BACK RIVER GOLD MINE PROJECT 2023 ANNUAL REPORT:
COMMENT RESPONSE

DATE
August 6, 2024

CONTENTS

1. KITIKMEOT INUIT ASSOCIATION

1.1 COMMENT NUMBER: KIA-NIRB-01

Subject/Topic	Vegetation Monitoring Plan, 86% reduction in plots
References	Back River NIRB 2023 Annual Report, V. 1 ◆ Section 4.5.9, Vegetation Monitoring Plan ◆ TC No. 34
Summary	Project Condition No. 34 includes reporting on inspections and monitoring results in annual report
Detailed Review	The reporting requirements of TC No. 34 is that: "The Proponent shall have in place a Vegetation Monitoring Plan that is designed to quantify the potential impacts on vegetation from the Project, including the annual construction/operation of the winter ice roads and trails. The plan should include all commitments discussed throughout the Review of the Project, including commitments to consult with the Kitikmeot Inuit Association, the Government of Nunavut, and other relevant parties, as well as: a. Establishment of pre-construction and post-operation vegetation conditions annually with supporting photographs to allow for long-term comparisons of vegetation conditions along winter ice road/trail routings and around project sites; b. Incorporation of measures to prevent or minimize potential destabilization and erosion along winter ice road/trail routings and around project sites; c. Details on the triggers for implementing adaptive management options if effects to vegetation are observed, including potential impacts from dust deposition; and, d. Discussion of how the findings from monitoring efforts would be used to inform reclamation planning." The results presented for 2023 in the annual report show that, out of 72 paired plots established in previous years, only 10 experimental plots were monitored. The rest of the plots were lost due to the WIR construction and a change in alignment. While the self-reporting in the annual report indicates that the program was compliant, this drastic reduction in plot numbers does not enable the quantification of potential impacts on vegetation from the project, interferes with establishment of pre-construction and post-construction comparisons, and prevents the evaluation of erosion along the WIR. To remain compliant with this TC, B2Gold needs to plan sufficient vegetation plots, and to be able to receive and respond to project construction changes that impact their ability to meet a term or condition. In this case, the loss of most of the plots threatens the success of the vegetation monitoring program to be able to meet TC No. 34. In 2023, B2Gold would be considered non-comp
Recommendation/ Request	The loss of most vegetation monitoring plots in 2023 edges towards non-compliance for TC # 24. The KIA requests the following:

	◆ A submission of an updated vegetation monitoring plan with additional, paired vegetation monitoring plots to compensate for the majority that were lost from the program. ◆ An explanation of how B2Gold will meet the commitment to "quantify the potential impacts on vegetation from the Project, including the annual construction/operation of the winter ice roads and trails." And for the "Establishment of pre-construction and post-operation vegetation conditions annually" given the loss of most of their monitoring plots due to the change in WIR alignment. ◆ An explanation of how data will be analyzed to reach conclusions of impacts to compare pre- and post-construction conditions now that most plot locations will be changed and their ability to conduct a BACI design and analysis, or even a CI design and analysis, is now greatly compromised. ◆ Given that the design of the vegetation monitoring program has been compromised, how will B2Gold ensure that they are conservative with their interpretation of vegetation impact data and the potential for the project to have caused effects going forward?
Importance	High
B2Gold Nunavut Response	◆ Photographic monitoring of the winter ice road (WIR) vegetation plots in 2024 has been completed at 12 paired plot locations. B2Gold will commit to adding additional WIR monitoring plots along the current WIR during the 2025 vegetation monitoring program. ◆ Going forward, potential impacts to vegetation along the WIR will be given a quantitative disturbance ranking annually as part of the photographic monitoring. These rankings will be presented in the NIRB annual report and can be compared with previous years. The rankings will be: • NA = No visible damage; • Low = 0 to 25% vegetation in plot necrotic/damaged; • Moderate = 26 to 50% of vegetation in plot necrotic/damaged; • High = 51 to 75% of vegetation in plot necrotic/damaged, and; • Very High = >75% of vegetation in plot necrotic/damaged, nearly no living vegetation. ◆ Data from the original WIR monitoring plots can still be used as comparison to pre-construction conditions of the existing plots on the alignment. As well, the paired design of the WIR plots includes an experimental plot on the road alignment and a reference plot adjacent to but not on the road alignment and far enough from the WIR to not be impacted by future possible WIR disturbances. Both conditions allow for accurate quantification of the impacts of the WIR on vegetation. Using the quantitative method of assessing impacts to the vegetation on the WIR annually and comparing these values to previous years, B2Gold can be confident in the interpretation of vegetation impact data going forward.

1.2 COMMENT NUMBER: KIA-NIRB-02

Subject/Topic	Wildlife Mitigation Measures for Attractants
References	Back River NIRB 2023 Annual Report, V. 1 ◆ Section 4.5.10, Terrestrial Wildlife and Wildlife Habitat ◆ TC No. 48
Summary	The annual Report TC No. 48 includes results of attractant management mitigation to minimize potential impacts to wildlife from attraction to project infrastructure.
Detailed Review	The objective of TC No. 48 is that "The Proponent shall develop and implement mitigation measures and monitoring programs to limit the attraction of predators and scavengers to Project facilities, and to limit impacts from specific project activities". The reporting requirement is to include "Information regarding mitigation measures implemented and/or updated by the Proponent in fulfillment of this Term and Condition shall be included in Wildlife Mitigation and Monitoring Program Plan (WMMPP) and in the Proponent's annual report to the Nunavut Impact Review Board". While B2Gold has met their reporting commitments, it is unfortunate that two wolverines, species at risk, had to be euthanized following attraction to the incinerator. This appears to have been due to consequence poor attractant management implementation (buildup of attractants and leaving the door open) at the incinerator facility. This issue of wolverines entering the facility and acting aggressively was noted in the previous annual report and technical comments from the KIA urged for urgency in additional adaptive management to correct underlying causes. This issue escalated in severity since prior years and was not resolved. As such, it is difficult to agree with the conclusion of compliance for the objective of "The Proponent shall develop and implement mitigation measures and monitoring programs to limit the attraction of predators and scavengers to Project facilities, and to limit impacts from specific project activities."
Recommendation/ Request	B2Gold needs to demonstrate that they are properly implementing mitigation and have implementation checks and adaptive management procedures in place to quickly intervene when systems are not working and to prevent ongoing issues leading to wildlife mortalities. Previous incidents and technical comments from the KIA do not appear to have been ascribed the importance or urgency they deserved, culminating in the mortalities of two Species at Risk. In addition to written comments in response, the KIA would like to Page | 9 P.O. Box 360 Kugluktuk, NU X0B 0B0 Telephone: (867) 982-3310 Fax: (867) 982-3311 www.kitia.ca have a meeting with B2Gold after the submission of technical comments to hear about how B2Gold is addressing concerns at the site with those directly involved in operations on the ground at these facilities.
Importance	High
B2Gold Nunavut Response	B2Gold Nunavut understands the importance of managing wildlife attractants to ensuring the safety of wildlife and personnel on site. Waste management facilities, such as the incinerator, require additional management measures as the consistent presence of various wildlife attractants can lead to wildlife being attracted to these buildings. As part of the upcoming Caribou Technical Advisory Group meeting (CTAG), B2Gold will discuss with the KIA, the past issues with wolverine attraction, the adaptive mitigation measures that have been implemented to date, and further measures that can be applied, as necessary. Implementation of adaptive management at the incinerator is ongoing with mitigation in place over the past two decades at site and intermittent sightings of

	wolverine at the camp over the years. As the site moved to construction and the volume of waste being processed at the incinerator increased, in 2024, B2Gold Nunavut began completing more frequent inspections of the incinerator which has led to additional mitigation being implemented. For example, in April 2024, it was indicated to the Environment Department that there was a wolverine trying to access the incinerator and had accessed waste. As a result, B2Gold Nunavut implemented the following mitigation measures to ensure the wolverine did not access the incinerator: • The incinerator building was further secured to ensure wildlife did not have access; • All waste was housed in a locked Seacan; • B2Gold Nunavut Environment Staff conducted continuous monitoring (including overnight) to ensure wolverines were deterred if they attempted to access the incinerator; • B2Gold Environment staff successfully used deterrence measures (e.g., bear bangers) during two of the nights, resulting in the wolverine being safely deterred, and did not return; • A waste management inspection of the Goose Property was completed for all work areas and pads, primarily focusing on the main camp, exploration camp, major drilling, and the landfill, with no litter or misdirected waste noted across site. • As a result of proper adaptive mitigation and waste management, the wolverines were deterred and did not return and no wolverine mortalities have been reported in 2024. B2Gold Nunavut understands that managing wildlife attractants at site is an ongoing process and is committed to continuing and improving mitigation and management. Information on the updated mitigation and management of attractants and wolverine will be included in the 2024 annual report.

1.3 COMMENT NUMBER: KIA-NIRB-03

Subject/Topic	Wildlife Incident Reports, 2023
References	Back River NIRB 2023 Annual Report, V. 1- App K. WMMP ◆ App K WMMP - Appendix G, Terrestrial Wildlife and Wildlife Habitat
Summary	A bird mortality of a short-eared owl was included in Appendix G-7 of Appendix K (WMMP Report) in 2023. The incident describes a short eared owl that was found dead near the transfer conduit. The cause of death was assumed to be contact with the transfer conduit, which may be a simplistic assumption of causation.
Detailed Review	A short-eared owl was found deceased beside the transfer conduit, and the assumed cause of death was “contact with the conduit”, which rests 24-30 inches off the ground. The reviewer finds it difficult to believe this is a case of a straightforward strike with an object. Owls have “binocular” vision, with acute depth perception that allows them to gauge distance to perfectly time their attacks. Owls have proportionally large eyes compared to most other species in the animal kingdom and their pupils dilate extremely widely to bring in light in low light, nocturnal and foggy conditions. On top of this, they have extremely light-sensitive cells in their retinas (owls have a ca. 33% higher rod: cone ratio compared to humans). Along with their superior vision, owls have evolved wing structures that make them extremely agile flyers with the ability to swiftly brake and change directions. These factors make them unlikely to collide with things, and without

	other contributing factors, it would be highly unusual for this species to simply crash into something without seeing it and being unable to quickly stop or turn to avoid it. Prior experience by the reviewer has often found poisoning and/or avian disease to be a causal factor of mortalities due to disorientation in this group. Owls are frequently poisoned due to their position on the food chain eating small mammals that have ingested contaminants. They have also been shown to be susceptible to chemical inhalation. Finally, because this species migrates, it may have been exposed to diseases such as pigeon herpesvirus (Columbid herpesvirus-1; CoHV-1) or avian flu. Factors such as inhalation of gases, consumption of toxins and/or disease (e.g., CoHV-1, avian influenza) can lead to an owl or other bird species becoming disoriented and colliding with an object.
Recommendation/ Request	If owls (or other raptors/waterfowl/geese) are found dead at sight, please send them for a necropsy to rule out inhalation and consumptive poisoning and to test for avian diseases such as CoHV-1 or avian flu. Such information will be important for adaptive management. We note that, as researchers seek to establish the current range of the very contagious avian flu in the Arctic, which can be transferred to humans, such information will also be vitally important for informing Inuit of areas where they should avoid bird and egg harvest.
Importance	High
B2Gold Nunavut Response	When B2Gold Nunavut finds any dead birds at site, we collect and freeze the specimen and report the observation to the relevant authorities, as listed in the WMMP Plan. B2Gold Nunavut will ensure that if owls or other raptors/waterfowl/geese are found dead at site, they will be offered to interested parties to be sent for a necropsy to rule out inhalation and consumptive poisoning, and to test for avian diseases such as CoHV-1 or avian flu, as requested by the KIA.

1.4 COMMENT NUMBER: KIA-NIRB-04

Subject/Topic	Calculations of caribou UD overlap with PDA
References	Back River NIRB 2023 Annual Report, V. 1- App K. WMMP ◆ App K WMMP – Table 3.4-2
Summary	Table 3.4-2 summarizes the overlap of the Back River PDA (Goose and MLA combined) with Bathurst and Beverly/Ahiak seasonal range UDs, 2023.
Detailed Review	The amount of overlap calculated between the PDA and caribou seasonal utilization distributions are very small, with most registering at 0% at the 3 decimal point level of significant digits. The relatively highest overlap is between the PDA and the Bathurst herd's 50% UD during spring migration (0.071% overlap). The numbers shown in Table 3.4-2 are helpful, but it would be much more realistic and meaningful to include additional calculations for the percentage overlap between the ZOI, or distance at which mitigation is triggered, and these UDs. This would be the more meaningful percentage that accounts for direct and indirect habitat loss or functional habitat quality reduction for each of these herds.
Recommendation/ Request	Please include percentages for both UDs overlap with the PDA as well as the PDA + zone of influence in present and future analyses.
Importance	High

B2Gold Nunavut Response

The objectives of monitoring seasonal ranges of caribou using collar data are the following (Section 7.2.1.1 of the WMMP Plan):

1. Identify if and when caribou may interact with the Project site so that monitoring and mitigation activities can be planned for caribou, e.g., wildlife monitors can be on-site to conduct active caribou monitoring and mitigation.
2. Identify if the calving ground of the Bathurst or Beverly/Ahiak caribou herd has moved to overlap the Project site.

The objectives of monitoring seasonal ranges of caribou using collar data are not to calculate habitat loss; habitat loss is monitored annually and is presented in Section 2.1 of the 2023 WMMP Report.

The PDA already buffers the mine footprint, as a small percentage of this PDA will in fact be built (e.g., in 2023, 3% of the Goose PDA was constructed), already incorporating a zone of influence. B2Gold Nunavut can discuss the option of presenting the UD's overlap with the mine site footprint each year, plus a ZOI, in lieu of what is already being presented (UDs overlap with PDA) at the next CTAG meeting. However, it should be noted that the objectives of monitoring seasonal ranges are to identify when caribou interact with the project and to identify if calving grounds of moved.

For 2023 data, B2Gold Nunavut has completed an updated assessment of seasonal utilization distribution overlap using a predicted 5 km ZOI around the Back River PDA (Goose and MLA combined), which is presented below, to illustrate the minor changes in the results.

Season	Bathurst		Beverly/Ahiak	
	50% UD	95% UD	50% UD	95% UD
Winter	0.000%	0.146%	0.000%	0.131%
Spring migration	0.423%	0.279%	0.512%	0.155%
Calving	0.000%	0.000%	0.000%	0.000%
Post-calving	0.000%	0.000%	0.000%	0.000%
Summer	0.000%	0.000%	0.017%	0.112%
Late Summer	0.000%	0.000%	0.245%	0.117%
Fall migration (pre-breeding)	0.000%	0.000%	0.000%	0.174%
Rut	0.000%	0.000%	0.000%	0.209%
Fall migration (post-breeding)	0.000%	0.000%	0.000%	0.000%

1.5 COMMENT NUMBER: KIA-NIRB-05

Subject/Topic	in WMMPP
References	Back River NIRB 2023 Annual Report, V. 1 ◆ Section 4.5.10, Terrestrial Wildlife and Wildlife Habitat ◆ TC No. 39
Summary	The annual Report TC No. 39 includes a next steps section that references the wrong project phase.
Detailed Review	The annual report summary below the table for TC No. 39 states that "B2Gold Nunavut will continue to utilize the updated WMMPP (Version 12, April 2023) to conduct mitigation and monitoring relevant for the Pre-Construction Phase of the WMMP Plan…". This should read Construction Phase, as the project has now entered the official construction phase.
Recommendation/ Request	Please modify the Next Steps section on Page 4-96 from Preconstruction to construction.
Importance	High
B2Gold Nunavut Response	B2Gold Nunavut thanks the reviewer for pointing out this error. The Next Steps section on Page 4-96 will be modified from "Pre-construction" to "construction".

1.6 COMMENT NUMBER: KIA-NIRB-06

Subject/Topic	Reporting on progressive reclamation of vegetation, or that none has Been done.
References	Back River NIRB 2023 Annual Report, V. 1 ◆ Section 4.5.9 Vegetation, Site Footprint
Summary	The Term or Condition #32 associated with Project Certificate requires the proponent to account for the current project footprint considering construction and progressive reclamation activities; the latter is not commented on.
Detailed Review	The reporting requirement for TC 32 is: "In the Proponent's annual report to the Nunavut Impact Review Board, the Proponent shall provide information regarding the current Project footprint, taking into account construction and progressive reclamation activities, and including information regarding the loss or alteration of vegetation associated with Project activities (including identifying the type of any habitat losses resulting from these effects)". There is no comment on progressive reclamation attempted or initiated at temporarily disturbed sites. While the KIA recognizes that B2Gold has likely not initiated any, progressive reclamation is meant to be initiated as early as possible (e.g., It could be initiated along the former alignment of the Winter Ice Road now that the alignment has been adjusted). If no progressive reclamation has been initiated, please report that within the annual report. However, as there was a great deal of uncertainty about how well various approaches to progressive reclamation would work – given the long time periods for vegetation growth in the Arctic, pilot projects to test various methods may best be initiated soon to inform subsequent progressive reclamation and reclamation/revegetation at closure.
Recommendation/ Request	Please include information on any progressive reclamation activities initiated or planned in each annual report.
Importance	Moderate

B2Gold Nunavut Response	At this time, no progressive reclamation has been initiated as we are still in construction and there are no areas requiring remediation. The status of progressive reclamation will be communicated in future annual reports.

1.7 COMMENT NUMBER: KIA-NIRB-07

Subject/Topic	Monitoring for Invasive Species SOP Compliance
References	Back River NIRB 2023 Annual Report, V. 1 ◆ Section 4.5.9, Invasive Species
Summary	Project Condition No. 33 includes reporting on inspections and monitoring results in annual report.
Detailed Review	The reporting requirements of TC No. 33 is that: "At least 30 days prior to first shipment of equipment and supplies to the site, the Proponent's mitigation plans, protocols, monitoring and inspection program required in fulfillment of this Term and Condition shall be provided to the Nunavut Impact Review Board for review. Subsequently, information regarding inspections, monitoring results and any reports to the Government of Nunavut Department of Environment as referenced above shall be included in the Proponent's annual report to the Nunavut Impact Review Board." The Annual Report Notes that an SOP was provided to the NIRB which "ensures all equipment and bulk samples arriving at the Back River Project site are in a condition free of any soil or plant debris to minimize the risk of introduction". From the annual report, however, there appears to be no inspections/ monitoring for compliance with the SOP, and no information on results of inspections of equipment or bulk samples are provided in the report to show compliance with the second part of TC NO. 33 "Subsequently, information regarding inspections, monitoring results and any reports ……shall be included in the Proponent's annual report to the Nunavut Impact Review Board". [Note: While the proponent notes that the Vegetation Monitoring Plan includes documenting invasive species, the vegetation plots were dramatically reduced to 10 small plots in 2023; See KIANIRB-1].
Recommendation/ Request	Please include inspections of equipment and bulk samples for compliance with the invasive species SOP. Please report on inspections in future annual reports to show compliance.
Importance	Moderate
B2Gold Nunavut Response	B2Gold Nunavut provided Pre-Shipment Equipment Cleaning SOPs and Verification forms in Appendix I of the 2023 Annual Report.

1.8 COMMENT NUMBER: KIA-NIRB-08

Subject/Topic	Wildlife Monitoring and Adaptive Management Measures to mitigate potential impacts to wildlife through interactions with water attenuation ponds and/or tailings storage areas.
References	Back River NIRB 2023 Annual Report, V. 1 ◆ Section 4.5.10, Terrestrial Wildlife and Wildlife Habitat ◆ TC No. 47

Summary	The annual Report for TC No. 47 notes that methods for achieving this TC are not applicable because there are no water attenuation ponds or tailings storage areas occurring at the project currently.
Detailed Review	While there are currently no water attenuation ponds and tailings storage areas, there soon will be in the latter part of 2024/2025. The current WMMP would need to be updated this year to include deterrence and monitoring of deterrence effectiveness for these features. Currently, Section 7.1.10 and 11.1.8 of the WMMP describe the water quality monitoring of these water features and mitigation to exclude caribou, other large mammals and waterbirds if required, but there is not a clear adaptive framework showing which deterrence would be used if required. More importantly, details are not presented on monitoring of the effectiveness of these systems, including methods, frequency, efforts, and adaptive feedback into the program. An update of these sections in anticipation of potentially contaminated water on site is required in preparation of operations.
Recommendation/ Request	Please update the WMMPP to provide a plan that addresses this TC fully, including effectiveness monitoring and adaptive feedback. Please provide this update to the KIA prior to construction resulting in water attenuation ponds and the TIA.
Importance	Moderate
B2Gold Nunavut Response	B2Gold Nunavut has developed a Standard Operating Procedure that addresses TC No. 47, including follow-up monitoring to evaluate effectiveness of monitoring and adaptive feedback. The SOP provides guidance for conducting wildlife monitoring at on-site ponds to determine if waterbirds or other wildlife (e.g., caribou) are using the TSF or other artificial site ponds and implement adaptive mitigation if required. If the water quality of the ponds does not meet wildlife guidelines, then wildlife monitoring will be undertaken at these ponds, along with adaptive mitigation to exclude wildlife, and follow-up monitoring to evaluate effectiveness of mitigation measures. Monitoring will include daily or weekly surveys (depending on the season) and remote camera monitoring. Observations of waterbirds, caribou, or other wildlife at or in site ponds where the water quality does not meet wildlife water quality guidelines will trigger mitigation to exclude wildlife from these ponds. The choice of exclusion methods will be an evolving process and will be decided upon in conjunction with members of CTAG. Guidance for waterbird exclusion will be taken from: Cassady St. Clair, 2014. *Final Report of the Research on Avian Protection Project* (2010-2014), and caribou deterrence may include passive (e.g., Installation of Inuksuk/Inokhok) or active (e.g., human/truck presence, noise deterrent) measures. Should adaptive management measures be required, the ponds will continue to be monitored to ensure they are effective at excluding wildlife.

1.9 COMMENT NUMBER: KIA-NIRB-09

Subject/Topic	Watercourse crossing
References	Annual Report to NIRB, Project Certificate Condition No. 24
Summary	In 2023, as per Phase 1 of construction in the Water Management Plan, the RSW crossing upgrade was completed by replacing the bridge crossing on the primary and secondary RSW channels with culvert designs.
Detailed Review	Although replacement of the clear-span bridge was approved by DFO, it is not clear why the bridge needed to be replaced or why culverts were selected to replace it.

	Construction and operation of the bridge had no effects on fish or fish habitat, whereas construction of the culverts required in-stream works, including a diversion berm and secondary channel culvert, and presumably the primary channel culverts were placed in the middle of the former stream channel if they are open-bottom culverts. No mention of permanent fish habitat loss is mentioned due to the footprint of the culverts. If the culverts are closed-bottomed, there would be 100% fish habitat loss.
Recommendation/ Request	Provide reasoning for replacement of the clear-span bridge with two culverts. Provide the amount of fish habitat loss due to the footprint of the culverts.
Importance	Low
B2Gold Nunavut Response	The previously installed clear-span crossing was intended for early development works as a temporary solution for the all-weather road. This clear-span crossing design was unable to accommodate safe travel for haul truck traffic, and therefore, the crossing was replaced with a structure to accommodate haul truck traffic, specifically the twinned closed bottom arch culvert design (i.e., oblong culvert design). The construction footprint of the twinned oblong design was approximately 50 m for fluvial length by 11.1 m for maximum bankfull width. During installation, culverts were embedded within the streambed and then filled with suitable substrate as mitigation to reduce the overall footprint and to sustain conditions for fish.

1.10 COMMENT NUMBER: KIA-NIRB-10

Subject/Topic	Fish passage
References	Annual Report to NIRB, Project Certificate Condition No. 25
Summary	A proposed 'fishway' (or diversion) is to be constructed while the airstrip is extended to divert flows from Rascal Stream East to Rascal Stream West. DFO's main concern is downstream effects on velocities, particularly during spring conditions when adult Arctic Grayling migrate to upstream spawning habitats in Rascal Stream. Specific locations immediately upstream of the crossing (Rascal Stream West Reach 1) were identified as having high velocities under a baseline case that may exceed fish passage criteria under a diverted flow scenario. Therefore, 14 in-stream rock weir structures were constructed that reduced velocities, on average, by 34%, and increased depths by 19%.
Detailed Review	It is not stated whether the reduction in stream velocities due to the rock weirs will reduce flows to below fish passage criteria under a diverted flow scenario for all flow conditions. It is stated the next step is to install the Rascal Stream diversion channel, then monitor flows and fish movements under spring flow conditions to evaluate the effectiveness of the mitigation measures. However, the next step should be monitoring during spring conditions to determine effectiveness, prior to construction of the diversion channel.
Recommendation/ Request	Provide spring flow measurements in the modified sections to determine if the rock weirs will reduce flows to below fish passage criteria under a diverted flow scenario for all flow conditions, prior to construction of the diversion channel.
Importance	Moderate
B2Gold Nunavut Response	The boulder weirs were installed as mitigation for post-diversion flow conditions to supplement functions provided by natural habitat features of lower Reach 1 that

	contribute to flow diversity and cover. Although some year-over-year changes in flow conditions are expected (e.g., due to displacement of boulders), the previously added weirs to lower Reach 1 will continue to diversify flows and provide refugia for migrating fish under post-diversion flow conditions. Based on previous data collection, measured velocity reductions due to the installed rock weirs ranged, with an average 34% reduction in velocities under pre-diversion flows. Modelling of Rascal Stream West Reach 1 indicated that velocities may increase 10% throughout the reach for a 1:2 year discharge post-diversion, therefore, the installed rock weirs are anticipated to provide localized velocities under post-diversion conditions that are similar to baseline conditions within Rascal Stream West Reach 1. B2Gold Nunavut is committed to continue monitoring fish passage conditions in Rascal Stream West, with the objective to identify and correct potential barriers to passage of adult Arctic Grayling as they occur during the operation of the Mine. Spring flow measurements collected in 2024, as part of the Rascal Stream West monitoring program, will be reviewed and summarized for submission in the 2024 annual report.

1.11 COMMENT NUMBER: KIA-NIRB-11

Subject/Topic	Water withdrawal effects on Arctic Grayling
References	Annual Report to NIRB, Project Certificate Condition No. 25, Appendix H - Downstream Assessment of the Goose Lake Water Withdrawal Increase on Arctic Grayling Spawning and Rearing Habita
Summary	DFO identified a potential downstream risk of causing a HADD (harmful alteration, disruption, or destruction) to Arctic Grayling habitat at the Goose Lake Outlet channels (i.e., Goose Lake Outlet and Propeller Lake Inlet reaches) resulting from changes in channel flow conditions due to proposed water withdrawal from Goose Lake. Hydrological conditions were modelled for two scenarios for the Goose Lake Outlet channels, including baseline and Project-related flow scenarios. The assessment concluded there is the potential for residual effects to fish habitat, but that effects to the local Arctic Grayling population would be low (likely non-measurable) in magnitude. Residual effects, if any, would be reversible during the closure phase of the Back River Mine once water withdrawals for milling are no longer required.
Detailed Review	It is stated in Section 4.1 of Appendix H that the observed late summer flows in 2011-2014 and 2022 are lower than the FEIS calculated baseline flows and fall below the baseline 30% MAD. A caveat is then added that the observed flows demonstrate the natural variability from year-to-year within the watershed and the resulting flows may not be representative of the long-term average climate. However, climate change has not been considered in this study, even though current findings show the Canadian Arctic is warming at approximately three times the global rate. It is necessary to revisit the water flow conditions under the current climate change conditions for each scenario presented in the report.
Recommendation/ Request	Provide the results for the two modelled flow condition scenarios, baseline and Project-related altered flow regime, accounting for changes due to climate change. These scenarios need to be assessed for the entire lifespan of the Project.
Importance	Moderate
B2Gold Nunavut Response	See the response to KIA-NIRB-20.

	In addition, the current assessment does not consider a climate change scenario, but rather a historical 10-year dry scenario. B2Gold Nunavut is committed to ongoing monitoring of Goose Lake water levels and outflows, and to understand the impacts of a changing climate on the magnitude and timing of Goose Lake outflow hydrographs. As required, based on evaluations of additional hydrometric monitoring data when available to assess trends, B2Gold Nunavut may define a characteristic climate change flow regime at the outlet of Goose Lake.

1.12 COMMENT NUMBER: KIA-NIRB-12

Subject/Topic	Water withdrawal effects on Arctic Grayling
References	Annual Report to NIRB, Project Certificate Condition No. 25, Appendix H - Downstream Assessment of the Goose Lake Water Withdrawal Increase on Arctic Grayling Spawning and Rearing Habitat.
Summary	It is stated in Section 2.1 of Appendix H that under the new water withdrawal rate, typical ecological flow conditions (above 30% MAD) for the Goose Lake Outlet and Propeller Lake Inlet are expected to be reduced by 9 to 15 days during the open-water period. It is also stated that this predicted change suitable flow conditions has the potential influence adult spawning behaviour for individuals that utilize the Goose Lake outflows for spawning habitat, shifting the spawning window for adult Arctic Grayling, which can span two to three weeks. The conclusion from these findings states there is the potential for residual effects to fish habitat, but that effects to the local Arctic Grayling population would be low (non-measurable) in magnitude.
Detailed Review	A potential reduction in the spawning window available to Arctic Char from up to 21 days down to only 6 to 12 days, and potential spawning timing changes are very concerning. This reduced time period increases the risk for unsuccessful spawning results for the local population.
Recommendation/ Request	Provide information on the availability of other local spawning areas for this population of Artic Char to determine the degree of impact these predicted changes will have on the population in this system. Depending on the results, revisit the conclusion that effects on the local Arctic Grayling population would be low (non-measurable) in magnitude.
Importance	High
B2Gold Nunavut Response	The conclusion of our assessment applies to the local population or stock that spawn and rear at the outlet of Goose Lake. Potential impacts to the regional population that would occupy habitat over a larger spatial scale would also be non-measurable. Other populations in the region would not be impacted by water withdrawal from Goose Lake. Other populations include the upstream population in Rascal Stream West and downstream populations associated with Propeller Lake, including the Propeller Lake outlet.

1.13 COMMENT NUMBER: KIA-NIRB-13

Subject/Topic	Baseline water quality monitoring
References	Annual Report, Section 4.5.7 Groundwater and Surface Water Quality
Summary	Summary of 2023 data is missing in Appendix F2

Detailed Review	The Annual Report indicates that field programs occurred in 2023 to collect additional baseline water quality data, including open-water water quality sampling in Goose Lake and at the outflow of Goose Lake and various Goose Lake inflows, and that a summary of the 2023 data is provided in Appendix F2. We could not find the summary of 2023 data in Appendix F2 in the project documents posted on the NIRB Public Registry.
Recommendation/ Request	Please provide summary of 2023 data int Appendix F2 for review
Importance	Moderate
B2Gold Nunavut Response	The 2022 Aquatic Baseline Report was accidentally appended to Appendix F of the 2023 Annual Report instead of the 2023 Surface Water Report. The correct report is attached.

1.14 COMMENT NUMBER: KIA-NIRB-14

Subject/Topic	Holding times for water quality samples
References	Annual Report, Appendix F – 2021 and 2022 Aquatic Baseline Reports
Summary	Holding times effect on water quality sampling needs to be discussed in greater detail.
Detailed Review	The 2021 and 2022 Aquatic Baseline Reports state that holding times were exceeded for the analysis of various water quality parameters (i.e., pH, nitrite, nitrate, orthophosphate, turbidity, TSS, TDS, alkalinity, sulphide). Holding time exceedances were mainly from 1-7 days in duration and were not anticipated to negatively affect data quality. It would be helpful to provide greater detail on the nature of the holding time exceedances (e.g., what percentage of samples were affected for each parameter, what parameters were affected by greater than 7 day holds), more in-depth discussion of how these delays could affect results (e.g. pH and alkalinity measures may not be reliable after several days), and demonstration of what steps are being taken to address this problem for future sampling.
Recommendation/ Request	Please provide additional discussion and analysis of the holding time exceedances in 2021 and 2022 sampling, including more details on the types of exceedances (percentage, length), potential implications for data analysis (e.g., with respect to less stable parameters such as pH) and steps being taken to resolve this ongoing issue.
Importance	Moderate
B2Gold Nunavut Response	Holding times were exceeded for several parameters in water samples sent to ALS laboratories mainly due to logistical constraints when shipping samples from a remote area (the Back River Project), or due to the laboratory's inability to initiate testing promptly following sample receipt. Holding time exceedances are a common challenge for unpreserved water samples collected in remote areas because transport of samples to the laboratory is subject to the availability of scheduled charter flights. A total of 11 parameters had holding time exceedances during the 2021 and 2022 programs: laboratory pH, turbidity, nitrate, nitrite, orthophosphate, total phosphorus (TP), total dissolved phosphorus (TDP), total dissolved solids (TDS), total suspended solids (TSS), sulfide, and alkalinity (Table KIA-NIRB-14-1).

Table KIA-NIRB-14-1: Summary of Holding Time Exceedances in 2021 to 2022

Parameter	Holding Time[a]	Holding Time Exceedances (Days)			Sample Count[c]	Percent (%) of Samples
		Min[b]	Max[b]	Avg[b]		
pH	15 minutes	-[d]	-[d]	-[d]	-[d]	-[d]
Nitrate	3 days	1	8	4.3	147	90%
Nitrite	3 days	1	8	4.3	104	63%
Dissolved Orthophosphate	3 days	1	8	4.6	112	68%
Turbidity	3 days	1	7	4.5	89	54%
Total Dissolved Solids	7 days	0	4	1.7	67	41%
Total Suspended Solids	7 days	1	4	1.8	50	30%
Total Sulfide	7 days	1	3	2.1	48	29%
Alkalinity	14 days	45	46	46	12	7%
Total Phosphorus	28 days	13	22	17	21	13%
Total Dissolved Phosphorus	28 days	2	53	12	20	12%

a) laboratory recommended holding times.

b) minimum, maximum, and average lengths of time (e.g., days) that holding times were exceeded for each parameter.

c) number of samples that exceeded holding times for each parameter.

d) holding time for pH was exceeded in all samples; however, field pH measurements were collected and used as the preferred method for assessing pH in water samples.

Laboratory holding times, derived from the American Public Health Association (APHA 2012), are recommended maximum periods between sample collection and analysis.

During all field programs for the project, pH and turbidity values were measured in the field (i.e., *in-situ*) using calibrated probes. For these parameters, field measurements were used as the preferred method for water quality assessment for the project.

The recommended holding time for nitrate, nitrite, and orthophosphate (3 days) was exceeded in 90%, 63% and 68% of samples collected from 2021 to 2022, respectively. CCME (2016) acknowledges that three days holding time for these parameters might not be practically achievable, particularly for remote locations, and although analysis beyond the holding time increases uncertainty, it does not necessarily imply the data will be compromised (CCME 2016). An investigation conducted by the Government of Newfoundland and Labrador (2010) into implications to data accuracy due to exceedance of recommended times for

nitrate, total phosphorus, alkalinity, pH, turbidity and other parameters demonstrated that although parameter concentrations varied at different levels of holding time, none of the differences were significant at $P<0.05$.

Holding time exceedances for nitrite, nitrate, and orthophosphate ranged from one to eight days. An assessment on nitrite and nitrate holding time exceedances for samples collected from regional lakes at the Snap Lake Mine concluded that nitrate and nitrite concentrations did not change significantly when analyzed up to 21 days after the samples had arrived at the laboratory (Love et al. 2016).

The recommended holding time for TDS, TSS, and sulfide (7 days) was exceeded less frequently, in 41%, 30% and 29% of samples collected in 2021 and 2022, respectively, and exceedances were between one to four days.

The recommended holding time for alkalinity (14 days) was exceeded in 7% of samples and exceedances were isolated to the April 2021 program. Similarly, the holding time for TP and TDP (28 days) was exceeded in 13% and 12% of samples collected during the August 2022 program. These exceedances were isolated to specific events and were associated with laboratory instrumentation and analysis, outside the project team's control.

Analytical results of samples that exceeded holding times were reviewed for patterns and deviations from expected values based on historical data. Data associated with exceedance of holding times was similar to data analyzed within recommended times.

The following measures are being applied to mitigate holding time exceedances:

- designing the workplan and developing shipping procedures to minimize delays in sample shipment post-collection
- coordinating with scheduled charter flights and couriers to minimize delays in sample transport prior to delivery to the laboratory
- coordinating with the laboratory to minimize delays in sample analysis after receipt of samples
- continuing discussions with the laboratory regarding potential sample processing techniques (e.g., filtration, preservation) to extend sample holding times
- consulting with other laboratories regarding opportunities to reduce holding times
- continued vigilance and communications with the laboratory to ensure samples are analyzed as soon as possible after receipt

References:

APHA 2012. Standard Methods for the Examination of Water and Wastewater. 22nd edition. Washington (DC).

CCME. 2016. Guidance Manual for Environmental Site Characterization in Support of Environmental and Human Health Risk Assessment. Winnipeg. Manotiba. Guidance Manual for Environmental Site Characterization in Support of Environmental and Human Health Risk Assessment Volume 1 Guidance Manual (ccme.ca)

Government of Newfoundland and Labrador. 2010. Assessment of the Effects of Holding Time on Various Water Quality Parameters. Department of Environment

	and Conservation Water Resources Management Division. St. John's, N.L., Canada. Available at Microsoft Word - NL Parameter Stability Study_2009_10.doc (gov.nl.ca). Accessed August 2024. Love J, Humphries A, Hall T. 2016. Nitrate and nitrite holding time study completed for a northern Canadian mine. Integr Environ Assess Manag. 12(4): 823-824. Nitrate and nitrite holding time study completed for a northern Canadian mine - Love - 2016 - Integrated Environmental Assessment and Management - Wiley Online Library

1.15 COMMENT NUMBER: KIA-NIRB-15

Subject/Topic	Reference B Lake total chromium measurement
References	Annual Report, Appendix F – 2022 Aquatic Baseline Report
Summary	Irregular chromium results collected in August 2022.
Detailed Review	Total chromium was reported as above the chronic guideline for the protection of aquatic life in one sample collected in August 2022, but "results from this sample appear to be irregular and are not considered to be representative of Reference B Lake" (p. 9). The report does not discuss possible reasons for this isolated elevated total chromium concentration.
Recommendation/ Request	Please discuss possible causes of the elevated total chromium concentration observed in the August sample.
Importance	High
B2Gold Nunavut Response	A possible cause of the elevated total chromium in this sample is sample contamination that could have occurred during sampling and sample processing, transportation, and/or laboratory analysis. Any possible contamination appears to be limited to this one sample, as other four samples collected on the same day at the same lake did not have detectable concentrations of total chromium (all reported values were <0.04 µg/L). In addition, total chromium was not detected in field or travel blanks and concentrations in samples collected from other lakes were much lower and similar to historical concentrations. Overall, the elevated total chromium concentration in this one sample from Reference B Lake is not likely to be representative of baseline water quality in this lake.

1.16 COMMENT NUMBER: KIA-NIRB-16

Subject/Topic	Turbidity monitoring
References	Annual Report Appendix G – Rascal Stream West Culvert Installation Construction Monitoring Report
Summary	There are gaps in upstream turbidity monitoring.
Detailed Review	Turbidity monitoring was conducted at an upstream background station and multiple downstream stations to monitor effects of in-channel construction of the culverts both during construction (10-17 May) and post-construction (17-25 May). However, there were gaps in monitoring coverage at some of these stations. Reduced construction monitoring occurred at the following downstream locations: DS1.3 and DS2.3 (from May 16), DS3.2 (from May 14), and DS3.3 (from May 16). No post-construction monitoring occurred at the following downstream locations:

	DS1.1., DS2.1, and DS.3.1. It is not clear why there were gaps in the monitoring of these locations.
Recommendation/ Request	Please explain why there were breaks in monitoring of the identified downstream locations during construction or postconstruction periods and discuss how this missing information might affect monitoring results.
Importance	Moderate
B2Gold Nunavut Response	Turbidity monitoring was completed during in-channel construction (May 10 to 17, 2023) and post-construction (May 17 to 25, 2023), with sampling at the specified stations shown in Figure 2-1 of Appendix G to reflect the changing flow paths (due to pumping of water or diversion of water). Due to these changing flow paths, the data set is representative of the flow conditions upstream and downstream of the Rascal Stream West Culvert Installation during the sampled period. Further information on the stations are provided below. Rationale for days not sampled at various stations: ◆ DS1.3, DS2.3, and DS3.3 were not monitored before May 16, 2023 as these locations did not have flow prior to the main channel diversion into the secondary channel culvert ◆ DS1.2, DS2.2 and DS3.2 were not monitored before May 14, 2023 as these locations did not have flow prior to the main channel diversion into the secondary channel culvert. ◆ DS1.1, DS2.1, and DS3.1 were not monitored after May 16, 2023 because the flow was diverted through the secondary channel culvert. The flow was observed to be disconnected at DS1.1, DS2.1, and DS3.1 sample locations and deemed not to be fish habitat.

1.17 COMMENT NUMBER: KIA-NIRB-17

Subject/Topic	Comparison of baseline vs. observed flows
References	Annual Report Appendix H – Downstream Assessment of the Goose Lake Water Withdrawal Increase on Arctic Grayling Spawning and Rearing Habitat
Summary	Baseline and observed flows are characterized as having nonoverlapping data sets with different climatology.
Detailed Review	The report states that “adjusted regional flows used to characterize the FEIS baseline flows at Goose Lake outlet (1971 to 2011) and observed flows (2011 to 2014, 2021 and 2022) are for the most part, non-overlapping data sets with different climatology. Therefore, caution should be applied in comparing datasets due to natural variability in the climate and therefore hydrograph from year to year” (p. 5). It is not clear why baseline flows and observed flows are characterized as having “non-overlapping data sets with different climatology”. If this is the case, it suggests that the calculations of baseline flow are not representative of current (background) conditions and thus are not useful for the analysis of impacts of the new water withdrawal rate on Goose Lake hydrology. How different are the data sets? Further, does modelling consider the effect of climate change on future flow conditions?

Recommendation/ Request	Please discuss whether FEIS baseline flow data from the 40-year period (1971 to 2011) is representative of current (background) conditions and thus useful for the analysis of impacts of the new water withdrawal rate on Goose Lake hydrology. Please also comment on whether flow modelling incorporates predicted impacts of climate change.
Importance	Moderate
B2Gold Nunavut Response	See the responses to KIA-NIRB-11 and KIA-NIRB-20.

1.18 COMMENT NUMBER: KIA-NIRB-18

Subject/Topic	Marine shipping monitoring
References	Annual Report Appendix L– Back River Project: Marine Laydown Area – 2023 Marine Sampling Report Section 3.4 Data Analysis
Summary	Information is required on the handling of RPDs greater than 100%
Detailed Review	The report states that "RPD calculations were only completed when laboratory concentrations were greater than five times the laboratory (RDL). The calculated RPDs were compared to acceptable variance ranges for the program as follows: ◆ RPDs greater than 20% were considered significant. ◆ RPDS greater than 100% were subjected to professional judgement." (p. 9) The report does not explain how professional judgement was used to handle RPDs greater than 100%.
Recommendation/ Request	Please provide more information on how RPDs greater than 100% were handled in the data analysis.
Importance	Low
B2Gold Nunavut Response	The relative percent differences (RPDs) for the water quality analysis are provided in Appendix F Quality Assurance/Quality Control of the Back River Project: Marine Laydown Area – 2023 Marine Sampling Report. All RPDs were very low and generally less than 2% and therefore it was not required to handle any RPDs greater than 100%. However, if RPDs greater than 100% were present for any parameter, professional judgment would assess if the replicate or parent sample could potentially be an outlier for one or several reasons. These reasons could include if the replicate or parent sample had an excessive suspended sediment concentration, for example, compared to the other sample which could have been a result of inadvertently touching the bottom during sample collection, such that a metal RPD result for instance could be greater than 100% and attributed to the higher suspended sediment concentration.

1.19 COMMENT NUMBER: KIA-NIRB-19

Subject/Topic	Water Quality
References	Back River Annual Project 2023 Annual Report Appendix F1 Sabina Gold & Silver Corp. Back River Project – 2021 Aquatic Baseline Report
Summary	In 2023, water quality in Goose Lake and streams was generally consistent with results from previous years (Golder 2019, 2022; WSP 2023). In 2021 Water Quality data were collected primarily to supplement the AEMP baseline dataset per the recommendations from the Aquatic Baseline Synthesis Report (Golder 2019). Five

	field programs (one conducted under ice-covered conditions and four during open-water conditions), water quality results were compared to acute and chronic Canadian water quality guidelines for the protection of aquatic life (CCME 1999) and Canadian drinking water quality guidelines (Health Canada 2020).
Detailed Review	Guideline exceedances for several variables were observed at Goose Lake stations, Propeller Lake, and Reference Lake. The report indicates that similar exceedances were noted in data collected in 2019.
Recommendation/ Request	KIA suggests inclusion of data comparison tables in the Annual Report for the 2019-2022 data with the monitoring 2023 data to better identify any changes in water chemistry. Time dependent hydrographs should also be developed to identify any trend.
Importance	Low
B2Gold Nunavut Response	See the response to KIA-NIRB-13. Note that the purpose of the 2023 water quality program was to collect more baseline water quality data to support the hydrodynamic model. The data can also be used to support the normal range calculation for Goose Lake for the Aquatic Effects Management Plan. The 2023 Surface Water Quality Report provided a qualitative assessment of how the new baseline data compared to previously collected data, but a detailed temporal analysis of the baseline data was not intended. When the AEMP is implemented (i.e., in 2024), the first AEMP Report will provide time series plots of parameters of interest, including those parameters with exceedances of water quality guidelines (Sabina 2017, B2Gold 2024).

1.20 COMMENT NUMBER: KIA-NIRB-20

Subject/Topic	Downstream Assessment of the Goose Lake Water Withdrawal Increase on Arctic Grayling Spawning and Rearing Habitat
References	Appendix H Downstream Assessment of the Goose Lake Water Withdrawal Increase on Arctic Grayling Spawning and Rearing Habitat Table 4.1: Predicted Baseline and Project Conditions and Average Observed (2011-2014, 2021, and 2022) Hydrologic Indices at Goose Lake Outflow (PN03)
Summary	Annual Lake Outflow: Observed Conditions are lower than Calculated Average Condition. Peak Daily Lake Outflow: Observed Conditions are higher than Calculated Average Condition.
Detailed Review	The average observed conditions (2011-2014, 2021 and 2022) are approximately 29% lower than the calculated Average Annual Lake Outflow. For comparison, the average observed conditions are more similar to the calculated 10-year Dry Condition (14% higher). In contrast, the Peak Daily Lake Outflow observed conditions are 4% higher than the calculated values. While it is recognized that the observed values are representative of seasonal variation in a natural system, the data indicate that the calculated Average Flow Conditions underestimate the observed values, potentially resulting in an under estimation of the downstream flow reduction from withdrawals.
Recommendation/ Request	Given the results described above, consideration should be given to reassessing the Lake Outflow calculations to better fit with observed data.

Importance	Moderate
B2Gold Nunavut Response	B2Gold Nunavut acknowledges that the observed flow conditions for the monitored years, particularly in July and August, are below those calculated as baseline average. The observed freshet peak magnitude and durations (falling limb of the hydrograph), which represent an important period for Arctic Grayling, are well represented by the calculated baseline flows. While the observed freshet occurs earlier than the calculated freshet, the assessment of effects to fish and fish habitat in the outlet of Goose Lake considers a characteristic freshet flow rate, which is valid for the assessment, even if the observed timing is different. The observed differences in flows during late summer (e.g., August) also occur during a period when Arctic Grayling young-of-year (i.e., fry) would be migrating to deeper pools or refugia as rearing habitat within the Goose Lake outflow – Propeller Lake inflow. It is expected that these habitat types will undergo negligible changes in quality for rearing fish under the new water withdrawal rate. B2Gold Nunavut is committed to ongoing monitoring of Goose Lake water levels and lake outflows to better understand estimates of average and dry flow conditions at the outlet of Goose Lake, including hydrometric data collected in 2023 and 2024. When additional hydrometric monitoring data is available, B2Gold Nunavut may redefine characteristic flow regimes that are based on a longer period of site-specific observed flows. Additional years of observed data will provide insight into the natural variability, driven by significantly varying seasonal climate within a natural system, and potential trends in hydrology.

1.21 COMMENT NUMBER: KIA-NIRB-21

Subject/Topic	Goose & MLA Project Sites – 2023 Annual Geotechnical Inspection (Overburden Stockpile)
References	Paragraph 5.2.3 – Overburden Stockpile (Page 13) The ponding water was observed in areas at the toe of the stockpiles. This is likely in part from the release of water from the overburden soil due with the high ice and water content as the outside layers of the stockpile thaw in the warmer months. The quality of this water is unknown and my present an environmental risk. Note: SRK was informed that site has an overburden stockpile monitoring program and corresponding that is in place and should address this comment. This overburden monitoring program was not reviewed as part of the 2023 AGI.
Summary	Ponded water with unknown water quality was observed at the toe of the overburden stockpile during the 2023 SRK Geotechnical Inspection.
Detailed Review	Sampling of the ponded water from the toe of the overburden stockpile should be completed for TSS, ammonia, metals, salinity, etc., as part of the regular water quality monitoring program. Based on the water sampling results mitigation such as a diversion channel, berms or silt fencing could be considered to prevent the mixing of runoff water with contact water, especially during spring thaw and summer months when the surficial layer above the permafrost is active.
Recommendation/ Request	Water quality samples should be collected. The water quality, final discharge location of the contact water from the overburden stockpile, and any mitigation measures recommended should be included in the annual report.
Importance	Moderate

B2Gold Nunavut Response	Ponding water occurred in small volumes and ultimately evaporated. If ponding water occurs in volumes requiring management, B2Gold Nunavut will complete water quality sampling in advance as suggested and provide this information within the annual report.

1.22 COMMENT NUMBER: KIA-NIRB-22

Subject/Topic	Goose & MLA Project Sites – 2023 Annual Geotechnical Inspection (Goose Tank)
References	Paragraph 5.2.4 – Goose Tank Farm (Page 23) The base of the containment area had some water over the base in areas during the inspection. This likely was due to some of the recent rainfall on site around the time of the inspection. Active pumping was not noted at the time of the inspection. The SRK report noted the following: "Site staff indicated that each spring water from both sides of the containment area are managed / pumped. Around the time of the 2024 freshet, additional pumping and water management would be expected to be required. It is SRK's understanding that this is on sites radar and plans have already been made for this ongoing operational and maintenance support."
Summary	Ponded water was observed in the containment area during the 2023 SRK Geotechnical Inspection.
Detailed Review	Sampling of the water within the containment area is required before discharging, and the water quality results should be included in the report, as well as the quantity pumped and the final discharge location.
Recommendation/ Request	The water quality and quantity, as well as final discharge location, should be included in the annual report.
Importance	Moderate
B2Gold Nunavut Response	Ponding water within the Goose Tank Farm will be managed in accordance with Part F, Item 12, of Type A Water License 2AM-BRP1831 (Amend. No. 1). Results will be provided with the annual report.

1.23 COMMENT NUMBER: KIA-NIRB-23

Subject/Topic	Moderate
References	Project Certificate Condition No. 11
Summary	No information provided on permafrost mapping.
Detailed Review	PCC No. 11 states that "The Proponent shall conduct further permafrost mapping to document permafrost temperature, thickness of seasonal thaw and amount of ground ice in the project development area." B2Gold Nunavut does provide information on the thermal conditions in the document "Back River Project: Site-wide Ground Thermal Monitoring Plan", prepared by SRK Consulting and dated April 2024, but no information is provided on the amount of ground ice.
Recommendation/ Request	It is requested that B2Gold Nunavut provide information or a qualitative discussion on the amount of ground ice in the project development area based on the information available.
Importance	Moderate
B2Gold Nunavut Response	B2Gold Nunavut will include additional comments on the available ground ice information (some qualitative, some inferred) to the next revision of the "Site-wide

	Ground Thermal Monitoring Plan". This update and additional information will be submitted as part of the 2024 annual reporting.

1.24 COMMENT NUMBER: KIA-NIRB-24

Subject/Topic	Terrestrial Environment / Permafrost Monitoring
References	Project Certificate Condition No. 11
Summary	Completing correlation between sites.
Detailed Review	B2Gold Nunavut provides multiple ground temperature data time series in the document "Back River Project: Site-wide Ground Thermal Monitoring Plan", prepared by SRK Consulting and dated April 2024. 42 thermistor locations, classified as background information, have been inactive for many years and no new data is available. Currently, only 9 locations, which were installed in 2023 are active. Four thermistor strings have been used in 2024 for temporary ground temperature measurements. The data and time series provided make it challenging to correlate historic data with current measurements and trends as the locations are different.
Recommendation/ Request	It is requested that B2Gold Nunavut provide correlations between the historic / inactive locations and the currently active ones. This could be achieved, for example, by measuring ground temperatures at some of the inactive locations for a short period to generate data overlaps.
Importance	Low
B2Gold Nunavut Response	Please see the response to CIRNAC #1 for additional information. B2Gold Nunavut is actively working to try to either collect measurements from the historic inactive locations, and/or to install a couple new ground temperature cables that could be used to help link and correlate with some of the historic locations. As part of the 2024 "Site-wide Ground Thermal Monitoring Plan" updates, attempts will be made to provide additional correlations between the historic/currently inactive, and active locations. At a minimum, additional comments on the advancements in this area will be overviewed in the update.

1.25 COMMENT NUMBER: KIA-NIRB-25

Subject/Topic	Employment
References	Page iv
Summary	Top reasons for Inuit employee turnover in 2023 were end of contract/retirement, violations of company policy and resignations.
Detailed Review	Are B2 Gold Inuit employees made aware of company policies before they begin their position even if contracted?
Recommendation/ Request	Please provide information on training employees about company policies.
Importance	Moderate
B2Gold Nunavut Response	All B2Gold Nunavut employees, including Inuit, are made aware of Company policies relevant to their employment at the Project through their employment contracts and a series of orientation sessions. For example, Project employees are required to formally acknowledge they have read and understood the following Company policies through their employment contracts:

	• Social Media Policy • Drug & Alcohol Policy • Code of Business Conduct & Ethics • Remote Site Travel Policy • Winter Clothing Policy • IT Policy • People Management Policy • Anti-Bribery Anti-Corruption Policy • Consent to Search Policy • Whistleblower Policy • Non-Discrimination and Harassment • Diversity Policy • Equitable, Diverse, and Inclusive Workplaces • Grievance Procedure • Social Responsibility and Human Rights Policy Orientation sessions are also provided as early as possible in an employee's tenure, typically on their first day of employment, with the Project and include: **Site Orientation Program** The Site Orientation Program is a general orientation that is provided to all mine employees describing appropriate conduct, including Project safety policies. B2Gold Nunavut provides suitable work facilities and conditions with the objective of safeguarding the health, safety, and general well-being of employees. B2Gold Nunavut requires all employees and contractors to maintain safe work practices, including adherence to all legislated and Company health and safety requirements. **Non-Discrimination and Harassment Orientation** B2Gold Nunavut maintains a zero-tolerance policy for all types of discrimination and harassment. B2Gold Nunavut's expectations in this area are clearly communicated to all Project employees during their employment orientation, and throughout their tenure with the Project. More specifically, details of B2Gold Nunavut's Non-Discrimination and Harassment Policy are reviewed during the onboarding process for new employees. **Cross-Cultural Orientation** B2Gold Nunavut provides a Cross-Cultural Orientation Program for all mine employees and long-term contractors (Inuit and non-Inuit employees and managers) aimed at enhancing positive interaction between Inuit and non-Inuit in the workplace. This program has been designed in consultation with KIA and provides information about potential cultural differences among workers. Examples of what constitutes appropriate and inappropriate workplace conduct are reviewed. The program also provides guidance as to how individuals experiencing or witnessing inappropriate behaviour can address the issue and outlines the consequences of inappropriate behaviour.

1.26 COMMENT NUMBER: KIA-NIRB-26

Subject/Topic	Employment
References	Page iv, page 32

Summary	Top reasons for Inuit employee turnover in 2023 were end of contract/retirement, violations of company policy and resignations. Inuit turnover rate of 32%. This is higher than the turnover rate for non-Inuit of 18% during the same period.
Detailed Review	Is there an exit interview for those who have left? What is learned about why resignations occur from the exit interviews? If so, how is the information from exit interviews used to improve Inuit retention?
Recommendation/ Request	Please provide more information about why Inuit employees resign, and a plan to use this information to improve Inuit retention. If unknown, please develop a plan for exit interviews and use of that information for improvement. Please provide statistics on the turnover rate for Inuit women in particular.
Importance	High
B2Gold Nunavut Response	2022 was the first year reasons for Inuit turnover were documented in the socio-economic monitoring program. As noted in B2Gold Nunavut's 2022 and 2023 SEMRs, the top three reasons for Inuit employee turnover in 2022 were absenteeism, performance issues, and resignation. The top three reasons for Inuit employee turnover in 2023 were end of contract/retirement, violations of Company policy, and resignations. Top known reasons for Inuit resignations have included family issues at home, being "homesick", and spousal issues/concerns. However, not all reasons for Inuit resignation are necessarily known or have been shared with B2Gold Nunavut upon an employee's departure. Exit interviews are offered to all departing Project employees but typically see very limited uptake as they are voluntary in nature. B2Gold Nunavut cannot compel an employee to attend an exit interview. Such interviews, when conducted, aim to understand: 1. The employee's perception of their salary, benefits, working conditions, opportunities for advancement, etc.; 2. Reasons why an employee has resigned, including if Company actions (or inactions) contributed to the employee's decision to resign; 3. Actions the Company could potentially take to avoid similar resignations from occurring in the future; and 4. Future plans / employment prospects for the departing employee. Information obtained from these interviews is provided to relevant staff in B2Gold Nunavut's Human Resources department to address where appropriate. Examples of improvements that have been made at the Project based on information learned through Inuit employee resignations have included factoring the close family relationships that exist in Inuit communities into management decision making and being more flexible in our site emergency departure requests for Inuit employees. Further, through the Inuit Employee Assistance Program (IEAP) offered through the Kitikmeot Friendship Society (KFS), information about Inuit employees who have resigned is provided and then KFS attempts to contact the employee and reports the results of any information gathered to B2Gold Nunavut in a confidential monthly report. Information obtained from these interviews is provided to relevant staff in B2Gold Nunavut's Human Resources department to address where appropriate. High rates of Indigenous employee turnover have also been experienced at other northern mines through the construction and early operations phases, including Mary River (Aglu and Stratos 2023a), Meadowbank/Meliadine (Aglu and Stratos 2023b), Hope Bay (ERM 2023), and diamond mining operations in the Northwest Territories (Impact Economics 2018); this is not an issue that is unique to the Back River Project. B2Gold Nunavut continues to monitor employee turnover causes

	and outcomes and has committed to reducing turnover and working to increase Inuit employment as the Project advances. As has been experienced at other northern mining operations, B2Gold Nunavut anticipates Inuit turnover will decrease as the Project moves from construction into ongoing operations and as IIBA commitments continue to be implemented. Top reasons for Inuit employee resignation may be reported on in future SEMRs, with the objective that improvements to HR practices may also be identified and reported on. Information on Inuit female employee turnover is provided in Table 4.5 of the 2023 SEMR. This table notes that 10 of the 35 total Inuit employee departures at the Project in 2023 occurred by women (or, 29% of all Inuit employee turnover).

1.27 COMMENT NUMBER: KIA-NIRB-27

Subject/Topic	Employment
References	Page iv and table 4.3 at page 29
Summary	In 2023, 25% of Inuit held unskilled positions, 67% held semiskilled positions, 6% held skilled positions and 2% held supervisory positions.
Detailed Review	KIA would like to see the percentage of Inuit in skilled positions and supervisory positions increase including ED's, senior managers, middle management and specialized professionals.
Recommendation/ Request	Please provide a plan to increase the percentage of Inuit in skilled and supervisory positions
Importance	High
B2Gold Nunavut Response	The use of Career Development Plans (CDPs) for Inuit are an important component of ongoing efforts to increase the percentage of Inuit in skilled and supervisory positions at the Project over time. Per IIBA Schedule 8.1, Section 2(d), CDPs will be created for each interested Inuit employee at the Project and serve as an important means for Inuit to plan the next steps in their careers, including potential advancement into skilled professional or management positions. These plans will identify the necessary skills and experience to be developed and will identify any training required before advancing further. Two main types of CDP can be pursued: 'Vertical' or 'Horizontal'. 'Vertical' CDPs will typically focus on one of the following: • Leadership development (e.g. establishing a career path from frontline worker -> lead hand -> supervisor -> superintendent -> manager) • Specialist development (e.g. establishing a career path from frontline worker -> skilled worker -> professional -> skilled professional) 'Horizontal' CDPs will typically focus on one of the following: • Same position (e.g. further growth within the current role to enhance capabilities) • Alternate position (e.g. interdepartmental movement to different occupational stream) Once the type of CDP to be developed for an employee is determined, the process for developing them can be summarized as follows:

	1. Employee and Human Resources build a CDP for targeted position. Human Resources develops gap analysis. 2. Human Resources and Supervisor review CDP and make any adjustments. 3. Employee agrees to CDP (or further adjustments may be made). 4. Human Resources produces final CDP. 5. Department Head approves CDP. 6. General Management issues final approval of CDP. Allocation of resources to implement CDP. Resources may be allocated to implement a CDP in the following areas: • Experiential (e.g. assignment of specific alternate work duties within principal role; appointment of a dedicated mentor (senior qualified staff) in target position; promotion to an interim role with partial authority of target position). • Academic (e.g. participation in a specific course to enhance knowledge in a theoretical area; enrollment in a post-secondary certificate, diploma or degree; engagement in industry course work required to obtain a professional credential). • Professional credential (e.g. support in obtaining and maintaining a relevant professional credential). Each CDP will include information on the type of plan being pursued, current employee/employment information, target position, anticipated timelines, and details of actions that will be taken to execute the CDP. CDP and gap analysis templates can be made available to reviewers upon request. B2Gold Nunavut continues to report quarterly on the development of CDPs to KIA through the IIBA Implementation Committee.

1.28 COMMENT NUMBER: KIA-NIRB-28

Subject/Topic	Employment
References	Page iv
Summary	Median total income of tax filers with income in the Kitikmeot Region was $29,070 in 2017.
Detailed Review	Please clarify the meaning and significance of this 2017 data point.
Recommendation/ Request	Please provide more information about this statistic, context and relevance.
Importance	Moderate
B2Gold Nunavut Response	B2Gold Nunavut's 2023 SEMR confirms that median total income of tax filers with income in the Kitikmeot Region was $29,070 in 2017. These data are provided by the Nunavut Bureau of Statistics (NBS), with 2017 being the most recent year data were available from that organization. Median income has been included as an indicator in B2Gold Nunavut's socio-economic monitoring program because it is a well-established metric of material well-being and may provide insight into employment and income level changes introduced by the Project. However, multi-year lags in data availability have prevented the analysis of potential Project effects from being completed. The existing data will continue to serve as baseline information until relevant

	construction phase data become available from NBS. Additional analysis will be completed in future years.

1.29 COMMENT NUMBER: KIA-NIRB-29

Subject/Topic	Employment - women
References	Table 4.2, page 26
Summary	The statistic that the percentage of hours worked by Inuit women (2%) was lower than non-Inuit women (10%). The statement is made that Indigenous women are less likely to be employed than non-indigenous women in Canada.
Detailed Review	KIA is concerned with the statistics that Inuit women work a lower percentage of hours than non-Inuit women. KIA does not believe that the statement relating to Indigenous women applies to Inuit women.
Recommendation/ Request	Please provide a plan for how to increase the percentage of hours worked by Inuit women at the project.
Importance	High
B2Gold Nunavut Response	B2Gold Nunavut would like to clarify the 2023 female employment data cited by KIA. The statement "the percentage of hours worked by Inuit women (2.0%) was lower than non-Inuit women (10.0%)" reflects only those percentages as compared to total hours worked by all Project personnel. When the percentage of hours worked by Inuit women is compared to only Inuit men on the Project (13.8% of the total hours performed by Inuit), it is actually higher than non-Inuit women compared to non-Inuit men (11.7% of the total hours performed by non-Inuit). It is well-documented that women remain under-represented in the Canadian mining industry as a whole, including in northern Canada. Female employment disparities are believed to exist in the mining industry for several reasons, including familial responsibilities and the industry's male-dominated workplace culture. This is a widespread issue and is by no means specific to the Back River Project. For example, B2Gold's global operations have experienced that it is more challenging to increase our female representation during a construction period, and that female employment numbers typically increase once the company moves to a steady state mining operation at which time we are able to implement longer-term interventions. However, our focus throughout the operational life cycle is to provide equal opportunities when recruiting, training, and advancing employees, but also to provide safe and respectful workplaces for all people and especially for women and people from other underrepresented groups. At all our operations, we are cognizant of the challenges for women to work in remote areas, particularly due to the rotational shifts that impact family obligations and which often challenges cultural norms. Along with this, the other major constraint we face is the small female talent pool in the mining industry, specifically at skilled, professional and managerial levels. Our research has also shown that B2Gold female representation in various countries closely mirrors the representation at other mining companies in that specific region, emphasizing these two factors as the most challenging for the mining industry as a whole.

	Regardless of the above, B2Gold Nunavut remains committed to creating meaningful employment opportunities for Inuit women at the Back River Project specifically. We have developed, or are in the process of developing, several initiatives in this area which may include: • Establishment of corporate anti-harassment/violence/discrimination policies, ensuring zero tolerance and offender accountability. These are communicated to all Project staff. • Creation of safe workspaces and living arrangements for Inuit women. This will be accomplished, in part, by hiring appropriate security personnel, making alarm devices available, and ensuring all Project sites are 'dry' (i.e. alcohol and drug free). • All project workers are required to undergo Inuit cultural awareness training. • Respect for Inuit Qaujimajatuqangit (IQ) and Inuit Societal Values at the Project. For example, B2Gold Nunavut's Inuit Human Resources Plan includes a description of the eight Inuit Societal Values identified by the Government of Nunavut (2018) and notes Project staff should be respectful of them. • Inuit cultural initiatives/spaces will be developed and supported on site. • Inuit women will be involved in the development of relevant policies, programs, and support measures for Inuit women in the workplace. • Establishment of an Employee Engagement Committee that will include Inuit women, to review employment-related issues and strategies (e.g. health and safety, hiring, retention, training, promotion), and to liaise with Project management on these matters. IQ-related matters may also be considered through this forum. • Creation of a grievance resolution process to address Inuit women's issues on site. The process and methods of accessing are communicated to all Inuit staff. • Ensuring Inuit female employees are made aware of alternative (i.e. third party/non-project) grievance and/or support programs available to them, where appropriate. • Gender-sensitive protocols for handling violence-related matters including having another woman present when incidents are being reported, ensuring appropriate personal support resources are made available, and following-up with employees who report violence, so they are made aware of outcomes. Appropriate staff will be trained to properly handle violence and harassment claims. • Require relevant Project initiatives to apply a Gender Based Analysis+ (GBA+) lens, where appropriate, to ensure Inuit women's considerations are identified and addressed. • Identify barriers Inuit women may face when entering employment in Nunavut's mining sector. Measurable goals and Project-specific procedures may be developed to address these barriers. • Develop affirmative steps for attracting Inuit female employees into the Project workforce. • Development of career path planning processes to support retention and advancement of Inuit female employees on-site. • Develop career mentorship and 'check-in' programs for Inuit female employees with other Inuit/non-Inuit women on-site.

	• Consideration for supporting Inuit women's specific training initiatives, where appropriate. • Establishment of support measures for Inuit women on-site. These may include establishing an Inuit Employee Assistance Program, appropriate medical services, peer support initiatives, and/or culturally relevant counselling options. • Offer to develop personal safety and support plans for Inuit female employees suffering from domestic or other forms of violence. • Offer to develop culturally sensitive life skills training to address the specific needs of Inuit women, including financial literacy. • Consideration of the needs of Inuit women when developing workplace schedules. Respect for family obligations and cultural considerations when addressing vacation/leave requests. For certain community-based roles, flexible work schedules may be considered to better allow Inuit women to balance work-home life. • Appropriate communication technologies will be made available on-site (e.g. phone, internet, video conferencing) for Inuit women to utilize. • Establish processes for training and hiring more women in human resources, supervisory, and management roles. • The Project's socio-economic monitoring program tracks several issues relevant to Inuit female employment over time (e.g. employment levels, promotions, turnover). • The workplace experience of Inuit women is regularly tracked and reported on through anonymous Inuit Personnel Surveys. • A community donations program has been established focused on supporting initiatives pertaining to 'education and training' and 'community wellness and traditional lifestyles' in the Kitikmeot Region, with an emphasis on women and youth. • Establishment of a 'Women in Exploration' scholarship, which is a $5,000 scholarship provided to a female student enrolled in a geology program who has successfully completed their first year of studies.

1.30 COMMENT NUMBER: KIA-NIRB-30

Subject/Topic	Employment - Construction
References	Page 27-28
Summary	Average Inuit construction workforce of 15.8% at the project. This number compares to 20.6 at Meadowbank and 20.2 at Mary River.
Detailed Review	KIA believes that this number can be improved and can reach the higher levels at Meadowbank and Mary River.
Recommendation/ Request	Please provide a plan for increasing Inuit workforce during construction.
Importance	High
B2Gold Nunavut Response	B2Gold Nunavut has made important progress towards achieving its Inuit employment goals at the Project and has steadily increased its Inuit workforce during construction. Notably, the Company has gone from 80 Inuit Project staff in 2022 to 167 Inuit Project staff in 2023. These improvements are the result of numerous Company initiatives including increased employment outreach in Kitikmeot communities, an HR team focused on Inuit recruitment, employment and training support for Inuit employees (e.g. Career Development Plans), and the

	development of new wellbeing initiatives on-site (e.g. establishment of a new Inuit Employee Assistance Program and hiring of new Coordinator, Inuit Support positions at the Project), to name a few. B2Gold Nunavut's commitments to Inuit employment and training are detailed further in its *Inuit Human Resources Plan*. Additionally, B2Gold has been engaged in discussions with KIA on an Inuit training partnership since 2023 and looks forward to continuing these productive discussions and advancing a comprehensive training program partnership. As evidenced at other northern mining operations, however, progress towards achieving increased levels of Inuit employment is expected to require significant time and effort by all parties involved. The *'Snapshot – Inuit Employment and Retention in Nunavut'*, provided in **Appendix A**, includes additional information on this topic. While B2Gold Nunavut understands that substantial efforts will be required to achieve its Inuit employment goals, work in this area is already well underway. Updates on this topic will be provided in future Annual Reports to NIRB, and through separate quarterly and annual reporting directly to KIA.

1.31 COMMENT NUMBER: KIA-NIRB-31

Subject/Topic	Employment - Promotions
References	Page 34
Summary	Limited number of Inuit promotions.
Detailed Review	There were 5 Inuit promotions in 2023 at the Project, and 23 non-Inuit promotions.
Recommendation/ Request	What are these numbers as a percentage of Inuit and non-Inuit employees?
Importance	Moderate
B2Gold Nunavut Response	As noted in the 2023 SEMR, there were 5 Inuit employee promotions at the Project in 2023, and 23 non-Inuit employee promotions. Section 3.1.2 of the 2023 SEMR also indicates there were a total of 167 Inuit personnel and 1,212 non-Inuit personnel who worked at the Project in 2023, and that 44.2% of these individuals were employees (vs. 55.8% who were contractors). Using these values, the following promotion rates were calculated: • 7% of Inuit employees received a promotion in 2023 • 4% of non-Inuit employees received a promotion in 2023

1.32 COMMENT NUMBER: KIA-NIRB-32

Subject/Topic	Education and training
References	Page v, page 60
Summary	There were no Inuit apprentices at the project in 2023
Detailed Review	KIA would like to see this increase.
Recommendation/ Request	Please provide a plan for increasing Inuit apprentices at the project. What discussions are in place with the Government of Nunavut?
Importance	High

B2Gold Nunavut Response	Details of B2Gold Nunavut's *Inuit Apprenticeship Program* will be finalized in the future, but it is currently envisioned to be a workplace-based post-secondary education program initiated by B2Gold Nunavut in close cooperation with Nunavut Arctic College (NAC) and the Government of Nunavut. Apprenticeship positions may include: • Carpenter • Electrician • Heavy Equipment Technician • Automotive Service Technician • Crane Operator • Partsperson • Millwright • Plumber • Welder Members of B2Gold Nunavut's team will travel to Kitikmeot communities to conduct interviews to fill apprenticeship positions or will conduct interviews remotely or through other means. Once hired, successful Inuit candidates will go through a four-month pre-trades program at site that includes: • Essential skills training • Job shadowing • Pre-qualification training to prepare individuals to take apprenticeship entrance examinations Once the above items are successfully completed, Inuit apprentices will be considered indentured, and their formal four-year apprenticeship phase will begin. Through B2Gold Nunavut's Career Development Plans process, opportunities for advancement and growth of Inuit employees are being identified. Formal apprenticeship programs are being researched and developed for introduction at the Project in the future. Additionally, B2Gold Nunavut recently began a partnership with the Redfish Arts Society Inc. in Cambridge Bay and in 2024 will introduce a 'Back River Inuit Workplace Experience Program' with students enrolled in programming with the Society. This program will see students work alongside the B2Gold Nunavut maintenance team. B2Gold Nunavut expects that through this program apprenticeship opportunities and candidates will also be identified. Discussions with the Government of Nunavut on apprenticeships at the Project are ongoing. For example: • B2Gold Nunavut engaged the GN's Department of Family Services to discuss apprenticeship programing in June 2022 via email and through a teleconference meeting on June 21, 2022. The Department of Family Services provided B2Gold Nunavut with a 'Career Development Information Sharing Document' which outlined apprenticeship eligibility requirements, regional territorial government contacts, as well as other training program information. • B2Gold Nunavut's Director, Human Resources & Organizational Development has maintained contact with the Department of Family Services, Supervisor of Apprenticeship, Trade, and Occupations Certification about changes to B2Gold Nunavut's trades workforce planning.

	• B2Gold Nunavut met with the GN's Department of Family Services to discuss apprenticeship programing in March 2023. • Information on trades occupations, journeypersons, and apprentices working at the Project was provided to the GN via email in March 2023 (per Term & Condition No. 72).

1.33 COMMENT NUMBER: KIA-NIRB-33

Subject/Topic	Education and training
References	Page 58
Summary	The statement is made the B2 Gold is committed to developing Inuit specific training programs.
Detailed Review	KIA would like to have more information about these programs – what are they, what is the subject matter, was it determined based on consultation with KIA or other Inuit?
Recommendation/ Request	Please provide the additional information requested above.
Importance	Moderate
B2Gold Nunavut Response	B2Gold Nunavut has held several conversations with KIA since 2023 regarding the development of an Inuit training partnership for the Project. B2Gold Nunavut looks forward to advancing a comprehensive training program partnership. B2Gold Nunavut's Inuit training initiatives will seek to maximize Project benefits including Inuit employment, experience, education, and skill level development. In-house training and career development opportunities will be provided to Inuit in order to meet the employment demands of the Project. B2Gold Nunavut also intends to support worker training programs through external education and training institutions, if appropriate. B2Gold Nunavut will identify existing barriers to employment for Inuit and will work with appropriate staff, and others, to implement measures that reduce these barriers. B2Gold Nunavut anticipates taking measures to enhance the experience, education, and skill levels of the local workforce by offering some or all of the following: 1. <u>Community Programming</u> • Kitikmeot Region Junior High and High School Achievement and Awards Program • Kitikmeot School Outreach • Kitikmeot Inuit Post-Secondary Education Application Fee Program • Scholarships • Community Outreach • Community Donations • Other Initiatives 2. <u>Workforce Orientation</u> • Work Ready Program • Workplace Preparedness Orientation • Site Orientation Program • Non-Discrimination and Harassment Orientation • Cross-Cultural Orientation, which may include additional supervisor/manager focused training

	• Financial Management/Literacy Orientation 3. <u>Workforce Training – General Initiatives</u> • Strategic Partnerships • Program and Training Contributions • In-House Training • Career Development Plans • Inuit Employment and Training Staff • Community and Employee Feedback • On Demand Second Language Training • Project Closure Considerations • Youth Employment • Inuit Training Targets • Training and Education Fund 4. <u>Workforce Training – Technical Initiatives</u> • Technical Training and Skills Development • Apprenticeship Program • Supervisor/Management Training

1.34 COMMENT NUMBER: KIA-NIRB-34

Subject/Topic	Education and training
References	Page 65, 66
Summary	There was only 1 individual supported by B2 Gold's Kitikmeot Junior High and High School Achievement Awards Program in 2023. B2 Gold has a Kitikmeot Junior High and High School Achievement Awards Program that supports resident Kitikmeot Inuit.
Detailed Review	KIA would like the Kitikmeot Junior High and High School Achievement Awards Program to also support urban Kitikmeot Inuit.
Recommendation/ Request	Please provide more information about whether the Kitikmeot Junior High and High School Achievement Awards Program supports urban Kitikmeot. If not, please provide an explanation as to why
Importance	High
B2Gold Nunavut Response	B2Gold Nunavut is proud of the *Kitikmeot Junior High and High School Achievement Awards Program* it has developed to ensure compliance with IIBA requirements. KIA approved B2Gold Nunavut's plan for this Program via the IIBA Implementation Committee. B2Gold Nunavut has also worked closely with Kitikmeot Region school administrators, and staff at Kitikmeot School Operations, to help increase the number of Program award recipients. While up-take by Kitikmeot schools on this Program has been somewhat slow to-date, B2Gold Nunavut anticipates increased recipient numbers over time as the Program becomes better known across the region. The IIBA does not specify achievement awards to be provided to urban Kitikmeot Inuit; however, this is something that may be considered by B2Gold Nunavut and KIA through the IIBA Implementation Committee. B2Gold Nunavut's immediate priority is to increase uptake and knowledge of the existing Program within the Kitikmeot Region.

	In addition to the awards mentioned above, B2Gold Nunavut also supports young Canadian mining talent with two scholarship awards that Kitikmeot Inuit are welcome and encouraged to apply for: • Indigenous: A $5,000 scholarship to an Indigenous student (the scholarship is focused on Inuit students, preferably from the Kitikmeot Region) enrolled in a mining or exploration field nationally. • Women in Exploration: A $5,000 scholarship to a female student enrolled in a geology program who has successfully completed their first year of studies.

1.35 COMMENT NUMBER: KIA-NIRB-35

Subject/Topic	Education and training
References	Page 70
Summary	B2Gold is committed to offering second language training courses based on demand. B2 Gold Nunavut has not seen a demand for these courses, and they have not been requested.
Detailed Review	KIA is interested in how these courses are communicated. Do employees know that they are available? Are they publicized?
Recommendation/ Request	Please provide the additional information requested above.
Importance	High
B2Gold Nunavut Response	B2Gold Nunavut has committed to providing support for Project employees interested in improving their English, Inuinnaqtun, or Inuktitut skills in its *Inuit Human Resources Plan* and has provided details on its *Second Language Training Program* previously to NIRB. Currently, second language training opportunities are communicated to employees via ongoing discussions with the Indigenous & Northern Affairs team, specifically the Supervisor, Community Relations and Coordinator, Inuit Support. Moving forward, second language training opportunities will be communicated to employees via Cultural Awareness Training sessions.

1.36 COMMENT NUMBER: KIA-NIRB-36

Subject/Topic	Health and community wellbeing - grievances
References	Page v, page 84
Summary	Two grievances were filed and resolved at the Project in 2023 In 2023, the Supervisor, Community Relations made a total of 4 trips to Project sites
Detailed Review	KIA has received a number of complaints and concerns from Inuit Back River employees. It may help address these if the Supervisor Community relations were on site more often.
Recommendation/ Request	Please provide information about the nature of these grievances. Consider more frequent trips by the Supervisor, Community Relations to the project site.
Importance	High
B2Gold Nunavut Response	B2Gold Nunavut can confirm that two grievances were filed with the Project in 2023. Both of these grievances were employment-related and both were resolved.

	The average grievance resolution time was 27.5 days. Due to employee confidentiality considerations (i.e. these were Human Resources matters), B2Gold Nunavut is unable to provide further details on these particular grievances. B2Gold Nunavut's Supervisor, Community Relations will continue to visit the Project and provide support to Inuit employees and contractors. Beginning in 2024, B2Gold Nunavut now also employs Coordinator, Inuit Support roles at the Project to assist Inuit employees. This may include providing information and/or direction on resolving issues and conflicts encountered through Project employment, career development opportunities, training offerings, relevant policies and programs at the Project, and other matters. Two Kitikmeot Inuit working on site-based cross-rotations will fill the Coordinator, Inuit Support role, which will work in tandem with site-based Human Resource team and the Indigenous & Northern Affairs team.

1.37 COMMENT NUMBER: KIA-NIRB-37

Subject/Topic	Health and community well being
References	Page 90
Summary	B2 Gold has developed cross cultural training with KIA, and it is offered at the Project
Detailed Review	Is cross cultural training provided to contractors as well as employees.
Recommendation/ Request	KIA believes it is important to provide cross cultural training to both employees and contractors.
Importance	Moderate
B2Gold Nunavut Response	B2Gold Nunavut confirms that Cross-Cultural Training is provided to *both* employees and contractors at the Project. In addition, B2Gold Nunavut's corporate staff (e.g. in Vancouver and Edmonton) also receive Cross-Cultural Training.

1.38 COMMENT NUMBER: KIA-NIRB-38

Subject/Topic	Kitikmeot Qualified Business Registry (KQBR)
References	Page 45
Summary	The statement is made that 28 KQBs were registered representing 120 total goods/services categories.
Detailed Review	This is misleading as there are 15 goods/services categories on the KQBR.
Recommendation/ Request	Please correct or explain this reference.
Importance	Low
B2Gold Nunavut Response	B2Gold Nunavut acknowledges there are a total of 15 unique goods/services categories on the KQBR (in addition to an 'Other' category). The 2023 SEMR statement that 28 KQBs were registered representing 120 total goods/services categories in 2023 was intended to demonstrate the diversity of goods/services offered by KQBs *as a whole*. Specifically, this was calculated by adding the number of contract categories represented by *each* KQB in 2023, *together*. Table 5.2 in the 2023 SEMR provides additional information on this. Additional clarification on this matter will be provided in future SEMRs.

1.39 COMMENT NUMBER: KIA-NIRB-39

Subject/Topic	Non-Traditional land and resource use
References	Page 92
Summary	Comments made on Non-traditional land use.
Detailed Review	Comments were made by the Bathurst Inlet Lodge about the Nontraditional land and resource use VSEC.
Recommendation/ Request	KIA seeks more information about these comments by Bathurst Inlet Lodge.
Importance	Moderate
B2Gold Nunavut Response	The comments made by Bathurst Inlet Lodge regarding the Non-Traditional Land and Resource Use VSEC were first reported by B2Gold Nunavut in its 2022 SEMR. These comments occurred during a meeting related to Project Certificate Term & Condition No. 81. Project Certificate Term & Condition No. 81 requests that B2Gold Nunavut consult with outfitting and guiding businesses that operate in the regional study area regarding use of the land and marine areas in proximity to Project infrastructure or activities and any noted Project effects, particularly for effects in relation to the experience of the natural environment. B2Gold Nunavut has developed an *'Outfitting and Guiding Business Consultation Protocol'* to address this issue, the most recent version of which is included in B2Gold Nunavut's *Socio-Economic Monitoring Plan*. Consistent with the above, B2Gold issued a biennial informational letter on April 12, 2022 to all companies in possession of a pending, current, or recent GN Outfitter Licence, whose community of operation included either Cambridge Bay or Kugluktuk. Hunters and Trappers Organizations (HTOs) in Cambridge Bay, Kugluktuk, Bathurst Inlet, and Bay Chimo also received copies of this letter. One response was received to this letter (i.e. from Bathurst Inlet Lodge) and a follow-up meeting with B2Gold Nunavut was organized in May 2022 whereby mutual updates were provided. At this time, Bathurst Inlet Lodge representatives also confirmed B2Gold Nunavut's effect on the Lodge was exclusive to Fishing Creek, in particular the visual impact of the MLA from Fishing Creek. Lodge representatives also requested logistical support from B2Gold Nunavut in the form of access to the MLA airstrip, which the Company accommodated throughout 2022.

2. GOVERNMENT OF NUNAVUT

2.1 COMMENT NUMBER: GN AR #01

Subject/Topic	Air Quality Mitigation and Adaptive Management
References	◆ B2Gold Nunavut. Back River Project 2023 Annual Report (April 2024). ◆ Government of Nunavut. Government of Nunavut Comments 2020 Annual Report for Sabina Gold and Silver Inc. Back River Project (May 2021). ◆ Nunavut Impact Review Board. Project Certificate No. 007. (December 2017). ◆ Sabina Gold & Silver Corp. Back River Project Air Quality Monitoring and Management Plan (July 2019).
Comment	The Government of Nunavut (GN) notes the absence of clear triggers for the adaptive management of fugitive dust within the Project's Air Quality Monitoring and Management Plan (AQMMP) and Fugitive Dust Reduction Plan (FDRP) (Sabina Gold & Silver Corp., 2019). Clear triggers concerning excessive fugitive dust will enable site staff to implement dust suppressant measures in real-time.
Recommendation/ Request	The GN recommends the Proponent undertake the following: ◆ That the Proponent update the AQMMP and FDRP to include clear triggers that utilize simple field-based approaches to initiate specific fugitive dust suppression measures (e.g., the application of dust suppressants).
Importance	Term and Condition 3 of Project Certificate No. 007 states: The Proponent shall have in place dust management and monitoring plans which address the following items: a. Reflect commitments made in the Final Environmental Impact Statement, the Final Environmental Impact Statement Addendum, and through the Nunavut Impact Review Board's impact assessment process; b. Verify commitments to use dust suppressants on-site, including a description of the type of suppressant to be used, as well as the frequency and timing of applications to be made throughout the periods of applicable use; c. Specify commitments to the use of appropriate dust suppression measures when conducting activities in the landfill such as topping or capping; d. Outline the specific adaptive management measures to be considered should monitoring indicate that dust deposition is higher than predicted, specifically where project-related traffic is greater than initially expected or where meteorological events have instigated additional deposition; and

	e. Demonstrate consideration for the implementation of alternative methods (e.g., windscreens) to limit the deposition of dust generated from the Project. (Nunavut Impact Review Board, 2017) Pursuant to this term and condition, the Proponent wrote the following in the Back River Project 2023 Annual Report (Annual Report): The AQMMP aligns with commitments made during environmental impact assessment process and includes a Fugitive Dust Reduction Plan which provides information on dust suppressant use and dust suppression measures. Section 8 of the AQMMP also outlines B2Gold Nunavut's mitigation and adaptive management approach, including possible responses to increased dust generation. These may include alterations to dust suppressant application rate, frequency, methodology or type, and/or modifications of road maintenance protocols, and/or reductions in road usage through personnel awareness or use of alternate vehicles. Adaptive management response will also be triggered in real-time, based on site observations. (Page 4-15; B2Gold Nunavut, 2024) Emphasis added. The AQMMP states that the application of dust suppressants is a potential adaptive management response to real-time site-based observations of fugitive dust generated by the Project (Sabina Gold & Silver Corp., 2019). However, as discussed in past GN comments (e.g., GN-AR-01; GN, 2021) the current AQMMP does not provide clear information on thresholds or criteria concerning fugitive dust (e.g., the amount of time required for a dust cloud to dissipate) that would initiate adaptive management. The GN acknowledges the Proponent's intention to update the FDRP and the AQMMP (B2Gold, 2024). The GN recommends that updated plans provide clear triggers (e.g., time required for a dust cloud to dissipate) for the adaptive management of fugitive dust entailing simple field-based measurements.
B2Gold Nunavut Response	AQMMP update is in progress and will consider the recommendation in this regard, however, B2Gold Nunavut notes that currently dust suppression is applied once dust clouds start forming; we do not wait for dust cloud dissipation duration or a size of dust cloud to form.

2.2 COMMENT NUMBER: GN AR #02

Subject/Topic	Invasive Species
References	◆ B2Gold Nunavut. Back River Project 2023 Annual Report (April 2024a). ◆ B2Gold Nunavut. Back River Project 2023 Annual Report, Appendix I – Pre-Shipment Equipment Cleaning (March 2024b). ◆ Nunavut Impact Review Board. Project Certificate No. 007 (December 2017). ◆ Sabina Gold & Silver Corp. Pre-shipment Equipment Cleaning Standard Operation Procedures (February 2018).
Comment	The GN acknowledges the Proponent's efforts to minimize the introduction of potential invasive plant species. However, the GN seeks additional information from the Proponent regarding record keeping and roles associated with the shipping and receiving of equipment and bulk supplies.
Recommendation/ Request	The GN recommends the Proponent undertakes the following:

	◆ In this and future annual reports, the Proponent should explicitly confirm whether the list of equipment and supplies presented in the Pre-Shipment Equipment Cleaning Appendix is the total list of equipment and supplies brought to the Project during the reporting period. ◆ The Proponent should clarity if designated site personnel are required to inspect and verify the status (i.e., clean and free of soil and/or plant debris) of all incoming equipment and bulk supplies or if assessments are incidental in nature. ◆ If applicable, the Proponent, in future annual reports should provide records indicating the outcome of designated site personnel inspections.
Importance	Term and Condition 33 of Project Certificate No. 007 states: The Proponent shall ensure that equipment and supplies brought to the project sites are clean and free of soils that could contain plant seeds not naturally occurring in the area. Vehicle tires and treads in particular must be inspected prior to initial use in project areas. The Proponent shall also incorporate protocols for monitoring for the potential introduction of invasive vegetation species (e.g. surveys of plant populations in previously disturbed areas) into relevant monitoring and management plans for the terrestrial environment. Any introductions of non-indigenous plant species must be promptly reported to the Government of Nunavut Department of Environment (Nunavut Impact Review Board, 2017). As detailed in the Annual Report, the Project utilizes the Back River Pre-shipment Equipment Cleaning Requirements Standard Operating Procedure (SOP) to ensure all equipment and bulk supplies arriving at the Back River Project site are in a condition free of any soil or plant debris to minimize the risk of invasive plant (Page 139; B2Gold Nunavut, 2024a). The SOP states the following: Expediter - Expediter must inspect each item of equipment and bulk supplies prior to shipment to the property site. Inspections to focus on wheels, tracks, skids, buckets, scoops, undercarriage, and packing material. If any soil is identified, the below cleaning procedures should be followed. Confirmation that equipment is clean must be documented (e.g. as a column to be initialed on the shipping/flight manifest or completion of Form A Expediter Verification). Designated site personnel –If absence [sic] of soil or plant matter is discovered during offload, on-site cleaning should follow the cleaning protocols below. Water should be minimized or eliminated if possible, and the inspection should ensure any removed material is contained, collected, and disposed of as directed by Environment personnel. (Page 1; Sabina Gold & Silver Corp., 2018) In 2023, the Proponent provided Appendix I, Pre-Shipment Equipment Cleaning pursuant to this SOP. Appendix I details that that all equipment and bulk supplies shipped to the Project between August and September 2023 were free of soil and plant debris (B2Gold Nunavut, 2024b). However, it is unclear to the GN whether the list of equipment and supplies is exhaustive and represents all relevant shipments received by the Proponent in 2023. Additionally, the SOP text suggests that designated site personnel are required to verify and address (through cleaning protocols) incoming equipment and bulk supplies (Sabina Gold & Silver Corp., 2018). However, the GN notes that the SOP does not clearly specify whether inspections are mandatory for each shipment or incidental in nature. While Appendix I provides records detailing the date, expediter's identity, list and status of equipment and bulk supplies, similar records

	for the designated site personnel are not included in annual report materials (B2Gold Nunavut, 2024b). Including records from designated site personnel would enhance transparency in annual reports regarding the Proponent's steps to minimize the introduction of invasive plant species.
B2Gold Nunavut Response	The Project utilizes the Back River Pre-shipment Equipment Cleaning Requirements Standard Operating Procedure (SOP) to ensure all equipment and bulk supplies arriving at the Back River Project site are in a condition free of any soil or plant debris to minimize the risk of invasive plant. As the SOP states, the expediter must inspect each item of equipment and bulk supplies prior to shipment to the property site. Inspections are to focus on wheels, tracks, skids, buckets, scoops, undercarriage, and packing material. If any soil is identified, the below cleaning procedures should be followed. In summary, all items being shipped are required to be screened as per the SOP, with a focus on focus on wheels, tracks, skids, buckets, scoops, undercarriage, and packing material. This information has been communicated to expediters and B2Gold Nunavut's contracting team is establishing contract inclusion regarding. In addition, B2Gold Nunavut's Environmental Department has a presence on-site at the MLA during offloads which verify offloaded contents align with the SOP.

2.3 COMMENT NUMBER: GN AR #03

Subject/Topic	Spills/Pollution Prevention
References	◆ Agnico Eagle Mines Limited: Meadowbank Complex. Meadowbank Complex 2023 Annual Report 61-000-100-REP-006. (March 2024) ◆ B2Gold Nunavut. Back River Project 2023 Annual Report (April 2024) ◆ Government of Nunavut, Department of Environment, Environmental Protection Division. Environmental Guideline: General Management of Special and Hazardous Waste. (March 2023) https://www.gov.nu.ca/sites/default/files/publications/2024-05/Hazardous%20Waste%202023-03.pdf ◆ Spill Contingency Planning and Reporting Regulations
Comment	The Annual Report includes Table 4.4-1 which summarizes the 19 reportable spills (as defined by the Spill Contingency Planning and Reporting Regulations) that occurred in 2023 (Page 4-4 and 4-5; B2Gold Nunavut, 2024). However, the GN notes that the Annual Report does not include a summary of minor (i.e., non-reportable spills) that occurred in 2023.
Recommendation/ Request	The GN recommends the Proponent undertake the following: ◆ In this and future annual reports, the Proponent should endeavour to report all spills.
Importance	The Annual Report includes Table 4.4-1 which summarizes the 19 reportable spills (as defined by the Spill Contingency Planning and Reporting Regulations) that occurred in 2023 (Page 4-4 and 4-5; B2Gold Nunavut, 2024). However, the GN notes that the Annual Report does not include a summary of minor (i.e., non-reportable spills) that occurred in 2023. The GN acknowledges that reporting minor spills is not a statutory obligation. However, the GN notes that other projects within the territory often include a summary of minor spills in annual reporting materials (e.g., Agnico Eagle Mines Limited, 2024). Small spills, if not effectively cleaned, can pose risks to wildlife. For

	example, ethylene glycol is toxic to wildlife in small quantities (GN, 2023). The GN believes that providing information on minor spills through annual reports offers valuable information about the types of contaminants entering the environment, as well as Proponent's efforts to prevent, contain, and clean up such incidents.
B2Gold Nunavut Response	B2Gold Nunavut thanks the Government of Nunavut (GN) for their comment.

2.4 COMMENT NUMBER: GN AR #04

Subject/Topic	Aircraft - Wildlife Protection
References	◆ Agnico Eagle Mines Limited. Appendix 39, Parts 1-5, Agnico Eagle Mines Limited - Meadowbank Complex 2023 Wildlife Monitoring Summary Report Annual Report (March 2024). ◆ B2Gold Nunavut. Back River Mine 2023 Wildlife Mitigation and Monitoring Program Report, Appendix K (March 2024). ◆ Sabina Gold & Silver Corp. Back River Project Wildlife Mitigation and Monitoring Program Plan (Version 12) (April 2023).
Comment	The GN acknowledges that the Proponent engages in various mitigation actions to minimize the disturbance of caribou and other wildlife generated by helicopter activity. As detailed in the Project's Wildlife Mitigation and Monitoring Plan (WMMP) the implementation mitigation actions, specifically vertical and horizonal flight distances, relies heavily on wildlife observations made by helicopter pilots. As such, the GN is concerned with the lack of caribou observations reported by helicopter pilots in 2023. Additionally, the GN notes that the presentation of helicopter flight data negatively impacts the ability to assess compliance with the Project's WMMP.
Recommendation/ Request	The GN recommends the Proponent undertake the following: ◆ The Proponent should provide an explanation as to why pilots failed to report any wildlife sightings in 2023 despite evidence (e.g., incidental sightings by other site personnel, wildlife camera detections) to suggest that wildlife was present around the Project throughout 2023. ◆ In future annual reports, the Proponent should clarify in which months helicopters are utilized for Project activities. ◆ In future annual reports, the Proponent helicopter figures should employ symbology that clearly depicts information such as individual flight legs or flights that occurred above or below 610 meters above ground level. ◆ In future annual reports, the Proponent should provide tabular data of flight logs. These tables should include information such as: date, flight purpose, flight distance, flight's mean height above ground level (m), justification for flight occurring below 610 m, wildlife observations made by the pilot and any course corrections made as a result.
Importance	**<u>Pilot Observations</u>** In the 2023 Wildlife Mitigation and Monitoring Program Report (WMMP Report), the Proponent states that, "helicopters make trips between the Goose and [the Marine Laydown Area] areas, as well as taking supplies (e.g., drilling gear) and crews (field survey biologists) to other areas near the mine," (Page 20; B2Gold Nunavut, 2024). To minimize disturbance to caribou, the Project's WMMP states the following measures:

	◆ …Pilots will report all incidental sightings of caribou to other pilots and the Environment Department. ◆ During calving, post-calving, and early summer (June 5 – July 31), large groups of caribou (more than 250) will be avoided by 610 m vertically or 4 km horizontally... ◆ During calving, post-calving, and early summer (June 5 to July 31), helicopter pilots will avoid groups of 25 or more caribou either vertically (610 m) or horizontally (2 km). During all seasons, pilots will avoid groups of less than 25 caribou vertically (610 m) or horizontally (1 km). (Pages 7-21 and 7-22; Sabina Gold & Silver Corp., 2023) Section 2.4.3 of the WMMP Report indicates that the total distance flown by helicopters at Back River in 2023 was 53,658.34 km and that 27% of this distance was flown during drill moves within 4 km of the mine (Page 22; B2Gold Nunavut, 2024). However, this section states that, "[h]elicopter pilots did not report any wildlife sightings in 2023, therefore no management actions were triggered, and helicopter use was in compliance with the WMMP Plan and NIRB Conditions," (Page 22; B2Gold Nunavut, 2024). The GN is concerned with the lack of pilot observations as other evidence presented in the WMMP Report indicate caribou occurred near the Project throughout the year. For example, Table 3.9-2 illustrates that 93 incidental observation events by personnel at the Back River Mine occurred in 2023, totaling approximately 27,510 caribou (Pages 56 and 57; B2Gold Nunavut, 2024). **Helicopter Figures and Data** The Proponent presents Figure 2.4.1 Helicopter Flights, June to October 2023 in the WMMP report (Page 23; B2Gold Nunavut, 2024). However, the GN notes that the figure is difficult to interpret for the following reasons. First, Figure 2.4.1 illustrates helicopter flights from June to October in 2023. However, it is unclear if these months are the only months in which the Project utilizes helicopters. Second, Figure 2.4.1 utilizes points which indicates the position of a helicopter every 3 minutes; The GN notes that this symbology does not clearly depict individual flight legs or flights that occurred above or below 610 meters above ground level. Additionally, the WMMP Report does not provide tabular data of flight logs. The GN notes that other projects in Nunavut, such as the Meadowbank and Whale Tail Project provide helicopter flight tables in annual report materials, these tables detail information such as: date, flight purpose, mean height above ground (m), justification for low flight (Agnico Eagle Mines Limited, 2024).
B2Gold Nunavut Response	• B2Gold Nunavut has updated the helicopter pilot brochure, as well as an SOP to provide options to pilots for recording sightings (e.g., on a datasheet or calling in to site to record for them). B2Gold Nunavut also recognizes the challenges involved in recording a sighting while the pilot is involved in flying the aircraft safely and completing tasks, such as drill moves or slinging. Pilots will continually be reminded to ensure sightings are recorded when possible, particularly while flying between Goose and MLA sites. • B2Gold Nunavut will clarify in which months helicopters are utilized for project activities in future years. Generally, helicopters are on site between May and September. • B2Gold Nunavut will continue to explore ways to improve the helicopter figures and summarize flight data in future annual reports.

	• B2Gold Nunavut will explore the possibility of obtaining tabular data of flight logs from pilots.

2.5 COMMENT NUMBER: GN AR #05

Subject/Topic	Blasting Activities – Wildlife Protection
References	◆ B2Gold Nunavut. Back River Mine 2023 Wildlife Mitigation and Monitoring Program Report, Appendix K (March 2024). ◆ Sabina Gold & Silver Corp. Back River Project Wildlife Mitigation and Monitoring Program Plan (Version 12), (April 2023).
Comment	As a result of its review of section 2.5 of the WMMP Report, the GN is concerned with the Proponent's failure to reliably conduct and report on pre-blast surveys intended to safeguard wildlife on numerous occasions in 2023.
Recommendation/ Request	The GN recommends the Proponent undertake the following: ◆ The Proponent should provide an explanation for why no pre-blast survey occurred in April 2023 at the Gander Site. The Proponent should also provide details on how this failure to comply with the WMMP will be avoided in future years. ◆ The Proponent should provide an explanation as to why pre-blast survey documentation is missing for ~32% of days where blasting occurred.
Importance	As described in section 7.1.5.8 the Project's WMMP, the Proponent is required to conduct pre-blast height of land surveys before all blasts to reduce disturbance or risk of injury to caribou or other wildlife (Sabina Gold & Silver Corp., 2023). Pursuant to this, the WMMP Report states that blasting occurred at the Goose site during a total of 90 days between in 2023, with 109 individual blast events being completed (Page 25; B2 Gold Nunavut, 2024). Additionally, the WMMP Report states that pre-blast surveys were conducted on 62 days when blasting occurred (pre-blast surveys were also conducted on eight days where no blasting was reported) (Page 25; B2Gold Nunavut, 2024). However, the Proponent indicates that a pre-blast survey was not conducted for one blasting event that occurred at the Gander location in April 2023. (Page 25; B2Gold Nunavut, 2024). The GN notes that the Proponent does not provide an explanation for why a pre-blast survey did not occur. The WMMP Report, the Proponent also indicates that there are 29 days where pre-blasting surveys were not documented for locations where blasting occurring. (Page 25; B2Gold Nunavut, 2024). The Proponent does not provide an explanation as to why documentation for pre-blast surveys is missing for ~32% of days were blasting occurred in 2023. Additionally, the Proponent states that, "…missing documentation of these surveys does not confirm that they were not completed, as site personnel are required to incidentally report sightings of wildlife, particularly during blasting," (Page 25; B2Gold Nunavut, 2024) and that "…no additional mitigative measure were required in 2023," (Page 26; B2Gold Nunavut, 2024). While the GN acknowledges the utility of incidental sightings by site personnel, incidental sightings are not systematic in nature and do not replace pre-blast surveys required under the WMMP. Additionally, as surveys may not have conducted on ~32% of days where blasting occurred, the GN believes that it is inappropriate for the Proponent to arrive at the conclusion that no additional mitigative measure were required.

B2Gold Nunavut Response	To ensure pre-blast surveys are completed prior to blasts, the pre-blasting SOP and associated datasheet were updated and distributed onsite in March 2024 to the blasting foreman and other personnel to ensure that blasting crews had sufficient guidance and resources to conduct and record pre-blasting surveys. In addition, the blasting foreman was instructed to inform the Environmental Department of the blasting schedule in advance of blasts occurring to coordinate pre-blasting surveys conducted by either Environmental Staff or a member of the blasting crew that is knowledgeable in animal identification. Individuals were reminded of the importance of documentation, regardless of wildlife being observed (i.e., to ensure all survey effort is recorded and reported). Additionally, B2Gold Nunavut is working on converting the paper datasheet to a virtual site form to ensure that after completion, forms are digitally documented and stored to reduce possibility of forms being misplaced and not submitted. The Back River site is growing quickly, and B2Gold Nunavut is learning and adapting each year. In addition, for much of the year, collar data indicates that caribou are hundreds of kilometres away from the Back River Mine, and it was understood that surveys would be redundant during these times of year. However, B2Gold Nunavut has provided additional instruction to blasting foreman to ensure these scans are conducted, even during the seasons when caribou are not present.

3. CROWN-INDIGENOUS RELATIONS AND NORTHERN AFFAIRS CANADA

3.1 COMMENT NUMBER: CIRNAC #1

Subject/Topic	Permafrost Mapping
References	◆ NIRB Project Certificate No. 007, Term & Condition 11 ◆ Back River Project 2023 Annual Report: Section 4.5.4, Appendix D
Comment	Section 4.5.4 in the 2023 Annual Report states: “As part of the 2023 scope of works, B2Gold Nunavut revisited the locations where past thermistors or Ground Temperature Cables (GTCs) have been installed, taking readings were possible, and generating an initial draft of Goose site Thermal Monitoring Plan.” However, the Site-wide Ground Thermal Monitoring Plan (Appendix D) states: “At the time of reporting, the historic sites are considered to be inactive, and no recent measurements have been made from the sites.” Thermal monitoring data obtained from background sites in 2023 was not presented in the Site-wide Ground Thermal Monitoring Plan. It is unclear to CIRNAC if background sensors were re-established in 2023. Reporting requirements for Term & Condition 11 state: “During construction, the Proponent shall, on an annual basis, provide additional permafrost mapping information documented in fulfillment of this Term and Condition in the Proponent’s annual report to the Nunavut Impact Review Board.” Additional permafrost mapping for background sites has not been provided in any of the 2021, 2022, and 2023 Annual Reports. Continued permafrost monitoring and mapping is required to verify the predictions of the FEIS.
Recommendation/ Request	CIRNAC recommends that B2Gold:

	a. Confirm if background sensors were re-established in 2023 and provide any mapping from those sensors; and, b. Provide background thermal monitoring data and compare to previous results in future Annual Reports.
B2Gold Nunavut Response	a. No historic Ground Temperature Cables (GTC) locations were re-established in 2023. Only new monitoring locations were established in 2023. Additional details on the available and functioning GTC on site are provided in the first revision of the "Site-wide Ground Thermal Monitoring Plan". B2Gold Nunavut plans to update this thermal monitoring plan annually and will include any new data, or any data from historic locations that are able to be re-established as part of those annual updates. b. B2Gold Nunavut will include a comparison of recent readings to background readings as part of the 2024 annual reporting.

3.2 COMMENT NUMBER: CIRNAC #2

Subject/Topic	Permafrost Monitoring
References	◆ NIRB Project Certificate No. 007, Term & Condition 12 ◆ Back River Project 2023 Annual Report: Section 4.5.4, Appendix E ◆ Back River Project 2022 Annual Report: Sections 3 and 4.5.4, Appendix B
Comment	Section 4 in the 2023 Annual Geotechnical Inspection (the Report, Appendix E) states: "In general, the roads and pads are still in a partially built state. In some areas the roads have been built up and are approaching the expected design thickness. However, the majority of the roads are typically only in the fill thickness range of 1 m thick, with some areas thicker and some areas thinner (typically fills always at least 0.5 m thick)." The presence of underbuilt roads, embankments, and pads has been previously identified as a threat to permafrost integrity. The presence of underbuilt roads will continue to exacerbate permafrost degradation until an adequate fill thickness is placed and permafrost begins to aggrade into the fill. The Report also notes the presence of water ponding, and in some instances, permafrost degradation, near various infrastructure at both the Goose and Marine Laydown Area sites, including the air strips, tank farms, processing plant pad, roads, culverts, etc. The Report provides recommendations for redirecting or pumping ponded water away from these areas, to slow down permafrost degradation, and provides figures showing the locations of ponding water near the Goose airstrip, Primary Pond, as well as the airstrip, lower laydown pad, and temporary fuel storage at the Marine Laydown Area. Mapping and monitoring locations of persistent ponded water near infrastructure is warranted to identify if the ponds are expanding and contributing to permafrost degradation.
Recommendation/ Request	CIRNAC recommends that B2Gold: a. Provide mapping that confirms the locations of underbuilt roads, pads, and embankments in its 2024 Annual Report;

	b. Provide analyses for determining the thicknesses of all existing underbuilt roads, pads, and embankments, and monitor these structures, to minimize impacts to permafrost, in its 2024 Annual Report; c. Monitor and map locations of persistent ponded water near infrastructure annually
B2Gold Nunavut Response	a. B2Gold Nunavut will provide mapping that confirms locations of underbuilt roads, pads, and embankments in the 2024 Annual Report. b. B2Gold Nunavut will complete surveys of the existing roads in 2024 and an isopach map (comparison of existing elevations to pre-mining topography) will be prepared and presented as part of the 2024 Annual Report to show the approximate current road thicknesses at Goose. c. A map of ponding locations was presented as part of the 2023 Annual Geotechnical Inspection. Similar observations will be collected in 2024 and an update and comparison to that initial mapping will be presented in the 2024 Annual Report.

3.3 COMMENT NUMBER: CIRNAC #3

Subject/Topic	Sensitive Landform Mitigation and Monitoring
References	◆ NIRB Project Certificate No. 007, Term & Condition 13 ◆ Back River Project 2023 Annual Report: Section 4.5.4, Appendix E ◆ Back River Project 2022 Annual Report: Section 4.5.4 ◆ Sabina Responses to 2022 Annual Report Comments
Comment	Reporting requirements for Term & Condition 13 state: "*During construction, the Proponent shall, on an annual basis, provide information regarding the results of additional geotechnical investigations undertaken and any associated mitigation and monitoring measures implemented by the Proponent in the Proponent's annual report to the Nunavut Impact Review Board.*" In response to the 2022 Annual Report, CIRNAC recommended that B2Gold provide the results or status of the geotechnical investigations undertaken in 2021, and any subsequent geotechnical investigations. In response, B2Gold noted that geotechnical drilling occurred in 2021 at the Primary Pond and the Umwelt Dam Saline Water Pond. B2Gold provided an overview of the subsurface drilling that was completed prior to construction at the Primary Pond, including the 2021 drilling results. However, a summary was not provided for the geotechnical investigation work completed at the Umwelt Dam Saline Water Pond. CIRNAC is uncertain as to whether there are sensitive landforms or associated mitigation and monitoring measures in the information provided on the Primary Pond. In the response to its 2022 Annual Report comments, B2Gold also stated: *"Additional geotechnical investigations have been completed 2023. These include foundation checks (mainly test pitting and a couple air rotary drill holes) completed at the Goose camp and plant pads, and at the MLA tank farm. An overview of the 2023 geotechnical investigations will be presented as part of the 2023 annual reporting."* In reviewing the 2023 Annual Report and the 2023 Annual Geotechnical Inspection (Appendix E), CIRNAC did not locate a summary of the 2023 geotechnical investigations, comments on sensitive landforms, or any associated

	mitigation and monitoring measures relating to the 2023 geotechnical investigations.
Recommendation/ Request	CIRNAC recommends that B2Gold: a. Provide a summary of the geotechnical investigation work completed and comment on sensitive landforms identified and any associated mitigation and monitoring measures for the Primary Pond, Umwelt Dam, and other works in 2023 in its 2024 Annual Report; and, b. Provide summaries of the geotechnical investigations undertaken each year in its Annual Reports and comment on sensitive landforms identified as well as any associated mitigation and monitoring measures.
B2Gold Nunavut Response	B2Gold Nunavut will provide a more concise overview of the geotechnical investigations, including sensitive landforms, that were undertaken in 2023 and 2024 in the 2024 Annual Report.

3.4 COMMENT NUMBER: CIRNAC #4

Subject/Topic	Aquatic Effects Monitoring Plan
References	◆ NIRB Project Certificate No. 007, Term & Condition 21 ◆ Back River Project 2023 Annual Report: Section 4.5.7, Appendices F1 and F2 ◆ Back River Project 2022 Annual Report: Section 4.5.7 ◆ Sabina Responses to 2022 Annual Report Comments
Comment	Term & Condition 21 states that: "The [Aquatic Effects Monitoring Plan] AEMP should include sufficient sampling and monitoring programs to appropriately characterize the receiving environment to ensure that adequate data is available to assess impact predictions made within the Final Environmental Impact Statement." The 2023 Annual Report indicated that additional baseline data was collected in 2023, including: ◆ Open-water water quality sampling at multiple stations and water column depths in Goose Lake in July and September; and ◆ Open-water water quality sampling in the outflow of Goose Lake (Propeller Lake inflow) and various Goose Lake inflows in May, July, and September. The 2023 Annual Report indicates that the water quality in Goose Lake and streams was generally consistent with results from previous years (Golder 2019, 2022; WSP 2023). CIRNAC notes that this data was not provided with the 2023 Annual Report, limiting the Department's ability to evaluate the conclusions presented by B2Gold.
Recommendation/ Request	CIRNAC recommends that B2Gold: a. Provide consolidated, up-to-date monitoring data in each Annual Report, including monitoring data of past years; b. Provide the summarized results of the current and past sampling in its next Annual Report and ensure that the data are included in the full AEMP to be issued in 2024; and,

	c. Include any updated AEMP reports in all future Annual Reports.
B2Gold Nunavut Response	Please see response to KIA-NIRB-13 and KIA-NIRB-19.

3.5 COMMENT NUMBER: CIRNAC #5

Subject/Topic	Vegetation Monitoring Plan
References	◆ NIRB Project Certificate No. 007, Term & Condition 34 ◆ Back River Project 2023 Annual Report: Section 4.5.9, Appendix J ◆ Back River Project 2022 Annual Report: Section 4.5.9, Appendix E ◆ Sabina Responses to 2022 Annual Report Comments ◆ Back River Project FEIS Addendum, Volume 5
Comment	A Vegetation Monitoring Report was not provided for 2023, and the vegetation monitoring photos provided for the 2023 monitoring activities (Appendix J) do not provide a quantitative assessment of the information for long-term comparisons and verification of predictions in the FEIS. The 2022 Vegetation Monitoring Program Report (Appendix E) indicates that no invasive species were detected within the new Winter Ice Road monitoring plots; however, one vascular plant was identified only as a graminoid (a grass-type plant), with no genus or species provided. In response to the 2022 Annual Report comments, B2Gold stated that no non-native species were not observed, however, it was not clear if this species was also non-invasive. Without further details on the plant characteristics to confirm that it is not invasive, the predictions and commitments made in the FEIS cannot be verified.
Recommendation/ Request	CIRNAC recommends that B2Gold: a. Provide quantitative vegetation data from vegetation monitoring plots to facilitate long-term comparisons and quantify the potential impacts from the Project; and, b. Clarify how the unknown graminoid species detected in 2022 vegetation monitoring plots was determined to be non-invasive.
B2Gold Nunavut Response	According to the schedule of monitoring events within the Vegetation Monitoring Plan (VMP), only photographic monitoring of the Winter Ice Road (WIR) plots was required in 2023. Going forward, these annual photographs will be assessed with a quantitative disturbance ranking in addition to comprehensive monitoring every 3 years. The disturbance rankings will be provided in the annual reports. Species that were identified as unknown graminoid in 2022 were likely characterized as such because the individuals were too immature to be able to identify. Graminoids can be difficult to identify without any inflorescence (flowers). If an invasive graminoid were to get established, it would likely be reproducing quickly and have more identifiable inflorescence. An invasive graminoid would likely be establishing itself in disturbed habitats and out-competing native species. These types of characteristics were not observed in the unknown graminoid species in 2022.

3.6 COMMENT NUMBER: CIRNAC #6

Subject/Topic	Groundwater and Surface Water Quality
References	◆ NIRB Project Certificate No. 007, Term & Condition 22 ◆ Back River Project 2023 Annual Report: Sections 3 and 4.5.7, Appendix E ◆ Water Management Plan (October 2020): Section 5.2.2
Comment	Term & Condition 22 states: "The Proponent shall, reflecting any direction from the Nunavut Water Board, maintain a Site Water Monitoring and Management Plan designed to: minimize the amount of water that contacts mine ore and wastes; appropriately manage all contact water and discharges to protect local aquatic resources…The plan should include monitoring that demonstrates contact water (runoff and shallow groundwater) from the ore storage and waste rock storage areas is adequately captured and managed, as per the Mine Waste Rock Management Plan." Page 4-57 of the 2023 Annual Report states that: "There were no waste rock or ore storage areas in use during 2023, so no monitoring has yet been initiated." However, page 3-1 states that: "Echo Pit pre-stripping continued." It is unclear to CIRNAC if the pre-stripping material from Echo Pit was stockpiled and/or used for other purposes, or how any contact water was captured and managed. Section 5.2.2 in the Water Management Plan states that: "Overburden will be removed from the surface footprint of the four open pits (quantities as shown in Table 5.2-4). A majority of the overburden materials will be co-disposed with waste rock in the WRSAs. Depending on the physical characteristics of the overburden material, a portion may be used for the *construction of site infrastructure, kept for future revegetation studies/efforts, or used for WRSA cover material*." Additionally, Section 5.2.3 of the 2023 Annual Geotechnical Inspection (the Report, Appendix E) notes that an overburden stockpile is used to store overburden material mined from the Echo Pit. The Report also describes that ponding water was observed in areas near the toe of the stockpiles, and that: "*It would be suggested collect water samples from the ponded water around this area to better characterize (in terms of water quality, e.g. TSS, salinity, ammonia etc..)… SRK was informed that site has an overburden stockpile monitoring program and corresponding that is in place and should address this comment. This overburden monitoring program was not reviewed as part of the 2023 AGI.*" CIRNAC did not identify any results corresponding to the overburden stockpile monitoring program in its review of the 2023 Annual Report. The Annual Report and associated monitoring did not describe how contact water is captured and managed. Annual reporting on the management of contact water is required to verify FEIS predictions and to fulfill the requirements of Term & Condition 22.
Recommendation/ Request	CIRNAC recommends that B2Gold: a. Confirm the total amount of pre-stripping material from Echo Pit that was stockpiled and/or used for other purposes at the site, along with supporting geochemical analysis demonstrating eco-systemic protection, as applicable; and,

	b. Confirm how all contact water is captured and managed and provide the results of monitoring in future Annual Reports, including the results of the overburden stockpile monitoring program.
B2Gold Nunavut Response	Ponding water occurred in small volumes and ultimately evaporated. If ponding water occurs in volumes requiring management, B2Gold Nunavut will complete water quality sampling in advance as suggested and provide this information within the annual report.

3.7 COMMENT NUMBER: CIRNAC #7

Subject/Topic	Monitoring Employee Relocation within Nunavut
References	◆ NIRB Project Certificate No. 007, Term & Condition 77 and 84 ◆ Back River Project 2023 Annual Report: Sections 4.6.4 and 4.6.8, Appendix C
Comment	Term & Condition 77 of the Project Certificate provides for the collection and sharing of information that is consistent with and not limited by any Inuit Impact Benefit Agreement with the Kitikmeot Inuit Association, B2Gold is required to provide project-specific data concerning employee community of residence and the number of employees that relocated from the previous year. This data should include the number of employees who relocate to and from communities within the Kitikmeot Region (i.e., Cambridge Bay, Kugluktuk, Taloyoak, Gjoa Haven, and Kugaaruk). Both the 2023 Annual Report (page 4-168) and the 2023 Socio-Economic Monitoring Report (Appendix C, Section 3.1.3) present data on employee relocation. Both reports communicate that there were no employee relocations into or out of Nunavut in 2023. No information is provided on employee relocations that may have occurred within the Kitikmeot Region or other communities in the territory. The 2023 Annual Report (page 4-182) and the 2023 Socio-Economic Monitoring Report (Appendix C, Section 8.1.6) present data concerning employee housing pursuant to the requirements of Term & Condition 84 of the Project Certificate. According to the most recent Inuit Personnel Survey that was conducted in 2022, 13% of survey respondents planned to move to a new community within the next 12 months for various reasons. Of this amount, half (3 respondents) indicated they planned to move from within the Kitikmeot Region to outside the Kitikmeot Region. Due to the employee relocation monitoring requirements specified in Term & Condition 77 of the Project Certificate and the motivations of some Inuit employees to relocate to other communities in Nunavut as evidenced in the 2022 Inuit Personnel Survey, it is reasonable for B2Gold to expand its monitoring of employee relocation to include the relocation of employees within the territory, provided there are no privacy concerns and the sharing of this information is consistent with and not limited by any Inuit Impact Benefit Agreement with the Kitikmeot Inuit Association.
Recommendation/ Request	CIRNAC requests that B2Gold monitor and provide status updates on the relocation of employees within Nunavut in all future Annual Reports, provided there are no privacy concerns and the sharing of this information is consistent with and not limited by any Inuit Impact Benefit Agreement with the Kitikmeot Inuit

	Association. This information would strengthen B2Gold's compliance with Term & Condition 77 of the Project Certificate.
B2Gold Nunavut Response	B2Gold Nunavut collects and reports on employee relocation information to address Term & Condition No. 77, through two means: • Bi-annual Inuit Personnel Survey reporting • Annual HR reporting The bi-annual Inuit Personnel Survey includes the question 'In the past 24 months, have you moved from one residence to another residence?' and requests additional information on the community moved to/from if answered in the affirmative. Results on the above are reported on through B2Gold Nunavut's annual Socio-Economic Monitoring Reports (see Section 8.1.6 in the 2023 SEMR). The inaugural 2022 Inuit Personnel Survey indicated no respondents had moved to a new community in the prior 12 months. The next Inuit Personnel Survey is anticipated to occur later in 2024. Annual HR reporting, included in B2Gold Nunavut's annual Socio-Economic Monitoring Reports (see Section 3.1.3 in the 2023 SEMR), also documents employee relocations at the Project. In 2022, one Inuit employee relocated from Gjoa Haven to Yellowknife, and one Inuit employee relocated from Yellowknife to Taloyoak. Zero non-Inuit employees relocated into or out of Nunavut. In 2023, zero employees relocated into or out of Nunavut.

3.8 COMMENT NUMBER: GN AR #06

Subject/Topic	Gender / Employment
References	◆ 12MN036-2023 Annual Report-App C SEMC-IMRE ◆ 2023 Socio-Economic Monitoring Report for the Back River Project
Summary	In its annual report, B2Gold Nunavut stated that the company is making efforts to improve current policies and protocols. B2Gold Nunavut affirms that the team now has 609 employees and is also targeting the improvement of Inuit employment.
Comment	While the 2023 Back River Project Socio-Economic Monitoring Report shows that participation by Inuit women in the mine's labour force has increased, Inuit women accrued only 2% of hours of project labour. For Inuit men, the rate is 12.2%. This is in clear contrast to the 85% of hours performed by non-Inuit employees. Additionally, the turnover rate is another point of concern. In 2023, Inuit women represented 21% of all Inuit employees' turnover rate, a rate disproportionate to the number of Inuit women employed by B2Gold.
Recommendation/ Request	The GN recommends that this and future Annual reports contain additional detail to help explain the following: ◆ What are the specific strategies B2Gold is designing to promote the employment of Inuit? ◆ Does B2Gold have any retention program based on IQ for Inuit employees, especially for Inuit women? The GN also suggests that B2Gold implement a recruitment strategy that specifically considers the barriers preventing Inuit women from working in the mine.

B2Gold Nunavut Response	Please see B2Gold Nunavut's responses to KIA #27, KIA #29, KIA #30, KIA #32, and KIA #33 on the 2023 Annual Report. Additionally, B2Gold Nunavut began discussions with the Government of Nunavut (GN) in early 2024 about the signing of a Memorandum of Understanding (MOU). B2Gold Nunavut looks forward to the finalization of that MOU through which B2Gold Nunavut will welcome detailed conversations with the GN, and other Project partners, to enhance ongoing efforts by B2Gold Nunavut to promote Inuit employment generally, and the employment of Inuit women specifically.

4. DEPARTMENT OF FISHERIES AND OCEANS CANADA

4.1 COMMENT NUMBER: DFO #1

Subject/Topic	Downstream Assessment of the Goose Lake Water Withdrawal Increase on Arctic Grayling Spawning and Rearing Habitat (Appendix H) draft request
References	Condition No. 27
Comment	Change in water withdrawal limits from Goose Lake.
Recommendation/ Request	DFO thanks the Proponent for submitting the Downstream Assessment of the Goose Lake Water Withdrawal Increase on Arctic Grayling Spawning and Rearing Habitat (Appendix H). It is DFO's understanding that the Proponent will submit a Request for Review to DFO prior to increasing water withdrawal from Goose Lake. Please confirm.
B2Gold Nunavut Response	B2Gold Nunavut is committed to submit a Request for Review application to DFO for approval to increase water withdrawal rates from Goose Lake.

4.2 COMMENT NUMBER: DFO #2

Subject/Topic	Marine mammal and shipping lane map
References	Appendix K (Wildlife Mitigation and Monitoring Program Report [WMMPR]), Figures: 8.2.1 & 8.2.2.
Comment	Figures do not show the aggregation areas or the marine mammal species that may be encountered along the shipping routes – a more detailed map could help informing monitoring efforts.
Recommendation/ Request	DFO recommends B2Gold works with DFO on creating an updated map of shipping routes that illustrates aggregation areas, seasonality, as well as marine mammal species expected to be encountered along the shipping routes.
B2Gold Nunavut Response	B2Gold Nunavut agrees with this recommendation and will engage with DFO on this topic.

