023

19-Aug-2023

19-Aug-2023

19-Aug-2023

28 days 3 days

1

Evaluation: **x** = Holding time exceedance ; ✓ = Within Holding Time

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nalyte Group	Method	Sampling Date	Ext	raction / Pi	reparation	Analysis				
Container / Client Sample ID(s)		, ,	Preparation	Holdin	g Times	Eval	Analysis Date	Holding	Times	Eval
			Date	Rec	Actual		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	Rec	Actual	
hysical Tests : Conductivity in Water										
HDPE						,				
WG-081623-C5-24	E100	16-Aug-2023	19-Aug-2023	28 days	3 days	✓	19-Aug-2023	28 days	3 days	✓
hysical Tests : TDS by Gravimetry				dayo						
HDPE										
WG-081623-C5-20	E162	16-Aug-2023					23-Aug-2023	7 days	7 days	✓
hysical Tests : TDS by Gravimetry										
HDPE										
WG-081623-C5-21	E162	16-Aug-2023					23-Aug-2023	7 days	7 days	✓
hysical Tests : TDS by Gravimetry										
HDPE										
WG-081623-C5-22	E162	16-Aug-2023					23-Aug-2023	7 days	7 days	√
hysical Tests : TDS by Gravimetry										
HDPE										,
WG-081623-C5-23	E162	16-Aug-2023					23-Aug-2023	7 days	7 days	√
hysical Tests : TDS by Gravimetry										
HDPE	F400	40 4 2002					00 4 0000	7.1	7 1	
WG-081623-C5-24	E162	16-Aug-2023					23-Aug-2023	7 days	7 days	√
olatile Organic Compounds : VOCs (BC List) by Headspace GC-MS										
Glass vial (sodium bisulfate)	50440	40.4 0000				,	0.4.40000			,
Trip Blank	E611C	16-Aug-2023	24-Aug-2023	14 days	8 days	✓	24-Aug-2023	14 days	8 days	√
olatile Organic Compounds : VOCs (BC List) by Headspace GC-MS										
Glass vial (sodium bisulfate)										
WG-081623-C5-23	E611C	16-Aug-2023	24-Aug-2023	14 days	8 days	✓	24-Aug-2023	14 days	8 days	√
olatile Organic Compounds : VOCs (BC List) by Headspace GC-MS				,						
Glass vial (sodium bisulfate)		40.4				,				
WG-081623-C5-24	E611C	16-Aug-2023	24-Aug-2023	14	8 days	✓	24-Aug-2023	14 days	8 days	✓
				days				1		

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Matrix: Water Evaluation: ★ = Holding time exceedance; ✓ = Within Holding Time

Matrix: water						diddion.	Holding time excel		**********	
Analyte Group	Method	Sampling Date	Ext	traction / Pr	reparation			Analys	sis	
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Volatile Organic Compounds [Drycleaning] : VOCs (BC List) by Headspace GC-M	S									
Glass vial (sodium bisulfate)										
Trip Blank	E611C	16-Aug-2023	24-Aug-2023	14	8 days	✓	24-Aug-2023	14 days	8 days	✓
				days						
Volatile Organic Compounds [Drycleaning] : VOCs (BC List) by Headspace GC-M	S									
Glass vial (sodium bisulfate)										
WG-081623-C5-23	E611C	16-Aug-2023	24-Aug-2023	14	8 days	✓	24-Aug-2023	14 days	8 days	✓
				days						
/olatile Organic Compounds [Drycleaning] : VOCs (BC List) by Headspace GC-M	S									
Glass vial (sodium bisulfate)										
WG-081623-C5-24	E611C	16-Aug-2023	24-Aug-2023	14	8 days	✓	24-Aug-2023	14 days	8 days	✓
				days						
/olatile Organic Compounds [Fuels] : VOCs (BC List) by Headspace GC-MS										
Glass vial (sodium bisulfate)										
Trip Blank	E611C	16-Aug-2023	24-Aug-2023	14	8 days	✓	24-Aug-2023	14 days	8 days	✓
				days						
Volatile Organic Compounds [Fuels] : VOCs (BC List) by Headspace GC-MS										
Glass vial (sodium bisulfate)										
WG-081623-C5-23	E611C	16-Aug-2023	24-Aug-2023	14	8 days	✓	24-Aug-2023	14 days	8 days	✓
				days						
Volatile Organic Compounds [Fuels] : VOCs (BC List) by Headspace GC-MS										
Glass vial (sodium bisulfate)										
WG-081623-C5-24	E611C	16-Aug-2023	24-Aug-2023	14	8 days	✓	24-Aug-2023	14 days	8 days	✓
				days						
/olatile Organic Compounds [THMs] : VOCs (BC List) by Headspace GC-MS										
Glass vial (sodium bisulfate)										
Trip Blank	E611C	16-Aug-2023	24-Aug-2023	14	8 days	✓	24-Aug-2023	14 days	8 days	✓
				days						
/olatile Organic Compounds [THMs] : VOCs (BC List) by Headspace GC-MS										
Glass vial (sodium bisulfate)										
WG-081623-C5-23	E611C	16-Aug-2023	24-Aug-2023	14	8 days	✓	24-Aug-2023	14 days	8 days	✓
				days						
Volatile Organic Compounds [THMs] : VOCs (BC List) by Headspace GC-MS										
Glass vial (sodium bisulfate)										
WG-081623-C5-24	E611C	16-Aug-2023	24-Aug-2023	14	8 days	✓	24-Aug-2023	14 days	8 days	✓
				days						

Legend & Qualifier Definitions

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Rec. HT: ALS recommended hold time (see units).



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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.

Acalysic Methods	Matrix: Water		Evaluat	ion: × = QC freque	ency outside sp	ecification; ✓ = 0	QC frequency wit	hin specification
Albalimy Species by Titration E290 1093336 1 13 7.6 5.0	Quality Control Sample Type			Co	ount		Frequency (%))
Alkalinity Species by Titration E200 1093336 1 13 7,6 5,0 \$\frac{1}{2}\$ Alkalinity Species by Titration E208 1098566 1 20 5,0 5,0 \$\frac{1}{2}\$ Alkalinity Species by Titration E208 1098566 1 20 5,0 5,0 \$\frac{1}{2}\$ Alkalinity Species by Titration E208 1098339 1 13 7,6 5,0 \$\frac{1}{2}\$ Alkalinity Species by Titration E208 1098339 1 13 7,6 5,0 \$\frac{1}{2}\$ Alkalinity Species by Titration E208 E2	Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation
Ammonia by Fluorescence	Laboratory Duplicates (DUP)							
Chordine in Water by IC	Alkalinity Species by Titration	E290	1093336	1	13	7.6	5.0	✓
Conductivity in Water by CVAAS E500 1098337 1 13 7,6 5,0 √	Ammonia by Fluorescence	E298	1098556	1	20	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS E509 1098922 1 1 6 6.2 5.0 ✓ Dissolved Metals in Water by CRC ICPMS E421 1093125 1 18 5.5 5.0 ✓ Pluoride in Water by IC E235.F 1093338 1 13 7.6 5.0 ✓ Nitrate in Water by IC (Low Level) E235.NO3-L 1093340 1 13 7.6 5.0 ✓ Nitrate in Water by IC (Low Level) E235.NO3-L 1093341 1 13 7.6 5.0 ✓ Nitrate in Water by IC (Low Level) E235.NO3-L 1093341 1 13 7.6 5.0 ✓ Nitrate in Water by IC (Low Level) E235.SO4 1093342 1 13 7.6 5.0 ✓ VI 13 7.6 5.0 ✓ VI 13 7.6 5.0 ✓ VI 13 7.6 5.0 ✓ VI 13 7.6 5.0 ✓ VI 13 7.6 5.0 ✓ VI 13 7.6 5.0 ✓ VI 14 and F1 by Headspace GC-FID E591.VH+F1 1101518 1 15 6.6 5.0 ✓ VI 150.VH	Chloride in Water by IC	E235.CI	1093339	1	13	7.6	5.0	✓
Dissolved Metals in Water by CRC ICPMS	Conductivity in Water	E100	1093337	1	13	7.6	5.0	√
Fluoride in Water by IC E235.F 109338 1 13 7.6 5.0	Dissolved Mercury in Water by CVAAS	E509	1096922	1	16	6.2	5.0	√
Nitrate in Water by IC (Low Level) E235.NO3-L 1093340 1 13 7.6 5.0 ✓ Nitrate in Water by IC (Low Level) E235.NO2-L 1093341 1 13 7.6 5.0 ✓ Sulfate in Water by IC (Low Level) E235.NO2-L 1093341 1 13 7.6 5.0 ✓ Sulfate in Water by IC (Low Level) E235.NO2-L 1093342 1 13 7.6 5.0 ✓ Sulfate in Water by IC (Low Level) E235.NO2-L E235.NO2-L E235.NO2-L E235.NO2-L E235.NO2-L E235.NO2-L E235.NO2-L E310-L E	Dissolved Metals in Water by CRC ICPMS	E421	1093125	1	18	5.5	5.0	√
Nitrite in Water by IC (Low Level) E235.NO2-L 1093341 1 13 7.6 5.0 ✓ Sulfate in Water by IC E235.SO4 1093342 1 13 7.6 5.0 ✓ Val and F1 by Headspace GC-FID E581.VH+F1 1101518 1 15 6.6 5.0 ✓ Voc (SC List) by Headspace GC-FID E581.VH+F1 1101518 1 15 6.6 5.0 ✓ Voc (SC List) by Headspace GC-FID E581.VH+F1 1101517 1 8 12.5 5.0 ✓ Laboratory Control Samples (LCS) Laboratory Control Samples (LCS) Alkalinity Species by Titration E290 1093336 1 13 7.6 5.0 ✓ Alkalinity Species by Titration E298 1098356 1 20 5.0 5.0 ✓ Chonde in Water by IC E235.CI 1093339 1 13 7.6 5.0 ✓ Conductivity in Water E100 1093337 1 13 7.6 5.0 ✓ Conductivity in Water by CVAAS E598 1098922 1 16 6.2 5.0 ✓ Dissolved Metals in Water by IC (Low Level) E235.FI 1093340 1 13 7.6 5.0 ✓ Nitrite in Water by IC (Low Level) E235.NO3-L Nitrite in Water by IC (Low Level) E235.SO4 1093341 1 13 7.6 5.0 ✓ Nitrite in Water by IC (Low Level) E235.SO4 1093341 1 13 7.6 5.0 ✓ Nitrite in Water by IC (Low Level) E235.SO4 1093341 1 13 7.6 5.0 ✓ Nitrite in Water by IC (Low Level) E235.SO4 1093341 1 13 7.6 5.0 ✓ Nitrite in Water by IC (Low Level) E235.SO4 1093341 1 13 7.6 5.0 ✓ Nitrite in Water by IC (Low Level) E235.SO4 1093341 1 13 7.6 5.0 ✓ Nitrite in Water by IC (Low Level) E235.SO4 1093341 1 13 7.6 5.0 ✓ Nitrite in Water by IC (Low Level) E235.SO4 1093341 1 13 7.6 5.0 ✓ Nitrite in Water by IC (Low Level) E235.SO4 1093341 1 13 7.6 5.0 ✓ Nitrite in Water by IC (Low Level) E235.SO4 1093341 1 13 7.6 5.0 ✓ Nitrite in Water by IC (Low Level) E235.SO4 1093341 1 13 7.6 5.0 ✓ Nitrite in Water by IC (Low Level) E235.SO4 1093341 1 13 7.6 5.0 ✓ Nitrite in Water by IC (Low Level) E235.SO4 1093341 1 13 7.6 5.0 ✓ Nitrite in Water by IC (Low Level) E235.SO4 1093341 1 1 1 1 7 6 5 7 5 7 6 5 7 Not the distrity in Water 10 10 10 10 10 10 10 10 10 1	Fluoride in Water by IC	E235.F	1093338	1	13	7.6	5.0	√
Sulfate in Water by IC E235.SQ4 1093342 1 13 7.6 5.0 ✓ TDS by Gravimetry E162 1099790 1 20 5.0 5.0 ✓ E811.V++F1 1101518 1 15 6.6 5.0 ✓ E811.V++F1 1101517 1 8 12.5 5.0 ✓ Laboratory Control Samples (LCS) **Alkalinity Species by Titration E290 1093336 1 13 7.6 5.0 ✓ **Alkalinity Species by Titration E298 1098556 1 20 5.0 5.0 ✓ **Chloride in Water by IC Cloruductivity in Water E100 1093337 1 13 7.6 5.0 ✓ **Dissolved Metals in Water by CR (ICPMS) E421 1093125 1 18 5.5 5.0 ✓ **Interior Water by IC (Low Level) E235.NO3-L Nitrate in Water by IC (Low Level) E235.NO3-L E235.NO3-L 1093341 1 13 7.6 5.0 ✓ **Notified in Water by IC (Low Level) E235.NO3-L 1093341 1 13 7.6 5.0 ✓ **Notified in Water by IC (Low Level) E235.NO3-L 1093341 1 13 7.6 5.0 ✓ **Notified in Water by IC (Low Level) E235.NO3-L 1093341 1 13 7.6 5.0 ✓ **Notified in Water by IC (Low Level) E235.NO3-L 1093341 1 13 7.6 5.0 ✓ **Notified in Water by IC (Low Level) E235.NO3-L 1093341 1 13 7.6 5.0 ✓ **Notified in Water by IC (Low Level) E235.NO3-L 1093341 1 13 7.6 5.0 ✓ **Notified in Water by IC (Low Level) E235.NO3-L 1093341 1 13 7.6 5.0 ✓ **Notified in Water by IC (Low Level) E235.NO3-L 1093341 1 13 7.6 5.0 ✓ **Notified in Water by IC (Low Level) E235.NO3-L 1093341 1 13 7.6 5.0 ✓ **Notified in Water by IC (Low Level) E235.NO3-L 1093341 1 13 7.6 5.0 ✓ **Notified in Water by IC (Low Level) E235.NO3-L 1093341 1 13 7.6 5.0 ✓ **Notified in Water by IC (Low Level) E235.NO3-L 1093341 1 13 7.6 5.0 ✓ **Notified in Water by IC (Low Level) E235.NO3-L 1093341 1 13 7.6 5.0 ✓ **Notified in Water by IC (Low Level) E235.NO3-L 1093341 1 13 7.6 5.0 ✓ **Notified in Water by IC (Low Level) E235.NO3-L 1093341 1 13 7.6 5.0 ✓ **Notified in Water by IC (Low Level) E235.NO3-L 1093341 1 13 7.6 5.0 ✓ **Notified in Water by IC (Low Level) E235.NO3-L 1093341 1 13 7.6 5.0 ✓ **Notified in Water by IC (Low Level) E235.NO3-L 1093341 1 13 7.6 5.0 ✓ **Notified in Water by IC (Low Level)	Nitrate in Water by IC (Low Level)	E235.NO3-L	1093340	1	13	7.6	5.0	√
TDS by Gravimetry	Nitrite in Water by IC (Low Level)	E235.NO2-L	1093341	1	13	7.6	5.0	√
VH and F1 by Headspace GC-FID E581.VH+F1 1101518 1 15 6.6 5.0 ✓ VOCs (BC List) by Headspace GC-MS E611C 1101517 1 8 12.5 5.0 ✓ Alkalinity Species by Titration E290 1093336 1 13 7.6 5.0 ✓ Ammonia by Fluorescence E298 1098556 1 20 5.0 5.0 ✓ Conductivity in Water E100 1093337 1 13 7.6 5.0 ✓ Dissolved Mercury in Water by IC Covactive in Water by CVAAS E509 1096922 1 16 6.2 5.0 ✓ Dissolved Metals in Water by IC Covactive in Water b	Sulfate in Water by IC	E235.SO4	1093342	1	13	7.6	5.0	√
VH and F1 by Headspace GC-FID E581.VH+F1 1101518 1 15 6.6 5.0 ✓ VOCs (BC List) by Headspace GC-MS E6110 1101517 1 8 12.5 5.0 ✓ Laboratory Control Samples (LCS) USA USA USA Male LS 5.0 ✓ Alkalinity Species by Titration E290 1093336 1 13 7.6 5.0 ✓ Armonoia by Fluorescence E298 1098556 1 20 5.0 5.0 ✓ Cloride in Water by IC E235.CI 1093337 1 13 7.6 5.0 ✓ Dissolved Mercury in Water by CVAAS E509 1096922 1 16 6.2 5.0 ✓ Dissolved Metals in Water by IC (Low Level) E235.NO3.1 1093125 1 18 5.5 5.0 ✓ Fluoride in Water by IC (Low Level) E235.NO3.1 1093340 1 13 7.6 5.0 ✓ Vittale in Water by IC (Low Level) E235.NO3.1	TDS by Gravimetry	E162	1099790	1	20	5.0	5.0	√
Laboratory Control Samples (LCS) Alkalinity Species by Titration E290 1093336 1 13 7.6 5.0 ✓ Chloride in Water by IC Conductivity in Water Dissolved Mercury in Water by CRC ICPMS E425. CI E235. CI E235. CI E235. CI E235. CI E235. CI E235. CI E235. CI E235. CI E235. CI E235. CI E235. CI E235. CI E235. CI E235. CI E235. CI E235. CI E33337 E421 E509 E5	VH and F1 by Headspace GC-FID	E581.VH+F1	1101518	1	15	6.6	5.0	
Alkalinity Species by Titration E290 1093336 1 13 7.6 5.0 ✓ Ammonia by Fluorescence E298 1098556 1 20 5.0 5.0 ✓ Choliroide in Water by IC E235.Cl 1093339 1 13 7.6 5.0 ✓ Choliroide in Water by IC E100 1093337 1 13 7.6 5.0 ✓ Chonductivity in Water E100 1093337 1 13 7.6 5.0 ✓ Chonductivity in Water by CVAAS E509 1096922 1 16 6.2 5.0 ✓ Chonductivity in Water by CRC ICPMS E421 1093125 1 18 5.5 5.0 ✓ Chonductivity in Water by IC (Low Level) E235.F 1093338 1 13 7.6 5.0 ✓ Chonductivity in Water by IC (Low Level) E235.NO3-L 1093340 1 13 7.6 5.0 ✓ Chonductivity in Water by IC (Low Level) E235.NO2-L 1093341 1 13 7.6 5.0 ✓ Chonductivity in Water by IC (Low Level) E235.SO4 1093341 1 13 7.6 5.0 ✓ Chonductivity in Water by IC (Low Level) E235.SO4 1093341 1 13 7.6 5.0 ✓ Chonductivity in Water by IC (Low Level) E235.SO4 1093341 1 13 7.6 5.0 ✓ Chonductivity in Water by IC (Low Level) E235.SO4 1093341 1 13 7.6 5.0 ✓ Chonductivity in Water by IC (Low Level) E235.SO4 1093341 1 13 7.6 5.0 ✓ Chonductivity in Water by IC (Low Level) E235.SO4 1093341 1 13 7.6 5.0 ✓ Chonductivity in Water by IC (Low Level) E235.SO4 1093341 1 13 7.6 5.0 ✓ Chonductivity in Water by IC (Low Level) E235.SO4 109336 1 13 7.6 5.0 ✓ Chonductivity in Water by IC E235.SO4 109337 1 13 7.6 5.0 ✓ Chonductivity in Water by IC E235.Cl 1093399 1 13 7.6 5.0 ✓ Chonductivity in Water by IC E235.Cl 1093337 1 13 7.6 5.0 ✓ Chonductivity in Water by IC E235.Cl 109337 1 13 7.6 5.0 ✓ Chonductivity in Water by IC E235.Cl 109337 1 13 7.6 5.0 ✓ Chonductivity in Water by IC E235.Cl 109337 1 13 7.6 5.0 ✓ Chonductivity in Water by IC E235.Cl 109337 1 13 7.6 5.0 ✓ Chonductivity in Water by IC E235.Cl E235.Cl 109337 1 13 7.6	VOCs (BC List) by Headspace GC-MS	E611C	1101517	1	8	12.5	5.0	
Ammonia by Fluorescence E298 1098556 1 20 5.0 5.0 ✓ Chloride in Water by IC E235.CI 1093339 1 13 7.6 5.0 ✓ Conductivity in Water by CVAAS E100 1093337 1 13 7.6 5.0 ✓ Dissolved Mercury in Water by CVAAS E509 1096922 1 16 6.2 5.0 ✓ Dissolved Metals in Water by CRC ICPMS E421 1093125 1 18 5.5 5.0 ✓ Dissolved Metals in Water by IC E235.F 1093338 1 13 7.6 5.0 ✓ Nitrate in Water by IC (Low Level) E235.NO3-L 1093340 1 13 7.6 5.0 ✓ Sulfate in Water by IC (Low Level) E235.NO2-L 1093341 1 13 7.6 5.0 ✓ TDS by Gravimetry E162 1099790 1 20 5.0 5.0 ✓ TDS by Gravimetry E162 1099790 1 20 5.0 5.0 ✓ VH and F1 by Headspace GC-FID E581.VH+F1 1101518 1 15 6.6 5.0 ✓ Wethod Blanks (MB) Method Blanks (MB) Alkalinity Species by Titration E298 1093339 1 13 7.6 5.0 ✓ Conductivity in Water by IC (Low Mater by IC (Low	Laboratory Control Samples (LCS)							-
Chloride in Water by IC Conductivity in Water E235.CI 1093339 1 13 7.6 5.0 ✓ Conductivity in Water E100 1093337 1 13 7.6 5.0 ✓ Dissolved Mercury in Water by CVAAS E509 1096922 1 1 16 6.2 5.0 ✓ Dissolved Metals in Water by CRC ICPMS E421 1093125 1 1 18 5.5 5.0 ✓ Dissolved Metals in Water by CRC ICPMS E421 1093138 1 13 7.6 5.0 ✓ Nitrate in Water by IC E235.F 1093338 1 13 7.6 5.0 ✓ Nitrate in Water by IC (Low Level) E235.NO3-L 1093340 1 13 7.6 5.0 ✓ Nitrate in Water by IC (Low Level) E235.NO2-L 1093341 1 13 7.6 5.0 ✓ Sulfate in Water by IC E235.SO4 1093342 1 1 13 7.6 5.0 ✓ TDS by Gravimetry E162 1099790 1 20 5.0 5.0 ✓ VH and F1 by Headspace GC-FID E581.VH+F1 1101518 1 15 6.6 5.0 ✓ VOCs (BC List) by Headspace GC-MS E611C 1101517 1 8 12.5 5.0 ✓ Method Blanks (MB) Ammonia by Fluorescence E298 1098556 1 20 5.0 5.0 ✓ Conductivity in Water by IC E350.VHAS E509 1099337 1 13 7.6 5.0 ✓ Dissolved Mercury in Water by IC CPMS E421 1093337 1 13 7.6 5.0 ✓ Dissolved Mercury in Water by IC CPMS E421 1093337 1 13 7.6 5.0 ✓ Dissolved Mercury in Water by CC AS E509 1099322 1 16 6.2 5.0 ✓ Dissolved Mercury in Water by CNAS E609 1099325 1 18 5.5 5.0 ✓ Dissolved Metals in Water by CRC ICPMS	Alkalinity Species by Titration	E290	1093336	1	13	7.6	5.0	✓
E100 1093337 1 13 7.6 5.0 ✓	Ammonia by Fluorescence	E298	1098556	1	20	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS E509 1096922 1 16 6.2 5.0 ✓	Chloride in Water by IC	E235.CI	1093339	1	13	7.6	5.0	✓
Dissolved Metals in Water by CRC ICPMS E421 1093125 1 18 5.5 5.0 ✓ Fluoride in Water by IC E235.F 1093338 1 13 7.6 5.0 ✓ Nitrate in Water by IC (Low Level) E235.NO3-L 1093340 1 13 7.6 5.0 ✓ Nitrite in Water by IC (Low Level) E235.NO2-L 1093341 1 13 7.6 5.0 ✓ Sulfate in Water by IC E235.NO2-L 1093341 1 13 7.6 5.0 ✓ E235.NO2-L 1093342 1 13 7.6 5.0 ✓ TDS by Gravimetry E162 1099790 1 20 5.0 5.0 ✓ VH and F1 by Headspace GC-FID E581.VH+F1 1101518 1 15 6.6 5.0 ✓ VCS (BC List) by Headspace GC-MS E611C 1101517 1 8 12.5 5.0 ✓ Method Blanks (MB) Ammonia by Fluorescence E290 1093336 1 13 7.6 5.0 ✓ Ammonia by Fluorescence E298 1098556 1 20 5.0 5.0 ✓ Chloride in Water by IC E235.Cl 1093339 1 13 7.6 5.0 ✓ Conductivity in Water E100 1093337 1 13 7.6 5.0 ✓ Dissolved Mercury in Water by CRC ICPMS	Conductivity in Water	E100	1093337	1	13	7.6	5.0	✓
Fluoride in Water by IC E235.F 1093338 1 13 7.6 5.0 √	Dissolved Mercury in Water by CVAAS	E509	1096922	1	16	6.2	5.0	✓
Nitrate in Water by IC (Low Level) E235.NO3-L 1093340 1 13 7.6 5.0 ✓ E235.NO2-L 1093341 1 13 7.6 5.0 ✓ E35.NO2-L 1093341 1 13 7.6 5.0 ✓ E35.NO2-L 1093342 1 13 7.6 5.0 ✓ E35.NO2-L 1093342 1 13 7.6 5.0 ✓ E35.NO2-L E35.SO4 1093342 1 13 7.6 5.0 ✓ E35.NO2-L E35.NO3-L E35.NO2-L E35.NO2-L E35.NO2-L E35.NO2-L E35.NO3-L	Dissolved Metals in Water by CRC ICPMS	E421	1093125	1	18	5.5	5.0	✓
Nitrite in Water by IC (Low Level) E235 NO2-L 1093341 1 13 7.6 5.0 ✓ Sulfate in Water by IC E235 SO4 1093342 1 13 7.6 5.0 ✓ TDS by Gravimetry E162 1099790 1 20 5.0 5.0 ✓ VH and F1 by Headspace GC-FID E581.VH+F1 1101518 1 15 6.6 5.0 ✓ VOCs (BC List) by Headspace GC-MS E611C 1101517 1 8 12.5 5.0 ✓ Method Blanks (MB) BE290 1093336 1 13 7.6 5.0 ✓ Ammonia by Fluorescence E298 1098556 1 20 5.0 5.0 ✓ Chloride in Water by IC E235.Cl 1093339 1 13 7.6 5.0 ✓ Conductivity in Water E100 1093337 1 13 7.6 5.0 ✓ Dissolved Mercury in Water by CVAAS E509 1096922 1 16 <td>Fluoride in Water by IC</td> <td>E235.F</td> <td>1093338</td> <td>1</td> <td>13</td> <td>7.6</td> <td>5.0</td> <td>✓</td>	Fluoride in Water by IC	E235.F	1093338	1	13	7.6	5.0	✓
Sulfate in Water by IC E235.SO4 1093342 1 13 7.6 5.0 ✓ TDS by Gravimetry E162 1099790 1 20 5.0 5.0 ✓ VH and F1 by Headspace GC-FID E581.VH+F1 1101518 1 15 6.6 5.0 ✓ VOCs (BC List) by Headspace GC-MS E611C 1101517 1 8 12.5 5.0 ✓ Method Blanks (MB) Alkalinity Species by Titration E290 1093336 1 13 7.6 5.0 ✓ Ammonia by Fluorescence E298 1098556 1 20 5.0 5.0 ✓ Chloride in Water by IC E235.Cl 1093339 1 13 7.6 5.0 ✓ Conductivity in Water E100 1093337 1 13 7.6 5.0 ✓ Dissolved Mercury in Water by CVAAS E509 1096922 1 16 6.2 5.0 ✓ Dissolved Metals in Water by CRC ICPMS E421 1093125 1 18 5.5 5.0 ✓	Nitrate in Water by IC (Low Level)	E235.NO3-L	1093340	1	13	7.6	5.0	✓
TDS by Gravimetry E162 1099790 1 20 5.0 5.0 ✓ VH and F1 by Headspace GC-FID VCOCs (BC List) by Headspace GC-MS E611C 1101517 1 8 12.5 5.0 ✓ Method Blanks (MB) Alkalinity Species by Titration E290 1093336 1 13 7.6 5.0 ✓ Ammonia by Fluorescence E298 1098556 1 20 5.0 ✓ Chloride in Water by IC Conductivity in Water E100 1093337 1 13 7.6 5.0 ✓ Dissolved Mercury in Water by CRC ICPMS E421 1093125 1 18 5.5 5.0 ✓	Nitrite in Water by IC (Low Level)	E235.NO2-L	1093341	1	13	7.6	5.0	✓
VH and F1 by Headspace GC-FID E581.VH+F1 1101518 1 15 6.6 5.0 ✓ VOCs (BC List) by Headspace GC-MS E611C 1101517 1 8 12.5 5.0 ✓ Method Blanks (MB) Alkalinity Species by Titration E290 1093336 1 13 7.6 5.0 ✓ Ammonia by Fluorescence E298 1098556 1 20 5.0 5.0 ✓ Chloride in Water by IC E235.CI 1093339 1 13 7.6 5.0 ✓ Conductivity in Water E100 1093337 1 13 7.6 5.0 ✓ Dissolved Mercury in Water by CVAAS E509 1096922 1 16 6.2 5.0 ✓ Dissolved Metals in Water by CRC ICPMS E421 1093125 1 18 5.5 5.0 ✓	Sulfate in Water by IC	E235.SO4	1093342	1	13	7.6	5.0	√
VOCs (BC List) by Headspace GC-MS E611C 1101517 1 8 12.5 5.0 ✓ Method Blanks (MB) Alkalinity Species by Titration E290 1093336 1 13 7.6 5.0 ✓ Ammonia by Fluorescence E298 1098556 1 20 5.0 5.0 ✓ Chloride in Water by IC E235.CI 1093339 1 13 7.6 5.0 ✓ Conductivity in Water E100 1093337 1 13 7.6 5.0 ✓ Dissolved Mercury in Water by CVAAS E509 1096922 1 16 6.2 5.0 ✓ Dissolved Metals in Water by CRC ICPMS E421 1093125 1 18 5.5 5.0 ✓	TDS by Gravimetry	E162	1099790	1	20	5.0	5.0	✓
Method Blanks (MB) Alkalinity Species by Titration E290 1093336 1 13 7.6 5.0 ✓ Ammonia by Fluorescence E298 1098556 1 20 5.0 5.0 ✓ Chloride in Water by IC E235.CI 1093339 1 13 7.6 5.0 ✓ Conductivity in Water E100 1093337 1 13 7.6 5.0 ✓ Dissolved Mercury in Water by CVAAS E509 1096922 1 16 6.2 5.0 ✓ Dissolved Metals in Water by CRC ICPMS E421 1093125 1 18 5.5 5.0 ✓	VH and F1 by Headspace GC-FID	E581.VH+F1	1101518	1	15	6.6	5.0	✓
Alkalinity Species by Titration E290 1093336 1 13 7.6 5.0 ✓ Ammonia by Fluorescence E298 1098556 1 20 5.0 5.0 ✓ Chloride in Water by IC E235.Cl 1093339 1 13 7.6 5.0 ✓ Conductivity in Water E100 1093337 1 13 7.6 5.0 ✓ Dissolved Mercury in Water by CVAAS E509 1096922 1 16 6.2 5.0 ✓ Dissolved Metals in Water by CRC ICPMS E421 1093125 1 18 5.5 5.0 ✓	VOCs (BC List) by Headspace GC-MS	E611C	1101517	1	8	12.5	5.0	✓
Ammonia by Fluorescence E298 1098556 1 20 5.0 5.0 ✓ Chloride in Water by IC E235.Cl 1093339 1 13 7.6 5.0 ✓ Conductivity in Water E100 1093337 1 13 7.6 5.0 ✓ Dissolved Mercury in Water by CVAAS E509 1096922 1 16 6.2 5.0 ✓ Dissolved Metals in Water by CRC ICPMS E421 1093125 1 18 5.5 5.0 ✓	Method Blanks (MB)							
Chloride in Water by IC E235.Cl 1093339 1 13 7.6 5.0 ✓ Conductivity in Water E100 1093337 1 13 7.6 5.0 ✓ Dissolved Mercury in Water by CVAAS E509 1096922 1 16 6.2 5.0 ✓ Dissolved Metals in Water by CRC ICPMS E421 1093125 1 18 5.5 5.0 ✓	Alkalinity Species by Titration	E290	1093336	1	13	7.6	5.0	✓
Conductivity in Water E100 1093337 1 13 7.6 5.0 ✓ Dissolved Mercury in Water by CVAAS E509 1096922 1 16 6.2 5.0 ✓ Dissolved Metals in Water by CRC ICPMS E421 1093125 1 18 5.5 5.0 ✓	Ammonia by Fluorescence	E298	1098556	1	20		5.0	✓
Dissolved Mercury in Water by CVAAS E509 1096922 1 16 6.2 5.0 ✓ Dissolved Metals in Water by CRC ICPMS E421 1093125 1 18 5.5 5.0 ✓	Chloride in Water by IC	E235.Cl	1093339	1	13	7.6	5.0	✓
Dissolved Metals in Water by CRC ICPMS	Conductivity in Water	E100	1093337	1	13	7.6	5.0	✓
,	Dissolved Mercury in Water by CVAAS	E509	1096922	1	16	6.2	5.0	✓
Fluoride in Water by IC E235.F 1093338 1 13 7.6 5.0 🗸	Dissolved Metals in Water by CRC ICPMS	E421	1093125	1	18	5.5	5.0	✓
	Fluoride in Water by IC	E235.F	1093338	1	13	7.6	5.0	✓

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Matrix: Water		Evaluati	on: × = QC freque	ency outside spe	ecification; ✓ =	QC frequency wit	thin specification
Quality Control Sample Type		·	Co	ount		Frequency (%))
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation
Method Blanks (MB) - Continued							
Nitrate in Water by IC (Low Level)	E235.NO3-L	1093340	1	13	7.6	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1093341	1	13	7.6	5.0	✓
Sulfate in Water by IC	E235.SO4	1093342	1	13	7.6	5.0	✓
TDS by Gravimetry	E162	1099790	1	20	5.0	5.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	1101518	1	15	6.6	5.0	✓
VOCs (BC List) by Headspace GC-MS	E611C	1101517	1	8	12.5	5.0	✓
Matrix Spikes (MS)							
Ammonia by Fluorescence	E298	1098556	1	20	5.0	5.0	✓
Chloride in Water by IC	E235.CI	1093339	1	13	7.6	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1096922	1	16	6.2	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1093125	1	18	5.5	5.0	✓
Fluoride in Water by IC	E235.F	1093338	1	13	7.6	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1093340	1	13	7.6	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1093341	1	13	7.6	5.0	✓
Sulfate in Water by IC	E235.SO4	1093342	1	13	7.6	5.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	1101518	1	15	6.6	5.0	✓
VOCs (BC List) by Headspace GC-MS	E611C	1101517	1	8	12.5	5.0	✓

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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	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
	ALS Environmental -			sample. Conductivity measurements are temperature-compensated to 25°C.
	Vancouver			
TDS by Gravimetry	E162	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,
	ALS Environmental -			with gravimetric measurement of the residue.
	Vancouver			
Chloride in Water by IC	E235.CI	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and /or UV detection.
	ALS Environmental -			
	Vancouver			
Fluoride in Water by IC	E235.F	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and /or UV detection.
	ALS Environmental -			
	Vancouver			
Nitrite in Water by IC (Low Level)	E235.NO2-L	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and /or UV detection.
	ALS Environmental -			
	Vancouver			
Nitrate in Water by IC (Low Level)	E235.NO3-L	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and /or UV detection.
	ALS Environmental -			
	Vancouver			
Sulfate in Water by IC	E235.SO4	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and /or UV detection.
	ALS Environmental -			
	Vancouver			
Alkalinity Species by Titration	E290	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
	ALS Environmental -			alkalinity values.
	Vancouver			
Ammonia by Fluorescence	E298	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).
	ALS Environmental -			This method is approved under US EPA 40 CFR Part 136 (May 2021)
	Vancouver			. , , ,

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Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Dissolved Metals in Water by CRC ICPMS	E421 ALS Environmental -	Water	APHA 3030B/EPA 6020B (mod)	Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by Collision/Reaction Cell ICPMS.
	Vancouver			Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
Dissolved Mercury in Water by CVAAS	E509	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
	ALS Environmental - Vancouver		1031E (mod)	CVAAS.
VH and F1 by Headspace GC-FID	E581.VH+F1	Water	BC MOE Lab Manual / CCME PHC in Soil - Tier	Volatile Hydrocarbons (VH and F1) is analyzed by static headspace GC-FID. Samples are prepared in headspace vials and are heated and agitated on the headspace
	ALS Environmental - Vancouver		1 (mod)	autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.
				Analytical methods for CCME Petroleum Hydrocarbons (PHCs) are validated to comply fully with the Reference Method for the Canada-Wide Standard for PHC. Unless qualified, all required quality control criteria of the CCME PHC method have been met, including response factor and linearity requirements.
VOCs (BC List) by Headspace GC-MS	E611C	Water	EPA 8260D (mod)	Volatile Organic Compounds (VOCs) are analyzed by static headspace GC-MS. Samples are prepared in headspace vials and are heated and agitated on the
	ALS Environmental -			headspace autosampler, causing VOCs to partition between the aqueous phase and
	Vancouver			the headspace in accordance with Henry's law.
Dissolved Hardness (Calculated)	EC100	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
	ALS Environmental -			to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially
	Vancouver			calculated from dissolved Calcium and Magnesium concentrations, because it is a property of water due to dissolved divalent cations.
Nitrate and Nitrite (as N) (Calculation)	EC235.N+N	Water	EPA 300.0	Nitrate and Nitrite (as N) is a calculated parameter. Nitrate and Nitrite (as N) = Nitrite (as N) + Nitrate (as N).
	ALS Environmental -			
VDII. VII DTEV Characa	Vancouver	\A/=+==		
VPH: VH-BTEX-Styrene	EC580A	Water	BC MOE Lab Manual (VPH in Water and	Volatile Petroleum Hydrocarbons (VPH) is calculated as follows: VPHw = Volatile Hydrocarbons (VH6-10) minus benzene, toluene, ethylbenzene, xylenes (BTEX) and
	ALS Environmental -		Solids) (mod)	styrene.
	Vancouver			
Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Ammonia	EP298	Water		Sample preparation for Preserved Nutrients Water Quality Analysis.
	ALS Environmental -			
	Vancouver			
Dissolved Metals Water Filtration	EP421	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HNO3.
	ALS Environmental -			
	Vancouver			

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Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions							
Dissolved Mercury Water Filtration	EP509	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HCl.							
	ALS Environmental - Vancouver										
VOCs Preparation for Headspace Analysis	EP581 ALS Environmental - Vancouver	Water	EPA 5021A (mod)	Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler. An aliquot of the headspace is then injected into the GC/MS-FID system.							

ALS

Chain of Custody (COC) / Analytical Request Form

Affix ALS barcode label here

COC Number: 17 -

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Are samples for	human consumption use?	•					₹°2.	*** I & II	TALC	OOLER	QTEACRE!	ATURE.	9.7C 🗽		T. E. C.	FINAL	COOLER	TEMPERA	TURES	VI (2948)
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Failure to complete all purisons of this form may delay analysis. Please (it 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.

ALS Canada Ltd.

Address

C-O-C number



CERTIFICATE OF ANALYSIS

Work Order : VA23C7475 Page : 1 of 6

Client : Comox Valley Regional District Laboratory : ALS Environmental - Vancouver

Account Manager Contact : Crystal Stuart : Thomas Chang

> : 770 Harmston Avenue Address : 8081 Lougheed Highway

Courtney BC Canada V9N 0G8 Burnaby BC Canada V5A 1W9

Issue Date

: 23-Nov-2023 14:54

Telephone : 250-898-3722 Telephone : +1 604 253 4188 : 4-2-1 Date Samples Received

Project : 15-Nov-2023 12:00 PO : 23-015 **Date Analysis Commenced** : 15-Nov-2023

Sampler : Crystal Stuart Site : CRWMC-Quarterly-GW

Quote number : VA23-COVR100-001

No. of samples received : 10 No. of samples analysed : 10

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	
Alex Thornton	Analyst	Metals, Burnaby, British Columbia	
Anshim Anshim	Lab Assistant	Metals, Burnaby, British Columbia	
Brieanna Allen	Production/Validation Manager	Inorganics, Burnaby, British Columbia	
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia	
Miles Gropen	Department Manager - Inorganics	Inorganics, Burnaby, British Columbia	
Robert Nguyen	Analsyt	Metals, Burnaby, British Columbia	
Sam Silveira	Lab Assistant	Metals, Burnaby, British Columbia	

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Work Order : VA23C7475

Client : Comox Valley Regional District

Project : 4-2-



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
μS/cm	microsiemens per centimetre
mg/L	milligrams per litre

<: 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

Description
Detection Limit Raised: Dilution required due to high Dissolved Solids / Electrical
Conductivity.

Page : 3 of 6 Work Order : VA23C7475

Client : Comox Valley Regional District

Project : 4-2-1



Analytical Results

Sub-Matrix: Water			Cli	ient sample ID	WG-111323-CS-	WG-111323-CS-	WG-111323-CS-	WG-111323-CS-	WG-111323-CS-
(Matrix: Water)					01	02	03	04	05
			Client samp	ling date / time	13-Nov-2023 09:30	13-Nov-2023 10:25	13-Nov-2023 11:10	13-Nov-2023 11:40	13-Nov-2023 11:45
Analyte	CAS Number	Method/Lab	LOR	Unit	VA23C7475-001	VA23C7475-002	VA23C7475-003	VA23C7475-004	VA23C7475-005
					Result	Result	Result	Result	Result
Physical Tests Alkalinity, bicarbonate (as CaCO3)		E290/VA	1.0	mg/L	44.9	108	54.4	61.3	61.4
Alkalinity, bicarbonate (as CaCO3)		E290/VA	1.0	mg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Alkalinity, bydroxide (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	44.9	108	54.4	61.3	61.4
Conductivity		E100/VA	2.0	μS/cm	91.8	207	110	140	140
Hardness (as CaCO3), dissolved		EC100/VA	0.60	μο/cm mg/L	43.6	109	51.2	63.4	63.4
Solids, total dissolved [TDS]		E162/VA	10	mg/L	58	133	68	93	93
Anions and Nutrients		L102/VA	10	IIIg/L	30	100	00	33	35
Ammonia, total (as N)	7664-41-7	E298/VA	0.0050	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Chloride	16887-00-6		0.50	mg/L	0.78	1.99	1.41	2.84	2.84
Fluoride	16984-48-8		0.020	mg/L	<0.020	<0.020	<0.020	<0.020	<0.020
Nitrate (as N)		E235.NO3-L/V	0.0050	mg/L	0.126	0.198	0.0480	0.471	0.468
,	11707 00 0	A		9.=				-	
Nitrate + Nitrite (as N)		EC235.N+N/V	0.0050	mg/L	0.126	0.198	0.0480	0.471	0.468
Nitrite (as N)	14797-65-0	A E235.NO2-L/V	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Sulfate (as SO4)	14808-79-8	A E235.SO4/VA	0.30	mg/L	2.68	3.07	2.49	6.13	6.14
Dissolved Metals		1000			3 11				1.50
Aluminum, dissolved	7429-90-5	E421/VA	0.0010	mg/L	0.0028	0.0041	0.0039	0.0055	0.0031
Antimony, dissolved	7440-36-0	E421/VA	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic, dissolved	7440-38-2	E421/VA	0.00010	mg/L	<0.00010	0.00082	0.00020	0.00157	0.00154
Barium, dissolved	7440-39-3		0.00010	mg/L	0.00133	0.00233	0.00041	0.00178	0.00187
Beryllium, dissolved	7440-41-7	E421/VA	0.000020	mg/L	<0.000020	<0.000020	<0.000020	<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	<0.010	<0.010	<0.010	<0.010
Cadmium, dissolved	7440-43-9		0.0000050	mg/L	<0.0000050	0.0000053	<0.0000050	<0.0000050	<0.0000050
Calcium, dissolved	7440-70-2		0.050	mg/L	14.3	35.7	16.6	19.7	19.7
Chromium, dissolved	7440-47-3	E421/VA	0.00050	mg/L	<0.00050	0.00056	<0.00050	0.00073	0.00076
Cobalt, dissolved	7440-48-4	E421/VA	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010

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Work Order : VA23C7475

Client : Comox Valley Regional District

Project : 4-2-

ALS

Analytical Results

Sub-Matrix: Water		CI	ient sample ID	WG-111323-CS-	WG-111323-CS-	WG-111323-CS-	WG-111323-CS-	WG-111323-CS-
(Matrix: Water)				01	02	03	04	05
			ling date / time	13-Nov-2023 09:30	13-Nov-2023 10:25	13-Nov-2023 11:10	13-Nov-2023 11:40	13-Nov-2023 11:45
Analyte	CAS Number Method/Lab	LOR	Unit	VA23C7475-001	VA23C7475-002	VA23C7475-003	VA23C7475-004	VA23C7475-005
				Result	Result	Result	Result	Result
Dissolved Metals		0.00000		0.0000	0.0007	0.0004		0.0000
Copper, dissolved	7440-50-8 E421/VA	0.00020	mg/L	<0.00020	0.00027	0.00024	0.00026	0.00029
Iron, dissolved	7439-89-6 E421/VA	0.010	mg/L	<0.010	<0.010	<0.010	<0.010	<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	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Magnesium, dissolved	7439-95-4 E421/VA	0.100	mg/L	1.93	4.90	2.36	3.45	3.45
Manganese, dissolved	7439-96-5 E421/VA	0.00010	mg/L	0.00014	<0.00010	0.00010	<0.00010	<0.00010
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	0.000137	0.000137	0.000132	0.000061	0.000065
Nickel, dissolved	7440-02-0 E421/VA	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Phosphorus, dissolved	7723-14-0 E421/VA	0.050	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium, dissolved	7440-09-7 E421/VA	0.100	mg/L	0.179	0.795	0.300	1.20	1.20
Selenium, dissolved	7782-49-2 E421/VA	0.000050	mg/L	0.000113	0.000131	0.000102	0.000151	0.000129
Silicon, dissolved	7440-21-3 E421/VA	0.050	mg/L	3.87	5.88	4.83	5.14	5.17
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	1.19	1.86	2.50	3.15	3.20
Strontium, dissolved	7440-24-6 E421/VA	0.00020	mg/L	0.0200	0.0548	0.0267	0.0324	0.0328
Sulfur, dissolved	7704-34-9 E421/VA	0.50	mg/L	1.00	1.17	1.00	2.20	2.06
Thallium, dissolved	7440-28-0 E421/VA	0.000010	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
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	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030
Uranium, dissolved	7440-61-1 E421/VA	0.000010	mg/L	<0.000010	0.000107	0.000032	0.000383	0.000397
Vanadium, dissolved	7440-62-2 E421/VA	0.00050	mg/L	0.00135	0.00557	0.00411	0.0144	0.0144
Zinc, dissolved	7440-66-6 E421/VA	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Zirconium, dissolved	7440-67-7 E421/VA	0.00020	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
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.

Please refer to the Accreditation section for an explanation of analyte accreditations.

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Work Order : VA23C7475

Client : Comox Valley Regional District

Project : 4-2-

ALS

Analytical Results

Sub-Matrix: Water			Cli	ient sample ID	WG-111323-CS-	WG-111323-CS-	WG-111323-CS-	WG-111323-CS-	WG-111323-CS-
(Matrix: Water)					06	07	08	09	10
			Client samp	ling date / time	13-Nov-2023 12:20	13-Nov-2023 14:30	13-Nov-2023 15:00	13-Nov-2023 15:40	13-Nov-2023 17:00
Analyte	CAS Number	Method/Lab	LOR	Unit	VA23C7475-006	VA23C7475-007	VA23C7475-008	VA23C7475-009	VA23C7475-010
					Result	Result	Result	Result	Result
Physical Tests									
Alkalinity, bicarbonate (as CaCO3)		E290/VA	1.0	mg/L	44.3	216	107	315	<1.0
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, total (as CaCO3)		E290/VA	1.0	mg/L	44.3	216	107	315	<1.0
Conductivity		E100/VA	2.0	μS/cm	94.7	458	722	566	<2.0
Hardness (as CaCO3), dissolved		EC100/VA	0.60	mg/L	45.8	243	240	327	<0.60
Solids, total dissolved [TDS]		E162/VA	10	mg/L	60	282	498	352	<10
Anions and Nutrients					2				
Ammonia, total (as N)	7664-41-7	E298/VA	0.0050	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Chloride	16887-00-6	E235.CI/VA	0.50	mg/L	2.34	18.4	98.4	3.79	<0.50
Fluoride	16984-48-8	E235.F/VA	0.020	mg/L	0.021	<0.020	<0.100 DLDS	<0.020	<0.020
Nitrate (as N)	14797-55-8	E235.NO3-L/V	0.0050	mg/L	0.261	1.23	16.8	2.14	<0.0050
		Α							
Nitrate + Nitrite (as N)		EC235.N+N/V	0.0050	mg/L	0.261	1.23	16.8	2.14	<0.0051
APPEND OF AD		Α	0.0040		-0.0040	10.0040	0.0404	-0.0040	-0.0040
Nitrite (as N)	14797-65-0	E235.NO2-L/V	0.0010	mg/L	<0.0010	<0.0010	0.0434	<0.0010	<0.0010
Sulfate (as SO4)	14808-79-8	E235.SO4/VA	0.30	mg/L	1.71	8.25	35.4	3.82	<0.30
Dissolved Metals	14000-75-0			9/ =	- 1				
Aluminum, dissolved	7429-90-5	E421/VA	0.0010	mg/L	0.0038	0.0042	0.0076	0.0012	<0.0010
Antimony, dissolved	7440-36-0		0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic, dissolved	7440-38-2		0.00010	mg/L	0.00022	<0.00010	0.00015	0.00013	<0.00010
Barium, dissolved	7440-39-3	1	0.00010	mg/L	0.00028	0.00847	0.00936	0.00745	<0.00010
Beryllium, dissolved	7440-41-7		0.000020	mg/L	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Bismuth, dissolved	7440-69-9		0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron, dissolved	7440-42-8		0.010	mg/L	<0.010	0.015	0.107	0.073	<0.010
Cadmium, dissolved	7440-42-0	1	0.0000050	mg/L	<0.000050	0.0000051	0.0000193	0.0000064	<0.0000050
Calcium, dissolved	7440-43-9		0.050	mg/L	14.2	77.5	71.7	99.6	<0.050
Chromium, dissolved	7440-70-2		0.00050	mg/L	0.00064	0.00184	<0.00050	0.00127	<0.00050
Cobalt, dissolved	7440-47-3		0.00030	mg/L	<0.00010	<0.00104	0.00044	<0.00127	<0.00030
Copper, dissolved	7440-46-4	1	0.00010	-	0.00010	0.00020	0.00329	0.00032	<0.00010
Copper, dissolved	/440-50-8	L42 1/VA	0.00020	mg/L	0.00020	0.00020	0.00329	0.00032	\0.00020

Page : 6 of 6

Work Order : VA23C7475

Client : Comox Valley Regional District

Project : 4-2-

ALS

Analytical Results

Sub-Matrix: Water			Cl	ient sample ID	WG-111323-CS-	WG-111323-CS-	WG-111323-CS-	WG-111323-CS-	WG-111323-CS-
(Matrix: Water)					06	07	08	09	10
				ling date / time	13-Nov-2023 12:20	13-Nov-2023 14:30	13-Nov-2023 15:00	13-Nov-2023 15:40	13-Nov-2023 17:00
Analyte	CAS Number	Method/Lab	LOR	Unit	VA23C7475-006	VA23C7475-007	VA23C7475-008	VA23C7475-009	VA23C7475-010
					Result	Result	Result	Result	Result
Dissolved Metals		E40404A	0.040	,,	-0.040	10.040	0.040	.0.040	10.040
Iron, dissolved	7439-89-6		0.010	mg/L	<0.010	<0.010	0.010	<0.010	<0.010
Lead, dissolved	7439-92-1		0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Lithium, dissolved	7439-93-2		0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Magnesium, dissolved	7439-95-4		0.100	mg/L	2.50	12.1	14.9	19.0	<0.100
Manganese, dissolved	7439-96-5		0.00010	mg/L	0.00017	<0.00010	0.150	<0.00010	<0.00010
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	0.000099	<0.000050	0.000088	<0.000050	<0.000050
Nickel, dissolved	7440-02-0	E421/VA	0.00050	mg/L	<0.00050	<0.00050	0.00066	<0.00050	<0.00050
Phosphorus, dissolved	7723-14-0	E421/VA	0.050	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium, dissolved	7440-09-7	E421/VA	0.100	mg/L	0.246	1.27	1.32	1.46	<0.100
Selenium, dissolved	7782-49-2	E421/VA	0.000050	mg/L	0.000097	0.000092	0.000066	<0.000050	<0.000050
Silicon, dissolved	7440-21-3	E421/VA	0.050	mg/L	4.72	7.96	9.03	12.3	<0.050
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	2.22	6.17	47.1	8.28	<0.050
Strontium, dissolved	7440-24-6	E421/VA	0.00020	mg/L	0.0314	0.171	0.189	0.203	<0.00020
Sulfur, dissolved	7704-34-9		0.50	mg/L	0.85	2.88	12.8	1.47	<0.50
Thallium, dissolved	7440-28-0		0.000010	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
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		0.00030	mg/L	<0.00030	<0.00030	0.00037	<0.00030	<0.00030
Uranium, dissolved	7440-61-1		0.000010	mg/L	0.000068	0.000358	0.000381	0.000242	<0.000010
Vanadium, dissolved	7440-62-2		0.00050	mg/L	0.00426	0.00171	0.00326	0.00176	<0.00050
Zinc, dissolved	7440-66-6		0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Zirconium, dissolved	7440-67-7		0.00020	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
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.

Please refer to the Accreditation section for an explanation of analyte accreditations.

ALS Canada Ltd.



QUALITY CONTROL REPORT

Work Order : VA23C7475 Page : 1 of 14

Client : Comox Valley Regional District Laboratory : ALS Environmental - Vancouver

Contact : Crystal Stuart Account Manager : Thomas Chang

:770 Harmston Avenue Address :8081 Lougheed Highway

Burnaby, British Columbia Canada V5A 1W9

Telephone : Telephone :+1 604 253 4188

 Project
 : 4-2-1
 Date Samples Received
 : 15-Nov-2023 12:00

 PO
 : 23-015
 Date Analysis Commenced
 : 15-Nov-2023

C-O-C number : 23-Noy-2023 14:55

Sampler : Crystal Stuart₂₅₀₋₈₉₈₋₃₇₂₂

Site : CRWMC-Quarterly-GW

Quote number : VA23-COVR100-001

No. of samples received : 10

No. of samples analysed : 10

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

Courtney BC Canada V9N 0G8

Signatories

Address

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
Alex Thornton	Analyst	Vancouver Metals, Burnaby, British Columbia
Anshim Anshim	Lab Assistant	Vancouver Metals, Burnaby, British Columbia
Brieanna Allen	Production/Validation Manager	Vancouver Inorganics, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Vancouver Metals, Burnaby, British Columbia
Miles Gropen	Department Manager - Inorganics	Vancouver Inorganics, Burnaby, British Columbia
Robert Nguyen	Analsyt	Vancouver Metals, Burnaby, British Columbia
Sam Silveira	Lab Assistant	Vancouver Metals, Burnaby, British Columbia

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Client : Comox Valley Regional District

Project : 4-2-1



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.