4.3 COMMENT NUMBER: DFO #3

Subject/Topic	Marine Monitoring and Marine Shipping SOPs
References	Conditions No 58 and No. 64 and Appendix K (WMMPR), Section 8.2

Comment	The sections state “Prior to the 2023 shipping season, the Proponent provided the Marine Monitoring SOP (November 2022) to the shipping companies” and “Prior to the 2023 shipping season, B2Gold provided a Marine Shipping SOP and Shipping Management Guidelines brochure to the shipping contractors, which describes the management and monitoring requirements for the site”.
Recommendation/ Request	Please provide the most recent Marine Monitoring and Marine Shipping SOPs as well as the Shipping Management Guidelines brochures that were distributed to the shipping companies and contractors.
B2Gold Nunavut Response	B2Gold Nunavut agrees to supplying DFO with the Marine Monitoring and Marine Shipping SOPs and the Shipping Management Guidelines brochures.

4.4 COMMENT NUMBER: DFO #4

Subject/Topic	Non-Indigenous Species/Aquatic Invasive Species Monitoring Program
References	Condition No. 64
Comment	There is a risk of introducing aquatic invasive species through haul contamination from ships coming from other parts of Canada or internationally. It is unclear if The Proponent conducts monitoring for aquatic invasive species. Shipping companies contracted to supply the B2Gold through the annual shipping operations are required to comply with the Ballast Water Regulations. The Ballast water regulations reduces the risk of invasive species being introduced as a result of shipping activities, but does not eliminate this risk. Monitoring for the occurrence of aquatic invasive species would still be required.
Recommendation/ Request	DFO recommends B2Gold consider implementing a non-Indigenous Species/Aquatic Invasive Species Monitoring Program. Please provide specific monitoring and mitigation measures that are being conducted, including but not limited to any ballast water treatment, monitoring for aquatic invasive species, any haul clean-up and maintenance protocols, etc. Please provide details of the shipping companies used, where the ships are coming from (freshwater/marine), and the risks of the introduction of aquatic non-indigenous or invasive species
B2Gold Nunavut Response	B2Gold Nunavut respectfully notes that NIRB Condition 64 relates to monitoring for marine mammals and there is no NIRB requirement to conduct mitigation or monitoring for marine invasive species. The FEIS (Sabina 2013) evaluated the potential for introduction of ballast water and concluded there was no potential residual effect due to shipping for the mine. This is chiefly because vessels supplying the mine are unloading equipment/fuel and taking on ballast water, rather than expelling ballast water. No ballast water is released withing Bathurst Inlet. B2Gold Nunavut reports the names of the vessels supplying the mine in the annual NIRB report.

4.5 COMMENT NUMBER: DFO #5

Subject/Topic	High risk areas to marine mammals
References	Condition No. 64, SOP - Marine Shipping Wildlife Mitigation and Monitoring v 2.0, September 30, 2019, Section 3.4 (Monitoring Procedure)

Comment	Monitoring procedure description is limited.
Recommendation/ Request	B2Gold to work with DFO in identifying high risk areas where impacts to marine mammals could occur and effectively update their marine mammal monitoring protocol to include a seasonal component and increased monitoring efforts.
B2Gold Nunavut Response	Please see the response to DFO #2; B2Gold Nunavut has agreed to engage with DFO on this topic to improve the sensitive habitat maps provided to shipping companies. Note that B2Gold Nunavut is shipping during the open water season, which is a limited period of the year. Therefore, there is limited utility to providing seasonal mapping for vessel captains. B2Gold Nunavut has worked hard to provide a marine mammal monitoring program that is suitable for vessel operators to follow and believes that this monitoring is comprehensive and not “limited”.

4.6 COMMENT NUMBER: DFO #6

Subject/Topic	Underwater noise monitoring
References	Condition No. 64
Comment	Underwater noise from shipping vessels has the potential to elicit disturbance effects on marine mammals by reducing their ability to travel, communicate, and find food. During the 2023 shipping season, 9 vessels served the project. We currently do not know what noise level and characteristic is produced by those shipping vessels and the potential impact on marine mammals.
Recommendation/ Request	DFO suggests underwater noise from shipping vessels be monitored and, if necessary, mitigated. DFO to work with the Proponent to monitor and model their noise footprint using expert support. This model should aim at evaluating the impact of shipping noise on marine mammals present on the shipping route.
B2Gold Nunavut Response	B2Gold Nunavut notes that NIRB Condition 64 relates to monitoring for marine mammals and there is no NIRB requirement to conduct underwater noise monitoring. The FEIS already included mitigation for potential effects of underwater noise by having vessels slow when they are within the LSA in Bathurst Inlet. B2Gold Nunavut notes that due to the narrow nature of Bathurst Inlet, and particularly just in advance of the MLA, ships must significantly reduce speed to safely navigate the channel. B2Gold Nunavut notes that monitoring for vessel noise through the common shipping route used by multiple vessels is beyond the scope for any individual company and would be better addressed by government. B2Gold Nunavut would be willing to collaborate on a regional study of noise by supplying vessel type and transit dates.

5. ENVIRONMENT AND CLIMATE CHANGE CANADA

5.1 COMMENT NUMBER: ECCC #1

Subject/Topic	Comparison of Monitored Nitrogen Dioxide (NO_2) Concentrations with CAAQS
References	◆ Project Certificate Condition No. 2, Section 4.5.1: Air Quality (PC TCS 1 Through 5), B2Gold Nunavut, Back River Project, 2023 Annual Report, April 12, 2024 ◆ Table 4.1-1: Relevant Ambient Air Quality Standards and Guidelines, Section 4.1: Air Quality, Back River Project, Air Quality Monitoring and Management Plan, July 2019
Comment	Section 4.5 of the 2023 Annual Report compares monitored NO_2 concentrations with the Nunavut Ambient Air Quality Standards (NAAQS). In Table 4.1-1 of the Air Quality Monitoring and Management Plan, the Proponent considers both NAAQS and Canadian Ambient Air Quality Standards (CAAQS). It would be of value, for reference purposes, to compare the annual NO_2 results with the CAAQS in the annual reports, as the CAAQS is formulated from health-based science.
Recommendation/ Request	ECCC recommends that the Proponent compare monitored NO2 concentrations with the CAAQS in the annual reports, in addition to the already considered standards.
B2Gold Nunavut Response	A comparison to the annual Canadian Ambient Air Quality Standards for NO_2 will be made in the 2024 NIRB Annual Report.

5.2 COMMENT NUMBER: ECCC #2

Subject/Topic	Monitoring of Total Suspended Particulates (TSP) and Respirable Particulate Matter (PM2.5)
References	◆ Project Certificate Condition No. 2, Section 4.5.1: Air Quality (PC TCS 1 Through 5), B2Gold Nunavut, Back River Project, 2023 Annual Report, April 12, 2024 ◆ Section 7.3: Particulate Monitoring (TSP and PM2.5), Back River Project, Air Quality Monitoring and Management Plan, July 2019 ◆ Table 7.9-1: Air Quality Monitoring Schedule, Section 7.7: Summary, Back River Project, Air Quality Monitoring and Management Plan, July 2019
Comment	Section 4.5.1 of the 2023 Annual Report mentions the monitoring of passive NO2 and dustfall in 2023. Table 7.9-1 of the Air Quality Monitoring and Management Plan indicates that particulate matter is planned to be monitored during construction and operation phases. Section 7.3 of the Air Quality Monitoring and Management Plan states that “As particulate monitoring requires dedicated line voltage power and shelter, monitoring will commence during the construction phase when power and shelter becomes available.’’ It is unclear from the information in the 2023 Annual Report, the reasoning behind why particulate matter (TSP and PM2.5) monitoring was not conducted in 2023.

	Reasoning for the absence of particulate monitoring in 2023 should be added to the report, including whether it was due to lack of voltage power and shelter.
Recommendation/ Request	ECCC recommends that the Proponent provides the rationale of why particulate matter (TSP and PM2.5) monitoring was not conducted in 2023, and if applicable, indicate when it is planned to occur.
B2Gold Nunavut Response	Due to logistical issues with setting up the power supply as well as ordering and deploying equipment, the installation has been delayed. The installation of the particulate monitoring station is expected to be completed by the Fall of 2024. The monitoring station will continuously monitor PM2.5, PM10, and TSP.

5.3 COMMENT NUMBER: ECCC #3

Subject/Topic	Reporting Migratory Bird Mortalities
References	◆ Project Certificate Condition No. 59, Section 4.5.11: Birds and Bird Habitat (PC TCS 53 through 61), B2Gold Nunavut, Back River Project, 2023 Annual Report, April 12, 2024 ◆ B2Gold Nunavut, Back River Mine, 2023 Wildlife Mitigation and Monitoring Program Report, March 2024
Comment	Project Certificate Condition No. 59 in the 2023 Annual Report states that "Any incidents of bird mortalities associated with project activities are to be recorded and reported to Environment and Climate Change Canada (Canadian Wildlife Service). The Proponent shall work with the Canadian Wildlife Service to determine appropriate recording and reporting format and timing." It is then reported below, that "Of the nine bird mortalities recorded at Back River in 2023, three were reported to ECCC directly". While the Proponent is in compliance for reporting mortalities in the annual report, one-time annual notification does not facilitate ongoing adaptive management. Timely notifications would allow ECCC's Canadian Wildlife Service (CWS) to identify unknown species and provide targeted advice. CWS prefers to receive all notifications of avian mortalities as they occur, with descriptions, photos, causes, and follow-up actions related to the mortality incident(s).
Recommendation/ Request	ECCC recommends the Proponent notify ECCC's Canadian Wildlife Service directly (cwsnorth-scfnord@ec.gc.ca) for instances involving interactions and/or potential disturbance of migratory bird individuals or nests, and any mortality events of these species, as they occur.
B2Gold Nunavut Response	B2Gold Nunavut will notify ECCC's CWS directly for any mortality events of migratory birds, as per Project Certificate Condition No. 59. B2Gold Nunavut will provide information including descriptions, photos, cause (if known), and follow up actions to CWS at cwsnorth-scfnord@ec.gc.ca. B2Gold Nunavut will continue to monitor and manage potential disturbance to migratory birds and nests as per the WMMP Plan, which states that results of monitoring "will be reported in the next Wildlife Mitigation and Monitoring Program Report or directly to appropriate regulators on a case-by-case basis to advise on the management response, if necessary". The WMMP Plan WMMP Plan also states that "If a nest must be removed for logistical reasons, B2Gold Nunavut will contact ECCC prior to removing the

	feature". Therefore, if a nest must be moved, ECCC will be contacted directly, and B2Gold Nunavut will obtain the required permit.

5.4 COMMENT NUMBER: ECCC #4

Subject/Topic	Pre-Clearing Nest Surveys
References	◆ Project Certificate Condition No. 56, Section 4.5.11: Birds and Bird Habitat (PC TCS 53 through 61), B2Gold Nunavut, Back River Project, 2023 Annual Report, April 12, 2024 ◆ B2Gold Nunavut, Back River Mine, 2023 Wildlife Mitigation and Monitoring Program Report, March 2024
Comment	Project Certificate Condition No. 56 in the 2023 Annual Report requires that the Proponent schedule ground-disturbance and clearing activities prior to the seasonal return of migratory birds to the project area, and that non-invasive pre-clearing nest surveys be conducted "if clearing is to occur during the nesting season." Furthermore, "information regarding scheduling issues and/or results of surveys conducted by the Proponent in fulfillment of this Term and Condition shall be included in the Proponent's annual report to the Nunavut Impact Review Board." Information in the Back River Project Wildlife Mitigation and Monitoring Program Report, indicates that clearing was required during the nesting season (July and August). While Project Certificate Condition No. 56 allows for clearing during breeding season, if necessary, it is not clear why the Proponent deemed the clearing necessary.
Recommendation/ Request	ECCC recommends that the Proponent: a. Clarify the rationale for why clearing was conducted during breeding bird nesting windows, rather than scheduled for a time outside of this window; and b. Provide rationale, in future Annual Reports and/or Wildlife Monitoring and Mitigation Program Reports, for any occasion where a decision is made to clear during nesting times.
B2Gold Nunavut Response	Project Certificate Condition 56 requires that clearing activities be scheduled outside of the bird breeding season but if clearing must occur in the summer, then conduct pre-clearing surveys. The WMMP Plan repeats these instructions. Although efforts are made to complete land clearing prior to the breeding season, some clearing was required during the sensitive timing window and pre-clearing surveys were therefore conducted. Clearing of 0.93 ha was required during the breeding season in 2023 as the Back River Mine is currently in the construction phase. Pre-clearing surveys for migratory birds were conducted on July 31, August 2, and August 7, 2023. Pre-clearing surveys were completed for 0.93 ha prior to disturbance occurring at the Goose site. Surveys did not identify any potential or active nests, and as such no buffers were required. Surveys were conducted the same day as, or one day prior to, ground clearing in all cases.

5.5 COMMENT NUMBER: ECCC #5

Subject/Topic	Species at Risk Updates
References	◆ Project Certificate Condition No. 55, Section 4.5.11: Birds and Bird Habitat (PC TCS 53 through 61), B2Gold Nunavut, Back River Project, 2023 Annual Report, April 12, 2024 ◆ Table 10-1: Species of Conservation Concern Known or Potentially Occurring at the Back River Mine, 2023, B2Gold Nunavut, Back River Mine, 2023 Wildlife Mitigation and Monitoring Program Report, March 2024
Comment	Species at Risk (SAR) are assessed by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) or added to Schedule 1 of the Species at Risk Act (SARA) on a regular basis. ECCC commends the Proponent for adhering to Project Certificate Condition No. 55, by ensuring mitigation and monitoring is updated regularly to maintain consistency with changes to species at risk listings in the Back River Mine 2023 Wildlife Mitigation and Monitoring Program Report (WMMPR). Table 10-1 of the WMMPR identifies Horned Grebe as a species of Special Concern by COSEWIC since 2023, and as not listed on SARA Schedule 1. While the information listed here is correct, ECCC would like to clarify that the Horned Grebe Western Population is listed on SARA Schedule 1 as a species of Special Concern (since 2017), and so the Proponent must continue to comply with the conditions of the SARA as they apply to Horned Grebe.
Recommendation/ Request	ECCC recommends that the Horned Grebe Western Population, which is likely to be encountered in Nunavut, also be considered a 'Species of Conservation Concern Known or Potentially Occurring' at the Back River Mine within the Proponent's Wildlife Mitigation and Monitoring Program.
B2Gold Nunavut Response	B2Gold Nunavut updates the list of species at risk in the annual WMMP report. This species list will be reviewed and updated in the 2024 WMMP Report. B2Gold Nunavut will review the status of the horned grebe western population at that time, as there remains uncertainty around the designatable unit structure for horned grebe, and the report was withdrawn in 2023 to reconsider this (https://cosewic.ca/index.php/en/assessment-process/summary-new-reviewed-may-2023.html).

5.6 COMMENT NUMBER: ECCC #6

Subject/Topic	Responsibility Under the E2 Regulations
References	◆ Environmental Emergency Regulations, 2019 (link: https://laws.justice.gc.ca/PDF/SOR-2019-51.pdf) ◆ Application for MLA Tank Farm Modification (Phase 3: Addition of Tank 5), B2Gold Nunavut, May 28, 2024 ◆ Goose & MLA Project Sites – 2023 Annual Geotechnical Inspection, Back River Project, Nunavut, Canada, B2Gold Corp., April 2024
Comment	With the progress on the construction of the tank farms, ECCC would like to bring to the attention of the Proponent, that a 'notice of change' may be required as

	stipulated in subsection 3(5) of the Environmental Emergency Regulations, 2019, which state: "A responsible person must, within 60 days after the day on which any of the following situations occurs, submit an updated notice to the Minister that contains the information referred to in Schedule 2: a. the information that was reported under section 1 or 2 of Schedule 2 has changed; b. the maximum expected quantity that was most recently reported under paragraph 3(d) of Schedule 2 in respect of a substance has increased by 10% or more; or c. the maximum capacity that was most recently reported under paragraph 3(f) of Schedule 2 in respect of a container system, in which a quantity of a substance is contained, has increased by 10% or more."
Recommendation/ Request	ECCC recommends that the Proponent submit an updated 'notice of change', if a situation covered under subsection 3(5) of the Environmental Emergency Regulations occurs. This recommendation was also provided in ECCC's comments, dated June 24, 2024, for the review of the Marine Laydown Area (MLA) Tank Farm Modification Request on the Back River Project, and in the NWB 2023 Annual Report.
B2Gold Nunavut Response	B2Gold Nunavut thanks Environment and Climate Change Canada (ECCC) for their comment and confirms this was completed in July 2024.

5.7 COMMENT NUMBER: ECCC #7

Subject/Topic	Description of Spill Event
References	Table 4.4-1: Unauthorized Discharges in 2023 (Reportable), B2Gold Nunavut, Back River Project, 2023 Annual Report, April 12, 2024
Comment	Table 4.4-1 of the Annual Report indicates that a spill of 5000 L of 'Petroleum lubricating oil' occurred on the winter ice road on January 22, 2023. However, details regarding the cause of the spill, or if appropriate mitigation measures have been implemented to minimize the risk of future releases of this magnitude, are not provided. Generally, a description of the events and circumstances surrounding a spill is necessary to analyze if the appropriate measures were taken in response. This helps ensure that effective steps are implemented to prevent similar incidents in the future.
Recommendation/ Request	ECCC recommends that the Proponent update the 2023 Annual Report, to include a description of the events that led to the release of 5000 L of 'Petroleum, lubricating oil', and the corresponding measures taken to prevent future releases of this magnitude. ECCC further recommends that future annual reports include both: ◆ Copies of spill reports; and ◆ Descriptions of spill events, including circumstances surrounding any spill events, and follow-up measures taken to mitigate future similar incidents.

B2Gold Nunavut Response	B2Gold Nunavut clarifies that a 5000 L spill did not occur, it was a 2 L spill, and there appears to be an administrative error on the NT/NU Spill database. B2Gold Nunavut will include more detail on spills and follow up measures taken, as well as a summary of any corrective actions implemented in future reports. Copies of the NT/NU Spill line reports are available to all parties through the Spill line.

5.8 COMMENT NUMBER: ECCC #8

Subject/Topic	Environmental Emergencies (E2) Regulated Commodities
References	Image M-43, Goose & MLA Project Sites – 2023 Annual Geotechnical Inspection, Back River Project, Nunavut, Canada, B2Gold Corp., April 2024
Comment	The Description of Image M-43, in Part 4 of the Geotechnical Inspection Report, states that "Oil was noted at the surface of the ponding water". ECCC is unclear from the information provided in the report, if the location was cleaned following the inspection.
Recommendation/ Request	ECCC recommends that the Proponent clean-up the oil observed in Image M-43 of the Geotechnical Inspection Report, if this already hasn't been completed. ECCC further recommends that the Proponent implement procedures to help make sure that all future dismantling of secondary containments is completed without releasing the residual oil.
B2Gold Nunavut Response	The sheen was investigated and determined to be naturally occurring (organic) rather than a sheen caused by petroleum products.

5.9 COMMENT NUMBER: ECCC #9

Subject/Topic	List of Hazardous Substances On-Site
References	◆ Section 9.4: Hazardous Materials On-Site, Back River Project, Spill Contingency Plan, Version #4.0, February 2024 ◆ Section 3.1: Overview, Goose & MLA Project Sites – 2023 Annual Geotechnical Inspection, Back River Project, Nunavut, Canada, B2Gold Corp., April 2024 ◆ Environmental Emergency Regulations, 2019 (link: https://laws.justice.gc.ca/PDF/SOR-2019-51.pdf) ◆ Application for MLA Tank Farm Modification (Phase 3: Addition of Tank 5), B2Gold Nunavut, May 28, 2024
Comment	Section 9.4 of the Spill Contingency Plan, states that "A list of the main hazardous materials to be transported to and stored on-site is provided within the Hazardous Materials Management Plan (HMMP)." However, the only HMMP that ECCC could locate, dates back to November 2015 and does not provide an accurate account of the hazardous substances currently stored on-site. This information is necessary to evaluate if the Proponent has appropriate preparedness and response measures in place and compliance with the Environmental Emergency Regulations (E2 Regulations). Additionally, with the recent construction and ongoing construction of large storage tanks, and significant infrastructure at the Project sites, it is unclear what fuels or hazardous substances are stored, and in what quantities.

Recommendation/ Request	ECCC recommends that the Proponent provide an updated account of all hazardous substances stored at the various Project sites in the Spill Contingency Plan. This should include detailed information on the location, volume/mass, types of containment, and number of containers for each hazardous substance.
B2Gold Nunavut Response	Bulk fuel volumes and other hazardous substances listed on the E2 Regulations Schedule 1 Lists of Substances are reported via the ECCC SWIM Account. All diesel is stored within bulk tanks situated within engineered secondary containment facilities. Updates will be provided through ECCC SWIM account when necessary for the commissioning of bulk fuel tanks. B2Gold Nunavut will produce and submit an Engineering Design Report for Hazardous Waste Management Facilities to the Nunavut Water Board in Q4, 2024. Current secondary containment consists of utilizing the existing engineered bulk containment facilities and SEI Industries Arctic-Grade Instaberms. B2Gold Nunavut will review the Hazardous Materials Management Plan (HMMP) and submit an updated version for the 2024 NWB Annual Report, and following approval, will provide to the NIRB.

5.10 COMMENT NUMBER: ECCC #10

Subject/Topic	Inspection Results and Actions
References	Section 4.4.1: Agency Inspections and Site Visits, B2Gold Nunavut, Back River Project, 2023 Annual Report, April 12, 2024
Comment	The report discusses inspections and site visits, and states that during the CIRNAC visits: "Three actions were identified in the March inspection report, and 4 main topics that required action were identified in the September inspection. B2Gold Nunavut addressed the actions they could in 2023 and provided CIRNAC [Crown-Indigenous Relations and Northern Affairs Canada] with a response on January 2, 2024, which included an action plan to address the remaining concerns and has hired a 3rd party engineer to assist with this." No additional information is provided on the topics identified by CIRNAC, or the actions that were taken by the Proponent to address the concerns.
Recommendation/ Request	ECCC recommends that the Proponent update the 2023 Annual Report to provide a summary of the topics that were noted during the CIRNAC inspection/site visit, including any corrective actions that were taken to address the concerns.
B2Gold Nunavut Response	B2Gold Nunavut thanks Environment and Climate Change Canada (ECCC) for their comment and can provide this detail in future annual reports.

5.11 COMMENT NUMBER: ECCC #11

Subject/Topic	2023 Aquatic Baseline Data
References	◆ Section 4.5.7: Groundwater and Surface Water Quality (PC TCs 21 Through 22), B2Gold Nunavut, Back River Project, 2023 Annual Report, April 12, 2024 ◆ Sabina Gold & Silver Corp. Back River Project – 2021 Aquatic Baseline Report, June 7, 2022

	◆ Sabina Gold & Silver Corp. Back River Project – 2022 Aquatic Baseline Report, March 9, 2023
Comment	Under the 'Results" header for Project Certificate Condition No. 21 in the 2023 Annual Report it states that "A summary of the 2023 baseline data is provided in Appendix F2." ECCC notes Appendix F2 only includes the 2022 Aquatic Baseline Report, and Appendix F1 includes the 2021 Aquatic Baseline Report. No results have been provided for 2023. It is unclear whether the reference to the 2023 Aquatic Baseline results is in error, or whether the results are missing from the annual report submission.
Recommendation/ Request	ECCC recommends the Proponent provide updates to the 2023 Annual Report, correcting the reference for Appendix F2. ECCC further recommends that the Proponent provide the 2023 Aquatic Baseline results, either instead, or in addition, to the 2022 results attached in Appendix F2.
B2Gold Nunavut Response	The 2023 Baseline Surface Water Report has been enclosed as **Appendix B**.

5.12 COMMENT NUMBER: ECCC #12

Subject/Topic	2023 Compliance Monitoring
References	N/A
Comment	No authorizations from ECCC have been issued. The B2Gold, Back River Project, is captured under several pieces of ECCC legislation, including subsection 36(3) of the Fisheries Act (FA), Metal and Diamond Mining Effluent Regulations (MDMER), Canadian Environmental Protection Act (CEPA), Environmental Emergency Regulations (E2 Regulations), and Cross-border Movement of Hazardous Waste and Hazardous Recyclable Material Regulations (XBR). In May 2023, one on-site inspection was conducted at the mine site and the port location / Marine Laydown Area (MLA). The following summary of the inspection is provided: ◆ The MLA and mine site proper, both trigger the E2 Regulations. Currently about 10 million litres of diesel are stored in these locations. This amount is expected to increase to 84 million litres in the future. ◆ No FA issues were noted at the time of the inspection. ◆ Due to the fact the sites are located on Inuit Owned Lands, the site does not trigger typical Federal site regulations, including Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations (STSR), or Federal Halocarbon Regulations (FHR). ◆ The mine indicated that it was not currently discharging, but expects it may trigger MDMER legislation by the summer of 2025. ◆ The officer provided an ECCC Compliance Promotion contact for MDMER, in anticipation of triggering that legislation in the future. The office who attended the site, was made aware of a culvert issue, which may have caused sedimentation, that was reported to Fisheries and Oceans Canada (DFO). ECCC would like to note that a 'sedimentation event' could be classified as a

	'deleterious deposit' under subsection 36(3) of the FA. This event, and any future similar events, should be reported to the NT-NU 24-Hour Spill Report Line at (867) 920-8130, even if the Proponent is also contacting DFO directly.
Recommendation/ Request	N/A
B2Gold Nunavut Response	B2Gold Nunavut thanks Environment and Climate Change Canada (ECCC) for their comment.

6. TRANSPORT CANADA

6.1 COMMENT NUMBER: TC-01

Subject/Topic	Inspections - Marine Transportation; Oil Handling Facility
References	2023 Annual Report - none
Summary	◆ The Project's oil handling facility (OHF) in compliance with regulatory requirements as per part 8 of the Canada Shipping Act, 2001. Transport Canada did not carry out an inspection of the OHF in 2023. ◆ The Project's marine facility is in compliance with the Marine Transportation Security Regulations and is certified as an Occasional use Marine Facility (OUMF). Transport Canada did not carry out an inspection of the marine facility in 2023. ◆ No enforcement activity was undertaken or required last year by Transport Canada for the OHF or marine facility
Comment	◆ Gap/Issue ◆ Disagreement with the Annual Report conclusion ◆ Reasons for disagreement with the Annual Report conclusion ◆ Disagreement and reasons for disagreement with conclusions within the Additional Documents in the Appendix
Recommendation/ Request	None
B2Gold Nunavut Response	B2Gold Nunavut thanks Transport Canada (TC) for their comment.

6.2 COMMENT NUMBER: TC-02

Subject/Topic	Project's Oil Pollution Emergency Plan (OPEP) and Oil Pollution Prevention Plan (OPPP)
References	2023 Annual Report; 4.7.1 Accidents and Malfunctions (Annual Report, pp. 4-190 – 4-194) ◆ NIRB # 349951
Summary	To demonstrate compliance with Terms and Conditions #'s 89-92, the Proponent references Oil Pollution Prevention Plan & Oil Pollution Emergency Plan (2023).
Comment	1. Gap/Issue 2. Disagreement with the Annual Report conclusion 3. Reasons for disagreement with the Annual Report conclusion

	4. Disagreement and reasons for disagreement with conclusions within the Additional Documents in Appendix
Recommendation/ Request	Transport Canada confirms the Proponent did submit an updated Oil Pollution Prevention Plan (OPPP) and updated Oil Pollution Emergency Plan prior to the 2023 shipping season (OPEP). Transport Canada reviewed the OPPP and OPEP and did not raise any concerns with the operator. Transport Canada notes that a copy of the Oil Pollution Prevention Plan & Oil Pollution Emergency Plan (2023) was not included with the 2023 Annual Report. In April 2024 the operator informed Transport Canada they will be submitting updated versions of their plans and details on their 2024 transfer season. For the information of the Board, Proponent, and other reviewers, under section 12 of the Environmental Response Regulations passed pursuant to the Canada Shipping Act, 2001 (CSA 2001), there is a requirement for the owner of an Oil Handling Facility (OHF) to complete annual reviews and if necessary update the Project's Oil Pollution Emergency Plan (OPEP) and Oil Pollution Prevention Plan (OPPP). If plans are updated, they must be submitted to Transport Canada no later than one year after the update. As required under the CSA 2001, the facility will need to notify Transport Canada of proposed changes to the OHF's operations relating to the loading or unloading of oil to or from vessels (180 days in advance of the change). The facility is also required to submit a revised OPEP/OPPP 90 days before a change in operation.
B2Gold Nunavut Response	B2Gold Nunavut thanks Transport Canada (TC) for their comment.

6.3 COMMENT NUMBER: TC-03

Subject/Topic	Marine shipping standard operating procedure
References	2023 Annual Report; Appendix K 2023 Wildlife Mitigation and Monitoring Program Report ◆ Section 8.2 - Marine Shipping Mitigation and Monitoring ◆ NIRB # 349928
Summary	To demonstrate compliance with Terms and Conditions #'s 58 and 64, the Proponent references: Sabina. 2023c. Marine Shipping – Wildlife Mitigation and Monitoring, Standard Operating Procedure ENVIRO-02. Prepared For: Sabina Gold & Silver Corp by ERM Canada. November 2023.
Comment	1. Gap/Issue 2. Disagreement with the Annual Report conclusion 3. Reasons for disagreement with the Annual Report conclusion 4. Disagreement and reasons for disagreement with conclusions within the Additional Documents in Appendix
Recommendation/ Request	Transport Canada cannot comment on the 2023 Marine Shipping – Wildlife Mitigation and Monitoring, Standard Operating Procedure as it was not included with the 2023 Annual Report. Regardless, Transport Canada recommends the Proponent make vessel operators serving the Project aware of the 2024 Annual Notice to Mariners, and in particular section A2 Marine Mammal Guidelines and Marine Protected Areas and section 7A Voyage Planning for Vessels Intending to Navigate in Canada's Northern Waters

	and section 7C Vessels Intending to Navigate in Kitikmeot Region in Canada's Northern Waters (see: Annual Notice to Mariners at https://publications.gc.ca/collections/collection_2024/mpodfo/Fs151-4-2024-eng.pdf).
B2Gold Nunavut Response	B2Gold Nunavut thanks Transport Canada (TC) for their comment and will make vessel operators serving the Project aware of the 2024 Annual Notice to Mariners if they are not already.

6.4 COMMENT NUMBER: TC-04

Subject/Topic	Shipping Management – Ballast Water
References	2023 Annual Report - none
Summary	An updated Shipping Management Plan was not provided with the 2023 Annual Report. For the information of B2Gold, NIRB, and reviewers of the 2023 Annual Report regarding the subject of ballast water: Transport Canada's ballast water exchange and treatment requirements were updated in the Ballast Water Regulations, SOR/2021-120, that came into force on June 3, 2021 and which implement the Ballast Water Management Convention in Canada. Treatment and water quality standards applicable to ballast water discharged within Canada will be coming into effect in 2024 using a phase-in approach until 2024. From the date of entry into force of the Ballast Water Management Convention (September 8, 2017), all vessels must conform to at least the D-1 standard (exchange); and all new vessels, to the D-2 standard (treatment) (refer to the infographic attached). Note that Canadian vessels that don't voyage internationally, other than to U.S. Great Lakes waters, or on the high seas need to meet Convention standards and the Ballast Water Regulations no later than September 2024 or September 2030, depending on when they were built. ◆ Ballast Water Regulations Ballast Water Regulations (justice.gc.ca) ◆ https://tc.canada.ca/en/marinetransportation/marine-safety/list-canada-sdesignated-alternate-ballast-water-exchangearea-fresh-waters-tp-13617e-2021#item2
Comment	◆ Gap/Issue ◆ Disagreement with the Annual Report conclusion ◆ Reasons for disagreement with the Annual Report conclusion ◆ Disagreement and reasons for disagreement with conclusions within the Additional Documents in the Appendix
Recommendation/ Request	Transport Canada requests that: ◆ B2Gold's Shipping Management Plan be updated to reflect the requirements of the Ballast Water Regulations. ◆ A new version of the Shipping Management Plan be included with the 2024 Annual Report.
B2Gold Nunavut Response	B2Gold Nunavut will update the Shipping Management Plan to reflect the requirements of the Ballast Water Regulations and provide that updated plan with the 2024 Annual Report or sooner if an update is completed.

6.5 COMMENT NUMBER: TC-05

Subject/Topic	Shipping Management - Biofouling
Summary	An updated Shipping Management Plan was not provided with the 2023 Annual Report. The following is for the information of B2Gold, NIRB, and reviewers of the 2023 Annual Report on the subject of biofouling: ◆ In Fall 2022, Transport Canada published its Voluntary Guidance for Relevant Authorities on In-Water Cleaning of Vessels (canada.ca), which includes a biofouling management plan and biofouling record book templates that have been well regarded internationally. The guidance provides clarity to stakeholders (competent authorities, vessel owners and operators, and in water clean-up service providers) on recommended best practices that can be used to manage the biosecurity and water quality risks associated with cleaning vessels underwater. ◆ The International Maritime Organization's (IMO) Marine Environment Protection Committee (MEPC) adopted the revised "Guidelines for the Control and Management of Ship's Biofouling to Minimize the Transfer of Invasive Aquatic Species" (Marine Environment Protection Committee (MEPC 80), 3-7 July 2023 – preview (imo.org)). These guidelines provide recommendations on in-water inspections with a focus on the quantitative assessment of biofouling using a biofouling rating number, as well as on observations of the anti-fouling system condition, which will assist vessel owners and operators in minimizing the transfer of potentially harmful aquatic species, following globally agreed guidance.
Comment	◆ Gap/Issue ◆ Disagreement with the Annual Report conclusion. ◆ Reasons for disagreement with the Annual Report conclusion ◆ Disagreement and reasons for disagreement with conclusions within the Additional Documents in the Appendix
Recommendation/ Request	Transport Canada requests that the above information be brought to B2Gold's attention.
B2Gold Nunavut Response	B2Gold Nunavut thanks Transport Canada (TC) for their comment.

6.6 COMMENT NUMBER: TC-06

Subject/Topic	Permits – Navigation Protection Program
References	2023 Annual Report, Table 1.2-1: Permit Registry
Summary	As noted on in Table 1.2.1, Transport Canada's Navigation Protection Program (NPP) has issued three approvals for works associated with the Project's marine laydown area (MLA): ◆ 2012-600767-002 – MLA Discharge Pipeline Authorization ◆ 2012-600767-003 – MLA Intake Pipeline Authorization ◆ 2012-600767-006 – MLA Lightering Barge Authorization Regarding the three approvals and the Project:

	◆ NPP received no complaints about navigation related to the project in 2023. ◆ NPP did not carry out any inspections for the project in 2023.
Comment	◆ Gap/Issue ◆ Disagreement with the Annual Report conclusion. ◆ Reasons for disagreement with the Annual Report conclusion ◆ Disagreement and reasons for disagreement with conclusions within the Additional Documents in the Appendix
Recommendation/ Request	None.
B2Gold Nunavut Response	B2Gold Nunavut thanks Transport Canada (TC) for their comment.

6.7 COMMENT NUMBER: TC-07

Subject/Topic	Permits – Navigation Protection Program
References	2023 Annual Report, Table 1.2-1: Permit Registry; Section 3.1.1 Permitting
Summary	During their review of the 2023 Annual Report, Transport Canada's Navigation Protection Program (NPP) identified that B2Gold did not file a Transfer of Ownership with NPP. Until such time as this Transfer has been received and accepted by NPP, authority over the three authorizations listed in TC06 remains with Sabina Gold and Silver Corporation. NPP has followed up with B2Gold about this matter.
Comment	◆ Gap/Issue ◆ Disagreement with the Annual Report conclusion. ◆ Reasons for disagreement with the Annual Report conclusion ◆ Disagreement and reasons for disagreement with conclusions within the Additional Documents in the Appendix
Recommendation/ Request	Provided B2Gold files the above Transfer of Ownership with NPP, then for clarity, the 2024 Annual Report include the following change (underlined): (Page 3-2) "Sabina also continued to advance and obtain the necessary Federal permits and authorizations for the Project in 2019. Sabina received the Back River Project Fisheries Act Authorization from the Department of Fisheries and Oceans Canada, as well as authorization, now transferred to B2Gold Back River Corp., from Transport Canada that Umwelt Lake and Llama Lake do not require exemption from the Navigation Protection Act (NPA)."
B2Gold Nunavut Response	B2Gold Nunavut thanks Transport Canada (TC) for their comment and will make the above change in the 2024 Annual Report pending Transfer of Ownership with NPP.

6.8 COMMENT NUMBER: TC-08

Subject/Topic	Transportation of Dangerous Goods / Hazardous Materials
References	2023 Annual Report

Summary	No TDG monitoring was carried out at the Back River Project by Transport Canada in 2023. No complaints/concerns regarding TDG were received by Transport Canada and the Department did not undertake any enforcement actions. Other than the matter documented in Comment Number TC-09 regarding documentation of the disposal of hazardous material off-site, Transport Canada's TDG Group had no concerns with the 2023 Annual Report.
Comment	◆ Gap/Issue ◆ Disagreement with the Annual Report conclusion. ◆ Reasons for disagreement with the Annual Report conclusion ◆ Disagreement and reasons for disagreement with conclusions within the Additional Documents in the Appendix
Recommendation/ Request	None
B2Gold Nunavut Response	B2Gold Nunavut thanks Transport Canada (TC) for their comment.

6.9 COMMENT NUMBER: TC-09

Subject/Topic	Manifests for shipping of hazardous materials
References	2023 Annual Report; Table 4.4-1 – Unauthorized Discharges ◆ NIRB # 349951 October 2014 Hazardous Materials Management Plan (HMMP) ; section 3.3 – Wastes ◆ NIRB # 280285
Summary	Table 4.4-1 lists four spills where the spilled material was disposed of off-site. However, manifests documenting the shipping of hazardous material were not included with the Annual Report. NOTE: Transport Canada's TDG group will be following up with KBL Environmental in Yellowknife for information regarding the disposal of dangerous goods / wastes for the B2Gold's Back River Project.
Comment	◆ Gap/Issue ◆ Disagreement with the Annual Report conclusion. ◆ Reasons for disagreement with the Annual Report conclusion ◆ Disagreement and reasons for disagreement with conclusions within the Additional Documents in the Appendix
Recommendation/ Request	Future annual reports for the Back River Gold Mine Project provide information and copies of documents, such as manifests, regarding the transportation of dangerous goods and hazardous materials for the Project, including nil comments. Part of this information would be the inclusion of all hazardous waste manifests for the Project, if any. This information would support reviews of future annual reports.
B2Gold Nunavut Response	As required, copies of the interprovincial movement of hazardous waste manifests are maintained by KBL (which B2Gold Nunavut hopes that ECCC has now been able to confirm) as well as by B2Gold Nunavut and are submitted to the Government of the Northwest Territories. These documents are also available to ECCC on request, and B2Gold Nunavut will connect with ECCC regarding this. B2Gold Nunavut does

	not feel it is additionally necessary to include copies of these manifests in our annual reports, but can include the relevant manifest number in future reports.

APPENDIX A: 'SNAPSHOT – INUIT EMPLOYMENT AND RETENTION IN NUNAVUT'

'Snapshot – Inuit Employment and Retention in Nunavut'

Labour shortages, local recruitment challenges, and poor employee retention have long been difficulties faced by the mining industry in Canada, including its far north (MiHR 2013, 2015). In Nunavut, however, the Inuit Impact and Benefit Agreements (IIBAs) negotiated for these mines typically include priority Inuit hiring requirements or employment targets. Therefore, hiring local Inuit labour is critical to the sustainability and success of mining in the territory (MAC 2024).

Recent research indicates that meeting Inuit hiring goals presents a common challenge across Nunavut, in both the mining industry and the public sector (i.e. the two largest employers of Inuit in the territory) (Government of Canada 2018; Government of Nunavut 2018; MAC 2021, 2023, 2024; MiHR 2023); this is not an issue that is unique to the Back River Project. For example, the Government of Nunavut has long struggled to reach its Inuit employment target of 85%, as established under Article 23 of the Nunavut Agreement, signed in 1993 (Government of Canada 1993, NIP 2006).[1] As of March 2022, Inuit employment with the territorial government had only reached 51% of the total workforce (Government of Nunavut 2022). The available literature provides an understanding of the multi-faceted barriers hindering Inuit employment and retention as well as providing some recommendations for addressing these complex challenges (ERM, Aglu, and PHC Inc. 2023; Hodgkins 2022; MAC 2024; Schott et al. 2022).

In Nunavut, the mining industry's Inuit labour supply can be assessed based on its readiness, ability, and willingness to work. Within local populations, potential Inuit employees include those who are work-aged and residing locally; have a minimum level of education, experience, and/or skill; typically, do not already have a job; and are willing to make the necessary life adjustments to take on employment at remote Fly-In/Fly-Out (FIFO) mining operations. Within each of these criteria, mining companies often encounter significant challenges (Aglu, Stratos, and Impact Economics 2021; Impact Economics 2018).

To begin, recent labour force statistics provided by the Government of Nunavut (2024) suggest only a small number of Inuit are currently both in the labour force *and* unemployed.[2] Nunavut also has a relatively young population with a median age of 25.6 (compared to the Canadian median age of 41.6). Approximately 41% of the population is under 19 years of age and largely ineligible for employment (due to school enrollment, etc.) (Government of Nunavut 2018, Statistics Canada 2023a). And given that working in the mining industry often requires a degree of physical fitness, employment of individuals with physical limitations (e.g. older individuals) is often ruled out for certain positions (Impact Economics 2018). Furthermore, the mining industry is facing an aging trend within its labour force with a rising percentage of workers nearing retirement, and a dwindling number of young workers entering the industry (MiHR 2024).

[1] The objective of Article 23 "is to increase Inuit participation in government employment in the Nunavut Settlement Area to a representative level" (Government of Canada 1993). Inuit have represented approximately 85% of Nunavut's total population since 1999, when it officially became a Canadian territory (Statistics Canada 2001, 2007, 2013, 2017, 2023a).

[2] As of June 2024, the Government of Nunavut (2024) notes Nunavut's Inuit labour force equalled approximately 10,400 individuals. Of these individuals, some 1,200 Inuit were unemployed in Nunavut. With the Kitikmeot Region hosting approximately 18% of Nunavut's total population, this equals approximately 216 Inuit currently unemployed in the Kitikmeot Region. B2Gold Nunavut understands these results must be interpreted with caution and that a more detailed labour market analysis in the Kitikmeot Region may be necessary to better understand current labour market conditions.

Low rates of secondary school graduation among Inuit present another barrier to their employability in the mining industry. The percentage of individuals who have completed secondary school in Nunavut (61.0%) remains well below the Canadian average (93.0%) (Statistics Canada 2023b). As a result, the majority of jobs available to Inuit are typically entry-level or unskilled positions, while semi-skilled, skilled, and supervisory roles are primarily filled by non-Inuit. This trend is projected to continue as mining becomes increasingly technical, requiring a narrowing set of specialized skills (MAC 2023, 2024).

Barriers to Inuit employment and retention in the mining industry also pertain to the labour supply's willingness to work at FIFO sites. Several reports on this topic outline a broad array of reasons Inuit may not wish, or be permitted, to pursue this type of employment. These include family and community responsibilities; health issues; housing and transportation challenges; dependency issues; criminal records; training and skills gaps; lack of access to computer, internet, and career resources; lack of awareness of employment opportunities; poor employment histories; concerns about workplace discrimination, harassment, and biases; and concerns about working conditions (e.g. pay, rotational work schedules, remote work, etc.) (ERM, Aglu, and PHC Inc. 2023; MiHR 2013, 2023; Saxinger 2022).

In addition to the barriers mentioned above, mineral market volatility, temporary project closures, and the COVID-19 pandemic have also contributed to the struggles mining companies have faced in their efforts to grow their Inuit workforces (Aglu and Stratos 2023a, 2023b; ERM 2023). Despite these obstacles, some companies are seeing Inuit employee numbers rising again following the COVID-19 pandemic.

While increasing Inuit employment presents a common challenge across Nunavut, success is possible. In the mining industry, achieving these goals has been shown to require substantial time and concerted multi-stakeholder effort. For example, controlling for extenuating circumstances (e.g. COVID-19 and other project interruptions) the Inuit workforce at Nunavut's five existing mines has experienced an overall increase over time. Using each project's construction phase as a starting point and not including the main COVID-19 pandemic years of 2020 and 2021:[3]

- The Inuit workforce at Baffinland's Mary River Mine rose from 80 in 2013 to 288 in 2019, but fell to 225 in 2023.
- The Inuit workforce at Agnico Eagle's Hope Bay Mine rose from 15 in 2015 to 64 in 2019 (it then went into Care and Maintenance in 2022).
- The Inuit workforce at Agnico Eagle's Meadowbank Mine rose from 263 in 2010 to 292 in 2019, but fell to 202 in 2023.
- The Inuit workforce at Agnico Eagle's Meliadine Mine rose from 130 in 2017 to 184 in 2019, and rose further to 192 in 2023.

Likewise, Figure 1 presents a significant upward trend in Inuit personnel at B2Gold Nunavut's Back River Project. In 2023, 167 Inuit were employed at the Project, up from 80 in 2022. B2Gold

[3] Inuit workforce totals include both employee and contractor numbers whenever data are available. FTEs were calculated assuming 2,184 hours per person annually.

Nunavut anticipates further growth in its Inuit workforce as construction and operations advance, and IIBA commitments continue to be implemented.

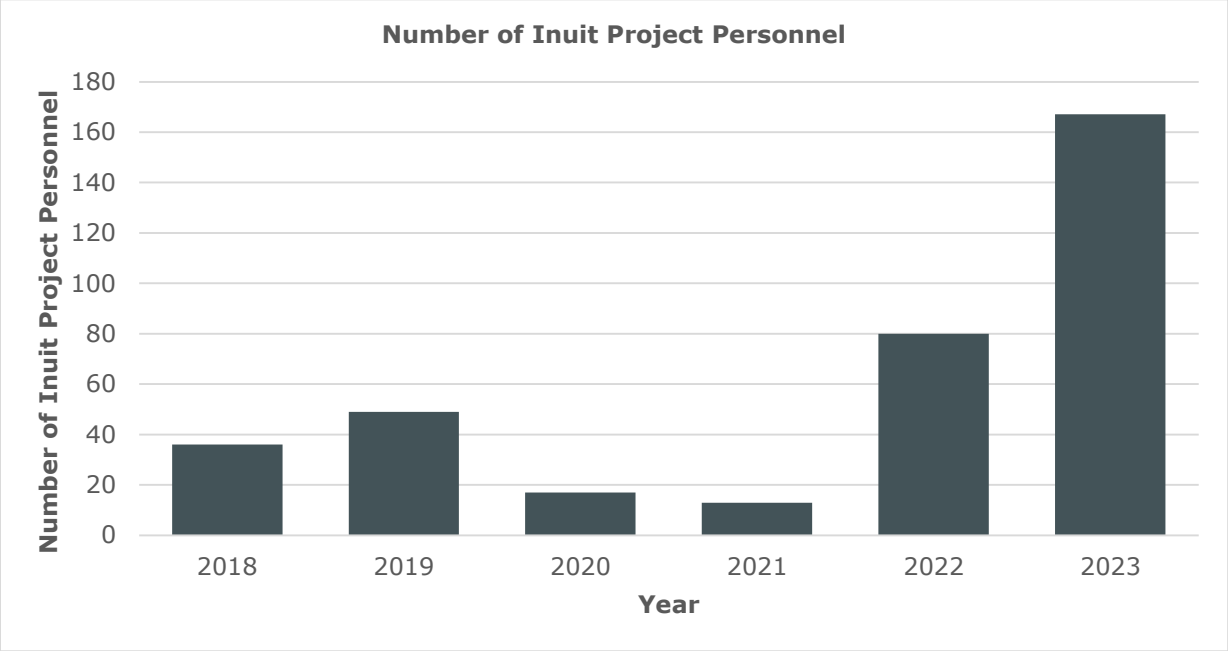

Figure 1: Number of Inuit Personnel at B2Gold Nunavut's Back River Project (2018 to 2023)

In order to continue building on these successes and achieve greater Inuit representation at the Back River Project, B2Gold Nunavut remains committed to identifying opportunities for improvement. Examples of actions recommended in the literature, which B2Gold Nunavut has pursued, include (e.g. ERM, Aglu, and PHC Inc. 2023; Hodgkins 2022; Schott et al. 2022):

- Improving access to employee well-being resources (e.g. establishment of an Inuit Employee Assistance Program);
- Bolstering relationships with local Inuit organizations and governments (e.g. ongoing implementation of the Project's Inuit Impact and Benefit Agreement in close cooperation with the Kitikmeot Inuit Association);
- Providing more workplace cultural supports (e.g. hiring of site-based Coordinators, Inuit Support);
- Introducing scheduling flexibility to accommodate cultural practices (e.g. relevant measures are included in the Inuit Human Resources Plan);
- Conducting employee compensation and pay equity analyses (e.g. conducted by B2Gold Nunavut's Human Resources team as needed);
- Conducting housing investigations for current employees to better understand and potentially address housing gaps (e.g. through semi-annual Inuit Personnel Surveys);

- Developing partnerships with local educational institutions and training programs (e.g. B2Gold Nunavut's partnership with the Redfish Arts Society Inc. in Cambridge Bay to develop a Back River Inuit Workplace Experience Program);
- Improving health and safety training for all employees (e.g. B2Gold Nunavut's cultural awareness training program is currently undergoing updates to better ensure a healthy and inclusive work environment).

As noted by the Mining Association of Canada (2024), "cultivating relationships with local communities, establishing meaningful partnerships, constructing mines and training local workforces has taken decades of work" (MAC 2024). While progress is evident and mining companies have intensified their commitments in this area, the process of improving Inuit employment numbers has been observed to be slow and prone to setbacks and is likely to present continuing challenges going forward (Agnico Eagle 2020; Government of Nunavut 2018, MiHR 2024, Nunavut News 2019). However, B2Gold Nunavut remains committed to addressing these challenges in an ongoing manner with the cooperation of its Project partners.

References:

Aglu and Stratos. 2023a. *2022 Socio-Economic Monitoring Report for the Mary River Project*. Prepared for Baffinland Iron Mines Corporation.

Aglu and Stratos. 2023b. *Agnico Kivalliq Projects 2022 Socio-Economic Monitoring Program Report*. Prepared for Agnico Eagle Mines Ltd.

Aglu, Stratos, and Impact Economics. 2021. *2021 Kivalliq Labour Market Analysis*. Prepared by the Employment and Culture Committee for Agnico Eagle Mines and Kivalliq Inuit Association. Accessed July 12, 2024. https://www.nirb.ca/portal/dms/script/dms_download.php?fileid=338905&applicationid=125515&sessionid=chgc8jbn877q2vmpaqc8u64ro7

Agnico Eagle. 2020. *Stepping Up to a Mining Career – How Agnico Eagle is Growing Our Inuit Workforce*. Accessed July 12, 2024. https://www.agnicoeagle.com/English/sustainability/stories-and-videos/stories-and-videos-details/2020/Stepping-Up-to-a-Mining-Career--How-Agnico-Eagle-is-Growing-Our-Inuit-Workforce/default.aspx

ERM. 2023. *Hope Bay Project 2022 Socio-Economic Monitoring Program Report*.

Prepared for Agnico Eagle Mines Ltd. by ERM Consultants Canada Ltd.

ERM, Aglu, and PHC Inc. 2023. *Inuit Workforce Barriers Study*. Prepared by the Employment and Culture Committee for Agnico Eagle Mines. Accessed July 12, 2024. https://www.nirb.ca/portal/dms/script/dms_download.php?fileid=349019&applicationid=125418&sessionid=aao0ccsq850hg3jvh7uqn2j1n0

Government of Canada. 1993. *Nunavut Land Claims Agreement Act*. Accessed on July 18, 2023. https://laws-lois.justice.gc.ca/PDF/N-28.7.pdf

Government of Canada. 2018. *Nunavut Inuit Labour Force Analysis Report*. Accessed July 12, 2024. https://www.canada.ca/en/employment-social-development/corporate/reports/research/nunavut-inuit-labour-force-analysis-summary.html

Government of Nunavut. 2018. *2017 to 2023 Master Inuit Employment Plan*. Accessed July 12, 2024. https://www.gov.nu.ca/sites/default/files/publications/2022-01/gn_master_iep_summary_eng_0.pdf

Government of Nunavut. 2022. *Public Service Annual Report 2021-2022*. Accessed July 16, 2024. https://www.gov.nu.ca/sites/default/files/publications/2023-12/annual_report_21-22_final_w_cover_and_trps.pdf

Government of Nunavut. 2024. *Labour Force Tables for Nunavut, 3MMA Ending in June 2023 and 2024 (4 tables)*. Provided directly to B2Gold Nunavut by the Government of Nunavut, July 2024.

Hodgkins, A. 2022. Local benefits of education, training, and employment with resource industries. In Parlee et al. *Extractive industry and the sustainability of Canada's Arctic communities*. McGill-Queen's University Press.

Impact Economics. 2018. *Baffinland Iron Mines Corporation Mary River Project—Phase 2 Proposal Labour Market Analysis*. Technical Supporting Document No. 26 for Baffinland Iron Mines Corporation Mary River Project Phase 2 Proposal Final Environmental Impact Statement.

Mining Association of Canada (MAC). 2021. *Facts & Figures 2021: The State Of Canada's Mining Industry*. Accessed July 12, 2024. https://mining.ca/resources/reports/facts-figures-2021/

Mining Association of Canada (MAC). 2023. *The Canadian Mining Story: Economic Impacts and Drivers for the Global Energy Transition*. Accessed July 12, 2024. https://mining.ca/flippingbooks/mac-report-2023/

Mining Association of Canada (MAC). 2024. *The Mining Story: Canadian Mining Industry Facts and Figures*. Accessed July 16, 2024.

Mining Industry Human Resources Council (MiHR). 2013. *Aboriginal Mining Education Forum - Forging Stronger Pathways to Education and Employment: A report of proceedings*. Accessed July 12, 2024. https://mihr.ca/wp-content/uploads/2020/03/Forging-Stronger-pathways.pdf

Mining Industry Human Resources Council (MiHR). 2015. *Canadian Mining Industry Employment, Hiring Requirements and Available Talent 10-year Outlook*. Accessed July 12, 2024. https://mihr.ca/wp-content/uploads/2020/03/LMI_National_Report_WEB_Final_2015.pdf

Mining Industry Human Resources Council (MiHR). 2023. *Integrating EDI: Addressing Systemic Employment Barriers in Canadian Mining*. Accessed July 12, 2024. https://mihr.ca/wp-content/uploads/2023/11/MIHR-23-Integrating-EDI-web-EN-Nov.pdf

Mining Industry Human Resources Council (MiHR). 2024. *Canadian Mining Outlook 2024*. Accessed July 12, 2024. https://mihr.ca/wp-content/uploads/2024/04/Mihr-Outlook-2024-EN.pdf

Nunavut Bureau of Statistics (NBS). 2020b. *Nunavut Secondary School Graduates 1999 to 2018 (2 tables).xlsx.* Prepared by Nunavut Bureau of Statistics July 2020. Accessed July 12, 2024. https://www.gov.nu.ca/en/nunavut-statistics/social-data

Nunavut Implementation Panel (NIP). 2006. *Annual Report for 2004-2006 - The Implementation of the Nunavut Land Claims Agreement*. Accessed July 16, 2024. https://www.rcaanc-cirnac.gc.ca/eng/1100100030973/1542914627289#chp4

Nunavut News. 2019. *Mining companies seek more Inuit employees*. Accessed July 12, 2024. https://www.nunavutnews.com/business/mining-companies-seek-more-inuit-employees-7277381

Saxinger, G. 2022. The FIFO social overlap: Success and pitfalls of long-distance commuting in the mining sector. In Parlee et al. *Extractive industry and the sustainability of Canada's Arctic communities*. McGill-Queen's University Press.

Schott S., Belayneh, A., Boutet, J-S., Rodon, T., and Seguin, J-M. 2022. Mining economies, mining families: The impacts of extractive industries on economic and human development in the eastern subarctic. In Parlee et al. *Extractive industry and the sustainability of Canada's Arctic communities*. McGill-Queen's University Press.

Statistics Canada. 2001. *2001 Census Aboriginal Population Profiles*. Accessed July 18, 2024. https://www12.statcan.gc.ca/english/profil01/AP01/Details/Page.cfm?Lang=E&Geo1=PR&Code1=62&G

eo2=PR&Code2=01&Data=Count&SearchText=nunavut&SearchType=Begins&SearchPR=62&B1=Population&Custom=

Statistics Canada. 2007. *Nunavut (Code62)* (table). *Aboriginal Population Profile*. Accessed July 18, 2023. https://www12.statcan.gc.ca/census-recensement/2006/dp-pd/prof/92-594/index.cfm?Lang=E

Statistics Canada. 2013. *Nunavut (Code 62)* (table). *National Household Survey (NHS) Aboriginal Population Profile*. Accessed July 18, 2024. http://www12.statcan.gc.ca/nhs-enm/2011/dp-pd/aprof/index.cfm?Lang=E

Statistics Canada. 2017. *Nunavut [Territory] and Canada [Country]* (table). *Census Profile*. Accessed July 18, 2024. https://www12.statcan.gc.ca/census-recensement/2016/dp-pd/prof/index.cfm?Lang=E

Statistics Canada. 2023a. *Census Profile*. 2021 Census of Population. Statistics Canada Catalogue no. 98-316-X2021001. Ottawa. Released November 15, 2023. Accessed July 12, 2024. https://www12.statcan.gc.ca/census-recensement/2021/dp-pd/prof/index.cfm?Lang=E

Statistics Canada. 2023b. *Table 37-10-0130-01 Educational attainment of the population aged 25 to 64, by age group and sex, Organisation for Economic Co-operation and Development (OECD), Canada, provinces and territories*. Date modified January 17, 2023. Accessed July 12, 2024. https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=3710013001

APPENDIX B: 2023 BASELINE SURFACE WATER REPORT

REPORT

B2Gold Back River Project - 2023 Surface Water Quality Report

Submitted to:

B2Gold Back River Corp.

Submitted by:

WSP Canada Inc.

16820 107 Avenue Edmonton, Alberta T5P 4C3 Canada

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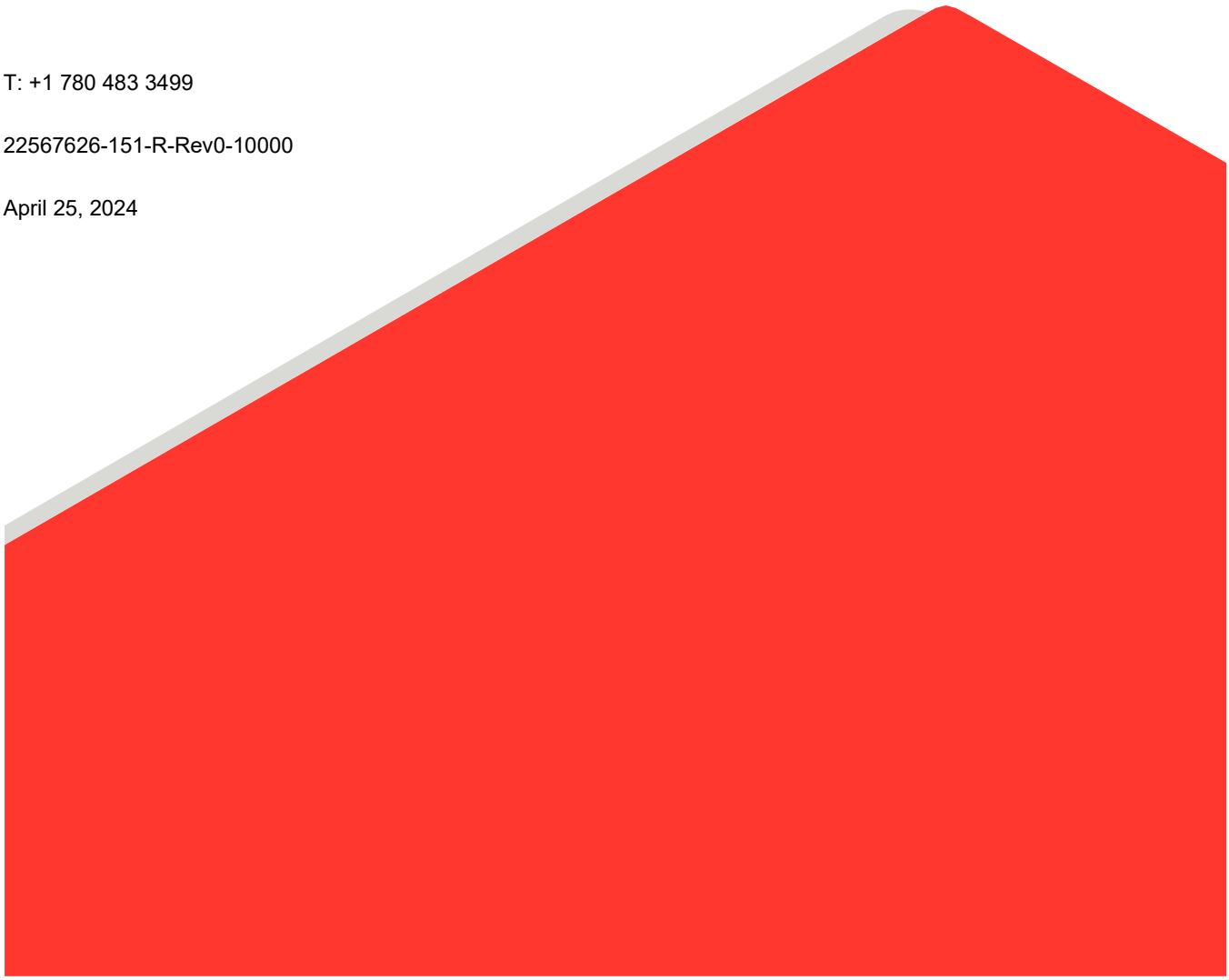
22567626-151-R-Rev0-10000

April 25, 2024



Distribution List

1 electronic copy - B2Gold Back River Corp.

1 electronic copy - WSP Canada Inc.

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1.0 INTRODUCTION

The Back River Project (the Project) is a gold project formerly owned by Sabina Gold & Silver Corp, now owned by B2Gold Back River Corp. (B2Gold Nunavut). The Project is located within the West Kitikmeot region of southwestern Nunavut. It is situated approximately 400 km southwest of Cambridge Bay, 95 km southeast of the southern end of Bathurst Inlet, and 520 km northeast of Yellowknife, Northwest Territories. The Project, as updated in the Modification Package (Sabina 2020), involves the Construction, Operations, Closure, and Post-Closure of three open pit mines and one underground mine at the Goose Property. A Marine Laydown Area (MLA) was established at Bathurst Inlet to deliver supplies via a 160 km winter ice road connecting the MLA to the Goose Property.

Field programs were undertaken in 2023 to collect more baseline water quality data to support the hydrodynamic (HD) model. It is also expected that the lake water quality data will support the normal range calculation for Goose Lake for the Aquatic Effects Management Plan (AEMP). Data collected in 2023 aimed to characterize baseline flow, water temperature and water quality at streams flowing into and from Goose Lake, as well as water quality within Goose Lake. Measurements and water sampling at Goose Lake inflow streams and Goose Lake outlet were completed during three open-water season trips (May, July, and September) and within Goose Lake at four locations during two open-water season trips (July and September). The collection of water quality samples followed the methodology described in the updated AEMP study design for the Project (Sabina 2022).

2.0 METHODS

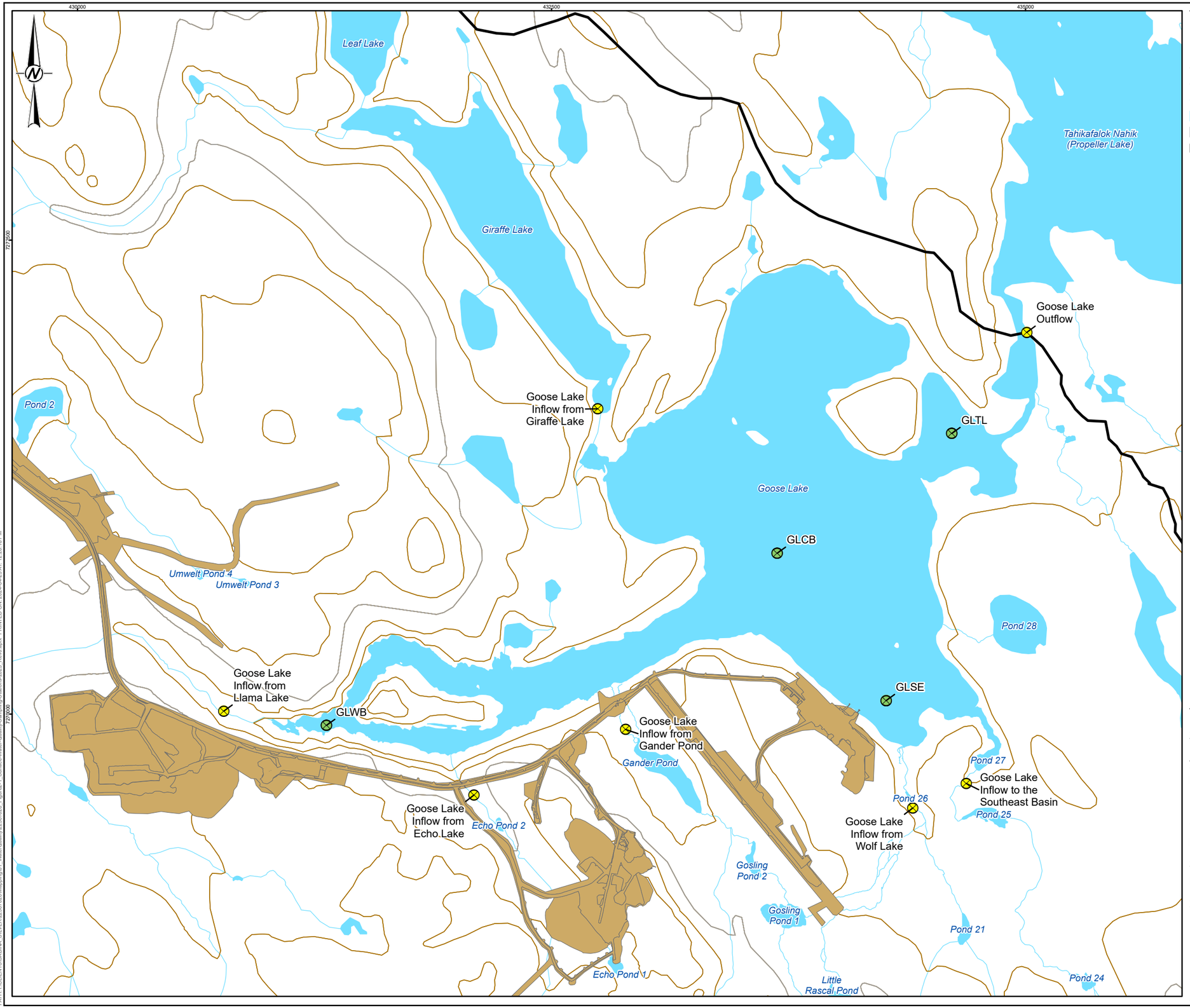
2.1 Lake Sampling Locations

Water quality sampling at Goose Lake occurred at the sampling locations presented in Table 2-1 and Figure 2-1. The open-water sampling program was conducted in July and August 2023 and consisted of the collection of water quality samples and in-situ water column profiling of physico-chemical measurements at one station in each of four sampling areas within Goose Lake (i.e., Tail, West Bay, Central Basin, and Southeast Basin). Water samples were collected at multiple depths within the water column (i.e., top, middle, and bottom). In addition, manual water level survey and level datalogger records were completed at Goose Lake hydrometric stations. These are described in the 2023 Annual Hydrology Monitoring Report WSP 2023a).

Table 2-1: Goose Lake Water Quality Sampling Locations, 2023

Lake Area	Sample ID	UTM Coordinates (Zone 13N, NAD 83)		Water Samples and Water Column Profiling	Sample Depth (m)
		Easting (m)	Northing (m)		
Goose Lake West Bay (GLWB)	GLWB-T	431335	7269961	July / September	0.5 / 0.5
	GLWB-M	431335	7269961	July / September	2.5 / 2.5
	GLWB-B	431335	7269961	July / September	4.0 / 4.5
Goose Lake Central Basin (GLCB)	GLCB-T	433664	7270900	July / September	0.5 / 0.5
	GLCB-M	433664	7270900	July / September	2.5 / 2.5
	GLCB-B	433664	7270900	July / September	4.0 / 4.0
Goose Lake Southeast Basin (GLSE)	GLSE-T	434308	7270033	July / September	0.5 / 0.5
	GLSE-M	434308	7270033	July / September	2.5 / 2.5
	GLSE-B	434308	7270033	July / September	4.0 / 4.5
Goose Lake Tail (GLTL)	GLTL-T	434612	7271485	July / September	0.5 / 0.5
	GLTL-M	434612	7271485	July / September	2.5 / 2.5
	GLTL-B	434612	7271485	July / September	5.0 / 5.0

Notes: T = top, M = middle, B = bottom.



LEGEND

- LAKE WATER QUALITY STATION
- STREAM WATER QUALITY STATION
- CONTOUR (10 m)
- CONTOUR (100 m)
- WATERCOURSE
- WATERBODY
- 2023 AS-BUILT FOOTPRINT
- GOOSE PROPERTY PDA

0 0.5 1

1:20,000 KILOMETRES

REFERENCE(S)

FOOTPRINT OBTAINED FROM CLIENT. HYDROLOGY AND CONTOURS OBTAINED FROM GEOGRATIS © DEPARTMENT OFNATURAL RESOURCES CANADA. HYDROLOGY UPDATED BY WSP.
PROJECTED COORDINATE SYSTEM: NAD 1983 UTM ZONE 13N

CLIENT
B2GOLD BACK RIVER CORP.

PROJECT
BACK RIVER PROJECT

TITLE
SURFACE WATER QUALITY SAMPLING STATIONS, 2023

CONSULTANT

YYYY-MM-DD	2024-04-25
DESIGNED	BCP
PREPARED	LB/BS
REVIEWED	ZC
APPROVED	ZC

PROJECT NO.	CONTROL	REV.	FIGURE
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2.2 Stream Sampling Locations

Water quality samples and in-situ physico-chemical measurements were collected from streams in 2023 during three open-water programs (May, July, and September). Water level surveys, staff gauge installation, dataloggers deployment and retrieval, and manual discharge measurements at each stream location also occurred at these stream stations, and results are described in the 2023 Annual Hydrology Monitoring Report (WSP 2023a). Water samples were collected from seven streams, consisting of the outflow of Goose Lake (Propeller Lake inflow) and Goose Lake inflows, with the May program targeting freshet conditions and the July and September program targeting summer and late summer conditions, respectively (Table 2-2 and Figure 2-1).

Table 2-2: Stream Water Quality Sampling Locations, 2023

Stream Description	UTM Coordinates (Zone 13N, NAD 83)		Water Samples
	Easting (m)	Northing (m)	
Goose Lake Outflow	435007	7272014	-[a] / July / September
Goose Lake Inflow from Llama Lake	430772	7270016	May / July / September
Goose Lake Inflow from Gander Pond	432891	7269919	May / -[b] / September
Goose Lake Inflow from Giraffe Lake	432744	7271610	-[a] / July / September
Goose Lake Inflow from Echo Lake	432091	7269573	May / July / September
Goose Lake Inflow from Wolf Lake	434269	7269719	May / -[b] / September
Goose Lake Inflow to the Southeast Basin	434688	7269634	May / -[b] / September

Notes: Field measurements include pH, dissolved oxygen, water temperature, specific conductivity, and water depth.

a) Crew were unable to access the inflow from Giraffe Lake and Goose Lake outflow in May 2023 because no helicopter was on site and there was an ice cover in Goose Lake.

b) Not sampled in July 2023 because these stations were dry, or the channels had dried sections.

- = not sampled and no field measurements made.

2.3 Field Methods

Water sample collection followed the procedures detailed in the AEMP study design (Sabina 2022) and methods published by the Canadian Council of Ministers of the Environment (CCME 2011).

Water samples were processed on site, and those requiring filtration were filtered through a syringe with a 0.45 µm filter head supplied by the laboratory before being preserved (if needed) with laboratory-provided preservative based on the required analysis and as instructed by the laboratory. Samples for low-level metals and mercury analyses were not preserved in the field (they were preserved by the laboratory upon receipt). Processed samples were kept on site in a designated refrigerator before shipping; ice packs were added to the coolers to keep the samples as cool as possible (without freezing) during shipping. Samples were shipped by air to ALS Yellowknife as soon as practical after sample collection and processing, taking into consideration the parameter-specific holding time constraints prescribed by the laboratory.

Lake Sampling

Three water samples were collected at each lake sampling station: near top (10 cm below surface), middle, and bottom (30 cm above the sediment). Field measurements and lake samples were collected from a boat. Total water depth (m), Secchi depth (m), sample depth (m), and field depth profiles were recorded at each sampling station. Turbidity measurements were also collected in the field using a calibrated LaMotte 2020 turbidity meter.

Samples were collected as grabs using a Kemmerer sampler. A polyvinyl Kemmerer sampler was used to sample water for most analyses, with the exception of low-level metals and low-level mercury, which were collected using a Teflon Kemmerer sampler. Three turbidity measurements were done on the sampled water, and the average was recorded.

Lake profiling measurements were done before collecting water samples. These measurements consisted of specific conductivity, pH, water temperature, and dissolved oxygen (concentration and percent saturation) measured every 0.5 m. Measurements were taken only on the way down, moving slowly to allow the sensors to stabilize prior recording the measurements. This helped to avoid hysteresis (differences in readings on the way down and the way up) and produced more accurate readings.

Stream Sampling

In situ physico-chemical measurements of specific conductivity, pH, temperature, dissolved oxygen, turbidity, and water samples were collected from Goose Lake inflows and outflow. Field measurements and stream samples were collected as grabs from the middle of the stream and mid-depth.

2.4 Quality Assurance and Quality Control

Quality Assurance (QA) encompasses management and technical practices designed to generate data of known and appropriate quality, and quality control (QC) is a specific aspect of the QA process that incorporates internal techniques used to measure and assess data quality. The QA/QC procedures, assessment criteria, and QC results are presented in Appendix A.

QA/QC procedures were applied to field sampling, laboratory analysis, data entry, data analysis, and report preparation. Specific work instructions outlining each field task in detail were provided to field personnel and a pre-field meeting was held to review the instructions for the field data collection, and to confirm that all field personnel are familiar with the expectations of the sampling plan. Field equipment was calibrated throughout the field program following the manufacturer's specifications and samples were collected by appropriately trained and experienced personnel. Detailed field notes were recorded in waterproof field books and on pre-printed waterproof field datasheets. Datasheets and sample labels were checked at the end of each field data for completeness and accuracy and were scanned into electronic copies at the completion of the field program. Samples were labelled, filtered, preserved, and shipped according to standard protocols. Chain of custody forms were used to track shipment and receipt of samples. Upon entry of the field data into electronic database, the data were checked against field datasheets by a reviewer to verify the accuracy of data entry and to check for transcription errors.

Quality control samples collected during the 2023 water sampling programs consisted of three travel blanks and three duplicate samples, which accounted for 15% of the total number of water samples collected. Quality control samples were collected following the QA/QC procedures described in the AEMP study design (Sabina 2022).

2.5 Laboratory Methods

Sample bottles were provided by ALS Canada Ltd. (ALS; Yellowknife location), an analytical laboratory accredited by the Canadian Association for Laboratory Accreditation Inc. (CALA). Water quality samples were analyzed for:

- Conventional parameters (i.e., specific conductivity, hardness, laboratory pH, total suspended solids [TSS], total organic carbon [TOC], total dissolved solids [TDS] by calculation, alkalinity)
- Major ions (i.e., bicarbonate, calcium, carbonate, chloride, fluoride, hydroxide, potassium, magnesium, sodium, sulphate, sulphide, and reactive silica)
- Nutrients (i.e., nitrite, nitrate, total ammonia, total Kjeldahl nitrogen, orthophosphate, total dissolved phosphorus [TDP], total phosphorus [TP])
- Low-level total and dissolved metals (i.e., aluminum, antimony, arsenic, barium, beryllium, bismuth, boron, cadmium, chromium, cobalt, copper, iron, lead, lithium, manganese, mercury, molybdenum, nickel, selenium, silicon, silver, strontium, sulphur, thallium, tin, titanium, uranium, vanadium, zinc, and zirconium)
- Cyanides (total cyanide, free cyanide, and weak acid dissociable [WAD] cyanide)

Dissolved organic carbon [DOC] was added for the July and September programs.

3.0 RESULTS

Depth profiles measured at lake stations are summarized in tables and graphs in Appendix B. Water chemistry data collected at lakes and streams in 2023 were summarized in tables in Appendix C, which also includes comparisons to regulatory water quality guidelines to identify exceedances that existed prior to mine development. Data were compared to the acute and chronic Canadian water quality guidelines for the protection of freshwater aquatic life (CCME 1999), federal environmental quality guidelines (FEQGs) (GOC 2023), Canadian drinking and aesthetic water quality guidelines (Health Canada 2022), and long-term site-specific water quality objectives (SSWQOs) for total arsenic and copper (Sabina 2017).

3.1 Quality Assurance and Quality Control

The QC results indicate that the water quality data collected in 2023 was acceptable, and most results reported are considered reliable for use in future data analyses (Appendix A). Key outcomes were as follows:

- There were detected concentrations of some parameters in the travel blank samples collected in May and July that were five times greater than their respective DLs. From these parameters, sodium, and total and dissolved zinc and lead concentrations in the May blank sample and the DOC concentration in the July blank sample were similar or greater than concentrations in the associated field samples, indicating possible contamination in the deionized water or in the laboratory environment. Therefore, the results for sodium, zinc and lead in the May samples and DOC in the July samples for batch YL2300892 were invalidated as a precaution.
- Dissolved metal concentrations were notably greater than the corresponding total metal concentrations for less than 1% of the metals results, with zinc failing to meet the quality criteria more frequently than the rest of the metals (i.e., for 13% of the zinc results). Zinc should be interpreted with this in mind.

3.2 Goose Lake Water Quality

In situ physico-chemical measurements of depth profiling in July and September had little to no vertical variation with the exception of water temperature in July at all stations and specific conductivity at GLWB (Appendix B). Similar values were observed in previous years (Golder 2022a, WSP 2023b).

Water chemistry data collected at Goose Lake are summarized in Appendix C (Table C-1), including a comparison of the 2023 dataset to relevant water quality guidelines and site-specific water quality objectives (SSWQOs). Water quality parameters with concentrations above water quality guidelines/objectives were observed for:

- Field and laboratory pH values were outside the lower limit of the recommended aesthetic guideline range (between 7.0 and 11; Health Canada 2022) in 96% of the samples and outside chronic guideline for the protection of aquatic life (between 6.5 and 9.0; CCME 1999) at the bottom depth of station GLWB in July and the three samples at station GLSE in September.
- Total aluminum concentrations in samples collected at the bottom depth of station GLWB in July and the three samples at GLSE in September were above the chronic guideline for the protection of freshwater aquatic life (pH dependent; CCME 1999).
- Total cobalt concentrations in samples collected at the middle depth of station GLWB and the bottom depth at GLWB collected in July and the three samples at GLWB in September were above the FEQG of 0.78 µg/L (hardness dependent; Environment Canada 2017).
- Total copper concentrations in the three samples collected at GLWB in September were above chronic guideline for the protection of aquatic life of 2 µg/L (CCME 1999).
- Dissolved copper concentrations at all stations were above the FEQG range of between 0.2 and 1.0 µg/L (temperature, pH, DOC and hardness dependent; ECCC 2021).
- Total manganese concentrations in the three samples collected at GLWB in September were above the water quality aesthetic objectives of 20 µg/L (Health Canada 2022).

Concentrations of total aluminum and total and dissolved copper were similar to those observed in previous years at Goose Lake (Golder 2022a, WSP 2023b). Total manganese concentrations at GLWB were higher compared to previous monitoring years and total cobalt concentrations in GLWB were slightly higher compared to previous years and similar to previous years for the other stations in Goose Lake (Golder 2022a, WSP 2023b). Water quality data collected in previous years were not screened against FEQGs or SSWQOs.

3.3 Stream Water Quality

Goose Lake inflows and the outflow had field pH ranging from 5.2 to 7.1 and were mostly outside the recommended chronic pH ranges for the protection of freshwater aquatic life (between 6.5 and 9.0; CCME 1999) and the drinking water aesthetic objective (between 7.0 and 11; Health Canada 2022). The pH values outside the water aesthetic objectives in streams have been observed in past years (Golder 2022a).

Concentrations above water quality guidelines were observed for other parameters in samples collected at streams in 2023 (also presented in Appendix C; Table C-2):

- The total cyanide concentration in the September sample from the Goose Lake inflow from Gander Pond was above the chronic guideline for the protection of freshwater aquatic life of 0.0050 mg/L (CCME 1999).

- Nitrate concentrations in July and September samples from the Goose Lake inflow from Llama Lake and in the September sample from the Goose Lake inflow from Gander Pond were above the chronic guideline for the protection of freshwater aquatic life of 2.9 mg-N/L (CCME 1999).
- Nitrite concentrations in the July and September samples from the Goose Lake inflow from Llama Lake and the Goose Lake inflow from Gander Pond, respectively, were above the chronic guideline for the protection of freshwater aquatic life of 0.06 mg-N/L (CCME 1999).
- Total aluminum concentrations were above the calculated chronic guideline for the protection of freshwater aquatic life of between 5.0 and 100 µg/L (pH-dependent; CCME 1999) in the May and September samples from Goose Lake inflow from Echo Lake, in the July and September samples at the Goose Lake inflow from Llama Lake, in the July sample from the Goose Lake inflow from Wolf Lake, and in the September sample from the Goose Lake inflow to the southeast basin
- Total cadmium concentrations in the July and September samples from the Goose Lake inflow from Llama Lake were above the calculated chronic guideline for the protection of freshwater aquatic life, of between 0.04 µg/L and 0.26 µg/L (hardness dependent; CCME 1999).
- Total copper concentrations in the May and September samples from the Goose Lake inflow from Echo Lake, and in the July sample from Goose Lake inflow from Wolf Lake were above the calculated chronic guideline for the protection of freshwater aquatic life, of between 2.0 µg/L and 4.0 µg/L (hardness dependent; CCME 1999).
- Total iron value in the July sample from the Goose Lake inflow from Wolf Lake was above the chronic guideline for the protection of freshwater aquatic life of 300 µg/L (CCME 1999) and the drinking water aesthetic objective of 300 µg/L (Health Canada 2022).
- Total manganese concentrations in the July samples from the Goose Lake outflow and the Goose Lake inflow from Llama Lake, and in the September samples from the Goose Lake inflows from Gander Pond and Echo Lake were above the drinking water aesthetic objective of 20 µg/L (Health Canada 2022) and above the drinking water Health Canada guideline of 120 µg/L (Health Canada 2022) in the September sample from the Goose Lake inflow from Llama Lake.
- Total cobalt concentrations were above the FEQG of 0.78 µg/L (hardness dependent; ECCC 2017) in the May and September samples from the Goose Lake inflow from Echo Lake, in the July and September samples from the Goose Lake inflow from Llama Lake, and in the September sample from the Goose Lake inflow from Gander Pond.
- Dissolved copper concentrations in all samples were above the FEQG range of 1.0 to 3.6 µg/L (temperature, pH, DOC and hardness dependent; ECCC 2021) except for the May sample from the Goose Lake inflow from Wolf Lake and in the September sample from Goose Lake outflow.

Similar guideline exceedances for total aluminum and copper were observed in previous years at Goose Lake streams (Golder 2022a, WSP 2023b). The FEQGs were not used in previous monitoring programs. However, the total cobalt and dissolved copper concentrations in Goose Lake inflows and outflow were similar to those measured in previous years (Golder 2022a).

Overall, samples from the Goose Lake inflow from Llama Lake had the most parameters that were above the corresponding water quality guidelines, with the lowest pH (5.2) and alkalinity (<1.0 mg/L) observed in September.

However, similar values were also observed in June 2018 at this location with a pH of 5.3 and alkalinity <2 mg/L (Golder 2019).

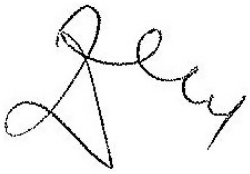
4.0 SUMMARY AND CONCLUSIONS

Water quality in Goose Lake and streams in 2023 was generally consistent with results from previous years (Golder 2022a, WSP 2023b). In-situ depth profiles at Goose Lake showed little or no seasonal or depth-related variation, except temperature in July at all stations and specific conductivity at GLWB. Some parameters (i.e., aluminum, cobalt, and copper) in one or more lake and stream samples had concentrations higher than the relevant water quality guidelines. Stream samples had other parameters such as nitrate, nitrite, cyanide, aluminum, cobalt, copper, iron, and manganese higher than water quality guidelines. The 2023 data were collected to provide additional baseline information to support the HD model. The lake water quality data will also support normal range calculation for Goose Lake for use in the AEMP.

Signature Page

WSP Canada Inc.

Beatriz Cupe-Flores, M.Sc.
Toxicologist



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https://wsponline.sharepoint.com/sites/gld-168863/project files/6 deliverables/01 working/22567626-151-r-rev0-10000-2023_annual surface wq report/22567626-151-r-rev0-10000-2023_baseline_surface water quality report 12apr_24.docx

5.0 REFERENCES

CCME (Canadian Council of Ministers of the Environment). 1999 (with updates to 2021). Canadian Environmental Quality Guidelines for the Protection of Aquatic Life – Summary Table. Available at: http://st-ts.ccme.ca/. Accessed: December 2021.

CCME. 2011. Protocols Manual for Water Sampling in Canada. Canadian Council of Ministers of the Environment. 2011.

ECCC (Environment and Climate Change Canada). 2017. Federal Environmental Quality Guidelines – Cobalt. Accessed in December 2023. https://www.ec.gc.ca/ese-ees/default.asp?lang=En&n=92F47C5D-1

ECCC. 2021. Federal Environmental Quality Guidelines – Copper. Accessed in December 2023. https://www.canada.ca/en/environment-climate-change/services/evaluating-existing-substances/federal-environmental-quality-guidelines-copper.html

GOC (Government of Canada). 2023. Canadian Environmental Protection Act: guidelines and objectives. Accessed in December 2023. https://www.canada.ca/en/environment-climate-change/services/canadian-environmental-protection-act-registry/guidelines-objectives-codes-practice/guidelines-objectives.html#fed

Golder (Golder Associates Ltd.). 2019. Back River Project – Aquatic Baseline Synthesis Report. Appendix A to the Aquatic Effects Management Plan. July 2019.

Golder. 2022a. Sabina Gold & Silver Corp. Back River Project – 2021 Aquatic Baseline Report. Submitted to Sabina Gold & Silver Corp. June 2022.

Golder. 2022b. Back River Project - Hydrodynamic and Water Quality Modelling of Goose Lake. Submitted to Sabina Gold & Silver Corp. 21505757-118-R-Rev0-15000. August 2022.

Health Canada. 2022. Guidelines for Canadian Drinking Water Quality—Summary Tables. Water and Air Quality Bureau, Healthy Environments and Consumer Safety Branch, Health Canada, Ottawa, Ontario. September 2022.

Sabina (Sabina Gold & Silver Corporation). 2017. The Back River Project Main Application Document October 2017. Submitted to the Nunavut Water Board. October 2017.

Sabina. 2020. The Back River Project Modification Package October 2020, Version 2. Submitted to the Nunavut Water Board. October 2020.

Sabina. 2022. Aquatic Effects Management Plan. Back River Project. Draft - July 2022.

WSP (WSP Canada Inc.). 2023a. B2Gold Back River Project - Goose Property Area: 2023 Annual Hydrology Monitoring Report. 2023. Open-Water Period. Submitted to Sabina Gold & Silver Corp. on 21 December 2023. WSP Golder document No. 22567626-153-R-RevA-10000.

WSP. 2023b. Sabina Gold & Silver Corp. Back River Project – 2022 Aquatic Baseline Report. Submitted to Sabina Gold & Silver Corp. March 2023.

APPENDIX A

2023 Quality Assurance and Quality Control Methods and Results

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TABLES

1.0 INTRODUCTION

This appendix describes the quality assurance (QA) and quality control (QC) procedures implemented during the 2023 water quality program completed to support the hydrodynamic (HD) model for Goose Lake for the B2Gold Back River Project. An evaluation of the QC data and implications for the interpretation of results is also included.

Data integrity is determined by the QA/QC procedures that are applied during all aspects of a sampling program, from sample collection to data analysis and reporting. Quality assurance procedures include training of personnel, data management, and other technical practices designed to confirm that data generated are consistently of appropriate quality. Quality control procedures include steps to measure and evaluate data quality, as well as the corrective actions that are applied when data quality objectives are not achieved.

2.0 QUALITY ASSURANCE

Quality assurance procedures implemented during the 2023 water quality sampling program are classified into three categories: field operations, laboratory analyses, and office operations.

2.1 Field Operations

Quality assurance procedures for field operations involve field crew training, pre-field meetings, use of standardized methods, and providing clear instructions for collecting and handling field data. Field staff for the field program were trained to be proficient in standardized sampling procedures, data recording, and equipment operation. Field work was completed according to approved specific work instructions (SWI) that were developed for the project based on standardized technical procedures developed by WSP Canada Inc. (WSP). WSP's technical procedures are consistent with field protocols described in relevant scientific literature (e.g., CCME 2011). The SWI for the water sampling programs included the exact locations of sampling sites and detailed step-by-step instructions for field tasks such as sample collection, handling, preservation, labelling, storage, shipping, record keeping, and sample tracking.

A multi-probe YSI water quality meter was used to collect in situ measurements of water temperature, pH, dissolved oxygen (concentration and percent saturation), and specific conductivity throughout the water column at each lake sampling station, and at the sample depth at each stream station. Turbidity measurements were taken on a subsample of the water sample, using a LaMotte 2020 turbidity meter. The field meters were calibrated by the manufacturer once per year and by the field crew at the beginning of each field program. Calibration of the meters was then verified daily using standard calibration solutions. Calibration checks were also done when readings were outside of expected ranges. Calibration records were documented in the field and saved in the project file.

Field data were recorded on standardized field data sheets or in a bound field notebook. Chain-of-custody forms included the list of parameters requested for analysis, sample identification information, date and time of sample collection, information regarding field filtering and preservation, and names of the sampler. After delivery to the laboratory, a tracking system was used to confirm all samples were sent and received by the laboratory. The crew lead was responsible for tracking samples, to confirm that all required samples were collected, chain-of-custody and analytical request forms were complete and correct, and that labelling, and documentation procedures were followed. Field crews checked in with component leads as needed and submitted daily reports to provide updates on completed tasks. Contact information for members of the project team and the analytical laboratory were included in the SWI, along with references to applicable technical procedures.

Quality assurance procedures also included pre-field meetings held with the field crew and project/component manager prior to the start of each field program. Objectives of the field program, health and safety protocols, the role of each crew member, specific details of the SWI, equipment needs, field logistics, and contingency plans were discussed at each meeting.

2.2 Laboratory Analyses

Water samples collected in 2023 were submitted for analysis to ALS Environmental, a laboratory accredited by the Canadian Association for Laboratory Accreditation Inc. (CALA) for the analytical suite for this project; therefore, confidence in the reliability of the analytical data produced by the laboratory is considered high. To receive accreditation, a laboratory must pass an evaluation of its internal procedures, analytical methods, and QA/QC processes. Parameters were analyzed by the laboratory using standard methods published by internationally recognized agencies, such as the American Public Health Association (APHA) and the United States Environmental Protection Agency (US EPA).

2.3 Office Operations

Quality assurance procedures implemented for office-based tasks included the following:

- having trained personnel complete data management, analysis, and reporting tasks
- using standardized data storage, manipulation, and summary tools, as required
- establishing a data management system to support consistency, data review processes, and data storage and retrieval
- senior review of data deliverables at appropriate milestones

A designated member of the project team was responsible for liaising with the laboratory. Analytical results were uploaded to the EQuIS database directly by the laboratory. EQuIS data exports were reviewed to identify errors or gaps and corrected, as needed. Laboratory certificates, field forms, and field notes were stored in the project file.

3.0 QUALITY CONTROL

Similar to QA procedures, QC procedures implemented during the 2023 water quality sampling program can be classified into three categories: field operations, laboratory analyses, and office operations.

3.1 Field Operations

Quality control procedures implemented during field operations included the collection of QC samples that are defined as follows:

- **Travel blanks:** These samples were used to detect sample contamination that could have resulted from any laboratory contamination. Travel blanks were provided by the laboratory and consisted of sealed sample bottles filled with deionized water. They accompanied the water samples during all stages of storage and transportation but remained unopened.
- **Duplicate samples:** These samples were used to check the precision of field sampling methods and laboratory analyses. Duplicate samples consisted of paired water samples collected at the same time (separate grabs) and location, using the same methods.

Quality control samples were submitted “blind” to the analytical laboratory and analyzed for the same set of parameters as the other water samples.

During the 2023 water sampling program, a total of three blank samples (i.e., travel blanks) and three duplicate samples were collected. Quality control samples collected in 2023 represented approximately 15% the total number of water samples submitted for analysis.

3.2 Laboratory Analysis

Internal QC samples were prepared by the analytical laboratory and analyzed along with the field-collected samples to confirm the quality and reliability of the analytical results. Quality control sample types included duplicate samples, spiked samples, and method blanks. The laboratory QC results were reviewed to confirm the quality of the data and to determine if the laboratory identified any questionable results.

3.3 Office Operations

Quality control operations implemented in the office focussed on evaluating the quality of in situ measurement data and analytical results, completeness of data, verifying the quality of data through assessment of QAQC samples and through summary statistics and plots. Field data entered into the project database were compared against the field data sheets and field notebook to confirm their accuracy. Unaltered data files from the laboratory were saved to the project file and used as a reference to confirm the accuracy of the data entered into the project EQuIS database. Laboratory data were also screened for quality (Section 3.3.1). Backup files were created before each major data analysis operation and calculations were reviewed to confirm the accuracy of the results.

3.3.1 Laboratory Data Screening

A series of standard data screening steps were completed upon receipt of water chemistry results from the analytical laboratory to identify potential data quality issues:

- verification that all requested parameters and samples were analyzed
- verification that the appropriate detection limits (DLs) were used and data were reported in the appropriate units
- verification of holding time exceedances and follow-up discussions with the laboratory
- data logic checks (e.g., comparison of measured and calculated results for total dissolved solids; comparison of dissolved to total metals)
- calculation of total dissolved solids using the APHA (2012) equation[1] and comparison to the calculated total dissolved solids results provided by the laboratory
- identification of anomalous values
- review of blank samples for evidence of contamination
- review of duplicate sample results for unacceptable variation
- review of laboratory QC results (i.e., sample temperature and integrity of containers upon receipt, holding times, laboratory blanks and recoveries from spiked samples, internal duplicates, review of laboratory qualifiers and notes)
- follow-ups with the laboratory on unexpected values and trends

Prompt completion of the screening steps allowed for potential re-analysis of samples by the laboratory to verify questionable data or generate data for missing parameters. If samples were re-analyzed by the laboratory and the data were still considered questionable, qualifiers for consideration during data summary and analysis steps were added to the dataset.

[1] $TDS_{calc}\left(\frac{mg}{L}\right) = \Sigma[Na^{+}, K^{+}, Ca^{2+}, Mg^{2+}, Cl^{-}, F^{-}, SO_4^{2-}, 4.42 * NO_3^{-}(as\ nitrogen), 0.6 * total\ alkalinity\ (as\ CaCO_3)$

3.3.2 Quality Control Data Evaluation

3.3.2.1 Water Blanks

Analytical results for travel blanks were reviewed and considered notable if concentrations were greater than or equal to five times the corresponding DL. This criterion is based on the US EPA Practical Quantitation Limit, which accounts for the potential for reduced accuracy when concentrations approach or are below the DL (US EPA 2000). This criterion was not applied to all parameters (e.g., not applied to pH or specific conductivity).

In the event that concentrations in the blanks exceeded five times the DL, the results were examined to determine if:

- the concentration in a blank QC sample was higher than the concentrations measured in corresponding surface water samples
- the notable result was limited to a single blank sample or if it was apparent in corresponding water samples
- there was a consistent bias in the results for the parameter across all samples
- if the notable result was severe enough to warrant invalidating the affected data

3.3.2.2 Duplicate Samples

Differences between concentrations measured in duplicate water and sediment samples were evaluated based on the relative percent difference (RPD):

$$RPD = \frac{|C1 - C2|}{\left[\frac{(C1 + C2)}{2}\right]} * 100$$

Where: RPD is relative percent difference
C1 is the concentrations in the first sample
C2 is the concentration in the second (or duplicate) sample

The RPD was only calculated if one or more of the paired concentrations in the duplicate samples are greater than five times the DL. The RPD for a given water quality parameter was considered notable and flagged if it was greater than 20% (USEPA 2017). The number of flagged parameters was compared to the total number of analyzed parameters to evaluate analytical precision. Results of the duplicate samples were also used to assess within-station variability and field sampling precision. Analytical precision was rated as follows:

- *high*, if less than 10% of parameters included in the duplicate sample analysis were notably different from one another
- *moderate*, if 10 to 30% of parameters included in the duplicate sample analysis were notably different from one another
- *low*, if more than 30% of parameters included in the duplicate sample analysis were notably different from one another

3.3.2.3 Dissolved and Total Concentrations

Dissolved nutrient and metal concentrations in water samples were compared to their corresponding total concentrations as a measure of analytical precision. Where results of the total and dissolved concentrations were more than five times the DL and the RPD between the dissolved and total concentration was more than or equal to 20%, the dissolved concentration was considered notable.

4.0 RESULTS

4.1 Water Quality Field Measurements

In situ field measurements were collected during each field program in 2023 using a calibrated multi-parameter YSI Pro Plus water quality meter and a LaMotte 2020 turbidity meter. Calibration records were documented in the project file. No issues with the field meters were encountered during the 2023 water quality programs.

4.2 Laboratory Report Review

Required parameters were analyzed by the laboratory using standard analytical methods and DLs required by the AEMP design plan (Sabina 2022). Detection limits of water quality results were generally adequate. Sodium, sulphate, silica, and total and dissolved boron had DLs greater than the target DLs in all samples collected in 2023 with the exception of sulphate in May, but DLs were below relevant water quality guidelines.

Concentrations of total aluminum, dissolved thorium, and nitrate (as N) did not meet internal laboratory data quality objectives (DQOs) for work orders YL2300484, YL2300877, YL2300892, and YL2301147 (i.e., method blank exceeded the laboratory DQO), but the field sample results associated with these quality control analyses were validated by the laboratory.

Copies of the analytical reports (certificates of analysis), with a statement of methods and summaries of laboratory quality control results are presented as attachment to Appendix C.

4.3 Holding Time Exceedances

To maintain sample integrity, water samples for laboratory analyses were submitted as soon as possible after collection. However, holding time exceedances are a common issue for unpreserved water samples collected during water quality programs in remote areas, because transport of samples to the laboratory is subject to the availability of scheduled charter flights. Analytical holding times were met for most water quality parameters in 2023, with some exceptions:

- Recommended holding time for pH (0.25 hours) measurements in laboratory was exceeded for all water samples. Measurement of pH in the field is preferred for interpreting water quality results.
- Recommended holding time for nitrate, nitrite, and dissolved orthophosphate of three days was exceeded for all water samples.
- Recommended holding times for sulphide of seven days and cyanide (total, free and WAD) of fourteen days were exceeded for the water samples collected in July and September.

Most of the holding time exceedances were by one to four days duration. These exceedances were not expected to negatively affect data quality.

4.4 Field Quality Control Results

During the 2023 water quality programs, three travel blank samples and three field duplicate samples were collected (i.e., one travel blank and one duplicate during each field trip).

4.4.1 Travel Blanks

Travel blank samples collected during the 2023 water quality programs were analyzed for the same parameters as field samples (Table A-1). Most results of the blank samples were non-detect. Concentrations above the corresponding DLs in travel blanks were reviewed individually. Detected concentrations of potassium, sodium, and total and dissolved lead, rubidium, and zinc in the May travel blank sample and dissolved organic carbon (DOC) in the July blank sample were higher than five times their respective DLs.

Detected concentrations of potassium and total and dissolved rubidium in the blank sample were one or two orders of magnitude lower than concentrations measured in the May field samples and were not considered to have a perceivable influence on the results.

The concentration of DOC in the July travel blank of 11.4 mg/L was higher than results of associated field samples (between <0.5 mg/L and 8.33 mg/L), indicating possible laboratory contamination. Therefore, all DOC data associated with this lab batch (i.e., YL2300892) was invalidated as a precaution.

Total sodium concentration in the May blank sample was 0.332 mg/L. This value was almost half of what was measured in field samples collected on the same day (0.76 and 1.5 mg/L). Total and dissolved lead concentrations in the May blank sample were 0.032 µg/L and 0.031 µg/L, and total and dissolved zinc in the same blank sample were 5.54 µg/L and 5.57 µg/L, respectively. Detected concentrations of lead and zinc in the blank sample were similar or higher than concentrations measured in field samples. Overall, concentrations of sodium, lead and zinc in field samples collected in May were similar or slightly lower than those measured in July and September. Also, these parameters were not detected in blank samples collected in July and September. The cause(s) of potential contamination during the May program could have been from the deionized water or the laboratory environment. As a precaution, sodium, lead and zinc concentrations were invalidated in the May samples.

Parameters in blank samples with detected concentrations accounted for 3% of all results of blank samples and concentrations found to be five times greater than their respective DLs were observed for less than 1% of parameters analyzed in blank samples. In general, concentration levels are acceptable if there are less than or equal to 5% of blanks with values greater than the DLs (CCME 2011).

4.4.2 Duplicate Samples

Three duplicate samples were collected during the 2023 water quality program (Table A-2). Notable RPDs were observed during the May and July field programs and included 21% and 1% of the analyzed parameters, respectively. Those parameters were: calcium, nitrite, nitrate, total Kjeldahl nitrogen, total fractions of aluminum, uranium, vanadium, zinc, and yttrium, and total and dissolved fractions of barium, cobalt, iron, lanthanum, manganese, nickel, strontium, and thorium for the May sample for which notable RPDs ranged from 28% to 177%. The duplicate sample was collected at a stream (the Goose Lake inflow from Wolf Lake) during snowmelt when water flow dynamic can create a heterogenous environment and increase within-site variability. Based on the assessment criteria described in Section 3.3.2.2, the May data had *moderate* analytical precision (i.e., 10 to 30% of RPD results were notable in individual samples). For the July samples, only total Kjeldahl nitrogen had an RPD value of 23%. Thus the July data had *high* analytical precision (i.e., less than 10% of RPD results were notable in individual samples). The September paired duplicate samples had no notable RPDs, indicating *high* analytical precision for the September data.

4.5 Dissolved to Total Results Comparison

It is reasonable to assume that where total and dissolved parameter concentrations are measured in a water sample, the dissolved fraction should be less than or equal to the corresponding total concentration. However, there are instances when the dissolved concentration of a parameter may be higher than the total concentration. These can be attributed to low concentrations, analytical variation and sensitivity, inconsistency or inadequate sampling, and sample handling processes (e.g., filtering and preserving outside the required timeframe, or filtering-related contamination).

During the 2023 water quality sampling programs, less than 1% of the metals results in the dataset failed to meet quality criteria (i.e., total and dissolved concentrations were more than five times the DL and dissolved concentrations were more than 20% higher than total concentrations). This was predominantly observed for zinc in 13% of the samples and was noted throughout the year. The laboratory confirmed zinc results for monitoring programs by re-analysis or checks. Other metals such as aluminum, antimony, barium, chromium, cobalt, iron, lanthanum, lead, manganese, thorium, and uranium and organic carbon had occasional (typically single instances) of dissolved concentrations above the total concentrations. In 2023, dissolved metals samples were

filtered in the field using syringes and filter heads provided by laboratory and were preserved in the laboratory upon sample receipt.

5.0 CONCLUSIONS

Review of field and laboratory data indicated that field measurements and laboratory data are of high quality. Key findings from the 2023 QA/QC results are as follows:

- Samples were received by the laboratory in good condition and were analyzed for all specified parameters.
- No issues were identified in analytical methods used or DLs reported by the laboratory; though sodium, sulphate, silica, and total and dissolved boron had DLs greater than the target DLs in all samples with the exception of sulphate in May, but DLs were below relevant water quality guidelines.
- Holding times recommended by the laboratory were exceeded for some parameters (i.e., pH, nitrite, nitrate, orthophosphate, sulphide, and cyanide [total, free and WAD]) due to logistical constrains and/or laboratory inability to initiate testing promptly following sample receipt. Most of the holding time exceedances were of one to four days duration, and although this should be taken into consideration during interpretation of the results, it is not expected to negatively affect data quality.
- Detected concentrations of potassium, sodium, total and dissolved lead, rubidium, and zinc in the travel blank sample collected in May and concentrations of DOC in the travel blank sample collected in July were five times greater than their respective DLs. Concentrations of potassium and rubidium were smaller than concentrations measured in the May field samples and not considered to influence the surface water quality samples. However, sodium, and total and dissolved zinc and lead concentrations in the May blank sample and the DOC concentration in the July blank sample were similar or greater than concentrations in the associated field samples, indicating possible contamination in the deionized water or in the laboratory environment. Therefore, the July DOC results associated with the laboratory batch YL2300892, and sodium, zinc and lead results in the May program were invalidated as a precaution.
- Duplicate samples had low numbers of notable RPDs and were mostly observed in the samples collected in May, indicating within-site variability and *moderate* analytical precision. The analytical precision in the July and September datasets was rated as *high*.
- Dissolved metal concentrations were notably greater than the corresponding total metal concentrations for less than 1% of the metals results, with zinc failing to meet the quality criteria more frequently than the rest of the metals (i.e., for 13% of the zinc results). Zinc should be interpreted with this in mind.
- The overall quality of the water quality data was acceptable, and most results reported are considered reliable for use in future data analyses.

6.0 REFERENCES

APHA (American Public Health Association). 2012. Standard Methods for the Examination of Water and Wastewater. 22nd Edition, American Public Health Association, American Water Works Association, Water Environment Federation. 2012

CCME (Canadian Council of Ministers of the Environment). 2011. Protocol Manual for Water Quality Sampling in Canada. Canadian Council of Ministers of the Environment. 2011.

Sabina (Sabina Gold & Silver Corp.). 2022. Back River Project Aquatic Effect Management Plan. July 2022.

US EPA. 2000. EPA Quality Manual for Environmental Programs. CIO 2105-P-01-0 (formerly 5360 A1).

TABLES

Table A-1: Travel Blank Sample Results, 2023

Parameter	Unit	DL	Travel Blank 29-May-23	Travel Blank 21-Jul-23	Travel Blank 17-Sep-23
Conventional Parameters					
pH	-	0.1	5.79	5.1	5.49
Specific conductivity	µS/cm	2	2.1	<2	<2
Hardness, as $CaCO_3$	mg/L	0.5	-	<0.5	<0.5
Total alkalinity, as $CaCO_3$	mg/L	1	1.1	<1	<1
Alkalinity, Phenolphthalein as $CaCO_3$	mg/L	1	<1	<1	<1
Total suspended solids	mg/L	3	<3	<3	<3
Total organic carbon	mg/L	0.5	<0.5	<0.5	<0.5
Dissolved organic carbon	mg/L	0.5	-	-	<0.5
Hydrogen sulfide	mg/L	0.0016	-	<0.0016	<0.0016
Major Ions					
Bicarbonate, as $CaCO_3$	mg/L	1	1.1	<1	<1
Bromide	mg/L	0.05	<0.05	<0.05	<0.05
Calcium	mg/L	0.01	<0.01	<0.01	<0.01
Carbonate, as $CaCO_3$	mg/L	1	<1	<1	<1
Chloride	mg/L	0.5	<0.5	<0.5	<0.5
Total cyanide	mg/L	0.005	-	<0.005	<0.005
Cyanide (free)	mg/L	0.005	-	<0.005	<0.005
Cyanide (WAD)	mg/L	0.005	-	<0.005	<0.005
Fluoride	mg/L	0.02	<0.02	<0.02	<0.02
Hydroxide, as $CaCO_3$	mg/L	1	<1	<1	<1
Magnesium	mg/L	0.001	<0.001	<0.001	<0.001
Potassium	mg/L	0.005	**0.0258** [(a)]	<0.005	<0.005
Sodium	mg/L	0.01	**0.332** [(a)]	<0.01	<0.01
Sulphate	mg/L	0.3	<0.3	<0.3	<0.3
Sulphide	mg/L	0.0015	-	<0.0015	<0.0015
Silica	mg/L	0.5	<0.5	<0.5	<0.5
Nutrients					
Nitrate	mg-N/L	0.005	0.0051	<0.005	<0.005
Nitrite	mg-N/L	0.001	<0.001	<0.001	<0.001
Total ammonia	mg-N/L	0.005	0.0081	0.006	<0.005
Total phosphorus	mg-P/L	0.001	<0.001	<0.001	<0.001
Dissolved phosphorus	mg-P/L	0.001	<0.001	0.0041	<0.001
Orthophosphate	mg-P/L	0.001	<0.001	<0.001	<0.001
Total Kjeldahl Nitrogen	mg-N/L	0.05	<0.2	<0.05	<0.05
Total Metals					
Aluminum	µg/L	0.2	<0.2	<0.2	<0.2
Antimony	µg/L	0.005	<0.005	<0.005	<0.005
Arsenic	µg/L	0.01	<0.01	<0.01	<0.01
Barium	µg/L	0.02	0.058	<0.02	<0.02
Beryllium	µg/L	0.002	<0.002	<0.002	<0.002
Bismuth	µg/L	0.001	<0.001	<0.001	<0.001
Boron	µg/L	5	<5	<5	<5
Cadmium	µg/L	0.0025	<0.0025	<0.0025	<0.0025
Cesium	µg/L	0.005	<0.005	<0.005	<0.005
Chromium	µg/L	0.04	0.134	<0.04	<0.04
Cobalt	µg/L	0.005	<0.005	<0.005	<0.005
Copper	µg/L	0.05	0.08	<0.05	<0.05
Iron	µg/L	0.5	<0.5	<0.5	<0.5
Lanthanum	µg/L	0.01	<0.01	<0.01	<0.01
Lead	µg/L	0.005	**0.0322** [(a)]	<0.005	<0.005
Lithium	µg/L	0.1	0.15	<0.1	<0.1
Manganese	µg/L	0.005	0.0078	<0.005	<0.005
Mercury	µg/L	0.0005	<0.0005	<0.0005	<0.0005
Molybdenum	µg/L	0.01	<0.01	<0.01	<0.01
Nickel	µg/L	0.02	<0.02	<0.02	<0.02
Rubidium	µg/L	0.005	**0.0387** [(a)]	<0.005	<0.005
Selenium	µg/L	0.025	<0.025	<0.025	<0.025
Silicon	µg/L	50	<50	<50	<50
Silver	µg/L	0.002	<0.002	<0.002	<0.002
Strontium	µg/L	0.02	<0.02	<0.02	<0.02
Sulphur	µg/L	500	<500	<500	<500
Tellurium	µg/L	0.01	<0.01	<0.01	<0.01
Thallium	µg/L	0.001	<0.001	<0.001	<0.001
Thorium	µg/L	0.005	<0.005	<0.005	<0.005
Tin	µg/L	0.01	<0.01	<0.01	<0.01
Titanium	µg/L	0.05	<0.05	<0.05	<0.05
Tungsten	µg/L	0.01	<0.01	<0.01	<0.01
Uranium	µg/L	0.001	<0.001	<0.001	<0.001
Vanadium	µg/L	0.01	<0.01	<0.01	<0.01
Zinc	µg/L	0.1	**5.54** [(a)]	<0.1	0.15
Zirconium	µg/L	0.01	<0.01	<0.01	<0.01
Gallium	µg/L	0.05	<0.05	<0.05	<0.05
Niobium	µg/L	0.1	<0.1	<0.1	<0.1
Rhenium	µg/L	0.005	<0.005	<0.005	<0.005
Tantalum	µg/L	0.1	<0.1	<0.1	<0.1
Yttrium	µg/L	0.01	<0.01	<0.01	<0.01

Table A-1: Travel Blank Sample Results, 2023

Parameter	Unit	DL	Travel Blank 29-May-23	Travel Blank 21-Jul-23	Travel Blank 17-Sep-23
Dissolved Metals					
Aluminum	µg/L	0.2	<0.2	<0.2	<0.2
Antimony	µg/L	0.005	<0.005	<0.005	<0.005
Arsenic	µg/L	0.01	<0.01	<0.01	<0.01
Barium	µg/L	0.02	0.056	<0.02	<0.02
Beryllium	µg/L	0.002	<0.002	<0.002	<0.002
Bismuth	µg/L	0.001	<0.001	<0.001	<0.001
Boron	µg/L	5	<5	<5	<5
Cadmium	µg/L	0.0025	<0.0025	<0.0025	<0.0025
Cesium	µg/L	0.005	<0.005	<0.005	<0.005
Chromium	µg/L	0.04	0.082	<0.04	<0.04
Cobalt	µg/L	0.005	<0.005	<0.005	<0.005
Copper	µg/L	0.05	0.071	<0.05	<0.05
Iron	µg/L	0.5	<0.5	<0.5	<0.5
Lanthanum	µg/L	0.01	<0.01	<0.01	<0.01
Lead	µg/L	0.005	**0.0313** [(a)]	<0.005	<0.005
Lithium	µg/L	0.1	0.12	<0.1	<0.1
Manganese	µg/L	0.005	0.007	<0.005	<0.005
Mercury	µg/L	0.0005	<0.0005	<0.0005	<0.0005
Molybdenum	µg/L	0.01	<0.01	<0.01	<0.01
Nickel	µg/L	0.02	<0.02	<0.02	<0.02
Rubidium	µg/L	0.005	**0.0378** [(a)]	<0.005	<0.005
Selenium	µg/L	0.025	<0.025	<0.025	<0.025
Silicon	µg/L	50	<50	<50	<50
Silver	µg/L	0.002	<0.002	<0.002	<0.002
Strontium	µg/L	0.02	<0.02	<0.02	<0.02
Sulphur	µg/L	500	<500	<500	<500
Tellurium	µg/L	0.01	<0.01	<0.01	<0.01
Thallium	µg/L	0.001	<0.001	<0.001	<0.001
Thorium	µg/L	0.005	<0.005	<0.005	<0.005
Tin	µg/L	0.01	<0.01	<0.01	<0.01
Titanium	µg/L	0.05	<0.05	<0.05	<0.05
Tungsten	µg/L	0.01	<0.01	<0.01	<0.01
Uranium	µg/L	0.001	<0.001	<0.001	<0.001
Vanadium	µg/L	0.01	<0.01	<0.01	<0.01
Zinc	µg/L	0.1	**5.57** [(a)]	<0.1	0.12
Zirconium	µg/L	0.01	<0.01	<0.01	<0.01
Gallium	µg/L	0.05	<0.05	<0.05	<0.05
Niobium	µg/L	0.1	<0.1	<0.1	<0.1
Rhenium	µg/L	0.005	<0.005	<0.005	<0.005
Tantalum	µg/L	0.1	<0.1	<0.1	<0.1
Yttrium	µg/L	0.01	<0.01	<0.01	<0.01
Calculated Quantities					
Values over five times the DL	%	-	7	0	0

Notes:

[(a)] Value is greater than five times the method detection limit.

The percentage of values over five times the DL for the entire dataset is 3.2%.
DL = detection limit; µS/cm = microsiemens per centimetre; mg/L = milligrams per litre; NTU= nephelometric turbidity unit; mg-N/L = milligrams per litre as nitrogen; mg-P/L = milligrams per litre as phosphorus; µg/L = micrograms per litre; WAD = weak acid dissociable; - = no data.

Table A-2: Summary of Field Duplicate Sample Results, 2023

Parameter	Unit	DL	Goose Lake Inflow from Wolf Lake		RPD	Goose Lake Outflow		RPD	GLSE-M		RPD
			Sample	Duplicate		Sample	Duplicate		Sample	Duplicate	
			28-May-23	28-May-23		20-Jul-23	20-Jul-23		14-Sep-23	14-Sep-23	
Conventional Parameters											
pH	-	0.1	6.96	6.91	11.5%	6.9	6.82	18.4%	6.94	6.92	4.6%
Specific conductivity	µS/cm	2	29.2	35.3	18.9%	39.6	40.3	1.8%	45.8	46	0.4%
Hardness, as $CaCO_3$	mg/L	0.5	11.5	-	-	15.1	14.7	2.7%	17.3	17.5	1.1%
Total alkalinity, as $CaCO_3$	mg/L	1	5.8	5.4	7.1%	6.1	5.8	5.0%	5.8	5.7	1.7%
Alkalinity, Phenolphthalein as $CaCO_3$	mg/L	1	<1	<1	-	<1	<1	-	<1	<1	-
Total suspended solids	mg/L	3	<3	<3	-	<3	<3	-	4.6	4.2	-
Total organic carbon	mg/L	0.5	4.53	5.17	13.2%	5.04	4.65	8.0%	4.01	4.16	3.7%
Dissolved organic carbon	mg/L	0.5	-	-	-	4.07	4.25	4.3%	3.59	3.64	1.4%
Hydrogen sulfide	mg/L	0.0016	<0.0016	0.0019	-	0.0022	<0.0016	-	<0.0016	<0.0016	-
Major Ions											
Bicarbonate, as $CaCO_3$	mg/L	1	5.8	5.4	7.1%	6.1	5.8	5.0%	5.8	5.7	1.7%
Bromide	mg/L	0.05	<0.05	<0.05	-	<0.05	<0.05	-	<0.05	<0.05	-
Calcium	mg/L	0.01	2.06	2.74	**28%**	3.08	3	2.6%	3.61	3.68	1.9%
Carbonate, as $CaCO_3$	mg/L	1	<1	<1	-	<1	<1	-	<1	<1	-
Chloride	mg/L	0.5	1	2.33	-	2.6	2.58	0.8%	3.7	3.65	1.4%
Total cyanide	mg/L	0.005	-	-	-	<0.005	<0.005	-	<0.005	<0.005	-
Cyanide (free)	mg/L	0.005	-	-	-	<0.005	<0.005	-	<0.005	<0.005	-
Cyanide (WAD)	mg/L	0.005	-	-	-	<0.005	<0.005	-	<0.005	<0.005	-
Fluoride	mg/L	0.02	<0.02	<0.02	-	0.027	0.024	-	0.03	0.026	-
Hydroxide, as $CaCO_3$	mg/L	1	<1	<1	-	<1	<1	-	<1	<1	-
Magnesium	mg/L	0.001	1.45	1.54	6.0%	1.81	1.76	2.8%	2.02	2.02	0.0%
Potassium	mg/L	0.005	0.379	0.45	17.1%	0.455	0.446	2.0%	0.46	0.47	2.2%
Sodium	mg/L	0.01	0.65	0.719	10.1%	0.689	0.68	1.3%	0.712	0.714	0.3%
Sulphate	mg/L	0.3	5.18	5.97	14.2%	6.38	6.35	0.5%	8.07	8.07	0.0%
Sulphide	mg/L	0.0015	<0.0015	0.0018	-	0.0021	<0.0015	-	<0.0015	<0.0015	-
Silica	mg/L	0.5	0.51	<0.5	-	<0.5	<0.5	-	<0.5	<0.5	-
Nutrients and Chlorophyll a											
Nitrate	mg-N/L	0.005	0.0279	0.114	**121%**	0.0158	0.0149	-	0.106	0.0957	10.2%
Nitrite	mg-N/L	0.001	<0.001	<0.001	-	<0.001	<0.001	-	<0.001	<0.001	-
Total ammonia	mg-N/L	0.005	0.0053	0.0635	**169%**	0.0179	0.019	6.0%	0.0197	0.0176	11.3%
Total phosphorus	mg-P/L	0.001	0.0014	0.0045	-	0.0066	0.0072	8.7%	0.0029	0.0025	-
Dissolved phosphorus	mg-P/L	0.001	<0.001	<0.001	-	0.0018	0.0024	-	<0.001	<0.001	-
Orthophosphate	mg-P/L	0.001	<0.001	<0.001	-	<0.001	<0.001	-	<0.001	<0.001	-
Total Kjeldahl Nitrogen	mg-N/L	0.05	0.256	0.352	**32%**	0.228	0.288	**23%**	0.259	0.228	12.7%
Total Metals											
Aluminum	µg/L	0.2	16.2	26.8	**49%**	12	12.8	6.5%	10.7	9.92	7.6%
Antimony	µg/L	0.005	0.0082	0.0141	-	0.0109	0.011	-	0.0076	0.009	-
Arsenic	µg/L	0.01	0.266	0.29	8.6%	0.271	0.271	0.0%	0.25	0.268	6.9%
Barium	µg/L	0.02	3.7	6.08	**49%**	5.22	5.21	0.2%	6.18	6.21	0.5%
Beryllium	µg/L	0.002	0.0024	0.0031	-	<0.002	<0.002	-	<0.002	<0.002	-
Bismuth	µg/L	0.001	<0.001	<0.001	-	<0.001	<0.001	-	<0.001	<0.001	-
Boron	µg/L	5	<5	<5	-	<5	<5	-	<5	<5	-
Cadmium	µg/L	0.0025	0.0063	0.0073	-	0.0061	0.0078	-	0.0036	0.0051	-
Cesium	µg/L	0.005	<0.005	<0.005	-	0.0072	0.0071	-	0.0076	0.0074	-
Chromium	µg/L	0.04	0.073	0.122	-	0.068	0.274	-	0.059	0.061	-
Cobalt	µg/L	0.005	0.0745	0.359	**131%**	0.442	0.499	12.1%	0.157	0.155	1.3%
Copper	µg/L	0.05	1.04	1.02	1.9%	1.35	1.35	0.0%	1.3	1.31	0.8%
Iron	µg/L	0.5	51.6	120	**80%**	195	205	5.0%	41.6	40.8	1.9%
Lanthanum	µg/L	0.01	0.14	0.2	**35%**	0.097	0.108	10.7%	0.084	0.085	1.2%
Lead	µg/L	0.005	0.0382	0.0428	11.4%	0.0318	0.0327	2.8%	0.0132	0.0162	-
Lithium	µg/L	0.1	0.45	0.56	-	0.78	0.8	2.5%	0.73	0.72	1.4%

Table A-2: Summary of Field Duplicate Sample Results, 2023

Parameter	Unit	DL	Goose Lake Inflow from Wolf Lake		RPD	Goose Lake Outflow		RPD	GLSE-M		RPD
			Sample	Duplicate		Sample	Duplicate		Sample	Duplicate	
			28-May-23	28-May-23		20-Jul-23	20-Jul-23		14-Sep-23	14-Sep-23	
Manganese	µg/L	0.005	0.826	10.4	**171%**	20.6	21.7	5.2%	3.22	3.26	1.2%
Mercury	µg/L	0.0005	0.00156	0.00154	-	0.00136	0.0012	-	0.00059	0.00053	-
Molybdenum	µg/L	0.01	0.011	0.013	-	0.013	0.013	-	0.014	0.014	-
Nickel	µg/L	0.02	2.92	2.17	**29%**	2.31	2.37	2.6%	2.68	2.64	1.5%
Rubidium	µg/L	0.005	0.913	1.01	10.1%	1.24	1.24	0.0%	1.23	1.22	0.8%
Selenium	µg/L	0.025	<0.025	0.026	-	0.028	0.028	-	0.027	0.029	-
Silicon	µg/L	50	190	206	-	83	89	-	190	197	-
Silver	µg/L	0.002	<0.002	<0.002	-	<0.002	<0.002	-	<0.002	<0.002	-
Strontium	µg/L	0.02	8.63	12.8	**39%**	15.2	15.3	0.7%	19.6	19.5	0.5%
Sulphur	µg/L	500	1620	1900	-	2650	2640	0.4%	2820	2840	0.7%
Tellurium	µg/L	0.01	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	<0.01	-
Thallium	µg/L	0.001	0.0013	0.0022	-	0.0025	0.0026	-	0.0013	0.0014	-
Thorium	µg/L	0.005	0.0102	0.0172	-	<0.005	<0.005	-	<0.005	<0.005	-
Tin	µg/L	0.01	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	<0.01	-
Titanium	µg/L	0.05	0.208	0.737	-	0.092	0.102	-	0.134	0.242	-
Tungsten	µg/L	0.01	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	<0.01	-
Uranium	µg/L	0.001	0.0056	0.008	**35%**	0.0061	0.0066	7.9%	0.0035	0.006	-
Vanadium	µg/L	0.01	0.051	0.326	**146%**	0.054	0.056	3.6%	0.032	0.033	-
Zinc	µg/L	0.1	0.63	1.01	**46%**	1.45	1.44	0.7%	0.59	0.7	17.1%
Zirconium	µg/L	0.01	0.035	0.046	-	0.02	0.021	-	0.021	0.02	-
Gallium	µg/L	0.05	<0.05	<0.05	-	<0.05	<0.05	-	<0.05	<0.05	-
Niobium	µg/L	0.1	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-
Rhenium	µg/L	0.005	<0.005	<0.005	-	<0.005	<0.005	-	<0.005	<0.005	-
Tantalum	µg/L	0.1	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-
Yttrium	µg/L	0.01	0.061	0.085	**33%**	0.031	0.033	-	0.035	0.036	-
Dissolved Metals											
Aluminum	µg/L	0.2	10.9	10.4	4.7%	6.4	6.08	5.1%	4.38	4.5	2.7%
Antimony	µg/L	0.005	0.0072	0.0104	-	0.0078	0.0069	-	0.0087	0.0106	-
Arsenic	µg/L	0.01	0.247	0.274	10.4%	0.246	0.245	0.4%	0.232	0.237	2.1%
Barium	µg/L	0.02	3.55	5.88	**49%**	4.76	4.88	2.5%	6.06	6.23	2.8%
Beryllium	µg/L	0.002	<0.002	<0.002	-	<0.002	<0.002	-	<0.002	<0.002	-
Bismuth	µg/L	0.001	<0.001	<0.001	-	<0.001	<0.001	-	<0.001	0.001	-
Boron	µg/L	5	<5	<5	-	<5	<5	-	<5	<5	-
Cadmium	µg/L	0.0025	<0.0025	0.005	-	0.0032	0.0058	-	0.0035	0.0039	-
Cesium	µg/L	0.005	<0.005	<0.005	-	0.007	0.0073	-	0.0068	0.0074	-
Chromium	µg/L	0.04	0.062	0.083	-	0.044	0.101	-	0.049	0.05	-
Cobalt	µg/L	0.005	0.0699	0.344	**132%**	0.29	0.286	1.4%	0.118	0.116	1.7%
Copper	µg/L	0.05	1.02	0.999	2.1%	1.22	1.19	2.5%	1.13	1.18	4.3%
Iron	µg/L	0.5	33.6	66.2	**65%**	93.9	90.9	3.2%	11.4	12	5.1%
Lanthanum	µg/L	0.01	0.124	0.085	**37%**	0.056	0.051	9.3%	0.054	0.054	0.0%
Lead	µg/L	0.005	0.0196	0.0226	-	0.0059	0.0057	-	<0.005	<0.005	-
Lithium	µg/L	0.1	0.43	0.59	-	0.75	0.75	0.0%	0.75	0.72	4.1%
Manganese	µg/L	0.005	0.618	10.1	**177%**	15.6	15.2	2.6%	2.32	2.38	2.6%
Mercury	µg/L	0.0005	0.00127	0.00094	-	0.00065	0.00085	-	<0.0005	0.00052	-
Molybdenum	µg/L	0.01	0.01	0.012	-	0.013	0.011	-	0.016	0.019	-
Nickel	µg/L	0.02	2.97	2.18	**31%**	2.1	2.09	0.5%	2.56	2.58	0.8%
Rubidium	µg/L	0.005	0.87	1.03	17%	1.16	1.15	0.9%	1.2	1.22	1.7%
Selenium	µg/L	0.025	<0.025	0.028	-	<0.025	<0.025	-	<0.025	0.027	-
Silicon	µg/L	50	192	194	-	81	86	-	186	183	-
Silver	µg/L	0.002	<0.002	<0.002	-	<0.002	<0.002	-	<0.002	<0.002	-
Strontium	µg/L	0.02	8.08	13.6	**51%**	14.7	14.4	2.1%	19	19.6	3.1%
Sulphur	µg/L	500	1680	1950	-	2640	2620	0.8%	2810	2790	0.7%

Table A-2: Summary of Field Duplicate Sample Results, 2023

Parameter	Unit	DL	Goose Lake Inflow from Wolf Lake		RPD	Goose Lake Outflow		RPD	GLSE-M		RPD
			Sample	Duplicate		Sample	Duplicate		Sample	Duplicate	
			28-May-23	28-May-23		20-Jul-23	20-Jul-23		14-Sep-23	14-Sep-23	
Tellurium	µg/L	0.01	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	<0.01	-
Thallium	µg/L	0.001	0.0014	0.0024	-	0.0023	0.0025	-	0.0014	0.0013	-
Thorium	µg/L	0.005	0.0053	0.0070	**28%**	<0.01	<0.01	-	0.0064	0.0063	1.6%
Tin	µg/L	0.01	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	0.012	-
Titanium	µg/L	0.05	0.067	0.198	-	<0.05	<0.05	-	<0.05	<0.05	-
Tungsten	µg/L	0.01	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	<0.01	-
Uranium	µg/L	0.001	0.0034	0.0059	-	0.0031	0.0064	-	0.0031	0.0033	-
Vanadium	µg/L	0.01	0.038	0.221	-	0.025	0.025	-	0.02	0.022	-
Zinc	µg/L	0.1	0.44	1.18	-	0.67	0.43	-	0.62	0.62	0.0%
Zirconium	µg/L	0.01	0.026	0.03	-	0.014	0.016	-	0.016	0.015	-
Gallium	µg/L	0.05	<0.05	<0.05	-	<0.05	<0.05	-	<0.05	<0.05	-
Niobium	µg/L	0.1	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-
Rhenium	µg/L	0.005	<0.005	<0.005	-	<0.005	<0.005	-	<0.005	<0.005	-
Tantalum	µg/L	0.1	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-
Yttrium	µg/L	0.01	0.05	0.037	-	0.027	0.021	-	0.024	0.024	-
Calculated Quantities											
RPD values over 20%	%	-	-	-	21	-	-	0.9	-	-	0.0
RPD values over 20%	#	-	-	-	24	-	-	1	-	-	0

Notes:
RPDs greater than 20% with concentrations in both samples greater than five times the DL are shown in **bold.**

DL = detection limit; µS/cm = microsiemens per centimetre; mg/L = milligrams per litre; NTU= nephelometric turbidity unit; mg-N/L = milligrams per litre as nitrogen; mg-P/L = milligrams per litre as phosphorus; µg/L = micrograms per litre litre; WAD = weak acid dissociable; - = no data; # = number.