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Client : Comox Valley Regional District

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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							Labora	tory Duplicate (D	UP) 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: 1238936)										
FJ2303033-003	Anonymous	Conductivity		E100	2.0	μS/cm	273	272	0.367%	10%	
Physical Tests (QC	Lot: 1238937)										
FJ2303033-003	Anonymous	Alkalinity, bicarbonate (as CaCO3)		E290	1.0	mg/L	121	120	0.663%	200%	
		Alkalinity, carbonate (as CaCO3)		E290	1.0	mg/L	2.6	3.0	14.3%	200%	
		Alkalinity, hydroxide (as CaCO3)		E290	1.0	mg/L	<1.0	<1.0	0.00%	200%	
		Alkalinity, total (as CaCO3)		E290	1.0	mg/L	124	123	0.324%	20%	
Physical Tests (QC	Lot: 1243903)										
VA23C7419-001	Anonymous	Solids, total dissolved [TDS]		E162	20	mg/L	281	247	12.7%	20%	
Anions and Nutrien	ts (QC Lot: 1238939)										
VA23C7451-001	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	<0.30	<0.30	0	Diff <2x LOR	
Anions and Nutrien	ts (QC Lot: 1238940)										
VA23C7451-001	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	0.0211	0.0200	0.0011	Diff <2x LOR	
Anions and Nutrien	ts (QC Lot: 1238941)										
VA23C7451-001	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	
Anions and Nutrien	ts (QC Lot: 1238942)										
VA23C7451-001	Anonymous	Chloride	16887-00-6	E235.CI	0.50	mg/L	0.86	0.85	0.002	Diff <2x LOR	
Anions and Nutrien	ts (QC Lot: 1238943)										
VA23C7451-001	Anonymous	Fluoride	16984-48-8	E235.F	0.020	mg/L	<0.020	<0.020	0	Diff <2x LOR	
Anions and Nutrien	ts (QC Lot: 1245595)										
VA23C7475-001	WG-111323-CS-01	Ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	
Anions and Nutrien	ts (QC Lot: 1245626)										
VA23C7475-008	WG-111323-CS-08	Ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	
Dissolved Metals (QC Lot: 1239675)										
VA23C7461-001	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	<0.0010	0.0014	0.0004	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	0.00200	0.00208	3.78%	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	<0.010	<0.010	0	Diff <2x LOR	

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Client : Comox Valley Regional District

Project : 4-2-1



ub-Matrix: Water						Laboratory Duplicate				RPD(%) or Duplicate Quantity Difference Limits Quantity Construction Constru			
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result			Qualifier		
Dissolved Metals (QC Lot: 1239675) - c	ontinued											
VA23C7461-001	Anonymous	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	7.20	7.36	2.21%	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	<0.00010	<0.00010	0	Diff <2x LOR			
		Copper, dissolved	7440-50-8	E421	0.00020	mg/L	0.00030	0.00036	0.00006	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	0.000064	0.000014	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	0.0050	mg/L	0.596	0.599	0.403%	20%			
		Manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.00620	0.00634	2.15%	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	<0.00050	<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	0.183	0.189	0.006	Diff <2x LOR			
		Selenium, dissolved	7782-49-2	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR			
		Silicon, dissolved	7440-21-3	E421	0.050	mg/L	2.43	2.40	1.33%	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	1.40	1.43	1.52%	20%			
		Strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.0148	0.0153	2.92%	20%			
		Sulfur, dissolved	7704-34-9	E421	0.50	mg/L	0.60	0.55	0.05	Diff <2x LOR			
		Thallium, dissolved	7440-28-0	E421	0.000010	mg/L	<0.000010	<0.000010	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			
		Uranium, dissolved	7440-61-1	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR			
		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			
issolved Metals (QC Lot: 1240556)												
/A23C7405-022	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	0.0089	0.0092	0.0003	Diff <2x LOR			
		Antimony, dissolved	7440-36-0	E421	0.00010	mg/L	0.00018	0.00017	0.00001	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	0.0304	0.0299	1.84%	20%			
		Beryllium, dissolved	7440-41-7	E421	0.000020	mg/L	0.000021	<0.000020	0.0000008	Diff <2x LOR			
		Bismuth, dissolved	7440-69-9	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR			

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Client : Comox Valley Regional District

Project : 4-2-1



ub-Matrix: Water							Labora	tory Duplicate (D	ог) кероп		
aboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifie
	QC Lot: 1240556) - co	ontinued									
A23C7405-022	Anonymous	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	0.00402	0.00401	0.321%	20%	
		Calcium, dissolved	7440-70-2	E421	0.050	mg/L	67.6	66.2	2.09%	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	0.00863	0.00851	1.40%	20%	
		Copper, dissolved	7440-50-8	E421	0.00020	mg/L	0.00689	0.00675	2.03%	20%	
		Iron, dissolved	7439-89-6	E421	0.010	mg/L	1.47	1.46	0.736%	20%	
		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	0.0040	0.0040	0.000009	Diff <2x LOR	
		Magnesium, dissolved	7439-95-4	E421	0.100	mg/L	7.52	7.53	0.0757%	20%	
		Manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.659	0.656	0.582%	20%	
		Molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.00119	0.00116	2.01%	20%	
		Nickel, dissolved	7440-02-0	E421	0.00050	mg/L	0.00408	0.00406	0.00002	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	0.100	mg/L	0.856	0.866	0.011	Diff <2x LOR	
		Selenium, dissolved	7782-49-2	E421	0.000050	mg/L	0.00352	0.00333	5.50%	20%	
		Silicon, dissolved	7440-21-3	E421	0.050	mg/L	3.08	3.08	0.134%	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	3.14	3.12	0.580%	20%	
		Strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.372	0.375	0.788%	20%	
		Sulfur, dissolved	7704-34-9	E421	0.50	mg/L	62.0	61.9	0.225%	20%	
		Thallium, dissolved	7440-28-0	E421	0.000010	mg/L	0.000020	0.000022	0.000002	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	
		Uranium, dissolved	7440-61-1	E421	0.000010	mg/L	0.000044	0.000043	0.000001	Diff <2x LOR	
		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	0.297	0.296	0.241%	20%	
		Zirconium, dissolved	7440-67-7	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	
issolved Metals (QC Lot: 1247177)										
A23C7429-002	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	

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Client : Comox Valley Regional District

Project : 4-2-1

ALS

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

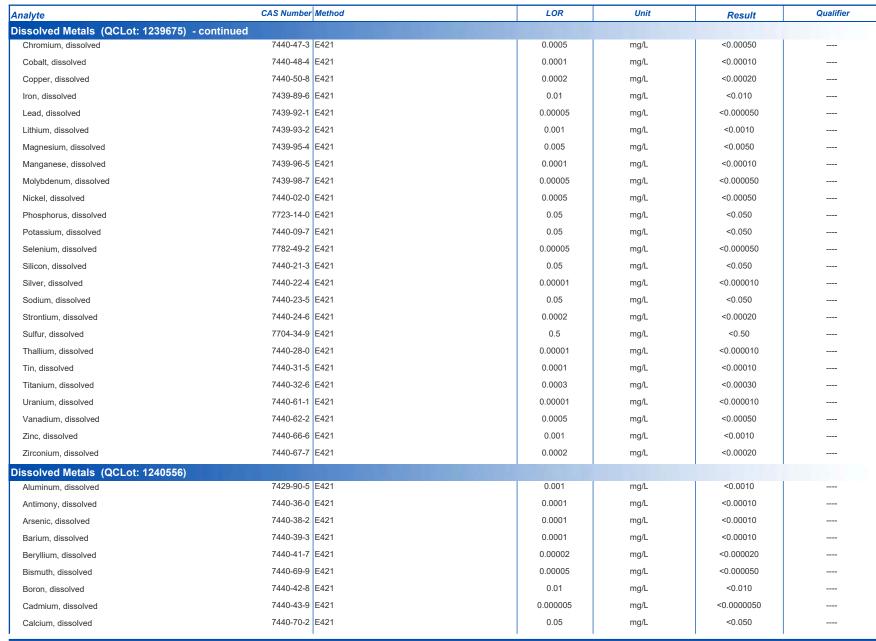
Analyte	CAS Number Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 1238936)					
Conductivity	E100	1	μS/cm	<1.0	
Physical Tests (QCLot: 1238937)					
Alkalinity, bicarbonate (as CaCO3)	E290	1	mg/L	<1.0	
Alkalinity, carbonate (as CaCO3)	E290	1	mg/L	<1.0	
Alkalinity, hydroxide (as CaCO3)	E290	1	mg/L	<1.0	
Alkalinity, total (as CaCO3)	E290	1	mg/L	<1.0	
Physical Tests (QCLot: 1243903)					
Solids, total dissolved [TDS]	E162	10	mg/L	<10	
Anions and Nutrients (QCLot: 1238939)					
Sulfate (as SO4)	14808-79-8 E235.SO4	0.3	mg/L	<0.30	
Anions and Nutrients (QCLot: 1238940)					
Nitrate (as N)	14797-55-8 E235.NO3-L	0.005	mg/L	<0.0050	
Anions and Nutrients (QCLot: 1238941)					
Nitrite (as N)	14797-65-0 E235.NO2-L	0.001	mg/L	<0.0010	
Anions and Nutrients (QCLot: 1238942)					
Chloride	16887-00-6 E235.CI	0.5	mg/L	<0.50	
Anions and Nutrients (QCLot: 1238943)					
Fluoride	16984-48-8 E235.F	0.02	mg/L	<0.020	
Anions and Nutrients (QCLot: 1245595)					
Ammonia, total (as N)	7664-41-7 E298	0.005	mg/L	<0.0050	
Anions and Nutrients (QCLot: 1245626)					
Ammonia, total (as N)	7664-41-7 E298	0.005	mg/L	<0.0050	
Dissolved Metals (QCLot: 1239675)					
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	

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Client : Comox Valley Regional District

Project : 4-2-1

Sub-Matrix: Water



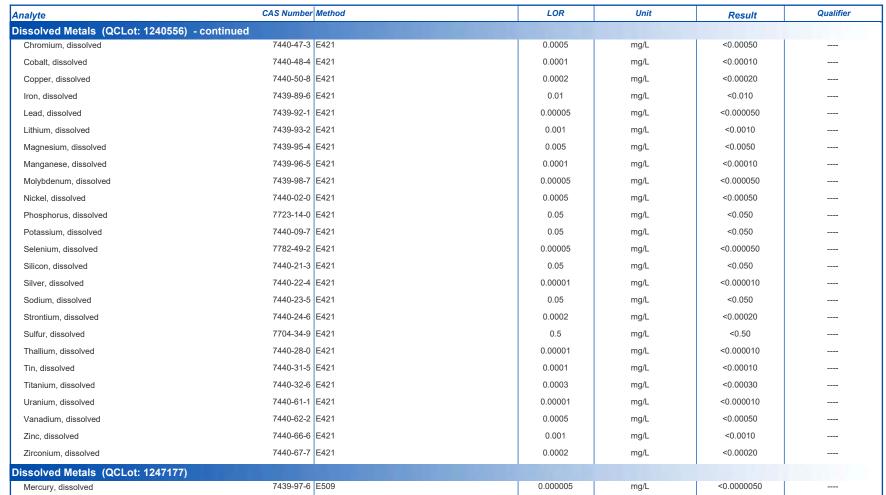


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Client : Comox Valley Regional District

Project : 4-2-1

Sub-Matrix: Water





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 :
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Client : Comox Valley Regional District

Project : 4-2-1

ALS

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 Co	ntrol Sample (LCS)	Report	
					Spike	Recovery (%)	Recovery	Limits (%)	
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 1238936)									
Conductivity		E100	1	μS/cm	146.9 μS/cm	95.4	90.0	110	
Physical Tests (QCLot: 1238937)									
Alkalinity, total (as CaCO3)		E290	1	mg/L	500 mg/L	109	85.0	115	
Physical Tests (QCLot: 1243903)									
Solids, total dissolved [TDS]		E162	10	mg/L	1000 mg/L	92.7	85.0	115	
Anions and Nutrients (QCLot: 1238939)									
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	100.0	90.0	110	
Anions and Nutrients (QCLot: 1238940)	1 1 1								
litrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	2.5 mg/L	99.8	90.0	110	
Anions and Nutrients (QCLot: 1238941)									
litrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	0.5 mg/L	99.6	90.0	110	
nions and Nutrients (QCLot: 1238942)									
Chloride	16887-00-6	E235.CI	0.5	mg/L	100 mg/L	100.0	90.0	110	
nions and Nutrients (QCLot: 1238943)									
luoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	102	90.0	110	
Anions and Nutrients (QCLot: 1245595)									
mmonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	95.8	85.0	115	
nions and Nutrients (QCLot: 1245626)									
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	95.5	85.0	115	
Dissolved Metals (QCLot: 1239675)									
luminum, dissolved	7429-90-5		0.001	mg/L	2 mg/L	103	80.0	120	
ntimony, dissolved	7440-36-0		0.0001	mg/L	1 mg/L	101	80.0	120	
rsenic, dissolved	7440-38-2		0.0001	mg/L	1 mg/L	104	80.0	120	
arium, dissolved	7440-39-3		0.0001	mg/L	0.25 mg/L	101	80.0	120	
eryllium, dissolved	7440-41-7		0.00002	mg/L	0.1 mg/L	99.7	80.0	120	
ismuth, dissolved	7440-69-9		0.00005	mg/L	1 mg/L	104	80.0	120	
oron, dissolved	7440-42-8		0.01	mg/L	1 mg/L	104	80.0	120	
admium, dissolved	7440-43-9		0.000005	mg/L	0.1 mg/L	100	80.0	120	
Calcium, dissolved	7440-70-2		0.05	mg/L	50 mg/L	104	80.0	120	
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	0.25 mg/L	103	80.0	120	

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Client : Comox Valley Regional District

Project : 4-2-1



Sub-Matrix: Water						Laboratory Co	entrol Sample (LCS)	Report	
					Spike	Recovery (%)	Recovery	Limits (%)	
Analyte	CAS Number Me	ethod	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Dissolved Metals (QCLot: 1239675) - co	ontinued								
Cobalt, dissolved	7440-48-4 E42	21	0.0001	mg/L	0.25 mg/L	100	80.0	120	
Copper, dissolved	7440-50-8 E42	21	0.0002	mg/L	0.25 mg/L	99.1	80.0	120	
Iron, dissolved	7439-89-6 E42	21	0.01	mg/L	1 mg/L	96.7	80.0	120	
Lead, dissolved	7439-92-1 E42	21	0.00005	mg/L	0.5 mg/L	102	80.0	120	
Lithium, dissolved	7439-93-2 E42	21	0.001	mg/L	0.25 mg/L	101	80.0	120	
Magnesium, dissolved	7439-95-4 E42	21	0.005	mg/L	50 mg/L	100	80.0	120	
Manganese, dissolved	7439-96-5 E42	21	0.0001	mg/L	0.25 mg/L	99.1	80.0	120	
Molybdenum, dissolved	7439-98-7 E42	21	0.00005	mg/L	0.25 mg/L	104	80.0	120	
Nickel, dissolved	7440-02-0 E42	21	0.0005	mg/L	0.5 mg/L	98.3	80.0	120	
Phosphorus, dissolved	7723-14-0 E42	21	0.05	mg/L	10 mg/L	107	80.0	120	
Potassium, dissolved	7440-09-7 E42	21	0.05	mg/L	50 mg/L	99.9	80.0	120	
Selenium, dissolved	7782-49-2 E42	21	0.00005	mg/L	1 mg/L	100	80.0	120	
Silicon, dissolved	7440-21-3 E42	21	0.05	mg/L	10 mg/L	101	80.0	120	
Silver, dissolved	7440-22-4 E42	21	0.00001	mg/L	0.1 mg/L	97.5	80.0	120	
Sodium, dissolved	7440-23-5 E42	21	0.05	mg/L	50 mg/L	99.8	80.0	120	
Strontium, dissolved	7440-24-6 E42	21	0.0002	mg/L	0.25 mg/L	98.5	80.0	120	
Sulfur, dissolved	7704-34-9 E42	21	0.5	mg/L	50 mg/L	99.0	80.0	120	
Thallium, dissolved	7440-28-0 E42	21	0.00001	mg/L	1 mg/L	101	80.0	120	
Tin, dissolved	7440-31-5 E42	21	0.0001	mg/L	0.5 mg/L	101	80.0	120	
Titanium, dissolved	7440-32-6 E42	21	0.0003	mg/L	0.25 mg/L	93.4	80.0	120	
Uranium, dissolved	7440-61-1 E42	21	0.00001	mg/L	0.005 mg/L	97.7	80.0	120	
Vanadium, dissolved	7440-62-2 E42	21	0.0005	mg/L	0.5 mg/L	103	80.0	120	
Zinc, dissolved	7440-66-6 E42	21	0.001	mg/L	0.5 mg/L	99.5	80.0	120	
Zirconium, dissolved	7440-67-7 E42	21	0.0002	mg/L	0.1 mg/L	103	80.0	120	
Dissolved Metals (QCLot: 1240556)									
Aluminum, dissolved	7429-90-5 E42	21	0.001	mg/L	2 mg/L	102	80.0	120	
Antimony, dissolved	7440-36-0 E42	21	0.0001	mg/L	1 mg/L	99.6	80.0	120	
Arsenic, dissolved	7440-38-2 E42	21	0.0001	mg/L	1 mg/L	105	80.0	120	
Barium, dissolved	7440-39-3 E42	21	0.0001	mg/L	0.25 mg/L	101	80.0	120	
Beryllium, dissolved	7440-41-7 E42	21	0.00002	mg/L	0.1 mg/L	100	80.0	120	
Bismuth, dissolved	7440-69-9 E42	21	0.00005	mg/L	1 mg/L	100	80.0	120	
Boron, dissolved	7440-42-8 E42	21	0.01	mg/L	1 mg/L	97.9	80.0	120	
Cadmium, dissolved	7440-43-9 E42	21	0.000005	mg/L	0.1 mg/L	98.6	80.0	120	
Calcium, dissolved	7440-70-2 E42	21	0.05	mg/L	50 mg/L	99.7	80.0	120	
Chromium, dissolved	7440-47-3 E42	21	0.0005	mg/L	0.25 mg/L	97.6	80.0	120	
Cobalt, dissolved	7440-48-4 E42		0.0001	mg/L	0.25 mg/L	99.8	80.0	120	
,				J	0.20g, 2	00.0			L

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Client : Comox Valley Regional District

Project : 4-2-1



Sub-Matrix: Water						Laboratory Co	entrol Sample (LCS)	Report	
					Spike	Recovery (%)	Recovery	Limits (%)	
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Dissolved Metals (QCLot: 1240556) -	continued								
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	0.25 mg/L	99.8	80.0	120	
Iron, dissolved	7439-89-6	E421	0.01	mg/L	1 mg/L	99.2	80.0	120	
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	0.5 mg/L	99.0	80.0	120	
Lithium, dissolved	7439-93-2	E421	0.001	mg/L	0.25 mg/L	95.7	80.0	120	
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	50 mg/L	104	80.0	120	
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	0.25 mg/L	98.5	80.0	120	
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	0.25 mg/L	101	80.0	120	
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	0.5 mg/L	99.6	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	106	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	103	80.0	120	
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	0.1 mg/L	94.6	80.0	120	
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	50 mg/L	105	80.0	120	
Strontium, dissolved	7440-24-6	E421	0.0002	mg/L	0.25 mg/L	98.8	80.0	120	
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	50 mg/L	97.5	80.0	120	
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	1 mg/L	99.9	80.0	120	
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	0.5 mg/L	101	80.0	120	
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	0.25 mg/L	97.4	80.0	120	
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	0.005 mg/L	96.1	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	104	80.0	120	
Zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	0.1 mg/L	98.7	80.0	120	
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0.0001 mg/L	110	80.0	120	

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Client : Comox Valley Regional District

Project : 4-2-1

ALS

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							-	e (MS) Report		
					Spi		Recovery (%)	<u> </u>	Limits (%)	
Laboratory sample D	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Anions and Nutr	ients (QCLot: 1238939									
VA23C7451-002	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	104 mg/L	100 mg/L	104	75.0	125	
Anions and Nutr	ients (QCLot: 1238940)								
VA23C7451-002	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	2.59 mg/L	2.5 mg/L	104	75.0	125	
Anions and Nutr	ients (QCLot: 1238941									
VA23C7451-002	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	0.514 mg/L	0.5 mg/L	103	75.0	125	
Anions and Nutr	ients (QCLot: 1238942									
VA23C7451-002	Anonymous	Chloride	16887-00-6	E235.Cl	104 mg/L	100 mg/L	104	75.0	125	
Anions and Nutr	ients (QCLot: 1238943									
VA23C7451-002	Anonymous	Fluoride	16984-48-8	E235.F	1.06 mg/L	1 mg/L	106	75.0	125	
Anions and Nutr	ients (QCLot: 1245595									
VA23C7475-002	WG-111323-CS-02	Ammonia, total (as N)	7664-41-7	E298	0.0921 mg/L	0.1 mg/L	92.1	75.0	125	
Anions and Nutr	ients (QCLot: 1245626									T II
VA23C7475-009	WG-111323-CS-09	Ammonia, total (as N)	7664-41-7	E298	0.0930 mg/L	0.1 mg/L	93.0	75.0	125	
Dissolved Metals	(QCLot: 1239675)									1
VA23C7461-002	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.194 mg/L	0.2 mg/L	96.9	70.0	130	
		Antimony, dissolved	7440-36-0	E421	0.0195 mg/L	0.02 mg/L	97.6	70.0	130	
		Arsenic, dissolved	7440-38-2	E421	0.0199 mg/L	0.02 mg/L	99.3	70.0	130	
		Barium, dissolved	7440-39-3	E421	ND mg/L	0.02 mg/L	ND	70.0	130	
		Beryllium, dissolved	7440-41-7	E421	0.0392 mg/L	0.04 mg/L	97.9	70.0	130	
		Bismuth, dissolved	7440-69-9	E421	0.00929 mg/L	0.01 mg/L	92.9	70.0	130	
		Boron, dissolved	7440-42-8	E421	0.094 mg/L	0.1 mg/L	94.3	70.0	130	
		Cadmium, dissolved	7440-43-9	E421	0.00397 mg/L	0.004 mg/L	99.3	70.0	130	
		Calcium, dissolved	7440-70-2	E421	ND mg/L	4 mg/L	ND	70.0	130	
		Chromium, dissolved	7440-47-3	E421	0.0398 mg/L	0.04 mg/L	99.4	70.0	130	
		Cobalt, dissolved	7440-48-4	E421	0.0195 mg/L	0.02 mg/L	97.5	70.0	130	
		Copper, dissolved	7440-50-8	E421	0.0194 mg/L	0.02 mg/L	97.1	70.0	130	
		Iron, dissolved	7439-89-6	E421	1.83 mg/L	2 mg/L	91.6	70.0	130	
		Lead, dissolved	7439-92-1	E421	0.0193 mg/L	0.02 mg/L	96.4	70.0	130	
	1	Lithium, dissolved	7439-93-2	E421	0.0956 mg/L	0.1 mg/L	95.6	70.0	130	

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Client : Comox Valley Regional District

Project : 4-2-1



ub-Matrix: Water	/ater					Matrix Spike (MS) Report Spike Recovery (%) Recovery Limits (%)								
						Spike								
aboratory sample	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifie				
	(QCLot: 1239675)	- continued												
/A23C7461-002	Anonymous	Magnesium, dissolved	7439-95-4	E421	ND mg/L	1 mg/L	ND	70.0	130					
		Manganese, dissolved	7439-96-5	E421	ND mg/L	0.02 mg/L	ND	70.0	130					
		Molybdenum, dissolved	7439-98-7	E421	0.0198 mg/L	0.02 mg/L	99.2	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	10.3 mg/L	10 mg/L	103	70.0	130					
		Potassium, dissolved	7440-09-7	E421	3.83 mg/L	4 mg/L	95.8	70.0	130					
		Selenium, dissolved	7782-49-2	E421	0.0389 mg/L	0.04 mg/L	97.3	70.0	130					
		Silicon, dissolved	7440-21-3	E421	8.85 mg/L	10 mg/L	88.5	70.0	130					
		Silver, dissolved	7440-22-4	E421	0.00349 mg/L	0.004 mg/L	87.3	70.0	130					
		Sodium, dissolved	7440-23-5	E421	ND mg/L	2 mg/L	ND	70.0	130					
		Strontium, dissolved	7440-24-6	E421	ND mg/L	0.02 mg/L	ND	70.0	130					
		Sulfur, dissolved	7704-34-9	E421	19.5 mg/L	20 mg/L	97.7	70.0	130					
		Thallium, dissolved	7440-28-0	E421	0.00369 mg/L	0.004 mg/L	92.3	70.0	130					
		Tin, dissolved	7440-31-5	E421	0.0194 mg/L	0.02 mg/L	97.1	70.0	130					
		Titanium, dissolved	7440-32-6	E421	0.0370 mg/L	0.04 mg/L	92.6	70.0	130					
		Uranium, dissolved	7440-61-1	E421	ND mg/L	0.004 mg/L	ND	70.0	130					
		Vanadium, dissolved	7440-62-2	E421	0.0999 mg/L	0.1 mg/L	99.9	70.0	130					
		Zinc, dissolved	7440-66-6	E421	0.393 mg/L	0.4 mg/L	98.3	70.0	130					
		Zirconium, dissolved	7440-67-7	E421	0.0392 mg/L	0.04 mg/L	98.0	70.0	130					
issolved Metals	(QCLot: 1240556)													
A23C7405-023	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.194 mg/L	0.2 mg/L	96.8	70.0	130					
		Antimony, dissolved	7440-36-0	E421	0.0188 mg/L	0.02 mg/L	94.1	70.0	130					
		Arsenic, dissolved	7440-38-2	E421	0.0194 mg/L	0.02 mg/L	97.3	70.0	130					
		Barium, dissolved	7440-39-3	E421	0.0194 mg/L	0.02 mg/L	97.1	70.0	130					
		Beryllium, dissolved	7440-41-7	E421	0.0402 mg/L	0.04 mg/L	100	70.0	130					
		Bismuth, dissolved	7440-69-9	E421	0.00914 mg/L	0.01 mg/L	91.4	70.0	130					
		Boron, dissolved	7440-42-8	E421	0.101 mg/L	0.1 mg/L	101	70.0	130					
		Cadmium, dissolved	7440-43-9	E421	0.00390 mg/L	0.004 mg/L	97.4	70.0	130					
		Calcium, dissolved	7440-70-2	E421	ND mg/L	4 mg/L	ND	70.0	130					
		Chromium, dissolved	7440-47-3	E421	0.0380 mg/L	0.04 mg/L	95.0	70.0	130					
		Cobalt, dissolved	7440-48-4	E421	0.0190 mg/L	0.02 mg/L	95.2	70.0	130					
		Copper, dissolved	7440-50-8	E421	0.0196 mg/L	0.02 mg/L	98.2	70.0	130					
		Iron, dissolved	7439-89-6	E421	1.87 mg/L	2 mg/L	93.5	70.0	130					
		Lead, dissolved	7439-92-1	E421	0.0192 mg/L	0.02 mg/L	96.0	70.0	130					

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Client : Comox Valley Regional District

Project : 4-2-1



Sub-Matrix: Water						Matrix Spike (MS) Report							
						ke	Recovery (%)	Recovery Limits (%)					
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier			
Dissolved Metals	(QCLot: 1240556)	- continued											
VA23C7405-023	Anonymous	Magnesium, dissolved	7439-95-4	E421	ND mg/L	1 mg/L	ND	70.0	130				
		Manganese, dissolved	7439-96-5	E421	0.0191 mg/L	0.02 mg/L	95.4	70.0	130				
		Molybdenum, dissolved	7439-98-7	E421	0.0196 mg/L	0.02 mg/L	98.1	70.0	130				
		Nickel, dissolved	7440-02-0	E421	0.0383 mg/L	0.04 mg/L	95.8	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	3.91 mg/L	4 mg/L	97.9	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	9.50 mg/L	10 mg/L	95.0	70.0	130				
		Silver, dissolved	7440-22-4	E421	0.00387 mg/L	0.004 mg/L	96.8	70.0	130				
		Sodium, dissolved	7440-23-5	E421	1.88 mg/L	2 mg/L	94.2	70.0	130				
		Strontium, dissolved	7440-24-6	E421	ND mg/L	0.02 mg/L	ND	70.0	130				
		Sulfur, dissolved	7704-34-9	E421	18.9 mg/L	20 mg/L	94.7	70.0	130				
		Thallium, dissolved	7440-28-0	E421	0.00377 mg/L	0.004 mg/L	94.2	70.0	130				
		Tin, dissolved	7440-31-5	E421	0.0193 mg/L	0.02 mg/L	96.4	70.0	130				
		Titanium, dissolved	7440-32-6	E421	0.0390 mg/L	0.04 mg/L	97.6	70.0	130				
		Uranium, dissolved	7440-61-1	E421	0.00384 mg/L	0.004 mg/L	95.9	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	0.402 mg/L	0.4 mg/L	100	70.0	130				
		Zirconium, dissolved	7440-67-7	E421	0.0386 mg/L	0.04 mg/L	96.5	70.0	130				
issolved Metals	(QCLot: 1247177)												
VA23C7429-003	Anonymous	Mercury, dissolved	7439-97-6	E509	0.000113 mg/L	0.0001 mg/L	113	70.0	130				



QUALITY CONTROL INTERPRETIVE REPORT

Work Order : **VA23C7475** Page : 1 of 19

Client : Comox Valley Regional District Laboratory : ALS Environmental - Vancouver

Contact : Crystal Stuart Account Manager : Thomas Chang

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Burnaby, British Columbia Canada V5A 1W9

 Telephone
 : 250-898-3722
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 : +1 604 253 4188

 Project
 : 4-2-1
 Date Samples Received
 : 15-Nov-2023 12:00

 PO
 : 23-015
 Issue Date
 : 23-Nov-2023 14:55

C-O-C number · ----

Sampler : Crystal Stuart

Site : CRWMC-Quarterly-GW

Quote number : VA23-COVR100-001
No. of samples received : 10

No. of samples received :10

No. of samples analysed :10

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.

Courtney BC Canada V9N 0G8

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) ■ No Analysis Holding Time Outliers exist.

Outliers: Frequency of Quality Control Samples • No Quality Control Sample Frequency Outliers occur.

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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					Ev	raluation: × = l	Holding time exce	edance ; 🔻	= Within	Holding Time
Analyte Group : Analytical Method	Method	Sampling Date	Extraction / Preparation							
Container / Client Sample ID(s)			Preparation Date	Holding Rec	Times Actual	Eval	Analysis Date	Holding Rec	Times Actual	Eval
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) WG-111323-CS-02	E298	13-Nov-2023	20-Nov-2023	28 days	7 days	√	23-Nov-2023	28 days	10 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) WG-111323-CS-03	E298	13-Nov-2023	20-Nov-2023	28 days	7 days	✓	23-Nov-2023	28 days	10 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) WG-111323-CS-04	E298	13-Nov-2023	20-Nov-2023	28 days	7 days	4	23-Nov-2023	28 days	10 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) WG-111323-CS-05	E298	13-Nov-2023	20-Nov-2023	28 days	7 days	4	23-Nov-2023	28 days	10 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) WG-111323-CS-06	E298	13-Nov-2023	20-Nov-2023	28 days	7 days	✓	23-Nov-2023	28 days	10 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) WG-111323-CS-07	E298	13-Nov-2023	20-Nov-2023	28 days	7 days	✓	23-Nov-2023	28 days	9 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) WG-111323-CS-08	E298	13-Nov-2023	20-Nov-2023	28 days	7 days	✓	23-Nov-2023	28 days	9 days	✓

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Matrix: **Water**Evaluation: **x** = Holding time exceedance; ✓ = Within Holding Time

			_							Tiolding Time
Analyte Group : Analytical Method	Method	Sampling Date				1	Analysis			
Container / Client Sample ID(s)					g Times	Eval	Analysis Date	Holding		Eval
			Date	Rec	Actual			Rec	Actual	
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
WG-111323-CS-09	E298	13-Nov-2023	20-Nov-2023	28	7 days	✓	23-Nov-2023	28 days	9 days	✓
				days						
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
WG-111323-CS-10	E298	13-Nov-2023	20-Nov-2023	28	7 days	✓	23-Nov-2023	28 days	9 days	✓
				days						
Anions and Nutrients : Ammonia by Fluorescence								1		
Amber glass total (sulfuric acid)				<u> </u>			<u> </u>			
WG-111323-CS-01	E298	13-Nov-2023	20-Nov-2023	28	8 days	✓	23-Nov-2023	28 days	10 davs	✓
				days	,			,	,	
				dayo						
Anions and Nutrients : Chloride in Water by IC				T						
HDPE	E235.CI	13-Nov-2023	16-Nov-2023		2 days	✓	16-Nov-2023	28 days	2 days	✓
WG-111323-CS-07	E235.CI	13-1100-2023	10-1107-2023	28	2 days	•	10-1100-2023	20 days	3 days	•
				days						
Anions and Nutrients : Chloride in Water by IC										
HDPE						_				
WG-111323-CS-08	E235.CI	13-Nov-2023	16-Nov-2023	28	2 days	✓	16-Nov-2023	28 days	3 days	✓
				days						
Anions and Nutrients : Chloride in Water by IC										
HDPE										
WG-111323-CS-09	E235.CI	13-Nov-2023	16-Nov-2023	28	2 days	✓	16-Nov-2023	28 days	3 days	✓
				days						
Anions and Nutrients : Chloride in Water by IC										
HDPE				T						
WG-111323-CS-10	E235.CI	13-Nov-2023	16-Nov-2023	28	2 days	✓	16-Nov-2023	28 days	3 days	✓
				days						
Anions and Nutrients : Chloride in Water by IC										
HDPE										
WG-111323-CS-01	E235.CI	13-Nov-2023	16-Nov-2023	28	3 days	✓	16-Nov-2023	28 days	3 davs	✓
110 111020 00 01		10.1101.2020	.0.1101 2020	days	o days		10 1101 2020	20 00,0	o aayo	
				days						
Anions and Nutrients : Chloride in Water by IC										
HDPE	E225 CI	12 Nov 2022	16 Nov 2022		2 days	√	16 Nov 2022	20 day:-	2 days	√
WG-111323-CS-02	E235.CI	13-Nov-2023	16-Nov-2023	28	3 days	•	16-Nov-2023	28 days	3 days	•
				days						

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Matrix: Water	Evaluation: x = Holding time exceedance ; √ = Within Holding Time

Analyte Group : Analytical Method	Method	Sampling Date	Extraction / Preparation			Analysis				
Container / Client Sample ID(s)			Preparation			Eval	Analysis Date	Holding Ti	Times	Eval
			Date	Rec	Actual			Rec	Actual	
Anions and Nutrients : Chloride in Water by IC										
HDPE WG-111323-CS-03	E235.Cl	13-Nov-2023	16-Nov-2023	28 days	3 days	√	16-Nov-2023	28 days	3 days	√
Anions and Nutrients : Chloride in Water by IC										
HDPE WG-111323-CS-04	E235.CI	13-Nov-2023	16-Nov-2023	28 days	3 days	4	16-Nov-2023	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE WG-111323-CS-05	E235.CI	13-Nov-2023	16-Nov-2023	28 days	3 days	√	16-Nov-2023	28 days	3 days	√
Anions and Nutrients : Chloride in Water by IC										
HDPE WG-111323-CS-06	E235.CI	13-Nov-2023	16-Nov-2023	28 days	3 days	*	16-Nov-2023	28 days	3 days	√
Anions and Nutrients : Fluoride in Water by IC										
HDPE WG-111323-CS-07	E235.F	13-Nov-2023	16-Nov-2023	28 days	2 days	✓	16-Nov-2023	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE WG-111323-CS-08	E235.F	13-Nov-2023	16-Nov-2023	28 days	2 days	✓	16-Nov-2023	28 days	3 days	√
Anions and Nutrients : Fluoride in Water by IC										
HDPE WG-111323-CS-09	E235.F	13-Nov-2023	16-Nov-2023	28 days	2 days	✓	16-Nov-2023	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE WG-111323-CS-10	E235.F	13-Nov-2023	16-Nov-2023	28 days	2 days	✓	16-Nov-2023	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE WG-111323-CS-01	E235.F	13-Nov-2023	16-Nov-2023	28 days	3 days	✓	16-Nov-2023	28 days	3 days	✓

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Anions and Nutrients : Nitrate in Water by IC (Low Level)

HDPE

WG-111323-CS-10

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Matrix: Water Evaluation: **x** = Holding time exceedance; ✓ = Within Holding Time Extraction / Preparation Sampling Date Analysis Analyte Group: Analytical Method Method Container / Client Sample ID(s) Preparation **Holding Times** Eval Analysis Date **Holding Times** Eval Rec Actual Rec Actual Date Anions and Nutrients: Fluoride in Water by IC HDPE E235.F 13-Nov-2023 1 WG-111323-CS-02 16-Nov-2023 3 days 16-Nov-2023 28 days 28 3 days days Anions and Nutrients: Fluoride in Water by IC **HDPE** WG-111323-CS-03 E235.F 13-Nov-2023 16-Nov-2023 28 3 days 1 16-Nov-2023 28 days 3 days 1 days Anions and Nutrients : Fluoride in Water by IC HDPE E235.F 13-Nov-2023 16-Nov-2023 1 16-Nov-2023 1 WG-111323-CS-04 3 days 28 days 3 days 28 days Anions and Nutrients: Fluoride in Water by IC **HDPE** WG-111323-CS-05 E235.F 13-Nov-2023 16-Nov-2023 28 3 days 1 16-Nov-2023 28 days 3 days 1 days Anions and Nutrients : Fluoride in Water by IC **HDPE** E235.F 13-Nov-2023 16-Nov-2023 1 28 days 1 WG-111323-CS-06 3 days 16-Nov-2023 3 days 28 days Anions and Nutrients : Nitrate in Water by IC (Low Level) HDPE E235.NO3-L 13-Nov-2023 1 WG-111323-CS-07 16-Nov-2023 3 days 2 days 16-Nov-2023 3 days 3 days 1 Anions and Nutrients : Nitrate in Water by IC (Low Level) **HDPE** WG-111323-CS-08 E235.NO3-L 16-Nov-2023 1 13-Nov-2023 16-Nov-2023 3 days 2 days 3 days 3 days Anions and Nutrients : Nitrate in Water by IC (Low Level) **HDPE** WG-111323-CS-09 E235.NO3-L 13-Nov-2023 16-Nov-2023 3 days 2 days 1 16-Nov-2023 3 days 3 days ✓

13-Nov-2023

16-Nov-2023

3 days

2 days

1

16-Nov-2023

3 days

3 days

E235.NO3-L

1

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Matrix: **Water**Evaluation: **x** = Holding time exceedance; ✓ = Within Holding Time

		1					Holding time excee	Analys		riolanig riillo
Analyte Group : Analytical Method	Method	Sampling Date	Extraction / Preparation							
Container / Client Sample ID(s)			Preparation			Eval	I Analysis Date			Eval
			Date	Rec	Actual			Rec	Actual	
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE WG-111323-CS-01	E235.NO3-L	13-Nov-2023	16-Nov-2023	3 days	3 days	✓	16-Nov-2023	3 days	3 days	~
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE WG-111323-CS-02	E235.NO3-L	13-Nov-2023	16-Nov-2023	3 days	3 days	✓	16-Nov-2023	3 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE WG-111323-CS-03	E235.NO3-L	13-Nov-2023	16-Nov-2023	3 days	3 days	✓	16-Nov-2023	3 days	3 days	~
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE WG-111323-CS-04	E235.NO3-L	13-Nov-2023	16-Nov-2023	3 days	3 days	✓	16-Nov-2023	3 days	3 days	4
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE WG-111323-CS-05	E235.NO3-L	13-Nov-2023	16-Nov-2023	3 days	3 days	✓	16-Nov-2023	3 days	3 days	√
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE WG-111323-CS-06	E235.NO3-L	13-Nov-2023	16-Nov-2023	3 days	3 days	✓	16-Nov-2023	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE WG-111323-CS-07	E235.NO2-L	13-Nov-2023	16-Nov-2023	3 days	2 days	✓	16-Nov-2023	3 days	3 days	√
Anions and Nutrients : Nitrite in Water by IC (Low Level)									•	
HDPE WG-111323-CS-08	E235.NO2-L	13-Nov-2023	16-Nov-2023	3 days	2 days	✓	16-Nov-2023	3 days	3 days	4
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE WG-111323-CS-09	E235.NO2-L	13-Nov-2023	16-Nov-2023	3 days	2 days	✓	16-Nov-2023	3 days	3 days	4

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HDPE

WG-111323-CS-08



Matrix: Water Evaluation: **x** = Holding time exceedance; ✓ = Within Holding Time Sampling Date Extraction / Preparation Analysis Analyte Group: Analytical Method Method Container / Client Sample ID(s) Preparation **Holding Times** Eval Analysis Date **Holding Times** Eval Rec Actual Rec Actual Date Anions and Nutrients : Nitrite in Water by IC (Low Level) HDPE E235.NO2-L 13-Nov-2023 1 16-Nov-2023 16-Nov-2023 WG-111323-CS-10 3 days 2 days 3 days 3 days Anions and Nutrients : Nitrite in Water by IC (Low Level) **HDPE** WG-111323-CS-01 E235.NO2-L 13-Nov-2023 16-Nov-2023 3 days 3 days 1 16-Nov-2023 3 days 3 days 1 Anions and Nutrients : Nitrite in Water by IC (Low Level) HDPE E235.NO2-L 13-Nov-2023 16-Nov-2023 3 days 1 16-Nov-2023 1 WG-111323-CS-02 3 days 3 days 3 days Anions and Nutrients : Nitrite in Water by IC (Low Level) **HDPE** WG-111323-CS-03 E235.NO2-L 13-Nov-2023 16-Nov-2023 3 days 3 days 1 16-Nov-2023 3 days 3 days 1 Anions and Nutrients : Nitrite in Water by IC (Low Level) **HDPE** E235.NO2-L 13-Nov-2023 16-Nov-2023 1 16-Nov-2023 3 days 1 WG-111323-CS-04 3 days 3 days 3 days Anions and Nutrients : Nitrite in Water by IC (Low Level) **HDPE** E235.NO2-L 13-Nov-2023 1 WG-111323-CS-05 16-Nov-2023 3 days 3 days 16-Nov-2023 3 days 3 days 1 Anions and Nutrients : Nitrite in Water by IC (Low Level) **HDPE** WG-111323-CS-06 E235.NO2-L 16-Nov-2023 1 13-Nov-2023 16-Nov-2023 3 days 3 days 3 days 3 days Anions and Nutrients: Sulfate in Water by IC **HDPE** 28 WG-111323-CS-07 E235.SO4 13-Nov-2023 16-Nov-2023 2 days 1 16-Nov-2023 28 days 3 days ✓ days Anions and Nutrients : Sulfate in Water by IC

13-Nov-2023

16-Nov-2023

1

2 days

28 days 16-Nov-2023

E235.SO4

28 days 3 days

1

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Matrix: **Water**Evaluation: **x** = Holding time exceedance; ✓ = Within Holding Time

	1						Analysis					
Analyte Group : Analytical Method	Method	Sampling Date	Ext	traction / Pr	eparation			Analys	sis			
Container / Client Sample ID(s)			Preparation		g Times	Eval	Analysis Date		Times	Eval		
			Date	Rec	Actual			Rec	Actual			
Anions and Nutrients : Sulfate in Water by IC												
HDPE												
WG-111323-CS-09	E235.SO4	13-Nov-2023	16-Nov-2023	28	2 days	✓	16-Nov-2023	28 days	3 days	✓		
				days								
Anions and Nutrients : Sulfate in Water by IC												
HDPE												
WG-111323-CS-10	E235.SO4	13-Nov-2023	16-Nov-2023	28	2 days	1	16-Nov-2023	28 days	3 days	✓		
				days					,			
Anima and Nutrients - Oulfate in Water by 10				, -								
Anions and Nutrients : Sulfate in Water by IC HDPE												
WG-111323-CS-01	E235.SO4	13-Nov-2023	16-Nov-2023	28	3 days	√	16-Nov-2023	28 days	3 days	1		
WO-111323-00-01	L200.004	10-1404-2020	10-1404-2020	days	o days	ĺ	10-1101-2020	20 days	o days	· ·		
				uays								
Anions and Nutrients : Sulfate in Water by IC					1							
HDPE	F005 004	40.11 0000				,				,		
WG-111323-CS-02	E235.SO4	13-Nov-2023	16-Nov-2023	28	3 days	✓	16-Nov-2023	28 days	3 days	✓		
				days								
Anions and Nutrients : Sulfate in Water by IC												
HDPE												
WG-111323-CS-03	E235.SO4	13-Nov-2023	16-Nov-2023	28	3 days	✓	16-Nov-2023	28 days	3 days	✓		
				days								
Anions and Nutrients : Sulfate in Water by IC												
HDPE												
WG-111323-CS-04	E235.SO4	13-Nov-2023	16-Nov-2023	28	3 days	✓	16-Nov-2023	28 days	3 days	✓		
				days								
Anions and Nutrients : Sulfate in Water by IC												
HDPE												
WG-111323-CS-05	E235.SO4	13-Nov-2023	16-Nov-2023	28	3 days	✓	16-Nov-2023	28 days	3 davs	1		
11020 00 00		10 1101 2020	10 1101 2020	days	o days	·	.0.1.07 2020	20 44,0	o aayo			
A translation of the control of the				aayo								
Anions and Nutrients : Sulfate in Water by IC	I											
HDPE	E235.SO4	13-Nov-2023	16-Nov-2023	00	3 days	√	16-Nov-2023	28 days	2 days	√		
WG-111323-CS-06	E235.5U4	13-1100-2023	10-1104-2023	28	3 days	•	10-1104-2023	20 days	3 days	*		
				days								
Dissolved Metals : Dissolved Mercury in Water by CVAAS												
Glass vial - dissolved (lab preserved)												
WG-111323-CS-01	E509	13-Nov-2023	21-Nov-2023	28	8 days	✓	21-Nov-2023	28 days	0 days	✓		
				days								

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Matrix: Water Evaluation: ▼ = Holding time exceedance; ✓ = Within Holding Time

Matrix: Water Evaluation: × = Holding time exceedance; ✓ = Within Hold												
Analyte Group : Analytical Method	Method	Sampling Date	Ex	traction / Pr	reparation			Analys	is			
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	g Times	Eval		
			Date	Rec	Actual			Rec	Actual			
Dissolved Metals : Dissolved Mercury in Water by CVAAS												
Glass vial - dissolved (lab preserved)												
WG-111323-CS-02	E509	13-Nov-2023	21-Nov-2023	28	8 days	✓	21-Nov-2023	28 days	0 days	✓		
				days								
Dissolved Metals : Dissolved Mercury in Water by CVAAS												
Glass vial - dissolved (lab preserved)												
WG-111323-CS-03	E509	13-Nov-2023	21-Nov-2023	28	8 days	✓	21-Nov-2023	28 days	0 days	✓		
				days					,			
Dissolved Metals : Dissolved Mercury in Water by CVAAS				,								
Glass vial - dissolved (lab preserved)				<u> </u>	<u> </u>		I	<u> </u>				
WG-111323-CS-04	E509	13-Nov-2023	21-Nov-2023	28	8 days	✓	21-Nov-2023	28 days	0 davs	✓		
				days	,				. ,			
Discolud Metals a Discolud Manager in Weter by OVAAO				""								
Dissolved Metals : Dissolved Mercury in Water by CVAAS Glass vial - dissolved (lab preserved)							<u> </u>					
WG-111323-CS-05	E509	13-Nov-2023	21-Nov-2023	28	8 days	1	21-Nov-2023	28 days	0 days	✓		
WG-111323-C3-03	L309	13-1404-2023	21-1107-2023		o uays	Ť	21-1100-2023	20 days	0 uays	•		
				days								
Dissolved Metals : Dissolved Mercury in Water by CVAAS	<u> </u>											
Glass vial - dissolved (lab preserved)	F500	40 Nov. 0000	04 Nav. 0000		0 -1	✓	04 Nov. 2022	28 days	0 -1	✓		
WG-111323-CS-06	E509	13-Nov-2023	21-Nov-2023	28	8 days	•	21-Nov-2023	28 days	0 days	•		
				days								
Dissolved Metals : Dissolved Mercury in Water by CVAAS												
Glass vial - dissolved (lab preserved)												
WG-111323-CS-07	E509	13-Nov-2023	21-Nov-2023	28	8 days	✓	21-Nov-2023	28 days	0 days	✓		
				days								
Dissolved Metals : Dissolved Mercury in Water by CVAAS												
Glass vial - dissolved (lab preserved)												
WG-111323-CS-08	E509	13-Nov-2023	21-Nov-2023	28	8 days	✓	21-Nov-2023	28 days	0 days	✓		
				days								
Dissolved Metals : Dissolved Mercury in Water by CVAAS												
Glass vial - dissolved (lab preserved)												
WG-111323-CS-09	E509	13-Nov-2023	21-Nov-2023	28	8 days	✓	21-Nov-2023	28 days	0 days	✓		
				days								
Dissolved Metals : Dissolved Mercury in Water by CVAAS												
Glass vial - dissolved (lab preserved)												
WG-111323-CS-10	E509	13-Nov-2023	21-Nov-2023	28	8 days	✓	21-Nov-2023	28 days	0 davs	✓		
				days	3 44,0	,			3 44,0			
				uays								

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Matrix: Water Evaluation: **x** = Holding time exceedance; ✓ = Within Holding Time

Matrix: Water Evaluation: * = Holding time exceedance; * = Within												
Analyte Group : Analytical Method	Method	Sampling Date	Ex	traction / Pr	reparation			Analys	sis			
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	g Times	Eval		
			Date	Rec	Actual			Rec	Actual			
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS												
HDPE - dissolved (lab preserved)												
WG-111323-CS-01	E421	13-Nov-2023	16-Nov-2023	180	3 days	✓	17-Nov-2023	180	4 days	✓		
				days				days				
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS												
HDPE - dissolved (lab preserved)												
WG-111323-CS-02	E421	13-Nov-2023	16-Nov-2023	180	3 days	✓	17-Nov-2023	180	4 days	✓		
				days	-			days				
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS												
HDPE - dissolved (lab preserved)	I			<u> </u>			<u> </u>					
WG-111323-CS-03	E421	13-Nov-2023	16-Nov-2023	180	3 days	✓	17-Nov-2023	180	4 days	✓		
				days	,			days				
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS				,-								
HDPE - dissolved (lab preserved)				<u> </u>								
WG-111323-CS-04	E421	13-Nov-2023	16-Nov-2023	180	3 days	✓	17-Nov-2023	180	4 days	√		
WG-111025-05-04	2.2.	10 1107 2020	10-1404-2020	days	o days		17-1404-2020	days	- days			
District Pictor No. 1 and 1 an				uays				uays				
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS				1			I					
HDPE - dissolved (lab preserved) WG-111323-CS-05	E421	13-Nov-2023	16-Nov-2023	180	3 days	✓	17-Nov-2023	180	4 days	√		
WG-111323-03-03	L421	13-1107-2023	10-1107-2023		3 days	•	17-1407-2023	days	4 uays	•		
				days				uays				
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS												
HDPE - dissolved (lab preserved)	E421	13-Nov-2023	40 Nov. 0000		0.1	✓	47 N 0000		4 1	1		
WG-111323-CS-06	E421	13-1107-2023	16-Nov-2023	180	3 days	•	17-Nov-2023	180	4 days	•		
				days				days				
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS												
HDPE - dissolved (lab preserved)	F404	40.11 0000	40.11 0000				47.11 0000			,		
WG-111323-CS-07	E421	13-Nov-2023	16-Nov-2023	180	3 days	✓	17-Nov-2023	180	4 days	✓		
				days				days				
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS												
HDPE - dissolved (lab preserved)												
WG-111323-CS-08	E421	13-Nov-2023	16-Nov-2023	180	3 days	✓	17-Nov-2023	180	4 days	✓		
				days				days				
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS												
HDPE - dissolved (lab preserved)												
WG-111323-CS-09	E421	13-Nov-2023	16-Nov-2023	180	3 days	✓	17-Nov-2023	180	4 days	✓		

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Matrix: Water	Evaluation: × = Holding time exceedance; ✓ = Within Holding Time

Analyte Group : Analytical Method	Method	Sampling Date	Ex	traction / Pi	reparation		J	Analysis				
Container / Client Sample ID(s)			Preparation	Holdin	g Times	Eval	Analysis Date	Holding	Times	Eval		
			Date	Rec	Actual			Rec	Actual			
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS												
HDPE - dissolved (lab preserved) WG-111323-CS-10	E421	13-Nov-2023	20-Nov-2023	180 days	7 days	✓	21-Nov-2023	180 days	8 days	✓		
Physical Tests : Alkalinity Species by Titration												
HDPE WG-111323-CS-07	E290	13-Nov-2023	16-Nov-2023	14 days	2 days	✓	16-Nov-2023	14 days	3 days	✓		
Physical Tests : Alkalinity Species by Titration												
HDPE WG-111323-CS-08	E290	13-Nov-2023	16-Nov-2023	14 days	2 days	✓	16-Nov-2023	14 days	3 days	✓		
Physical Tests : Alkalinity Species by Titration												
HDPE WG-111323-CS-09	E290	13-Nov-2023	16-Nov-2023	14 days	2 days	√	16-Nov-2023	14 days	3 days	✓		
Physical Tests : Alkalinity Species by Titration												
HDPE WG-111323-CS-10	E290	13-Nov-2023	16-Nov-2023	14 days	2 days	1	16-Nov-2023	14 days	3 days	√		
Physical Tests : Alkalinity Species by Titration												
HDPE WG-111323-CS-01	E290	13-Nov-2023	16-Nov-2023	14 days	3 days	√	16-Nov-2023	14 days	3 days	√		
Physical Tests : Alkalinity Species by Titration												
HDPE WG-111323-CS-02	E290	13-Nov-2023	16-Nov-2023	14 days	3 days	1	16-Nov-2023	14 days	3 days	✓		
Physical Tests : Alkalinity Species by Titration												
HDPE WG-111323-CS-03	E290	13-Nov-2023	16-Nov-2023	14 days	3 days	1	16-Nov-2023	14 days	3 days	✓		
Physical Tests : Alkalinity Species by Titration												
HDPE WG-111323-CS-04	E290	13-Nov-2023	16-Nov-2023	14 days	3 days	✓	16-Nov-2023	14 days	3 days	✓		

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Matrix: Water Evaluation: ★ = Holding time exceedance; ✓ = Within Holding Time

Analyte Group : Analytical Method	Method	Sampling Date	Ext	traction / Pi	reparation		J			
Container / Client Sample ID(s)			Preparation	Holdin	g Times	Eval	Analysis Date	Holding	Times	Eval
			Date	Rec	Actual			Rec	Actual	
Physical Tests : Alkalinity Species by Titration				_						
HDPE WG-111323-CS-05	E290	13-Nov-2023	16-Nov-2023	14 days	3 days	√	16-Nov-2023	14 days	3 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE WG-111323-CS-06	E290	13-Nov-2023	16-Nov-2023	14 days	3 days	✓	16-Nov-2023	14 days	3 days	✓
Physical Tests : Conductivity in Water										
HDPE WG-111323-CS-07	E100	13-Nov-2023	16-Nov-2023	28 days	2 days	1	16-Nov-2023	28 days	3 days	✓
Physical Tests : Conductivity in Water										
HDPE WG-111323-CS-08	E100	13-Nov-2023	16-Nov-2023	28 days	2 days	✓	16-Nov-2023	28 days	3 days	✓
Physical Tests : Conductivity in Water										
HDPE WG-111323-CS-09	E100	13-Nov-2023	16-Nov-2023	28 days	2 days	√	16-Nov-2023	28 days	3 days	√
Physical Tests : Conductivity in Water										
HDPE WG-111323-CS-10	E100	13-Nov-2023	16-Nov-2023	28 days	2 days	✓	16-Nov-2023	28 days	3 days	✓
Physical Tests : Conductivity in Water										
HDPE WG-111323-CS-01	E100	13-Nov-2023	16-Nov-2023	28 days	3 days	1	16-Nov-2023	28 days	3 days	✓
Physical Tests : Conductivity in Water										
HDPE WG-111323-CS-02	E100	13-Nov-2023	16-Nov-2023	28 days	3 days	1	16-Nov-2023	28 days	3 days	✓
Physical Tests : Conductivity in Water										
HDPE WG-111323-CS-03	E100	13-Nov-2023	16-Nov-2023	28 days	3 days	✓	16-Nov-2023	28 days	3 days	✓

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Physical Tests : TDS by Gravimetry

Physical Tests: TDS by Gravimetry

WG-111323-CS-05

WG-111323-CS-06

HDPE

HDPE

Matrix: Water



Evaluation: **x** = Holding time exceedance ; ✓ = Within Holding Time

19-Nov-2023

19-Nov-2023

7 days

7 days

6 days

6 days

Analyte Group : Analytical Method Extraction / Preparation Analysis Method Sampling Date Container / Client Sample ID(s) Preparation **Holding Times** Eval Analysis Date **Holding Times** Eval Rec Actual Rec Actual Date **Physical Tests: Conductivity in Water** HDPE E100 13-Nov-2023 16-Nov-2023 1 WG-111323-CS-04 16-Nov-2023 3 days 28 days 3 days 28 days Physical Tests : Conductivity in Water **HDPE** WG-111323-CS-05 E100 13-Nov-2023 16-Nov-2023 28 3 days 1 16-Nov-2023 28 days 3 days 1 days Physical Tests : Conductivity in Water HDPE E100 13-Nov-2023 16-Nov-2023 3 days 1 16-Nov-2023 28 days 3 days 1 WG-111323-CS-06 28 days Physical Tests : TDS by Gravimetry HDPE WG-111323-CS-01 E162 13-Nov-2023 19-Nov-2023 7 days 6 days 1 **Physical Tests: TDS by Gravimetry HDPE** E162 13-Nov-2023 19-Nov-2023 1 WG-111323-CS-02 6 days 7 days Physical Tests: TDS by Gravimetry **HDPE** E162 13-Nov-2023 1 WG-111323-CS-03 19-Nov-2023 7 days 6 days ----**Physical Tests: TDS by Gravimetry** HDPE WG-111323-CS-04 E162 13-Nov-2023 19-Nov-2023 1 7 days 6 days

13-Nov-2023

13-Nov-2023

E162

E162

✓

1

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Matrix: Water Evaluation: ★ = Holding time exceedance; ✓ = Within Holding Time

Analyte Group : Analytical Method	Method	Sampling Date	Ext	raction / Pr	eparation		J	<u> </u>		
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Physical Tests : TDS by Gravimetry										
HDPE WG-111323-CS-07	E162	13-Nov-2023					19-Nov-2023	7 days	6 days	✓
Physical Tests : TDS by Gravimetry										
HDPE WG-111323-CS-08	E162	13-Nov-2023					19-Nov-2023	7 days	6 days	✓
Physical Tests : TDS by Gravimetry										
HDPE WG-111323-CS-09	E162	13-Nov-2023					19-Nov-2023	7 days	6 days	✓
Physical Tests : TDS by Gravimetry										
HDPE WG-111323-CS-10	E162	13-Nov-2023					19-Nov-2023	7 days	6 days	✓

Legend & Qualifier Definitions

Rec. HT: ALS recommended hold time (see units).

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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.

Quality Castral Cample Type					T	thin specificatio	
Quality Control Sample Type	Method	001+4#	QC	ount Regular	Actual	Frequency (%)	Evaluation
Analytical Methods	Method	QC Lot #	QC	Regulai	Actual	Expected	Evaluation
Laboratory Duplicates (DUP)							
Alkalinity Species by Titration	E290	1238937	1	19	5.2	5.0	✓
Ammonia by Fluorescence	E298	1245626	2	38	5.2	5.0	✓
Chloride in Water by IC	E235.CI	1238942	1	20	5.0	5.0	✓
Conductivity in Water	E100	1238936	1	20	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1247177	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1240556	2	40	5.0	5.0	✓
Fluoride in Water by IC	E235.F	1238943	1	16	6.2	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1238940	1	19	5.2	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1238941	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1238939	1	20	5.0	5.0	✓
TDS by Gravimetry	E162	1243903	1	17	5.8	5.0	✓
Laboratory Control Samples (LCS)							
Alkalinity Species by Titration	E290	1238937	1	19	5.2	5.0	1
Ammonia by Fluorescence	E298	1245626	2	38	5.2	5.0	1
Chloride in Water by IC	E235.CI	1238942	1	20	5.0	5.0	1
Conductivity in Water	E100	1238936	1	20	5.0	5.0	1
Dissolved Mercury in Water by CVAAS	E509	1247177	1	20	5.0	5.0	1
Dissolved Metals in Water by CRC ICPMS	E421	1240556	2	40	5.0	5.0	1
Fluoride in Water by IC	E235.F	1238943	1	16	6.2	5.0	1
Nitrate in Water by IC (Low Level)	E235.NO3-L	1238940	1	19	5.2	5.0	1
Nitrite in Water by IC (Low Level)	E235.NO2-L	1238941	1	20	5.0	5.0	1
Sulfate in Water by IC	E235.SO4	1238939	1	20	5.0	5.0	1
TDS by Gravimetry	E162	1243903	1	17	5.8	5.0	1
Method Blanks (MB)							
Alkalinity Species by Titration	E290	1238937	1	19	5.2	5.0	1
Ammonia by Fluorescence	E298	1245626	2	38	5.2	5.0	1
Chloride in Water by IC	E235.CI	1238942	1	20	5.0	5.0	√
Conductivity in Water	E100	1238936	1	20	5.0	5.0	1
Dissolved Mercury in Water by CVAAS	E509	1247177	1	20	5.0	5.0	1
Dissolved Metals in Water by CRC ICPMS	E421	1240556	2	40	5.0	5.0	√
Fluoride in Water by IC	E235.F	1238943	1	16	6.2	5.0	√
Nitrate in Water by IC (Low Level)	E235.NO3-L	1238940	1	19	5.2	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1238941	1	20	5.0	5.0	√
Sulfate in Water by IC	E235.SO4	1238939	1	20	5.0	5.0	✓
TDS by Gravimetry	E162	1243903	1	17	5.8	5.0	✓

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Matrix: Water Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification												
Quality Control Sample Type			С	ount		Frequency (%)						
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation					
Matrix Spikes (MS)												
Ammonia by Fluorescence	E298	1245626	2	38	5.2	5.0	✓					
Chloride in Water by IC	E235.Cl	1238942	1	20	5.0	5.0	✓					
Dissolved Mercury in Water by CVAAS	E509	1247177	1	20	5.0	5.0	✓					
Dissolved Metals in Water by CRC ICPMS	E421	1240556	2	40	5.0	5.0	√					
Fluoride in Water by IC	E235.F	1238943	1	16	6.2	5.0	√					
Nitrate in Water by IC (Low Level)	E235.NO3-L	1238940	1	19	5.2	5.0	√					
Nitrite in Water by IC (Low Level)	E235.NO2-L	1238941	1	20	5.0	5.0	✓					
Sulfate in Water by IC	E235.SO4	1238939	1	20	5.0	5.0						

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Project : 4-2-7



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	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
	ALS Environmental -			sample. Conductivity measurements are temperature-compensated to 25°C.
	Vancouver			campio. Conductivity incucaronionic are temporature compensated to 20°C.
TDS by Gravimetry	E162	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 $180 \pm 2^{\circ}\text{C}$ for 16 hours or to constant weight,
	ALS Environmental -			with gravimetric measurement of the residue.
	Vancouver			
Chloride in Water by IC	E235.CI	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and /or UV detection.
	ALS Environmental -			
	Vancouver			
Fluoride in Water by IC	E235.F	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
	ALS Environmental -			
	Vancouver			
Nitrite in Water by IC (Low Level)	E235.NO2-L	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
	ALS Environmental -			
	Vancouver			
Nitrate in Water by IC (Low Level)	E235.NO3-L	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and /or UV detection.
	ALS Environmental -			
	Vancouver			
Sulfate in Water by IC	E235.SO4	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
	ALS Environmental -			
	Vancouver			
Alkalinity Species by Titration	E290	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
	ALS Environmental -			alkalinity values.
	Vancouver			anianny raises.
Ammonia by Fluorescence	E298	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).
	ALS Environmental -			This method is approved under US EPA 40 CFR Part 136 (May 2021)
	Vancouver			
	Valiodayoi			

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Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Dissolved Metals in Water by CRC ICPMS	E421 ALS Environmental -	Water	APHA 3030B/EPA 6020B (mod)	Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by Collision/Reaction Cell ICPMS.
	Vancouver			Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
Dissolved Mercury in Water by CVAAS	E509	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
	ALS Environmental - Vancouver			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.
Nitrate and Nitrite (as N) (Calculation)	EC235.N+N ALS Environmental -	Water	EPA 300.0	Nitrate and Nitrite (as N) is a calculated parameter. Nitrate and Nitrite (as N) = Nitrite (as N) + Nitrate (as N).
	Vancouver			
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.
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.

ALS

Chain of Custody (COC) / Analytical Request Form

Affix ALS barcode label here

COC Number: 17 -

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Environmental Canada Toll Free: 1 800 668 9878

	www.aiscicpat.com									1000		<u></u>									
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ALS Canada Ltd.

Address

C-O-C number



CERTIFICATE OF ANALYSIS

Work Order : **VA23C7752** Page : 1 of 5

Client : Comox Valley Regional District Laboratory : ALS Environmental - Vancouver

Contact : Crystal Stuart : Crystal Stuart : Thomas Chang

: 770 Harmston Avenue Address : 8081 Lougheed Highway

Courtney BC Canada V9N 0G8 Burnaby BC Canada V5A 1W9

Issue Date

: 27-Nov-2023 15:10

Telephone : 250-898-3722 Telephone : +1 604 253 4188

 Project
 : 4-2-2
 Date Samples Received
 : 17-Nov-2023 10:40

 PO
 : 23-015
 Date Analysis Commenced
 : 18-Nov-2023

Sampler : Crystal Stuart

Site : CRWMC-Quartetly-GW
Quote number : VA23-COVR100-001

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
Angelo Salandanan	Lab Assistant	Metals, Burnaby, British Columbia
Kate Dimitrova	Supervisor - Inorganic	Inorganics, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Inorganics, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia
Owen Cheng		Metals, Burnaby, British Columbia
Sam Silveira	Lab Assistant	Metals, Burnaby, British Columbia

Page : 2 of 5

Work Order : VA23C7752

Client : Comox Valley Regional District

Project : 4-2-2

ALS

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
μS/cm	microsiemens per centimetre
mg/L	milligrams per litre

<: 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

Description
Detection Limit Raised: Dilution required due to high Dissolved Solids / Electrical
Conductivity.

Page : 3 of 5 Work Order : VA23C7752

Client : Comox Valley Regional District

Project : 4-2-2

ALS

Analytical Results

Sub-Matrix: Water			Cli	ent sample ID	WG-11423-CS-1	WG-11423-CS-1	WG-11423-CS-1	WG-11423-CS-1	WG-11423-CS-1
(Matrix: Water)					1	2	3	4	5
			Client samp	ling date / time	14-Nov-2023 09:35	14-Nov-2023 10:45	14-Nov-2023 11:45	14-Nov-2023 12:40	14-Nov-2023 12:45
Analyte	CAS Number	Method/Lab	LOR	Unit	VA23C7752-001	VA23C7752-002	VA23C7752-003	VA23C7752-004	VA23C7752-005
					Result	Result	Result	Result	Result
Physical Tests									
Alkalinity, bicarbonate (as CaCO3)		E290/VA	1.0	mg/L	442	62.2	91.9	95.2	94.6
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, total (as CaCO3)		E290/VA	1.0	mg/L	442	62.2	91.9	95.2	94.6
Conductivity		E100/VA	2.0	μS/cm	958	138	188	191	192
Hardness (as CaCO3), dissolved		EC100/VA	0.60	mg/L	463	71.0	90.5	92.2	94.7
Solids, total dissolved [TDS]		E162/VA	10	mg/L	616	114	122	112	116
Anions and Nutrients						1000			
Ammonia, total (as N)	7664-41-7	E298/VA	0.0050	mg/L	0.0116	<0.0050	<0.0050	<0.0050	<0.0050
Chloride	16887-00-6	E235.CI/VA	0.50	mg/L	43.1	4.13	2.60	1.95	1.94
Fluoride	16984-48-8	E235.F/VA	0.020	mg/L	<0.100 DLDS	<0.020	0.023	<0.020	<0.020
Nitrate (as N)	14797-55-8	E235.NO3-L/V	0.0050	mg/L	5.30	0.218	0.629	0.158	0.159
Nitrate + Nitrite (as N)		A EC235.N+N/V	0.0050	mg/L	5.30	0.218	0.629	0.158	0.159
Nitrite (as N)	14797-65-0	E235.NO2-L/V A	0.0010	mg/L	<0.0050 DLDS	<0.0010	<0.0010	<0.0010	<0.0010
Sulfate (as SO4)	14808-79-8	E235.SO4/VA	0.30	mg/L	8.76	3.60	1.77	2.57	2.59
Dissolved Metals									
Aluminum, dissolved	7429-90-5	E421/VA	0.0010	mg/L	<0.0010	3.22	0.0034	0.0040	0.0050
Antimony, dissolved	7440-36-0	E421/VA	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic, dissolved	7440-38-2	E421/VA	0.00010	mg/L	0.00013	0.00058	0.00026	0.00185	0.00190
Barium, dissolved	7440-39-3	E421/VA	0.00010	mg/L	0.0182	0.0234	0.00737	0.00450	0.00456
Beryllium, dissolved	7440-41-7	E421/VA	0.000020	mg/L	<0.000020	0.000038	<0.000020	<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	0.275	<0.010	<0.010	<0.010	<0.010
Cadmium, dissolved	7440-43-9	E421/VA	0.0000050	mg/L	0.0000729	0.0000383	<0.0000050	<0.0000050	<0.0000050
Calcium, dissolved	7440-70-2	E421/VA	0.050	mg/L	139	18.3	26.0	28.2	28.5
Chromium, dissolved	7440-47-3	E421/VA	0.00050	mg/L	<0.00050	0.00881	0.00255	0.00053	0.00057
Cobalt, dissolved	7440-48-4	E421/VA	0.00010	mg/L	0.00056	0.00223	<0.00010	<0.00010	<0.00010

Page : 4 of 5 Work Order : VA23C7752

Client : Comox Valley Regional District

Project : 4-2-2

ALS

Analytical Results

Sub-Matrix: Water			Cli	ent sample ID	WG-11423-CS-1	WG-11423-CS-1	WG-11423-CS-1	WG-11423-CS-1	WG-11423-CS-1
(Matrix: Water)					1	2	3	4	5
				ling date / time	14-Nov-2023 09:35	14-Nov-2023 10:45	14-Nov-2023 11:45	14-Nov-2023 12:40	14-Nov-2023 12:45
Analyte	CAS Number	Method/Lab	LOR	Unit	VA23C7752-001	VA23C7752-002	VA23C7752-003	VA23C7752-004	VA23C7752-005
					Result	Result	Result	Result	Result
Dissolved Metals		E 40 4 8 4 8	0.00000		0.00404	2.2424	0.0000		0.0000
Copper, dissolved	7440-50-8		0.00020	mg/L	0.00421	0.0181	<0.00020	<0.00020	<0.00020
Iron, dissolved	7439-89-6		0.010	mg/L	<0.010	3.87	<0.010	<0.010	<0.010
Lead, dissolved	7439-92-1		0.000050	mg/L	<0.000050	0.000325	<0.000050	<0.000050	<0.000050
Lithium, dissolved	7439-93-2		0.0010	mg/L	0.0010	0.0012	<0.0010	<0.0010	<0.0010
Magnesium, dissolved	7439-95-4	E421/VA	0.100	mg/L	28.2	6.15	6.21	5.30	5.71
Manganese, dissolved	7439-96-5	E421/VA	0.00010	mg/L	0.502	0.0751	<0.00010	<0.00010	<0.00010
Mercury, dissolved	7439-97-6	E509/VA	0.0000050	mg/L	<0.0000050	<0.000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum, dissolved	7439-98-7	E421/VA	0.000050	mg/L	0.000111	0.000104	0.000165	0.000102	0.000097
Nickel, dissolved	7440-02-0	E421/VA	0.00050	mg/L	0.00210	0.00319	<0.00050	<0.00050	<0.00050
Phosphorus, dissolved	7723-14-0	E421/VA	0.050	mg/L	<0.050	0.240	<0.050	<0.050	<0.050
Potassium, dissolved	7440-09-7	E421/VA	0.100	mg/L	2.44	1.02	0.500	1.24	1.28
Selenium, dissolved	7782-49-2	E421/VA	0.000050	mg/L	<0.000050	0.000282	0.000092	0.000154	0.000153
Silicon, dissolved	7440-21-3	E421/VA	0.050	mg/L	14.7	13.3	6.50	5.88	5.94
Silver, dissolved	7440-22-4	E421/VA	0.000010	mg/L	<0.000010	0.000016	<0.000010	<0.000010	<0.000010
Sodium, dissolved	7440-23-5	E421/VA	0.050	mg/L	30.6	3.96	2.42	1.66	1.71
Strontium, dissolved	7440-24-6	E421/VA	0.00020	mg/L	0.336	0.0670	0.0415	0.0364	0.0360
Sulfur, dissolved	7704-34-9	E421/VA	0.50	mg/L	4.18	1.06	<0.50	0.71	0.67
Thallium, dissolved	7440-28-0	E421/VA	0.000010	mg/L	<0.000010	0.000011	<0.000010	<0.000010	<0.000010
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	<0.00030	0.192	<0.00030	<0.00030	<0.00030
Uranium, dissolved	7440-61-1	E421/VA	0.000010	mg/L	0.000663	0.000186	0.000229	0.000152	0.000149
Vanadium, dissolved	7440-62-2	E421/VA	0.00050	mg/L	0.00179	0.0136	0.00631	0.0187	0.0196
Zinc, dissolved	7440-66-6		0.0010	mg/L	<0.0010	0.0084	<0.0010	<0.0010	<0.0010
Zirconium, dissolved	7440-67-7		0.00020	mg/L	<0.00020	0.00048	<0.00020	<0.00020	<0.00020
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.

Please refer to the Accreditation section for an explanation of analyte accreditations.

Page Work Order

5 of 5 VA23C7752

Comox Valley Regional District 4-2-2 Client

Project



ALS Canada Ltd.



QUALITY CONTROL REPORT

Work Order : **VA23C7752** Page : 1 of 10

Client : Comox Valley Regional District Laboratory : ALS Environmental - Vancouver

Contact : Crystal Stuart Account Manager : Thomas Chang

:770 Harmston Avenue Address :8081 Lougheed Highway

Burnaby, British Columbia Canada V5A 1W9

: Telephone :+1 604 253 4188

 Project
 : 4-2-2
 Date Samples Received
 : 17-Nov-2023 10:40

 PO
 : 23-015
 Date Analysis Commenced
 : 18-Nov-2023

C-O-C number :---- Issue Date :27-Nov-2023 15:10

Sampler : Crystal Stuart₂₅₀₋₈₉₈₋₃₇₂₂

Site : CRWMC-Quartetly-GW

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

Courtney BC Canada V9N 0G8

- 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

: VA23-COVR100-001

Signatories

Address

Telephone

Quote number

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
Kate Dimitrova	Supervisor - Inorganic	Vancouver Inorganics, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Vancouver Inorganics, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Vancouver Metals, Burnaby, British Columbia
Owen Cheng		Vancouver Metals, Burnaby, British Columbia
Sam Silveira	Lab Assistant	Vancouver Metals, Burnaby, British Columbia

Page : 2 of 10 Work Order : VA23C7752

Client : Comox Valley Regional District

Project : 4-2-2



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.

Page : 3 of 10 Work Order : VA23C7752

Client : Comox Valley Regional District

Project : 4-2-2



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: 1243362)										
VA23C7858-001	Anonymous	Alkalinity, bicarbonate (as CaCO3)		E290	1.0	mg/L	45.3	45.5	0.440%	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, total (as CaCO3)		E290	1.0	mg/L	45.3	45.5	0.440%	20%	
Physical Tests (QC	Lot: 1243363)										
VA23C7858-001	Anonymous	Conductivity		E100	2.0	μS/cm	97.3	98.0	0.717%	10%	
Physical Tests (QC	Lot: 1245646)										
VA23C7736-078	Anonymous	Solids, total dissolved [TDS]		E162	80	mg/L	13100	13400	2.19%	20%	
Physical Tests (QC	Lot: 1245647)										
VA23C7752-003	WG-11423-CS-13	Solids, total dissolved [TDS]		E162	13	mg/L	122	115	7	Diff <2x LOR	
Anions and Nutrien	ts (QC Lot: 1243364)										
VA23C7808-001	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	
Anions and Nutrien	ts (QC Lot: 1243365)										
VA23C7808-001	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	
Anions and Nutrien	ts (QC Lot: 1243366)										
VA23C7808-001	Anonymous	Fluoride	16984-48-8	E235.F	0.020	mg/L	<0.020	<0.020	0	Diff <2x LOR	
Anions and Nutrien	ts (QC Lot: 1243367)										
VA23C7808-001	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	29.2	29.2	0.131%	20%	
Anions and Nutrien	ts (QC Lot: 1243368)										
VA23C7808-001	Anonymous	Chloride	16887-00-6	E235.CI	0.50	mg/L	0.63	0.64	0.02	Diff <2x LOR	
Anions and Nutrien	ts (QC Lot: 1248130)										
VA23C7752-001	WG-11423-CS-11	Ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	0.0116	0.0124	0.0009	Diff <2x LOR	
Dissolved Metals (QC Lot: 1243960)										
VA23C7739-001	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	0.0030	0.0026	0.0003	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	0.00013	0.00014	0.000009	Diff <2x LOR	
		Barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.0166	0.0167	0.444%	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	0.038	0.038	0.00004	Diff <2x LOR	

Page : 4 of 10 Work Order : VA23C7752

Client : Comox Valley Regional District



Sub-Matrix: Water							Labora	tory Duplicate (D	UP) 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: 1243960) - coi	ntinued									
VA23C7739-001	Anonymous	Cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L	0.0000167	0.0000168	0.00000004	Diff <2x LOR	
		Calcium, dissolved	7440-70-2	E421	0.050	mg/L	22.5	22.8	1.42%	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	0.00044	0.00044	0.000006	Diff <2x LOR	
		Copper, dissolved	7440-50-8	E421	0.00020	mg/L	0.00033	0.00034	0.00001	Diff <2x LOR	
		Iron, dissolved	7439-89-6	E421	0.010	mg/L	0.015	0.015	0.00007	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	0.0050	mg/L	3.38	3.38	0.0682%	20%	
		Manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.0106	0.0108	1.96%	20%	
		Molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.000497	0.000527	5.74%	20%	
		Nickel, dissolved	7440-02-0	E421	0.00050	mg/L	0.00130	0.00128	0.00001	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	1.18	1.20	0.904%	20%	
		Selenium, dissolved	7782-49-2	E421	0.000050	mg/L	0.000298	0.000270	0.000028	Diff <2x LOR	
		Silicon, dissolved	7440-21-3	E421	0.050	mg/L	5.79	5.69	1.78%	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	4.58	4.77	4.14%	20%	
		Strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.0860	0.0897	4.14%	20%	
		Sulfur, dissolved	7704-34-9	E421	0.50	mg/L	6.16	6.25	1.43%	20%	
		Thallium, dissolved	7440-28-0	E421	0.000010	mg/L	<0.000010	<0.000010	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	
		Uranium, dissolved	7440-61-1	E421	0.000010	mg/L	0.000017	0.000017	0.0000006	Diff <2x LOR	
		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	0.0080	0.0085	0.0005	Diff <2x LOR	
		Zirconium, dissolved	7440-67-7	E421	0.00030	mg/L	<0.00030	<0.00030	0	Diff <2x LOR	
Dissolved Metals (G	QC Lot: 1250956)										
<s2304437-001< td=""><td>Anonymous</td><td>Mercury, dissolved</td><td>7439-97-6</td><td>E509</td><td>0.0000050</td><td>mg/L</td><td><0.0000050</td><td><0.0000050</td><td>0</td><td>Diff <2x LOR</td><td></td></s2304437-001<>	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	

Page : 5 of 10 Work Order : VA23C7752

Client : Comox Valley Regional District

Project : 4-2-2



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

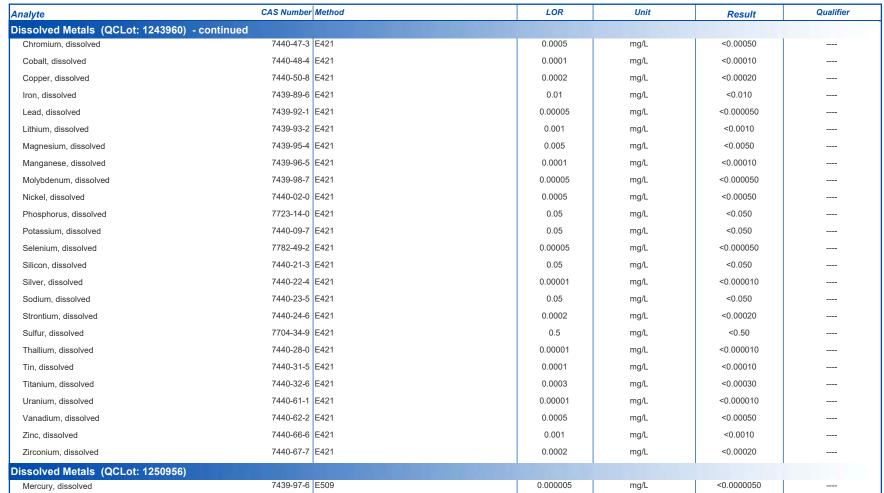
Analyte	CAS Number N	lethod	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 1243362)						
Alkalinity, bicarbonate (as CaCO3)	E	290	1	mg/L	<1.0	
Alkalinity, carbonate (as CaCO3)	E	290	1	mg/L	<1.0	
Alkalinity, hydroxide (as CaCO3)	E	290	1	mg/L	<1.0	
Alkalinity, total (as CaCO3)	E	290	1	mg/L	<1.0	
Physical Tests (QCLot: 1243363)						
Conductivity	E	100	1	μS/cm	<1.0	
hysical Tests (QCLot: 1245646)						
Solids, total dissolved [TDS]	E	162	10	mg/L	<10	
Physical Tests (QCLot: 1245647)						
Solids, total dissolved [TDS]	E	162	10	mg/L	<10	
Anions and Nutrients (QCLot: 1243364)						
Nitrate (as N)	14797-55-8 E	235.NO3-L	0.005	mg/L	<0.0050	
Anions and Nutrients (QCLot: 1243365)						
Nitrite (as N)	14797-65-0 E	235.NO2-L	0.001	mg/L	<0.0010	
Anions and Nutrients (QCLot: 1243366)						
Fluoride	16984-48-8 E	235.F	0.02	mg/L	<0.020	
Anions and Nutrients (QCLot: 1243367)						
Sulfate (as SO4)	14808-79-8 E	235.SO4	0.3	mg/L	<0.30	
Anions and Nutrients (QCLot: 1243368)						
Chloride	16887-00-6 E	235.Cl	0.5	mg/L	<0.50	
Anions and Nutrients (QCLot: 1248130)						
Ammonia, total (as N)	7664-41-7 E	298	0.005	mg/L	<0.0050	
Dissolved Metals (QCLot: 1243960)						
Aluminum, dissolved	7429-90-5 E	421	0.001	mg/L	<0.0010	
Antimony, dissolved	7440-36-0 E	421	0.0001	mg/L	<0.00010	
Arsenic, dissolved	7440-38-2 E	421	0.0001	mg/L	<0.00010	
Barium, dissolved	7440-39-3 E	421	0.0001	mg/L	<0.00010	
Beryllium, dissolved	7440-41-7 E	421	0.00002	mg/L	<0.000020	
Bismuth, dissolved	7440-69-9 E	421	0.00005	mg/L	<0.000050	
Boron, dissolved	7440-42-8 E	421	0.01	mg/L	<0.010	
Cadmium, dissolved	7440-43-9 E	421	0.000005	mg/L	<0.0000050	
Calcium, dissolved	7440-70-2 E	421	0.05	mg/L	<0.050	

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Client : Comox Valley Regional District

Project : 4-2-2

Sub-Matrix: Water





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Client : Comox Valley Regional District

Project : 4-2-2



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	Concentration	LCS	Low	High	Qualifier		
Physical Tests (QCLot: 1243362)											
Alkalinity, total (as CaCO3)		E290	1	mg/L	500 mg/L	108	85.0	115			
Physical Tests (QCLot: 1243363)											
Conductivity		E100	1	μS/cm	146.9 μS/cm	93.0	90.0	110			
Physical Tests (QCLot: 1245646)											
Solids, total dissolved [TDS]		E162	10	mg/L	1000 mg/L	110	85.0	115			
Physical Tests (QCLot: 1245647)											
Solids, total dissolved [TDS]		E162	10	mg/L	1000 mg/L	103	85.0	115			
Anions and Nutrients (QCLot: 1243364) Vitrate (as N)	1/1707_55 Q	E235.NO3-L	0.005	mg/L	2.5 mg/l	100	90.0	110			
	14797-55-6	E233.NO3-L	0.005	IIIg/L	2.5 mg/L	100	90.0	110			
Anions and Nutrients (QCLot: 1243365) litrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	0.5 mg/L	97.0	90.0	110			
	14737-00-0	L200.1402-L	0.001	mg/L	0.5 Hg/L	97.0	30.0	110			
Anions and Nutrients (QCLot: 1243366)	16984-48-8	F235 F	0.02	mg/L	1 mg/L	98.4	90.0	110			
	10001 10 0		0.02	9, 2	T HIG/L	30.4	00.0		T T		
Anions and Nutrients (QCLot: 1243367) Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	101	90.0	110			
				g.	100 mg/L	101					
Anions and Nutrients (QCLot: 1243368)	16887-00-6	E235.CI	0.5	mg/L	100 mg/L	99.5	90.0	110			
nions and Nutrients (QCLot: 1248130)											
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	90.3	85.0	115			
					Ŭ						
Dissolved Metals (QCLot: 1243960)	1.1			1 1 1 1 1							
luminum, dissolved	7429-90-5	E421	0.001	mg/L	2 mg/L	97.2	80.0	120			
ntimony, dissolved	7440-36-0	E421	0.0001	mg/L	1 mg/L	96.0	80.0	120			
rsenic, dissolved	7440-38-2	E421	0.0001	mg/L	1 mg/L	102	80.0	120			
arium, dissolved	7440-39-3	E421	0.0001	mg/L	0.25 mg/L	98.3	80.0	120			
eryllium, dissolved	7440-41-7	E421	0.00002	mg/L	0.1 mg/L	98.2	80.0	120			
ismuth, dissolved	7440-69-9	E421	0.00005	mg/L	1 mg/L	98.0	80.0	120			
oron, dissolved	7440-42-8	E421	0.01	mg/L	1 mg/L	103	80.0	120			
admium, dissolved	7440-43-9		0.000005	mg/L	0.1 mg/L	96.4	80.0	120			
Calcium, dissolved	7440-70-2		0.05	mg/L	50 mg/L	98.8	80.0	120			
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	0.25 mg/L	98.7	80.0	120			

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Client : Comox Valley Regional District



Sub-Matrix: Water						Laboratory Co	ntrol Sample (LCS)	Report	
					Spike	Recovery (%)	Recovery	Limits (%)	
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Dissolved Metals (QCLot: 1243960) - cont	inued								
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	96.4	80.0	120	
Iron, dissolved	7439-89-6	E421	0.01	mg/L	1 mg/L	97.3	80.0	120	
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	0.5 mg/L	97.2	80.0	120	
Lithium, dissolved	7439-93-2	E421	0.001	mg/L	0.25 mg/L	95.9	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	97.9	80.0	120	
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	0.25 mg/L	99.0	80.0	120	
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	0.5 mg/L	98.1	80.0	120	
Phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	10 mg/L	109	80.0	120	
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	50 mg/L	102	80.0	120	
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	103	80.0	120	
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	0.1 mg/L	92.4	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	96.5	80.0	120	
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	50 mg/L	96.8	80.0	120	
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	1 mg/L	98.1	80.0	120	
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	0.5 mg/L	97.9	80.0	120	
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	0.25 mg/L	96.7	80.0	120	
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	0.005 mg/L	97.2	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	100	80.0	120	
Zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	0.1 mg/L	98.1	80.0	120	
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0.0001 mg/L	103	80.0	120	

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Client : Comox Valley Regional District

Project : 4-2-2

ALS

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	(inploof may be subject to blue. It		g	TX opino lovoi.		Matrix Spik	e (MS) Report		
Jub-iviatiin. **atei					Sp	ike	Recovery (%)		Limits (%)	
Laboratory sample	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
	ents (QCLot: 1243364)									
VA23C7808-002	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	2.52 mg/L	2.5 mg/L	101	75.0	125	
Anions and Nutri	ents (QCLot: 1243365)				1112					
VA23C7808-002	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	0.496 mg/L	0.5 mg/L	99.2	75.0	125	
Anions and Nutri	ents (QCLot: 1243366)									
VA23C7808-002	Anonymous	Fluoride	16984-48-8	E235.F	0.988 mg/L	1 mg/L	98.8	75.0	125	
Anions and Nutri	ents (QCLot: 1243367)									
VA23C7808-002	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	96.6 mg/L	100 mg/L	96.6	75.0	125	
	ents (QCLot: 1243368)		1.000.700		00:0 mg/2	100 mg/2	00.0	7 0.0	120	
VA23C7808-002	Anonymous	Chloride	16887-00-6	E235.CI	100 mg/L	100 mg/L	100	75.0	125	
	ents (QCLot: 1248130)		10007-00-0	L233.01	100 Hig/L	100 Hig/L	100	7 5.0	123	
	WG-11423-CS-12		7004 44 7	5000	0.0000 #	0.4 "	00.0	75.0	405	
VA23C7752-002		Ammonia, total (as N)	7664-41-7	E298	0.0888 mg/L	0.1 mg/L	88.8	75.0	125	
	(QCLot: 1243960)									
VA23C7739-002	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.179 mg/L	0.2 mg/L	89.5	70.0	130	
		Antimony, dissolved	7440-36-0	E421	0.0175 mg/L	0.02 mg/L	87.7	70.0	130	
		Arsenic, dissolved	7440-38-2	E421	0.0180 mg/L	0.02 mg/L	90.0	70.0	130	
		Barium, dissolved	7440-39-3	E421	0.0184 mg/L	0.02 mg/L	91.9	70.0	130	
		Beryllium, dissolved	7440-41-7	E421	0.0375 mg/L	0.04 mg/L	93.7	70.0	130	
		Bismuth, dissolved	7440-69-9	E421	0.00852 mg/L	0.01 mg/L	85.2	70.0	130	
		Boron, dissolved	7440-42-8	E421	0.089 mg/L	0.1 mg/L	89.5	70.0	130	
		Cadmium, dissolved	7440-43-9	E421	0.00356 mg/L	0.004 mg/L	89.0	70.0	130	
		Calcium, dissolved	7440-70-2	E421	ND mg/L	4 mg/L	ND	70.0	130	
		Chromium, dissolved	7440-47-3	E421	0.0359 mg/L	0.04 mg/L	89.9	70.0	130	
		Cobalt, dissolved	7440-48-4	E421	0.0181 mg/L	0.02 mg/L	90.4	70.0	130	
		Copper, dissolved	7440-50-8	E421	0.0180 mg/L	0.02 mg/L	89.8	70.0	130	
		Iron, dissolved	7439-89-6	E421	1.73 mg/L	2 mg/L	86.7	70.0	130	
		Lead, dissolved	7439-99-0	E421	0.0179 mg/L	0.02 mg/L	89.3	70.0	130	
		Lithium, dissolved				_				
		Magnesium, dissolved	7439-93-2	E421	0.0934 mg/L	0.1 mg/L	93.4	70.0	130	
			7439-95-4	E421	ND mg/L	1 mg/L	ND	70.0	130	
		Manganese, dissolved	7439-96-5	E421	0.0178 mg/L	0.02 mg/L	89.2	70.0	130	
		Molybdenum, dissolved	7439-98-7	E421	0.0182 mg/L	0.02 mg/L	91.1	70.0	130	

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Client : Comox Valley Regional District



Sub-Matrix: Water				Matrix Spike (MS) Report							
					Sp	ike	e Recovery (%)		Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier	
Dissolved Metals	(QCLot: 1243960) -	- continued									
VA23C7739-002	Anonymous	Nickel, dissolved	7440-02-0	E421	0.0372 mg/L	0.04 mg/L	93.0	70.0	130		
		Phosphorus, dissolved	7723-14-0	E421	9.67 mg/L	10 mg/L	96.7	70.0	130		
		Potassium, dissolved	7440-09-7	E421	3.79 mg/L	4 mg/L	94.8	70.0	130		
		Selenium, dissolved	7782-49-2	E421	0.0369 mg/L	0.04 mg/L	92.2	70.0	130		
		Silicon, dissolved	7440-21-3	E421	9.28 mg/L	10 mg/L	92.8	70.0	130		
		Silver, dissolved	7440-22-4	E421	0.00355 mg/L	0.004 mg/L	88.8	70.0	130		
		Sodium, dissolved	7440-23-5	E421	ND mg/L	2 mg/L	ND	70.0	130		
		Strontium, dissolved	7440-24-6	E421	ND mg/L	0.02 mg/L	ND	70.0	130		
		Sulfur, dissolved	7704-34-9	E421	18.9 mg/L	20 mg/L	94.5	70.0	130		
		Thallium, dissolved	7440-28-0	E421	0.00351 mg/L	0.004 mg/L	87.7	70.0	130		
		Tin, dissolved	7440-31-5	E421	0.0177 mg/L	0.02 mg/L	88.7	70.0	130		
		Titanium, dissolved	7440-32-6	E421	0.0370 mg/L	0.04 mg/L	92.6	70.0	130		
		Uranium, dissolved	7440-61-1	E421	0.00349 mg/L	0.004 mg/L	87.3	70.0	130		
		Vanadium, dissolved	7440-62-2	E421	0.0926 mg/L	0.1 mg/L	92.6	70.0	130		
		Zinc, dissolved	7440-66-6	E421	0.371 mg/L	0.4 mg/L	92.9	70.0	130		
		Zirconium, dissolved	7440-67-7	E421	0.0356 mg/L	0.04 mg/L	89.0	70.0	130		
Dissolved Metals	(QCLot: 1250956)									İ	
VA23C7732-001	Anonymous	Mercury, dissolved	7439-97-6	E509	0.000101 mg/L	0.0001 mg/L	101	70.0	130		



QUALITY CONTROL INTERPRETIVE REPORT

Work Order : **VA23C7752** Page : 1 of 13

Client : Comox Valley Regional District Laboratory : ALS Environmental - Vancouver

Contact : Crystal Stuart Account Manager : Thomas Chang

Address :770 Harmston Avenue Address :8081 Lougheed Highway

Burnaby, British Columbia Canada V5A 1W9

 Telephone
 : 250-898-3722
 Telephone
 : +1 604 253 4188

 Project
 : 4-2-2
 Date Samples Received
 : 17-Nov-2023 10:40

 PO
 : 23-015
 Issue Date
 : 27-Nov-2023 15:10

PO : 23-015 Iss C-O-C number :----

Courtney BC Canada V9N 0G8

Sampler : Crystal Stuart

Site : CRWMC-Quartetly-GW

Quote number : VA23-COVR100-001

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.

- INO METHOD DIATIK VALUE OUTILETS OCCUI
- 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.

Page : 3 of 13 Work Order : VA23C7752

Client : Comox Valley Regional District

Project : 4-2-2



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					Ev	aluation: × = I	Holding time exce	edance ; •	= Within	Holding Tim
Analyte Group : Analytical Method	Method	Sampling Date	Ext	raction / Preparation	aration			Analysis		
Container / Client Sample ID(s)			Preparation Date	Holding 7	Times Actual	Eval	Analysis Date	Holding Rec	Times Actual	Eval
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) WG-11423-CS-11	E298	14-Nov-2023	22-Nov-2023	28 8 days	3 days	✓	23-Nov-2023	28 days	9 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) WG-11423-CS-12	E298	14-Nov-2023	22-Nov-2023	28 8 days	3 days	✓	23-Nov-2023	28 days	9 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) WG-11423-CS-13	E298	14-Nov-2023	22-Nov-2023	28 8 days	3 days	4	23-Nov-2023	28 days	9 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) WG-11423-CS-14	E298	14-Nov-2023	22-Nov-2023	28 8 days	3 days	✓	23-Nov-2023	28 days	9 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) WG-11423-CS-15	E298	14-Nov-2023	22-Nov-2023	28 8 days	3 days	✓	23-Nov-2023	28 days	9 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE WG-11423-CS-11	E235.Cl	14-Nov-2023	18-Nov-2023	28 4 days	4 days	✓	18-Nov-2023	28 days	4 days	✓
Anions and Nutrients : Chloride in Water by IC					<u> </u>					
HDPE WG-11423-CS-12	E235.Cl	14-Nov-2023	18-Nov-2023	28 4 days	4 days	✓	18-Nov-2023	28 days	4 days	✓

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Client : Comox Valley Regional District



Matrix: Water	Evaluation: × = Holding time exceedance; ✓ = Within Holding Time

Analyte Group : Analytical Method	Method	Sampling Date	Ex		Analysis					
Container / Client Sample ID(s)			Preparation	Holdin	g Times	Eval	Analysis Date	Holding	Times	Eval
			Date	Rec	Actual			Rec	Actual	
Anions and Nutrients : Chloride in Water by IC										
HDPE WG-11423-CS-13	E235.CI	14-Nov-2023	18-Nov-2023	28 days	4 days	✓	18-Nov-2023	28 days	4 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE WG-11423-CS-14	E235.CI	14-Nov-2023	18-Nov-2023	28 days	4 days	✓	18-Nov-2023	28 days	4 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE WG-11423-CS-15	E235.CI	14-Nov-2023	18-Nov-2023	28 days	4 days	~	18-Nov-2023	28 days	4 days	√
Anions and Nutrients : Fluoride in Water by IC										
HDPE WG-11423-CS-11	E235.F	14-Nov-2023	18-Nov-2023	28 days	4 days	√	18-Nov-2023	28 days	4 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE WG-11423-CS-12	E235.F	14-Nov-2023	18-Nov-2023	28 days	4 days	1	18-Nov-2023	28 days	4 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE WG-11423-CS-13	E235.F	14-Nov-2023	18-Nov-2023	28 days	4 days	1	18-Nov-2023	28 days	4 days	√
Anions and Nutrients : Fluoride in Water by IC										
HDPE WG-11423-CS-14	E235.F	14-Nov-2023	18-Nov-2023	28 days	4 days	√	18-Nov-2023	28 days	4 days	√
Anions and Nutrients : Fluoride in Water by IC										
HDPE WG-11423-CS-15	E235.F	14-Nov-2023	18-Nov-2023	28 days	4 days	1	18-Nov-2023	28 days	4 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE WG-11423-CS-13	E235.NO3-L	14-Nov-2023	18-Nov-2023	3 days	3 days	✓	18-Nov-2023	3 days	4 days	* EHTL

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Matrix: Water Ev	uation: x = Holding time exceedance ; ✓ = Within Holding Time
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Analyte Group : Analytical Method	Method	Sampling Date	Ex		Analysis					
Container / Client Sample ID(s)		Preparation Holding Times Eval		Analysis Date Holding Times		g Times	Eval			
			Date	Rec	Actual			Rec	Actual	
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE WG-11423-CS-14	E235.NO3-L	14-Nov-2023	18-Nov-2023	3 days	3 days	1	18-Nov-2023	3 days	4 days	* EHTL
Anions and Nutrients : Nitrate in Water by IC (Low Level)				1						
HDPE WG-11423-CS-15	E235.NO3-L	14-Nov-2023	18-Nov-2023	3 days	3 days	✓	18-Nov-2023	3 days	4 days	* EHTL
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE WG-11423-CS-11	E235.NO3-L	14-Nov-2023	18-Nov-2023	3 days	4 days	x EHTL	18-Nov-2023	3 days	4 days	* EHTL
Anions and Nutrients : Nitrate in Water by IC (Low Level)				_						
HDPE WG-11423-CS-12	E235.NO3-L	14-Nov-2023	18-Nov-2023	3 days	4 days	x EHTL	18-Nov-2023	3 days	4 days	* EHTL
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE WG-11423-CS-13	E235.NO2-L	14-Nov-2023	18-Nov-2023	3 days	3 days	1	18-Nov-2023	3 days	4 days	# EHTL
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE WG-11423-CS-14	E235.NO2-L	14-Nov-2023	18-Nov-2023	3 days	3 days	1	18-Nov-2023	3 days	4 days	* EHTL
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE WG-11423-CS-15	E235.NO2-L	14-Nov-2023	18-Nov-2023	3 days	3 days	1	18-Nov-2023	3 days	4 days	* EHTL
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE WG-11423-CS-11	E235.NO2-L	14-Nov-2023	18-Nov-2023	3 days	4 days	* EHTL	18-Nov-2023	3 days	4 days	* EHTL
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE WG-11423-CS-12	E235.NO2-L	14-Nov-2023	18-Nov-2023	3 days	4 days	* EHTL	18-Nov-2023	3 days	4 days	* EHTL

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Matrix: Water Evaluation: ▼ = Holding time exceedance; ✓ = Within Holding Time

	_									Holding Time
Analyte Group : Analytical Method	Method	Sampling Date	Ext	traction / Pr	reparation			Analys	is	
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
WG-11423-CS-11	E235.SO4	14-Nov-2023	18-Nov-2023	28	4 days	✓	18-Nov-2023	28 days	4 days	✓
				days						
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
WG-11423-CS-12	E235.SO4	14-Nov-2023	18-Nov-2023	28	4 days	1	18-Nov-2023	28 days	4 days	✓
				days	-			-	-	
Anions and Nutrients : Sulfate in Water by IC				,						
HDPE	1			<u> </u>			<u> </u>			
WG-11423-CS-13	E235.SO4	14-Nov-2023	18-Nov-2023	28	4 days	✓	18-Nov-2023	28 days	4 days	✓
				days	,				,	
Anions and Nutrients : Sulfate in Water by IC				,-						
HDPE										
WG-11423-CS-14	E235.SO4	14-Nov-2023	18-Nov-2023	28	4 days	1	18-Nov-2023	28 days	A days	√
WO-11425-00-14	2200.001	111107 2020	10-1404-2020	days	+ days		10-1404-2020	20 days	+ days	·
				uays						
Anions and Nutrients : Sulfate in Water by IC				T			_	1		
HDPE	E235.SO4	14-Nov-2023	18-Nov-2023	00	4 days	√	18-Nov-2023	28 days	4 daya	√
WG-11423-CS-15	E235.5U4	14-NOV-2023	10-1107-2023	28	4 days	•	10-1107-2023	20 days	4 days	•
				days						
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)	5500	44.11 0000				_				,
WG-11423-CS-11	E509	14-Nov-2023	23-Nov-2023	28	9 days	✓	23-Nov-2023	28 days	0 days	✓
				days						
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
WG-11423-CS-12	E509	14-Nov-2023	23-Nov-2023	28	9 days	✓	23-Nov-2023	28 days	0 days	✓
				days						
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
WG-11423-CS-13	E509	14-Nov-2023	23-Nov-2023	28	9 days	✓	23-Nov-2023	28 days	0 days	✓
				days						
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
, ,		1		1			I	00.1		
WG-11423-CS-14	E509	14-Nov-2023	23-Nov-2023	28	9 days	✓	23-Nov-2023	28 days	0 days	✓

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Matrix: **Water** Evaluation: **x** = Holding time exceedance; ✓ = Within Holding Time

Matrix. Water							Tiolding time exce			
Analyte Group : Analytical Method	Method	Sampling Date	Ex	traction / Pi	reparation			Analysis		
Container / Client Sample ID(s)			Preparation	Holdin	g Times	Eval	Analysis Date	Holding	Times	Eval
			Date	Rec	Actual	•		Rec	Actual	
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
WG-11423-CS-15	E509	14-Nov-2023	23-Nov-2023	28	9 days	✓	23-Nov-2023	28 days	0 days	✓
				days						
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
WG-11423-CS-11	E421	14-Nov-2023	21-Nov-2023	180	7 days	✓	22-Nov-2023	180	8 days	✓
				days				days		
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
WG-11423-CS-12	E421	14-Nov-2023	21-Nov-2023	180	7 days	✓	22-Nov-2023	180	8 days	✓
				days				days		
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
WG-11423-CS-13	E421	14-Nov-2023	21-Nov-2023	180	7 days	✓	22-Nov-2023	180	8 days	✓
				days				days		
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
WG-11423-CS-14	E421	14-Nov-2023	21-Nov-2023	180	7 days	✓	22-Nov-2023	180	8 days	✓
				days				days		
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
WG-11423-CS-15	E421	14-Nov-2023	21-Nov-2023	180	7 days	✓	22-Nov-2023	180	8 days	✓
				days				days		
Physical Tests : Alkalinity Species by Titration										
HDPE										
WG-11423-CS-11	E290	14-Nov-2023	18-Nov-2023	14	4 days	✓	18-Nov-2023	14 days	4 days	✓
				days				-	-	
Physical Tests : Alkalinity Species by Titration										
HDPE		I					I			
WG-11423-CS-12	E290	14-Nov-2023	18-Nov-2023	14	4 days	✓	18-Nov-2023	14 days	4 davs	✓
110 11120 00 12		111101 2020	.0.101 2020	days	· uayo	·	10 1101 2020		· uayo	
Dhousing Tracks a Albelia to Consider by Titantian				days						
Physical Tests : Alkalinity Species by Titration HDPE							I			
WG-11423-CS-13	E290	14-Nov-2023	18-Nov-2023	14	4 days	✓	18-Nov-2023	14 days	4 dave	1
WG-11420-00-13	L230	14-1404-2023	10-1404-2023		+ uays	•	10-1404-2023	14 uays	+ uays	*
				days						

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Matrix: Water Evaluation: ▼ = Holding time exceedance; ✓ = Within Holding Time

Matrix: Water					E	/aluation. * -	Holding time exce	edance, v	- vvitriiri	Holding Time
Analyte Group : Analytical Method	Method	Sampling Date	Ext	raction / Pr	reparation			Analys	is	
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	Times	Eval
			Date	Rec	Actual			Rec	Actual	
Physical Tests : Alkalinity Species by Titration										
HDPE										
WG-11423-CS-14	E290	14-Nov-2023	18-Nov-2023	14	4 days	✓	18-Nov-2023	14 days	4 days	✓
				days						
Physical Tests : Alkalinity Species by Titration										
HDPE										
WG-11423-CS-15	E290	14-Nov-2023	18-Nov-2023	14	4 days	✓	18-Nov-2023	14 days	4 days	✓
				days						
Physical Tests : Conductivity in Water										
HDPE										
WG-11423-CS-11	E100	14-Nov-2023	18-Nov-2023	28	4 days	✓	18-Nov-2023	28 days	4 days	✓
				days						
Physical Tests : Conductivity in Water										
HDPE										
WG-11423-CS-12	E100	14-Nov-2023	18-Nov-2023	28	4 days	✓	18-Nov-2023	28 days	4 days	✓
				days						
Physical Tests : Conductivity in Water										
HDPE										
WG-11423-CS-13	E100	14-Nov-2023	18-Nov-2023	28	4 days	✓	18-Nov-2023	28 days	4 days	✓
				days						
Physical Tests : Conductivity in Water										
HDPE										
WG-11423-CS-14	E100	14-Nov-2023	18-Nov-2023	28	4 days	✓	18-Nov-2023	28 days	4 days	✓
				days					,	
Physical Tests : Conductivity in Water				,						
HDPE							I			
WG-11423-CS-15	E100	14-Nov-2023	18-Nov-2023	28	4 days	✓	18-Nov-2023	28 days	4 davs	✓
				days	, -				, -	
Physical Tests : TDS by Gravimetry				-,,-						
HDPE										
WG-11423-CS-14	E162	14-Nov-2023					21-Nov-2023	7 days	6 days	✓
								,	,-	
Physical Tests : TDS by Crayimetry										
Physical Tests : TDS by Gravimetry HDPE										
WG-11423-CS-15	E162	14-Nov-2023					21-Nov-2023	7 days	6 days	✓
110 11120 00 10							211101 2020	. 44,5	Jaujo	•

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Matrix: Water Evaluation: ▼ = Holding time exceedance; ✓ = Within Holding Time

							reruning unite exteet	,		
Analyte Group : Analytical Method	Method	Sampling Date	Ext	raction / Pr	eparation			Analys	sis	
Container / Client Sample ID(s)			Preparation	Holdin	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Physical Tests : TDS by Gravimetry										
HDPE										
WG-11423-CS-11	E162	14-Nov-2023					21-Nov-2023	7 days	7 days	✓
Physical Tests: TDS by Gravimetry										
HDPE										
WG-11423-CS-12	E162	14-Nov-2023					21-Nov-2023	7 days	7 days	✓
Physical Tests : TDS by Gravimetry										
HDPE										
WG-11423-CS-13	E162	14-Nov-2023					21-Nov-2023	7 days	7 days	✓

Legend & Qualifier Definitions

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).

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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.

Quality Control Sample Type			on: × = QC frequ	ount	· ·	Frequency (%)	
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation
Laboratory Duplicates (DUP)						,	
Alkalinity Species by Titration	E290	1243362	1	19	5.2	5.0	1
Ammonia by Fluorescence	E298	1248130	1	20	5.0	5.0	✓
Chloride in Water by IC	E235.CI	1243368	1	19	5.2	5.0	√
Conductivity in Water	E100	1243363	1	19	5.2	5.0	√
Dissolved Mercury in Water by CVAAS	E509	1250956	1	20	5.0	5.0	√
Dissolved Metals in Water by CRC ICPMS	E421	1243960	1	18	5.5	5.0	√
Fluoride in Water by IC	E235.F	1243366	1	19	5.2	5.0	√
Nitrate in Water by IC (Low Level)	E235.NO3-L	1243364	1	20	5.0	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1243365	1	20	5.0	5.0	√
Sulfate in Water by IC	E235.SO4	1243367	1	19	5.2	5.0	1
TDS by Gravimetry	E162	1245647	2	23	8.7	5.0	√
Laboratory Control Samples (LCS)							_
Alkalinity Species by Titration	E290	1243362	1	19	5.2	5.0	1
Ammonia by Fluorescence	E298	1248130	1	20	5.0	5.0	√
Chloride in Water by IC	E235.CI	1243368	1	19	5.2	5.0	1
Conductivity in Water	E100	1243363	1	19	5.2	5.0	1
Dissolved Mercury in Water by CVAAS	E509	1250956	1	20	5.0	5.0	1
Dissolved Metals in Water by CRC ICPMS	E421	1243960	1	18	5.5	5.0	1
Fluoride in Water by IC	E235.F	1243366	1	19	5.2	5.0	1
Nitrate in Water by IC (Low Level)	E235.NO3-L	1243364	1	20	5.0	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1243365	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1243367	1	19	5.2	5.0	✓
TDS by Gravimetry	E162	1245647	2	23	8.7	5.0	✓
Method Blanks (MB)							
Alkalinity Species by Titration	E290	1243362	1	19	5.2	5.0	✓
Ammonia by Fluorescence	E298	1248130	1	20	5.0	5.0	✓
Chloride in Water by IC	E235.CI	1243368	1	19	5.2	5.0	✓
Conductivity in Water	E100	1243363	1	19	5.2	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1250956	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1243960	1	18	5.5	5.0	✓
Fluoride in Water by IC	E235.F	1243366	1	19	5.2	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1243364	1	20	5.0	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1243365	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1243367	1	19	5.2	5.0	✓
TDS by Gravimetry	E162	1245647	2	23	8.7	5.0	✓

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Matrix: Water		Evaluation	n: × = QC freque	ency outside spe	ecification; ✓ = 0	QC frequency wit	hin specification.
Quality Control Sample Type			Co	ount		Frequency (%)	
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation
Matrix Spikes (MS)							
Ammonia by Fluorescence	E298	1248130	1	20	5.0	5.0	✓
Chloride in Water by IC	E235.CI	1243368	1	19	5.2	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1250956	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1243960	1	18	5.5	5.0	✓
Fluoride in Water by IC	E235.F	1243366	1	19	5.2	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1243364	1	20	5.0	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1243365	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1243367	1	19	5.2	5.0	✓

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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	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
	ALS Environmental -			sample. Conductivity measurements are temperature-compensated to 25°C.
	Vancouver			
TDS by Gravimetry	E162	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,
	ALS Environmental -			with gravimetric measurement of the residue.
	Vancouver			
Nitrite in Water by IC (Low Level)	E235.CI	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and /or UV detection.
	ALS Environmental -			
	Vancouver			
Fluoride in Water by IC	E235.F	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and /or UV detection.
	ALS Environmental -			
	Vancouver			
Nitrite in Water by IC (Low Level)	E235.NO2-L	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and /or UV detection.
	ALS Environmental -			
	Vancouver			
Nitrate in Water by IC (Low Level)	E235.NO3-L	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and /or UV detection.
	ALS Environmental -			
	Vancouver			
Sulfate in Water by IC	E235.SO4	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and /or UV detection.
	ALS Environmental -			
	Vancouver			
Alkalinity Species by Titration	E290	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
	ALS Environmental -			alkalinity values.
	Vancouver			
Ammonia by Fluorescence	E298	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).
Alkalinity Species by Titration	ALS Environmental -			This method is approved under US EPA 40 CFR Part 136 (May 2021)
	Vancouver			. , , ,

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Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Dissolved Metals in Water by CRC ICPMS	E421 ALS Environmental -	Water	APHA 3030B/EPA 6020B (mod)	Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by Collision/Reaction Cell ICPMS.
	Vancouver			Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
Dissolved Mercury in Water by CVAAS	E509	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
	ALS Environmental - Vancouver			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.
Nitrate and Nitrite (as N) (Calculation)	EC235.N+N	Water	EPA 300.0	Nitrate and Nitrite (as N) is a calculated parameter. Nitrate and Nitrite (as N) = Nitrite (as N) + Nitrate (as N).
	ALS Environmental - Vancouver			
Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Ammonia	EP298	Water		Sample preparation for Preserved Nutrients Water Quality Analysis.
	ALS Environmental - Vancouver			
Dissolved Metals Water Filtration	EP421	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HNO3.
	ALS Environmental - Vancouver			
Dissolved Mercury Water Filtration	EP509	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HCl.
	ALS Environmental - Vancouver			

ALS Environmental

REFER JO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

Chain of Custody (COC) / Analytical Request Form

Affix ALS barcode label here

COC Number: 17 -

Page of

Canada Toll Free: 1'800 668 9878 www.alsglobal.com Contact and company name below will appear on the final report Report Format / Distribution Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply) Report To Select Report Format: 🗗 POF 🔽 EXCEL 🔃 EDD (DIGITAL) Regular [R] Standard TAT if received by 3 pm - business days - no surcharges apply Cornox Valley Regional District Company: Quality Control (QC) Report with Report 🔃 Yes 🗌 🗚 4 day [P4-20%] Crystal Stuart 1 Business day (E1 - 100%) Contact 250-89B-3722 Compare Results to Criteria on Report - provide details below if box checked 3 day [P3-25%] 🔲 Phone: Same Day, Weekend or Statutory holiday [E2 -200% Select Distribution: , 🖸 EMAIL 🔲 MAIL 🔲 FAX 2 day [P2-50%] - 🔲 (Laboratory opening fees may apply)] Company address below will appear on the final report Date and Time Required for all E&P TATs: Email 1 or Fax cstuart@comoxvalleyrd.ca dd-orreca-vy hhtmps 770 Harmston Avenue Street: Courtenay, BC Email 2 for tests that can not be performed according to the service level selected, you will be contacted City/Province: Analysis Request Postal Code V9N 0G8 Email 3 Invoice Distribution Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below Same as Report To ☑ YES □ NO Invoice To Copy of Invoice with Report ☑ YES □ NO Select Invoice Distribution: 🖸 EMAIL 🔲 MAIL 🥅 FAX Company: Email 1 or Fex Email 2 Contact: provide Oil and Gas Required Fields (client use) 76 since 댶 Project Information NO2, NO3) N+N PO# ALS Account # / Quote # VA23-COVR 100-001 AFE/Cost Center Major/Minor Code: Routing Code: Job #: PO / AFE: 23-015 Requisitioner: ᅙ SD: CRWMC - Quarterly - GW Location: SS AMPLES ON ALS Lab Work Order # (lab use only): + ALS Contact: Selam W. Inions (Cl. F. Date Sample Identification and/or Coordinates Time ALS Sample # (lab use only) (This description will appear on the report) (dd-mmm-yy) (hh:mm) **Environmental Division** Vancouver Work Order Reference ** Hail. Telephone: +1 604 253 4188 300 SAMPLE CONDITION AS RECEIVED (lab use only) Special instructions / Specify Criteria to add on report by clicking on the drop-down list below Drinking Water (DW) Samples¹ (client use) (electronic COC only) SIF Observations Ş Ice Packs . Ice Cubes Custody seal intact. Yes П Are samples taken from a Regulated DW System? TES INO Cooling Initiated NITIAL COOLER TEMPERATURES *C FINAL COOLER TEMPERATURES Are samples for human consumption/ use? YES NO FINAL SHIPMENT RECEPTION (lab use only) INITIAL SHIPMENT RECEPTION (lab use only) HIPMENT RELEASE (cliem use) Received by: Date: Received by: Time:

WHITE - LABORATORY COPY

YELLOW - CLIENT COP

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 eaknowledges and agrees with the Terms and Conditions as specified on the back Pagaget the write - report copy.

1. If any water samples are taken from a Regulated Drinking Water (DW). System, please submix using an Authorized DW COS form.

ALS Canada Ltd.