Table A-3: Comparison of Total and Dissolved Parameters in Water, 2023

Parameter	Unit	DL	GLSE-T-1	GLSE-M-1	GLSE-B-1	GLTL-T-1	GLTL-M-1	GLTL-B-1	GLWB-T-1	GLWB-M-1	GLWB-B-1	GLCB-T-1	GLCB-M-1	GLCB-B-1	GLSE-T-2	GLSE-M-2	GLSE-B-2	GLTL-T-2	GLTL-M-2	GLTL-B-2	GLWB-T-2	GLWB-M-2	GLWB-B-2	GLCB-T-2	GLCB-M-2	GLCB-B-2	Goose Lake Inflow from Llama Lake-1
			2023-07-19	2023-07-19	2023-07-19	2023-07-20	2023-07-20	2023-07-20	2023-07-20	2023-07-20	2023-07-20	2023-07-19	2023-07-19	2023-07-19	2023-09-14	2023-09-14	2023-09-14	2023-09-14	2023-09-14	2023-09-14	2023-09-14	2023-09-14	2023-09-14	2023-09-14	2023-09-14	2023-09-14	2023-05-29
			Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample
Total Nutrients																											
Total organic carbon	mg/L	0.5	4.5	4.14	4.53	5.17	4.18	4.34	4.73	4.22	4.24	5.3	4.86	4.21	3.82	4.01	4.16	4.24	4.21	4.16	4.5	4.21	4.14	3.93	4.09	3.92	3.37
Phosphorus	mg-P/L	0.001	0.0063	0.0054	0.0051	0.0055	0.0106	0.0059	0.0064	0.0051	0.01	0.0031	0.0058	0.0035	0.0022	0.0029	0.0025	0.0033	0.003	0.0029	0.0038	0.0031	0.0033	0.003	0.0029	0.0027	0.0022
Total Metals																											
Aluminum	µg/L	0.2	11.6	10.7	43.4	9.89	9.8	9.27	19.5	19	20.5	10.4	11.5	10.6	12.6	10.7	9.96	10.3	9.58	9.81	51.8	54.2	57.5	4.26	10.9	9.62	30.2
Antimony	µg/L	0.005	0.0118	0.0152	0.0111	0.0264	0.0095	0.0084	0.0272	0.0125	0.0129	0.0128	0.0161	0.0092	0.0135	0.0076	0.0084	0.0094	0.007	0.0076	0.0109	0.0093	0.0089	0.0091	0.0086	0.0077	0.0089
Arsenic	µg/L	0.01	0.226	0.238	0.334	0.238	0.244	0.233	0.303	0.286	0.297	0.234	0.225	0.234	0.277	0.25	0.264	0.283	0.236	0.252	0.306	0.296	0.275	0.239	0.257	0.26	0.199
Barium	µg/L	0.02	5.73	5.92	6.77	5.07	5.08	5.02	11.8	12.9	16	5.97	6.02	5.85	6.32	6.18	6.18	6.1	5.8	5.82	31.7	32.2	33.9	6.17	6.39	6.23	11.9
Beryllium	µg/L	0.002	<0.002	<0.002	0.0047	<0.002	<0.002	<0.002	0.0038	0.0037	0.0062	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.0145	0.015	0.0164	<0.002	<0.002	<0.002	0.0038
Bismuth	µg/L	0.001	<0.001	<0.001	0.0022	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Boron	µg/L	5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Cadmium	µg/L	0.0025	0.0047	0.0041	0.0049	0.0034	0.0033	0.0032	0.0258	0.0204	0.0325	0.0046	0.0048	0.0027	0.0038	0.0036	0.0036	0.0033	0.005	0.0038	0.0743	0.0769	0.0829	0.004	0.0049	0.0045	0.0168
Cesium	µg/L	0.005	0.0059	0.0057	0.01	0.0057	0.0058	0.0056	0.018	0.0198	0.0246	0.0063	0.0061	0.0059	0.0075	0.0076	0.0074	0.0073	0.0067	0.0066	0.0458	0.0473	0.0498	0.0074	0.0075	0.0079	0.016
Chromium	µg/L	0.04	0.141	0.136	0.156	0.195	0.13	0.05	0.125	0.136	0.09	0.046	0.252	0.078	0.07	0.059	0.059	0.073	0.066	0.066	0.097	0.094	0.106	0.047	0.063	0.057	0.077
Cobalt	µg/L	0.005	0.106	0.111	0.264	0.126	0.123	0.122	0.669	0.809	1.18	0.105	0.11	0.117	0.159	0.157	0.155	0.125	0.119	0.121	3.7	3.88	4.26	0.115	0.156	0.159	0.339
Copper	µg/L	0.05	1.21	1.26	1.54	1.24	1.24	1.26	1.69	1.6	1.64	1.27	1.3	1.27	1.33	1.3	1.27	1.31	1.26	1.24	2.15	2.16	2.24	1.12	1.37	1.28	1.89
Iron	µg/L	0.5	25.7	27.1	180	73.2	73.4	68.1	39.3	41.1	33.6	24.6	27.2	27.6	42.3	41.6	41.5	60.2	56.6	55.4	58.8	61.4	61.4	11.9	41.5	40.7	8.24
Lanthanum	µg/L	0.01	0.072	0.077	0.344	0.066	0.064	0.067	0.153	0.164	0.213	0.074	0.077	0.075	0.084	0.084	0.086	0.085	0.082	0.082	0.622	0.646	0.702	0.059	0.085	0.086	0.321
Lead	µg/L	0.005	0.0379	0.0821	0.0927	0.486	0.034	0.01	0.452	0.054	0.0762	0.101	0.231	0.0193	0.0419	0.0132	0.0089	0.0152	0.0099	0.0129	0.031	0.0248	0.0229	<0.005	0.0313	0.0119	0.0055
Lithium	µg/L	0.1	0.73	0.73	0.79	0.73	0.74	0.72	1.05	1.1	1.22	0.73	0.74	0.74	0.72	0.73	0.73	0.72	0.71	0.7	1.68	1.67	1.79	0.79	0.74	0.73	1.06
Manganese	µg/L	0.005	3.31	3.05	6.4	5.37	5.35	5.31	10.3	12.5	17.8	3.01	3.08	3.14	3.4	3.22	3.17	3.72	3.53	3.38	52.6	56	61.8	2.28	3.21	3.12	4.59
Mercury	µg/L	0.0005	0.0008	0.00397	0.00138	0.00206	0.00119	0.00106	0.00091	0.00098	0.00174	0.00256	0.00281	0.00218	0.00063	0.00059	0.00068	0.00086	0.0008	0.0008	0.00096	0.00088	0.00086	0.0007	0.0006	0.00062	0.00198
Molybdenum	µg/L	0.01	0.011	0.012	0.011	0.011	0.011	0.012	0.014	0.013	0.011	<0.01	0.011	0.014	0.015	0.014	0.015	0.014	0.013	0.013	0.015	0.025	0.013	0.014	0.019	0.014	0.015
Nickel	µg/L	0.02	2.48	2.59	3.05	2.26	2.21	2.29	4.56	5.15	6.36	2.66	2.68	2.73	2.71	2.68	2.64	2.51	2.39	2.34	15	15.5	16.6	2.56	2.72	2.66	5.24
Rubidium	µg/L	0.005	1	1.01	1.1	1.04	1.08	1.08	1.92	1.98	2.18	1.05	1.05	1.06	1.22	1.23	1.22	1.23	1.18	1.16	3.46	3.55	3.72	1.16	1.24	1.22	1.55
Selenium	µg/L	0.025	<0.025	<0.025	<0.025	0.025	0.027	0.026	0.035	0.038	0.047	0.027	<0.025	<0.025	0.031	0.027	0.029	0.031	<0.025	<0.025	0.062	0.072	0.064	<0.025	<0.025	<0.025	0.029
Silicon	µg/L	50	59	60	94	66	64	50	210	231	321	62	69	62	204	190	191	220	194	198	775	774	805	191	200	198	507
Silver	µg/L	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.0022	<0.002	<0.002	<0.002	<0.002	<0.002	0.0024
Strontium	µg/L	0.02	15.4	15.3	16	14.2	14.7	14.7	42.7	45.7	54.4	15.9	15.8	16	19.6	19.1	18.8	17.9	17.7	118	124	131	19	19.8	19.4	42.9
Sulphur	µg/L	500	2750	2830	2780	2700	2700	2650	3480	3490	3930	2770	2770	2760	2890	2820	2860	2940	2700	2720	5870	6020	6080	2900	2890	2940	2350
Tellurium	µg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Thallium	µg/L	0.001	0.002	0.0018	0.0025	0.0018	0.0019	0.0021	0.0036	0.0034	0.0048	0.0019	0.0021	0.002	0.0015	0.0013	0.0017	0.0013	0.0013	0.0013	0.007	0.0069	0.0072	0.0014	0.0014	0.0013	0.0023
Thorium	µg/L	0.005	0.0067	<0.005	0.0062	0.0065	0.0061	<0.005	0.0053	0.009	0.009	0.0058	0.0061	0.0065	0.0062	<0.005	<0.005	<0.005	0.0065	0.0063	0.0173	0.0114	0.0104	<0.005	<0.005	<0.005	0.0084
Tin	µg/L	0.01	0.05	<0.01	<0.01	<0.01	0.012	<0.01	0.011	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.038	<0.01	<0.01
Titanium	µg/L	0.05	0.057	0.102	2.31	<0.05	<0.05	<0.05	0.092	0.054	0.075	0.062	0.079	0.096	0.203	0.134	0.401	0.115	0.111	0.106	0.236	0.253	0.296	<0.05	0.149	0.123	0.075
Tungsten	µg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Uranium	µg/L	0.001	0.0068	0.0082	0.0115	0.0053	0.0047	0.0044	0.0053	0.007	0.0075	0.0041	0.0057	0.005	0.0053	0.0035	0.0048	0.0054	0.0065	0.0043	0.0074	0.0072	0.0103	0.0039	0.005	0.0057	0.0079
Vanadium	µg/L	0.01	0.03	0.027	0.159	0.028	0.03	0.026	0.036	0.032	0.03	0.028	0.026	0.028	0.034	0.032	0.037	0.038	0.036	0.036	0.05	0.051	0.052	0.02	0.036	0.032	0.026
Zinc	µg/L	0.1	2.11	2.48	1.39	2.46	8.87	0.34	2.48	1.86	2.68	0.56	0.62	1.08	0.86	0.59	0.5	0.63	0.89	0.5	6.61	6.46	7.21	0.46	1.01	0.58	1.84
Zirconium	µg/L	0.01	0.024	0.023	0.026	0.021	0.02	0.019	0.03	0.038	0.032	0.023	0.023	0.022	0.02	0.021	0.019	0.02	0.02	0.022	0.053	0.071	0.049	0.017	0.019	0.019	0.046
Gallium	µg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Niobium	µg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Rhenium	µg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Tantalum	µg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Yttrium	µg/L	0.01	0.039	0.027	0.145	0.047	0.032	0.043	0.056	0.069	0.106	0.035	0.035	0.038	0.037	0.035	0.035	0.039	0.036	0.036	0.23	0.236	0.247	0.025	0.035	0.036	0.119
Dissolved Nutrients																											
Dissolved organic carbon	mg/L	0.5	4.27	3.72	3.76	4.32	3.92	4.14	3.73	3.78	3.69	3.99	3.81	4.33	3.63	3.59	3.7	3.96	4.48	3.92	3.86	4.02	4.01	3.75	4.22	4	-
Phosphorus	mg-P/L	0.001	0.0016	0.0012	0.0011	0.001	0.001	0.001	<0.001	0.001	<0.001	0.0014	0.001	<0.001	0.0014	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.0014	<0.001	<0.001	<0.001
Dissolved Metals																											
Aluminum	µg/L	0.2	7.9	8	7.74	6.86	6.11	5.55	12.3	12.5	13.2	7.47	7.45	8.74	4.52	4.38	4.42	4.99	4.75	4.86	28.9	26.1	28.9	**10.1** [m]	4.54	4.89	25.2
Antimony	µg/L	0.005	0.0088	0.0114	0.0082	0.0081	0.0096	0.0089	0.0092	0.0082	0.0082	0.0072	0.0084	**0.0318** [m]	0.0102	0.0087	0.0081	0.0078	0.0073	0.008	0.0095	0.0098	0.0092	0.0098	0.0078	0.0079	0.0083
Arsenic	µg/L	0.01	0.223	0.222	0.237	0.229	0.226	0.22	0.286	0.271	0.277	0.221	0.224	0.224	0.236	0.232	0.254	0.228	0.214	0.223	0.268	0.255	0.25	0.268	0.234	0.246	0.184
Barium	µg/L	0.02	5.72	5.82	5.73	5.27	4.95	5.1	11.9	11.8	14.6	5.78	5.7	**9.92** [m]	6.14	6.06	6.15	5.7	5.79	5.67	34.1	31.1	32.6	6.31	6.17	6.07	12
Beryllium	µg/L	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.0025	0.0028	0.0038	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.0154	0.0146	0.0138	<0.002	<0.002	<0.002	0.0027
Bismuth	µg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.0012	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Boron	µg/L	5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Cadmium	µg/L	0.0025	0.0036	0.0041	0.0037	<0.0025	0.0037	<0.0025	0.0148	0.015	0.0271	0.0034	0.0032	0.0069	0.0039	0.0035	0.0027	<0.0025	0.0031	0.0027	0.0791	0.0708	0.0771	0.0037	<0.0025	0.0034	0.0177
Cesium	µg/L	0.005	0.0061	0.0056	0.0058	0.0058	0.0053	0.0057	0.018	0.0182	0.0219	0.0058	0.0056	0.0068	0.0071	0.0068	0.0072	0.0067	0.0066	0.0066	0.0496	0.0459	0.0479	0.0075	0.0074	0.0074	0.0151
Chromium	µg/L	0.04	0.117	0.06	0.045	0.063	0.136	0.05	0.13	0.074	0.148	<0.04	0.118	**0.259** [m]	0.054	0.049	0.049	0.057	0.054	0.065	0.07	0.068	0.071	0.073	0.046	0.048	**0.226** [m]
Cobalt	µg/L	0.005	0.0621	0.0592	0.0606	0.0607	0.0512	0.0373	0.572	0.527	0.871	0.057	0.0531	0.0541	0.115	0.118	0.128	0.0905	0.0925	0.0926	4.23	3.72	3.97	**0.174** [m]	0.119	0.12	0.327
Copper	µg/L	0.05	1.23	1.26	1.28	1.26	1.14	1.12	1.47	1.47	1.47	1.21	1.23	1.4	1.16	1.13	1.14	1.12	1.14	1.14	1.99	1.91	1.95	1.36	1.12	1.15	1.88
Iron	µg/L	0.5	10.9	15.6	11.5	40.4	33.2	25.1	15.8	16.7	13.7	9.29	8.63	9.64	12.6	11.4	14.4	21.4	20.2	21	21.8	20.7	22.6	**41.3** [m]	10.7	12	5.49
Lanthanum	µg/L	0.01	0.05	0.053	0.054	0.039	0.036	0.038	0.121	0.113	0.152	0.053	0.051	0.054	0.056	0.054	0.061	0.056	0.056	0.056	0.611	0.549	0.577	**0.089** [m]	0.057	0.059	0.316
Lead	µg/L	0.005	0.0136	0.0434	0.0563	0.006	0.0098	0.012	<0.005	0.0076	0.0063	0.0136	0.0109	**1.42** [m]	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0067	0.0069	0.0111	0.0159	<0.005	<0.005	<0.005
Lithium	µg/L	0.1	0.71	0.72	0.72	0.71	0.72	0.71	0.71	1.03	1.02	1.11	0.72	0.69	0.72	0.72	0.75	0.73	0.71	0.71	1.81	1.67	1.71	0.84	0.75	0.73	1.07
Manganese	µg/L	0.005	1.73	1.73	1.93	2.78	2.09	1.14	8.93	8.3	13.3	1.58	1.36	1.38	2.44	2.32	2.56	2.71	2.78	2.72	59.8	52.5	56.9	**3.25** [m]	2.33	2.36	4.12
Mercury	µg/L	0.0005	<0.0005	0.00063	0.00056	0.00059	0.00104	0.0007	0.00056	0.00059	0.00067	<0.0005	0.00058	<0.0005	<0.0005	<0.0005	0.00068	0.00068	<0.0005	0.00053	0.00057	0.00059	0.00061	0.00056	0.00053	0.00051	0.00186
Molybdenum	µg/L	0.01	0.011	0.011	0.011	0.011	0.014	<0.01	0.013	0.012	0.012	0.011	0.011	0.015	0.022	0.016	0.019	0.016	0.012	0.014	0.016	0.02	0.013	0.011	0.014	0.013	0.013
Nickel	µg/L	0.02	2.67	2.66	2.79	2.31	2.22	2.21	4.42	4.4	5.47	2.69	2.75	2.76	2.57	2.56	2.62	2.33	2.41	2.37	16.4	14.9	15.8	2.76	2.63	2.62	5.1
Rubidium	µg/L	0.005	1.07	1.1	1.11	1.13	1.05	1.03	1.81	1.83	1.93	1.08	1.08	1.15	1.23	1.2	1.23	1.18	1.18	1.18	3.68	3.44	3.58	1.14	1.22	1.23	1.51
Selenium	µg/L	0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	0.033	0.031	0.038	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	0.026	0.065	0.066	0.063	<0.025	<0.025	<0.025	0.027
Silicon	µg/L	50	52	54	52	58	55	<50	202	197	272	53	52	54	185	188	192	188	190	189	790	761	775	199	184	188	502
Silver	µg/L	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Strontium	µg/L	0.02	16.5	16.7	17	15.6	14.5	14.1	40.6	41.2	46.5	16.7	16.6	16.3	19.7	19	19.7	17.9	17.9	17.9	130	119	124	18.6	19.8	19.9	43.2
Sulphur	µg/L	500	2690	2730	2740	2710	2620	2670	3440	3480	3640	2770	2760	2780	2740	2810	2850	2640	2600	2660	6150	5970	6020	2890	2730	2870	2360
Tellurium	µg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Thallium	µg/L	0.001	0.0019	0.0018	0.0018	0.002	0.0019	0.0018	0.0034	0.0034	0.004	0.002	0.0017	0.0023	0.0015	0.0014	0.0013	0.0013	0.0013	0.0012	0.007	0.0066	0.007	0.0017	0.0013	0.0014	0.0026
Thorium	µg/L	0.005	<0.01	<0.01	<0.01	<0.005	<0.005	<0.01	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	0.0064	<0.005	0.0054	<0.005	0.0053	<0.005	0.0095	0.0062	<0.005	<0.005	0.0053	0.0103
Tin	µg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.033	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.013	<0.01	<0.01	<0.01	<0.01
Titanium	µg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.101	0.051	0.053	0.15	<0.05	0.062	<0.05
Tungsten	µg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Uranium	µg/L	0.001	0.0064	0.004	0.005	0.0039	0.0037	**0.0058** [m]	0.0043	0.0065	0.0064	0.0047	0.0063	0.0053	0.0034	0.0031	0.0037	0.0038	0.0039	0.0034	0.0073	0.0054	0.0061	**0.0058** [m]	0.0037	0.0038	0.0093
Vanadium	µg/L	0.01	0.023	0.024	0.024	0.021	0.022	0.02	0.026	0.025	0.024	0.022	0.023	0.024	0.023	0.02	0.022	0.025	0.024	0.025	0.028	0.029	0.03	0.038	0.021	0.02	0.021
Zinc	µg/L	0.1	**3.47** [m]	0.86	0.36	0.95	2.38	0.44	1.24	1.15	1.87	0.29	0.34	**3.01** [m]	0.61	0.62	0.48	0.42	0.39	0.44	6.8	6.08	6.39	**0.73** [m]	0.43	0.44	2.05
Zirconium	µg/L	0.01	0.018	0.018	0.019	0.014	0.014	0.016	0.026	0.025	0.027	0.017	0.018	0.02	0.018	0.016	0.014	0.02	0.018	0.021	0.04	0.042	0.043	0.02	0.016	0.015	0.04
Gallium	µg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Niobium	µg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Rhenium	µg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Tantalum	µg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Yttrium	µg/L	0.01	0.036	0.021	0.016	0.037	0.018	0.021	0.044	0.045	0.056	0.017	0.025	0.033	0.024	0.024	0.027	0.026	0.026	0.027	0.209	0.192	0.201	0.036	0.024	0.025	0.114
Values exceeding the corresponding total concentration by 20% or more.	#	-	1	0	0	0	0	1	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	7	0	0	1

Table A-3: Comparison of Total and Dissolved Param

Parameter	Unit	DL	Goose Lake Inflow from Gander Pond -1	Goose Lake Inflow from Echo Lake-1	Goose Lake Inflow from Wolf Lake-1	Goose Lake Inflow to the Southeast Basin-1	Goose Lake Outflow-1	Goose Lake Inflow from Llama Lake-2	Goose Lake Inflow from Giraffe Lake-1	Goose Lake Inflow from Wolf Lake-2	Goose Lake Outflow-2	Goose Lake Inflow from Llama Lake-3	Goose Lake Inflow from Gander Pond-2	Goose Lake Inflow from Giraffe Lake-2	Goose Lake Inflow from Echo Lake-2	Goose Lake Inflow from Wolf Lake-3	Goose Lake Inflow to the Southeast Basin-2	Goose Lake Inflow from Wolf Lake-1	Goose Lake Outflow-1	GLSE-M-2
			2023-05-28	2023-05-29	2023-05-28	2023-05-28	2023-07-20	2023-07-21	2023-07-21	2023-07-21	2023-09-15	2023-09-16	2023-09-16	2023-09-15	2023-09-16	2023-09-15	2023-09-16	2023-05-28	2023-07-20	2023-09-14
			Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Duplicate	Duplicate	Duplicate
Total Nutrients																				
Total organic carbon	mg/L	0.5	4.81	9.7	4.53	8.39	5.04	2.76	4.34	0.64	5.51	4.22	6.16	4.12	11.7	5.87	9.9	5.17	4.65	4.16
Phosphorus	mg-P/L	0.001	0.0039	0.0054	0.0014	0.0053	0.0066	0.001	0.0034	<0.001	0.0033	0.0013	0.0048	0.0019	0.0046	0.0052	0.0048	0.0045	0.0072	0.0025
Total Metals																				
Aluminum	µg/L	0.2	26.5	166	16.2	56.8	12	25.5	18.2	114	15.3	86.2	27.9	11.5	121	29.2	59.9	26.8	12.8	9.92
Antimony	µg/L	0.005	0.0125	0.0428	0.0082	0.0141	0.0109	0.01	0.011	0.0153	0.0085	0.0109	0.431	0.007	0.0233	0.0095	0.016	0.0141	0.011	0.009
Arsenic	µg/L	0.01	0.288	0.637	0.266	0.279	0.271	0.194	0.287	1.58	0.242	0.188	0.416	0.237	0.763	0.484	0.326	0.29	0.271	0.268
Barium	µg/L	0.02	6.07	14.6	3.7	9.56	5.22	45.1	4.9	8.27	6.28	102	22.8	4.4	28.1	8.52	17.1	6.08	5.21	6.21
Beryllium	µg/L	0.002	0.003	0.0116	0.0024	0.0064	<0.002	0.0134	0.0022	0.0093	<0.002	0.0358	0.0045	<0.002	0.0086	0.0029	0.0055	0.0031	<0.002	<0.002
Bismuth	µg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.0023	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Boron	µg/L	5	<5	<5	<5	<5	<5	<5	<5	<5	<5	6.2	11.4	<5	<5	<5	<5	<5	<5	<5
Cadmium	µg/L	0.0025	0.0069	0.0231	0.0063	0.0136	0.0061	0.13	0.0069	0.0112	0.0039	0.263	0.0508	0.0034	0.0298	0.0051	0.0126	0.0073	0.0078	0.0051
Cesium	µg/L	0.005	0.005	0.0062	<0.005	<0.005	0.0072	0.0424	0.0066	0.0102	0.0059	0.104	0.0333	0.0057	0.0138	0.0055	<0.005	<0.005	0.0071	0.0074
Chromium	µg/L	0.04	0.124	0.446	0.073	0.377	0.068	0.074	0.074	0.384	0.129	0.112	0.186	0.064	0.589	0.191	0.544	0.122	0.274	0.061
Cobalt	µg/L	0.005	0.363	1.81	0.0745	0.373	0.442	3.29	0.223	0.472	0.358	11.2	3.68	0.19	3.25	0.314	0.452	0.359	0.499	0.155
Copper	µg/L	0.05	1.02	3.1	1.04	1.69	1.35	1.93	1.97	3.03	1.35	2.77	1.44	1.69	3.97	1.49	1.86	1.02	1.35	1.31
Iron	µg/L	0.5	177	177	51.6	114	195	3.63	114	1620	117	5.19	141	66.9	211	206	178	120	205	40.8
Lanthanum	µg/L	0.01	0.199	0.585	0.14	0.214	0.097	0.403	0.168	1.16	0.112	1.92	0.19	0.181	0.757	0.273	0.248	0.2	0.108	0.085
Lead	µg/L	0.005	0.0397	0.0549	0.0382	0.0334	0.0318	0.0066	0.0364	0.219	0.021	0.0365	0.054	0.0065	0.0395	0.0456	0.0396	0.0428	0.0327	0.0162
Lithium	µg/L	0.1	0.58	2.11	0.45	0.61	0.78	1.91	0.95	0.85	0.76	5.11	3.91	0.95	2.8	0.91	1.17	0.56	0.8	0.72
Manganese	µg/L	0.005	10.6	16.5	0.826	2.04	20.6	62.7	4.77	11.2	10	206	94.4	2.22	32.8	7.96	3.06	10.4	21.7	3.26
Mercury	µg/L	0.0005	0.00089	0.00276	0.00156	0.00246	0.00136	0.00088	0.00088	0.0037	0.00088	0.00082	0.00116	0.00066	0.00242	0.00116	0.00183	0.00154	0.0012	0.00053
Molybdenum	µg/L	0.01	0.014	0.026	0.011	0.013	0.013	<0.01	0.018	0.063	0.012	<0.01	0.035	0.018	0.053	0.015	0.012	0.013	0.013	0.014
Nickel	µg/L	0.02	2.09	6.21	2.92	3.08	2.31	19.6	4.61	6.88	2.7	48.2	9.41	4.72	13.9	3.85	4.88	2.17	2.37	2.64
Rubidium	µg/L	0.005	1.02	2.66	0.913	0.523	1.24	4.25	0.918	1.93	1.13	8.06	4.72	0.936	3.52	1.1	1.02	1.01	1.24	1.22
Selenium	µg/L	0.025	<0.025	0.049	<0.025	<0.025	0.028	0.089	0.029	0.046	<0.025	0.215	0.405	0.028	0.068	0.03	0.026	0.026	0.028	0.029
Silicon	µg/L	50	220	1210	190	295	83	1430	250	848	398	2430	1370	446	4340	1170	2960	206	89	197
Silver	µg/L	0.002	<0.002	0.0029	<0.002	0.0031	<0.002	0.0021	0.0029	0.0073	<0.002	0.0022	0.0025	<0.002	0.0023	0.002	<0.002	<0.002	<0.002	<0.002
Strontium	µg/L	0.02	12.9	19.1	8.63	9.79	15.2	120	10.8	15.3	16.8	366	140	12	45.7	27.5	19.6	12.8	15.3	19.5
Sulphur	µg/L	500	1830	5660	1620	2520	2650	7400	3690	1530	2630	19100	18100	3890	17500	3120	6800	1900	2640	2840
Tellurium	µg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Thallium	µg/L	0.001	0.0025	0.0073	0.0013	0.0029	0.0025	0.0108	0.0025	0.0036	0.0012	0.0202	0.0137	0.0015	0.0078	0.0024	0.003	0.0022	0.0026	0.0014
Thorium	µg/L	0.005	0.0168	0.0642	0.0102	0.0324	<0.005	0.0074	0.009	0.0479	0.0089	0.0132	0.0259	0.0099	0.0942	0.0172	0.0397	0.0172	<0.005	<0.005
Tin	µg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.011	<0.01	<0.01	<0.01	0.011	<0.01	<0.01	<0.01
Titanium	µg/L	0.05	1.12	0.96	0.208	0.901	0.092	<0.05	0.09	3.08	0.186	0.118	0.357	0.085	0.72	0.545	0.599	0.737	0.102	0.242
Tungsten	µg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Uranium	µg/L	0.001	0.0061	0.0311	0.0056	0.0104	0.0061	0.0069	0.0084	0.0364	0.0047	0.0092	0.0068	0.0074	0.0318	0.007	0.0101	0.008	0.0066	0.006
Vanadium	µg/L	0.01	0.313	0.414	0.051	0.335	0.054	0.022	0.05	1.02	0.061	0.04	0.133	0.039	0.246	0.116	0.259	0.326	0.056	0.033
Zinc	µg/L	0.1	0.88	3.13	0.63	3.74	1.45	11.1	0.92	1.04	1.03	21.4	3.39	0.62	3.67	1.03	3.4	1.01	1.44	0.7
Zirconium	µg/L	0.01	0.048	0.344	0.035	0.167	0.02	0.059	0.034	0.189	0.049	0.084	0.089	0.041	0.486	0.138	0.253	0.046	0.021	0.02
Gallium	µg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Niobium	µg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Rhenium	µg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.006	0.0079	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Tantalum	µg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Yttrium	µg/L	0.01	0.082	0.343	0.061	0.141	0.031	0.169	0.061	0.49	0.056	0.472	0.094	0.069	0.5	0.125	0.202	0.085	0.033	0.036
Dissolved Nutrients																				
Dissolved organic carbon	mg/L	0.5	-	-	-	-	4.07	2.25	3.55	**8.33** [c]	5.56	4.07	6.55	3.93	11.7	5.91	10.3	-	4.25	3.64
Phosphorus	mg-P/L	0.001	<0.001	0.0026	<0.001	<0.001	0.0018	<0.001	0.0022	0.0134	0.0015	0.0014	0.0025	0.0011	0.0038	0.0023	0.003	<0.001	0.0024	<0.001
Dissolved Metals																				
Aluminum	µg/L	0.2	10.6	136	10.9	43.2	6.4	25	10.4	41	9.75	80.9	17.9	6.63	106	16.8	48.8	10.4	6.08	4.5
Antimony	µg/L	0.005	0.0093	0.0309	0.0072	0.0116	0.0078	0.0119	0.0072	0.0175	0.0065	0.0093	0.413	0.0082	0.0198	0.0137	0.009	0.0104	0.0069	0.0106
Arsenic	µg/L	0.01	0.274	0.584	0.247	0.265	0.246	0.187	0.259	1.37	0.247	0.21	0.385	0.249	0.744	0.438	0.338	0.274	0.245	0.237
Barium	µg/L	0.02	5.87	15.7	3.55	9.24	4.76	47.3	4.2	6.96	6.18	96.4	22	4.29	27.2	8.21	16.5	5.88	4.88	6.23
Beryllium	µg/L	0.002	<0.002	0.0094	<0.002	0.0052	<0.002	0.0114	<0.002	0.0043	<0.002	0.0335	0.0043	<0.002	0.0097	0.0024	0.0055	<0.002	<0.002	<0.002
Bismuth	µg/L	0.001	<0.001	0.0011	<0.001	<0.001	<0.001	<0.001	<0.001	0.0022	<0.001	<0.001	<0.001	<0.001	<0.001	0.0012	<0.001	<0.001	<0.001	0.001
Boron	µg/L	5	<5	<5	<5	<5	<5	<5	<5	<5	<5	6.2	11.9	<5	<5	<5	<5	<5	<5	<5
Cadmium	µg/L	0.0025	0.0053	0.0289	<0.0025	0.0147	0.0032	0.127	0.0046	0.0052	0.0026	0.235	0.0396	0.005	0.03	0.0051	0.0076	0.005	0.0058	0.0039
Cesium	µg/L	0.005	<0.005	0.0051	<0.005	<0.005	0.007	0.0449	0.0059	0.0079	0.0055	0.09	0.0322	0.0054	0.0127	<0.005	<0.005	<0.005	0.0073	0.0074
Chromium	µg/L	0.04	0.082	0.393	0.062	0.349	0.044	0.077	0.054	0.234	0.098	0.104	0.144	0.053	0.515	0.184	0.49	0.083	0.101	0.05
Cobalt	µg/L	0.005	0.335	1.86	0.0699	0.364	0.29	3.29	0.159	0.352	0.211	9.58	3.37	0.132	3.02	0.27	0.423	0.344	0.286	0.116
Copper	µg/L	0.05	0.984	3.29	1.02	1.73	1.22	2.37	1.81	2.28	1.1	2.58	1.2	1.55	3.58	1.28	1.63	0.999	1.19	1.18
Iron	µg/L	0.5	66.8	158	33.6	66.8	93.9	3.4	53	923	51.6	4.39	68.5	26.6	162	122	109	66.2	90.9	12
Lanthanum	µg/L	0.01	0.085	0.554	0.124	0.175	0.056	0.407	0.113	0.574	0.079	1.8	0.142	0.134	0.726	0.201	0.216	0.085	0.051	0.054
Lead	µg/L	0.005	0.019	0.0433	0.0196	0.0164	0.0059	0.0114	<0.005	0.144	0.005	0.0237	0.0097	0.007	0.0191	**0.0597** [m]	0.0066	0.0226	0.0057	<0.005
Lithium	µg/L	0.1	0.59	2.08	0.43	0.62	0.75	1.85	0.86	0.76	0.71	4.91	3.82	0.87	2.7	0.87	1.15	0.59	0.75	0.72
Manganese	µg/L	0.005	10.2	17.3	0.618	1.95	15.6	63.8	3.56	9.5	5.82	186	92	1.44	32.1	7.62	2.99	10.1	15.2	2.38
Mercury	µg/L	0.0005	0.00156	0.00276	0.00127	0.00206	0.00065	0.00081	0.0006	0.0025	0.00056	0.00073	0.00079	<0.0005	0.00217	0.00075	0.00148	0.00094	0.00085	0.00052
Molybdenum	µg/L	0.01	0.014	0.027	0.01	0.014	0.013	0.011	0.015	0.057	0.01	<0.01	0.03	0.014	0.047	0.011	<0.01	0.012	0.011	0.019
Nickel	µg/L	0.02	2.14	6.54	2.97	3.16	2.1	19.9	4.4	5.96	2.41	45.2	9.2	4.55	13.6	3.77	4.78	2.18	2.09	2.58
Rubidium	µg/L	0.005	1.04	2.85	0.87	0.504	1.16	4.25	0.885	1.83	1.05	7.43	4.57	0.916	3.44	1.06	1.01	1.03	1.15	1.22
Selenium	µg/L	0.025	<0.025	0.043	<0.025	<0.025	<0.025	0.092	0.027	0.043	<0.025	0.218	0.395	0.026	0.066	<0.025	0.032	0.028	<0.025	0.027
Silicon	µg/L	50	188	1190	192	243	81	1430	234	792	427	2590	1410	468	4400	1180	3070	194	86	183
Silver	µg/L	0.002	<0.002	<0.002	<0.002	0.0023	<0.002	<0.002	<0.002	0.005	<0.002	<0.002	<0.002	<0.002	0.0022	<0.002	<0.002	<0.002	<0.002	<0.002
Strontium	µg/L	0.02	13.6	21.2	8.08	9.7	14.7	119	10.4	14.4	15.8	346	132	11.7	44	27.2	19	13.6	14.4	19.6
Sulphur	µg/L	500	1920	5670	1680	2520	2640	7440	3550	1520	2920	19800	19100	4030	17800	3340	7180	1950	2620	2790
Tellurium	µg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Thallium	µg/L	0.001	0.0024	0.0081	0.0014	0.0028	0.0023	0.0113	0.0024	0.0027	0.0014	0.0187	0.0132	0.0012	0.0073	0.002	0.003	0.0024	0.0025	0.0013
Thorium	µg/L	0.005	<0.005	0.0711	0.0053	0.0337	<0.01	<0.01	<0.01	0.0374	0.0108	0.0116	0.0147	0.006	0.0994	**0.0228** [m]	**0.0532** [m]	0.007	<0.01	0.0063
Tin	µg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.011	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.012
Titanium	µg/L	0.05	0.256	0.441	0.067	0.264	<0.05	<0.05	<0.05	0.477	0.081	0.059	0.097	<0.05	0.503	0.219	0.381	0.198	<0.05	<0.05
Tungsten	µg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Uranium	µg/L	0.001	0.0049	0.0312	0.0034	0.0109	0.0031	0.0054	0.0076	0.0181	0.0048	0.0094	0.0043	0.0047	0.0262	0.0068	0.008	0.0059	0.0064	0.0033
Vanadium	µg/L	0.01	0.226	0.396	0.038	0.206	0.025	0.019	0.033	0.442	0.043	0.042	0.099	0.03	0.204	0.074	0.201	0.221	0.025	0.022
Zinc	µg/L	0.1	0.87	**4.21** [m]	0.44	3.47	0.67	9.94	0.37	1.08	0.83	20.8	2.93	**0.9** [m]	3.54	**1.49** [m]	3.17	1.18	0.43	0.62
Zirconium	µg/L	0.01	0.027	0.276	0.026	0.138	0.014	0.06	0.031	0.163	0.042	0.074	0.083	0.035	0.463	0.106	0.253	0.03	0.016	0.015
Gallium	µg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Niobium	µg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Rhenium	µg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0052	0.0073	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Tantalum	µg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Yttrium	µg/L	0.01	0.037	0.369	0.05	0.12	0.027	0.146	0.036	0.252	0.05	0.485	0.081	0.057	0.509	0.111	0.198	0.037	0.021	0.024
Values exceeding the corresponding total concentration by 20% or more.	#	-	0	1	0	0	0	0	0	1	0	0	0	1	0	3	1	0	0	0

Notes:
- = no data or not applicable
Bolded values failed to pass one or more quality control check
(m) = value exceeds the corresponding total metal value by 20% or mo
(c) = value exceeds the corresponding total organic carbon value by 20% or mo
DL = detection limit; mg-P/L = milligrams per litre as phosphorus; µg/L = micrograms per litre.

APPENDIX B

2023 Water Quality – Field Profile Tables and Graphs

Table B-1: Field Profiles at Goose Lake West Bay, 2023

Station	Date	Total Depth (m)	Secchi Depth (m)	Depth (m)	DO (%)	DO (mg/L)	Water Temperature (˚C)	pH	Specific Conductivity (µS/cm)
GLWB	20-Jul-23	4.5	Bottom	0.1	107	10.0	18.3	6.5	72.5
				0.5	105	9.8	18.3	6.6	72.4
				1.0	105	9.8	17.8	6.7	70.2
				1.5	106	10.1	17.5	6.7	72.7
				2.0	106	10.3	17.1	6.7	74.7
				2.5	101	9.9	16.4	6.6	100.2
				3.0	104	10.3	16.0	6.5	112.9
				3.5	107	10.7	15.1	6.6	100.1
				4.0	105	10.5	14.7	6.1	96.5
				4.5	102	10.3	14.7	6.1	100.3
	14-Sep-23	4.9	Bottom	0.1	96	11.7	6.9	6.5	146.0
				0.5	94	11.5	6.9	6.5	143.4
				1.0	95	11.6	6.9	6.6	144.2
				1.5	94	11.4	6.9	6.6	143.2
				2.0	94	11.4	6.9	6.6	145.4
				2.5	93	11.3	6.9	6.6	142.5
				3.0	94	11.4	6.9	6.6	152.7
				3.5	94	11.5	6.9	6.6	162.2
				4.0	94	11.4	6.9	6.6	163.5
				4.5	96	11.2	6.9	6.6	164.9
				4.9	94	11.4	6.9	6.6	166.3

Notes: m - metre; DO = dissolved oxygen; % = percent saturation; mg/L = milligrams per litre; ˚C = degrees Celsius; µS/cm = microsiemens per centimetre; - = data not available.
(a) depth starting from underneath the ice layer

Table B-2: Field Profiles at Goose Lake Central Basin, 2023

Station	Date	Total Depth (m)	Secchi Depth (m)	Depth (m)	DO (%)	DO (mg/L)	Water temperature (˚C)	pH	Specific Conductivity (µS/cm)
GLCB	19-Jul-23	4.6	Bottom	0.1	119	11.1	18.6	7.0	42.1
				0.5	112	10.8	18.5	7.0	42.1
				1.0	119	11.4	17.4	7.0	41.2
				1.5	117	11.2	17.2	7.0	40.7
				2.0	113	10.8	16.9	7.0	41.2
				2.5	118	11.5	16.8	6.9	41.1
				3.0	119	11.6	16.7	6.9	41.3
				3.5	119	11.8	16.0	6.9	40.7
				4.0	116	11.7	15.4	6.9	40.5
				4.5	116	11.9	15.2	6.9	40.1
	14-Sep-23	4.7	Bottom	0.1	101	12.2	7.2	6.8	48.7
				0.5	100	12.0	7.2	6.8	48.7
				1.0	99	12.0	7.2	6.8	48.7
				1.5	100	11.9	7.2	6.9	48.7
				2.0	99	11.9	7.2	6.9	48.7
				2.5	99	11.9	7.2	6.9	48.7
				3.0	99	12.0	7.2	6.9	48.7
				3.5	99	11.8	7.2	6.9	48.7
				4.0	99	11.9	7.2	6.9	48.7
				4.5	97	11.7	7.2	6.9	41.0

Notes: m - metre; DO = dissolved oxygen; % = percent saturation; mg/L = milligrams per litre; ˚C = degrees Celsius; µS/cm = microsiemens per centimetre; - = data not available.

Table B-3: Field Profiles at Goose Lake Southeast Basin, 2023

Station	Date	Total Depth (m)	Secchi Depth (m)	Depth (m)	DO (%)	DO (mg/L)	Water temperature (˚C)	pH	Specific Conductivity (µS/cm)
GLSE	19-Jul-23	4.5	Bottom	0.1	119	11.2	18.4	6.7	41.8
				0.5	142	13.4	18.2	6.8	41.5
				1.0	137	13.1	17.5	6.9	41.4
				1.5	134	13.0	16.8	6.9	41.2
				2.0	127	12.4	16.6	6.9	41.1
				2.5	125	12.2	16.4	6.9	40.9
				3.0	123	12.1	16.3	6.9	41.1
				3.5	123	12.2	15.8	6.8	41.4
				4.0	109	10.8	15.7	6.6	41.2
				4.5	110	10.8	15.7	6.6	41.1
	14-Sep-23	4.7	Bottom	0.1	99	11.0	7.2	6.0	40.3
				0.5	98	11.8	7.2	6.1	40.3
				1.0	97	11.8	7.2	6.1	40.3
				1.5	96	11.6	7.2	6.2	40.3
				2.0	95	11.4	7.2	6.2	40.3
				2.5	95	11.5	7.2	6.3	40.3
				3.0	95	11.5	7.2	6.3	40.3
				3.5	96	11.5	7.2	6.3	40.3
				4.0	96	11.6	7.2	6.3	40.3
				4.5	95	11.5	7.2	6.4	40.3
				4.7	95	11.5	7.2	6.4	40.3

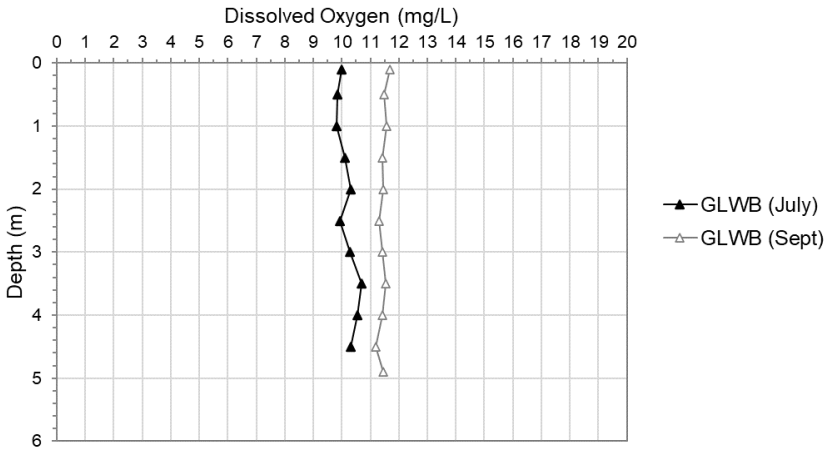
Notes: m - metre; DO = dissolved oxygen; % = percent saturation; mg/L = milligrams per litre; ˚C = degrees Celsius; µS/cm = microsiemens per centimetre.

Table B-4: Field Profiles at Goose Lake Tail, 2023

Station	Date	Total Depth (m)	Secchi Depth (m)	Depth (m)	DO (%)	DO (mg/L)	Water temperature (˚C)	pH	Specific Conductivity (µS/cm)
GLTL	20-Jul-23	5.4	Bottom	0.1	107	10.4	18.3	6.7	41.9
				0.5	103	9.7	18.2	6.8	41.9
				1.0	105	9.9	18.2	6.8	42.0
				1.5	103	9.8	18.0	6.9	42.0
				2.0	102	9.8	17.6	6.9	41.8
				2.5	104	10.2	17.0	6.8	41.9
				3.0	104	10.3	16.1	6.9	41.3
				3.5	106	10.6	15.1	6.8	41.1
				4.0	105	10.7	14.6	6.8	41.0
				4.5	104	10.7	14.3	6.8	41.0
				5.0	104	10.7	13.9	6.7	41.3
				5.4	100	10.3	13.6	6.3	41.6
	14-Sep-23	5.8	5.0	0.1	99	12.0	6.5	6.9	38.6
				0.5	97	11.9	6.5	6.8	38.6
				1.0	97	11.9	6.5	6.9	38.6
				1.5	96	12.0	6.6	6.9	38.7
				2.0	97	11.9	6.5	6.9	38.7
				2.5	97	11.9	6.5	6.9	38.6
				3.0	98	12.0	6.4	6.9	38.8
				3.5	97	12.0	6.4	6.9	38.8
				4.0	98	11.1	6.4	6.9	38.8
				4.5	98	12.0	6.4	6.9	38.8
				5.0	97	12.0	6.4	6.9	38.8
				5.5	97	12.0	6.4	6.9	38.8

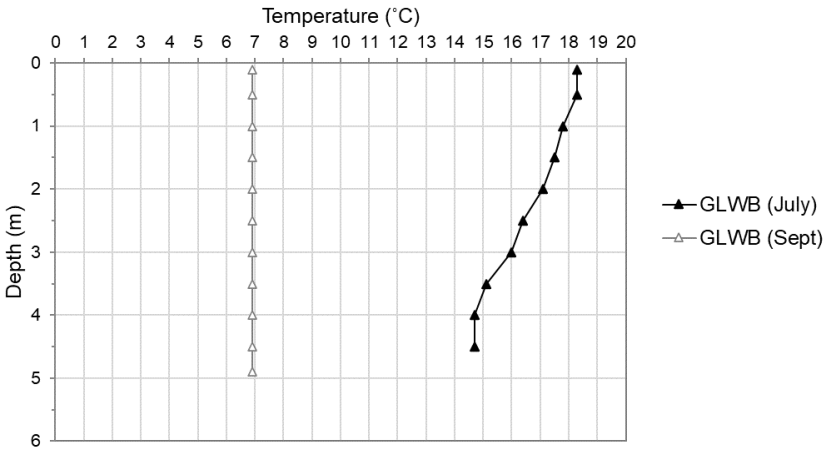
Notes: m - metre; DO = dissolved oxygen; % = percent saturation; mg/L = milligrams per litre; °C = degrees Celsius; µS/cm = microsiemens per centimetre.

Figure B-1: Dissolved Oxygen Profiles at Goose Lake West Bay (GLWB), 2023



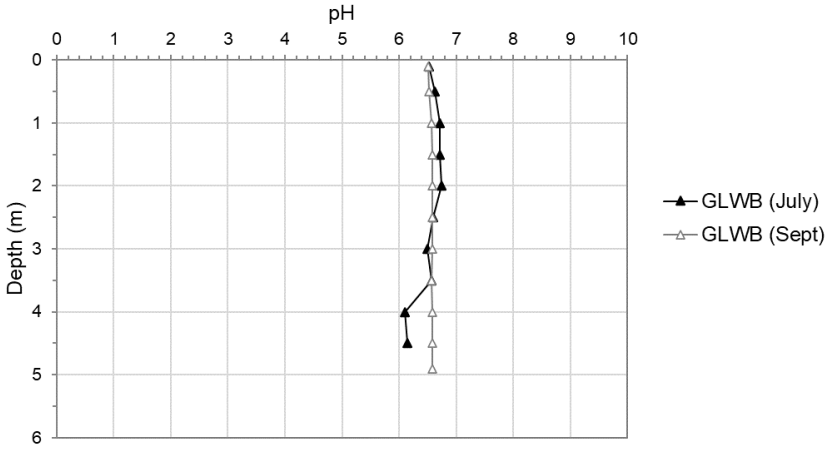
m = metre; mg/L = milligrams per litre.

Figure B-2: Water Temperature Profiles at Goose Lake West Bay (GLWB), 2023



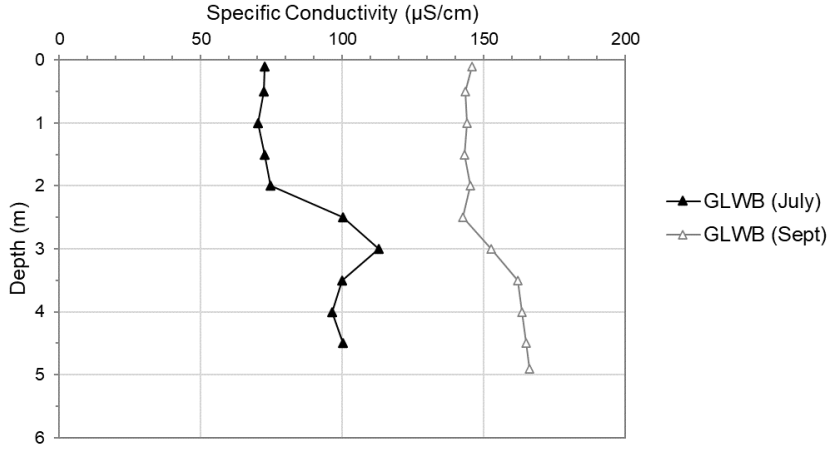
m = metre; °C = degree Celsius.

Figure B-3: pH Profiles at Goose Lake West Bay (GLWB), 2023



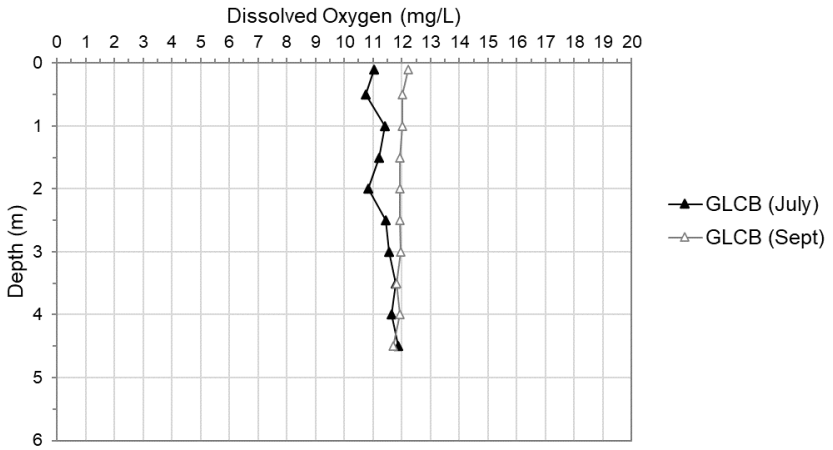
m = metre

Figure B-4: Specific Conductivity Profiles at Goose Lake West Bay (GLWB), 2023



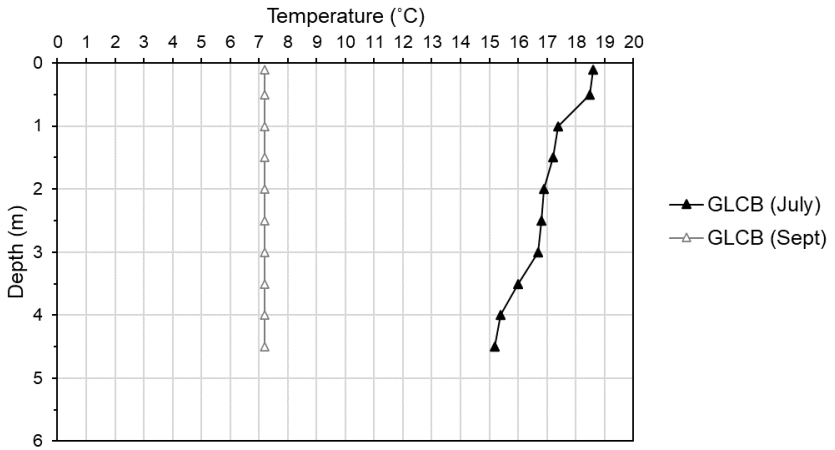
m = metre; µS/cm = microsiemens per centimetre.

Figure B-5: Dissolved Oxygen Profiles at Goose Lake Central (GLCB), 2023



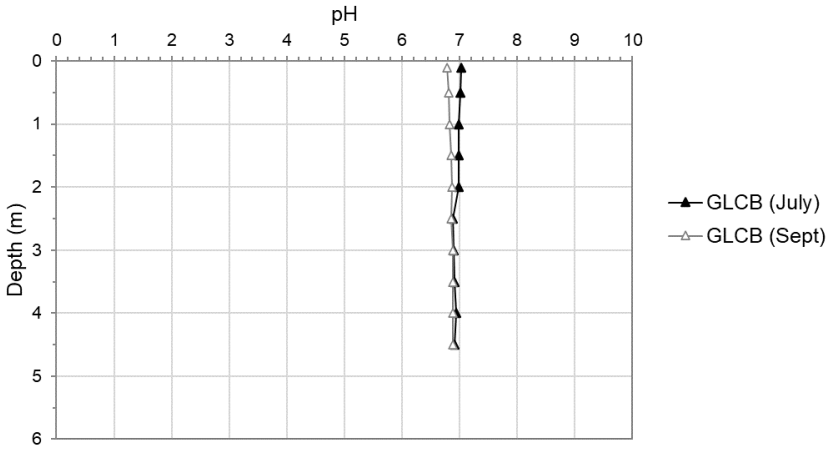
m = metre; mg/L = milligrams per litre.

Figure B-6: Water Temperature Profiles at Goose Lake Central (GLCB), 2023



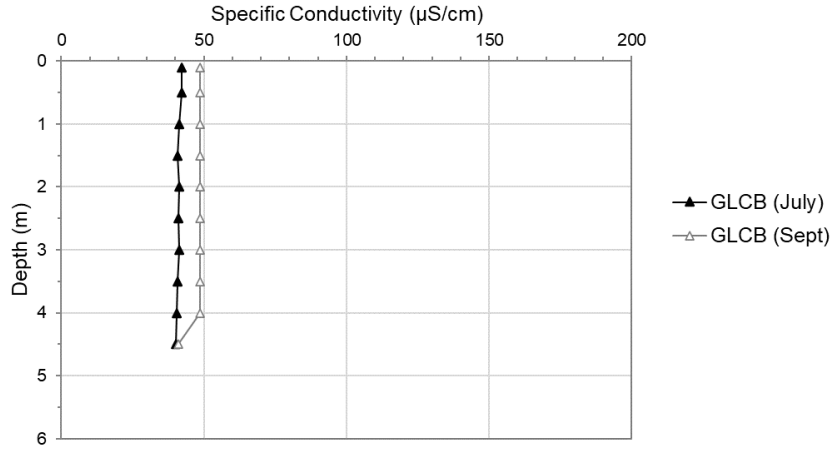
m = metre; °C = degree Celsius.

Figure B-7: pH Profiles at Goose Lake Central (GLCB), 2023



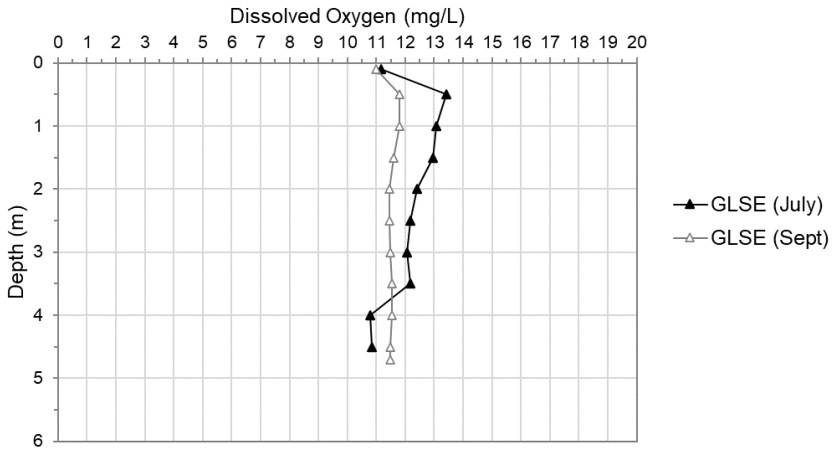
m = metre

Figure B-8: Specific Conductivity Profiles at Goose Lake Central (GLCB), 2023



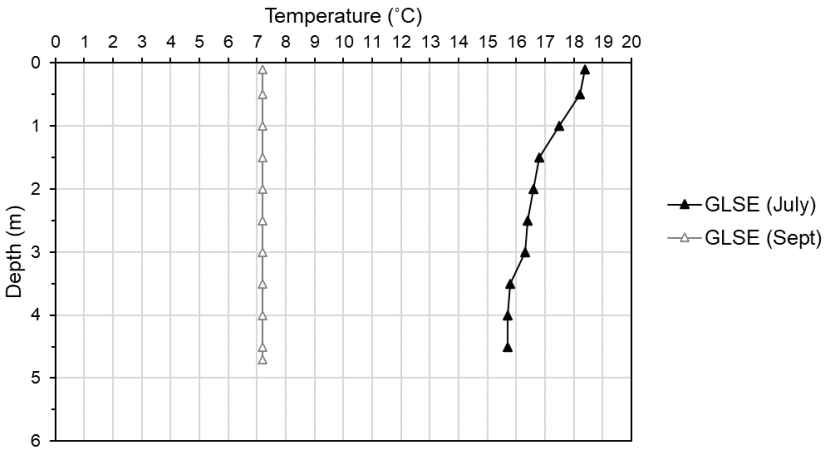
m = metre; µS/cm = microsiemens per centimetre.

Figure B-9: Dissolved Oxygen Profiles at Goose Lake Southeast (GLSE), 2023



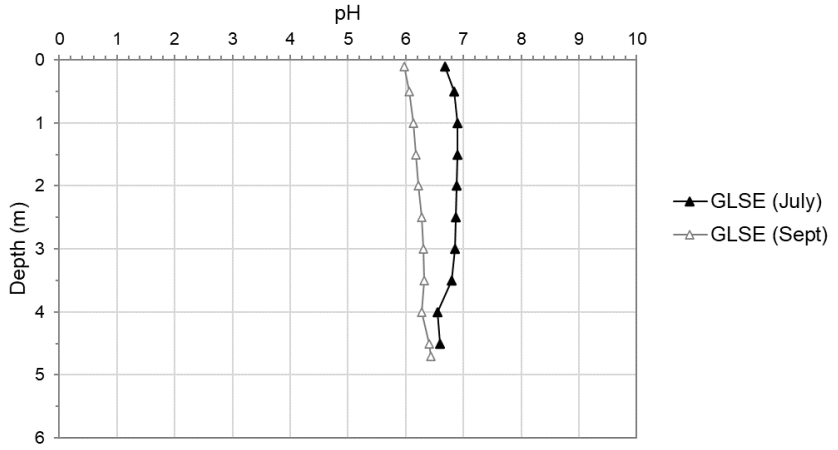
m = metre; mg/L = milligrams per litre.

Figure B-10: Water Temperature Profiles at Goose Lake Southeast (GLSE), 2023



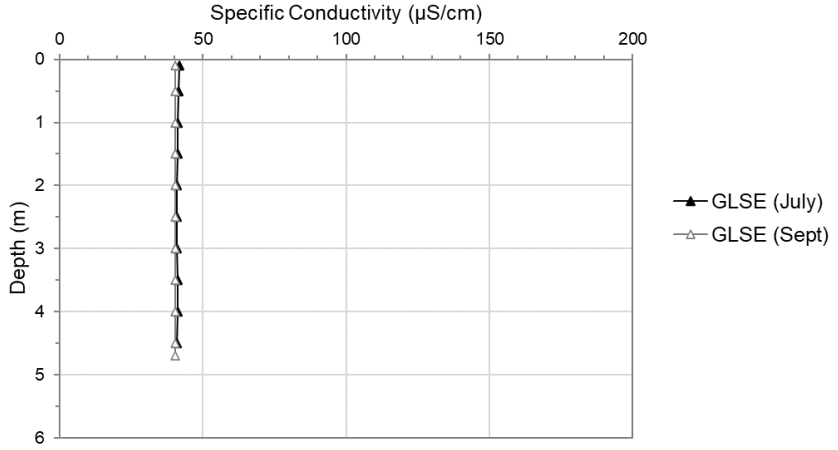
m = metre; °C = degree Celsius.

Figure B-11: pH Profiles at Goose Lake Southeast (GLSE), 2023



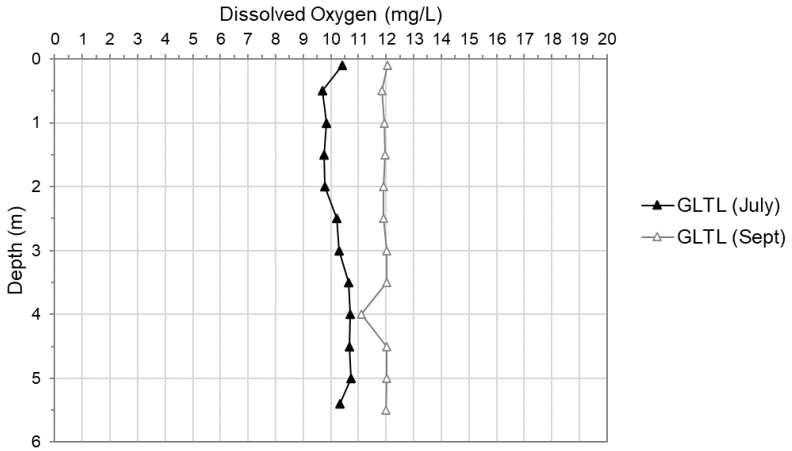
m = metre

Figure B-12: Specific Conductivity Profiles at Goose Lake Southeast (GLSE), 2023



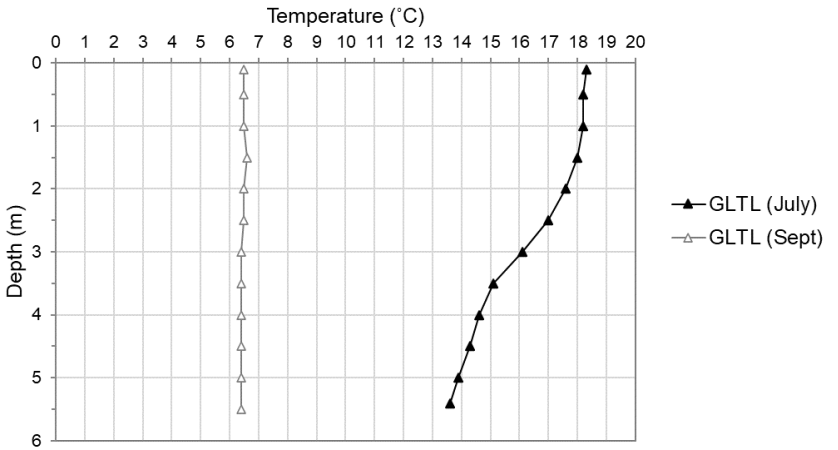
m = metre; µS/cm = microsiemens per centimetre.

Figure B-13: Dissolved Oxygen Profiles at Goose Lake Tail (GLTL), 2023



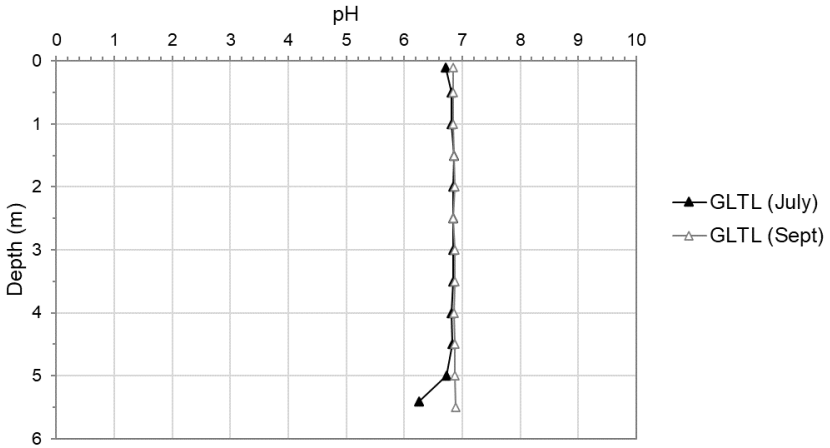
m = metre; mg/L = milligrams per litre.

Figure B-14: Water Temperature Profiles at Goose Lake Tail (GLTL), 2023



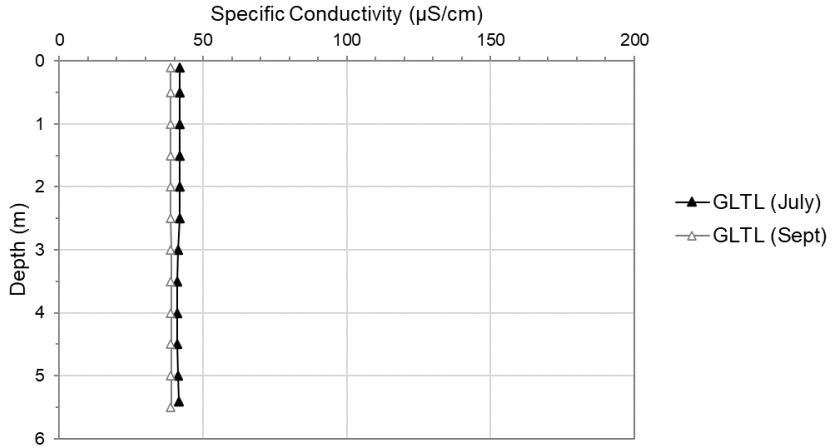
m = metre; °C = degree Celsius.

Figure B-15: pH Profiles at Goose Lake Tail (GLTL), 2023



m = metre

Figure B-16: Specific Conductivity Profiles at Goose Lake Tail (GLTL), 2023



m = metre; µS/cm = microsiemens per centimetre.

APPENDIX C

2023 Water Quality – Analytical Chemistry Results

Table C-1: Water Quality Summary at Goose Lake, 2023

Parameter	Unit	Guidelines for the Protection of:					Long-term site-specific water quality objective (Sabina 2017)	Stations																							
		Acute	Chronic	Federal Environmental Quality Guidelines (GOC 2023)	Drinking Water (HC 2022)	Aesthetic (HC 2022)		GLSE						GLTL						GLWB						GLCB					
		Freshwater Aquatic Life (CCME 1999)						GLSE-T		GLSE-M		GLSE-B		GLTL-T		GLTL-M		GLTL-B		GLWB-T		GLWB-M		GLWB-B		GLCB-T		GLCB-M		GLCB-B	
								07-19-2023	09-14-2023	07-19-2023	09-14-2023	07-19-2023	09-14-2023	07-20-2023	09-14-2023	07-20-2023	09-14-2023	07-20-2023	09-14-2023	07-20-2023	09-14-2023	07-20-2023	09-14-2023	07-20-2023	09-14-2023	07-19-2023	09-14-2023	07-19-2023	09-14-2023	07-19-2023	09-14-2023
								0.5 m	0.5 m	2.5 m	2.5 m	4 m	4.5 m	0.5 m	0.5 m	2.5 m	2.5 m	5 m	5 m	0.5 m	0.5 m	2.5 m	2.5 m	4 m	4.5 m	0.5 m	0.5 m	2.5 m	2.5 m	4 m	4 m
								YL2300877-001	YL2301147-001	YL2300877-002	YL2301147-002	YL2300877-003	YL2301147-004	YL2300877-007	YL2301147-011	YL2300877-008	YL2301147-012	YL2300877-009	YL2301147-013	YL2300877-010	YL2301147-005	YL2300877-011	YL2301147-006	YL2300877-012	YL2301147-007	YL2300877-004	YL2301147-008	YL2300877-005	YL2301147-009	YL2300877-006	YL2301147-010
Field Measured																															
pH	-	-	6.5 - 9.0	-	-	7.0 - 11	-	**6.8**(Ae)	**6.0**(C, Ae)	**6.9**(Ae)	**6.3**(C, Ae)	**6.6**(Ae)	**6.4**(C, Ae)	**6.8**(Ae)	**6.9**(Ae)	**6.8**(Ae)	**6.9**(Ae)	**6.7**(Ae)	**6.9**(Ae)	**6.6**(Ae)	**6.5**(Ae)	**6.6**(Ae)	**6.6**(Ae)	**6.1**(C, Ae)	**6.6**(Ae)	7.0	**6.8**(Ae)	**6.9**(Ae)	**6.9**(Ae)	**6.9**(Ae)	**6.9**(Ae)
Specific conductivity	µS/cm	-	-	-	-	-	-	42	40	41	40	41	40	42	39	42	39	41	39	72	146	100	143	97	166	42	49	41	49	41	41
Temperature	°C	-	-	-	-	15	-	18	7.2	16	7.2	16	7.2	18	6.5	17	6.4	14	6.4	18	6.9	16	6.9	15	6.9	19	7.2	17	7.2	15	7.2
Dissolved oxygen	mg/L	-	6.5	-	-	-	-	13	12	12	12	11	12	9.7	12	10	12	11	12	9.8	12	9.9	11	11	11	11	12	12	12	12	12
Dissolved oxygen	%	-	-	-	-	-	-	142	99	125	95	109	95	103	98	104	98	104	97	105	96	101	93	105	94	112	101	118	99	116	97
Turbidity	NTU	-	-	-	-	-	-	0.67	0.43	0.33	0.28	0.59	0.22	0.48	1.3	0.78	1.6	0.71	1.2	0.32	0.31	0.83	0.47	0.52	0.40	1.2	1.1	0.060	0.14	0.040	0.34
Conventional Parameters							-																								
pH	-	-	6.5 - 9.0	-	-	7.0 - 11	-	**6.9**(Ae)	**6.9**(Ae)	**6.9**(Ae)	**6.9**(Ae)	**6.9**(Ae)	**6.9**(Ae)	**6.9**(Ae)	7.0	**6.9**(Ae)	7.0	**6.9**(Ae)	7.0	**6.8**(Ae)	**6.8**(Ae)	**6.8**(Ae)	**6.8**(Ae)	**6.8**(Ae)	**6.8**(Ae)	**6.9**(Ae)	7.0	**6.9**(Ae)	7.0	**6.9**(Ae)	7.0
Specific conductivity	µS/cm	-	-	-	-	-	-	41	60	40	46	40	45	39	44	39	44	39	44	67	158	69	170	83	168	41	46	41	46	40	46
Hardness, as $CaCO_3$	mg/L	-	-	-	-	-	-	16	18	16	17	17	18	16	17	15	17	15	17	25	66	25	61	27	64	16	18	16	18	16	18
Total alkalinity, as $CaCO_3$	mg/L	-	-	-	-	-	-	5.8	5.7	5.6	5.8	5.4	5.9	5.4	5.9	5.8	6.1	5.4	6.0	4.6	4.2	4.7	4.4	4.0	4.6	5.2	5.9	5.4	6.1	4.9	5.7
Total dissolved solids (APHA 2005)(l)	mg/L	-	-	-	-	-	-	20	23	19	23	20	23	19	22	19	22	18	22	32	83	33	84	38	84	19	23	19	23	19	23
Total suspended solids	mg/L	-	-	-	-	-	-	<3.0	4.2	<3.0	4.6	<3.0	<3.0	<3.0	4.0	<3.0	4.0	<3.0	4.0	<3.0	<3.0	<3.0	3.2	<3.0	3.4	<3.0	<3.0	<3.0	<3.0	<3.0	4.0
Total organic carbon	mg/L	-	-	-	-	-	-	4.5	3.8	4.1	4.0	4.5	4.2	5.2	4.2	4.2	4.2	4.3	4.2	4.7	4.5	4.2	4.2	4.2	4.1	5.3	3.9	4.9	4.1	4.2	3.9
Dissolved organic carbon	mg/L	-	-	-	-	-	-	4.3	3.6	3.7	3.6	3.8	3.7	4.3	4.0	3.9	4.5	4.1	3.9	3.7	3.9	3.8	4.0	3.7	4.0	4.0	3.8	3.8	4.2	4.3	4.0
Hydrogen sulfide	mg/L	-	-	-	-	-	-	<0.0016	<0.0016	<0.0016	<0.0016	<0.0016	<0.0016	<0.0016	<0.0016	<0.0016	<0.0016	<0.0016	<0.0016	<0.0016	<0.0016	<0.0016	<0.0016	<0.0016	<0.0016	<0.0016	<0.0016	<0.0016	<0.0016	<0.0016	<0.0016
Alkalinity, phenolphthalein as $CaCO_3$	mg/L	-	-	-	-	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Major Ions							-																								
Bicarbonate, as $CaCO_3$	mg/L	-	-	-	-	-	-	5.8	5.7	5.6	5.8	5.4	5.9	5.4	5.9	5.8	6.1	5.4	6.0	4.6	4.2	4.7	4.4	4.0	4.6	5.2	5.9	5.4	6.1	4.9	5.7
Bromide	mg/L	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.069	0.27	0.073	0.28	0.097	0.26	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Calcium	mg/L	-	-	-	-	-	-	3.2	3.8	3.3	3.6	3.4	3.7	3.2	3.6	3.0	3.6	3.0	3.5	5.7	17	5.8	16	6.4	16	3.3	3.6	3.3	3.7	3.2	3.8
Carbonate, as $CaCO_3$	mg/L	-	-	-	-	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloride	mg/L	640	120	-	-	250	-	2.9	3.7	2.8	3.7	2.7	3.6	2.6	3.4	2.5	3.4	2.5	3.4	7.7	27	8.1	29	10	28	2.9	3.7	2.8	3.7	2.7	4.2
Total cyanide	mg/L	-	0.0050	-	0.20	-	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cyanide (free)	mg/L	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cyanide (WAD)	mg/L	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Fluoride	mg/L	-	0.12	-	1.5	-	-	0.025	0.029	0.026	0.030	0.026	0.024	0.021	0.032	0.026	0.026	0.027	0.029	0.027	0.021	0.027	0.027	0.024	0.028	0.025	0.034	0.026	<0.02	0.023	0.031
Hydroxide, as $CaCO_3$	mg/L	-	-	-	-	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Magnesium	mg/L	-	-	-	-	-	-	1.9	2.1	1.9	2.0	2.0	2.1	1.9	2.0	1.8	2.0	1.8	2.0	2.5	5.7	2.6	5.4	2.7	5.7	1.9	2.1	1.9	2.1	1.9	2.1
Potassium	mg/L	-	-	-	-	-	-	0.44	0.47	0.45	0.46	0.46	0.48	0.47	0.46	0.44	0.46	0.43	0.46	0.62	1.1	0.63	1.1	0.65	1.1	0.44	0.45	0.45	0.48	0.55	0.48
Sodium	mg/L	-	-	-	-	200	-	0.71	0.73	0.71	0.71	0.73	0.73	0.74	0.73	0.68	0.73	0.68	0.72	0.87	1.5	0.88	1.4	0.88	1.5	0.69	0.73	0.70	0.73	0.82	0.74
Sulphate	mg/L	-	-	-	-	500	-	6.9	8.1	6.8	8.1	6.8	8.1	6.6	7.8	6.5	7.7	6.5	7.8	8.6	18	8.7	18	9.7	18	6.9	8.1	6.8	8.1	6.8	8.1
Sulphide	mg/L	-	-	-	-	0.050	-	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015
Silica	mg/L	-	-	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.7	0.51	1.7	0.69	1.7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Nutrients							-																								
Nitrate	mg-N/L	124	2.9	-	10	-	-	0.051	0.098	0.046	0.11	0.044	0.095	0.0082	0.060	0.0067	0.063	<0.005	0.062	0.69	2.3	0.75	2.5	1.1	2.4	0.060	0.10	0.052	0.10	0.037	0.10
Nitrite	mg-N/L	-	0.060	-	1.0	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.0083	0.0074	0.0099	0.0080	0.019	0.0067	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Total ammonia	mg-N/L	-	4.4 - 105(a)	-	-	-	-	<0.005	0.022	0.0090	0.020	<0.005	0.021	<0.005	0.019	<0.005	0.018	<0.005	0.020	0.14	0.59	0.14	0.69	0.21	0.64	<0.005	0.024	0.0056	0.022	0.0081	0.022
Total phosphorus	mg-P/L	-	-	-	-	-	-	0.0063	0.0022	0.0054	0.0029	0.0051	0.0025	0.0055	0.0033	0.011	0.0030	0.0059	0.0029	0.0064	0.0038	0.0051	0.0031	0.010	0.0033	0.0031	0.0030	0.0058	0.0029	0.0035	0.0027
Dissolved phosphorus	mg-P/L	-	-	-	-	-	-	0.0016	0.0014	0.0012	<0.001	0.0011	<0.001	0.0010	<0.001	0.0010	<0.001	0.0010	<0.001	<0.001	<0.001	0.0010	<0.001	<0.001	<0.001	0.0014	0.0014	0.0010	<0.001	<0.001	<0.001
Orthophosphate	mg-P/L	-	-	-	-	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Total Kjeldahl nitrogen	mg-N/L	-	-	-	-	-	-	0.15	0.22	0.13	0.26	0.10	0.23	0.14	0.24	0.14	0.22	0.15	0.24	0.30	1.0	0.28	1.0	0.41	0.98	0.13	0.23	0.11	0.22	0.13	0.22
Total Metals																															
Aluminum	µg/L	-	5.0 - 100(b, c)	89 - 310(m)	-	-	-	12	**13**(C)	11	**11**(C)	43	**10.0**(C)	9.9	10	9.8	9.6	9.3	9.8	20	52	19	54	**21**(C)	58	10	4.3	12	11	11	9.6
Antimony	µg/L	-	-	-	6.0	-	-	0.012	0.014	0.015	0.0076	0.011	0.0084	0.026	0.0094	0.0095	0.0070	0.0084	0.0076	0.027	0.011	0.013	0.0093	0.013	0.0089	0.013	0.0091	0.016	0.0086	0.0092	0.0077
Arsenic	µg/L	-	5.0	-	10	-	10	0.23	0.28	0.24	0.25	0.33	0.26	0.24	0.28	0.24	0.24	0.23	0.25	0.30	0.31	0.29	0.30	0.30	0.28	0.23	0.24	0.23	0.26	0.23	0.26
Barium	µg/L	-	-	-	2,000	-	-	5.7	6.3	5.9	6.2	6.8	6.2	5.1	6.1	5.1	5.8	5.0	5.8	12	32	13	32	16	34	6.0	6.2	6.0	6.4	5.9	6.2
Beryllium	µg/L	-	-	-	-	-	-	<0.002	<0.002	<0.002	<0.002	0.0047	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.0038	0.015	0.0037	0.015	0.0062	0.016	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Bismuth	µg/L	-	-	-	-	-	-	<0.001	<0.001	<0.001	<0.001	0.0022	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Boron	µg/L	29,000	1,500	-	5,000	-	-	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Cadmium	µg/L	0.30 - 1.4(d)	0.040 - 0.11(d)	-	7.0	-	-	0.0047	0.0038	0.0041	0.0036	0.0049	0.0036	0.0034	0.0033	0.0033	0.0050	0.0032	0.0038	0.026	0.074	0.020	0.077	0.033	0.083	0.0046	0.0040	0.0048	0.0049	0.0027	0.0045
Cesium	µg/L	-	-	-	-	-	-	0.0059	0.0075	0.0057	0.0076	0.010	0.0074	0.0057	0.0073	0.0058	0.0067	0.0056	0.0066	0.018	0.046	0.020	0.047	0.025	0.050	0.0063	0.0074	0.0061	0.0075	0.0059	0.0079
Chromium	µg/L	-	1.0(e)	5.0(e)	50(e)	-	-	0.14	0.070	0.14	0.059	0.16	0.059	0.20	0.073	0.13	0.066	0.050	0.066	0.13	0.097	0.14	0.094	0.090	0.11	0.046	0.047	0.25	0.063	0.078	0.057
Cobalt	µg/L	-	-	0.78(n)	-	-	-	0.11	0.16	0.11	0.16	0.26	0.16	0.13	0.13	0.12	0.12	0.12	0.12	0.67	**3.7**(F)	**0.81**(F)	**3.9**(F)	**1.2**(F)	**4.3**(F)	0.11	0.12	0.11	0.16	0.12	0.16
Copper	µg/L	-	2.0(d)	-	2,000	1,000	4.2	1.2	1.3	1.3	1.3	1.5	1.3	1.2	1.3	1.2	1.3	1.3	1.2	1.7	**2.2**(C)	1.6	**2.2**(C)	1.6	**2.2**(C)	1.3	1.1	1.3	1.4	1.3	1.3
Iron	µg/L	-	300	-	-	300	-	26	42	27	42	180	42	73	60	73	57	68	55	39	59	41	61	34	61	25	12	27	42	28	41
Lanthanum	µg/L	-	-	-	-	-	-	0.072	0.084	0.077	0.084	0.34	0.086	0.066	0.085	0.064	0.082	0.067	0.082	0.15	0.62	0.16	0.65	0.21	0.70	0.074	0.059	0.077	0.085	0.075	0.086
Lead	µg/L	-	1.0 - 1.9(d)	-	5.0	-	-	0.038	0.042	0.082	0.013	0.093	0.0089	0.49	0.015	0.034	0.0099	0.010	0.013	0.45	0.031	0.054	0.025	0.076	0.023	0.10	<0.005	0.23	0.031	0.019	0.012
Lithium	µg/L	-	-	-	-	-	-	0.73	0.72	0.73	0.73	0.79	0.73	0.73	0.72	0.74	0.71	0.72	0.70	1.1	1.7	1.1	1.7	1.2	1.8	0.73	0.79	0.74	0.74	0.74	0.73
Manganese	µg/L	1,229 - 4,591(d)	200 - 460(f)	-	120	20	-	3.3	3.4	3.1	3.2	6.4	3.2	5.4	3.7	5.4	3.5	5.3	3.4	10	**53**(Ae)	13	**56**(Ae)	18	**62**(Ae)	3.0	2.3	3.1	3.2	3.1	3.1
Mercury	µg/L	-	0.026	-	1.0	-	-	0.00080	0.00063	0.0040	0.00059	0.0014	0.00068	0.0021	0.00086	0.0012	0.00080	0.0011	0.00080	0.00091	0.00096	0.00098	0.00088	0.0017	0.00086	0.0026	0.00070	0.0028	0.00060	0.0022	0.00062
Molybdenum	µg/L	-	73	-	-	-	-	0.011	0.014	0.012	0.014	0.011	0.015	0.011	0.014	0.011	0.013	0.012	0.013	0.014	0.015	0.013	0.025	0.011	0.013	<0.01	0.014	<0.01	0.019	0.011	0.014
Nickel	µg/L	-	25 - 69(d)	-	-	-	-	2.5	2.7	2.6	2.7	3.1	2.6	2.3	2.5	2.2	2.4	2.3	2.3	4.6	15	5.2	16	6.4	17	2.7	2.6	2.7	2.7	2.7	2.7
Rubidium	µg/L	-	-	-	-	-	-	1.0	1.2	1.0	1.2	1.1	1.2	1.0	1.2	1.1	1.2	1.1	1.2	1.9	3.5	2.0	3.6	2.2	3.7	1.1	1.2	1.1	1.2	1.1	1.2
Selenium	µg/L	-	1.0	-	50	-	-	<0.025	0.031	<0.025	0.027	<0.025	0.029	0.025	0.031	0.027	<0.025	0.026	<0.025	0.035	0.062	0.038	0.072	0.047	0.064	0.027	<0.025	<0.025	<0.025	<0.025	<0.025
Silicon	µg/L	-	-	-	-	-	-	59	204	60	190	94	191	66	220	64	194	50	198	210	775	231	774	321	805	62	191	69	200	62	198
Silver	µg/L	-	0.25	-	-	-	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.0022	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Strontium	µg/L	-	-	-	7,000	-	-	15	20	15	20	16	19	14	19	15	18	15	18	43	118	46	124	54	131	16	19	16	20	16	19
Sulphur	µg/L	-	-	-	-	-	-	2,750	2,890	2,830	2,820	2,780	2,860	2,700	2,940	2,700	2,700	2,650	2,720	3,480	5,870	3,490	6,020	3,930	6,080	2,770	2,900	2,770	2,890	2,760	2,940
Tellurium	µg/L	-	-	-	-	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Thallium	µg/L	-	0.80	-	-	-	-	0.0020	0.0015	0.0018	0.0013	0.0025	0.0017	0.0018	0.0013	0.0019	0.0013	0.0021	0.0013	0.0036	0.0070	0.0034	0.0069	0.0048	0.0072	0.0019	0.0014	0.0021	0.0014	0.0020	0.0013
Thorium	µg/L	-	-	-	-	-	-	0.0067	0.0062	<0.005	<0.005	0.0062	<0.005	0.0065	<0.005	0.0061	0.0065	<0.005	0.0063	0.0053	0.017	0.0090	0.011	0.0090	0.010	0.0058	<0.005	0.0061	<0.005	0.0065	<0.005
Tin	µg/L	-	-	-	-	-	-	0.050	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.012	<0.01	<0.01	<0.01	0.011	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.038	<0.01	<0.01
Titanium	µg/L	-	-	-	-	-	-	0.057	0.20	0.10	0.13	2.3	0.40	<0.05	0.12	<0.05	0.11	<0.05	0.11	0.092	0.24	0.054	0.25	0.075	0.30	0.062	<0.05	0.079	0.15	0.096	0.12
Tungsten	µg/L	-	-	-	-	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Uranium	µg/L	33	15	-	20	-	-	0.0068	0.0053	0.0082	0.0035	0.012	0.0048	0.0053	0.0054	0.0047	0.0065	0.0044	0.0043	0.0053	0.0074	0.0070	0.0072	0.0075	0.010	0.0041	0.0039	0.0057	0.0050	0.0050	0.0057
Vanadium	µg/L	-	-	120	-	-	-	0.030	0.034	0.027	0.032	0.16	0.037	0.028	0.038	0.030	0.036	0.026	0.036	0.036	0.050	0.032	0.051	0.030	0.052	0.028	0.020	0.026	0.036	0.028	0.032
Zinc	µg/L	22 - 76(g)	12 - 46(h)	-	-	5,000	-	2.1	0.86	2.5	0.59	1.4	0.50	2.5	0.63	8.9	0.89	0.34	0.50	2.5	6.6	1.9	6.5	2.7	7.2	0.56	0.46	0.62	1.0	1.1	0.58
Zirconium	µg/L	-	-	-	-	-	-	0.024	0.020	0.023	0.021	0.026	0.019	0.021	0.020	0.020	0.020	0.019	0.022	0.030	0.053	0.038	0.071	0.032	0.049	0.023	0.017	0.023	0.019	0.022	0.019
Gallium	µg/L	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Niobium	µg/L	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Rhenium	µg/L	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Tantalum	µg/L	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Yttrium	µg/L	-	-	-	-	-	-	0.039	0.037	0.027	0.035	0.15	0.035	0.047	0.039	0.032	0.036	0.043	0.036	0.056	0.23	0.069	0.24	0.11	0.25	0.035	0.025	0.035	0.035	0.038	0.036
Dissolved Metals				-																											
Aluminum	µg/L	-	-	-	-	-	-	7.9	4.5	8.0	4.4	7.7	4.4	6.9	5.0	6.1	4.8	5.6	4.9	12	29	13	26	13	29	7.5	10	7.5	4.5	8.7	4.9
Antimony	µg/L	-	-	-	-	-	-	0.0088	0.010	0.011	0.0087	0.0082	0.0081	0.0081	0.0078	0.0096	0.0073	0.0089	0.0080	0.0092	0.0095	0.0082	0.0098	0.0082	0.0092	0.0072	0.0098	0.0084	0.0078	0.032	0.0079
Arsenic	µg/L	-	-	-	-	-	-	0.22	0.24	0.22	0.23	0.24	0.25	0.23	0.23	0.23	0.21	0.22	0.22	0.29	0.27	0.27	0.26	0.28	0.25	0.22	0.27	0.22	0.23	0.22	0.25
Barium	µg/L	-	-	-	-	-	-	5.7	6.1	5.8	6.1	5.7	6.2	5.3	5.7	5.0	5.8	5.1	5.7	12	34	12	31	15	33	5.8	6.3	5.7	6.2	9.9	6.1
Beryllium	µg/L	-	-	-	-	-	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.0025	0.015	0.0028	0.015	0.0038	0.014	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Bismuth	µg/L	-	-	-	-	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.0012	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Boron	µg/L	-	-	-	-	-	-	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Cadmium	µg/L	-	-	-	-	-	-	0.0036	0.0039	0.0041	0.0035	0.0037	0.0027	<0.0025	<0.0025	0.0037	0.0031	<0.0025	0.0027	0.015	0.079	0.015	0.071	0.027	0.077	0.0034	0.0037	0.0032	<0.0025	0.0069	0.0034
Cesium	µg/L	-	-	-	-	-	-	0.0061	0.0071	0.0056	0.0068	0.0058	0.0072	0.0058	0.0067	0.0053	0.0066	0.0057	0.0066	0.018	0.050	0.018	0.046	0.022	0.048	0.0058	0.0075	0.0056	0.0074	0.0068	0.0074
Chromium	µg/L	-	-	-	-	-	-	0.12	0.054	0.060	0.049	0.045	0.049	0.063	0.057	0.14	0.054	0.050	0.065	0.13	0.070	0.074	0.068	0.15	0.071	<0.04	0.073	0.12	0.046	0.26	0.048
Cobalt	µg/L	-	-	-	-	-	-	0.062	0.12	0.059	0.12	0.061	0.13	0.061	0.091	0.051	0.093	0.037	0.093	0.57	4.2	0.53	3.7	0.87	4.0	0.057	0.17	0.053	0.12	0.054	0.12
Copper	µg/L	-	-	0.20 - 1.0(o)	-	-	-	**1.2**(F)	**1.2**(F)	**1.3**(F)	**1.1**(F)	**1.3**(F)	**1.1**(F)	**1.3**(F)	**1.1**(F)	**1.1**(F)	**1.1**(F)	**1.1**(F)	**1.1**(F)	**1.5**(F)	**2.0**(F)	**1.5**(F)	**1.9**(F)	**1.5**(F)	**2.0**(F)	**1.2**(F)	**1.4**(F)	**1.2**(F)	**1.1**(F)	**1.4**(F)	**1.2**(F)
Iron	µg/L	-	-		-	-	-	11	13	16	11	12	14	40	21	33	20	25	21	16	22	17	21	14	23	9.3	41	8.6	11	9.6	12
Lanthanum	µg/L	-	-		-	-	-	0.050	0.056	0.053	0.054	0.054	0.061	0.039	0.056	0.036	0.056	0.038	0.056	0.12	0.61	0.11	0.55	0.15	0.58	0.053	0.089	0.051	0.057	0.054	0.059
Lead	µg/L	-	-	5.4 - 7.5(p)	-	-	-	0.014	<0.005	0.043	<0.005	0.056	<0.005	0.0060	<0.005	0.0098	<0.005	0.012	<0.005	<0.005	0.0067	0.0076	0.0069	0.0063	0.011	0.014	0.016	0.011	<0.005	1.4	<0.005
Lithium	µg/L	-	-		-	-	-	0.71	0.72	0.72	0.75	0.71	0.73	0.72	0.71	0.71	0.71	0.71	0.71	1.0	1.8	1.0	1.7	1.1	1.7	0.72	0.84	0.69	0.75	0.72	0.73

Table C-1: Water Quality Summary at Goose Lake, 2023

Parameter	Unit	Guidelines for the Protection of:					Long-term site-specific water quality objective (Sabina 2017)	Stations																	
								GLSE						GLTL						GLWB					
								GLSE-T		GLSE-M		GLSE-B		GLTL-T		GLTL-M		GLTL-B		GLWB-T		GLWB-M		GLWB-B	
								07-19-2023	09-14-2023	07-19-2023	09-14-2023	07-19-2023	09-14-2023	07-20-2023	09-14-2023	07-20-2023	09-14-2023	07-20-2023	09-14-2023	07-20-2023	09-14-2023	07-20-2023	09-14-2023	07-20-2023	09-14-2023
								0.5 m	0.5 m	2.5 m	2.5 m	4 m	4.5 m	0.5 m	0.5 m	2.5 m	2.5 m	5 m	5 m	0.5 m	0.5 m	2.5 m	2.5 m	4 m	4.5 m
		Freshwater Aquatic Life (CCME 1999)		Federal Environmental Quality Guidelines (GOC 2023)	Drinking Water (HC 2022)	Aesthetic (HC 2022)		YL2300877-001	YL2301147-001	YL2300877-002	YL2301147-002	YL2300877-003	YL2301147-004	YL2300877-007	YL2301147-011	YL2300877-008	YL2301147-012	YL2300877-009	YL2301147-013	YL2300877-010	YL2301147-005	YL2300877-011	YL2301147-006	YL2300877-012	YL2301147-007
Manganese	µg/L	1,229 - 4,591[d]	200 - 460[i]		-	-	-	1.7	2.4	1.7	2.3	1.9	2.6	2.8	2.7	2.1	2.8	1.1	2.7	8.9	60	8.3	53	13	57
Mercury	µg/L	-	-		-	-	-	<0.0005	<0.0005	0.00063	<0.0005	0.00056	0.00068	0.00059	0.00068	0.0010	<0.0005	0.00070	0.00053	0.00056	0.00057	0.00059	0.00059	0.00067	0.00061
Molybdenum	µg/L	-	-		-	-	-	0.011	0.022	0.011	0.016	0.011	0.019	0.011	0.016	0.014	0.012	<0.01	0.014	0.013	0.016	0.012	0.020	0.012	0.013
Nickel	µg/L	-	-		-	-	-	2.7	2.6	2.7	2.6	2.8	2.6	2.3	2.3	2.2	2.4	2.2	2.4	4.4	16	4.4	15	5.5	16
Rubidium	µg/L	-	-		-	-	-	1.1	1.2	1.1	1.2	1.1	1.2	1.1	1.2	1.1	1.2	1.0	1.2	1.8	3.7	1.8	3.4	1.9	3.6
Selenium	µg/L	-	-		-	-	-	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	0.026	0.033	0.065	0.031	0.066	0.038	0.063
Silicon	µg/L	-	-		-	-	-	52	185	54	186	52	192	58	188	55	190	<50	189	202	790	197	761	272	775
Silver	µg/L	-	-		-	-	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Strontium	µg/L	-	-	2,500	-	-	-	17	20	17	19	17	20	16	18	15	18	14	18	41	130	41	119	47	124
Sulphur	µg/L	-	-		-	-	-	2,690	2,740	2,730	2,810	2,740	2,850	2,710	2,640	2,620	2,600	2,670	2,660	3,440	6,150	3,480	5,970	3,640	6,020
Tellurium	µg/L	-	-		-	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Thallium	µg/L	-	-		-	-	-	0.0019	0.0015	0.0018	0.0014	0.0018	0.0013	0.0020	0.0013	0.0019	0.0013	0.0018	0.0012	0.0034	0.0070	0.0034	0.0066	0.0040	0.0070
Thorium	µg/L	-	-		-	-	-	<0.01	<0.005	<0.01	0.0064	<0.01	<0.005	<0.005	0.0054	<0.005	<0.005	<0.01	0.0053	<0.01	<0.005	<0.005	0.0095	<0.005	0.0062
Tin	µg/L	-	-		-	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.013
Titanium	µg/L	-	-		-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.10	<0.05	0.051	<0.05	0.053
Tungsten	µg/L	-	-		-	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Uranium	µg/L	-	-		-	-	-	0.0064	0.0034	0.0040	0.0031	0.0050	0.0037	0.0039	0.0038	0.0037	0.0039	0.0058	0.0034	0.0043	0.0073	0.0065	0.0054	0.0064	0.0061
Vanadium	µg/L	-	-		-	-	-	0.023	0.023	0.024	0.020	0.024	0.022	0.021	0.025	0.022	0.024	0.020	0.025	0.026	0.028	0.025	0.029	0.024	0.030
Zinc	µg/L	22 - 76[j]	12 - 46[k]		-	-	-	3.5	0.61	0.86	0.62	0.36	0.48	0.95	0.42	2.4	0.39	0.44	0.44	1.2	6.8	1.2	6.1	1.9	6.4
Zirconium	µg/L	-	-		-	-	-	0.018	0.018	0.018	0.016	0.019	0.014	0.014	0.020	0.014	0.018	0.016	0.021	0.026	0.040	0.025	0.042	0.027	0.043
Gallium	µg/L	-	-		-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Niobium	µg/L	-	-		-	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Rhenium	µg/L	-	-		-	-	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Tantalum	µg/L	-	-		-	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Yttrium	µg/L	-	-		-	-	-	0.036	0.024	0.021	0.024	0.016	0.027	0.037	0.026	0.018	0.026	0.021	0.027	0.044	0.21	0.045	0.19	0.056	0.20

Parameter	Unit	Stations																							
		GLCB																							
		GLCB-T				GLCB-M				GLCB-B															
		07-19-2023	09-14-2023	07-19-2023	09-14-2023	07-19-2023	09-14-2023																		
		0.5 m	0.5 m	2.5 m	2.5 m	4 m	4 m																		
		YL2300877-004	YL2301147-008	YL2300877-005	YL2301147-009	YL2300877-006	YL2301147-010																		
Manganese	µg/L	1.6	3.3	1.4	2.3	1.4	2.4																		
Mercury	µg/L	<0.0005	0.00056	0.00058	0.00053	<0.0005	0.00051																		
Molybdenum	µg/L	0.011	0.011	0.011	0.014	0.015	0.013																		
Nickel	µg/L	2.7	2.8	2.8	2.6	2.8	2.6																		
Rubidium	µg/L	1.1	1.1	1.1	1.2	1.2	1.2																		
Selenium	µg/L	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025																		
Silicon	µg/L	53	199	52	184	54	186																		
Silver	µg/L	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002																		
Strontium	µg/L	17	19	17	20	16	20																		
Sulphur	µg/L	2,770	2,890	2,760	2,730	2,780	2,870																		
Tellurium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01																		
Thallium	µg/L	0.0020	0.0017	0.0017	0.0013	0.0023	0.0014																		
Thorium	µg/L	<0.01	<0.005	<0.005	<0.005	<0.005	0.0053																		
Tin	µg/L	<0.01	<0.01	<0.01	<0.01	0.033	<0.01																		
Titanium	µg/L	<0.05	0.15	<0.05	<0.05	<0.05	0.062																		
Tungsten	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01																		
Uranium	µg/L	0.0047	0.0058	0.0063	0.0037	0.0053	0.0038																		
Vanadium	µg/L	0.022	0.038	0.023	0.021	0.024	0.020																		
Zinc	µg/L	0.29	0.73	0.34	0.43	3.0	0.44																		
Zirconium	µg/L	0.017	0.020	0.018	0.016	0.020	0.015																		
Gallium	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05																		
Niobium	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1																		
Rhenium	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005																		
Tantalum	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1																		
Yttrium	µg/L	0.017	0.036	0.025	0.024	0.033	0.025																		

Notes:

[a] = The ammonia guideline is pH and temperature dependent. The guideline that results in the minimum ammonia guideline (4.42 mg-N/L) is based on the combination of field pH (7.0) and water temperature (18.5°C). Guidelines calculated with temperature and pH values falling outside the defined range (i.e., pH 6.0 to 10.0 and temperature 0°C to 30°C) should be used with caution, as the WQG does not necessarily accurately reflect toxic effects at the low and high pH and temperature extremes. The guideline is calculated based on the individual field pH and temp

[b] = Guideline is pH dependent. The guideline range shown is based on the pH range observed in the dataset (6.0 to 7.0). The guideline is calculated based on the individual pH for each sample.

[c] = Guideline is pH dependent: 5 µg/L at pH < 6.5 and 100 µg/L at pH ≥ 6.5.

[d] = Guideline is hardness dependent. The guideline range shown is based on the hardness range observed in the dataset (15 to 66 mg/L). The guideline is calculated based on the individual hardness value for each sample.

[e] = Guideline is for chromium VI.

[f] = Guideline is for dissolved manganese, but comparison to total manganese is appropriate when no dissolved manganese concentrations are available. The chronic dissolved manganese guideline is pH and hardness dependent. The guideline that results in the minimum chronic manganese guideline (200 µg/L) is based on the combination of field pH (6.0), and hardness (17.8 mg/L). Guidelines calculated with pH and hardness values falling outside the defined range (i.e., pH 5.8 to 8.4 and hardness 25 to 670 mg/L) should be used with caution, as the WQG does not necessarily accurately reflect toxic effects at the low and high pH and hardness extremes. The guideline is calculated based on the individual pH and hardness measurements for each sample.

[g] = Guideline is for dissolved zinc, but comparison to total zinc is appropriate when no dissolved zinc concentrations are available. The acute dissolved zinc guideline is hardness and dissolved organic carbon dependent. The guideline that results in the minimum acute zinc guideline (22.2 µg/L) is based on the combination of hardness (14.6 mg/L) and dissolved organic carbon (4.1 mg/L). Guidelines calculated with hardness and dissolved organic carbon values falling outside the defined range (i.e., hardness 13.8 to 250.5 mg/L and dissolved organic carbon 0.3 to 17.3 mg/L) should be used with caution, as the WQG does not necessarily accurately reflect toxic effects at the low and high hardness and dissolved organic carbon extremes. The guideline is calculated based on the individual hardness and dissolved organic carbon measurements for each sample.

[h] = Guideline is for dissolved zinc, but comparison to total zinc is appropriate when no dissolved zinc concentrations are available. The chronic dissolved zinc guideline is pH, hardness and dissolved organic carbon dependent. The guideline that results in the minimum chronic zinc guideline (11.7 µg/L) is based on the combination of field pH (7.0), hardness (15.8 mg/L) and dissolved organic carbon (4.0 mg/L). Guidelines calculated with pH, hardness, and dissolved organic carbon values falling outside the defined range (i.e., pH 6.5 to 8.13, hardness 23.4 to 399 mg/L and dissolved organic carbon 0.3 to 22.9 mg/L) should be used with caution, as the WQG does not necessarily accurately reflect toxic effects at the low and high pH, hardness and dissolved organic carbon extremes. The guideline is calculated based on the individual pH, hardness and dissolved organic carbon measurements for each sample.

[i] = The chronic dissolved manganese guideline is pH, and hardness dependent. The guideline that results in the minimum chronic manganese guideline (200.0 µg/L) is based on the combination of field pH (6.0), and hardness (17.8 mg/L). Guidelines calculated with pH and hardness values falling outside the defined range (i.e., pH 5.8 to 8.4 and hardness 25 to 670 mg/L) should be used with caution, as the WQG does not necessarily accurately reflect toxic effects at the low and high pH and hardness extremes. The guideline is calculated based on the individual pH and hardness measurements for each sample.

[j] = The acute dissolved zinc guideline is hardness and dissolved organic carbon dependent. The guideline that results in the minimum acute zinc guideline (22.2 µg/L) is based on the combination of hardness (14.6 mg/L) and dissolved organic carbon (4.1 mg/L). Guidelines calculated with hardness and dissolved organic carbon values falling outside the defined range (i.e., hardness 13.8 to 250.5 mg/L and dissolved organic carbon 0.3 to 17.3 mg/L) should be used with caution, as the WQG does not necessarily accurately reflect toxic effects at the low and high hardness and dissolved organic carbon extremes. The guideline is calculated based on the individual hardness and dissolved organic carbon measurements for each sample.

[k] = The chronic dissolved zinc guideline is pH, hardness and dissolved organic carbon dependent. The guideline that results in the minimum chronic zinc guideline (11.7 µg/L) is based on the combination of field pH (7.0), hardness (15.8 mg/L) and dissolved organic carbon (4.0 mg/L). Guidelines calculated with pH, hardness, and dissolved organic carbon values falling outside the defined range (i.e., pH 6.5 to 8.13, hardness 23.4 to 399 mg/L and dissolved organic carbon 0.3 to 22.9 mg/L) should be used with caution, as the WQG does not necessarily accurately reflect toxic effects at the low and high pH, hardness and dissolved organic carbon extremes. The guideline is calculated based on the individual pH, hardness and dissolved organic carbon measurements for each sample.

[l] = Total dissolved solids calculated by WSP using the Standard Method by APHA 2005 (Total dissolved solids mg/L = $\Sigma[Na^+, K^+, Ca^{2+}, Mg^{2+}, Cl^-, F^-, SO_4^{2-}, 4.42 * NO_3^-$ (as nitrogen), 0.6 * total alkalinity (as $CaCO_3$)).

[m] = The Federal Environmental Quality Guidelines for total aluminum is valid between hardness 10 and 430 mg/L, pH 6 and 8.7, and dissolved organic carbon 0.08 and 12.3 mg/L.

[n] = The Federal Environmental Quality Guidelines for total cobalt was calculated using the minimum hardness of 52 mg/L since the equation to calculate the guideline was done with hardness between 52-396 mg/L.

[o] = The Federal Environmental Quality Guidelines for dissolved copper depends on temperature, pH, disolved organic carbon and hardness.

[p] = The Federal Environmental Quality Guidelines for dissolved lead is valid for disolved organic carbon 0.5 - 31.5 mg/L and hardness 4.7-511 mg/L.

[C] = Concentration is higher than the chronic aquatic life CCME guideline or outside the recommended pH, dissolved oxygen or total alkalinity range.

[Ae] = Concentration is higher than the aesthetic Health Canada guideline or outside the recommended pH range.

[F] = Concentration is higher than the Federal Environmental Quality Guidelines.

Bolded concentrations are higher than water quality guidelines.

Water quality data and guidelines shown in this table were rounded to reflect laboratory or field instrument precision *after* comparisons to guidelines. Therefore, values slightly above guidelines may be displayed as being equal to the guidelines and identified as exceedances. Concentrations equal to the guideline values were not identified as exceedances.

- no guideline or no data; B = bottom, M = Middle, T = top; $CaCO_3$ = calcium carbonate; µS/cm = microsiemens per centimetre; °C = degree Celsius; NTU = nephelometric turbidity units; mg/L = miligrams per litre; WAD = weak acid dissociable; mg-N/L = milligrams nitrogen per litre; mg-P/L = milligram phosphorus per litre; µg/L = microgram per litre; CCME = Canadian Council of Ministers of the Environment; GOC = Government of Canada; HC = Health Canada; APHA = American Public Health Association.

Sources:

CCME (Canadian Council of Ministers of the Environment). 1999. Canadian Environmental Quality Guidelines. 1999 with updates to 2023. Winnipeg, MB, Canada.
HC (Health Canada). 2022. Guidelines for Canadian Drinking Water Quality—Summary Tables. Water and Air Quality Bureau, Healthy Environments and Consumer Safety Branch, Ottawa, ON, Canada.
APHA (American Public Health Association). 2005. Standard Methods for Examination of Water and Wastewater. Standard Methods of Water Analysis, American Public Health Association, New York, NY, USA.
GOC (Government of Canada). 2023. Federal Environmental Quality Guidelines. Accessed in December 2023. https://www.canada.ca/en/environment-climate-change/services/canadian-environmental-protection-act-registry/guidelines-objectives-codes-practice/guidelines-objectives.html#fed
Sabina (Sabina Gold & Silver Corporation). 2017. The Back River Project Main Application Document October 2017. Submitted to the Nunavut Water Board. October 2017.