Contact

Address

Quote number



CERTIFICATE OF ANALYSIS

Work Order : **VA23C7757** Page : 1 of 10

Client : Comox Valley Regional District Laboratory : ALS Environmental - Vancouver

: Crystal Stuart Account Manager : Thomas Chang

: 770 Harmston Avenue Address : 8081 Lougheed Highway

Courtney BC Canada V9N 0G8 Burnaby BC Canada V5A 1W9

 Telephone
 : 250-898-3722
 Telephone
 : +1 604 253 4188

 Project
 : 4-2-3
 Date Samples Received
 : 17-Nov-2023 10:40

PO : 23-015 Date Analysis Commenced : 17-Nov-2023

C-O-C number : ---- Issue Date : 27-Nov-2023 15:08

Sampler : ----

Site : CRWMC-Quarterly-GW/SW

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:

: VA23-COVR100-001

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	
Anshim Anshim	Lab Assistant	Metals, Burnaby, British Columbia	
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Inorganics, Burnaby, British Columbia	
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia	
Kim Jensen	Department Manager - Metals	Metals, Burnaby, British Columbia	
Owen Cheng		Metals, Burnaby, British Columbia	
Sam Silveira	Lab Assistant	Metals, Burnaby, British Columbia	

Page : 2 of 10 Work Order : VA23C7757

Client : Comox Valley Regional District

Project : 4-2-3



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
μS/cm	microsiemens per centimetre
mg/L	milligrams per litre

<: 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.

Page : 3 of 10 Work Order : VA23C7757

Client : Comox Valley Regional District

Project : 4-2-3

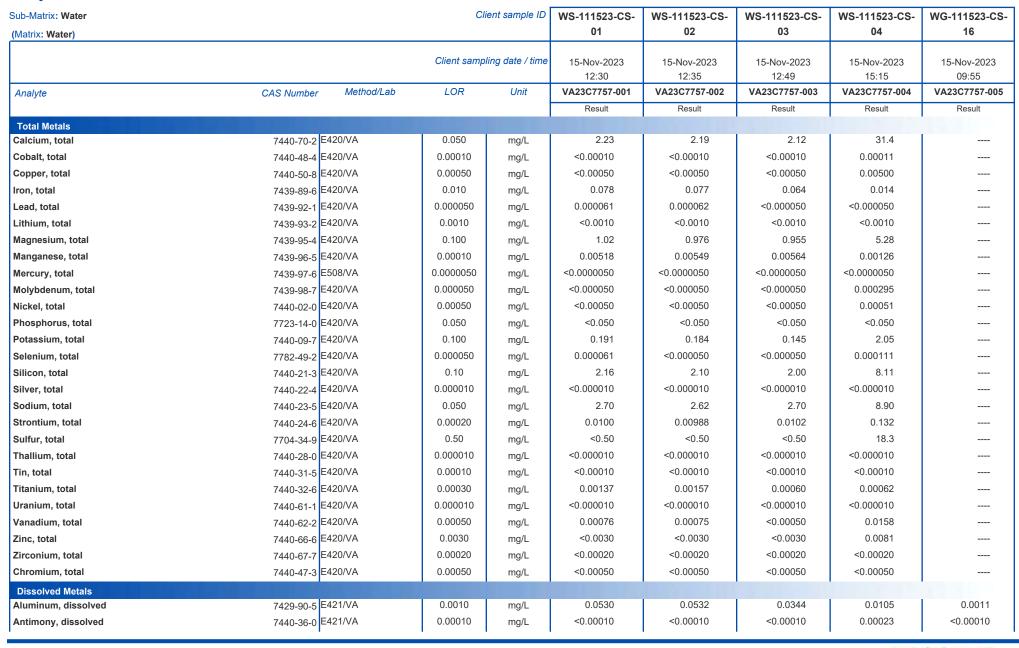


Sub-Matrix: Water			Cli	ent sample ID	WS-111523-CS-	WS-111523-CS-	WS-111523-CS-	WS-111523-CS-	WG-111523-CS-
(Matrix: Water)					01	02	03	04	16
			Client samp	ling date / time	15-Nov-2023 12:30	15-Nov-2023 12:35	15-Nov-2023 12:49	15-Nov-2023 15:15	15-Nov-2023 09:55
Analyte	CAS Number	Method/Lab	LOR	Unit	VA23C7757-001	VA23C7757-002	VA23C7757-003	VA23C7757-004	VA23C7757-005
					Result	Result	Result	Result	Result
Physical Tests									
Alkalinity, bicarbonate (as CaCO3)		E290/VA	1.0	mg/L	7.7	7.8	7.7	44.2	237
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, total (as CaCO3)		E290/VA	1.0	mg/L	7.7	7.8	7.7	44.2	237
Conductivity		E100/VA	2.0	μS/cm	32.5	32.6	31.8	276	576
Hardness (as CaCO3), dissolved		EC100/VA	0.60	mg/L	9.67	9.51	9.14	99.9	162
Hardness (as CaCO3), from total Ca/Mg		EC100A/VA	0.60	mg/L	9.77	9.49	9.23	100	
Solids, total dissolved [TDS]		E162/VA	10	mg/L	44	42	38	198	291
Anions and Nutrients									
Ammonia, total (as N)	7664-41-7	E298/VA	0.0050	mg/L	<0.0050	<0.0050	0.0066	0.0102	13.7
Chloride	16887-00-6	E235.CI/VA	0.50	mg/L	3.64	3.64	3.59	9.04	34.2
Fluoride	16984-48-8	E235.F/VA	0.020	mg/L	<0.020	<0.020	<0.020	<0.020	<0.020
Nitrate (as N)	14797-55-8	E235.NO3-L/V	0.0050	mg/L	0.0098	0.0094	0.0121	4.44	<0.0050
Nitrate + Nitrite (as N)		Α EC235.N+N/V Δ	0.0050	mg/L	0.0098	0.0094	0.0121	4.45	<0.0051
Nitrite (as N)	14797-65-0	E235.NO2-L/V Δ	0.0010	mg/L	<0.0010	<0.0010	<0.0010	0.0075	<0.0010
Sulfate (as SO4)	14808-79-8	E235.SO4/VA	0.30	mg/L	1.25	1.24	1.03	54.2	2.78
Organic / Inorganic Carbon									
Carbon, dissolved organic [DOC]		E358-L/VA	0.50	mg/L	5.56	5.67	5.96	9.10	
Total Metals									
Aluminum, total	7429-90-5	E420/VA	0.0030	mg/L	0.0602	0.0569	0.0360	0.0177	
Antimony, total	7440-36-0	E420/VA	0.00010	mg/L	<0.00010	<0.00010	<0.00010	0.00024	
Arsenic, total	7440-38-2	E420/VA	0.00010	mg/L	0.00014	0.00014	0.00014	0.00021	
Barium, total	7440-39-3	E420/VA	0.00010	mg/L	0.00148	0.00142	0.00159	0.00736	
Beryllium, total	7440-41-7	E420/VA	0.000020	mg/L	<0.000020	<0.000020	<0.000020	<0.000020	
Bismuth, total	7440-69-9	E420/VA	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	
Boron, total	7440-42-8	E420/VA	0.010	mg/L	<0.010	<0.010	<0.010	0.039	
Cadmium, total	7440-43-9	E420/VA	0.0000050	mg/L	<0.0000050	0.0000056	<0.0000050	0.0000219	

Page : 4 of 10 Work Order : VA23C7757

Client : Comox Valley Regional District

Project : 4-2-3

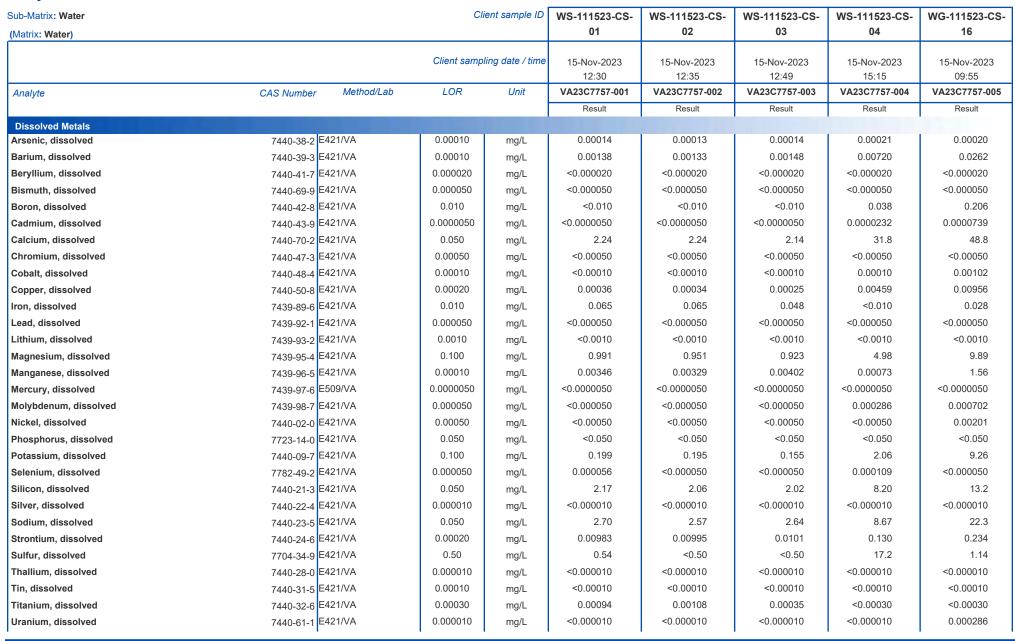




Page : 5 of 10 Work Order : VA23C7757

Client : Comox Valley Regional District

Project : 4-2-3





Page : 6 of 10 Work Order : VA23C7757

Client : Comox Valley Regional District

Project : 4-2-3

ALS

Analytical Results

Sub-Matrix: Water			Cli	ient sample ID	WS-111523-CS-	WS-111523-CS-	WS-111523-CS-	WS-111523-CS-	WG-111523-CS-
(Matrix: Water)					01	02	03	04	16
				ling date / time	15-Nov-2023 12:30	15-Nov-2023 12:35	15-Nov-2023 12:49	15-Nov-2023 15:15	15-Nov-2023 09:55
Analyte	CAS Number	Method/Lab	LOR	Unit	VA23C7757-001	VA23C7757-002	VA23C7757-003	VA23C7757-004	VA23C7757-005
					Result	Result	Result	Result	Result
Dissolved Metals									
Vanadium, dissolved	7440-62-2	E421/VA	0.00050	mg/L	0.00062	0.00060	<0.00050	0.0148	0.00162
Zinc, dissolved	7440-66-6	E421/VA	0.0010	mg/L	<0.0010	<0.0010	<0.0010	0.0078	<0.0010
Zirconium, dissolved	7440-67-7	E421/VA	0.00020	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Dissolved mercury filtration location		EP509/VA	-	-	Field	Field	Field	Field	Field
Dissolved metals filtration location		EP421/VA	-	-	Field	Field	Field	Field	Field

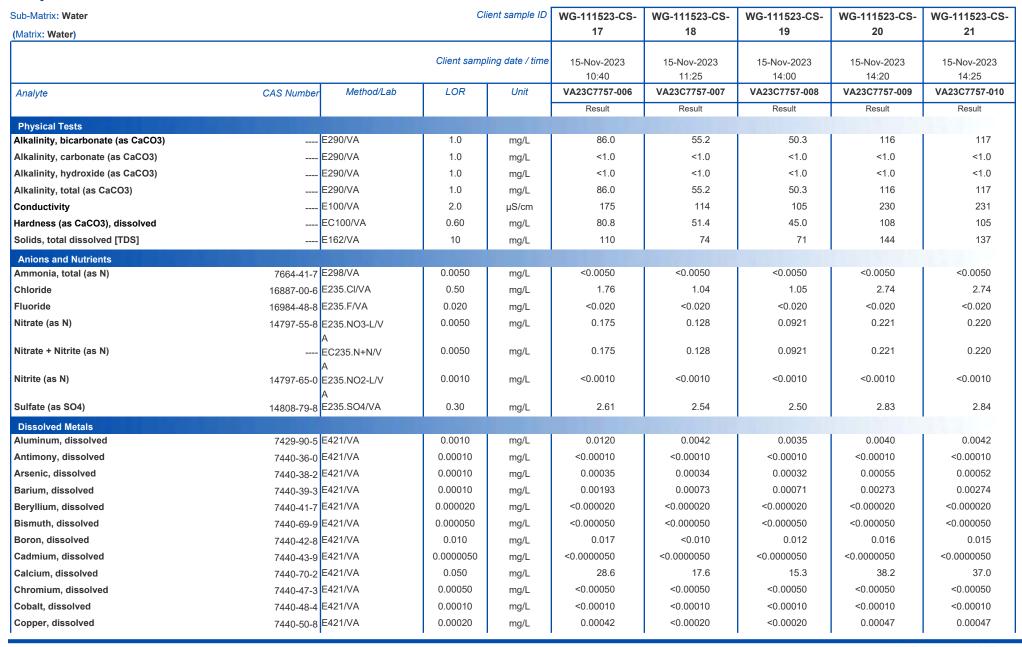
Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.

Page : 7 of 10 Work Order : VA23C7757

Client : Comox Valley Regional District

Project : 4-2-

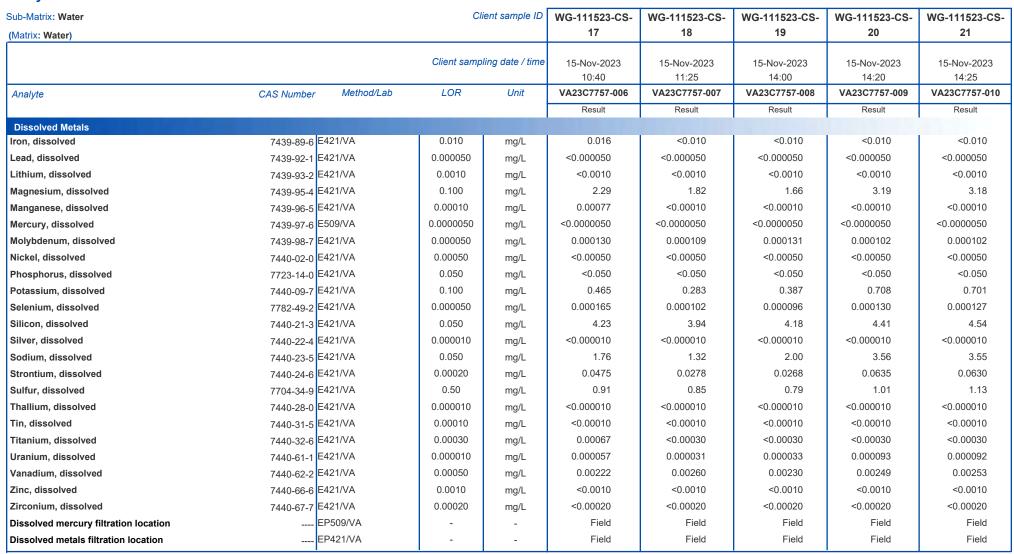


Page : 8 of 10 Work Order : VA23C7757

Client : Comox Valley Regional District

Project : 4-2-3

Analytical Results



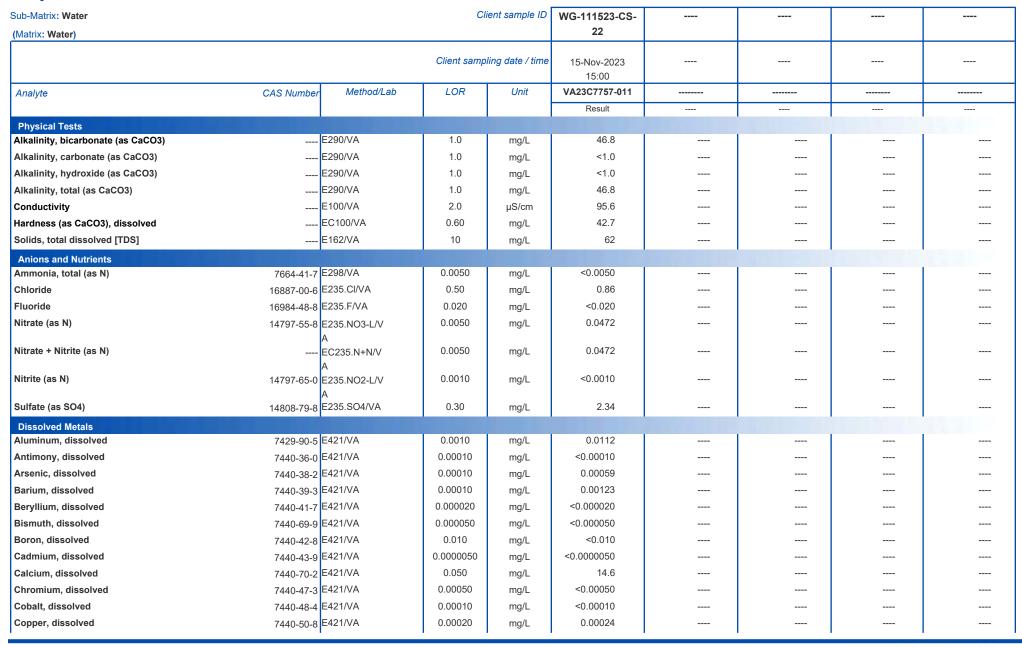
Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.

Page : 9 of 10 Work Order : VA23C7757

Client : Comox Valley Regional District

Project : 4-2-3

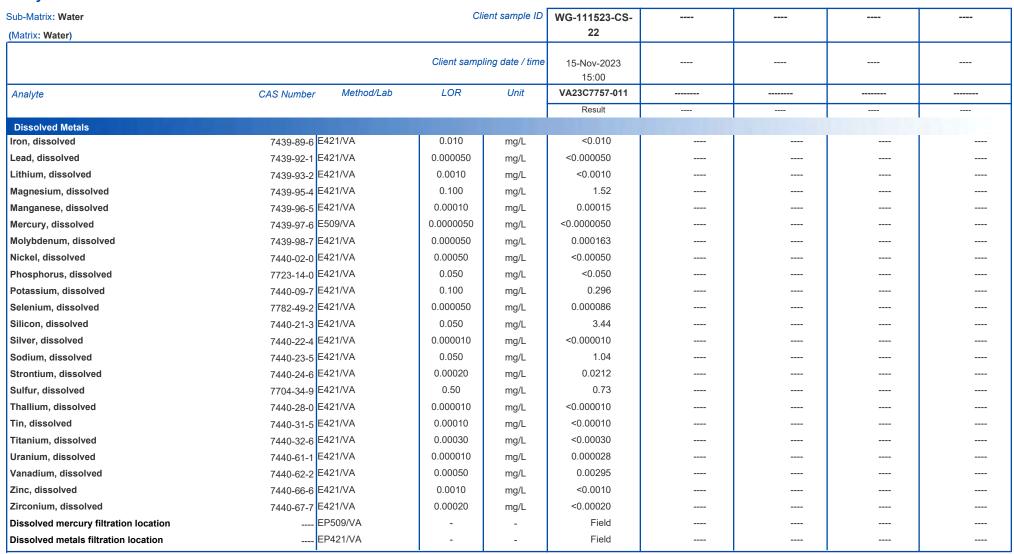


Page : 10 of 10 Work Order : VA23C7757

Client : Comox Valley Regional District

Project : 4-2-3

Analytical Results



Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.

ALS Canada Ltd.



QUALITY CONTROL REPORT

Work Order Page :VA23C7757 : 1 of 16

Client : Comox Valley Regional District Laboratory : ALS Environmental - Vancouver

: Crystal Stuart **Account Manager** : Thomas Chang Contact

> Address :8081 Lougheed Highway

> > Burnaby, British Columbia Canada V5A 1W9

Telephone :+1 604 253 4188

> Date Samples Received : 17-Nov-2023 10:40

Date Analysis Commenced : 17-Nov-2023

Issue Date : 27-Nov-2023 15:08

Address :770 Harmston Avenue

Courtney BC Canada V9N 0G8

Telephone

Project : 4-2-3 PO :23-015

C-O-C number

Sampler 250-898-3722

Site : CRWMC-Quarterly-GW/SW Quote number : VA23-COVR100-001

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
Anshim Anshim	Lab Assistant	Vancouver Metals, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Vancouver Inorganics, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Vancouver Metals, Burnaby, British Columbia
Kim Jensen	Department Manager - Metals	Vancouver Metals, Burnaby, British Columbia
Owen Cheng		Vancouver Metals, Burnaby, British Columbia
Sam Silveira	Lab Assistant	Vancouver Metals, Burnaby, British Columbia

Page : 2 of 16 Work Order : VA23C7757

Client : Comox Valley Regional District

Project : 4-2-3



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.

Page : 3 of 16 Work Order : VA23C7757

Client : Comox Valley Regional District

Project : 4-2-3



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	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: 1242835)													
VA23C7790-001	Anonymous	Alkalinity, bicarbonate (as CaCO3)		E290	1.0	mg/L	217	216	0.140%	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, total (as CaCO3)		E290	1.0	mg/L	217	216	0.140%	20%				
Physical Tests (QC	Lot: 1242836)													
VA23C7790-001	Anonymous	Conductivity		E100	2.0	μS/cm	1160	1150	0.173%	10%				
Physical Tests (QC	Lot: 1245463)													
VA23C7347-001	Anonymous	Solids, total dissolved [TDS]		E162	20	mg/L	552	565	2.42%	20%				
Physical Tests (QC	Lot: 1245464)													
VA23C7757-006	WG-111523-CS-17	Solids, total dissolved [TDS]		E162	13	mg/L	110	110	0	Diff <2x LOR				
Anions and Nutrien	ts (QC Lot: 1242838)													
VA23C7790-001	Anonymous	Fluoride	16984-48-8	E235.F	0.100	mg/L	<0.100	<0.100	0	Diff <2x LOR				
Anions and Nutrien	ts (QC Lot: 1242839)													
VA23C7790-001	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	1.50	mg/L	441	421	4.72%	20%				
Anions and Nutrien	ts (QC Lot: 1242840)													
VA23C7790-001	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	0.0250	mg/L	0.364	0.344	5.86%	20%				
Anions and Nutrien	ts (QC Lot: 1242841)				1112									
VA23C7790-001	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR				
Anions and Nutrien	ts (QC Lot: 1242842)				THE STATE OF									
VA23C7790-001	Anonymous	Chloride	16887-00-6	E235.CI	2.50	mg/L	<2.50	<2.50	0	Diff <2x LOR				
Anions and Nutrien	ts (QC Lot: 1247090)				BIE									
VA23C7437-001	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	0.678	0.684	0.927%	20%				
Anions and Nutrien	ts (QC Lot: 1248130)													
VA23C7752-001	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	0.0116	0.0124	0.0009	Diff <2x LOR				
Organic / Inorganic	Carbon (QC Lot: 12470	89)												
VA23C7437-001	Anonymous	Carbon, dissolved organic [DOC]		E358-L	0.50	mg/L	2.58	2.65	0.06	Diff <2x LOR				
Total Metals (QC L	ot: 1242818)													
VA23C7742-001	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				

Page : 4 of 16 Work Order : VA23C7757

Client : Comox Valley Regional District



ub-Matrix: Water					Laboratory Duplicate (DUP) Report							
aboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifie	
otal Metals (QC Lo	t: 1242818) - continue	d Control of the last of the l										
A23C7742-001	Anonymous	Barium, total	7440-39-3	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR		
		Beryllium, total	7440-41-7	E420	0.000020	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	<0.010	<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		
		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		
		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		
		Thallium, total	7440-28-0	E420	0.000010	mg/L	<0.000010	<0.000010	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		
		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		
otal Metals (QC Lo	t: 1250759)											
S2304427-001	Anonymous	Mercury, total	7439-97-6	E508	0.0000050	mg/L	0.0000406	0.0000387	0.0000020	Diff <2x LOR		

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Client : Comox Valley Regional District



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	Qualifie
Dissolved Metals (C	QC Lot: 1244028) - con	inued									
VA23C7757-001	WS-111523-CS-01	Aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	0.0530	0.0532	0.331%	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	0.00014	0.00014	0.000003	Diff <2x LOR	
		Barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.00138	0.00135	2.25%	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	2.24	2.26	0.992%	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	<0.00010	<0.00010	0	Diff <2x LOR	
		Copper, dissolved	7440-50-8	E421	0.00020	mg/L	0.00036	0.00033	0.00003	Diff <2x LOR	
		Iron, dissolved	7439-89-6	E421	0.010	mg/L	0.065	0.064	0.001	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	0.991	0.955	0.0366	Diff <2x LOR	
		Manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.00346	0.00336	2.94%	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	<0.00050	<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	0.100	mg/L	0.199	0.190	0.008	Diff <2x LOR	
		Selenium, dissolved	7782-49-2	E421	0.000050	mg/L	0.000056	<0.000050	0.000006	Diff <2x LOR	
		Silicon, dissolved	7440-21-3	E421	0.050	mg/L	2.17	2.17	0.142%	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	2.70	2.59	4.22%	20%	
		Strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.00983	0.00986	0.234%	20%	
		Sulfur, dissolved	7704-34-9	E421	0.50	mg/L	0.54	0.52	0.02	Diff <2x LOR	
		Thallium, dissolved	7440-28-0	E421	0.000010	mg/L	<0.000010	<0.000010	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	0.00094	0.00088	0.00006	Diff <2x LOR	
		Uranium, dissolved	7440-61-1	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	
		Vanadium, dissolved	7440-62-2	E421	0.00050	mg/L	0.00062	0.00062	0.000005	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	

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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 (C	C Lot: 1250898)											
KS2304428-001	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR		

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Client : Comox Valley Regional District

Project : 4-2-3

ALS

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

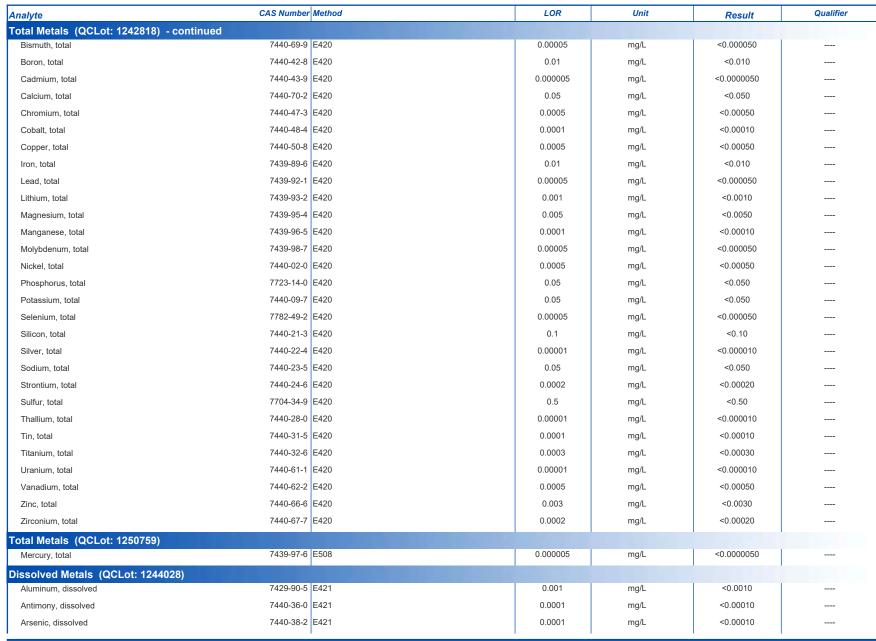
Analyte	CAS Number Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 1242835)					
Alkalinity, bicarbonate (as CaCO3)	E290	1	mg/L	<1.0	
Alkalinity, carbonate (as CaCO3)	E290	1	mg/L	<1.0	
Alkalinity, hydroxide (as CaCO3)	E290	1	mg/L	<1.0	
Alkalinity, total (as CaCO3)	E290	1	mg/L	<1.0	
Physical Tests (QCLot: 1242836)					
Conductivity	E100	1	μS/cm	1.1	
Physical Tests (QCLot: 1245463)					
Solids, total dissolved [TDS]	E162	10	mg/L	<10	
Physical Tests (QCLot: 1245464)					
Solids, total dissolved [TDS]	E162	10	mg/L	<10	
Anions and Nutrients (QCLot: 1242838)					
Fluoride	16984-48-8 E235.F	0.02	mg/L	<0.020	
Anions and Nutrients (QCLot: 1242839)					
Sulfate (as SO4)	14808-79-8 E235.SO4	0.3	mg/L	<0.30	
Anions and Nutrients (QCLot: 1242840)					
Nitrate (as N)	14797-55-8 E235.NO3-L	0.005	mg/L	<0.0050	
Anions and Nutrients (QCLot: 1242841)					
Nitrite (as N)	14797-65-0 E235.NO2-L	0.001	mg/L	<0.0010	
Anions and Nutrients (QCLot: 1242842)					
Chloride	16887-00-6 E235.CI	0.5	mg/L	<0.50	
Anions and Nutrients (QCLot: 1247090)					
Ammonia, total (as N)	7664-41-7 E298	0.005	mg/L	<0.0050	
Anions and Nutrients (QCLot: 1248130)					
Ammonia, total (as N)	7664-41-7 E298	0.005	mg/L	<0.0050	
Organic / Inorganic Carbon (QCLot: 124708	39)				
Carbon, dissolved organic [DOC]	E358-L	0.5	mg/L	<0.50	
otal Metals (QCLot: 1242818)					
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	

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Project : 4-2-3

Sub-Matrix: Water



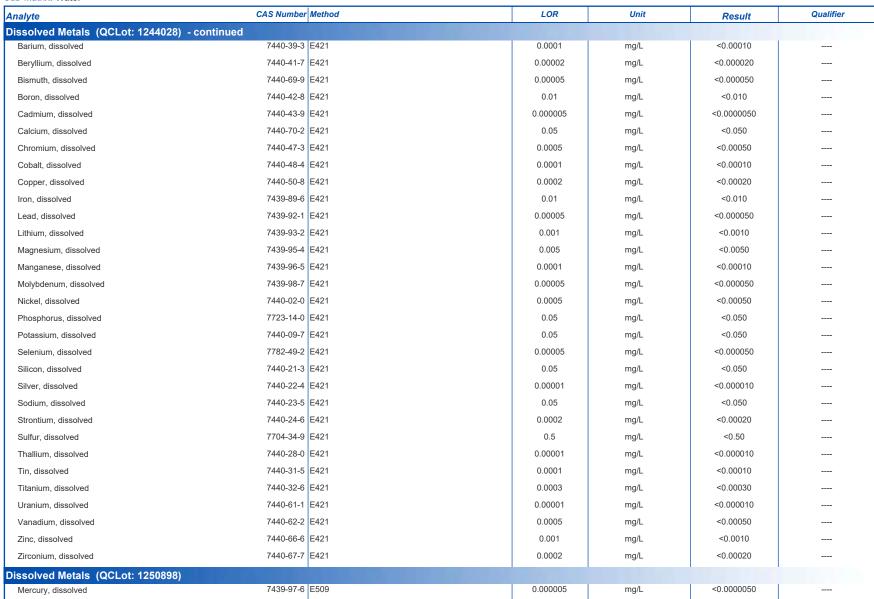


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Project : 4-2-3

Sub-Matrix: Water





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Client : Comox Valley Regional District

Project : 4-2-3



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	Concentration	LCS	Low	High	Qualifier	
Physical Tests (QCLot: 1242835)										
Alkalinity, total (as CaCO3)		E290	1	mg/L	500 mg/L	108	85.0	115		
Physical Tests (QCLot: 1242836)										
Conductivity		E100	1	μS/cm	146.9 μS/cm	94.8	90.0	110		
Physical Tests (QCLot: 1245463)										
Solids, total dissolved [TDS]		E162	10	mg/L	1000 mg/L	99.4	85.0	115		
Physical Tests (QCLot: 1245464)										
Solids, total dissolved [TDS]		E162	10	mg/L	1000 mg/L	97.8	85.0	115		
Anions and Nutrients (QCLot: 1242838)										
Fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	100	90.0	110		
Anions and Nutrients (QCLot: 1242839)										
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	101	90.0	110		
Anions and Nutrients (QCLot: 1242840)										
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	2.5 mg/L	99.4	90.0	110		
Anions and Nutrients (QCLot: 1242841)										
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	0.5 mg/L	98.3	90.0	110		
Anions and Nutrients (QCLot: 1242842)										
Chloride	16887-00-6	E235.CI	0.5	mg/L	100 mg/L	99.7	90.0	110		
Anions and Nutrients (QCLot: 1247090)										
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	89.8	85.0	115		
Anions and Nutrients (QCLot: 1248130)										
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	90.3	85.0	115		
Organic / Inorganic Carbon (QCLot: 1247089)									
Carbon, dissolved organic [DOC]		E358-L	0.5	mg/L	8.57 mg/L	95.6	80.0	120		
Total Metals (QCLot: 1242818)										
Aluminum, total	7429-90-5	E420	0.003	mg/L	2 mg/L	105	80.0	120		
Antimony, total	7440-36-0	E420	0.0001	mg/L	1 mg/L	106	80.0	120		
Arsenic, total	7440-38-2	E420	0.0001	mg/L	1 mg/L	110	80.0	120		
Barium, total	7440-39-3	E420	0.0001	mg/L	0.25 mg/L	105	80.0	120		
Beryllium, total	7440-41-7	E420	0.00002	mg/L	0.1 mg/L	100	80.0	120		

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Sub-Matrix: Water		Laboratory Control Sample (LCS) Report							
					Spike	Recovery (%)	Recovery	Limits (%)	
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifie
Total Metals (QCLot: 1242818) - continued									
Bismuth, total	7440-69-9	E420	0.00005	mg/L	1 mg/L	102	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	106	80.0	120	
Calcium, total	7440-70-2	E420	0.05	mg/L	50 mg/L	103	80.0	120	
Chromium, total	7440-47-3	E420	0.0005	mg/L	0.25 mg/L	107	80.0	120	
Cobalt, total	7440-48-4	E420	0.0001	mg/L	0.25 mg/L	105	80.0	120	
Copper, total	7440-50-8	E420	0.0005	mg/L	0.25 mg/L	105	80.0	120	
Iron, total	7439-89-6	E420	0.01	mg/L	1 mg/L	108	80.0	120	
Lead, total	7439-92-1	E420	0.00005	mg/L	0.5 mg/L	105	80.0	120	
Lithium, total	7439-93-2	E420	0.001	mg/L	0.25 mg/L	100	80.0	120	
Magnesium, total	7439-95-4	E420	0.005	mg/L	50 mg/L	109	80.0	120	
Manganese, total	7439-96-5	E420	0.0001	mg/L	0.25 mg/L	104	80.0	120	
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	0.25 mg/L	106	80.0	120	
Nickel, total	7440-02-0	E420	0.0005	mg/L	0.5 mg/L	105	80.0	120	
Phosphorus, total	7723-14-0	E420	0.05	mg/L	10 mg/L	103	80.0	120	
Potassium, total	7440-09-7	E420	0.05	mg/L	50 mg/L	106	80.0	120	
Selenium, total	7782-49-2	E420	0.00005	mg/L	1 mg/L	106	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	102	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	109	80.0	120	
Sulfur, total	7704-34-9	E420	0.5	mg/L	50 mg/L	98.6	80.0	120	
Thallium, total	7440-28-0	E420	0.00001	mg/L	1 mg/L	102	80.0	120	
Tin, total	7440-31-5	E420	0.0001	mg/L	0.5 mg/L	106	80.0	120	
Titanium, total	7440-32-6	E420	0.0003	mg/L	0.25 mg/L	101	80.0	120	
Uranium, total	7440-61-1	E420	0.00001	mg/L	0.005 mg/L	109	80.0	120	
Vanadium, total	7440-62-2	E420	0.0005	mg/L	0.5 mg/L	107	80.0	120	
Zinc, total	7440-66-6	E420	0.003	mg/L	0.5 mg/L	104	80.0	120	
Zirconium, total	7440-67-7	E420	0.0002	mg/L	0.1 mg/L	106	80.0	120	
Total Metals (QCLot: 1250759)									1
Mercury, total	7439-97-6	E508	0.000005	mg/L	0.0001 mg/L	104	80.0	120	
·				·	Ĭ				
Dissolved Metals (QCLot: 1244028)									
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	2 mg/L	107	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	111	80.0	120	

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Analyte			Sub-Matrix: Water						Laboratory Control Sample (LCS) Report							
					Spike	Recovery (%)	Recovery	Limits (%)								
	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier							
Dissolved Metals (QCLot: 1244028) - co	ontinued															
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	102	80.0	120								
Bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	1 mg/L	107	80.0	120								
Boron, dissolved	7440-42-8	E421	0.01	mg/L	1 mg/L	95.1	80.0	120								
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	0.1 mg/L	106	80.0	120								
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	50 mg/L	106	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	105	80.0	120								
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	0.25 mg/L	102	80.0	120								
Iron, dissolved	7439-89-6	E421	0.01	mg/L	1 mg/L	108	80.0	120								
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	0.5 mg/L	109	80.0	120								
Lithium, dissolved	7439-93-2	E421	0.001	mg/L	0.25 mg/L	102	80.0	120								
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	50 mg/L	104	80.0	120								
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	0.25 mg/L	106	80.0	120								
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	0.25 mg/L	107	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	110	80.0	120								
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	50 mg/L	106	80.0	120								
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	1 mg/L	108	80.0	120								
Silicon, dissolved	7440-21-3	E421	0.05	mg/L	10 mg/L	108	80.0	120								
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	0.1 mg/L	102	80.0	120								
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	50 mg/L	107	80.0	120								
Strontium, dissolved	7440-24-6	E421	0.0002	mg/L	0.25 mg/L	112	80.0	120								
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	50 mg/L	102	80.0	120								
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	1 mg/L	106	80.0	120								
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	0.5 mg/L	108	80.0	120								
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	0.25 mg/L	108	80.0	120								
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	0.005 mg/L	118	80.0	120								
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	0.5 mg/L	104	80.0	120								
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	0.5 mg/L	106	80.0	120								
Zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	0.1 mg/L	105	80.0	120								
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0.0001 mg/L	102	80.0	120								

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Client : Comox Valley Regional District

Project : 4-2-3



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	e (MS) Report		
					Spi	ke	Recovery (%)	Recovery	/ Limits (%)	
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
	ents (QCLot: 1242838)									
VA23C7790-002	Anonymous	Fluoride	16984-48-8	E235.F	10.9 mg/L	10 mg/L	109	75.0	125	
Anions and Nutri	ents (QCLot: 1242839)									
VA23C7790-002	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	1060 mg/L	1000 mg/L	106	75.0	125	
Anions and Nutri	ents (QCLot: 1242840)									
VA23C7790-002	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	26.6 mg/L	25 mg/L	106	75.0	125	
Anions and Nutri	ents (QCLot: 1242841)									
VA23C7790-002	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	5.25 mg/L	5 mg/L	105	75.0	125	
Anions and Nutri	ents (QCLot: 1242842)									
VA23C7790-002	Anonymous	Chloride	16887-00-6	E235.CI	1060 mg/L	1000 mg/L	106	75.0	125	
Anions and Nutri	ents (QCLot: 1247090)									
VA23C7440-006	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0879 mg/L	0.1 mg/L	87.9	75.0	125	
Anions and Nutri	ents (QCLot: 1248130)	11/11/11/11								
VA23C7752-002	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0888 mg/L	0.1 mg/L	88.8	75.0	125	
Organic / Inorgar	nic Carbon (QCLot: 124	7089)								T III
VA23C7440-006	Anonymous	Carbon, dissolved organic [DOC]		E358-L	ND mg/L	5 mg/L	ND	70.0	130	
Total Metals (QC	Lot: 1242818)									
VA23C7742-002	Anonymous	Aluminum, total	7429-90-5	E420	0.202 mg/L	0.2 mg/L	101	70.0	130	
		Antimony, total	7440-36-0	E420	0.0205 mg/L	0.02 mg/L	103	70.0	130	
		Arsenic, total	7440-38-2	E420	0.0200 mg/L	0.02 mg/L	100	70.0	130	
		Barium, total	7440-39-3	E420	ND mg/L	0.02 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	0.0100 mg/L	0.01 mg/L	100	70.0	130	
		Boron, total	7440-42-8	E420	0.091 mg/L	0.1 mg/L	91.2	70.0	130	
		Cadmium, total	7440-43-9	E420	0.00407 mg/L	0.004 mg/L	102	70.0	130	
		Calcium, total	7440-70-2	E420	ND mg/L	4 mg/L	ND	70.0	130	
		Chromium, total	7440-47-3	E420	0.0400 mg/L	0.04 mg/L	100	70.0	130	
		Cobalt, total	7440-48-4	E420	0.0200 mg/L	0.02 mg/L	100	70.0	130	
	1	Copper, total	7440-50-8	E420	0.0195 mg/L	0.02 mg/L	97.5	70.0	130	

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Client : Comox Valley Regional District



Sub-Matrix: Water							Matrix Spik	e (MS) Report		
					Spi	ike	Recovery (%)	Recovery	Limits (%)	
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
	CLot: 1242818) - con	tinued								
VA23C7742-002	Anonymous	Iron, total	7439-89-6	E420	1.99 mg/L	2 mg/L	99.3	70.0	130	
		Lead, total	7439-92-1	E420	0.0198 mg/L	0.02 mg/L	99.2	70.0	130	
		Lithium, total	7439-93-2	E420	0.0872 mg/L	0.1 mg/L	87.2	70.0	130	
		Magnesium, total	7439-95-4	E420	ND mg/L	1 mg/L	ND	70.0	130	
		Manganese, total	7439-96-5	E420	ND mg/L	0.02 mg/L	ND	70.0	130	
		Molybdenum, total	7439-98-7	E420	0.0201 mg/L	0.02 mg/L	101	70.0	130	
		Nickel, total	7440-02-0	E420	0.0388 mg/L	0.04 mg/L	96.9	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	ND mg/L	4 mg/L	ND	70.0	130	
		Selenium, total	7782-49-2	E420	0.0416 mg/L	0.04 mg/L	104	70.0	130	
		Silicon, total	7440-21-3	E420	9.04 mg/L	10 mg/L	90.4	70.0	130	
		Silver, total	7440-22-4	E420	0.00409 mg/L	0.004 mg/L	102	70.0	130	
		Sodium, total	7440-23-5	E420	ND mg/L	2 mg/L	ND	70.0	130	
		Strontium, total	7440-24-6	E420	ND mg/L	0.02 mg/L	ND	70.0	130	
		Sulfur, total	7704-34-9	E420	20.6 mg/L	20 mg/L	103	70.0	130	
		Thallium, total	7440-28-0	E420	0.00394 mg/L	0.004 mg/L	98.5	70.0	130	
		Tin, total	7440-31-5	E420	0.0203 mg/L	0.02 mg/L	102	70.0	130	
		Titanium, total	7440-32-6	E420	0.0390 mg/L	0.04 mg/L	97.6	70.0	130	
		Uranium, total	7440-61-1	E420	0.00417 mg/L	0.004 mg/L	104	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	0.394 mg/L	0.4 mg/L	98.6	70.0	130	
		Zirconium, total	7440-67-7	E420	0.0407 mg/L	0.04 mg/L	102	70.0	130	
otal Metals (QC	CLot: 1250759)									
(S2304427-002	Anonymous	Mercury, total	7439-97-6	E508	ND mg/L	0.0001 mg/L	ND	70.0	130	
issolved Metals	(QCLot: 1244028)									
/A23C7757-002	WS-111523-CS-02	Aluminum, dissolved	7429-90-5	E421	0.193 mg/L	0.2 mg/L	96.5	70.0	130	
		Antimony, dissolved	7440-36-0	E421	0.0211 mg/L	0.02 mg/L	105	70.0	130	
		Arsenic, dissolved	7440-38-2	E421	0.0202 mg/L	0.02 mg/L	101	70.0	130	
		Barium, dissolved	7440-39-3	E421	0.0200 mg/L	0.02 mg/L	100.0	70.0	130	
		Beryllium, dissolved	7440-41-7	E421	0.0412 mg/L	0.04 mg/L	103	70.0	130	
		Bismuth, dissolved	7440-69-9	E421	0.0108 mg/L	0.01 mg/L	108	70.0	130	
		Boron, dissolved	7440-42-8	E421	0.097 mg/L	0.1 mg/L	96.9	70.0	130	
		Cadmium, dissolved	7440-43-9	E421	0.00411 mg/L	0.004 mg/L	103	70.0	130	
		Calcium, dissolved	7440-70-2	E421	4.05 mg/L	4 mg/L	101	70.0	130	
	1	Chromium, dissolved	7440-47-3	E421	0.0400 mg/L	0.04 mg/L	100	70.0	130	

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Client : Comox Valley Regional District



Sub-Matrix: Water							Matrix Spik	re (MS) Report		
					Spi	ike	Recovery (%)	Recovery	Limits (%)	
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Dissolved Metals	(QCLot: 1244028)	- continued								
VA23C7757-002	WS-111523-CS-02	Cobalt, dissolved	7440-48-4	E421	0.0203 mg/L	0.02 mg/L	102	70.0	130	
		Copper, dissolved	7440-50-8	E421	0.0199 mg/L	0.02 mg/L	99.6	70.0	130	
		Iron, dissolved	7439-89-6	E421	2.02 mg/L	2 mg/L	101	70.0	130	
		Lead, dissolved	7439-92-1	E421	0.0214 mg/L	0.02 mg/L	107	70.0	130	
		Lithium, dissolved	7439-93-2	E421	0.101 mg/L	0.1 mg/L	101	70.0	130	
		Magnesium, dissolved	7439-95-4	E421	0.972 mg/L	1 mg/L	97.2	70.0	130	
		Manganese, dissolved	7439-96-5	E421	0.0203 mg/L	0.02 mg/L	101	70.0	130	
		Molybdenum, dissolved	7439-98-7	E421	0.0209 mg/L	0.02 mg/L	104	70.0	130	
		Nickel, dissolved	7440-02-0	E421	0.0400 mg/L	0.04 mg/L	100.0	70.0	130	
		Phosphorus, dissolved	7723-14-0	E421	9.68 mg/L	10 mg/L	96.8	70.0	130	
		Potassium, dissolved	7440-09-7	E421	4.06 mg/L	4 mg/L	101	70.0	130	
		Selenium, dissolved	7782-49-2	E421	0.0418 mg/L	0.04 mg/L	104	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	0.00425 mg/L	0.004 mg/L	106	70.0	130	
		Sodium, dissolved	7440-23-5	E421	ND mg/L	2 mg/L	ND	70.0	130	
		Strontium, dissolved	7440-24-6	E421	0.0198 mg/L	0.02 mg/L	99.0	70.0	130	
		Sulfur, dissolved	7704-34-9	E421	19.7 mg/L	20 mg/L	98.4	70.0	130	
		Thallium, dissolved	7440-28-0	E421	0.00427 mg/L	0.004 mg/L	107	70.0	130	
		Tin, dissolved	7440-31-5	E421	0.0200 mg/L	0.02 mg/L	100	70.0	130	
		Titanium, dissolved	7440-32-6	E421	0.0403 mg/L	0.04 mg/L	101	70.0	130	
		Uranium, dissolved	7440-61-1	E421	0.00435 mg/L	0.004 mg/L	109	70.0	130	
		Vanadium, dissolved	7440-62-2	E421	0.0996 mg/L	0.1 mg/L	99.6	70.0	130	
		Zinc, dissolved	7440-66-6	E421	0.416 mg/L	0.4 mg/L	104	70.0	130	
		Zirconium, dissolved	7440-67-7	E421	0.0412 mg/L	0.04 mg/L	103	70.0	130	
issolved Metals	(QCLot: 1250898)									
VA23C7609-001	Anonymous	Mercury, dissolved	7439-97-6	E509	0.000103 mg/L	0.0001 mg/L	103	70.0	130	



QUALITY CONTROL INTERPRETIVE REPORT

Work Order : **VA23C7757** Page : 1 of 23

Client : Comox Valley Regional District Laboratory : ALS Environmental - Vancouver

Contact : Crystal Stuart Account Manager : Thomas Chang

Address :770 Harmston Avenue Address :8081 Lougheed Highway

Burnaby, British Columbia Canada V5A 1W9

 Telephone
 : 250-898-3722
 Telephone
 : +1 604 253 4188

 Project
 : 4-2-3
 Date Samples Received
 : 17-Nov-2023 10:40

PO : 23-015 Issue Date : 27-Nov-2023 15:08
C-O-C number :---Sampler -----

Site : CRWMC-Quarterly-GW/SW

Quote number : VA23-COVR100-001

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.

Courtney BC Canada V9N 0G8

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

Juniers . Quanty Control Sample

- 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) ■ No Analysis Holding Time Outliers exist.

Outliers: Frequency of Quality Control Samples • No Quality Control Sample Frequency Outliers occur.

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Client : Comox Valley Regional District

Project : 4-2-3



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					Eva	aluation: × =	Holding time exce	edance ; 🔻	= Within	Holding Tim
Analyte Group : Analytical Method	Method	Sampling Date	Ext	raction / Prepa	aration			Analys	is	
Container / Client Sample ID(s)			Preparation Date	Holding T	Times Actual	Eval	Analysis Date	Holding Rec	Times Actual	Eval
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) WS-111523-CS-01	E298	15-Nov-2023	21-Nov-2023	28 6 days	3 days	✓	24-Nov-2023	28 days	9 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) WS-111523-CS-02	E298	15-Nov-2023	21-Nov-2023	28 6 days	3 days	✓	24-Nov-2023	28 days	9 days	√
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) WS-111523-CS-03	E298	15-Nov-2023	21-Nov-2023	28 6 days	3 days	✓	24-Nov-2023	28 days	9 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) WS-111523-CS-04	E298	15-Nov-2023	21-Nov-2023	28 6 days	3 days	✓	24-Nov-2023	28 days	9 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) WG-111523-CS-16	E298	15-Nov-2023	22-Nov-2023	28 7 days	⁷ days	✓	23-Nov-2023	28 days	8 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) WG-111523-CS-17	E298	15-Nov-2023	22-Nov-2023	28 7 days	⁷ days	✓	23-Nov-2023	28 days	8 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) WG-111523-CS-18	E298	15-Nov-2023	22-Nov-2023	28 7 days	⁷ days	✓	23-Nov-2023	28 days	8 days	✓

Page : 4 of 23 Work Order : VA23C7757

Client : Comox Valley Regional District

Project : 4-2-3



Matrix: Water Evaluation: ▼ = Holding time exceedance; ✓ = Within Holding Time

Matrix: Water					L\	raiuation. * =	Holding time exce	euance , •	- vvitiiii	Holding Time	
Analyte Group : Analytical Method	Method	Sampling Date	Ex	traction / Pr	reparation		Analysis				
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	Times	Eval	
			Date	Rec	Actual			Rec	Actual		
Anions and Nutrients : Ammonia by Fluorescence											
Amber glass total (sulfuric acid)											
WG-111523-CS-19	E298	15-Nov-2023	22-Nov-2023	28	7 days	✓	23-Nov-2023	28 days	8 days	✓	
				days							
Anions and Nutrients : Ammonia by Fluorescence											
Amber glass total (sulfuric acid)											
WG-111523-CS-20	E298	15-Nov-2023	22-Nov-2023	28	7 days	✓	23-Nov-2023	28 days	8 days	✓	
				days							
Anions and Nutrients : Ammonia by Fluorescence											
Amber glass total (sulfuric acid)											
WG-111523-CS-21	E298	15-Nov-2023	22-Nov-2023	28	7 days	✓	23-Nov-2023	28 days	8 days	✓	
				days							
Anions and Nutrients : Ammonia by Fluorescence											
Amber glass total (sulfuric acid)											
WG-111523-CS-22	E298	15-Nov-2023	22-Nov-2023	28	7 days	✓	23-Nov-2023	28 days	8 days	✓	
				days					,		
Anions and Nutrients : Chloride in Water by IC				,							
HDPE				I							
WG-111523-CS-19	E235.Cl	15-Nov-2023	18-Nov-2023	28	2 days	✓	18-Nov-2023	28 days	3 davs	✓	
				days				,	. ,		
Anions and Nutrients : Chloride in Water by IC				,							
HDPE											
WG-111523-CS-20	E235.CI	15-Nov-2023	18-Nov-2023	28	2 days	✓	18-Nov-2023	28 days	3 days	✓	
W6 111020 00 20			.0.1101 2020	days			10 1101 2020	20 44,0	o dayo		
Anisma and Nutricuta - Oblavida in Water had O											
Anions and Nutrients : Chloride in Water by IC HDPE				I			<u> </u>				
WG-111523-CS-21	E235.CI	15-Nov-2023	18-Nov-2023	28	2 days	√	18-Nov-2023	28 days	3 days	✓	
WO-111020-00-21	2200.01	10-1404-2020	10-1404-2020	days	2 days	,	10-1404-2020	20 days	o days	·	
				uays							
Anions and Nutrients : Chloride in Water by IC				T	I						
HDPE WC 444522 CS 22	E235.CI	15-Nov-2023	18-Nov-2023	00	2 days	√	18-Nov-2023	28 days	3 days	√	
WG-111523-CS-22	E235.UI	15-1404-2023	10-1107-2023	28	2 uays	•	10-1407-2023	20 days	o uays	•	
				days							
Anions and Nutrients : Chloride in Water by IC											
HDPE	F00F 01	45 No. 2000	40 N 0000		0.1		40 Nov. 0000	00.1	0.1	,	
WS-111523-CS-02	E235.CI	15-Nov-2023	18-Nov-2023	28	2 days	✓	18-Nov-2023	28 days	3 days	✓	
				days							

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Client : Comox Valley Regional District

Project : 4-2-3



Matrix: Water Evaluation: ▼ = Holding time exceedance; ✓ = Within Holding Time

Matrix: Water						raidation	Holding time exce	cuarioc , ·	- vvicinii	Tiolding Time
Analyte Group : Analytical Method	Method	Sampling Date	Ex	traction / Pi	reparation			Analys	sis	
Container / Client Sample ID(s)			Preparation	Holdin	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Anions and Nutrients : Chloride in Water by IC										
HDPE										
WS-111523-CS-03	E235.CI	15-Nov-2023	18-Nov-2023	28	2 days	✓	18-Nov-2023	28 days	3 days	✓
				days						
Anions and Nutrients : Chloride in Water by IC										
HDPE										
WS-111523-CS-04	E235.CI	15-Nov-2023	18-Nov-2023	28	2 days	✓	18-Nov-2023	28 days	3 days	✓
				days						
Anions and Nutrients : Chloride in Water by IC										
HDPE										
WG-111523-CS-16	E235.CI	15-Nov-2023	18-Nov-2023	28	3 days	✓	18-Nov-2023	28 days	3 days	✓
				days						
Anions and Nutrients : Chloride in Water by IC								1		
HDPE										
WG-111523-CS-17	E235.CI	15-Nov-2023	18-Nov-2023	28	3 days	✓	18-Nov-2023	28 days	3 davs	✓
				days	,			,	,	
Anions and Nutrients : Chloride in Water by IC										
HDPE				T						
WG-111523-CS-18	E235.CI	15-Nov-2023	18-Nov-2023	28	3 days	✓	18-Nov-2023	28 days	3 davs	✓
W6 111020 00 10		10 1101 2020	.0.1101 2020	days	o aayo	·	10 1101 2020	20 44,0	o aayo	
Anima and Nationa a Chlorida in Water by 10				dayo						
Anions and Nutrients : Chloride in Water by IC HDPE				I			<u> </u>			
WS-111523-CS-01	E235.CI	15-Nov-2023	18-Nov-2023	28	3 days	√	18-Nov-2023	28 days	3 days	√
WO-111020-00-01	2200.01	10 1107 2020	10-1404-2020	days	o days	,	10-1404-2020	20 days	o days	·
				uays						
Anions and Nutrients : Fluoride in Water by IC										
HDPE WG-111523-CS-19	E235.F	15-Nov-2023	18-Nov-2023	28	2 days	√	18-Nov-2023	28 days	3 days	√
WG-111525-C5-19	E233.F	15-1100-2023	10-1107-2023		2 uays	•	10-1104-2023	20 uays	3 uays	•
				days						
Anions and Nutrients : Fluoride in Water by IC										
HDPE	F005 F	45 No. 2000	40 Nov. 2022		0 -1		40 Nov. 2022	00 4	0 -1	
WG-111523-CS-20	E235.F	15-Nov-2023	18-Nov-2023	28	2 days	✓	18-Nov-2023	28 days	3 days	✓
				days						
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
WG-111523-CS-21	E235.F	15-Nov-2023	18-Nov-2023	28	2 days	✓	18-Nov-2023	28 days	3 days	✓
				days						

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Client : Comox Valley Regional District



Matrix: Water	Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time
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Analyte Group : Analytical Method	Method Sampling Date Extraction / Preparation			g	Analys	is				
Container / Client Sample ID(s)			Preparation	Holdin	g Times	Eval	Analysis Date		Times	Eval
			Date	Rec	Actual			Rec	Actual	
Anions and Nutrients : Fluoride in Water by IC										
HDPE WG-111523-CS-22	E235.F	15-Nov-2023	18-Nov-2023	28 days	2 days	✓	18-Nov-2023	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE WS-111523-CS-02	E235.F	15-Nov-2023	18-Nov-2023	28 days	2 days	✓	18-Nov-2023	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE WS-111523-CS-03	E235.F	15-Nov-2023	18-Nov-2023	28 days	2 days	√	18-Nov-2023	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE WS-111523-CS-04	E235.F	15-Nov-2023	18-Nov-2023	28 days	2 days	✓	18-Nov-2023	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE WG-111523-CS-16	E235.F	15-Nov-2023	18-Nov-2023	28 days	3 days	✓	18-Nov-2023	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE WG-111523-CS-17	E235.F	15-Nov-2023	18-Nov-2023	28 days	3 days	√	18-Nov-2023	28 days	3 days	√
Anions and Nutrients : Fluoride in Water by IC										
HDPE WG-111523-CS-18	E235.F	15-Nov-2023	18-Nov-2023	28 days	3 days	✓	18-Nov-2023	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE WS-111523-CS-01	E235.F	15-Nov-2023	18-Nov-2023	28 days	3 days	√	18-Nov-2023	28 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE WG-111523-CS-19	E235.NO3-L	15-Nov-2023	18-Nov-2023	3 days	2 days	✓	18-Nov-2023	3 days	3 days	✓

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Client : Comox Valley Regional District

Project : 4-2-3



Matrix: **Water** Evaluation: **x** = Holding time exceedance; ✓ = Within Holding Time