Table C-2: Water Quality Summary at Streams, 2023

Parameter	Unit	Guidelines for the Protection of: Freshwater Aquatic Life (CCME 1999) Acute	Chronic	Federal Environmental Quality Guidelines (GOC 2023)	Drinking Water (HC 2022)	Aesthetic (HC 2022)	Site-specific Water Quality Objective (Sabina 2017)	Stations: Goose Lake Outflow		Goose Lake Inflow from Llama Lake			Goose Lake Inflow from Gander Pond		Goose Lake Inflow from Giraffe Lake		Goose Lake Inflow from Echo Lake		Goose Lake Inflow from Wolf Lake			Goose Lake Inflow to the Southeast Basin	
								07-20-2023	09-15-2023	05-29-2023	07-21-2023	09-16-2023	05-28-2023	09-16-2023	07-21-2023	09-15-2023	05-29-2023	09-16-2023	05-28-2023	07-21-2023	09-15-2023	05-28-2023	09-16-2023
								-	-	0.192 m^3/s	0.007 m^3/s	0.051 m^3/s	0.084 m^3/s	0.059 m^3/s	0.1035 m^3/s	0.112 m^3/s	0.001 m^3/s	0.005 m^3/s	0.123 m^3/s	0.018 m^3/s	0.046 m^3/s	0.008 m^3/s	0.029 m^3/s
								YL2300877-013	YL2301146-002	YL2300492-002	YL2300892-001	YL2301146-005	YL2300484-003	YL2301146-007	YL2300892-002	YL2301146-003	YL2300492-001	YL2301146-006	YL2300484-001	YL2300892-003	YL2301146-001	YL2300484-002	YL2301146-004
Field Measured																							
pH	-	-	6.5 - 9.0	-	-	7.0 - 11	-	**6.6**$^{(Aa)}$	**6.9**$^{(Aa)}$	**6.5**$^{(Aa)}$	**6.0**$^{(C, Aa)}$	**5.2**$^{(C, Aa)}$	**6.9**$^{(Aa)}$	**6.5**$^{(Aa)}$	**6.7**$^{(Aa)}$	7.0	**6.0**$^{(C, Aa)}$	**6.1**$^{(C, Aa)}$	7.0	**6.7**$^{(Aa)}$	7.1	**6.5**$^{(Aa)}$	**6.4**$^{(C, Aa)}$
Specific conductivity	µS/cm	-	-	-	-	-	-	43	38	51	132	465	31	244	32	39	60	153	28	33	57	29	67
Temperature	°C	-	-	-	-	15	-	21	5.5	2.2	8.7	5.6	11	8.3	16	6.2	0.50	7.5	3.1	14	3.8	6.7	7.6
Dissolved oxygen	mg/L	-	6.5		-	-	-	9.5	14	13	**5.8**$^{(C)}$	9.6	13	13	9.9	14	12	12	13	10	15	12	11
Dissolved oxygen	%	-	-		-	-	-	107	113	92	50	76	113	107	99	112	82	100	97	99	116	100	92
Conventional Parameters																							
pH	-	-	6.5 - 9.0		-	7.0 - 11	-	**6.9**$^{(Aa)}$	7.0	**6.6**$^{(Aa)}$	**6.3**$^{(C, Aa)}$	**5.7**$^{(C, Aa)}$	**6.9**$^{(Aa)}$	7.0	**6.9**$^{(Aa)}$	7.0	**6.3**$^{(C, Aa)}$	**6.8**$^{(Aa)}$	7.0	7.2	7.1	**6.6**$^{(Aa)}$	**6.8**$^{(Aa)}$
Specific conductivity	µS/cm	-	-		-	-	-	40	44	61	157	466	35	251	38	46	69	152	29	39	66	32	68
Hardness, as $CaCO_3$	mg/L	-	-		-	-	-	15	16	24	63	184	12	94	15	17	26	59	12	17	25	12	25
Total alkalinity, as $CaCO_3$	mg/L	-	-		-	-	-	6.1	5.7	4.3	2.5	<1.0	5.0	5.6	5.1	6.2	2.7	4.7	5.8	11	8.1	C-	4.7
Total dissolved solids (APHA 2005)[f]	mg/L	-	-		-	-	-	19	21	28	83	239	31	138	19	23	34	83	14	19	31	#VALUE!	34
Total suspended solids	mg/L	-	-		-	-	-	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	14	<3.0	<3.0	<3.0
Total organic carbon	mg/L	-	-		-	-	-	5.0	5.5	3.4	2.8	4.2	4.8	6.2	4.3	4.1	9.7	12	4.5	0.64	5.9	8.4	9.9
Dissolved organic carbon	mg/L	-	-		-	-	-	4.1	5.6	-	-	4.1	-	6.6	-	3.9	-	12	-	-	5.9	-	10
Hydrogen sulfide	mg/L	-	-		-	-	-	0.0022	0.0021	-	<0.0016	<0.0016	<0.0016	0.0026	0.0019	<0.0016	<0.004	0.0049	<0.0016	0.0070	0.0034	0.0046	0.0040
Alkalinity, phenolphthalein as $CaCO_3$	mg/L	-	-		-	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Major Ions																							
Bicarbonate, as $CaCO_3$	mg/L	-	-		-	-	-	6.1	5.7	4.3	2.5	<1.0	5.0	5.6	5.1	6.2	2.7	4.7	5.8	11	8.1	3.8	4.7
Bromide	mg/L	-	-		-	-	-	<0.05	<0.05	0.082	0.23	0.74	<0.05	0.13	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Calcium	mg/L	-	-		-	-	-	3.1	3.3	5.4	16	48	2.7	22	2.5	2.9	4.8	10	2.1	3.4	5.7	2.4	4.7
Carbonate, as $CaCO_3$	mg/L	-	-		-	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloride	mg/L	640	120		-	250	-	2.6	3.0	7.7	22	82	2.3	17	0.69	0.74	2.9	4.3	1.0	1.1	6.9	0.64	1.1
Cyanide	mg/L	-	0.0050		0.20	-	-	<0.005	<0.005	-	<0.005	<0.005	-	**0.0075**$^{(C)}$	<0.005	<0.005	-	<0.005	-	<0.005	<0.005	-	<0.005
Cyanide (free)	mg/L	-	-		-	-	-	<0.005	<0.005	-	<0.005	<0.005	-	<0.005	<0.005	<0.005	-	<0.005	-	<0.005	<0.005	-	<0.005
Cyanide (WAD)	mg/L	-	-		-	-	-	<0.005	<0.005	-	<0.005	<0.005	-	<0.005	<0.005	<0.005	-	<0.005	-	<0.005	<0.005	-	<0.005
Fluoride	mg/L	-	0.12		1.5	-	-	0.027	0.027	<0.02	0.020	0.025	0.026	0.034	0.030	0.033	0.021	0.040	<0.02	0.034	0.026	<0.02	0.025
Hydroxide, as $CaCO_3$	mg/L	-	-		-	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Magnesium	mg/L	-	-		-	-	-	1.8	2.0	2.0	5.8	16	1.6	9.3	2.0	2.3	3.5	8.2	1.5	2.1	2.6	1.5	3.3
Potassium	mg/L	-	-		-	-	-	0.46	0.42	0.56	1.2	2.4	0.43	2.4	0.41	0.44	1.5	1.6	0.38	0.67	0.43	0.18	0.36
Sodium	mg/L	-	-		-	200	-	0.69	0.84	-	1.6	3.5	-	2.4	0.75	0.81	-	2.5	-	0.83	1.1	-	1.5
Sulphate	mg/L	-	-		-	500	-	6.4	7.9	7.1	20	56	6.0	54	9.9	12	17	51	5.2	3.8	9.2	8.0	21
Sulphide	mg/L	-	-		-	0.050	-	0.0021	0.0020	-	<0.0015	<0.0015	<0.0015	0.0024	0.0018	<0.0015	<0.0038	0.0046	<0.0015	0.0066	0.0032	0.0043	0.0038
Silica	mg/L	-	-		-	-	-	<0.5	0.91	1.1	2.8	5.1	<0.5	2.9	0.55	1.0	2.6	8.9	0.51	1.6	2.5	0.58	6.2
Nutrients																							
Nitrate	mg-N/L	124	2.9		10	-	-	0.016	0.052	0.60	**3.5**$^{(C)}$	**7.2**$^{(C)}$	0.11	**6.2**$^{(C)}$	<0.005	0.0076	0.72	0.39	0.028	0.0074	0.033	<0.005	<0.005
Nitrite	mg-N/L	-	0.060		1.0	-	-	<0.001	<0.001	<0.001	**0.11**$^{(C)}$	0.026	<0.001	**0.075**$^{(C)}$	<0.001	<0.001	<0.001	0.0012	<0.001	<0.001	<0.001	<0.001	<0.001
Total ammonia	mg-N/L	-	9.2 - 754[e]		-	-	-	0.018	0.012	0.15	0.21	0.93	0.061	1.5	<0.005	0.0088	0.058	0.42	0.0053	0.011	0.021	0.0069	0.013
Total phosphorus	mg-P/L	-	-		-	-	-	0.0066	0.0033	0.0022	0.0010	0.0013	0.0039	0.0048	0.0034	0.0019	0.0054	0.0046	0.0014	<0.001	0.0052	0.0053	0.0048
Dissolved phosphorus	mg-P/L	-	-		-	-	-	0.0018	0.0015	<0.001	<0.001	0.0014	<0.001	0.0025	0.0022	0.0011	0.0026	0.0038	<0.001	0.013	0.0023	<0.001	0.0030
Orthophosphate	mg-P/L	-	-		-	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Total Kjeldahl nitrogen	mg-N/L	-	-		-	-	-	0.23	0.30	0.36	0.31	1.3	0.34	2.2	<0.05	0.20	0.57	0.90	0.26	<0.05	0.40	0.45	0.47
Total Metals																							
Aluminum	µg/L	-	5.0 - 100[b, c]	130 - 480[m]	-	-	-	12	15	30	**26**$^{(C)}$	**86**$^{(C)}$	27	28	18	12	**166**$^{(C)}$	**121**$^{(C)}$	16	**114**$^{(C)}$	29	57	**60**$^{(C)}$
Antimony	µg/L	-	-		6.0	-	-	0.011	0.0085	0.0089	0.010	0.011	0.013	0.43	0.011	0.0070	0.043	0.023	0.0082	0.015	0.0095	0.014	0.016
Arsenic	µg/L	-	5.0		10	-	10	0.27	0.24	0.20	0.19	0.19	0.29	0.42	0.29	0.24	0.64	0.76	0.27	1.6	0.48	0.28	0.33
Barium	µg/L	-	-		2,000	-	-	5.2	6.3	12	45	102	6.1	23	4.9	4.4	15	28	3.7	8.3	8.5	9.6	17
Beryllium	µg/L	-	-		-	-	-	<0.002	<0.002	0.0038	0.013	0.036	0.0030	0.0045	0.0022	<0.002	0.012	0.0086	0.0024	0.0093	0.0029	0.0064	0.0055
Bismuth	µg/L	-	-		-	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.0010	<0.001	0.0023	<0.001	<0.001	<0.001
Boron	µg/L	29,000	1,500		5,000	-	-	<5.0	<5.0	<5.0	<5.0	6.2	<5.0	11	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Cadmium	µg/L	0.23 - 3.9[d]	0.040 - 0.26[d]		7.0	-	-	0.0061	0.0039	0.017	**0.13**$^{(C)}$	**0.26**$^{(C)}$	0.0069	0.051	0.0069	0.0034	0.023	0.030	0.0063	0.011	0.0051	0.014	0.013
Cesium	µg/L	-	-		-	-	-	0.0072	0.0059	0.016	0.042	0.10	0.0050	0.033	0.0066	0.0057	0.0062	0.014	<0.005	0.010	0.0055	<0.005	<0.005
Chromium	µg/L	-	1.0[e]	5.0[e]	50[e]	-	-	0.068	0.13	0.077	0.074	0.11	0.12	0.19	0.074	0.064	0.45	0.59	0.073	0.38	0.19	0.38	0.54
Cobalt	µg/L	-	-	0.78[n]	-	-	-	0.44	0.36	0.34	**3.3**$^{(F)}$	**11**$^{(F)}$	0.36	**3.7**$^{(F)}$	0.22	0.19	**1.8**$^{(F)}$	**3.3**$^{(F)}$	0.075	0.47	0.31	0.37	0.45
Copper	µg/L	-	2.0 - 4.0[d]		2,000	1,000	4.2	1.4	1.4	1.9	1.9	2.8	1.0	1.4	2.0	1.7	**3.1**$^{(C)}$	**4.0**$^{(C)}$	1.0	**3.0**$^{(C)}$	1.5	1.7	1.9
Iron	µg/L	-	300		-	300	-	195	117	8.2	3.6	5.2	117	141	114	67	177	211	52	**1,620**$^{(C, Aa)}$	206	114	178
Lanthanum	µg/L	-	-		-	-	-	0.097	0.11	0.32	0.40	1.9	0.20	0.19	0.17	0.18	0.59	0.76	0.14	1.2	0.27	0.21	0.25
Lead	µg/L	-	1.0 - 7.0[d]		5.0	-	-	0.032	0.021	-	0.0066	0.037	-	0.054	0.036	0.0065	-	0.040	-	0.22	0.046	-	0.040
Lithium	µg/L	-	-		-	-	-	0.78	0.76	1.1	1.9	5.1	0.58	3.9	0.95	0.95	2.1	2.8	0.45	0.85	0.91	0.61	1.2
Manganese	µg/L	997 - 11,370[d]	210 - 650[f]		120	20	-	**21**$^{(Aa)}$	10	4.6	**63**$^{(Aa)}$	**206**$^{(C, Aa)}$	11	**94**$^{(Aa)}$	4.8	2.2	17	**33**$^{(Aa)}$	0.83	11	8.0	2.0	3.1
Mercury	µg/L	-	0.026		1.0	-	-	0.00014	0.00088	0.0020	0.00088	0.00082	0.00089	0.0012	0.00088	0.00066	0.0028	0.0024	0.0016	0.0037	0.0012	0.0025	0.0018
Molybdenum	µg/L	-	73		-	-	-	0.013	0.012	0.015	<0.01	<0.01	0.014	0.035	0.018	0.018	0.026	0.053	0.011	0.063	0.015	0.013	0.012
Nickel	µg/L	-	25 - 150[d]		-	-	-	2.3	2.7	5.2	20	48	2.1	9.4	4.6	4.7	6.2	14	2.9	6.9	3.9	3.1	4.9
Rubidium	µg/L	-	-		-	-	-	1.2	1.1	1.6	4.3	8.1	1.0	4.7	0.92	0.94	2.7	3.5	0.91	1.9	1.1	0.52	1.0
Selenium	µg/L	-	1.0		50	-	-	0.028	<0.025	0.029	0.089	0.22	<0.025	0.41	0.029	0.028	0.049	0.068	<0.025	0.046	0.030	<0.025	0.026
Silicon	µg/L	-	-		-	-	-	83	398	507	1,430	2,430	220	1,370	250	446	1,210	4,340	190	848	1,170	295	2,960
Silver	µg/L	-	0.25		-	-	-	<0.002	<0.002	0.0024	0.0021	0.0022	<0.002	0.0025	0.0029	<0.002	0.0029	0.0023	<0.002	0.0073	0.0020	0.0031	<0.002
Strontium	µg/L	-	-		7,000	-	-	15	17	43	120	366	13	140	11	12	19	46	8.6	15	28	9.8	20
Sulphur	µg/L	-	-		-	-	-	2,650	2,630	2,350	7,400	19,100	1,830	18,100	3,690	3,890	5,660	17,500	1,620	1,530	3,120	2,520	6,800
Tellurium	µg/L	-	-		-	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Thallium	µg/L	-	0.80		-	-	-	0.0025	0.0012	0.0023	0.011	0.020	0.0025	0.014	0.0025	0.0015	0.0073	0.0078	0.0013	0.0036	0.0024	0.0029	0.0030
Thorium	µg/L	-	-		-	-	-	<0.005	0.0089	0.0084	0.0074	0.013	0.017	0.026	0.0090	0.0099	0.064	0.094	0.010	0.048	0.017	0.032	0.040
Tin	µg/L	-	-		-	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.011	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.011
Titanium	µg/L	-	-		-	-	-	0.092	0.19	0.075	<0.05	0.12	1.1	0.36	0.090	0.085	0.96	0.72	0.21	3.1	0.55	0.90	0.60
Tungsten	µg/L	-	-		-	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Uranium	µg/L	33	15		20	-	-	0.0061	0.0047	0.0079	0.0069	0.0092	0.0061	0.0068	0.0084	0.0074	0.031	0.032	0.0056	0.036	0.0070	0.010	0.010
Vanadium	µg/L	-	-	120	-	-	-	0.054	0.061	0.026	0.022	0.040	0.31	0.13	0.050	0.039	0.41	0.25	0.051	1.0	0.12	0.34	0.26
Zinc	µg/L	22 - 183[g]	12 - 125[h]		-	5,000	-	1.5	1.0	-	11	21	-	3.4	0.92	0.62	-	3.7	-	1.0	1.0	-	3.4
Zirconium	µg/L	-	-		-	-	-	0.020	0.049	0.046	0.059	0.084	0.048	0.089	0.034	0.041	0.34	0.49	0.035	0.19	0.14	0.17	0.25
Gallium	µg/L	-	-		-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Niobium	µg/L	-	-		-	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Rhenium	µg/L	-	-		-	-	-	<0.005	<0.005	<0.005	<0.005	0.0060	<0.005	0.0079	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Tantalum	µg/L	-	-		-	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Yttrium	µg/L	-	-		-	-	-	0.031	0.056	0.12	0.17	0.47	0.082	0.094	0.061	0.069	0.34	0.50	0.061	0.49	0.13	0.14	0.20
Dissolved Metals																							
Aluminum	µg/L	-	-		-	-	-	6.4	9.8	25	25	81	11	18	10	6.6	136	106	11	41	17	43	49
Antimony	µg/L	-	-		-	-	-	0.0078	0.0065	0.0083	0.012	0.0093	0.0093	0.41	0.0072	0.0082	0.031	0.020	0.0072	0.018	0.014	0.012	0.0090
Arsenic	µg/L	-	-		-	-	-	0.25	0.25	0.18	0.19	0.21	0.27	0.39	0.26	0.25	0.58	0.74	0.25	1.4	0.44	0.27	0.34
Barium	µg/L	-	-		-	-	-	4.8	6.2	12	47	96	5.9	22	4.2	4.3	16	27	3.6	7.0	8.2	9.2	17
Beryllium	µg/L	-	-		-	-	-	<0.002	<0.002	0.0027	0.011	0.034	<0.002	0.0043	<0.002	<0.002	0.0094	0.0097	<0.002	0.0043	0.0024	0.0052	0.0055
Bismuth	µg/L	-	-		-	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.0011	<0.001	<0.001	<0.001	0.0012	<0.001	<0.001
Boron	µg/L	-	-		-	-	-	<5.0	<5.0	<5.0	<5.0	6.2	<5.0	12	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Cadmium	µg/L	-	-		-	-	-	0.0032	0.0026	0.018	0.13	0.24	0.0053	0.040	0.0046	0.0050	0.029	0.030	<0.0025	0.0052	0.0051	0.015	0.0076
Cesium	µg/L	-	-		-	-	-	0.0070	0.0055	0.015	0.045	0.090	<0.005	0.032	0.0059	0.0054	0.0051	0.013	<0.005	0.0079	<0.005	<0.005	<0.005
Chromium	µg/L	-	-		-	-	-	0.044	0.098	0.23	0.077	0.10	0.082	0.14	0.054	0.053	0.39	0.52	0.062	0.23	0.18	0.35	0.49
Cobalt	µg/L	-	-		-	-	-	0.29	0.21	0.33	3.3	9.6	0.34	3.4	0.16	0.13	1.9	3.0	0.070	0.35	0.27	0.36	0.42
Copper	µg/L	-	-	1.0 - 3.6[n]	-	-	-	**1.2**$^{(F)}$	1.1	**1.9**$^{(F)}$	**2.4**$^{(F)}$	**2.6**$^{(F)}$	**0.98**$^{(F)}$	**1.2**$^{(F)}$	**1.8**$^{(F)}$	**1.6**$^{(F)}$	**3.3**$^{(F)}$	**3.6**$^{(F)}$	1.0	**2.3**$^{(F)}$	**1.3**$^{(F)}$	**1.7**$^{(F)}$	**1.6**$^{(F)}$
Iron	µg/L	-	-		-	-	-	94	52	5.5	3.4	4.4	67	69	53	27	158	162	34	923	122	67	109
Lanthanum	µg/L	-	-		-	-	-	0.056	0.079	0.32	0.41	1.8	0.085	0.14	0.11	0.13	0.55	0.73	0.12	0.57	0.20	0.18	0.22
Lead	µg/L	-	-	5.2 - 13[d]	-	-	-	0.0059	0.0050	-	0.011	0.024	-	0.0097	<0.005	0.0070	-	0.019	-	0.14	0.060	-	0.0066
Lithium	µg/L	-	-		-	-	-	0.75	0.71	1.1	1.9	4.9	0.59	3.8	0.86	0.87	2.1	2.7	0.43	0.76	0.87	0.62	1.2
Manganese	µg/L	997 - 11,370[d]	210 - 650[f]		-	-	-	16	5.8	4.1	64	186	10	92	3.6	1.4	17	32	0.62	9.5	7.6	2.0	3.0
Mercury	µg/L	-	-		-	-	-	0.00065	0.00056	0.0019	0.00081	0.00073	0.0016	0.00079	0.00060	<0.0005	0.0028	0.0022	0.0013	0.0025	0.00075	0.0021	0.0015
Molybdenum	µg/L	-	-		-	-	-	0.013	0.010	0.013	0.011	<0.01	0.014	0.030	0.015	0.014	0.027	0.047	0.010	0.057	0.011	0.014	<0.01
Nickel	µg/L	-	-		-	-	-	2.1	2.4	5.1	20	45	2.1	9.2	4.4	4.6	6.5	14	3.0	6.0	3.8	3.2	4.8
Rubidium	µg/L	-	-		-	-	-	1.2	1.1	1.5	4.3	7.4	1.0	4.6	0.89	0.92	2.9	3.4	0.87	1.8	1.1	0.50	1.0
Selenium	µg/L	-	-		-	-	-	<0.025	<0.025	0.027	0.092	0.22	<0.025	0.40	0.027	0.026	0.043	0.066	<0.025	0.043	<0.025	<0.025	0.032
Silicon	µg/L	-	-		-	-	-	81	427	502	1,430	2,590	188	1,410	234	468	1,190	4,400	192	792	1,180	243	3,070
Silver	µg/L	-	-		-	-	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.0022	<0.002	0.0050	<0.002	0.0023	<0.002
Strontium	µg/L	-	-	2500	-	-	-	15	16	43	119	346	14	132	10	12	21	44	8.1	14	27	9.7	19
Sulphur	µg/L	-	-		-	-	-	2,640	2,920	2,360	7,440	19,800	1,920	19,100	3,550	4,030	5,670	17,800	1,680	1,520	3,340	2,520	7,180
Tellurium	µg/L	-	-		-	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Thallium	µg/L	-	-		-	-	-	0.0023	0.0014	0.0026	0.011	0.019	0.0024	0.013	0.0024	0.0012	0.0081	0.0073	0.0014	0.0027	0.0020	0.0028	0.0030
Thorium	µg/L	-	-		-	-	-	<0.01	0.011	0.010	<0.01	0.012	<0.005	0.015	<0.01	0.0060	0.071	0.099	0.0053	0.037	0.023	0.034	0.053
Tin	µg/L	-	-		-	-	-	<0.01	<0.01	<0.01	0.011	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Titanium	µg/L	-	-		-	-	-	<0.05	0.081	<0.05	<0.05	0.059	0.26	0.097	<0.05	<0.05	0.44	0.50	0.067	0.48	0.22	0.26	0.38
Tungsten	µg/L	-	-		-	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Uranium	µg/L	-	-		-	-	-	0.0031	0.0048	0.0093	0.0054	0.0094	0.0049	0.0043	0.0076	0.0047	0.031	0.026	0.0034	0.018	0.0068	0.011	0.0080

Table C-2: Water Quality Summary at Streams, 2023

Parameter	Unit	Guidelines for the Protection of:					Site-specific Water Quality Objective (Sabina 2017)	Stations														
		Acute	Chronic	Federal Environmental Quality Guidelines (GOC 2023)	Drinking Water (HC 2022)	Aesthetic (HC 2022)		Goose Lake Outflow		Goose Lake Inflow from Llama Lake			Goose Lake Inflow from Gander Pond		Goose Lake Inflow from Giraffe Lake		Goose Lake Inflow from Echo Lake		Goose Lake Inflow from Wolf Lake			Goose Lake Inflow to the Southeast Basin	
								07-20-2023	09-15-2023	05-29-2023	07-21-2023	09-16-2023	05-28-2023	09-16-2023	07-21-2023	09-15-2023	05-29-2023	09-16-2023	05-28-2023	07-21-2023	09-15-2023	05-28-2023	09-16-2023
								-	-	0.192 m^3/s	0.007 m^3/s	0.051 m^3/s	0.084 m^3/s	0.059 m^3/s	0.1035 m^3/s	0.112 m^3/s	0.001 m^3/s	0.005 m^3/s	0.123 m^3/s	0.018 m^3/s	0.046 m^3/s	0.008 m^3/s	0.029 m^3/s
		Freshwater Aquatic Life (CCME 1999)						YL2300877-013	YL2301146-002	YL2300492-002	YL2300892-001	YL2301146-005	YL2300484-003	YL2301146-007	YL2300892-002	YL2301146-003	YL2300492-001	YL2301146-006	YL2300484-001	YL2300892-003	YL2301146-001	YL2300484-002	YL2301146-004
Vanadium	µg/L	-	-		-	-	-	0.025	0.043	0.021	0.019	0.042	0.23	0.099	0.033	0.030	0.40	0.20	0.038	0.44	0.074	0.21	0.20
Zinc	µg/L	22 - 183[j]	12 - 125[k]		-	-	-	0.67	0.83	-	9.9	21	-	2.9	0.37	0.90	-	3.5	-	1.1	1.5	-	3.2
Zirconium	µg/L	-	-		-	-	-	0.014	0.042	0.040	0.060	0.074	0.027	0.083	0.031	0.035	0.28	0.46	0.026	0.16	0.11	0.14	0.25
Gallium	µg/L	-	-		-	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Niobium	µg/L	-	-		-	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Rhenium	µg/L	-	-		-	-	-	<0.005	<0.005	<0.005	<0.005	0.0052	<0.005	0.0073	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Tantalum	µg/L	-	-		-	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Yttrium	µg/L	-	-		-	-	-	0.027	0.050	0.11	0.15	0.49	0.037	0.081	0.036	0.057	0.37	0.51	0.050	0.25	0.11	0.12	0.20

Notes:

[a] = The ammonia guideline is pH and temperature dependent. The guideline that results in the minimum ammonia guideline (4.42 mg-N/L) is based on the combination of field pH (7.0) and water temperature (18.5°C). Guidelines calculated with temperature and pH values falling outside the defined range (i.e., pH 6.0 to 10.0 and temperature 0°C to 30°C) should be used with caution, as the WQG does not necessarily accurately reflect toxic effects at the low and high pH and temperature extremes. The guideline is calculated based on the individual field pH and temperature measurements for each sample.

[b] = Guideline is pH dependent. The guideline range shown is based on the pH range observed in the dataset (6.0 to 7.0). The guideline is calculated based on the individual pH for each sample.

[c] = Guideline is pH dependent: 5 µg/L at pH < 6.5 and 100 µg/L at pH ≥ 6.5.

[d] = Guideline is hardness dependent. The guideline range shown is based on the hardness range observed in the dataset (15 to 66 mg/L). The guideline is calculated based on the individual hardness value for each sample.

[e] = Guideline is for chromium VI.

[f] = Guideline is for dissolved manganese, but comparison to total manganese is appropriate when no dissolved manganese concentrations are available. The chronic dissolved manganese guideline is pH and hardness dependent. The guideline that results in the minimum chronic manganese guideline (200 µg/L) is based on the combination of field pH (6.0), and hardness (17.8 mg/L). Guidelines calculated with pH and hardness values falling outside the defined range (i.e., pH 5.8 to 8.4 and hardness 25 to 670 mg/L) should be used with caution, as the WQG does not necessarily accurately reflect toxic effects at the low and high pH and hardness extremes. The guideline is calculated based on the individual pH and hardness measurements for each sample.

[g] = Guideline is for dissolved zinc, but comparison to total zinc is appropriate when no dissolved zinc concentrations are available. The acute dissolved zinc guideline is hardness and dissolved organic carbon dependent. The guideline that results in the minimum acute zinc guideline (22.2 µg/L) is based on the combination of hardness (14.6 mg/L) and dissolved organic carbon (4.1 mg/L). Guidelines calculated with hardness and dissolved organic carbon values falling outside the defined range (i.e., hardness 13.8 to 250.5 mg/L and dissolved organic carbon 0.3 to 17.3 mg/L) should be used with caution, as the WQG does not necessarily accurately reflect toxic effects at the low and high hardness and dissolved organic carbon extremes. The guideline is calculated based on the individual hardness and dissolved organic carbon measurements for each sample.

[h] = Guideline is for dissolved zinc, but comparison to total zinc is appropriate when no dissolved zinc concentrations are available. The chronic dissolved zinc guideline is pH, hardness and dissolved organic carbon dependent. The guideline that results in the minimum chronic zinc guideline (11.7 µg/L) is based on the combination of field pH (7.0), hardness (15.8 mg/L) and dissolved organic carbon (4.0 mg/L). Guidelines calculated with pH, hardness, and dissolved organic carbon values falling outside the defined range (i.e., pH 6.5 to 8.13, hardness 23.4 to 399 mg/L and dissolved organic carbon 0.3 to 22.9 mg/L) should be used with caution, as the WQG does not necessarily accurately reflect toxic effects at the low and high pH, hardness and dissolved organic carbon extremes. The guideline is calculated based on the individual pH, hardness and dissolved organic carbon measurements for each sample.

[i] = The chronic dissolved manganese guideline is pH, and hardness dependent. The guideline that results in the minimum chronic manganese guideline (200.0 µg/L) is based on the combination of field pH (6.0), and hardness (17.8 mg/L). Guidelines calculated with pH and hardness values falling outside the defined range (i.e., pH 5.8 to 8.4 and hardness 25 to 670 mg/L) should be used with caution, as the WQG does not necessarily accurately reflect toxic effects at the low and high pH and hardness extremes. The guideline is calculated based on the individual pH and hardness measurements for each sample.

[j] = The acute dissolved zinc guideline is hardness and dissolved organic carbon dependent. The guideline that results in the minimum acute zinc guideline (22.2 µg/L) is based on the combination of hardness (14.6 mg/L) and dissolved organic carbon (4.1 mg/L). Guidelines calculated with hardness and dissolved organic carbon values falling outside the defined range (i.e., hardness 13.8 to 250.5 mg/L and dissolved organic carbon 0.3 to 17.3 mg/L) should be used with caution, as the WQG does not necessarily accurately reflect toxic effects at the low and high hardness and dissolved organic carbon extremes. The guideline is calculated based on the individual hardness and dissolved organic carbon measurements for each sample.

[k] = The chronic dissolved zinc guideline is pH, hardness and dissolved organic carbon dependent. The guideline that results in the minimum chronic zinc guideline (11.7 µg/L) is based on the combination of field pH (7.0), hardness (15.8 mg/L) and dissolved organic carbon (4.0 mg/L). Guidelines calculated with pH, hardness, and dissolved organic carbon values falling outside the defined range (i.e., pH 6.5 to 8.13, hardness 23.4 to 399 mg/L and dissolved organic carbon 0.3 to 22.9 mg/L) should be used with caution, as the WQG does not necessarily accurately reflect toxic effects at the low and high pH, hardness and dissolved organic carbon extremes. The guideline is calculated based on the individual pH, hardness and dissolved organic carbon measurements for each sample.

[l] = Total dissolved solids calculated by WSP using the Standard Method by APHA 2005 (Total dissolved solids, mg/L = $\Sigma[Na^+, K^+, Ca^{2+}, Mg^{2+}, Cl^-, F^-, SO_4^{2-}, 4.42 * NO_3^-$ (as nitrogen), 0.6 * total alkalinity (as $CaCO_3$)).

[m] = The Federal Environmental Quality Guidelines for total aluminum is valid between hardness 10 and 430 mg/L, pH 6 and 8.7, and dissolved organic carbon 0.08 and 12.3 mg/L.

[n] = The Federal Environmental Quality Guidelines for total cobalt was calculated using the minimum hardness of 52 mg/L since the equation to calculate the guideline was done with hardness between 52-396 mg/L.

[o] = The Federal Environmental Quality Guidelines for dissolved copper depends on temperature, pH, disolved organic carbon and hardness.

[p] = The Federal Environmental Quality Guidelines for dissolved lead is valid for disolved organic carbon 0.5 - 31.5 mg/L and hardness 4.7-511 mg/L.

[C] = Concentration is higher than the chronic aquatic life CCME guideline or outside the recommended pH, dissolved oxygen or total alkalinity range.

[Ae] = Concentration is higher than the aesthetic Health Canada guideline or outside the recommended pH range.

[F] = Concentration is higher than the Federal Environmental Quality Guidelines.

Bolded concentrations are higher than water quality guidelines.

Water quality data and guidelines shown in this table were rounded to reflect laboratory or field instrument precision *after* comparisons to guidelines. Therefore, values slightly above guidelines may be displayed as being equal to the guidelines and identified as exceedances. Concentrations equal to the guideline values were not identified as exceedances.

- no guideline or no data; B = bottom, M = Middle, T = top; $CaCO_3$ = calcium carbonate; µS/cm = microsiemens per centimetre; °C = degree Celsius; NTU = nephelometric turbidity units; mg/L = miligrams per litre; WAD = weak acid dissociable; mg-N/L = milligrams nitrogen per litre; mg-P/L = milligram phosphorus per litre; µg/L = microgram per litre; CCME = Canadian Council of Ministers of the Environment; GOC = Government of Canada; HC = Health Canada; APHA = American F

Sources:

CCME (Canadian Council of Ministers of the Environment). 1999. Canadian Environmental Quality Guidelines. 1999 with updates to 2023. Winnipeg, MB, Canada.
HC (Health Canada). 2022. Guidelines for Canadian Drinking Water Quality—Summary Tables. Water and Air Quality Bureau, Healthy Environments and Consumer Safety Branch, Ottawa, ON, Canada.
APHA (American Public Health Association). 2005. Standard Methods for Examination of Water and Wastewater. Standard Methods of Water Analysis, American Public Health Association, New York, NY, USA.
GOC (Government of Canada). 2023. Federal Environmental Quality Guidelines. Accessed in December 2023. https://www.canada.ca/en/environment-climate-change/services/canadian-environmental-protection-act-registry/guidelines-objectives-codes-practice/guidelines-objectives.html#fed
Sabina (Sabina Gold & Silver Corporation). 2017. The Back River Project Main Application Document October 2017. Submitted to the Nunavut Water Board. October 2017.

In the laboratory certificates of analysis, the stream IDs match the following stream descriptions:

PN03 = Goose Lake Outflow

PN04 = Goose Lake Inflow from Llama Lake

PN05 = Goose Lake Inflow from Gander Pond

PN06 = Goose Lake Inflow from Giraffe Lake

PN07 = Goose Lake Inflow from Echo Lake

PN08 = Goose Lake Inflow from Wolf Lake

PN09 = Goose Lake Inflow to the Southeast Basin

Note that these station IDs may not match previous reports.

CERTIFICATE OF ANALYSIS

Work Order	: **YL2300484**	Page	: 1 of 7
Amendment	: **2**		
Client	: **Sabina Gold & Silver Corporation**	Laboratory	: ALS Environmental - Yellowknife
Contact	: Merle Keefe	Account Manager	: Oliver Gregg
Address	: 375 - 555 Burrard St. Box 220, Bentall 2 Vancouver BC Canada V7X 1M7	Address	: 314 Old Airport Road, Unit 116 Yellowknife NT Canada X1A 3T3
Telephone	: 604 240 6619	Telephone	: 1 867 445 7143
Project	: 22567626	Date Samples Received	: 30-May-2023 09:25
PO	: PO-10402	Date Analysis Commenced	: 31-May-2023
C-O-C number	: ----	Issue Date	: 22-Nov-2023 12:20
Sampler	: ----		
Site	: ----		
Quote number	: 2021 Under-Ice Field Program		
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

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*
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Miles Gropen	Department Manager - Inorganics	Inorganics, Burnaby, British Columbia
Ping Yeung	Team Leader - Inorganics	Inorganics, Edmonton, Alberta
Robin Weeks	Team Leader - Metals	Inorganics, Burnaby, British Columbia
Robin Weeks	Team Leader - Metals	Metals, Burnaby, British Columbia

General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Please refer to Quality Control Interpretive report (QCI) for information regarding Holding Time compliance.

Key : CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances

LOR: Limit of Reporting (detection limit).

Unit	*Description*
-	no units
µS/cm	microsiemens per centimetre
mg/L	milligrams per litre
ng/L	nanograms per litre
NTU	nephelometric turbidity units
pH units	pH units

<: less than.

>: greater than.

Surrogate: An analyte that is similar in behavior to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED on SRN or QCI Report, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical Results

Sub-Matrix: Water (Matrix: Water)				Client sample ID	PN08	PN09	PN05	DUP	----
				Client sampling date / time	28-May-2023 08:00	28-May-2023 11:00	28-May-2023 14:00	28-May-2023 14:00	----
Analyte	CAS Number	Method/Lab	LOR	Unit	YL2300484-001	YL2300484-002	YL2300484-003	YL2300484-004	--------
					Result	Result	Result	Result	----
Physical Tests									
Alkalinity, bicarbonate (as CaCO3)	----	E290/VA	1.0	mg/L	5.8	3.8	5.0	5.4	----
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, phenolphthalein (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	5.8	3.8	5.0	5.4	----
Conductivity	----	E100/VA	2.0	µS/cm	29.2	32.1	35.2	35.3	----
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/VA	0.50	mg/L	11.5	12.0	12.4	12.5	----
pH	----	E108/VA	0.10	pH units	6.96	6.64	6.90	6.91	----
Solids, total dissolved [TDS]	----	E162/VA	10	mg/L	35	37	33	28	----
Solids, total dissolved [TDS], calculated	----	EC103/VA	1.0	mg/L	14.9	16.7	17.9	18.2	----
Solids, total suspended [TSS]	----	E160/VA	3.0	mg/L	<3.0	<3.0	<3.0	<3.0	----
Turbidity	----	E121/VA	0.10	NTU	0.49	1.25	1.11	1.20	----
Anions and Nutrients									
Ammonia, total (as N)	7664-41-7	E298/VA	0.0050	mg/L	0.0053	0.0069	0.0605	0.0635	----
Bromide	24959-67-9	E235.Br-L/VA	0.050	mg/L	<0.050	<0.050	<0.050	<0.050	----
Chloride	16887-00-6	E235.Cl/VA	0.50	mg/L	1.00	0.64	2.30	2.33	----
Fluoride	16984-48-8	E235.F/VA	0.020	mg/L	<0.020	<0.020	0.026	<0.020	----
Nitrate (as N)	14797-55-8	E235.NO3-L/VA	0.0050	mg/L	0.0279	<0.0050	0.113	0.114	----
Nitrite (as N)	14797-65-0	E235.NO2-L/VA	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	----
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U/VA	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	----
Phosphorus, total	7723-14-0	E372-S/EO	0.0010	mg/L	0.0014	0.0053	0.0039	0.0045	----
Phosphorus, total dissolved	7723-14-0	E375-U/EO	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	----
Silicate (as SiO2)	7631-86-9	E392/VA	0.50	mg/L	0.51	0.58	<0.50	<0.50	----
Sulfate (as SO4)	14808-79-8	E235.SO4-L/VA	0.050	mg/L	5.18	7.98	6.00	5.97	----
Sulfate (as SO4)	14808-79-8	E235.SO4/VA	0.30	mg/L	5.18	7.98	6.00	5.97	----
Kjeldahl nitrogen, total [TKN]	----	E318/VA	0.200	mg/L	0.256	0.454	0.339	0.352	----
Organic / Inorganic Carbon									

Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	PN08	PN09	PN05	DUP	----
					Client sampling date / time	28-May-2023 08:00	28-May-2023 11:00	28-May-2023 14:00	28-May-2023 14:00	----
Analyte	CAS Number	Method/Lab	LOR	Unit		YL2300484-001	YL2300484-002	YL2300484-003	YL2300484-004	--------
						Result	Result	Result	Result	----
Organic / Inorganic Carbon										
Carbon, total organic [TOC]	----	E355-L/VA	0.50	mg/L		4.53	8.39	4.81	5.17	----
Total Sulfides										
Sulfide, total (as S)	18496-25-8	E395/VA	0.0015	mg/L		<0.0015	0.0043	<0.0015	0.0018	----
Sulfide, total (as H2S)	7783-06-4	E395/VA	0.0016	mg/L		<0.0016	0.0046	<0.0016	0.0019	----
Total Metals										
Mercury, total	7439-97-6	E508-L/VA	0.50	ng/L		1.56	2.46	0.89	1.54	----
Total Metals (Undigested)										
Aluminum, total	7429-90-5	E466/VA	0.00020	mg/L		0.0162	0.0568	0.0265	0.0268	----
Antimony, total	7440-36-0	E466/VA	0.0000050	mg/L		0.0000082	0.0000141	0.0000125	0.0000141	----
Arsenic, total	7440-38-2	E466/VA	0.000010	mg/L		0.000266	0.000279	0.000288	0.000290	----
Barium, total	7440-39-3	E466/VA	0.000020	mg/L		0.00370	0.00956	0.00607	0.00608	----
Beryllium, total	7440-41-7	E466/VA	0.0000020	mg/L		0.0000024	0.0000064	0.0000030	0.0000031	----
Bismuth, total	7440-69-9	E466/VA	0.0000010	mg/L		<0.0000010	<0.0000010	<0.0000010	<0.0000010	----
Boron, total	7440-42-8	E466/VA	0.0050	mg/L		<0.0050	<0.0050	<0.0050	<0.0050	----
Cadmium, total	7440-43-9	E466/VA	0.0000025	mg/L		0.0000063	0.0000136	0.0000069	0.0000073	----
Calcium, total	7440-70-2	E466/VA	0.010	mg/L		2.15	2.30	2.55	2.58	----
Cesium, total	7440-46-2	E466/VA	0.0000050	mg/L		<0.0000050	<0.0000050	0.0000050	<0.0000050	----
Chromium, total	7440-47-3	E466/VA	0.000040	mg/L		0.000073	0.000377	0.000124	0.000122	----
Cobalt, total	7440-48-4	E466/VA	0.0000050	mg/L		0.0000745	0.000373	0.000363	0.000359	----
Copper, total	7440-50-8	E466/VA	0.000050	mg/L		0.00104	0.00169	0.00102	0.00102	----
Gallium, total	7440-55-3	E466/VA	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	----
Iron, total	7439-89-6	E466/VA	0.00050	mg/L		0.0516	0.114	0.117	0.120	----
Lanthanum, total	7439-91-0	E466/VA	0.000010	mg/L		0.000140	0.000214	0.000199	0.000200	----
Lead, total	7439-92-1	E466/VA	0.0000050	mg/L		0.0000382	0.0000334	0.0000397	0.0000428	----
Lithium, total	7439-93-2	E466/VA	0.00010	mg/L		0.00045	0.00061	0.00058	0.00056	----
Magnesium, total	7439-95-4	E466/VA	0.0010	mg/L		1.48	1.53	1.47	1.48	----
Manganese, total	7439-96-5	E466/VA	0.0000050	mg/L		0.000826	0.00204	0.0106	0.0104	----
Molybdenum, total	7439-98-7	E466/VA	0.000010	mg/L		0.000011	0.000013	0.000014	0.000013	----
Nickel, total	7440-02-0	E466/VA	0.000020	mg/L		0.00292	0.00308	0.00209	0.00217	----
Niobium, total	7440-03-1	E466/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	----

Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	PN08	PN09	PN05	DUP	----
					Client sampling date / time	28-May-2023 08:00	28-May-2023 11:00	28-May-2023 14:00	28-May-2023 14:00	----
Analyte	CAS Number	Method/Lab	LOR	Unit		YL2300484-001	YL2300484-002	YL2300484-003	YL2300484-004	--------
						Result	Result	Result	Result	----
Total Metals (Undigested)										
Phosphorus, total	7723-14-0	E466/VA	0.010	mg/L		<0.010	<0.010	<0.010	<0.010	----
Potassium, total	7440-09-7	E466/VA	0.0050	mg/L		0.387	0.177	0.404	0.412	----
Rhenium, total	7440-15-5	E466/VA	0.0000050	mg/L		<0.0000050	<0.0000050	<0.0000050	<0.0000050	----
Rubidium, total	7440-17-7	E466/VA	0.0000050	mg/L		0.000913	0.000523	0.00102	0.00101	----
Selenium, total	7782-49-2	E466/VA	0.000025	mg/L		<0.000025	<0.000025	<0.000025	0.000026	----
Silicon, total	7440-21-3	E466/VA	0.050	mg/L		0.190	0.295	0.220	0.206	----
Silver, total	7440-22-4	E466/VA	0.0000020	mg/L		<0.0000020	0.0000031	<0.0000020	<0.0000020	----
Sodium, total	7440-23-5	E466/VA	0.010	mg/L		0.661	0.997	0.662	0.661	----
Strontium, total	7440-24-6	E466/VA	0.000020	mg/L		0.00863	0.00979	0.0129	0.0128	----
Sulfur, total	7704-34-9	E466/VA	0.50	mg/L		1.62	2.52	1.83	1.90	----
Tantalum, total	7440-25-7	E466/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	----
Tellurium, total	13494-80-9	E466/VA	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	----
Thallium, total	7440-28-0	E466/VA	0.0000010	mg/L		0.0000013	0.0000029	0.0000025	0.0000022	----
Thorium, total	7440-29-1	E466/VA	0.0000050	mg/L		0.0000102	0.0000324	0.0000168	0.0000172	----
Tin, total	7440-31-5	E466/VA	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	----
Titanium, total	7440-32-6	E466/VA	0.000050	mg/L		0.000208	0.000901	0.00112	0.000737	----
Tungsten, total	7440-33-7	E466/VA	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	----
Uranium, total	7440-61-1	E466/VA	0.0000010	mg/L		0.0000056	0.0000104	0.0000061	0.0000080	----
Vanadium, total	7440-62-2	E466/VA	0.000010	mg/L		0.000051	0.000335	0.000313	0.000326	----
Yttrium, total	7440-65-5	E466/VA	0.000010	mg/L		0.000061	0.000141	0.000082	0.000085	----
Zinc, total	7440-66-6	E466/VA	0.00010	mg/L		0.00063	0.00374	0.00088	0.00101	----
Zirconium, total	7440-67-7	E466/VA	0.000010	mg/L		0.000035	0.000167	0.000048	0.000046	----
Dissolved Metals										
Aluminum, dissolved	7429-90-5	E465/VA	0.00020	mg/L		0.0109	0.0432	0.0106	0.0104	----
Antimony, dissolved	7440-36-0	E465/VA	0.0000050	mg/L		0.0000072	0.0000116	0.0000093	0.0000104	----
Arsenic, dissolved	7440-38-2	E465/VA	0.000010	mg/L		0.000247	0.000265	0.000274	0.000274	----
Barium, dissolved	7440-39-3	E465/VA	0.000020	mg/L		0.00355	0.00924	0.00587	0.00588	----
Beryllium, dissolved	7440-41-7	E465/VA	0.0000020	mg/L		<0.0000020	0.0000052	<0.0000020	<0.0000020	----
Bismuth, dissolved	7440-69-9	E465/VA	0.0000010	mg/L		<0.0000010	<0.0000010	<0.0000010	<0.0000010	----
Boron, dissolved	7440-42-8	E465/VA	0.0050	mg/L		<0.0050	<0.0050	<0.0050	<0.0050	----

Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	PN08	PN09	PN05	DUP	----
					Client sampling date / time	28-May-2023 08:00	28-May-2023 11:00	28-May-2023 14:00	28-May-2023 14:00	----
Analyte	CAS Number	Method/Lab	LOR	Unit		YL2300484-001	YL2300484-002	YL2300484-003	YL2300484-004	--------
						Result	Result	Result	Result	----
Dissolved Metals										
Cadmium, dissolved	7440-43-9	E465/VA	0.0000025	mg/L		<0.0000025	0.0000147	0.0000053	0.0000050	----
Calcium, dissolved	7440-70-2	E465/VA	0.010	mg/L		2.06	2.35	2.67	2.74	----
Cesium, dissolved	7440-46-2	E465/VA	0.0000050	mg/L		<0.0000050	<0.0000050	<0.0000050	<0.0000050	----
Chromium, dissolved	7440-47-3	E465/VA	0.000040	mg/L		0.000062	0.000349	0.000082	0.000083	----
Cobalt, dissolved	7440-48-4	E465/VA	0.0000050	mg/L		0.0000699	0.000364	0.000335	0.000344	----
Copper, dissolved	7440-50-8	E465/VA	0.000050	mg/L		0.00102	0.00173	0.000984	0.000999	----
Dissolved metals filtration location	----	EP465/VA	-	-		Field	Field	Field	Field	----
Gallium, dissolved	7440-55-3	E465/VA	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	----
Iron, dissolved	7439-89-6	E465/VA	0.00050	mg/L		0.0336	0.0668	0.0668	0.0662	----
Lanthanum, dissolved	7439-91-0	E465/VA	0.000010	mg/L		0.000124	0.000175	0.000085	0.000085	----
Lead, dissolved	7439-92-1	E465/VA	0.0000050	mg/L		0.0000196	0.0000164	0.0000190	0.0000226	----
Lithium, dissolved	7439-93-2	E465/VA	0.00010	mg/L		0.00043	0.00062	0.00059	0.00059	----
Magnesium, dissolved	7439-95-4	E465/VA	0.0010	mg/L		1.45	1.49	1.55	1.54	----
Manganese, dissolved	7439-96-5	E465/VA	0.0000050	mg/L		0.000618	0.00195	0.0102	0.0101	----
Mercury, dissolved	7439-97-6	E509-L/VA	0.50	ng/L		1.27	2.06	1.56	0.94	----
Molybdenum, dissolved	7439-98-7	E465/VA	0.000010	mg/L		0.000010	0.000014	0.000014	0.000012	----
Nickel, dissolved	7440-02-0	E465/VA	0.000020	mg/L		0.00297	0.00316	0.00214	0.00218	----
Niobium, dissolved	7440-03-1	E465/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	----
Phosphorus, dissolved	7723-14-0	E465/VA	0.010	mg/L		<0.010	<0.010	<0.010	<0.010	----
Potassium, dissolved	7440-09-7	E465/VA	0.0050	mg/L		0.379	0.179	0.429	0.450	----
Rhenium, dissolved	7440-15-5	E465/VA	0.0000050	mg/L		<0.0000050	<0.0000050	<0.0000050	<0.0000050	----
Rubidium, dissolved	7440-17-7	E465/VA	0.0000050	mg/L		0.000870	0.000504	0.00104	0.00103	----
Selenium, dissolved	7782-49-2	E465/VA	0.000025	mg/L		<0.000025	<0.000025	<0.000025	0.000028	----
Silicon, dissolved	7440-21-3	E465/VA	0.050	mg/L		0.192	0.243	0.188	0.194	----
Silver, dissolved	7440-22-4	E465/VA	0.0000020	mg/L		<0.0000020	0.0000023	<0.0000020	<0.0000020	----
Sodium, dissolved	7440-23-5	E465/VA	0.010	mg/L		0.650	0.978	0.713	0.719	----
Strontium, dissolved	7440-24-6	E465/VA	0.000020	mg/L		0.00808	0.00970	0.0136	0.0136	----
Sulfur, dissolved	7704-34-9	E465/VA	0.50	mg/L		1.68	2.52	1.92	1.95	----
Tantalum, dissolved	7440-25-7	E465/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	----
Tellurium, dissolved	13494-80-9	E465/VA	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	----

Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	PN08	PN09	PN05	DUP	----
					Client sampling date / time	28-May-2023 08:00	28-May-2023 11:00	28-May-2023 14:00	28-May-2023 14:00	----
Analyte	CAS Number	Method/Lab	LOR	Unit		YL2300484-001	YL2300484-002	YL2300484-003	YL2300484-004	--------
						Result	Result	Result	Result	----
Dissolved Metals										
Thallium, dissolved	7440-28-0	E465/VA	0.0000010	mg/L		0.0000014	0.0000028	0.0000024	0.0000024	----
Thorium, dissolved	7440-29-1	E465/VA	0.0000050	mg/L		0.0000053	0.0000337	<0.0000050	0.0000070	----
Tin, dissolved	7440-31-5	E465/VA	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	----
Titanium, dissolved	7440-32-6	E465/VA	0.000050	mg/L		0.000067	0.000264	0.000256	0.000198	----
Tungsten, dissolved	7440-33-7	E465/VA	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	----
Uranium, dissolved	7440-61-1	E465/VA	0.0000010	mg/L		0.0000034	0.0000109	0.0000049	0.0000059	----
Vanadium, dissolved	7440-62-2	E465/VA	0.000010	mg/L		0.000038	0.000206	0.000226	0.000221	----
Yttrium, dissolved	7440-65-5	E465/VA	0.000010	mg/L		0.000050	0.000120	0.000037	0.000037	----
Zinc, dissolved	7440-66-6	E465/VA	0.00010	mg/L		0.00044	0.00347	0.00087	0.00118	----
Zirconium, dissolved	7440-67-7	E465/VA	0.000010	mg/L		0.000026	0.000138	0.000027	0.000030	----
Dissolved mercury filtration location	----	EP509-L/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.

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QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **YL2300484**	Page	: 1 of 22
Amendment	: **2**		
Client	: **Sabina Gold & Silver Corporation**	Laboratory	: ALS Environmental - Yellowknife
Contact	: Merle Keefe	Account Manager	: Oliver Gregg
Address	: 375 - 555 Burrard St. Box 220, Bentall 2 Vancouver BC Canada V7X 1M7	Address	: 314 Old Airport Road, Unit 116 Yellowknife, Northwest Territories Canada X1A 3T3
Telephone	: 604 240 6619	Telephone	: 1 867 445 7143
Project	: 22567626	Date Samples Received	: 30-May-2023 09:25
PO	: PO-10402	Issue Date	: 22-Nov-2023 12:21
C-O-C number	: ----		
Sampler	: ----		
Site	: ----		
Quote number	: 2021 Under-Ice Field Program		
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

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 Duplicate outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- No Matrix Spike outliers occur.
- Method Blank value outliers occur - please see following pages for full details.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- Analysis Holding Time Outliers exist - please see following pages for full details.

Outliers : Frequency of Quality Control Samples

- Quality Control Sample Frequency Outliers occur - please see following pages for full details.

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **Water**

Analyte Group	Laboratory sample ID	Client/Ref Sample ID	Analyte	CAS Number	Method	Result	Limits	Comment
Method Blank (MB) Values								
Total Metals (Undigested)	QC-965400-001	----	Aluminum, total	7429-90-5	E466	0.00021 B mg/L	0.0002 mg/L	Blank result exceeds permitted value

Result Qualifiers

Qualifier	Description
B	*Method Blank exceeds ALS DQO. Associated sample results which are < Limit of Reporting or > 5 times blank level are considered reliable.*

Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) DUP	E298	28-May-2023	01-Jun-2023	28 days	4 days	✓	03-Jun-2023	28 days	6 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) PN05	E298	28-May-2023	01-Jun-2023	28 days	4 days	✓	03-Jun-2023	28 days	6 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) PN08	E298	28-May-2023	01-Jun-2023	28 days	4 days	✓	03-Jun-2023	28 days	6 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) PN09	E298	28-May-2023	01-Jun-2023	28 days	4 days	✓	03-Jun-2023	28 days	6 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE DUP	E235.Br-L	28-May-2023	31-May-2023	28 days	3 days	✓	01-Jun-2023	28 days	3 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE PN05	E235.Br-L	28-May-2023	31-May-2023	28 days	3 days	✓	01-Jun-2023	28 days	3 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE PN09	E235.Br-L	28-May-2023	31-May-2023	28 days	3 days	✓	01-Jun-2023	28 days	4 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE PN08	E235.Br-L	28-May-2023	31-May-2023	28 days	4 days	✓	01-Jun-2023	28 days	4 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE DUP	E235.Cl	28-May-2023	31-May-2023	28 days	3 days	✓	01-Jun-2023	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE PN05	E235.Cl	28-May-2023	31-May-2023	28 days	3 days	✓	01-Jun-2023	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE PN09	E235.Cl	28-May-2023	31-May-2023	28 days	3 days	✓	01-Jun-2023	28 days	4 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE PN08	E235.Cl	28-May-2023	31-May-2023	28 days	4 days	✓	01-Jun-2023	28 days	4 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE DUP	E378-U	28-May-2023	31-May-2023	3 days	3 days	✓	31-May-2023	3 days	3 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE PN05	E378-U	28-May-2023	31-May-2023	3 days	3 days	✓	31-May-2023	3 days	3 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE PN08	E378-U	28-May-2023	31-May-2023	3 days	3 days	✓	31-May-2023	3 days	3 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE PN09	E378-U	28-May-2023	31-May-2023	3 days	3 days	✓	31-May-2023	3 days	3 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Fluoride in Water by IC										
HDPE DUP	E235.F	28-May-2023	31-May-2023	28 days	3 days	✓	01-Jun-2023	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE PN05	E235.F	28-May-2023	31-May-2023	28 days	3 days	✓	01-Jun-2023	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE PN09	E235.F	28-May-2023	31-May-2023	28 days	3 days	✓	01-Jun-2023	28 days	4 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE PN08	E235.F	28-May-2023	31-May-2023	28 days	4 days	✓	01-Jun-2023	28 days	4 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE DUP	E235.NO3-L	28-May-2023	31-May-2023	3 days	3 days	✓	01-Jun-2023	3 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE PN05	E235.NO3-L	28-May-2023	31-May-2023	3 days	3 days	✓	01-Jun-2023	3 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE PN08	E235.NO3-L	28-May-2023	31-May-2023	3 days	3 days	✓	01-Jun-2023	3 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE PN09	E235.NO3-L	28-May-2023	31-May-2023	3 days	3 days	✓	01-Jun-2023	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE DUP	E235.NO2-L	28-May-2023	31-May-2023	3 days	3 days	✓	01-Jun-2023	3 days	3 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE PN05	E235.NO2-L	28-May-2023	31-May-2023	3 days	3 days	✓	01-Jun-2023	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE PN08	E235.NO2-L	28-May-2023	31-May-2023	3 days	3 days	✓	01-Jun-2023	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE PN09	E235.NO2-L	28-May-2023	31-May-2023	3 days	3 days	✓	01-Jun-2023	3 days	3 days	✓
Anions and Nutrients : Reactive Silica by Colourimetry										
HDPE DUP	E392	28-May-2023	----	----	----		06-Jun-2023	28 days	9 days	✓
Anions and Nutrients : Reactive Silica by Colourimetry										
HDPE PN05	E392	28-May-2023	----	----	----		06-Jun-2023	28 days	9 days	✓
Anions and Nutrients : Reactive Silica by Colourimetry										
HDPE PN08	E392	28-May-2023	----	----	----		06-Jun-2023	28 days	9 days	✓
Anions and Nutrients : Reactive Silica by Colourimetry										
HDPE PN09	E392	28-May-2023	----	----	----		06-Jun-2023	28 days	9 days	✓
Anions and Nutrients : Sulfate in Water by IC (Low Level)										
HDPE DUP	E235.SO4-L	28-May-2023	31-May-2023	28 days	3 days	✓	01-Jun-2023	28 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC (Low Level)										
HDPE PN05	E235.SO4-L	28-May-2023	31-May-2023	28 days	3 days	✓	01-Jun-2023	28 days	3 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Sulfate in Water by IC (Low Level)										
HDPE PN09	E235.SO4-L	28-May-2023	31-May-2023	28 days	3 days	✓	01-Jun-2023	28 days	4 days	✓
Anions and Nutrients : Sulfate in Water by IC (Low Level)										
HDPE PN08	E235.SO4-L	28-May-2023	31-May-2023	28 days	4 days	✓	01-Jun-2023	28 days	4 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE DUP	E235.SO4	28-May-2023	31-May-2023	28 days	3 days	✓	01-Jun-2023	28 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE PN05	E235.SO4	28-May-2023	31-May-2023	28 days	3 days	✓	01-Jun-2023	28 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE PN09	E235.SO4	28-May-2023	31-May-2023	28 days	3 days	✓	01-Jun-2023	28 days	4 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE PN08	E235.SO4	28-May-2023	31-May-2023	28 days	4 days	✓	01-Jun-2023	28 days	4 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (0.001 mg/L)										
Amber glass dissolved (sulfuric acid) DUP	E375-U	28-May-2023	08-Jun-2023	28 days	11 days	✓	08-Jun-2023	28 days	11 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (0.001 mg/L)										
Amber glass dissolved (sulfuric acid) PN05	E375-U	28-May-2023	08-Jun-2023	28 days	11 days	✓	08-Jun-2023	28 days	11 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (0.001 mg/L)										
Amber glass dissolved (sulfuric acid) PN08	E375-U	28-May-2023	08-Jun-2023	28 days	11 days	✓	08-Jun-2023	28 days	11 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (0.001 mg/L)										
Amber glass dissolved (sulfuric acid) PN09	E375-U	28-May-2023	08-Jun-2023	28 days	11 days	✓	08-Jun-2023	28 days	11 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) DUP	E318	28-May-2023	20-Jun-2023	28 days	23 days	✓	20-Jun-2023	28 days	23 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) PN05	E318	28-May-2023	20-Jun-2023	28 days	23 days	✓	20-Jun-2023	28 days	23 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) PN08	E318	28-May-2023	20-Jun-2023	28 days	23 days	✓	20-Jun-2023	28 days	23 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) PN09	E318	28-May-2023	20-Jun-2023	28 days	23 days	✓	20-Jun-2023	28 days	23 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.001 mg/L)										
Amber glass total (sulfuric acid) DUP	E372-S	28-May-2023	08-Jun-2023	28 days	11 days	✓	08-Jun-2023	28 days	11 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.001 mg/L)										
Amber glass total (sulfuric acid) PN05	E372-S	28-May-2023	08-Jun-2023	28 days	11 days	✓	08-Jun-2023	28 days	11 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.001 mg/L)										
Amber glass total (sulfuric acid) PN08	E372-S	28-May-2023	08-Jun-2023	28 days	11 days	✓	08-Jun-2023	28 days	11 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.001 mg/L)										
Amber glass total (sulfuric acid) PN09	E372-S	28-May-2023	08-Jun-2023	28 days	11 days	✓	08-Jun-2023	28 days	11 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Dissolved Metals : Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - dissolved (lab preserved)										
DUP	E509-L	28-May-2023	03-Jun-2023	28 days	6 days	✓	03-Jun-2023	28 days	0 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - dissolved (lab preserved)										
PN05	E509-L	28-May-2023	03-Jun-2023	28 days	6 days	✓	03-Jun-2023	28 days	0 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - dissolved (lab preserved)										
PN08	E509-L	28-May-2023	03-Jun-2023	28 days	6 days	✓	03-Jun-2023	28 days	0 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - dissolved (lab preserved)										
PN09	E509-L	28-May-2023	03-Jun-2023	28 days	6 days	✓	03-Jun-2023	28 days	0 days	✓
Dissolved Metals : Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine Samples)										
Pre-cleaned HDPE - dissolved (lab preserved)										
DUP	E465	28-May-2023	08-Jun-2023	180 days	11 days	✓	13-Jun-2023	180 days	16 days	✓
Dissolved Metals : Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine Samples)										
Pre-cleaned HDPE - dissolved (lab preserved)										
PN05	E465	28-May-2023	08-Jun-2023	180 days	11 days	✓	13-Jun-2023	180 days	16 days	✓
Dissolved Metals : Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine Samples)										
Pre-cleaned HDPE - dissolved (lab preserved)										
PN09	E465	28-May-2023	08-Jun-2023	180 days	11 days	✓	13-Jun-2023	180 days	16 days	✓
Dissolved Metals : Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine Samples)										
Pre-cleaned HDPE - dissolved (lab preserved)										
PN08	E465	28-May-2023	08-Jun-2023	180 days	12 days	✓	13-Jun-2023	180 days	17 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
DUP	E355-L	28-May-2023	01-Jun-2023	28 days	4 days	✓	01-Jun-2023	28 days	4 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	*Method*	*Sampling Date*	*Extraction / Preparation*				*Analysis*			
			Preparation Date	*Holding Times*		*Eval*	*Analysis Date*	*Holding Times*		*Eval*
				Rec	*Actual*			*Rec*	*Actual*	
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) PN05	E355-L	28-May-2023	01-Jun-2023	28 days	4 days	✓	01-Jun-2023	28 days	4 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) PN08	E355-L	28-May-2023	01-Jun-2023	28 days	4 days	✓	01-Jun-2023	28 days	4 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) PN09	E355-L	28-May-2023	01-Jun-2023	28 days	4 days	✓	01-Jun-2023	28 days	4 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE DUP	E290	28-May-2023	31-May-2023	14 days	3 days	✓	31-May-2023	14 days	3 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE PN05	E290	28-May-2023	31-May-2023	14 days	3 days	✓	31-May-2023	14 days	3 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE PN09	E290	28-May-2023	31-May-2023	14 days	3 days	✓	31-May-2023	14 days	3 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE PN08	E290	28-May-2023	31-May-2023	14 days	4 days	✓	31-May-2023	14 days	4 days	✓
Physical Tests : Conductivity in Water										
HDPE DUP	E100	28-May-2023	31-May-2023	28 days	3 days	✓	31-May-2023	28 days	3 days	✓
Physical Tests : Conductivity in Water										
HDPE PN05	E100	28-May-2023	31-May-2023	28 days	3 days	✓	31-May-2023	28 days	3 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Conductivity in Water										
HDPE PN09	E100	28-May-2023	31-May-2023	28 days	3 days	✓	31-May-2023	28 days	3 days	✓
Physical Tests : Conductivity in Water										
HDPE PN08	E100	28-May-2023	31-May-2023	28 days	4 days	✓	31-May-2023	28 days	4 days	✓
Physical Tests : pH by Meter										
HDPE DUP	E108	28-May-2023	31-May-2023	0.25 hrs	78 hrs	× EHTR-FM	31-May-2023	0.25 hrs	78 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE PN05	E108	28-May-2023	31-May-2023	0.25 hrs	78 hrs	× EHTR-FM	31-May-2023	0.25 hrs	78 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE PN09	E108	28-May-2023	31-May-2023	0.25 hrs	81 hrs	× EHTR-FM	31-May-2023	0.25 hrs	81 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE PN08	E108	28-May-2023	31-May-2023	0.25 hrs	84 hrs	× EHTR-FM	31-May-2023	0.25 hrs	84 hrs	× EHTR-FM
Physical Tests : TDS by Gravimetry										
HDPE DUP	E162	28-May-2023	----	----	----		02-Jun-2023	7 days	5 days	✓
Physical Tests : TDS by Gravimetry										
HDPE PN05	E162	28-May-2023	----	----	----		02-Jun-2023	7 days	5 days	✓
Physical Tests : TDS by Gravimetry										
HDPE PN08	E162	28-May-2023	----	----	----		02-Jun-2023	7 days	5 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : TDS by Gravimetry										
HDPE PN09	E162	28-May-2023	----	----	----		02-Jun-2023	7 days	5 days	✓
Physical Tests : TSS by Gravimetry										
HDPE DUP	E160	28-May-2023	----	----	----		02-Jun-2023	7 days	5 days	✓
Physical Tests : TSS by Gravimetry										
HDPE PN05	E160	28-May-2023	----	----	----		02-Jun-2023	7 days	5 days	✓
Physical Tests : TSS by Gravimetry										
HDPE PN08	E160	28-May-2023	----	----	----		02-Jun-2023	7 days	5 days	✓
Physical Tests : TSS by Gravimetry										
HDPE PN09	E160	28-May-2023	----	----	----		02-Jun-2023	7 days	5 days	✓
Physical Tests : Turbidity by Nephelometry										
HDPE DUP	E121	28-May-2023	----	----	----		31-May-2023	3 days	3 days	✓
Physical Tests : Turbidity by Nephelometry										
HDPE PN05	E121	28-May-2023	----	----	----		31-May-2023	3 days	3 days	✓
Physical Tests : Turbidity by Nephelometry										
HDPE PN08	E121	28-May-2023	----	----	----		31-May-2023	3 days	3 days	✓
Physical Tests : Turbidity by Nephelometry										
HDPE PN09	E121	28-May-2023	----	----	----		31-May-2023	3 days	3 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Total Metals (Undigested) : Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine Samples)										
Pre-cleaned HDPE - total (lab preserved) DUP	E466	28-May-2023	31-May-2023	180 days	3 days	✓	02-Jun-2023	180 days	5 days	✓
Total Metals (Undigested) : Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine Samples)										
Pre-cleaned HDPE - total (lab preserved) PN05	E466	28-May-2023	31-May-2023	180 days	3 days	✓	02-Jun-2023	180 days	5 days	✓
Total Metals (Undigested) : Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine Samples)										
Pre-cleaned HDPE - total (lab preserved) PN08	E466	28-May-2023	31-May-2023	180 days	4 days	✓	02-Jun-2023	180 days	5 days	✓
Total Metals (Undigested) : Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine Samples)										
Pre-cleaned HDPE - total (lab preserved) PN09	E466	28-May-2023	31-May-2023	180 days	4 days	✓	02-Jun-2023	180 days	5 days	✓
Total Metals : Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - total (lab preserved) DUP	E508-L	28-May-2023	03-Jun-2023	28 days	6 days	✓	03-Jun-2023	28 days	0 days	✓
Total Metals : Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - total (lab preserved) PN05	E508-L	28-May-2023	03-Jun-2023	28 days	6 days	✓	03-Jun-2023	28 days	0 days	✓
Total Metals : Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - total (lab preserved) PN08	E508-L	28-May-2023	03-Jun-2023	28 days	6 days	✓	03-Jun-2023	28 days	0 days	✓
Total Metals : Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - total (lab preserved) PN09	E508-L	28-May-2023	03-Jun-2023	28 days	6 days	✓	03-Jun-2023	28 days	0 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) DUP	E395	28-May-2023	----	----	----		01-Jun-2023	7 days	4 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	*Method*	*Sampling Date*	*Extraction / Preparation*				*Analysis*			
			Preparation Date	*Holding Times*		*Eval*	*Analysis Date*	*Holding Times*		*Eval*
				Rec	*Actual*			*Rec*	*Actual*	
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) PN05	E395	28-May-2023	----	----	----		01-Jun-2023	7 days	4 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) PN08	E395	28-May-2023	----	----	----		01-Jun-2023	7 days	4 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) PN09	E395	28-May-2023	----	----	----		01-Jun-2023	7 days	4 days	✓

Legend & Qualifier Definitions

EHTR-FM: Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended

Rec. HT: ALS recommended hold time (see units).

Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Water**

Evaluation: ✗ = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
Alkalinity Species by Titration	E290	965207	1	10	10.0	5.0	✓
Ammonia by Fluorescence	E298	967311	1	20	5.0	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	965219	1	4	25.0	5.0	✓
Chloride in Water by IC	E235.Cl	965209	1	10	10.0	5.0	✓
Conductivity in Water	E100	965208	1	12	8.3	5.0	✓
Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)	E509-L	970647	1	7	14.2	5.0	✓
Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine Samples)	E465	979556	1	7	14.2	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	965220	1	10	10.0	5.0	✓
Fluoride in Water by IC	E235.F	965217	1	4	25.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	965210	1	10	10.0	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	965211	1	16	6.2	5.0	✓
pH by Meter	E108	965206	0	12	0.0	5.0	✗
Reactive Silica by Colourimetry	E392	973958	2	31	6.4	5.0	✓
Sulfate in Water by IC	E235.SO4	965218	1	4	25.0	5.0	✓
Sulfate in Water by IC (Low Level)	E235.SO4-L	965216	1	10	10.0	5.0	✓
TDS by Gravimetry	E162	969329	1	14	7.1	5.0	✓
Total Dissolved Phosphorus by Colourimetry (0.001 mg/L)	E375-U	978519	1	19	5.2	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	997434	1	9	11.1	5.0	✓
Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)	E508-L	970515	1	19	5.2	5.0	✓
Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine Samples)	E466	965400	1	4	25.0	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	967308	1	17	5.8	5.0	✓
Total Phosphorus by Colourimetry (0.001 mg/L)	E372-S	978531	1	20	5.0	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	965705	2	31	6.4	5.0	✓
TSS by Gravimetry	E160	969314	1	14	7.1	5.0	✓
Turbidity by Nephelometry	E121	965004	2	23	8.7	5.0	✓
Laboratory Control Samples (LCS)							
Alkalinity Species by Titration	E290	965207	1	10	10.0	5.0	✓
Ammonia by Fluorescence	E298	967311	1	20	5.0	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	965219	1	4	25.0	5.0	✓
Chloride in Water by IC	E235.Cl	965209	1	10	10.0	5.0	✓
Conductivity in Water	E100	965208	1	12	8.3	5.0	✓
Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)	E509-L	970647	1	7	14.2	5.0	✓
Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine Samples)	E465	979556	1	7	14.2	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	965220	1	10	10.0	5.0	✓

Matrix: **Water**

Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Control Samples (LCS) - Continued							
Fluoride in Water by IC	E235.F	965217	1	4	25.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	965210	1	10	10.0	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	965211	1	16	6.2	5.0	✓
pH by Meter	E108	965206	1	12	8.3	5.0	✓
Reactive Silica by Colourimetry	E392	973958	2	31	6.4	5.0	✓
Sulfate in Water by IC	E235.SO4	965218	1	4	25.0	5.0	✓
Sulfate in Water by IC (Low Level)	E235.SO4-L	965216	1	10	10.0	5.0	✓
TDS by Gravimetry	E162	969329	1	14	7.1	5.0	✓
Total Dissolved Phosphorus by Colourimetry (0.001 mg/L)	E375-U	978519	1	19	5.2	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	997434	1	9	11.1	5.0	✓
Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)	E508-L	970515	1	19	5.2	5.0	✓
Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine Samples)	E466	965400	1	4	25.0	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	967308	1	17	5.8	5.0	✓
Total Phosphorus by Colourimetry (0.001 mg/L)	E372-S	978531	1	20	5.0	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	965705	2	31	6.4	5.0	✓
TSS by Gravimetry	E160	969314	1	14	7.1	5.0	✓
Turbidity by Nephelometry	E121	965004	2	23	8.7	5.0	✓
Method Blanks (MB)							
Alkalinity Species by Titration	E290	965207	1	10	10.0	5.0	✓
Ammonia by Fluorescence	E298	967311	1	20	5.0	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	965219	1	4	25.0	5.0	✓
Chloride in Water by IC	E235.Cl	965209	1	10	10.0	5.0	✓
Conductivity in Water	E100	965208	1	12	8.3	5.0	✓
Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)	E509-L	970647	1	7	14.2	5.0	✓
Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine Samples)	E465	979556	1	7	14.2	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	965220	1	10	10.0	5.0	✓
Fluoride in Water by IC	E235.F	965217	1	4	25.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	965210	1	10	10.0	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	965211	1	16	6.2	5.0	✓
Reactive Silica by Colourimetry	E392	973958	2	31	6.4	5.0	✓
Sulfate in Water by IC	E235.SO4	965218	1	4	25.0	5.0	✓
Sulfate in Water by IC (Low Level)	E235.SO4-L	965216	1	10	10.0	5.0	✓
TDS by Gravimetry	E162	969329	1	14	7.1	5.0	✓
Total Dissolved Phosphorus by Colourimetry (0.001 mg/L)	E375-U	978519	1	19	5.2	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	997434	1	9	11.1	5.0	✓
Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)	E508-L	970515	1	19	5.2	5.0	✓
Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine Samples)	E466	965400	1	4	25.0	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	967308	1	17	5.8	5.0	✓

Matrix: **Water**

Evaluation: × = *QC frequency outside specification*; ✓ = *QC frequency within specification.*

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Method Blanks (MB) - Continued							
Total Phosphorus by Colourimetry (0.001 mg/L)	E372-S	978531	1	20	5.0	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	965705	2	31	6.4	5.0	✓
TSS by Gravimetry	E160	969314	1	14	7.1	5.0	✓
Turbidity by Nephelometry	E121	965004	2	23	8.7	5.0	✓
Matrix Spikes (MS)							
Ammonia by Fluorescence	E298	967311	1	20	5.0	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	965219	1	4	25.0	5.0	✓
Chloride in Water by IC	E235.Cl	965209	1	10	10.0	5.0	✓
Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)	E509-L	970647	1	7	14.2	5.0	✓
Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine Samples)	E465	979556	1	7	14.2	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	965220	1	10	10.0	5.0	✓
Fluoride in Water by IC	E235.F	965217	1	4	25.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	965210	1	10	10.0	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	965211	1	16	6.2	5.0	✓
Reactive Silica by Colourimetry	E392	973958	2	31	6.4	5.0	✓
Sulfate in Water by IC	E235.SO4	965218	1	4	25.0	5.0	✓
Sulfate in Water by IC (Low Level)	E235.SO4-L	965216	1	10	10.0	5.0	✓
Total Dissolved Phosphorus by Colourimetry (0.001 mg/L)	E375-U	978519	1	19	5.2	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	997434	1	9	11.1	5.0	✓
Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)	E508-L	970515	1	19	5.2	5.0	✓
Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine Samples)	E466	965400	1	4	25.0	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	967308	1	17	5.8	5.0	✓
Total Phosphorus by Colourimetry (0.001 mg/L)	E372-S	978531	1	20	5.0	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	965705	2	31	6.4	5.0	✓

Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Conductivity in Water	E100 ALS Environmental - Vancouver	Water	APHA 2510 (mod)	Conductivity, also known as Electrical Conductivity (EC) or Specific Conductance, is measured by immersion of a conductivity cell with platinum electrodes into a water sample. Conductivity measurements are temperature-compensated to 25°C.
pH by Meter	E108 ALS Environmental - Vancouver	Water	APHA 4500-H (mod)	pH is determined by potentiometric measurement with a pH electrode, and is conducted at ambient laboratory temperature (normally 20 ± 5°C). For high accuracy test results, pH should be measured in the field within the recommended 15 minute hold time.
Turbidity by Nephelometry	E121 ALS Environmental - Vancouver	Water	APHA 2130 B (mod)	Turbidity is measured by the nephelometric method, by measuring the intensity of light scatter under defined conditions.
TSS by Gravimetry	E160 ALS Environmental - Vancouver	Water	APHA 2540 D (mod)	Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, following by drying of the filter at 104 ± 1°C, with gravimetric measurement of the filtered solids. Samples containing very high dissolved solid content (i.e. seawaters, brackish waters) may produce a positive bias by this method. Alternate analysis methods are available for these types of samples.
TDS by Gravimetry	E162 ALS Environmental - Vancouver	Water	APHA 2540 C (mod)	Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, with evaporation of the filtrate at 180 ± 2°C for 16 hours or to constant weight, with gravimetric measurement of the residue.
Bromide in Water by IC (Low Level)	E235.Br-L ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Chloride in Water by IC	E235.Cl ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Fluoride in Water by IC	E235.F ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrite in Water by IC (Low Level)	E235.NO2-L ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Nitrate in Water by IC (Low Level)	E235.NO3-L ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Sulfate in Water by IC	E235.SO4 ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Sulfate in Water by IC (Low Level)	E235.SO4-L ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Alkalinity Species by Titration	E290 ALS Environmental - Vancouver	Water	APHA 2320 B (mod)	Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.
Ammonia by Fluorescence	E298 ALS Environmental - Vancouver	Water	Method Fialab 100, 2018	Ammonia in water is determined by automated continuous flow analysis with membrane diffusion and fluorescence detection, after reaction with OPA (ortho-phthalaldehyde). This method is approved under US EPA 40 CFR Part 136 (May 2021)
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318 ALS Environmental - Vancouver	Water	Method Fialab 100, 2018	TKN in water is determined by automated continuous flow analysis with membrane diffusion and fluorescence detection, after reaction with OPA (ortho-phthalaldehyde). This method is approved under US EPA 40 CFR Part 136 (May 2021).
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L ALS Environmental - Vancouver	Water	APHA 5310 B (mod)	Total Organic Carbon (Non-Purgeable), also known as NPOC (total), is a direct measurement of TOC after an acidified sample has been purged to remove inorganic carbon (IC). Analysis is by high temperature combustion with infrared detection of CO_2. NPOC does not include volatile organic species that are purged off with IC. For samples where the majority of total carbon (TC) is comprised of IC (which is common), this method is more accurate and more reliable than the TOC by subtraction method (i.e. TC minus TIC).
Total Phosphorus by Colourimetry (0.001 mg/L)	E372-S ALS Environmental - Edmonton	Water	APHA 4500-P E (mod).	Total Phosphorus is determined colourimetrically after heated persulfate digestion of the sample.
Total Dissolved Phosphorus by Colourimetry (0.001 mg/L)	E375-U ALS Environmental - Edmonton	Water	APHA 4500-P E (mod).	Total Dissolved Phosphorus is determined colourmetrically after filtration through a 0.45 micron filter followed by heated persulfate digestion of the sample.
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U ALS Environmental - Vancouver	Water	APHA 4500-P F (mod)	Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter. Field filtration is recommended to ensure test results represent conditions at time of sampling.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Reactive Silica by Colourimetry	E392 ALS Environmental - Vancouver	Water	APHA 4500-SiO2 E (mod)	Silicate (molybdate-reactive silica) is determined by the molybdosilicate-heteropoly blue colourimetric method using a discrete analyzer. Method Limitation: Arsenic (5+) above 100 mg/L is a negative interference on this test
Total Sulfide by Colourimetry (Automated Flow)	E395 ALS Environmental - Vancouver	Water	APHA 4500 -S E-Auto-Colorimetry	Sulfide is determined using the gas dialysis automated methlyene blue colourimetric method. Results expressed "as H2S" if reported represent the maximum possible H_2S concentration based on the total sulfide concentration in the sample. The H_2S calculation converts Total Sulphide as (S2-) and reports it as Total Sulphide as (H2S)
Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine Samples)	E465 ALS Environmental - Vancouver	Water	EPA 6020B (mod)	Ultra trace metals in water are analyzed by Triple Quadrupole ICPMS. This procedure is intended for pristine field-filtered acid-preserved water samples. The detection limits (LOR) for this test are based on lab instrumental analysis only, not including filtration. Due to the high probability of false positives due to filtration, it is strongly recommended that a filtration blank be analysed to aid in data interpretation.
Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine Samples)	E466 ALS Environmental - Vancouver	Water	EPA 6020B (mod)	Ultra trace metals in water are analyzed by CRC ICPMS, based on US EPA Method 6020B (July 2014). The detection limits provided can only be met for undigested samples. This procedure is intended for colorless, non-turbid, acid-preserved water samples (i.e. pristine water samples), having turbidity < 1 NTU and no odor. Where turbidity exceeds 1 NTU, and/or the sample is colored and has an odor, results may be biased low compared to true Total Metals concentrations. ALS recommends that turbidity analysis be requested on samples submitted for this test to aid with interpretation of results. Where turbidity is <1NTU, undigested metals are equivalent to total metals concentrations.
Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)	E508-L 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 CVAFS.
Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)	E509-L 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 CVAFS.
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 $CaCO_3$ 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.
TDS in Water (Calculation)	EC103 ALS Environmental - Vancouver	Water	APHA 1030E (mod)	Total Dissolved Solids is calculated based on guidance from APHA Standard Methods (1030E Checking Correctness of Analysis). Dissolved species are used where available. Minor ions are included where data is present.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Ammonia	EP298 ALS Environmental - Vancouver	Water		Sample preparation for Preserved Nutrients Water Quality Analysis.
Digestion for TKN in water	EP318 ALS Environmental - Vancouver	Water	APHA 4500-Norg D (mod)	Samples are digested at high temperature using Sulfuric Acid with Copper catalyst, which converts organic nitrogen sources to Ammonia, which is then quantified by the analytical method as TKN. This method is unsuitable for samples containing high levels of nitrate. If nitrate exceeds TKN concentration by ten times or more, results may be biased low.
Preparation for Total Organic Carbon by Combustion	EP355 ALS Environmental - Vancouver	Water		Preparation for Total Organic Carbon by Combustion
Digestion for Total Phosphorus in water	EP372 ALS Environmental - Edmonton	Water	APHA 4500-P E (mod).	Samples are heated with a persulfate digestion reagent.
Digestion for Dissolved Phosphorus in water	EP375 ALS Environmental - Edmonton	Water	APHA 4500-P E (mod).	Samples are filtered through a 0.45 micron membrane filter and then heated with a persulfate digestion reagent.
Dissolved Metals Water Filtration for Triple Quad ICPMS	EP465 ALS Environmental - Vancouver	Water	APHA 3030B	Low level metals in water are analyzed by Triple Quad ICPMS. This procedure is intended for pristine field-filtered acid-preserved water samples. The detection limits (LOR) for this test are based on lab instrumental analysis only, not including filtration. ALS-supplied field filtration equipment does not support these LOR. Therefore, because of the high probability of false positives due to filtration, it is strongly recommended that a filtration blank be analysed to aid in data interpretation.
Dissolved Mercury Water Filtration (Low Level)	EP509-L ALS Environmental - Vancouver	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HCl.

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QUALITY CONTROL REPORT

Work Order	: **YL2300484**	Page	: 1 of 22
Amendment	: **2**		
Client	: Sabina Gold & Silver Corporation	Laboratory	: ALS Environmental - Yellowknife
Contact	: Merle Keefe	Account Manager	: Oliver Gregg
Address	: 375 - 555 Burrard St. Box 220, Bentall 2 Vancouver BC Canada V7X 1M7	Address	: 314 Old Airport Road, Unit 116 Yellowknife, Northwest Territories Canada X1A 3T3
Telephone	:	Telephone	: 1 867 445 7143
Project	: 22567626	Date Samples Received	: 30-May-2023 09:25
PO	: PO-10402	Date Analysis Commenced	: 31-May-2023
C-O-C number	: ----	Issue Date	: 22-Nov-2023 12:21
Sampler	: ---- 604 240 6619		
Site	: ----		
Quote number	: 2021 Under-Ice Field Program		
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 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
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General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number = Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO = Data Quality Objective.
LOR = Limit of Reporting (detection limit).
RPD = Relative Percent Difference
# = Indicates a QC result that did not meet the ALS DQO.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test-specific).

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Physical Tests (QC Lot: 965004)											
KS2301799-001	Anonymous	Turbidity	----	E121	0.10	NTU	0.29	0.33	0.04	Diff <2x LOR	----
Physical Tests (QC Lot: 965005)											
YL2300484-004	DUP	Turbidity	----	E121	0.10	NTU	1.20	1.28	0.09	Diff <2x LOR	----
Physical Tests (QC Lot: 965207)											
YL2300480-003	Anonymous	Alkalinity, bicarbonate (as CaCO3)	----	E290	1.0	mg/L	<1.0	<1.0	0	Diff <2x LOR	----
		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, phenolphthalein (as CaCO3)	----	E290	1.0	mg/L	<1.0	<1.0	0	Diff <2x LOR	----
		Alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	<1.0	<1.0	0	Diff <2x LOR	----
Physical Tests (QC Lot: 965208)											
YL2300480-003	Anonymous	Conductivity	----	E100	2.0	µS/cm	<2.0	<2.0	0	Diff <2x LOR	----
Physical Tests (QC Lot: 969314)											
VA23B2193-003	Anonymous	Solids, total suspended [TSS]	----	E160	3.0	mg/L	17.9	19.1	1.2	Diff <2x LOR	----
Physical Tests (QC Lot: 969329)											
VA23B2193-003	Anonymous	Solids, total dissolved [TDS]	----	E162	20	mg/L	222	223	0.449%	20%	----
Anions and Nutrients (QC Lot: 965209)											
YL2300484-001	PN08	Chloride	16887-00-6	E235.Cl	0.50	mg/L	1.00	1.08	0.09	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 965210)											
YL2300484-001	PN08	Nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	0.0279	0.0300	0.0021	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 965211)											
YL2300484-001	PN08	Nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	<0.0010	0.0010	0.00004	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 965216)											
YL2300480-001	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4-L	0.500	mg/L	109	108	1.08%	20%	----
Anions and Nutrients (QC Lot: 965217)											
YL2300484-001	PN08	Fluoride	16984-48-8	E235.F	0.020	mg/L	<0.020	<0.020	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 965218)											
YL2300484-001	PN08	Sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	5.18	5.08	1.86%	20%	----
Anions and Nutrients (QC Lot: 965219)											
YL2300484-001	PN08	Bromide	24959-67-9	E235.Br-L	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Anions and Nutrients (QC Lot: 965220)											
YL2300480-001	Anonymous	Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 967311)											
FJ2301261-001	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	0.0555	0.0558	0.661%	20%	----
Anions and Nutrients (QC Lot: 973958)											
VA23B1939-004	Anonymous	Silicate (as SiO2)	7631-86-9	E392	0.50	mg/L	6.53	6.48	0.851%	20%	----
Anions and Nutrients (QC Lot: 973959)											
YL2300484-003	PN05	Silicate (as SiO2)	7631-86-9	E392	0.50	mg/L	<0.50	<0.50	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 978519)											
EO2304451-001	Anonymous	Phosphorus, total dissolved	7723-14-0	E375-U	0.0010	mg/L	0.0163	0.0168	3.50%	20%	----
Anions and Nutrients (QC Lot: 978531)											
EO2304500-015	Anonymous	Phosphorus, total	7723-14-0	E372-S	0.0010	mg/L	0.0878	0.0877	0.159%	20%	----
Anions and Nutrients (QC Lot: 997434)											
VA23B3233-001	Anonymous	Kjeldahl nitrogen, total [TKN]	----	E318	0.200	mg/L	<0.200	<0.200	0	Diff <2x LOR	----
Organic / Inorganic Carbon (QC Lot: 967308)											
FJ2301261-001	Anonymous	Carbon, total organic [TOC]	----	E355-L	0.50	mg/L	0.90	1.06	0.16	Diff <2x LOR	----
Total Sulfides (QC Lot: 965705)											
CG2306947-001	Anonymous	Sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	<0.0015	<0.0015	0	Diff <2x LOR	----
Total Sulfides (QC Lot: 967211)											
VA23B2238-001	Anonymous	Sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	0.0072	0.0073	0.0001	Diff <2x LOR	----
Total Metals (QC Lot: 970515)											
CG2307070-001	Anonymous	Mercury, total	7439-97-6	E508-L	0.50	ng/L	<0.50	<0.50	0	Diff <2x LOR	----
Total Metals (Undigested) (QC Lot: 965400)											
YL2300484-001	PN08	Aluminum, total	7429-90-5	E466	0.00020	mg/L	0.0162	0.0158	2.21%	20%	----
		Antimony, total	7440-36-0	E466	0.0000050	mg/L	0.0000082	0.0000083	0.00000004	Diff <2x LOR	----
		Arsenic, total	7440-38-2	E466	0.000010	mg/L	0.000266	0.000256	4.04%	20%	----
		Barium, total	7440-39-3	E466	0.000020	mg/L	0.00370	0.00377	1.77%	20%	----
		Beryllium, total	7440-41-7	E466	0.0000020	mg/L	0.0000024	<0.0000020	0.0000004	Diff <2x LOR	----
		Bismuth, total	7440-69-9	E466	0.0000010	mg/L	<0.0000010	<0.0000010	0	Diff <2x LOR	----
		Boron, total	7440-42-8	E466	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
		Cadmium, total	7440-43-9	E466	0.0000025	mg/L	0.0000063	0.0000077	0.0000013	Diff <2x LOR	----
		Calcium, total	7440-70-2	E466	0.010	mg/L	2.15	2.07	3.83%	20%	----
		Cesium, total	7440-46-2	E466	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
		Chromium, total	7440-47-3	E466	0.000040	mg/L	0.000073	0.000078	0.000005	Diff <2x LOR	----
		Cobalt, total	7440-48-4	E466	0.0000050	mg/L	0.0000745	0.0000759	1.88%	20%	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Total Metals (Undigested) (QC Lot: 965400) - continued											
YL2300484-001	PN08	Copper, total	7440-50-8	E466	0.000050	mg/L	0.00104	0.00102	1.24%	20%	----
		Gallium, total	7440-55-3	E466	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Iron, total	7439-89-6	E466	0.00050	mg/L	0.0516	0.0532	3.00%	20%	----
		Lanthanum, total	7439-91-0	E466	0.000010	mg/L	0.000140	0.000140	0.388%	20%	----
		Lead, total	7439-92-1	E466	0.0000050	mg/L	0.0000382	0.0000406	0.0000024	Diff <2x LOR	----
		Lithium, total	7439-93-2	E466	0.00010	mg/L	0.00045	0.00044	0.000004	Diff <2x LOR	----
		Magnesium, total	7439-95-4	E466	0.0010	mg/L	1.48	1.48	0.0241%	20%	----
		Manganese, total	7439-96-5	E466	0.0000050	mg/L	0.000826	0.000831	0.679%	20%	----
		Molybdenum, total	7439-98-7	E466	0.000010	mg/L	0.000011	0.000011	0.0000004	Diff <2x LOR	----
		Nickel, total	7440-02-0	E466	0.000020	mg/L	0.00292	0.00294	0.483%	20%	----
		Niobium, total	7440-03-1	E466	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Phosphorus, total	7723-14-0	E466	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		Potassium, total	7440-09-7	E466	0.0050	mg/L	0.387	0.374	3.52%	20%	----
		Rhenium, total	7440-15-5	E466	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
		Rubidium, total	7440-17-7	E466	0.0000050	mg/L	0.000913	0.000893	2.28%	20%	----
		Selenium, total	7782-49-2	E466	0.000025	mg/L	<0.000025	<0.000025	0	Diff <2x LOR	----
		Silicon, total	7440-21-3	E466	0.050	mg/L	0.190	0.191	0.0005	Diff <2x LOR	----
		Silver, total	7440-22-4	E466	0.0000020	mg/L	<0.0000020	<0.0000020	0	Diff <2x LOR	----
		Sodium, total	7440-23-5	E466	0.010	mg/L	0.661	0.654	1.09%	20%	----
		Strontium, total	7440-24-6	E466	0.000020	mg/L	0.00863	0.00849	1.67%	20%	----
		Sulfur, total	7704-34-9	E466	0.50	mg/L	1.62	1.67	0.04	Diff <2x LOR	----
		Tantalum, total	7440-25-7	E466	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Tellurium, total	13494-80-9	E466	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Thallium, total	7440-28-0	E466	0.0000010	mg/L	0.0000013	0.0000012	0.00000006	Diff <2x LOR	----
		Thorium, total	7440-29-1	E466	0.0000050	mg/L	0.0000102	0.0000112	0.0000010	Diff <2x LOR	----
		Tin, total	7440-31-5	E466	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Titanium, total	7440-32-6	E466	0.000050	mg/L	0.000208	0.000198	0.000010	Diff <2x LOR	----
		Tungsten, total	7440-33-7	E466	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Uranium, total	7440-61-1	E466	0.0000010	mg/L	0.0000056	0.0000051	0.0000006	Diff <2x LOR	----
		Vanadium, total	7440-62-2	E466	0.000010	mg/L	0.000051	0.000050	0.0000004	Diff <2x LOR	----
		Yttrium, total	7440-65-5	E466	0.000010	mg/L	0.000061	0.000060	0.000002	Diff <2x LOR	----
		Zinc, total	7440-66-6	E466	0.00010	mg/L	0.00063	0.00061	0.00002	Diff <2x LOR	----
		Zirconium, total	7440-67-7	E466	0.000010	mg/L	0.000035	0.000034	0.000001	Diff <2x LOR	----
Dissolved Metals (QC Lot: 970647)											

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Dissolved Metals (QC Lot: 970647) - continued											
YL2300484-001	PN08	Mercury, dissolved	7439-97-6	E509-L	0.50	ng/L	1.27	1.16	0.11	Diff <2x LOR	----
Dissolved Metals (QC Lot: 979556)											
YL2300484-001	PN08	Aluminum, dissolved	7429-90-5	E465	0.00020	mg/L	0.0109	0.0108	1.10%	20%	----
		Antimony, dissolved	7440-36-0	E465	0.0000050	mg/L	0.0000072	0.0000072	0.00000006	Diff <2x LOR	----
		Arsenic, dissolved	7440-38-2	E465	0.000010	mg/L	0.000247	0.000240	2.59%	20%	----
		Barium, dissolved	7440-39-3	E465	0.000020	mg/L	0.00355	0.00353	0.543%	20%	----
		Beryllium, dissolved	7440-41-7	E465	0.0000020	mg/L	<0.0000020	<0.0000020	0	Diff <2x LOR	----
		Bismuth, dissolved	7440-69-9	E465	0.0000010	mg/L	<0.0000010	<0.0000010	0	Diff <2x LOR	----
		Boron, dissolved	7440-42-8	E465	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
		Cadmium, dissolved	7440-43-9	E465	0.0000025	mg/L	<0.0000025	0.0000036	0.0000011	Diff <2x LOR	----
		Calcium, dissolved	7440-70-2	E465	0.010	mg/L	2.06	2.12	2.58%	20%	----
		Cesium, dissolved	7440-46-2	E465	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
		Chromium, dissolved	7440-47-3	E465	0.000040	mg/L	0.000062	0.000060	0.000002	Diff <2x LOR	----
		Cobalt, dissolved	7440-48-4	E465	0.0000050	mg/L	0.0000699	0.0000665	4.97%	20%	----
		Copper, dissolved	7440-50-8	E465	0.000050	mg/L	0.00102	0.00105	2.23%	20%	----
		Gallium, dissolved	7440-55-3	E465	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Iron, dissolved	7439-89-6	E465	0.00050	mg/L	0.0336	0.0350	4.20%	20%	----
		Lanthanum, dissolved	7439-91-0	E465	0.000010	mg/L	0.000124	0.000119	4.23%	20%	----
		Lead, dissolved	7439-92-1	E465	0.0000050	mg/L	0.0000196	0.0000197	0.0000002	Diff <2x LOR	----
		Lithium, dissolved	7439-93-2	E465	0.00010	mg/L	0.00043	0.00043	0.0000002	Diff <2x LOR	----
		Magnesium, dissolved	7439-95-4	E465	0.0010	mg/L	1.45	1.46	1.03%	20%	----
		Manganese, dissolved	7439-96-5	E465	0.0000050	mg/L	0.000618	0.000627	1.35%	20%	----
		Molybdenum, dissolved	7439-98-7	E465	0.000010	mg/L	0.000010	0.000011	0.0000008	Diff <2x LOR	----
		Nickel, dissolved	7440-02-0	E465	0.000020	mg/L	0.00297	0.00298	0.185%	20%	----
		Niobium, dissolved	7440-03-1	E465	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Phosphorus, dissolved	7723-14-0	E465	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		Potassium, dissolved	7440-09-7	E465	0.0050	mg/L	0.379	0.377	0.406%	20%	----
		Rhenium, dissolved	7440-15-5	E465	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
		Rubidium, dissolved	7440-17-7	E465	0.0000050	mg/L	0.000870	0.000891	2.32%	20%	----
		Selenium, dissolved	7782-49-2	E465	0.000025	mg/L	<0.000025	<0.000025	0	Diff <2x LOR	----
		Silicon, dissolved	7440-21-3	E465	0.050	mg/L	0.192	0.195	0.003	Diff <2x LOR	----
		Silver, dissolved	7440-22-4	E465	0.0000020	mg/L	<0.0000020	<0.0000020	0	Diff <2x LOR	----
		Sodium, dissolved	7440-23-5	E465	0.010	mg/L	0.650	0.661	1.78%	20%	----
		Strontium, dissolved	7440-24-6	E465	0.000020	mg/L	0.00808	0.00819	1.40%	20%	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Dissolved Metals (QC Lot: 979556) - continued											
YL2300484-001	PN08	Sulfur, dissolved	7704-34-9	E465	0.50	mg/L	1.68	1.73	0.04	Diff <2x LOR	----
		Tantalum, dissolved	7440-25-7	E465	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Tellurium, dissolved	13494-80-9	E465	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Thallium, dissolved	7440-28-0	E465	0.0000010	mg/L	0.0000014	0.0000015	0.0000001	Diff <2x LOR	----
		Thorium, dissolved	7440-29-1	E465	0.0000050	mg/L	0.0000053	<0.0000050	0.0000003	Diff <2x LOR	----
		Tin, dissolved	7440-31-5	E465	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Titanium, dissolved	7440-32-6	E465	0.000050	mg/L	0.000067	0.000050	0.000017	Diff <2x LOR	----
		Tungsten, dissolved	7440-33-7	E465	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Uranium, dissolved	7440-61-1	E465	0.0000010	mg/L	0.0000034	0.0000043	0.0000010	Diff <2x LOR	----
		Vanadium, dissolved	7440-62-2	E465	0.000010	mg/L	0.000038	0.000038	0.0000001	Diff <2x LOR	----
		Yttrium, dissolved	7440-65-5	E465	0.000010	mg/L	0.000050	0.000057	0.000007	Diff <2x LOR	----
		Zinc, dissolved	7440-66-6	E465	0.00010	mg/L	0.00044	0.00041	0.00002	Diff <2x LOR	----
		Zirconium, dissolved	7440-67-7	E465	0.000010	mg/L	0.000026	0.000024	0.000002	Diff <2x LOR	----

Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 965004)						
Turbidity	----	E121	0.1	NTU	<0.10	----
Physical Tests (QCLot: 965005)						
Turbidity	----	E121	0.1	NTU	<0.10	----
Physical Tests (QCLot: 965207)						
Alkalinity, bicarbonate (as CaCO3)	----	E290	1	mg/L	<1.0	----
Alkalinity, carbonate (as CaCO3)	----	E290	1	mg/L	<1.0	----
Alkalinity, hydroxide (as CaCO3)	----	E290	1	mg/L	<1.0	----
Alkalinity, phenolphthalein (as CaCO3)	----	E290	1	mg/L	<1.0	----
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	<1.0	----
Physical Tests (QCLot: 965208)						
Conductivity	----	E100	1	µS/cm	<1.0	----
Physical Tests (QCLot: 969314)						
Solids, total suspended [TSS]	----	E160	3	mg/L	<3.0	----
Physical Tests (QCLot: 969329)						
Solids, total dissolved [TDS]	----	E162	10	mg/L	<10	----
Anions and Nutrients (QCLot: 965209)						
Chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 965210)						
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 965211)						
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 965216)						
Sulfate (as SO4)	14808-79-8	E235.SO4-L	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 965217)						
Fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 965218)						
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	----
Anions and Nutrients (QCLot: 965219)						
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 965220)						
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 967311)						

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Anions and Nutrients (QCLot: 967311) - continued						
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 973958)						
Silicate (as SiO2)	7631-86-9	E392	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 973959)						
Silicate (as SiO2)	7631-86-9	E392	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 978519)						
Phosphorus, total dissolved	7723-14-0	E375-U	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 978531)						
Phosphorus, total	7723-14-0	E372-S	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 997434)						
Kjeldahl nitrogen, total [TKN]	----	E318	0.05	mg/L	<0.050	----
Organic / Inorganic Carbon (QCLot: 967308)						
Carbon, total organic [TOC]	----	E355-L	0.5	mg/L	<0.50	----
Total Sulfides (QCLot: 965705)						
Sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	<0.0015	----
Total Sulfides (QCLot: 967211)						
Sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	<0.0015	----
Total Metals (QCLot: 970515)						
Mercury, total	7439-97-6	E508-L	0.5	ng/L	<0.50	----
Total Metals (Undigested) (QCLot: 965400)						
Aluminum, total	7429-90-5	E466	0.0002	mg/L	# 0.00021	B
Antimony, total	7440-36-0	E466	0.000005	mg/L	<0.0000050	----
Arsenic, total	7440-38-2	E466	0.00001	mg/L	<0.000010	----
Barium, total	7440-39-3	E466	0.00002	mg/L	<0.000020	----
Beryllium, total	7440-41-7	E466	0.000002	mg/L	<0.0000020	----
Bismuth, total	7440-69-9	E466	0.000001	mg/L	<0.0000010	----
Boron, total	7440-42-8	E466	0.005	mg/L	<0.0050	----
Cadmium, total	7440-43-9	E466	0.0000025	mg/L	<0.0000025	----
Calcium, total	7440-70-2	E466	0.01	mg/L	<0.010	----
Cesium, total	7440-46-2	E466	0.000005	mg/L	<0.0000050	----
Chromium, total	7440-47-3	E466	0.00004	mg/L	<0.000040	----
Cobalt, total	7440-48-4	E466	0.000005	mg/L	<0.0000050	----
Copper, total	7440-50-8	E466	0.00005	mg/L	<0.000050	----
Gallium, total	7440-55-3	E466	0.00005	mg/L	<0.000050	----
Iron, total	7439-89-6	E466	0.0005	mg/L	<0.00050	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (Undigested) (QCLot: 965400) - continued						
Lanthanum, total	7439-91-0	E466	0.00001	mg/L	<0.000010	----
Lead, total	7439-92-1	E466	0.000005	mg/L	<0.0000050	----
Lithium, total	7439-93-2	E466	0.0001	mg/L	<0.00010	----
Magnesium, total	7439-95-4	E466	0.001	mg/L	<0.0010	----
Manganese, total	7439-96-5	E466	0.000005	mg/L	<0.0000050	----
Molybdenum, total	7439-98-7	E466	0.00001	mg/L	<0.000010	----
Nickel, total	7440-02-0	E466	0.00002	mg/L	<0.000020	----
Niobium, total	7440-03-1	E466	0.0001	mg/L	<0.00010	----
Phosphorus, total	7723-14-0	E466	0.01	mg/L	<0.010	----
Potassium, total	7440-09-7	E466	0.005	mg/L	<0.0050	----
Rhenium, total	7440-15-5	E466	0.000005	mg/L	<0.0000050	----
Rubidium, total	7440-17-7	E466	0.000005	mg/L	<0.0000050	----
Selenium, total	7782-49-2	E466	0.000025	mg/L	<0.000025	----
Silicon, total	7440-21-3	E466	0.05	mg/L	<0.050	----
Silver, total	7440-22-4	E466	0.000002	mg/L	<0.0000020	----
Sodium, total	7440-23-5	E466	0.01	mg/L	<0.010	----
Strontium, total	7440-24-6	E466	0.00002	mg/L	<0.000020	----
Sulfur, total	7704-34-9	E466	0.5	mg/L	<0.50	----
Tantalum, total	7440-25-7	E466	0.0001	mg/L	<0.00010	----
Tellurium, total	13494-80-9	E466	0.00001	mg/L	<0.000010	----
Thallium, total	7440-28-0	E466	0.000001	mg/L	<0.0000010	----
Thorium, total	7440-29-1	E466	0.000005	mg/L	<0.0000050	----
Tin, total	7440-31-5	E466	0.00001	mg/L	<0.000010	----
Titanium, total	7440-32-6	E466	0.00005	mg/L	<0.000050	----
Tungsten, total	7440-33-7	E466	0.00001	mg/L	<0.000010	----
Uranium, total	7440-61-1	E466	0.000001	mg/L	<0.0000010	----
Vanadium, total	7440-62-2	E466	0.00001	mg/L	<0.000010	----
Yttrium, total	7440-65-5	E466	0.00001	mg/L	<0.000010	----
Zinc, total	7440-66-6	E466	0.0001	mg/L	<0.00010	----
Zirconium, total	7440-67-7	E466	0.00001	mg/L	<0.000010	----
Dissolved Metals (QCLot: 970647)						
Mercury, dissolved	7439-97-6	E509-L	0.5	ng/L	<0.50	----
Dissolved Metals (QCLot: 979556)						
Aluminum, dissolved	7429-90-5	E465	0.0002	mg/L	<0.00020	----
Antimony, dissolved	7440-36-0	E465	0.000005	mg/L	<0.0000050	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Dissolved Metals (QCLot: 979556) - continued						
Arsenic, dissolved	7440-38-2	E465	0.00001	mg/L	<0.000010	----
Barium, dissolved	7440-39-3	E465	0.00002	mg/L	<0.000020	----
Beryllium, dissolved	7440-41-7	E465	0.000002	mg/L	<0.0000020	----
Bismuth, dissolved	7440-69-9	E465	0.000001	mg/L	<0.0000010	----
Boron, dissolved	7440-42-8	E465	0.005	mg/L	<0.0050	----
Cadmium, dissolved	7440-43-9	E465	0.0000025	mg/L	<0.0000025	----
Calcium, dissolved	7440-70-2	E465	0.01	mg/L	<0.010	----
Cesium, dissolved	7440-46-2	E465	0.000005	mg/L	<0.0000050	----
Chromium, dissolved	7440-47-3	E465	0.00004	mg/L	<0.000040	----
Cobalt, dissolved	7440-48-4	E465	0.000005	mg/L	<0.0000050	----
Copper, dissolved	7440-50-8	E465	0.00005	mg/L	<0.000050	----
Gallium, dissolved	7440-55-3	E465	0.00005	mg/L	<0.000050	----
Iron, dissolved	7439-89-6	E465	0.0005	mg/L	<0.00050	----
Lanthanum, dissolved	7439-91-0	E465	0.00001	mg/L	<0.000010	----
Lead, dissolved	7439-92-1	E465	0.000005	mg/L	<0.0000050	----
Lithium, dissolved	7439-93-2	E465	0.0001	mg/L	<0.00010	----
Magnesium, dissolved	7439-95-4	E465	0.001	mg/L	<0.0010	----
Manganese, dissolved	7439-96-5	E465	0.000005	mg/L	<0.0000050	----
Molybdenum, dissolved	7439-98-7	E465	0.00001	mg/L	<0.000010	----
Nickel, dissolved	7440-02-0	E465	0.00002	mg/L	<0.000020	----
Niobium, dissolved	7440-03-1	E465	0.0001	mg/L	<0.00010	----
Phosphorus, dissolved	7723-14-0	E465	0.01	mg/L	<0.010	----
Potassium, dissolved	7440-09-7	E465	0.005	mg/L	<0.0050	----
Rhenium, dissolved	7440-15-5	E465	0.000005	mg/L	<0.0000050	----
Rubidium, dissolved	7440-17-7	E465	0.000005	mg/L	<0.0000050	----
Selenium, dissolved	7782-49-2	E465	0.000025	mg/L	<0.000025	----
Silicon, dissolved	7440-21-3	E465	0.05	mg/L	<0.050	----
Silver, dissolved	7440-22-4	E465	0.000002	mg/L	<0.0000020	----
Sodium, dissolved	7440-23-5	E465	0.01	mg/L	<0.010	----
Strontium, dissolved	7440-24-6	E465	0.00002	mg/L	<0.000020	----
Sulfur, dissolved	7704-34-9	E465	0.5	mg/L	<0.50	----
Tantalum, dissolved	7440-25-7	E465	0.0001	mg/L	<0.00010	----
Tellurium, dissolved	13494-80-9	E465	0.00001	mg/L	<0.000010	----
Thallium, dissolved	7440-28-0	E465	0.000001	mg/L	<0.0000010	----
Thorium, dissolved	7440-29-1	E465	0.000005	mg/L	<0.0000050	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Dissolved Metals (QCLot: 979556) - continued						
Tin, dissolved	7440-31-5	E465	0.00001	mg/L	<0.000010	----
Titanium, dissolved	7440-32-6	E465	0.00005	mg/L	<0.000050	----
Tungsten, dissolved	7440-33-7	E465	0.00001	mg/L	<0.000010	----
Uranium, dissolved	7440-61-1	E465	0.000001	mg/L	<0.0000010	----
Vanadium, dissolved	7440-62-2	E465	0.00001	mg/L	<0.000010	----
Yttrium, dissolved	7440-65-5	E465	0.00001	mg/L	<0.000010	----
Zinc, dissolved	7440-66-6	E465	0.0001	mg/L	<0.00010	MBRR
Zirconium, dissolved	7440-67-7	E465	0.00001	mg/L	<0.000010	----

Qualifiers

Qualifier	Description
B	*Method Blank exceeds ALS DQO. Associated sample results which are < Limit of Reporting or > 5 times blank level are considered reliable.*
MBRR	*Initial MB for this submission had positive results for flagged analyte (data not shown). Low level samples were repeated with new QC (2nd MB results shown). High level results (>5x initial MB level) and non-detect results were reported and are defensible*

Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 965004)									
Turbidity	----	E121	0.1	NTU	200 NTU	99.4	85.0	115	----
Physical Tests (QCLot: 965005)									
Turbidity	----	E121	0.1	NTU	200 NTU	100	85.0	115	----
Physical Tests (QCLot: 965206)									
pH	----	E108	----	pH units	7 pH units	100	98.0	102	----
Physical Tests (QCLot: 965207)									
Alkalinity, phenolphthalein (as CaCO3)	----	E290	1	mg/L	229 mg/L	103	75.0	125	----
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	500 mg/L	109	85.0	115	----
Physical Tests (QCLot: 965208)									
Conductivity	----	E100	1	µS/cm	146.9 µS/cm	100	90.0	110	----
Physical Tests (QCLot: 969314)									
Solids, total suspended [TSS]	----	E160	3	mg/L	150 mg/L	94.8	85.0	115	----
Physical Tests (QCLot: 969329)									
Solids, total dissolved [TDS]	----	E162	10	mg/L	1000 mg/L	103	85.0	115	----
Anions and Nutrients (QCLot: 965209)									
Chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 965210)									
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: 965211)									
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	0.5 mg/L	99.8	90.0	110	----
Anions and Nutrients (QCLot: 965216)									
Sulfate (as SO4)	14808-79-8	E235.SO4-L	0.05	mg/L	100 mg/L	103	90.0	110	----
Anions and Nutrients (QCLot: 965217)									
Fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	100	90.0	110	----
Anions and Nutrients (QCLot: 965218)									
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	103	90.0	110	----
Anions and Nutrients (QCLot: 965219)									
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	0.5 mg/L	100	85.0	115	----
Anions and Nutrients (QCLot: 965220)									
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.001	mg/L	0.03 mg/L	99.9	80.0	120	----
Anions and Nutrients (QCLot: 967311)									

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
					Concentration	LCS	Low	High	Qualifier
Anions and Nutrients (QCLot: 967311) - continued									
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	96.2	85.0	115	----
Anions and Nutrients (QCLot: 973958)									
Silicate (as SiO2)	7631-86-9	E392	0.5	mg/L	10 mg/L	101	85.0	115	----
Anions and Nutrients (QCLot: 973959)									
Silicate (as SiO2)	7631-86-9	E392	0.5	mg/L	10 mg/L	101	85.0	115	----
Anions and Nutrients (QCLot: 978519)									
Phosphorus, total dissolved	7723-14-0	E375-U	0.001	mg/L	0.05 mg/L	111	80.0	120	----
Anions and Nutrients (QCLot: 978531)									
Phosphorus, total	7723-14-0	E372-S	0.001	mg/L	0.05 mg/L	110	80.0	120	----
Anions and Nutrients (QCLot: 997434)									
Kjeldahl nitrogen, total [TKN]	----	E318	0.05	mg/L	4 mg/L	104	75.0	125	----
Organic / Inorganic Carbon (QCLot: 967308)									
Carbon, total organic [TOC]	----	E355-L	0.5	mg/L	8.57 mg/L	103	80.0	120	----
Total Sulfides (QCLot: 965705)									
Sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	0.08 mg/L	92.1	80.0	120	----
Total Sulfides (QCLot: 967211)									
Sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	0.08 mg/L	106	80.0	120	----
Total Metals (QCLot: 970515)									
Mercury, total	7439-97-6	E508-L	0.5	ng/L	5 ng/L	97.2	80.0	120	----
Total Metals (Undigested) (QCLot: 965400)									
Aluminum, total	7429-90-5	E466	0.0002	mg/L	2 mg/L	101	80.0	120	----
Antimony, total	7440-36-0	E466	0.000005	mg/L	1 mg/L	110	80.0	120	----
Arsenic, total	7440-38-2	E466	0.00001	mg/L	1 mg/L	101	80.0	120	----
Barium, total	7440-39-3	E466	0.00002	mg/L	0.25 mg/L	102	80.0	120	----
Beryllium, total	7440-41-7	E466	0.000002	mg/L	0.1 mg/L	98.4	80.0	120	----
Bismuth, total	7440-69-9	E466	0.000001	mg/L	1 mg/L	98.1	80.0	120	----
Boron, total	7440-42-8	E466	0.005	mg/L	1 mg/L	90.4	80.0	120	----
Cadmium, total	7440-43-9	E466	0.0000025	mg/L	0.1 mg/L	98.9	80.0	120	----
Calcium, total	7440-70-2	E466	0.01	mg/L	50 mg/L	98.7	80.0	120	----
Cesium, total	7440-46-2	E466	0.000005	mg/L	0.05 mg/L	94.2	80.0	120	----
Chromium, total	7440-47-3	E466	0.00004	mg/L	0.25 mg/L	98.7	80.0	120	----
Cobalt, total	7440-48-4	E466	0.000005	mg/L	0.25 mg/L	97.2	80.0	120	----
Copper, total	7440-50-8	E466	0.00005	mg/L	0.25 mg/L	98.1	80.0	120	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
					Concentration	LCS	Low	High	Qualifier
Total Metals (Undigested) (QCLot: 965400) - continued									
Gallium, total	7440-55-3	E466	0.00005	mg/L	0.25 mg/L	97.1	80.0	120	----
Iron, total	7439-89-6	E466	0.0005	mg/L	1 mg/L	97.4	80.0	120	----
Lanthanum, total	7439-91-0	E466	0.00001	mg/L	0.1 mg/L	99.2	80.0	120	----
Lead, total	7439-92-1	E466	0.000005	mg/L	0.5 mg/L	102	80.0	120	----
Lithium, total	7439-93-2	E466	0.0001	mg/L	0.25 mg/L	98.3	80.0	120	----
Magnesium, total	7439-95-4	E466	0.001	mg/L	50 mg/L	100	80.0	120	----
Manganese, total	7439-96-5	E466	0.000005	mg/L	0.25 mg/L	106	80.0	120	----
Molybdenum, total	7439-98-7	E466	0.00001	mg/L	0.25 mg/L	99.9	80.0	120	----
Nickel, total	7440-02-0	E466	0.00002	mg/L	0.5 mg/L	97.8	80.0	120	----
Niobium, total	7440-03-1	E466	0.0001	mg/L	0.05 mg/L	100	80.0	120	----
Phosphorus, total	7723-14-0	E466	0.01	mg/L	10 mg/L	107	80.0	120	----
Potassium, total	7440-09-7	E466	0.005	mg/L	50 mg/L	101	80.0	120	----
Rhenium, total	7440-15-5	E466	0.000005	mg/L	0.1 mg/L	101	80.0	120	----
Rubidium, total	7440-17-7	E466	0.000005	mg/L	0.1 mg/L	99.3	80.0	120	----
Selenium, total	7782-49-2	E466	0.000025	mg/L	1 mg/L	97.7	80.0	120	----
Silicon, total	7440-21-3	E466	0.05	mg/L	10 mg/L	101	80.0	120	----
Silver, total	7440-22-4	E466	0.000002	mg/L	0.1 mg/L	94.9	80.0	120	----
Sodium, total	7440-23-5	E466	0.01	mg/L	50 mg/L	101	80.0	120	----
Strontium, total	7440-24-6	E466	0.00002	mg/L	0.25 mg/L	102	80.0	120	----
Sulfur, total	7704-34-9	E466	0.5	mg/L	50 mg/L	96.1	80.0	120	----
Tantalum, total	7440-25-7	E466	0.0001	mg/L	0.1 mg/L	99.0	80.0	120	----
Tellurium, total	13494-80-9	E466	0.00001	mg/L	0.1 mg/L	98.3	80.0	120	----
Thallium, total	7440-28-0	E466	0.000001	mg/L	1 mg/L	97.9	80.0	120	----
Thorium, total	7440-29-1	E466	0.000005	mg/L	0.1 mg/L	97.0	80.0	120	----
Tin, total	7440-31-5	E466	0.00001	mg/L	0.5 mg/L	99.7	80.0	120	----
Titanium, total	7440-32-6	E466	0.00005	mg/L	0.25 mg/L	101	80.0	120	----
Tungsten, total	7440-33-7	E466	0.00001	mg/L	0.1 mg/L	100	80.0	120	----
Uranium, total	7440-61-1	E466	0.000001	mg/L	0.005 mg/L	98.8	80.0	120	----
Vanadium, total	7440-62-2	E466	0.00001	mg/L	0.5 mg/L	101	80.0	120	----
Yttrium, total	7440-65-5	E466	0.00001	mg/L	0.1 mg/L	95.9	80.0	120	----
Zinc, total	7440-66-6	E466	0.0001	mg/L	0.5 mg/L	95.8	80.0	120	----
Zirconium, total	7440-67-7	E466	0.00001	mg/L	0.1 mg/L	97.2	80.0	120	----
Mercury, dissolved	7439-97-6	E509-L	0.5	ng/L	5 ng/L	97.2	80.0	120	----
Dissolved Metals (QCLot: 979556)									
Aluminum, dissolved	7429-90-5	E465	0.0002	mg/L	2 mg/L	104	80.0	120	----

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: 979556) - continued									
Antimony, dissolved	7440-36-0	E465	0.000005	mg/L	1 mg/L	112	80.0	120	----
Arsenic, dissolved	7440-38-2	E465	0.00001	mg/L	1 mg/L	97.7	80.0	120	----
Barium, dissolved	7440-39-3	E465	0.00002	mg/L	0.25 mg/L	104	80.0	120	----
Beryllium, dissolved	7440-41-7	E465	0.000002	mg/L	0.1 mg/L	96.2	80.0	120	----
Bismuth, dissolved	7440-69-9	E465	0.000001	mg/L	1 mg/L	102	80.0	120	----
Boron, dissolved	7440-42-8	E465	0.005	mg/L	1 mg/L	92.7	80.0	120	----
Cadmium, dissolved	7440-43-9	E465	0.0000025	mg/L	0.1 mg/L	103	80.0	120	----
Calcium, dissolved	7440-70-2	E465	0.01	mg/L	50 mg/L	97.5	80.0	120	----
Cesium, dissolved	7440-46-2	E465	0.000005	mg/L	0.05 mg/L	99.3	80.0	120	----
Chromium, dissolved	7440-47-3	E465	0.00004	mg/L	0.25 mg/L	98.7	80.0	120	----
Cobalt, dissolved	7440-48-4	E465	0.000005	mg/L	0.25 mg/L	96.2	80.0	120	----
Copper, dissolved	7440-50-8	E465	0.00005	mg/L	0.25 mg/L	98.2	80.0	120	----
Gallium, dissolved	7440-55-3	E465	0.00005	mg/L	0.25 mg/L	99.9	80.0	120	----
Iron, dissolved	7439-89-6	E465	0.0005	mg/L	1 mg/L	92.8	80.0	120	----
Lanthanum, dissolved	7439-91-0	E465	0.00001	mg/L	0.1 mg/L	103	80.0	120	----
Lead, dissolved	7439-92-1	E465	0.000005	mg/L	0.5 mg/L	103	80.0	120	----
Lithium, dissolved	7439-93-2	E465	0.0001	mg/L	0.25 mg/L	99.5	80.0	120	----
Magnesium, dissolved	7439-95-4	E465	0.001	mg/L	50 mg/L	99.3	80.0	120	----
Manganese, dissolved	7439-96-5	E465	0.000005	mg/L	0.25 mg/L	98.6	80.0	120	----
Molybdenum, dissolved	7439-98-7	E465	0.00001	mg/L	0.25 mg/L	100	80.0	120	----
Nickel, dissolved	7440-02-0	E465	0.00002	mg/L	0.5 mg/L	98.4	80.0	120	----
Niobium, dissolved	7440-03-1	E465	0.0001	mg/L	0.05 mg/L	99.5	80.0	120	----
Phosphorus, dissolved	7723-14-0	E465	0.01	mg/L	10 mg/L	99.9	80.0	120	----
Potassium, dissolved	7440-09-7	E465	0.005	mg/L	50 mg/L	98.6	80.0	120	----
Rhenium, dissolved	7440-15-5	E465	0.000005	mg/L	0.1 mg/L	105	80.0	120	----
Rubidium, dissolved	7440-17-7	E465	0.000005	mg/L	0.1 mg/L	100	80.0	120	----
Selenium, dissolved	7782-49-2	E465	0.000025	mg/L	1 mg/L	102	80.0	120	----
Silicon, dissolved	7440-21-3	E465	0.05	mg/L	10 mg/L	103	80.0	120	----
Silver, dissolved	7440-22-4	E465	0.000002	mg/L	0.1 mg/L	98.2	80.0	120	----
Sodium, dissolved	7440-23-5	E465	0.01	mg/L	50 mg/L	101	80.0	120	----
Strontium, dissolved	7440-24-6	E465	0.00002	mg/L	0.25 mg/L	104	80.0	120	----
Sulfur, dissolved	7704-34-9	E465	0.5	mg/L	50 mg/L	96.1	80.0	120	----
Tantalum, dissolved	7440-25-7	E465	0.0001	mg/L	0.1 mg/L	114	80.0	120	----
Tellurium, dissolved	13494-80-9	E465	0.00001	mg/L	0.1 mg/L	102	80.0	120	----
Thallium, dissolved	7440-28-0	E465	0.000001	mg/L	1 mg/L	101	80.0	120	----
Thorium, dissolved	7440-29-1	E465	0.000005	mg/L	0.1 mg/L	96.3	80.0	120	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
					Concentration	LCS	Low	High	Qualifier
Dissolved Metals (QCLot: 979556) - continued									
Tin, dissolved	7440-31-5	E465	0.00001	mg/L	0.5 mg/L	103	80.0	120	----
Titanium, dissolved	7440-32-6	E465	0.00005	mg/L	0.25 mg/L	96.9	80.0	120	----
Tungsten, dissolved	7440-33-7	E465	0.00001	mg/L	0.1 mg/L	97.6	80.0	120	----
Uranium, dissolved	7440-61-1	E465	0.000001	mg/L	0.005 mg/L	110	80.0	120	----
Vanadium, dissolved	7440-62-2	E465	0.00001	mg/L	0.5 mg/L	104	80.0	120	----
Yttrium, dissolved	7440-65-5	E465	0.00001	mg/L	0.1 mg/L	95.7	80.0	120	----
Zinc, dissolved	7440-66-6	E465	0.0001	mg/L	0.5 mg/L	93.4	80.0	120	----
Zirconium, dissolved	7440-67-7	E465	0.00001	mg/L	0.1 mg/L	95.8	80.0	120	----

Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for the associated sample (or similar samples) may be subject to bias. ND – Recovery not determined, background level >= 1x spike level.

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Anions and Nutrients (QCLot: 965209)										
YL2300484-002	PN09	Chloride	16887-00-6	E235.Cl	105 mg/L	100 mg/L	105	75.0	125	----
Anions and Nutrients (QCLot: 965210)										
YL2300484-002	PN09	Nitrate (as N)	14797-55-8	E235.NO3-L	2.66 mg/L	2.5 mg/L	106	75.0	125	----
Anions and Nutrients (QCLot: 965211)										
YL2300484-002	PN09	Nitrite (as N)	14797-65-0	E235.NO2-L	0.511 mg/L	0.5 mg/L	102	75.0	125	----
Anions and Nutrients (QCLot: 965216)										
YL2300480-002	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4-L	1850 mg/L	2000 mg/L	92.3	75.0	125	----
Anions and Nutrients (QCLot: 965217)										
YL2300484-002	PN09	Fluoride	16984-48-8	E235.F	1.06 mg/L	1 mg/L	106	75.0	125	----
Anions and Nutrients (QCLot: 965218)										
YL2300484-002	PN09	Sulfate (as SO4)	14808-79-8	E235.SO4	107 mg/L	100 mg/L	107	75.0	125	----
Anions and Nutrients (QCLot: 965219)										
YL2300484-002	PN09	Bromide	24959-67-9	E235.Br-L	0.508 mg/L	0.5 mg/L	102	75.0	125	----
Anions and Nutrients (QCLot: 965220)										
YL2300480-002	Anonymous	Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0282 mg/L	0.03 mg/L	94.0	70.0	130	----
Anions and Nutrients (QCLot: 967311)										
FJ2301261-002	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.104 mg/L	0.1 mg/L	104	75.0	125	----
Anions and Nutrients (QCLot: 973958)										
VA23B1939-005	Anonymous	Silicate (as SiO2)	7631-86-9	E392	10.0 mg/L	10 mg/L	100	75.0	125	----
Anions and Nutrients (QCLot: 973959)										
YL2300484-004	DUP	Silicate (as SiO2)	7631-86-9	E392	10.1 mg/L	10 mg/L	101	75.0	125	----
Anions and Nutrients (QCLot: 978519)										
EO2304451-002	Anonymous	Phosphorus, total dissolved	7723-14-0	E375-U	0.0706 mg/L	0.067 mg/L	105	70.0	130	----
Anions and Nutrients (QCLot: 978531)										
EO2304500-016	Anonymous	Phosphorus, total	7723-14-0	E372-S	ND mg/L	0.067 mg/L	ND	70.0	130	----
Anions and Nutrients (QCLot: 997434)										
VA23B3375-009	Anonymous	Kjeldahl nitrogen, total [TKN]	----	E318	3.15 mg/L	2.5 mg/L	126	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Organic / Inorganic Carbon (QCLot: 967308)										
FJ2301261-002	Anonymous	Carbon, total organic [TOC]	----	E355-L	4.77 mg/L	5 mg/L	95.5	70.0	130	----
Total Sulfides (QCLot: 965705)										
CG2306947-002	Anonymous	Sulfide, total (as S)	18496-25-8	E395	0.243 mg/L	0.2 mg/L	122	75.0	125	----
Total Sulfides (QCLot: 967211)										
VA23B2238-002	Anonymous	Sulfide, total (as S)	18496-25-8	E395	0.234 mg/L	0.2 mg/L	117	75.0	125	----
Total Metals (QCLot: 970515)										
CG2307070-002	Anonymous	Mercury, total	7439-97-6	E508-L	4.91 ng/L	5 ng/L	98.3	70.0	130	----
Total Metals (Undigested) (QCLot: 965400)										
YL2300484-002	PN09	Aluminum, total	7429-90-5	E466	0.183 mg/L	0.2 mg/L	91.4	70.0	130	----
		Antimony, total	7440-36-0	E466	0.0195 mg/L	0.02 mg/L	97.7	70.0	130	----
		Arsenic, total	7440-38-2	E466	0.0196 mg/L	0.02 mg/L	98.1	70.0	130	----
		Barium, total	7440-39-3	E466	0.0194 mg/L	0.02 mg/L	97.3	70.0	130	----
		Beryllium, total	7440-41-7	E466	0.0393 mg/L	0.04 mg/L	98.2	70.0	130	----
		Bismuth, total	7440-69-9	E466	0.00915 mg/L	0.01 mg/L	91.5	70.0	130	----
		Boron, total	7440-42-8	E466	0.0902 mg/L	0.1 mg/L	90.2	70.0	130	----
		Cadmium, total	7440-43-9	E466	0.00379 mg/L	0.004 mg/L	94.8	70.0	130	----
		Calcium, total	7440-70-2	E466	3.86 mg/L	4 mg/L	96.4	70.0	130	----
		Cesium, total	7440-46-2	E466	0.00966 mg/L	0.01 mg/L	96.6	70.0	130	----
		Chromium, total	7440-47-3	E466	0.0396 mg/L	0.04 mg/L	99.0	70.0	130	----
		Cobalt, total	7440-48-4	E466	0.0184 mg/L	0.02 mg/L	92.2	70.0	130	----
		Copper, total	7440-50-8	E466	0.0189 mg/L	0.02 mg/L	94.5	70.0	130	----
		Gallium, total	7440-55-3	E466	0.00230 mg/L	0.0025 mg/L	92.0	70.0	130	----
		Iron, total	7439-89-6	E466	1.96 mg/L	2 mg/L	97.8	70.0	130	----
		Lanthanum, total	7439-91-0	E466	0.00234 mg/L	0.0025 mg/L	93.6	70.0	130	----
		Lead, total	7439-92-1	E466	0.0195 mg/L	0.02 mg/L	97.3	70.0	130	----
		Lithium, total	7439-93-2	E466	0.0978 mg/L	0.1 mg/L	97.8	70.0	130	----
		Magnesium, total	7439-95-4	E466	ND mg/L	1 mg/L	ND	70.0	130	----
		Manganese, total	7439-96-5	E466	0.0200 mg/L	0.02 mg/L	100	70.0	130	----
		Molybdenum, total	7439-98-7	E466	0.0188 mg/L	0.02 mg/L	94.0	70.0	130	----
		Nickel, total	7440-02-0	E466	0.0372 mg/L	0.04 mg/L	93.0	70.0	130	----
		Niobium, total	7440-03-1	E466	0.00247 mg/L	0.0025 mg/L	98.7	70.0	130	----
		Phosphorus, total	7723-14-0	E466	8.57 mg/L	10 mg/L	85.7	70.0	130	----
		Potassium, total	7440-09-7	E466	3.75 mg/L	4 mg/L	93.8	70.0	130	----
		Rhenium, total	7440-15-5	E466	0.00234 mg/L	0.0025 mg/L	93.6	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Total Metals (Undigested) (QCLot: 965400) - continued										
YL2300484-002	PN09	Rubidium, total	7440-17-7	E466	0.0199 mg/L	0.02 mg/L	99.4	70.0	130	----
		Selenium, total	7782-49-2	E466	0.0401 mg/L	0.04 mg/L	100	70.0	130	----
		Silicon, total	7440-21-3	E466	9.14 mg/L	10 mg/L	91.4	70.0	130	----
		Silver, total	7440-22-4	E466	0.00370 mg/L	0.004 mg/L	92.5	70.0	130	----
		Sodium, total	7440-23-5	E466	1.79 mg/L	2 mg/L	89.5	70.0	130	----
		Strontium, total	7440-24-6	E466	0.0177 mg/L	0.02 mg/L	88.4	70.0	130	----
		Sulfur, total	7704-34-9	E466	19.3 mg/L	20 mg/L	96.6	70.0	130	----
		Tantalum, total	7440-25-7	E466	0.00238 mg/L	0.0025 mg/L	95.4	70.0	130	----
		Tellurium, total	13494-80-9	E466	0.0401 mg/L	0.04 mg/L	100	70.0	130	----
		Thallium, total	7440-28-0	E466	0.00362 mg/L	0.004 mg/L	90.5	70.0	130	----
		Thorium, total	7440-29-1	E466	0.0189 mg/L	0.02 mg/L	94.7	70.0	130	----
		Tin, total	7440-31-5	E466	0.0191 mg/L	0.02 mg/L	95.7	70.0	130	----
		Titanium, total	7440-32-6	E466	0.0392 mg/L	0.04 mg/L	97.9	70.0	130	----
		Tungsten, total	7440-33-7	E466	0.0189 mg/L	0.02 mg/L	94.5	70.0	130	----
		Uranium, total	7440-61-1	E466	0.00386 mg/L	0.004 mg/L	96.6	70.0	130	----
		Vanadium, total	7440-62-2	E466	0.105 mg/L	0.1 mg/L	105	70.0	130	----
		Yttrium, total	7440-65-5	E466	0.00230 mg/L	0.0025 mg/L	91.9	70.0	130	----
		Zinc, total	7440-66-6	E466	0.394 mg/L	0.4 mg/L	98.4	70.0	130	----
		Zirconium, total	7440-67-7	E466	0.0385 mg/L	0.04 mg/L	96.2	70.0	130	----
Dissolved Metals (QCLot: 970647)										
YL2300484-002	PN09	Mercury, dissolved	7439-97-6	E509-L	5.09 ng/L	5 ng/L	102	70.0	130	----
Dissolved Metals (QCLot: 979556)										
YL2300484-002	PN09	Aluminum, dissolved	7429-90-5	E465	0.195 mg/L	0.2 mg/L	97.7	70.0	130	----
		Antimony, dissolved	7440-36-0	E465	0.0208 mg/L	0.02 mg/L	104	70.0	130	----
		Arsenic, dissolved	7440-38-2	E465	0.0194 mg/L	0.02 mg/L	97.2	70.0	130	----
		Barium, dissolved	7440-39-3	E465	0.0202 mg/L	0.02 mg/L	101	70.0	130	----
		Beryllium, dissolved	7440-41-7	E465	0.0412 mg/L	0.04 mg/L	103	70.0	130	----
		Bismuth, dissolved	7440-69-9	E465	0.0102 mg/L	0.01 mg/L	102	70.0	130	----
		Boron, dissolved	7440-42-8	E465	0.0955 mg/L	0.1 mg/L	95.5	70.0	130	----
		Cadmium, dissolved	7440-43-9	E465	0.00406 mg/L	0.004 mg/L	102	70.0	130	----
		Calcium, dissolved	7440-70-2	E465	3.94 mg/L	4 mg/L	98.5	70.0	130	----
		Cesium, dissolved	7440-46-2	E465	0.0102 mg/L	0.01 mg/L	102	70.0	130	----
		Chromium, dissolved	7440-47-3	E465	0.0394 mg/L	0.04 mg/L	98.6	70.0	130	----
		Cobalt, dissolved	7440-48-4	E465	0.0193 mg/L	0.02 mg/L	96.4	70.0	130	----
		Copper, dissolved	7440-50-8	E465	0.0198 mg/L	0.02 mg/L	99.3	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Dissolved Metals (QCLot: 979556) - continued										
YL2300484-002	PN09	Gallium, dissolved	7440-55-3	E465	0.00244 mg/L	0.0025 mg/L	97.6	70.0	130	----
		Iron, dissolved	7439-89-6	E465	1.96 mg/L	2 mg/L	98.0	70.0	130	----
		Lanthanum, dissolved	7439-91-0	E465	0.00250 mg/L	0.0025 mg/L	99.9	70.0	130	----
		Lead, dissolved	7439-92-1	E465	0.0204 mg/L	0.02 mg/L	102	70.0	130	----
		Lithium, dissolved	7439-93-2	E465	0.117 mg/L	0.1 mg/L	117	70.0	130	----
		Magnesium, dissolved	7439-95-4	E465	ND mg/L	1 mg/L	ND	70.0	130	----
		Manganese, dissolved	7439-96-5	E465	0.0200 mg/L	0.02 mg/L	100	70.0	130	----
		Molybdenum, dissolved	7439-98-7	E465	0.0192 mg/L	0.02 mg/L	96.3	70.0	130	----
		Nickel, dissolved	7440-02-0	E465	0.0398 mg/L	0.04 mg/L	99.6	70.0	130	----
		Niobium, dissolved	7440-03-1	E465	0.00267 mg/L	0.0025 mg/L	107	70.0	130	----
		Phosphorus, dissolved	7723-14-0	E465	8.19 mg/L	10 mg/L	81.9	70.0	130	----
		Potassium, dissolved	7440-09-7	E465	3.88 mg/L	4 mg/L	96.9	70.0	130	----
		Rhenium, dissolved	7440-15-5	E465	0.00243 mg/L	0.0025 mg/L	97.1	70.0	130	----
		Rubidium, dissolved	7440-17-7	E465	0.0204 mg/L	0.02 mg/L	102	70.0	130	----
		Selenium, dissolved	7782-49-2	E465	0.0425 mg/L	0.04 mg/L	106	70.0	130	----
		Silicon, dissolved	7440-21-3	E465	9.60 mg/L	10 mg/L	96.0	70.0	130	----
		Silver, dissolved	7440-22-4	E465	0.00384 mg/L	0.004 mg/L	96.1	70.0	130	----
		Sodium, dissolved	7440-23-5	E465	1.90 mg/L	2 mg/L	95.1	70.0	130	----
		Strontium, dissolved	7440-24-6	E465	0.0195 mg/L	0.02 mg/L	97.3	70.0	130	----
		Sulfur, dissolved	7704-34-9	E465	20.1 mg/L	20 mg/L	100	70.0	130	----
		Tantalum, dissolved	7440-25-7	E465	0.00242 mg/L	0.0025 mg/L	96.7	70.0	130	----
		Tellurium, dissolved	13494-80-9	E465	0.0418 mg/L	0.04 mg/L	105	70.0	130	----
		Thallium, dissolved	7440-28-0	E465	0.00381 mg/L	0.004 mg/L	95.3	70.0	130	----
		Thorium, dissolved	7440-29-1	E465	0.0186 mg/L	0.02 mg/L	93.0	70.0	130	----
		Tin, dissolved	7440-31-5	E465	0.0198 mg/L	0.02 mg/L	98.9	70.0	130	----
		Titanium, dissolved	7440-32-6	E465	0.0387 mg/L	0.04 mg/L	96.7	70.0	130	----
		Tungsten, dissolved	7440-33-7	E465	0.0197 mg/L	0.02 mg/L	98.5	70.0	130	----
		Uranium, dissolved	7440-61-1	E465	0.00422 mg/L	0.004 mg/L	106	70.0	130	----
		Vanadium, dissolved	7440-62-2	E465	0.108 mg/L	0.1 mg/L	108	70.0	130	----
		Yttrium, dissolved	7440-65-5	E465	0.00242 mg/L	0.0025 mg/L	96.8	70.0	130	----
		Zinc, dissolved	7440-66-6	E465	0.383 mg/L	0.4 mg/L	95.8	70.0	130	----
		Zirconium, dissolved	7440-67-7	E465	0.0387 mg/L	0.04 mg/L	96.8	70.0	130	----

CHAIN OF CUSTODY

ALS Laboratory

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Daniel Mullen	BK		
DATE/TIME: 2023/05/29 9:40	DATE/TIME: May 30	DATE/TIME:	DATE/TIME:

CLIENT:	Sabina Gold & Silver Corporation	**TURNAROUND REQUIREMENTS :** (Standard TAT may be longer for some tests e.g., Ultra Trace Organics)	☑ Standard TAT **(List due date):**
PROJECT:	22567626		☐ Non Standard or urgent TAT **(List due date):**
SITE:	Sabina Goose Lake		
PURCHASE ORDER NO.:			
PROJECT MANAGER:	Merle Keefe	**CONTACT PH:**	
SAMPLER:	D. Mullen	**SAMPLER MOBILE:**	
EMAIL REPORTS TO:	mkeefe@sabinagoldsilver.com zenovia.craciunescu@wsp.com, andrea.wade@wsp.com	**EMAIL INVOICE TO:**	mkeefe@sabinagoldsilver.com

FOR LABORATORY USE ONLY (Circle)

Custody Seal Intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	(Yes)	No	N/A
Random Sample Temperature on Receipt:	3 °C		
Other comments:			

SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE ONLY	SAMPLE DETAILS (Solid(S) Water(W))		MATRIX:	CONTAINER INFORMATION	ANALYSIS REQUIRED										Additional Information
SAMPLE	Sample identification (This description will appear on the report)	DATE / TIME (dd-mm-yyyy)	MATRIX	TOTAL CONTAINERS	Total Metals + Hg Low level	Dissolved Metals + Hg Low level	Total Nutrients	Dissolved Nutrients	General Parameters / Routine	Total Sulphides					Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
	PN08	28-05-2023 / 8:00	Water	9	X	X	X	X	X	X					
	PN09	28-05-2023 / 11:00	Water	9	X	X	X	X	X	X					SAMPLES ON ICE
	PN05	28-05-2023 / 14:00	Water	9	X	X	X	X	X	X					
	DUP	28-05-2023 / 14:00	Water	9	X	X	X	X	X	X					
				TOTAL	36										

Environmental Division
Yellowknife
Work Order Reference
YL2300484

Telephone : +1 867 873 5593

ALS Canada Ltd.

right solutions.
right partner.

CERTIFICATE OF ANALYSIS

Work Order	: **YL2300492**	Page	: 1 of 8
Amendment	: **1**		
Client	: **Sabina Gold & Silver Corporation**	Laboratory	: Yellowknife - Environmental
Contact	: Merle Keefe	Account Manager	: Oliver Gregg
Address	: 375 - 555 Burrard St. Box 220, Bentall 2 Vancouver BC Canada V7X 1M7	Address	: 314 Old Airport Road, Unit 116 Yellowknife NT Canada X1A 3T3
Telephone	: 604 240 6619	Telephone	: 1 867 446 5593
Project	: 22567626	Date Samples Received	: 31-May-2023 10:00
PO	: ----	Date Analysis Commenced	: 01-Jun-2023
C-O-C number	: ----	Issue Date	: 23-Jun-2023 10:14
Sampler	: ----		
Site	: Sabina Goose Lake		
Quote number	: 2021 Under-Ice Field Program		
No. of samples received	: 3		
No. of samples analysed	: 3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Cindy Tang	Team Leader - Inorganics	Inorganics, Burnaby, British Columbia
Dan Gebert	Laboratory Analyst	Metals, Burnaby, British Columbia
Hamideh Moradi	Analyst	Metals, Burnaby, British Columbia
Jing Liu	Lab Assistant	Inorganics, Edmonton, Alberta
Kate Dimitrova	Analsyt	Inorganics, 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
Lindsay Gung	Supervisor - Water Chemistry	Inorganics, Burnaby, British Columbia
Michael Webb	Lab Analyst	Metals, Burnaby, British Columbia
Miles Gropen	Department Manager - Inorganics	Inorganics, Burnaby, British Columbia
Tracy Harley	Supervisor - Water Quality Instrumentation	Inorganics, Burnaby, British Columbia

General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Please refer to Quality Control Interpretive report (QCI) for information regarding Holding Time compliance.

Key : CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances

LOR: Limit of Reporting (detection limit).

Unit	*Description*
-	no units
µS/cm	microsiemens per centimetre
mg/L	milligrams per litre
ng/L	nanograms per litre
NTU	nephelometric turbidity units
pH units	pH units

<: 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*
DLM	*Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).*
DTC	*Dissolved concentration exceeds total. Results were confirmed by re-analysis.*
RRV	*Reported result verified by repeat analysis.*

Analytical Results

Sub-Matrix: Water (Matrix: Water)				Client sample ID	PN07	PN04	TB	----	----
				Client sampling date / time	29-May-2023 07:30	29-May-2023 10:55	29-May-2023 07:30	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit	YL2300492-001	YL2300492-002	YL2300492-003	--------	--------
					Result	Result	Result	----	----
Physical Tests									
Alkalinity, bicarbonate (as CaCO3)	----	E290/VA	1.0	mg/L	2.7	4.3	1.1	----	----
Alkalinity, carbonate (as CaCO3)	----	E290/VA	1.0	mg/L	<1.0	<1.0	<1.0	----	----
Alkalinity, hydroxide (as CaCO3)	----	E290/VA	1.0	mg/L	<1.0	<1.0	<1.0	----	----
Alkalinity, phenolphthalein (as CaCO3)	----	E290/VA	1.0	mg/L	<1.0	<1.0	<1.0	----	----
Alkalinity, total (as CaCO3)	----	E290/VA	1.0	mg/L	2.7	4.3	1.1	----	----
Conductivity	----	E100/VA	2.0	µS/cm	68.7	60.8	2.1	----	----
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/VA	0.50	mg/L	26.2	23.9	<0.50	----	----
pH	----	E108/VA	0.10	pH units	6.30	6.64	5.79	----	----
Solids, total dissolved [TDS]	----	E162/VA	10	mg/L	60	46	<10	----	----
Solids, total dissolved [TDS], calculated	----	EC103/VA	1.0	mg/L	39.6	30.4	1.0	----	----
Solids, total suspended [TSS]	----	E160/VA	3.0	mg/L	<3.0	<3.0	<3.0	----	----
Turbidity	----	E121/VA	0.10	NTU	0.87	0.26	<0.10	----	----
Anions and Nutrients									
Ammonia, total (as N)	7664-41-7	E298/VA	0.0050	mg/L	0.0584	0.152	0.0081 RRV	----	----
Bromide	24959-67-9	E235.Br-L/VA	0.050	mg/L	<0.050	0.082	<0.050	----	----
Chloride	16887-00-6	E235.Cl/VA	0.50	mg/L	2.93	7.72	<0.50	----	----
Fluoride	16984-48-8	E235.F/VA	0.020	mg/L	0.021	<0.020	<0.020	----	----
Nitrate (as N)	14797-55-8	E235.NO3-L/VA	0.0050	mg/L	0.715	0.600	0.0051 RRV	----	----
Nitrite (as N)	14797-65-0	E235.NO2-L/VA	0.0010	mg/L	<0.0010	<0.0010	<0.0010	----	----
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U/VA	0.0010	mg/L	<0.0010	<0.0010	<0.0010	----	----
Phosphorus, total	7723-14-0	E372-S/EO	0.0010	mg/L	0.0054	0.0022	<0.0010	----	----
Phosphorus, total dissolved	7723-14-0	E375-U/EO	0.0010	mg/L	0.0026	<0.0010	<0.0010	----	----
Silicate (as SiO2)	7631-86-9	E392/VA	0.50	mg/L	2.55	1.14	<0.50	----	----
Sulfate (as SO4)	14808-79-8	E235.SO4-L/VA	0.050	mg/L	17.0	7.13	<0.050	----	----
Sulfate (as SO4)	14808-79-8	E235.SO4/VA	0.30	mg/L	17.0	7.13	<0.30	----	----
Kjeldahl nitrogen, total [TKN]	----	E318/VA	0.200	mg/L	0.567	0.361	<0.200	----	----
Organic / Inorganic Carbon									

Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	PN07	PN04	TB	----	----
					Client sampling date / time	29-May-2023 07:30	29-May-2023 10:55	29-May-2023 07:30	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit		YL2300492-001	YL2300492-002	YL2300492-003	--------	--------
						Result	Result	Result	----	----
Organic / Inorganic Carbon										
Carbon, total organic [TOC]	----	E355-L/VA	0.50	mg/L		9.70	3.37	<0.50	----	----
Total Sulfides										
Sulfide, total (as S)	18496-25-8	E395/VA	0.0015	mg/L		<0.0038 DLM	----	----	----	----
Sulfide, total (as H2S)	7783-06-4	E395/VA	0.0016	mg/L		<0.0040	----	----	----	----
Total Metals										
Mercury, total	7439-97-6	E508-L/VA	0.50	ng/L		2.76	1.98	<0.50	----	----
Total Metals (Undigested)										
Aluminum, total	7429-90-5	E466/VA	0.00020	mg/L		0.166	0.0302	<0.00020	----	----
Antimony, total	7440-36-0	E466/VA	0.0000050	mg/L		0.0000428	0.0000089	<0.0000050	----	----
Arsenic, total	7440-38-2	E466/VA	0.000010	mg/L		0.000637	0.000199	<0.000010	----	----
Barium, total	7440-39-3	E466/VA	0.000020	mg/L		0.0146	0.0119	0.000058 RRV	----	----
Beryllium, total	7440-41-7	E466/VA	0.0000020	mg/L		0.0000116	0.0000038	<0.0000020	----	----
Bismuth, total	7440-69-9	E466/VA	0.0000010	mg/L		<0.0000010	<0.0000010	<0.0000010	----	----
Boron, total	7440-42-8	E466/VA	0.0050	mg/L		<0.0050	<0.0050	<0.0050	----	----
Cadmium, total	7440-43-9	E466/VA	0.0000025	mg/L		0.0000231	0.0000168	<0.0000025	----	----
Calcium, total	7440-70-2	E466/VA	0.010	mg/L		4.66	5.88	<0.010	----	----
Cesium, total	7440-46-2	E466/VA	0.0000050	mg/L		0.0000062	0.0000160	<0.0000050	----	----
Chromium, total	7440-47-3	E466/VA	0.000040	mg/L		0.000446	0.000077	0.000134 RRV	----	----
Cobalt, total	7440-48-4	E466/VA	0.0000050	mg/L		0.00181	0.000339	<0.0000050	----	----
Copper, total	7440-50-8	E466/VA	0.000050	mg/L		0.00310	0.00189	0.000080 RRV	----	----
Gallium, total	7440-55-3	E466/VA	0.000050	mg/L		<0.000050	<0.000050	<0.000050	----	----
Iron, total	7439-89-6	E466/VA	0.00050	mg/L		0.177	0.00824	<0.00050	----	----
Lanthanum, total	7439-91-0	E466/VA	0.000010	mg/L		0.000585	0.000321	<0.000010	----	----
Lead, total	7439-92-1	E466/VA	0.0000050	mg/L		0.0000549	0.0000055	0.0000322 RRV	----	----
Lithium, total	7439-93-2	E466/VA	0.00010	mg/L		0.00211	0.00106	0.00015 RRV	----	----
Magnesium, total	7439-95-4	E466/VA	0.0010	mg/L		3.53	2.24	<0.0010	----	----
Manganese, total	7439-96-5	E466/VA	0.0000050	mg/L		0.0165	0.00459	0.0000078 RRV	----	----
Molybdenum, total	7439-98-7	E466/VA	0.000010	mg/L		0.000026	0.000015	<0.000010	----	----
Nickel, total	7440-02-0	E466/VA	0.000020	mg/L		0.00621	0.00524	<0.000020	----	----
Niobium, total	7440-03-1	E466/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	----	----

Analytical Results

Sub-Matrix: **Water**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	PN07	PN04	TB	----	----
					Client sampling date / time	29-May-2023 07:30	29-May-2023 10:55	29-May-2023 07:30	----	----
						YL2300492-001	YL2300492-002	YL2300492-003	--------	--------
						Result	Result	Result	----	----
Total Metals (Undigested)										
Phosphorus, total	7723-14-0	E466/VA	0.010	mg/L		<0.010	<0.010	<0.010	----	----
Potassium, total	7440-09-7	E466/VA	0.0050	mg/L		1.43	0.600	0.0256 RRV	----	----
Rhenium, total	7440-15-5	E466/VA	0.0000050	mg/L		<0.0000050	<0.0000050	<0.0000050	----	----
Rubidium, total	7440-17-7	E466/VA	0.0000050	mg/L		0.00266	0.00155	0.0000387 RRV	----	----
Selenium, total	7782-49-2	E466/VA	0.000025	mg/L		0.000049	0.000029	<0.000025	----	----
Silicon, total	7440-21-3	E466/VA	0.050	mg/L		1.21	0.507	<0.050	----	----
Silver, total	7440-22-4	E466/VA	0.0000020	mg/L		0.0000029	0.0000024	<0.0000020	----	----
Sodium, total	7440-23-5	E466/VA	0.010	mg/L		1.42	0.837	0.328 RRV	----	----
Strontium, total	7440-24-6	E466/VA	0.000020	mg/L		0.0191	0.0429	<0.000020	----	----
Sulfur, total	7704-34-9	E466/VA	0.50	mg/L		5.66	2.35	<0.50	----	----
Tantalum, total	7440-25-7	E466/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	----	----
Tellurium, total	13494-80-9	E466/VA	0.000010	mg/L		<0.000010	<0.000010	<0.000010	----	----
Thallium, total	7440-28-0	E466/VA	0.0000010	mg/L		0.0000073	0.0000023	<0.0000010	----	----
Thorium, total	7440-29-1	E466/VA	0.0000050	mg/L		0.0000642	0.0000084	<0.0000050	----	----
Tin, total	7440-31-5	E466/VA	0.000010	mg/L		<0.000010	<0.000010	<0.000010	----	----
Titanium, total	7440-32-6	E466/VA	0.000050	mg/L		0.000960	0.000075	<0.000050	----	----
Tungsten, total	7440-33-7	E466/VA	0.000010	mg/L		<0.000010	<0.000010	<0.000010	----	----
Uranium, total	7440-61-1	E466/VA	0.0000010	mg/L		0.0000311	0.0000079	<0.0000010	----	----
Vanadium, total	7440-62-2	E466/VA	0.000010	mg/L		0.000414	0.000026	<0.000010	----	----
Yttrium, total	7440-65-5	E466/VA	0.000010	mg/L		0.000343	0.000119	<0.000010	----	----
Zinc, total	7440-66-6	E466/VA	0.00010	mg/L		0.00313	0.00184	0.00554 RRV	----	----
Zirconium, total	7440-67-7	E466/VA	0.000010	mg/L		0.000344	0.000046	<0.000010	----	----
Dissolved Metals										
Aluminum, dissolved	7429-90-5	E465/VA	0.00020	mg/L		0.136	0.0252	<0.00020	----	----
Antimony, dissolved	7440-36-0	E465/VA	0.0000050	mg/L		0.0000309	0.0000083	<0.0000050	----	----
Arsenic, dissolved	7440-38-2	E465/VA	0.000010	mg/L		0.000584	0.000184	<0.000010	----	----
Barium, dissolved	7440-39-3	E465/VA	0.000020	mg/L		0.0157	0.0120	0.000056 RRV	----	----
Beryllium, dissolved	7440-41-7	E465/VA	0.0000020	mg/L		0.0000094	0.0000027	<0.0000020	----	----
Bismuth, dissolved	7440-69-9	E465/VA	0.0000010	mg/L		0.0000011	<0.0000010	<0.0000010	----	----
Boron, dissolved	7440-42-8	E465/VA	0.0050	mg/L		<0.0050	<0.0050	<0.0050	----	----

Analytical Results

Sub-Matrix: **Water**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	PN07	PN04	TB	----	----
					Client sampling date / time	29-May-2023 07:30	29-May-2023 10:55	29-May-2023 07:30	----	----
						YL2300492-001	YL2300492-002	YL2300492-003	--------	--------
						Result	Result	Result	----	----
Dissolved Metals										
Cadmium, dissolved	7440-43-9	E465/VA	0.0000025	mg/L		0.0000289	0.0000177	<0.0000025	----	----
Calcium, dissolved	7440-70-2	E465/VA	0.010	mg/L		4.76	5.36	<0.010	----	----
Cesium, dissolved	7440-46-2	E465/VA	0.0000050	mg/L		0.0000051	0.0000151	<0.0000050	----	----
Chromium, dissolved	7440-47-3	E465/VA	0.000040	mg/L		0.000393	0.000226 DTC	0.000082 RRV	----	----
Cobalt, dissolved	7440-48-4	E465/VA	0.0000050	mg/L		0.00186	0.000327	<0.0000050	----	----
Copper, dissolved	7440-50-8	E465/VA	0.000050	mg/L		0.00329	0.00188	0.000071 RRV	----	----
Dissolved metals filtration location	----	EP465/VA	-	-		Field	Field	Field	----	----
Gallium, dissolved	7440-55-3	E465/VA	0.000050	mg/L		<0.000050	<0.000050	<0.000050	----	----
Iron, dissolved	7439-89-6	E465/VA	0.00050	mg/L		0.158	0.00549	<0.00050	----	----
Lanthanum, dissolved	7439-91-0	E465/VA	0.000010	mg/L		0.000554	0.000316	<0.000010	----	----
Lead, dissolved	7439-92-1	E465/VA	0.0000050	mg/L		0.0000433	<0.0000050	0.0000313 RRV	----	----
Lithium, dissolved	7439-93-2	E465/VA	0.00010	mg/L		0.00208	0.00107	0.00012 RRV	----	----
Magnesium, dissolved	7439-95-4	E465/VA	0.0010	mg/L		3.50	1.99	<0.0010	----	----
Manganese, dissolved	7439-96-5	E465/VA	0.0000050	mg/L		0.0173	0.00412	0.0000070 RRV	----	----
Mercury, dissolved	7439-97-6	E509-L/VA	0.50	ng/L		2.76	1.86	<0.50	----	----
Molybdenum, dissolved	7439-98-7	E465/VA	0.000010	mg/L		0.000027	0.000013	<0.000010	----	----
Nickel, dissolved	7440-02-0	E465/VA	0.000020	mg/L		0.00654	0.00510	<0.000020	----	----
Niobium, dissolved	7440-03-1	E465/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	----	----
Phosphorus, dissolved	7723-14-0	E465/VA	0.010	mg/L		<0.010	<0.010	<0.010	----	----
Potassium, dissolved	7440-09-7	E465/VA	0.0050	mg/L		1.49	0.557	0.0258 RRV	----	----
Rhenium, dissolved	7440-15-5	E465/VA	0.0000050	mg/L		<0.0000050	<0.0000050	<0.0000050	----	----
Rubidium, dissolved	7440-17-7	E465/VA	0.0000050	mg/L		0.00285	0.00151	0.0000378 RRV	----	----
Selenium, dissolved	7782-49-2	E465/VA	0.000025	mg/L		0.000043	0.000027	<0.000025	----	----
Silicon, dissolved	7440-21-3	E465/VA	0.050	mg/L		1.19	0.502	<0.050	----	----
Silver, dissolved	7440-22-4	E465/VA	0.0000020	mg/L		<0.0000020	<0.0000020	<0.0000020	----	----
Sodium, dissolved	7440-23-5	E465/VA	0.010	mg/L		1.46	0.764	0.332 RRV	----	----
Strontium, dissolved	7440-24-6	E465/VA	0.000020	mg/L		0.0212	0.0432	<0.000020	----	----
Sulfur, dissolved	7704-34-9	E465/VA	0.50	mg/L		5.67	2.36	<0.50	----	----
Tantalum, dissolved	7440-25-7	E465/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	----	----
Tellurium, dissolved	13494-80-9	E465/VA	0.000010	mg/L		<0.000010	<0.000010	<0.000010	----	----

Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	PN07	PN04	TB	----	----
					Client sampling date / time	29-May-2023 07:30	29-May-2023 10:55	29-May-2023 07:30	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit		YL2300492-001	YL2300492-002	YL2300492-003	--------	--------
						Result	Result	Result	----	----
Dissolved Metals										
Thallium, dissolved	7440-28-0	E465/VA	0.0000010	mg/L		0.0000081	0.0000026	<0.0000010	----	----
Thorium, dissolved	7440-29-1	E465/VA	0.0000050	mg/L		0.0000711	0.0000103	<0.0000050	----	----
Tin, dissolved	7440-31-5	E465/VA	0.000010	mg/L		<0.000010	<0.000010	<0.000010	----	----
Titanium, dissolved	7440-32-6	E465/VA	0.000050	mg/L		0.000441	<0.000050	<0.000050	----	----
Tungsten, dissolved	7440-33-7	E465/VA	0.000010	mg/L		<0.000010	<0.000010	<0.000010	----	----
Uranium, dissolved	7440-61-1	E465/VA	0.0000010	mg/L		0.0000312	0.0000093	<0.0000010	----	----
Vanadium, dissolved	7440-62-2	E465/VA	0.000010	mg/L		0.000396	0.000021	<0.000010	----	----
Yttrium, dissolved	7440-65-5	E465/VA	0.000010	mg/L		0.000369	0.000114	<0.000010	----	----
Zinc, dissolved	7440-66-6	E465/VA	0.00010	mg/L		0.00421	0.00205	0.00557 RRV	----	----
Zirconium, dissolved	7440-67-7	E465/VA	0.000010	mg/L		0.000276	0.000040	<0.000010	----	----
Dissolved mercury filtration location	----	EP509-L/VA	-	-		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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QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **YL2300492**	Page	: 1 of 18
Amendment	: **1**		
Client	: **Sabina Gold & Silver Corporation**	Laboratory	: Yellowknife - Environmental
Contact	: Merle Keefe	Account Manager	: Oliver Gregg
Address	: 375 - 555 Burrard St. Box 220, Bentall 2 Vancouver BC Canada V7X 1M7	Address	: 314 Old Airport Road, Unit 116 Yellowknife, Northwest Territories Canada X1A 3T3
Telephone	: 604 240 6619	Telephone	: 1 867 446 5593
Project	: 22567626	Date Samples Received	: 31-May-2023 10:00
PO	: ----	Issue Date	: 23-Jun-2023 10:15
C-O-C number	: ----		
Sampler	: ----		
Site	: Sabina Goose Lake		
Quote number	: 2021 Under-Ice Field Program		
No. of samples received	: 3		
No. of samples analysed	: 3		

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Key

Anonymous: Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number: Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO: Data Quality Objective.
LOR: Limit of Reporting (detection limit).
RPD: Relative Percent Difference.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Summary of Outliers

Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- No Duplicate outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- No Matrix Spike outliers occur.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- Analysis Holding Time Outliers exist - please see following pages for full details.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) PN04	E298	29-May-2023	02-Jun-2023	----	----		04-Jun-2023	28 days	6 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) PN07	E298	29-May-2023	02-Jun-2023	----	----		04-Jun-2023	28 days	6 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) TB	E298	29-May-2023	02-Jun-2023	----	----		04-Jun-2023	28 days	6 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE PN04	E235.Br-L	29-May-2023	01-Jun-2023	----	----		01-Jun-2023	28 days	3 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE PN07	E235.Br-L	29-May-2023	01-Jun-2023	----	----		01-Jun-2023	28 days	4 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE TB	E235.Br-L	29-May-2023	01-Jun-2023	----	----		01-Jun-2023	28 days	4 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE PN04	E235.Cl	29-May-2023	01-Jun-2023	----	----		01-Jun-2023	28 days	3 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Chloride in Water by IC										
HDPE PN07	E235.Cl	29-May-2023	01-Jun-2023	----	----		01-Jun-2023	28 days	4 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE TB	E235.Cl	29-May-2023	01-Jun-2023	----	----		01-Jun-2023	28 days	4 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001										
HDPE PN04	E378-U	29-May-2023	01-Jun-2023	----	----		01-Jun-2023	3 days	3 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001										
HDPE PN07	E378-U	29-May-2023	01-Jun-2023	----	----		01-Jun-2023	3 days	4 days	× EHT
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001										
HDPE TB	E378-U	29-May-2023	01-Jun-2023	----	----		01-Jun-2023	3 days	4 days	× EHT
Anions and Nutrients : Fluoride in Water by IC										
HDPE PN04	E235.F	29-May-2023	01-Jun-2023	----	----		01-Jun-2023	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE PN07	E235.F	29-May-2023	01-Jun-2023	----	----		01-Jun-2023	28 days	4 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE TB	E235.F	29-May-2023	01-Jun-2023	----	----		01-Jun-2023	28 days	4 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE PN04	E235.NO3-L	29-May-2023	01-Jun-2023	----	----		01-Jun-2023	3 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE PN07	E235.NO3-L	29-May-2023	01-Jun-2023	----	----		01-Jun-2023	3 days	4 days	× EHT
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE TB	E235.NO3-L	29-May-2023	01-Jun-2023	----	----		01-Jun-2023	3 days	4 days	× EHT
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE PN04	E235.NO2-L	29-May-2023	01-Jun-2023	----	----		01-Jun-2023	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE PN07	E235.NO2-L	29-May-2023	01-Jun-2023	----	----		01-Jun-2023	3 days	4 days	× EHT
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE TB	E235.NO2-L	29-May-2023	01-Jun-2023	----	----		01-Jun-2023	3 days	4 days	× EHT
Anions and Nutrients : Reactive Silica by Colourimetry										
HDPE PN04	E392	29-May-2023	----	----	----		06-Jun-2023	28 days	8 days	✓
Anions and Nutrients : Reactive Silica by Colourimetry										
HDPE PN07	E392	29-May-2023	----	----	----		06-Jun-2023	28 days	8 days	✓
Anions and Nutrients : Reactive Silica by Colourimetry										
HDPE TB	E392	29-May-2023	----	----	----		06-Jun-2023	28 days	8 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Sulfate in Water by IC (Low Level)										
HDPE PN04	E235.SO4-L	29-May-2023	01-Jun-2023	----	----		01-Jun-2023	28 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC (Low Level)										
HDPE PN07	E235.SO4-L	29-May-2023	01-Jun-2023	----	----		01-Jun-2023	28 days	4 days	✓
Anions and Nutrients : Sulfate in Water by IC (Low Level)										
HDPE TB	E235.SO4-L	29-May-2023	01-Jun-2023	----	----		01-Jun-2023	28 days	4 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE PN04	E235.SO4	29-May-2023	01-Jun-2023	----	----		01-Jun-2023	28 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE PN07	E235.SO4	29-May-2023	01-Jun-2023	----	----		01-Jun-2023	28 days	4 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE TB	E235.SO4	29-May-2023	01-Jun-2023	----	----		01-Jun-2023	28 days	4 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (0.001 mg/L)										
Amber glass dissolved (sulfuric acid) PN04	E375-U	29-May-2023	05-Jun-2023	----	----		06-Jun-2023	28 days	8 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (0.001 mg/L)										
Amber glass dissolved (sulfuric acid) PN07	E375-U	29-May-2023	05-Jun-2023	----	----		06-Jun-2023	28 days	8 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (0.001 mg/L)										
Amber glass dissolved (sulfuric acid) TB	E375-U	29-May-2023	05-Jun-2023	----	----		06-Jun-2023	28 days	8 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) PN04	E318	29-May-2023	20-Jun-2023	----	----		21-Jun-2023	28 days	23 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) PN07	E318	29-May-2023	20-Jun-2023	----	----		21-Jun-2023	28 days	23 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) TB	E318	29-May-2023	20-Jun-2023	----	----		21-Jun-2023	28 days	23 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.001 mg/L)										
Amber glass total (sulfuric acid) PN04	E372-S	29-May-2023	06-Jun-2023	----	----		06-Jun-2023	28 days	8 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.001 mg/L)										
Amber glass total (sulfuric acid) PN07	E372-S	29-May-2023	06-Jun-2023	----	----		06-Jun-2023	28 days	8 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.001 mg/L)										
Amber glass total (sulfuric acid) TB	E372-S	29-May-2023	06-Jun-2023	----	----		06-Jun-2023	28 days	8 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - dissolved (lab preserved) PN04	E509-L	29-May-2023	03-Jun-2023	----	----		03-Jun-2023	28 days	5 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - dissolved (lab preserved) PN07	E509-L	29-May-2023	03-Jun-2023	----	----		03-Jun-2023	28 days	5 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - dissolved (lab preserved) TB	E509-L	29-May-2023	03-Jun-2023	----	----		03-Jun-2023	28 days	5 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Dissolved Metals : Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine										
HDPE - dissolved (lab preserved) PN04	E465	29-May-2023	08-Jun-2023	----	----		13-Jun-2023	180 days	15 days	✓
Dissolved Metals : Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine										
HDPE - dissolved (lab preserved) PN07	E465	29-May-2023	08-Jun-2023	----	----		13-Jun-2023	180 days	16 days	✓
Dissolved Metals : Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine										
HDPE - dissolved (lab preserved) TB	E465	29-May-2023	08-Jun-2023	----	----		13-Jun-2023	180 days	16 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) PN04	E355-L	29-May-2023	02-Jun-2023	----	----		02-Jun-2023	28 days	4 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) PN07	E355-L	29-May-2023	02-Jun-2023	----	----		02-Jun-2023	28 days	4 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) TB	E355-L	29-May-2023	02-Jun-2023	----	----		02-Jun-2023	28 days	4 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE PN04	E290	29-May-2023	01-Jun-2023	----	----		02-Jun-2023	14 days	4 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE PN07	E290	29-May-2023	01-Jun-2023	----	----		03-Jun-2023	14 days	6 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Alkalinity Species by Titration										
HDPE TB	E290	29-May-2023	01-Jun-2023	----	----		03-Jun-2023	14 days	6 days	✓
Physical Tests : Conductivity in Water										
HDPE PN04	E100	29-May-2023	01-Jun-2023	----	----		02-Jun-2023	28 days	4 days	✓
Physical Tests : Conductivity in Water										
HDPE PN07	E100	29-May-2023	01-Jun-2023	----	----		03-Jun-2023	28 days	6 days	✓
Physical Tests : Conductivity in Water										
HDPE TB	E100	29-May-2023	01-Jun-2023	----	----		03-Jun-2023	28 days	6 days	✓
Physical Tests : pH by Meter										
HDPE PN04	E108	29-May-2023	01-Jun-2023	----	----		02-Jun-2023	0.25 hrs	15.25 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE PN07	E108	29-May-2023	01-Jun-2023	----	----		03-Jun-2023	0.25 hrs	41.25 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE TB	E108	29-May-2023	01-Jun-2023	----	----		03-Jun-2023	0.25 hrs	41.25 hrs	× EHTR-FM
Physical Tests : TDS by Gravimetry										
HDPE PN04	E162	29-May-2023	----	----	----		04-Jun-2023	7 days	6 days	✓
Physical Tests : TDS by Gravimetry										
HDPE PN07	E162	29-May-2023	----	----	----		04-Jun-2023	7 days	6 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : TDS by Gravimetry										
HDPE TB	E162	29-May-2023	----	----	----		04-Jun-2023	7 days	6 days	✓
Physical Tests : TSS by Gravimetry										
HDPE PN04	E160	29-May-2023	----	----	----		04-Jun-2023	7 days	6 days	✓
Physical Tests : TSS by Gravimetry										
HDPE PN07	E160	29-May-2023	----	----	----		04-Jun-2023	7 days	6 days	✓
Physical Tests : TSS by Gravimetry										
HDPE TB	E160	29-May-2023	----	----	----		04-Jun-2023	7 days	6 days	✓
Physical Tests : Turbidity by Nephelometry										
HDPE PN04	E121	29-May-2023	----	----	----		01-Jun-2023	3 days	3 days	✓
Physical Tests : Turbidity by Nephelometry										
HDPE PN07	E121	29-May-2023	----	----	----		01-Jun-2023	3 days	3 days	✓
Physical Tests : Turbidity by Nephelometry										
HDPE TB	E121	29-May-2023	----	----	----		01-Jun-2023	3 days	3 days	✓
Total Metals (Undigested) : Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine										
HDPE - total (lab preserved) PN04	E466	29-May-2023	13-Jun-2023	----	----		13-Jun-2023	180 days	15 days	✓
Total Metals (Undigested) : Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine										
HDPE - total (lab preserved) PN07	E466	29-May-2023	13-Jun-2023	----	----		13-Jun-2023	180 days	15 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Total Metals (Undigested) : Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine										
HDPE - total (lab preserved) TB	E466	29-May-2023	13-Jun-2023	----	----		13-Jun-2023	180 days	15 days	✓
Total Metals : Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - total (lab preserved) PN04	E508-L	29-May-2023	03-Jun-2023	28 days	5 days	✓	03-Jun-2023	28 days	0 days	✓
Total Metals : Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - total (lab preserved) PN07	E508-L	29-May-2023	03-Jun-2023	28 days	5 days	✓	03-Jun-2023	28 days	0 days	✓
Total Metals : Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - total (lab preserved) TB	E508-L	29-May-2023	03-Jun-2023	28 days	5 days	✓	03-Jun-2023	28 days	0 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) PN07	E395	29-May-2023	----	----	----		01-Jun-2023	7 days	4 days	✓

Legend & Qualifier Definitions

EHTR-FM: Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended

EHT: Exceeded ALS recommended hold time prior to analysis.

Rec. HT: ALS recommended hold time (see units).

Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Water**

Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
Alkalinity Species by Titration	E290	967523	2	23	8.7	5.0	✓
Ammonia by Fluorescence	E298	969643	1	19	5.2	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	967517	2	24	8.3	5.0	✓
Chloride in Water by IC	E235.Cl	967516	2	28	7.1	5.0	✓
Conductivity in Water	E100	967522	2	34	5.8	5.0	✓
Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)	E509-L	970647	1	7	14.2	5.0	✓
Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine Samples)	E465	979556	1	7	14.2	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	967524	2	10	20.0	5.0	✓
Fluoride in Water by IC	E235.F	967514	2	26	7.6	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	967519	2	26	7.6	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	967518	2	26	7.6	5.0	✓
pH by Meter	E108	967521	2	40	5.0	5.0	✓
Reactive Silica by Colourimetry	E392	975258	1	18	5.5	5.0	✓
Sulfate in Water by IC	E235.SO4	967515	2	29	6.9	5.0	✓
Sulfate in Water by IC (Low Level)	E235.SO4-L	967520	2	3	66.6	5.0	✓
TDS by Gravimetry	E162	971193	1	6	16.6	5.0	✓
Total Dissolved Phosphorus by Colourimetry (0.001 mg/L)	E375-U	972244	1	19	5.2	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	997744	1	4	25.0	5.0	✓
Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)	E508-L	970515	1	19	5.2	5.0	✓
Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine Samples)	E466	986039	1	3	33.3	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	969642	1	11	9.0	5.0	✓
Total Phosphorus by Colourimetry (0.001 mg/L)	E372-S	972241	1	20	5.0	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	967702	1	20	5.0	5.0	✓
TSS by Gravimetry	E160	971190	1	6	16.6	5.0	✓
Turbidity by Nephelometry	E121	967444	1	20	5.0	5.0	✓
Laboratory Control Samples (LCS)							
Alkalinity Species by Titration	E290	967523	2	23	8.7	5.0	✓
Ammonia by Fluorescence	E298	969643	1	19	5.2	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	967517	2	24	8.3	5.0	✓
Chloride in Water by IC	E235.Cl	967516	2	28	7.1	5.0	✓
Conductivity in Water	E100	967522	2	34	5.8	5.0	✓
Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)	E509-L	970647	1	7	14.2	5.0	✓
Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine Samples)	E465	979556	1	7	14.2	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	967524	2	10	20.0	5.0	✓

Matrix: **Water**

Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Control Samples (LCS) - Continued							
Fluoride in Water by IC	E235.F	967514	2	26	7.6	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	967519	2	26	7.6	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	967518	2	26	7.6	5.0	✓
pH by Meter	E108	967521	2	40	5.0	5.0	✓
Reactive Silica by Colourimetry	E392	975258	1	18	5.5	5.0	✓
Sulfate in Water by IC	E235.SO4	967515	2	29	6.9	5.0	✓
Sulfate in Water by IC (Low Level)	E235.SO4-L	967520	2	3	66.6	5.0	✓
TDS by Gravimetry	E162	971193	1	6	16.6	5.0	✓
Total Dissolved Phosphorus by Colourimetry (0.001 mg/L)	E375-U	972244	1	19	5.2	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	997744	1	4	25.0	5.0	✓
Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)	E508-L	970515	1	19	5.2	5.0	✓
Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine Samples)	E466	986039	1	3	33.3	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	969642	1	11	9.0	5.0	✓
Total Phosphorus by Colourimetry (0.001 mg/L)	E372-S	972241	1	20	5.0	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	967702	1	20	5.0	5.0	✓
TSS by Gravimetry	E160	971190	1	6	16.6	5.0	✓
Turbidity by Nephelometry	E121	967444	1	20	5.0	5.0	✓
Method Blanks (MB)							
Alkalinity Species by Titration	E290	967523	2	23	8.7	5.0	✓
Ammonia by Fluorescence	E298	969643	1	19	5.2	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	967517	2	24	8.3	5.0	✓
Chloride in Water by IC	E235.Cl	967516	2	28	7.1	5.0	✓
Conductivity in Water	E100	967522	2	34	5.8	5.0	✓
Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)	E509-L	970647	1	7	14.2	5.0	✓
Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine Samples)	E465	979556	1	7	14.2	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	967524	2	10	20.0	5.0	✓
Fluoride in Water by IC	E235.F	967514	2	26	7.6	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	967519	2	26	7.6	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	967518	2	26	7.6	5.0	✓
Reactive Silica by Colourimetry	E392	975258	1	18	5.5	5.0	✓
Sulfate in Water by IC	E235.SO4	967515	2	29	6.9	5.0	✓
Sulfate in Water by IC (Low Level)	E235.SO4-L	967520	2	3	66.6	5.0	✓
TDS by Gravimetry	E162	971193	1	6	16.6	5.0	✓
Total Dissolved Phosphorus by Colourimetry (0.001 mg/L)	E375-U	972244	1	19	5.2	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	997744	1	4	25.0	5.0	✓
Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)	E508-L	970515	1	19	5.2	5.0	✓
Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine Samples)	E466	986039	1	3	33.3	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	969642	1	11	9.0	5.0	✓

Matrix: **Water**

Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Method Blanks (MB) - Continued							
Total Phosphorus by Colourimetry (0.001 mg/L)	E372-S	972241	1	20	5.0	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	967702	1	20	5.0	5.0	✓
TSS by Gravimetry	E160	971190	1	6	16.6	5.0	✓
Turbidity by Nephelometry	E121	967444	1	20	5.0	5.0	✓
Matrix Spikes (MS)							
Ammonia by Fluorescence	E298	969643	1	19	5.2	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	967517	2	24	8.3	5.0	✓
Chloride in Water by IC	E235.Cl	967516	2	28	7.1	5.0	✓
Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)	E509-L	970647	1	7	14.2	5.0	✓
Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine Samples)	E465	979556	1	7	14.2	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	967524	2	10	20.0	5.0	✓
Fluoride in Water by IC	E235.F	967514	2	26	7.6	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	967519	2	26	7.6	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	967518	2	26	7.6	5.0	✓
Reactive Silica by Colourimetry	E392	975258	1	18	5.5	5.0	✓
Sulfate in Water by IC	E235.SO4	967515	2	29	6.9	5.0	✓
Sulfate in Water by IC (Low Level)	E235.SO4-L	967520	1	3	33.3	5.0	✓
Total Dissolved Phosphorus by Colourimetry (0.001 mg/L)	E375-U	972244	1	19	5.2	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	997744	1	4	25.0	5.0	✓
Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)	E508-L	970515	1	19	5.2	5.0	✓
Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine Samples)	E466	986039	1	3	33.3	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	969642	1	11	9.0	5.0	✓
Total Phosphorus by Colourimetry (0.001 mg/L)	E372-S	972241	1	20	5.0	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	967702	1	20	5.0	5.0	✓

Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Conductivity in Water	E100 Vancouver - Environmental	Water	APHA 2510 (mod)	Conductivity, also known as Electrical Conductivity (EC) or Specific Conductance, is measured by immersion of a conductivity cell with platinum electrodes into a water sample. Conductivity measurements are temperature-compensated to 25°C.
pH by Meter	E108 Vancouver - Environmental	Water	APHA 4500-H (mod)	pH is determined by potentiometric measurement with a pH electrode, and is conducted at ambient laboratory temperature (normally 20 ± 5°C). For high accuracy test results, pH should be measured in the field within the recommended 15 minute hold time.
Turbidity by Nephelometry	E121 Vancouver - Environmental	Water	APHA 2130 B (mod)	Turbidity is measured by the nephelometric method, by measuring the intensity of light scatter under defined conditions.
TSS by Gravimetry	E160 Vancouver - Environmental	Water	APHA 2540 D (mod)	Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, following by drying of the filter at 104 ± 1°C, with gravimetric measurement of the filtered solids. Samples containing very high dissolved solid content (i.e. seawaters, brackish waters) may produce a positive bias by this method. Alternate analysis methods are available for these types of samples.
TDS by Gravimetry	E162 Vancouver - Environmental	Water	APHA 2540 C (mod)	Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, with evaporation of the filtrate at 180 ± 2°C for 16 hours or to constant weight, with gravimetric measurement of the residue.
Bromide in Water by IC (Low Level)	E235.Br-L Vancouver - Environmental	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Chloride in Water by IC	E235.Cl Vancouver - Environmental	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Fluoride in Water by IC	E235.F Vancouver - Environmental	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrite in Water by IC (Low Level)	E235.NO2-L Vancouver - Environmental	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Nitrate in Water by IC (Low Level)	E235.NO3-L Vancouver - Environmental	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Sulfate in Water by IC	E235.SO4 Vancouver - Environmental	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Sulfate in Water by IC (Low Level)	E235.SO4-L Vancouver - Environmental	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Alkalinity Species by Titration	E290 Vancouver - Environmental	Water	APHA 2320 B (mod)	Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.
Ammonia by Fluorescence	E298 Vancouver - Environmental	Water	Method Fialab 100, 2018	Ammonia in water is determined by automated continuous flow analysis with membrane diffusion and fluorescence detection, after reaction with OPA (ortho-phthalaldehyde). This method is approved under US EPA 40 CFR Part 136 (May 2021)
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318 Vancouver - Environmental	Water	Method Fialab 100, 2018	TKN in water is determined by automated continuous flow analysis with membrane diffusion and fluorescence detection, after reaction with OPA (ortho-phthalaldehyde). This method is approved under US EPA 40 CFR Part 136 (May 2021).
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L Vancouver - Environmental	Water	APHA 5310 B (mod)	Total Organic Carbon (Non-Purgeable), also known as NPOC (total), is a direct measurement of TOC after an acidified sample has been purged to remove inorganic carbon (IC). Analysis is by high temperature combustion with infrared detection of CO_2. NPOC does not include volatile organic species that are purged off with IC. For samples where the majority of total carbon (TC) is comprised of IC (which is common), this method is more accurate and more reliable than the TOC by subtraction method (i.e. TC minus TIC).
Total Phosphorus by Colourimetry (0.001 mg/L)	E372-S Edmonton - Environmental	Water	APHA 4500-P E (mod).	Total Phosphorus is determined colourimetrically after heated persulfate digestion of the sample.
Total Dissolved Phosphorus by Colourimetry (0.001 mg/L)	E375-U Edmonton - Environmental	Water	APHA 4500-P E (mod).	Total Dissolved Phosphorus is determined colourmetrically after filtration through a 0.45 micron filter followed by heated persulfate digestion of the sample.
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U Vancouver - Environmental	Water	APHA 4500-P F (mod)	Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter. Field filtration is recommended to ensure test results represent conditions at time of sampling.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Reactive Silica by Colourimetry	E392 Vancouver - Environmental	Water	APHA 4500-SiO2 E (mod)	Silicate (molybdate-reactive silica) is determined by the molybdosilicate-heteropoly blue colourimetric method using a discrete analyzer. Method Limitation: Arsenic (5+) above 100 mg/L is a negative interference on this test
Total Sulfide by Colourimetry (Automated Flow)	E395 Vancouver - Environmental	Water	APHA 4500 -S E-Auto-Colorimetry	Sulfide is determined using the gas dialysis automated methlyene blue colourimetric method. Results expressed "as H2S" if reported represent the maximum possible H_2S concentration based on the total sulfide concentration in the sample. The H_2S calculation converts Total Sulphide as (S2-) and reports it as Total Sulphide as (H2S)
Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine Samples)	E465 Vancouver - Environmental	Water	EPA 6020B (mod)	Ultra trace metals in water are analyzed by Triple Quadrupole ICPMS. This procedure is intended for pristine field-filtered acid-preserved water samples. The detection limits (LOR) for this test are based on lab instrumental analysis only, not including filtration. Due to the high probability of false positives due to filtration, it is strongly recommended that a filtration blank be analysed to aid in data interpretation.
Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine Samples)	E466 Vancouver - Environmental	Water	EPA 6020B (mod)	Ultra trace metals in water are analyzed by CRC ICPMS, based on US EPA Method 6020B (July 2014). The detection limits provided can only be met for undigested samples. This procedure is intended for colorless, non-turbid, acid-preserved water samples (i.e. pristine water samples), having turbidity < 1 NTU and no odor. Where turbidity exceeds 1 NTU, and/or the sample is colored and has an odor, results may be biased low compared to true Total Metals concentrations. ALS recommends that turbidity analysis be requested on samples submitted for this test to aid with interpretation of results. Where turbidity is <1NTU, undigested metals are equivalent to total metals concentrations.
Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)	E508-L Vancouver - Environmental	Water	EPA 1631E (mod)	Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAFS.
Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)	E509-L 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 CVAFS.
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 $CaCO_3$ 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.
TDS in Water (Calculation)	EC103 Vancouver - Environmental	Water	APHA 1030E (mod)	Total Dissolved Solids is calculated based on guidance from APHA Standard Methods (1030E Checking Correctness of Analysis). Dissolved species are used where available. Minor ions are included where data is present.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Ammonia	EP298 Vancouver - Environmental	Water		Sample preparation for Preserved Nutrients Water Quality Analysis.
Digestion for TKN in water	EP318 Vancouver - Environmental	Water	APHA 4500-Norg D (mod)	Samples are digested at high temperature using Sulfuric Acid with Copper catalyst, which converts organic nitrogen sources to Ammonia, which is then quantified by the analytical method as TKN. This method is unsuitable for samples containing high levels of nitrate. If nitrate exceeds TKN concentration by ten times or more, results may be biased low.
Preparation for Total Organic Carbon by Combustion	EP355 Vancouver - Environmental	Water		Preparation for Total Organic Carbon by Combustion
Digestion for Total Phosphorus in water	EP372 Edmonton - Environmental	Water	APHA 4500-P E (mod).	Samples are heated with a persulfate digestion reagent.
Digestion for Dissolved Phosphorus in water	EP375 Edmonton - Environmental	Water	APHA 4500-P E (mod).	Samples are filtered through a 0.45 micron membrane filter and then heated with a persulfate digestion reagent.
Dissolved Metals Water Filtration for Triple Quad ICPMS	EP465 Vancouver - Environmental	Water	APHA 3030B	Low level metals in water are analyzed by Triple Quad ICPMS. This procedure is intended for pristine field-filtered acid-preserved water samples. The detection limits (LOR) for this test are based on lab instrumental analysis only, not including filtration. ALS-supplied field filtration equipment does not support these LOR. Therefore, because of the high probability of false positives due to filtration, it is strongly recommended that a filtration blank be analysed to aid in data interpretation.
Dissolved Mercury Water Filtration (Low Level)	EP509-L Vancouver - Environmental	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HCl.

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QUALITY CONTROL REPORT

Work Order	: **YL2300492**	Page	: 1 of 23
Amendment	: **1**		
Client	: Sabina Gold & Silver Corporation	Laboratory	: Yellowknife - Environmental
Contact	: Merle Keefe	Account Manager	: Oliver Gregg
Address	: 375 - 555 Burrard St. Box 220, Bentall 2 Vancouver BC Canada V7X 1M7	Address	: 314 Old Airport Road, Unit 116 Yellowknife, Northwest Territories Canada X1A 3T3
Telephone	:	Telephone	: 1 867 446 5593
Project	: 22567626	Date Samples Received	: 31-May-2023 10:00
PO	: ----	Date Analysis Commenced	: 01-Jun-2023
C-O-C number	: ----	Issue Date	: 23-Jun-2023 10:14
Sampler	: ---- 604 240 6619		
Site	: Sabina Goose Lake		
Quote number	: 2021 Under-Ice Field Program		
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*
Cindy Tang	Team Leader - Inorganics	Vancouver Inorganics, Burnaby, British Columbia
Dan Gebert	Laboratory Analyst	Vancouver Metals, Burnaby, British Columbia
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General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number = Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO = Data Quality Objective.
LOR = Limit of Reporting (detection limit).
RPD = Relative Percent Difference
# = Indicates a QC result that did not meet the ALS DQO.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test-specific).

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Physical Tests (QC Lot: 967444)											
FJ2301281-009	Anonymous	Turbidity	----	E121	0.10	NTU	0.27	0.26	0.005	Diff <2x LOR	----
Physical Tests (QC Lot: 967521)											
YL2300492-002	PN04	pH	----	E108	0.10	pH units	6.64	6.64	0.00%	4%	----
Physical Tests (QC Lot: 967522)											
YL2300492-002	PN04	Conductivity	----	E100	2.0	µS/cm	60.8	60.0	1.32%	10%	----
Physical Tests (QC Lot: 967523)											
YL2300492-002	PN04	Alkalinity, bicarbonate (as CaCO3)	----	E290	1.0	mg/L	4.3	4.0	0.3	Diff <2x LOR	----
		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, phenolphthalein (as CaCO3)	----	E290	1.0	mg/L	<1.0	<1.0	0	Diff <2x LOR	----
		Alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	4.3	4.0	0.3	Diff <2x LOR	----
Physical Tests (QC Lot: 967716)											
FJ2301277-003	Anonymous	pH	----	E108	0.10	pH units	8.40	8.41	0.119%	4%	----
Physical Tests (QC Lot: 967717)											
FJ2301277-003	Anonymous	Alkalinity, bicarbonate (as CaCO3)	----	E290	1.0	mg/L	160	160	0.0624%	20%	----
		Alkalinity, carbonate (as CaCO3)	----	E290	1.0	mg/L	7.8	7.2	0.6	Diff <2x LOR	----
		Alkalinity, hydroxide (as CaCO3)	----	E290	1.0	mg/L	<1.0	<1.0	0	Diff <2x LOR	----
		Alkalinity, phenolphthalein (as CaCO3)	----	E290	1.0	mg/L	3.9	3.6	0.3	Diff <2x LOR	----
		Alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	168	168	0.298%	20%	----
Physical Tests (QC Lot: 967718)											
FJ2301277-003	Anonymous	Conductivity	----	E100	2.0	µS/cm	553	546	1.27%	10%	----
Physical Tests (QC Lot: 971190)											
VA23B2052-006	Anonymous	Solids, total suspended [TSS]	----	E160	3.0	mg/L	<3.0	<3.0	0	Diff <2x LOR	----
Physical Tests (QC Lot: 971193)											
VA23B2052-006	Anonymous	Solids, total dissolved [TDS]	----	E162	13	mg/L	108	101	6	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 967514)											
YL2300492-002	PN04	Fluoride	16984-48-8	E235.F	0.020	mg/L	<0.020	<0.020	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 967515)											
YL2300492-002	PN04	Sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	7.13	7.09	0.479%	20%	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Anions and Nutrients (QC Lot: 967516)											
YL2300492-002	PN04	Chloride	16887-00-6	E235.Cl	0.50	mg/L	7.72	7.72	0.0468%	20%	----
Anions and Nutrients (QC Lot: 967517)											
YL2300492-002	PN04	Bromide	24959-67-9	E235.Br-L	0.050	mg/L	0.082	0.076	0.006	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 967518)											
YL2300492-002	PN04	Nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	<0.0010	0.0016	0.0006	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 967519)											
YL2300492-002	PN04	Nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	0.600	0.600	0.119%	20%	----
Anions and Nutrients (QC Lot: 967520)											
YL2300492-002	PN04	Sulfate (as SO4)	14808-79-8	E235.SO4-L	0.050	mg/L	7.13	7.09	0.479%	20%	----
Anions and Nutrients (QC Lot: 967524)											
KS2301831-001	Anonymous	Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.100	mg/L	3.39	3.58	5.45%	20%	----
Anions and Nutrients (QC Lot: 967719)											
YL2300492-001	PN07	Fluoride	16984-48-8	E235.F	0.020	mg/L	0.021	<0.020	0.001	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 967720)											
YL2300492-001	PN07	Chloride	16887-00-6	E235.Cl	0.50	mg/L	2.93	3.14	0.21	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 967721)											
YL2300492-001	PN07	Bromide	24959-67-9	E235.Br-L	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 967722)											
YL2300492-001	PN07	Nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	0.715	0.725	1.37%	20%	----
Anions and Nutrients (QC Lot: 967723)											
YL2300492-001	PN07	Nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 967724)											
YL2300492-001	PN07	Sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	17.0	17.2	1.11%	20%	----
Anions and Nutrients (QC Lot: 967725)											
YL2300492-001	PN07	Sulfate (as SO4)	14808-79-8	E235.SO4-L	0.050	mg/L	17.0	17.2	1.11%	20%	----
Anions and Nutrients (QC Lot: 967727)											
VA23B2184-004	Anonymous	Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 969643)											
KS2301799-001	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 972241)											
EO2304352-004	Anonymous	Phosphorus, total	7723-14-0	E372-S	0.0010	mg/L	0.0279	0.0259	7.51%	20%	----
Anions and Nutrients (QC Lot: 972244)											
EO2304369-001	Anonymous	Phosphorus, total dissolved	7723-14-0	E375-U	0.0010	mg/L	0.0038	0.0055	0.0017	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Anions and Nutrients (QC Lot: 975258)											
EO2304442-001	Anonymous	Silicate (as SiO2)	7631-86-9	E392	0.50	mg/L	13.6	13.4	1.31%	20%	----
Anions and Nutrients (QC Lot: 997744)											
FJ2301384-016	Anonymous	Kjeldahl nitrogen, total [TKN]	----	E318	0.050	mg/L	1.63	1.51	7.30%	20%	----
Organic / Inorganic Carbon (QC Lot: 969642)											
KS2301799-001	Anonymous	Carbon, total organic [TOC]	----	E355-L	0.50	mg/L	4.53	4.91	0.38	Diff <2x LOR	----
Total Sulfides (QC Lot: 967702)											
CG2307004-001	Anonymous	Sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	0.413	0.411	0.374%	20%	----
Total Metals (QC Lot: 970515)											
CG2307070-001	Anonymous	Mercury, total	7439-97-6	E508-L	0.50	ng/L	<0.50	<0.50	0	Diff <2x LOR	----
Total Metals (Undigested) (QC Lot: 986039)											
YL2300492-001	PN07	Aluminum, total	7429-90-5	E466	0.00020	mg/L	0.166	0.166	0.315%	20%	----
		Antimony, total	7440-36-0	E466	0.0000050	mg/L	0.0000428	0.0000420	0.0000008	Diff <2x LOR	----
		Arsenic, total	7440-38-2	E466	0.000010	mg/L	0.000637	0.000637	0.00126%	20%	----
		Barium, total	7440-39-3	E466	0.000020	mg/L	0.0146	0.0146	0.247%	20%	----
		Beryllium, total	7440-41-7	E466	0.0000020	mg/L	0.0000116	0.0000114	0.0000002	Diff <2x LOR	----
		Bismuth, total	7440-69-9	E466	0.0000010	mg/L	<0.0000010	<0.0000010	0	Diff <2x LOR	----
		Boron, total	7440-42-8	E466	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
		Cadmium, total	7440-43-9	E466	0.0000025	mg/L	0.0000231	0.0000232	0.000000006	Diff <2x LOR	----
		Calcium, total	7440-70-2	E466	0.010	mg/L	4.66	4.72	1.18%	20%	----
		Cesium, total	7440-46-2	E466	0.0000050	mg/L	0.0000062	0.0000060	0.0000002	Diff <2x LOR	----
		Chromium, total	7440-47-3	E466	0.000040	mg/L	0.000446	0.000441	1.02%	20%	----
		Cobalt, total	7440-48-4	E466	0.0000050	mg/L	0.00181	0.00183	0.923%	20%	----
		Copper, total	7440-50-8	E466	0.000050	mg/L	0.00310	0.00307	1.23%	20%	----
		Gallium, total	7440-55-3	E466	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Iron, total	7439-89-6	E466	0.00050	mg/L	0.177	0.175	1.10%	20%	----
		Lanthanum, total	7439-91-0	E466	0.000010	mg/L	0.000585	0.000597	1.91%	20%	----
		Lead, total	7439-92-1	E466	0.0000050	mg/L	0.0000549	0.0000560	1.91%	20%	----
		Lithium, total	7439-93-2	E466	0.00010	mg/L	0.00211	0.00206	2.24%	20%	----
		Magnesium, total	7439-95-4	E466	0.0010	mg/L	3.53	3.62	2.41%	20%	----
		Manganese, total	7439-96-5	E466	0.0000050	mg/L	0.0165	0.0161	2.67%	20%	----
		Molybdenum, total	7439-98-7	E466	0.000010	mg/L	0.000026	0.000023	0.000002	Diff <2x LOR	----
		Nickel, total	7440-02-0	E466	0.000020	mg/L	0.00621	0.00623	0.423%	20%	----
		Niobium, total	7440-03-1	E466	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Phosphorus, total	7723-14-0	E466	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Total Metals (Undigested) (QC Lot: 986039) - continued											
YL2300492-001	PN07	Potassium, total	7440-09-7	E466	0.0050	mg/L	1.43	1.45	1.76%	20%	----
		Rhenium, total	7440-15-5	E466	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
		Rubidium, total	7440-17-7	E466	0.0000050	mg/L	0.00266	0.00269	0.976%	20%	----
		Selenium, total	7782-49-2	E466	0.000025	mg/L	0.000049	0.000050	0.000001	Diff <2x LOR	----
		Silicon, total	7440-21-3	E466	0.050	mg/L	1.21	1.19	1.62%	20%	----
		Silver, total	7440-22-4	E466	0.0000020	mg/L	0.0000029	0.0000027	0.0000002	Diff <2x LOR	----
		Sodium, total	7440-23-5	E466	0.010	mg/L	1.42	1.45	2.30%	20%	----
		Strontium, total	7440-24-6	E466	0.000020	mg/L	0.0191	0.0194	1.54%	20%	----
		Sulfur, total	7704-34-9	E466	0.50	mg/L	5.66	5.58	1.40%	20%	----
		Tantalum, total	7440-25-7	E466	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Tellurium, total	13494-80-9	E466	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Thallium, total	7440-28-0	E466	0.0000010	mg/L	0.0000073	0.0000078	0.0000005	Diff <2x LOR	----
		Thorium, total	7440-29-1	E466	0.0000050	mg/L	0.0000642	0.0000699	8.42%	20%	----
		Tin, total	7440-31-5	E466	0.000010	mg/L	<0.000010	0.000011	0.000001	Diff <2x LOR	----
		Titanium, total	7440-32-6	E466	0.000050	mg/L	0.000960	0.00114	17.2%	20%	----
		Tungsten, total	7440-33-7	E466	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Uranium, total	7440-61-1	E466	0.0000010	mg/L	0.0000311	0.0000323	3.77%	20%	----
		Vanadium, total	7440-62-2	E466	0.000010	mg/L	0.000414	0.000414	0.0387%	20%	----
		Yttrium, total	7440-65-5	E466	0.000010	mg/L	0.000343	0.000345	0.638%	20%	----
		Zinc, total	7440-66-6	E466	0.00010	mg/L	0.00313	0.00316	0.787%	20%	----
		Zirconium, total	7440-67-7	E466	0.000010	mg/L	0.000344	0.000311	10.3%	20%	----
Dissolved Metals (QC Lot: 970647)											
YL2300484-001	Anonymous	Mercury, dissolved	7439-97-6	E509-L	0.50	ng/L	1.27	1.16	0.11	Diff <2x LOR	----
Dissolved Metals (QC Lot: 979556)											
YL2300484-001	Anonymous	Aluminum, dissolved	7429-90-5	E465	0.00020	mg/L	0.0109	0.0108	1.10%	20%	----
		Antimony, dissolved	7440-36-0	E465	0.0000050	mg/L	0.0000072	0.0000072	0.00000006	Diff <2x LOR	----
		Arsenic, dissolved	7440-38-2	E465	0.000010	mg/L	0.000247	0.000240	2.59%	20%	----
		Barium, dissolved	7440-39-3	E465	0.000020	mg/L	0.00355	0.00353	0.543%	20%	----
		Beryllium, dissolved	7440-41-7	E465	0.0000020	mg/L	<0.0000020	<0.0000020	0	Diff <2x LOR	----
		Bismuth, dissolved	7440-69-9	E465	0.0000010	mg/L	<0.0000010	<0.0000010	0	Diff <2x LOR	----
		Boron, dissolved	7440-42-8	E465	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
		Cadmium, dissolved	7440-43-9	E465	0.0000025	mg/L	<0.0000025	0.0000036	0.0000011	Diff <2x LOR	----
		Calcium, dissolved	7440-70-2	E465	0.010	mg/L	2.06	2.12	2.58%	20%	----
		Cesium, dissolved	7440-46-2	E465	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Dissolved Metals (QC Lot: 979556) - continued											
YL2300484-001	Anonymous	Chromium, dissolved	7440-47-3	E465	0.000040	mg/L	0.000062	0.000060	0.000002	Diff <2x LOR	----
		Cobalt, dissolved	7440-48-4	E465	0.0000050	mg/L	0.0000699	0.0000665	4.97%	20%	----
		Copper, dissolved	7440-50-8	E465	0.000050	mg/L	0.00102	0.00105	2.23%	20%	----
		Gallium, dissolved	7440-55-3	E465	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Iron, dissolved	7439-89-6	E465	0.00050	mg/L	0.0336	0.0350	4.20%	20%	----
		Lanthanum, dissolved	7439-91-0	E465	0.000010	mg/L	0.000124	0.000119	4.23%	20%	----
		Lead, dissolved	7439-92-1	E465	0.0000050	mg/L	0.0000196	0.0000197	0.0000002	Diff <2x LOR	----
		Lithium, dissolved	7439-93-2	E465	0.00010	mg/L	0.00043	0.00043	0.0000002	Diff <2x LOR	----
		Magnesium, dissolved	7439-95-4	E465	0.0010	mg/L	1.45	1.46	1.03%	20%	----
		Manganese, dissolved	7439-96-5	E465	0.0000050	mg/L	0.000618	0.000627	1.35%	20%	----
		Molybdenum, dissolved	7439-98-7	E465	0.000010	mg/L	0.000010	0.000011	0.0000008	Diff <2x LOR	----
		Nickel, dissolved	7440-02-0	E465	0.000020	mg/L	0.00297	0.00298	0.185%	20%	----
		Niobium, dissolved	7440-03-1	E465	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Phosphorus, dissolved	7723-14-0	E465	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		Potassium, dissolved	7440-09-7	E465	0.0050	mg/L	0.379	0.377	0.406%	20%	----
		Rhenium, dissolved	7440-15-5	E465	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
		Rubidium, dissolved	7440-17-7	E465	0.0000050	mg/L	0.000870	0.000891	2.32%	20%	----
		Selenium, dissolved	7782-49-2	E465	0.000025	mg/L	<0.000025	<0.000025	0	Diff <2x LOR	----
		Silicon, dissolved	7440-21-3	E465	0.050	mg/L	0.192	0.195	0.003	Diff <2x LOR	----
		Silver, dissolved	7440-22-4	E465	0.0000020	mg/L	<0.0000020	<0.0000020	0	Diff <2x LOR	----
		Sodium, dissolved	7440-23-5	E465	0.010	mg/L	0.650	0.661	1.78%	20%	----
		Strontium, dissolved	7440-24-6	E465	0.000020	mg/L	0.00808	0.00819	1.40%	20%	----
		Sulfur, dissolved	7704-34-9	E465	0.50	mg/L	1.68	1.73	0.04	Diff <2x LOR	----
		Tantalum, dissolved	7440-25-7	E465	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Tellurium, dissolved	13494-80-9	E465	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Thallium, dissolved	7440-28-0	E465	0.0000010	mg/L	0.0000014	0.0000015	0.0000001	Diff <2x LOR	----
		Thorium, dissolved	7440-29-1	E465	0.0000050	mg/L	0.0000053	<0.0000050	0.0000003	Diff <2x LOR	----
		Tin, dissolved	7440-31-5	E465	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Titanium, dissolved	7440-32-6	E465	0.000050	mg/L	0.000067	0.000050	0.000017	Diff <2x LOR	----
		Tungsten, dissolved	7440-33-7	E465	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Uranium, dissolved	7440-61-1	E465	0.0000010	mg/L	0.0000034	0.0000043	0.0000010	Diff <2x LOR	----
		Vanadium, dissolved	7440-62-2	E465	0.000010	mg/L	0.000038	0.000038	0.0000001	Diff <2x LOR	----
		Yttrium, dissolved	7440-65-5	E465	0.000010	mg/L	0.000050	0.000057	0.000007	Diff <2x LOR	----
		Zinc, dissolved	7440-66-6	E465	0.00010	mg/L	0.00044	0.00041	0.00002	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Dissolved Metals (QC Lot: 979556) - continued											
YL2300484-001	Anonymous	Zirconium, dissolved	7440-67-7	E465	0.000010	mg/L	0.000026	0.000024	0.000002	Diff <2x LOR	----

Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 967444)						
Turbidity	----	E121	0.1	NTU	<0.10	----
Physical Tests (QCLot: 967522)						
Conductivity	----	E100	1	µS/cm	1.1	----
Physical Tests (QCLot: 967523)						
Alkalinity, bicarbonate (as CaCO3)	----	E290	1	mg/L	<1.0	----
Alkalinity, carbonate (as CaCO3)	----	E290	1	mg/L	<1.0	----
Alkalinity, hydroxide (as CaCO3)	----	E290	1	mg/L	<1.0	----
Alkalinity, phenolphthalein (as CaCO3)	----	E290	1	mg/L	<1.0	----
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	<1.0	----
Physical Tests (QCLot: 967717)						
Alkalinity, bicarbonate (as CaCO3)	----	E290	1	mg/L	<1.0	----
Alkalinity, carbonate (as CaCO3)	----	E290	1	mg/L	<1.0	----
Alkalinity, hydroxide (as CaCO3)	----	E290	1	mg/L	<1.0	----
Alkalinity, phenolphthalein (as CaCO3)	----	E290	1	mg/L	<1.0	----
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	<1.0	----
Physical Tests (QCLot: 967718)						
Conductivity	----	E100	1	µS/cm	1.7	----
Physical Tests (QCLot: 971190)						
Solids, total suspended [TSS]	----	E160	3	mg/L	<3.0	----
Physical Tests (QCLot: 971193)						
Solids, total dissolved [TDS]	----	E162	10	mg/L	<10	----
Anions and Nutrients (QCLot: 967514)						
Fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 967515)						
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	----
Anions and Nutrients (QCLot: 967516)						
Chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 967517)						
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 967518)						
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 967519)						

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Anions and Nutrients (QCLot: 967519) - continued						
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 967520)						
Sulfate (as SO4)	14808-79-8	E235.SO4-L	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 967524)						
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 967719)						
Fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 967720)						
Chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 967721)						
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 967722)						
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 967723)						
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 967724)						
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	----
Anions and Nutrients (QCLot: 967725)						
Sulfate (as SO4)	14808-79-8	E235.SO4-L	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 967727)						
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 969643)						
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 972241)						
Phosphorus, total	7723-14-0	E372-S	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 972244)						
Phosphorus, total dissolved	7723-14-0	E375-U	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 975258)						
Silicate (as SiO2)	7631-86-9	E392	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 997744)						
Kjeldahl nitrogen, total [TKN]	----	E318	0.05	mg/L	<0.050	----
Organic / Inorganic Carbon (QCLot: 969642)						
Carbon, total organic [TOC]	----	E355-L	0.5	mg/L	<0.50	----
Total Sulfides (QCLot: 967702)						
Sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	<0.0015	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (QCLot: 970515)						
Mercury, total	7439-97-6	E508-L	0.5	ng/L	<0.50	----
Total Metals (Undigested) (QCLot: 986039)						
Aluminum, total	7429-90-5	E466	0.0002	mg/L	<0.00020	----
Antimony, total	7440-36-0	E466	0.000005	mg/L	<0.0000050	----
Arsenic, total	7440-38-2	E466	0.00001	mg/L	<0.000010	----
Barium, total	7440-39-3	E466	0.00002	mg/L	<0.000020	----
Beryllium, total	7440-41-7	E466	0.000002	mg/L	<0.0000020	----
Bismuth, total	7440-69-9	E466	0.000001	mg/L	<0.0000010	----
Boron, total	7440-42-8	E466	0.005	mg/L	<0.0050	----
Cadmium, total	7440-43-9	E466	0.0000025	mg/L	<0.0000025	----
Calcium, total	7440-70-2	E466	0.01	mg/L	<0.010	----
Cesium, total	7440-46-2	E466	0.000005	mg/L	<0.0000050	----
Chromium, total	7440-47-3	E466	0.00004	mg/L	<0.000040	----
Cobalt, total	7440-48-4	E466	0.000005	mg/L	<0.0000050	----
Copper, total	7440-50-8	E466	0.00005	mg/L	<0.000050	----
Gallium, total	7440-55-3	E466	0.00005	mg/L	<0.000050	----
Iron, total	7439-89-6	E466	0.0005	mg/L	<0.00050	----
Lanthanum, total	7439-91-0	E466	0.00001	mg/L	<0.000010	----
Lead, total	7439-92-1	E466	0.000005	mg/L	<0.0000050	----
Lithium, total	7439-93-2	E466	0.0001	mg/L	<0.00010	----
Magnesium, total	7439-95-4	E466	0.001	mg/L	<0.0010	----
Manganese, total	7439-96-5	E466	0.000005	mg/L	<0.0000050	----
Molybdenum, total	7439-98-7	E466	0.00001	mg/L	<0.000010	----
Nickel, total	7440-02-0	E466	0.00002	mg/L	<0.000020	----
Niobium, total	7440-03-1	E466	0.0001	mg/L	<0.00010	----
Phosphorus, total	7723-14-0	E466	0.01	mg/L	<0.010	----
Potassium, total	7440-09-7	E466	0.005	mg/L	<0.0050	----
Rhenium, total	7440-15-5	E466	0.000005	mg/L	<0.0000050	----
Rubidium, total	7440-17-7	E466	0.000005	mg/L	<0.0000050	----
Selenium, total	7782-49-2	E466	0.000025	mg/L	<0.000025	----
Silicon, total	7440-21-3	E466	0.05	mg/L	<0.050	----
Silver, total	7440-22-4	E466	0.000002	mg/L	<0.0000020	----
Sodium, total	7440-23-5	E466	0.01	mg/L	<0.010	----
Strontium, total	7440-24-6	E466	0.00002	mg/L	<0.000020	----
Sulfur, total	7704-34-9	E466	0.5	mg/L	<0.50	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (Undigested) (QCLot: 986039) - continued						
Tantalum, total	7440-25-7	E466	0.0001	mg/L	<0.00010	----
Tellurium, total	13494-80-9	E466	0.00001	mg/L	<0.000010	----
Thallium, total	7440-28-0	E466	0.000001	mg/L	<0.0000010	----
Thorium, total	7440-29-1	E466	0.000005	mg/L	<0.0000050	----
Tin, total	7440-31-5	E466	0.00001	mg/L	<0.000010	----
Titanium, total	7440-32-6	E466	0.00005	mg/L	<0.000050	----
Tungsten, total	7440-33-7	E466	0.00001	mg/L	<0.000010	----
Uranium, total	7440-61-1	E466	0.000001	mg/L	<0.0000010	----
Vanadium, total	7440-62-2	E466	0.00001	mg/L	<0.000010	----
Yttrium, total	7440-65-5	E466	0.00001	mg/L	<0.000010	----
Zinc, total	7440-66-6	E466	0.0001	mg/L	<0.00010	----
Zirconium, total	7440-67-7	E466	0.00001	mg/L	<0.000010	----
Dissolved Metals (QCLot: 970647)						
Mercury, dissolved	7439-97-6	E509-L	0.5	ng/L	<0.50	----
Dissolved Metals (QCLot: 979556)						
Aluminum, dissolved	7429-90-5	E465	0.0002	mg/L	<0.00020	----
Antimony, dissolved	7440-36-0	E465	0.000005	mg/L	<0.0000050	----
Arsenic, dissolved	7440-38-2	E465	0.00001	mg/L	<0.000010	----
Barium, dissolved	7440-39-3	E465	0.00002	mg/L	<0.000020	----
Beryllium, dissolved	7440-41-7	E465	0.000002	mg/L	<0.0000020	----
Bismuth, dissolved	7440-69-9	E465	0.000001	mg/L	<0.0000010	----
Boron, dissolved	7440-42-8	E465	0.005	mg/L	<0.0050	----
Cadmium, dissolved	7440-43-9	E465	0.0000025	mg/L	<0.0000025	----
Calcium, dissolved	7440-70-2	E465	0.01	mg/L	<0.010	----
Cesium, dissolved	7440-46-2	E465	0.000005	mg/L	<0.0000050	----
Chromium, dissolved	7440-47-3	E465	0.00004	mg/L	<0.000040	----
Cobalt, dissolved	7440-48-4	E465	0.000005	mg/L	<0.0000050	----
Copper, dissolved	7440-50-8	E465	0.00005	mg/L	<0.000050	----
Gallium, dissolved	7440-55-3	E465	0.00005	mg/L	<0.000050	----
Iron, dissolved	7439-89-6	E465	0.0005	mg/L	<0.00050	----
Lanthanum, dissolved	7439-91-0	E465	0.00001	mg/L	<0.000010	----
Lead, dissolved	7439-92-1	E465	0.000005	mg/L	<0.0000050	----
Lithium, dissolved	7439-93-2	E465	0.0001	mg/L	<0.00010	----
Magnesium, dissolved	7439-95-4	E465	0.001	mg/L	<0.0010	----
Manganese, dissolved	7439-96-5	E465	0.000005	mg/L	<0.0000050	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Dissolved Metals (QCLot: 979556) - continued						
Molybdenum, dissolved	7439-98-7	E465	0.00001	mg/L	<0.000010	----
Nickel, dissolved	7440-02-0	E465	0.00002	mg/L	<0.000020	----
Niobium, dissolved	7440-03-1	E465	0.0001	mg/L	<0.00010	----
Phosphorus, dissolved	7723-14-0	E465	0.01	mg/L	<0.010	----
Potassium, dissolved	7440-09-7	E465	0.005	mg/L	<0.0050	----
Rhenium, dissolved	7440-15-5	E465	0.000005	mg/L	<0.0000050	----
Rubidium, dissolved	7440-17-7	E465	0.000005	mg/L	<0.0000050	----
Selenium, dissolved	7782-49-2	E465	0.000025	mg/L	<0.000025	----
Silicon, dissolved	7440-21-3	E465	0.05	mg/L	<0.050	----
Silver, dissolved	7440-22-4	E465	0.000002	mg/L	<0.0000020	----
Sodium, dissolved	7440-23-5	E465	0.01	mg/L	<0.010	----
Strontium, dissolved	7440-24-6	E465	0.00002	mg/L	<0.000020	----
Sulfur, dissolved	7704-34-9	E465	0.5	mg/L	<0.50	----
Tantalum, dissolved	7440-25-7	E465	0.0001	mg/L	<0.00010	----
Tellurium, dissolved	13494-80-9	E465	0.00001	mg/L	<0.000010	----
Thallium, dissolved	7440-28-0	E465	0.000001	mg/L	<0.0000010	----
Thorium, dissolved	7440-29-1	E465	0.000005	mg/L	<0.0000050	----
Tin, dissolved	7440-31-5	E465	0.00001	mg/L	<0.000010	----
Titanium, dissolved	7440-32-6	E465	0.00005	mg/L	<0.000050	----
Tungsten, dissolved	7440-33-7	E465	0.00001	mg/L	<0.000010	----
Uranium, dissolved	7440-61-1	E465	0.000001	mg/L	<0.0000010	----
Vanadium, dissolved	7440-62-2	E465	0.00001	mg/L	<0.000010	----
Yttrium, dissolved	7440-65-5	E465	0.00001	mg/L	<0.000010	----
Zinc, dissolved	7440-66-6	E465	0.0001	mg/L	<0.00010	MBRR
Zirconium, dissolved	7440-67-7	E465	0.00001	mg/L	<0.000010	----

Qualifiers

Qualifier	Description
MBRR	*Initial MB for this submission had positive results for flagged analyte (data not shown). Low level samples were repeated with new QC (2nd MB results shown). High level results (>5x initial MB level) and non-detect results were reported and are defensible*

Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 967444)									
Turbidity	----	E121	0.1	NTU	200 NTU	100.0	85.0	115	----
Physical Tests (QCLot: 967521)									
pH	----	E108	----	pH units	7 pH units	100	98.0	102	----
Physical Tests (QCLot: 967522)									
Conductivity	----	E100	1	µS/cm	146.9 µS/cm	97.7	90.0	110	----
Physical Tests (QCLot: 967523)									
Alkalinity, phenolphthalein (as CaCO3)	----	E290	1	mg/L	229 mg/L	95.0	75.0	125	----
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	500 mg/L	107	85.0	115	----
Physical Tests (QCLot: 967716)									
pH	----	E108	----	pH units	7 pH units	99.8	98.0	102	----
Physical Tests (QCLot: 967717)									
Alkalinity, phenolphthalein (as CaCO3)	----	E290	1	mg/L	229 mg/L	98.2	75.0	125	----
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	500 mg/L	105	85.0	115	----
Physical Tests (QCLot: 967718)									
Conductivity	----	E100	1	µS/cm	146.9 µS/cm	99.3	90.0	110	----
Physical Tests (QCLot: 971190)									
Solids, total suspended [TSS]	----	E160	3	mg/L	150 mg/L	91.2	85.0	115	----
Physical Tests (QCLot: 971193)									
Solids, total dissolved [TDS]	----	E162	10	mg/L	1000 mg/L	99.8	85.0	115	----
Anions and Nutrients (QCLot: 967514)									
Fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	102	90.0	110	----
Anions and Nutrients (QCLot: 967515)									
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	102	90.0	110	----
Anions and Nutrients (QCLot: 967516)									
Chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	102	90.0	110	----
Anions and Nutrients (QCLot: 967517)									
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	0.5 mg/L	98.7	85.0	115	----
Anions and Nutrients (QCLot: 967518)									
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	0.5 mg/L	99.4	90.0	110	----
Anions and Nutrients (QCLot: 967519)									
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	2.5 mg/L	102	90.0	110	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Anions and Nutrients (QCLot: 967520)									
Sulfate (as SO4)	14808-79-8	E235.SO4-L	0.05	mg/L	100 mg/L	102	90.0	110	----
Anions and Nutrients (QCLot: 967524)									
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.001	mg/L	0.03 mg/L	91.6	80.0	120	----
Anions and Nutrients (QCLot: 967719)									
Fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 967720)									
Chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	102	90.0	110	----
Anions and Nutrients (QCLot: 967721)									
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	0.5 mg/L	103	85.0	115	----
Anions and Nutrients (QCLot: 967722)									
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: 967723)									
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	0.5 mg/L	99.7	90.0	110	----
Anions and Nutrients (QCLot: 967724)									
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	102	90.0	110	----
Anions and Nutrients (QCLot: 967725)									
Sulfate (as SO4)	14808-79-8	E235.SO4-L	0.05	mg/L	100 mg/L	102	90.0	110	----
Anions and Nutrients (QCLot: 967727)									
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.001	mg/L	0.03 mg/L	96.5	80.0	120	----
Anions and Nutrients (QCLot: 969643)									
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	101	85.0	115	----
Anions and Nutrients (QCLot: 972241)									
Phosphorus, total	7723-14-0	E372-S	0.001	mg/L	0.05 mg/L	102	80.0	120	----
Anions and Nutrients (QCLot: 972244)									
Phosphorus, total dissolved	7723-14-0	E375-U	0.001	mg/L	0.05 mg/L	101	80.0	120	----
Anions and Nutrients (QCLot: 975258)									
Silicate (as SiO2)	7631-86-9	E392	0.5	mg/L	10 mg/L	102	85.0	115	----
Anions and Nutrients (QCLot: 997744)									
Kjeldahl nitrogen, total [TKN]	----	E318	0.05	mg/L	4 mg/L	95.7	75.0	125	----
Organic / Inorganic Carbon (QCLot: 969642)									
Carbon, total organic [TOC]	----	E355-L	0.5	mg/L	8.57 mg/L	106	80.0	120	----
Total Sulfides (QCLot: 967702)									
Sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	0.08 mg/L	105	80.0	120	----

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: 970515)									
Mercury, total	7439-97-6	E508-L	0.5	ng/L	5 ng/L	97.2	80.0	120	----
Total Metals (Undigested) (QCLot: 986039)									
Aluminum, total	7429-90-5	E466	0.0002	mg/L	2 mg/L	114	80.0	120	----
Antimony, total	7440-36-0	E466	0.000005	mg/L	1 mg/L	108	80.0	120	----
Arsenic, total	7440-38-2	E466	0.00001	mg/L	1 mg/L	101	80.0	120	----
Barium, total	7440-39-3	E466	0.00002	mg/L	0.25 mg/L	97.6	80.0	120	----
Beryllium, total	7440-41-7	E466	0.000002	mg/L	0.1 mg/L	101	80.0	120	----
Bismuth, total	7440-69-9	E466	0.000001	mg/L	1 mg/L	101	80.0	120	----
Boron, total	7440-42-8	E466	0.005	mg/L	1 mg/L	96.4	80.0	120	----
Cadmium, total	7440-43-9	E466	0.0000025	mg/L	0.1 mg/L	96.7	80.0	120	----
Calcium, total	7440-70-2	E466	0.01	mg/L	50 mg/L	107	80.0	120	----
Cesium, total	7440-46-2	E466	0.000005	mg/L	0.05 mg/L	93.6	80.0	120	----
Chromium, total	7440-47-3	E466	0.00004	mg/L	0.25 mg/L	97.2	80.0	120	----
Cobalt, total	7440-48-4	E466	0.000005	mg/L	0.25 mg/L	97.3	80.0	120	----
Copper, total	7440-50-8	E466	0.00005	mg/L	0.25 mg/L	96.4	80.0	120	----
Gallium, total	7440-55-3	E466	0.00005	mg/L	0.25 mg/L	97.8	80.0	120	----
Iron, total	7439-89-6	E466	0.0005	mg/L	1 mg/L	92.1	80.0	120	----
Lanthanum, total	7439-91-0	E466	0.00001	mg/L	0.1 mg/L	97.8	80.0	120	----
Lead, total	7439-92-1	E466	0.000005	mg/L	0.5 mg/L	101	80.0	120	----
Lithium, total	7439-93-2	E466	0.0001	mg/L	0.25 mg/L	101	80.0	120	----
Magnesium, total	7439-95-4	E466	0.001	mg/L	50 mg/L	110	80.0	120	----
Manganese, total	7439-96-5	E466	0.000005	mg/L	0.25 mg/L	98.0	80.0	120	----
Molybdenum, total	7439-98-7	E466	0.00001	mg/L	0.25 mg/L	100	80.0	120	----
Nickel, total	7440-02-0	E466	0.00002	mg/L	0.5 mg/L	95.9	80.0	120	----
Niobium, total	7440-03-1	E466	0.0001	mg/L	0.05 mg/L	99.7	80.0	120	----
Phosphorus, total	7723-14-0	E466	0.01	mg/L	10 mg/L	107	80.0	120	----
Potassium, total	7440-09-7	E466	0.005	mg/L	50 mg/L	104	80.0	120	----
Rhenium, total	7440-15-5	E466	0.000005	mg/L	0.1 mg/L	102	80.0	120	----
Rubidium, total	7440-17-7	E466	0.000005	mg/L	0.1 mg/L	95.3	80.0	120	----
Selenium, total	7782-49-2	E466	0.000025	mg/L	1 mg/L	98.5	80.0	120	----
Silicon, total	7440-21-3	E466	0.05	mg/L	10 mg/L	104	80.0	120	----
Silver, total	7440-22-4	E466	0.000002	mg/L	0.1 mg/L	96.1	80.0	120	----
Sodium, total	7440-23-5	E466	0.01	mg/L	50 mg/L	105	80.0	120	----
Strontium, total	7440-24-6	E466	0.00002	mg/L	0.25 mg/L	94.0	80.0	120	----
Sulfur, total	7704-34-9	E466	0.5	mg/L	50 mg/L	92.4	80.0	120	----

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 (Undigested) (QCLot: 986039) - continued									
Tantalum, total	7440-25-7	E466	0.0001	mg/L	0.1 mg/L	100	80.0	120	----
Tellurium, total	13494-80-9	E466	0.00001	mg/L	0.1 mg/L	101	80.0	120	----
Thallium, total	7440-28-0	E466	0.000001	mg/L	1 mg/L	99.7	80.0	120	----
Thorium, total	7440-29-1	E466	0.000005	mg/L	0.1 mg/L	95.6	80.0	120	----
Tin, total	7440-31-5	E466	0.00001	mg/L	0.5 mg/L	101	80.0	120	----
Titanium, total	7440-32-6	E466	0.00005	mg/L	0.25 mg/L	96.4	80.0	120	----
Tungsten, total	7440-33-7	E466	0.00001	mg/L	0.1 mg/L	100	80.0	120	----
Uranium, total	7440-61-1	E466	0.000001	mg/L	0.005 mg/L	96.0	80.0	120	----
Vanadium, total	7440-62-2	E466	0.00001	mg/L	0.5 mg/L	104	80.0	120	----
Yttrium, total	7440-65-5	E466	0.00001	mg/L	0.1 mg/L	97.0	80.0	120	----
Zinc, total	7440-66-6	E466	0.0001	mg/L	0.5 mg/L	97.3	80.0	120	----
Zirconium, total	7440-67-7	E466	0.00001	mg/L	0.1 mg/L	97.3	80.0	120	----
Mercury, dissolved	7439-97-6	E509-L	0.5	ng/L	5 ng/L	97.2	80.0	120	----
Dissolved Metals (QCLot: 979556)									
Aluminum, dissolved	7429-90-5	E465	0.0002	mg/L	2 mg/L	104	80.0	120	----
Antimony, dissolved	7440-36-0	E465	0.000005	mg/L	1 mg/L	112	80.0	120	----
Arsenic, dissolved	7440-38-2	E465	0.00001	mg/L	1 mg/L	97.7	80.0	120	----
Barium, dissolved	7440-39-3	E465	0.00002	mg/L	0.25 mg/L	104	80.0	120	----
Beryllium, dissolved	7440-41-7	E465	0.000002	mg/L	0.1 mg/L	96.2	80.0	120	----
Bismuth, dissolved	7440-69-9	E465	0.000001	mg/L	1 mg/L	102	80.0	120	----
Boron, dissolved	7440-42-8	E465	0.005	mg/L	1 mg/L	92.7	80.0	120	----
Cadmium, dissolved	7440-43-9	E465	0.0000025	mg/L	0.1 mg/L	103	80.0	120	----
Calcium, dissolved	7440-70-2	E465	0.01	mg/L	50 mg/L	97.5	80.0	120	----
Cesium, dissolved	7440-46-2	E465	0.000005	mg/L	0.05 mg/L	99.3	80.0	120	----
Chromium, dissolved	7440-47-3	E465	0.00004	mg/L	0.25 mg/L	98.7	80.0	120	----
Cobalt, dissolved	7440-48-4	E465	0.000005	mg/L	0.25 mg/L	96.2	80.0	120	----
Copper, dissolved	7440-50-8	E465	0.00005	mg/L	0.25 mg/L	98.2	80.0	120	----
Gallium, dissolved	7440-55-3	E465	0.00005	mg/L	0.25 mg/L	99.9	80.0	120	----
Iron, dissolved	7439-89-6	E465	0.0005	mg/L	1 mg/L	92.8	80.0	120	----
Lanthanum, dissolved	7439-91-0	E465	0.00001	mg/L	0.1 mg/L	103	80.0	120	----
Lead, dissolved	7439-92-1	E465	0.000005	mg/L	0.5 mg/L	103	80.0	120	----
Lithium, dissolved	7439-93-2	E465	0.0001	mg/L	0.25 mg/L	99.5	80.0	120	----
Magnesium, dissolved	7439-95-4	E465	0.001	mg/L	50 mg/L	99.3	80.0	120	----
Manganese, dissolved	7439-96-5	E465	0.000005	mg/L	0.25 mg/L	98.6	80.0	120	----
Molybdenum, dissolved	7439-98-7	E465	0.00001	mg/L	0.25 mg/L	100	80.0	120	----

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: 979556) - continued									
Nickel, dissolved	7440-02-0	E465	0.00002	mg/L	0.5 mg/L	98.4	80.0	120	----
Niobium, dissolved	7440-03-1	E465	0.0001	mg/L	0.05 mg/L	99.5	80.0	120	----
Phosphorus, dissolved	7723-14-0	E465	0.01	mg/L	10 mg/L	99.9	80.0	120	----
Potassium, dissolved	7440-09-7	E465	0.005	mg/L	50 mg/L	98.6	80.0	120	----
Rhenium, dissolved	7440-15-5	E465	0.000005	mg/L	0.1 mg/L	105	80.0	120	----
Rubidium, dissolved	7440-17-7	E465	0.000005	mg/L	0.1 mg/L	100	80.0	120	----
Selenium, dissolved	7782-49-2	E465	0.000025	mg/L	1 mg/L	102	80.0	120	----
Silicon, dissolved	7440-21-3	E465	0.05	mg/L	10 mg/L	103	80.0	120	----
Silver, dissolved	7440-22-4	E465	0.000002	mg/L	0.1 mg/L	98.2	80.0	120	----
Sodium, dissolved	7440-23-5	E465	0.01	mg/L	50 mg/L	101	80.0	120	----
Strontium, dissolved	7440-24-6	E465	0.00002	mg/L	0.25 mg/L	104	80.0	120	----
Sulfur, dissolved	7704-34-9	E465	0.5	mg/L	50 mg/L	96.1	80.0	120	----
Tantalum, dissolved	7440-25-7	E465	0.0001	mg/L	0.1 mg/L	114	80.0	120	----
Tellurium, dissolved	13494-80-9	E465	0.00001	mg/L	0.1 mg/L	102	80.0	120	----
Thallium, dissolved	7440-28-0	E465	0.000001	mg/L	1 mg/L	101	80.0	120	----
Thorium, dissolved	7440-29-1	E465	0.000005	mg/L	0.1 mg/L	96.3	80.0	120	----
Tin, dissolved	7440-31-5	E465	0.00001	mg/L	0.5 mg/L	103	80.0	120	----
Titanium, dissolved	7440-32-6	E465	0.00005	mg/L	0.25 mg/L	96.9	80.0	120	----
Tungsten, dissolved	7440-33-7	E465	0.00001	mg/L	0.1 mg/L	97.6	80.0	120	----
Uranium, dissolved	7440-61-1	E465	0.000001	mg/L	0.005 mg/L	110	80.0	120	----
Vanadium, dissolved	7440-62-2	E465	0.00001	mg/L	0.5 mg/L	104	80.0	120	----
Yttrium, dissolved	7440-65-5	E465	0.00001	mg/L	0.1 mg/L	95.7	80.0	120	----
Zinc, dissolved	7440-66-6	E465	0.0001	mg/L	0.5 mg/L	93.4	80.0	120	----
Zirconium, dissolved	7440-67-7	E465	0.00001	mg/L	0.1 mg/L	95.8	80.0	120	----

Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for the associated sample (or similar samples) may be subject to bias. ND – Recovery not determined, background level >= 1x spike level.

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Anions and Nutrients (QCLot: 967514)										
FJ2301270-002	Anonymous	Fluoride	16984-48-8	E235.F	1.04 mg/L	1 mg/L	104	75.0	125	----
Anions and Nutrients (QCLot: 967515)										
FJ2301270-002	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	103 mg/L	100 mg/L	103	75.0	125	----
Anions and Nutrients (QCLot: 967516)										
FJ2301270-002	Anonymous	Chloride	16887-00-6	E235.Cl	104 mg/L	100 mg/L	104	75.0	125	----
Anions and Nutrients (QCLot: 967517)										
FJ2301270-002	Anonymous	Bromide	24959-67-9	E235.Br-L	0.534 mg/L	0.5 mg/L	107	75.0	125	----
Anions and Nutrients (QCLot: 967518)										
FJ2301270-002	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	0.500 mg/L	0.5 mg/L	100	75.0	125	----
Anions and Nutrients (QCLot: 967519)										
FJ2301270-002	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	2.61 mg/L	2.5 mg/L	104	75.0	125	----
Anions and Nutrients (QCLot: 967524)										
YL2300492-002	PN04	Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0282 mg/L	0.03 mg/L	93.8	70.0	130	----
Anions and Nutrients (QCLot: 967719)										
YL2300492-003	TB	Fluoride	16984-48-8	E235.F	1.02 mg/L	1 mg/L	102	75.0	125	----
Anions and Nutrients (QCLot: 967720)										
YL2300492-003	TB	Chloride	16887-00-6	E235.Cl	103 mg/L	100 mg/L	103	75.0	125	----
Anions and Nutrients (QCLot: 967721)										
YL2300492-003	TB	Bromide	24959-67-9	E235.Br-L	0.540 mg/L	0.5 mg/L	108	75.0	125	----
Anions and Nutrients (QCLot: 967722)										
YL2300492-003	TB	Nitrate (as N)	14797-55-8	E235.NO3-L	2.59 mg/L	2.5 mg/L	104	75.0	125	----
Anions and Nutrients (QCLot: 967723)										
YL2300492-003	TB	Nitrite (as N)	14797-65-0	E235.NO2-L	0.504 mg/L	0.5 mg/L	101	75.0	125	----
Anions and Nutrients (QCLot: 967724)										
YL2300492-003	TB	Sulfate (as SO4)	14808-79-8	E235.SO4	104 mg/L	100 mg/L	104	75.0	125	----
Anions and Nutrients (QCLot: 967725)										
YL2300492-003	TB	Sulfate (as SO4)	14808-79-8	E235.SO4-L	104 mg/L	100 mg/L	104	75.0	125	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Anions and Nutrients (QCLot: 967727)										
VA23B2184-005	Anonymous	Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0298 mg/L	0.03 mg/L	99.4	70.0	130	----
Anions and Nutrients (QCLot: 969643)										
KS2301799-002	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.106 mg/L	0.1 mg/L	106	75.0	125	----
Anions and Nutrients (QCLot: 972241)										
EO2304352-005	Anonymous	Phosphorus, total	7723-14-0	E372-S	0.0611 mg/L	0.067 mg/L	91.2	70.0	130	----
Anions and Nutrients (QCLot: 972244)										
EO2304369-002	Anonymous	Phosphorus, total dissolved	7723-14-0	E375-U	0.0699 mg/L	0.067 mg/L	104	70.0	130	----
Anions and Nutrients (QCLot: 975258)										
EO2304443-001	Anonymous	Silicate (as SiO2)	7631-86-9	E392	ND mg/L	10 mg/L	ND	75.0	125	----
Anions and Nutrients (QCLot: 997744)										
YL2300492-001	PN07	Kjeldahl nitrogen, total [TKN]	----	E318	2.78 mg/L	2.5 mg/L	111	70.0	130	----
Organic / Inorganic Carbon (QCLot: 969642)										
KS2301799-002	Anonymous	Carbon, total organic [TOC]	----	E355-L	ND mg/L	5 mg/L	ND	70.0	130	----
Total Sulfides (QCLot: 967702)										
CG2307004-002	Anonymous	Sulfide, total (as S)	18496-25-8	E395	0.212 mg/L	0.2 mg/L	106	75.0	125	----
Total Metals (QCLot: 970515)										
CG2307070-002	Anonymous	Mercury, total	7439-97-6	E508-L	4.91 ng/L	5 ng/L	98.3	70.0	130	----
Total Metals (Undigested) (QCLot: 986039)										
YL2300492-002	PN04	Aluminum, total	7429-90-5	E466	0.212 mg/L	0.2 mg/L	106	70.0	130	----
		Antimony, total	7440-36-0	E466	0.0197 mg/L	0.02 mg/L	98.6	70.0	130	----
		Arsenic, total	7440-38-2	E466	0.0190 mg/L	0.02 mg/L	94.8	70.0	130	----
		Barium, total	7440-39-3	E466	0.0184 mg/L	0.02 mg/L	92.2	70.0	130	----
		Beryllium, total	7440-41-7	E466	0.0404 mg/L	0.04 mg/L	101	70.0	130	----
		Bismuth, total	7440-69-9	E466	0.00987 mg/L	0.01 mg/L	98.7	70.0	130	----
		Boron, total	7440-42-8	E466	0.0961 mg/L	0.1 mg/L	96.1	70.0	130	----
		Cadmium, total	7440-43-9	E466	0.00386 mg/L	0.004 mg/L	96.6	70.0	130	----
		Calcium, total	7440-70-2	E466	ND mg/L	4 mg/L	ND	70.0	130	----
		Cesium, total	7440-46-2	E466	0.00968 mg/L	0.01 mg/L	96.8	70.0	130	----
		Chromium, total	7440-47-3	E466	0.0407 mg/L	0.04 mg/L	102	70.0	130	----
		Cobalt, total	7440-48-4	E466	0.0193 mg/L	0.02 mg/L	96.7	70.0	130	----
		Copper, total	7440-50-8	E466	0.0194 mg/L	0.02 mg/L	97.2	70.0	130	----
		Gallium, total	7440-55-3	E466	0.00237 mg/L	0.0025 mg/L	94.9	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Total Metals (Undigested) (QCLot: 986039) - continued										
YL2300492-002	PN04	Iron, total	7439-89-6	E466	2.00 mg/L	2 mg/L	99.9	70.0	130	----
		Lanthanum, total	7439-91-0	E466	0.00248 mg/L	0.0025 mg/L	99.1	70.0	130	----
		Lead, total	7439-92-1	E466	0.0198 mg/L	0.02 mg/L	99.2	70.0	130	----
		Lithium, total	7439-93-2	E466	0.100 mg/L	0.1 mg/L	100	70.0	130	----
		Magnesium, total	7439-95-4	E466	ND mg/L	1 mg/L	ND	70.0	130	----
		Manganese, total	7439-96-5	E466	0.0198 mg/L	0.02 mg/L	98.8	70.0	130	----
		Molybdenum, total	7439-98-7	E466	0.0194 mg/L	0.02 mg/L	97.2	70.0	130	----
		Nickel, total	7440-02-0	E466	0.0383 mg/L	0.04 mg/L	95.8	70.0	130	----
		Niobium, total	7440-03-1	E466	0.00257 mg/L	0.0025 mg/L	103	70.0	130	----
		Phosphorus, total	7723-14-0	E466	9.31 mg/L	10 mg/L	93.1	70.0	130	----
		Potassium, total	7440-09-7	E466	4.06 mg/L	4 mg/L	101	70.0	130	----
		Rhenium, total	7440-15-5	E466	0.00252 mg/L	0.0025 mg/L	101	70.0	130	----
		Rubidium, total	7440-17-7	E466	0.0190 mg/L	0.02 mg/L	95.2	70.0	130	----
		Selenium, total	7782-49-2	E466	0.0400 mg/L	0.04 mg/L	100.0	70.0	130	----
		Silicon, total	7440-21-3	E466	9.39 mg/L	10 mg/L	93.9	70.0	130	----
		Silver, total	7440-22-4	E466	0.00386 mg/L	0.004 mg/L	96.6	70.0	130	----
		Sodium, total	7440-23-5	E466	1.95 mg/L	2 mg/L	97.6	70.0	130	----
		Strontium, total	7440-24-6	E466	ND mg/L	0.02 mg/L	ND	70.0	130	----
		Sulfur, total	7704-34-9	E466	19.0 mg/L	20 mg/L	94.8	70.0	130	----
		Tantalum, total	7440-25-7	E466	0.00244 mg/L	0.0025 mg/L	97.7	70.0	130	----
		Tellurium, total	13494-80-9	E466	0.0428 mg/L	0.04 mg/L	107	70.0	130	----
		Thallium, total	7440-28-0	E466	0.00374 mg/L	0.004 mg/L	93.6	70.0	130	----
		Thorium, total	7440-29-1	E466	0.0205 mg/L	0.02 mg/L	102	70.0	130	----
		Tin, total	7440-31-5	E466	0.0196 mg/L	0.02 mg/L	97.8	70.0	130	----
		Titanium, total	7440-32-6	E466	0.0375 mg/L	0.04 mg/L	93.7	70.0	130	----
		Tungsten, total	7440-33-7	E466	0.0196 mg/L	0.02 mg/L	97.8	70.0	130	----
		Uranium, total	7440-61-1	E466	0.00379 mg/L	0.004 mg/L	94.7	70.0	130	----
		Vanadium, total	7440-62-2	E466	0.108 mg/L	0.1 mg/L	108	70.0	130	----
		Yttrium, total	7440-65-5	E466	0.00230 mg/L	0.0025 mg/L	91.8	70.0	130	----
		Zinc, total	7440-66-6	E466	0.415 mg/L	0.4 mg/L	104	70.0	130	----
		Zirconium, total	7440-67-7	E466	0.0385 mg/L	0.04 mg/L	96.2	70.0	130	----
Dissolved Metals (QCLot: 970647)										
YL2300484-002	Anonymous	Mercury, dissolved	7439-97-6	E509-L	5.09 ng/L	5 ng/L	102	70.0	130	----
Dissolved Metals (QCLot: 979556)										
YL2300484-002	Anonymous	Aluminum, dissolved	7429-90-5	E465	0.195 mg/L	0.2 mg/L	97.7	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Dissolved Metals (QCLot: 979556) - continued										
YL2300484-002	Anonymous	Antimony, dissolved	7440-36-0	E465	0.0208 mg/L	0.02 mg/L	104	70.0	130	----
		Arsenic, dissolved	7440-38-2	E465	0.0194 mg/L	0.02 mg/L	97.2	70.0	130	----
		Barium, dissolved	7440-39-3	E465	0.0202 mg/L	0.02 mg/L	101	70.0	130	----
		Beryllium, dissolved	7440-41-7	E465	0.0412 mg/L	0.04 mg/L	103	70.0	130	----
		Bismuth, dissolved	7440-69-9	E465	0.0102 mg/L	0.01 mg/L	102	70.0	130	----
		Boron, dissolved	7440-42-8	E465	0.0955 mg/L	0.1 mg/L	95.5	70.0	130	----
		Cadmium, dissolved	7440-43-9	E465	0.00406 mg/L	0.004 mg/L	102	70.0	130	----
		Calcium, dissolved	7440-70-2	E465	3.94 mg/L	4 mg/L	98.5	70.0	130	----
		Cesium, dissolved	7440-46-2	E465	0.0102 mg/L	0.01 mg/L	102	70.0	130	----
		Chromium, dissolved	7440-47-3	E465	0.0394 mg/L	0.04 mg/L	98.6	70.0	130	----
		Cobalt, dissolved	7440-48-4	E465	0.0193 mg/L	0.02 mg/L	96.4	70.0	130	----
		Copper, dissolved	7440-50-8	E465	0.0198 mg/L	0.02 mg/L	99.3	70.0	130	----
		Gallium, dissolved	7440-55-3	E465	0.00244 mg/L	0.0025 mg/L	97.6	70.0	130	----
		Iron, dissolved	7439-89-6	E465	1.96 mg/L	2 mg/L	98.0	70.0	130	----
		Lanthanum, dissolved	7439-91-0	E465	0.00250 mg/L	0.0025 mg/L	99.9	70.0	130	----
		Lead, dissolved	7439-92-1	E465	0.0204 mg/L	0.02 mg/L	102	70.0	130	----
		Lithium, dissolved	7439-93-2	E465	0.117 mg/L	0.1 mg/L	117	70.0	130	----
		Magnesium, dissolved	7439-95-4	E465	ND mg/L	1 mg/L	ND	70.0	130	----
		Manganese, dissolved	7439-96-5	E465	0.0200 mg/L	0.02 mg/L	100	70.0	130	----
		Molybdenum, dissolved	7439-98-7	E465	0.0192 mg/L	0.02 mg/L	96.3	70.0	130	----
		Nickel, dissolved	7440-02-0	E465	0.0398 mg/L	0.04 mg/L	99.6	70.0	130	----
		Niobium, dissolved	7440-03-1	E465	0.00267 mg/L	0.0025 mg/L	107	70.0	130	----
		Phosphorus, dissolved	7723-14-0	E465	8.19 mg/L	10 mg/L	81.9	70.0	130	----
		Potassium, dissolved	7440-09-7	E465	3.88 mg/L	4 mg/L	96.9	70.0	130	----
		Rhenium, dissolved	7440-15-5	E465	0.00243 mg/L	0.0025 mg/L	97.1	70.0	130	----
		Rubidium, dissolved	7440-17-7	E465	0.0204 mg/L	0.02 mg/L	102	70.0	130	----
		Selenium, dissolved	7782-49-2	E465	0.0425 mg/L	0.04 mg/L	106	70.0	130	----
		Silicon, dissolved	7440-21-3	E465	9.60 mg/L	10 mg/L	96.0	70.0	130	----
		Silver, dissolved	7440-22-4	E465	0.00384 mg/L	0.004 mg/L	96.1	70.0	130	----
		Sodium, dissolved	7440-23-5	E465	1.90 mg/L	2 mg/L	95.1	70.0	130	----
		Strontium, dissolved	7440-24-6	E465	0.0195 mg/L	0.02 mg/L	97.3	70.0	130	----
		Sulfur, dissolved	7704-34-9	E465	20.1 mg/L	20 mg/L	100	70.0	130	----
		Tantalum, dissolved	7440-25-7	E465	0.00242 mg/L	0.0025 mg/L	96.7	70.0	130	----
		Tellurium, dissolved	13494-80-9	E465	0.0418 mg/L	0.04 mg/L	105	70.0	130	----
		Thallium, dissolved	7440-28-0	E465	0.00381 mg/L	0.004 mg/L	95.3	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Dissolved Metals (QCLot: 979556) - continued										
YL2300484-002	Anonymous	Thorium, dissolved	7440-29-1	E465	0.0186 mg/L	0.02 mg/L	93.0	70.0	130	----
		Tin, dissolved	7440-31-5	E465	0.0198 mg/L	0.02 mg/L	98.9	70.0	130	----
		Titanium, dissolved	7440-32-6	E465	0.0387 mg/L	0.04 mg/L	96.7	70.0	130	----
		Tungsten, dissolved	7440-33-7	E465	0.0197 mg/L	0.02 mg/L	98.5	70.0	130	----
		Uranium, dissolved	7440-61-1	E465	0.00422 mg/L	0.004 mg/L	106	70.0	130	----
		Vanadium, dissolved	7440-62-2	E465	0.108 mg/L	0.1 mg/L	108	70.0	130	----
		Yttrium, dissolved	7440-65-5	E465	0.00242 mg/L	0.0025 mg/L	96.8	70.0	130	----
		Zinc, dissolved	7440-66-6	E465	0.383 mg/L	0.4 mg/L	95.8	70.0	130	----
		Zirconium, dissolved	7440-67-7	E465	0.0387 mg/L	0.04 mg/L	96.8	70.0	130	----

CHAIN OF CUSTODY

ALS Laboratory

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Daniel Mullen			
DATE/TIME: 2023/05/30 9:00	DATE/TIME:	DATE/TIME:	DATE/TIME:

CLIENT:	Sabina Gold & Silver Corporation
PROJECT:	22567626
SITE:	Sabina Goose Lake
PURCHASE ORDER NO.:	
PROJECT MANAGER:	Merle Keefe
CONTACT PH:	
SAMPLER:	D. Mullen
SAMPLER MOBILE:	
EMAIL REPORTS TO:	mkeefe@sabinagoldsilver.com zenovia.craciunescu@wsp.com, andrea.wade@wsp.com
EMAIL INVOICE TO:	mkeefe@sabinagoldsilver.com

TURNAROUND REQUIREMENTS : (Standard TAT may be longer for some tests e.g.. Ultra Trace Organics)

- [X] Standard TAT **(List due date):**
- [ ] Non Standard or urgent TAT **(List due date):**

FOR LABORATORY USE ONLY (Circle)

Custody Seal Intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	
Other comments			

SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE ONLY	SAMPLE DETAILS (Solid(S) Water(W))		MATRIX:	CONTAINER INFORMATION	ANALYSIS REQUIRED										Additional Information
SAMPLE	Sample identification (This description will appear on the report)	DATE / TIME (dd-mm-yyyy)	MATRIX	TOTAL CONTAINERS	Total Metals + Hg	Dissolved Metals + Hg	Total Nutrients	Dissolved Nutrients	General Parameters / Routine	Total Sulphides					Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
	PN07	29-05-2023 / 7:30	Water	9	X	X	X	X	X	X					
	PN04	29-05-2023 / 10:55	Water	9	X	X	X	X	X						
	TB	29-05-2023 / 7:30	Water	8	X	X	X	X	X						
				TOTAL	26										

Environmental Division
Yellowknife
Work Order Reference
YL2300492

Telephone : +1 867 873 5593

Approved Date: 27/05/2013

EMFM (204/11)

ALS Canada Ltd.

right solutions.
right partner.

CERTIFICATE OF ANALYSIS

Work Order	: **YL2300877**	Page	: 1 of 18
Amendment	: **3**		
Client	: **Sabina Gold & Silver Corporation**	Laboratory	: ALS Environmental - Yellowknife
Contact	: Merle Keefe	Account Manager	: Oliver Gregg
Address	: 375 - 555 Burrard St. Box 220, Bentall 2 Vancouver BC Canada V7X 1M7	Address	: 314 Old Airport Road, Unit 116 Yellowknife NT Canada X1A 3T3
Telephone	: 604 240 6619	Telephone	: 1 867 445 7143
Project	: 22567626	Date Samples Received	: 24-Jul-2023 09:00
PO	: PO-10402	Date Analysis Commenced	: 26-Jul-2023
C-O-C number	: ----	Issue Date	: 22-Nov-2023 12:23
Sampler	: ----		
Site	: ----		
Quote number	: YL23-SABI100-001		
No. of samples received	: 14		
No. of samples analysed	: 14		

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*
Cindy Tang	Team Leader - Inorganics	Inorganics, Burnaby, British Columbia
Jing Liu	Lab Assistant	Inorganics, Edmonton, Alberta
Kate Dimitrova	Supervisor - Inorganic	Inorganics, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia
Kim Jensen	Department Manager - Metals	Metals, Burnaby, British Columbia
Logan Carroll	Laboratory Analyst	Inorganics, Edmonton, Alberta
Michael Webb	Lab Analyst	Metals, Burnaby, British Columbia
Parnian Sane	Analyst	Metals, Burnaby, British Columbia
Ping Yeung	Team Leader - Inorganics	Inorganics, Edmonton, Alberta
Robin Weeks	Team Leader - Metals	Metals, Burnaby, British Columbia
Shruti Mudliar	Lab Analyst	Inorganics, Edmonton, Alberta
Tracy Harley	Supervisor - Water Quality Instrumentation	Inorganics, Burnaby, British Columbia

General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Please refer to Quality Control Interpretive report (QCI) for information regarding Holding Time compliance.

Key : CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances

LOR: Limit of Reporting (detection limit).

Unit	*Description*
-	no units
µS/cm	microsiemens per centimetre
mg/L	milligrams per litre
ng/L	nanograms per litre
pH units	pH units

<: 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*
DLB	*Detection Limit Raised. Analyte detected at comparable level in Method Blank.*
DTC	*Dissolved concentration exceeds total. Results were confirmed by re-analysis.*
PHA	*pH adjusted before analysis.*

Analytical Results

Sub-Matrix: **Water**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	GLSE-T	GLSE-M	GLSE-B	GLCB-T	GLCB-M
					Client sampling date / time	19-Jul-2023 15:20	19-Jul-2023 15:30	19-Jul-2023 15:40	19-Jul-2023 16:30	19-Jul-2023 16:40
						YL2300877-001	YL2300877-002	YL2300877-003	YL2300877-004	YL2300877-005
						Result	Result	Result	Result	Result
Physical Tests										
Alkalinity, bicarbonate (as CaCO3)	----	E290/VA	1.0	mg/L		5.8	5.6	5.4	5.2	5.4
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, phenolphthalein (as CaCO3)	----	E290/VA	1.0	mg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Alkalinity, total (as CaCO3)	----	E290/VA	1.0	mg/L		5.8	5.6	5.4	5.2	5.4
Conductivity	----	E100/VA	2.0	µS/cm		41.0	40.2	40.3	41.0	40.6
Hardness (as CaCO3), dissolved	----	EC100/VA	0.50	mg/L		15.9	16.0	16.5	15.8	15.9
pH	----	E108/VA	0.10	pH units		6.90	6.88	6.89	6.88	6.91
Solids, total dissolved [TDS], calculated	----	EC103/VA	1.0	mg/L		24.2	23.4	23.5	23.6	23.4
Solids, total suspended [TSS]	----	E160/VA	3.0	mg/L		<3.0	<3.0	<3.0	<3.0	<3.0
Anions and Nutrients										
Ammonia, total (as N)	7664-41-7	E298/EO	0.0050	mg/L		<0.0050	0.0090	<0.0050	<0.0050	0.0056
Bromide	24959-67-9	E235.Br-L/VA	0.050	mg/L		<0.050	<0.050	<0.050	<0.050	<0.050
Chloride	16887-00-6	E235.Cl/VA	0.50	mg/L		2.85	2.76	2.74	2.88	2.81
Fluoride	16984-48-8	E235.F/VA	0.020	mg/L		0.025	0.026	0.026	0.025	0.026
Kjeldahl nitrogen, total [TKN]	----	E318/EO	0.050	mg/L		0.153	0.129	0.102	0.129	0.111
Nitrate (as N)	14797-55-8	E235.NO3-L/VA	0.0050	mg/L		0.0506	0.0462	0.0442	0.0603	0.0516
Nitrite (as N)	14797-65-0	E235.NO2-L/VA	0.0010	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U/VA	0.0010	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Phosphorus, total	7723-14-0	E372-S/EO	0.0010	mg/L		0.0063	0.0054	0.0051	0.0031	0.0058
Phosphorus, total dissolved	7723-14-0	E375-U/EO	0.0010	mg/L		0.0016	0.0012	0.0011	0.0014	0.0010
Silicate (as SiO2)	7631-86-9	E392/VA	0.50	mg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Sulfate (as SO4)	14808-79-8	E235.SO4/VA	0.30	mg/L		6.86	6.81	6.81	6.87	6.82
Cyanides										
Cyanide, free	----	E339/VA	0.0050	mg/L		<0.0050 PHA	<0.0050 PHA	<0.0050 PHA	<0.0050 PHA	<0.0050 PHA
Cyanide, strong acid dissociable (Total)	----	E333/VA	0.0050	mg/L		<0.0050 PHA	<0.0050 PHA	<0.0050 PHA	<0.0050 PHA	<0.0050 PHA
Cyanide, weak acid dissociable	----	E336/VA	0.0050	mg/L		<0.0050 PHA	<0.0050 PHA	<0.0050 PHA	<0.0050 PHA	<0.0050 PHA
Organic / Inorganic Carbon										

Analytical Results

Sub-Matrix: **Water**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	GLSE-T	GLSE-M	GLSE-B	GLCB-T	GLCB-M
					Client sampling date / time	19-Jul-2023 15:20	19-Jul-2023 15:30	19-Jul-2023 15:40	19-Jul-2023 16:30	19-Jul-2023 16:40
						YL2300877-001	YL2300877-002	YL2300877-003	YL2300877-004	YL2300877-005
						Result	Result	Result	Result	Result
Organic / Inorganic Carbon										
Carbon, dissolved organic [DOC]	----	E358-L/EO	0.50	mg/L		4.27	3.72	3.76	3.99	3.81
Carbon, total organic [TOC]	----	E355-L/EO	0.50	mg/L		4.50	4.14	4.53	5.30	4.86
Total Sulfides										
Sulfide, total (as S)	18496-25-8	E395/VA	0.0015	mg/L		<0.0015	<0.0015	<0.0015	<0.0015	<0.0015
Sulfide, total (as H2S)	7783-06-4	E395/VA	0.0016	mg/L		<0.0016	<0.0016	<0.0016	<0.0016	<0.0016
Total Metals										
Mercury, total	7439-97-6	E508-L/VA	0.50	ng/L		0.80	3.97	1.38	2.56	2.81
Total Metals (Undigested)										
Aluminum, total	7429-90-5	E466/VA	0.00020	mg/L		0.0116	0.0107	0.0434	0.0104	0.0115
Antimony, total	7440-36-0	E466/VA	0.0000050	mg/L		0.0000118	0.0000152	0.0000111	0.0000128	0.0000161
Arsenic, total	7440-38-2	E466/VA	0.000010	mg/L		0.000226	0.000238	0.000334	0.000234	0.000225
Barium, total	7440-39-3	E466/VA	0.000020	mg/L		0.00573	0.00592	0.00677	0.00597	0.00602
Beryllium, total	7440-41-7	E466/VA	0.0000020	mg/L		<0.0000020	<0.0000020	0.0000047	<0.0000020	<0.0000020
Bismuth, total	7440-69-9	E466/VA	0.0000010	mg/L		<0.0000010	<0.0000010	0.0000022	<0.0000010	<0.0000010
Boron, total	7440-42-8	E466/VA	0.0050	mg/L		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Cadmium, total	7440-43-9	E466/VA	0.0000025	mg/L		0.0000047	0.0000041	0.0000049	0.0000046	0.0000048
Calcium, total	7440-70-2	E466/VA	0.010	mg/L		3.09	2.99	3.15	3.08	3.10
Cesium, total	7440-46-2	E466/VA	0.0000050	mg/L		0.0000059	0.0000057	0.0000100	0.0000063	0.0000061
Chromium, total	7440-47-3	E466/VA	0.000040	mg/L		0.000141	0.000136	0.000156	0.000046	0.000252
Cobalt, total	7440-48-4	E466/VA	0.0000050	mg/L		0.000106	0.000111	0.000264	0.000105	0.000110
Copper, total	7440-50-8	E466/VA	0.000050	mg/L		0.00121	0.00126	0.00154	0.00127	0.00130
Gallium, total	7440-55-3	E466/VA	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Iron, total	7439-89-6	E466/VA	0.00050	mg/L		0.0257	0.0271	0.180	0.0246	0.0272
Lanthanum, total	7439-91-0	E466/VA	0.000010	mg/L		0.000072	0.000077	0.000344	0.000074	0.000077
Lead, total	7439-92-1	E466/VA	0.0000050	mg/L		0.0000379	0.0000821	0.0000927	0.000101	0.000231
Lithium, total	7439-93-2	E466/VA	0.00010	mg/L		0.00073	0.00073	0.00079	0.00073	0.00074
Magnesium, total	7439-95-4	E466/VA	0.0010	mg/L		1.74	1.77	1.82	1.78	1.82
Manganese, total	7439-96-5	E466/VA	0.0000050	mg/L		0.00331	0.00305	0.00640	0.00301	0.00308
Molybdenum, total	7439-98-7	E466/VA	0.000010	mg/L		0.000011	0.000012	0.000011	<0.000010	<0.000010
Nickel, total	7440-02-0	E466/VA	0.000020	mg/L		0.00248	0.00259	0.00305	0.00266	0.00268
Niobium, total	7440-03-1	E466/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010

Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	GLSE-T	GLSE-M	GLSE-B	GLCB-T	GLCB-M
					Client sampling date / time	19-Jul-2023 15:20	19-Jul-2023 15:30	19-Jul-2023 15:40	19-Jul-2023 16:30	19-Jul-2023 16:40
Analyte	CAS Number	Method/Lab	LOR	Unit		YL2300877-001	YL2300877-002	YL2300877-003	YL2300877-004	YL2300877-005
						Result	Result	Result	Result	Result
Total Metals (Undigested)										
Phosphorus, total	7723-14-0	E466/VA	0.010	mg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Potassium, total	7440-09-7	E466/VA	0.0050	mg/L		0.407	0.419	0.436	0.436	0.426
Rhenium, total	7440-15-5	E466/VA	0.0000050	mg/L		<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Rubidium, total	7440-17-7	E466/VA	0.0000050	mg/L		0.00100	0.00101	0.00110	0.00105	0.00105
Selenium, total	7782-49-2	E466/VA	0.000025	mg/L		<0.000025	<0.000025	<0.000025	0.000027	<0.000025
Silicon, total	7440-21-3	E466/VA	0.050	mg/L		0.059	0.060	0.094	0.062	0.069
Silver, total	7440-22-4	E466/VA	0.0000020	mg/L		<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020
Sodium, total	7440-23-5	E466/VA	0.010	mg/L		0.647	0.656	0.665	0.668	0.672
Strontium, total	7440-24-6	E466/VA	0.000020	mg/L		0.0154	0.0153	0.0160	0.0159	0.0158
Sulfur, total	7704-34-9	E466/VA	0.50	mg/L		2.75	2.83	2.78	2.77	2.77
Tantalum, total	7440-25-7	E466/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Tellurium, total	13494-80-9	E466/VA	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Thallium, total	7440-28-0	E466/VA	0.0000010	mg/L		0.0000020	0.0000018	0.0000025	0.0000019	0.0000021
Thorium, total	7440-29-1	E466/VA	0.0000050	mg/L		0.0000067	<0.0000050	0.0000062	0.0000058	0.0000061
Tin, total	7440-31-5	E466/VA	0.000010	mg/L		0.000050	<0.000010	<0.000010	<0.000010	<0.000010
Titanium, total	7440-32-6	E466/VA	0.000050	mg/L		0.000057	0.000102	0.00231	0.000062	0.000079
Tungsten, total	7440-33-7	E466/VA	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Uranium, total	7440-61-1	E466/VA	0.0000010	mg/L		0.0000068	0.0000082	0.0000115	0.0000041	0.0000057
Vanadium, total	7440-62-2	E466/VA	0.000010	mg/L		0.000030	0.000027	0.000159	0.000028	0.000026
Yttrium, total	7440-65-5	E466/VA	0.000010	mg/L		0.000039	0.000027	0.000145	0.000035	0.000035
Zinc, total	7440-66-6	E466/VA	0.00010	mg/L		0.00211	0.00248	0.00139	0.00056	0.00062
Zirconium, total	7440-67-7	E466/VA	0.000010	mg/L		0.000024	0.000023	0.000026	0.000023	0.000023
Dissolved Metals										
Aluminum, dissolved	7429-90-5	E465/VA	0.00020	mg/L		0.00790	0.00800	0.00774	0.00747	0.00745
Antimony, dissolved	7440-36-0	E465/VA	0.0000050	mg/L		0.0000088	0.0000114	0.0000082	0.0000072	0.0000084
Arsenic, dissolved	7440-38-2	E465/VA	0.000010	mg/L		0.000223	0.000222	0.000237	0.000221	0.000224
Barium, dissolved	7440-39-3	E465/VA	0.000020	mg/L		0.00572	0.00582	0.00573	0.00578	0.00570
Beryllium, dissolved	7440-41-7	E465/VA	0.0000020	mg/L		<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020
Bismuth, dissolved	7440-69-9	E465/VA	0.0000010	mg/L		<0.0000010	<0.0000010	<0.0000010	<0.0000010	<0.0000010
Boron, dissolved	7440-42-8	E465/VA	0.0050	mg/L		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Cadmium, dissolved	7440-43-9	E465/VA	0.0000025	mg/L		0.0000036	0.0000041	0.0000037	0.0000034	0.0000032

Analytical Results

Sub-Matrix: **Water**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	GLSE-T	GLSE-M	GLSE-B	GLCB-T	GLCB-M
					Client sampling date / time	19-Jul-2023 15:20	19-Jul-2023 15:30	19-Jul-2023 15:40	19-Jul-2023 16:30	19-Jul-2023 16:40
						YL2300877-001	YL2300877-002	YL2300877-003	YL2300877-004	YL2300877-005
						Result	Result	Result	Result	Result
Dissolved Metals										
Calcium, dissolved	7440-70-2	E465/VA	0.010	mg/L		3.24	3.26	3.39	3.25	3.27
Cesium, dissolved	7440-46-2	E465/VA	0.0000050	mg/L		0.0000061	0.0000056	0.0000058	0.0000058	0.0000056
Chromium, dissolved	7440-47-3	E465/VA	0.000040	mg/L		0.000117	0.000060	0.000045	<0.000040	0.000118
Cobalt, dissolved	7440-48-4	E465/VA	0.0000050	mg/L		0.0000621	0.0000592	0.0000606	0.0000570	0.0000531
Copper, dissolved	7440-50-8	E465/VA	0.000050	mg/L		0.00123	0.00126	0.00128	0.00121	0.00123
Dissolved metals filtration location	----	EP465/VA	-	-		Field	Field	Field	Field	Field
Gallium, dissolved	7440-55-3	E465/VA	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Iron, dissolved	7439-89-6	E465/VA	0.00050	mg/L		0.0109	0.0156	0.0115	0.00929	0.00863
Lanthanum, dissolved	7439-91-0	E465/VA	0.000010	mg/L		0.000050	0.000053	0.000054	0.000053	0.000051
Lead, dissolved	7439-92-1	E465/VA	0.0000050	mg/L		0.0000136	0.0000434	0.0000563	0.0000136	0.0000109
Lithium, dissolved	7439-93-2	E465/VA	0.00010	mg/L		0.00071	0.00072	0.00071	0.00072	0.00069
Magnesium, dissolved	7439-95-4	E465/VA	0.0010	mg/L		1.89	1.91	1.95	1.88	1.89
Manganese, dissolved	7439-96-5	E465/VA	0.0000050	mg/L		0.00173	0.00173	0.00193	0.00158	0.00136
Mercury, dissolved	7439-97-6	E509-L/VA	0.50	ng/L		<0.50	0.63	0.56	<0.50	0.58
Molybdenum, dissolved	7439-98-7	E465/VA	0.000010	mg/L		0.000011	0.000011	0.000011	0.000011	0.000011
Nickel, dissolved	7440-02-0	E465/VA	0.000020	mg/L		0.00267	0.00266	0.00279	0.00269	0.00275
Niobium, dissolved	7440-03-1	E465/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Phosphorus, dissolved	7723-14-0	E465/VA	0.010	mg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Potassium, dissolved	7440-09-7	E465/VA	0.0050	mg/L		0.442	0.445	0.464	0.440	0.446
Rhenium, dissolved	7440-15-5	E465/VA	0.0000050	mg/L		<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Rubidium, dissolved	7440-17-7	E465/VA	0.0000050	mg/L		0.00107	0.00110	0.00111	0.00108	0.00108
Selenium, dissolved	7782-49-2	E465/VA	0.000025	mg/L		<0.000025	<0.000025	<0.000025	<0.000025	<0.000025
Silicon, dissolved	7440-21-3	E465/VA	0.050	mg/L		0.052	0.054	0.052	0.053	0.052
Silver, dissolved	7440-22-4	E465/VA	0.0000020	mg/L		<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020
Sodium, dissolved	7440-23-5	E465/VA	0.010	mg/L		0.705	0.707	0.730	0.687	0.697
Strontium, dissolved	7440-24-6	E465/VA	0.000020	mg/L		0.0165	0.0167	0.0170	0.0167	0.0166
Sulfur, dissolved	7704-34-9	E465/VA	0.50	mg/L		2.69	2.73	2.74	2.77	2.76
Tantalum, dissolved	7440-25-7	E465/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Tellurium, dissolved	13494-80-9	E465/VA	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Thallium, dissolved	7440-28-0	E465/VA	0.0000010	mg/L		0.0000019	0.0000018	0.0000018	0.0000020	0.0000017
Thorium, dissolved	7440-29-1	E465/VA	0.0000050	mg/L		<0.0000100 DLB	<0.0000100 DLB	<0.0000100 DLB	<0.0000100 DLB	<0.0000050

Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	GLSE-T	GLSE-M	GLSE-B	GLCB-T	GLCB-M
					Client sampling date / time	19-Jul-2023 15:20	19-Jul-2023 15:30	19-Jul-2023 15:40	19-Jul-2023 16:30	19-Jul-2023 16:40
Analyte	CAS Number	Method/Lab	LOR	Unit		YL2300877-001	YL2300877-002	YL2300877-003	YL2300877-004	YL2300877-005
						Result	Result	Result	Result	Result
Dissolved Metals										
Tin, dissolved	7440-31-5	E465/VA	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Titanium, dissolved	7440-32-6	E465/VA	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Tungsten, dissolved	7440-33-7	E465/VA	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Uranium, dissolved	7440-61-1	E465/VA	0.0000010	mg/L		0.0000064	0.0000040	0.0000050	0.0000047	0.0000063
Vanadium, dissolved	7440-62-2	E465/VA	0.000010	mg/L		0.000023	0.000024	0.000024	0.000022	0.000023
Yttrium, dissolved	7440-65-5	E465/VA	0.000010	mg/L		0.000036	0.000021	0.000016	0.000017	0.000025
Zinc, dissolved	7440-66-6	E465/VA	0.00010	mg/L		0.00347 DTC	0.00086	0.00036	0.00029	0.00034
Zirconium, dissolved	7440-67-7	E465/VA	0.000010	mg/L		0.000018	0.000018	0.000019	0.000017	0.000018
Dissolved mercury filtration location	----	EP509-L/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.