Analyte Group : Analytical Method	Method	Sampling Date	Ex	traction / Pr			Holding time excel	Analys		
Container / Client Sample ID(s)		γ 3	Preparation	Holding	g Times	Eval	Analysis Date Holding Time		Times	Eval
			Date	Rec	Actual			Rec	Actual	
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE WG-111523-CS-20	E235.NO3-L	15-Nov-2023	18-Nov-2023	3 days	2 days	~	18-Nov-2023	3 days	3 days	4
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE WG-111523-CS-21	E235.NO3-L	15-Nov-2023	18-Nov-2023	3 days	2 days	✓	18-Nov-2023	3 days	3 days	4
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE WG-111523-CS-22	E235.NO3-L	15-Nov-2023	18-Nov-2023	3 days	2 days	✓	18-Nov-2023	3 days	3 days	4
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE WS-111523-CS-02	E235.NO3-L	15-Nov-2023	18-Nov-2023	3 days	2 days	✓	18-Nov-2023	3 days	3 days	√
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE WS-111523-CS-03	E235.NO3-L	15-Nov-2023	18-Nov-2023	3 days	2 days	1	18-Nov-2023	3 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE WS-111523-CS-04	E235.NO3-L	15-Nov-2023	18-Nov-2023	3 days	2 days	✓	18-Nov-2023	3 days	3 days	4
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE WG-111523-CS-16	E235.NO3-L	15-Nov-2023	18-Nov-2023	3 days	3 days	✓	18-Nov-2023	3 days	3 days	√
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE WG-111523-CS-17	E235.NO3-L	15-Nov-2023	18-Nov-2023	3 days	3 days	1	18-Nov-2023	3 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE WG-111523-CS-18	E235.NO3-L	15-Nov-2023	18-Nov-2023	3 days	3 days	✓	18-Nov-2023	3 days	3 days	✓

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Client : Comox Valley Regional District



Analyte Group : Analytical Method	Method	Sampling Date	Ext	traction / Pr	eparation			Analysis		
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	Times	Eval
			Date	Rec	Actual			Rec	Actual	
Anions and Nutrients : Nitrate in Water by IC (Low Level)				_						
HDPE WS-111523-CS-01	E235.NO3-L	15-Nov-2023	18-Nov-2023	3 days	3 days	✓	18-Nov-2023	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE WG-111523-CS-19	E235.NO2-L	15-Nov-2023	18-Nov-2023	3 days	2 days	4	18-Nov-2023	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE WG-111523-CS-20	E235.NO2-L	15-Nov-2023	18-Nov-2023	3 days	2 days	√	18-Nov-2023	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE WG-111523-CS-21	E235.NO2-L	15-Nov-2023	18-Nov-2023	3 days	2 days	✓	18-Nov-2023	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE WG-111523-CS-22	E235.NO2-L	15-Nov-2023	18-Nov-2023	3 days	2 days	✓	18-Nov-2023	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE WS-111523-CS-02	E235.NO2-L	15-Nov-2023	18-Nov-2023	3 days	2 days	✓	18-Nov-2023	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE WS-111523-CS-03	E235.NO2-L	15-Nov-2023	18-Nov-2023	3 days	2 days	√	18-Nov-2023	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE WS-111523-CS-04	E235.NO2-L	15-Nov-2023	18-Nov-2023	3 days	2 days	*	18-Nov-2023	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE WG-111523-CS-16	E235.NO2-L	15-Nov-2023	18-Nov-2023	3 days	3 days	✓	18-Nov-2023	3 days	3 days	✓

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Client : Comox Valley Regional District

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Matrix: Water Evaluation: ▼ = Holding time exceedance; ✓ = Within Holding Time

Matrix: Water			-			/aluation. * -	Holding time exce			Holding Time
Analyte Group : Analytical Method	Method	Sampling Date	Ex	traction / Pr	eparation	1		Analys	sis	
Container / Client Sample ID(s)			Preparation	Holdin	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
WG-111523-CS-17	E235.NO2-L	15-Nov-2023	18-Nov-2023	3 days	3 days	✓	18-Nov-2023	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE		T T								
WG-111523-CS-18	E235.NO2-L	15-Nov-2023	18-Nov-2023	3 days	3 days	✓	18-Nov-2023	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)								1		
HDPE							I			
WS-111523-CS-01	E235.NO2-L	15-Nov-2023	18-Nov-2023	3 days	3 days	1	18-Nov-2023	3 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE							I			
WG-111523-CS-19	E235.SO4	15-Nov-2023	18-Nov-2023	28	2 days	✓	18-Nov-2023	28 days	3 days	✓
WG-111020-00-10	2200.00	10 1101 2020	10 1101 2020	days	2 dayo	·	10 1407 2020	20 dayo	o dayo	
				uays						
Anions and Nutrients : Sulfate in Water by IC				1	I			1		
HDPE WG-111523-CS-20	E235.SO4	15-Nov-2023	18-Nov-2023	00	2 days	√	18-Nov-2023	28 days	2 days	√
WG-111523-C5-20	E233.304	13-1104-2023	10-1100-2023	28	2 uays	•	10-1107-2023	20 uays	3 uays	•
				days						
Anions and Nutrients : Sulfate in Water by IC				1						
HDPE	5005.004	45.11 0000				_				,
WG-111523-CS-21	E235.SO4	15-Nov-2023	18-Nov-2023	28	2 days	✓	18-Nov-2023	28 days	3 days	✓
				days						
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
WG-111523-CS-22	E235.SO4	15-Nov-2023	18-Nov-2023	28	2 days	✓	18-Nov-2023	28 days	3 days	✓
				days						
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
WS-111523-CS-02	E235.SO4	15-Nov-2023	18-Nov-2023	28	2 days	✓	18-Nov-2023	28 days	3 days	✓
				days						
Anions and Nutrients : Sulfate in Water by IC				<u> </u>						
HDPE										
WS-111523-CS-03	E235.SO4	15-Nov-2023	18-Nov-2023	28	2 days	✓	18-Nov-2023	28 days	3 days	✓
				days	_					
				,-						

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Client : Comox Valley Regional District



Matrix: Water	Evaluation: × = Holding time exceedance: ✓ = Within Holding Time

Analyte Group : Analytical Method	Method	Sampling Date	Ext	traction / Pr	reparation			Analysis		
Container / Client Sample ID(s)			Preparation	Holdin	g Times	Eval	Analysis Date	Holding	Times	Eval
			Date	Rec	Actual			Rec	Actual	
Anions and Nutrients : Sulfate in Water by IC										
HDPE WS-111523-CS-04	E235.SO4	15-Nov-2023	18-Nov-2023	28 days	2 days	√	18-Nov-2023	28 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE WG-111523-CS-16	E235.SO4	15-Nov-2023	18-Nov-2023	28 days	3 days	4	18-Nov-2023	28 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE WG-111523-CS-17	E235.SO4	15-Nov-2023	18-Nov-2023	28 days	3 days	√	18-Nov-2023	28 days	3 days	~
Anions and Nutrients : Sulfate in Water by IC										
HDPE WG-111523-CS-18	E235.SO4	15-Nov-2023	18-Nov-2023	28 days	3 days	*	18-Nov-2023	28 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE WS-111523-CS-01	E235.SO4	15-Nov-2023	18-Nov-2023	28 days	3 days	*	18-Nov-2023	28 days	3 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved) WG-111523-CS-16	E509	15-Nov-2023	23-Nov-2023	28 days	8 days	√	23-Nov-2023	28 days	0 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved) WG-111523-CS-17	E509	15-Nov-2023	23-Nov-2023	28 days	8 days	*	23-Nov-2023	28 days	0 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved) WG-111523-CS-18	E509	15-Nov-2023	23-Nov-2023	28 days	8 days	✓	23-Nov-2023	28 days	0 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved) WG-111523-CS-19	E509	15-Nov-2023	23-Nov-2023	28 days	8 days	✓	23-Nov-2023	28 days	0 days	✓

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Matrix: Water Evaluation: ▼ = Holding time exceedance; ✓ = Within Holding Time

Matrix: Water						/aluation. * -	Holding time exce	euance , •	- vvitiiiii	Holding Tim
Analyte Group : Analytical Method	Method	Sampling Date	Ext	traction / Pr	reparation	1		Analys	is	
Container / Client Sample ID(s)			Preparation	Holdin	g Times	Eval	Analysis Date	Holding	Times	Eval
			Date	Rec	Actual			Rec	Actual	
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
WG-111523-CS-20	E509	15-Nov-2023	23-Nov-2023	28	8 days	✓	23-Nov-2023	28 days	0 days	✓
				days						
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
WG-111523-CS-21	E509	15-Nov-2023	23-Nov-2023	28	8 days	1	23-Nov-2023	28 days	0 days	✓
				days	-			-	-	
Dissolved Metals : Dissolved Mercury in Water by CVAAS				,						
Glass vial - dissolved (lab preserved)	T T	1			<u> </u>		<u> </u>			
WG-111523-CS-22	E509	15-Nov-2023	23-Nov-2023	28	8 days	✓	23-Nov-2023	28 days	0 days	✓
				days	J, -			,-	, -	
Direct and the Direct and the second				dayo						
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved) WS-111523-CS-01	E509	15-Nov-2023	23-Nov-2023	00	8 days	✓	23-Nov-2023	28 days	0 days	✓
WS-111523-C5-U1	E309	13-1104-2023	23-NOV-2023	28	o days	•	23-INOV-2023	20 days	0 days	•
				days						
Dissolved Metals : Dissolved Mercury in Water by CVAAS				_						
Glass vial - dissolved (lab preserved)	E500	45.11 0000	00.11 0000			,	00.11 0000	00.1		,
WS-111523-CS-02	E509	15-Nov-2023	23-Nov-2023	28	8 days	✓	23-Nov-2023	28 days	0 days	✓
				days						
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
WS-111523-CS-03	E509	15-Nov-2023	23-Nov-2023	28	8 days	✓	23-Nov-2023	28 days	0 days	✓
				days						
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved)										
WS-111523-CS-04	E509	15-Nov-2023	23-Nov-2023	28	8 days	✓	23-Nov-2023	28 days	0 days	✓
				days						
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
WG-111523-CS-16	E421	15-Nov-2023	21-Nov-2023	180	6 days	✓	22-Nov-2023	180	7 days	✓
				days				days	Í	
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS				, ,						
HDPE - dissolved (lab preserved)							1			
WG-111523-CS-17	E421	15-Nov-2023	21-Nov-2023	180	6 days	√	22-Nov-2023	180	7 days	✓
WO-111323-05-17		10-1404-2023	Z 1-1NUV-ZUZ3		o uays	•	ZZ-1NUV-ZUZ3		r uays	•
				days				days		

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Matrix: Water Evaluation: ★ = Holding time exceedance; ✓ = Within Holding Time

Matrix: water				- Holding time exceedance, V = Within Holding Ti						
Analyte Group : Analytical Method	Method	Sampling Date	Ext	traction / Pr	reparation		Analysis			
Container / Client Sample ID(s)		Preparation Holding Times Eval A		Analysis Date	Holdin	g Times	Eval			
			Date	Rec	Actual			Rec	Actual	
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
WG-111523-CS-18	E421	15-Nov-2023	21-Nov-2023	180	6 days	✓	22-Nov-2023	180	7 days	✓
				days				days		
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
WG-111523-CS-19	E421	15-Nov-2023	21-Nov-2023	180	6 days	✓	22-Nov-2023	180	7 days	✓
				days				days		
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS									'	
HDPE - dissolved (lab preserved)										
WG-111523-CS-20	E421	15-Nov-2023	21-Nov-2023	180	6 days	✓	22-Nov-2023	180	7 days	✓
				days				days		
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
WG-111523-CS-21	E421	15-Nov-2023	21-Nov-2023	180	6 days	✓	22-Nov-2023	180	7 days	✓
				days				days		
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
WG-111523-CS-22	E421	15-Nov-2023	21-Nov-2023	180	6 days	✓	22-Nov-2023	180	7 days	✓
				days				days		
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
WS-111523-CS-01	E421	15-Nov-2023	21-Nov-2023	180	6 days	✓	22-Nov-2023	180	7 days	✓
				days				days		
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
WS-111523-CS-02	E421	15-Nov-2023	21-Nov-2023	180	6 days	✓	22-Nov-2023	180	7 days	✓
				days				days		
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
WS-111523-CS-03	E421	15-Nov-2023	21-Nov-2023	180	6 days	✓	22-Nov-2023	180	7 days	✓
				days				days		
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS							•			
HDPE - dissolved (lab preserved)										
WS-111523-CS-04	E421	15-Nov-2023	21-Nov-2023	180	6 days	✓	22-Nov-2023	180	7 days	✓
				days				days		

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Matrix: Water Evaluation: ▼ = Holding time exceedance; ✓ = Within Holding Time

Matrix: Water					E\	/aluation. * -	Holding time exce	euance , v	– vvitiiii	Holding Time
Analyte Group : Analytical Method	Method	Sampling Date	Ex	traction / Pi	reparation			Analys	sis	
Container / Client Sample ID(s)			Preparation	Holdin	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Leve	l)									
Amber glass dissolved (sulfuric acid)										
WS-111523-CS-01	E358-L	15-Nov-2023	21-Nov-2023	28	6 days	✓	22-Nov-2023	28 days	7 days	✓
				days						
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Leve	1)									
Amber glass dissolved (sulfuric acid)	ĺ									
WS-111523-CS-02	E358-L	15-Nov-2023	21-Nov-2023	28	6 days	✓	22-Nov-2023	28 days	7 days	✓
				days					,	
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Leve	I)			,						
Amber glass dissolved (sulfuric acid)]			<u> </u>	<u> </u>		<u> </u>			
WS-111523-CS-03	E358-L	15-Nov-2023	21-Nov-2023	28	6 days	✓	22-Nov-2023	28 days	7 davs	√
				days	,			,	,	
Organia / Incorporaia Combara - Bisanahard Comparia Combara has Combaration // and Laur				uayo						
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Leve Amber glass dissolved (sulfuric acid)	(1) 						<u> </u>			
WS-111523-CS-04	E358-L	15-Nov-2023	21-Nov-2023	28	6 days	1	22-Nov-2023	28 days	7 days	√
WG-111020-03-04		10-1404-2020	21-1404-2020		0 days	· •	22-1107-2020	20 days	1 days	Ť
				days						
Physical Tests : Alkalinity Species by Titration				1	T			I		
HDPE	F200	45 Nov. 2022	40 Nov. 2022		0 -1	✓	40 Nov. 2022	44 -	0 4	√
WG-111523-CS-19	E290	15-Nov-2023	18-Nov-2023	14	2 days	•	18-Nov-2023	14 days	3 days	•
				days						
Physical Tests : Alkalinity Species by Titration										
HDPE										
WG-111523-CS-20	E290	15-Nov-2023	18-Nov-2023	14	2 days	✓	18-Nov-2023	14 days	3 days	✓
				days						
Physical Tests : Alkalinity Species by Titration										
HDPE										
WG-111523-CS-21	E290	15-Nov-2023	18-Nov-2023	14	2 days	✓	18-Nov-2023	14 days	3 days	✓
				days						
Physical Tests : Alkalinity Species by Titration										
HDPE		1								
WG-111523-CS-22	E290	15-Nov-2023	18-Nov-2023	14	2 days	✓	18-Nov-2023	14 days	3 days	✓
				days						
Physical Tests : Alkalinity Species by Titration										
HDPE										
WS-111523-CS-02	E290	15-Nov-2023	18-Nov-2023	14	2 days	✓	18-Nov-2023	14 days	3 davs	✓
				days					,-	
				uays						

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Matrix: **Water**Evaluation: **x** = Holding time exceedance; ✓ = Within Holding Time

Watnx: water						raidation. • -	Analysis					
Analyte Group : Analytical Method	Method	Sampling Date	Ext	traction / Pr	reparation							
Container / Client Sample ID(s)			Preparation	Holdin	g Times	Eval	Analysis Date	Holding	Times	Eval		
			Date	Rec	Actual			Rec	Actual			
Physical Tests : Alkalinity Species by Titration												
HDPE												
WS-111523-CS-03	E290	15-Nov-2023	18-Nov-2023	14	2 days	✓	18-Nov-2023	14 days	3 days	✓		
				days								
Physical Tests : Alkalinity Species by Titration												
HDPE												
WS-111523-CS-04	E290	15-Nov-2023	18-Nov-2023	14	2 days	✓	18-Nov-2023	14 days	3 days	✓		
				days				-				
Physical Tests : Alkalinity Species by Titration												
HDPE	I			<u> </u>	<u> </u>		<u> </u>					
WG-111523-CS-16	E290	15-Nov-2023	18-Nov-2023	14	3 days	✓	18-Nov-2023	14 days	3 days	✓		
				days	, -				y-			
District All Property Law Co.				aayo								
Physical Tests : Alkalinity Species by Titration	T T				1		I					
HDPE WG-111523-CS-17	E290	15-Nov-2023	18-Nov-2023	4.4	3 days	√	18-Nov-2023	14 days	2 days	√		
WG-111523-C5-17	E290	13-1104-2023	10-1107-2023	14	3 days	•	10-1107-2023	14 days	3 days	•		
				days								
Physical Tests : Alkalinity Species by Titration												
HDPE						,				,		
WG-111523-CS-18	E290	15-Nov-2023	18-Nov-2023	14	3 days	✓	18-Nov-2023	14 days	3 days	✓		
				days								
Physical Tests : Alkalinity Species by Titration												
HDPE												
WS-111523-CS-01	E290	15-Nov-2023	18-Nov-2023	14	3 days	✓	18-Nov-2023	14 days	3 days	✓		
				days								
Physical Tests : Conductivity in Water												
HDPE												
WG-111523-CS-19	E100	15-Nov-2023	18-Nov-2023	28	2 days	✓	18-Nov-2023	28 days	3 days	✓		
				days								
Physical Tests : Conductivity in Water												
HDPE												
WG-111523-CS-20	E100	15-Nov-2023	18-Nov-2023	28	2 days	✓	18-Nov-2023	28 days	3 days	✓		
				days	,-			- /-	,-			
Physical Tasta Cardy thirty in Water						<u></u>						
Physical Tests : Conductivity in Water												
HDPE	E100	15-Nov-2023	18-Nov-2023	00	2 days	√	18-Nov-2023	28 days	2 days	√		
WG-111523-CS-21	E100	10-1104-2023	10-1104-2023	28	2 days	•	10-1107-2023	20 days	o days	*		
				days								

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Matrix: Water Evaluation: ▼ = Holding time exceedance; ✓ = Within Holding Time

Matrix: Water						/alualion. ^ =	F Holding time exceedance; ✓ = Within Holding					
Analyte Group : Analytical Method	Method	Sampling Date	Ext	traction / Pr	reparation		Analysis					
Container / Client Sample ID(s)			Preparation	Holdin	g Times	Eval	Analysis Date	Holding Times		Eval		
			Date	Rec	Actual			Rec	Actual			
Physical Tests : Conductivity in Water												
HDPE												
WG-111523-CS-22	E100	15-Nov-2023	18-Nov-2023	28	2 days	✓	18-Nov-2023	28 days	3 days	✓		
				days								
Physical Tests : Conductivity in Water												
HDPE												
WS-111523-CS-02	E100	15-Nov-2023	18-Nov-2023	28	2 days	✓	18-Nov-2023	28 days	3 days	✓		
				days				-	-			
Physical Tests : Conductivity in Water				,								
HDPE	l				<u> </u>		<u> </u>					
WS-111523-CS-03	E100	15-Nov-2023	18-Nov-2023	28	2 days	✓	18-Nov-2023	28 days	3 davs	✓		
				days	, -			,-	, -			
				dayo								
Physical Tests : Conductivity in Water	I				I							
HDPE	E100	15-Nov-2023	18-Nov-2023	00	2 days	√	18-Nov-2023	28 days	2 days	✓		
WS-111523-CS-04	E100	15-1100-2025	10-1107-2023	28	2 days	•	10-1107-2023	20 days	3 days	•		
				days								
Physical Tests : Conductivity in Water				_								
HDPE	E400	45.11 0000	40.11 0000			,	40.11 0000	00.1		,		
WG-111523-CS-16	E100	15-Nov-2023	18-Nov-2023	28	3 days	✓	18-Nov-2023	28 days	3 days	✓		
				days								
Physical Tests : Conductivity in Water												
HDPE												
WG-111523-CS-17	E100	15-Nov-2023	18-Nov-2023	28	3 days	✓	18-Nov-2023	28 days	3 days	✓		
				days								
Physical Tests : Conductivity in Water												
HDPE												
WG-111523-CS-18	E100	15-Nov-2023	18-Nov-2023	28	3 days	✓	18-Nov-2023	28 days	3 days	✓		
				days								
Physical Tests : Conductivity in Water								1				
HDPE												
WS-111523-CS-01	E100	15-Nov-2023	18-Nov-2023	28	3 days	✓	18-Nov-2023	28 days	3 days	✓		
				days					,			
Physical Tests - TDC by Cresimetry				,-								
Physical Tests : TDS by Gravimetry	I						I					
HDPE WG-111523-CS-16	E162	15-Nov-2023					20-Nov-2023	7 days	5 days	✓		
VVG-111020-00-10	L 102	13-1404-2023					ZU-INUV-ZUZ3	r uays	Juays	•		

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Client : Comox Valley Regional District

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Matrix: Water Evaluation: **x** = Holding time exceedance ; ✓ = Within Holding Time Analyte Group : Analytical Method Extraction / Preparation Analysis Method Sampling Date Container / Client Sample ID(s) Preparation Holding Times Eval Analysis Date **Holding Times** Eval Rec Actual Rec Actual Date **Physical Tests: TDS by Gravimetry** HDPE E162 15-Nov-2023 20-Nov-2023 1 WG-111523-CS-17 7 days 5 days Physical Tests : TDS by Gravimetry **HDPE** WG-111523-CS-18 E162 15-Nov-2023 20-Nov-2023 7 days 5 days 1 **Physical Tests: TDS by Gravimetry** HDPE E162 15-Nov-2023 20-Nov-2023 5 days 1 WG-111523-CS-19 7 days Physical Tests : TDS by Gravimetry HDPE E162 WG-111523-CS-20 15-Nov-2023 20-Nov-2023 7 days 5 days 1 **Physical Tests: TDS by Gravimetry HDPE** E162 15-Nov-2023 20-Nov-2023 1 WG-111523-CS-21 7 days 5 days Physical Tests: TDS by Gravimetry HDPE E162 15-Nov-2023 1 WG-111523-CS-22 20-Nov-2023 7 days 5 days ----**Physical Tests: TDS by Gravimetry** HDPE WS-111523-CS-01 E162 15-Nov-2023 20-Nov-2023 5 days 7 days **Physical Tests: TDS by Gravimetry** HDPE ✓ WS-111523-CS-02 E162 15-Nov-2023 20-Nov-2023 7 days 5 days **Physical Tests: TDS by Gravimetry** HDPE E162 15-Nov-2023 20-Nov-2023 1 WS-111523-CS-03 7 days 5 days

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Client : Comox Valley Regional District

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Matrix: Water Evaluation: ★ = Holding time exceedance; ✓ = Within Holding Time

Analyte Group : Analytical Method	Method	Sampling Date	Ext	raction / Pi	reparation		,	Analys		
Container / Client Sample ID(s)			Preparation	Holdin	g Times	Eval	Analysis Date	Holding	Times	Eval
			Date	Rec	Actual			Rec	Actual	
Physical Tests : TDS by Gravimetry										
HDPE WS-111523-CS-04	E162	15-Nov-2023					20-Nov-2023	7 days	5 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved) WS-111523-CS-01	E508	15-Nov-2023	23-Nov-2023	28 days	8 days	✓	23-Nov-2023	28 days	0 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved) WS-111523-CS-02	E508	15-Nov-2023	23-Nov-2023	28 days	8 days	1	23-Nov-2023	28 days	0 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved) WS-111523-CS-03	E508	15-Nov-2023	23-Nov-2023	28 days	8 days	✓	23-Nov-2023	28 days	0 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved) WS-111523-CS-04	E508	15-Nov-2023	23-Nov-2023	28 days	8 days	✓	23-Nov-2023	28 days	0 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) WS-111523-CS-01	E420	15-Nov-2023	20-Nov-2023	180 days	5 days	✓	22-Nov-2023	180 days	7 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) WS-111523-CS-02	E420	15-Nov-2023	20-Nov-2023	180 days	5 days	1	22-Nov-2023	180 days	7 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) WS-111523-CS-03	E420	15-Nov-2023	20-Nov-2023	180 days	5 days	✓	22-Nov-2023	180 days	7 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) WS-111523-CS-04	E420	15-Nov-2023	20-Nov-2023	180 days	5 days	✓	22-Nov-2023	180 days	7 days	✓

Legend & Qualifier Definitions

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Rec. HT: ALS recommended hold time (see units).



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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.

Quality Control Sample Type		·	Co	ount		Frequency (%	%)	
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)						-		
Alkalinity Species by Titration	E290	1242835	1	20	5.0	5.0	✓	
Ammonia by Fluorescence	E298	1247090	2	33	6.0	5.0	1	
Chloride in Water by IC	E235.CI	1242842	1	20	5.0	5.0	<u>√</u>	
Conductivity in Water	E100	1242836	1	20	5.0	5.0	1	
Dissolved Mercury in Water by CVAAS	E509	1250898	1	20	5.0	5.0	1	
Dissolved Metals in Water by CRC ICPMS	E421	1244028	1	19	5.2	5.0	1	
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1247089	1	19	5.2	5.0	✓	
Fluoride in Water by IC	E235.F	1242838	1	20	5.0	5.0	✓	
Nitrate in Water by IC (Low Level)	E235.NO3-L	1242840	1	20	5.0	5.0	✓	
Nitrite in Water by IC (Low Level)	E235.NO2-L	1242841	1	20	5.0	5.0	✓	
Sulfate in Water by IC	E235.SO4	1242839	1	20	5.0	5.0	✓	
TDS by Gravimetry	E162	1245463	2	26	7.6	5.0	✓	
Total Mercury in Water by CVAAS	E508	1250759	1	20	5.0	5.0	✓	
Total Metals in Water by CRC ICPMS	E420	1242818	1	20	5.0	5.0	✓	
Laboratory Control Samples (LCS)								
Alkalinity Species by Titration	E290	1242835	1	20	5.0	5.0	1	
Ammonia by Fluorescence	E298	1247090	2	33	6.0	5.0	✓	
Chloride in Water by IC	E235.Cl	1242842	1	20	5.0	5.0	✓	
Conductivity in Water	E100	1242836	1	20	5.0	5.0	✓	
Dissolved Mercury in Water by CVAAS	E509	1250898	1	20	5.0	5.0	✓	
Dissolved Metals in Water by CRC ICPMS	E421	1244028	1	19	5.2	5.0	✓	
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1247089	1	19	5.2	5.0	✓	
Fluoride in Water by IC	E235.F	1242838	1	20	5.0	5.0	✓	
Nitrate in Water by IC (Low Level)	E235.NO3-L	1242840	1	20	5.0	5.0	✓	
Nitrite in Water by IC (Low Level)	E235.NO2-L	1242841	1	20	5.0	5.0	✓	
Sulfate in Water by IC	E235.SO4	1242839	1	20	5.0	5.0	✓	
TDS by Gravimetry	E162	1245463	2	26	7.6	5.0	✓	
Total Mercury in Water by CVAAS	E508	1250759	1	20	5.0	5.0	✓	
Total Metals in Water by CRC ICPMS	E420	1242818	1	20	5.0	5.0	✓	
Method Blanks (MB)								
Alkalinity Species by Titration	E290	1242835	1	20	5.0	5.0	✓	
Ammonia by Fluorescence	E298	1247090	2	33	6.0	5.0	✓	
Chloride in Water by IC	E235.CI	1242842	1	20	5.0	5.0	✓	
Conductivity in Water	E100	1242836	1	20	5.0	5.0	✓	
Dissolved Mercury in Water by CVAAS	E509	1250898	1	20	5.0	5.0	1	

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Matrix: Water		Evaluati	ion: × = QC freque	ency outside sp	ecification; ✓ =	QC frequency wit	hin specificatio
Quality Control Sample Type		· ·	Co	ount		Frequency (%)	
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation
Method Blanks (MB) - Continued							
Dissolved Metals in Water by CRC ICPMS	E421	1244028	1	19	5.2	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1247089	1	19	5.2	5.0	✓
Fluoride in Water by IC	E235.F	1242838	1	20	5.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1242840	1	20	5.0	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1242841	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1242839	1	20	5.0	5.0	✓
TDS by Gravimetry	E162	1245463	2	26	7.6	5.0	✓
Total Mercury in Water by CVAAS	E508	1250759	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1242818	1	20	5.0	5.0	✓
Matrix Spikes (MS)							
Ammonia by Fluorescence	E298	1247090	2	33	6.0	5.0	✓
Chloride in Water by IC	E235.CI	1242842	1	20	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1250898	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1244028	1	19	5.2	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1247089	1	19	5.2	5.0	✓
Fluoride in Water by IC	E235.F	1242838	1	20	5.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1242840	1	20	5.0	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1242841	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1242839	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	1250759	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1242818	1	20	5.0	5.0	✓

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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	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
	ALS Environmental -			sample. Conductivity measurements are temperature-compensated to 25°C.
	Vancouver			campio. Conductivity incucaronionic are temporature compensated to 20 C.
TDS by Gravimetry	E162	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 $180 \pm 2^{\circ}\text{C}$ for 16 hours or to constant weight,
	ALS Environmental -			with gravimetric measurement of the residue.
	Vancouver			
Chloride in Water by IC	E235.CI	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and /or UV detection.
	ALS Environmental -			
	Vancouver			
Fluoride in Water by IC	E235.F	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
	ALS Environmental -			
	Vancouver			
Nitrite in Water by IC (Low Level)	E235.NO2-L	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
	ALS Environmental -			
	Vancouver			
Nitrate in Water by IC (Low Level)	E235.NO3-L	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and /or UV detection.
	ALS Environmental -			
	Vancouver			
Sulfate in Water by IC	E235.SO4	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
	ALS Environmental -			
	Vancouver			
Alkalinity Species by Titration	E290	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
	ALS Environmental -			alkalinity values.
	Vancouver			anianny raises.
Ammonia by Fluorescence	E298	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).
	ALS Environmental -			This method is approved under US EPA 40 CFR Part 136 (May 2021)
	Vancouver			
	Variouvci			

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Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
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).
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.
Nitrate and Nitrite (as N) (Calculation)	EC235.N+N ALS Environmental - Vancouver	Water	EPA 300.0	Nitrate and Nitrite (as N) is a calculated parameter. Nitrate and Nitrite (as N) = Nitrite (as N) + Nitrate (as N).
Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Ammonia	EP298	Water		Sample preparation for Preserved Nutrients Water Quality Analysis.

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Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
	ALS Environmental -			
	Vancouver			
Preparation for Dissolved Organic Carbon for	EP358	Water	APHA 5310 B (mod)	Preparation for Dissolved Organic Carbon
Combustion				
	ALS Environmental -			
	Vancouver			
Dissolved Metals Water Filtration	EP421	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HNO3.
	ALS Environmental -			
	Vancouver			
Dissolved Mercury Water Filtration	EP509	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HCl.
	ALS Environmental -			
	Vancouver			

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Environmental Canada Toll Free: 1 800 668 9878

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•	YES NO	•		772				13.	::	100	A	· 🖽 🗓	* a)		2	4 2 3x	₫. 3 % -	
	\$HIPMENT RELEASE (client use)	W 7 W WINITIAL SHIPME	NT RECEPTION (lab use only)	1 3 s	ACT TO ACT		- 	1 (*) 21 (*)	_# F1	NAL SH	PMENT	RECE	PYION	(lab us	a dhiyi	j. Ka.,	11.7%	1000
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		W		44 July		l sel	:".	17.44		∴ <u>⊅</u> (.4 8	1	ور ا		3 ,10		<u>"</u>	2/ 0
REFER JOARAG	CK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION	W	HITE - LABORATORY COPY YE	HOW	- CLIE	NT CO	PΥ										SEP1	ZÚST PROMĚ

ALS Canada Ltd.

Address



CERTIFICATE OF ANALYSIS

Work Order : **VA23C7786** Page : 1 of 5

Client : Comox Valley Regional District Laboratory : ALS Environmental - Vancouver

Contact : Crystal Stuart Account Manager : Thomas Chang

: 770 Harmston Avenue Address : 8081 Lougheed Highway

Courtney BC Canada V9N 0G8 Burnaby BC Canada V5A 1W9

: 27-Nov-2023 15:13

Telephone : 250-898-3722 Telephone : +1 604 253 4188

 Project
 : 4-2-4
 Date Samples Received
 : 17-Nov-2023 10:40

 PO
 : 23-015
 Date Analysis Commenced
 : 18-Nov-2023

C-O-C number : ---- Issue Date

Sampler : CStuart
Site : CRWMC-Quarterly-GW

Quote number : VA23-COVR100-001

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
Angelo Salandanan	Lab Assistant	Metals, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Inorganics, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia
Owen Cheng		Metals, Burnaby, British Columbia
Sam Silveira	Lab Assistant	Metals, Burnaby, British Columbia

Page : 2 of 5

Work Order : VA23C7786

Client : Comox Valley Regional District

Project : 4-2-



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
μS/cm	microsiemens per centimetre
mg/L	milligrams per litre

<: 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.

Page : 3 of 5 Work Order : VA23C7786

Client : Comox Valley Regional District

Project : 4-2-4



Analytical Results

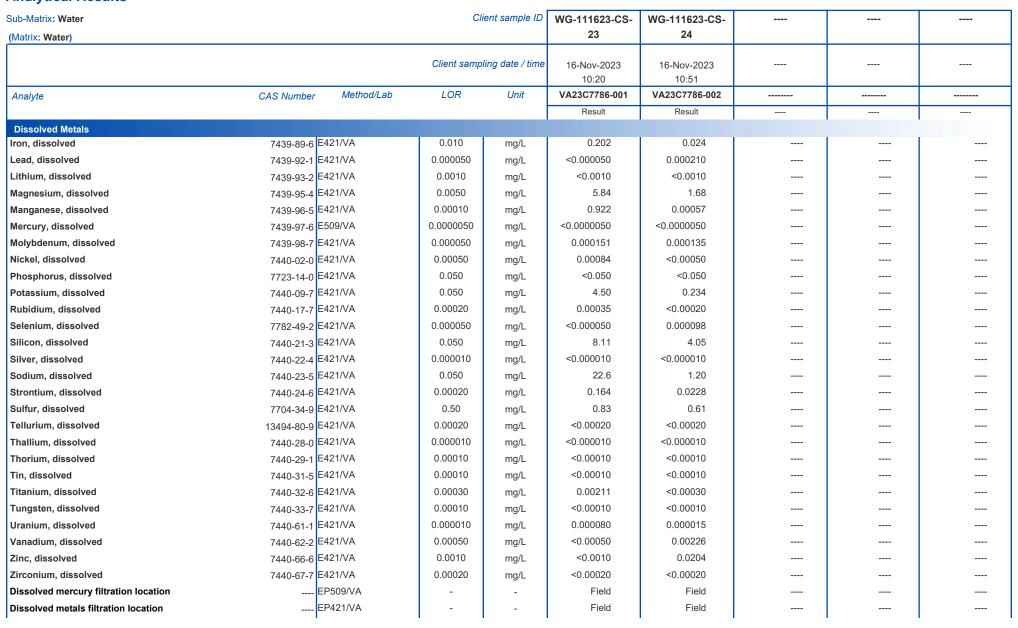
Sub-Matrix: Water			Cli	ient sample ID	WG-111623-CS-	WG-111623-CS-	 	
(Matrix: Water)					23	24		
			Client samp	ling date / time	16-Nov-2023 10:20	16-Nov-2023 10:51	 	
Analyte	CAS Number	Method/Lab	LOR	Unit	VA23C7786-001	VA23C7786-002	 	
					Result	Result	 	
Physical Tests								
Alkalinity, bicarbonate (as CaCO3)		E290/VA	1.0	mg/L	188	44.6	 	
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, total (as CaCO3)		E290/VA	1.0	mg/L	188	44.6	 	
Conductivity		E100/VA	2.0	μS/cm	473	93.3	 	
Hardness (as CaCO3), dissolved		EC100/VA	0.60	mg/L	155	41.9	 	
Solids, total dissolved [TDS]		E162/VA	10	mg/L	308	65	 	
Anions and Nutrients								
Ammonia, total (as N)	7664-41-7		0.0050	mg/L	4.52	<0.0050	 	
Chloride	16887-00-6	E235.CI/VA	0.50	mg/L	37.7	0.79	 	
Fluoride	16984-48-8	E235.F/VA	0.020	mg/L	<0.020	<0.020	 	
Nitrate (as N)	14797-55-8	E235.NO3-L/V	0.0050	mg/L	0.0053	0.0666	 	
Nitrite (as N)	14797-65-0	A E235.NO2-L/V	0.0010	mg/L	0.0015	<0.0010	 	
Sulfate (as SO4)	14808-79-8	A E235.SO4/VA	0.30	mg/L	2.39	2.37	 	
Dissolved Metals								
Aluminum, dissolved	7429-90-5	E421/VA	0.0010	mg/L	0.0209	0.0031	 	
Antimony, dissolved	7440-36-0	E421/VA	0.00010	mg/L	<0.00010	<0.00010	 	
Arsenic, dissolved	7440-38-2	E421/VA	0.00010	mg/L	0.00135	0.00030	 	
Barium, dissolved	7440-39-3	E421/VA	0.00010	mg/L	0.0118	0.00045	 	
Beryllium, dissolved	7440-41-7		0.000100	mg/L	<0.000100	<0.000100	 	
Bismuth, dissolved	7440-69-9		0.000050	mg/L	<0.000050	<0.000050	 	
Boron, dissolved	7440-42-8	E421/VA	0.010	mg/L	0.124	<0.010	 	
Cadmium, dissolved	7440-43-9		0.0000050	mg/L	0.0000395	0.0000068	 	
Calcium, dissolved	7440-70-2		0.050	mg/L	52.4	14.0	 	
Cesium, dissolved	7440-46-2		0.000010	mg/L	<0.000010	<0.000010	 	
Chromium, dissolved	7440-47-3		0.00050	mg/L	<0.00050	<0.00050	 	
Cobalt, dissolved	7440-48-4		0.00010	mg/L	0.00016	<0.00010	 	
Copper, dissolved	7440-50-8		0.00020	mg/L	0.00041	0.00230	 	
1	7 1 10-00-0			3. =				l l

Page : 4 of 5 Work Order : VA23C7786

Client : Comox Valley Regional District

Project : 4-2-4

Analytical Results





Page : 5 of 5

Work Order : VA23C7786

Client : Comox Valley Regional District

Project : 4-2-4



Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.

ALS Canada Ltd.



QUALITY CONTROL REPORT

Work Order :VA23C7786

Client : Comox Valley Regional District Laboratory : ALS Environmental - Vancouver

Contact : Crystal Stuart Account Manager : Thomas Chang

:770 Harmston Avenue Address :8081 Lougheed Highway

Burnaby, British Columbia Canada V5A 1W9

: 1 of 10

: Telephone :+1 604 253 4188

Date Samples Received : 17-Nov-2023 10:40

Date Analysis Commenced : 18-Nov-2023

Issue Date : 27-Nov-2023 15:13

PO : 23-015 C-O-C number : ----

Sampler : CStuart 250-898-3722
Site : CRWMC-Quarterly-GW

: 4-2-4

Quote number : VA23-COVR100-001

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

Courtney BC Canada V9N 0G8

- 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

Address

Telephone

Project

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
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Vancouver Inorganics, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Vancouver Metals, Burnaby, British Columbia
Owen Cheng		Vancouver Metals, Burnaby, British Columbia
Sam Silveira	Lab Assistant	Vancouver Metals, Burnaby, British Columbia

Page : 2 of 10 Work Order : VA23C7786

Client : Comox Valley Regional District

Project : 4-2-4



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.

 Page
 :
 3 of 10

 Work Order
 :
 VA23C7786

Client : Comox Valley Regional District

Project : 4-2-4

ALS

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 sample ID Client sample ID Analyte CAS Number Method						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: 1243589)												
KS2304436-001	Anonymous	Alkalinity, bicarbonate (as CaCO3)		E290	1.0	mg/L	97.2	97.9	0.718%	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, total (as CaCO3)		E290	1.0	mg/L	97.2	97.9	0.718%	20%			
Physical Tests (QC	Lot: 1243590)												
KS2304436-001	Anonymous	Conductivity		E100	2.0	μS/cm	179	183	2.43%	10%			
Physical Tests (QC	Lot: 1247987)												
VA23C7775-005	Anonymous	Solids, total dissolved [TDS]		E162	20	mg/L	1560	1600	2.81%	20%			
Anions and Nutrien	ts (QC Lot: 1243591)	The state of the s											
KS2304428-001	Anonymous	Fluoride	16984-48-8	E235.F	0.400	mg/L	<0.400	<0.400	0	Diff <2x LOR			
Anions and Nutrien	ts (QC Lot: 1243592)				1 1 1								
KS2304428-001	Anonymous	Chloride	16887-00-6	E235.CI	10.0	mg/L	15.8	15.5	0.29	Diff <2x LOR			
Anions and Nutrien	ts (QC Lot: 1243594)												
KS2304428-001	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	0.100	mg/L	1.47	1.47	0.316%	20%			
Anions and Nutrien	ts (QC Lot: 1243595)				1 1 1								
KS2304428-001	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	0.0200	mg/L	<0.0200	<0.0200	0	Diff <2x LOR			
Anions and Nutrien	ts (QC Lot: 1243596)												
KS2304428-001	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	6.00	mg/L	2630	2640	0.282%	20%			
Anions and Nutrien	ts (QC Lot: 1248130)										1 1		
VA23C7752-001	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	0.0116	0.0124	0.0009	Diff <2x LOR			
Dissolved Metals (QC Lot: 1244635)				1 1 1								
VA23C7783-001	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	0.0086	0.0080	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	0.00151	0.00143	5.42%	20%			
		Barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.0114	0.0112	2.21%	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	<0.010	<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	19.5	19.1	2.11%	20%			

Page : 4 of 10 Work Order : VA23C7786

Client : Comox Valley Regional District



sub-Matrix: Water						Laboratory Duplicate (DUP) Report						
aboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifie	
issolved Metals (0	QC Lot: 1244635) - con	tinued										
A23C7783-001	Anonymous	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	0.00022	0.00021	0.000008	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	0.0050	mg/L	1.73	1.66	4.03%	20%		
		Manganese, dissolved	7439-96-5	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR		
		Molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.00105	0.00107	1.83%	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	0.874	0.843	3.51%	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	0.000445	0.000423	0.000023	Diff <2x LOR		
		Silicon, dissolved	7440-21-3	E421	0.050	mg/L	4.25	3.97	6.76%	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	1.53	1.45	5.24%	20%		
		Strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.0785	0.0796	1.38%	20%		
		Sulfur, dissolved	7704-34-9	E421	0.50	mg/L	2.79	2.64	0.15	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	<0.00030	<0.00030	0	Diff <2x LOR		
		Tungsten, dissolved	7440-33-7	E421	0.00010	mg/L	0.00013	0.00013	0.0000007	Diff <2x LOR		
		Uranium, dissolved	7440-61-1	E421	0.000010	mg/L	0.000137	0.000130	5.54%	20%		
		Vanadium, dissolved	7440-62-2	E421	0.00050	mg/L	0.00152	0.00144	0.00008	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		
ssolved Metals (QC Lot: 1250899)											
A23C7779-001	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR		

Page : 5 of 10 Work Order : VA23C7786

Client : Comox Valley Regional District

Project : 4-2-4



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

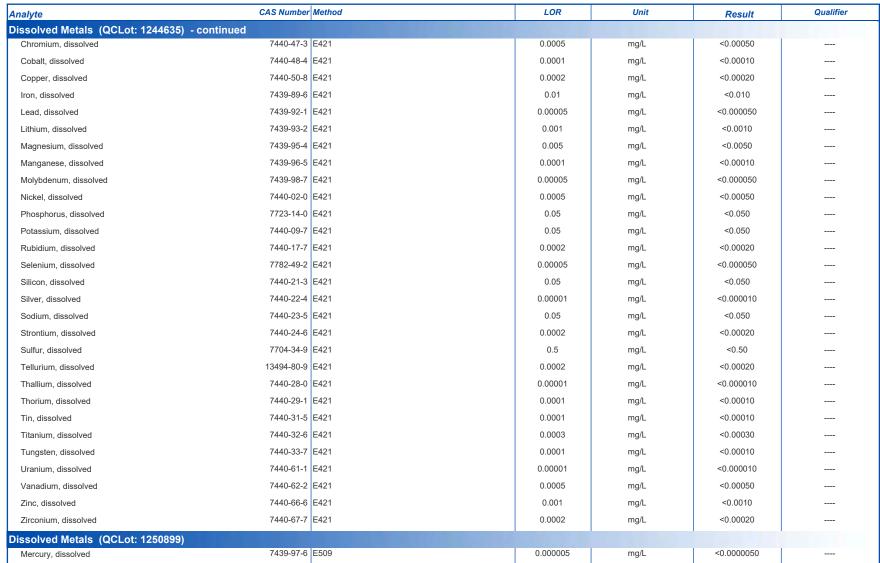
Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 1243589)						
Alkalinity, bicarbonate (as CaCO3)		E290	1	mg/L	1.4	
Alkalinity, carbonate (as CaCO3)		E290	1	mg/L	<1.0	
Alkalinity, hydroxide (as CaCO3)		E290	1	mg/L	<1.0	
Alkalinity, total (as CaCO3)		E290	1	mg/L	1.4	
Physical Tests (QCLot: 1243590)	1 7 7 7					
Conductivity		E100	1	μS/cm	1.2	
Physical Tests (QCLot: 1247987)	1 7 7 7					
Solids, total dissolved [TDS]		E162	10	mg/L	<10	
Anions and Nutrients (QCLot: 1243591)						
Fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	
Anions and Nutrients (QCLot: 1243592)						
Chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	
Anions and Nutrients (QCLot: 1243594)						
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	<0.0050	
Anions and Nutrients (QCLot: 1243595)	1.0					
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	<0.0010	
Anions and Nutrients (QCLot: 1243596)						
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	
Anions and Nutrients (QCLot: 1248130)						
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	
Dissolved Metals (QCLot: 1244635)						
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	

Page : 6 of 10 Work Order : VA23C7786

Client : Comox Valley Regional District

Project : 4-2-4

Sub-Matrix: Water





Page : 7 of 10 Work Order : VA23C7786

Client : Comox Valley Regional District

Project : 4-2-4

ALS

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	Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 1243589)									
Alkalinity, total (as CaCO3)		E290	1	mg/L	500 mg/L	108	85.0	115	
Physical Tests (QCLot: 1243590)									
Conductivity		E100	1	μS/cm	146.9 μS/cm	96.0	90.0	110	
Physical Tests (QCLot: 1247987)									
Solids, total dissolved [TDS]		E162	10	mg/L	1000 mg/L	99.1	85.0	115	
Anions and Nutrients (QCLot: 1243591)									
Fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	98.7	90.0	110	
Anions and Nutrients (QCLot: 1243592)									
Chloride	16887-00-6	E235.CI	0.5	mg/L	100 mg/L	99.9	90.0	110	
Anions and Nutrients (QCLot: 1243594)									
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	2.5 mg/L	99.6	90.0	110	
Anions and Nutrients (QCLot: 1243595)									
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: 1243596)									
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	100	90.0	110	
Anions and Nutrients (QCLot: 1248130)									
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	90.3	85.0	115	
Dissolved Metals (QCLot: 1244635)									
Aluminum, dissolved	7429-90-5		0.001	mg/L	2 mg/L	96.5	80.0	120	
Antimony, dissolved	7440-36-0		0.0001	mg/L	1 mg/L	99.5	80.0	120	
Arsenic, dissolved	7440-38-2		0.0001	mg/L	1 mg/L	97.8	80.0	120	
Barium, dissolved	7440-39-3		0.0001	mg/L	0.25 mg/L	99.2	80.0	120	
Beryllium, dissolved	7440-41-7		0.00002	mg/L	0.1 mg/L	106	80.0	120	
Bismuth, dissolved	7440-69-9		0.00005	mg/L	1 mg/L	93.1	80.0	120	
Boron, dissolved	7440-42-8		0.01	mg/L	1 mg/L	98.7	80.0	120	
Cadmium, dissolved	7440-43-9		0.000005	mg/L	0.1 mg/L	97.9	80.0	120	
Calcium, dissolved	7440-70-2		0.05	mg/L	50 mg/L	102	80.0	120	
Cesium, dissolved	7440-46-2		0.00001	mg/L	0.05 mg/L	100	80.0	120	
Chromium, dissolved	7440-47-3		0.0005	mg/L	0.25 mg/L	97.7	80.0	120	
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	0.25 mg/L	93.7	80.0	120	

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Client : Comox Valley Regional District



Analyte CAS Number Method LOR Unit Conce Dissolved Metals (QCLot: 1244635) - continued 7440-50-8 E421 0.0002 mg/L 0.25 Iron, dissolved 7439-89-6 E421 0.01 mg/L 1 n Lead, dissolved 7439-92-1 E421 0.0005 mg/L 0.5 Lithium, dissolved 7439-93-2 E421 0.001 mg/L 0.25 Magnesium, dissolved 7439-95-4 E421 0.005 mg/L 50 Molybdenum, dissolved 7439-96-5 E421 0.0001 mg/L 0.25 Nickel, dissolved 7439-98-7 E421 0.0005 mg/L 0.25 Nickel, dissolved 7440-02-0 E421 0.0005 mg/L 0.5 Phosphorus, dissolved 7440-02-0 E421 0.005 mg/L 0.5 Potassium, dissolved 7440-09-7 E421 0.05 mg/L 50 Rubidium, dissolved 7440-01-7 E421 0.0002 mg/L	Laboratory Control Sample (LCS) Report						
Dissolved Metals (QCLot: 1244635) - continued Copper, dissolved 7440-50-8 E421 0.0002 mg/L 0.25 Iron, dissolved 7439-89-6 E421 0.01 mg/L 1 n Lead, dissolved 7439-92-1 E421 0.00005 mg/L 0.5 Lithium, dissolved 7439-93-2 E421 0.001 mg/L 0.25 Magnesium, dissolved 7439-95-4 E421 0.005 mg/L 50 Manganese, dissolved 7439-96-5 E421 0.0001 mg/L 0.25 Molybdenum, dissolved 7439-98-7 E421 0.0001 mg/L 0.25 Nickel, dissolved 7440-02-0 E421 0.0005 mg/L 0.5 Phosphorus, dissolved 7723-14-0 E421 0.05 mg/L 50 Potassium, dissolved 7440-09-7 E421 0.05 mg/L 50 Rubidium, dissolved 7440-17-7 E421 0.0002 mg/L 0.1 Selenium, dissolved 7440-21-3 <th>oike Recovery (</th> <th>(%) Recover</th> <th>ry Limits (%)</th> <th></th>	oike Recovery ((%) Recover	ry Limits (%)				
Copper, dissolved 7440-50-8 E421 0.0002 mg/L 0.25 Iron, dissolved 7439-89-6 E421 0.01 mg/L 1 n Lead, dissolved 7439-92-1 E421 0.0005 mg/L 0.5 Lithium, dissolved 7439-93-2 E421 0.001 mg/L 0.25 Magnesium, dissolved 7439-95-4 E421 0.005 mg/L 50 n Manganese, dissolved 7439-96-5 E421 0.0001 mg/L 0.25 Molybdenum, dissolved 7439-98-7 E421 0.0001 mg/L 0.25 Nickel, dissolved 7440-02-0 E421 0.0005 mg/L 0.5 Phosphorus, dissolved 7723-14-0 E421 0.05 mg/L 10 n Potassium, dissolved 7440-09-7 E421 0.05 mg/L 50 n Rubidium, dissolved 7440-17-7 E421 0.0002 mg/L 0.1 Selenium, dissolved 7440-21-3 E421 0.0005 mg/L 1 n Silicon, dissolved 7440-21-3 E421 0.05 mg/	ntration LCS	Low	High	Qualifier			
Iron, dissolved Iron, dissolve							
Lead, dissolved 7439-92-1 E421 0.00005 mg/L 0.5 Lithium, dissolved 7439-93-2 E421 0.001 mg/L 0.25 Magnesium, dissolved 7439-95-4 E421 0.005 mg/L 50 mg/L Manganese, dissolved 7439-96-5 E421 0.0001 mg/L 0.25 Molybdenum, dissolved 7439-98-7 E421 0.00005 mg/L 0.25 Nickel, dissolved 7440-02-0 E421 0.0005 mg/L 0.5 Phosphorus, dissolved 7723-14-0 E421 0.05 mg/L 10 mg/L Potassium, dissolved 7440-09-7 E421 0.05 mg/L 50 mg/L Rubidium, dissolved 7440-17-7 E421 0.0002 mg/L 0.1 Selenium, dissolved 7782-49-2 E421 0.0005 mg/L 1 mg/L Silicon, dissolved 7440-21-3 E421 0.05 mg/L 1 mg/L	mg/L 92.5	80.0	120				
Lithium, dissolved 7439-93-2 E421 0.001 mg/L 0.25 Magnesium, dissolved 7439-95-4 E421 0.005 mg/L 50 mg/L Manganese, dissolved 7439-96-5 E421 0.0001 mg/L 0.25 Molybdenum, dissolved 7439-98-7 E421 0.00005 mg/L 0.25 Nickel, dissolved 7440-02-0 E421 0.0005 mg/L 0.5 Phosphorus, dissolved 7723-14-0 E421 0.05 mg/L 10 mg/L Potassium, dissolved 7440-09-7 E421 0.05 mg/L 50 mg/L Rubidium, dissolved 7440-17-7 E421 0.0002 mg/L 0.1 Selenium, dissolved 7782-49-2 E421 0.0005 mg/L 1 mg/L Silicon, dissolved 7440-21-3 E421 0.05 mg/L 1 mg/L	ng/L 95.8	80.0	120				
Magnesium, dissolved 7439-95-4 E421 0.005 mg/L 50 mg/L Manganese, dissolved 7439-96-5 E421 0.0001 mg/L 0.25 Molybdenum, dissolved 7439-98-7 E421 0.00005 mg/L 0.25 Nickel, dissolved 7440-02-0 E421 0.0005 mg/L 0.5 Phosphorus, dissolved 7723-14-0 E421 0.05 mg/L 10 mg/L Potassium, dissolved 7440-09-7 E421 0.05 mg/L 50 mg/L Rubidium, dissolved 7440-17-7 E421 0.0002 mg/L 0.1 Selenium, dissolved 7782-49-2 E421 0.0005 mg/L 1 mg/L Silicon, dissolved 7440-21-3 E421 0.05 mg/L 1 mg/L	mg/L 97.7	80.0	120				
Manganese, dissolved 7439-96-5 E421 0.0001 mg/L 0.25 Molybdenum, dissolved 7439-98-7 E421 0.0005 mg/L 0.25 Nickel, dissolved 7440-02-0 E421 0.0005 mg/L 0.5 Phosphorus, dissolved 7723-14-0 E421 0.05 mg/L 10 Potassium, dissolved 7440-09-7 E421 0.05 mg/L 50 Rubidium, dissolved 7440-17-7 E421 0.0002 mg/L 0.1 Selenium, dissolved 7782-49-2 E421 0.00005 mg/L 1 mg/L Silicon, dissolved 7440-21-3 E421 0.05 mg/L 1 mg/L	mg/L 106	80.0	120				
Molybdenum, dissolved 7439-98-7 E421 0.00005 mg/L 0.25 Nickel, dissolved 7440-02-0 E421 0.0005 mg/L 0.5 Phosphorus, dissolved 7723-14-0 E421 0.05 mg/L 10 mg/L Potassium, dissolved 7440-09-7 E421 0.05 mg/L 50 mg/L Rubidium, dissolved 7440-17-7 E421 0.0002 mg/L 0.1 Selenium, dissolved 7782-49-2 E421 0.00005 mg/L 1 mg/L Silicon, dissolved 7440-21-3 E421 0.05 mg/L 10 mg/L	mg/L 97.7	80.0	120				
Nickel, dissolved 7440-02-0 E421 0.0005 mg/L 0.5 Phosphorus, dissolved 7723-14-0 E421 0.05 mg/L 10 mg/L Potassium, dissolved 7440-09-7 E421 0.05 mg/L 50 mg/L Rubidium, dissolved 7440-17-7 E421 0.0002 mg/L 0.1 Selenium, dissolved 7782-49-2 E421 0.00005 mg/L 1 mg/L Silicon, dissolved 7440-21-3 E421 0.05 mg/L 10 mg/L	mg/L 93.8	80.0	120				
Phosphorus, dissolved 7723-14-0 E421 0.05 mg/L 10 mg/L Potassium, dissolved 7440-09-7 E421 0.05 mg/L 50 mg/L Rubidium, dissolved 7440-17-7 E421 0.0002 mg/L 0.1 Selenium, dissolved 7782-49-2 E421 0.00005 mg/L 1 mg/L Silicon, dissolved 7440-21-3 E421 0.05 mg/L 10 mg/L	mg/L 98.9	80.0	120				
Potassium, dissolved 7440-09-7 E421 0.05 mg/L 50 mg/L Rubidium, dissolved 7440-17-7 E421 0.0002 mg/L 0.1 Selenium, dissolved 7782-49-2 E421 0.00005 mg/L 1 mg/L Silicon, dissolved 7440-21-3 E421 0.05 mg/L 10 mg/L	mg/L 95.0	80.0	120				
Rubidium, dissolved 7440-17-7 E421 0.0002 mg/L 0.1 Selenium, dissolved 7782-49-2 E421 0.00005 mg/L 1 n Silicon, dissolved 7440-21-3 E421 0.05 mg/L 10	mg/L 102	80.0	120				
Selenium, dissolved 7782-49-2 E421 0.00005 mg/L 1 n Silicon, dissolved 7440-21-3 E421 0.05 mg/L 10 n	mg/L 102	80.0	120				
Silicon, dissolved 7440-21-3 E421 0.05 mg/L 10	mg/L 96.5	80.0	120				
	ng/L 99.0	80.0	120				
Silver, dissolved 7440-22-4 E421 0.00001 mg/L 0.1	mg/L 103	80.0	120				
	mg/L 95.3	80.0	120				
Sodium, dissolved 7440-23-5 E421 0.05 mg/L 50 mg/L	mg/L 97.6	80.0	120				
Strontium, dissolved 7440-24-6 E421 0.0002 mg/L 0.25	mg/L 100	80.0	120				
Sulfur, dissolved 7704-34-9 E421 0.5 mg/L 50 mg/L	mg/L 89.3	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 n	mg/L 101	80.0	120				
Thorium, dissolved 7440-29-1 E421 0.0001 mg/L 0.1	mg/L 94.2	80.0	120				
Tin, dissolved 7440-31-5 E421 0.0001 mg/L 0.5	mg/L 96.2	80.0	120				
Titanium, dissolved 7440-32-6 E421 0.0003 mg/L 0.25	mg/L 91.2	80.0	120				
Tungsten, dissolved 7440-33-7 E421 0.0001 mg/L 0.1	mg/L 93.1	80.0	120				
Uranium, dissolved 7440-61-1 E421 0.00001 mg/L 0.000	- "	80.0	120				
Vanadium, dissolved 7440-62-2 E421 0.0005 mg/L 0.5	5 mg/L 99.0	80.0	120				
Zinc, dissolved 7440-66-6 E421 0.001 mg/L 0.5	mg/L 99.0 mg/L 96.1	80.0	120				
Zirconium, dissolved 7440-67-7 E421 0.0002 mg/L 0.1		80.0	120				
Mercury, dissolved 7439-97-6 E509 0.000005 mg/L 0.000	mg/L 96.1						
	mg/L 96.1 mg/L 100	80.0	120				

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Client : Comox Valley Regional District

Project : 4-2-4

ALS

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							
					Spi	ike	Recovery (%)	Recovery	Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier	
Anions and Nutri	ents (QCLot: 1243591)										
KS2304435-001	Anonymous	Fluoride	16984-48-8	E235.F	0.998 mg/L	1 mg/L	99.8	75.0	125		
Anions and Nutri	ents (QCLot: 1243592)										
KS2304435-001	Anonymous	Chloride	16887-00-6	E235.CI	103 mg/L	100 mg/L	103	75.0	125		
Anions and Nutri	ents (QCLot: 1243594)										
KS2304435-001	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	2.57 mg/L	2.5 mg/L	103	75.0	125		
Anions and Nutri	ents (QCLot: 1243595)										
KS2304435-001	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	0.518 mg/L	0.5 mg/L	104	75.0	125		
Anions and Nutri	ents (QCLot: 1243596)										
KS2304435-001	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	102 mg/L	100 mg/L	102	75.0	125		
Anions and Nutri	ents (QCLot: 1248130)					3					
VA23C7752-002	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0888 mg/L	0.1 mg/L	88.8	75.0	125		
	(QCLot: 1244635)				0.0000 mg/2	0.1.119/2	00.0	7 0.0	120		
VA23C7783-002	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.188 mg/L	0.2 mg/L	93.8	70.0	130		
VA2301103-002	7 thonymous	Antimony, dissolved	7429-90-5 7440-36-0	E421	0.166 mg/L 0.0186 mg/L	0.2 mg/L 0.02 mg/L	93.0	70.0	130		
		Arsenic, dissolved	7440-38-2	E421	0.0180 mg/L 0.0182 mg/L	0.02 mg/L 0.02 mg/L	91.0	70.0	130		
		Barium, dissolved	7440-38-2	E421	ND mg/L	0.02 mg/L	ND	70.0	130		
		Beryllium, dissolved	7440-39-3	E421	0.0382 mg/L	0.02 mg/L 0.04 mg/L	95.4	70.0	130		
		Bismuth, dissolved	7440-69-9	E421	0.00952 mg/L		95.4	70.0	130		
		Boron, dissolved	7440-69-9	E421	0.00952 mg/L 0.092 mg/L	0.01 mg/L 0.1 mg/L	95.2	70.0	130		
		Cadmium, dissolved	7440-42-8	E421	0.092 Hg/L 0.00367 mg/L	0.1111g/L 0.004 mg/L	91.7	70.0	130		
		Calcium, dissolved	7440-70-2	E421	ND mg/L	4 mg/L	ND	70.0	130		
		Cesium, dissolved	7440-76-2	E421	0.00943 mg/L	0.01 mg/L	94.3	70.0	130		
		Chromium, dissolved	7440-47-3	E421	0.00943 mg/L 0.0378 mg/L	0.01 mg/L 0.04 mg/L	94.5	70.0	130		
		Cobalt, dissolved						70.0			
		Copper, dissolved	7440-48-4	E421	0.0183 mg/L	0.02 mg/L	91.7	70.0	130 130		
		Iron, dissolved	7440-50-8	E421	0.0179 mg/L	0.02 mg/L	89.4				
		Lead, dissolved	7439-89-6	E421	1.79 mg/L	2 mg/L	89.7	70.0	130		
		Lithium, dissolved	7439-92-1	E421	0.0188 mg/L	0.02 mg/L	94.0	70.0	130		
		Liulium, 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	1 mg/L	ND	70.0	130		

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Client : Comox Valley Regional District



Sub-Matrix: Water							Matrix Spike (MS) Report						
					Sp	ike	Recovery (%)	Recovery Limits (%)					
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier			
Dissolved Metals	(QCLot: 1244635)	- continued								1			
VA23C7783-002	Anonymous	Molybdenum, dissolved	7439-98-7	E421	0.0187 mg/L	0.02 mg/L	93.6	70.0	130				
		Nickel, dissolved	7440-02-0	E421	0.0368 mg/L	0.04 mg/L	92.1	70.0	130				
		Phosphorus, dissolved	7723-14-0	E421	9.44 mg/L	10 mg/L	94.4	70.0	130				
		Potassium, dissolved	7440-09-7	E421	3.88 mg/L	4 mg/L	97.1	70.0	130				
		Rubidium, dissolved	7440-17-7	E421	0.0186 mg/L	0.02 mg/L	93.0	70.0	130				
		Selenium, dissolved	7782-49-2	E421	0.0392 mg/L	0.04 mg/L	97.9	70.0	130				
		Silicon, dissolved	7440-21-3	E421	9.35 mg/L	10 mg/L	93.5	70.0	130				
		Silver, dissolved	7440-22-4	E421	0.00376 mg/L	0.004 mg/L	93.9	70.0	130				
		Sodium, dissolved	7440-23-5	E421	ND mg/L	2 mg/L	ND	70.0	130				
		Strontium, dissolved	7440-24-6	E421	ND mg/L	0.02 mg/L	ND	70.0	130				
		Sulfur, dissolved	7704-34-9	E421	20.5 mg/L	20 mg/L	103	70.0	130				
		Tellurium, dissolved	13494-80-9	E421	0.0373 mg/L	0.04 mg/L	93.2	70.0	130				
		Thallium, dissolved	7440-28-0	E421	0.00373 mg/L	0.004 mg/L	93.3	70.0	130				
		Thorium, dissolved	7440-29-1	E421	0.0192 mg/L	0.02 mg/L	95.9	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	0.0369 mg/L	0.04 mg/L	92.3	70.0	130				
		Tungsten, dissolved	7440-33-7	E421	0.0183 mg/L	0.02 mg/L	91.7	70.0	130				
		Uranium, dissolved	7440-61-1	E421	0.00397 mg/L	0.004 mg/L	99.2	70.0	130				
		Vanadium, dissolved	7440-62-2	E421	0.0922 mg/L	0.1 mg/L	92.2	70.0	130				
		Zinc, dissolved	7440-66-6	E421	0.392 mg/L	0.4 mg/L	98.1	70.0	130				
		Zirconium, dissolved	7440-67-7	E421	0.0391 mg/L	0.04 mg/L	97.8	70.0	130				
Dissolved Metals	(QCLot: 1250899)												
VA23C7782-001	Anonymous	Mercury, dissolved	7439-97-6	E509	0.000104 mg/L	0.0001 mg/L	104	70.0	130				



QUALITY CONTROL INTERPRETIVE REPORT

Work Order : **VA23C7786** Page : 1 of 9

Client : Comox Valley Regional District Laboratory : ALS Environmental - Vancouver

Contact : Crystal Stuart Account Manager : Thomas Chang

Address :770 Harmston Avenue Address :8081 Lougheed Highway

Burnaby, British Columbia Canada V5A 1W9

 Telephone
 : 250-898-3722
 Telephone
 : +1 604 253 4188

 Project
 : 4-2-4
 Date Samples Received
 : 17-Nov-2023 10:40

 PO
 : 23-015
 Issue Date
 : 27-Nov-2023 15:13

Sampler : CStuart

Site : CRWMC-Quarterly-GW
Quote number : VA23-COVR100-001

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

C-O-C number

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.

Courtney BC Canada V9N 0G8

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) ■ No Analysis Holding Time Outliers exist.

Outliers: Frequency of Quality Control Samples • No Quality Control Sample Frequency Outliers occur.

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Client : Comox Valley Regional District

Project : 4-2-4



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					Ev	/aluation: × =	Holding time exce	edance ; •	= Within	Holding Time
Analyte Group : Analytical Method	Method	Sampling Date	Ext	raction / Pr	reparation			Analys	is	
Container / Client Sample ID(s)			Preparation Date	Holding Rec	g Times Actual	Eval	Analysis Date	Holding Rec	7 Times Actual	Eval
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) WG-111623-CS-23	E298	16-Nov-2023	22-Nov-2023	28 days	6 days	✓	23-Nov-2023	28 days	7 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) WG-111623-CS-24	E298	16-Nov-2023	22-Nov-2023	28 days	6 days	1	23-Nov-2023	28 days	7 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE WG-111623-CS-23	E235.CI	16-Nov-2023	18-Nov-2023	28 days	2 days	✓	18-Nov-2023	28 days	2 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE WG-111623-CS-24	E235.CI	16-Nov-2023	18-Nov-2023	28 days	2 days	✓	18-Nov-2023	28 days	2 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE WG-111623-CS-23	E235.F	16-Nov-2023	18-Nov-2023	28 days	2 days	✓	18-Nov-2023	28 days	2 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE WG-111623-CS-24	E235.F	16-Nov-2023	18-Nov-2023	28 days	2 days	1	18-Nov-2023	28 days	2 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE WG-111623-CS-23	E235.NO3-L	16-Nov-2023	18-Nov-2023	3 days	2 days	✓	18-Nov-2023	3 days	2 days	✓

Page : 4 of 9 Work Order : VA23C7786

Client : Comox Valley Regional District

Project : 4-2-4



Matrix: Water Evaluation: ★ = Holding time exceedance; ✓ = Within Holding Time

Analyte Group : Analytical Method	Method	Sampling Date	Ex	traction / Pr	eparation		g	Analys	sis	
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE WG-111623-CS-24	E235.NO3-L	16-Nov-2023	18-Nov-2023	3 days	2 days	✓	18-Nov-2023	3 days	2 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE WG-111623-CS-23	E235.NO2-L	16-Nov-2023	18-Nov-2023	3 days	2 days	✓	18-Nov-2023	3 days	2 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE WG-111623-CS-24	E235.NO2-L	16-Nov-2023	18-Nov-2023	3 days	2 days	✓	18-Nov-2023	3 days	2 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE WG-111623-CS-23	E235.SO4	16-Nov-2023	18-Nov-2023	28 days	2 days	✓	18-Nov-2023	28 days	2 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE WG-111623-CS-24	E235.SO4	16-Nov-2023	18-Nov-2023	28 days	2 days	√	18-Nov-2023	28 days	2 days	√
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved) WG-111623-CS-23	E509	16-Nov-2023	23-Nov-2023	28 days	7 days	√	23-Nov-2023	28 days	0 days	√
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab preserved) WG-111623-CS-24	E509	16-Nov-2023	23-Nov-2023	28 days	7 days	1	23-Nov-2023	28 days	0 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) WG-111623-CS-23	E421	16-Nov-2023	21-Nov-2023	180 days	5 days	✓	22-Nov-2023	180 days	6 days	4
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) WG-111623-CS-24	E421	16-Nov-2023	21-Nov-2023	180 days	5 days	✓	22-Nov-2023	180 days	6 days	✓

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Client : Comox Valley Regional District

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Matrix: Water Evaluation: ★ = Holding time exceedance; ✓ = Within Holding Time

Analyte Group : Analytical Method	Method	Sampling Date	Ext	raction / Pr	reparation			Analysis			
Container / Client Sample ID(s)			Preparation	Holdin	g Times	Eval	Analysis Date	Holding	g Times	Eval	
			Date	Rec	Actual			Rec	Actual		
Physical Tests : Alkalinity Species by Titration											
HDPE						,					
WG-111623-CS-23	E290	16-Nov-2023	18-Nov-2023	14	2 days	✓	19-Nov-2023	14 days	3 days	✓	
				days							
Physical Tests : Alkalinity Species by Titration											
HDPE WG-111623-CS-24	E290	16-Nov-2023	18-Nov-2023	14	2 days	√	19-Nov-2023	14 days	3 days	√	
WG-111025-05-24	LZ90	10-1404-2023	10-1404-2023	days	2 days	·	13-1407-2023	14 days	Juays	•	
Physical Tests Conductivity in Water				days							
Physical Tests : Conductivity in Water HDPE											
WG-111623-CS-23	E100	16-Nov-2023	18-Nov-2023	28	2 days	✓	19-Nov-2023	28 days	3 days	✓	
				days	,				,		
Physical Tests : Conductivity in Water											
HDPE											
WG-111623-CS-24	E100	16-Nov-2023	18-Nov-2023	28	2 days	✓	19-Nov-2023	28 days	3 days	✓	
				days							
Physical Tests : TDS by Gravimetry											
HDPE											
WG-111623-CS-23	E162	16-Nov-2023					22-Nov-2023	7 days	6 days	✓	
Physical Tests : TDS by Gravimetry											
HDPE	F400	40 Nov. 0000								,	
WG-111623-CS-24	E162	16-Nov-2023					22-Nov-2023	7 days	6 days	✓	

Legend & Qualifier Definitions

Rec. HT: ALS recommended hold time (see units).

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Client : Comox Valley Regional District

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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 Quality Control Sample Type		Evaluation		ount		Frequency (%)
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation
Laboratory Duplicates (DUP)		4,5 = 3,1			110000	=1.400000	
Alkalinity Species by Titration	E290	1243589	1	20	5.0	5.0	
Ammonia by Fluorescence	E290	1248130	1	20	5.0	5.0	√
Chloride in Water by IC	E235.Cl	1243592	1	8	12.5	5.0	_
Conductivity in Water		1243592	1	17	5.8	5.0	√
Dissolved Mercury in Water by CVAAS	E100 E509	1250899	1	20	5.0	5.0	√
Dissolved Metals in Water by CRC ICPMS	E509	1244635	1	20	5.0	5.0	√
Fluoride in Water by IC	E235.F	1243591	1	8	12.5	5.0	_
Nitrate in Water by IC (Low Level)		1243591	1	17	5.8	5.0	√
Nitrite in Water by IC (Low Level)	E235.NO3-L	1243594	1	11	9.0	5.0	1
,	E235.NO2-L			11	9.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1243596	1				✓
TDS by Gravimetry	E162	1247987	1	20	5.0	5.0	✓
Laboratory Control Samples (LCS)							
Alkalinity Species by Titration	E290	1243589	1	20	5.0	5.0	✓
Ammonia by Fluorescence	E298	1248130	1	20	5.0	5.0	✓
Chloride in Water by IC	E235.CI	1243592	1	8	12.5	5.0	✓
Conductivity in Water	E100	1243590	1	17	5.8	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1250899	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1244635	1	20	5.0	5.0	✓
Fluoride in Water by IC	E235.F	1243591	1	8	12.5	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1243594	1	17	5.8	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1243595	1	11	9.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1243596	1	11	9.0	5.0	✓
TDS by Gravimetry	E162	1247987	1	20	5.0	5.0	✓
Method Blanks (MB)							
Alkalinity Species by Titration	E290	1243589	1	20	5.0	5.0	1
Ammonia by Fluorescence	E298	1248130	1	20	5.0	5.0	1
Chloride in Water by IC	E235.CI	1243592	1	8	12.5	5.0	1
Conductivity in Water	E100	1243590	1	17	5.8	5.0	1
Dissolved Mercury in Water by CVAAS	E509	1250899	1	20	5.0	5.0	1
Dissolved Metals in Water by CRC ICPMS	E421	1244635	1	20	5.0	5.0	√
Fluoride in Water by IC	E235.F	1243591	1	8	12.5	5.0	√
Nitrate in Water by IC (Low Level)	E235.NO3-L	1243594	1	17	5.8	5.0	√
Nitrite in Water by IC (Low Level)	E235.NO2-L	1243595	1	11	9.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1243596	1	11	9.0	5.0	√
TDS by Gravimetry	E162	1247987	1	20	5.0	5.0	√

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Matrix: Water		Evaluatio	n: × = QC freque	ency outside spe	ecification; ✓ = 0	QC frequency wit	hin specification.
Quality Control Sample Type			Co	ount		Frequency (%)	
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation
Matrix Spikes (MS)							
Ammonia by Fluorescence	E298	1248130	1	20	5.0	5.0	✓
Chloride in Water by IC	E235.CI	1243592	1	8	12.5	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1250899	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1244635	1	20	5.0	5.0	✓
Fluoride in Water by IC	E235.F	1243591	1	8	12.5	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1243594	1	17	5.8	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1243595	1	11	9.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1243596	1	11	9.0	5.0	✓

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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	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
	ALS Environmental -			sample. Conductivity measurements are temperature-compensated to 25°C.
	Vancouver			
TDS by Gravimetry	E162	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,
	ALS Environmental -			with gravimetric measurement of the residue.
	Vancouver			The grant means means on one or the residue.
Chloride in Water by IC	E235.Cl	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
	ALS Environmental -			
	Vancouver			
Fluoride in Water by IC	E235.F	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
	ALS Environmental -			
	Vancouver			
Nitrite in Water by IC (Low Level)	E235.NO2-L	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and /or UV detection.
	ALS Environmental -			
	Vancouver			
Nitrate in Water by IC (Low Level)	E235.NO3-L	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
	ALS Environmental -			
	Vancouver			
Sulfate in Water by IC	E235.SO4	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
	ALS Environmental -			
	Vancouver			
Alkalinity Species by Titration	E290	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
	ALS Environmental -			alkalinity values.
	Vancouver			
Ammonia by Fluorescence	E298	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).
	ALS Environmental -			This method is approved under US EPA 40 CFR Part 136 (May 2021)
	Vancouver			

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Client : Comox Valley Regional District

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Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
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.
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.
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.
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.



Chain of Custody (COC) / Analytical **Request Form**

Affix ALS barcode label here

COG Number: 17 -

s) Environmental

Canada Toll Free: 1 800 668 9878

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Appendix G

Data Verification Memorandum



Data Verification Report

February 15, 2024

То	Diana Nowak; Kathleen Hasler	Project No.	11209296-52
Copy to	David R. Barton, Debra Tong	DVR No.	02
From	Stephanie Berton	Contact No.	1-519-884-0510
Project Name	56484-CVRD EMP	Email	Stephanie.Berton@ghd.com
Subject	Data Quality Assessment and Verification Groundwater, Surface Water and Leachate M Campbell River Site Comox Valley Regional District	Ionitoring Events	

The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

Laboratory:	ALS Global Ltd. (ALS)				
Lab Job No.:	VA23A4471, VA23A4568, VA23A4596, VA23A VA23B0953, VA23B0946, VA23B1186, VA23B VA23C7475, VA23C7786, VA23C7757, VA23	B8799, VA2	,	,	,
Date(s) Sampled:	February 27 to November 16, 2023				
Media Sampled:	Groundwater and Surface Water				
QA/QC	Criteria	Pass	Qualifiers	Fail	N/A
Holding Times	Analyte specific		\boxtimes	\boxtimes	
Temperature	<10°C at receipt		\boxtimes		
Sample Preservation	Required container/preservatives	\boxtimes			
Field Duplicate (blind)	Within 20%/<1xRL		\boxtimes		
Field Blank (blind)	Non detect		\boxtimes		
Trip Blank	Non detect	\boxtimes			
Lab QA/QC	Within standard recoveries		\boxtimes		

The following results are qualified due to holding time exceedance:

Lab Report #	Sample Date (mm/dd/yyyy)	Sample ID	Analyte	Result	Qualifier	Units
VA23A5076	03/07/2023	WG-030723-CS-49	Total dissolved solids (TDS)	120	J	mg/L
VA23A5076	03/07/2023	WG-030723-CS-50	Total dissolved solids (TDS)	68	J	mg/L
VA23A5076	03/07/2023	WG-030723-CS-51	Total dissolved solids (TDS)	78	J	mg/L
VA23A5076	03/07/2023	WG-030723-CS-52	Total dissolved solids (TDS)	89	J	mg/L
VA23A5076	03/07/2023	WG-030723-CS-53	Total dissolved solids (TDS)	87	J	mg/L

Lab Report #	Sample Date (mm/dd/yyyy)	Sample ID	Analyte	Result	Qualifier	Units
VA23A5076	03/07/2023	WG-030723-CS-54	Total dissolved solids (TDS)	72	J	mg/L
VA23A5217	03/08/2023	WG-030823-CS-55	Total dissolved solids (TDS)	269	J	mg/L
VA23A5217	03/08/2023	WG-030823-CS-56	Total dissolved solids (TDS)	289	J	mg/L
VA23A5217	03/08/2023	WG-030823-CS-57	Total dissolved solids (TDS)	535	J	mg/L
VA23A5217	03/08/2023	WG-030823-CS-58	Total dissolved solids (TDS)	122	J	mg/L
VA23A5217	03/08/2023	WG-030823-CS-59	Total dissolved solids (TDS)	357	J	mg/L
VA23A5220	03/03/2023	WS-030823-CS-11	Nitrate (as N)	10.9	J	mg/L
VA23A5220	03/03/2023	WS-030823-CS-11	Nitrite (as N)	0.0062	J	mg/L
VA23A5220	03/03/2023	WS-030823-CS-11	Nitrite/Nitrate	10.9	J	mg/L
VA23A5220	03/03/2023	WS-030823-CS-12	Nitrate (as N)	0.0512	J	mg/L
VA23A5220	03/03/2023	WS-030823-CS-12	Nitrite (as N)		R	mg/L
VA23A5220	03/03/2023	WS-030823-CS-12	Nitrite/Nitrate	0.0512	J	mg/L
VA23A5220	03/03/2023	WS-030823-CS-13	Nitrate (as N)	0.0493	J	mg/L
VA23A5220	03/03/2023	WS-030823-CS-13	Nitrite (as N)		R	mg/L
VA23A5220	03/03/2023	WS-030823-CS-13	Nitrite/Nitrate	0.0493	J	mg/L
VA23B8799	08/13/2023	WG-081323-CS-01	Nitrate (as N)	0.0686	J	mg/L
VA23B8799	08/13/2023	WG-081323-CS-01	Nitrite (as N)	0.0010	UJ	mg/L
VA23B8799	08/13/2023	WG-081323-CS-01	Nitrite/Nitrate	0.0686	J	mg/L
VA23B8799	08/13/2023	WG-081323-CS-02	Nitrate (as N)	0.187	J	mg/L
VA23B8799	08/13/2023	WG-081323-CS-02	Nitrite (as N)	0.0010	UJ	mg/L
VA23B8799	08/13/2023	WG-081323-CS-02	Nitrite/Nitrate	0.187	J	mg/L
VA23B8799	08/13/2023	WG-081323-CS-03	Nitrate (as N)	0.106	J	mg/L
VA23B8799	08/13/2023	WG-081323-CS-03	Nitrite (as N)	0.0010	UJ	mg/L
VA23B8799	08/13/2023	WG-081323-CS-03	Nitrite/Nitrate	0.106	J	mg/L
VA23B8799	08/13/2023	WG-081323-CS-04	Nitrate (as N)	0.105	J	mg/L
VA23B8799	08/13/2023	WG-081323-CS-04	Nitrite (as N)	0.0010	UJ	mg/L
VA23B8799	08/13/2023	WG-081323-CS-04	Nitrite/Nitrate	0.105	J	mg/L
VA23B8799	08/13/2023	WG-081323-CS-05	Nitrate (as N)	0.534	J	mg/L
VA23B8799	08/13/2023	WG-081323-CS-05	Nitrite (as N)	0.0010	UJ	mg/L

Lab Report #	Sample Date (mm/dd/yyyy)	Sample ID	Analyte	Result	Qualifier	Units
VA23B8799	08/13/2023	WG-081323-CS-05	Nitrite/Nitrate	0.534	J	mg/L
VA23B8799	08/13/2023	WG-081323-CS-06	Nitrate (as N)	0.269	J	mg/L
VA23B8799	08/13/2023	WG-081323-CS-06	Nitrite (as N)	0.0010	UJ	mg/L
VA23B8799	08/13/2023	WG-081323-CS-06	Nitrite/Nitrate	0.269	J	mg/L
VA23B8799	08/13/2023	WG-081323-CS-07	Nitrate (as N)	12.4	J	mg/L
VA23B8799	08/13/2023	WG-081323-CS-07	Nitrite (as N)	0.0050	UJ	mg/L
VA23B8799	08/13/2023	WG-081323-CS-07	Nitrite/Nitrate	12.4	J	mg/L
VA23B8799	08/13/2023	WG-081323-CS-08	Nitrate (as N)	4.88	J	mg/L
VA23B8799	08/13/2023	WG-081323-CS-08	Nitrite (as N)	0.0010	UJ	mg/L
VA23B8799	08/13/2023	WG-081323-CS-08	Nitrite/Nitrate	4.88	J	mg/L
VA23C7752	11/14/2023	WG-111423-CS-11	Nitrate (as N)	5.30	J	mg/L
VA23C7752	11/14/2023	WG-111423-CS-11	Nitrite (as N)	0.0050	UJ	mg/L
VA23C7752	11/14/2023	WG-111423-CS-11	Nitrite/Nitrate	5.30	J	mg/L
VA23C7752	11/14/2023	WG-111423-CS-12	Nitrate (as N)	0.218	J	mg/L
VA23C7752	11/14/2023	WG-111423-CS-12	Nitrite (as N)	0.0010	UJ	mg/L
VA23C7752	11/14/2023	WG-111423-CS-12	Nitrite/Nitrate	0.218	J	mg/L
VA23C7752	11/14/2023	WG-111423-CS-13	Nitrate (as N)	0.629	J	mg/L
VA23C7752	11/14/2023	WG-111423-CS-13	Nitrite (as N)	0.0010	UJ	mg/L
VA23C7752	11/14/2023	WG-111423-CS-13	Nitrite/Nitrate	0.629	J	mg/L
\/\0007750	44/44/0000	WO 444400 00 44	Al't / Al\	0.450		/1
VA23C7752	11/14/2023	WG-111423-CS-14	Nitrate (as N)	0.158	J	mg/L
VA23C7752	11/14/2023	WG-111423-CS-14	Nitrite (as N)	0.0010	UJ	mg/L
VA23C7752	11/14/2023	WG-111423-CS-14	Nitrite/Nitrate	0.158	J	mg/L
\/\0007750	11/11/0000	WC 111422 CC 15	Nitroto (ac NI)	0.450		m a/l
VA23C7752	11/14/2023	WG-111423-CS-15	Nitrate (as N)	0.159	J	mg/L
VA23C7752	11/14/2023	WG-111423-CS-15	Nitrite (as N)	0.0010	UJ	mg/L
VA23C7752	11/14/2023	WG-111423-CS-15	Nitrite/Nitrate	0.0010	UJ	mg/L

The following results are qualified based on dissolved results that are significantly higher than the total results:

Lab Report #	Sample Date (mm/dd/yyyy)	Sample ID	Analyte	Result	Qualifier	Units
VA23A4596	02/28/2023	WS-022823-CS-10	Aluminum	0.0617	J	mg/L
VA23A4596	02/28/2023	WS-022823-CS-10	Aluminum (dissolved)	0.105	J	mg/L

Lab Report #	Sample Date (mm/dd/yyyy)	Sample ID	Analyte	Result	Qualifier	Units
VA23A4596	02/28/2023	WS-022823-CS-10	Chromium	0.00050	UJ	mg/L
VA23A4596	02/28/2023	WS-022823-CS-10	Chromium (dissolved)	0.00612	J	mg/L
VA23A4596	02/28/2023	WS-022823-CS-10	Nickel	0.00050	UJ	mg/L
VA23A4596	02/28/2023	WS-022823-CS-10	Nickel (dissolved)	0.00256	J	mg/L

The following results are qualified due to field duplicate variability:

Lab Report #	Sample Date (mm/dd/yyyy)	Sample ID	Analyte	Result	Qualifier	Units
VA23A5220	03/03/2023	WS-030823-CS-12	Total dissolved solids (TDS)	17	J	mg/L
VA23A5220	03/03/2023	WS-030823-CS-13	Total dissolved solids (TDS)	31	J	mg/L

The following results are qualified based on field blank detections:

Lab Report #	Sample Date (mm/dd/yyyy)	Sample ID	Analyte	Result	Qualifier	Units
VA23A5217	03/08/2023	WG-030823-CS-57	Ammonia-N	0.0122	U	mg/L
VA23A5217	03/08/2023	WG-030823-CS-58	Ammonia-N	0.0222	U	mg/L

The following results are qualified due to high temperature (>10°C) upon arrival at the laboratory:

Lab Report #	Sample Date (mm/dd/yyyy)	Sample ID	Analyte	Result	Qualifier	Units
VA23B8799	08/13/2023	WG-081323-CS-01	1,1,1,2-Tetrachloroethane	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-01	1,1,1-Trichloroethane	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-01	1,1,2,2-Tetrachloroethane	0.20	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-01	1,1,2-Trichloroethane	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-01	1,1-Dichloroethane	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-01	1,1-Dichloroethene	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-01	1,2-Dichlorobenzene	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-01	1,2-Dichloroethane	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-01	1,2-Dichloropropane	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-01	1,3-Dichlorobenzene	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-01	1,4-Dichlorobenzene	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-01	Alkalinity, bicarbonate	35.8	J	mg/L
VA23B8799	08/13/2023	WG-081323-CS-01	Alkalinity, carbonate	1.0	UJ	mg/L
VA23B8799	08/13/2023	WG-081323-CS-01	Alkalinity, hydroxide	1.0	UJ	mg/L
VA23B8799	08/13/2023	WG-081323-CS-01	Alkalinity, total (as CaCO3)	35.8	J	mg/L
VA23B8799	08/13/2023	WG-081323-CS-01	Ammonia-N	0.0050	UJ	mg/L
VA23B8799	08/13/2023	WG-081323-CS-01	Benzene	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-01	Bromodichloromethane	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-01	Bromoform	0.50	UJ	μg/L

Lab Report #	Sample Date (mm/dd/yyyy)	Sample ID	Analyte	Result	Qualifier	Units
VA23B8799	08/13/2023	WG-081323-CS-01	Carbon tetrachloride	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-01	Chloride (dissolved)	0.88	J	mg/L
VA23B8799	08/13/2023	WG-081323-CS-01	Chlorobenzene	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-01	Chloroethane	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-01	Chloroform (Trichloromethane)	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-01	Chloromethane (Methyl chloride)	5.0	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-01	cis-1,2-Dichloroethene	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-01	cis-1,3-Dichloropropene	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-01	cis-1,3-Dichloropropene/ trans-1,3-Dichloropropene	0.75	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-01	Conductivity	75.9	J	μS/cm
VA23B8799	08/13/2023	WG-081323-CS-01	Dibromochloromethane	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-01	Ethylbenzene	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-01	Fluoride	0.020	UJ	mg/L
VA23B8799	08/13/2023	WG-081323-CS-01	Hardness	34.0	J	mg/L
VA23B8799	08/13/2023	WG-081323-CS-01	m&p-Xylenes	0.40	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-01	Methyl tert butyl ether (MTBE)	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-01	Methylene chloride	1.0	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-01	Nitrate (as N)	0.0686	J	mg/L
VA23B8799	08/13/2023	WG-081323-CS-01	Nitrite (as N)	0.0010	UJ	mg/L
VA23B8799	08/13/2023	WG-081323-CS-01	Nitrite/Nitrate	0.0686	J	mg/L
VA23B8799	08/13/2023	WG-081323-CS-01	o-Xylene	0.30	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-01	Styrene	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-01	Sulfate (dissolved)	2.12	J	mg/L
VA23B8799	08/13/2023	WG-081323-CS-01	Tetrachloroethene	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-01	Toluene	0.40	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-01	Total dissolved solids (TDS)	57	J	mg/L
VA23B8799	08/13/2023	WG-081323-CS-01	Total Petroleum Hydrocarbons VPH (C6-C10)LessBTEX	100	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-01	Total Petroleum Hydrocarbons VH (C6-C10)	100	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-01	trans-1,2-Dichloroethene	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-01	trans-1,3-Dichloropropene	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-01	Trichloroethene	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-01	Trichlorofluoromethane (CFC-11)	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-01	Vinyl chloride	0.40	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-01	Xylenes (total)	0.50	UJ	μg/L

Lab Report #	Sample Date (mm/dd/yyyy)	Sample ID	Analyte	Result	Qualifier	Units
VA23B8799	08/13/2023	WG-081323-CS-02	Alkalinity, bicarbonate	106	J	mg/L
VA23B8799	08/13/2023	WG-081323-CS-02	Alkalinity, carbonate	1.0	UJ	mg/L
VA23B8799	08/13/2023	WG-081323-CS-02	Alkalinity, hydroxide	1.0	UJ	mg/L
VA23B8799	08/13/2023	WG-081323-CS-02	Alkalinity, total (as CaCO3)	106	J	mg/L
VA23B8799	08/13/2023	WG-081323-CS-02	Ammonia-N	0.0050	UJ	mg/L
VA23B8799	08/13/2023	WG-081323-CS-02	Chloride (dissolved)	2.48	J	mg/L
VA23B8799	08/13/2023	WG-081323-CS-02	Conductivity	207	J	μS/cm
VA23B8799	08/13/2023	WG-081323-CS-02	Fluoride	0.020	UJ	mg/L
VA23B8799	08/13/2023	WG-081323-CS-02	Hardness	99.2	J	mg/L
VA23B8799	08/13/2023	WG-081323-CS-02	Nitrate (as N)	0.187	J	mg/L
VA23B8799	08/13/2023	WG-081323-CS-02	Nitrite (as N)	0.0010	UJ	mg/L
VA23B8799	08/13/2023	WG-081323-CS-02	Nitrite/Nitrate	0.187	J	mg/L
VA23B8799	08/13/2023	WG-081323-CS-02	Sulfate (dissolved)	2.44	J	mg/L
VA23B8799	08/13/2023	WG-081323-CS-02	Total dissolved solids (TDS)	130	J	mg/L
VA23B8799	08/13/2023	WG-081323-CS-03	1,1,1,2-Tetrachloroethane	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-03	1,1,1-Trichloroethane	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-03	1,1,2,2-Tetrachloroethane	0.20	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-03	1,1,2-Trichloroethane	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-03	1,1-Dichloroethane	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-03	1,1-Dichloroethene	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-03	1,2-Dichlorobenzene	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-03	1,2-Dichloroethane	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-03	1,2-Dichloropropane	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-03	1,3-Dichlorobenzene	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-03	1,4-Dichlorobenzene	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-03	Alkalinity, bicarbonate	53.9	J	mg/L
VA23B8799	08/13/2023	WG-081323-CS-03	Alkalinity, carbonate	1.0	UJ	mg/L
VA23B8799	08/13/2023	WG-081323-CS-03	Alkalinity, hydroxide	1.0	UJ	mg/L
VA23B8799	08/13/2023	WG-081323-CS-03	Alkalinity, total (as CaCO3)	53.9	J	mg/L
VA23B8799	08/13/2023	WG-081323-CS-03	Ammonia-N	0.0050	UJ	mg/L
VA23B8799	08/13/2023	WG-081323-CS-03	Benzene	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-03	Bromodichloromethane	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-03	Bromoform	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-03	Carbon tetrachloride	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-03	Chloride (dissolved)	1.94	J	mg/L
VA23B8799	08/13/2023	WG-081323-CS-03	Chlorobenzene	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-03	Chloroethane	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-03	Chloroform (Trichloromethane)	0.50	UJ	μg/L

Lab Report #	Sample Date (mm/dd/yyyy)	Sample ID	Analyte	Result	Qualifier	Units
VA23B8799	08/13/2023	WG-081323-CS-03	Chloromethane (Methyl chloride)	5.0	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-03	cis-1,2-Dichloroethene	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-03	cis-1,3-Dichloropropene	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-03	cis-1,3-Dichloropropene/ trans-1,3-Dichloropropene	0.75	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-03	Conductivity	114	J	μS/cm
VA23B8799	08/13/2023	WG-081323-CS-03	Dibromochloromethane	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-03	Ethylbenzene	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-03	Fluoride	0.020	UJ	mg/L
VA23B8799	08/13/2023	WG-081323-CS-03	Hardness	50.6	J	mg/L
VA23B8799	08/13/2023	WG-081323-CS-03	m&p-Xylenes	0.40	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-03	Methyl tert butyl ether (MTBE)	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-03	Methylene chloride	50.0	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-03	Nitrate (as N)	0.106	J	mg/L
VA23B8799	08/13/2023	WG-081323-CS-03	Nitrite (as N)	0.0010	UJ	mg/L
VA23B8799	08/13/2023	WG-081323-CS-03	Nitrite/Nitrate	0.106	J	mg/L
VA23B8799	08/13/2023	WG-081323-CS-03	o-Xylene	0.30	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-03	Styrene	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-03	Sulfate (dissolved)	2.29	J	mg/L
VA23B8799	08/13/2023	WG-081323-CS-03	Tetrachloroethene	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-03	Toluene	0.40	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-03	Total dissolved solids (TDS)	80	J	mg/L
VA23B8799	08/13/2023	WG-081323-CS-03	Total Petroleum Hydrocarbons VPH (C6-C10)LessBTEX	100	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-03	Total Petroleum Hydrocarbons VH (C6-C10)	100	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-03	trans-1,2-Dichloroethene	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-03	trans-1,3-Dichloropropene	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-03	Trichloroethene	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-03	Trichlorofluoromethane (CFC-11)	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-03	Vinyl chloride	0.40	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-03	Xylenes (total)	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-04	1,1,1,2-Tetrachloroethane	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-04	1,1,1-Trichloroethane	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-04	1,1,2,2-Tetrachloroethane	0.20	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-04	1,1,2-Trichloroethane	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-04	1,1-Dichloroethane	0.50	UJ	μg/L

Lab Report #	Sample Date (mm/dd/yyyy)	Sample ID	Analyte	Result	Qualifier	Units
VA23B8799	08/13/2023	WG-081323-CS-04	1,1-Dichloroethene	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-04	1,2-Dichlorobenzene	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-04	1,2-Dichloroethane	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-04	1,2-Dichloropropane	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-04	1,3-Dichlorobenzene	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-04	1,4-Dichlorobenzene	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-04	Alkalinity, bicarbonate	54.0	J	mg/L
VA23B8799	08/13/2023	WG-081323-CS-04	Alkalinity, carbonate	1.0	UJ	mg/L
VA23B8799	08/13/2023	WG-081323-CS-04	Alkalinity, hydroxide	1.0	UJ	mg/L
VA23B8799	08/13/2023	WG-081323-CS-04	Alkalinity, total (as CaCO3)	54.0	J	mg/L
VA23B8799	08/13/2023	WG-081323-CS-04	Ammonia-N	0.0050	UJ	mg/L
VA23B8799	08/13/2023	WG-081323-CS-04	Benzene	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-04	Bromodichloromethane	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-04	Bromoform	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-04	Carbon tetrachloride	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-04	Chloride (dissolved)	1.94	J	mg/L
VA23B8799	08/13/2023	WG-081323-CS-04	Chlorobenzene	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-04	Chloroethane	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-04	Chloroform (Trichloromethane)	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-04	Chloromethane (Methyl chloride)	5.0	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-04	cis-1,2-Dichloroethene	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-04	cis-1,3-Dichloropropene	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-04	cis-1,3-Dichloropropene/ trans-1,3-Dichloropropene	0.75	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-04	Conductivity	114	J	μS/cm
VA23B8799	08/13/2023	WG-081323-CS-04	Dibromochloromethane	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-04	Ethylbenzene	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-04	Fluoride	0.020	UJ	mg/L
VA23B8799	08/13/2023	WG-081323-CS-04	Hardness	49.8	J	mg/L
VA23B8799	08/13/2023	WG-081323-CS-04	m&p-Xylenes	0.40	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-04	Methyl tert butyl ether (MTBE)	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-04	Methylene chloride	50.0	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-04	Nitrate (as N)	0.105	J	mg/L
VA23B8799	08/13/2023	WG-081323-CS-04	Nitrite (as N)	0.0010	UJ	mg/L
VA23B8799	08/13/2023	WG-081323-CS-04	Nitrite/Nitrate	0.105	J	mg/L
VA23B8799	08/13/2023	WG-081323-CS-04	o-Xylene	0.30	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-04	Styrene	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-04	Sulfate (dissolved)	2.29	J	mg/L

Lab Report #	Sample Date (mm/dd/yyyy)	Sample ID	Analyte	Result	Qualifier	Units
VA23B8799 (08/13/2023	WG-081323-CS-04	Tetrachloroethene	0.50	UJ	μg/L
VA23B8799 (08/13/2023	WG-081323-CS-04	Toluene	0.40	UJ	μg/L
VA23B8799 (08/13/2023	WG-081323-CS-04	Total dissolved solids (TDS)	85	J	mg/L
VA23B8799 (08/13/2023	WG-081323-CS-04	Total Petroleum Hydrocarbons VPH (C6-C10)LessBTEX	100	UJ	μg/L
VA23B8799 (08/13/2023	WG-081323-CS-04	Total Petroleum Hydrocarbons VH (C6-C10)	100	UJ	μg/L
VA23B8799 (08/13/2023	WG-081323-CS-04	trans-1,2-Dichloroethene	0.50	UJ	μg/L
VA23B8799 (08/13/2023	WG-081323-CS-04	trans-1,3-Dichloropropene	0.50	UJ	μg/L
VA23B8799 (08/13/2023	WG-081323-CS-04	Trichloroethene	0.50	UJ	μg/L
VA23B8799 (08/13/2023	WG-081323-CS-04	Trichlorofluoromethane (CFC-11)	0.50	UJ	μg/L
VA23B8799 (08/13/2023	WG-081323-CS-04	Vinyl chloride	0.40	UJ	μg/L
VA23B8799 (08/13/2023	WG-081323-CS-04	Xylenes (total)	0.50	UJ	μg/L
VA23B8799 (08/13/2023	WG-081323-CS-05	1,1,1,2-Tetrachloroethane	0.50	UJ	ua/l
	08/13/2023	WG-081323-CS-05	1,1,1-Trichloroethane		UJ	μg/L
	08/13/2023	WG-081323-CS-05 WG-081323-CS-05		0.50	UJ	μg/L
	08/13/2023	WG-081323-CS-05 WG-081323-CS-05	1,1,2,2-Tetrachloroethane	0.20	UJ	μg/L
	08/13/2023	WG-081323-CS-05 WG-081323-CS-05	1,1,2-Trichloroethane 1,1-Dichloroethane	0.50	UJ	μg/L
	08/13/2023	WG-081323-CS-05	1,1-Dichloroethene	0.50	UJ	μg/L
	08/13/2023	WG-081323-CS-05	1,2-Dichlorobenzene	0.50	UJ	μg/L μg/L
	08/13/2023	WG-081323-CS-05	1,2-Dichloroethane	0.50	UJ	
	08/13/2023	WG-081323-CS-05	1,2-Dichloropropane	0.50	UJ	μg/L μg/L
	08/13/2023	WG-081323-CS-05	1,3-Dichlorobenzene	0.50	UJ	μg/L
	08/13/2023	WG-081323-CS-05	1.4-Dichlorobenzene	0.50	UJ	μg/L
	08/13/2023	WG-081323-CS-05	Alkalinity, bicarbonate	57.4	J	mg/L
	08/13/2023	WG-081323-CS-05	Alkalinity, carbonate	1.0	UJ	mg/L
	08/13/2023	WG-081323-CS-05	Alkalinity, hydroxide	1.0	UJ	mg/L
	08/13/2023	WG-081323-CS-05	Alkalinity, total (as CaCO3)	57.4	J	mg/L
	08/13/2023	WG-081323-CS-05	Ammonia-N	0.0050	UJ	mg/L
	08/13/2023	WG-081323-CS-05	Benzene	0.50	UJ	μg/L
	08/13/2023	WG-081323-CS-05	Bromodichloromethane	0.50	UJ	μg/L
	08/13/2023	WG-081323-CS-05	Bromoform	0.50	UJ	μg/L
	08/13/2023	WG-081323-CS-05	Carbon tetrachloride	0.50	UJ	μg/L
	08/13/2023	WG-081323-CS-05	Chloride (dissolved)	3.01	J	mg/L
	08/13/2023	WG-081323-CS-05	Chlorobenzene	0.50	UJ	μg/L
	08/13/2023	WG-081323-CS-05	Chloroethane	0.50	UJ	μg/L
		WG-081323-CS-05	Chloroform (Trichloromethane)	0.50	UJ	μg/L

Lab Report #	Sample Date (mm/dd/yyyy)	Sample ID	Analyte	Result	Qualifier	Units
VA23B8799	08/13/2023	WG-081323-CS-05	Chloromethane (Methyl chloride)	5.0	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-05	cis-1,2-Dichloroethene	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-05	cis-1,3-Dichloropropene	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-05	cis-1,3-Dichloropropene/ trans-1,3-Dichloropropene	0.75	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-05	Conductivity	131	J	μS/cm
VA23B8799	08/13/2023	WG-081323-CS-05	Dibromochloromethane	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-05	Ethylbenzene	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-05	Fluoride	0.020	UJ	mg/L
VA23B8799	08/13/2023	WG-081323-CS-05	Hardness	54.8	J	mg/L
VA23B8799	08/13/2023	WG-081323-CS-05	m&p-Xylenes	0.40	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-05	Methyl tert butyl ether (MTBE)	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-05	Methylene chloride	1.0	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-05	Nitrate (as N)	0.534	J	mg/L
VA23B8799	08/13/2023	WG-081323-CS-05	Nitrite (as N)	0.0010	UJ	mg/L
VA23B8799	08/13/2023	WG-081323-CS-05	Nitrite/Nitrate	0.534	J	mg/L
VA23B8799	08/13/2023	WG-081323-CS-05	o-Xylene	0.30	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-05	Styrene	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-05	Sulfate (dissolved)	4.34	J	mg/L
VA23B8799	08/13/2023	WG-081323-CS-05	Tetrachloroethene	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-05	Toluene	0.40	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-05	Total dissolved solids (TDS)	90	J	mg/L
VA23B8799	08/13/2023	WG-081323-CS-05	Total Petroleum Hydrocarbons VPH (C6-C10)LessBTEX	100	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-05	Total Petroleum Hydrocarbons VH (C6-C10)	100	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-05	trans-1,2-Dichloroethene	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-05	trans-1,3-Dichloropropene	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-05	Trichloroethene	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-05	Trichlorofluoromethane (CFC-11)	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-05	Vinyl chloride	0.40	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-05	Xylenes (total)	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-06	1,1,1,2-Tetrachloroethane	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-06	1,1,1-Trichloroethane	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-06	1,1,2,2-Tetrachloroethane	0.20	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-06	1,1,2-Trichloroethane	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-06	1,1-Dichloroethane	0.50	UJ	μg/L

Lab Report #	Sample Date (mm/dd/yyyy)	Sample ID	Analyte	Result	Qualifier	Units
VA23B8799	08/13/2023	WG-081323-CS-06	1,1-Dichloroethene	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-06	1,2-Dichlorobenzene	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-06	1,2-Dichloroethane	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-06	1,2-Dichloropropane	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-06	1,3-Dichlorobenzene	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-06	1,4-Dichlorobenzene	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-06	Alkalinity, bicarbonate	77.9	J	mg/L
VA23B8799	08/13/2023	WG-081323-CS-06	Alkalinity, carbonate	1.0	UJ	mg/L
VA23B8799	08/13/2023	WG-081323-CS-06	Alkalinity, hydroxide	1.0	UJ	mg/L
VA23B8799	08/13/2023	WG-081323-CS-06	Alkalinity, total (as CaCO3)	77.9	J	mg/L
VA23B8799	08/13/2023	WG-081323-CS-06	Ammonia-N	0.0050	UJ	mg/L
VA23B8799	08/13/2023	WG-081323-CS-06	Benzene	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-06	Bromodichloromethane	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-06	Bromoform	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-06	Carbon tetrachloride	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-06	Chloride (dissolved)	4.47	J	mg/L
VA23B8799	08/13/2023	WG-081323-CS-06	Chlorobenzene	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-06	Chloroethane	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-06	Chloroform (Trichloromethane)	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-06	Chloromethane (Methyl chloride)	5.0	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-06	cis-1,2-Dichloroethene	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-06	cis-1,3-Dichloropropene	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-06	cis-1,3-Dichloropropene/ trans-1,3-Dichloropropene	0.75	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-06	Conductivity	167	J	μS/cm
VA23B8799	08/13/2023	WG-081323-CS-06	Dibromochloromethane	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-06	Ethylbenzene	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-06	Fluoride	0.020	UJ	mg/L
VA23B8799	08/13/2023	WG-081323-CS-06	Hardness	82.4	J	mg/L
VA23B8799	08/13/2023	WG-081323-CS-06	m&p-Xylenes	0.40	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-06	Methyl tert butyl ether (MTBE)	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-06	Methylene chloride	1.0	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-06	Nitrate (as N)	0.269	J	mg/L
VA23B8799	08/13/2023	WG-081323-CS-06	Nitrite (as N)	0.0010	UJ	mg/L
VA23B8799	08/13/2023	WG-081323-CS-06	Nitrite/Nitrate	0.269	J	mg/L
VA23B8799	08/13/2023	WG-081323-CS-06	o-Xylene	0.30	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-06	Styrene	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-06	Sulfate (dissolved)	2.62	J	mg/L

Lab Report #	Sample Date (mm/dd/yyyy)	Sample ID	Analyte	Result	Qualifier	Units
VA23B8799	08/13/2023	WG-081323-CS-06	Tetrachloroethene	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-06	Toluene	0.40	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-06	Total dissolved solids (TDS)	106	J	mg/L
VA23B8799	08/13/2023	WG-081323-CS-06	Total Petroleum Hydrocarbons VPH (C6-C10)LessBTEX	100	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-06	Total Petroleum Hydrocarbons VH (C6-C10)	100	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-06	trans-1,2-Dichloroethene	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-06	trans-1,3-Dichloropropene	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-06	Trichloroethene	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-06	Trichlorofluoromethane (CFC-11)	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-06	Vinyl chloride	0.40	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-06	Xylenes (total)	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-07	1,1,1,2-Tetrachloroethane	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-07	1,1,1-Trichloroethane	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-07	1,1,2,2-Tetrachloroethane	0.20	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-07	1,1,2-Trichloroethane	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-07	1,1-Dichloroethane	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-07	1,1-Dichloroethene	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-07	1,2-Dichlorobenzene	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-07	1,2-Dichloroethane	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-07	1,2-Dichloropropane	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-07	1,3-Dichlorobenzene	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-07	1,4-Dichlorobenzene	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-07	Alkalinity, bicarbonate	313	J	mg/L
VA23B8799	08/13/2023	WG-081323-CS-07	Alkalinity, carbonate	1.0	UJ	mg/L
VA23B8799	08/13/2023	WG-081323-CS-07	Alkalinity, hydroxide	1.0	UJ	mg/L
VA23B8799	08/13/2023	WG-081323-CS-07	Alkalinity, total (as CaCO3)	313	J	mg/L
VA23B8799	08/13/2023	WG-081323-CS-07	Ammonia-N	0.0110	J	mg/L
VA23B8799	08/13/2023	WG-081323-CS-07	Benzene	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-07	Bromodichloromethane	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-07	Bromoform	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-07	Carbon tetrachloride	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-07	Chloride (dissolved)	61.9	J	mg/L
VA23B8799	08/13/2023	WG-081323-CS-07	Chlorobenzene	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-07	Chloroethane	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-07	Chloroform (Trichloromethane)	0.50	UJ	μg/L

Lab Report #	Sample Date (mm/dd/yyyy)	Sample ID	Analyte	Result	Qualifier	Units
VA23B8799	08/13/2023	WG-081323-CS-07	Chloromethane (Methyl chloride)	5.0	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-07	cis-1,2-Dichloroethene	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-07	cis-1,3-Dichloropropene	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-07	cis-1,3-Dichloropropene/ trans-1,3-Dichloropropene	0.75	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-07	Conductivity	862	J	μS/cm
VA23B8799	08/13/2023	WG-081323-CS-07	Dibromochloromethane	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-07	Ethylbenzene	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-07	Fluoride	0.100	UJ	mg/L
VA23B8799	08/13/2023	WG-081323-CS-07	Hardness	371	J	mg/L
VA23B8799	08/13/2023	WG-081323-CS-07	m&p-Xylenes	0.40	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-07	Methyl tert butyl ether (MTBE)	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-07	Methylene chloride	1.0	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-07	Nitrate (as N)	12.4	J	mg/L
VA23B8799	08/13/2023	WG-081323-CS-07	Nitrite (as N)	0.0050	UJ	mg/L
VA23B8799	08/13/2023	WG-081323-CS-07	Nitrite/Nitrate	12.4	J	mg/L
VA23B8799	08/13/2023	WG-081323-CS-07	o-Xylene	0.30	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-07	Styrene	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-07	Sulfate (dissolved)	10.1	J	mg/L
VA23B8799	08/13/2023	WG-081323-CS-07	Tetrachloroethene	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-07	Toluene	0.40	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-07	Total dissolved solids (TDS)	568	J	mg/L
VA23B8799	08/13/2023	WG-081323-CS-07	Total Petroleum Hydrocarbons VPH (C6-C10)LessBTEX	100	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-07	Total Petroleum Hydrocarbons VH (C6-C10)	100	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-07	trans-1,2-Dichloroethene	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-07	trans-1,3-Dichloropropene	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-07	Trichloroethene	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-07	Trichlorofluoromethane (CFC-11)	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-07	Vinyl chloride	0.40	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-07	Xylenes (total)	0.50	UJ	μg/L
VA23B8799	08/13/2023	WG-081323-CS-08	Alkalinity, bicarbonate	317	J	mg/L
VA23B8799	08/13/2023	WG-081323-CS-08	Alkalinity, carbonate	1.0	UJ	mg/L
VA23B8799	08/13/2023	WG-081323-CS-08	Alkalinity, hydroxide	1.0	UJ	mg/L
VA23B8799	08/13/2023	WG-081323-CS-08	Alkalinity, total (as CaCO3)	317	J	mg/L
VA23B8799	08/13/2023	WG-081323-CS-08	Ammonia-N	0.0050	UJ	mg/L

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VA23B8799	08/13/2023	WG-081323-CS-08	Chloride (dissolved)	10.2	J	mg/L
VA23B8799	08/13/2023	WG-081323-CS-08	Conductivity	640	J	μS/cm
VA23B8799	08/13/2023	WG-081323-CS-08	Fluoride	0.020	UJ	mg/L
VA23B8799	08/13/2023	WG-081323-CS-08	Hardness	316	J	mg/L
VA23B8799	08/13/2023	WG-081323-CS-08	Nitrate (as N)	4.88	J	mg/L
VA23B8799	08/13/2023	WG-081323-CS-08	Nitrite (as N)	0.0010	UJ	mg/L
VA23B8799	08/13/2023	WG-081323-CS-08	Nitrite/Nitrate	4.88	J	mg/L
VA23B8799	08/13/2023	WG-081323-CS-08	Sulfate (dissolved)	13.6	J	mg/L
VA23B8799	08/13/2023	WG-081323-CS-08	Total dissolved solids (TDS)	391	J	mg/L
VA23B9056	08/14/2023	WG-081423-C5-09	Alkalinity, bicarbonate	192	J	mg/L
VA23B9056	08/14/2023	WG-081423-C5-09	Alkalinity, carbonate	1.0	UJ	mg/L
VA23B9056	08/14/2023	WG-081423-C5-09	Alkalinity, hydroxide	1.0	UJ	mg/L
VA23B9056	08/14/2023	WG-081423-C5-09	Alkalinity, total (as CaCO3)	192	J	mg/L
VA23B9056	08/14/2023	WG-081423-C5-09	Ammonia-N	0.0050	UJ	mg/L
VA23B9056	08/14/2023	WG-081423-C5-09	Chloride (dissolved)	15.1	J	mg/L
VA23B9056	08/14/2023	WG-081423-C5-09	Conductivity	393	J	μS/cm
VA23B9056	08/14/2023	WG-081423-C5-09	Fluoride	0.020	UJ	mg/L
VA23B9056	08/14/2023	WG-081423-C5-09	Hardness	223	J	mg/L
VA23B9056	08/14/2023	WG-081423-C5-09	Nitrate (as N)	1.14	J	mg/L
VA23B9056	08/14/2023	WG-081423-C5-09	Nitrite (as N)	0.0010	UJ	mg/L
VA23B9056	08/14/2023	WG-081423-C5-09	Nitrite/Nitrate	1.14	J	mg/L
VA23B9056	08/14/2023	WG-081423-C5-09	Sulfate (dissolved)	6.15	J	mg/L
VA23B9056	08/14/2023	WG-081423-C5-09	Total dissolved solids (TDS)	279	J	mg/L
VA23B9056	08/14/2023	WG-081423-C5-10	1,1,1,2-Tetrachloroethane	0.50	UJ	μg/L
VA23B9056	08/14/2023	WG-081423-C5-10	1,1,1-Trichloroethane	0.50	UJ	μg/L
VA23B9056	08/14/2023	WG-081423-C5-10	1,1,2,2-Tetrachloroethane	0.20	UJ	μg/L
VA23B9056	08/14/2023	WG-081423-C5-10	1,1,2-Trichloroethane	0.50	UJ	μg/L
VA23B9056	08/14/2023	WG-081423-C5-10	1,1-Dichloroethane	0.50	UJ	μg/L
VA23B9056	08/14/2023	WG-081423-C5-10	1,1-Dichloroethene	0.50	UJ	μg/L
VA23B9056	08/14/2023	WG-081423-C5-10	1,2-Dichlorobenzene	0.50	UJ	μg/L
VA23B9056	08/14/2023	WG-081423-C5-10	1,2-Dichloroethane	0.50	UJ	μg/L
VA23B9056	08/14/2023	WG-081423-C5-10	1,2-Dichloropropane	0.50	UJ	μg/L
VA23B9056	08/14/2023	WG-081423-C5-10	1,3-Dichlorobenzene	0.50	UJ	μg/L
VA23B9056	08/14/2023	WG-081423-C5-10	1,4-Dichlorobenzene	0.50	UJ	μg/L
VA23B9056	08/14/2023	WG-081423-C5-10	Alkalinity, bicarbonate	162	J	mg/L
VA23B9056	08/14/2023	WG-081423-C5-10	Alkalinity, carbonate	1.0	UJ	mg/L