Analytical Results

Sub-Matrix: **Water**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	GLCB-B	GLTL-T	GLTL-M Gen Chem & Sulphide reduced volume	GLTL-B	GLWB-T Gen Chem & Sulphide reduced volume
					Client sampling date / time	19-Jul-2023 16:50	20-Jul-2023 10:20	20-Jul-2023 10:30	20-Jul-2023 10:40	20-Jul-2023 12:40
						YL2300877-006	YL2300877-007	YL2300877-008	YL2300877-009	YL2300877-010
						Result	Result	Result	Result	Result
Physical Tests										
Alkalinity, bicarbonate (as CaCO3)	----	E290/VA	1.0	mg/L		4.9	5.4	5.8	5.4	4.6
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, phenolphthalein (as CaCO3)	----	E290/VA	1.0	mg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Alkalinity, total (as CaCO3)	----	E290/VA	1.0	mg/L		4.9	5.4	5.8	5.4	4.6
Conductivity	----	E100/VA	2.0	µS/cm		39.9	39.2	39.4	38.5	66.9
Hardness (as CaCO3), dissolved	----	EC100/VA	0.50	mg/L		15.8	15.9	15.0	14.6	24.6
pH	----	E108/VA	0.10	pH units		6.88	6.90	6.91	6.88	6.77
Solids, total dissolved [TDS], calculated	----	EC103/VA	1.0	mg/L		23.6	23.3	22.7	22.2	36.4
Solids, total suspended [TSS]	----	E160/VA	3.0	mg/L		<3.0	<3.0	<3.0	<3.0	<3.0
Anions and Nutrients										
Ammonia, total (as N)	7664-41-7	E298/EO	0.0050	mg/L		0.0081	<0.0050	<0.0050	<0.0050	0.135
Bromide	24959-67-9	E235.Br-L/VA	0.050	mg/L		<0.050	<0.050	<0.050	<0.050	0.069
Chloride	16887-00-6	E235.Cl/VA	0.50	mg/L		2.69	2.55	2.53	2.47	7.71
Fluoride	16984-48-8	E235.F/VA	0.020	mg/L		0.023	0.021	0.026	0.027	0.027
Kjeldahl nitrogen, total [TKN]	----	E318/EO	0.050	mg/L		0.126	0.143	0.142	0.149	0.303
Nitrate (as N)	14797-55-8	E235.NO3-L/VA	0.0050	mg/L		0.0369	0.0082	0.0067	<0.0050	0.691
Nitrite (as N)	14797-65-0	E235.NO2-L/VA	0.0010	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	0.0083
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U/VA	0.0010	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Phosphorus, total	7723-14-0	E372-S/EO	0.0010	mg/L		0.0035	0.0055	0.0106	0.0059	0.0064
Phosphorus, total dissolved	7723-14-0	E375-U/EO	0.0010	mg/L		<0.0010	0.0010	0.0010	0.0010	<0.0010
Silicate (as SiO2)	7631-86-9	E392/VA	0.50	mg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Sulfate (as SO4)	14808-79-8	E235.SO4/VA	0.30	mg/L		6.78	6.58	6.54	6.51	8.58
Cyanides										
Cyanide, free	----	E339/VA	0.0050	mg/L		<0.0050 PHA	<0.0050 PHA	<0.0050 PHA	<0.0050 PHA	<0.0050 PHA
Cyanide, strong acid dissociable (Total)	----	E333/VA	0.0050	mg/L		<0.0050 PHA	<0.0050 PHA	<0.0050 PHA	<0.0050 PHA	<0.0050 PHA
Cyanide, weak acid dissociable	----	E336/VA	0.0050	mg/L		<0.0050 PHA	<0.0050 PHA	<0.0050 PHA	<0.0050 PHA	<0.0050 PHA

Analytical Results

Sub-Matrix: **Water**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	GLCB-B	GLTL-T	GLTL-M Gen Chem & Sulphide reduced volume	GLTL-B	GLWB-T Gen Chem & Sulphide reduced volume
					Client sampling date / time	19-Jul-2023 16:50	20-Jul-2023 10:20	20-Jul-2023 10:30	20-Jul-2023 10:40	20-Jul-2023 12:40
						YL2300877-006	YL2300877-007	YL2300877-008	YL2300877-009	YL2300877-010
						Result	Result	Result	Result	Result
Organic / Inorganic Carbon										
Carbon, dissolved organic [DOC]	----	E358-L/EO	0.50	mg/L		4.33	4.32	3.92	4.14	3.73
Carbon, total organic [TOC]	----	E355-L/EO	0.50	mg/L		4.21	5.17	4.18	4.34	4.73
Total Sulfides										
Sulfide, total (as S)	18496-25-8	E395/VA	0.0015	mg/L		<0.0015	<0.0015	<0.0015	<0.0015	<0.0015
Sulfide, total (as H2S)	7783-06-4	E395/VA	0.0016	mg/L		<0.0016	<0.0016	<0.0016	<0.0016	<0.0016
Total Metals										
Mercury, total	7439-97-6	E508-L/VA	0.50	ng/L		2.18	2.06	1.19	1.06	0.91
Total Metals (Undigested)										
Aluminum, total	7429-90-5	E466/VA	0.00020	mg/L		0.0106	0.00989	0.00980	0.00927	0.0195
Antimony, total	7440-36-0	E466/VA	0.0000050	mg/L		0.0000092	0.0000264	0.0000095	0.0000084	0.0000272
Arsenic, total	7440-38-2	E466/VA	0.000010	mg/L		0.000234	0.000238	0.000244	0.000233	0.000303
Barium, total	7440-39-3	E466/VA	0.000020	mg/L		0.00585	0.00507	0.00508	0.00502	0.0118
Beryllium, total	7440-41-7	E466/VA	0.0000020	mg/L		<0.0000020	<0.0000020	<0.0000020	<0.0000020	0.0000038
Bismuth, total	7440-69-9	E466/VA	0.0000010	mg/L		<0.0000010	<0.0000010	<0.0000010	<0.0000010	<0.0000010
Boron, total	7440-42-8	E466/VA	0.0050	mg/L		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Cadmium, total	7440-43-9	E466/VA	0.0000025	mg/L		0.0000027	0.0000034	0.0000033	0.0000032	0.0000258
Calcium, total	7440-70-2	E466/VA	0.010	mg/L		3.15	2.89	3.02	3.02	6.02
Cesium, total	7440-46-2	E466/VA	0.0000050	mg/L		0.0000059	0.0000057	0.0000058	0.0000056	0.0000180
Chromium, total	7440-47-3	E466/VA	0.000040	mg/L		0.000078	0.000195	0.000130	0.000050	0.000125
Cobalt, total	7440-48-4	E466/VA	0.0000050	mg/L		0.000117	0.000126	0.000123	0.000122	0.000669
Copper, total	7440-50-8	E466/VA	0.000050	mg/L		0.00127	0.00124	0.00124	0.00126	0.00169
Gallium, total	7440-55-3	E466/VA	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Iron, total	7439-89-6	E466/VA	0.00050	mg/L		0.0276	0.0732	0.0734	0.0681	0.0393
Lanthanum, total	7439-91-0	E466/VA	0.000010	mg/L		0.000075	0.000066	0.000064	0.000067	0.000153
Lead, total	7439-92-1	E466/VA	0.0000050	mg/L		0.0000193	0.000486	0.0000340	0.0000100	0.000452
Lithium, total	7439-93-2	E466/VA	0.00010	mg/L		0.00074	0.00073	0.00074	0.00072	0.00105
Magnesium, total	7439-95-4	E466/VA	0.0010	mg/L		1.86	1.76	1.78	1.82	2.62
Manganese, total	7439-96-5	E466/VA	0.0000050	mg/L		0.00314	0.00537	0.00535	0.00531	0.0103

Analytical Results

Sub-Matrix: **Water**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	GLCB-B	GLTL-T	GLTL-M Gen Chem & Sulphide reduced volume	GLTL-B	GLWB-T Gen Chem & Sulphide reduced volume
					Client sampling date / time	19-Jul-2023 16:50	20-Jul-2023 10:20	20-Jul-2023 10:30	20-Jul-2023 10:40	20-Jul-2023 12:40
						YL2300877-006	YL2300877-007	YL2300877-008	YL2300877-009	YL2300877-010
						Result	Result	Result	Result	Result
Total Metals (Undigested)										
Molybdenum, total	7439-98-7	E466/VA	0.000010	mg/L		0.000011	0.000011	0.000011	0.000012	0.000014
Nickel, total	7440-02-0	E466/VA	0.000020	mg/L		0.00273	0.00226	0.00221	0.00229	0.00456
Niobium, total	7440-03-1	E466/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Phosphorus, total	7723-14-0	E466/VA	0.010	mg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Potassium, total	7440-09-7	E466/VA	0.0050	mg/L		0.447	0.424	0.434	0.444	0.685
Rhenium, total	7440-15-5	E466/VA	0.0000050	mg/L		<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Rubidium, total	7440-17-7	E466/VA	0.0000050	mg/L		0.00106	0.00104	0.00108	0.00108	0.00192
Selenium, total	7782-49-2	E466/VA	0.000025	mg/L		<0.000025	0.000025	0.000027	0.000026	0.000035
Silicon, total	7440-21-3	E466/VA	0.050	mg/L		0.062	0.066	0.064	0.050	0.210
Silver, total	7440-22-4	E466/VA	0.0000020	mg/L		<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020
Sodium, total	7440-23-5	E466/VA	0.010	mg/L		0.682	0.673	0.683	0.690	0.930
Strontium, total	7440-24-6	E466/VA	0.000020	mg/L		0.0160	0.0142	0.0147	0.0147	0.0427
Sulfur, total	7704-34-9	E466/VA	0.50	mg/L		2.76	2.70	2.70	2.65	3.48
Tantalum, total	7440-25-7	E466/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Tellurium, total	13494-80-9	E466/VA	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Thallium, total	7440-28-0	E466/VA	0.0000010	mg/L		0.0000020	0.0000018	0.0000019	0.0000021	0.0000036
Thorium, total	7440-29-1	E466/VA	0.0000050	mg/L		0.0000065	0.0000065	0.0000061	<0.0000050	0.0000053
Tin, total	7440-31-5	E466/VA	0.000010	mg/L		<0.000010	<0.000010	0.000012	<0.000010	0.000011
Titanium, total	7440-32-6	E466/VA	0.000050	mg/L		0.000096	<0.000050	<0.000050	<0.000050	0.000092
Tungsten, total	7440-33-7	E466/VA	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Uranium, total	7440-61-1	E466/VA	0.0000010	mg/L		0.0000050	0.0000053	0.0000047	0.0000044	0.0000053
Vanadium, total	7440-62-2	E466/VA	0.000010	mg/L		0.000028	0.000028	0.000030	0.000026	0.000036
Yttrium, total	7440-65-5	E466/VA	0.000010	mg/L		0.000038	0.000047	0.000032	0.000043	0.000056
Zinc, total	7440-66-6	E466/VA	0.00010	mg/L		0.00108	0.00246	0.00887	0.00034	0.00248
Zirconium, total	7440-67-7	E466/VA	0.000010	mg/L		0.000022	0.000021	0.000020	0.000019	0.000030
Dissolved Metals										
Aluminum, dissolved	7429-90-5	E465/VA	0.00020	mg/L		0.00874	0.00686	0.00611	0.00555	0.0123
Antimony, dissolved	7440-36-0	E465/VA	0.0000050	mg/L		0.0000318 DTC	0.0000081	0.0000096	0.0000089	0.0000092

Analytical Results

Sub-Matrix: **Water**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	GLCB-B	GLTL-T	GLTL-M Gen Chem & Sulphide reduced volume	GLTL-B	GLWB-T Gen Chem & Sulphide reduced volume
					Client sampling date / time	19-Jul-2023 16:50	20-Jul-2023 10:20	20-Jul-2023 10:30	20-Jul-2023 10:40	20-Jul-2023 12:40
						YL2300877-006	YL2300877-007	YL2300877-008	YL2300877-009	YL2300877-010
						Result	Result	Result	Result	Result
Dissolved Metals										
Arsenic, dissolved	7440-38-2	E465/VA	0.000010	mg/L		0.000224	0.000229	0.000226	0.000220	0.000286
Barium, dissolved	7440-39-3	E465/VA	0.000020	mg/L		0.00992 DTC	0.00527	0.00495	0.00510	0.0119
Beryllium, dissolved	7440-41-7	E465/VA	0.0000020	mg/L		<0.0000020	<0.0000020	<0.0000020	<0.0000020	0.0000025
Bismuth, dissolved	7440-69-9	E465/VA	0.0000010	mg/L		<0.0000010	<0.0000010	<0.0000010	<0.0000010	<0.0000010
Boron, dissolved	7440-42-8	E465/VA	0.0050	mg/L		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Cadmium, dissolved	7440-43-9	E465/VA	0.0000025	mg/L		0.0000069	<0.0000025	0.0000037	<0.0000025	0.0000148
Calcium, dissolved	7440-70-2	E465/VA	0.010	mg/L		3.23	3.22	3.04	2.96	5.73
Cesium, dissolved	7440-46-2	E465/VA	0.0000050	mg/L		0.0000068	0.0000058	0.0000053	0.0000057	0.0000180
Chromium, dissolved	7440-47-3	E465/VA	0.000040	mg/L		0.000259 DTC	0.000063	0.000136	0.000050	0.000130
Cobalt, dissolved	7440-48-4	E465/VA	0.0000050	mg/L		0.0000541	0.0000607	0.0000512	0.0000373	0.000572
Copper, dissolved	7440-50-8	E465/VA	0.000050	mg/L		0.00140	0.00126	0.00114	0.00112	0.00147
Dissolved metals filtration location	----	EP465/VA	-	-		Field	Field	Field	Field	Field
Gallium, dissolved	7440-55-3	E465/VA	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Iron, dissolved	7439-89-6	E465/VA	0.00050	mg/L		0.00964	0.0404	0.0332	0.0251	0.0158
Lanthanum, dissolved	7439-91-0	E465/VA	0.000010	mg/L		0.000054	0.000039	0.000036	0.000038	0.000121
Lead, dissolved	7439-92-1	E465/VA	0.0000050	mg/L		0.00142 DTC	0.0000060	0.0000098	0.0000120	<0.0000050
Lithium, dissolved	7439-93-2	E465/VA	0.00010	mg/L		0.00072	0.00072	0.00071	0.00071	0.00103
Magnesium, dissolved	7439-95-4	E465/VA	0.0010	mg/L		1.87	1.92	1.79	1.76	2.49
Manganese, dissolved	7439-96-5	E465/VA	0.0000050	mg/L		0.00138	0.00278	0.00209	0.00114	0.00893
Mercury, dissolved	7439-97-6	E509-L/VA	0.50	ng/L		<0.50	0.59	1.04	0.70	0.56
Molybdenum, dissolved	7439-98-7	E465/VA	0.000010	mg/L		0.000015	0.000011	0.000014	<0.000010	0.000013
Nickel, dissolved	7440-02-0	E465/VA	0.000020	mg/L		0.00276	0.00231	0.00222	0.00221	0.00442
Niobium, dissolved	7440-03-1	E465/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Phosphorus, dissolved	7723-14-0	E465/VA	0.010	mg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Potassium, dissolved	7440-09-7	E465/VA	0.0050	mg/L		0.549	0.465	0.435	0.433	0.621
Rhenium, dissolved	7440-15-5	E465/VA	0.0000050	mg/L		<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Rubidium, dissolved	7440-17-7	E465/VA	0.0000050	mg/L		0.00115	0.00113	0.00105	0.00103	0.00181
Selenium, dissolved	7782-49-2	E465/VA	0.000025	mg/L		<0.000025	<0.000025	<0.000025	<0.000025	0.000033

Analytical Results

Sub-Matrix: **Water**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	GLCB-B	GLTL-T	GLTL-M Gen Chem & Sulphide reduced volume	GLTL-B	GLWB-T Gen Chem & Sulphide reduced volume
					Client sampling date / time	19-Jul-2023 16:50	20-Jul-2023 10:20	20-Jul-2023 10:30	20-Jul-2023 10:40	20-Jul-2023 12:40
						YL2300877-006	YL2300877-007	YL2300877-008	YL2300877-009	YL2300877-010
						Result	Result	Result	Result	Result
Dissolved Metals										
Silicon, dissolved	7440-21-3	E465/VA	0.050	mg/L		0.054	0.058	0.055	<0.050	0.202
Silver, dissolved	7440-22-4	E465/VA	0.0000020	mg/L		<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020
Sodium, dissolved	7440-23-5	E465/VA	0.010	mg/L		0.817	0.740	0.681	0.680	0.867
Strontium, dissolved	7440-24-6	E465/VA	0.000020	mg/L		0.0163	0.0156	0.0145	0.0141	0.0406
Sulfur, dissolved	7704-34-9	E465/VA	0.50	mg/L		2.78	2.71	2.62	2.67	3.44
Tantalum, dissolved	7440-25-7	E465/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Tellurium, dissolved	13494-80-9	E465/VA	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Thallium, dissolved	7440-28-0	E465/VA	0.0000010	mg/L		0.0000023	0.0000020	0.0000019	0.0000018	0.0000034
Thorium, dissolved	7440-29-1	E465/VA	0.0000050	mg/L		<0.0000050	<0.0000050	<0.0000050	<0.0000100 DLB	<0.0000100 DLB
Tin, dissolved	7440-31-5	E465/VA	0.000010	mg/L		0.000033 DTC	<0.000010	<0.000010	<0.000010	<0.000010
Titanium, dissolved	7440-32-6	E465/VA	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Tungsten, dissolved	7440-33-7	E465/VA	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Uranium, dissolved	7440-61-1	E465/VA	0.0000010	mg/L		0.0000053	0.0000039	0.0000037	0.0000058	0.0000043
Vanadium, dissolved	7440-62-2	E465/VA	0.000010	mg/L		0.000024	0.000021	0.000022	0.000020	0.000026
Yttrium, dissolved	7440-65-5	E465/VA	0.000010	mg/L		0.000033	0.000037	0.000018	0.000021	0.000044
Zinc, dissolved	7440-66-6	E465/VA	0.00010	mg/L		0.00301 DTC	0.00095	0.00238	0.00044	0.00124
Zirconium, dissolved	7440-67-7	E465/VA	0.000010	mg/L		0.000020	0.000014	0.000014	0.000016	0.000026
Dissolved mercury filtration location	----	EP509-L/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.

Analytical Results

Sub-Matrix: Water (Matrix: Water)				Client sample ID	GLWB-M	GLWB-B	PN03	DUP1	----
				Client sampling date / time	20-Jul-2023 12:50	20-Jul-2023 13:00	20-Jul-2023 15:40	20-Jul-2023 15:40	----
Analyte	CAS Number	Method/Lab	LOR	Unit	YL2300877-011	YL2300877-012	YL2300877-013	YL2300877-014	--------
					Result	Result	Result	Result	----
Physical Tests									
Alkalinity, bicarbonate (as CaCO3)	----	E290/VA	1.0	mg/L	4.7	4.0	6.1	5.8	----
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, phenolphthalein (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	4.7	4.0	6.1	5.8	----
Conductivity	----	E100/VA	2.0	µS/cm	69.2	82.7	39.6	40.3	----
Hardness (as CaCO3), dissolved	----	EC100/VA	0.50	mg/L	25.1	27.1	15.1	14.7	----
pH	----	E108/VA	0.10	pH units	6.80	6.76	6.90	6.82	----
Solids, total dissolved [TDS], calculated	----	EC103/VA	1.0	mg/L	37.4	42.9	23.2	23.0	----
Solids, total suspended [TSS]	----	E160/VA	3.0	mg/L	<3.0	<3.0	<3.0	<3.0	----
Anions and Nutrients									
Ammonia, total (as N)	7664-41-7	E298/EO	0.0050	mg/L	0.142	0.208	0.0179	0.0190	----
Bromide	24959-67-9	E235.Br-L/VA	0.050	mg/L	0.073	0.097	<0.050	<0.050	----
Chloride	16887-00-6	E235.Cl/VA	0.50	mg/L	8.07	10.3	2.60	2.58	----
Fluoride	16984-48-8	E235.F/VA	0.020	mg/L	0.027	0.024	0.027	0.024	----
Kjeldahl nitrogen, total [TKN]	----	E318/EO	0.050	mg/L	0.281	0.413	0.228	0.288	----
Nitrate (as N)	14797-55-8	E235.NO3-L/VA	0.0050	mg/L	0.747	1.12	0.0158	0.0149	----
Nitrite (as N)	14797-65-0	E235.NO2-L/VA	0.0010	mg/L	0.0099	0.0185	<0.0010	<0.0010	----
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U/VA	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	----
Phosphorus, total	7723-14-0	E372-S/EO	0.0010	mg/L	0.0051	0.0100	0.0066	0.0072	----
Phosphorus, total dissolved	7723-14-0	E375-U/EO	0.0010	mg/L	0.0010	<0.0010	0.0018	0.0024	----
Silicate (as SiO2)	7631-86-9	E392/VA	0.50	mg/L	0.51	0.69	<0.50	<0.50	----
Sulfate (as SO4)	14808-79-8	E235.SO4/VA	0.30	mg/L	8.70	9.73	6.38	6.35	----
Cyanides									
Cyanide, free	----	E339/VA	0.0050	mg/L	<0.0050 PHA	<0.0050 PHA	<0.0050 PHA	<0.0050 PHA	----
Cyanide, strong acid dissociable (Total)	----	E333/VA	0.0050	mg/L	<0.0050 PHA	<0.0050 PHA	<0.0050 PHA	<0.0050 PHA	----
Cyanide, weak acid dissociable	----	E336/VA	0.0050	mg/L	<0.0050 PHA	<0.0050 PHA	<0.0050 PHA	<0.0050 PHA	----
Organic / Inorganic Carbon									
Carbon, dissolved organic [DOC]	----	E358-L/EO	0.50	mg/L	3.78	3.69	4.07	4.25	----

Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	GLWB-M	GLWB-B	PN03	DUP1	----
					Client sampling date / time	20-Jul-2023 12:50	20-Jul-2023 13:00	20-Jul-2023 15:40	20-Jul-2023 15:40	----
Analyte	CAS Number	Method/Lab	LOR	Unit		YL2300877-011	YL2300877-012	YL2300877-013	YL2300877-014	--------
						Result	Result	Result	Result	----
Organic / Inorganic Carbon										
Carbon, total organic [TOC]	----	E355-L/EO	0.50	mg/L		4.22	4.24	5.04	4.65	----
Total Sulfides										
Sulfide, total (as S)	18496-25-8	E395/VA	0.0015	mg/L		<0.0015	<0.0015	0.0021	<0.0015	----
Sulfide, total (as H2S)	7783-06-4	E395/VA	0.0016	mg/L		<0.0016	<0.0016	0.0022	<0.0016	----
Total Metals										
Mercury, total	7439-97-6	E508-L/VA	0.50	ng/L		0.98	1.74	1.36	1.20	----
Total Metals (Undigested)										
Aluminum, total	7429-90-5	E466/VA	0.00020	mg/L		0.0190	0.0205	0.0120	0.0128	----
Antimony, total	7440-36-0	E466/VA	0.0000050	mg/L		0.0000125	0.0000129	0.0000109	0.0000110	----
Arsenic, total	7440-38-2	E466/VA	0.000010	mg/L		0.000286	0.000297	0.000271	0.000271	----
Barium, total	7440-39-3	E466/VA	0.000020	mg/L		0.0129	0.0160	0.00522	0.00521	----
Beryllium, total	7440-41-7	E466/VA	0.0000020	mg/L		0.0000037	0.0000062	<0.0000020	<0.0000020	----
Bismuth, total	7440-69-9	E466/VA	0.0000010	mg/L		<0.0000010	<0.0000010	<0.0000010	<0.0000010	----
Boron, total	7440-42-8	E466/VA	0.0050	mg/L		<0.0050	<0.0050	<0.0050	<0.0050	----
Cadmium, total	7440-43-9	E466/VA	0.0000025	mg/L		0.0000204	0.0000325	0.0000061	0.0000078	----
Calcium, total	7440-70-2	E466/VA	0.010	mg/L		6.37	7.17	3.21	3.20	----
Cesium, total	7440-46-2	E466/VA	0.0000050	mg/L		0.0000198	0.0000246	0.0000072	0.0000071	----
Chromium, total	7440-47-3	E466/VA	0.000040	mg/L		0.000136	0.000090	0.000068	0.000274	----
Cobalt, total	7440-48-4	E466/VA	0.0000050	mg/L		0.000809	0.00118	0.000442	0.000499	----
Copper, total	7440-50-8	E466/VA	0.000050	mg/L		0.00160	0.00164	0.00135	0.00135	----
Gallium, total	7440-55-3	E466/VA	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	----
Iron, total	7439-89-6	E466/VA	0.00050	mg/L		0.0411	0.0336	0.195	0.205	----
Lanthanum, total	7439-91-0	E466/VA	0.000010	mg/L		0.000164	0.000213	0.000097	0.000108	----
Lead, total	7439-92-1	E466/VA	0.0000050	mg/L		0.0000540	0.0000762	0.0000318	0.0000327	----
Lithium, total	7439-93-2	E466/VA	0.00010	mg/L		0.00110	0.00122	0.00078	0.00080	----
Magnesium, total	7439-95-4	E466/VA	0.0010	mg/L		2.72	2.94	1.91	1.88	----
Manganese, total	7439-96-5	E466/VA	0.0000050	mg/L		0.0125	0.0178	0.0206	0.0217	----
Molybdenum, total	7439-98-7	E466/VA	0.000010	mg/L		0.000013	0.000011	0.000013	0.000013	----
Nickel, total	7440-02-0	E466/VA	0.000020	mg/L		0.00515	0.00636	0.00231	0.00237	----
Niobium, total	7440-03-1	E466/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	----
Phosphorus, total	7723-14-0	E466/VA	0.010	mg/L		<0.010	<0.010	<0.010	<0.010	----

Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	GLWB-M	GLWB-B	PN03	DUP1	----
					Client sampling date / time	20-Jul-2023 12:50	20-Jul-2023 13:00	20-Jul-2023 15:40	20-Jul-2023 15:40	----
Analyte	CAS Number	Method/Lab	LOR	Unit		YL2300877-011	YL2300877-012	YL2300877-013	YL2300877-014	--------
						Result	Result	Result	Result	----
Total Metals (Undigested)										
Potassium, total	7440-09-7	E466/VA	0.0050	mg/L		0.691	0.723	0.513	0.518	----
Rhenium, total	7440-15-5	E466/VA	0.0000050	mg/L		<0.0000050	<0.0000050	<0.0000050	<0.0000050	----
Rubidium, total	7440-17-7	E466/VA	0.0000050	mg/L		0.00198	0.00218	0.00124	0.00124	----
Selenium, total	7782-49-2	E466/VA	0.000025	mg/L		0.000038	0.000047	0.000028	0.000028	----
Silicon, total	7440-21-3	E466/VA	0.050	mg/L		0.231	0.321	0.083	0.089	----
Silver, total	7440-22-4	E466/VA	0.0000020	mg/L		<0.0000020	<0.0000020	<0.0000020	<0.0000020	----
Sodium, total	7440-23-5	E466/VA	0.010	mg/L		0.926	0.964	0.742	0.747	----
Strontium, total	7440-24-6	E466/VA	0.000020	mg/L		0.0457	0.0544	0.0152	0.0153	----
Sulfur, total	7704-34-9	E466/VA	0.50	mg/L		3.49	3.93	2.65	2.64	----
Tantalum, total	7440-25-7	E466/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	----
Tellurium, total	13494-80-9	E466/VA	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	----
Thallium, total	7440-28-0	E466/VA	0.0000010	mg/L		0.0000034	0.0000048	0.0000025	0.0000026	----
Thorium, total	7440-29-1	E466/VA	0.0000050	mg/L		0.0000090	0.0000090	<0.0000050	<0.0000050	----
Tin, total	7440-31-5	E466/VA	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	----
Titanium, total	7440-32-6	E466/VA	0.000050	mg/L		0.000054	0.000075	0.000092	0.000102	----
Tungsten, total	7440-33-7	E466/VA	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	----
Uranium, total	7440-61-1	E466/VA	0.0000010	mg/L		0.0000070	0.0000075	0.0000061	0.0000066	----
Vanadium, total	7440-62-2	E466/VA	0.000010	mg/L		0.000032	0.000030	0.000054	0.000056	----
Yttrium, total	7440-65-5	E466/VA	0.000010	mg/L		0.000069	0.000106	0.000031	0.000033	----
Zinc, total	7440-66-6	E466/VA	0.00010	mg/L		0.00186	0.00268	0.00145	0.00144	----
Zirconium, total	7440-67-7	E466/VA	0.000010	mg/L		0.000038	0.000032	0.000020	0.000021	----
Dissolved Metals										
Aluminum, dissolved	7429-90-5	E465/VA	0.00020	mg/L		0.0125	0.0132	0.00640	0.00608	----
Antimony, dissolved	7440-36-0	E465/VA	0.0000050	mg/L		0.0000082	0.0000082	0.0000078	0.0000069	----
Arsenic, dissolved	7440-38-2	E465/VA	0.000010	mg/L		0.000271	0.000277	0.000246	0.000245	----
Barium, dissolved	7440-39-3	E465/VA	0.000020	mg/L		0.0118	0.0146	0.00476	0.00488	----
Beryllium, dissolved	7440-41-7	E465/VA	0.0000020	mg/L		0.0000028	0.0000038	<0.0000020	<0.0000020	----
Bismuth, dissolved	7440-69-9	E465/VA	0.0000010	mg/L		<0.0000010	<0.0000010	<0.0000010	<0.0000010	----
Boron, dissolved	7440-42-8	E465/VA	0.0050	mg/L		<0.0050	<0.0050	<0.0050	<0.0050	----
Cadmium, dissolved	7440-43-9	E465/VA	0.0000025	mg/L		0.0000150	0.0000271	0.0000032	0.0000058	----
Calcium, dissolved	7440-70-2	E465/VA	0.010	mg/L		5.79	6.42	3.08	3.00	----

Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	GLWB-M	GLWB-B	PN03	DUP1	----
					Client sampling date / time	20-Jul-2023 12:50	20-Jul-2023 13:00	20-Jul-2023 15:40	20-Jul-2023 15:40	----
Analyte	CAS Number	Method/Lab	LOR	Unit		YL2300877-011	YL2300877-012	YL2300877-013	YL2300877-014	--------
						Result	Result	Result	Result	----
Dissolved Metals										
Cesium, dissolved	7440-46-2	E465/VA	0.0000050	mg/L		0.0000182	0.0000219	0.0000070	0.0000073	----
Chromium, dissolved	7440-47-3	E465/VA	0.000040	mg/L		0.000074	0.000148	0.000044	0.000101	----
Cobalt, dissolved	7440-48-4	E465/VA	0.0000050	mg/L		0.000527	0.000871	0.000290	0.000286	----
Copper, dissolved	7440-50-8	E465/VA	0.000050	mg/L		0.00147	0.00147	0.00122	0.00119	----
Dissolved metals filtration location	----	EP465/VA	-	-		Field	Field	Field	Field	----
Gallium, dissolved	7440-55-3	E465/VA	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	----
Iron, dissolved	7439-89-6	E465/VA	0.00050	mg/L		0.0167	0.0137	0.0939	0.0909	----
Lanthanum, dissolved	7439-91-0	E465/VA	0.000010	mg/L		0.000113	0.000152	0.000056	0.000051	----
Lead, dissolved	7439-92-1	E465/VA	0.0000050	mg/L		0.0000076	0.0000063	0.0000059	0.0000057	----
Lithium, dissolved	7439-93-2	E465/VA	0.00010	mg/L		0.00102	0.00111	0.00075	0.00075	----
Magnesium, dissolved	7439-95-4	E465/VA	0.0010	mg/L		2.59	2.70	1.81	1.76	----
Manganese, dissolved	7439-96-5	E465/VA	0.0000050	mg/L		0.00830	0.0133	0.0156	0.0152	----
Mercury, dissolved	7439-97-6	E509-L/VA	0.50	ng/L		0.59	0.67	0.65	0.85	----
Molybdenum, dissolved	7439-98-7	E465/VA	0.000010	mg/L		0.000012	0.000012	0.000013	0.000011	----
Nickel, dissolved	7440-02-0	E465/VA	0.000020	mg/L		0.00440	0.00547	0.00210	0.00209	----
Niobium, dissolved	7440-03-1	E465/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	----
Phosphorus, dissolved	7723-14-0	E465/VA	0.010	mg/L		<0.010	<0.010	<0.010	<0.010	----
Potassium, dissolved	7440-09-7	E465/VA	0.0050	mg/L		0.627	0.654	0.455	0.446	----
Rhenium, dissolved	7440-15-5	E465/VA	0.0000050	mg/L		<0.0000050	<0.0000050	<0.0000050	<0.0000050	----
Rubidium, dissolved	7440-17-7	E465/VA	0.0000050	mg/L		0.00183	0.00193	0.00116	0.00115	----
Selenium, dissolved	7782-49-2	E465/VA	0.000025	mg/L		0.000031	0.000038	<0.000025	<0.000025	----
Silicon, dissolved	7440-21-3	E465/VA	0.050	mg/L		0.197	0.272	0.081	0.086	----
Silver, dissolved	7440-22-4	E465/VA	0.0000020	mg/L		<0.0000020	<0.0000020	<0.0000020	<0.0000020	----
Sodium, dissolved	7440-23-5	E465/VA	0.010	mg/L		0.876	0.880	0.689	0.680	----
Strontium, dissolved	7440-24-6	E465/VA	0.000020	mg/L		0.0412	0.0465	0.0147	0.0144	----
Sulfur, dissolved	7704-34-9	E465/VA	0.50	mg/L		3.48	3.64	2.64	2.62	----
Tantalum, dissolved	7440-25-7	E465/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	----
Tellurium, dissolved	13494-80-9	E465/VA	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	----
Thallium, dissolved	7440-28-0	E465/VA	0.0000010	mg/L		0.0000034	0.0000040	0.0000023	0.0000025	----
Thorium, dissolved	7440-29-1	E465/VA	0.0000050	mg/L		<0.0000050	<0.0000050	<0.0000100 DLB	<0.0000100 DLB	----
Tin, dissolved	7440-31-5	E465/VA	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	----

Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	GLWB-M	GLWB-B	PN03	DUP1	----
					Client sampling date / time	20-Jul-2023 12:50	20-Jul-2023 13:00	20-Jul-2023 15:40	20-Jul-2023 15:40	----
Analyte	CAS Number	Method/Lab	LOR	Unit		YL2300877-011	YL2300877-012	YL2300877-013	YL2300877-014	--------
						Result	Result	Result	Result	----
Dissolved Metals										
Titanium, dissolved	7440-32-6	E465/VA	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	----
Tungsten, dissolved	7440-33-7	E465/VA	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	----
Uranium, dissolved	7440-61-1	E465/VA	0.0000010	mg/L		0.0000065	0.0000064	0.0000031	0.0000064	----
Vanadium, dissolved	7440-62-2	E465/VA	0.000010	mg/L		0.000025	0.000024	0.000025	0.000025	----
Yttrium, dissolved	7440-65-5	E465/VA	0.000010	mg/L		0.000045	0.000056	0.000027	0.000021	----
Zinc, dissolved	7440-66-6	E465/VA	0.00010	mg/L		0.00115	0.00187	0.00067	0.00043	----
Zirconium, dissolved	7440-67-7	E465/VA	0.000010	mg/L		0.000025	0.000027	0.000014	0.000016	----
Dissolved mercury filtration location	----	EP509-L/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.

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QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **YL2300877**	Page	: 1 of 52
Amendment	: **3**		
Client	: **Sabina Gold & Silver Corporation**	Laboratory	: ALS Environmental - Yellowknife
Contact	: Merle Keefe	Account Manager	: Oliver Gregg
Address	: 375 - 555 Burrard St. Box 220, Bentall 2 Vancouver BC Canada V7X 1M7	Address	: 314 Old Airport Road, Unit 116 Yellowknife, Northwest Territories Canada X1A 3T3
Telephone	: 604 240 6619	Telephone	: 1 867 445 7143
Project	: 22567626	Date Samples Received	: 24-Jul-2023 09:00
PO	: PO-10402	Issue Date	: 22-Nov-2023 12:24
C-O-C number	: ----		
Sampler	: ----		
Site	: ----		
Quote number	: YL23-SABI100-001		
No. of samples received	: 14		
No. of samples analysed	: 14		

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 Duplicate outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- No Matrix Spike outliers occur.
- Method Blank value outliers occur - please see following pages for full details.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- Analysis Holding Time Outliers exist - please see following pages for full details.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **Water**

Analyte Group	Laboratory sample ID	Client/Ref Sample ID	Analyte	CAS Number	Method	Result	Limits	Comment
Method Blank (MB) Values								
Total Metals (Undigested)	QC-1061019-001	----	Aluminum, total	7429-90-5	E466	0.00030 B mg/L	0.0002 mg/L	Blank result exceeds permitted value
Dissolved Metals	QC-1061016-001	----	Thorium, dissolved	7440-29-1	E465	0.000006 MB-LOR 1 mg/L	0.000005 mg/L	Blank result exceeds permitted value

Result Qualifiers

Qualifier	Description
B	*Method Blank exceeds ALS DQO. Associated sample results which are < Limit of Reporting or > 5 times blank level are considered reliable.*
MB-LOR	*Method Blank exceeds ALS DQO. Limits of Reporting have been adjusted for samples with positive hits below 5x blank level.*

Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	*Method*	*Sampling Date*	*Extraction / Preparation*				*Analysis*			
			Preparation Date	*Holding Times* Rec	*Holding Times* Actual	*Eval*	*Analysis Date*	*Holding Times* Rec	*Holding Times* Actual	*Eval*
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) DUP1	E298	20-Jul-2023	31-Jul-2023	28 days	11 days	✓	31-Jul-2023	28 days	11 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) GLWB-B	E298	20-Jul-2023	31-Jul-2023	28 days	11 days	✓	31-Jul-2023	28 days	11 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) GLWB-M	E298	20-Jul-2023	31-Jul-2023	28 days	11 days	✓	31-Jul-2023	28 days	11 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) GLWB-T - Gen Chem & Sulphide reduced volume	E298	20-Jul-2023	31-Jul-2023	28 days	11 days	✓	31-Jul-2023	28 days	11 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) PN03	E298	20-Jul-2023	31-Jul-2023	28 days	11 days	✓	31-Jul-2023	28 days	11 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) GLTL-B	E298	20-Jul-2023	27-Jul-2023	28 days	7 days	✓	27-Jul-2023	28 days	7 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) GLTL-M - Gen Chem & Sulphide reduced volume	E298	20-Jul-2023	27-Jul-2023	28 days	7 days	✓	27-Jul-2023	28 days	7 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) GLTL-T	E298	20-Jul-2023	27-Jul-2023	28 days	7 days	✓	27-Jul-2023	28 days	7 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) GLCB-B	E298	19-Jul-2023	27-Jul-2023	28 days	8 days	✓	27-Jul-2023	28 days	8 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) GLCB-M	E298	19-Jul-2023	27-Jul-2023	28 days	8 days	✓	27-Jul-2023	28 days	8 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) GLCB-T	E298	19-Jul-2023	27-Jul-2023	28 days	8 days	✓	27-Jul-2023	28 days	8 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) GLSE-B	E298	19-Jul-2023	27-Jul-2023	28 days	8 days	✓	27-Jul-2023	28 days	8 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) GLSE-M	E298	19-Jul-2023	27-Jul-2023	28 days	8 days	✓	27-Jul-2023	28 days	8 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) GLSE-T	E298	19-Jul-2023	27-Jul-2023	28 days	8 days	✓	27-Jul-2023	28 days	8 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE GLWB-B	E235.Br-L	20-Jul-2023	26-Jul-2023	28 days	6 days	✓	26-Jul-2023	28 days	6 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE GLWB-M	E235.Br-L	20-Jul-2023	26-Jul-2023	28 days	6 days	✓	26-Jul-2023	28 days	6 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE GLWB-T - Gen Chem & Sulphide reduced volume	E235.Br-L	20-Jul-2023	26-Jul-2023	28 days	6 days	✓	26-Jul-2023	28 days	6 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE PN03	E235.Br-L	20-Jul-2023	26-Jul-2023	28 days	6 days	✓	26-Jul-2023	28 days	6 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE GLTL-B	E235.Br-L	20-Jul-2023	26-Jul-2023	28 days	6 days	✓	26-Jul-2023	28 days	7 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE GLTL-M - Gen Chem & Sulphide reduced volume	E235.Br-L	20-Jul-2023	26-Jul-2023	28 days	6 days	✓	26-Jul-2023	28 days	7 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE GLTL-T	E235.Br-L	20-Jul-2023	26-Jul-2023	28 days	6 days	✓	26-Jul-2023	28 days	7 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE GLCB-B	E235.Br-L	19-Jul-2023	26-Jul-2023	28 days	7 days	✓	26-Jul-2023	28 days	7 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE GLCB-M	E235.Br-L	19-Jul-2023	26-Jul-2023	28 days	7 days	✓	26-Jul-2023	28 days	7 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE GLCB-T	E235.Br-L	19-Jul-2023	26-Jul-2023	28 days	7 days	✓	26-Jul-2023	28 days	7 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE GLSE-B	E235.Br-L	19-Jul-2023	26-Jul-2023	28 days	7 days	✓	26-Jul-2023	28 days	7 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE GLSE-M	E235.Br-L	19-Jul-2023	26-Jul-2023	28 days	7 days	✓	26-Jul-2023	28 days	7 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE GLSE-T	E235.Br-L	19-Jul-2023	26-Jul-2023	28 days	7 days	✓	26-Jul-2023	28 days	7 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE DUP1	E235.Br-L	20-Jul-2023	28-Jul-2023	28 days	8 days	✓	28-Jul-2023	28 days	8 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE GLWB-B	E235.Cl	20-Jul-2023	26-Jul-2023	28 days	6 days	✓	26-Jul-2023	28 days	6 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE GLWB-M	E235.Cl	20-Jul-2023	26-Jul-2023	28 days	6 days	✓	26-Jul-2023	28 days	6 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE GLWB-T - Gen Chem & Sulphide reduced volume	E235.Cl	20-Jul-2023	26-Jul-2023	28 days	6 days	✓	26-Jul-2023	28 days	6 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE PN03	E235.Cl	20-Jul-2023	26-Jul-2023	28 days	6 days	✓	26-Jul-2023	28 days	6 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE GLTL-B	E235.Cl	20-Jul-2023	26-Jul-2023	28 days	6 days	✓	26-Jul-2023	28 days	7 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE GLTL-M - Gen Chem & Sulphide reduced volume	E235.Cl	20-Jul-2023	26-Jul-2023	28 days	6 days	✓	26-Jul-2023	28 days	7 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Chloride in Water by IC										
HDPE GLTL-T	E235.Cl	20-Jul-2023	26-Jul-2023	28 days	6 days	✓	26-Jul-2023	28 days	7 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE GLCB-B	E235.Cl	19-Jul-2023	26-Jul-2023	28 days	7 days	✓	26-Jul-2023	28 days	7 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE GLCB-M	E235.Cl	19-Jul-2023	26-Jul-2023	28 days	7 days	✓	26-Jul-2023	28 days	7 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE GLCB-T	E235.Cl	19-Jul-2023	26-Jul-2023	28 days	7 days	✓	26-Jul-2023	28 days	7 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE GLSE-B	E235.Cl	19-Jul-2023	26-Jul-2023	28 days	7 days	✓	26-Jul-2023	28 days	7 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE GLSE-M	E235.Cl	19-Jul-2023	26-Jul-2023	28 days	7 days	✓	26-Jul-2023	28 days	7 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE GLSE-T	E235.Cl	19-Jul-2023	26-Jul-2023	28 days	7 days	✓	26-Jul-2023	28 days	7 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE DUP1	E235.Cl	20-Jul-2023	28-Jul-2023	28 days	8 days	✓	28-Jul-2023	28 days	8 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE PN03	E378-U	20-Jul-2023	26-Jul-2023	3 days	6 days	× EHTR	27-Jul-2023	3 days	6 days	× EHTR-FM

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE GLTL-B	E378-U	20-Jul-2023	26-Jul-2023	3 days	6 days	× EHTR	27-Jul-2023	3 days	7 days	× EHTR-FM
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE GLTL-M - Gen Chem & Sulphide reduced volume	E378-U	20-Jul-2023	26-Jul-2023	3 days	6 days	× EHTR	27-Jul-2023	3 days	7 days	× EHTR-FM
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE GLTL-T	E378-U	20-Jul-2023	26-Jul-2023	3 days	6 days	× EHTR	27-Jul-2023	3 days	7 days	× EHTR-FM
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE GLWB-B	E378-U	20-Jul-2023	26-Jul-2023	3 days	6 days	× EHTR	27-Jul-2023	3 days	7 days	× EHTR-FM
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE GLWB-M	E378-U	20-Jul-2023	26-Jul-2023	3 days	6 days	× EHTR	27-Jul-2023	3 days	7 days	× EHTR-FM
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE GLWB-T - Gen Chem & Sulphide reduced volume	E378-U	20-Jul-2023	26-Jul-2023	3 days	6 days	× EHTR	27-Jul-2023	3 days	7 days	× EHTR-FM
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE GLCB-B	E378-U	19-Jul-2023	26-Jul-2023	3 days	7 days	× EHTR	27-Jul-2023	3 days	7 days	× EHTR-FM
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE GLCB-M	E378-U	19-Jul-2023	26-Jul-2023	3 days	7 days	× EHTR	27-Jul-2023	3 days	7 days	× EHTR-FM
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE GLCB-T	E378-U	19-Jul-2023	26-Jul-2023	3 days	7 days	× EHTR	27-Jul-2023	3 days	7 days	× EHTR-FM

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE GLSE-B	E378-U	19-Jul-2023	26-Jul-2023	3 days	7 days	× EHTR	27-Jul-2023	3 days	7 days	× EHTR-FM
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE GLSE-M	E378-U	19-Jul-2023	26-Jul-2023	3 days	7 days	× EHTR	27-Jul-2023	3 days	7 days	× EHTR-FM
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE GLSE-T	E378-U	19-Jul-2023	26-Jul-2023	3 days	7 days	× EHTR	27-Jul-2023	3 days	7 days	× EHTR-FM
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE DUP1	E378-U	20-Jul-2023	28-Jul-2023	3 days	8 days	× EHTR	28-Jul-2023	3 days	8 days	× EHTR-FM
Anions and Nutrients : Fluoride in Water by IC										
HDPE GLWB-B	E235.F	20-Jul-2023	26-Jul-2023	28 days	6 days	✓	26-Jul-2023	28 days	6 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE GLWB-M	E235.F	20-Jul-2023	26-Jul-2023	28 days	6 days	✓	26-Jul-2023	28 days	6 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE GLWB-T - Gen Chem & Sulphide reduced volume	E235.F	20-Jul-2023	26-Jul-2023	28 days	6 days	✓	26-Jul-2023	28 days	6 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE PN03	E235.F	20-Jul-2023	26-Jul-2023	28 days	6 days	✓	26-Jul-2023	28 days	6 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE GLTL-B	E235.F	20-Jul-2023	26-Jul-2023	28 days	6 days	✓	26-Jul-2023	28 days	7 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	*Method*	*Sampling Date*	*Extraction / Preparation*				*Analysis*			
			Preparation Date	*Holding Times* Rec	*Holding Times* Actual	*Eval*	*Analysis Date*	*Holding Times* Rec	*Holding Times* Actual	*Eval*
Anions and Nutrients : Fluoride in Water by IC										
HDPE GLTL-M - Gen Chem & Sulphide reduced volume	E235.F	20-Jul-2023	26-Jul-2023	28 days	6 days	✓	26-Jul-2023	28 days	7 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE GLTL-T	E235.F	20-Jul-2023	26-Jul-2023	28 days	6 days	✓	26-Jul-2023	28 days	7 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE GLCB-B	E235.F	19-Jul-2023	26-Jul-2023	28 days	7 days	✓	26-Jul-2023	28 days	7 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE GLCB-M	E235.F	19-Jul-2023	26-Jul-2023	28 days	7 days	✓	26-Jul-2023	28 days	7 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE GLCB-T	E235.F	19-Jul-2023	26-Jul-2023	28 days	7 days	✓	26-Jul-2023	28 days	7 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE GLSE-B	E235.F	19-Jul-2023	26-Jul-2023	28 days	7 days	✓	26-Jul-2023	28 days	7 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE GLSE-M	E235.F	19-Jul-2023	26-Jul-2023	28 days	7 days	✓	26-Jul-2023	28 days	7 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE GLSE-T	E235.F	19-Jul-2023	26-Jul-2023	28 days	7 days	✓	26-Jul-2023	28 days	7 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE DUP1	E235.F	20-Jul-2023	28-Jul-2023	28 days	8 days	✓	28-Jul-2023	28 days	8 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE GLTL-B	E235.NO3-L	20-Jul-2023	26-Jul-2023	3 days	6 days	× EHTR	26-Jul-2023	3 days	6 days	× EHTR-FM
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE GLTL-M - Gen Chem & Sulphide reduced volume	E235.NO3-L	20-Jul-2023	26-Jul-2023	3 days	6 days	× EHTR	26-Jul-2023	3 days	6 days	× EHTR-FM
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE GLTL-T	E235.NO3-L	20-Jul-2023	26-Jul-2023	3 days	6 days	× EHTR	26-Jul-2023	3 days	6 days	× EHTR-FM
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE GLWB-B	E235.NO3-L	20-Jul-2023	26-Jul-2023	3 days	6 days	× EHTR	26-Jul-2023	3 days	6 days	× EHTR-FM
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE GLWB-M	E235.NO3-L	20-Jul-2023	26-Jul-2023	3 days	6 days	× EHTR	26-Jul-2023	3 days	6 days	× EHTR-FM
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE GLWB-T - Gen Chem & Sulphide reduced volume	E235.NO3-L	20-Jul-2023	26-Jul-2023	3 days	6 days	× EHTR	26-Jul-2023	3 days	6 days	× EHTR-FM
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE PN03	E235.NO3-L	20-Jul-2023	26-Jul-2023	3 days	6 days	× EHTR	26-Jul-2023	3 days	6 days	× EHTR-FM
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE GLCB-B	E235.NO3-L	19-Jul-2023	26-Jul-2023	3 days	7 days	× EHTR	26-Jul-2023	3 days	7 days	× EHTR-FM
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE GLCB-M	E235.NO3-L	19-Jul-2023	26-Jul-2023	3 days	7 days	× EHTR	26-Jul-2023	3 days	7 days	× EHTR-FM

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE GLCB-T	E235.NO3-L	19-Jul-2023	26-Jul-2023	3 days	7 days	× EHTR	26-Jul-2023	3 days	7 days	× EHTR-FM
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE GLSE-B	E235.NO3-L	19-Jul-2023	26-Jul-2023	3 days	7 days	× EHTR	26-Jul-2023	3 days	7 days	× EHTR-FM
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE GLSE-M	E235.NO3-L	19-Jul-2023	26-Jul-2023	3 days	7 days	× EHTR	26-Jul-2023	3 days	7 days	× EHTR-FM
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE GLSE-T	E235.NO3-L	19-Jul-2023	26-Jul-2023	3 days	7 days	× EHTR	26-Jul-2023	3 days	7 days	× EHTR-FM
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE DUP1	E235.NO3-L	20-Jul-2023	28-Jul-2023	3 days	8 days	× EHTR	28-Jul-2023	3 days	8 days	× EHTR-FM
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE GLTL-B	E235.NO2-L	20-Jul-2023	26-Jul-2023	3 days	6 days	× EHTR	26-Jul-2023	3 days	6 days	× EHTR-FM
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE GLTL-M - Gen Chem & Sulphide reduced volume	E235.NO2-L	20-Jul-2023	26-Jul-2023	3 days	6 days	× EHTR	26-Jul-2023	3 days	6 days	× EHTR-FM
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE GLTL-T	E235.NO2-L	20-Jul-2023	26-Jul-2023	3 days	6 days	× EHTR	26-Jul-2023	3 days	6 days	× EHTR-FM
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE GLWB-B	E235.NO2-L	20-Jul-2023	26-Jul-2023	3 days	6 days	× EHTR	26-Jul-2023	3 days	6 days	× EHTR-FM

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE GLWB-M	E235.NO2-L	20-Jul-2023	26-Jul-2023	3 days	6 days	× EHTR	26-Jul-2023	3 days	6 days	× EHTR-FM
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE GLWB-T - Gen Chem & Sulphide reduced volume	E235.NO2-L	20-Jul-2023	26-Jul-2023	3 days	6 days	× EHTR	26-Jul-2023	3 days	6 days	× EHTR-FM
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE PN03	E235.NO2-L	20-Jul-2023	26-Jul-2023	3 days	6 days	× EHTR	26-Jul-2023	3 days	6 days	× EHTR-FM
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE GLCB-B	E235.NO2-L	19-Jul-2023	26-Jul-2023	3 days	7 days	× EHTR	26-Jul-2023	3 days	7 days	× EHTR-FM
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE GLCB-M	E235.NO2-L	19-Jul-2023	26-Jul-2023	3 days	7 days	× EHTR	26-Jul-2023	3 days	7 days	× EHTR-FM
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE GLCB-T	E235.NO2-L	19-Jul-2023	26-Jul-2023	3 days	7 days	× EHTR	26-Jul-2023	3 days	7 days	× EHTR-FM
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE GLSE-B	E235.NO2-L	19-Jul-2023	26-Jul-2023	3 days	7 days	× EHTR	26-Jul-2023	3 days	7 days	× EHTR-FM
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE GLSE-M	E235.NO2-L	19-Jul-2023	26-Jul-2023	3 days	7 days	× EHTR	26-Jul-2023	3 days	7 days	× EHTR-FM
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE GLSE-T	E235.NO2-L	19-Jul-2023	26-Jul-2023	3 days	7 days	× EHTR	26-Jul-2023	3 days	7 days	× EHTR-FM

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE DUP1	E235.NO2-L	20-Jul-2023	28-Jul-2023	3 days	8 days	× EHTR	28-Jul-2023	3 days	8 days	× EHTR-FM
Anions and Nutrients : Reactive Silica by Colourimetry										
HDPE DUP1	E392	20-Jul-2023	----	----	----		27-Jul-2023	28 days	7 days	✓
Anions and Nutrients : Reactive Silica by Colourimetry										
HDPE GLTL-B	E392	20-Jul-2023	----	----	----		27-Jul-2023	28 days	7 days	✓
Anions and Nutrients : Reactive Silica by Colourimetry										
HDPE GLTL-M - Gen Chem & Sulphide reduced volume	E392	20-Jul-2023	----	----	----		27-Jul-2023	28 days	7 days	✓
Anions and Nutrients : Reactive Silica by Colourimetry										
HDPE GLTL-T	E392	20-Jul-2023	----	----	----		27-Jul-2023	28 days	7 days	✓
Anions and Nutrients : Reactive Silica by Colourimetry										
HDPE GLWB-B	E392	20-Jul-2023	----	----	----		27-Jul-2023	28 days	7 days	✓
Anions and Nutrients : Reactive Silica by Colourimetry										
HDPE GLWB-M	E392	20-Jul-2023	----	----	----		27-Jul-2023	28 days	7 days	✓
Anions and Nutrients : Reactive Silica by Colourimetry										
HDPE GLWB-T - Gen Chem & Sulphide reduced volume	E392	20-Jul-2023	----	----	----		27-Jul-2023	28 days	7 days	✓
Anions and Nutrients : Reactive Silica by Colourimetry										
HDPE PN03	E392	20-Jul-2023	----	----	----		27-Jul-2023	28 days	7 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	*Method*	*Sampling Date*	*Extraction / Preparation*				*Analysis*			
			Preparation Date	*Holding Times*		*Eval*	*Analysis Date*	*Holding Times*		*Eval*
				Rec	*Actual*			*Rec*	*Actual*	
Anions and Nutrients : Reactive Silica by Colourimetry										
HDPE GLCB-B	E392	19-Jul-2023	----	----	----		27-Jul-2023	28 days	8 days	✓
Anions and Nutrients : Reactive Silica by Colourimetry										
HDPE GLCB-M	E392	19-Jul-2023	----	----	----		27-Jul-2023	28 days	8 days	✓
Anions and Nutrients : Reactive Silica by Colourimetry										
HDPE GLCB-T	E392	19-Jul-2023	----	----	----		27-Jul-2023	28 days	8 days	✓
Anions and Nutrients : Reactive Silica by Colourimetry										
HDPE GLSE-B	E392	19-Jul-2023	----	----	----		27-Jul-2023	28 days	8 days	✓
Anions and Nutrients : Reactive Silica by Colourimetry										
HDPE GLSE-M	E392	19-Jul-2023	----	----	----		27-Jul-2023	28 days	8 days	✓
Anions and Nutrients : Reactive Silica by Colourimetry										
HDPE GLSE-T	E392	19-Jul-2023	----	----	----		27-Jul-2023	28 days	8 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE GLWB-B	E235.SO4	20-Jul-2023	26-Jul-2023	28 days	6 days	✓	26-Jul-2023	28 days	6 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE GLWB-M	E235.SO4	20-Jul-2023	26-Jul-2023	28 days	6 days	✓	26-Jul-2023	28 days	6 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE GLWB-T - Gen Chem & Sulphide reduced volume	E235.SO4	20-Jul-2023	26-Jul-2023	28 days	6 days	✓	26-Jul-2023	28 days	6 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Sulfate in Water by IC										
HDPE PN03	E235.SO4	20-Jul-2023	26-Jul-2023	28 days	6 days	✓	26-Jul-2023	28 days	6 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE GLTL-B	E235.SO4	20-Jul-2023	26-Jul-2023	28 days	6 days	✓	26-Jul-2023	28 days	7 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE GLTL-M - Gen Chem & Sulphide reduced volume	E235.SO4	20-Jul-2023	26-Jul-2023	28 days	6 days	✓	26-Jul-2023	28 days	7 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE GLTL-T	E235.SO4	20-Jul-2023	26-Jul-2023	28 days	6 days	✓	26-Jul-2023	28 days	7 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE GLCB-B	E235.SO4	19-Jul-2023	26-Jul-2023	28 days	7 days	✓	26-Jul-2023	28 days	7 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE GLCB-M	E235.SO4	19-Jul-2023	26-Jul-2023	28 days	7 days	✓	26-Jul-2023	28 days	7 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE GLCB-T	E235.SO4	19-Jul-2023	26-Jul-2023	28 days	7 days	✓	26-Jul-2023	28 days	7 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE GLSE-B	E235.SO4	19-Jul-2023	26-Jul-2023	28 days	7 days	✓	26-Jul-2023	28 days	7 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE GLSE-M	E235.SO4	19-Jul-2023	26-Jul-2023	28 days	7 days	✓	26-Jul-2023	28 days	7 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Sulfate in Water by IC										
HDPE GLSE-T	E235.SO4	19-Jul-2023	26-Jul-2023	28 days	7 days	✓	26-Jul-2023	28 days	7 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE DUP1	E235.SO4	20-Jul-2023	28-Jul-2023	28 days	8 days	✓	28-Jul-2023	28 days	8 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (0.001 mg/L)										
Amber glass dissolved (sulfuric acid) DUP1	E375-U	20-Jul-2023	02-Aug-2023	28 days	13 days	✓	02-Aug-2023	28 days	13 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (0.001 mg/L)										
Amber glass dissolved (sulfuric acid) GLTL-B	E375-U	20-Jul-2023	02-Aug-2023	28 days	13 days	✓	02-Aug-2023	28 days	13 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (0.001 mg/L)										
Amber glass dissolved (sulfuric acid) GLTL-M - Gen Chem & Sulphide reduced volume	E375-U	20-Jul-2023	02-Aug-2023	28 days	13 days	✓	02-Aug-2023	28 days	13 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (0.001 mg/L)										
Amber glass dissolved (sulfuric acid) GLTL-T	E375-U	20-Jul-2023	02-Aug-2023	28 days	13 days	✓	02-Aug-2023	28 days	13 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (0.001 mg/L)										
Amber glass dissolved (sulfuric acid) GLWB-B	E375-U	20-Jul-2023	02-Aug-2023	28 days	13 days	✓	02-Aug-2023	28 days	13 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (0.001 mg/L)										
Amber glass dissolved (sulfuric acid) GLWB-M	E375-U	20-Jul-2023	02-Aug-2023	28 days	13 days	✓	02-Aug-2023	28 days	13 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (0.001 mg/L)										
Amber glass dissolved (sulfuric acid) GLWB-T - Gen Chem & Sulphide reduced volume	E375-U	20-Jul-2023	02-Aug-2023	28 days	13 days	✓	02-Aug-2023	28 days	13 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (0.001 mg/L)										
Amber glass dissolved (sulfuric acid) PN03	E375-U	20-Jul-2023	02-Aug-2023	28 days	13 days	✓	02-Aug-2023	28 days	13 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (0.001 mg/L)										
Amber glass dissolved (sulfuric acid) GLCB-B	E375-U	19-Jul-2023	02-Aug-2023	28 days	14 days	✓	02-Aug-2023	28 days	14 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (0.001 mg/L)										
Amber glass dissolved (sulfuric acid) GLCB-M	E375-U	19-Jul-2023	02-Aug-2023	28 days	14 days	✓	02-Aug-2023	28 days	14 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (0.001 mg/L)										
Amber glass dissolved (sulfuric acid) GLCB-T	E375-U	19-Jul-2023	02-Aug-2023	28 days	14 days	✓	02-Aug-2023	28 days	14 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (0.001 mg/L)										
Amber glass dissolved (sulfuric acid) GLSE-B	E375-U	19-Jul-2023	02-Aug-2023	28 days	14 days	✓	02-Aug-2023	28 days	14 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (0.001 mg/L)										
Amber glass dissolved (sulfuric acid) GLSE-M	E375-U	19-Jul-2023	02-Aug-2023	28 days	14 days	✓	02-Aug-2023	28 days	14 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (0.001 mg/L)										
Amber glass dissolved (sulfuric acid) GLSE-T	E375-U	19-Jul-2023	02-Aug-2023	28 days	14 days	✓	02-Aug-2023	28 days	14 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) DUP1	E318	20-Jul-2023	02-Aug-2023	28 days	13 days	✓	02-Aug-2023	28 days	13 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) GLTL-B	E318	20-Jul-2023	02-Aug-2023	28 days	13 days	✓	02-Aug-2023	28 days	13 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) GLTL-M - Gen Chem & Sulphide reduced volume	E318	20-Jul-2023	02-Aug-2023	28 days	13 days	✓	02-Aug-2023	28 days	13 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) GLTL-T	E318	20-Jul-2023	02-Aug-2023	28 days	13 days	✓	02-Aug-2023	28 days	13 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) GLWB-B	E318	20-Jul-2023	02-Aug-2023	28 days	13 days	✓	02-Aug-2023	28 days	13 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) GLWB-M	E318	20-Jul-2023	02-Aug-2023	28 days	13 days	✓	02-Aug-2023	28 days	13 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) GLWB-T - Gen Chem & Sulphide reduced volume	E318	20-Jul-2023	02-Aug-2023	28 days	13 days	✓	02-Aug-2023	28 days	13 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) PN03	E318	20-Jul-2023	02-Aug-2023	28 days	13 days	✓	02-Aug-2023	28 days	13 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) GLCB-B	E318	19-Jul-2023	02-Aug-2023	28 days	14 days	✓	02-Aug-2023	28 days	14 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) GLCB-M	E318	19-Jul-2023	02-Aug-2023	28 days	14 days	✓	02-Aug-2023	28 days	14 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) GLCB-T	E318	19-Jul-2023	02-Aug-2023	28 days	14 days	✓	02-Aug-2023	28 days	14 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) GLSE-B	E318	19-Jul-2023	02-Aug-2023	28 days	14 days	✓	02-Aug-2023	28 days	14 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) GLSE-M	E318	19-Jul-2023	02-Aug-2023	28 days	14 days	✓	02-Aug-2023	28 days	14 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) GLSE-T	E318	19-Jul-2023	02-Aug-2023	28 days	14 days	✓	02-Aug-2023	28 days	14 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.001 mg/L)										
Amber glass total (sulfuric acid) DUP1	E372-S	20-Jul-2023	02-Aug-2023	28 days	13 days	✓	02-Aug-2023	28 days	13 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.001 mg/L)										
Amber glass total (sulfuric acid) GLTL-B	E372-S	20-Jul-2023	02-Aug-2023	28 days	13 days	✓	02-Aug-2023	28 days	13 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.001 mg/L)										
Amber glass total (sulfuric acid) GLTL-M - Gen Chem & Sulphide reduced volume	E372-S	20-Jul-2023	02-Aug-2023	28 days	13 days	✓	02-Aug-2023	28 days	13 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.001 mg/L)										
Amber glass total (sulfuric acid) GLTL-T	E372-S	20-Jul-2023	02-Aug-2023	28 days	13 days	✓	02-Aug-2023	28 days	13 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.001 mg/L)										
Amber glass total (sulfuric acid) GLWB-B	E372-S	20-Jul-2023	02-Aug-2023	28 days	13 days	✓	02-Aug-2023	28 days	13 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.001 mg/L)										
Amber glass total (sulfuric acid) GLWB-M	E372-S	20-Jul-2023	02-Aug-2023	28 days	13 days	✓	02-Aug-2023	28 days	13 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Total Phosphorus by Colourimetry (0.001 mg/L)										
Amber glass total (sulfuric acid)										
GLWB-T - Gen Chem & Sulphide reduced volume	E372-S	20-Jul-2023	02-Aug-2023	28 days	13 days	✓	02-Aug-2023	28 days	13 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.001 mg/L)										
Amber glass total (sulfuric acid)										
PN03	E372-S	20-Jul-2023	02-Aug-2023	28 days	13 days	✓	02-Aug-2023	28 days	13 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.001 mg/L)										
Amber glass total (sulfuric acid)										
GLCB-B	E372-S	19-Jul-2023	02-Aug-2023	28 days	14 days	✓	02-Aug-2023	28 days	14 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.001 mg/L)										
Amber glass total (sulfuric acid)										
GLCB-M	E372-S	19-Jul-2023	02-Aug-2023	28 days	14 days	✓	02-Aug-2023	28 days	14 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.001 mg/L)										
Amber glass total (sulfuric acid)										
GLCB-T	E372-S	19-Jul-2023	02-Aug-2023	28 days	14 days	✓	02-Aug-2023	28 days	14 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.001 mg/L)										
Amber glass total (sulfuric acid)										
GLSE-B	E372-S	19-Jul-2023	02-Aug-2023	28 days	14 days	✓	02-Aug-2023	28 days	14 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.001 mg/L)										
Amber glass total (sulfuric acid)										
GLSE-M	E372-S	19-Jul-2023	02-Aug-2023	28 days	14 days	✓	02-Aug-2023	28 days	14 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.001 mg/L)										
Amber glass total (sulfuric acid)										
GLSE-T	E372-S	19-Jul-2023	02-Aug-2023	28 days	14 days	✓	02-Aug-2023	28 days	14 days	✓
Cyanides : Free Cyanide										
UV-inhibited HDPE - total (sodium hydroxide)										
DUP1	E339	20-Jul-2023	31-Jul-2023	14 days	11 days	✓	31-Jul-2023	14 days	11 days	✓

Matrix: **Water**

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Analyte Group : Analytical Method / Container / Client Sample ID(s)	*Method*	*Sampling Date*	*Extraction / Preparation*				*Analysis*			
			Preparation Date	*Holding Times* Rec	*Holding Times* Actual	*Eval*	*Analysis Date*	*Holding Times* Rec	*Holding Times* Actual	*Eval*
Cyanides : Free Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) GLTL-B	E339	20-Jul-2023	31-Jul-2023	14 days	11 days	✓	31-Jul-2023	14 days	11 days	✓
Cyanides : Free Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) GLTL-M - Gen Chem & Sulphide reduced volume	E339	20-Jul-2023	31-Jul-2023	14 days	11 days	✓	31-Jul-2023	14 days	11 days	✓
Cyanides : Free Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) GLTL-T	E339	20-Jul-2023	31-Jul-2023	14 days	11 days	✓	31-Jul-2023	14 days	11 days	✓
Cyanides : Free Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) GLWB-B	E339	20-Jul-2023	31-Jul-2023	14 days	11 days	✓	31-Jul-2023	14 days	11 days	✓
Cyanides : Free Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) GLWB-M	E339	20-Jul-2023	31-Jul-2023	14 days	11 days	✓	31-Jul-2023	14 days	11 days	✓
Cyanides : Free Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) GLWB-T - Gen Chem & Sulphide reduced volume	E339	20-Jul-2023	31-Jul-2023	14 days	11 days	✓	31-Jul-2023	14 days	11 days	✓
Cyanides : Free Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) PN03	E339	20-Jul-2023	31-Jul-2023	14 days	11 days	✓	31-Jul-2023	14 days	11 days	✓
Cyanides : Free Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) GLCB-B	E339	19-Jul-2023	31-Jul-2023	14 days	12 days	✓	31-Jul-2023	14 days	12 days	✓
Cyanides : Free Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) GLCB-M	E339	19-Jul-2023	31-Jul-2023	14 days	12 days	✓	31-Jul-2023	14 days	12 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : Free Cyanide										
UV-inhibited HDPE - total (sodium hydroxide)										
GLCB-T	E339	19-Jul-2023	31-Jul-2023	14 days	12 days	✓	31-Jul-2023	14 days	12 days	✓
Cyanides : Free Cyanide										
UV-inhibited HDPE - total (sodium hydroxide)										
GLSE-B	E339	19-Jul-2023	31-Jul-2023	14 days	12 days	✓	31-Jul-2023	14 days	12 days	✓
Cyanides : Free Cyanide										
UV-inhibited HDPE - total (sodium hydroxide)										
GLSE-M	E339	19-Jul-2023	31-Jul-2023	14 days	12 days	✓	31-Jul-2023	14 days	12 days	✓
Cyanides : Free Cyanide										
UV-inhibited HDPE - total (sodium hydroxide)										
GLSE-T	E339	19-Jul-2023	31-Jul-2023	14 days	12 days	✓	31-Jul-2023	14 days	12 days	✓
Cyanides : Total Cyanide										
UV-inhibited HDPE - total (sodium hydroxide)										
DUP1	E333	20-Jul-2023	31-Jul-2023	14 days	11 days	✓	31-Jul-2023	14 days	11 days	✓
Cyanides : Total Cyanide										
UV-inhibited HDPE - total (sodium hydroxide)										
GLTL-B	E333	20-Jul-2023	31-Jul-2023	14 days	11 days	✓	31-Jul-2023	14 days	11 days	✓
Cyanides : Total Cyanide										
UV-inhibited HDPE - total (sodium hydroxide)										
GLTL-M - Gen Chem & Sulphide reduced volume	E333	20-Jul-2023	31-Jul-2023	14 days	11 days	✓	31-Jul-2023	14 days	11 days	✓
Cyanides : Total Cyanide										
UV-inhibited HDPE - total (sodium hydroxide)										
GLTL-T	E333	20-Jul-2023	31-Jul-2023	14 days	11 days	✓	31-Jul-2023	14 days	11 days	✓
Cyanides : Total Cyanide										
UV-inhibited HDPE - total (sodium hydroxide)										
GLWB-B	E333	20-Jul-2023	31-Jul-2023	14 days	11 days	✓	31-Jul-2023	14 days	11 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : Total Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) GLWB-M	E333	20-Jul-2023	31-Jul-2023	14 days	11 days	✓	31-Jul-2023	14 days	11 days	✓
Cyanides : Total Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) GLWB-T - Gen Chem & Sulphide reduced volume	E333	20-Jul-2023	31-Jul-2023	14 days	11 days	✓	31-Jul-2023	14 days	11 days	✓
Cyanides : Total Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) PN03	E333	20-Jul-2023	31-Jul-2023	14 days	11 days	✓	31-Jul-2023	14 days	11 days	✓
Cyanides : Total Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) GLCB-B	E333	19-Jul-2023	31-Jul-2023	14 days	12 days	✓	31-Jul-2023	14 days	12 days	✓
Cyanides : Total Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) GLCB-M	E333	19-Jul-2023	31-Jul-2023	14 days	12 days	✓	31-Jul-2023	14 days	12 days	✓
Cyanides : Total Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) GLCB-T	E333	19-Jul-2023	31-Jul-2023	14 days	12 days	✓	31-Jul-2023	14 days	12 days	✓
Cyanides : Total Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) GLSE-B	E333	19-Jul-2023	31-Jul-2023	14 days	12 days	✓	31-Jul-2023	14 days	12 days	✓
Cyanides : Total Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) GLSE-M	E333	19-Jul-2023	31-Jul-2023	14 days	12 days	✓	31-Jul-2023	14 days	12 days	✓
Cyanides : Total Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) GLSE-T	E333	19-Jul-2023	31-Jul-2023	14 days	12 days	✓	31-Jul-2023	14 days	12 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : WAD Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) DUP1	E336	20-Jul-2023	31-Jul-2023	14 days	11 days	✓	31-Jul-2023	14 days	11 days	✓
Cyanides : WAD Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) GLTL-B	E336	20-Jul-2023	31-Jul-2023	14 days	11 days	✓	31-Jul-2023	14 days	11 days	✓
Cyanides : WAD Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) GLTL-M - Gen Chem & Sulphide reduced volume	E336	20-Jul-2023	31-Jul-2023	14 days	11 days	✓	31-Jul-2023	14 days	11 days	✓
Cyanides : WAD Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) GLTL-T	E336	20-Jul-2023	31-Jul-2023	14 days	11 days	✓	31-Jul-2023	14 days	11 days	✓
Cyanides : WAD Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) GLWB-B	E336	20-Jul-2023	31-Jul-2023	14 days	11 days	✓	31-Jul-2023	14 days	11 days	✓
Cyanides : WAD Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) GLWB-M	E336	20-Jul-2023	31-Jul-2023	14 days	11 days	✓	31-Jul-2023	14 days	11 days	✓
Cyanides : WAD Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) GLWB-T - Gen Chem & Sulphide reduced volume	E336	20-Jul-2023	31-Jul-2023	14 days	11 days	✓	31-Jul-2023	14 days	11 days	✓
Cyanides : WAD Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) PN03	E336	20-Jul-2023	31-Jul-2023	14 days	11 days	✓	31-Jul-2023	14 days	11 days	✓
Cyanides : WAD Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) GLCB-B	E336	19-Jul-2023	31-Jul-2023	14 days	12 days	✓	31-Jul-2023	14 days	12 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : WAD Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) GLCB-M	E336	19-Jul-2023	31-Jul-2023	14 days	12 days	✓	31-Jul-2023	14 days	12 days	✓
Cyanides : WAD Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) GLCB-T	E336	19-Jul-2023	31-Jul-2023	14 days	12 days	✓	31-Jul-2023	14 days	12 days	✓
Cyanides : WAD Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) GLSE-B	E336	19-Jul-2023	31-Jul-2023	14 days	12 days	✓	31-Jul-2023	14 days	12 days	✓
Cyanides : WAD Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) GLSE-M	E336	19-Jul-2023	31-Jul-2023	14 days	12 days	✓	31-Jul-2023	14 days	12 days	✓
Cyanides : WAD Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) GLSE-T	E336	19-Jul-2023	31-Jul-2023	14 days	12 days	✓	31-Jul-2023	14 days	12 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - dissolved (lab preserved) DUP1	E509-L	20-Jul-2023	01-Aug-2023	28 days	12 days	✓	01-Aug-2023	28 days	0 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - dissolved (lab preserved) GLTL-B	E509-L	20-Jul-2023	01-Aug-2023	28 days	12 days	✓	01-Aug-2023	28 days	0 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - dissolved (lab preserved) GLTL-M - Gen Chem & Sulphide reduced volume	E509-L	20-Jul-2023	01-Aug-2023	28 days	12 days	✓	01-Aug-2023	28 days	0 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - dissolved (lab preserved) GLTL-T	E509-L	20-Jul-2023	01-Aug-2023	28 days	12 days	✓	01-Aug-2023	28 days	0 days	✓

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Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Dissolved Metals : Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - dissolved (lab preserved) GLWB-B	E509-L	20-Jul-2023	01-Aug-2023	28 days	12 days	✓	01-Aug-2023	28 days	0 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - dissolved (lab preserved) GLWB-M	E509-L	20-Jul-2023	01-Aug-2023	28 days	12 days	✓	01-Aug-2023	28 days	0 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - dissolved (lab preserved) GLWB-T - Gen Chem & Sulphide reduced volume	E509-L	20-Jul-2023	01-Aug-2023	28 days	12 days	✓	01-Aug-2023	28 days	0 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - dissolved (lab preserved) PN03	E509-L	20-Jul-2023	01-Aug-2023	28 days	12 days	✓	01-Aug-2023	28 days	0 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - dissolved (lab preserved) GLCB-B	E509-L	19-Jul-2023	01-Aug-2023	28 days	13 days	✓	01-Aug-2023	28 days	0 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - dissolved (lab preserved) GLCB-M	E509-L	19-Jul-2023	01-Aug-2023	28 days	13 days	✓	01-Aug-2023	28 days	0 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - dissolved (lab preserved) GLCB-T	E509-L	19-Jul-2023	01-Aug-2023	28 days	13 days	✓	01-Aug-2023	28 days	0 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - dissolved (lab preserved) GLSE-B	E509-L	19-Jul-2023	01-Aug-2023	28 days	13 days	✓	01-Aug-2023	28 days	0 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - dissolved (lab preserved) GLSE-M	E509-L	19-Jul-2023	01-Aug-2023	28 days	13 days	✓	01-Aug-2023	28 days	0 days	✓

Matrix: **Water**

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Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Dissolved Metals : Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - dissolved (lab preserved)										
GLSE-T	E509-L	19-Jul-2023	01-Aug-2023	28 days	13 days	✓	01-Aug-2023	28 days	0 days	✓
Dissolved Metals : Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine Samples)										
HDPE - dissolved (lab preserved)										
DUP1	E465	20-Jul-2023	28-Jul-2023	180 days	8 days	✓	31-Jul-2023	180 days	11 days	✓
Dissolved Metals : Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine Samples)										
HDPE - dissolved (lab preserved)										
GLTL-B	E465	20-Jul-2023	28-Jul-2023	180 days	8 days	✓	31-Jul-2023	180 days	11 days	✓
Dissolved Metals : Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine Samples)										
HDPE - dissolved (lab preserved)										
GLTL-M - Gen Chem & Sulphide reduced volume	E465	20-Jul-2023	28-Jul-2023	180 days	8 days	✓	31-Jul-2023	180 days	11 days	✓
Dissolved Metals : Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine Samples)										
HDPE - dissolved (lab preserved)										
GLTL-T	E465	20-Jul-2023	28-Jul-2023	180 days	8 days	✓	31-Jul-2023	180 days	11 days	✓
Dissolved Metals : Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine Samples)										
HDPE - dissolved (lab preserved)										
GLWB-B	E465	20-Jul-2023	28-Jul-2023	180 days	8 days	✓	31-Jul-2023	180 days	11 days	✓
Dissolved Metals : Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine Samples)										
HDPE - dissolved (lab preserved)										
GLWB-M	E465	20-Jul-2023	28-Jul-2023	180 days	8 days	✓	31-Jul-2023	180 days	11 days	✓
Dissolved Metals : Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine Samples)										
HDPE - dissolved (lab preserved)										
GLWB-T - Gen Chem & Sulphide reduced volume	E465	20-Jul-2023	28-Jul-2023	180 days	8 days	✓	31-Jul-2023	180 days	11 days	✓
Dissolved Metals : Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine Samples)										
HDPE - dissolved (lab preserved)										
PN03	E465	20-Jul-2023	28-Jul-2023	180 days	8 days	✓	31-Jul-2023	180 days	11 days	✓

Matrix: **Water**

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Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Dissolved Metals : Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine Samples)										
HDPE - dissolved (lab preserved)										
GLCB-B	E465	19-Jul-2023	28-Jul-2023	180 days	9 days	✓	31-Jul-2023	180 days	12 days	✓
Dissolved Metals : Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine Samples)										
HDPE - dissolved (lab preserved)										
GLCB-M	E465	19-Jul-2023	28-Jul-2023	180 days	9 days	✓	31-Jul-2023	180 days	12 days	✓
Dissolved Metals : Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine Samples)										
HDPE - dissolved (lab preserved)										
GLCB-T	E465	19-Jul-2023	28-Jul-2023	180 days	9 days	✓	31-Jul-2023	180 days	12 days	✓
Dissolved Metals : Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine Samples)										
HDPE - dissolved (lab preserved)										
GLSE-B	E465	19-Jul-2023	28-Jul-2023	180 days	9 days	✓	31-Jul-2023	180 days	12 days	✓
Dissolved Metals : Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine Samples)										
HDPE - dissolved (lab preserved)										
GLSE-M	E465	19-Jul-2023	28-Jul-2023	180 days	9 days	✓	31-Jul-2023	180 days	12 days	✓
Dissolved Metals : Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine Samples)										
HDPE - dissolved (lab preserved)										
GLSE-T	E465	19-Jul-2023	28-Jul-2023	180 days	9 days	✓	31-Jul-2023	180 days	12 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid)										
DUP1	E358-L	20-Jul-2023	09-Aug-2023	28 days	20 days	✓	10-Aug-2023	28 days	21 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid)										
GLTL-B	E358-L	20-Jul-2023	09-Aug-2023	28 days	20 days	✓	10-Aug-2023	28 days	21 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid)										
GLTL-M - Gen Chem & Sulphide reduced volume	E358-L	20-Jul-2023	09-Aug-2023	28 days	20 days	✓	10-Aug-2023	28 days	21 days	✓

Matrix: **Water**

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Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) GLTL-T	E358-L	20-Jul-2023	09-Aug-2023	28 days	20 days	✓	10-Aug-2023	28 days	21 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) GLWB-B	E358-L	20-Jul-2023	09-Aug-2023	28 days	20 days	✓	10-Aug-2023	28 days	21 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) GLWB-M	E358-L	20-Jul-2023	09-Aug-2023	28 days	20 days	✓	10-Aug-2023	28 days	21 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) GLWB-T - Gen Chem & Sulphide reduced volume	E358-L	20-Jul-2023	09-Aug-2023	28 days	20 days	✓	10-Aug-2023	28 days	21 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) PN03	E358-L	20-Jul-2023	09-Aug-2023	28 days	20 days	✓	10-Aug-2023	28 days	21 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) GLCB-B	E358-L	19-Jul-2023	09-Aug-2023	28 days	21 days	✓	10-Aug-2023	28 days	22 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) GLCB-M	E358-L	19-Jul-2023	09-Aug-2023	28 days	21 days	✓	10-Aug-2023	28 days	22 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) GLCB-T	E358-L	19-Jul-2023	09-Aug-2023	28 days	21 days	✓	10-Aug-2023	28 days	22 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) GLSE-B	E358-L	19-Jul-2023	09-Aug-2023	28 days	21 days	✓	10-Aug-2023	28 days	22 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	*Method*	*Sampling Date*	*Extraction / Preparation*				*Analysis*			
			Preparation Date	*Holding Times* Rec	*Holding Times* Actual	*Eval*	*Analysis Date*	*Holding Times* Rec	*Holding Times* Actual	*Eval*
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) GLSE-M	E358-L	19-Jul-2023	09-Aug-2023	28 days	21 days	✓	10-Aug-2023	28 days	22 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) GLSE-T	E358-L	19-Jul-2023	09-Aug-2023	28 days	21 days	✓	10-Aug-2023	28 days	22 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) DUP1	E355-L	20-Jul-2023	01-Aug-2023	28 days	12 days	✓	01-Aug-2023	28 days	12 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) GLWB-B	E355-L	20-Jul-2023	01-Aug-2023	28 days	12 days	✓	01-Aug-2023	28 days	12 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) PN03	E355-L	20-Jul-2023	01-Aug-2023	28 days	12 days	✓	01-Aug-2023	28 days	12 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) GLTL-B	E355-L	20-Jul-2023	28-Jul-2023	28 days	8 days	✓	28-Jul-2023	28 days	8 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) GLTL-M - Gen Chem & Sulphide reduced volume	E355-L	20-Jul-2023	28-Jul-2023	28 days	8 days	✓	28-Jul-2023	28 days	8 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) GLTL-T	E355-L	20-Jul-2023	28-Jul-2023	28 days	8 days	✓	28-Jul-2023	28 days	8 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) GLWB-M	E355-L	20-Jul-2023	28-Jul-2023	28 days	8 days	✓	28-Jul-2023	28 days	8 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) GLWB-T - Gen Chem & Sulphide reduced volume	E355-L	20-Jul-2023	28-Jul-2023	28 days	8 days	✓	28-Jul-2023	28 days	8 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) GLCB-B	E355-L	19-Jul-2023	28-Jul-2023	28 days	9 days	✓	28-Jul-2023	28 days	9 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) GLCB-M	E355-L	19-Jul-2023	28-Jul-2023	28 days	9 days	✓	28-Jul-2023	28 days	9 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) GLCB-T	E355-L	19-Jul-2023	28-Jul-2023	28 days	9 days	✓	28-Jul-2023	28 days	9 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) GLSE-B	E355-L	19-Jul-2023	28-Jul-2023	28 days	9 days	✓	28-Jul-2023	28 days	9 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) GLSE-M	E355-L	19-Jul-2023	28-Jul-2023	28 days	9 days	✓	28-Jul-2023	28 days	9 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) GLSE-T	E355-L	19-Jul-2023	28-Jul-2023	28 days	9 days	✓	28-Jul-2023	28 days	9 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE GLTL-B	E290	20-Jul-2023	26-Jul-2023	14 days	6 days	✓	26-Jul-2023	14 days	6 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE GLTL-M - Gen Chem & Sulphide reduced volume	E290	20-Jul-2023	26-Jul-2023	14 days	6 days	✓	26-Jul-2023	14 days	6 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Alkalinity Species by Titration										
HDPE GLTL-T	E290	20-Jul-2023	26-Jul-2023	14 days	6 days	✓	26-Jul-2023	14 days	6 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE GLWB-B	E290	20-Jul-2023	26-Jul-2023	14 days	6 days	✓	26-Jul-2023	14 days	6 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE GLWB-M	E290	20-Jul-2023	26-Jul-2023	14 days	6 days	✓	26-Jul-2023	14 days	6 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE GLWB-T - Gen Chem & Sulphide reduced volume	E290	20-Jul-2023	26-Jul-2023	14 days	6 days	✓	26-Jul-2023	14 days	6 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE PN03	E290	20-Jul-2023	26-Jul-2023	14 days	6 days	✓	26-Jul-2023	14 days	6 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE GLCB-B	E290	19-Jul-2023	26-Jul-2023	14 days	7 days	✓	26-Jul-2023	14 days	7 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE GLCB-M	E290	19-Jul-2023	26-Jul-2023	14 days	7 days	✓	26-Jul-2023	14 days	7 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE GLCB-T	E290	19-Jul-2023	26-Jul-2023	14 days	7 days	✓	26-Jul-2023	14 days	7 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE GLSE-B	E290	19-Jul-2023	26-Jul-2023	14 days	7 days	✓	26-Jul-2023	14 days	7 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Alkalinity Species by Titration										
HDPE GLSE-M	E290	19-Jul-2023	26-Jul-2023	14 days	7 days	✓	26-Jul-2023	14 days	7 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE GLSE-T	E290	19-Jul-2023	26-Jul-2023	14 days	7 days	✓	26-Jul-2023	14 days	7 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE DUP1	E290	20-Jul-2023	28-Jul-2023	14 days	8 days	✓	28-Jul-2023	14 days	8 days	✓
Physical Tests : Conductivity in Water										
HDPE GLTL-B	E100	20-Jul-2023	26-Jul-2023	28 days	6 days	✓	26-Jul-2023	28 days	6 days	✓
Physical Tests : Conductivity in Water										
HDPE GLTL-M - Gen Chem & Sulphide reduced volume	E100	20-Jul-2023	26-Jul-2023	28 days	6 days	✓	26-Jul-2023	28 days	6 days	✓
Physical Tests : Conductivity in Water										
HDPE GLTL-T	E100	20-Jul-2023	26-Jul-2023	28 days	6 days	✓	26-Jul-2023	28 days	6 days	✓
Physical Tests : Conductivity in Water										
HDPE GLWB-B	E100	20-Jul-2023	26-Jul-2023	28 days	6 days	✓	26-Jul-2023	28 days	6 days	✓
Physical Tests : Conductivity in Water										
HDPE GLWB-M	E100	20-Jul-2023	26-Jul-2023	28 days	6 days	✓	26-Jul-2023	28 days	6 days	✓
Physical Tests : Conductivity in Water										
HDPE GLWB-T - Gen Chem & Sulphide reduced volume	E100	20-Jul-2023	26-Jul-2023	28 days	6 days	✓	26-Jul-2023	28 days	6 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Conductivity in Water										
HDPE PN03	E100	20-Jul-2023	26-Jul-2023	28 days	6 days	✓	26-Jul-2023	28 days	6 days	✓
Physical Tests : Conductivity in Water										
HDPE GLCB-B	E100	19-Jul-2023	26-Jul-2023	28 days	7 days	✓	26-Jul-2023	28 days	7 days	✓
Physical Tests : Conductivity in Water										
HDPE GLCB-M	E100	19-Jul-2023	26-Jul-2023	28 days	7 days	✓	26-Jul-2023	28 days	7 days	✓
Physical Tests : Conductivity in Water										
HDPE GLCB-T	E100	19-Jul-2023	26-Jul-2023	28 days	7 days	✓	26-Jul-2023	28 days	7 days	✓
Physical Tests : Conductivity in Water										
HDPE GLSE-B	E100	19-Jul-2023	26-Jul-2023	28 days	7 days	✓	26-Jul-2023	28 days	7 days	✓
Physical Tests : Conductivity in Water										
HDPE GLSE-M	E100	19-Jul-2023	26-Jul-2023	28 days	7 days	✓	26-Jul-2023	28 days	7 days	✓
Physical Tests : Conductivity in Water										
HDPE GLSE-T	E100	19-Jul-2023	26-Jul-2023	28 days	7 days	✓	26-Jul-2023	28 days	7 days	✓
Physical Tests : Conductivity in Water										
HDPE DUP1	E100	20-Jul-2023	28-Jul-2023	28 days	8 days	✓	28-Jul-2023	28 days	8 days	✓
Physical Tests : pH by Meter										
HDPE PN03	E108	20-Jul-2023	26-Jul-2023	0.25 hrs	147 hrs	× EHTR-FM	26-Jul-2023	0.25 hrs	147 hrs	× EHTR-FM

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : pH by Meter										
HDPE GLWB-B	E108	20-Jul-2023	26-Jul-2023	0.25 hrs	149 hrs	× EHTR-FM	26-Jul-2023	0.25 hrs	149 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE GLWB-M	E108	20-Jul-2023	26-Jul-2023	0.25 hrs	150 hrs	× EHTR-FM	26-Jul-2023	0.25 hrs	150 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE GLWB-T - Gen Chem & Sulphide reduced volume	E108	20-Jul-2023	26-Jul-2023	0.25 hrs	150 hrs	× EHTR-FM	26-Jul-2023	0.25 hrs	150 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE GLTL-B	E108	20-Jul-2023	26-Jul-2023	0.25 hrs	152 hrs	× EHTR-FM	26-Jul-2023	0.25 hrs	152 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE GLTL-M - Gen Chem & Sulphide reduced volume	E108	20-Jul-2023	26-Jul-2023	0.25 hrs	152 hrs	× EHTR-FM	26-Jul-2023	0.25 hrs	152 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE GLTL-T	E108	20-Jul-2023	26-Jul-2023	0.25 hrs	152 hrs	× EHTR-FM	26-Jul-2023	0.25 hrs	152 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE GLCB-B	E108	19-Jul-2023	26-Jul-2023	0.25 hrs	170 hrs	× EHTR-FM	26-Jul-2023	0.25 hrs	170 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE GLCB-M	E108	19-Jul-2023	26-Jul-2023	0.25 hrs	170 hrs	× EHTR-FM	26-Jul-2023	0.25 hrs	170 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE GLCB-T	E108	19-Jul-2023	26-Jul-2023	0.25 hrs	170 hrs	× EHTR-FM	26-Jul-2023	0.25 hrs	170 hrs	× EHTR-FM

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : pH by Meter										
HDPE GLSE-B	E108	19-Jul-2023	26-Jul-2023	0.25 hrs	171 hrs	× EHTR-FM	26-Jul-2023	0.25 hrs	171 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE GLSE-M	E108	19-Jul-2023	26-Jul-2023	0.25 hrs	171 hrs	× EHTR-FM	26-Jul-2023	0.25 hrs	171 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE GLSE-T	E108	19-Jul-2023	26-Jul-2023	0.25 hrs	171 hrs	× EHTR-FM	26-Jul-2023	0.25 hrs	171 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE DUP1	E108	20-Jul-2023	28-Jul-2023	0.25 hrs	195 hrs	× EHTR-FM	28-Jul-2023	0.25 hrs	195 hrs	× EHTR-FM
Physical Tests : TSS by Gravimetry										
HDPE DUP1	E160	20-Jul-2023	----	----	----		27-Jul-2023	7 days	6 days	✓
Physical Tests : TSS by Gravimetry										
HDPE PN03	E160	20-Jul-2023	----	----	----		27-Jul-2023	7 days	6 days	✓
Physical Tests : TSS by Gravimetry										
HDPE GLCB-B	E160	19-Jul-2023	----	----	----		26-Jul-2023	7 days	7 days	✓
Physical Tests : TSS by Gravimetry										
HDPE GLCB-M	E160	19-Jul-2023	----	----	----		26-Jul-2023	7 days	7 days	✓
Physical Tests : TSS by Gravimetry										
HDPE GLCB-T	E160	19-Jul-2023	----	----	----		26-Jul-2023	7 days	7 days	✓

Matrix: **Water**

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Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : TSS by Gravimetry										
HDPE GLSE-B	E160	19-Jul-2023	----	----	----		26-Jul-2023	7 days	7 days	✓
Physical Tests : TSS by Gravimetry										
HDPE GLSE-M	E160	19-Jul-2023	----	----	----		26-Jul-2023	7 days	7 days	✓
Physical Tests : TSS by Gravimetry										
HDPE GLSE-T	E160	19-Jul-2023	----	----	----		26-Jul-2023	7 days	7 days	✓
Physical Tests : TSS by Gravimetry										
HDPE GLTL-B	E160	20-Jul-2023	----	----	----		27-Jul-2023	7 days	7 days	✓
Physical Tests : TSS by Gravimetry										
HDPE GLTL-M - Gen Chem & Sulphide reduced volume	E160	20-Jul-2023	----	----	----		27-Jul-2023	7 days	7 days	✓
Physical Tests : TSS by Gravimetry										
HDPE GLTL-T	E160	20-Jul-2023	----	----	----		27-Jul-2023	7 days	7 days	✓
Physical Tests : TSS by Gravimetry										
HDPE GLWB-B	E160	20-Jul-2023	----	----	----		27-Jul-2023	7 days	7 days	✓
Physical Tests : TSS by Gravimetry										
HDPE GLWB-M	E160	20-Jul-2023	----	----	----		27-Jul-2023	7 days	7 days	✓
Physical Tests : TSS by Gravimetry										
HDPE GLWB-T - Gen Chem & Sulphide reduced volume	E160	20-Jul-2023	----	----	----		27-Jul-2023	7 days	7 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Total Metals (Undigested) : Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine Samples)										
Pre-cleaned HDPE - total (lab preserved) DUP1	E466	20-Jul-2023	28-Jul-2023	180 days	8 days	✓	31-Jul-2023	180 days	11 days	✓
Total Metals (Undigested) : Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine Samples)										
Pre-cleaned HDPE - total (lab preserved) GLTL-B	E466	20-Jul-2023	28-Jul-2023	180 days	8 days	✓	31-Jul-2023	180 days	11 days	✓
Total Metals (Undigested) : Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine Samples)										
Pre-cleaned HDPE - total (lab preserved) GLTL-M - Gen Chem & Sulphide reduced volume	E466	20-Jul-2023	28-Jul-2023	180 days	8 days	✓	31-Jul-2023	180 days	11 days	✓
Total Metals (Undigested) : Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine Samples)										
Pre-cleaned HDPE - total (lab preserved) GLTL-T	E466	20-Jul-2023	28-Jul-2023	180 days	8 days	✓	31-Jul-2023	180 days	11 days	✓
Total Metals (Undigested) : Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine Samples)										
Pre-cleaned HDPE - total (lab preserved) GLWB-B	E466	20-Jul-2023	28-Jul-2023	180 days	8 days	✓	31-Jul-2023	180 days	11 days	✓
Total Metals (Undigested) : Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine Samples)										
Pre-cleaned HDPE - total (lab preserved) GLWB-M	E466	20-Jul-2023	28-Jul-2023	180 days	8 days	✓	31-Jul-2023	180 days	11 days	✓
Total Metals (Undigested) : Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine Samples)										
Pre-cleaned HDPE - total (lab preserved) GLWB-T - Gen Chem & Sulphide reduced volume	E466	20-Jul-2023	28-Jul-2023	180 days	8 days	✓	31-Jul-2023	180 days	11 days	✓
Total Metals (Undigested) : Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine Samples)										
Pre-cleaned HDPE - total (lab preserved) PN03	E466	20-Jul-2023	28-Jul-2023	180 days	8 days	✓	31-Jul-2023	180 days	11 days	✓
Total Metals (Undigested) : Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine Samples)										
Pre-cleaned HDPE - total (lab preserved) GLCB-B	E466	19-Jul-2023	28-Jul-2023	180 days	9 days	✓	31-Jul-2023	180 days	12 days	✓

Matrix: **Water**

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Analyte Group : Analytical Method / Container / Client Sample ID(s)	*Method*	*Sampling Date*	*Extraction / Preparation*				*Analysis*			
			Preparation Date	*Holding Times* Rec	*Holding Times* Actual	*Eval*	*Analysis Date*	*Holding Times* Rec	*Holding Times* Actual	*Eval*
Total Metals (Undigested) : Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine Samples)										
Pre-cleaned HDPE - total (lab preserved) GLCB-M	E466	19-Jul-2023	28-Jul-2023	180 days	9 days	✓	31-Jul-2023	180 days	12 days	✓
Total Metals (Undigested) : Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine Samples)										
Pre-cleaned HDPE - total (lab preserved) GLCB-T	E466	19-Jul-2023	28-Jul-2023	180 days	9 days	✓	31-Jul-2023	180 days	12 days	✓
Total Metals (Undigested) : Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine Samples)										
Pre-cleaned HDPE - total (lab preserved) GLSE-B	E466	19-Jul-2023	28-Jul-2023	180 days	9 days	✓	31-Jul-2023	180 days	12 days	✓
Total Metals (Undigested) : Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine Samples)										
Pre-cleaned HDPE - total (lab preserved) GLSE-M	E466	19-Jul-2023	28-Jul-2023	180 days	9 days	✓	31-Jul-2023	180 days	12 days	✓
Total Metals (Undigested) : Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine Samples)										
Pre-cleaned HDPE - total (lab preserved) GLSE-T	E466	19-Jul-2023	28-Jul-2023	180 days	9 days	✓	31-Jul-2023	180 days	12 days	✓
Total Metals : Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - total (lab preserved) DUP1	E508-L	20-Jul-2023	02-Aug-2023	28 days	13 days	✓	02-Aug-2023	28 days	0 days	✓
Total Metals : Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - total (lab preserved) GLTL-B	E508-L	20-Jul-2023	02-Aug-2023	28 days	13 days	✓	02-Aug-2023	28 days	0 days	✓
Total Metals : Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - total (lab preserved) GLTL-M - Gen Chem & Sulphide reduced volume	E508-L	20-Jul-2023	02-Aug-2023	28 days	13 days	✓	02-Aug-2023	28 days	0 days	✓
Total Metals : Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - total (lab preserved) GLTL-T	E508-L	20-Jul-2023	02-Aug-2023	28 days	13 days	✓	02-Aug-2023	28 days	0 days	✓

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			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Total Metals : Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - total (lab preserved) GLWB-B	E508-L	20-Jul-2023	02-Aug-2023	28 days	13 days	✓	02-Aug-2023	28 days	0 days	✓
Total Metals : Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - total (lab preserved) GLWB-M	E508-L	20-Jul-2023	02-Aug-2023	28 days	13 days	✓	02-Aug-2023	28 days	0 days	✓
Total Metals : Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - total (lab preserved) GLWB-T - Gen Chem & Sulphide reduced volume	E508-L	20-Jul-2023	02-Aug-2023	28 days	13 days	✓	02-Aug-2023	28 days	0 days	✓
Total Metals : Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - total (lab preserved) PN03	E508-L	20-Jul-2023	02-Aug-2023	28 days	13 days	✓	02-Aug-2023	28 days	0 days	✓
Total Metals : Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - total (lab preserved) GLCB-B	E508-L	19-Jul-2023	02-Aug-2023	28 days	14 days	✓	02-Aug-2023	28 days	0 days	✓
Total Metals : Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - total (lab preserved) GLCB-M	E508-L	19-Jul-2023	02-Aug-2023	28 days	14 days	✓	02-Aug-2023	28 days	0 days	✓
Total Metals : Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - total (lab preserved) GLCB-T	E508-L	19-Jul-2023	02-Aug-2023	28 days	14 days	✓	02-Aug-2023	28 days	0 days	✓
Total Metals : Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - total (lab preserved) GLSE-B	E508-L	19-Jul-2023	02-Aug-2023	28 days	14 days	✓	02-Aug-2023	28 days	0 days	✓
Total Metals : Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - total (lab preserved) GLSE-M	E508-L	19-Jul-2023	02-Aug-2023	28 days	14 days	✓	02-Aug-2023	28 days	0 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Total Metals : Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - total (lab preserved)										
GLSE-T	E508-L	19-Jul-2023	02-Aug-2023	28 days	14 days	✓	02-Aug-2023	28 days	0 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide)										
DUP1	E395	20-Jul-2023	----	----	----		28-Jul-2023	7 days	7 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide)										
PN03	E395	20-Jul-2023	----	----	----		28-Jul-2023	7 days	7 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide)										
GLCB-B	E395	19-Jul-2023	----	----	----		28-Jul-2023	7 days	8 days	× EHT
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide)										
GLCB-M	E395	19-Jul-2023	----	----	----		28-Jul-2023	7 days	8 days	× EHT
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide)										
GLCB-T	E395	19-Jul-2023	----	----	----		28-Jul-2023	7 days	8 days	× EHT
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide)										
GLSE-B	E395	19-Jul-2023	----	----	----		28-Jul-2023	7 days	8 days	× EHT
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide)										
GLSE-M	E395	19-Jul-2023	----	----	----		28-Jul-2023	7 days	8 days	× EHT
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide)										
GLSE-T	E395	19-Jul-2023	----	----	----		28-Jul-2023	7 days	8 days	× EHT

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	*Method*	*Sampling Date*	*Extraction / Preparation*				*Analysis*			
			Preparation Date	*Holding Times*		*Eval*	*Analysis Date*	*Holding Times*		*Eval*
				Rec	*Actual*			*Rec*	*Actual*	
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) GLTL-B	E395	20-Jul-2023	----	----	----		28-Jul-2023	7 days	8 days	× EHT
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) GLTL-M - Gen Chem & Sulphide reduced volume	E395	20-Jul-2023	----	----	----		28-Jul-2023	7 days	8 days	× EHT
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) GLTL-T	E395	20-Jul-2023	----	----	----		28-Jul-2023	7 days	8 days	× EHT
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) GLWB-B	E395	20-Jul-2023	----	----	----		28-Jul-2023	7 days	8 days	× EHT
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) GLWB-M	E395	20-Jul-2023	----	----	----		28-Jul-2023	7 days	8 days	× EHT
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) GLWB-T - Gen Chem & Sulphide reduced volume	E395	20-Jul-2023	----	----	----		28-Jul-2023	7 days	8 days	× EHT

Legend & Qualifier Definitions

EHTR-FM: Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended

EHTR: Exceeded ALS recommended hold time prior to sample receipt.

EHT: Exceeded ALS recommended hold time prior to analysis.

Rec. HT: ALS recommended hold time (see units).

Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Water**

Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
Alkalinity Species by Titration	E290	1057709	2	34	5.8	5.0	✓
Ammonia by Fluorescence	E298	1059543	2	40	5.0	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1057718	2	33	6.0	5.0	✓
Chloride in Water by IC	E235.Cl	1057717	2	35	5.7	5.0	✓
Conductivity in Water	E100	1057712	2	33	6.0	5.0	✓
Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)	E509-L	1065878	1	15	6.6	5.0	✓
Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine Samples)	E465	1061016	1	18	5.5	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1077392	1	20	5.0	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	1057722	2	21	9.5	5.0	✓
Fluoride in Water by IC	E235.F	1057716	2	25	8.0	5.0	✓
Free Cyanide	E339	1063632	1	14	7.1	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1057714	2	35	5.7	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1057715	2	35	5.7	5.0	✓
pH by Meter	E108	1057711	2	35	5.7	5.0	✓
Reactive Silica by Colourimetry	E392	1059348	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1057713	2	34	5.8	5.0	✓
Total Cyanide	E333	1063630	1	20	5.0	5.0	✓
Total Dissolved Phosphorus by Colourimetry (0.001 mg/L)	E375-U	1067144	1	16	6.2	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	1065742	2	40	5.0	5.0	✓
Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)	E508-L	1067893	1	14	7.1	5.0	✓
Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine Samples)	E466	1061019	1	18	5.5	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1061155	2	31	6.4	5.0	✓
Total Phosphorus by Colourimetry (0.001 mg/L)	E372-S	1067143	1	20	5.0	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	1061163	1	14	7.1	5.0	✓
TSS by Gravimetry	E160	1057436	3	35	8.5	5.0	✓
WAD Cyanide	E336	1063631	1	18	5.5	5.0	✓
Laboratory Control Samples (LCS)							
Alkalinity Species by Titration	E290	1057709	2	34	5.8	5.0	✓
Ammonia by Fluorescence	E298	1059543	2	40	5.0	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1057718	2	33	6.0	5.0	✓
Chloride in Water by IC	E235.Cl	1057717	2	35	5.7	5.0	✓
Conductivity in Water	E100	1057712	2	33	6.0	5.0	✓
Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)	E509-L	1065878	1	15	6.6	5.0	✓
Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine Samples)	E465	1061016	1	18	5.5	5.0	✓

Matrix: **Water**

Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Control Samples (LCS) - Continued							
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1077392	1	20	5.0	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	1057722	2	21	9.5	5.0	✓
Fluoride in Water by IC	E235.F	1057716	2	25	8.0	5.0	✓
Free Cyanide	E339	1063632	1	14	7.1	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1057714	2	35	5.7	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1057715	2	35	5.7	5.0	✓
pH by Meter	E108	1057711	2	35	5.7	5.0	✓
Reactive Silica by Colourimetry	E392	1059348	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1057713	2	34	5.8	5.0	✓
Total Cyanide	E333	1063630	1	20	5.0	5.0	✓
Total Dissolved Phosphorus by Colourimetry (0.001 mg/L)	E375-U	1067144	1	16	6.2	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	1065742	2	40	5.0	5.0	✓
Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)	E508-L	1067893	1	14	7.1	5.0	✓
Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine Samples)	E466	1061019	1	18	5.5	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1061155	2	31	6.4	5.0	✓
Total Phosphorus by Colourimetry (0.001 mg/L)	E372-S	1067143	1	20	5.0	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	1061163	1	14	7.1	5.0	✓
TSS by Gravimetry	E160	1057436	3	35	8.5	5.0	✓
WAD Cyanide	E336	1063631	1	18	5.5	5.0	✓
Method Blanks (MB)							
Alkalinity Species by Titration	E290	1057709	2	34	5.8	5.0	✓
Ammonia by Fluorescence	E298	1059543	2	40	5.0	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1057718	2	33	6.0	5.0	✓
Chloride in Water by IC	E235.Cl	1057717	2	35	5.7	5.0	✓
Conductivity in Water	E100	1057712	2	33	6.0	5.0	✓
Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)	E509-L	1065878	1	15	6.6	5.0	✓
Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine Samples)	E465	1061016	1	18	5.5	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1077392	1	20	5.0	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	1057722	2	21	9.5	5.0	✓
Fluoride in Water by IC	E235.F	1057716	2	25	8.0	5.0	✓
Free Cyanide	E339	1063632	1	14	7.1	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1057714	2	35	5.7	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1057715	2	35	5.7	5.0	✓
Reactive Silica by Colourimetry	E392	1059348	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1057713	2	34	5.8	5.0	✓
Total Cyanide	E333	1063630	1	20	5.0	5.0	✓
Total Dissolved Phosphorus by Colourimetry (0.001 mg/L)	E375-U	1067144	1	16	6.2	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	1065742	2	40	5.0	5.0	✓

Matrix: **Water**

Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Method Blanks (MB) - Continued							
Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)	E508-L	1067893	1	14	7.1	5.0	✓
Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine Samples)	E466	1061019	1	18	5.5	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1061155	2	31	6.4	5.0	✓
Total Phosphorus by Colourimetry (0.001 mg/L)	E372-S	1067143	1	20	5.0	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	1061163	1	14	7.1	5.0	✓
TSS by Gravimetry	E160	1057436	3	35	8.5	5.0	✓
WAD Cyanide	E336	1063631	1	18	5.5	5.0	✓
Matrix Spikes (MS)							
Ammonia by Fluorescence	E298	1059543	2	40	5.0	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1057718	2	33	6.0	5.0	✓
Chloride in Water by IC	E235.Cl	1057717	2	35	5.7	5.0	✓
Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)	E509-L	1065878	1	15	6.6	5.0	✓
Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine Samples)	E465	1061016	1	18	5.5	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1077392	1	20	5.0	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	1057722	2	21	9.5	5.0	✓
Fluoride in Water by IC	E235.F	1057716	2	25	8.0	5.0	✓
Free Cyanide	E339	1063632	1	14	7.1	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1057714	2	35	5.7	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1057715	2	35	5.7	5.0	✓
Reactive Silica by Colourimetry	E392	1059348	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1057713	2	34	5.8	5.0	✓
Total Cyanide	E333	1063630	1	20	5.0	5.0	✓
Total Dissolved Phosphorus by Colourimetry (0.001 mg/L)	E375-U	1067144	1	16	6.2	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	1065742	2	40	5.0	5.0	✓
Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)	E508-L	1067893	1	14	7.1	5.0	✓
Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine Samples)	E466	1061019	1	18	5.5	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1061155	2	31	6.4	5.0	✓
Total Phosphorus by Colourimetry (0.001 mg/L)	E372-S	1067143	1	20	5.0	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	1061163	1	14	7.1	5.0	✓
WAD Cyanide	E336	1063631	1	18	5.5	5.0	✓

Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Conductivity in Water	E100 ALS Environmental - Vancouver	Water	APHA 2510 (mod)	Conductivity, also known as Electrical Conductivity (EC) or Specific Conductance, is measured by immersion of a conductivity cell with platinum electrodes into a water sample. Conductivity measurements are temperature-compensated to 25°C.
pH by Meter	E108 ALS Environmental - Vancouver	Water	APHA 4500-H (mod)	pH is determined by potentiometric measurement with a pH electrode, and is conducted at ambient laboratory temperature (normally 20 ± 5°C). For high accuracy test results, pH should be measured in the field within the recommended 15 minute hold time.
TSS by Gravimetry	E160 ALS Environmental - Vancouver	Water	APHA 2540 D (mod)	Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, following by drying of the filter at 104 ± 1°C, with gravimetric measurement of the filtered solids. Samples containing very high dissolved solid content (i.e. seawaters, brackish waters) may produce a positive bias by this method. Alternate analysis methods are available for these types of samples.
Bromide in Water by IC (Low Level)	E235.Br-L ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Chloride in Water by IC	E235.Cl ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Fluoride in Water by IC	E235.F ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrite in Water by IC (Low Level)	E235.NO2-L ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrate in Water by IC (Low Level)	E235.NO3-L ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Sulfate in Water by IC	E235.SO4 ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Alkalinity Species by Titration	E290 ALS Environmental - Vancouver	Water	APHA 2320 B (mod)	Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.
Ammonia by Fluorescence	E298 ALS Environmental - Edmonton	Water	Method Fialab 100, 2018	Ammonia in water is determined by automated continuous flow analysis with membrane diffusion and fluorescence detection, after reaction with OPA (ortho-phthalaldehyde). This method is approved under US EPA 40 CFR Part 136 (May 2021)
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318 ALS Environmental - Edmonton	Water	Method Fialab 100, 2018	TKN in water is determined by automated continuous flow analysis with membrane diffusion and fluorescence detection, after reaction with OPA (ortho-phthalaldehyde). This method is approved under US EPA 40 CFR Part 136 (May 2021).
Total Cyanide	E333 ALS Environmental - Vancouver	Water	ISO 14403 (mod)	Total or Strong Acid Dissociable (SAD) Cyanide is determined by Continuous Flow Analyzer (CFA) with in-line UV digestion followed by colourmetric analysis. Method Limitation: High levels of thiocyanate (SCN) may cause positive interference (up to 0.5% of SCN concentration).
WAD Cyanide	E336 ALS Environmental - Vancouver	Water	APHA 4500-CN I (mod)	Weak Acid Dissociable (WAD) cyanide is determined by Continuous Flow Analyzer (CFA) with in-line distillation followed by colourmetric analysis.
Free Cyanide	E339 ALS Environmental - Vancouver	Water	ASTM D7237 (mod)	Free Cyanide is determined by Continuous Flow Analyzer (CFA) with in-line gas diffusion followed by colourmetric analysis.
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L ALS Environmental - Edmonton	Water	APHA 5310 B (mod)	Total Organic Carbon (Non-Purgeable), also known as NPOC (total), is a direct measurement of TOC after an acidified sample has been purged to remove inorganic carbon (IC). Analysis is by high temperature combustion with infrared detection of CO_2. NPOC does not include volatile organic species that are purged off with IC. For samples where the majority of total carbon (TC) is comprised of IC (which is common), this method is more accurate and more reliable than the TOC by subtraction method (i.e. TC minus TIC).
Dissolved Organic Carbon by Combustion (Low Level)	E358-L ALS Environmental - Edmonton	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 CO_2. 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 Phosphorus by Colourimetry (0.001 mg/L)	E372-S ALS Environmental - Edmonton	Water	APHA 4500-P E (mod).	Total Phosphorus is determined colourimetrically after heated persulfate digestion of the sample.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Total Dissolved Phosphorus by Colourimetry (0.001 mg/L)	E375-U ALS Environmental - Edmonton	Water	APHA 4500-P E (mod).	Total Dissolved Phosphorus is determined colourmetrically after filtration through a 0.45 micron filter followed by heated persulfate digestion of the sample.
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U ALS Environmental - Vancouver	Water	APHA 4500-P F (mod)	Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter. Field filtration is recommended to ensure test results represent conditions at time of sampling.
Reactive Silica by Colourimetry	E392 ALS Environmental - Vancouver	Water	APHA 4500-SiO2 E (mod)	Silicate (molybdate-reactive silica) is determined by the molybdosilicate-heteropoly blue colourimetric method using a discrete analyzer. Method Limitation: Arsenic (5+) above 100 mg/L is a negative interference on this test
Total Sulfide by Colourimetry (Automated Flow)	E395 ALS Environmental - Vancouver	Water	APHA 4500 -S E-Auto-Colorimetry	Sulfide is determined using the gas dialysis automated methlyene blue colourimetric method. Results expressed "as H2S" if reported represent the maximum possible H2S concentration based on the total sulfide concentration in the sample. The H2S calculation converts Total Sulphide as (S2-) and reports it as Total Sulphide as (H2S)
Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine Samples)	E465 ALS Environmental - Vancouver	Water	EPA 6020B (mod)	Ultra trace metals in water are analyzed by Triple Quadrupole ICPMS. This procedure is intended for pristine field-filtered acid-preserved water samples. The detection limits (LOR) for this test are based on lab instrumental analysis only, not including filtration. Due to the high probability of false positives due to filtration, it is strongly recommended that a filtration blank be analysed to aid in data interpretation.
Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine Samples)	E466 ALS Environmental - Vancouver	Water	EPA 6020B (mod)	Ultra trace metals in water are analyzed by CRC ICPMS, based on US EPA Method 6020B (July 2014). The detection limits provided can only be met for undigested samples. This procedure is intended for colorless, non-turbid, acid-preserved water samples (i.e. pristine water samples), having turbidity < 1 NTU and no odor. Where turbidity exceeds 1 NTU, and/or the sample is colored and has an odor, results may be biased low compared to true Total Metals concentrations. ALS recommends that turbidity analysis be requested on samples submitted for this test to aid with interpretation of results. Where turbidity is <1NTU, undigested metals are equivalent to total metals concentrations.
Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)	E508-L 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 CVAFS.
Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)	E509-L 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 CVAFS.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
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.
TDS in Water (Calculation)	EC103 ALS Environmental - Vancouver	Water	APHA 1030E (mod)	Total Dissolved Solids is calculated based on guidance from APHA Standard Methods (1030E Checking Correctness of Analysis). Dissolved species are used where available. Minor ions are included where data is present.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Ammonia	EP298 ALS Environmental - Edmonton	Water		Sample preparation for Preserved Nutrients Water Quality Analysis.
Digestion for TKN in water	EP318 ALS Environmental - Edmonton	Water	APHA 4500-Norg D (mod)	Samples are digested at high temperature using Sulfuric Acid with Copper catalyst, which converts organic nitrogen sources to Ammonia, which is then quantified by the analytical method as TKN. This method is unsuitable for samples containing high levels of nitrate. If nitrate exceeds TKN concentration by ten times or more, results may be biased low.
Preparation for Total Organic Carbon by Combustion	EP355 ALS Environmental - Edmonton	Water		Preparation for Total Organic Carbon by Combustion
Preparation for Dissolved Organic Carbon for Combustion	EP358 ALS Environmental - Edmonton	Water	APHA 5310 B (mod)	Preparation for Dissolved Organic Carbon
Digestion for Total Phosphorus in water	EP372 ALS Environmental - Edmonton	Water	APHA 4500-P E (mod).	Samples are heated with a persulfate digestion reagent.
Digestion for Dissolved Phosphorus in water	EP375 ALS Environmental - Edmonton	Water	APHA 4500-P E (mod).	Samples are filtered through a 0.45 micron membrane filter and then heated with a persulfate digestion reagent.
Dissolved Metals Water Filtration for Triple Quad ICPMS	EP465 ALS Environmental - Vancouver	Water	APHA 3030B	Low level metals in water are analyzed by Triple Quad ICPMS. This procedure is intended for pristine field-filtered acid-preserved water samples. The detection limits (LOR) for this test are based on lab instrumental analysis only, not including filtration. ALS-supplied field filtration equipment does not support these LOR. Therefore, because of the high probability of false positives due to filtration, it is strongly recommended that a filtration blank be analysed to aid in data interpretation.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Dissolved Mercury Water Filtration (Low Level)	EP509-L ALS Environmental - Vancouver	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HCl.