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VA23B9056	08/14/2023	WG-081423-C5-10	Alkalinity, hydroxide	1.0	UJ	mg/L
VA23B9056	08/14/2023	WG-081423-C5-10	Alkalinity, total (as CaCO3)	162	J	mg/L
VA23B9056	08/14/2023	WG-081423-C5-10	Ammonia-N	0.0050	UJ	mg/L
VA23B9056	08/14/2023	WG-081423-C5-10	Benzene	0.50	UJ	μg/L
VA23B9056	08/14/2023	WG-081423-C5-10	Bromodichloromethane	0.50	UJ	μg/L
VA23B9056	08/14/2023	WG-081423-C5-10	Bromoform	0.50	UJ	μg/L
VA23B9056	08/14/2023	WG-081423-C5-10	Carbon tetrachloride	0.50	UJ	μg/L
VA23B9056	08/14/2023	WG-081423-C5-10	Chloride (dissolved)	131	J	mg/L
VA23B9056	08/14/2023	WG-081423-C5-10	Chlorobenzene	0.50	UJ	μg/L
VA23B9056	08/14/2023	WG-081423-C5-10	Chloroethane	0.50	UJ	μg/L
VA23B9056	08/14/2023	WG-081423-C5-10	Chloroform (Trichloromethane)	0.50	UJ	μg/L
VA23B9056	08/14/2023	WG-081423-C5-10	Chloromethane (Methyl chloride)	5.0	UJ	μg/L
VA23B9056	08/14/2023	WG-081423-C5-10	cis-1,2-Dichloroethene	0.50	UJ	μg/L
VA23B9056	08/14/2023	WG-081423-C5-10	cis-1,3-Dichloropropene	0.50	UJ	μg/L
VA23B9056	08/14/2023	WG-081423-C5-10	cis-1,3-Dichloropropene/ trans-1,3-Dichloropropene	0.75	UJ	μg/L
VA23B9056	08/14/2023	WG-081423-C5-10	Conductivity	964	J	μS/cm
VA23B9056	08/14/2023	WG-081423-C5-10	Dibromochloromethane	0.50	UJ	μg/L
VA23B9056	08/14/2023	WG-081423-C5-10	Ethylbenzene	0.50	UJ	μg/L
VA23B9056	08/14/2023	WG-081423-C5-10	Fluoride	0.100	UJ	mg/L
VA23B9056	08/14/2023	WG-081423-C5-10	Hardness	361	J	mg/L
VA23B9056	08/14/2023	WG-081423-C5-10	m&p-Xylenes	0.40	UJ	μg/L
VA23B9056	08/14/2023	WG-081423-C5-10	Methyl tert butyl ether (MTBE)	0.50	UJ	μg/L
VA23B9056	08/14/2023	WG-081423-C5-10	Methylene chloride	1.0	UJ	μg/L
VA23B9056	08/14/2023	WG-081423-C5-10	Nitrate (as N)	26.9	J	mg/L
VA23B9056	08/14/2023	WG-081423-C5-10	Nitrite (as N)	0.0672	J	mg/L
VA23B9056	08/14/2023	WG-081423-C5-10	Nitrite/Nitrate	27.0	J	mg/L
VA23B9056	08/14/2023	WG-081423-C5-10	o-Xylene	0.30	UJ	μg/L
VA23B9056	08/14/2023	WG-081423-C5-10	Styrene	0.50	UJ	μg/L
VA23B9056	08/14/2023	WG-081423-C5-10	Sulfate (dissolved)	35.4	J	mg/L
VA23B9056	08/14/2023	WG-081423-C5-10	Tetrachloroethene	0.50	UJ	μg/L
VA23B9056	08/14/2023	WG-081423-C5-10	Toluene	0.40	UJ	μg/L
VA23B9056	08/14/2023	WG-081423-C5-10	Total dissolved solids (TDS)	696	J	mg/L
VA23B9056	08/14/2023	WG-081423-C5-10	Total Petroleum Hydrocarbons VPH (C6-C10)LessBTEX	100	UJ	μg/L
VA23B9056	08/14/2023	WG-081423-C5-10	Total Petroleum Hydrocarbons VH (C6-C10)	100	UJ	μg/L
VA23B9056	08/14/2023	WG-081423-C5-10	trans-1,2-Dichloroethene	0.50	UJ	μg/L

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VA23B9056	08/14/2023	WG-081423-C5-10	trans-1,3-Dichloropropene	0.50	UJ	μg/L
VA23B9056	08/14/2023	WG-081423-C5-10	Trichloroethene	0.50	UJ	μg/L
VA23B9056	08/14/2023	WG-081423-C5-10	Trichlorofluoromethane (CFC-11)	0.50	UJ	μg/L
VA23B9056	08/14/2023	WG-081423-C5-10	Vinyl chloride	0.40	UJ	μg/L
VA23B9056	08/14/2023	WG-081423-C5-10	Xylenes (total)	0.50	UJ	μg/L
VA23B9056	08/14/2023	WG-081423-C5-11	Alkalinity, bicarbonate	91.9	J	mg/L
VA23B9056	08/14/2023	WG-081423-C5-11	Alkalinity, carbonate	1.0	UJ	mg/L
VA23B9056	08/14/2023	WG-081423-C5-11	Alkalinity, hydroxide	1.0	UJ	mg/L
VA23B9056	08/14/2023	WG-081423-C5-11	Alkalinity, total (as CaCO3)	91.9	J	mg/L
VA23B9056	08/14/2023	WG-081423-C5-11	Ammonia-N	0.0050	UJ	mg/L
VA23B9056	08/14/2023	WG-081423-C5-11	Chloride (dissolved)	2.58	J	mg/L
VA23B9056	08/14/2023	WG-081423-C5-11	Conductivity	181	J	μS/cm
VA23B9056	08/14/2023	WG-081423-C5-11	Fluoride	0.026	J	mg/L
VA23B9056	08/14/2023	WG-081423-C5-11	Hardness	94.4	J	mg/L
VA23B9056	08/14/2023	WG-081423-C5-11	Nitrate (as N)	0.610	J	mg/L
VA23B9056	08/14/2023	WG-081423-C5-11	Nitrite (as N)	0.0010	UJ	mg/L
VA23B9056	08/14/2023	WG-081423-C5-11	Nitrite/Nitrate	0.610	J	mg/L
VA23B9056	08/14/2023	WG-081423-C5-11	Sulfate (dissolved)	2.10	J	mg/L
VA23B9056	08/14/2023	WG-081423-C5-11	Total dissolved solids (TDS)	118	J	mg/L
VA23B9056	08/14/2023	WG-081423-C5-12	Alkalinity, bicarbonate	78.8	J	mg/L
VA23B9056	08/14/2023	WG-081423-C5-12	Alkalinity, carbonate	1.0	UJ	mg/L
VA23B9056	08/14/2023	WG-081423-C5-12	Alkalinity, hydroxide	1.0	UJ	mg/L
VA23B9056	08/14/2023	WG-081423-C5-12	Alkalinity, total (as CaCO3)	78.8	J	mg/L
VA23B9056	08/14/2023	WG-081423-C5-12	Ammonia-N	0.0050	UJ	mg/L
VA23B9056	08/14/2023	WG-081423-C5-12	Chloride (dissolved)	1.72	J	mg/L
VA23B9056	08/14/2023	WG-081423-C5-12	Conductivity	156	J	μS/cm
VA23B9056	08/14/2023	WG-081423-C5-12	Fluoride	0.020	UJ	mg/L
VA23B9056	08/14/2023	WG-081423-C5-12	Hardness	83.8	J	mg/L
VA23B9056	08/14/2023	WG-081423-C5-12	Nitrate (as N)	0.209	J	mg/L
VA23B9056	08/14/2023	WG-081423-C5-12	Nitrite (as N)	0.0010	UJ	mg/L
VA23B9056	08/14/2023	WG-081423-C5-12	Nitrite/Nitrate	0.209	J	mg/L
VA23B9056	08/14/2023	WG-081423-C5-12	Sulfate (dissolved)	3.05	J	mg/L
VA23B9056	08/14/2023	WG-081423-C5-12	Total dissolved solids (TDS)	121	J	mg/L
VA23B9056	08/14/2023	WG-081423-C5-13	1,1,1,2-Tetrachloroethane	0.50	UJ	ug/l
VA23D3030	00/14/2023	VVG-001 4 20-00-10	1, 1, 1,2-16tracmoroetriane	0.50	03	μg/L

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VA23B9056	08/14/2023	WG-081423-C5-13	1,1,1-Trichloroethane	0.50	UJ	μg/L
VA23B9056	08/14/2023	WG-081423-C5-13	1,1,2,2-Tetrachloroethane	0.20	UJ	μg/L
VA23B9056	08/14/2023	WG-081423-C5-13	1,1,2-Trichloroethane	0.50	UJ	μg/L
VA23B9056	08/14/2023	WG-081423-C5-13	1,1-Dichloroethane	0.50	UJ	μg/L
VA23B9056	08/14/2023	WG-081423-C5-13	1,1-Dichloroethene	0.50	UJ	μg/L
VA23B9056	08/14/2023	WG-081423-C5-13	1,2-Dichlorobenzene	0.50	UJ	μg/L
VA23B9056	08/14/2023	WG-081423-C5-13	1,2-Dichloroethane	0.50	UJ	μg/L
VA23B9056	08/14/2023	WG-081423-C5-13	1,2-Dichloropropane	0.50	UJ	μg/L
VA23B9056	08/14/2023	WG-081423-C5-13	1,3-Dichlorobenzene	0.50	UJ	μg/L
VA23B9056	08/14/2023	WG-081423-C5-13	1,4-Dichlorobenzene	0.50	UJ	μg/L
VA23B9056	08/14/2023	WG-081423-C5-13	Alkalinity, bicarbonate	354	J	mg/L
VA23B9056	08/14/2023	WG-081423-C5-13	Alkalinity, carbonate	1.0	UJ	mg/L
VA23B9056	08/14/2023	WG-081423-C5-13	Alkalinity, hydroxide	1.0	UJ	mg/L
VA23B9056	08/14/2023	WG-081423-C5-13	Alkalinity, total (as CaCO3)	354	J	mg/L
VA23B9056	08/14/2023	WG-081423-C5-13	Ammonia-N	19.9	J	mg/L
VA23B9056	08/14/2023	WG-081423-C5-13	Benzene	0.50	UJ	μg/L
VA23B9056	08/14/2023	WG-081423-C5-13	Bromodichloromethane	0.50	UJ	μg/L
VA23B9056	08/14/2023	WG-081423-C5-13	Bromoform	0.50	UJ	μg/L
VA23B9056	08/14/2023	WG-081423-C5-13	Carbon tetrachloride	0.50	UJ	μg/L
VA23B9056	08/14/2023	WG-081423-C5-13	Chloride (dissolved)	56.5	J	mg/L
VA23B9056	08/14/2023	WG-081423-C5-13	Chlorobenzene	0.50	UJ	μg/L
VA23B9056	08/14/2023	WG-081423-C5-13	Chloroethane	0.50	UJ	μg/L
VA23B9056	08/14/2023	WG-081423-C5-13	Chloroform (Trichloromethane)	0.50	UJ	μg/L
VA23B9056	08/14/2023	WG-081423-C5-13	Chloromethane (Methyl chloride)	5.0	UJ	μg/L
VA23B9056	08/14/2023	WG-081423-C5-13	cis-1,2-Dichloroethene	0.50	UJ	μg/L
VA23B9056	08/14/2023	WG-081423-C5-13	cis-1,3-Dichloropropene	0.50	UJ	μg/L
VA23B9056	08/14/2023	WG-081423-C5-13	cis-1,3-Dichloropropene/ trans-1,3-Dichloropropene	0.75	UJ	μg/L
VA23B9056	08/14/2023	WG-081423-C5-13	Conductivity	800	J	μS/cm
VA23B9056	08/14/2023	WG-081423-C5-13	Dibromochloromethane	0.50	UJ	μg/L
VA23B9056	08/14/2023	WG-081423-C5-13	Ethylbenzene	0.50	UJ	μg/L
VA23B9056	08/14/2023	WG-081423-C5-13	Fluoride	0.020	UJ	mg/L
VA23B9056	08/14/2023	WG-081423-C5-13	Hardness	292	J	mg/L
VA23B9056	08/14/2023	WG-081423-C5-13	m&p-Xylenes	0.40	UJ	μg/L
VA23B9056	08/14/2023	WG-081423-C5-13	Methyl tert butyl ether (MTBE)	0.94	J	μg/L
VA23B9056	08/14/2023	WG-081423-C5-13	Methylene chloride	1.0	UJ	μg/L
VA23B9056	08/14/2023	WG-081423-C5-13	Nitrate (as N)	0.0050	UJ	mg/L
VA23B9056	08/14/2023	WG-081423-C5-13	Nitrite (as N)	0.0023	J	mg/L

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VA23B9056	08/14/2023	WG-081423-C5-13	Nitrite/Nitrate	0.0051	UJ	mg/L
VA23B9056	08/14/2023	WG-081423-C5-13	o-Xylene	0.30	UJ	μg/L
VA23B9056	08/14/2023	WG-081423-C5-13	Styrene	0.50	UJ	μg/L
VA23B9056	08/14/2023	WG-081423-C5-13	Sulfate (dissolved)	3.54	J	mg/L
VA23B9056	08/14/2023	WG-081423-C5-13	Tetrachloroethene	0.50	UJ	μg/L
VA23B9056	08/14/2023	WG-081423-C5-13	Toluene	0.40	UJ	μg/L
VA23B9056	08/14/2023	WG-081423-C5-13	Total dissolved solids (TDS)	421	J	mg/L
VA23B9056	08/14/2023	WG-081423-C5-13	Total Petroleum Hydrocarbons VPH (C6-C10)LessBTEX	100	UJ	μg/L
VA23B9056	08/14/2023	WG-081423-C5-13	Total Petroleum Hydrocarbons VH (C6-C10)	100	UJ	μg/L
VA23B9056	08/14/2023	WG-081423-C5-13	trans-1,2-Dichloroethene	0.50	UJ	μg/L
VA23B9056	08/14/2023	WG-081423-C5-13	trans-1,3-Dichloropropene	0.50	UJ	μg/L
VA23B9056	08/14/2023	WG-081423-C5-13	Trichloroethene	0.50	UJ	μg/L
VA23B9056	08/14/2023	WG-081423-C5-13	Trichlorofluoromethane (CFC-11)	0.50	UJ	μg/L
VA23B9056	08/14/2023	WG-081423-C5-13	Vinyl chloride	0.40	UJ	μg/L
VA23B9056	08/14/2023	WG-081423-C5-13	Xylenes (total)	0.50	UJ	μg/L
VA23B9056	08/14/2023	WG-081423-C5-14	Alkalinity, bicarbonate	52.8	J	mg/L
VA23B9056	08/14/2023	WG-081423-C5-14	Alkalinity, carbonate	1.0	UJ	mg/L
VA23B9056	08/14/2023	WG-081423-C5-14	Alkalinity, hydroxide	1.0	UJ	mg/L
VA23B9056	08/14/2023	WG-081423-C5-14	Alkalinity, total (as CaCO3)	52.8	J	mg/L
VA23B9056	08/14/2023	WG-081423-C5-14	Ammonia-N	0.0050	UJ	mg/L
VA23B9056	08/14/2023	WG-081423-C5-14	Chloride (dissolved)	1.23	J	mg/L
VA23B9056	08/14/2023	WG-081423-C5-14	Conductivity	107	J	μS/cm
VA23B9056	08/14/2023	WG-081423-C5-14	Fluoride	0.020	UJ	mg/L
VA23B9056	08/14/2023	WG-081423-C5-14	Hardness	55.1	J	mg/L
VA23B9056	08/14/2023	WG-081423-C5-14	Nitrate (as N)	0.124	J	mg/L
VA23B9056	08/14/2023	WG-081423-C5-14	Nitrite (as N)	0.0010	UJ	mg/L
VA23B9056	08/14/2023	WG-081423-C5-14	Nitrite/Nitrate	0.124	J	mg/L
VA23B9056	08/14/2023	WG-081423-C5-14	Sulfate (dissolved)	2.48	J	mg/L
VA23B9056	08/14/2023	WG-081423-C5-14	Total dissolved solids (TDS)	82	J	mg/L
VA23B9056	08/14/2023	WG-081423-C5-15	Alkalinity, bicarbonate	52.3	J	mg/L
VA23B9056	08/14/2023	WG-081423-C5-15	Alkalinity, carbonate	1.0	UJ	mg/L
VA23B9056	08/14/2023	WG-081423-C5-15	Alkalinity, hydroxide	1.0	UJ	mg/L
VA23B9056	08/14/2023	WG-081423-C5-15	Alkalinity, total (as CaCO3)	52.3	J	mg/L
VA23B9056	08/14/2023	WG-081423-C5-15	Ammonia-N	0.0050	UJ	mg/L

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VA23B9056	08/14/2023	WG-081423-C5-15	Chloride (dissolved)	1.22	J	mg/L
VA23B9056	08/14/2023	WG-081423-C5-15	Conductivity	106	J	μS/cm
VA23B9056	08/14/2023	WG-081423-C5-15	Fluoride	0.020	UJ	mg/L
VA23B9056	08/14/2023	WG-081423-C5-15	Hardness	53.2	J	mg/L
VA23B9056	08/14/2023	WG-081423-C5-15	Nitrate (as N)	0.122	J	mg/L
VA23B9056	08/14/2023	WG-081423-C5-15	Nitrite (as N)	0.0010	UJ	mg/L
VA23B9056	08/14/2023	WG-081423-C5-15	Nitrite/Nitrate	0.122	J	mg/L
VA23B9056	08/14/2023	WG-081423-C5-15	Sulfate (dissolved)	2.44	J	mg/L
VA23B9056	08/14/2023	WG-081423-C5-15	Total dissolved solids (TDS)	75	J	mg/L
VA23B9056	08/14/2023	WG-081423-C5-16	Alkalinity, bicarbonate	86.0	J	mg/L
VA23B9056	08/14/2023	WG-081423-C5-16	Alkalinity, carbonate	1.0	UJ	mg/L
VA23B9056	08/14/2023	WG-081423-C5-16	Alkalinity, hydroxide	1.0	UJ	mg/L
VA23B9056	08/14/2023	WG-081423-C5-16	Alkalinity, total (as CaCO3)	86.0	J	mg/L
VA23B9056	08/14/2023	WG-081423-C5-16	Ammonia-N	0.0050	UJ	mg/L
VA23B9056	08/14/2023	WG-081423-C5-16	Chloride (dissolved)	1.77	J	mg/L
VA23B9056	08/14/2023	WG-081423-C5-16	Conductivity	168	J	μS/cm
VA23B9056	08/14/2023	WG-081423-C5-16	Fluoride	0.020	UJ	mg/L
VA23B9056	08/14/2023	WG-081423-C5-16	Hardness	89.1	J	mg/L
VA23B9056	08/14/2023	WG-081423-C5-16	Nitrate (as N)	0.159	J	mg/L
VA23B9056	08/14/2023	WG-081423-C5-16	Nitrite (as N)	0.0010	UJ	mg/L
VA23B9056	08/14/2023	WG-081423-C5-16	Nitrite/Nitrate	0.159	J	mg/L
VA23B9056	08/14/2023	WG-081423-C5-16	Sulfate (dissolved)	2.48	J	mg/L
VA23B9056	08/14/2023	WG-081423-C5-16	Total dissolved solids (TDS)	109	J	mg/L
VA23B9297	08/16/2023	WG-081623-C5-20	Alkalinity, bicarbonate	43.8	J	mg/L
VA23B9297	08/16/2023	WG-081623-C5-20	Alkalinity, carbonate	1.0	UJ	mg/L
VA23B9297	08/16/2023	WG-081623-C5-20	Alkalinity, hydroxide	1.0	UJ	mg/L
VA23B9297	08/16/2023	WG-081623-C5-20	Alkalinity, total (as CaCO3)	43.8	J	mg/L
VA23B9297	08/16/2023	WG-081623-C5-20	Ammonia-N	0.0050	UJ	mg/L
VA23B9297	08/16/2023	WG-081623-C5-20	Chloride (dissolved)	0.84	J	mg/L
VA23B9297	08/16/2023	WG-081623-C5-20	Conductivity	85.6	J	μS/cm
VA23B9297	08/16/2023	WG-081623-C5-20	Fluoride	0.020	UJ	mg/L
VA23B9297	08/16/2023	WG-081623-C5-20	Hardness	43.8	J	mg/L
VA23B9297	08/16/2023	WG-081623-C5-20	Nitrate (as N)	0.0673	J	mg/L
VA23B9297	08/16/2023	WG-081623-C5-20	Nitrite (as N)	0.0010	UJ	mg/L
VA23B9297	08/16/2023	WG-081623-C5-20	Nitrite/Nitrate	0.0673	J	mg/L
VA23B9297	08/16/2023	WG-081623-C5-20	Sulfate (dissolved)	2.00	J	mg/L

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VA23B9297	08/16/2023	WG-081623-C5-20	Total dissolved solids (TDS)	69	J	mg/L
VA23B9297	08/16/2023	WG-081623-C5-21	Alkalinity, bicarbonate	43.8	J	mg/L
VA23B9297	08/16/2023	WG-081623-C5-21	Alkalinity, carbonate	1.0	UJ	mg/L
VA23B9297	08/16/2023	WG-081623-C5-21	Alkalinity, hydroxide	1.0	UJ	mg/L
VA23B9297	08/16/2023	WG-081623-C5-21	Alkalinity, total (as CaCO3)	43.8	J	mg/L
VA23B9297	08/16/2023	WG-081623-C5-21	Ammonia-N	0.0050	UJ	mg/L
VA23B9297	08/16/2023	WG-081623-C5-21	Chloride (dissolved)	0.83	J	mg/L
VA23B9297	08/16/2023	WG-081623-C5-21	Conductivity	84.9	J	μS/cm
VA23B9297	08/16/2023	WG-081623-C5-21	Fluoride	0.020	UJ	mg/L
VA23B9297	08/16/2023	WG-081623-C5-21	Hardness	42.9	J	mg/L
VA23B9297	08/16/2023	WG-081623-C5-21	Nitrate (as N)	0.0666	J	mg/L
VA23B9297	08/16/2023	WG-081623-C5-21	Nitrite (as N)	0.0010	UJ	mg/L
VA23B9297	08/16/2023	WG-081623-C5-21	Nitrite/Nitrate	0.0666	J	mg/L
VA23B9297	08/16/2023	WG-081623-C5-21	Sulfate (dissolved)	2.00	J	mg/L
VA23B9297	08/16/2023	WG-081623-C5-21	Total dissolved solids (TDS)	59	J	mg/L
VA23B9297	08/16/2023	WG-081623-C5-22	Alkalinity, bicarbonate	63.4	J	mg/L
VA23B9297	08/16/2023	WG-081623-C5-22	Alkalinity, carbonate	1.0	UJ	mg/L
VA23B9297	08/16/2023	WG-081623-C5-22	Alkalinity, hydroxide	1.0	UJ	mg/L
VA23B9297	08/16/2023	WG-081623-C5-22	Alkalinity, total (as CaCO3)	63.4	J	mg/L
VA23B9297	08/16/2023	WG-081623-C5-22	Ammonia-N	0.0050	UJ	mg/L
VA23B9297	08/16/2023	WG-081623-C5-22	Chloride (dissolved)	4.33	J	mg/L
VA23B9297	08/16/2023	WG-081623-C5-22	Conductivity	134	J	μS/cm
VA23B9297	08/16/2023	WG-081623-C5-22	Fluoride	0.020	UJ	mg/L
VA23B9297	08/16/2023	WG-081623-C5-22	Hardness	65.6	J	mg/L
VA23B9297	08/16/2023	WG-081623-C5-22	Nitrate (as N)	0.221	J	mg/L
VA23B9297	08/16/2023	WG-081623-C5-22	Nitrite (as N)	0.0010	UJ	mg/L
VA23B9297	08/16/2023	WG-081623-C5-22	Nitrite/Nitrate	0.221	J	mg/L
VA23B9297	08/16/2023	WG-081623-C5-22	Sulfate (dissolved)	3.27	J	mg/L
VA23B9297	08/16/2023	WG-081623-C5-22	Total dissolved solids (TDS)	102	J	mg/L
VA23B9297	08/16/2023	WG-081623-C5-23	1,1,1,2-Tetrachloroethane	0.50	UJ	μg/L
VA23B9297	08/16/2023	WG-081623-C5-23	1,1,1-Trichloroethane	0.50	UJ	μg/L
VA23B9297	08/16/2023	WG-081623-C5-23	1,1,2,2-Tetrachloroethane	0.20	UJ	μg/L
VA23B9297	08/16/2023	WG-081623-C5-23	1,1,2-Trichloroethane	0.50	UJ	μg/L
VA23B9297	08/16/2023	WG-081623-C5-23	1,1-Dichloroethane	0.50	UJ	μg/L
VA23B9297	08/16/2023	WG-081623-C5-23	1,1-Dichloroethene	0.50	UJ	μg/L

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VA23B9297	08/16/2023	WG-081623-C5-23	1,2-Dichlorobenzene	0.50	UJ	μg/L
VA23B9297	08/16/2023	WG-081623-C5-23	1,2-Dichloroethane	0.50	UJ	μg/L
VA23B9297	08/16/2023	WG-081623-C5-23	1,2-Dichloropropane	0.50	UJ	μg/L
VA23B9297	08/16/2023	WG-081623-C5-23	1,3-Dichlorobenzene	0.50	UJ	μg/L
VA23B9297	08/16/2023	WG-081623-C5-23	1,4-Dichlorobenzene	0.50	UJ	μg/L
VA23B9297	08/16/2023	WG-081623-C5-23	Alkalinity, bicarbonate	205	J	mg/L
VA23B9297	08/16/2023	WG-081623-C5-23	Alkalinity, carbonate	1.0	UJ	mg/L
VA23B9297	08/16/2023	WG-081623-C5-23	Alkalinity, hydroxide	1.0	UJ	mg/L
VA23B9297	08/16/2023	WG-081623-C5-23	Alkalinity, total (as CaCO3)	205	J	mg/L
VA23B9297	08/16/2023	WG-081623-C5-23	Ammonia-N	5.76	J	mg/L
VA23B9297	08/16/2023	WG-081623-C5-23	Benzene	0.50	UJ	μg/L
VA23B9297	08/16/2023	WG-081623-C5-23	Bromodichloromethane	0.50	UJ	μg/L
VA23B9297	08/16/2023	WG-081623-C5-23	Bromoform	0.50	UJ	μg/L
VA23B9297	08/16/2023	WG-081623-C5-23	Carbon tetrachloride	0.50	UJ	μg/L
VA23B9297	08/16/2023	WG-081623-C5-23	Chloride (dissolved)	35.1	J	mg/L
VA23B9297	08/16/2023	WG-081623-C5-23	Chlorobenzene	0.50	UJ	μg/L
VA23B9297	08/16/2023	WG-081623-C5-23	Chloroethane	0.50	UJ	μg/L
VA23B9297	08/16/2023	WG-081623-C5-23	Chloroform (Trichloromethane)	0.50	UJ	μg/L
VA23B9297	08/16/2023	WG-081623-C5-23	Chloromethane (Methyl chloride)	5.0	UJ	μg/L
VA23B9297	08/16/2023	WG-081623-C5-23	cis-1,2-Dichloroethene	0.50	UJ	μg/L
VA23B9297	08/16/2023	WG-081623-C5-23	cis-1,3-Dichloropropene	0.50	UJ	μg/L
VA23B9297	08/16/2023	WG-081623-C5-23	cis-1,3-Dichloropropene/ trans-1,3-Dichloropropene	0.75	UJ	μg/L
VA23B9297	08/16/2023	WG-081623-C5-23	Conductivity	464	J	μS/cm
VA23B9297	08/16/2023	WG-081623-C5-23	Dibromochloromethane	0.50	UJ	μg/L
VA23B9297	08/16/2023	WG-081623-C5-23	Ethylbenzene	0.50	UJ	μg/L
VA23B9297	08/16/2023	WG-081623-C5-23	Fluoride	0.040	UJ	mg/L
VA23B9297	08/16/2023	WG-081623-C5-23	Hardness	179	J	mg/L
VA23B9297	08/16/2023	WG-081623-C5-23	m&p-Xylenes	0.40	UJ	μg/L
VA23B9297	08/16/2023	WG-081623-C5-23	Methyl tert butyl ether (MTBE)	0.50	UJ	μg/L
VA23B9297	08/16/2023	WG-081623-C5-23	Methylene chloride	1.0	UJ	μg/L
VA23B9297	08/16/2023	WG-081623-C5-23	Nitrate (as N)	0.0050	UJ	mg/L
VA23B9297	08/16/2023	WG-081623-C5-23	Nitrite (as N)	0.0035	J	mg/L
VA23B9297	08/16/2023	WG-081623-C5-23	Nitrite/Nitrate	0.0051	UJ	mg/L
VA23B9297	08/16/2023	WG-081623-C5-23	o-Xylene	0.30	UJ	μg/L
VA23B9297	08/16/2023	WG-081623-C5-23	Styrene	0.50	UJ	μg/L
VA23B9297	08/16/2023	WG-081623-C5-23	Sulfate (dissolved)	1.84	J	mg/L
VA23B9297	08/16/2023	WG-081623-C5-23	Tetrachloroethene	0.50	UJ	μg/L

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VA23B9297	08/16/2023	WG-081623-C5-23	Toluene	0.40	UJ	μg/L
VA23B9297	08/16/2023	WG-081623-C5-23	Total dissolved solids (TDS)	273	J	mg/L
VA23B9297	08/16/2023	WG-081623-C5-23	Total Petroleum Hydrocarbons VPH (C6-C10)LessBTEX	100	UJ	μg/L
VA23B9297	08/16/2023	WG-081623-C5-23	Total Petroleum Hydrocarbons VH (C6-C10)	100	UJ	μg/L
VA23B9297	08/16/2023	WG-081623-C5-23	trans-1,2-Dichloroethene	0.50	UJ	μg/L
VA23B9297	08/16/2023	WG-081623-C5-23	trans-1,3-Dichloropropene	0.50	UJ	μg/L
VA23B9297	08/16/2023	WG-081623-C5-23	Trichloroethene	0.50	UJ	μg/L
VA23B9297	08/16/2023	WG-081623-C5-23	Trichlorofluoromethane (CFC-11)	0.50	UJ	μg/L
VA23B9297	08/16/2023	WG-081623-C5-23	Vinyl chloride	0.40	UJ	μg/L
VA23B9297	08/16/2023	WG-081623-C5-23	Xylenes (total)	0.50	UJ	μg/L
VA23B9297	08/16/2023	WG-081623-C5-24	1,1,1,2-Tetrachloroethane	0.50	UJ	μg/L
VA23B9297	08/16/2023	WG-081623-C5-24	1,1,1-Trichloroethane	0.50	UJ	μg/L
VA23B9297	08/16/2023	WG-081623-C5-24	1,1,2,2-Tetrachloroethane	0.20	UJ	μg/L
VA23B9297	08/16/2023	WG-081623-C5-24	1,1,2-Trichloroethane	0.50	UJ	μg/L
VA23B9297	08/16/2023	WG-081623-C5-24	1,1-Dichloroethane	0.50	UJ	μg/L
VA23B9297	08/16/2023	WG-081623-C5-24	1,1-Dichloroethene	0.50	UJ	μg/L
VA23B9297	08/16/2023	WG-081623-C5-24	1,2-Dichlorobenzene	0.50	UJ	μg/L
VA23B9297	08/16/2023	WG-081623-C5-24	1,2-Dichloroethane	0.50	UJ	μg/L
VA23B9297	08/16/2023	WG-081623-C5-24	1,2-Dichloropropane	0.50	UJ	μg/L
VA23B9297	08/16/2023	WG-081623-C5-24	1,3-Dichlorobenzene	0.50	UJ	μg/L
VA23B9297	08/16/2023	WG-081623-C5-24	1,4-Dichlorobenzene	0.50	UJ	μg/L
VA23B9297	08/16/2023	WG-081623-C5-24	Alkalinity, bicarbonate	53.1	J	mg/L
VA23B9297	08/16/2023	WG-081623-C5-24	Alkalinity, carbonate	1.0	UJ	mg/L
VA23B9297	08/16/2023	WG-081623-C5-24	Alkalinity, hydroxide	1.0	UJ	mg/L
VA23B9297	08/16/2023	WG-081623-C5-24	Alkalinity, total (as CaCO3)	53.1	J	mg/L
VA23B9297	08/16/2023	WG-081623-C5-24	Ammonia-N	0.0050	UJ	mg/L
VA23B9297	08/16/2023	WG-081623-C5-24	Benzene	0.50	UJ	μg/L
VA23B9297	08/16/2023	WG-081623-C5-24	Bromodichloromethane	0.50	UJ	μg/L
VA23B9297	08/16/2023	WG-081623-C5-24	Bromoform	0.50	UJ	μg/L
VA23B9297	08/16/2023	WG-081623-C5-24	Carbon tetrachloride	0.50	UJ	μg/L
VA23B9297	08/16/2023	WG-081623-C5-24	Chloride (dissolved)	0.75	J	mg/L
VA23B9297	08/16/2023	WG-081623-C5-24	Chlorobenzene	0.50	UJ	μg/L
VA23B9297	08/16/2023	WG-081623-C5-24	Chloroethane	0.50	UJ	μg/L
VA23B9297	08/16/2023	WG-081623-C5-24	Chloroform (Trichloromethane)	0.50	UJ	μg/L

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VA23B9297	08/16/2023	WG-081623-C5-24	Chloromethane (Methyl chloride)	5.0	UJ	μg/L
VA23B9297	08/16/2023	WG-081623-C5-24	cis-1,2-Dichloroethene	0.50	UJ	μg/L
VA23B9297	08/16/2023	WG-081623-C5-24	cis-1,3-Dichloropropene	0.50	UJ	μg/L
VA23B9297	08/16/2023	WG-081623-C5-24	cis-1,3-Dichloropropene/ trans-1,3-Dichloropropene	0.75	UJ	μg/L
VA23B9297	08/16/2023	WG-081623-C5-24	Conductivity	103	J	μS/cm
VA23B9297	08/16/2023	WG-081623-C5-24	Dibromochloromethane	0.50	UJ	μg/L
VA23B9297	08/16/2023	WG-081623-C5-24	Ethylbenzene	0.50	UJ	μg/L
VA23B9297	08/16/2023	WG-081623-C5-24	Fluoride	0.020	UJ	mg/L
VA23B9297	08/16/2023	WG-081623-C5-24	Hardness	54.6	J	mg/L
VA23B9297	08/16/2023	WG-081623-C5-24	m&p-Xylenes	0.40	UJ	μg/L
VA23B9297	08/16/2023	WG-081623-C5-24	Methyl tert butyl ether (MTBE)	0.50	UJ	μg/L
VA23B9297	08/16/2023	WG-081623-C5-24	Methylene chloride	50.0	UJ	μg/L
VA23B9297	08/16/2023	WG-081623-C5-24	Nitrate (as N)	0.0592	J	mg/L
VA23B9297	08/16/2023	WG-081623-C5-24	Nitrite (as N)	0.0010	UJ	mg/L
VA23B9297	08/16/2023	WG-081623-C5-24	Nitrite/Nitrate	0.0592	J	mg/L
VA23B9297	08/16/2023	WG-081623-C5-24	o-Xylene	0.30	UJ	μg/L
VA23B9297	08/16/2023	WG-081623-C5-24	Styrene	0.50	UJ	μg/L
VA23B9297	08/16/2023	WG-081623-C5-24	Sulfate (dissolved)	1.97	J	mg/L
VA23B9297	08/16/2023	WG-081623-C5-24	Tetrachloroethene	0.50	UJ	μg/L
VA23B9297	08/16/2023	WG-081623-C5-24	Toluene	0.40	UJ	μg/L
VA23B9297	08/16/2023	WG-081623-C5-24	Total dissolved solids (TDS)	72	J	mg/L
VA23B9297	08/16/2023	WG-081623-C5-24	Total Petroleum Hydrocarbons VPH (C6-C10)LessBTEX	100	UJ	μg/L
VA23B9297	08/16/2023	WG-081623-C5-24	Total Petroleum Hydrocarbons VH (C6-C10)	100	UJ	μg/L
VA23B9297	08/16/2023	WG-081623-C5-24	trans-1,2-Dichloroethene	0.50	UJ	μg/L
VA23B9297	08/16/2023	WG-081623-C5-24	trans-1,3-Dichloropropene	0.50	UJ	μg/L
VA23B9297	08/16/2023	WG-081623-C5-24	Trichloroethene	0.50	UJ	μg/L
VA23B9297	08/16/2023	WG-081623-C5-24	Trichlorofluoromethane (CFC-11)	0.50	UJ	μg/L
VA23B9297	08/16/2023	WG-081623-C5-24	Vinyl chloride	0.40	UJ	μg/L
VA23B9297	08/16/2023	WG-081623-C5-24	Xylenes (total)	0.50	UJ	μg/L

Conclusion:

Based on the assessment detailed in the foregoing, the data summarized are acceptable with the specific qualifications and exception noted above.

Notes:

N/A - Not Applicable

QA/QC - Quality Assurance/Quality Control

RL - Reporting Limit

N - Nitrogen

VH - Volatile Hydrocarbons

VPH - Volatile Petroleum Hydrocarbons

BTEX - Benzene, Toluene, Ethylbenzene, Xylenes

U - The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.

 - The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.

 The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

R - The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the sample.

Data verification reference documents:

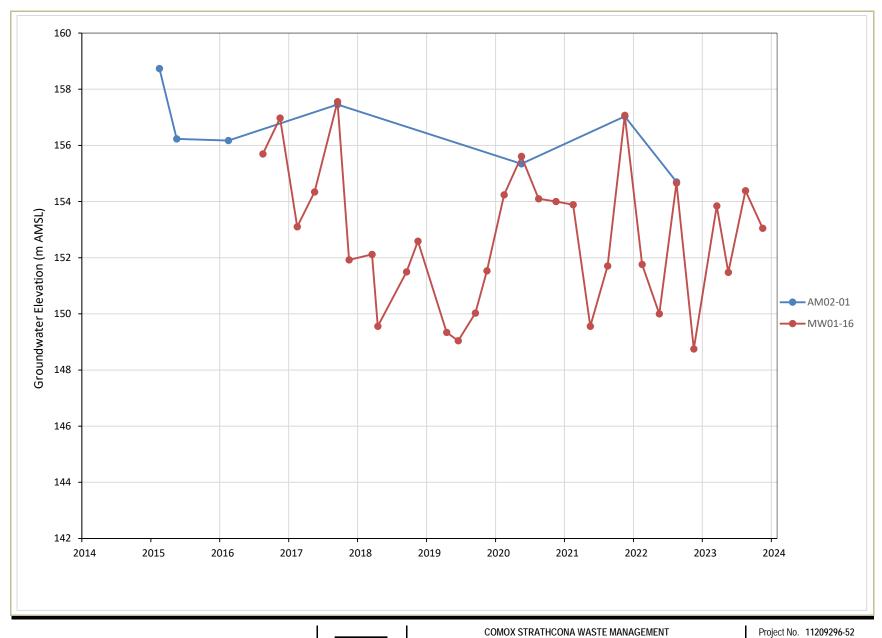
- 1. "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review", United States Environmental Protection Agency (USEPA) 540/R-99-008, September 2016.
- "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review", USEPA 540/R-94-013, September 2016.
- "British Columbia Environmental Laboratory Manual", Analysis, Reporting & Knowledge Services Knowledge Management Branch Ministry of Environment and Climate Change Strategy Province of British Columbia, April 2020.

Regards

Stephanie Berton

Data Management - Data Validator

Appendix H Hydrographs





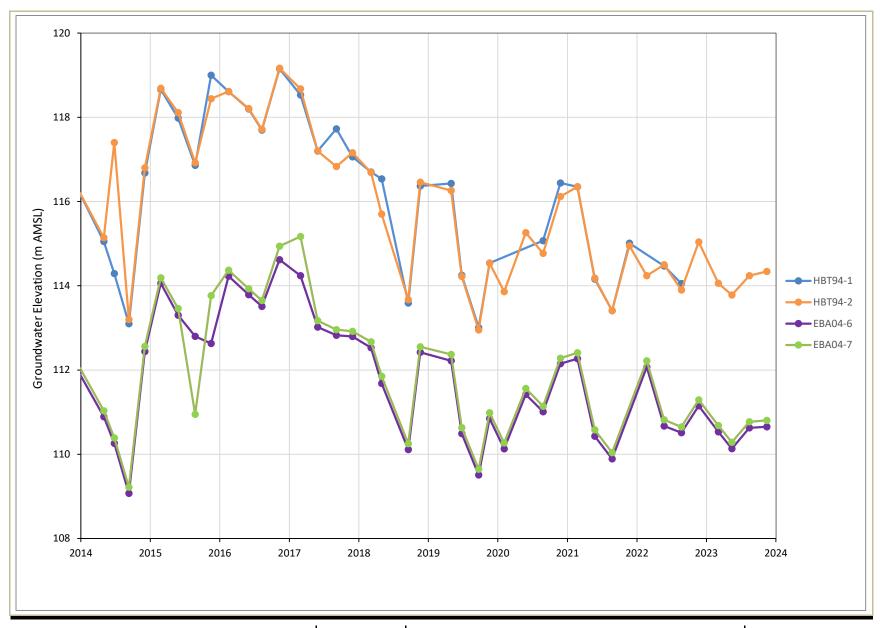
COMOX STRATHCONA WASTE MANAGEMENT 2023 OPPERATIONS AND MONITORING REPORT CAMPBELL RIVER WASTE MANAGEMENT CENTRE

Date April 2024

Note: AM02-01 was dry during all monitoring events from 2018-2023, except for Q2 2020, Q4 2021 and Q3 2022.

BACKGROUND WELLS - HYDROGRAPH 2014 - 2023

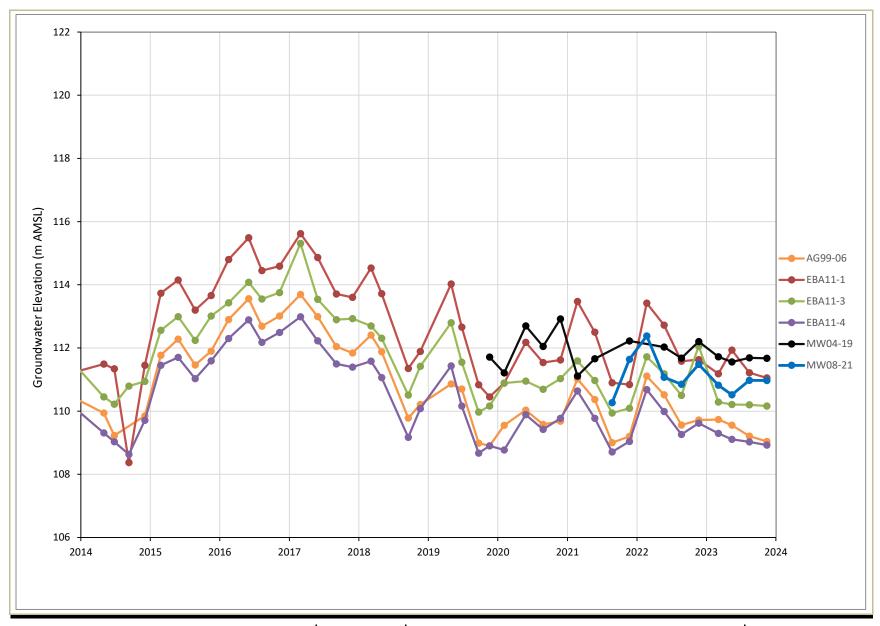
FIGURE H-1





COMOX STRATHCONA WASTE MANAGEMENT 2023 OPPERATIONS AND MONITORING REPORT CAMPBELL RIVER WASTE MANAGEMENT CENTRE Project No. 11209296-52 Date April 2024

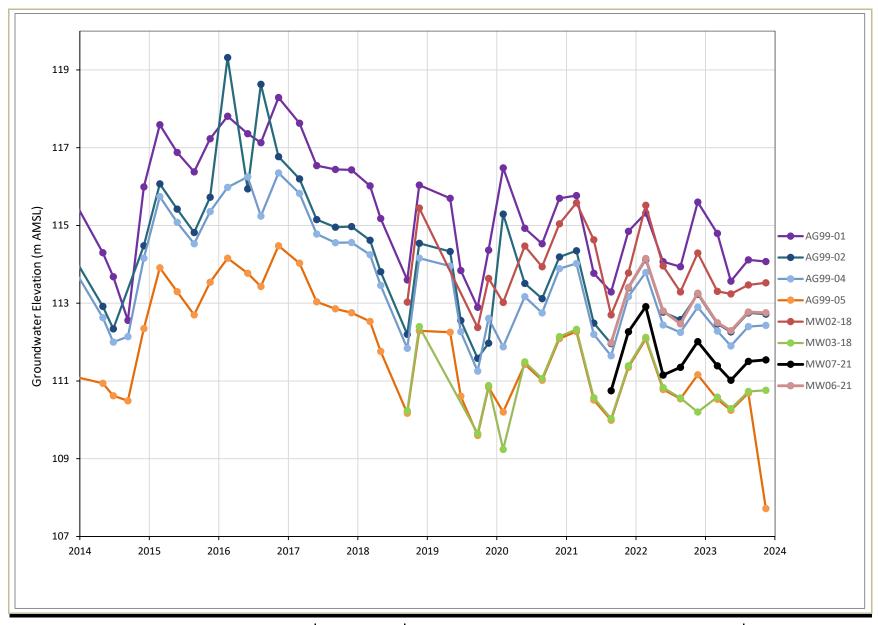
FIGURE H-2





COMOX STRATHCONA WASTE MANAGEMENT 2023 OPPERATIONS AND MONITORING REPORT CAMPBELL RIVER WASTE MANAGEMENT CENTRE Project No. 11209296-52 Date April 2024

FIGURE H-3





COMOX STRATHCONA WASTE MANAGEMENT 2023 OPPERATIONS AND MONITORING REPORT CAMPBELL RIVER WASTE MANAGEMENT CENTRE Project No. 11209296-52 Date April 2024

FIGURE H-4

Appendix I

Leachate Indicator Parameter Concentration Ranges

Appendix I Typical Leachate Indicator Parameters Concentration Ranges

Table I-1 Background Wells

Doromotor	Turning I MCVVII and hate	MW01-16	AM02-01	
Parameter	Typical MSW Leachate	n = 4	n = 0	
Alkalinity	71 - 3,340 ⁽¹⁾	34.4 - 44.9	-	
Ammonia	84.3 - 449 ⁽¹⁾	ND (0.005)	-	
Boron	3.2 - 4.68 ⁽¹⁾	ND (0.01) - 0.01	-	
Chloride	500 ⁽²⁾	0.78 - 1.03	-	
TDS	2,000 ⁽²⁾	50 - 63	-	
Conductivity (µS/cm)	161 - 8,126 ⁽¹⁾	74.3 - 91.8	-	
Iron	100 - 500 ⁽²⁾	ND (0.01) - 0.018	-	
Manganese	0.03 - 7.9 ⁽²⁾	ND (0.0001) - 0.00113	-	
Sulphate	50 ⁽²⁾	2.12 - 2.68	-	

^{**} AM02-01 was dry in 2023.

Table I-2 Landfill Vicinity Wells

Doromotor	Typical MSW	HBT94-2	EBA04-6	EBA04-1	HBT94-1	EBA04-7
Parameter	Leachate	n = 4	n = 5	n = 5	n = 0	n = 4
Alkalinity	71 - 3,340 ⁽¹⁾	188 - 254	252 - 323	42.8 - 44.6	-	283 - 442
Ammonia	84.3 - 449 ⁽¹⁾	4.52 - 7.02	ND (0.005)	ND (0.005)	-	ND (0.0122) - 0.0116
Boron	3.2 - 4.68 ⁽¹⁾	0.124 - 0.187	0.034 - 0.127	ND (0.01)	-	0.119 - 0.275
Chloride	500 ⁽²⁾	35.1 - 49.2	2.56 - 10.9	0.79 - 0.86	-	43.1 - 63.1
TDS	2,000(2)	273 - 357	269 - 416	55 - 69	-	525 - 616
Conductivity (µS/cm)	161 - 8,126 ⁽¹⁾	464 - 612	466 - 640	84.9 - 93.3	-	780 - 958
Iron	100 - 500 ⁽²⁾	0.202 - 0.389	ND (0.01)	0.011 - 0.033	-	ND (0.01)
Manganese	0.03 - 7.9(2)	0.922 - 1.42	ND (0.0001) - 0.00027	0.0002 - 0.00057	-	0.309 - 0.502
Sulphate	50 ⁽²⁾	1.84 - 3.16	2.02 - 14.2	1.9 - 2.37	-	8.76 - 11.7

^{**} HBT94-1 was dry in 2023.

Table I-3 Shallow Block J Vicinity Wells

Danamatan	Typical MSW	EBA11-1	EBA11-2	AG99-06	EBA11-4	EBA11-3
Parameter	Leachate	n = 4	n = 0	n = 4	n = 6	n = 5
Alkalinity	71 - 3,340 ⁽¹⁾	107 - 208	-	44.3 - 77.9	50.9 - 61.4	53.9 - 55.8
Ammonia	84.3 - 449 ⁽¹⁾	ND (0.005)	-	ND (0.005)	ND (0.005)	ND (0.005) - 0.0055
Boron	3.2 - 4.68 ⁽¹⁾	0.107 - 0.148	-	ND (0.01)	ND (0.01)	ND (0.01)
Chloride	500(2)	98.4 - 152	-	2.34 - 26	2.84 - 5.59	1.41 - 4.22
TDS	2,000(2)	498 - 748	-	60 - 151	72 - 93	68 - 87
Conductivity (µS/cm)	161 - 8,126 ⁽¹⁾	722 - 1020	-	94.7 - 210	118 - 140	110 - 124
Iron	100 - 500(2)	ND (0.01) - 0.005	-	ND (0.01) - 0.05	ND (0.01)	ND (0.01)
Manganese	0.03 - 7.9(2)	0.15 - 0.565	-	0.00017 - 0.00196	ND (0.0001)	ND (0.0001) - 0.00005
Sulphate	50(2)	30 - 47.2	-	1.43 - 2.72	1.75 - 6.14	2.29 - 2.51

^{**} EBA 11-2 was dry in 2023.

Table I-4 Deep Block J Vicinity Wells

Doromotor	Typical MCW Leachata	MW04-19	MW08-21
Parameter	Typical MSW Leachate	n = 4	n = 4
Alkalinity	71 - 3,340 ⁽¹⁾	62.2 - 105	192 - 229
Ammonia	84.3 - 449 ⁽¹⁾	ND (0.005) - 0.0165	ND (0.005)
Boron	3.2 - 4.68 ⁽¹⁾	ND (0.01)	0.014 - 0.017
Chloride	500 ⁽²⁾	4.13 - 5.99	15.1 - 23.4
TDS	2,000(2)	102 - 122	272 - 295
Conductivity (µS/cm)	161 - 8,126 ⁽¹⁾	134 - 198	393 - 482
Iron	100 - 500 ⁽²⁾	ND (0.01) - 3.87	ND (0.01) - 0.026
Manganese	0.03 - 7.9 ⁽²⁾	ND (0.0001) - 0.0751	ND (0.0001) - 0.0005
Sulphate	50 ⁽²⁾	3.27 - 5.1	6.15 - 8.25

Table I-5 Shallow Downgradient Off-Site Wells

Doromotor	Typical MSW	MW02-18	MW03-18	MW06-21	MW07-21
Parameter	Leachate	n = 5	n = 5	n = 4	n = 4
Alkalinity	71 - 3,340 ⁽¹⁾	203 - 354	66.2 - 117	90.1 - 91.9	67.3 - 86
Ammonia	84.3 - 449 ⁽¹⁾	12.2 - 19.9	ND (0.005)	ND (0.005)	ND (0.005)
Boron	3.2 - 4.68 ⁽¹⁾	0.206 - 0.222	0.015 - 0.035	ND (0.01)	0.011 - 0.017
Chloride	500 ⁽²⁾	33.3 - 56.5	1.26 - 2.74	2.56 - 2.72	1.2 - 1.77
TDS	2,000(2)	248 - 421	76 - 144	118 - 123	78 - 110
Conductivity (µS/cm)	161 - 8,126 ⁽¹⁾	496 - 800	129 - 231	181 - 188	137 - 175
Iron	100 - 500 ⁽²⁾	0.022 - 0.035	ND (0.01)	ND (0.01) - 0.201	ND (0.01) - 0.016
Manganese	0.03 - 7.9 ⁽²⁾	1.43 - 2.95	ND (0.0001)	ND (0.0001) - 0.00754	ND (0.0001) - 0.00077
Sulphate	50 ⁽²⁾	2.11 - 3.54	1.96 - 2.84	1.77 - 2.1	1.95 - 2.61

Table I-6 Deep Downgradient Off-Site Wells

Doromotor	Typical MSW	AG99-01	AG99-02	AG99-04	AG99-05
Parameter	Leachate	n = 4	n = 6	n = 5	n = 4
Alkalinity	71 - 3,340 ⁽¹⁾	106 - 113	78.8 - 151	49.2 - 55.2	50.3 - 93.6
Ammonia	84.3 - 449 ⁽¹⁾	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)
Boron	3.2 - 4.68 ⁽¹⁾	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01) - 0.031
Chloride	500 ⁽²⁾	1.99 - 2.49	1.37 - 1.95	1.04 - 1.23	1.05 - 3.12
TDS	2,000(2)	130 - 154	112 - 164	64 - 70	65 - 117
Conductivity (µS/cm)	161 - 8,126 ⁽¹⁾	207 - 223	156 - 282	100 - 114	105 - 184
Iron	100 - 500 ⁽²⁾	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)
Manganese	0.03 - 7.9 ⁽²⁾	ND (0.0001)	ND (0.0001)	ND (0.0001)	ND (0.0001)
Sulphate	50 ⁽²⁾	2.44 - 3.22	2.57 - 3.05	1.85 - 2.54	1.85 - 2.5

Table I-7 Surface Water

Doromotor	Typical MCW/Locabata	SW-1	SW03-17	SWM Pond
Parameter	Typical MSW Leachate	n = 6	n = 5	n = 2
Alkalinity	71 - 3,340 ⁽¹⁾	6.3 - 10.1	7.5 - 8.4	39.7 - 44.2
Ammonia	84.3 - 449 ⁽¹⁾	ND (0.005) - 0.0624	ND (0.005) - 0.0418	0.0054 - 0.0102
Boron	3.2 - 4.68 ⁽¹⁾	ND (0.01)	ND (0.01)	0.022 - 0.038
Chloride	500(2)	3.32 - 3.64	3.48 - 4.1	9.04 - 50
TDS	2,000(2)	17 - 44	28 - 42	198 - 234
Conductivity (µS/cm)	161 - 8,126 ⁽¹⁾	28.9 - 35.6	30.7 - 33.7	276 - 390
Iron	100 - 500 ⁽²⁾	0.065 - 0.263	0.042 - 0.174	0.024 - 0.024
Manganese	0.03 - 7.9(2)	0.00329 - 0.0493	0.00306 - 0.0842	0.00073 - 0.0344
Sulphate	50 ⁽²⁾	0.35 - 1.25	0.53 - 1.03	29.1 - 54.2

Notes:

All concentrations in mg/L unless otherwise specified.

All parameters measured in laboratory.

< - indicates below reportable detection limit.

n = number of samples.

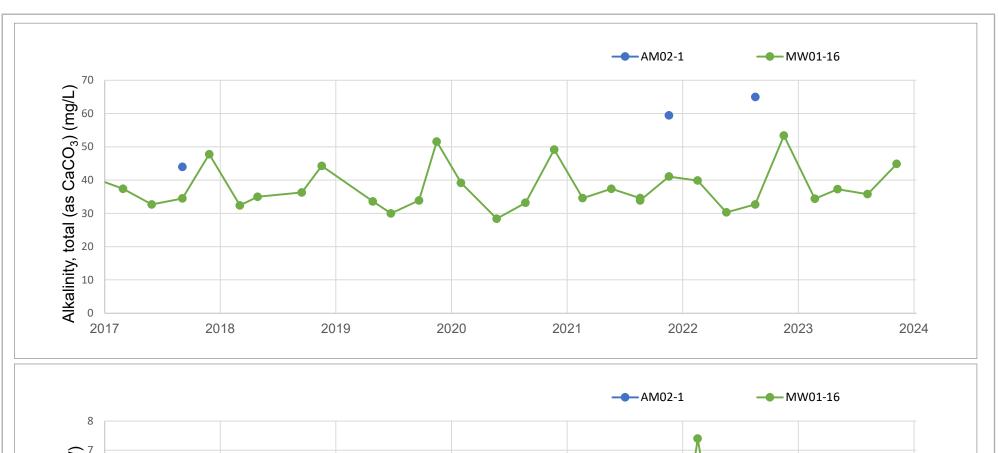
mg/L - milligrams per litre; $\mu S/cm$ - microSiemens per centimeter.