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QUALITY CONTROL REPORT

Work Order	: **YL2300877**	Page	: 1 of 25
Amendment	: **3**		
Client	: Sabina Gold & Silver Corporation	Laboratory	: ALS Environmental - Yellowknife
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Telephone	:	Telephone	: 1 867 445 7143
Project	: 22567626	Date Samples Received	: 24-Jul-2023 09:00
PO	: PO-10402	Date Analysis Commenced	: 26-Jul-2023
C-O-C number	: ----	Issue Date	: 22-Nov-2023 12:24
Sampler	: ---- 604 240 6619		
Site	: ----		
Quote number	: YL23-SABI100-001		
No. of samples received	: 14		
No. of samples analysed	: 14		

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*
Cindy Tang	Team Leader - Inorganics	Vancouver Inorganics, Burnaby, British Columbia
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General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number = Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO = Data Quality Objective.
LOR = Limit of Reporting (detection limit).
RPD = Relative Percent Difference
# = Indicates a QC result that did not meet the ALS DQO.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test-specific).

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Physical Tests (QC Lot: 1057436)											
KS2302651-001	Anonymous	Solids, total suspended [TSS]	----	E160	3.0	mg/L	<3.0	<3.0	0	Diff <2x LOR	----
Physical Tests (QC Lot: 1057437)											
YL2300877-004	GLCB-T	Solids, total suspended [TSS]	----	E160	3.0	mg/L	<3.0	<3.0	0	Diff <2x LOR	----
Physical Tests (QC Lot: 1057709)											
VA23B7121-002	Anonymous	Alkalinity, bicarbonate (as CaCO3)	----	E290	1.0	mg/L	91.4	92.7	1.43%	200%	----
		Alkalinity, carbonate (as CaCO3)	----	E290	1.0	mg/L	<1.0	<1.0	0.00%	200%	----
		Alkalinity, hydroxide (as CaCO3)	----	E290	1.0	mg/L	<1.0	<1.0	0.00%	200%	----
		Alkalinity, phenolphthalein (as CaCO3)	----	E290	1.0	mg/L	<1.0	<1.0	0	Diff <2x LOR	----
		Alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	91.4	92.7	1.43%	20%	----
Physical Tests (QC Lot: 1057711)											
VA23B6985-012	Anonymous	pH	----	E108	0.10	pH units	7.14	7.17	0.419%	4%	----
Physical Tests (QC Lot: 1057712)											
VA23B7121-002	Anonymous	Conductivity	----	E100	2.0	µS/cm	262	262	0.00%	10%	----
Physical Tests (QC Lot: 1058086)											
VA23B6986-012	Anonymous	Solids, total suspended [TSS]	----	E160	3.0	mg/L	<3.0	<3.0	0	Diff <2x LOR	----
Physical Tests (QC Lot: 1061251)											
WR2300772-001	Anonymous	pH	----	E108	0.10	pH units	7.75	7.75	0.00%	4%	----
Physical Tests (QC Lot: 1061252)											
WR2300772-001	Anonymous	Alkalinity, bicarbonate (as CaCO3)	----	E290	1.0	mg/L	217	218	0.0929%	200%	----
		Alkalinity, carbonate (as CaCO3)	----	E290	1.0	mg/L	<1.0	<1.0	0.00%	200%	----
		Alkalinity, hydroxide (as CaCO3)	----	E290	1.0	mg/L	<1.0	<1.0	0.00%	200%	----
		Alkalinity, phenolphthalein (as CaCO3)	----	E290	1.0	mg/L	<1.0	<1.0	0	Diff <2x LOR	----
		Alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	217	218	0.0929%	20%	----
Physical Tests (QC Lot: 1061253)											
WR2300772-001	Anonymous	Conductivity	----	E100	1.0	µS/cm	1960	1930	1.75%	10%	----
Anions and Nutrients (QC Lot: 1057713)											
VA23B7121-001	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	169	169	0.105%	20%	----
Anions and Nutrients (QC Lot: 1057714)											
VA23B7121-001	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	0.380	0.379	0.0377%	20%	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Anions and Nutrients (QC Lot: 1057715)											
VA23B7121-001	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	0.0011	0.0012	0.00007	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1057716)											
VA23B7121-001	Anonymous	Fluoride	16984-48-8	E235.F	0.020	mg/L	0.043	0.042	0.0006	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1057717)											
VA23B7121-001	Anonymous	Chloride	16887-00-6	E235.Cl	0.50	mg/L	11.6	11.6	0.0817%	20%	----
Anions and Nutrients (QC Lot: 1057718)											
VA23B7121-001	Anonymous	Bromide	24959-67-9	E235.Br-L	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1057722)											
VA23B7121-001	Anonymous	Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0010	mg/L	0.0125	0.0127	1.78%	20%	----
Anions and Nutrients (QC Lot: 1059348)											
VA23B7180-010	Anonymous	Silicate (as SiO2)	7631-86-9	E392	0.50	mg/L	<0.50	<0.50	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1059543)											
FC2302029-001	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	0.0292	0.0297	0.0005	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1061254)											
FJ2301858-001	Anonymous	Fluoride	16984-48-8	E235.F	0.100	mg/L	0.850	0.832	0.018	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1061255)											
FJ2301858-001	Anonymous	Chloride	16887-00-6	E235.Cl	2.50	mg/L	<2.50	<2.50	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1061256)											
FJ2301858-001	Anonymous	Bromide	24959-67-9	E235.Br-L	0.250	mg/L	<0.250	<0.250	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1061257)											
FJ2301858-001	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	0.0250	mg/L	<0.0250	<0.0250	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1061258)											
FJ2301858-001	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1061259)											
FJ2301858-001	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	1.50	mg/L	<1.50	<1.50	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1061260)											
FJ2301858-001	Anonymous	Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1064322)											
YL2300877-010	GLWB-T Gen Chem & Sulphide reduced volume	Ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	0.135	0.134	0.594%	20%	----
Anions and Nutrients (QC Lot: 1065742)											
EO2306695-001	Anonymous	Kjeldahl nitrogen, total [TKN]	----	E318	2.00	mg/L	20.7	22.6	8.78%	20%	----
Anions and Nutrients (QC Lot: 1065743)											

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Anions and Nutrients (QC Lot: 1065743) - continued											
YL2300877-010	GLWB-T Gen Chem & Sulphide reduced volume	Kjeldahl nitrogen, total [TKN]	----	E318	0.050	mg/L	0.303	0.271	0.032	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1067143)											
FC2302068-001	Anonymous	Phosphorus, total	7723-14-0	E372-S	0.0010	mg/L	0.101	0.101	0.0692%	20%	----
Anions and Nutrients (QC Lot: 1067144)											
EO2306645-001	Anonymous	Phosphorus, total dissolved	7723-14-0	E375-U	0.0010	mg/L	0.245	0.243	0.640%	20%	----
Cyanides (QC Lot: 1063630)											
YL2300877-001	GLSE-T	Cyanide, strong acid dissociable (Total)	----	E333	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
Cyanides (QC Lot: 1063631)											
YL2300877-001	GLSE-T	Cyanide, weak acid dissociable	----	E336	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
Cyanides (QC Lot: 1063632)											
YL2300877-001	GLSE-T	Cyanide, free	----	E339	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
Organic / Inorganic Carbon (QC Lot: 1061155)											
YL2300877-001	GLSE-T	Carbon, total organic [TOC]	----	E355-L	0.50	mg/L	4.50	4.14	0.36	Diff <2x LOR	----
Organic / Inorganic Carbon (QC Lot: 1065495)											
YL2300877-012	GLWB-B	Carbon, total organic [TOC]	----	E355-L	0.50	mg/L	4.24	3.82	0.42	Diff <2x LOR	----
Organic / Inorganic Carbon (QC Lot: 1077392)											
YL2300892-004	Anonymous	Carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	11.4	10.8	5.24%	20%	----
Total Sulfides (QC Lot: 1061163)											
YL2300877-001	GLSE-T	Sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	<0.0015	<0.0015	0	Diff <2x LOR	----
Total Metals (QC Lot: 1067893)											
YL2300877-001	GLSE-T	Mercury, total	7439-97-6	E508-L	0.50	ng/L	0.80	1.24	0.43	Diff <2x LOR	----
Total Metals (Undigested) (QC Lot: 1061019)											
YL2300877-001	GLSE-T	Aluminum, total	7429-90-5	E466	0.00020	mg/L	0.0116	0.0113	2.89%	20%	----
		Antimony, total	7440-36-0	E466	0.0000050	mg/L	0.0000118	0.0000115	0.0000002	Diff <2x LOR	----
		Arsenic, total	7440-38-2	E466	0.000010	mg/L	0.000226	0.000234	3.32%	20%	----
		Barium, total	7440-39-3	E466	0.000020	mg/L	0.00573	0.00561	2.08%	20%	----
		Beryllium, total	7440-41-7	E466	0.0000020	mg/L	<0.0000020	<0.0000020	0	Diff <2x LOR	----
		Bismuth, total	7440-69-9	E466	0.0000010	mg/L	<0.0000010	<0.0000010	0	Diff <2x LOR	----
		Boron, total	7440-42-8	E466	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
		Cadmium, total	7440-43-9	E466	0.0000025	mg/L	0.0000047	0.0000048	0.00000004	Diff <2x LOR	----
		Calcium, total	7440-70-2	E466	0.010	mg/L	3.09	3.17	2.46%	20%	----
		Cesium, total	7440-46-2	E466	0.0000050	mg/L	0.0000059	0.0000061	0.0000001	Diff <2x LOR	----
		Chromium, total	7440-47-3	E466	0.000040	mg/L	0.000141	0.000141	0.000000007	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Total Metals (Undigested) (QC Lot: 1061019) - continued											
YL2300877-001	GLSE-T	Cobalt, total	7440-48-4	E466	0.0000050	mg/L	0.000106	0.000113	6.61%	20%	----
		Copper, total	7440-50-8	E466	0.000050	mg/L	0.00121	0.00126	3.96%	20%	----
		Gallium, total	7440-55-3	E466	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Iron, total	7439-89-6	E466	0.00050	mg/L	0.0257	0.0267	3.73%	20%	----
		Lanthanum, total	7439-91-0	E466	0.000010	mg/L	0.000072	0.000077	0.000005	Diff <2x LOR	----
		Lead, total	7439-92-1	E466	0.0000050	mg/L	0.0000379	0.0000344	0.0000034	Diff <2x LOR	----
		Lithium, total	7439-93-2	E466	0.00010	mg/L	0.00073	0.00072	0.000002	Diff <2x LOR	----
		Magnesium, total	7439-95-4	E466	0.0010	mg/L	1.74	1.78	2.38%	20%	----
		Manganese, total	7439-96-5	E466	0.0000050	mg/L	0.00331	0.00339	2.42%	20%	----
		Molybdenum, total	7439-98-7	E466	0.000010	mg/L	0.000011	0.000011	0.0000002	Diff <2x LOR	----
		Nickel, total	7440-02-0	E466	0.000020	mg/L	0.00248	0.00252	1.84%	20%	----
		Niobium, total	7440-03-1	E466	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Phosphorus, total	7723-14-0	E466	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		Potassium, total	7440-09-7	E466	0.0050	mg/L	0.407	0.424	4.11%	20%	----
		Rhenium, total	7440-15-5	E466	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
		Rubidium, total	7440-17-7	E466	0.0000050	mg/L	0.00100	0.00103	2.70%	20%	----
		Selenium, total	7782-49-2	E466	0.000025	mg/L	<0.000025	<0.000025	0	Diff <2x LOR	----
		Silicon, total	7440-21-3	E466	0.050	mg/L	0.059	0.066	0.007	Diff <2x LOR	----
		Silver, total	7440-22-4	E466	0.0000020	mg/L	<0.0000020	<0.0000020	0	Diff <2x LOR	----
		Sodium, total	7440-23-5	E466	0.010	mg/L	0.647	0.668	3.14%	20%	----
		Strontium, total	7440-24-6	E466	0.000020	mg/L	0.0154	0.0157	2.01%	20%	----
		Sulfur, total	7704-34-9	E466	0.50	mg/L	2.75	2.82	0.07	Diff <2x LOR	----
		Tantalum, total	7440-25-7	E466	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Tellurium, total	13494-80-9	E466	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Thallium, total	7440-28-0	E466	0.0000010	mg/L	0.0000020	0.0000019	0.0000001	Diff <2x LOR	----
		Thorium, total	7440-29-1	E466	0.0000050	mg/L	0.0000067	0.0000104	0.0000036	Diff <2x LOR	----
		Tin, total	7440-31-5	E466	0.000010	mg/L	0.000050	0.000054	0.000003	Diff <2x LOR	----
		Titanium, total	7440-32-6	E466	0.000050	mg/L	0.000057	0.000061	0.000004	Diff <2x LOR	----
		Tungsten, total	7440-33-7	E466	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Uranium, total	7440-61-1	E466	0.0000010	mg/L	0.0000068	0.0000074	0.0000006	Diff <2x LOR	----
		Vanadium, total	7440-62-2	E466	0.000010	mg/L	0.000030	0.000031	0.000001	Diff <2x LOR	----
		Yttrium, total	7440-65-5	E466	0.000010	mg/L	0.000039	0.000045	0.000005	Diff <2x LOR	----
		Zinc, total	7440-66-6	E466	0.00010	mg/L	0.00211	0.00230	8.89%	20%	----
		Zirconium, total	7440-67-7	E466	0.000010	mg/L	0.000024	0.000021	0.000003	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Dissolved Metals (QC Lot: 1061016)											
YL2300877-001	GLSE-T	Aluminum, dissolved	7429-90-5	E465	0.00020	mg/L	0.00790	0.00777	1.70%	20%	----
		Antimony, dissolved	7440-36-0	E465	0.0000050	mg/L	0.0000088	0.0000088	0.00000002	Diff <2x LOR	----
		Arsenic, dissolved	7440-38-2	E465	0.000010	mg/L	0.000223	0.000226	1.11%	20%	----
		Barium, dissolved	7440-39-3	E465	0.000020	mg/L	0.00572	0.00565	1.23%	20%	----
		Beryllium, dissolved	7440-41-7	E465	0.0000020	mg/L	<0.0000020	<0.0000020	0	Diff <2x LOR	----
		Bismuth, dissolved	7440-69-9	E465	0.0000010	mg/L	<0.0000010	<0.0000010	0	Diff <2x LOR	----
		Boron, dissolved	7440-42-8	E465	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
		Cadmium, dissolved	7440-43-9	E465	0.0000025	mg/L	0.0000036	0.0000028	0.0000009	Diff <2x LOR	----
		Calcium, dissolved	7440-70-2	E465	0.010	mg/L	3.24	3.26	0.431%	20%	----
		Cesium, dissolved	7440-46-2	E465	0.0000050	mg/L	0.0000061	0.0000055	0.0000005	Diff <2x LOR	----
		Chromium, dissolved	7440-47-3	E465	0.000040	mg/L	0.000117	0.000121	0.000004	Diff <2x LOR	----
		Cobalt, dissolved	7440-48-4	E465	0.0000050	mg/L	0.0000621	0.0000609	1.88%	20%	----
		Copper, dissolved	7440-50-8	E465	0.000050	mg/L	0.00123	0.00122	0.784%	20%	----
		Gallium, dissolved	7440-55-3	E465	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Iron, dissolved	7439-89-6	E465	0.00050	mg/L	0.0109	0.0108	1.04%	20%	----
		Lanthanum, dissolved	7439-91-0	E465	0.000010	mg/L	0.000050	0.000051	0.000001	Diff <2x LOR	----
		Lead, dissolved	7439-92-1	E465	0.0000050	mg/L	0.0000136	0.0000094	0.0000042	Diff <2x LOR	----
		Lithium, dissolved	7439-93-2	E465	0.00010	mg/L	0.00071	0.00071	0.000005	Diff <2x LOR	----
		Magnesium, dissolved	7439-95-4	E465	0.0010	mg/L	1.89	1.88	0.480%	20%	----
		Manganese, dissolved	7439-96-5	E465	0.0000050	mg/L	0.00173	0.00172	0.280%	20%	----
		Molybdenum, dissolved	7439-98-7	E465	0.000010	mg/L	0.000011	0.000010	0.0000005	Diff <2x LOR	----
		Nickel, dissolved	7440-02-0	E465	0.000020	mg/L	0.00267	0.00268	0.0560%	20%	----
		Niobium, dissolved	7440-03-1	E465	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Phosphorus, dissolved	7723-14-0	E465	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		Potassium, dissolved	7440-09-7	E465	0.0050	mg/L	0.442	0.445	0.682%	20%	----
		Rhenium, dissolved	7440-15-5	E465	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
		Rubidium, dissolved	7440-17-7	E465	0.0000050	mg/L	0.00107	0.00108	0.638%	20%	----
		Selenium, dissolved	7782-49-2	E465	0.000025	mg/L	<0.000025	<0.000025	0	Diff <2x LOR	----
		Silicon, dissolved	7440-21-3	E465	0.050	mg/L	0.052	0.052	0.0006	Diff <2x LOR	----
		Silver, dissolved	7440-22-4	E465	0.0000020	mg/L	<0.0000020	<0.0000020	0	Diff <2x LOR	----
		Sodium, dissolved	7440-23-5	E465	0.010	mg/L	0.705	0.696	1.30%	20%	----
		Strontium, dissolved	7440-24-6	E465	0.000020	mg/L	0.0165	0.0165	0.298%	20%	----
		Sulfur, dissolved	7704-34-9	E465	0.50	mg/L	2.69	2.75	0.05	Diff <2x LOR	----
		Tantalum, dissolved	7440-25-7	E465	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Dissolved Metals (QC Lot: 1061016) - continued											
YL2300877-001	GLSE-T	Tellurium, dissolved	13494-80-9	E465	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Thallium, dissolved	7440-28-0	E465	0.0000010	mg/L	0.0000019	0.0000018	0.00000002	Diff <2x LOR	----
		Thorium, dissolved	7440-29-1	E465	0.0000050	mg/L	<0.0000100	<0.0000050	0.0000050	Diff <2x LOR	----
		Tin, dissolved	7440-31-5	E465	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Titanium, dissolved	7440-32-6	E465	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Tungsten, dissolved	7440-33-7	E465	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Uranium, dissolved	7440-61-1	E465	0.0000010	mg/L	0.0000064	0.0000052	0.0000013	Diff <2x LOR	----
		Vanadium, dissolved	7440-62-2	E465	0.000010	mg/L	0.000023	0.000024	0.000001	Diff <2x LOR	----
		Yttrium, dissolved	7440-65-5	E465	0.000010	mg/L	0.000036	0.000027	0.000010	Diff <2x LOR	----
		Zinc, dissolved	7440-66-6	E465	0.00010	mg/L	0.00347	0.00365	5.06%	20%	----
		Zirconium, dissolved	7440-67-7	E465	0.000010	mg/L	0.000018	0.000017	0.0000003	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1065878)											
WP2316023-001	Anonymous	Mercury, dissolved	7439-97-6	E509-L	0.50	ng/L	<0.50	<0.50	0	Diff <2x LOR	----

Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 1057436)						
Solids, total suspended [TSS]	----	E160	3	mg/L	<3.0	----
Physical Tests (QCLot: 1057437)						
Solids, total suspended [TSS]	----	E160	3	mg/L	<3.0	----
Physical Tests (QCLot: 1057709)						
Alkalinity, bicarbonate (as CaCO3)	----	E290	1	mg/L	<1.0	----
Alkalinity, carbonate (as CaCO3)	----	E290	1	mg/L	<1.0	----
Alkalinity, hydroxide (as CaCO3)	----	E290	1	mg/L	<1.0	----
Alkalinity, phenolphthalein (as CaCO3)	----	E290	1	mg/L	<1.0	----
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	<1.0	----
Physical Tests (QCLot: 1057712)						
Conductivity	----	E100	1	µS/cm	<1.0	----
Physical Tests (QCLot: 1058086)						
Solids, total suspended [TSS]	----	E160	3	mg/L	<3.0	----
Physical Tests (QCLot: 1061252)						
Alkalinity, bicarbonate (as CaCO3)	----	E290	1	mg/L	<1.0	----
Alkalinity, carbonate (as CaCO3)	----	E290	1	mg/L	<1.0	----
Alkalinity, hydroxide (as CaCO3)	----	E290	1	mg/L	<1.0	----
Alkalinity, phenolphthalein (as CaCO3)	----	E290	1	mg/L	<1.0	----
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	<1.0	----
Physical Tests (QCLot: 1061253)						
Conductivity	----	E100	1	µS/cm	<1.0	----
Anions and Nutrients (QCLot: 1057713)						
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	----
Anions and Nutrients (QCLot: 1057714)						
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 1057715)						
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 1057716)						
Fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 1057717)						
Chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 1057718)						

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Anions and Nutrients (QCLot: 1057718) - continued						
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 1057722)						
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 1059348)						
Silicate (as SiO2)	7631-86-9	E392	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 1059543)						
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 1061254)						
Fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 1061255)						
Chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 1061256)						
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 1061257)						
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 1061258)						
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 1061259)						
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	----
Anions and Nutrients (QCLot: 1061260)						
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 1064322)						
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 1065742)						
Kjeldahl nitrogen, total [TKN]	----	E318	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 1065743)						
Kjeldahl nitrogen, total [TKN]	----	E318	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 1067143)						
Phosphorus, total	7723-14-0	E372-S	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 1067144)						
Phosphorus, total dissolved	7723-14-0	E375-U	0.001	mg/L	<0.0010	----
Cyanides (QCLot: 1063630)						
Cyanide, strong acid dissociable (Total)	----	E333	0.002	mg/L	<0.0020	----
Cyanides (QCLot: 1063631)						
Cyanide, weak acid dissociable	----	E336	0.002	mg/L	<0.0020	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Cyanides (QCLot: 1063632)						
Cyanide, free	----	E339	0.002	mg/L	<0.0020	----
Organic / Inorganic Carbon (QCLot: 1061155)						
Carbon, total organic [TOC]	----	E355-L	0.5	mg/L	<0.50	----
Organic / Inorganic Carbon (QCLot: 1065495)						
Carbon, total organic [TOC]	----	E355-L	0.5	mg/L	<0.50	----
Organic / Inorganic Carbon (QCLot: 1077392)						
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	<0.50	----
Total Sulfides (QCLot: 1061163)						
Sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	<0.0015	----
Total Metals (QCLot: 1067893)						
Mercury, total	7439-97-6	E508-L	0.5	ng/L	<0.50	----
Total Metals (Undigested) (QCLot: 1061019)						
Aluminum, total	7429-90-5	E466	0.0002	mg/L	# 0.00030	B
Antimony, total	7440-36-0	E466	0.000005	mg/L	<0.0000050	----
Arsenic, total	7440-38-2	E466	0.00001	mg/L	<0.000010	----
Barium, total	7440-39-3	E466	0.00002	mg/L	<0.000020	----
Beryllium, total	7440-41-7	E466	0.000002	mg/L	<0.0000020	----
Bismuth, total	7440-69-9	E466	0.000001	mg/L	<0.0000010	----
Boron, total	7440-42-8	E466	0.005	mg/L	<0.0050	----
Cadmium, total	7440-43-9	E466	0.0000025	mg/L	<0.0000025	----
Calcium, total	7440-70-2	E466	0.01	mg/L	<0.010	----
Cesium, total	7440-46-2	E466	0.000005	mg/L	<0.0000050	----
Chromium, total	7440-47-3	E466	0.00004	mg/L	<0.000040	----
Cobalt, total	7440-48-4	E466	0.000005	mg/L	<0.0000050	----
Copper, total	7440-50-8	E466	0.00005	mg/L	<0.000050	----
Gallium, total	7440-55-3	E466	0.00005	mg/L	<0.000050	----
Iron, total	7439-89-6	E466	0.0005	mg/L	<0.00050	----
Lanthanum, total	7439-91-0	E466	0.00001	mg/L	<0.000010	----
Lead, total	7439-92-1	E466	0.000005	mg/L	<0.0000050	----
Lithium, total	7439-93-2	E466	0.0001	mg/L	<0.00010	----
Magnesium, total	7439-95-4	E466	0.001	mg/L	<0.0010	----
Manganese, total	7439-96-5	E466	0.000005	mg/L	<0.0000050	----
Molybdenum, total	7439-98-7	E466	0.00001	mg/L	<0.000010	----
Nickel, total	7440-02-0	E466	0.00002	mg/L	<0.000020	----
Niobium, total	7440-03-1	E466	0.0001	mg/L	<0.00010	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (Undigested) (QCLot: 1061019) - continued						
Phosphorus, total	7723-14-0	E466	0.01	mg/L	<0.010	----
Potassium, total	7440-09-7	E466	0.005	mg/L	<0.0050	----
Rhenium, total	7440-15-5	E466	0.000005	mg/L	<0.0000050	----
Rubidium, total	7440-17-7	E466	0.000005	mg/L	<0.0000050	----
Selenium, total	7782-49-2	E466	0.000025	mg/L	<0.000025	----
Silicon, total	7440-21-3	E466	0.05	mg/L	<0.050	----
Silver, total	7440-22-4	E466	0.000002	mg/L	<0.0000020	----
Sodium, total	7440-23-5	E466	0.01	mg/L	<0.010	----
Strontium, total	7440-24-6	E466	0.00002	mg/L	<0.000020	----
Sulfur, total	7704-34-9	E466	0.5	mg/L	<0.50	----
Tantalum, total	7440-25-7	E466	0.0001	mg/L	<0.00010	----
Tellurium, total	13494-80-9	E466	0.00001	mg/L	<0.000010	----
Thallium, total	7440-28-0	E466	0.000001	mg/L	<0.0000010	----
Thorium, total	7440-29-1	E466	0.000005	mg/L	<0.0000050	----
Tin, total	7440-31-5	E466	0.00001	mg/L	<0.000010	----
Titanium, total	7440-32-6	E466	0.00005	mg/L	<0.000050	----
Tungsten, total	7440-33-7	E466	0.00001	mg/L	<0.000010	----
Uranium, total	7440-61-1	E466	0.000001	mg/L	<0.0000010	----
Vanadium, total	7440-62-2	E466	0.00001	mg/L	<0.000010	----
Yttrium, total	7440-65-5	E466	0.00001	mg/L	<0.000010	----
Zinc, total	7440-66-6	E466	0.0001	mg/L	<0.00010	----
Zirconium, total	7440-67-7	E466	0.00001	mg/L	<0.000010	----
Dissolved Metals (QCLot: 1061016)						
Aluminum, dissolved	7429-90-5	E465	0.0002	mg/L	<0.00020	----
Antimony, dissolved	7440-36-0	E465	0.000005	mg/L	<0.0000050	----
Arsenic, dissolved	7440-38-2	E465	0.00001	mg/L	<0.000010	----
Barium, dissolved	7440-39-3	E465	0.00002	mg/L	<0.000020	----
Beryllium, dissolved	7440-41-7	E465	0.000002	mg/L	<0.0000020	----
Bismuth, dissolved	7440-69-9	E465	0.000001	mg/L	<0.0000010	----
Boron, dissolved	7440-42-8	E465	0.005	mg/L	<0.0050	----
Cadmium, dissolved	7440-43-9	E465	0.0000025	mg/L	<0.0000025	----
Calcium, dissolved	7440-70-2	E465	0.01	mg/L	<0.010	----
Cesium, dissolved	7440-46-2	E465	0.000005	mg/L	<0.0000050	----
Chromium, dissolved	7440-47-3	E465	0.00004	mg/L	<0.000040	----
Cobalt, dissolved	7440-48-4	E465	0.000005	mg/L	<0.0000050	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Dissolved Metals (QCLot: 1061016) - continued						
Copper, dissolved	7440-50-8	E465	0.00005	mg/L	<0.000050	----
Gallium, dissolved	7440-55-3	E465	0.00005	mg/L	<0.000050	----
Iron, dissolved	7439-89-6	E465	0.0005	mg/L	<0.00050	----
Lanthanum, dissolved	7439-91-0	E465	0.00001	mg/L	<0.000010	----
Lead, dissolved	7439-92-1	E465	0.000005	mg/L	<0.0000050	----
Lithium, dissolved	7439-93-2	E465	0.0001	mg/L	<0.00010	----
Magnesium, dissolved	7439-95-4	E465	0.001	mg/L	<0.0010	----
Manganese, dissolved	7439-96-5	E465	0.000005	mg/L	<0.0000050	----
Molybdenum, dissolved	7439-98-7	E465	0.00001	mg/L	<0.000010	----
Nickel, dissolved	7440-02-0	E465	0.00002	mg/L	<0.000020	----
Niobium, dissolved	7440-03-1	E465	0.0001	mg/L	<0.00010	----
Phosphorus, dissolved	7723-14-0	E465	0.01	mg/L	<0.010	----
Potassium, dissolved	7440-09-7	E465	0.005	mg/L	<0.0050	----
Rhenium, dissolved	7440-15-5	E465	0.000005	mg/L	<0.0000050	----
Rubidium, dissolved	7440-17-7	E465	0.000005	mg/L	<0.0000050	----
Selenium, dissolved	7782-49-2	E465	0.000025	mg/L	<0.000025	----
Silicon, dissolved	7440-21-3	E465	0.05	mg/L	<0.050	----
Silver, dissolved	7440-22-4	E465	0.000002	mg/L	<0.0000020	----
Sodium, dissolved	7440-23-5	E465	0.01	mg/L	<0.010	----
Strontium, dissolved	7440-24-6	E465	0.00002	mg/L	<0.000020	----
Sulfur, dissolved	7704-34-9	E465	0.5	mg/L	<0.50	----
Tantalum, dissolved	7440-25-7	E465	0.0001	mg/L	<0.00010	----
Tellurium, dissolved	13494-80-9	E465	0.00001	mg/L	<0.000010	----
Thallium, dissolved	7440-28-0	E465	0.000001	mg/L	<0.0000010	----
Thorium, dissolved	7440-29-1	E465	0.000005	mg/L	# 0.0000061	MB-LOR
Tin, dissolved	7440-31-5	E465	0.00001	mg/L	<0.000010	----
Titanium, dissolved	7440-32-6	E465	0.00005	mg/L	<0.000050	----
Tungsten, dissolved	7440-33-7	E465	0.00001	mg/L	<0.000010	----
Uranium, dissolved	7440-61-1	E465	0.000001	mg/L	<0.0000010	----
Vanadium, dissolved	7440-62-2	E465	0.00001	mg/L	<0.000010	----
Yttrium, dissolved	7440-65-5	E465	0.00001	mg/L	<0.000010	----
Zinc, dissolved	7440-66-6	E465	0.0001	mg/L	<0.00010	----
Zirconium, dissolved	7440-67-7	E465	0.00001	mg/L	<0.000010	----
Dissolved Metals (QCLot: 1065878)						
Mercury, dissolved	7439-97-6	E509-L	0.5	ng/L	<0.50	----

Qualifiers

Qualifier	Description
B	Method Blank exceeds ALS DQO. Associated sample results which are < Limit of Reporting or > 5 times blank level are considered reliable.
MB-LOR	Method Blank exceeds ALS DQO. Limits of Reporting have been adjusted for samples with positive hits below 5x blank level.

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: 1057436)									
Solids, total suspended [TSS]	----	E160	3	mg/L	150 mg/L	88.8	85.0	115	----
Physical Tests (QCLot: 1057437)									
Solids, total suspended [TSS]	----	E160	3	mg/L	150 mg/L	87.5	85.0	115	----
Physical Tests (QCLot: 1057709)									
Alkalinity, phenolphthalein (as CaCO3)	----	E290	1	mg/L	229 mg/L	107	75.0	125	----
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	500 mg/L	110	85.0	115	----
Physical Tests (QCLot: 1057711)									
pH	----	E108	----	pH units	7 pH units	100	98.0	102	----
Physical Tests (QCLot: 1057712)									
Conductivity	----	E100	1	µS/cm	146.9 µS/cm	103	90.0	110	----
Physical Tests (QCLot: 1058086)									
Solids, total suspended [TSS]	----	E160	3	mg/L	150 mg/L	91.7	85.0	115	----
Physical Tests (QCLot: 1061251)									
pH	----	E108	----	pH units	7 pH units	100	98.0	102	----
Physical Tests (QCLot: 1061252)									
Alkalinity, phenolphthalein (as CaCO3)	----	E290	1	mg/L	229 mg/L	117	75.0	125	----
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	500 mg/L	108	85.0	115	----
Physical Tests (QCLot: 1061253)									
Conductivity	----	E100	1	µS/cm	146.9 µS/cm	104	90.0	110	----
Anions and Nutrients (QCLot: 1057713)									
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	102	90.0	110	----
Anions and Nutrients (QCLot: 1057714)									
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: 1057715)									
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	0.5 mg/L	98.7	90.0	110	----
Anions and Nutrients (QCLot: 1057716)									
Fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	99.8	90.0	110	----
Anions and Nutrients (QCLot: 1057717)									
Chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	100	90.0	110	----
Anions and Nutrients (QCLot: 1057718)									
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	0.5 mg/L	100	85.0	115	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Anions and Nutrients (QCLot: 1057722)									
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.001	mg/L	0.03 mg/L	101	80.0	120	----
Anions and Nutrients (QCLot: 1059348)									
Silicate (as SiO2)	7631-86-9	E392	0.5	mg/L	10 mg/L	99.9	85.0	115	----
Anions and Nutrients (QCLot: 1059543)									
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	101	85.0	115	----
Anions and Nutrients (QCLot: 1061254)									
Fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	96.6	90.0	110	----
Anions and Nutrients (QCLot: 1061255)									
Chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	99.8	90.0	110	----
Anions and Nutrients (QCLot: 1061256)									
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	0.5 mg/L	90.0	85.0	115	----
Anions and Nutrients (QCLot: 1061257)									
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	2.5 mg/L	100	90.0	110	----
Anions and Nutrients (QCLot: 1061258)									
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	0.5 mg/L	98.1	90.0	110	----
Anions and Nutrients (QCLot: 1061259)									
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 1061260)									
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.001	mg/L	0.03 mg/L	97.8	80.0	120	----
Anions and Nutrients (QCLot: 1064322)									
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	102	85.0	115	----
Anions and Nutrients (QCLot: 1065742)									
Kjeldahl nitrogen, total [TKN]	----	E318	0.05	mg/L	4 mg/L	101	75.0	125	----
Anions and Nutrients (QCLot: 1065743)									
Kjeldahl nitrogen, total [TKN]	----	E318	0.05	mg/L	4 mg/L	92.3	75.0	125	----
Anions and Nutrients (QCLot: 1067143)									
Phosphorus, total	7723-14-0	E372-S	0.001	mg/L	0.05 mg/L	112	80.0	120	----
Anions and Nutrients (QCLot: 1067144)									
Phosphorus, total dissolved	7723-14-0	E375-U	0.001	mg/L	0.05 mg/L	105	80.0	120	----
Cyanides (QCLot: 1063630)									
Cyanide, strong acid dissociable (Total)	----	E333	0.002	mg/L	0.25 mg/L	98.9	80.0	120	----
Cyanides (QCLot: 1063631)									
Cyanide, weak acid dissociable	----	E336	0.002	mg/L	0.125 mg/L	98.8	80.0	120	----
Cyanides (QCLot: 1063632)									

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
					Concentration	LCS	Low	High	Qualifier
Cyanides (QCLot: 1063632) - continued									
Cyanide, free	----	E339	0.002	mg/L	0.125 mg/L	99.4	80.0	120	----
Organic / Inorganic Carbon (QCLot: 1061155)									
Carbon, total organic [TOC]	----	E355-L	0.5	mg/L	8.57 mg/L	95.0	80.0	120	----
Organic / Inorganic Carbon (QCLot: 1065495)									
Carbon, total organic [TOC]	----	E355-L	0.5	mg/L	8.57 mg/L	99.0	80.0	120	----
Organic / Inorganic Carbon (QCLot: 1077392)									
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	8.57 mg/L	97.2	80.0	120	----
Total Sulfides (QCLot: 1061163)									
Sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	0.08 mg/L	86.9	80.0	120	----
Total Metals (QCLot: 1067893)									
Mercury, total	7439-97-6	E508-L	0.5	ng/L	5 ng/L	98.8	80.0	120	----
Total Metals (Undigested) (QCLot: 1061019)									
Aluminum, total	7429-90-5	E466	0.0002	mg/L	2 mg/L	93.0	80.0	120	----
Antimony, total	7440-36-0	E466	0.000005	mg/L	1 mg/L	108	80.0	120	----
Arsenic, total	7440-38-2	E466	0.00001	mg/L	1 mg/L	113	80.0	120	----
Barium, total	7440-39-3	E466	0.00002	mg/L	0.25 mg/L	106	80.0	120	----
Beryllium, total	7440-41-7	E466	0.000002	mg/L	0.1 mg/L	103	80.0	120	----
Bismuth, total	7440-69-9	E466	0.000001	mg/L	1 mg/L	105	80.0	120	----
Boron, total	7440-42-8	E466	0.005	mg/L	1 mg/L	98.6	80.0	120	----
Cadmium, total	7440-43-9	E466	0.0000025	mg/L	0.1 mg/L	107	80.0	120	----
Calcium, total	7440-70-2	E466	0.01	mg/L	50 mg/L	93.0	80.0	120	----
Cesium, total	7440-46-2	E466	0.000005	mg/L	0.05 mg/L	105	80.0	120	----
Chromium, total	7440-47-3	E466	0.00004	mg/L	0.25 mg/L	93.0	80.0	120	----
Cobalt, total	7440-48-4	E466	0.000005	mg/L	0.25 mg/L	93.5	80.0	120	----
Copper, total	7440-50-8	E466	0.00005	mg/L	0.25 mg/L	89.9	80.0	120	----
Gallium, total	7440-55-3	E466	0.00005	mg/L	0.25 mg/L	103	80.0	120	----
Iron, total	7439-89-6	E466	0.0005	mg/L	1 mg/L	93.4	80.0	120	----
Lanthanum, total	7439-91-0	E466	0.00001	mg/L	0.1 mg/L	105	80.0	120	----
Lead, total	7439-92-1	E466	0.000005	mg/L	0.5 mg/L	106	80.0	120	----
Lithium, total	7439-93-2	E466	0.0001	mg/L	0.25 mg/L	103	80.0	120	----
Magnesium, total	7439-95-4	E466	0.001	mg/L	50 mg/L	92.8	80.0	120	----
Manganese, total	7439-96-5	E466	0.000005	mg/L	0.25 mg/L	93.6	80.0	120	----
Molybdenum, total	7439-98-7	E466	0.00001	mg/L	0.25 mg/L	89.7	80.0	120	----

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 (Undigested) (QCLot: 1061019) - continued									
Nickel, total	7440-02-0	E466	0.00002	mg/L	0.5 mg/L	91.6	80.0	120	----
Niobium, total	7440-03-1	E466	0.0001	mg/L	0.05 mg/L	106	80.0	120	----
Phosphorus, total	7723-14-0	E466	0.01	mg/L	10 mg/L	112	80.0	120	----
Potassium, total	7440-09-7	E466	0.005	mg/L	50 mg/L	93.8	80.0	120	----
Rhenium, total	7440-15-5	E466	0.000005	mg/L	0.1 mg/L	105	80.0	120	----
Rubidium, total	7440-17-7	E466	0.000005	mg/L	0.1 mg/L	92.2	80.0	120	----
Selenium, total	7782-49-2	E466	0.000025	mg/L	1 mg/L	109	80.0	120	----
Silicon, total	7440-21-3	E466	0.05	mg/L	10 mg/L	113	80.0	120	----
Silver, total	7440-22-4	E466	0.000002	mg/L	0.1 mg/L	102	80.0	120	----
Sodium, total	7440-23-5	E466	0.01	mg/L	50 mg/L	94.0	80.0	120	----
Strontium, total	7440-24-6	E466	0.00002	mg/L	0.25 mg/L	94.0	80.0	120	----
Sulfur, total	7704-34-9	E466	0.5	mg/L	50 mg/L	116	80.0	120	----
Tantalum, total	7440-25-7	E466	0.0001	mg/L	0.1 mg/L	100	80.0	120	----
Tellurium, total	13494-80-9	E466	0.00001	mg/L	0.1 mg/L	102	80.0	120	----
Thallium, total	7440-28-0	E466	0.000001	mg/L	1 mg/L	106	80.0	120	----
Thorium, total	7440-29-1	E466	0.000005	mg/L	0.1 mg/L	108	80.0	120	----
Tin, total	7440-31-5	E466	0.00001	mg/L	0.5 mg/L	106	80.0	120	----
Titanium, total	7440-32-6	E466	0.00005	mg/L	0.25 mg/L	106	80.0	120	----
Tungsten, total	7440-33-7	E466	0.00001	mg/L	0.1 mg/L	108	80.0	120	----
Uranium, total	7440-61-1	E466	0.000001	mg/L	0.005 mg/L	106	80.0	120	----
Vanadium, total	7440-62-2	E466	0.00001	mg/L	0.5 mg/L	94.7	80.0	120	----
Yttrium, total	7440-65-5	E466	0.00001	mg/L	0.1 mg/L	92.6	80.0	120	----
Zinc, total	7440-66-6	E466	0.0001	mg/L	0.5 mg/L	90.8	80.0	120	----
Zirconium, total	7440-67-7	E466	0.00001	mg/L	0.1 mg/L	105	80.0	120	----
Dissolved Metals (QCLot: 1061016)									
Aluminum, dissolved	7429-90-5	E465	0.0002	mg/L	2 mg/L	101	80.0	120	----
Antimony, dissolved	7440-36-0	E465	0.000005	mg/L	1 mg/L	111	80.0	120	----
Arsenic, dissolved	7440-38-2	E465	0.00001	mg/L	1 mg/L	114	80.0	120	----
Barium, dissolved	7440-39-3	E465	0.00002	mg/L	0.25 mg/L	111	80.0	120	----
Beryllium, dissolved	7440-41-7	E465	0.000002	mg/L	0.1 mg/L	102	80.0	120	----
Bismuth, dissolved	7440-69-9	E465	0.000001	mg/L	1 mg/L	108	80.0	120	----
Boron, dissolved	7440-42-8	E465	0.005	mg/L	1 mg/L	94.4	80.0	120	----
Cadmium, dissolved	7440-43-9	E465	0.0000025	mg/L	0.1 mg/L	109	80.0	120	----
Calcium, dissolved	7440-70-2	E465	0.01	mg/L	50 mg/L	100	80.0	120	----
Cesium, dissolved	7440-46-2	E465	0.000005	mg/L	0.05 mg/L	108	80.0	120	----

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: 1061016) - continued									
Chromium, dissolved	7440-47-3	E465	0.00004	mg/L	0.25 mg/L	101	80.0	120	----
Cobalt, dissolved	7440-48-4	E465	0.000005	mg/L	0.25 mg/L	101	80.0	120	----
Copper, dissolved	7440-50-8	E465	0.00005	mg/L	0.25 mg/L	97.1	80.0	120	----
Gallium, dissolved	7440-55-3	E465	0.00005	mg/L	0.25 mg/L	106	80.0	120	----
Iron, dissolved	7439-89-6	E465	0.0005	mg/L	1 mg/L	101	80.0	120	----
Lanthanum, dissolved	7439-91-0	E465	0.00001	mg/L	0.1 mg/L	103	80.0	120	----
Lead, dissolved	7439-92-1	E465	0.000005	mg/L	0.5 mg/L	110	80.0	120	----
Lithium, dissolved	7439-93-2	E465	0.0001	mg/L	0.25 mg/L	104	80.0	120	----
Magnesium, dissolved	7439-95-4	E465	0.001	mg/L	50 mg/L	100	80.0	120	----
Manganese, dissolved	7439-96-5	E465	0.000005	mg/L	0.25 mg/L	104	80.0	120	----
Molybdenum, dissolved	7439-98-7	E465	0.00001	mg/L	0.25 mg/L	98.0	80.0	120	----
Nickel, dissolved	7440-02-0	E465	0.00002	mg/L	0.5 mg/L	98.8	80.0	120	----
Niobium, dissolved	7440-03-1	E465	0.0001	mg/L	0.05 mg/L	99.2	80.0	120	----
Phosphorus, dissolved	7723-14-0	E465	0.01	mg/L	10 mg/L	113	80.0	120	----
Potassium, dissolved	7440-09-7	E465	0.005	mg/L	50 mg/L	99.4	80.0	120	----
Rhenium, dissolved	7440-15-5	E465	0.000005	mg/L	0.1 mg/L	109	80.0	120	----
Rubidium, dissolved	7440-17-7	E465	0.000005	mg/L	0.1 mg/L	100	80.0	120	----
Selenium, dissolved	7782-49-2	E465	0.000025	mg/L	1 mg/L	112	80.0	120	----
Silicon, dissolved	7440-21-3	E465	0.05	mg/L	10 mg/L	111	80.0	120	----
Silver, dissolved	7440-22-4	E465	0.000002	mg/L	0.1 mg/L	105	80.0	120	----
Sodium, dissolved	7440-23-5	E465	0.01	mg/L	50 mg/L	102	80.0	120	----
Strontium, dissolved	7440-24-6	E465	0.00002	mg/L	0.25 mg/L	100	80.0	120	----
Sulfur, dissolved	7704-34-9	E465	0.5	mg/L	50 mg/L	118	80.0	120	----
Tantalum, dissolved	7440-25-7	E465	0.0001	mg/L	0.1 mg/L	101	80.0	120	----
Tellurium, dissolved	13494-80-9	E465	0.00001	mg/L	0.1 mg/L	107	80.0	120	----
Thallium, dissolved	7440-28-0	E465	0.000001	mg/L	1 mg/L	109	80.0	120	----
Thorium, dissolved	7440-29-1	E465	0.000005	mg/L	0.1 mg/L	100	80.0	120	----
Tin, dissolved	7440-31-5	E465	0.00001	mg/L	0.5 mg/L	108	80.0	120	----
Titanium, dissolved	7440-32-6	E465	0.00005	mg/L	0.25 mg/L	105	80.0	120	----
Tungsten, dissolved	7440-33-7	E465	0.00001	mg/L	0.1 mg/L	108	80.0	120	----
Uranium, dissolved	7440-61-1	E465	0.000001	mg/L	0.005 mg/L	114	80.0	120	----
Vanadium, dissolved	7440-62-2	E465	0.00001	mg/L	0.5 mg/L	102	80.0	120	----
Yttrium, dissolved	7440-65-5	E465	0.00001	mg/L	0.1 mg/L	96.6	80.0	120	----
Zinc, dissolved	7440-66-6	E465	0.0001	mg/L	0.5 mg/L	98.5	80.0	120	----
Zirconium, dissolved	7440-67-7	E465	0.00001	mg/L	0.1 mg/L	103	80.0	120	----
Mercury, dissolved	7439-97-6	E509-L	0.5	ng/L	5 ng/L	92.0	80.0	120	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier

Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for the associated sample (or similar samples) may be subject to bias. ND – Recovery not determined, background level >= 1x spike level.

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Anions and Nutrients (QCLot: 1057713)										
VA23B7121-002	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	99.3 mg/L	100 mg/L	99.3	75.0	125	----
Anions and Nutrients (QCLot: 1057714)										
VA23B7121-002	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	2.53 mg/L	2.5 mg/L	101	75.0	125	----
Anions and Nutrients (QCLot: 1057715)										
VA23B7121-002	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	0.493 mg/L	0.5 mg/L	98.7	75.0	125	----
Anions and Nutrients (QCLot: 1057716)										
VA23B7121-002	Anonymous	Fluoride	16984-48-8	E235.F	1.01 mg/L	1 mg/L	101	75.0	125	----
Anions and Nutrients (QCLot: 1057717)										
VA23B7121-002	Anonymous	Chloride	16887-00-6	E235.Cl	100 mg/L	100 mg/L	100	75.0	125	----
Anions and Nutrients (QCLot: 1057718)										
VA23B7121-002	Anonymous	Bromide	24959-67-9	E235.Br-L	0.499 mg/L	0.5 mg/L	99.8	75.0	125	----
Anions and Nutrients (QCLot: 1057722)										
VA23B7121-002	Anonymous	Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0310 mg/L	0.03 mg/L	103	70.0	130	----
Anions and Nutrients (QCLot: 1059348)										
VA23B7180-011	Anonymous	Silicate (as SiO2)	7631-86-9	E392	7.89 mg/L	10 mg/L	78.9	75.0	125	----
Anions and Nutrients (QCLot: 1059543)										
FC2302029-001	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.107 mg/L	0.1 mg/L	107	75.0	125	----
Anions and Nutrients (QCLot: 1061254)										
FJ2301858-002	Anonymous	Fluoride	16984-48-8	E235.F	5.00 mg/L	5 mg/L	100	75.0	125	----
Anions and Nutrients (QCLot: 1061255)										
FJ2301858-002	Anonymous	Chloride	16887-00-6	E235.Cl	503 mg/L	500 mg/L	101	75.0	125	----
Anions and Nutrients (QCLot: 1061256)										
FJ2301858-002	Anonymous	Bromide	24959-67-9	E235.Br-L	2.25 mg/L	2.5 mg/L	90.1	75.0	125	----
Anions and Nutrients (QCLot: 1061257)										
FJ2301858-002	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	12.6 mg/L	12.5 mg/L	101	75.0	125	----
Anions and Nutrients (QCLot: 1061258)										
FJ2301858-002	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	2.44 mg/L	2.5 mg/L	97.5	75.0	125	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Anions and Nutrients (QCLot: 1061259)										
FJ2301858-002	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	493 mg/L	500 mg/L	98.7	75.0	125	----
Anions and Nutrients (QCLot: 1061260)										
FJ2301858-002	Anonymous	Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0278 mg/L	0.03 mg/L	92.6	70.0	130	----
Anions and Nutrients (QCLot: 1064322)										
YL2300877-010	GLWB-T Gen Chem & Sulphide reduced volume	Ammonia, total (as N)	7664-41-7	E298	ND mg/L	0.1 mg/L	ND	75.0	125	----
Anions and Nutrients (QCLot: 1065742)										
EO2306718-001	Anonymous	Kjeldahl nitrogen, total [TKN]	----	E318	ND mg/L	2.5 mg/L	ND	70.0	130	----
Anions and Nutrients (QCLot: 1065743)										
YL2300877-011	GLWB-M	Kjeldahl nitrogen, total [TKN]	----	E318	2.29 mg/L	2.5 mg/L	91.5	70.0	130	----
Anions and Nutrients (QCLot: 1067143)										
FC2302069-001	Anonymous	Phosphorus, total	7723-14-0	E372-S	ND mg/L	0.067 mg/L	ND	70.0	130	----
Anions and Nutrients (QCLot: 1067144)										
EO2306737-001	Anonymous	Phosphorus, total dissolved	7723-14-0	E375-U	ND mg/L	0.067 mg/L	ND	70.0	130	----
Cyanides (QCLot: 1063630)										
YL2300877-002	GLSE-M	Cyanide, strong acid dissociable (Total)	----	E333	0.483 mg/L	0.5 mg/L	96.7	75.0	125	----
Cyanides (QCLot: 1063631)										
YL2300877-002	GLSE-M	Cyanide, weak acid dissociable	----	E336	0.250 mg/L	0.25 mg/L	99.9	75.0	125	----
Cyanides (QCLot: 1063632)										
YL2300877-002	GLSE-M	Cyanide, free	----	E339	0.244 mg/L	0.25 mg/L	97.6	75.0	125	----
Organic / Inorganic Carbon (QCLot: 1061155)										
YL2300877-001	GLSE-T	Carbon, total organic [TOC]	----	E355-L	4.85 mg/L	5 mg/L	96.9	70.0	130	----
Organic / Inorganic Carbon (QCLot: 1065495)										
YL2300877-012	GLWB-B	Carbon, total organic [TOC]	----	E355-L	5.02 mg/L	5 mg/L	100	70.0	130	----
Organic / Inorganic Carbon (QCLot: 1077392)										
YL2300892-004	Anonymous	Carbon, dissolved organic [DOC]	----	E358-L	ND mg/L	5 mg/L	ND	70.0	130	----
Total Sulfides (QCLot: 1061163)										
YL2300877-002	GLSE-M	Sulfide, total (as S)	18496-25-8	E395	0.211 mg/L	0.2 mg/L	106	75.0	125	----
Total Metals (QCLot: 1067893)										
YL2300877-002	GLSE-M	Mercury, total	7439-97-6	E508-L	4.57 ng/L	5 ng/L	91.4	70.0	130	----
Total Metals (Undigested) (QCLot: 1061019)										

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Total Metals (Undigested) (QCLot: 1061019) - continued										
YL2300877-002	GLSE-M	Aluminum, total	7429-90-5	E466	0.180 mg/L	0.2 mg/L	90.2	70.0	130	----
		Antimony, total	7440-36-0	E466	0.0200 mg/L	0.02 mg/L	100	70.0	130	----
		Arsenic, total	7440-38-2	E466	0.0209 mg/L	0.02 mg/L	104	70.0	130	----
		Barium, total	7440-39-3	E466	0.0197 mg/L	0.02 mg/L	98.5	70.0	130	----
		Beryllium, total	7440-41-7	E466	0.0402 mg/L	0.04 mg/L	100	70.0	130	----
		Bismuth, total	7440-69-9	E466	0.00944 mg/L	0.01 mg/L	94.4	70.0	130	----
		Boron, total	7440-42-8	E466	0.0926 mg/L	0.1 mg/L	92.6	70.0	130	----
		Cadmium, total	7440-43-9	E466	0.00409 mg/L	0.004 mg/L	102	70.0	130	----
		Calcium, total	7440-70-2	E466	3.60 mg/L	4 mg/L	90.1	70.0	130	----
		Cesium, total	7440-46-2	E466	0.00981 mg/L	0.01 mg/L	98.1	70.0	130	----
		Chromium, total	7440-47-3	E466	0.0376 mg/L	0.04 mg/L	94.0	70.0	130	----
		Cobalt, total	7440-48-4	E466	0.0191 mg/L	0.02 mg/L	95.5	70.0	130	----
		Copper, total	7440-50-8	E466	0.0184 mg/L	0.02 mg/L	91.8	70.0	130	----
		Gallium, total	7440-55-3	E466	0.00232 mg/L	0.0025 mg/L	92.6	70.0	130	----
		Iron, total	7439-89-6	E466	1.90 mg/L	2 mg/L	95.3	70.0	130	----
		Lanthanum, total	7439-91-0	E466	0.00239 mg/L	0.0025 mg/L	95.6	70.0	130	----
		Lead, total	7439-92-1	E466	0.0193 mg/L	0.02 mg/L	96.7	70.0	130	----
		Lithium, total	7439-93-2	E466	0.0963 mg/L	0.1 mg/L	96.3	70.0	130	----
		Magnesium, total	7439-95-4	E466	ND mg/L	1 mg/L	ND	70.0	130	----
		Manganese, total	7439-96-5	E466	0.0186 mg/L	0.02 mg/L	92.8	70.0	130	----
		Molybdenum, total	7439-98-7	E466	0.0174 mg/L	0.02 mg/L	86.8	70.0	130	----
		Nickel, total	7440-02-0	E466	0.0380 mg/L	0.04 mg/L	95.1	70.0	130	----
		Niobium, total	7440-03-1	E466	0.00246 mg/L	0.0025 mg/L	98.4	70.0	130	----
		Phosphorus, total	7723-14-0	E466	10.5 mg/L	10 mg/L	105	70.0	130	----
		Potassium, total	7440-09-7	E466	3.54 mg/L	4 mg/L	88.6	70.0	130	----
		Rhenium, total	7440-15-5	E466	0.00241 mg/L	0.0025 mg/L	96.6	70.0	130	----
		Rubidium, total	7440-17-7	E466	0.0180 mg/L	0.02 mg/L	89.9	70.0	130	----
		Selenium, total	7782-49-2	E466	0.0447 mg/L	0.04 mg/L	112	70.0	130	----
		Silicon, total	7440-21-3	E466	10.2 mg/L	10 mg/L	102	70.0	130	----
		Silver, total	7440-22-4	E466	0.00412 mg/L	0.004 mg/L	103	70.0	130	----
		Sodium, total	7440-23-5	E466	1.77 mg/L	2 mg/L	88.5	70.0	130	----
		Strontium, total	7440-24-6	E466	0.0180 mg/L	0.02 mg/L	90.2	70.0	130	----
		Sulfur, total	7704-34-9	E466	21.6 mg/L	20 mg/L	108	70.0	130	----
		Tantalum, total	7440-25-7	E466	0.00229 mg/L	0.0025 mg/L	91.7	70.0	130	----
		Tellurium, total	13494-80-9	E466	0.0435 mg/L	0.04 mg/L	109	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Total Metals (Undigested) (QCLot: 1061019) - continued										
YL2300877-002	GLSE-M	Thallium, total	7440-28-0	E466	0.00380 mg/L	0.004 mg/L	94.9	70.0	130	----
		Thorium, total	7440-29-1	E466	0.0207 mg/L	0.02 mg/L	103	70.0	130	----
		Tin, total	7440-31-5	E466	0.0196 mg/L	0.02 mg/L	97.9	70.0	130	----
		Titanium, total	7440-32-6	E466	0.0389 mg/L	0.04 mg/L	97.2	70.0	130	----
		Tungsten, total	7440-33-7	E466	0.0195 mg/L	0.02 mg/L	97.3	70.0	130	----
		Uranium, total	7440-61-1	E466	0.00386 mg/L	0.004 mg/L	96.5	70.0	130	----
		Vanadium, total	7440-62-2	E466	0.1000 mg/L	0.1 mg/L	100.0	70.0	130	----
		Yttrium, total	7440-65-5	E466	0.00218 mg/L	0.0025 mg/L	87.3	70.0	130	----
		Zinc, total	7440-66-6	E466	0.392 mg/L	0.4 mg/L	98.0	70.0	130	----
		Zirconium, total	7440-67-7	E466	0.0398 mg/L	0.04 mg/L	99.4	70.0	130	----
Dissolved Metals (QCLot: 1061016)										
YL2300877-002	GLSE-M	Aluminum, dissolved	7429-90-5	E465	0.196 mg/L	0.2 mg/L	97.9	70.0	130	----
		Antimony, dissolved	7440-36-0	E465	0.0202 mg/L	0.02 mg/L	101	70.0	130	----
		Arsenic, dissolved	7440-38-2	E465	0.0213 mg/L	0.02 mg/L	107	70.0	130	----
		Barium, dissolved	7440-39-3	E465	0.0203 mg/L	0.02 mg/L	101	70.0	130	----
		Beryllium, dissolved	7440-41-7	E465	0.0426 mg/L	0.04 mg/L	106	70.0	130	----
		Bismuth, dissolved	7440-69-9	E465	0.00962 mg/L	0.01 mg/L	96.2	70.0	130	----
		Boron, dissolved	7440-42-8	E465	0.0951 mg/L	0.1 mg/L	95.1	70.0	130	----
		Cadmium, dissolved	7440-43-9	E465	0.00425 mg/L	0.004 mg/L	106	70.0	130	----
		Calcium, dissolved	7440-70-2	E465	3.72 mg/L	4 mg/L	93.1	70.0	130	----
		Cesium, dissolved	7440-46-2	E465	0.0101 mg/L	0.01 mg/L	101	70.0	130	----
		Chromium, dissolved	7440-47-3	E465	0.0410 mg/L	0.04 mg/L	102	70.0	130	----
		Cobalt, dissolved	7440-48-4	E465	0.0204 mg/L	0.02 mg/L	102	70.0	130	----
		Copper, dissolved	7440-50-8	E465	0.0195 mg/L	0.02 mg/L	97.7	70.0	130	----
		Gallium, dissolved	7440-55-3	E465	0.00240 mg/L	0.0025 mg/L	96.0	70.0	130	----
		Iron, dissolved	7439-89-6	E465	2.06 mg/L	2 mg/L	103	70.0	130	----
		Lanthanum, dissolved	7439-91-0	E465	0.00238 mg/L	0.0025 mg/L	95.2	70.0	130	----
		Lead, dissolved	7439-92-1	E465	0.0199 mg/L	0.02 mg/L	99.3	70.0	130	----
		Lithium, dissolved	7439-93-2	E465	0.101 mg/L	0.1 mg/L	101	70.0	130	----
		Magnesium, dissolved	7439-95-4	E465	ND mg/L	1 mg/L	ND	70.0	130	----
		Manganese, dissolved	7439-96-5	E465	0.0201 mg/L	0.02 mg/L	101	70.0	130	----
		Molybdenum, dissolved	7439-98-7	E465	0.0187 mg/L	0.02 mg/L	93.4	70.0	130	----
		Nickel, dissolved	7440-02-0	E465	0.0403 mg/L	0.04 mg/L	101	70.0	130	----
		Niobium, dissolved	7440-03-1	E465	0.00222 mg/L	0.0025 mg/L	88.7	70.0	130	----
		Phosphorus, dissolved	7723-14-0	E465	11.0 mg/L	10 mg/L	110	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Dissolved Metals (QCLot: 1061016) - continued										
YL2300877-002	GLSE-M	Potassium, dissolved	7440-09-7	E465	3.89 mg/L	4 mg/L	97.2	70.0	130	----
		Rhenium, dissolved	7440-15-5	E465	0.00235 mg/L	0.0025 mg/L	94.0	70.0	130	----
		Rubidium, dissolved	7440-17-7	E465	0.0194 mg/L	0.02 mg/L	97.2	70.0	130	----
		Selenium, dissolved	7782-49-2	E465	0.0466 mg/L	0.04 mg/L	116	70.0	130	----
		Silicon, dissolved	7440-21-3	E465	10.3 mg/L	10 mg/L	103	70.0	130	----
		Silver, dissolved	7440-22-4	E465	0.00405 mg/L	0.004 mg/L	101	70.0	130	----
		Sodium, dissolved	7440-23-5	E465	1.92 mg/L	2 mg/L	95.8	70.0	130	----
		Strontium, dissolved	7440-24-6	E465	0.0186 mg/L	0.02 mg/L	92.8	70.0	130	----
		Sulfur, dissolved	7704-34-9	E465	21.8 mg/L	20 mg/L	109	70.0	130	----
		Tantalum, dissolved	7440-25-7	E465	0.00197 mg/L	0.0025 mg/L	78.8	70.0	130	----
		Tellurium, dissolved	13494-80-9	E465	0.0435 mg/L	0.04 mg/L	109	70.0	130	----
		Thallium, dissolved	7440-28-0	E465	0.00387 mg/L	0.004 mg/L	96.8	70.0	130	----
		Thorium, dissolved	7440-29-1	E465	0.0196 mg/L	0.02 mg/L	98.3	70.0	130	----
		Tin, dissolved	7440-31-5	E465	0.0195 mg/L	0.02 mg/L	97.4	70.0	130	----
		Titanium, dissolved	7440-32-6	E465	0.0396 mg/L	0.04 mg/L	99.0	70.0	130	----
		Tungsten, dissolved	7440-33-7	E465	0.0198 mg/L	0.02 mg/L	98.9	70.0	130	----
		Uranium, dissolved	7440-61-1	E465	0.00380 mg/L	0.004 mg/L	95.1	70.0	130	----
		Vanadium, dissolved	7440-62-2	E465	0.106 mg/L	0.1 mg/L	106	70.0	130	----
		Yttrium, dissolved	7440-65-5	E465	0.00201 mg/L	0.0025 mg/L	80.2	70.0	130	----
		Zinc, dissolved	7440-66-6	E465	0.432 mg/L	0.4 mg/L	108	70.0	130	----
		Zirconium, dissolved	7440-67-7	E465	0.0384 mg/L	0.04 mg/L	96.1	70.0	130	----
Dissolved Metals (QCLot: 1065878)										
YL2300877-001	GLSE-T	Mercury, dissolved	7439-97-6	E509-L	4.37 ng/L	5 ng/L	87.4	70.0	130	----

CHAIN OF CUSTODY

ALS Laboratory

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE/TIME: 21 Jul 23	DATE/TIME:	DATE/TIME: JULY 24/23 9:30	DATE/TIME:

CLIENT:	B2Gold
PROJECT:	22567626
SITE:	Sabina / B2Gold Goose Lake
PURCHASE ORDER NO.:	
PROJECT MANAGER:	Merle Keefe
CONTACT PH:	
SAMPLER:	D. Mullen
SAMPLER MOBILE:	
EMAIL REPORTS TO:	mkeefe@b2gold.com zenovia.craciunescu@wsp.com, andrea.wade@wsp.com
EMAIL INVOICE TO:	mkeefe@b2gold.com

TURNAROUND REQUIREMENTS : (Standard TAT may be longer for some tests e.g., Ultra Trace Organics)

- ☑ Standard TAT (List due date): 26 July 2023
- ☐ Non Standard or urgent TAT (List due date):

EDD Format

FOR LABORATORY USE ONLY (Circle)

Custody Seal Intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:	6.9 °C		
Other comments:			

SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE ONLY	SAMPLE DETAILS		MATRIX: Solid(S) Water(W)	CONTAINER INFORMATION		ANALYSIS REQUIRED										Additional Information
SAMPLE	Sample identification (This description will appear on the report)		DATE / TIME (dd-mm-yyyy)	MATRIX	TOTAL CONTAINERS	Total Metals + Hg	Dissolved Metals + Hg	Total Nutrients	Dissolved Nutrients	General Parameters / Routine	Total Sulphides	Cyanide (total, WAD, free)				Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
	GLSE-T		19-07-2023 / 15:20	W	9	X	X	X	X	X	X	X				
	GLSE-M		19-07-2023 / 15:30	W	9	X	X	X	X	X	X	X				
	GLSE-B		19-07-2023 / 15:40	W	9	X	X	X	X	X	X	X				
	GLCB-T		19-07-2023 / 16:30	W	9	X	X	X	X	X	X	X				
	GLCB-M		19-07-2023 / 16:40	W	9	X	X	X	X	X	X	X				
	GLCB-B		19-07-2023 / 16:50	W	9	X	X	X	X	X	X	X				
	GLTL-T		20-07-2023 / 10:20	W	9	X	X	X	X	X	X	X				
	GLTL-M		20-07-2023 / 10:30	W	9	X	X	X	X	X	X	X				Gen Chem & Sulphide reduced volume
	GLTL-B		20-07-2023 / 10:40	W	9	X	X	X	X	X	X	X				
	GLWB-T		20-07-2023 / 12:40	W	9	X	X	X	X	X	X	X				Gen Chem & Sulphide reduced volume
	GLWB-M		20-07-2023 / 12:50	W	9	X	X	X	X	X	X	X				
	GLWB-B		20-07-2023 / 13:00	W	9	X	X	X	X	X	X	X				
	PN03		20-07-2023 / 15:40	W	9	X	X	X	X	X	X	X				
	DUP1		20-07-2023 / 15:40	W	9	X	X	X	X	X	X	X				
				TOTAL	126											

Environmental Division
Yellowknife
Work Order Reference
YL2300877

Telephone : +1 867 873 5593

ALS Canada Ltd.

right solutions.
right partner.

CERTIFICATE OF ANALYSIS

Work Order	: **YL2300892**	Page	: 1 of 8
Amendment	: **3**		
Client	: **Sabina Gold & Silver Corporation**	Laboratory	: ALS Environmental - Yellowknife
Contact	: Merle Keefe	Account Manager	: Oliver Gregg
Address	: 375 - 555 Burrard St. Box 220, Bentall 2 Vancouver BC Canada V7X 1M7	Address	: 314 Old Airport Road, Unit 116 Yellowknife NT Canada X1A 3T3
Telephone	: 604 240 6619	Telephone	: 1 867 445 7143
Project	: 22567626	Date Samples Received	: 25-Jul-2023 09:07
PO	: PO-10402	Date Analysis Commenced	: 27-Jul-2023
C-O-C number	: ----	Issue Date	: 22-Nov-2023 12:20
Sampler	: ----		
Site	: ----		
Quote number	: YL23-SABI100-001		
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

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
Brieanna Allen	Production/Validation Manager	Inorganics, Burnaby, British Columbia
Ilnaz Badbezanchi	Supervisor - Metals Prep & Mercury	Metals, Burnaby, British Columbia
Jing Liu	Lab Assistant	Inorganics, Edmonton, Alberta
Kate Dimitrova	Supervisor - Inorganic	Inorganics, Burnaby, British Columbia
Kim Jensen	Department Manager - Metals	Metals, Burnaby, British Columbia
Lindsay Gung	Supervisor - Water Chemistry	Inorganics, Burnaby, British Columbia
Logan Carroll	Laboratory Analyst	Inorganics, Edmonton, Alberta
Michael Webb	Lab Analyst	Metals, Burnaby, British Columbia
Miles Gropen	Department Manager - Inorganics	Inorganics, Burnaby, British Columbia
Ping Yeung	Team Leader - Inorganics	Inorganics, Edmonton, Alberta
Robin Weeks	Team Leader - Metals	Metals, Burnaby, British Columbia
Shruti Mudliar	Lab Analyst	Inorganics, Edmonton, Alberta

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
ng/L	nanograms per litre
pH units	pH units

<: 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.

Accreditation

Accreditation	*Description*	*Laboratory*	*Address*
A	CALA ISO/IEC 17025:2017	VA ALS Environmental - Vancouver	8081 Lougheed Highway, Burnaby, BC
B	CALA ISO/IEC 17025:2017	EO ALS Environmental - Edmonton	9450 - 17 Avenue NW, Edmonton, AB

Applicable accreditations are indicated in the Method/Lab column as superscripts.

Qualifiers

Qualifier	*Description*
DLB	*Detection Limit Raised. Analyte detected at comparable level in Method Blank.*
HTP	*Sample preparation or preservation hold time was exceeded.*
PHA	*pH adjusted before analysis.*
RRV	*Reported result verified by repeat analysis.*
SP	*Sample was preserved at the laboratory.*
TKNI	*TKN result may be biased low due to Nitrate interference. Nitrate-N is > 10x TKN.*

Analytical Results

Sub-Matrix: **Water**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab		LOR	Unit	Client sample ID	PN04	PN06	PN08	TB	----
						Client sampling date / time	21-Jul-2023 00:00	21-Jul-2023 00:00	21-Jul-2023 00:00	21-Jul-2023 00:00	----
							YL2300892-001	YL2300892-002	YL2300892-003	YL2300892-004	--------
							Result	Result	Result	Result	----
Physical Tests											
Alkalinity, bicarbonate (as CaCO3)	----	E290/VA	A	1.0	mg/L		2.5	5.1	11.4	<1.0	----
Alkalinity, carbonate (as CaCO3)	----	E290/VA	A	1.0	mg/L		<1.0	<1.0	<1.0	<1.0	----
Alkalinity, hydroxide (as CaCO3)	----	E290/VA	A	1.0	mg/L		<1.0	<1.0	<1.0	<1.0	----
Alkalinity, phenolphthalein (as CaCO3)	----	E290/VA	A	1.0	mg/L		<1.0	<1.0	<1.0	<1.0	----
Alkalinity, total (as CaCO3)	----	E290/VA	A	1.0	mg/L		2.5	5.1	11.4	<1.0	----
Conductivity	----	E100/VA	A	2.0	µS/cm		157	37.9	38.7	<2.0	----
Hardness (as CaCO3), dissolved	----	EC100/VA		0.50	mg/L		62.7	14.7	17.0	<0.50	----
pH	----	E108/VA	A	0.10	pH units		6.27	6.90	7.16	5.10	----
Solids, total dissolved [TDS], calculated	----	EC103/VA		1.0	mg/L		89.7	23.7	30.2	11.4	----
Solids, total suspended [TSS]	----	E160/VA	A	3.0	mg/L		<3.0	<3.0	13.8	<3.0	----
Anions and Nutrients											
Ammonia, total (as N)	7664-41-7	E298/EO	B	0.0050	mg/L		0.208	<0.0050	0.0108	0.0060 RRV	----
Bromide	24959-67-9	E235.Br-L/VA	A	0.050	mg/L		0.234	<0.050	<0.050	<0.050	----
Chloride	16887-00-6	E235.Cl/VA	A	0.50	mg/L		21.7	0.69	1.05	<0.50	----
Fluoride	16984-48-8	E235.F/VA	A	0.020	mg/L		0.020	0.030	0.034	<0.020	----
Kjeldahl nitrogen, total [TKN]	----	E318/EO	B	0.050	mg/L		0.311 TKNI	<0.050	<0.050	<0.050	----
Nitrate (as N)	14797-55-8	E235.NO3-L/VA	A	0.0050	mg/L		3.45	<0.0050	0.0074	<0.0050	----
Nitrite (as N)	14797-65-0	E235.NO2-L/VA	A	0.0010	mg/L		0.105	<0.0010	<0.0010	<0.0010	----
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U/VA	A	0.0010	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	----
Phosphorus, total	7723-14-0	E372-S/EO	B	0.0010	mg/L		0.0010	0.0034	<0.0010 RRV	<0.0010	----
Phosphorus, total dissolved	7723-14-0	E375-U/EO	B	0.0010	mg/L		<0.0010	0.0022	0.0134 RRV	0.0041 RRV	----
Silicate (as SiO2)	7631-86-9	E392/VA	A	0.50	mg/L		2.84	0.55	1.61	<0.50	----
Sulfate (as SO4)	14808-79-8	E235.SO4/VA	A	0.30	mg/L		20.1	9.93	3.77	<0.30	----
Cyanides											
Cyanide, free	----	E339/VA	A	0.0050	mg/L		<0.0050 PHA	<0.0050 PHA	<0.0050 PHA	<0.0050 HTP, SP	----
Cyanide, strong acid dissociable (Total)	----	E333/VA	A	0.0050	mg/L		<0.0050 PHA	<0.0050 PHA	<0.0050 PHA	<0.0050 HTP, SP	----
Cyanide, weak acid dissociable	----	E336/VA	A	0.0050	mg/L		<0.0050 PHA	<0.0050 PHA	<0.0050 PHA	<0.0050 HTP, SP	----
Organic / Inorganic Carbon											

Analytical Results

Sub-Matrix: **Water**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab		LOR	Unit	Client sample ID	PN04	PN06	PN08	TB	----
						Client sampling date / time	21-Jul-2023 00:00	21-Jul-2023 00:00	21-Jul-2023 00:00	21-Jul-2023 00:00	----
							YL2300892-001	YL2300892-002	YL2300892-003	YL2300892-004	--------
							Result	Result	Result	Result	----
Organic / Inorganic Carbon											
Carbon, dissolved organic [DOC]	----	E358-L/EO	B	0.50	mg/L		2.25	3.55	8.33 RRV	11.4 RRV	----
Carbon, total organic [TOC]	----	E355-L/EO	B	0.50	mg/L		2.76	4.34	0.64	<0.50	----
Total Sulfides											
Sulfide, total (as S)	18496-25-8	E395/VA	A	0.0015	mg/L		<0.0015	0.0018	0.0066	<0.0015	----
Sulfide, total (as H2S)	7783-06-4	E395/VA	A	0.0016	mg/L		<0.0016	0.0019	0.0070	<0.0016	----
Total Metals											
Mercury, total	7439-97-6	E508-L/VA	A	0.50	ng/L		0.88	0.88	3.70	<0.50	----
Total Metals (Undigested)											
Aluminum, total	7429-90-5	E466/VA	A	0.00020	mg/L		0.0255	0.0182	0.114	<0.00020	----
Antimony, total	7440-36-0	E466/VA	A	0.0000050	mg/L		0.0000100	0.0000110	0.0000153	<0.0000050	----
Arsenic, total	7440-38-2	E466/VA	A	0.000010	mg/L		0.000194	0.000287	0.00158	<0.000010	----
Barium, total	7440-39-3	E466/VA	A	0.000020	mg/L		0.0451	0.00490	0.00827	<0.000020	----
Beryllium, total	7440-41-7	E466/VA	A	0.0000020	mg/L		0.0000134	0.0000022	0.0000093	<0.0000020	----
Bismuth, total	7440-69-9	E466/VA	A	0.0000010	mg/L		<0.0000010	<0.0000010	0.0000023	<0.0000010	----
Boron, total	7440-42-8	E466/VA	A	0.0050	mg/L		<0.0050	<0.0050	<0.0050	<0.0050	----
Cadmium, total	7440-43-9	E466/VA	A	0.0000025	mg/L		0.000130	0.0000069	0.0000112	<0.0000025	----
Calcium, total	7440-70-2	E466/VA	A	0.010	mg/L		15.5	2.62	3.59	<0.010	----
Cesium, total	7440-46-2	E466/VA	A	0.0000050	mg/L		0.0000424	0.0000066	0.0000102	<0.0000050	----
Chromium, total	7440-47-3	E466/VA	A	0.000040	mg/L		0.000074	0.000074	0.000384	<0.000040	----
Cobalt, total	7440-48-4	E466/VA	A	0.0000050	mg/L		0.00329	0.000223	0.000472	<0.0000050	----
Copper, total	7440-50-8	E466/VA	A	0.000050	mg/L		0.00193	0.00197	0.00303	<0.000050	----
Gallium, total	7440-55-3	E466/VA	A	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	----
Iron, total	7439-89-6	E466/VA	A	0.00050	mg/L		0.00363	0.114	1.62	<0.00050	----
Lanthanum, total	7439-91-0	E466/VA	A	0.000010	mg/L		0.000403	0.000168	0.00116	<0.000010	----
Lead, total	7439-92-1	E466/VA	A	0.0000050	mg/L		0.0000066	0.0000364	0.000219	<0.0000050	----
Lithium, total	7439-93-2	E466/VA	A	0.00010	mg/L		0.00191	0.00095	0.00085	<0.00010	----
Magnesium, total	7439-95-4	E466/VA	A	0.0010	mg/L		5.92	2.10	2.21	<0.0010	----
Manganese, total	7439-96-5	E466/VA	A	0.0000050	mg/L		0.0627	0.00477	0.0112	<0.0000050	----
Molybdenum, total	7439-98-7	E466/VA	A	0.000010	mg/L		<0.000010	0.000018	0.000063	<0.000010	----
Nickel, total	7440-02-0	E466/VA	A	0.000020	mg/L		0.0196	0.00461	0.00688	<0.000020	----
Niobium, total	7440-03-1	E466/VA	A	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	----

Analytical Results

Sub-Matrix: **Water**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab		LOR	Unit	Client sample ID	PN04	PN06	PN08	TB	----
						Client sampling date / time	21-Jul-2023 00:00	21-Jul-2023 00:00	21-Jul-2023 00:00	21-Jul-2023 00:00	----
							YL2300892-001	YL2300892-002	YL2300892-003	YL2300892-004	--------
							Result	Result	Result	Result	----
Total Metals (Undigested)											
Phosphorus, total	7723-14-0	E466/VA	A	0.010	mg/L		<0.010	<0.010	0.012	<0.010	----
Potassium, total	7440-09-7	E466/VA	A	0.0050	mg/L		1.23	0.423	0.695	<0.0050	----
Rhenium, total	7440-15-5	E466/VA	A	0.0000050	mg/L		<0.0000050	<0.0000050	<0.0000050	<0.0000050	----
Rubidium, total	7440-17-7	E466/VA	A	0.0000050	mg/L		0.00425	0.000918	0.00193	<0.0000050	----
Selenium, total	7782-49-2	E466/VA	A	0.000025	mg/L		0.000089	0.000029	0.000046	<0.000025	----
Silicon, total	7440-21-3	E466/VA	A	0.050	mg/L		1.43	0.250	0.848	<0.050	----
Silver, total	7440-22-4	E466/VA	A	0.0000020	mg/L		0.0000021	0.0000029	0.0000073	<0.0000020	----
Sodium, total	7440-23-5	E466/VA	A	0.010	mg/L		1.67	0.784	0.844	<0.010	----
Strontium, total	7440-24-6	E466/VA	A	0.000020	mg/L		0.120	0.0108	0.0153	<0.000020	----
Sulfur, total	7704-34-9	E466/VA	A	0.50	mg/L		7.40	3.69	1.53	<0.50	----
Tantalum, total	7440-25-7	E466/VA	A	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	----
Tellurium, total	13494-80-9	E466/VA	A	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	----
Thallium, total	7440-28-0	E466/VA	A	0.0000010	mg/L		0.0000108	0.0000025	0.0000036	<0.0000010	----
Thorium, total	7440-29-1	E466/VA	A	0.0000050	mg/L		0.0000074	0.0000090	0.0000479	<0.0000050	----
Tin, total	7440-31-5	E466/VA	A	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	----
Titanium, total	7440-32-6	E466/VA	A	0.000050	mg/L		<0.000050	0.000090	0.00308	<0.000050	----
Tungsten, total	7440-33-7	E466/VA	A	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	----
Uranium, total	7440-61-1	E466/VA	A	0.0000010	mg/L		0.0000069	0.0000084	0.0000364	<0.0000010	----
Vanadium, total	7440-62-2	E466/VA	A	0.000010	mg/L		0.000022	0.000050	0.00102	<0.000010	----
Yttrium, total	7440-65-5	E466/VA	A	0.000010	mg/L		0.000169	0.000061	0.000490	<0.000010	----
Zinc, total	7440-66-6	E466/VA	A	0.00010	mg/L		0.0111	0.00092	0.00104	<0.00010	----
Zirconium, total	7440-67-7	E466/VA	A	0.000010	mg/L		0.000059	0.000034	0.000189	<0.000010	----
Dissolved Metals											
Aluminum, dissolved	7429-90-5	E465/VA	A	0.00020	mg/L		0.0250	0.0104	0.0410	<0.00020	----
Antimony, dissolved	7440-36-0	E465/VA	A	0.0000050	mg/L		0.0000119	0.0000072	0.0000175	<0.0000050	----
Arsenic, dissolved	7440-38-2	E465/VA	A	0.000010	mg/L		0.000187	0.000259	0.00137	<0.000010	----
Barium, dissolved	7440-39-3	E465/VA	A	0.000020	mg/L		0.0473	0.00420	0.00696	<0.000020	----
Beryllium, dissolved	7440-41-7	E465/VA	A	0.0000020	mg/L		0.0000114	<0.0000020	0.0000043	<0.0000020	----
Bismuth, dissolved	7440-69-9	E465/VA	A	0.0000010	mg/L		<0.0000010	<0.0000010	0.0000022	<0.0000010	----
Boron, dissolved	7440-42-8	E465/VA	A	0.0050	mg/L		<0.0050	<0.0050	<0.0050	<0.0050	----
Cadmium, dissolved	7440-43-9	E465/VA	A	0.0000025	mg/L		0.000127	0.0000046	0.0000052	<0.0000025	----

Analytical Results

Sub-Matrix: **Water**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab		LOR	Unit	Client sample ID	PN04	PN06	PN08	TB	----
						Client sampling date / time	21-Jul-2023 00:00	21-Jul-2023 00:00	21-Jul-2023 00:00	21-Jul-2023 00:00	----
							YL2300892-001	YL2300892-002	YL2300892-003	YL2300892-004	--------
							Result	Result	Result	Result	----
Dissolved Metals											
Calcium, dissolved	7440-70-2	E465/VA	A	0.010	mg/L		15.5	2.54	3.40	<0.010	----
Cesium, dissolved	7440-46-2	E465/VA	A	0.0000050	mg/L		0.0000449	0.0000059	0.0000079	<0.0000050	----
Chromium, dissolved	7440-47-3	E465/VA	A	0.000040	mg/L		0.000077	0.000054	0.000234	<0.000040	----
Cobalt, dissolved	7440-48-4	E465/VA	A	0.0000050	mg/L		0.00329	0.000159	0.000352	<0.0000050	----
Copper, dissolved	7440-50-8	E465/VA	A	0.000050	mg/L		0.00237	0.00181	0.00228	<0.000050	----
Dissolved metals filtration location	----	EP465/VA		-	-		Field	Field	Field	Field	----
Gallium, dissolved	7440-55-3	E465/VA	A	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	----
Iron, dissolved	7439-89-6	E465/VA	A	0.00050	mg/L		0.00340	0.0530	0.923	<0.00050	----
Lanthanum, dissolved	7439-91-0	E465/VA	A	0.000010	mg/L		0.000407	0.000113	0.000574	<0.000010	----
Lead, dissolved	7439-92-1	E465/VA	A	0.0000050	mg/L		0.0000114	<0.0000050	0.000144	<0.0000050	----
Lithium, dissolved	7439-93-2	E465/VA	A	0.00010	mg/L		0.00185	0.00086	0.00076	<0.00010	----
Magnesium, dissolved	7439-95-4	E465/VA	A	0.0010	mg/L		5.83	2.02	2.07	<0.0010	----
Manganese, dissolved	7439-96-5	E465/VA	A	0.0000050	mg/L		0.0638	0.00356	0.00950	<0.0000050	----
Mercury, dissolved	7439-97-6	E509-L/VA	A	0.50	ng/L		0.81	0.60	2.50	<0.50	----
Molybdenum, dissolved	7439-98-7	E465/VA	A	0.000010	mg/L		0.000011	0.000015	0.000057	<0.000010	----
Nickel, dissolved	7440-02-0	E465/VA	A	0.000020	mg/L		0.0199	0.00440	0.00596	<0.000020	----
Niobium, dissolved	7440-03-1	E465/VA	A	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	----
Phosphorus, dissolved	7723-14-0	E465/VA	A	0.010	mg/L		<0.010	<0.010	<0.010	<0.010	----
Potassium, dissolved	7440-09-7	E465/VA	A	0.0050	mg/L		1.21	0.409	0.669	<0.0050	----
Rhenium, dissolved	7440-15-5	E465/VA	A	0.0000050	mg/L		<0.0000050	<0.0000050	<0.0000050	<0.0000050	----
Rubidium, dissolved	7440-17-7	E465/VA	A	0.0000050	mg/L		0.00425	0.000885	0.00183	<0.0000050	----
Selenium, dissolved	7782-49-2	E465/VA	A	0.000025	mg/L		0.000092	0.000027	0.000043	<0.000025	----
Silicon, dissolved	7440-21-3	E465/VA	A	0.050	mg/L		1.43	0.234	0.792	<0.050	----
Silver, dissolved	7440-22-4	E465/VA	A	0.0000020	mg/L		<0.0000020	<0.0000020	0.0000050	<0.0000020	----
Sodium, dissolved	7440-23-5	E465/VA	A	0.010	mg/L		1.62	0.754	0.832	<0.010	----
Strontium, dissolved	7440-24-6	E465/VA	A	0.000020	mg/L		0.119	0.0104	0.0144	<0.000020	----
Sulfur, dissolved	7704-34-9	E465/VA	A	0.50	mg/L		7.44	3.55	1.52	<0.50	----
Tantalum, dissolved	7440-25-7	E465/VA	A	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	----
Tellurium, dissolved	13494-80-9	E465/VA	A	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	----
Thallium, dissolved	7440-28-0	E465/VA	A	0.0000010	mg/L		0.0000113	0.0000024	0.0000027	<0.0000010	----
Thorium, dissolved	7440-29-1	E465/VA	A	0.0000050	mg/L		<0.0000100 DLB	<0.0000100 DLB	0.0000374	<0.0000050	----

Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	PN04	PN06	PN08	TB	----
					Client sampling date / time	21-Jul-2023 00:00	21-Jul-2023 00:00	21-Jul-2023 00:00	21-Jul-2023 00:00	----
Analyte	CAS Number	Method/Lab		LOR	Unit	YL2300892-001	YL2300892-002	YL2300892-003	YL2300892-004	--------
						Result	Result	Result	Result	----
Dissolved Metals										
Tin, dissolved	7440-31-5	E465/VA	A	0.000010	mg/L	0.000011	<0.000010	<0.000010	<0.000010	----
Titanium, dissolved	7440-32-6	E465/VA	A	0.000050	mg/L	<0.000050	<0.000050	0.000477	<0.000050	----
Tungsten, dissolved	7440-33-7	E465/VA	A	0.000010	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	----
Uranium, dissolved	7440-61-1	E465/VA	A	0.0000010	mg/L	0.0000054	0.0000076	0.0000181	<0.0000010	----
Vanadium, dissolved	7440-62-2	E465/VA	A	0.000010	mg/L	0.000019	0.000033	0.000442	<0.000010	----
Yttrium, dissolved	7440-65-5	E465/VA	A	0.000010	mg/L	0.000146	0.000036	0.000252	<0.000010	----
Zinc, dissolved	7440-66-6	E465/VA	A	0.00010	mg/L	0.00994	0.00037	0.00108	<0.00010	----
Zirconium, dissolved	7440-67-7	E465/VA	A	0.000010	mg/L	0.000060	0.000031	0.000163	<0.000010	----
Dissolved mercury filtration location	----	EP509-L/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.

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QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **YL2300892**	Page	: 1 of 23
Amendment	: **3**		
Client	: **Sabina Gold & Silver Corporation**	Laboratory	: ALS Environmental - Yellowknife
Contact	: Merle Keefe	Account Manager	: Oliver Gregg
Address	: 375 - 555 Burrard St. Box 220, Bentall 2 Vancouver BC Canada V7X 1M7	Address	: 314 Old Airport Road, Unit 116 Yellowknife, Northwest Territories Canada X1A 3T3
Telephone	: 604 240 6619	Telephone	: 1 867 445 7143
Project	: 22567626	Date Samples Received	: 25-Jul-2023 09:07
PO	: PO-10402	Issue Date	: 22-Nov-2023 12:27
C-O-C number	: ----		
Sampler	: ----		
Site	: ----		
Quote number	: YL23-SABI100-001		
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

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 Duplicate outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- No Matrix Spike outliers occur.
- Method Blank value outliers occur - please see following pages for full details.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- Analysis Holding Time Outliers exist - please see following pages for full details.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **Water**

Analyte Group	Laboratory sample ID	Client/Ref Sample ID	Analyte	CAS Number	Method	Result	Limits	Comment
Method Blank (MB) Values								
Total Metals (Undigested)	QC-1061019-001	----	Aluminum, total	7429-90-5	E466	0.00030 B mg/L	0.0002 mg/L	Blank result exceeds permitted value
Dissolved Metals	QC-1061016-001	----	Thorium, dissolved	7440-29-1	E465	0.000006 MB-LOR 1 mg/L	0.000005 mg/L	Blank result exceeds permitted value

Result Qualifiers

Qualifier	Description
B	*Method Blank exceeds ALS DQO. Associated sample results which are < Limit of Reporting or > 5 times blank level are considered reliable.*
MB-LOR	*Method Blank exceeds ALS DQO. Limits of Reporting have been adjusted for samples with positive hits below 5x blank level.*

Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / **Container / Client Sample ID(s)**	*Method*	*Sampling Date*	*Extraction / Preparation*				*Analysis*			
			Preparation Date	*Holding Times* Rec	*Holding Times* Actual	*Eval*	*Analysis Date*	*Holding Times* Rec	*Holding Times* Actual	*Eval*
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) PN04	E298	21-Jul-2023	27-Jul-2023	28 days	6 days	✓	27-Jul-2023	28 days	6 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) PN06	E298	21-Jul-2023	27-Jul-2023	28 days	6 days	✓	27-Jul-2023	28 days	6 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) PN08	E298	21-Jul-2023	27-Jul-2023	28 days	6 days	✓	27-Jul-2023	28 days	6 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) TB	E298	21-Jul-2023	27-Jul-2023	28 days	6 days	✓	27-Jul-2023	28 days	6 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE PN04	E235.Br-L	21-Jul-2023	27-Jul-2023	28 days	6 days	✓	27-Jul-2023	28 days	6 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE PN06	E235.Br-L	21-Jul-2023	27-Jul-2023	28 days	6 days	✓	27-Jul-2023	28 days	6 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE PN08	E235.Br-L	21-Jul-2023	27-Jul-2023	28 days	6 days	✓	27-Jul-2023	28 days	6 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE TB	E235.Br-L	21-Jul-2023	27-Jul-2023	28 days	6 days	✓	27-Jul-2023	28 days	6 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE PN04	E235.Cl	21-Jul-2023	27-Jul-2023	28 days	6 days	✓	27-Jul-2023	28 days	6 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE PN06	E235.Cl	21-Jul-2023	27-Jul-2023	28 days	6 days	✓	27-Jul-2023	28 days	6 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE PN08	E235.Cl	21-Jul-2023	27-Jul-2023	28 days	6 days	✓	27-Jul-2023	28 days	6 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE TB	E235.Cl	21-Jul-2023	27-Jul-2023	28 days	6 days	✓	27-Jul-2023	28 days	6 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE PN04	E378-U	21-Jul-2023	27-Jul-2023	3 days	6 days	× EHTR	27-Jul-2023	3 days	6 days	× EHTR-FM
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE PN06	E378-U	21-Jul-2023	27-Jul-2023	3 days	6 days	× EHTR	27-Jul-2023	3 days	6 days	× EHTR-FM
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE PN08	E378-U	21-Jul-2023	27-Jul-2023	3 days	6 days	× EHTR	27-Jul-2023	3 days	6 days	× EHTR-FM
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE TB	E378-U	21-Jul-2023	27-Jul-2023	3 days	6 days	× EHTR	27-Jul-2023	3 days	6 days	× EHTR-FM

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Fluoride in Water by IC										
HDPE PN04	E235.F	21-Jul-2023	27-Jul-2023	28 days	6 days	✓	27-Jul-2023	28 days	6 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE PN06	E235.F	21-Jul-2023	27-Jul-2023	28 days	6 days	✓	27-Jul-2023	28 days	6 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE PN08	E235.F	21-Jul-2023	27-Jul-2023	28 days	6 days	✓	27-Jul-2023	28 days	6 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE TB	E235.F	21-Jul-2023	27-Jul-2023	28 days	6 days	✓	27-Jul-2023	28 days	6 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE PN04	E235.NO3-L	21-Jul-2023	27-Jul-2023	3 days	6 days	× EHTR	27-Jul-2023	3 days	6 days	× EHTR-FM
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE PN06	E235.NO3-L	21-Jul-2023	27-Jul-2023	3 days	6 days	× EHTR	27-Jul-2023	3 days	6 days	× EHTR-FM
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE PN08	E235.NO3-L	21-Jul-2023	27-Jul-2023	3 days	6 days	× EHTR	27-Jul-2023	3 days	6 days	× EHTR-FM
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE TB	E235.NO3-L	21-Jul-2023	27-Jul-2023	3 days	6 days	× EHTR	27-Jul-2023	3 days	6 days	× EHTR-FM
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE PN04	E235.NO2-L	21-Jul-2023	27-Jul-2023	3 days	6 days	× EHTR	27-Jul-2023	3 days	6 days	× EHTR-FM

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE PN06	E235.NO2-L	21-Jul-2023	27-Jul-2023	3 days	6 days	× EHTR	27-Jul-2023	3 days	6 days	× EHTR-FM
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE PN08	E235.NO2-L	21-Jul-2023	27-Jul-2023	3 days	6 days	× EHTR	27-Jul-2023	3 days	6 days	× EHTR-FM
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE TB	E235.NO2-L	21-Jul-2023	27-Jul-2023	3 days	6 days	× EHTR	27-Jul-2023	3 days	6 days	× EHTR-FM
Anions and Nutrients : Reactive Silica by Colourimetry										
HDPE PN04	E392	21-Jul-2023	----	----	----		27-Jul-2023	28 days	6 days	✓
Anions and Nutrients : Reactive Silica by Colourimetry										
HDPE PN06	E392	21-Jul-2023	----	----	----		27-Jul-2023	28 days	6 days	✓
Anions and Nutrients : Reactive Silica by Colourimetry										
HDPE PN08	E392	21-Jul-2023	----	----	----		27-Jul-2023	28 days	6 days	✓
Anions and Nutrients : Reactive Silica by Colourimetry										
HDPE TB	E392	21-Jul-2023	----	----	----		27-Jul-2023	28 days	6 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE PN04	E235.SO4	21-Jul-2023	27-Jul-2023	28 days	6 days	✓	27-Jul-2023	28 days	6 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE PN06	E235.SO4	21-Jul-2023	27-Jul-2023	28 days	6 days	✓	27-Jul-2023	28 days	6 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Sulfate in Water by IC										
HDPE PN08	E235.SO4	21-Jul-2023	27-Jul-2023	28 days	6 days	✓	27-Jul-2023	28 days	6 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE TB	E235.SO4	21-Jul-2023	27-Jul-2023	28 days	6 days	✓	27-Jul-2023	28 days	6 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (0.001 mg/L)										
Amber glass dissolved (sulfuric acid) PN04	E375-U	21-Jul-2023	31-Jul-2023	28 days	10 days	✓	31-Jul-2023	28 days	10 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (0.001 mg/L)										
Amber glass dissolved (sulfuric acid) PN06	E375-U	21-Jul-2023	31-Jul-2023	28 days	10 days	✓	31-Jul-2023	28 days	10 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (0.001 mg/L)										
Amber glass dissolved (sulfuric acid) PN08	E375-U	21-Jul-2023	31-Jul-2023	28 days	10 days	✓	31-Jul-2023	28 days	10 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (0.001 mg/L)										
Amber glass dissolved (sulfuric acid) TB	E375-U	21-Jul-2023	31-Jul-2023	28 days	10 days	✓	31-Jul-2023	28 days	10 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) PN04	E318	21-Jul-2023	28-Jul-2023	28 days	7 days	✓	28-Jul-2023	28 days	7 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) PN06	E318	21-Jul-2023	28-Jul-2023	28 days	7 days	✓	28-Jul-2023	28 days	7 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) PN08	E318	21-Jul-2023	28-Jul-2023	28 days	7 days	✓	28-Jul-2023	28 days	7 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) TB	E318	21-Jul-2023	28-Jul-2023	28 days	7 days	✓	28-Jul-2023	28 days	7 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.001 mg/L)										
Amber glass total (sulfuric acid) PN04	E372-S	21-Jul-2023	31-Jul-2023	28 days	10 days	✓	31-Jul-2023	28 days	10 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.001 mg/L)										
Amber glass total (sulfuric acid) PN06	E372-S	21-Jul-2023	31-Jul-2023	28 days	10 days	✓	31-Jul-2023	28 days	10 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.001 mg/L)										
Amber glass total (sulfuric acid) PN08	E372-S	21-Jul-2023	31-Jul-2023	28 days	10 days	✓	31-Jul-2023	28 days	10 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.001 mg/L)										
Amber glass total (sulfuric acid) TB	E372-S	21-Jul-2023	31-Jul-2023	28 days	10 days	✓	31-Jul-2023	28 days	10 days	✓
Cyanides : Free Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) PN04	E339	21-Jul-2023	28-Jul-2023	14 days	7 days	✓	28-Jul-2023	14 days	7 days	✓
Cyanides : Free Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) PN06	E339	21-Jul-2023	28-Jul-2023	14 days	7 days	✓	28-Jul-2023	14 days	7 days	✓
Cyanides : Free Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) PN08	E339	21-Jul-2023	28-Jul-2023	14 days	7 days	✓	28-Jul-2023	14 days	7 days	✓
Cyanides : Free Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) TB	E339	21-Jul-2023	28-Jul-2023	14 days	7 days	✓	28-Jul-2023	14 days	7 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : Total Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) PN04	E333	21-Jul-2023	28-Jul-2023	14 days	7 days	✓	28-Jul-2023	14 days	7 days	✓
Cyanides : Total Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) PN06	E333	21-Jul-2023	28-Jul-2023	14 days	7 days	✓	28-Jul-2023	14 days	7 days	✓
Cyanides : Total Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) PN08	E333	21-Jul-2023	28-Jul-2023	14 days	7 days	✓	28-Jul-2023	14 days	7 days	✓
Cyanides : Total Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) TB	E333	21-Jul-2023	28-Jul-2023	14 days	7 days	✓	28-Jul-2023	14 days	7 days	✓
Cyanides : WAD Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) PN04	E336	21-Jul-2023	28-Jul-2023	14 days	7 days	✓	28-Jul-2023	14 days	7 days	✓
Cyanides : WAD Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) PN06	E336	21-Jul-2023	28-Jul-2023	14 days	7 days	✓	28-Jul-2023	14 days	7 days	✓
Cyanides : WAD Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) PN08	E336	21-Jul-2023	28-Jul-2023	14 days	7 days	✓	28-Jul-2023	14 days	7 days	✓
Cyanides : WAD Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) TB	E336	21-Jul-2023	28-Jul-2023	14 days	7 days	✓	28-Jul-2023	14 days	7 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - dissolved (lab preserved) PN04	E509-L	21-Jul-2023	31-Jul-2023	28 days	10 days	✓	31-Jul-2023	28 days	0 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Dissolved Metals : Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - dissolved (lab preserved)										
PN06	E509-L	21-Jul-2023	31-Jul-2023	28 days	10 days	✓	31-Jul-2023	28 days	0 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - dissolved (lab preserved)										
PN08	E509-L	21-Jul-2023	31-Jul-2023	28 days	10 days	✓	31-Jul-2023	28 days	0 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - dissolved (lab preserved)										
TB	E509-L	21-Jul-2023	31-Jul-2023	28 days	10 days	✓	31-Jul-2023	28 days	0 days	✓
Dissolved Metals : Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine Samples)										
HDPE - dissolved (lab preserved)										
PN04	E465	21-Jul-2023	28-Jul-2023	180 days	7 days	✓	31-Jul-2023	180 days	10 days	✓
Dissolved Metals : Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine Samples)										
HDPE - dissolved (lab preserved)										
PN08	E465	21-Jul-2023	28-Jul-2023	180 days	7 days	✓	31-Jul-2023	180 days	10 days	✓
Dissolved Metals : Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine Samples)										
HDPE - dissolved (lab preserved)										
TB	E465	21-Jul-2023	28-Jul-2023	180 days	7 days	✓	31-Jul-2023	180 days	10 days	✓
Dissolved Metals : Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine Samples)										
HDPE - dissolved (lab preserved)										
PN06	E465	21-Jul-2023	28-Jul-2023	180 days	7 days	✓	31-Jul-2023	180 days	11 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid)										
PN04	E358-L	21-Jul-2023	09-Aug-2023	28 days	19 days	✓	10-Aug-2023	28 days	20 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid)										
PN06	E358-L	21-Jul-2023	09-Aug-2023	28 days	19 days	✓	10-Aug-2023	28 days	20 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) PN08	E358-L	21-Jul-2023	09-Aug-2023	28 days	19 days	✓	10-Aug-2023	28 days	20 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) TB	E358-L	21-Jul-2023	09-Aug-2023	28 days	19 days	✓	10-Aug-2023	28 days	20 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) PN04	E355-L	21-Jul-2023	27-Jul-2023	28 days	6 days	✓	28-Jul-2023	28 days	7 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) PN06	E355-L	21-Jul-2023	27-Jul-2023	28 days	6 days	✓	28-Jul-2023	28 days	7 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) PN08	E355-L	21-Jul-2023	27-Jul-2023	28 days	6 days	✓	28-Jul-2023	28 days	7 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) TB	E355-L	21-Jul-2023	27-Jul-2023	28 days	6 days	✓	28-Jul-2023	28 days	7 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE PN04	E290	21-Jul-2023	27-Jul-2023	14 days	6 days	✓	27-Jul-2023	14 days	6 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE PN06	E290	21-Jul-2023	27-Jul-2023	14 days	6 days	✓	27-Jul-2023	14 days	6 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE PN08	E290	21-Jul-2023	27-Jul-2023	14 days	6 days	✓	27-Jul-2023	14 days	6 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	*Method*	*Sampling Date*	*Extraction / Preparation*				*Analysis*			
			Preparation Date	*Holding Times*		*Eval*	*Analysis Date*	*Holding Times*		*Eval*
				Rec	*Actual*			*Rec*	*Actual*	
Physical Tests : Alkalinity Species by Titration										
HDPE TB	E290	21-Jul-2023	27-Jul-2023	14 days	6 days	✓	27-Jul-2023	14 days	6 days	✓
Physical Tests : Conductivity in Water										
HDPE PN04	E100	21-Jul-2023	27-Jul-2023	28 days	6 days	✓	27-Jul-2023	28 days	6 days	✓
Physical Tests : Conductivity in Water										
HDPE PN06	E100	21-Jul-2023	27-Jul-2023	28 days	6 days	✓	27-Jul-2023	28 days	6 days	✓
Physical Tests : Conductivity in Water										
HDPE PN08	E100	21-Jul-2023	27-Jul-2023	28 days	6 days	✓	27-Jul-2023	28 days	6 days	✓
Physical Tests : Conductivity in Water										
HDPE TB	E100	21-Jul-2023	27-Jul-2023	28 days	6 days	✓	27-Jul-2023	28 days	6 days	✓
Physical Tests : pH by Meter										
HDPE PN04	E108	21-Jul-2023	27-Jul-2023	0.25 hrs	145 hrs	× EHTR-FM	27-Jul-2023	0.25 hrs	149 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE PN06	E108	21-Jul-2023	27-Jul-2023	0.25 hrs	145 hrs	× EHTR-FM	27-Jul-2023	0.25 hrs	149 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE PN08	E108	21-Jul-2023	27-Jul-2023	0.25 hrs	145 hrs	× EHTR-FM	27-Jul-2023	0.25 hrs	149 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE TB	E108	21-Jul-2023	27-Jul-2023	0.25 hrs	145 hrs	× EHTR-FM	27-Jul-2023	0.25 hrs	149 hrs	× EHTR-FM

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : TSS by Gravimetry										
HDPE PN04	E160	21-Jul-2023	----	----	----		27-Jul-2023	7 days	6 days	✓
Physical Tests : TSS by Gravimetry										
HDPE PN06	E160	21-Jul-2023	----	----	----		27-Jul-2023	7 days	6 days	✓
Physical Tests : TSS by Gravimetry										
HDPE PN08	E160	21-Jul-2023	----	----	----		27-Jul-2023	7 days	6 days	✓
Physical Tests : TSS by Gravimetry										
HDPE TB	E160	21-Jul-2023	----	----	----		27-Jul-2023	7 days	6 days	✓
Total Metals (Undigested) : Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine Samples)										
Pre-cleaned HDPE - total (lab preserved) PN04	E466	21-Jul-2023	28-Jul-2023	180 days	7 days	✓	31-Jul-2023	180 days	10 days	✓
Total Metals (Undigested) : Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine Samples)										
Pre-cleaned HDPE - total (lab preserved) PN06	E466	21-Jul-2023	28-Jul-2023	180 days	7 days	✓	31-Jul-2023	180 days	10 days	✓
Total Metals (Undigested) : Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine Samples)										
Pre-cleaned HDPE - total (lab preserved) PN08	E466	21-Jul-2023	28-Jul-2023	180 days	7 days	✓	31-Jul-2023	180 days	10 days	✓
Total Metals (Undigested) : Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine Samples)										
Pre-cleaned HDPE - total (lab preserved) TB	E466	21-Jul-2023	28-Jul-2023	180 days	7 days	✓	31-Jul-2023	180 days	10 days	✓
Total Metals : Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - total (lab preserved) PN04	E508-L	21-Jul-2023	31-Jul-2023	28 days	10 days	✓	31-Jul-2023	28 days	0 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Total Metals : Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - total (lab preserved) PN06	E508-L	21-Jul-2023	31-Jul-2023	28 days	10 days	✓	31-Jul-2023	28 days	0 days	✓
Total Metals : Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - total (lab preserved) PN08	E508-L	21-Jul-2023	31-Jul-2023	28 days	10 days	✓	31-Jul-2023	28 days	0 days	✓
Total Metals : Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - total (lab preserved) TB	E508-L	21-Jul-2023	31-Jul-2023	28 days	10 days	✓	31-Jul-2023	28 days	0 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) PN04	E395	21-Jul-2023	----	----	----		27-Jul-2023	7 days	6 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) PN06	E395	21-Jul-2023	----	----	----		27-Jul-2023	7 days	6 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) PN08	E395	21-Jul-2023	----	----	----		27-Jul-2023	7 days	6 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) TB	E395	21-Jul-2023	----	----	----		27-Jul-2023	7 days	6 days	✓

Legend & Qualifier Definitions

EHTR-FM: Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended

EHTR: Exceeded ALS recommended hold time prior to sample receipt.

Rec. HT: ALS recommended hold time (see units).

Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Water**

Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
Alkalinity Species by Titration	E290	1058645	1	12	8.3	5.0	✓
Ammonia by Fluorescence	E298	1059177	1	20	5.0	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1058651	1	12	8.3	5.0	✓
Chloride in Water by IC	E235.Cl	1058647	1	14	7.1	5.0	✓
Conductivity in Water	E100	1058646	1	12	8.3	5.0	✓
Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)	E509-L	1063753	1	20	5.0	5.0	✓
Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine Samples)	E465	1061016	1	18	5.5	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1077392	1	20	5.0	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	1058654	1	12	8.3	5.0	✓
Fluoride in Water by IC	E235.F	1058650	1	12	8.3	5.0	✓
Free Cyanide	E339	1060859	1	4	25.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1058648	1	20	5.0	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1058649	1	14	7.1	5.0	✓
pH by Meter	E108	1058644	1	20	5.0	5.0	✓
Reactive Silica by Colourimetry	E392	1059348	2	27	7.4	5.0	✓
Sulfate in Water by IC	E235.SO4	1058652	1	12	8.3	5.0	✓
Total Cyanide	E333	1060857	1	20	5.0	5.0	✓
Total Dissolved Phosphorus by Colourimetry (0.001 mg/L)	E375-U	1063432	1	20	5.0	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	1058221	1	20	5.0	5.0	✓
Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)	E508-L	1063884	1	12	8.3	5.0	✓
Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine Samples)	E466	1061019	1	18	5.5	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1059211	1	20	5.0	5.0	✓
Total Phosphorus by Colourimetry (0.001 mg/L)	E372-S	1063428	1	20	5.0	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	1058914	1	19	5.2	5.0	✓
TSS by Gravimetry	E160	1059798	1	6	16.6	5.0	✓
WAD Cyanide	E336	1060858	1	17	5.8	5.0	✓
Laboratory Control Samples (LCS)							
Alkalinity Species by Titration	E290	1058645	1	12	8.3	5.0	✓
Ammonia by Fluorescence	E298	1059177	1	20	5.0	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1058651	1	12	8.3	5.0	✓
Chloride in Water by IC	E235.Cl	1058647	1	14	7.1	5.0	✓
Conductivity in Water	E100	1058646	1	12	8.3	5.0	✓
Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)	E509-L	1063753	1	20	5.0	5.0	✓
Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine Samples)	E465	1061016	1	18	5.5	5.0	✓

Matrix: **Water**

Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Control Samples (LCS) - Continued							
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1077392	1	20	5.0	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	1058654	1	12	8.3	5.0	✓
Fluoride in Water by IC	E235.F	1058650	1	12	8.3	5.0	✓
Free Cyanide	E339	1060859	1	4	25.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1058648	1	20	5.0	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1058649	1	14	7.1	5.0	✓
pH by Meter	E108	1058644	1	20	5.0	5.0	✓
Reactive Silica by Colourimetry	E392	1059348	2	27	7.4	5.0	✓
Sulfate in Water by IC	E235.SO4	1058652	1	12	8.3	5.0	✓
Total Cyanide	E333	1060857	1	20	5.0	5.0	✓
Total Dissolved Phosphorus by Colourimetry (0.001 mg/L)	E375-U	1063432	1	20	5.0	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	1058221	1	20	5.0	5.0	✓
Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)	E508-L	1063884	1	12	8.3	5.0	✓
Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine Samples)	E466	1061019	1	18	5.5	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1059211	1	20	5.0	5.0	✓
Total Phosphorus by Colourimetry (0.001 mg/L)	E372-S	1063428	1	20	5.0	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	1058914	1	19	5.2	5.0	✓
TSS by Gravimetry	E160	1059798	1	6	16.6	5.0	✓
WAD Cyanide	E336	1060858	1	17	5.8	5.0	✓
Method Blanks (MB)							
Alkalinity Species by Titration	E290	1058645	1	12	8.3	5.0	✓
Ammonia by Fluorescence	E298	1059177	1	20	5.0	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1058651	1	12	8.3	5.0	✓
Chloride in Water by IC	E235.Cl	1058647	1	14	7.1	5.0	✓
Conductivity in Water	E100	1058646	1	12	8.3	5.0	✓
Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)	E509-L	1063753	1	20	5.0	5.0	✓
Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine Samples)	E465	1061016	1	18	5.5	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1077392	1	20	5.0	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	1058654	1	12	8.3	5.0	✓
Fluoride in Water by IC	E235.F	1058650	1	12	8.3	5.0	✓
Free Cyanide	E339	1060859	1	4	25.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1058648	1	20	5.0	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1058649	1	14	7.1	5.0	✓
Reactive Silica by Colourimetry	E392	1059348	2	27	7.4	5.0	✓
Sulfate in Water by IC	E235.SO4	1058652	1	12	8.3	5.0	✓
Total Cyanide	E333	1060857	1	20	5.0	5.0	✓
Total Dissolved Phosphorus by Colourimetry (0.001 mg/L)	E375-U	1063432	1	20	5.0	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	1058221	1	20	5.0	5.0	✓

Matrix: **Water**

Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Method Blanks (MB) - Continued							
Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)	E508-L	1063884	1	12	8.3	5.0	✓
Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine Samples)	E466	1061019	1	18	5.5	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1059211	1	20	5.0	5.0	✓
Total Phosphorus by Colourimetry (0.001 mg/L)	E372-S	1063428	1	20	5.0	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	1058914	1	19	5.2	5.0	✓
TSS by Gravimetry	E160	1059798	1	6	16.6	5.0	✓
WAD Cyanide	E336	1060858	1	17	5.8	5.0	✓
Matrix Spikes (MS)							
Ammonia by Fluorescence	E298	1059177	1	20	5.0	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1058651	1	12	8.3	5.0	✓
Chloride in Water by IC	E235.Cl	1058647	1	14	7.1	5.0	✓
Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)	E509-L	1063753	1	20	5.0	5.0	✓
Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine Samples)	E465	1061016	1	18	5.5	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1077392	1	20	5.0	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	1058654	1	12	8.3	5.0	✓
Fluoride in Water by IC	E235.F	1058650	1	12	8.3	5.0	✓
Free Cyanide	E339	1060859	1	4	25.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1058648	1	20	5.0	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1058649	1	14	7.1	5.0	✓
Reactive Silica by Colourimetry	E392	1059348	2	27	7.4	5.0	✓
Sulfate in Water by IC	E235.SO4	1058652	1	12	8.3	5.0	✓
Total Cyanide	E333	1060857	1	20	5.0	5.0	✓
Total Dissolved Phosphorus by Colourimetry (0.001 mg/L)	E375-U	1063432	1	20	5.0	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	1058221	1	20	5.0	5.0	✓
Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)	E508-L	1063884	1	12	8.3	5.0	✓
Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine Samples)	E466	1061019	1	18	5.5	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1059211	1	20	5.0	5.0	✓
Total Phosphorus by Colourimetry (0.001 mg/L)	E372-S	1063428	1	20	5.0	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	1058914	1	19	5.2	5.0	✓
WAD Cyanide	E336	1060858	1	17	5.8	5.0	✓

Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Conductivity in Water	E100 ALS Environmental - Vancouver	Water	APHA 2510 (mod)	Conductivity, also known as Electrical Conductivity (EC) or Specific Conductance, is measured by immersion of a conductivity cell with platinum electrodes into a water sample. Conductivity measurements are temperature-compensated to 25°C.
pH by Meter	E108 ALS Environmental - Vancouver	Water	APHA 4500-H (mod)	pH is determined by potentiometric measurement with a pH electrode, and is conducted at ambient laboratory temperature (normally 20 ± 5°C). For high accuracy test results, pH should be measured in the field within the recommended 15 minute hold time.
TSS by Gravimetry	E160 ALS Environmental - Vancouver	Water	APHA 2540 D (mod)	Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, following by drying of the filter at 104 ± 1°C, with gravimetric measurement of the filtered solids. Samples containing very high dissolved solid content (i.e. seawaters, brackish waters) may produce a positive bias by this method. Alternate analysis methods are available for these types of samples.
Bromide in Water by IC (Low Level)	E235.Br-L ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Chloride in Water by IC	E235.Cl ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Fluoride in Water by IC	E235.F ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrite in Water by IC (Low Level)	E235.NO2-L ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrate in Water by IC (Low Level)	E235.NO3-L ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Sulfate in Water by IC	E235.SO4 ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Alkalinity Species by Titration	E290 ALS Environmental - Vancouver	Water	APHA 2320 B (mod)	Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.
Ammonia by Fluorescence	E298 ALS Environmental - Edmonton	Water	Method Fialab 100, 2018	Ammonia in water is determined by automated continuous flow analysis with membrane diffusion and fluorescence detection, after reaction with OPA (ortho-phthalaldehyde). This method is approved under US EPA 40 CFR Part 136 (May 2021)
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318 ALS Environmental - Edmonton	Water	Method Fialab 100, 2018	TKN in water is determined by automated continuous flow analysis with membrane diffusion and fluorescence detection, after reaction with OPA (ortho-phthalaldehyde). This method is approved under US EPA 40 CFR Part 136 (May 2021).
Total Cyanide	E333 ALS Environmental - Vancouver	Water	ISO 14403 (mod)	Total or Strong Acid Dissociable (SAD) Cyanide is determined by Continuous Flow Analyzer (CFA) with in-line UV digestion followed by colourmetric analysis. Method Limitation: High levels of thiocyanate (SCN) may cause positive interference (up to 0.5% of SCN concentration).
WAD Cyanide	E336 ALS Environmental - Vancouver	Water	APHA 4500-CN I (mod)	Weak Acid Dissociable (WAD) cyanide is determined by Continuous Flow Analyzer (CFA) with in-line distillation followed by colourmetric analysis.
Free Cyanide	E339 ALS Environmental - Vancouver	Water	ASTM D7237 (mod)	Free Cyanide is determined by Continuous Flow Analyzer (CFA) with in-line gas diffusion followed by colourmetric analysis.
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L ALS Environmental - Edmonton	Water	APHA 5310 B (mod)	Total Organic Carbon (Non-Purgeable), also known as NPOC (total), is a direct measurement of TOC after an acidified sample has been purged to remove inorganic carbon (IC). Analysis is by high temperature combustion with infrared detection of CO_2. NPOC does not include volatile organic species that are purged off with IC. For samples where the majority of total carbon (TC) is comprised of IC (which is common), this method is more accurate and more reliable than the TOC by subtraction method (i.e. TC minus TIC).
Dissolved Organic Carbon by Combustion (Low Level)	E358-L ALS Environmental - Edmonton	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 CO_2. 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 Phosphorus by Colourimetry (0.001 mg/L)	E372-S ALS Environmental - Edmonton	Water	APHA 4500-P E (mod).	Total Phosphorus is determined colourimetrically after heated persulfate digestion of the sample.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Total Dissolved Phosphorus by Colourimetry (0.001 mg/L)	E375-U ALS Environmental - Edmonton	Water	APHA 4500-P E (mod).	Total Dissolved Phosphorus is determined colourmetrically after filtration through a 0.45 micron filter followed by heated persulfate digestion of the sample.
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U ALS Environmental - Vancouver	Water	APHA 4500-P F (mod)	Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter. Field filtration is recommended to ensure test results represent conditions at time of sampling.
Reactive Silica by Colourimetry	E392 ALS Environmental - Vancouver	Water	APHA 4500-SiO2 E (mod)	Silicate (molybdate-reactive silica) is determined by the molybdosilicate-heteropoly blue colourimetric method using a discrete analyzer. Method Limitation: Arsenic (5+) above 100 mg/L is a negative interference on this test
Total Sulfide by Colourimetry (Automated Flow)	E395 ALS Environmental - Vancouver	Water	APHA 4500 -S E-Auto-Colorimetry	Sulfide is determined using the gas dialysis automated methlyene blue colourimetric method. Results expressed "as H2S" if reported represent the maximum possible H2S concentration based on the total sulfide concentration in the sample. The H2S calculation converts Total Sulphide as (S2-) and reports it as Total Sulphide as (H2S)
Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine Samples)	E465 ALS Environmental - Vancouver	Water	EPA 6020B (mod)	Ultra trace metals in water are analyzed by Triple Quadrupole ICPMS. This procedure is intended for pristine field-filtered acid-preserved water samples. The detection limits (LOR) for this test are based on lab instrumental analysis only, not including filtration. Due to the high probability of false positives due to filtration, it is strongly recommended that a filtration blank be analysed to aid in data interpretation.
Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine Samples)	E466 ALS Environmental - Vancouver	Water	EPA 6020B (mod)	Ultra trace metals in water are analyzed by CRC ICPMS, based on US EPA Method 6020B (July 2014). The detection limits provided can only be met for undigested samples. This procedure is intended for colorless, non-turbid, acid-preserved water samples (i.e. pristine water samples), having turbidity < 1 NTU and no odor. Where turbidity exceeds 1 NTU, and/or the sample is colored and has an odor, results may be biased low compared to true Total Metals concentrations. ALS recommends that turbidity analysis be requested on samples submitted for this test to aid with interpretation of results. Where turbidity is <1NTU, undigested metals are equivalent to total metals concentrations.
Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)	E508-L 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 CVAFS.
Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)	E509-L 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 CVAFS.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
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.
TDS in Water (Calculation)	EC103 ALS Environmental - Vancouver	Water	APHA 1030E (mod)	Total Dissolved Solids is calculated based on guidance from APHA Standard Methods (1030E Checking Correctness of Analysis). Dissolved species are used where available. Minor ions are included where data is present.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Ammonia	EP298 ALS Environmental - Edmonton	Water		Sample preparation for Preserved Nutrients Water Quality Analysis.
Digestion for TKN in water	EP318 ALS Environmental - Edmonton	Water	APHA 4500-Norg D (mod)	Samples are digested at high temperature using Sulfuric Acid with Copper catalyst, which converts organic nitrogen sources to Ammonia, which is then quantified by the analytical method as TKN. This method is unsuitable for samples containing high levels of nitrate. If nitrate exceeds TKN concentration by ten times or more, results may be biased low.
Preparation for Total Organic Carbon by Combustion	EP355 ALS Environmental - Edmonton	Water		Preparation for Total Organic Carbon by Combustion
Preparation for Dissolved Organic Carbon for Combustion	EP358 ALS Environmental - Edmonton	Water	APHA 5310 B (mod)	Preparation for Dissolved Organic Carbon
Digestion for Total Phosphorus in water	EP372 ALS Environmental - Edmonton	Water	APHA 4500-P E (mod).	Samples are heated with a persulfate digestion reagent.
Digestion for Dissolved Phosphorus in water	EP375 ALS Environmental - Edmonton	Water	APHA 4500-P E (mod).	Samples are filtered through a 0.45 micron membrane filter and then heated with a persulfate digestion reagent.
Dissolved Metals Water Filtration for Triple Quad ICPMS	EP465 ALS Environmental - Vancouver	Water	APHA 3030B	Low level metals in water are analyzed by Triple Quad ICPMS. This procedure is intended for pristine field-filtered acid-preserved water samples. The detection limits (LOR) for this test are based on lab instrumental analysis only, not including filtration. ALS-supplied field filtration equipment does not support these LOR. Therefore, because of the high probability of false positives due to filtration, it is strongly recommended that a filtration blank be analysed to aid in data interpretation.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Dissolved Mercury Water Filtration (Low Level)	EP509-L ALS Environmental - Vancouver	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HCl.