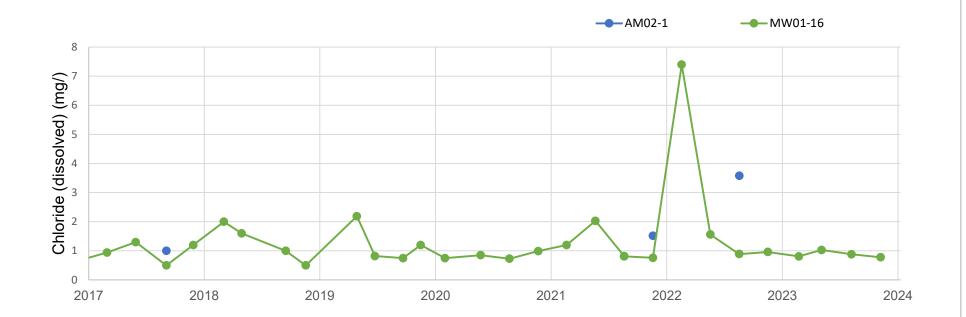
(1) CRA, 2015.

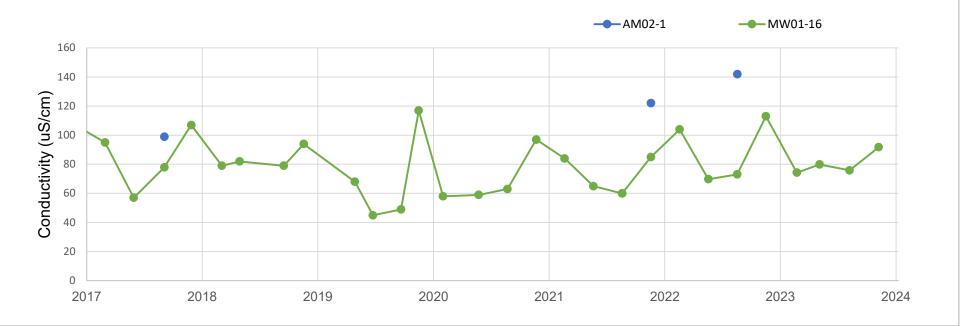
(2) Mulamoottil, et. al, 1999.

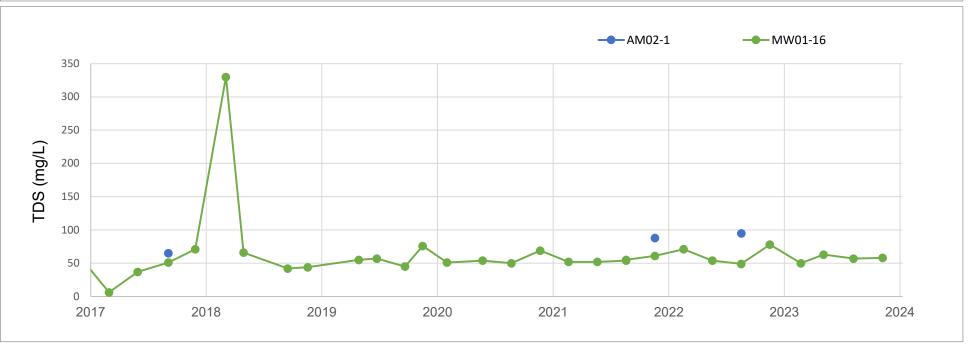
Appendix J

Concentration versus Time Plots





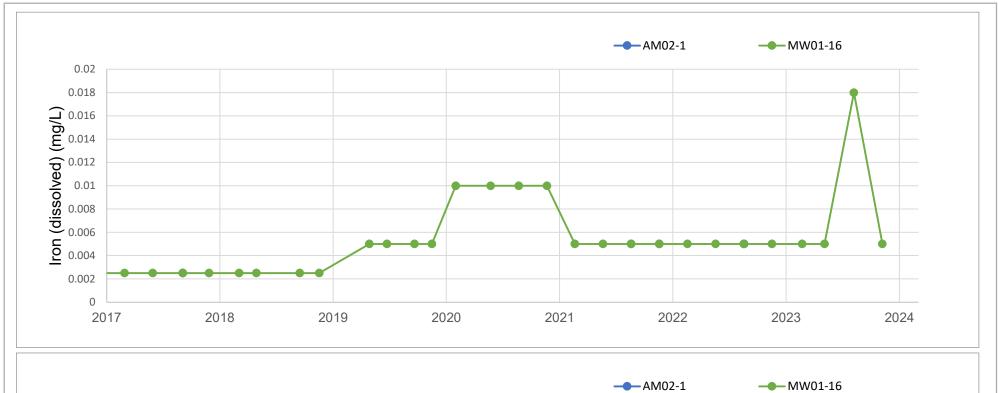


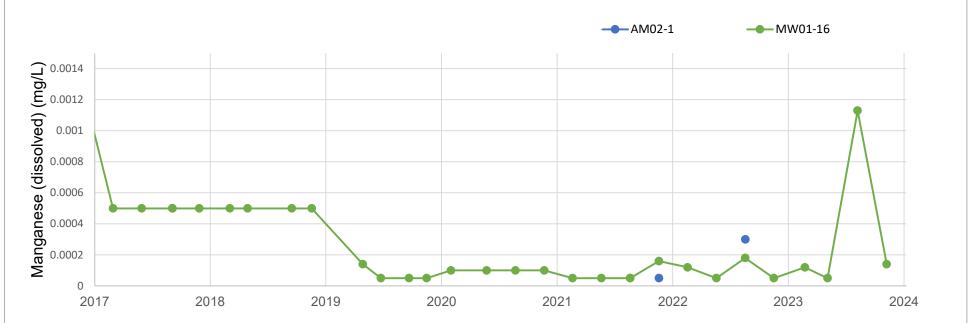


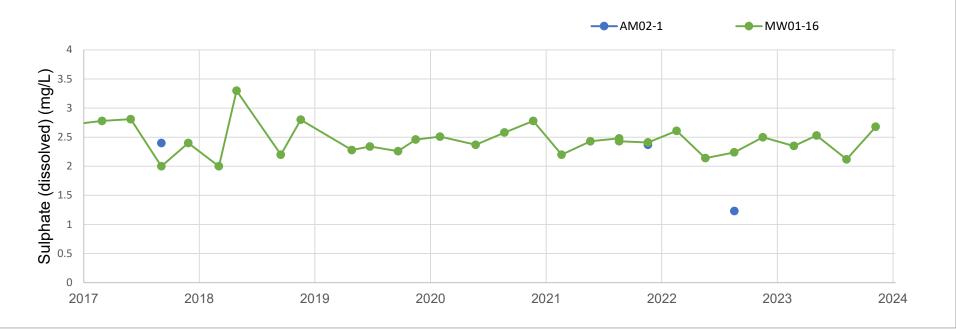


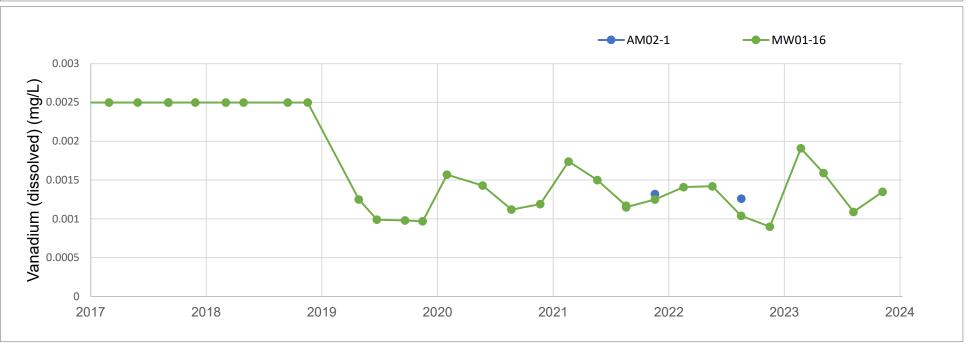
PROJECT NO. 11209296-52

DATE 5-Mar-24
FIGURE NO. J-1



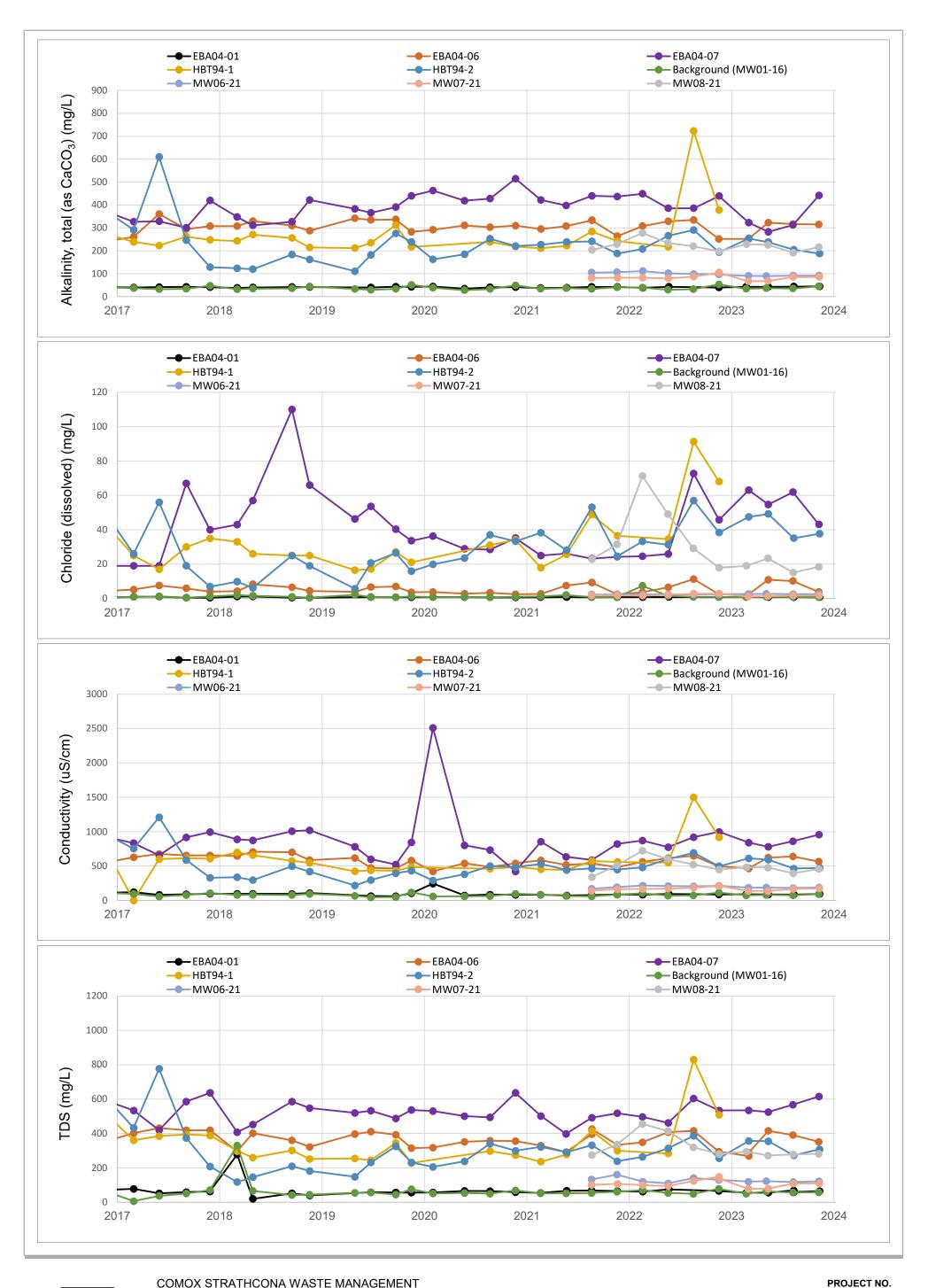








PROJECT NO. 11209296-52 5-Mar-24

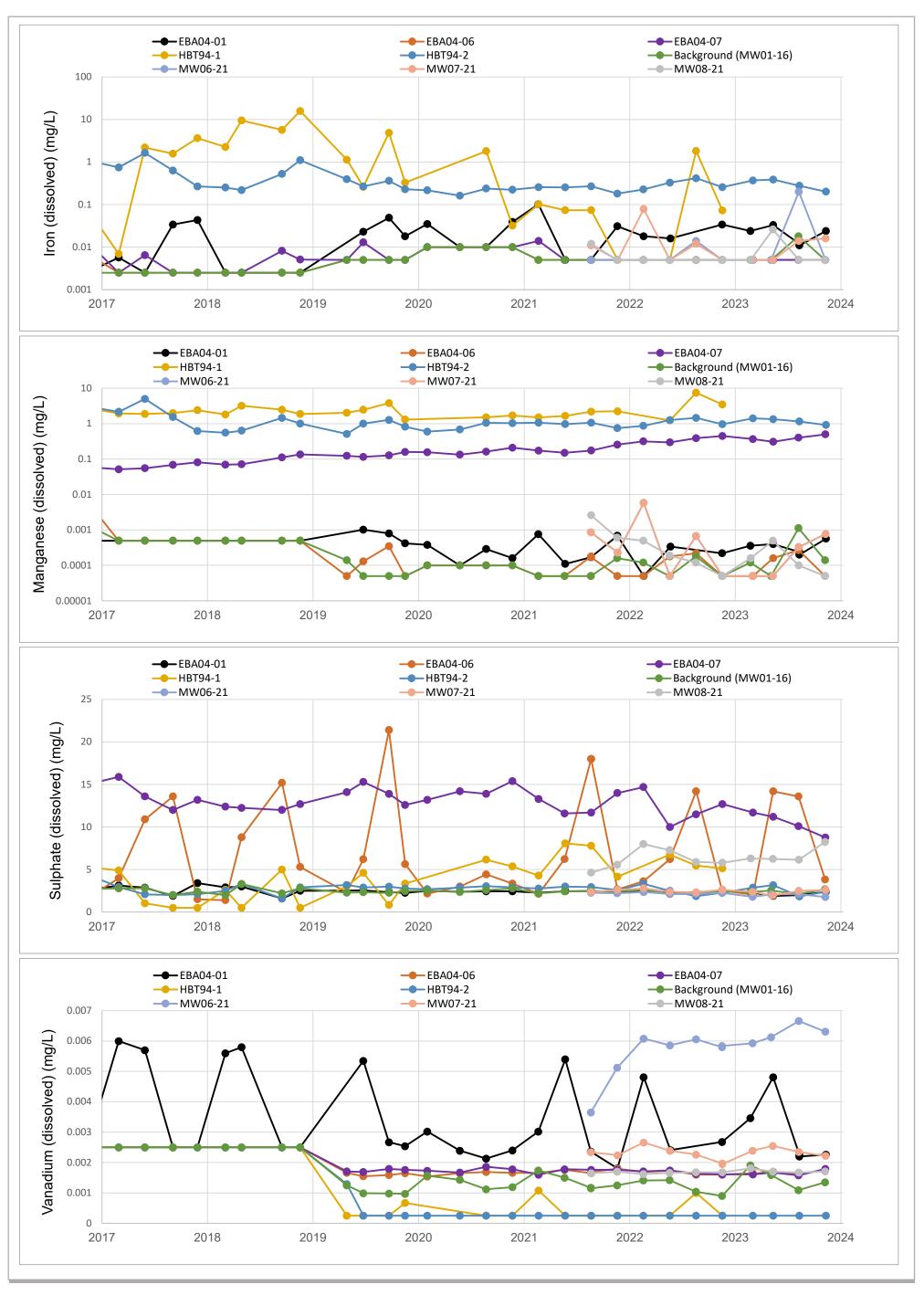




11209296-52 FIGURE NO. J-3

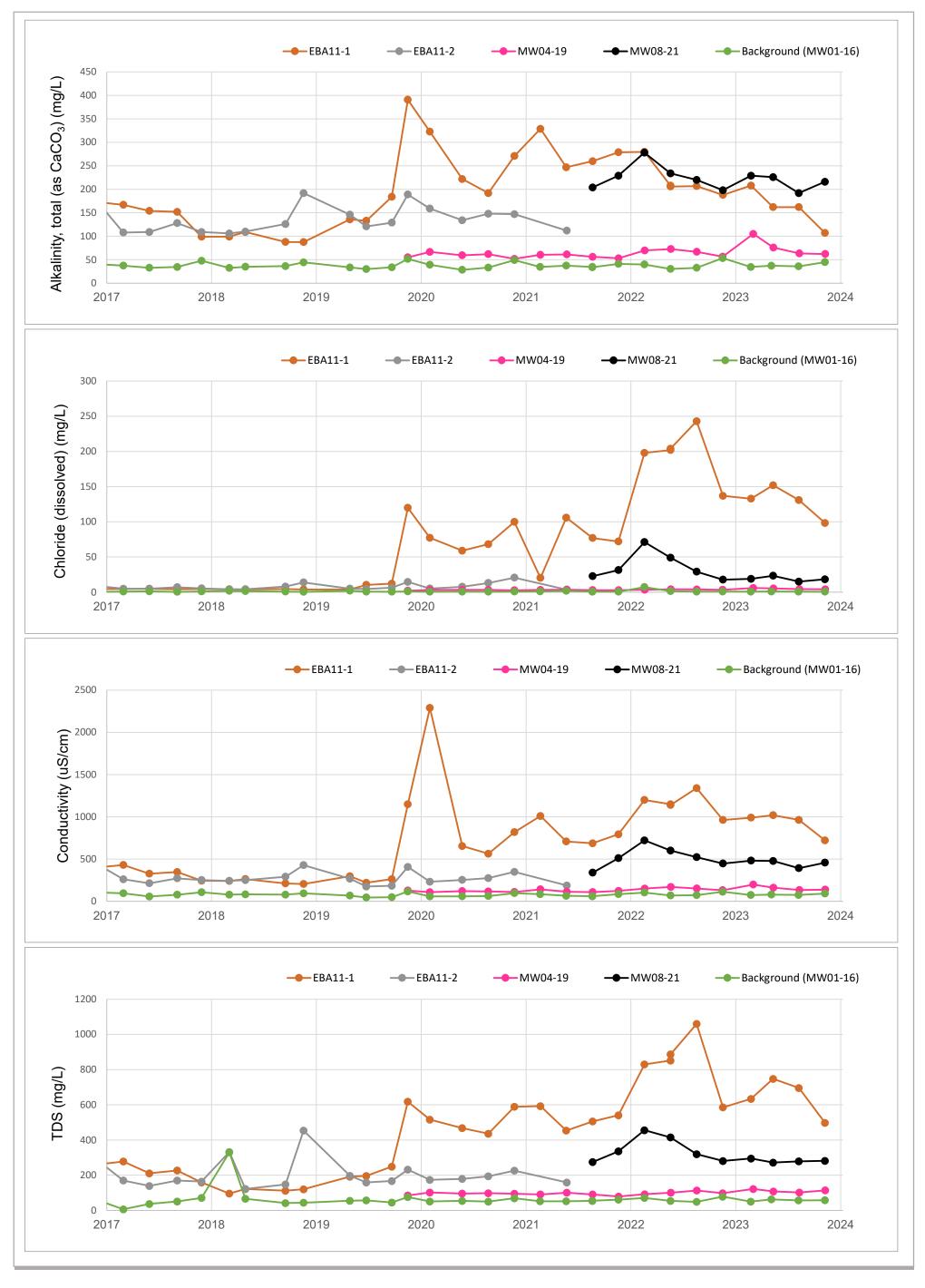
DATE

5-Mar-24



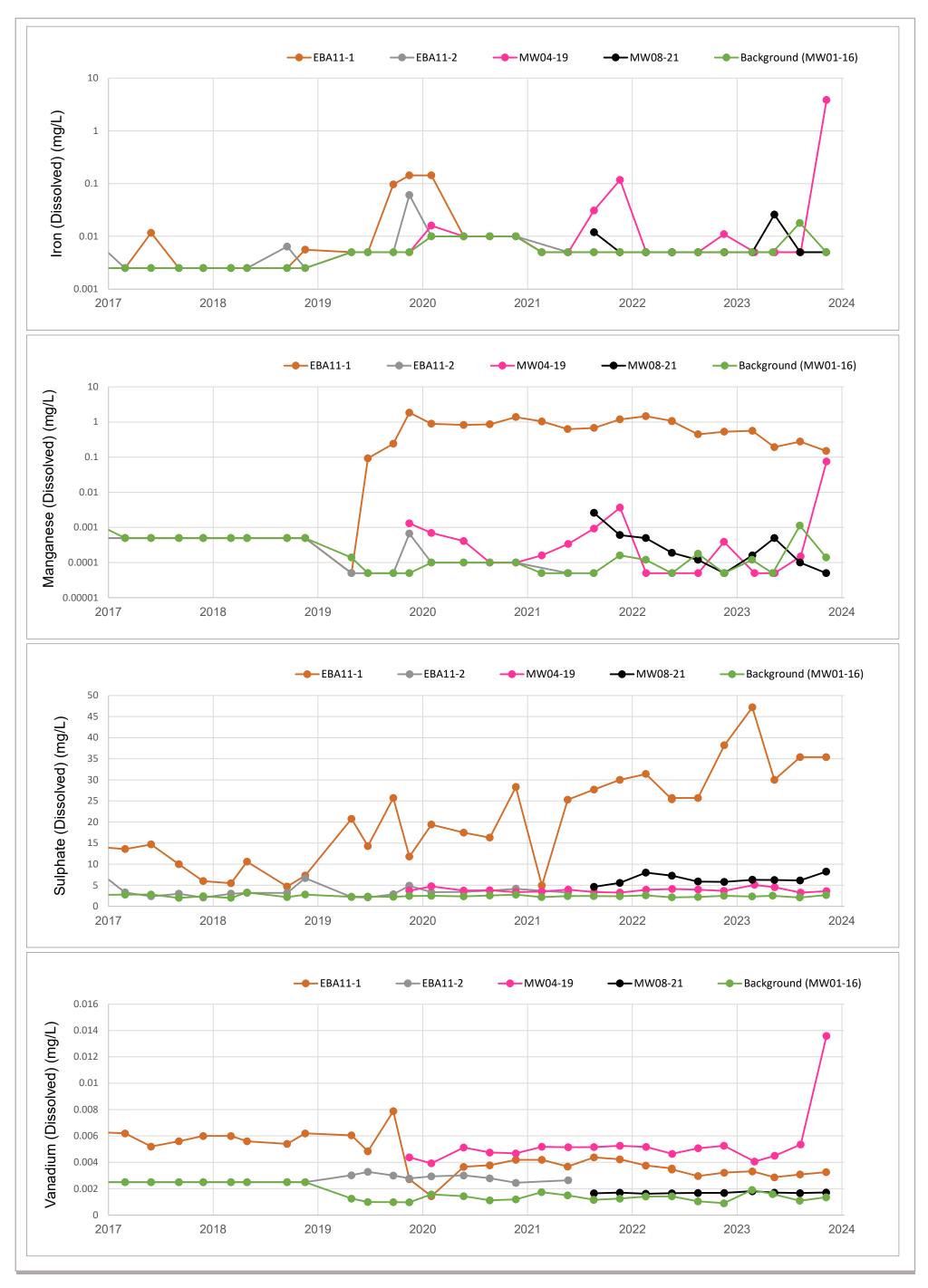


COMOX STRATHCONA WASTE MANAGEMENT
2023 OPERATIONS AND MONITORING REPORT
CAMPBELL RIVER WASTE MANAGEMENT CENTRE
GROUNDWATER - CONCENTRATION VERSUS TIME
LANDFILL VICINITY WELLS



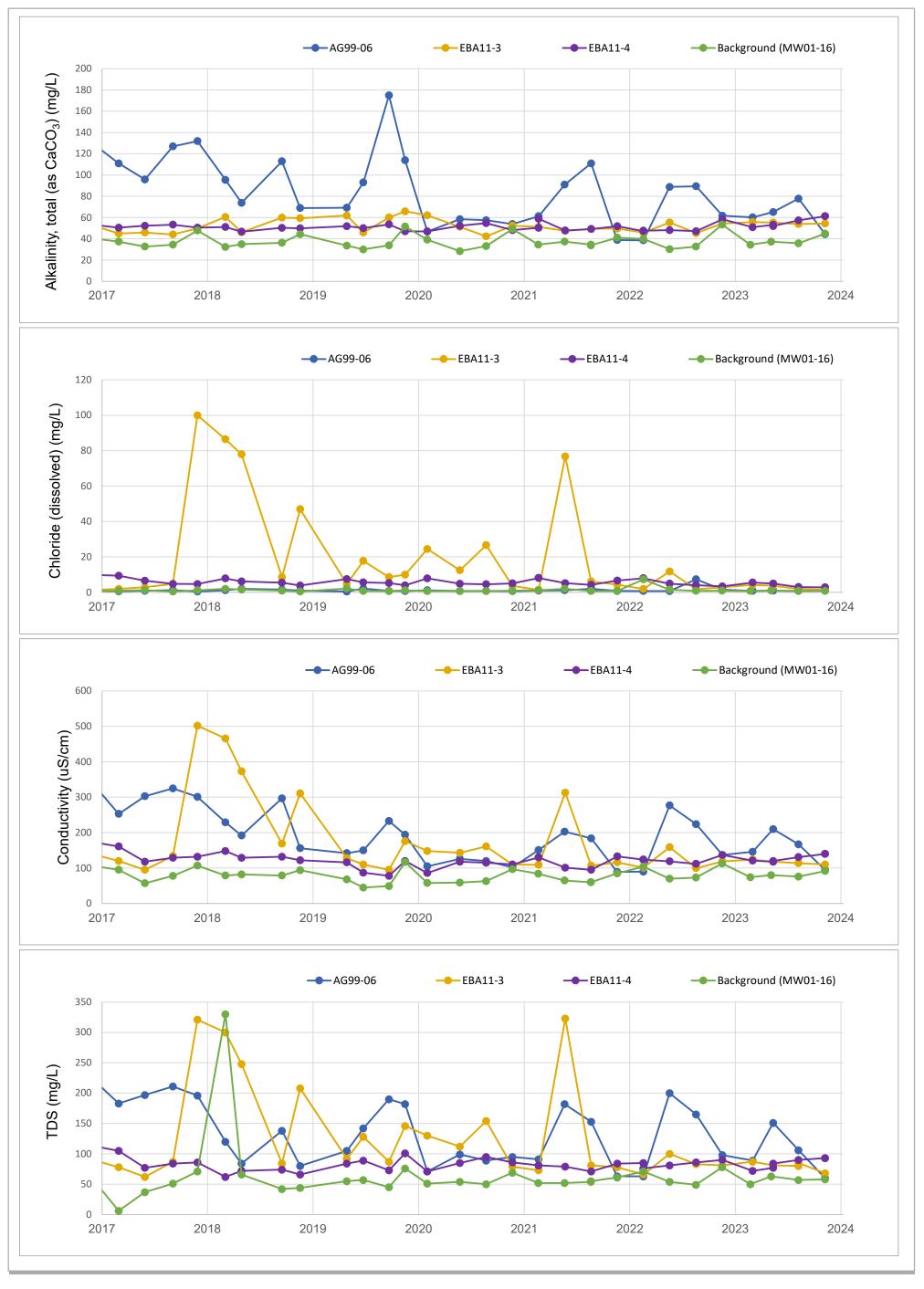


PROJECT NO. 11209296-52 DATE 5-Mar-24 FIGURE NO. J-5



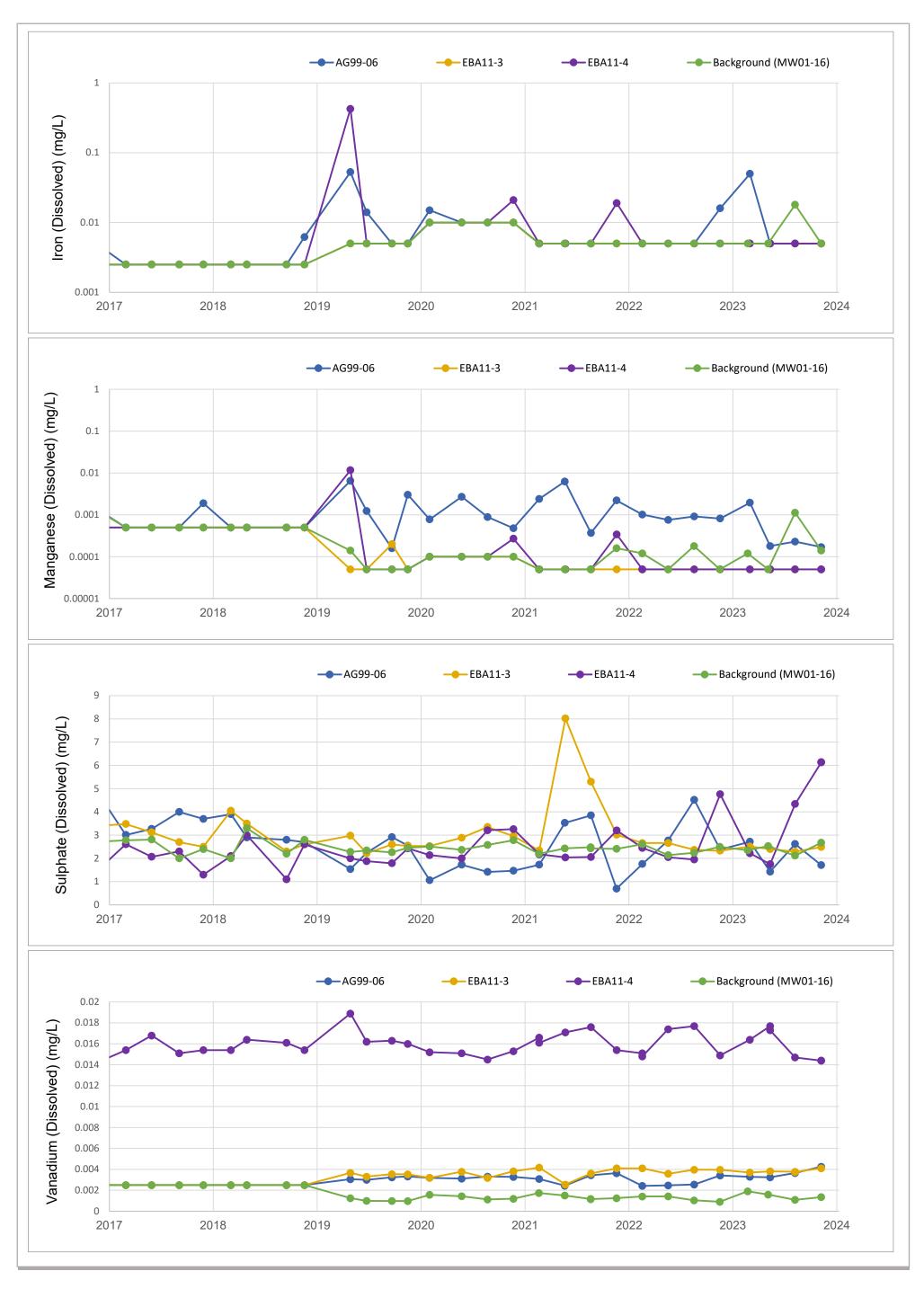


PROJECT NO. 11209296-52 DATE 5-Mar-24 FIGURE NO. J-6





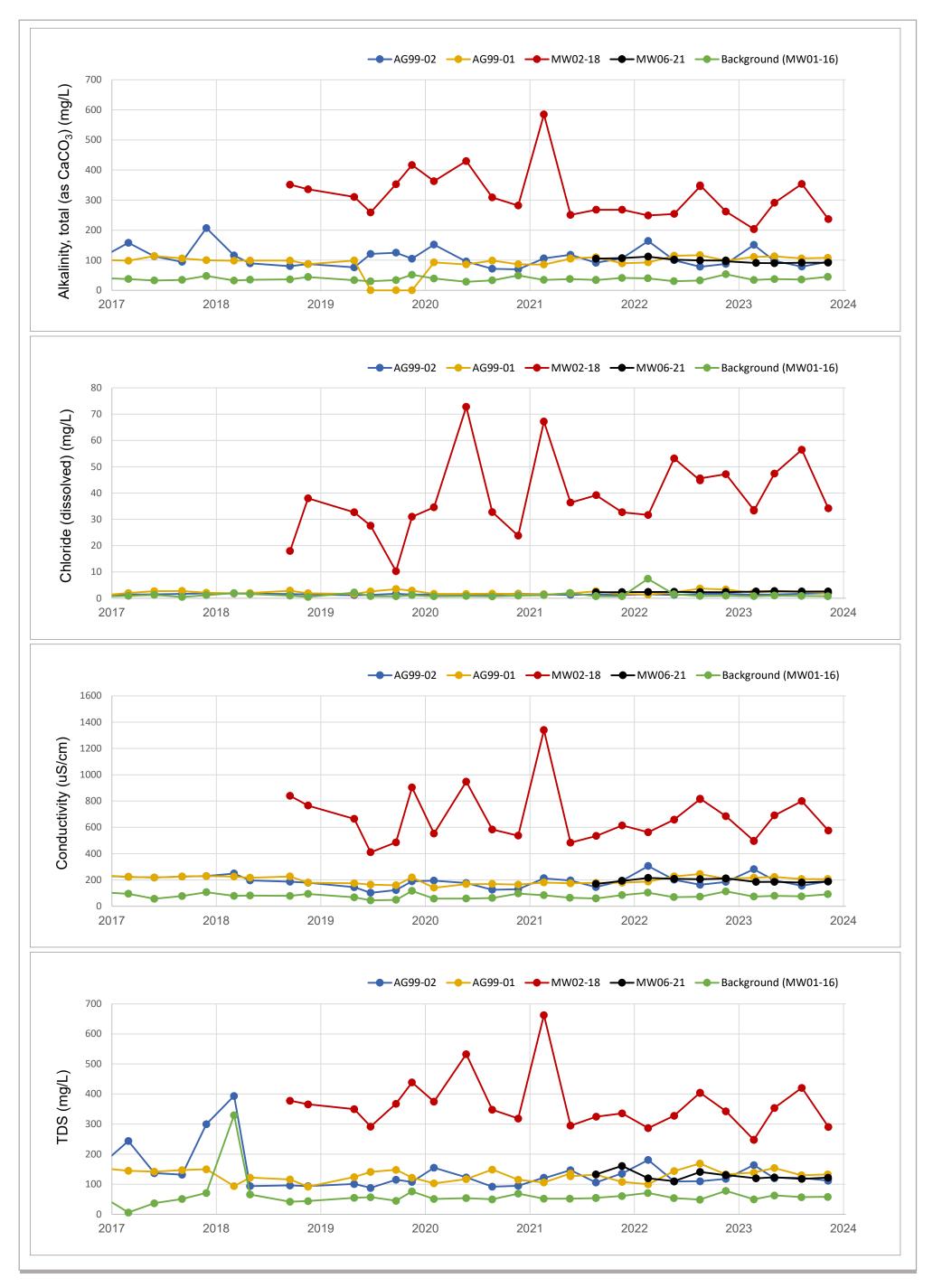
PROJECT NO. 11209296-52





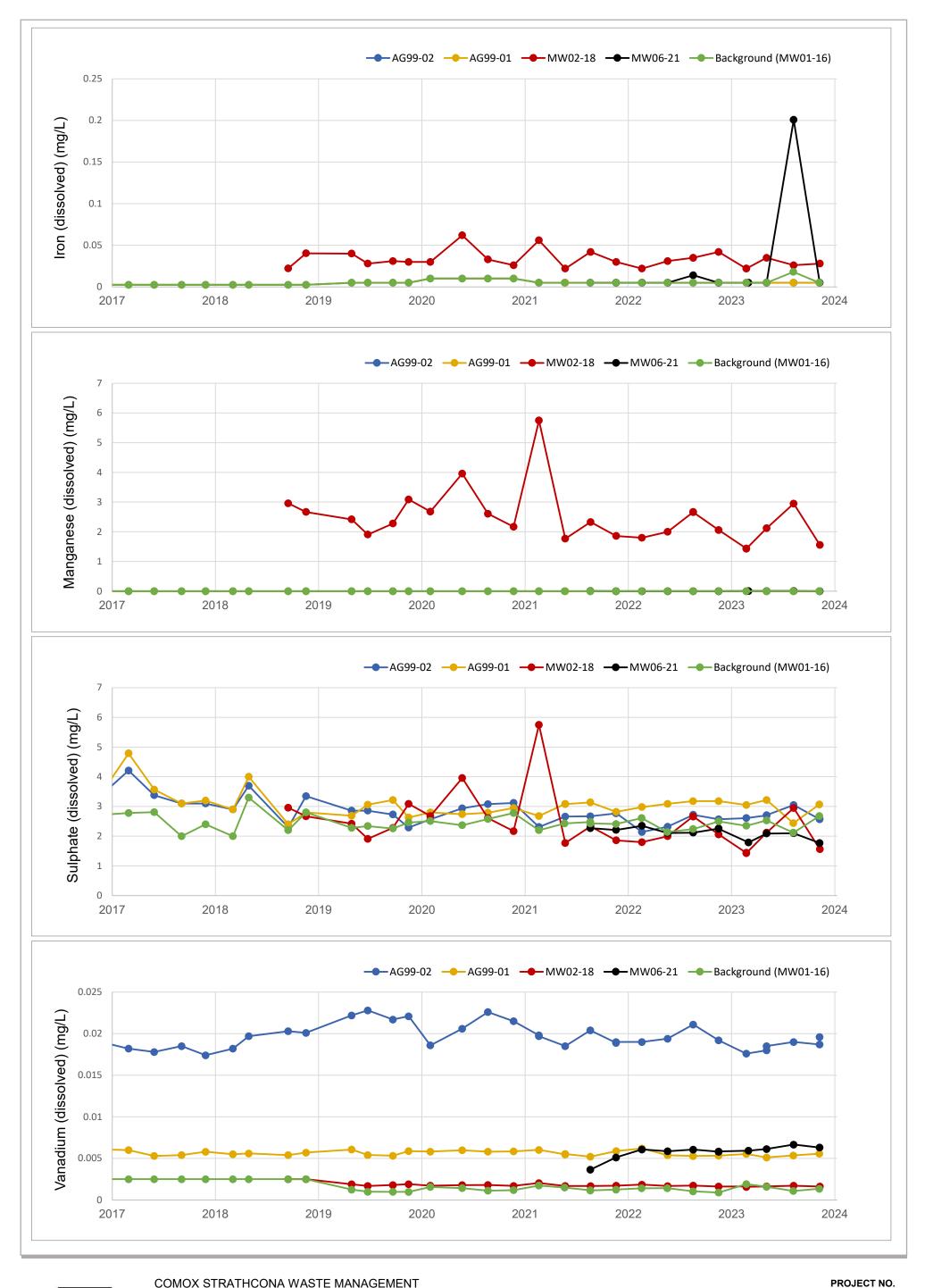
PROJECT NO. 11209296-52

DATE 5-Mar-24
FIGURE NO. J-8



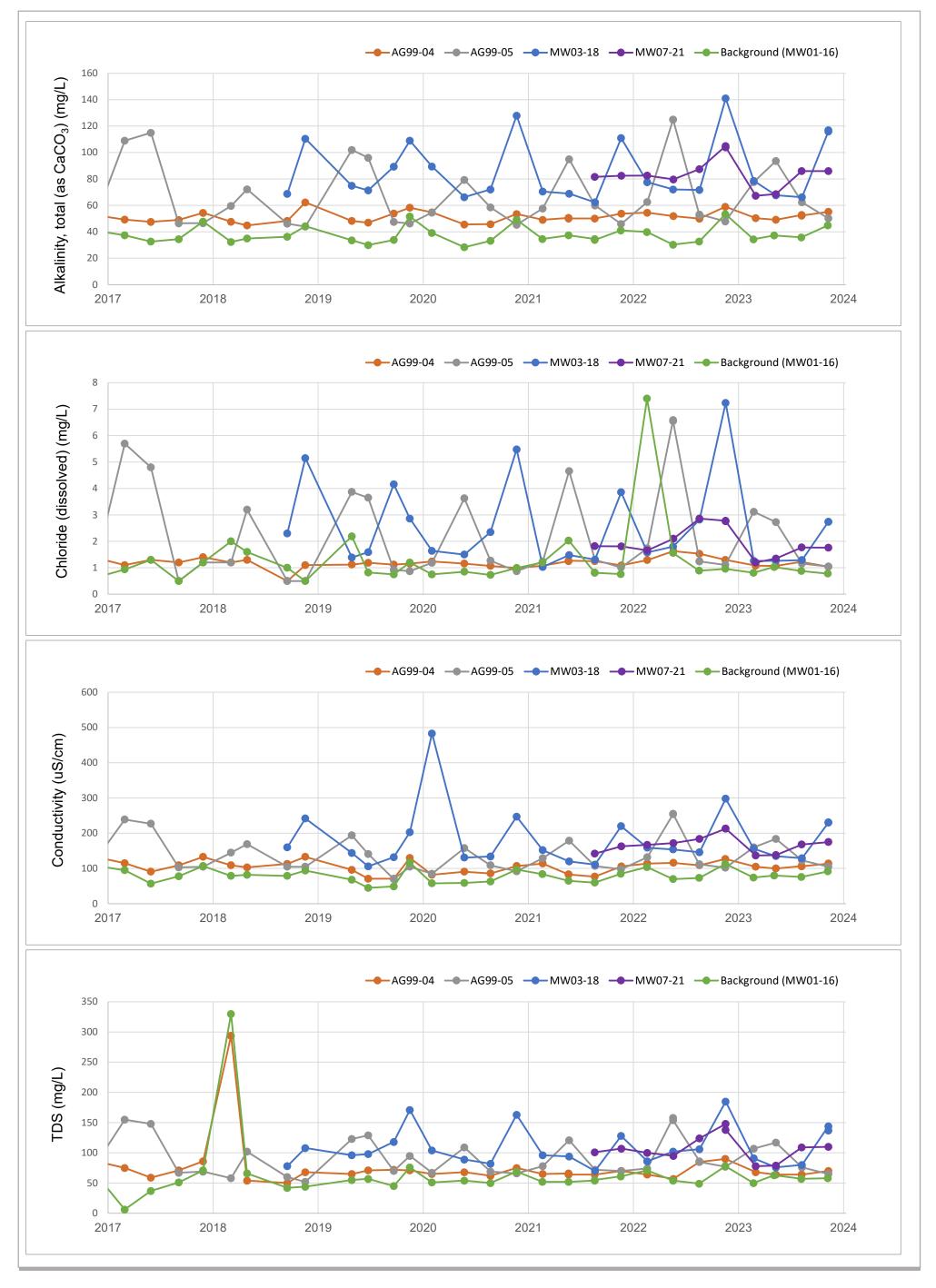


PROJECT NO. 11209296-52



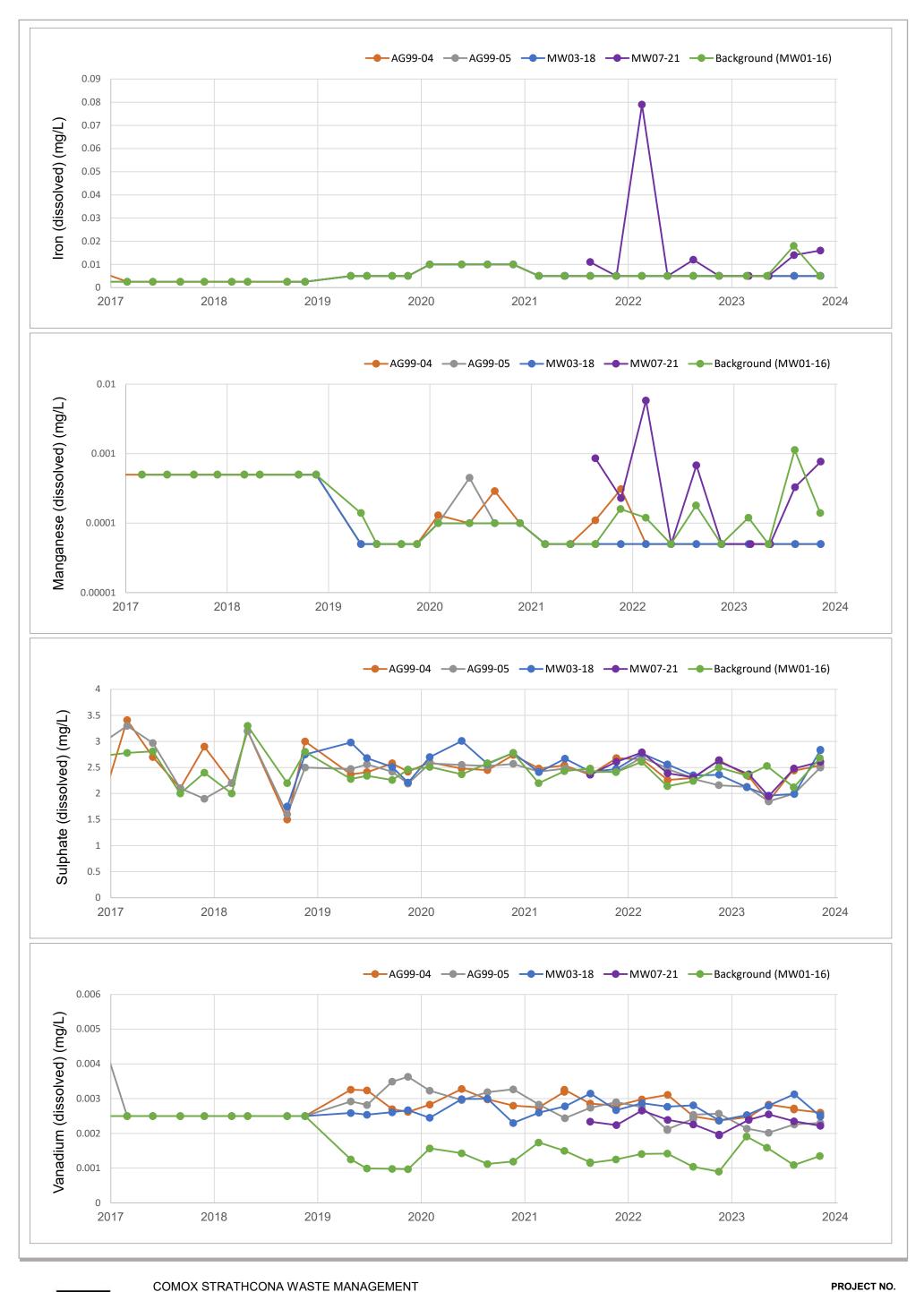


11209296-52



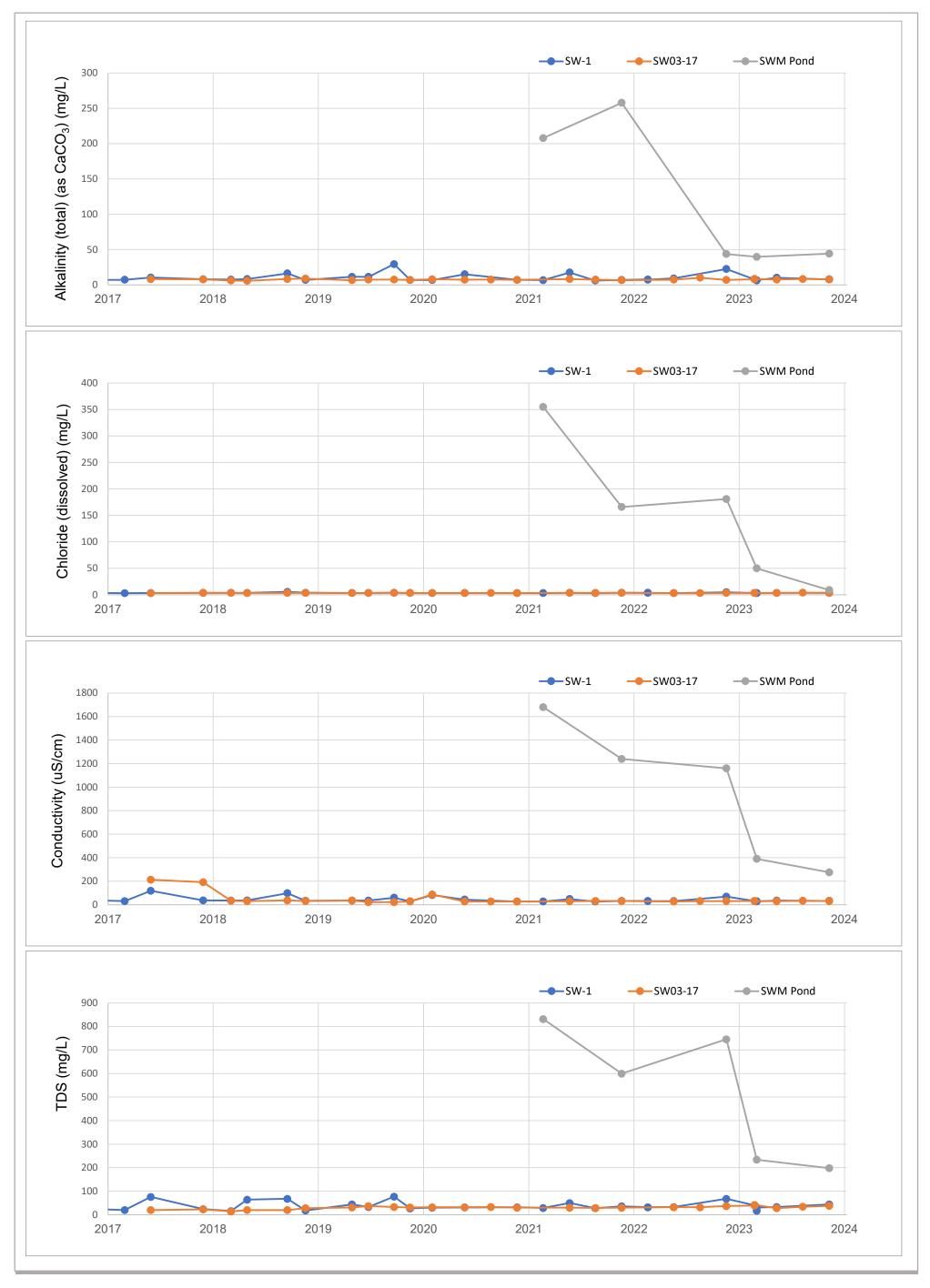


PROJECT NO. 11209296-52 DATE 5-Mar-24 FIGURE NO. J-11





11209296-52





COMOX STRATHCONA WASTE MANAGEMENT
2023 OPERATIONS AND MONITORING REPORT
CAMPBELL RIVER WASTE MANAGEMENT CENTRE
SURFACE WATER - CONCENTRATION VERSUS TIME

PROJECT NO. 11209296-52 DATE 5-Mar-24





PROJECT NO. 11209296-52 DATE 5-Mar-24

Appendix K

2024 Environmental Monitoring Specification

Environmental Monitoring Program Specifications – 2024

PROJECT: Comox Strathcona Waste Management
Campbell River Waste Management Centre

MONITORING STAFF: RESPONSIBILITY

Crystal Stuart Field Lead

LABORATORIES USED: ALS Environmental, Burnaby, BC

AUTHORIZATION: MONITORING EVENT(S)

Feb, May, Aug, Nov

Revision #	Date	Revision	GHD
1	April, 2014	Monitoring spec creation.	MND
2	June, 2014	39950, EBA06-1, and HBT94-4 removed from sampling program. Phosphorus analysis changed to metals analysis instead of colorimetric method.	MND
3	January, 2016	SW-2 added to surface water monitoring program, updated field and database staffing, added WG matrix to field blank.	TE
4	March, 2016	Added dissolved metals analysis to WS schedule to differentiate from total metals when comparing criteria	CR
5	January, 2017	Reduced sampling for VOCs to a semi-annual schedule (February and August).	MND
6	May, 2017	Added SW03-17 and well tag 109728 (domestic well) to the monitoring program. Switched WS metals analyses to low levels analysis.	MND
7	January, 2018	Removed well tag 109728 from monitoring program. Updated project staffing. Added TDS to the parameter list.	NT
8	April, 2019	Removed EBA04-4 and EBA04-3 from monitoring program, as both are inaccessible. Added MW02-18 and MW03-18 to monitoring program (began sampling in August 2018).	NT
9	April, 2020	Added MW04-19 to the monitoring program (began sampling in October 2019). Added sampling the stormwater management pond and recording the water level at Ladore Dam. Updated project staffing.	СТ
10	January, 2021	Updated PM. Removed lab pH from the GW and SW monitoring programs due to the 15-minute holding time. Field pH is more representative of sampling conditions.	NT
11	May, 2021	Removed HBT95-4 and GLL93-4 from the groundwater monitoring program, as per the 2020 Annual O&M Report, as they have consistently been dry for years. Removed EBA11-2 from the groundwater monitoring program since the well was found destroyed in Feb 2021.	NT
12	August, 2021	Added MW06-21, MW07-21 and MW08-21 to the groundwater monitoring program. Installation occurred in June 2021 as part of the 2017 DOCP.	NT
13	February, 2022	Added DOC to the SW monitoring program to be able to use the BLM calculator for copper.	NT

Sampling Schedule Environmental Monitoring Program Specification - 2024

				Quarterly	Semi-annual
Monitoring Location	Monitoring Location Purpose	Sample Matrix	Hydraulic Monitoring	Feb, May, Aug, Nov	Feb, Aug
Groundwater I	Monitoring Program (22 locations)				
AG99-01	Monitor downgradient groundwater quality to the east of the Site, off-Site.	WG	√	Schedule A	-
AG99-02	Monitor downgradient groundwater quality to the east of the landfill, off-Site, deep nested well	WG	V	Schedule A	-
AG99-04	Monitor downgradient groundwater quality to the east of the landfill, off-Site, deep nested well.	WG	√	Schedule A	-
AG99-05	Monitor downgradient groundwater quality to the east of the Site, off-Site, deep nested well.	WG	V	Schedule A	-
AG99-06	Downgradient of the landfill, northeast.	WG	√	Schedule A	Schedule B
MW01-16	Background.	WG	√	Schedule A	Schedule B
AM02-01	Background.	WG	√	Schedule A	Schedule B
EBA04-1	Tap from the building near the scalehouse.	WG	-	Schedule A	-
EBA04-6	Northeast toe of landfill, off-Site.	WG	√	Schedule A	-
EBA04-7	Northeast toe of landfill, off-Site.	WG	√	Schedule A	Schedule B
EBA11-1	Downgradient of the Site to the northeast, off-Site, shallow nested well.	WG	V	Schedule A	Schedule B
EBA11-3	Downgradient of the landfill to the northeast.	WG	√	Schedule A	Schedule B
EBA11-4	Downgradient of the landfill to the northeast.	WG	√	Schedule A	Schedule B
HBT94-1	Downgradient, southeast property line.	WG	√	Schedule A	-
HBT94-2	Downgradient, southeast property line.	WG	√	Schedule A	Schedule B
HBT94-3	Downgradient, southeast property line.	WG	√	Schedule A	-
MW02-18	Downgradient of the Site, east, off-Site.	WG	√	Schedule A	Schedule B
MW03-18	Monitor downgradient groundwater quality to the east of the Site, off-Site, shallow nested well.	WG	V	Schedule A	-
MW04-19	Downgradient of the landfill, northeast.	WG	V	Schedule A	-
MW06-21	Monitor downgradient groundwater quality to the east of the landfill, off-Site, shallow nested well.	WG	V	Schedule A	-
MW07-21	Monitor downgradient groundwater quality to the east of the landfill, off-Site, shallow nested well.	WG	√	Schedule A	-
MW08-21	Downgradient of the Site to the northeast, off-Site, deep nested well.	WG	√	Schedule A	-
Surface Water	Monitoring Program (4 locations)	-			
SW-1	Cold Creek Tributary.	WS	√	Schedule A	-
SW03-17	Unnamed Pond upstream of SW-1.	WS	√	Schedule A	-
SWM Pond	Surface Water Management Pond.	WS	√	Schedule A	-
Ladore Dam	Ladore Dam Reservoir (see link below).	WS	√	-	-
Field Quality A	ssurance/Quality Control				
Field Blank		WG	-	Schedule A	-
Groundwater D	uplicate	WG	-	Schedule A	Schedule B
Surface Water	Duplicate	ws	-	Schedule A (Feb only)	-
Trip Blank (VO	Os only)	WG	-	-	Schedule B

https://www.bchydro.com/energy-in-bc/operations/transmission-reservoir-data/previous-reservoir-elevations/vancouver_island/ladore_ldr.html

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Analytical Parameters Environmental Monitoring Program Specification - 2024

		1
Schedule A	Groundwater	Surface Water
Hydraulic Monitoring		
Water level	√	_
Depth to bottom of well	, √	_
Flow	-	
Field Parameters		·
Dissolved Oxygen (mg/L)	√	
Oxidation-Reduction Potential (mV)	√ √	√
pH (s.u.)	√ ·	√ √
Conductivity (µS/cm)		
Temperature (deg C)	$\sqrt{}$	
Total Dissolved Solids (mg/L)	$\sqrt{}$	
Turbidity (ntu)	\checkmark	\checkmark
General Chemistry & Nutrients		
Alkalinity (Speciated)	V	√
Chloride (Dissolved)		$\sqrt{}$
Fluoride	$\sqrt{}$	$\sqrt{}$
Conductivity	$\sqrt{}$	\checkmark
Sulphate (Dissolved)	$\sqrt{}$	$\sqrt{}$
Total Dissolved Solids (TDS)	$\sqrt{}$	\checkmark
Ammonia-N	\checkmark	\checkmark
Nitrate (as N)	\checkmark	\checkmark
Nitrite (as N)	\checkmark	\checkmark
Nitrate/Nitrite (N+N)	\checkmark	\checkmark
Dissolved Organic Carbon (DOC)	-	\checkmark
Metals		
Dissolved CSR Metals (incl. Hg)	√	
Dissolved Hardness (as CaCO ₃)	\checkmark	\checkmark
Total CSR Metals (incl. Hg)	-	\checkmark
Schedule B		
VOCs	$\sqrt{}$	-
Petroleum Hydrocarbons	-	
Total VH (C6-C10)	V	-
Total VPH (C6-C10) less BTEX	$\sqrt{}$	-
i.		·