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QUALITY CONTROL REPORT

Work Order	: **YL2300892**	Page	: 1 of 22
Amendment	: **3**		
Client	: Sabina Gold & Silver Corporation	Laboratory	: ALS Environmental - Yellowknife
Contact	: Merle Keefe	Account Manager	: Oliver Gregg
Address	: 375 - 555 Burrard St. Box 220, Bentall 2 Vancouver BC Canada V7X 1M7	Address	: 314 Old Airport Road, Unit 116 Yellowknife, Northwest Territories Canada X1A 3T3
Telephone	:	Telephone	: 1 867 445 7143
Project	: 22567626	Date Samples Received	: 25-Jul-2023 09:07
PO	: PO-10402	Date Analysis Commenced	: 27-Jul-2023
C-O-C number	: ----	Issue Date	: 22-Nov-2023 12:22
Sampler	: ---- 604 240 6619		
Site	: ----		
Quote number	: YL23-SABI100-001		
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 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
Brieanna Allen	Production/Validation Manager	Vancouver Inorganics, Burnaby, British Columbia
Ilnaz Badbezanchi	Supervisor - Metals Prep & Mercury	Vancouver Metals, Burnaby, British Columbia
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Kate Dimitrova	Supervisor - Inorganic	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
Logan Carroll	Laboratory Analyst	Edmonton Inorganics, Edmonton, Alberta
Michael Webb	Lab Analyst	Vancouver Metals, Burnaby, British Columbia
Miles Gropen	Department Manager - Inorganics	Vancouver Inorganics, Burnaby, British Columbia
Ping Yeung	Team Leader - Inorganics	Edmonton Inorganics, Edmonton, Alberta
Robin Weeks	Team Leader - Metals	Vancouver Metals, Burnaby, British Columbia
Shruti Mudliar	Lab Analyst	Edmonton Inorganics, Edmonton, Alberta

General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number = Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO = Data Quality Objective.
LOR = Limit of Reporting (detection limit).
RPD = Relative Percent Difference
# = Indicates a QC result that did not meet the ALS DQO.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test-specific).

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Physical Tests (QC Lot: 1058644)											
VA23B6939-003	Anonymous	pH	----	E108	0.10	pH units	6.92	6.86	0.871%	4%	----
Physical Tests (QC Lot: 1058645)											
VA23B6939-003	Anonymous	Alkalinity, bicarbonate (as CaCO3)	----	E290	1.0	mg/L	10.1	10.1	0.00%	200%	----
		Alkalinity, carbonate (as CaCO3)	----	E290	1.0	mg/L	<1.0	<1.0	0.00%	200%	----
		Alkalinity, hydroxide (as CaCO3)	----	E290	1.0	mg/L	<1.0	<1.0	0.00%	200%	----
		Alkalinity, phenolphthalein (as CaCO3)	----	E290	1.0	mg/L	<1.0	<1.0	0	Diff <2x LOR	----
		Alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	10.1	10.1	0.00%	20%	----
Physical Tests (QC Lot: 1058646)											
VA23B6939-003	Anonymous	Conductivity	----	E100	2.0	µS/cm	27.6	27.9	0.3	Diff <2x LOR	----
Physical Tests (QC Lot: 1059798)											
WR2300761-011	Anonymous	Solids, total suspended [TSS]	----	E160	3.0	mg/L	21.2	23.0	1.8	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1058221)											
GP2301439-001	Anonymous	Kjeldahl nitrogen, total [TKN]	----	E318	1.00	mg/L	48.5	47.9	1.26%	20%	----
Anions and Nutrients (QC Lot: 1058647)											
VA23B6939-001	Anonymous	Chloride	16887-00-6	E235.Cl	0.50	mg/L	<0.50	<0.50	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1058648)											
VA23B6939-001	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1058649)											
VA23B6939-001	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1058650)											
VA23B6939-001	Anonymous	Fluoride	16984-48-8	E235.F	0.020	mg/L	<0.020	<0.020	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1058651)											
VA23B6939-001	Anonymous	Bromide	24959-67-9	E235.Br-L	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1058652)											
VA23B6939-001	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	2.62	2.61	0.01	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1058654)											
VA23B6939-001	Anonymous	Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1059177)											
GP2301439-002	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	0.166	0.198	17.2%	20%	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Anions and Nutrients (QC Lot: 1059348)											
VA23B7180-010	Anonymous	Silicate (as SiO2)	7631-86-9	E392	0.50	mg/L	<0.50	<0.50	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1059349)											
YL2300892-002	PN06	Silicate (as SiO2)	7631-86-9	E392	0.50	mg/L	0.55	0.54	0.010	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1063428)											
EO2306644-005	Anonymous	Phosphorus, total	7723-14-0	E372-S	0.0010	mg/L	0.108	0.106	1.67%	20%	----
Anions and Nutrients (QC Lot: 1063432)											
EO2306644-001	Anonymous	Phosphorus, total dissolved	7723-14-0	E375-U	0.0010	mg/L	0.115	0.116	0.771%	20%	----
Cyanides (QC Lot: 1060857)											
YL2300892-001	PN04	Cyanide, strong acid dissociable (Total)	----	E333	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
Cyanides (QC Lot: 1060858)											
YL2300892-001	PN04	Cyanide, weak acid dissociable	----	E336	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
Cyanides (QC Lot: 1060859)											
YL2300892-001	PN04	Cyanide, free	----	E339	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
Organic / Inorganic Carbon (QC Lot: 1059211)											
YL2300892-004	TB	Carbon, total organic [TOC]	----	E355-L	0.50	mg/L	<0.50	<0.50	0	Diff <2x LOR	----
Organic / Inorganic Carbon (QC Lot: 1077392)											
YL2300892-004	TB	Carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	11.4	10.8	5.24%	20%	----
Total Sulfides (QC Lot: 1058914)											
CG2309960-001	Anonymous	Sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	<0.0015	0.0015	0	Diff <2x LOR	----
Total Metals (QC Lot: 1063884)											
VA23B7006-001	Anonymous	Mercury, total	7439-97-6	E508-L	0.50	ng/L	1.11	0.89	0.22	Diff <2x LOR	----
Total Metals (Undigested) (QC Lot: 1061019)											
YL2300877-001	Anonymous	Aluminum, total	7429-90-5	E466	0.00020	mg/L	0.0116	0.0113	2.89%	20%	----
		Antimony, total	7440-36-0	E466	0.0000050	mg/L	0.0000118	0.0000115	0.0000002	Diff <2x LOR	----
		Arsenic, total	7440-38-2	E466	0.000010	mg/L	0.000226	0.000234	3.32%	20%	----
		Barium, total	7440-39-3	E466	0.000020	mg/L	0.00573	0.00561	2.08%	20%	----
		Beryllium, total	7440-41-7	E466	0.0000020	mg/L	<0.0000020	<0.0000020	0	Diff <2x LOR	----
		Bismuth, total	7440-69-9	E466	0.0000010	mg/L	<0.0000010	<0.0000010	0	Diff <2x LOR	----
		Boron, total	7440-42-8	E466	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
		Cadmium, total	7440-43-9	E466	0.0000025	mg/L	0.0000047	0.0000048	0.00000004	Diff <2x LOR	----
		Calcium, total	7440-70-2	E466	0.010	mg/L	3.09	3.17	2.46%	20%	----
		Cesium, total	7440-46-2	E466	0.0000050	mg/L	0.0000059	0.0000061	0.0000001	Diff <2x LOR	----
		Chromium, total	7440-47-3	E466	0.000040	mg/L	0.000141	0.000141	0.000000007	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Total Metals (Undigested) (QC Lot: 1061019) - continued											
YL2300877-001	Anonymous	Cobalt, total	7440-48-4	E466	0.0000050	mg/L	0.000106	0.000113	6.61%	20%	----
		Copper, total	7440-50-8	E466	0.000050	mg/L	0.00121	0.00126	3.96%	20%	----
		Gallium, total	7440-55-3	E466	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Iron, total	7439-89-6	E466	0.00050	mg/L	0.0257	0.0267	3.73%	20%	----
		Lanthanum, total	7439-91-0	E466	0.000010	mg/L	0.000072	0.000077	0.000005	Diff <2x LOR	----
		Lead, total	7439-92-1	E466	0.0000050	mg/L	0.0000379	0.0000344	0.0000034	Diff <2x LOR	----
		Lithium, total	7439-93-2	E466	0.00010	mg/L	0.00073	0.00072	0.000002	Diff <2x LOR	----
		Magnesium, total	7439-95-4	E466	0.0010	mg/L	1.74	1.78	2.38%	20%	----
		Manganese, total	7439-96-5	E466	0.0000050	mg/L	0.00331	0.00339	2.42%	20%	----
		Molybdenum, total	7439-98-7	E466	0.000010	mg/L	0.000011	0.000011	0.0000002	Diff <2x LOR	----
		Nickel, total	7440-02-0	E466	0.000020	mg/L	0.00248	0.00252	1.84%	20%	----
		Niobium, total	7440-03-1	E466	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Phosphorus, total	7723-14-0	E466	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		Potassium, total	7440-09-7	E466	0.0050	mg/L	0.407	0.424	4.11%	20%	----
		Rhenium, total	7440-15-5	E466	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
		Rubidium, total	7440-17-7	E466	0.0000050	mg/L	0.00100	0.00103	2.70%	20%	----
		Selenium, total	7782-49-2	E466	0.000025	mg/L	<0.000025	<0.000025	0	Diff <2x LOR	----
		Silicon, total	7440-21-3	E466	0.050	mg/L	0.059	0.066	0.007	Diff <2x LOR	----
		Silver, total	7440-22-4	E466	0.0000020	mg/L	<0.0000020	<0.0000020	0	Diff <2x LOR	----
		Sodium, total	7440-23-5	E466	0.010	mg/L	0.647	0.668	3.14%	20%	----
		Strontium, total	7440-24-6	E466	0.000020	mg/L	0.0154	0.0157	2.01%	20%	----
		Sulfur, total	7704-34-9	E466	0.50	mg/L	2.75	2.82	0.07	Diff <2x LOR	----
		Tantalum, total	7440-25-7	E466	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Tellurium, total	13494-80-9	E466	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Thallium, total	7440-28-0	E466	0.0000010	mg/L	0.0000020	0.0000019	0.0000001	Diff <2x LOR	----
		Thorium, total	7440-29-1	E466	0.0000050	mg/L	0.0000067	0.0000104	0.0000036	Diff <2x LOR	----
		Tin, total	7440-31-5	E466	0.000010	mg/L	0.000050	0.000054	0.000003	Diff <2x LOR	----
		Titanium, total	7440-32-6	E466	0.000050	mg/L	0.000057	0.000061	0.000004	Diff <2x LOR	----
		Tungsten, total	7440-33-7	E466	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Uranium, total	7440-61-1	E466	0.0000010	mg/L	0.0000068	0.0000074	0.0000006	Diff <2x LOR	----
		Vanadium, total	7440-62-2	E466	0.000010	mg/L	0.000030	0.000031	0.000001	Diff <2x LOR	----
		Yttrium, total	7440-65-5	E466	0.000010	mg/L	0.000039	0.000045	0.000005	Diff <2x LOR	----
		Zinc, total	7440-66-6	E466	0.00010	mg/L	0.00211	0.00230	8.89%	20%	----
		Zirconium, total	7440-67-7	E466	0.000010	mg/L	0.000024	0.000021	0.000003	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Dissolved Metals (QC Lot: 1061016)											
YL2300877-001	Anonymous	Aluminum, dissolved	7429-90-5	E465	0.00020	mg/L	0.00790	0.00777	1.70%	20%	----
		Antimony, dissolved	7440-36-0	E465	0.0000050	mg/L	0.0000088	0.0000088	0.00000002	Diff <2x LOR	----
		Arsenic, dissolved	7440-38-2	E465	0.000010	mg/L	0.000223	0.000226	1.11%	20%	----
		Barium, dissolved	7440-39-3	E465	0.000020	mg/L	0.00572	0.00565	1.23%	20%	----
		Beryllium, dissolved	7440-41-7	E465	0.0000020	mg/L	<0.0000020	<0.0000020	0	Diff <2x LOR	----
		Bismuth, dissolved	7440-69-9	E465	0.0000010	mg/L	<0.0000010	<0.0000010	0	Diff <2x LOR	----
		Boron, dissolved	7440-42-8	E465	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
		Cadmium, dissolved	7440-43-9	E465	0.0000025	mg/L	0.0000036	0.0000028	0.0000009	Diff <2x LOR	----
		Calcium, dissolved	7440-70-2	E465	0.010	mg/L	3.24	3.26	0.431%	20%	----
		Cesium, dissolved	7440-46-2	E465	0.0000050	mg/L	0.0000061	0.0000055	0.0000005	Diff <2x LOR	----
		Chromium, dissolved	7440-47-3	E465	0.000040	mg/L	0.000117	0.000121	0.000004	Diff <2x LOR	----
		Cobalt, dissolved	7440-48-4	E465	0.0000050	mg/L	0.0000621	0.0000609	1.88%	20%	----
		Copper, dissolved	7440-50-8	E465	0.000050	mg/L	0.00123	0.00122	0.784%	20%	----
		Gallium, dissolved	7440-55-3	E465	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Iron, dissolved	7439-89-6	E465	0.00050	mg/L	0.0109	0.0108	1.04%	20%	----
		Lanthanum, dissolved	7439-91-0	E465	0.000010	mg/L	0.000050	0.000051	0.000001	Diff <2x LOR	----
		Lead, dissolved	7439-92-1	E465	0.0000050	mg/L	0.0000136	0.0000094	0.0000042	Diff <2x LOR	----
		Lithium, dissolved	7439-93-2	E465	0.00010	mg/L	0.00071	0.00071	0.000005	Diff <2x LOR	----
		Magnesium, dissolved	7439-95-4	E465	0.0010	mg/L	1.89	1.88	0.480%	20%	----
		Manganese, dissolved	7439-96-5	E465	0.0000050	mg/L	0.00173	0.00172	0.280%	20%	----
		Molybdenum, dissolved	7439-98-7	E465	0.000010	mg/L	0.000011	0.000010	0.0000005	Diff <2x LOR	----
		Nickel, dissolved	7440-02-0	E465	0.000020	mg/L	0.00267	0.00268	0.0560%	20%	----
		Niobium, dissolved	7440-03-1	E465	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Phosphorus, dissolved	7723-14-0	E465	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		Potassium, dissolved	7440-09-7	E465	0.0050	mg/L	0.442	0.445	0.682%	20%	----
		Rhenium, dissolved	7440-15-5	E465	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
		Rubidium, dissolved	7440-17-7	E465	0.0000050	mg/L	0.00107	0.00108	0.638%	20%	----
		Selenium, dissolved	7782-49-2	E465	0.000025	mg/L	<0.000025	<0.000025	0	Diff <2x LOR	----
		Silicon, dissolved	7440-21-3	E465	0.050	mg/L	0.052	0.052	0.0006	Diff <2x LOR	----
		Silver, dissolved	7440-22-4	E465	0.0000020	mg/L	<0.0000020	<0.0000020	0	Diff <2x LOR	----
		Sodium, dissolved	7440-23-5	E465	0.010	mg/L	0.705	0.696	1.30%	20%	----
		Strontium, dissolved	7440-24-6	E465	0.000020	mg/L	0.0165	0.0165	0.298%	20%	----
		Sulfur, dissolved	7704-34-9	E465	0.50	mg/L	2.69	2.75	0.05	Diff <2x LOR	----
		Tantalum, dissolved	7440-25-7	E465	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Dissolved Metals (QC Lot: 1061016) - continued											
YL2300877-001	Anonymous	Tellurium, dissolved	13494-80-9	E465	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Thallium, dissolved	7440-28-0	E465	0.0000010	mg/L	0.0000019	0.0000018	0.00000002	Diff <2x LOR	----
		Thorium, dissolved	7440-29-1	E465	0.0000050	mg/L	<0.0000100	<0.0000050	0.0000050	Diff <2x LOR	----
		Tin, dissolved	7440-31-5	E465	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Titanium, dissolved	7440-32-6	E465	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Tungsten, dissolved	7440-33-7	E465	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Uranium, dissolved	7440-61-1	E465	0.0000010	mg/L	0.0000064	0.0000052	0.0000013	Diff <2x LOR	----
		Vanadium, dissolved	7440-62-2	E465	0.000010	mg/L	0.000023	0.000024	0.000001	Diff <2x LOR	----
		Yttrium, dissolved	7440-65-5	E465	0.000010	mg/L	0.000036	0.000027	0.000010	Diff <2x LOR	----
		Zinc, dissolved	7440-66-6	E465	0.00010	mg/L	0.00347	0.00365	5.06%	20%	----
		Zirconium, dissolved	7440-67-7	E465	0.000010	mg/L	0.000018	0.000017	0.0000003	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1063753)											
WP2315831-001	Anonymous	Mercury, dissolved	7439-97-6	E509-L	0.50	ng/L	<0.50	<0.50	0	Diff <2x LOR	----

Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 1058645)						
Alkalinity, bicarbonate (as CaCO3)	----	E290	1	mg/L	<1.0	----
Alkalinity, carbonate (as CaCO3)	----	E290	1	mg/L	<1.0	----
Alkalinity, hydroxide (as CaCO3)	----	E290	1	mg/L	<1.0	----
Alkalinity, phenolphthalein (as CaCO3)	----	E290	1	mg/L	<1.0	----
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	<1.0	----
Physical Tests (QCLot: 1058646)						
Conductivity	----	E100	1	µS/cm	<1.0	----
Physical Tests (QCLot: 1059798)						
Solids, total suspended [TSS]	----	E160	3	mg/L	<3.0	----
Anions and Nutrients (QCLot: 1058221)						
Kjeldahl nitrogen, total [TKN]	----	E318	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 1058647)						
Chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 1058648)						
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 1058649)						
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 1058650)						
Fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 1058651)						
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 1058652)						
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	----
Anions and Nutrients (QCLot: 1058654)						
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 1059177)						
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 1059348)						
Silicate (as SiO2)	7631-86-9	E392	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 1059349)						
Silicate (as SiO2)	7631-86-9	E392	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 1063428)						

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Anions and Nutrients (QCLot: 1063428) - continued						
Phosphorus, total	7723-14-0	E372-S	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 1063432)						
Phosphorus, total dissolved	7723-14-0	E375-U	0.001	mg/L	<0.0010	----
Cyanides (QCLot: 1060857)						
Cyanide, strong acid dissociable (Total)	----	E333	0.002	mg/L	<0.0020	----
Cyanides (QCLot: 1060858)						
Cyanide, weak acid dissociable	----	E336	0.002	mg/L	<0.0020	----
Cyanides (QCLot: 1060859)						
Cyanide, free	----	E339	0.002	mg/L	<0.0020	----
Organic / Inorganic Carbon (QCLot: 1059211)						
Carbon, total organic [TOC]	----	E355-L	0.5	mg/L	<0.50	----
Organic / Inorganic Carbon (QCLot: 1077392)						
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	<0.50	----
Total Sulfides (QCLot: 1058914)						
Sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	<0.0015	----
Total Metals (QCLot: 1063884)						
Mercury, total	7439-97-6	E508-L	0.5	ng/L	<0.50	----
Total Metals (Undigested) (QCLot: 1061019)						
Aluminum, total	7429-90-5	E466	0.0002	mg/L	# 0.00030	B
Antimony, total	7440-36-0	E466	0.000005	mg/L	<0.0000050	----
Arsenic, total	7440-38-2	E466	0.00001	mg/L	<0.000010	----
Barium, total	7440-39-3	E466	0.00002	mg/L	<0.000020	----
Beryllium, total	7440-41-7	E466	0.000002	mg/L	<0.0000020	----
Bismuth, total	7440-69-9	E466	0.000001	mg/L	<0.0000010	----
Boron, total	7440-42-8	E466	0.005	mg/L	<0.0050	----
Cadmium, total	7440-43-9	E466	0.0000025	mg/L	<0.0000025	----
Calcium, total	7440-70-2	E466	0.01	mg/L	<0.010	----
Cesium, total	7440-46-2	E466	0.000005	mg/L	<0.0000050	----
Chromium, total	7440-47-3	E466	0.00004	mg/L	<0.000040	----
Cobalt, total	7440-48-4	E466	0.000005	mg/L	<0.0000050	----
Copper, total	7440-50-8	E466	0.00005	mg/L	<0.000050	----
Gallium, total	7440-55-3	E466	0.00005	mg/L	<0.000050	----
Iron, total	7439-89-6	E466	0.0005	mg/L	<0.00050	----
Lanthanum, total	7439-91-0	E466	0.00001	mg/L	<0.000010	----
Lead, total	7439-92-1	E466	0.000005	mg/L	<0.0000050	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (Undigested) (QCLot: 1061019) - continued						
Lithium, total	7439-93-2	E466	0.0001	mg/L	<0.00010	----
Magnesium, total	7439-95-4	E466	0.001	mg/L	<0.0010	----
Manganese, total	7439-96-5	E466	0.000005	mg/L	<0.0000050	----
Molybdenum, total	7439-98-7	E466	0.00001	mg/L	<0.000010	----
Nickel, total	7440-02-0	E466	0.00002	mg/L	<0.000020	----
Niobium, total	7440-03-1	E466	0.0001	mg/L	<0.00010	----
Phosphorus, total	7723-14-0	E466	0.01	mg/L	<0.010	----
Potassium, total	7440-09-7	E466	0.005	mg/L	<0.0050	----
Rhenium, total	7440-15-5	E466	0.000005	mg/L	<0.0000050	----
Rubidium, total	7440-17-7	E466	0.000005	mg/L	<0.0000050	----
Selenium, total	7782-49-2	E466	0.000025	mg/L	<0.000025	----
Silicon, total	7440-21-3	E466	0.05	mg/L	<0.050	----
Silver, total	7440-22-4	E466	0.000002	mg/L	<0.0000020	----
Sodium, total	7440-23-5	E466	0.01	mg/L	<0.010	----
Strontium, total	7440-24-6	E466	0.00002	mg/L	<0.000020	----
Sulfur, total	7704-34-9	E466	0.5	mg/L	<0.50	----
Tantalum, total	7440-25-7	E466	0.0001	mg/L	<0.00010	----
Tellurium, total	13494-80-9	E466	0.00001	mg/L	<0.000010	----
Thallium, total	7440-28-0	E466	0.000001	mg/L	<0.0000010	----
Thorium, total	7440-29-1	E466	0.000005	mg/L	<0.0000050	----
Tin, total	7440-31-5	E466	0.00001	mg/L	<0.000010	----
Titanium, total	7440-32-6	E466	0.00005	mg/L	<0.000050	----
Tungsten, total	7440-33-7	E466	0.00001	mg/L	<0.000010	----
Uranium, total	7440-61-1	E466	0.000001	mg/L	<0.0000010	----
Vanadium, total	7440-62-2	E466	0.00001	mg/L	<0.000010	----
Yttrium, total	7440-65-5	E466	0.00001	mg/L	<0.000010	----
Zinc, total	7440-66-6	E466	0.0001	mg/L	<0.00010	----
Zirconium, total	7440-67-7	E466	0.00001	mg/L	<0.000010	----
Dissolved Metals (QCLot: 1061016)						
Aluminum, dissolved	7429-90-5	E465	0.0002	mg/L	<0.00020	----
Antimony, dissolved	7440-36-0	E465	0.000005	mg/L	<0.0000050	----
Arsenic, dissolved	7440-38-2	E465	0.00001	mg/L	<0.000010	----
Barium, dissolved	7440-39-3	E465	0.00002	mg/L	<0.000020	----
Beryllium, dissolved	7440-41-7	E465	0.000002	mg/L	<0.0000020	----
Bismuth, dissolved	7440-69-9	E465	0.000001	mg/L	<0.0000010	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Dissolved Metals (QCLot: 1061016) - continued						
Boron, dissolved	7440-42-8	E465	0.005	mg/L	<0.0050	----
Cadmium, dissolved	7440-43-9	E465	0.0000025	mg/L	<0.0000025	----
Calcium, dissolved	7440-70-2	E465	0.01	mg/L	<0.010	----
Cesium, dissolved	7440-46-2	E465	0.000005	mg/L	<0.0000050	----
Chromium, dissolved	7440-47-3	E465	0.00004	mg/L	<0.000040	----
Cobalt, dissolved	7440-48-4	E465	0.000005	mg/L	<0.0000050	----
Copper, dissolved	7440-50-8	E465	0.00005	mg/L	<0.000050	----
Gallium, dissolved	7440-55-3	E465	0.00005	mg/L	<0.000050	----
Iron, dissolved	7439-89-6	E465	0.0005	mg/L	<0.00050	----
Lanthanum, dissolved	7439-91-0	E465	0.00001	mg/L	<0.000010	----
Lead, dissolved	7439-92-1	E465	0.000005	mg/L	<0.0000050	----
Lithium, dissolved	7439-93-2	E465	0.0001	mg/L	<0.00010	----
Magnesium, dissolved	7439-95-4	E465	0.001	mg/L	<0.0010	----
Manganese, dissolved	7439-96-5	E465	0.000005	mg/L	<0.0000050	----
Molybdenum, dissolved	7439-98-7	E465	0.00001	mg/L	<0.000010	----
Nickel, dissolved	7440-02-0	E465	0.00002	mg/L	<0.000020	----
Niobium, dissolved	7440-03-1	E465	0.0001	mg/L	<0.00010	----
Phosphorus, dissolved	7723-14-0	E465	0.01	mg/L	<0.010	----
Potassium, dissolved	7440-09-7	E465	0.005	mg/L	<0.0050	----
Rhenium, dissolved	7440-15-5	E465	0.000005	mg/L	<0.0000050	----
Rubidium, dissolved	7440-17-7	E465	0.000005	mg/L	<0.0000050	----
Selenium, dissolved	7782-49-2	E465	0.000025	mg/L	<0.000025	----
Silicon, dissolved	7440-21-3	E465	0.05	mg/L	<0.050	----
Silver, dissolved	7440-22-4	E465	0.000002	mg/L	<0.0000020	----
Sodium, dissolved	7440-23-5	E465	0.01	mg/L	<0.010	----
Strontium, dissolved	7440-24-6	E465	0.00002	mg/L	<0.000020	----
Sulfur, dissolved	7704-34-9	E465	0.5	mg/L	<0.50	----
Tantalum, dissolved	7440-25-7	E465	0.0001	mg/L	<0.00010	----
Tellurium, dissolved	13494-80-9	E465	0.00001	mg/L	<0.000010	----
Thallium, dissolved	7440-28-0	E465	0.000001	mg/L	<0.0000010	----
Thorium, dissolved	7440-29-1	E465	0.000005	mg/L	# 0.0000061	MB-LOR
Tin, dissolved	7440-31-5	E465	0.00001	mg/L	<0.000010	----
Titanium, dissolved	7440-32-6	E465	0.00005	mg/L	<0.000050	----
Tungsten, dissolved	7440-33-7	E465	0.00001	mg/L	<0.000010	----
Uranium, dissolved	7440-61-1	E465	0.000001	mg/L	<0.0000010	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Dissolved Metals (QCLot: 1061016) - continued						
Vanadium, dissolved	7440-62-2	E465	0.00001	mg/L	<0.000010	----
Yttrium, dissolved	7440-65-5	E465	0.00001	mg/L	<0.000010	----
Zinc, dissolved	7440-66-6	E465	0.0001	mg/L	<0.00010	----
Zirconium, dissolved	7440-67-7	E465	0.00001	mg/L	<0.000010	----
Dissolved Metals (QCLot: 1063753)						
Mercury, dissolved	7439-97-6	E509-L	0.5	ng/L	<0.50	----

Qualifiers

Qualifier	Description
B	*Method Blank exceeds ALS DQO. Associated sample results which are < Limit of Reporting or > 5 times blank level are considered reliable.*
MB-LOR	*Method Blank exceeds ALS DQO. Limits of Reporting have been adjusted for samples with positive hits below 5x blank level.*

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: 1058644)									
pH	----	E108	----	pH units	7 pH units	100	98.0	102	----
Physical Tests (QCLot: 1058645)									
Alkalinity, phenolphthalein (as CaCO3)	----	E290	1	mg/L	229 mg/L	97.0	75.0	125	----
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	500 mg/L	106	85.0	115	----
Physical Tests (QCLot: 1058646)									
Conductivity	----	E100	1	µS/cm	146.9 µS/cm	102	90.0	110	----
Physical Tests (QCLot: 1059798)									
Solids, total suspended [TSS]	----	E160	3	mg/L	150 mg/L	88.3	85.0	115	----
Anions and Nutrients (QCLot: 1058221)									
Kjeldahl nitrogen, total [TKN]	----	E318	0.05	mg/L	4 mg/L	93.7	75.0	125	----
Anions and Nutrients (QCLot: 1058647)									
Chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	105	90.0	110	----
Anions and Nutrients (QCLot: 1058648)									
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	2.5 mg/L	106	90.0	110	----
Anions and Nutrients (QCLot: 1058649)									
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	0.5 mg/L	104	90.0	110	----
Anions and Nutrients (QCLot: 1058650)									
Fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	106	90.0	110	----
Anions and Nutrients (QCLot: 1058651)									
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	0.5 mg/L	97.8	85.0	115	----
Anions and Nutrients (QCLot: 1058652)									
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	107	90.0	110	----
Anions and Nutrients (QCLot: 1058654)									
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.001	mg/L	0.03 mg/L	101	80.0	120	----
Anions and Nutrients (QCLot: 1059177)									
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	102	85.0	115	----
Anions and Nutrients (QCLot: 1059348)									
Silicate (as SiO2)	7631-86-9	E392	0.5	mg/L	10 mg/L	99.9	85.0	115	----
Anions and Nutrients (QCLot: 1059349)									
Silicate (as SiO2)	7631-86-9	E392	0.5	mg/L	10 mg/L	99.2	85.0	115	----
Anions and Nutrients (QCLot: 1063428)									

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
					Concentration	LCS	Low	High	Qualifier
Anions and Nutrients (QCLot: 1063428) - continued									
Phosphorus, total	7723-14-0	E372-S	0.001	mg/L	0.05 mg/L	102	80.0	120	----
Anions and Nutrients (QCLot: 1063432)									
Phosphorus, total dissolved	7723-14-0	E375-U	0.001	mg/L	0.05 mg/L	102	80.0	120	----
Cyanides (QCLot: 1060857)									
Cyanide, strong acid dissociable (Total)	----	E333	0.002	mg/L	0.25 mg/L	102	80.0	120	----
Cyanides (QCLot: 1060858)									
Cyanide, weak acid dissociable	----	E336	0.002	mg/L	0.125 mg/L	105	80.0	120	----
Cyanides (QCLot: 1060859)									
Cyanide, free	----	E339	0.002	mg/L	0.125 mg/L	106	80.0	120	----
Organic / Inorganic Carbon (QCLot: 1059211)									
Carbon, total organic [TOC]	----	E355-L	0.5	mg/L	8.57 mg/L	92.9	80.0	120	----
Organic / Inorganic Carbon (QCLot: 1077392)									
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	8.57 mg/L	97.2	80.0	120	----
Total Sulfides (QCLot: 1058914)									
Sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	0.08 mg/L	103	80.0	120	----
Total Metals (QCLot: 1063884)									
Mercury, total	7439-97-6	E508-L	0.5	ng/L	5 ng/L	102	80.0	120	----
Total Metals (Undigested) (QCLot: 1061019)									
Aluminum, total	7429-90-5	E466	0.0002	mg/L	2 mg/L	93.0	80.0	120	----
Antimony, total	7440-36-0	E466	0.000005	mg/L	1 mg/L	108	80.0	120	----
Arsenic, total	7440-38-2	E466	0.00001	mg/L	1 mg/L	113	80.0	120	----
Barium, total	7440-39-3	E466	0.00002	mg/L	0.25 mg/L	106	80.0	120	----
Beryllium, total	7440-41-7	E466	0.000002	mg/L	0.1 mg/L	103	80.0	120	----
Bismuth, total	7440-69-9	E466	0.000001	mg/L	1 mg/L	105	80.0	120	----
Boron, total	7440-42-8	E466	0.005	mg/L	1 mg/L	98.6	80.0	120	----
Cadmium, total	7440-43-9	E466	0.0000025	mg/L	0.1 mg/L	107	80.0	120	----
Calcium, total	7440-70-2	E466	0.01	mg/L	50 mg/L	93.0	80.0	120	----
Cesium, total	7440-46-2	E466	0.000005	mg/L	0.05 mg/L	105	80.0	120	----
Chromium, total	7440-47-3	E466	0.00004	mg/L	0.25 mg/L	93.0	80.0	120	----
Cobalt, total	7440-48-4	E466	0.000005	mg/L	0.25 mg/L	93.5	80.0	120	----
Copper, total	7440-50-8	E466	0.00005	mg/L	0.25 mg/L	89.9	80.0	120	----
Gallium, total	7440-55-3	E466	0.00005	mg/L	0.25 mg/L	103	80.0	120	----

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 (Undigested) (QCLot: 1061019) - continued									
Iron, total	7439-89-6	E466	0.0005	mg/L	1 mg/L	93.4	80.0	120	----
Lanthanum, total	7439-91-0	E466	0.00001	mg/L	0.1 mg/L	105	80.0	120	----
Lead, total	7439-92-1	E466	0.000005	mg/L	0.5 mg/L	106	80.0	120	----
Lithium, total	7439-93-2	E466	0.0001	mg/L	0.25 mg/L	103	80.0	120	----
Magnesium, total	7439-95-4	E466	0.001	mg/L	50 mg/L	92.8	80.0	120	----
Manganese, total	7439-96-5	E466	0.000005	mg/L	0.25 mg/L	93.6	80.0	120	----
Molybdenum, total	7439-98-7	E466	0.00001	mg/L	0.25 mg/L	89.7	80.0	120	----
Nickel, total	7440-02-0	E466	0.00002	mg/L	0.5 mg/L	91.6	80.0	120	----
Niobium, total	7440-03-1	E466	0.0001	mg/L	0.05 mg/L	106	80.0	120	----
Phosphorus, total	7723-14-0	E466	0.01	mg/L	10 mg/L	112	80.0	120	----
Potassium, total	7440-09-7	E466	0.005	mg/L	50 mg/L	93.8	80.0	120	----
Rhenium, total	7440-15-5	E466	0.000005	mg/L	0.1 mg/L	105	80.0	120	----
Rubidium, total	7440-17-7	E466	0.000005	mg/L	0.1 mg/L	92.2	80.0	120	----
Selenium, total	7782-49-2	E466	0.000025	mg/L	1 mg/L	109	80.0	120	----
Silicon, total	7440-21-3	E466	0.05	mg/L	10 mg/L	113	80.0	120	----
Silver, total	7440-22-4	E466	0.000002	mg/L	0.1 mg/L	102	80.0	120	----
Sodium, total	7440-23-5	E466	0.01	mg/L	50 mg/L	94.0	80.0	120	----
Strontium, total	7440-24-6	E466	0.00002	mg/L	0.25 mg/L	94.0	80.0	120	----
Sulfur, total	7704-34-9	E466	0.5	mg/L	50 mg/L	116	80.0	120	----
Tantalum, total	7440-25-7	E466	0.0001	mg/L	0.1 mg/L	100	80.0	120	----
Tellurium, total	13494-80-9	E466	0.00001	mg/L	0.1 mg/L	102	80.0	120	----
Thallium, total	7440-28-0	E466	0.000001	mg/L	1 mg/L	106	80.0	120	----
Thorium, total	7440-29-1	E466	0.000005	mg/L	0.1 mg/L	108	80.0	120	----
Tin, total	7440-31-5	E466	0.00001	mg/L	0.5 mg/L	106	80.0	120	----
Titanium, total	7440-32-6	E466	0.00005	mg/L	0.25 mg/L	106	80.0	120	----
Tungsten, total	7440-33-7	E466	0.00001	mg/L	0.1 mg/L	108	80.0	120	----
Uranium, total	7440-61-1	E466	0.000001	mg/L	0.005 mg/L	106	80.0	120	----
Vanadium, total	7440-62-2	E466	0.00001	mg/L	0.5 mg/L	94.7	80.0	120	----
Yttrium, total	7440-65-5	E466	0.00001	mg/L	0.1 mg/L	92.6	80.0	120	----
Zinc, total	7440-66-6	E466	0.0001	mg/L	0.5 mg/L	90.8	80.0	120	----
Zirconium, total	7440-67-7	E466	0.00001	mg/L	0.1 mg/L	105	80.0	120	----
Dissolved Metals (QCLot: 1061016)									
Aluminum, dissolved	7429-90-5	E465	0.0002	mg/L	2 mg/L	101	80.0	120	----
Antimony, dissolved	7440-36-0	E465	0.000005	mg/L	1 mg/L	111	80.0	120	----
Arsenic, dissolved	7440-38-2	E465	0.00001	mg/L	1 mg/L	114	80.0	120	----

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: 1061016) - continued									
Barium, dissolved	7440-39-3	E465	0.00002	mg/L	0.25 mg/L	111	80.0	120	----
Beryllium, dissolved	7440-41-7	E465	0.000002	mg/L	0.1 mg/L	102	80.0	120	----
Bismuth, dissolved	7440-69-9	E465	0.000001	mg/L	1 mg/L	108	80.0	120	----
Boron, dissolved	7440-42-8	E465	0.005	mg/L	1 mg/L	94.4	80.0	120	----
Cadmium, dissolved	7440-43-9	E465	0.0000025	mg/L	0.1 mg/L	109	80.0	120	----
Calcium, dissolved	7440-70-2	E465	0.01	mg/L	50 mg/L	100	80.0	120	----
Cesium, dissolved	7440-46-2	E465	0.000005	mg/L	0.05 mg/L	108	80.0	120	----
Chromium, dissolved	7440-47-3	E465	0.00004	mg/L	0.25 mg/L	101	80.0	120	----
Cobalt, dissolved	7440-48-4	E465	0.000005	mg/L	0.25 mg/L	101	80.0	120	----
Copper, dissolved	7440-50-8	E465	0.00005	mg/L	0.25 mg/L	97.1	80.0	120	----
Gallium, dissolved	7440-55-3	E465	0.00005	mg/L	0.25 mg/L	106	80.0	120	----
Iron, dissolved	7439-89-6	E465	0.0005	mg/L	1 mg/L	101	80.0	120	----
Lanthanum, dissolved	7439-91-0	E465	0.00001	mg/L	0.1 mg/L	103	80.0	120	----
Lead, dissolved	7439-92-1	E465	0.000005	mg/L	0.5 mg/L	110	80.0	120	----
Lithium, dissolved	7439-93-2	E465	0.0001	mg/L	0.25 mg/L	104	80.0	120	----
Magnesium, dissolved	7439-95-4	E465	0.001	mg/L	50 mg/L	100	80.0	120	----
Manganese, dissolved	7439-96-5	E465	0.000005	mg/L	0.25 mg/L	104	80.0	120	----
Molybdenum, dissolved	7439-98-7	E465	0.00001	mg/L	0.25 mg/L	98.0	80.0	120	----
Nickel, dissolved	7440-02-0	E465	0.00002	mg/L	0.5 mg/L	98.8	80.0	120	----
Niobium, dissolved	7440-03-1	E465	0.0001	mg/L	0.05 mg/L	99.2	80.0	120	----
Phosphorus, dissolved	7723-14-0	E465	0.01	mg/L	10 mg/L	113	80.0	120	----
Potassium, dissolved	7440-09-7	E465	0.005	mg/L	50 mg/L	99.4	80.0	120	----
Rhenium, dissolved	7440-15-5	E465	0.000005	mg/L	0.1 mg/L	109	80.0	120	----
Rubidium, dissolved	7440-17-7	E465	0.000005	mg/L	0.1 mg/L	100	80.0	120	----
Selenium, dissolved	7782-49-2	E465	0.000025	mg/L	1 mg/L	112	80.0	120	----
Silicon, dissolved	7440-21-3	E465	0.05	mg/L	10 mg/L	111	80.0	120	----
Silver, dissolved	7440-22-4	E465	0.000002	mg/L	0.1 mg/L	105	80.0	120	----
Sodium, dissolved	7440-23-5	E465	0.01	mg/L	50 mg/L	102	80.0	120	----
Strontium, dissolved	7440-24-6	E465	0.00002	mg/L	0.25 mg/L	100	80.0	120	----
Sulfur, dissolved	7704-34-9	E465	0.5	mg/L	50 mg/L	118	80.0	120	----
Tantalum, dissolved	7440-25-7	E465	0.0001	mg/L	0.1 mg/L	101	80.0	120	----
Tellurium, dissolved	13494-80-9	E465	0.00001	mg/L	0.1 mg/L	107	80.0	120	----
Thallium, dissolved	7440-28-0	E465	0.000001	mg/L	1 mg/L	109	80.0	120	----
Thorium, dissolved	7440-29-1	E465	0.000005	mg/L	0.1 mg/L	100	80.0	120	----
Tin, dissolved	7440-31-5	E465	0.00001	mg/L	0.5 mg/L	108	80.0	120	----
Titanium, dissolved	7440-32-6	E465	0.00005	mg/L	0.25 mg/L	105	80.0	120	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
					Concentration	LCS	Low	High	Qualifier
Dissolved Metals (QCLot: 1061016) - continued									
Tungsten, dissolved	7440-33-7	E465	0.00001	mg/L	0.1 mg/L	108	80.0	120	----
Uranium, dissolved	7440-61-1	E465	0.000001	mg/L	0.005 mg/L	114	80.0	120	----
Vanadium, dissolved	7440-62-2	E465	0.00001	mg/L	0.5 mg/L	102	80.0	120	----
Yttrium, dissolved	7440-65-5	E465	0.00001	mg/L	0.1 mg/L	96.6	80.0	120	----
Zinc, dissolved	7440-66-6	E465	0.0001	mg/L	0.5 mg/L	98.5	80.0	120	----
Zirconium, dissolved	7440-67-7	E465	0.00001	mg/L	0.1 mg/L	103	80.0	120	----
Mercury, dissolved	7439-97-6	E509-L	0.5	ng/L	5 ng/L	99.8	80.0	120	----

Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for the associated sample (or similar samples) may be subject to bias. ND – Recovery not determined, background level >= 1x spike level.

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Anions and Nutrients (QCLot: 1058221)										
GP2301439-002	Anonymous	Kjeldahl nitrogen, total [TKN]	----	E318	2.70 mg/L	2.5 mg/L	108	70.0	130	----
Anions and Nutrients (QCLot: 1058647)										
VA23B6939-002	Anonymous	Chloride	16887-00-6	E235.Cl	109 mg/L	100 mg/L	109	75.0	125	----
Anions and Nutrients (QCLot: 1058648)										
VA23B6939-002	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	2.75 mg/L	2.5 mg/L	110	75.0	125	----
Anions and Nutrients (QCLot: 1058649)										
VA23B6939-002	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	0.541 mg/L	0.5 mg/L	108	75.0	125	----
Anions and Nutrients (QCLot: 1058650)										
VA23B6939-002	Anonymous	Fluoride	16984-48-8	E235.F	1.11 mg/L	1 mg/L	111	75.0	125	----
Anions and Nutrients (QCLot: 1058651)										
VA23B6939-002	Anonymous	Bromide	24959-67-9	E235.Br-L	0.509 mg/L	0.5 mg/L	102	75.0	125	----
Anions and Nutrients (QCLot: 1058652)										
VA23B6939-002	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	112 mg/L	100 mg/L	112	75.0	125	----
Anions and Nutrients (QCLot: 1058654)										
VA23B6939-002	Anonymous	Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0289 mg/L	0.03 mg/L	96.4	70.0	130	----
Anions and Nutrients (QCLot: 1059177)										
GP2301439-002	Anonymous	Ammonia, total (as N)	7664-41-7	E298	ND mg/L	0.1 mg/L	ND	75.0	125	----
Anions and Nutrients (QCLot: 1059348)										
VA23B7180-011	Anonymous	Silicate (as SiO2)	7631-86-9	E392	7.89 mg/L	10 mg/L	78.9	75.0	125	----
Anions and Nutrients (QCLot: 1059349)										
YL2300892-003	PN08	Silicate (as SiO2)	7631-86-9	E392	9.75 mg/L	10 mg/L	97.5	75.0	125	----
Anions and Nutrients (QCLot: 1063428)										
EO2306644-006	Anonymous	Phosphorus, total	7723-14-0	E372-S	ND mg/L	0.067 mg/L	ND	70.0	130	----
Anions and Nutrients (QCLot: 1063432)										
EO2306644-002	Anonymous	Phosphorus, total dissolved	7723-14-0	E375-U	ND mg/L	0.067 mg/L	ND	70.0	130	----
Cyanides (QCLot: 1060857)										
YL2300892-002	PN06	Cyanide, strong acid dissociable (Total)	----	E333	0.545 mg/L	0.5 mg/L	109	75.0	125	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Cyanides (QCLot: 1060858)										
YL2300892-002	PN06	Cyanide, weak acid dissociable	----	E336	0.286 mg/L	0.25 mg/L	114	75.0	125	----
Cyanides (QCLot: 1060859)										
YL2300892-002	PN06	Cyanide, free	----	E339	0.289 mg/L	0.25 mg/L	116	75.0	125	----
Organic / Inorganic Carbon (QCLot: 1059211)										
YL2300892-004	TB	Carbon, total organic [TOC]	----	E355-L	5.39 mg/L	5 mg/L	108	70.0	130	----
Organic / Inorganic Carbon (QCLot: 1077392)										
YL2300892-004	TB	Carbon, dissolved organic [DOC]	----	E358-L	ND mg/L	5 mg/L	ND	70.0	130	----
Total Sulfides (QCLot: 1058914)										
CG2309960-002	Anonymous	Sulfide, total (as S)	18496-25-8	E395	0.212 mg/L	0.2 mg/L	106	75.0	125	----
Total Metals (QCLot: 1063884)										
VA23B7006-002	Anonymous	Mercury, total	7439-97-6	E508-L	4.96 ng/L	5 ng/L	99.3	70.0	130	----
Total Metals (Undigested) (QCLot: 1061019)										
YL2300877-002	Anonymous	Aluminum, total	7429-90-5	E466	0.180 mg/L	0.2 mg/L	90.2	70.0	130	----
		Antimony, total	7440-36-0	E466	0.0200 mg/L	0.02 mg/L	100	70.0	130	----
		Arsenic, total	7440-38-2	E466	0.0209 mg/L	0.02 mg/L	104	70.0	130	----
		Barium, total	7440-39-3	E466	0.0197 mg/L	0.02 mg/L	98.5	70.0	130	----
		Beryllium, total	7440-41-7	E466	0.0402 mg/L	0.04 mg/L	100	70.0	130	----
		Bismuth, total	7440-69-9	E466	0.00944 mg/L	0.01 mg/L	94.4	70.0	130	----
		Boron, total	7440-42-8	E466	0.0926 mg/L	0.1 mg/L	92.6	70.0	130	----
		Cadmium, total	7440-43-9	E466	0.00409 mg/L	0.004 mg/L	102	70.0	130	----
		Calcium, total	7440-70-2	E466	3.60 mg/L	4 mg/L	90.1	70.0	130	----
		Cesium, total	7440-46-2	E466	0.00981 mg/L	0.01 mg/L	98.1	70.0	130	----
		Chromium, total	7440-47-3	E466	0.0376 mg/L	0.04 mg/L	94.0	70.0	130	----
		Cobalt, total	7440-48-4	E466	0.0191 mg/L	0.02 mg/L	95.5	70.0	130	----
		Copper, total	7440-50-8	E466	0.0184 mg/L	0.02 mg/L	91.8	70.0	130	----
		Gallium, total	7440-55-3	E466	0.00232 mg/L	0.0025 mg/L	92.6	70.0	130	----
		Iron, total	7439-89-6	E466	1.90 mg/L	2 mg/L	95.3	70.0	130	----
		Lanthanum, total	7439-91-0	E466	0.00239 mg/L	0.0025 mg/L	95.6	70.0	130	----
		Lead, total	7439-92-1	E466	0.0193 mg/L	0.02 mg/L	96.7	70.0	130	----
		Lithium, total	7439-93-2	E466	0.0963 mg/L	0.1 mg/L	96.3	70.0	130	----
		Magnesium, total	7439-95-4	E466	ND mg/L	1 mg/L	ND	70.0	130	----
		Manganese, total	7439-96-5	E466	0.0186 mg/L	0.02 mg/L	92.8	70.0	130	----
		Molybdenum, total	7439-98-7	E466	0.0174 mg/L	0.02 mg/L	86.8	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Total Metals (Undigested) (QCLot: 1061019) - continued										
YL2300877-002	Anonymous	Nickel, total	7440-02-0	E466	0.0380 mg/L	0.04 mg/L	95.1	70.0	130	----
		Niobium, total	7440-03-1	E466	0.00246 mg/L	0.0025 mg/L	98.4	70.0	130	----
		Phosphorus, total	7723-14-0	E466	10.5 mg/L	10 mg/L	105	70.0	130	----
		Potassium, total	7440-09-7	E466	3.54 mg/L	4 mg/L	88.6	70.0	130	----
		Rhenium, total	7440-15-5	E466	0.00241 mg/L	0.0025 mg/L	96.6	70.0	130	----
		Rubidium, total	7440-17-7	E466	0.0180 mg/L	0.02 mg/L	89.9	70.0	130	----
		Selenium, total	7782-49-2	E466	0.0447 mg/L	0.04 mg/L	112	70.0	130	----
		Silicon, total	7440-21-3	E466	10.2 mg/L	10 mg/L	102	70.0	130	----
		Silver, total	7440-22-4	E466	0.00412 mg/L	0.004 mg/L	103	70.0	130	----
		Sodium, total	7440-23-5	E466	1.77 mg/L	2 mg/L	88.5	70.0	130	----
		Strontium, total	7440-24-6	E466	0.0180 mg/L	0.02 mg/L	90.2	70.0	130	----
		Sulfur, total	7704-34-9	E466	21.6 mg/L	20 mg/L	108	70.0	130	----
		Tantalum, total	7440-25-7	E466	0.00229 mg/L	0.0025 mg/L	91.7	70.0	130	----
		Tellurium, total	13494-80-9	E466	0.0435 mg/L	0.04 mg/L	109	70.0	130	----
		Thallium, total	7440-28-0	E466	0.00380 mg/L	0.004 mg/L	94.9	70.0	130	----
		Thorium, total	7440-29-1	E466	0.0207 mg/L	0.02 mg/L	103	70.0	130	----
		Tin, total	7440-31-5	E466	0.0196 mg/L	0.02 mg/L	97.9	70.0	130	----
		Titanium, total	7440-32-6	E466	0.0389 mg/L	0.04 mg/L	97.2	70.0	130	----
		Tungsten, total	7440-33-7	E466	0.0195 mg/L	0.02 mg/L	97.3	70.0	130	----
		Uranium, total	7440-61-1	E466	0.00386 mg/L	0.004 mg/L	96.5	70.0	130	----
		Vanadium, total	7440-62-2	E466	0.1000 mg/L	0.1 mg/L	100.0	70.0	130	----
		Yttrium, total	7440-65-5	E466	0.00218 mg/L	0.0025 mg/L	87.3	70.0	130	----
		Zinc, total	7440-66-6	E466	0.392 mg/L	0.4 mg/L	98.0	70.0	130	----
		Zirconium, total	7440-67-7	E466	0.0398 mg/L	0.04 mg/L	99.4	70.0	130	----
Dissolved Metals (QCLot: 1061016)										
YL2300877-002	Anonymous	Aluminum, dissolved	7429-90-5	E465	0.196 mg/L	0.2 mg/L	97.9	70.0	130	----
		Antimony, dissolved	7440-36-0	E465	0.0202 mg/L	0.02 mg/L	101	70.0	130	----
		Arsenic, dissolved	7440-38-2	E465	0.0213 mg/L	0.02 mg/L	107	70.0	130	----
		Barium, dissolved	7440-39-3	E465	0.0203 mg/L	0.02 mg/L	101	70.0	130	----
		Beryllium, dissolved	7440-41-7	E465	0.0426 mg/L	0.04 mg/L	106	70.0	130	----
		Bismuth, dissolved	7440-69-9	E465	0.00962 mg/L	0.01 mg/L	96.2	70.0	130	----
		Boron, dissolved	7440-42-8	E465	0.0951 mg/L	0.1 mg/L	95.1	70.0	130	----
		Cadmium, dissolved	7440-43-9	E465	0.00425 mg/L	0.004 mg/L	106	70.0	130	----
		Calcium, dissolved	7440-70-2	E465	3.72 mg/L	4 mg/L	93.1	70.0	130	----
		Cesium, dissolved	7440-46-2	E465	0.0101 mg/L	0.01 mg/L	101	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Dissolved Metals (QCLot: 1061016) - continued										
YL2300877-002	Anonymous	Chromium, dissolved	7440-47-3	E465	0.0410 mg/L	0.04 mg/L	102	70.0	130	----
		Cobalt, dissolved	7440-48-4	E465	0.0204 mg/L	0.02 mg/L	102	70.0	130	----
		Copper, dissolved	7440-50-8	E465	0.0195 mg/L	0.02 mg/L	97.7	70.0	130	----
		Gallium, dissolved	7440-55-3	E465	0.00240 mg/L	0.0025 mg/L	96.0	70.0	130	----
		Iron, dissolved	7439-89-6	E465	2.06 mg/L	2 mg/L	103	70.0	130	----
		Lanthanum, dissolved	7439-91-0	E465	0.00238 mg/L	0.0025 mg/L	95.2	70.0	130	----
		Lead, dissolved	7439-92-1	E465	0.0199 mg/L	0.02 mg/L	99.3	70.0	130	----
		Lithium, dissolved	7439-93-2	E465	0.101 mg/L	0.1 mg/L	101	70.0	130	----
		Magnesium, dissolved	7439-95-4	E465	ND mg/L	1 mg/L	ND	70.0	130	----
		Manganese, dissolved	7439-96-5	E465	0.0201 mg/L	0.02 mg/L	101	70.0	130	----
		Molybdenum, dissolved	7439-98-7	E465	0.0187 mg/L	0.02 mg/L	93.4	70.0	130	----
		Nickel, dissolved	7440-02-0	E465	0.0403 mg/L	0.04 mg/L	101	70.0	130	----
		Niobium, dissolved	7440-03-1	E465	0.00222 mg/L	0.0025 mg/L	88.7	70.0	130	----
		Phosphorus, dissolved	7723-14-0	E465	11.0 mg/L	10 mg/L	110	70.0	130	----
		Potassium, dissolved	7440-09-7	E465	3.89 mg/L	4 mg/L	97.2	70.0	130	----
		Rhenium, dissolved	7440-15-5	E465	0.00235 mg/L	0.0025 mg/L	94.0	70.0	130	----
		Rubidium, dissolved	7440-17-7	E465	0.0194 mg/L	0.02 mg/L	97.2	70.0	130	----
		Selenium, dissolved	7782-49-2	E465	0.0466 mg/L	0.04 mg/L	116	70.0	130	----
		Silicon, dissolved	7440-21-3	E465	10.3 mg/L	10 mg/L	103	70.0	130	----
		Silver, dissolved	7440-22-4	E465	0.00405 mg/L	0.004 mg/L	101	70.0	130	----
		Sodium, dissolved	7440-23-5	E465	1.92 mg/L	2 mg/L	95.8	70.0	130	----
		Strontium, dissolved	7440-24-6	E465	0.0186 mg/L	0.02 mg/L	92.8	70.0	130	----
		Sulfur, dissolved	7704-34-9	E465	21.8 mg/L	20 mg/L	109	70.0	130	----
		Tantalum, dissolved	7440-25-7	E465	0.00197 mg/L	0.0025 mg/L	78.8	70.0	130	----
		Tellurium, dissolved	13494-80-9	E465	0.0435 mg/L	0.04 mg/L	109	70.0	130	----
		Thallium, dissolved	7440-28-0	E465	0.00387 mg/L	0.004 mg/L	96.8	70.0	130	----
		Thorium, dissolved	7440-29-1	E465	0.0196 mg/L	0.02 mg/L	98.3	70.0	130	----
		Tin, dissolved	7440-31-5	E465	0.0195 mg/L	0.02 mg/L	97.4	70.0	130	----
		Titanium, dissolved	7440-32-6	E465	0.0396 mg/L	0.04 mg/L	99.0	70.0	130	----
		Tungsten, dissolved	7440-33-7	E465	0.0198 mg/L	0.02 mg/L	98.9	70.0	130	----
		Uranium, dissolved	7440-61-1	E465	0.00380 mg/L	0.004 mg/L	95.1	70.0	130	----
		Vanadium, dissolved	7440-62-2	E465	0.106 mg/L	0.1 mg/L	106	70.0	130	----
		Yttrium, dissolved	7440-65-5	E465	0.00201 mg/L	0.0025 mg/L	80.2	70.0	130	----
		Zinc, dissolved	7440-66-6	E465	0.432 mg/L	0.4 mg/L	108	70.0	130	----
		Zirconium, dissolved	7440-67-7	E465	0.0384 mg/L	0.04 mg/L	96.1	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Dissolved Metals (QCLot: 1063753)										
WP2315831-002	Anonymous	Mercury, dissolved	7439-97-6	E509-L	5.09 ng/L	5 ng/L	102	70.0	130	----

CERTIFICATE OF ANALYSIS

Work Order	: **YL2301146**	Page	: 1 of 12
Client	: **Sabina Gold & Silver Corporation**	Laboratory	: ALS Environmental - Yellowknife
Contact	: Merle Keefe	Account Manager	: Oliver Gregg
Address	: 375 - 555 Burrard St. Box 220, Bentall 2 Vancouver BC Canada V7X 1M7	Address	: 314 Old Airport Road, Unit 116 Yellowknife NT Canada X1A 3T3
Telephone	: 604 240 6619	Telephone	: 1 867 445 7143
Project	: 22567626	Date Samples Received	: 18-Sep-2023 08:56
PO	: ----	Date Analysis Commenced	: 21-Sep-2023
C-O-C number	: ----	Issue Date	: 06-Oct-2023 17:31
Sampler	: ----		
Site	: Sabina/B2Gold Goose Lake		
Quote number	: YL23-SABI100-001		
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

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Dan Gebert	Laboratory Analyst	Metals, Burnaby, British Columbia
Greg Pokocky	Manager - Inorganics	Inorganics, Waterloo, Ontario
Jing Liu	Lab Assistant	Inorganics, Edmonton, Alberta
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia
Kim Jensen	Department Manager - Metals	Inorganics, Burnaby, British Columbia
Michael Webb	Lab Analyst	Metals, Burnaby, British Columbia
Nik Perkio	Inorganics Analyst	Inorganics, Waterloo, Ontario
Paul Cushing	Team Leader - Organics	Inorganics, Burnaby, British Columbia
Sam Silveira	Lab Assistant	Metals, Burnaby, British Columbia
Tracy Harley	Supervisor - Water Quality Instrumentation	Inorganics, Burnaby, British Columbia

General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Please refer to Quality Control Interpretive report (QCI) for information regarding Holding Time compliance.

Key : CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances

LOR: Limit of Reporting (detection limit).

Unit	*Description*
-	no units
µS/cm	microsiemens per centimetre
mg/L	milligrams per litre
ng/L	nanograms per litre
pH units	pH units

<: 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*
DTC	*Dissolved concentration exceeds total. Results were confirmed by re-analysis.*
RRV	*Reported result verified by repeat analysis.*

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	PN08	PN03	PN06	PN09	PN04
					Client sampling date / time	15-Sep-2023 09:20	15-Sep-2023 13:55	15-Sep-2023 15:35	16-Sep-2023 08:45	16-Sep-2023 10:20
						YL2301146-001	YL2301146-002	YL2301146-003	YL2301146-004	YL2301146-005
						Result	Result	Result	Result	Result
Physical Tests										
Alkalinity, bicarbonate (as CaCO3)	----	E290/VA	1.0	mg/L		8.1	5.7	6.2	4.7	<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, phenolphthalein (as CaCO3)	----	E290/VA	1.0	mg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Alkalinity, total (as CaCO3)	----	E290/VA	1.0	mg/L		8.1	5.7	6.2	4.7	<1.0
Conductivity	----	E100/VA	2.0	µS/cm		66.2	44.0	45.6	67.5	466
Hardness (as CaCO3), dissolved	----	EC100/VA	0.50	mg/L		25.0	16.4	16.8	25.4	184
pH	----	E108/VA	0.10	pH units		7.13	6.97	7.03	6.83	5.70
Solids, total dissolved [TDS], calculated	----	EC103/VA	1.0	mg/L		40.2	27.9	27.9	53.2	252
Solids, total suspended [TSS]	----	E160/VA	3.0	mg/L		<3.0	<3.0	<3.0	<3.0	<3.0
Anions and Nutrients										
Ammonia, total (as N)	7664-41-7	E298/VA	0.0050	mg/L		0.0210	0.0115	0.0088	0.0128	0.934
Bromide	24959-67-9	E235.Br-L/VA	0.050	mg/L		<0.050	<0.050	<0.050	<0.050	0.741
Chloride	16887-00-6	E235.Cl/VA	0.50	mg/L		6.90	3.03	0.74	1.12	82.1
Fluoride	16984-48-8	E235.F/VA	0.020	mg/L		0.026	0.027	0.033	0.025	0.025
Kjeldahl nitrogen, total [TKN]	----	E318/VA	0.050	mg/L		0.395	0.296	0.203	0.471	1.27
Nitrate (as N)	14797-55-8	E235.NO3-L/VA	0.0050	mg/L		0.0334	0.0521	0.0076	<0.0050	7.18
Nitrite (as N)	14797-65-0	E235.NO2-L/VA	0.0010	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	0.0264
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U/VA	0.0010	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Phosphorus, total	7723-14-0	E372-S/EO	0.0010	mg/L		0.0052	0.0033	0.0019	0.0048	0.0013
Phosphorus, total dissolved	7723-14-0	E375-U/EO	0.0010	mg/L		0.0023	0.0015	0.0011	0.0030	0.0014
Silicate (as SiO2)	7631-86-9	E392/VA	0.50	mg/L		2.46	0.91	1.02	6.20	5.06
Sulfate (as SO4)	14808-79-8	E235.SO4/VA	0.30	mg/L		9.19	7.89	11.6	20.5	56.1
Cyanides										
Cyanide, free	----	E339/WT	0.0050	mg/L		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Cyanide, strong acid dissociable (Total)	----	E333/WT	0.0050	mg/L		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Cyanide, weak acid dissociable	----	E336/WT	0.0050	mg/L		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Organic / Inorganic Carbon										

Analytical Results

Sub-Matrix: **Water**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	PN08	PN03	PN06	PN09	PN04
					Client sampling date / time	15-Sep-2023 09:20	15-Sep-2023 13:55	15-Sep-2023 15:35	16-Sep-2023 08:45	16-Sep-2023 10:20
						YL2301146-001	YL2301146-002	YL2301146-003	YL2301146-004	YL2301146-005
						Result	Result	Result	Result	Result
Organic / Inorganic Carbon										
Carbon, dissolved organic [DOC]	----	E358-L/VA	0.50	mg/L		5.91	5.56	3.93	10.3	4.07
Carbon, total organic [TOC]	----	E355-L/VA	0.50	mg/L		5.87	5.51	4.12	9.90	4.22
Total Sulfides										
Sulfide, total (as S)	18496-25-8	E395/VA	0.0015	mg/L		0.0032	0.0020	<0.0015	0.0038	<0.0015
Sulfide, total (as H2S)	7783-06-4	E395/VA	0.0016	mg/L		0.0034	0.0021	<0.0016	0.0040	<0.0016
Total Metals										
Mercury, total	7439-97-6	E508-L/VA	0.50	ng/L		1.16	0.88	0.66	1.83	0.82
Total Metals (Undigested)										
Aluminum, total	7429-90-5	E466/VA	0.00020	mg/L		0.0292	0.0153	0.0115	0.0599	0.0862
Antimony, total	7440-36-0	E466/VA	0.0000050	mg/L		0.0000095	0.0000085	0.0000070	0.0000160	0.0000109
Arsenic, total	7440-38-2	E466/VA	0.000010	mg/L		0.000484	0.000242	0.000237	0.000326	0.000188
Barium, total	7440-39-3	E466/VA	0.000020	mg/L		0.00852	0.00628	0.00440	0.0171	0.102
Beryllium, total	7440-41-7	E466/VA	0.0000020	mg/L		0.0000029	<0.0000020	<0.0000020	0.0000055	0.0000358
Bismuth, total	7440-69-9	E466/VA	0.0000010	mg/L		<0.0000010	<0.0000010	<0.0000010	<0.0000010	<0.0000010
Boron, total	7440-42-8	E466/VA	0.0050	mg/L		<0.0050	<0.0050	<0.0050	<0.0050	0.0062
Cadmium, total	7440-43-9	E466/VA	0.0000025	mg/L		0.0000051	0.0000039	0.0000034	0.0000126	0.000263
Calcium, total	7440-70-2	E466/VA	0.010	mg/L		5.71	3.56	3.08	4.86	51.1
Cesium, total	7440-46-2	E466/VA	0.0000050	mg/L		0.0000055	0.0000059	0.0000057	<0.0000050	0.000104
Chromium, total	7440-47-3	E466/VA	0.000040	mg/L		0.000191	0.000129	0.000064	0.000544	0.000112
Cobalt, total	7440-48-4	E466/VA	0.0000050	mg/L		0.000314	0.000358	0.000190	0.000452	0.0112
Copper, total	7440-50-8	E466/VA	0.000050	mg/L		0.00149	0.00135	0.00169	0.00186	0.00277
Gallium, total	7440-55-3	E466/VA	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Iron, total	7439-89-6	E466/VA	0.00050	mg/L		0.206	0.117	0.0669	0.178	0.00519
Lanthanum, total	7439-91-0	E466/VA	0.000010	mg/L		0.000273	0.000112	0.000181	0.000248	0.00192
Lead, total	7439-92-1	E466/VA	0.0000050	mg/L		0.0000456	0.0000210	0.0000065	0.0000396	0.0000365
Lithium, total	7439-93-2	E466/VA	0.00010	mg/L		0.00091	0.00076	0.00095	0.00117	0.00511
Magnesium, total	7439-95-4	E466/VA	0.0010	mg/L		2.68	2.14	2.45	3.37	16.1
Manganese, total	7439-96-5	E466/VA	0.0000050	mg/L		0.00796	0.0100	0.00222	0.00306	0.206
Molybdenum, total	7439-98-7	E466/VA	0.000010	mg/L		0.000015	0.000012	0.000018	0.000012	<0.000010
Nickel, total	7440-02-0	E466/VA	0.000020	mg/L		0.00385	0.00270	0.00472	0.00488	0.0482

Analytical Results

Sub-Matrix: **Water**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	PN08	PN03	PN06	PN09	PN04
					Client sampling date / time	15-Sep-2023 09:20	15-Sep-2023 13:55	15-Sep-2023 15:35	16-Sep-2023 08:45	16-Sep-2023 10:20
						YL2301146-001	YL2301146-002	YL2301146-003	YL2301146-004	YL2301146-005
						Result	Result	Result	Result	Result
Total Metals (Undigested)										
Niobium, total	7440-03-1	E466/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Phosphorus, total	7723-14-0	E466/VA	0.010	mg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Potassium, total	7440-09-7	E466/VA	0.0050	mg/L		0.421	0.430	0.432	0.360	2.46
Rhenium, total	7440-15-5	E466/VA	0.0000050	mg/L		<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000060
Rubidium, total	7440-17-7	E466/VA	0.0000050	mg/L		0.00110	0.00113	0.000936	0.00102	0.00806
Selenium, total	7782-49-2	E466/VA	0.000025	mg/L		0.000030	<0.000025	0.000028	0.000026	0.000215
Silicon, total	7440-21-3	E466/VA	0.050	mg/L		1.17	0.398	0.446	2.96	2.43
Silver, total	7440-22-4	E466/VA	0.0000020	mg/L		0.0000020	<0.0000020	<0.0000020	<0.0000020	0.0000022
Sodium, total	7440-23-5	E466/VA	0.010	mg/L		1.08	0.921	0.832	1.55	3.62
Strontium, total	7440-24-6	E466/VA	0.000020	mg/L		0.0275	0.0168	0.0120	0.0196	0.366
Sulfur, total	7704-34-9	E466/VA	0.50	mg/L		3.12	2.63	3.89	6.80	19.1
Tantalum, total	7440-25-7	E466/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Tellurium, total	13494-80-9	E466/VA	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Thallium, total	7440-28-0	E466/VA	0.0000010	mg/L		0.0000024	0.0000012	0.0000015	0.0000030	0.0000202
Thorium, total	7440-29-1	E466/VA	0.0000050	mg/L		0.0000172	0.0000089	0.0000099	0.0000397	0.0000132
Tin, total	7440-31-5	E466/VA	0.000010	mg/L		<0.000010	<0.000010	<0.000010	0.000011	<0.000010
Titanium, total	7440-32-6	E466/VA	0.000050	mg/L		0.000545	0.000186	0.000085	0.000599	0.000118
Tungsten, total	7440-33-7	E466/VA	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Uranium, total	7440-61-1	E466/VA	0.0000010	mg/L		0.0000070	0.0000047	0.0000074	0.0000101	0.0000092
Vanadium, total	7440-62-2	E466/VA	0.000010	mg/L		0.000116	0.000061	0.000039	0.000259	0.000040
Yttrium, total	7440-65-5	E466/VA	0.000010	mg/L		0.000125	0.000056	0.000069	0.000202	0.000472
Zinc, total	7440-66-6	E466/VA	0.00010	mg/L		0.00103	0.00103	0.00062	0.00340	0.0214
Zirconium, total	7440-67-7	E466/VA	0.000010	mg/L		0.000138	0.000049	0.000041	0.000253	0.000084
Dissolved Metals										
Aluminum, dissolved	7429-90-5	E465/VA	0.00020	mg/L		0.0168	0.00975	0.00663	0.0488	0.0809
Antimony, dissolved	7440-36-0	E465/VA	0.0000050	mg/L		0.0000137	0.0000065	0.0000082	0.0000090	0.0000093
Arsenic, dissolved	7440-38-2	E465/VA	0.000010	mg/L		0.000438	0.000247	0.000249	0.000338	0.000210
Barium, dissolved	7440-39-3	E465/VA	0.000020	mg/L		0.00821	0.00618	0.00429	0.0165	0.0964
Beryllium, dissolved	7440-41-7	E465/VA	0.0000020	mg/L		0.0000024	<0.0000020	<0.0000020	0.0000055	0.0000335
Bismuth, dissolved	7440-69-9	E465/VA	0.0000010	mg/L		0.0000012	<0.0000010	<0.0000010	<0.0000010	<0.0000010

Analytical Results

Sub-Matrix: **Water**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	PN08	PN03	PN06	PN09	PN04
					Client sampling date / time	15-Sep-2023 09:20	15-Sep-2023 13:55	15-Sep-2023 15:35	16-Sep-2023 08:45	16-Sep-2023 10:20
						YL2301146-001	YL2301146-002	YL2301146-003	YL2301146-004	YL2301146-005
						Result	Result	Result	Result	Result
Dissolved Metals										
Boron, dissolved	7440-42-8	E465/VA	0.0050	mg/L		<0.0050	<0.0050	<0.0050	<0.0050	0.0062
Cadmium, dissolved	7440-43-9	E465/VA	0.0000025	mg/L		0.0000051	0.0000026	0.0000050	0.0000076	0.000235
Calcium, dissolved	7440-70-2	E465/VA	0.010	mg/L		5.65	3.30	2.94	4.73	48.3
Cesium, dissolved	7440-46-2	E465/VA	0.0000050	mg/L		<0.0000050	0.0000055	0.0000054	<0.0000050	0.0000900
Chromium, dissolved	7440-47-3	E465/VA	0.000040	mg/L		0.000184	0.000098	0.000053	0.000490	0.000104
Cobalt, dissolved	7440-48-4	E465/VA	0.0000050	mg/L		0.000270	0.000211	0.000132	0.000423	0.00958
Copper, dissolved	7440-50-8	E465/VA	0.000050	mg/L		0.00128	0.00110	0.00155	0.00163	0.00258
Dissolved metals filtration location	----	EP465/VA	-	-		Field	Field	Field	Field	Field
Gallium, dissolved	7440-55-3	E465/VA	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Iron, dissolved	7439-89-6	E465/VA	0.00050	mg/L		0.122	0.0516	0.0266	0.109	0.00439
Lanthanum, dissolved	7439-91-0	E465/VA	0.000010	mg/L		0.000201	0.000079	0.000134	0.000216	0.00180
Lead, dissolved	7439-92-1	E465/VA	0.0000050	mg/L		0.0000597	0.0000050	0.0000070	0.0000066	0.0000237
Lithium, dissolved	7439-93-2	E465/VA	0.00010	mg/L		0.00087	0.00071	0.00087	0.00115	0.00491
Magnesium, dissolved	7439-95-4	E465/VA	0.0010	mg/L		2.64	1.98	2.31	3.31	15.5
Manganese, dissolved	7439-96-5	E465/VA	0.0000050	mg/L		0.00762	0.00582	0.00144	0.00299	0.186
Mercury, dissolved	7439-97-6	E509-L/VA	0.50	ng/L		0.75	0.56	<0.50	1.48	0.73
Molybdenum, dissolved	7439-98-7	E465/VA	0.000010	mg/L		0.000011	0.000010	0.000014	<0.000010	<0.000010
Nickel, dissolved	7440-02-0	E465/VA	0.000020	mg/L		0.00377	0.00241	0.00455	0.00478	0.0452
Niobium, dissolved	7440-03-1	E465/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Phosphorus, dissolved	7723-14-0	E465/VA	0.010	mg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Potassium, dissolved	7440-09-7	E465/VA	0.0050	mg/L		0.426	0.418	0.441	0.361	2.44
Rhenium, dissolved	7440-15-5	E465/VA	0.0000050	mg/L		<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000052
Rubidium, dissolved	7440-17-7	E465/VA	0.0000050	mg/L		0.00106	0.00105	0.000916	0.00101	0.00743
Selenium, dissolved	7782-49-2	E465/VA	0.000025	mg/L		<0.000025	<0.000025	0.000026	0.000032	0.000218
Silicon, dissolved	7440-21-3	E465/VA	0.050	mg/L		1.18	0.427	0.468	3.07	2.59
Silver, dissolved	7440-22-4	E465/VA	0.0000020	mg/L		<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020
Sodium, dissolved	7440-23-5	E465/VA	0.010	mg/L		1.06	0.835	0.813	1.52	3.52
Strontium, dissolved	7440-24-6	E465/VA	0.000020	mg/L		0.0272	0.0158	0.0117	0.0190	0.346
Sulfur, dissolved	7704-34-9	E465/VA	0.50	mg/L		3.34	2.92	4.03	7.18	19.8
Tantalum, dissolved	7440-25-7	E465/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010

Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	PN08	PN03	PN06	PN09	PN04
					Client sampling date / time	15-Sep-2023 09:20	15-Sep-2023 13:55	15-Sep-2023 15:35	16-Sep-2023 08:45	16-Sep-2023 10:20
Analyte	CAS Number	Method/Lab	LOR	Unit		YL2301146-001	YL2301146-002	YL2301146-003	YL2301146-004	YL2301146-005
						Result	Result	Result	Result	Result
Dissolved Metals										
Tellurium, dissolved	13494-80-9	E465/VA	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Thallium, dissolved	7440-28-0	E465/VA	0.0000010	mg/L		0.0000020	0.0000014	0.0000012	0.0000030	0.0000187
Thorium, dissolved	7440-29-1	E465/VA	0.0000050	mg/L		0.0000228	0.0000108	0.0000060	0.0000532	0.0000116
Tin, dissolved	7440-31-5	E465/VA	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Titanium, dissolved	7440-32-6	E465/VA	0.000050	mg/L		0.000219	0.000081	<0.000050	0.000381	0.000059
Tungsten, dissolved	7440-33-7	E465/VA	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Uranium, dissolved	7440-61-1	E465/VA	0.0000010	mg/L		0.0000068	0.0000048	0.0000047	0.0000080	0.0000094
Vanadium, dissolved	7440-62-2	E465/VA	0.000010	mg/L		0.000074	0.000043	0.000030	0.000201	0.000042
Yttrium, dissolved	7440-65-5	E465/VA	0.000010	mg/L		0.000111	0.000050	0.000057	0.000198	0.000485
Zinc, dissolved	7440-66-6	E465/VA	0.00010	mg/L		0.00149 DTC	0.00083	0.00090 DTC	0.00317	0.0208
Zirconium, dissolved	7440-67-7	E465/VA	0.000010	mg/L		0.000106	0.000042	0.000035	0.000253	0.000074
Dissolved mercury filtration location	----	EP509-L/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.

Analytical Results

Sub-Matrix: Water (Matrix: Water)				Client sample ID	PN07	PN05	TB	----	----
				Client sampling date / time	16-Sep-2023 11:35	16-Sep-2023 12:25	17-Sep-2023 07:00	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit	YL2301146-006	YL2301146-007	YL2301146-008	--------	--------
					Result	Result	Result	----	----
Physical Tests									
Alkalinity, bicarbonate (as CaCO3)	----	E290/VA	1.0	mg/L	4.7	5.6	<1.0	----	----
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, phenolphthalein (as CaCO3)	----	E290/VA	1.0	mg/L	<1.0	<1.0	<1.0	----	----
Alkalinity, total (as CaCO3)	----	E290/VA	1.0	mg/L	4.7	5.6	<1.0	----	----
Conductivity	----	E100/VA	2.0	µS/cm	152	251	<2.0	----	----
Hardness (as CaCO3), dissolved	----	EC100/VA	0.50	mg/L	59.4	94.1	<0.50	----	----
pH	----	E108/VA	0.10	pH units	6.77	6.96	5.49	----	----
Solids, total dissolved [TDS], calculated	----	EC103/VA	1.0	mg/L	107	151	<1.0	----	----
Solids, total suspended [TSS]	----	E160/VA	3.0	mg/L	<3.0	<3.0	<3.0	----	----
Anions and Nutrients									
Ammonia, total (as N)	7664-41-7	E298/VA	0.0050	mg/L	0.415	1.51	<0.0050	----	----
Bromide	24959-67-9	E235.Br-L/VA	0.050	mg/L	<0.050	0.129	<0.050	----	----
Chloride	16887-00-6	E235.Cl/VA	0.50	mg/L	4.27	17.0	<0.50	----	----
Fluoride	16984-48-8	E235.F/VA	0.020	mg/L	0.040	0.034	<0.020	----	----
Kjeldahl nitrogen, total [TKN]	----	E318/VA	0.050	mg/L	0.898	2.15	<0.050	----	----
Nitrate (as N)	14797-55-8	E235.NO3-L/VA	0.0050	mg/L	0.393	6.23	<0.0050	----	----
Nitrite (as N)	14797-65-0	E235.NO2-L/VA	0.0010	mg/L	0.0012	0.0786	<0.0010	----	----
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U/VA	0.0010	mg/L	<0.0010	<0.0010	<0.0010	----	----
Phosphorus, total	7723-14-0	E372-S/EO	0.0010	mg/L	0.0046	0.0048	<0.0010	----	----
Phosphorus, total dissolved	7723-14-0	E375-U/EO	0.0010	mg/L	0.0038	0.0025	<0.0010	----	----
Silicate (as SiO2)	7631-86-9	E392/VA	0.50	mg/L	8.85	2.89	<0.50	----	----
Sulfate (as SO4)	14808-79-8	E235.SO4/VA	0.30	mg/L	51.4	53.7	<0.30	----	----
Cyanides									
Cyanide, free	----	E339/WT	0.0050	mg/L	<0.0050	<0.0050	<0.0050	----	----
Cyanide, strong acid dissociable (Total)	----	E333/WT	0.0050	mg/L	<0.0050	0.0075	<0.0050	----	----
Cyanide, weak acid dissociable	----	E336/WT	0.0050	mg/L	<0.0050	<0.0050	<0.0050	----	----
Organic / Inorganic Carbon									

Analytical Results

Sub-Matrix: Water (Matrix: Water)				Client sample ID	PN07	PN05	TB	----	----
				Client sampling date / time	16-Sep-2023 11:35	16-Sep-2023 12:25	17-Sep-2023 07:00	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit	YL2301146-006	YL2301146-007	YL2301146-008	--------	--------
					Result	Result	Result	----	----
Organic / Inorganic Carbon									
Carbon, dissolved organic [DOC]	----	E358-L/VA	0.50	mg/L	11.7	6.55	<0.50	----	----
Carbon, total organic [TOC]	----	E355-L/VA	0.50	mg/L	11.7	6.16	<0.50	----	----
Total Sulfides									
Sulfide, total (as S)	18496-25-8	E395/VA	0.0015	mg/L	0.0046	0.0024	<0.0015	----	----
Sulfide, total (as H2S)	7783-06-4	E395/VA	0.0016	mg/L	0.0049	0.0026	<0.0016	----	----
Total Metals									
Mercury, total	7439-97-6	E508-L/VA	0.50	ng/L	2.42	1.16	<0.50	----	----
Total Metals (Undigested)									
Aluminum, total	7429-90-5	E466/VA	0.00020	mg/L	0.121	0.0279	<0.00020	----	----
Antimony, total	7440-36-0	E466/VA	0.0000050	mg/L	0.0000233	0.000431	<0.0000050	----	----
Arsenic, total	7440-38-2	E466/VA	0.000010	mg/L	0.000763	0.000416	<0.000010	----	----
Barium, total	7440-39-3	E466/VA	0.000020	mg/L	0.0281	0.0228	<0.000020	----	----
Beryllium, total	7440-41-7	E466/VA	0.0000020	mg/L	0.0000086	0.0000045	<0.0000020	----	----
Bismuth, total	7440-69-9	E466/VA	0.0000010	mg/L	0.0000010	<0.0000010	<0.0000010	----	----
Boron, total	7440-42-8	E466/VA	0.0050	mg/L	<0.0050	0.0114	<0.0050	----	----
Cadmium, total	7440-43-9	E466/VA	0.0000025	mg/L	0.0000298	0.0000508	<0.0000025	----	----
Calcium, total	7440-70-2	E466/VA	0.010	mg/L	10.8	23.9	<0.010	----	----
Cesium, total	7440-46-2	E466/VA	0.0000050	mg/L	0.0000138	0.0000333	<0.0000050	----	----
Chromium, total	7440-47-3	E466/VA	0.000040	mg/L	0.000589	0.000186	<0.000040	----	----
Cobalt, total	7440-48-4	E466/VA	0.0000050	mg/L	0.00325	0.00368	<0.0000050	----	----
Copper, total	7440-50-8	E466/VA	0.000050	mg/L	0.00397	0.00144	<0.000050	----	----
Gallium, total	7440-55-3	E466/VA	0.000050	mg/L	<0.000050	<0.000050	<0.000050	----	----
Iron, total	7439-89-6	E466/VA	0.00050	mg/L	0.211	0.141	<0.00050	----	----
Lanthanum, total	7439-91-0	E466/VA	0.000010	mg/L	0.000757	0.000190	<0.000010	----	----
Lead, total	7439-92-1	E466/VA	0.0000050	mg/L	0.0000395	0.0000540	<0.0000050	----	----
Lithium, total	7439-93-2	E466/VA	0.00010	mg/L	0.00280	0.00391	<0.00010	----	----
Magnesium, total	7439-95-4	E466/VA	0.0010	mg/L	8.42	9.72	<0.0010	----	----
Manganese, total	7439-96-5	E466/VA	0.0000050	mg/L	0.0328	0.0944	<0.0000050	----	----
Molybdenum, total	7439-98-7	E466/VA	0.000010	mg/L	0.000053	0.000035	<0.000010	----	----
Nickel, total	7440-02-0	E466/VA	0.000020	mg/L	0.0139	0.00941	<0.000020	----	----

Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	PN07	PN05	TB	----	----
					Client sampling date / time	16-Sep-2023 11:35	16-Sep-2023 12:25	17-Sep-2023 07:00	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit		YL2301146-006	YL2301146-007	YL2301146-008	--------	--------
						Result	Result	Result	----	----
Total Metals (Undigested)										
Niobium, total	7440-03-1	E466/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	----	----
Phosphorus, total	7723-14-0	E466/VA	0.010	mg/L		<0.010	<0.010	<0.010	----	----
Potassium, total	7440-09-7	E466/VA	0.0050	mg/L		1.59	2.48	<0.0050	----	----
Rhenium, total	7440-15-5	E466/VA	0.0000050	mg/L		<0.0000050	0.0000079	<0.0000050	----	----
Rubidium, total	7440-17-7	E466/VA	0.0000050	mg/L		0.00352	0.00472	<0.0000050	----	----
Selenium, total	7782-49-2	E466/VA	0.000025	mg/L		0.000068	0.000405	<0.000025	----	----
Silicon, total	7440-21-3	E466/VA	0.050	mg/L		4.34	1.37	<0.050	----	----
Silver, total	7440-22-4	E466/VA	0.0000020	mg/L		0.0000023	0.0000025	<0.0000020	----	----
Sodium, total	7440-23-5	E466/VA	0.010	mg/L		2.59	2.54	<0.010	----	----
Strontium, total	7440-24-6	E466/VA	0.000020	mg/L		0.0457	0.140	<0.000020	----	----
Sulfur, total	7704-34-9	E466/VA	0.50	mg/L		17.5	18.1	<0.50	----	----
Tantalum, total	7440-25-7	E466/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	----	----
Tellurium, total	13494-80-9	E466/VA	0.000010	mg/L		<0.000010	<0.000010	<0.000010	----	----
Thallium, total	7440-28-0	E466/VA	0.0000010	mg/L		0.0000078	0.0000137	<0.0000010	----	----
Thorium, total	7440-29-1	E466/VA	0.0000050	mg/L		0.0000942	0.0000259	<0.0000050	----	----
Tin, total	7440-31-5	E466/VA	0.000010	mg/L		<0.000010	0.000011	<0.000010	----	----
Titanium, total	7440-32-6	E466/VA	0.000050	mg/L		0.000720	0.000357	<0.000050	----	----
Tungsten, total	7440-33-7	E466/VA	0.000010	mg/L		<0.000010	<0.000010	<0.000010	----	----
Uranium, total	7440-61-1	E466/VA	0.0000010	mg/L		0.0000318	0.0000068	<0.0000010	----	----
Vanadium, total	7440-62-2	E466/VA	0.000010	mg/L		0.000246	0.000133	<0.000010	----	----
Yttrium, total	7440-65-5	E466/VA	0.000010	mg/L		0.000500	0.000094	<0.000010	----	----
Zinc, total	7440-66-6	E466/VA	0.00010	mg/L		0.00367	0.00339	0.00015 RRV	----	----
Zirconium, total	7440-67-7	E466/VA	0.000010	mg/L		0.000486	0.000089	<0.000010	----	----
Dissolved Metals										
Aluminum, dissolved	7429-90-5	E465/VA	0.00020	mg/L		0.106	0.0179	<0.00020	----	----
Antimony, dissolved	7440-36-0	E465/VA	0.0000050	mg/L		0.0000198	0.000413	<0.0000050	----	----
Arsenic, dissolved	7440-38-2	E465/VA	0.000010	mg/L		0.000744	0.000385	<0.000010	----	----
Barium, dissolved	7440-39-3	E465/VA	0.000020	mg/L		0.0272	0.0220	<0.000020	----	----
Beryllium, dissolved	7440-41-7	E465/VA	0.0000020	mg/L		0.0000097	0.0000043	<0.0000020	----	----
Bismuth, dissolved	7440-69-9	E465/VA	0.0000010	mg/L		<0.0000010	<0.0000010	<0.0000010	----	----

Analytical Results

Sub-Matrix: **Water**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	PN07	PN05	TB	----	----
					Client sampling date / time	16-Sep-2023 11:35	16-Sep-2023 12:25	17-Sep-2023 07:00	----	----
						YL2301146-006	YL2301146-007	YL2301146-008	--------	--------
						Result	Result	Result	----	----
Dissolved Metals										
Boron, dissolved	7440-42-8	E465/VA	0.0050	mg/L		<0.0050	0.0119	<0.0050	----	----
Cadmium, dissolved	7440-43-9	E465/VA	0.0000025	mg/L		0.0000300	0.0000396	<0.0000025	----	----
Calcium, dissolved	7440-70-2	E465/VA	0.010	mg/L		10.3	22.4	<0.010	----	----
Cesium, dissolved	7440-46-2	E465/VA	0.0000050	mg/L		0.0000127	0.0000322	<0.0000050	----	----
Chromium, dissolved	7440-47-3	E465/VA	0.000040	mg/L		0.000515	0.000144	<0.000040	----	----
Cobalt, dissolved	7440-48-4	E465/VA	0.0000050	mg/L		0.00302	0.00337	<0.0000050	----	----
Copper, dissolved	7440-50-8	E465/VA	0.000050	mg/L		0.00358	0.00120	<0.000050	----	----
Dissolved metals filtration location	----	EP465/VA	-	-		Field	Field	Field	----	----
Gallium, dissolved	7440-55-3	E465/VA	0.000050	mg/L		<0.000050	<0.000050	<0.000050	----	----
Iron, dissolved	7439-89-6	E465/VA	0.00050	mg/L		0.162	0.0685	<0.00050	----	----
Lanthanum, dissolved	7439-91-0	E465/VA	0.000010	mg/L		0.000726	0.000142	<0.000010	----	----
Lead, dissolved	7439-92-1	E465/VA	0.0000050	mg/L		0.0000191	0.0000097	<0.0000050	----	----
Lithium, dissolved	7439-93-2	E465/VA	0.00010	mg/L		0.00270	0.00382	<0.00010	----	----
Magnesium, dissolved	7439-95-4	E465/VA	0.0010	mg/L		8.18	9.26	<0.0010	----	----
Manganese, dissolved	7439-96-5	E465/VA	0.0000050	mg/L		0.0321	0.0920	<0.0000050	----	----
Mercury, dissolved	7439-97-6	E509-L/VA	0.50	ng/L		2.17	0.79	<0.50	----	----
Molybdenum, dissolved	7439-98-7	E465/VA	0.000010	mg/L		0.000047	0.000030	<0.000010	----	----
Nickel, dissolved	7440-02-0	E465/VA	0.000020	mg/L		0.0136	0.00920	<0.000020	----	----
Niobium, dissolved	7440-03-1	E465/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	----	----
Phosphorus, dissolved	7723-14-0	E465/VA	0.010	mg/L		<0.010	<0.010	<0.010	----	----
Potassium, dissolved	7440-09-7	E465/VA	0.0050	mg/L		1.58	2.43	<0.0050	----	----
Rhenium, dissolved	7440-15-5	E465/VA	0.0000050	mg/L		<0.0000050	0.0000073	<0.0000050	----	----
Rubidium, dissolved	7440-17-7	E465/VA	0.0000050	mg/L		0.00344	0.00457	<0.0000050	----	----
Selenium, dissolved	7782-49-2	E465/VA	0.000025	mg/L		0.000066	0.000395	<0.000025	----	----
Silicon, dissolved	7440-21-3	E465/VA	0.050	mg/L		4.40	1.41	<0.050	----	----
Silver, dissolved	7440-22-4	E465/VA	0.0000020	mg/L		0.0000022	<0.0000020	<0.0000020	----	----
Sodium, dissolved	7440-23-5	E465/VA	0.010	mg/L		2.49	2.39	<0.010	----	----
Strontium, dissolved	7440-24-6	E465/VA	0.000020	mg/L		0.0440	0.132	<0.000020	----	----
Sulfur, dissolved	7704-34-9	E465/VA	0.50	mg/L		17.8	19.1	<0.50	----	----
Tantalum, dissolved	7440-25-7	E465/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	----	----

Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	PN07	PN05	TB	----	----
					Client sampling date / time	16-Sep-2023 11:35	16-Sep-2023 12:25	17-Sep-2023 07:00	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit		YL2301146-006	YL2301146-007	YL2301146-008	--------	--------
						Result	Result	Result	----	----
Dissolved Metals										
Tellurium, dissolved	13494-80-9	E465/VA	0.000010	mg/L		<0.000010	<0.000010	<0.000010	----	----
Thallium, dissolved	7440-28-0	E465/VA	0.0000010	mg/L		0.0000073	0.0000132	<0.0000010	----	----
Thorium, dissolved	7440-29-1	E465/VA	0.0000050	mg/L		0.0000994	0.0000147	<0.0000050	----	----
Tin, dissolved	7440-31-5	E465/VA	0.000010	mg/L		<0.000010	<0.000010	<0.000010	----	----
Titanium, dissolved	7440-32-6	E465/VA	0.000050	mg/L		0.000503	0.000097	<0.000050	----	----
Tungsten, dissolved	7440-33-7	E465/VA	0.000010	mg/L		<0.000010	<0.000010	<0.000010	----	----
Uranium, dissolved	7440-61-1	E465/VA	0.0000010	mg/L		0.0000262	0.0000043	<0.0000010	----	----
Vanadium, dissolved	7440-62-2	E465/VA	0.000010	mg/L		0.000204	0.000099	<0.000010	----	----
Yttrium, dissolved	7440-65-5	E465/VA	0.000010	mg/L		0.000509	0.000081	<0.000010	----	----
Zinc, dissolved	7440-66-6	E465/VA	0.00010	mg/L		0.00354	0.00293	0.00012 RRV	----	----
Zirconium, dissolved	7440-67-7	E465/VA	0.000010	mg/L		0.000463	0.000083	<0.000010	----	----
Dissolved mercury filtration location	----	EP509-L/VA	-	-		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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QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **YL2301146**	Page	: 1 of 35
Client	: **Sabina Gold & Silver Corporation**	Laboratory	: ALS Environmental - Yellowknife
Contact	: Merle Keefe	Account Manager	: Oliver Gregg
Address	: 375 - 555 Burrard St. Box 220, Bentall 2 Vancouver BC Canada V7X 1M7	Address	: 314 Old Airport Road, Unit 116 Yellowknife, Northwest Territories Canada X1A 3T3
Telephone	: 604 240 6619	Telephone	: 1 867 445 7143
Project	: 22567626	Date Samples Received	: 18-Sep-2023 08:56
PO	: ----	Issue Date	: 06-Oct-2023 17:32
C-O-C number	: ----		
Sampler	: ----		
Site	: Sabina/B2Gold Goose Lake		
Quote number	: YL23-SABI100-001		
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

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 Laboratory Control Sample (LCS) outliers occur
- No Matrix Spike outliers occur.
- Duplicate outliers occur - please see following pages for full details.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- Analysis Holding Time Outliers exist - please see following pages for full details.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **Water**

Analyte Group	Laboratory sample ID	Client/Ref Sample ID	Analyte	CAS Number	Method	Result	Limits	Comment
Duplicate (DUP) RPDs								
Total Metals (Undigested)	YL2301146-001	PN08	Uranium, total	7440-61-1	E466	0.000003 DUP-H 3 %	Diff <2x LOR	Low Level DUP DQO exceeded (difference > 2 LOR).

Result Qualifiers

Qualifier	Description
DUP-H	*Duplicate results outside ALS DQO, due to sample heterogeneity.*

Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
TB	E298	17-Sep-2023	24-Sep-2023	28 days	7 days	✓	27-Sep-2023	28 days	10 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
PN04	E298	16-Sep-2023	24-Sep-2023	28 days	8 days	✓	26-Sep-2023	28 days	10 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
PN07	E298	16-Sep-2023	24-Sep-2023	28 days	8 days	✓	26-Sep-2023	28 days	10 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
PN09	E298	16-Sep-2023	24-Sep-2023	28 days	8 days	✓	26-Sep-2023	28 days	10 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
PN05	E298	16-Sep-2023	24-Sep-2023	28 days	8 days	✓	27-Sep-2023	28 days	11 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
PN03	E298	15-Sep-2023	24-Sep-2023	28 days	9 days	✓	26-Sep-2023	28 days	11 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
PN06	E298	15-Sep-2023	24-Sep-2023	28 days	9 days	✓	26-Sep-2023	28 days	11 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) PN08	E298	15-Sep-2023	24-Sep-2023	28 days	9 days	✓	26-Sep-2023	28 days	11 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE TB	E235.Br-L	17-Sep-2023	21-Sep-2023	28 days	4 days	✓	21-Sep-2023	28 days	4 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE PN04	E235.Br-L	16-Sep-2023	21-Sep-2023	28 days	5 days	✓	21-Sep-2023	28 days	5 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE PN05	E235.Br-L	16-Sep-2023	21-Sep-2023	28 days	5 days	✓	21-Sep-2023	28 days	5 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE PN07	E235.Br-L	16-Sep-2023	21-Sep-2023	28 days	5 days	✓	21-Sep-2023	28 days	5 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE PN09	E235.Br-L	16-Sep-2023	21-Sep-2023	28 days	5 days	✓	21-Sep-2023	28 days	5 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE PN03	E235.Br-L	15-Sep-2023	21-Sep-2023	28 days	6 days	✓	21-Sep-2023	28 days	6 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE PN06	E235.Br-L	15-Sep-2023	21-Sep-2023	28 days	6 days	✓	21-Sep-2023	28 days	6 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE PN08	E235.Br-L	15-Sep-2023	21-Sep-2023	28 days	6 days	✓	21-Sep-2023	28 days	6 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Chloride in Water by IC										
HDPE TB	E235.Cl	17-Sep-2023	21-Sep-2023	28 days	4 days	✓	21-Sep-2023	28 days	4 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE PN04	E235.Cl	16-Sep-2023	21-Sep-2023	28 days	5 days	✓	21-Sep-2023	28 days	5 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE PN05	E235.Cl	16-Sep-2023	21-Sep-2023	28 days	5 days	✓	21-Sep-2023	28 days	5 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE PN07	E235.Cl	16-Sep-2023	21-Sep-2023	28 days	5 days	✓	21-Sep-2023	28 days	5 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE PN09	E235.Cl	16-Sep-2023	21-Sep-2023	28 days	5 days	✓	21-Sep-2023	28 days	5 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE PN03	E235.Cl	15-Sep-2023	21-Sep-2023	28 days	6 days	✓	21-Sep-2023	28 days	6 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE PN06	E235.Cl	15-Sep-2023	21-Sep-2023	28 days	6 days	✓	21-Sep-2023	28 days	6 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE PN08	E235.Cl	15-Sep-2023	21-Sep-2023	28 days	6 days	✓	21-Sep-2023	28 days	6 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001										
HDPE TB	E378-U	17-Sep-2023	21-Sep-2023	3 days	4 days	× EHT	25-Sep-2023	3 days	8 days	× EHT

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001										
HDPE PN03	E378-U	15-Sep-2023	21-Sep-2023	3 days	5 days	× EHTL	25-Sep-2023	3 days	10 days	× EHTL
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001										
HDPE PN06	E378-U	15-Sep-2023	21-Sep-2023	3 days	5 days	× EHTL	25-Sep-2023	3 days	10 days	× EHTL
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001										
HDPE PN04	E378-U	16-Sep-2023	21-Sep-2023	3 days	5 days	× EHT	25-Sep-2023	3 days	9 days	× EHT
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001										
HDPE PN05	E378-U	16-Sep-2023	21-Sep-2023	3 days	5 days	× EHT	25-Sep-2023	3 days	9 days	× EHT
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001										
HDPE PN07	E378-U	16-Sep-2023	21-Sep-2023	3 days	5 days	× EHT	25-Sep-2023	3 days	9 days	× EHT
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001										
HDPE PN09	E378-U	16-Sep-2023	21-Sep-2023	3 days	5 days	× EHT	25-Sep-2023	3 days	9 days	× EHT
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001										
HDPE PN08	E378-U	15-Sep-2023	21-Sep-2023	3 days	6 days	× EHTL	25-Sep-2023	3 days	10 days	× EHTL
Anions and Nutrients : Fluoride in Water by IC										
HDPE TB	E235.F	17-Sep-2023	21-Sep-2023	28 days	4 days	✓	21-Sep-2023	28 days	4 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Fluoride in Water by IC										
HDPE PN04	E235.F	16-Sep-2023	21-Sep-2023	28 days	5 days	✓	21-Sep-2023	28 days	5 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE PN05	E235.F	16-Sep-2023	21-Sep-2023	28 days	5 days	✓	21-Sep-2023	28 days	5 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE PN07	E235.F	16-Sep-2023	21-Sep-2023	28 days	5 days	✓	21-Sep-2023	28 days	5 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE PN09	E235.F	16-Sep-2023	21-Sep-2023	28 days	5 days	✓	21-Sep-2023	28 days	5 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE PN03	E235.F	15-Sep-2023	21-Sep-2023	28 days	6 days	✓	21-Sep-2023	28 days	6 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE PN06	E235.F	15-Sep-2023	21-Sep-2023	28 days	6 days	✓	21-Sep-2023	28 days	6 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE PN08	E235.F	15-Sep-2023	21-Sep-2023	28 days	6 days	✓	21-Sep-2023	28 days	6 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE TB	E235.NO3-L	17-Sep-2023	21-Sep-2023	3 days	4 days	× EHT	21-Sep-2023	3 days	4 days	× EHT
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE PN04	E235.NO3-L	16-Sep-2023	21-Sep-2023	3 days	5 days	× EHT	21-Sep-2023	3 days	5 days	× EHT

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE PN05	E235.NO3-L	16-Sep-2023	21-Sep-2023	3 days	5 days	× EHT	21-Sep-2023	3 days	5 days	× EHT
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE PN07	E235.NO3-L	16-Sep-2023	21-Sep-2023	3 days	5 days	× EHT	21-Sep-2023	3 days	5 days	× EHT
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE PN09	E235.NO3-L	16-Sep-2023	21-Sep-2023	3 days	5 days	× EHT	21-Sep-2023	3 days	5 days	× EHT
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE PN06	E235.NO3-L	15-Sep-2023	21-Sep-2023	3 days	5 days	× EHTL	21-Sep-2023	3 days	5 days	× EHTL
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE PN03	E235.NO3-L	15-Sep-2023	21-Sep-2023	3 days	5 days	× EHTL	21-Sep-2023	3 days	6 days	× EHTL
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE PN08	E235.NO3-L	15-Sep-2023	21-Sep-2023	3 days	6 days	× EHTL	21-Sep-2023	3 days	6 days	× EHTL
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE TB	E235.NO2-L	17-Sep-2023	21-Sep-2023	3 days	4 days	× EHT	21-Sep-2023	3 days	4 days	× EHT
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE PN04	E235.NO2-L	16-Sep-2023	21-Sep-2023	3 days	5 days	× EHT	21-Sep-2023	3 days	5 days	× EHT
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE PN05	E235.NO2-L	16-Sep-2023	21-Sep-2023	3 days	5 days	× EHT	21-Sep-2023	3 days	5 days	× EHT

Matrix: **Water**

Evaluation: ✗ = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE PN07	E235.NO2-L	16-Sep-2023	21-Sep-2023	3 days	5 days	✗ EHT	21-Sep-2023	3 days	5 days	✗ EHT
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE PN09	E235.NO2-L	16-Sep-2023	21-Sep-2023	3 days	5 days	✗ EHT	21-Sep-2023	3 days	5 days	✗ EHT
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE PN06	E235.NO2-L	15-Sep-2023	21-Sep-2023	3 days	5 days	✗ EHTL	21-Sep-2023	3 days	5 days	✗ EHTL
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE PN03	E235.NO2-L	15-Sep-2023	21-Sep-2023	3 days	5 days	✗ EHTL	21-Sep-2023	3 days	6 days	✗ EHTL
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE PN08	E235.NO2-L	15-Sep-2023	21-Sep-2023	3 days	6 days	✗ EHTL	21-Sep-2023	3 days	6 days	✗ EHTL
Anions and Nutrients : Reactive Silica by Colourimetry										
HDPE TB	E392	17-Sep-2023	----	----	----		21-Sep-2023	28 days	4 days	✓
Anions and Nutrients : Reactive Silica by Colourimetry										
HDPE PN04	E392	16-Sep-2023	----	----	----		21-Sep-2023	28 days	5 days	✓
Anions and Nutrients : Reactive Silica by Colourimetry										
HDPE PN05	E392	16-Sep-2023	----	----	----		21-Sep-2023	28 days	5 days	✓
Anions and Nutrients : Reactive Silica by Colourimetry										
HDPE PN07	E392	16-Sep-2023	----	----	----		21-Sep-2023	28 days	5 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Reactive Silica by Colourimetry										
HDPE PN09	E392	16-Sep-2023	----	----	----		21-Sep-2023	28 days	5 days	✓
Anions and Nutrients : Reactive Silica by Colourimetry										
HDPE PN03	E392	15-Sep-2023	----	----	----		21-Sep-2023	28 days	6 days	✓
Anions and Nutrients : Reactive Silica by Colourimetry										
HDPE PN06	E392	15-Sep-2023	----	----	----		21-Sep-2023	28 days	6 days	✓
Anions and Nutrients : Reactive Silica by Colourimetry										
HDPE PN08	E392	15-Sep-2023	----	----	----		21-Sep-2023	28 days	6 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE TB	E235.SO4	17-Sep-2023	21-Sep-2023	28 days	4 days	✓	21-Sep-2023	28 days	4 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE PN04	E235.SO4	16-Sep-2023	21-Sep-2023	28 days	5 days	✓	21-Sep-2023	28 days	5 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE PN05	E235.SO4	16-Sep-2023	21-Sep-2023	28 days	5 days	✓	21-Sep-2023	28 days	5 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE PN07	E235.SO4	16-Sep-2023	21-Sep-2023	28 days	5 days	✓	21-Sep-2023	28 days	5 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE PN09	E235.SO4	16-Sep-2023	21-Sep-2023	28 days	5 days	✓	21-Sep-2023	28 days	5 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Sulfate in Water by IC										
HDPE PN03	E235.SO4	15-Sep-2023	21-Sep-2023	28 days	6 days	✓	21-Sep-2023	28 days	6 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE PN06	E235.SO4	15-Sep-2023	21-Sep-2023	28 days	6 days	✓	21-Sep-2023	28 days	6 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE PN08	E235.SO4	15-Sep-2023	21-Sep-2023	28 days	6 days	✓	21-Sep-2023	28 days	6 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (0.001 mg/L)										
Amber glass dissolved (sulfuric acid) TB	E375-U	17-Sep-2023	22-Sep-2023	28 days	5 days	✓	22-Sep-2023	28 days	5 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (0.001 mg/L)										
Amber glass dissolved (sulfuric acid) PN04	E375-U	16-Sep-2023	22-Sep-2023	28 days	6 days	✓	22-Sep-2023	28 days	6 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (0.001 mg/L)										
Amber glass dissolved (sulfuric acid) PN05	E375-U	16-Sep-2023	22-Sep-2023	28 days	6 days	✓	22-Sep-2023	28 days	6 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (0.001 mg/L)										
Amber glass dissolved (sulfuric acid) PN07	E375-U	16-Sep-2023	22-Sep-2023	28 days	6 days	✓	22-Sep-2023	28 days	6 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (0.001 mg/L)										
Amber glass dissolved (sulfuric acid) PN09	E375-U	16-Sep-2023	22-Sep-2023	28 days	6 days	✓	22-Sep-2023	28 days	6 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (0.001 mg/L)										
Amber glass dissolved (sulfuric acid) PN03	E375-U	15-Sep-2023	22-Sep-2023	28 days	7 days	✓	22-Sep-2023	28 days	7 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (0.001 mg/L)										
Amber glass dissolved (sulfuric acid) PN06	E375-U	15-Sep-2023	22-Sep-2023	28 days	7 days	✓	22-Sep-2023	28 days	7 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (0.001 mg/L)										
Amber glass dissolved (sulfuric acid) PN08	E375-U	15-Sep-2023	22-Sep-2023	28 days	7 days	✓	22-Sep-2023	28 days	7 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) TB	E318	17-Sep-2023	24-Sep-2023	28 days	7 days	✓	25-Sep-2023	28 days	9 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) PN04	E318	16-Sep-2023	24-Sep-2023	28 days	8 days	✓	25-Sep-2023	28 days	10 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) PN09	E318	16-Sep-2023	24-Sep-2023	28 days	8 days	✓	25-Sep-2023	28 days	10 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) PN05	E318	16-Sep-2023	24-Sep-2023	28 days	8 days	✓	25-Sep-2023	28 days	9 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) PN07	E318	16-Sep-2023	24-Sep-2023	28 days	8 days	✓	25-Sep-2023	28 days	9 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) PN03	E318	15-Sep-2023	24-Sep-2023	28 days	9 days	✓	25-Sep-2023	28 days	10 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) PN06	E318	15-Sep-2023	24-Sep-2023	28 days	9 days	✓	25-Sep-2023	28 days	10 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid)										
PN08	E318	15-Sep-2023	24-Sep-2023	28 days	9 days	✓	25-Sep-2023	28 days	11 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.001 mg/L)										
Amber glass total (sulfuric acid)										
TB	E372-S	17-Sep-2023	22-Sep-2023	28 days	5 days	✓	22-Sep-2023	28 days	5 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.001 mg/L)										
Amber glass total (sulfuric acid)										
PN04	E372-S	16-Sep-2023	22-Sep-2023	28 days	6 days	✓	22-Sep-2023	28 days	6 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.001 mg/L)										
Amber glass total (sulfuric acid)										
PN05	E372-S	16-Sep-2023	22-Sep-2023	28 days	6 days	✓	22-Sep-2023	28 days	6 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.001 mg/L)										
Amber glass total (sulfuric acid)										
PN07	E372-S	16-Sep-2023	22-Sep-2023	28 days	6 days	✓	22-Sep-2023	28 days	6 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.001 mg/L)										
Amber glass total (sulfuric acid)										
PN09	E372-S	16-Sep-2023	22-Sep-2023	28 days	6 days	✓	22-Sep-2023	28 days	6 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.001 mg/L)										
Amber glass total (sulfuric acid)										
PN03	E372-S	15-Sep-2023	22-Sep-2023	28 days	7 days	✓	22-Sep-2023	28 days	7 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.001 mg/L)										
Amber glass total (sulfuric acid)										
PN06	E372-S	15-Sep-2023	22-Sep-2023	28 days	7 days	✓	22-Sep-2023	28 days	7 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.001 mg/L)										
Amber glass total (sulfuric acid)										
PN08	E372-S	15-Sep-2023	22-Sep-2023	28 days	7 days	✓	22-Sep-2023	28 days	7 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : Free Cyanide										
UV-inhibited HDPE - total (sodium hydroxide)										
TB	E339	17-Sep-2023	04-Oct-2023	14 days	17 days	× EHT	04-Oct-2023	14 days	17 days	× EHT
Cyanides : Free Cyanide										
UV-inhibited HDPE - total (sodium hydroxide)										
PN04	E339	16-Sep-2023	04-Oct-2023	14 days	18 days	× EHT	04-Oct-2023	14 days	18 days	× EHT
Cyanides : Free Cyanide										
UV-inhibited HDPE - total (sodium hydroxide)										
PN05	E339	16-Sep-2023	04-Oct-2023	14 days	18 days	× EHT	04-Oct-2023	14 days	18 days	× EHT
Cyanides : Free Cyanide										
UV-inhibited HDPE - total (sodium hydroxide)										
PN06	E339	15-Sep-2023	04-Oct-2023	14 days	18 days	× EHT	04-Oct-2023	14 days	18 days	× EHT
Cyanides : Free Cyanide										
UV-inhibited HDPE - total (sodium hydroxide)										
PN07	E339	16-Sep-2023	04-Oct-2023	14 days	18 days	× EHT	04-Oct-2023	14 days	18 days	× EHT
Cyanides : Free Cyanide										
UV-inhibited HDPE - total (sodium hydroxide)										
PN09	E339	16-Sep-2023	04-Oct-2023	14 days	18 days	× EHT	04-Oct-2023	14 days	18 days	× EHT
Cyanides : Free Cyanide										
UV-inhibited HDPE - total (sodium hydroxide)										
PN03	E339	15-Sep-2023	04-Oct-2023	14 days	18 days	× EHT	04-Oct-2023	14 days	19 days	× EHT
Cyanides : Free Cyanide										
UV-inhibited HDPE - total (sodium hydroxide)										
PN08	E339	15-Sep-2023	04-Oct-2023	14 days	19 days	× EHT	04-Oct-2023	14 days	19 days	× EHT
Cyanides : Total Cyanide										
UV-inhibited HDPE - total (sodium hydroxide)										
TB	E333	17-Sep-2023	04-Oct-2023	14 days	17 days	× EHT	04-Oct-2023	14 days	17 days	× EHT

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : Total Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) PN04	E333	16-Sep-2023	04-Oct-2023	14 days	18 days	× EHT	04-Oct-2023	14 days	18 days	× EHT
Cyanides : Total Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) PN05	E333	16-Sep-2023	04-Oct-2023	14 days	18 days	× EHT	04-Oct-2023	14 days	18 days	× EHT
Cyanides : Total Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) PN06	E333	15-Sep-2023	04-Oct-2023	14 days	18 days	× EHT	04-Oct-2023	14 days	18 days	× EHT
Cyanides : Total Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) PN07	E333	16-Sep-2023	04-Oct-2023	14 days	18 days	× EHT	04-Oct-2023	14 days	18 days	× EHT
Cyanides : Total Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) PN09	E333	16-Sep-2023	04-Oct-2023	14 days	18 days	× EHT	04-Oct-2023	14 days	18 days	× EHT
Cyanides : Total Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) PN03	E333	15-Sep-2023	04-Oct-2023	14 days	18 days	× EHT	04-Oct-2023	14 days	19 days	× EHT
Cyanides : Total Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) PN08	E333	15-Sep-2023	04-Oct-2023	14 days	19 days	× EHT	04-Oct-2023	14 days	19 days	× EHT
Cyanides : WAD Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) TB	E336	17-Sep-2023	04-Oct-2023	14 days	17 days	× EHT	04-Oct-2023	14 days	17 days	× EHT
Cyanides : WAD Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) PN04	E336	16-Sep-2023	04-Oct-2023	14 days	18 days	× EHT	04-Oct-2023	14 days	18 days	× EHT

Matrix: **Water**

Evaluation: ✗ = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : WAD Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) PN05	E336	16-Sep-2023	04-Oct-2023	14 days	18 days	✗ EHT	04-Oct-2023	14 days	18 days	✗ EHT
Cyanides : WAD Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) PN06	E336	15-Sep-2023	04-Oct-2023	14 days	18 days	✗ EHT	04-Oct-2023	14 days	18 days	✗ EHT
Cyanides : WAD Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) PN07	E336	16-Sep-2023	04-Oct-2023	14 days	18 days	✗ EHT	04-Oct-2023	14 days	18 days	✗ EHT
Cyanides : WAD Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) PN09	E336	16-Sep-2023	04-Oct-2023	14 days	18 days	✗ EHT	04-Oct-2023	14 days	18 days	✗ EHT
Cyanides : WAD Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) PN03	E336	15-Sep-2023	04-Oct-2023	14 days	18 days	✗ EHT	04-Oct-2023	14 days	19 days	✗ EHT
Cyanides : WAD Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) PN08	E336	15-Sep-2023	04-Oct-2023	14 days	19 days	✗ EHT	04-Oct-2023	14 days	19 days	✗ EHT
Dissolved Metals : Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - dissolved (lab preserved) TB	E509-L	17-Sep-2023	27-Sep-2023	28 days	10 days	✓	27-Sep-2023	28 days	10 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - dissolved (lab preserved) PN04	E509-L	16-Sep-2023	27-Sep-2023	28 days	11 days	✓	27-Sep-2023	28 days	11 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - dissolved (lab preserved) PN05	E509-L	16-Sep-2023	27-Sep-2023	28 days	11 days	✓	27-Sep-2023	28 days	11 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Dissolved Metals : Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - dissolved (lab preserved) PN07	E509-L	16-Sep-2023	27-Sep-2023	28 days	11 days	✓	27-Sep-2023	28 days	11 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - dissolved (lab preserved) PN09	E509-L	16-Sep-2023	27-Sep-2023	28 days	11 days	✓	27-Sep-2023	28 days	11 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - dissolved (lab preserved) PN03	E509-L	15-Sep-2023	27-Sep-2023	28 days	12 days	✓	27-Sep-2023	28 days	12 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - dissolved (lab preserved) PN06	E509-L	15-Sep-2023	27-Sep-2023	28 days	12 days	✓	27-Sep-2023	28 days	12 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - dissolved (lab preserved) PN08	E509-L	15-Sep-2023	27-Sep-2023	28 days	12 days	✓	27-Sep-2023	28 days	12 days	✓
Dissolved Metals : Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine										
HDPE - dissolved (lab preserved) PN03	E465	15-Sep-2023	25-Sep-2023	180 days	10 days	✓	26-Sep-2023	180 days	11 days	✓
Dissolved Metals : Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine										
HDPE - dissolved (lab preserved) PN06	E465	15-Sep-2023	25-Sep-2023	180 days	10 days	✓	26-Sep-2023	180 days	11 days	✓
Dissolved Metals : Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine										
HDPE - dissolved (lab preserved) PN08	E465	15-Sep-2023	25-Sep-2023	180 days	10 days	✓	26-Sep-2023	180 days	11 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Dissolved Metals : Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine										
HDPE - dissolved (lab preserved) TB	E465	17-Sep-2023	25-Sep-2023	180 days	8 days	✓	26-Sep-2023	180 days	9 days	✓
Dissolved Metals : Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine										
HDPE - dissolved (lab preserved) PN04	E465	16-Sep-2023	25-Sep-2023	180 days	9 days	✓	26-Sep-2023	180 days	10 days	✓
Dissolved Metals : Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine										
HDPE - dissolved (lab preserved) PN05	E465	16-Sep-2023	25-Sep-2023	180 days	9 days	✓	26-Sep-2023	180 days	10 days	✓
Dissolved Metals : Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine										
HDPE - dissolved (lab preserved) PN07	E465	16-Sep-2023	25-Sep-2023	180 days	9 days	✓	26-Sep-2023	180 days	10 days	✓
Dissolved Metals : Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine										
HDPE - dissolved (lab preserved) PN09	E465	16-Sep-2023	25-Sep-2023	180 days	9 days	✓	26-Sep-2023	180 days	10 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) TB	E358-L	17-Sep-2023	24-Sep-2023	28 days	7 days	✓	24-Sep-2023	28 days	7 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) PN04	E358-L	16-Sep-2023	24-Sep-2023	28 days	8 days	✓	24-Sep-2023	28 days	8 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) PN05	E358-L	16-Sep-2023	24-Sep-2023	28 days	8 days	✓	24-Sep-2023	28 days	8 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) PN07	E358-L	16-Sep-2023	24-Sep-2023	28 days	8 days	✓	24-Sep-2023	28 days	8 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) PN09	E358-L	16-Sep-2023	24-Sep-2023	28 days	8 days	✓	24-Sep-2023	28 days	8 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) PN03	E358-L	15-Sep-2023	24-Sep-2023	28 days	9 days	✓	24-Sep-2023	28 days	9 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) PN06	E358-L	15-Sep-2023	24-Sep-2023	28 days	9 days	✓	24-Sep-2023	28 days	9 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) PN08	E358-L	15-Sep-2023	24-Sep-2023	28 days	9 days	✓	24-Sep-2023	28 days	9 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) TB	E355-L	17-Sep-2023	24-Sep-2023	28 days	7 days	✓	24-Sep-2023	28 days	7 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) PN04	E355-L	16-Sep-2023	24-Sep-2023	28 days	8 days	✓	24-Sep-2023	28 days	8 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) PN05	E355-L	16-Sep-2023	24-Sep-2023	28 days	8 days	✓	24-Sep-2023	28 days	8 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) PN07	E355-L	16-Sep-2023	24-Sep-2023	28 days	8 days	✓	24-Sep-2023	28 days	8 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
PN09	E355-L	16-Sep-2023	24-Sep-2023	28 days	8 days	✓	24-Sep-2023	28 days	8 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
PN03	E355-L	15-Sep-2023	24-Sep-2023	28 days	9 days	✓	24-Sep-2023	28 days	9 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
PN06	E355-L	15-Sep-2023	24-Sep-2023	28 days	9 days	✓	24-Sep-2023	28 days	9 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
PN08	E355-L	15-Sep-2023	24-Sep-2023	28 days	9 days	✓	24-Sep-2023	28 days	9 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
TB	E290	17-Sep-2023	21-Sep-2023	14 days	4 days	✓	22-Sep-2023	14 days	5 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
PN04	E290	16-Sep-2023	21-Sep-2023	14 days	5 days	✓	22-Sep-2023	14 days	6 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
PN05	E290	16-Sep-2023	21-Sep-2023	14 days	5 days	✓	22-Sep-2023	14 days	6 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
PN07	E290	16-Sep-2023	21-Sep-2023	14 days	5 days	✓	22-Sep-2023	14 days	6 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
PN09	E290	16-Sep-2023	21-Sep-2023	14 days	5 days	✓	22-Sep-2023	14 days	6 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Alkalinity Species by Titration										
HDPE PN03	E290	15-Sep-2023	21-Sep-2023	14 days	6 days	✓	22-Sep-2023	14 days	7 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE PN06	E290	15-Sep-2023	21-Sep-2023	14 days	6 days	✓	22-Sep-2023	14 days	7 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE PN08	E290	15-Sep-2023	21-Sep-2023	14 days	6 days	✓	22-Sep-2023	14 days	7 days	✓
Physical Tests : Conductivity in Water										
HDPE TB	E100	17-Sep-2023	21-Sep-2023	28 days	4 days	✓	22-Sep-2023	28 days	5 days	✓
Physical Tests : Conductivity in Water										
HDPE PN04	E100	16-Sep-2023	21-Sep-2023	28 days	5 days	✓	22-Sep-2023	28 days	6 days	✓
Physical Tests : Conductivity in Water										
HDPE PN05	E100	16-Sep-2023	21-Sep-2023	28 days	5 days	✓	22-Sep-2023	28 days	6 days	✓
Physical Tests : Conductivity in Water										
HDPE PN07	E100	16-Sep-2023	21-Sep-2023	28 days	5 days	✓	22-Sep-2023	28 days	6 days	✓
Physical Tests : Conductivity in Water										
HDPE PN09	E100	16-Sep-2023	21-Sep-2023	28 days	5 days	✓	22-Sep-2023	28 days	6 days	✓
Physical Tests : Conductivity in Water										
HDPE PN03	E100	15-Sep-2023	21-Sep-2023	28 days	6 days	✓	22-Sep-2023	28 days	7 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Conductivity in Water										
HDPE PN06	E100	15-Sep-2023	21-Sep-2023	28 days	6 days	✓	22-Sep-2023	28 days	7 days	✓
Physical Tests : Conductivity in Water										
HDPE PN08	E100	15-Sep-2023	21-Sep-2023	28 days	6 days	✓	22-Sep-2023	28 days	7 days	✓
Physical Tests : pH by Meter										
HDPE TB	E108	17-Sep-2023	21-Sep-2023	0.25 hrs	102 hrs	× EHTR-FM	22-Sep-2023	0.25 hrs	119 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE PN05	E108	16-Sep-2023	21-Sep-2023	0.25 hrs	120 hrs	× EHTR-FM	22-Sep-2023	0.25 hrs	138 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE PN07	E108	16-Sep-2023	21-Sep-2023	0.25 hrs	121 hrs	× EHTR-FM	22-Sep-2023	0.25 hrs	139 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE PN04	E108	16-Sep-2023	21-Sep-2023	0.25 hrs	122 hrs	× EHTR-FM	22-Sep-2023	0.25 hrs	140 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE PN09	E108	16-Sep-2023	21-Sep-2023	0.25 hrs	124 hrs	× EHTR-FM	22-Sep-2023	0.25 hrs	142 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE PN06	E108	15-Sep-2023	21-Sep-2023	0.25 hrs	141 hrs	× EHTR-FM	22-Sep-2023	0.25 hrs	159 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE PN03	E108	15-Sep-2023	21-Sep-2023	0.25 hrs	143 hrs	× EHTR-FM	22-Sep-2023	0.25 hrs	161 hrs	× EHTR-FM

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : pH by Meter										
HDPE PN08	E108	15-Sep-2023	21-Sep-2023	0.25 hrs	147 hrs	× EHTR-FM	22-Sep-2023	0.25 hrs	165 hrs	× EHTR-FM
Physical Tests : TSS by Gravimetry										
HDPE TB	E160	17-Sep-2023	----	----	----		21-Sep-2023	7 days	4 days	✓
Physical Tests : TSS by Gravimetry										
HDPE PN04	E160	16-Sep-2023	----	----	----		21-Sep-2023	7 days	5 days	✓
Physical Tests : TSS by Gravimetry										
HDPE PN05	E160	16-Sep-2023	----	----	----		21-Sep-2023	7 days	5 days	✓
Physical Tests : TSS by Gravimetry										
HDPE PN07	E160	16-Sep-2023	----	----	----		21-Sep-2023	7 days	5 days	✓
Physical Tests : TSS by Gravimetry										
HDPE PN09	E160	16-Sep-2023	----	----	----		21-Sep-2023	7 days	5 days	✓
Physical Tests : TSS by Gravimetry										
HDPE PN03	E160	15-Sep-2023	----	----	----		21-Sep-2023	7 days	6 days	✓
Physical Tests : TSS by Gravimetry										
HDPE PN06	E160	15-Sep-2023	----	----	----		21-Sep-2023	7 days	6 days	✓
Physical Tests : TSS by Gravimetry										
HDPE PN08	E160	15-Sep-2023	----	----	----		21-Sep-2023	7 days	6 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Total Metals (Undigested) : Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine										
HDPE - total (lab preserved) TB	E466	17-Sep-2023	21-Sep-2023	180 days	4 days	✓	22-Sep-2023	180 days	5 days	✓
Total Metals (Undigested) : Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine										
HDPE - total (lab preserved) PN04	E466	16-Sep-2023	21-Sep-2023	180 days	5 days	✓	22-Sep-2023	180 days	6 days	✓
Total Metals (Undigested) : Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine										
HDPE - total (lab preserved) PN05	E466	16-Sep-2023	21-Sep-2023	180 days	5 days	✓	22-Sep-2023	180 days	6 days	✓
Total Metals (Undigested) : Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine										
HDPE - total (lab preserved) PN07	E466	16-Sep-2023	21-Sep-2023	180 days	5 days	✓	22-Sep-2023	180 days	6 days	✓
Total Metals (Undigested) : Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine										
HDPE - total (lab preserved) PN09	E466	16-Sep-2023	21-Sep-2023	180 days	5 days	✓	22-Sep-2023	180 days	6 days	✓
Total Metals (Undigested) : Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine										
HDPE - total (lab preserved) PN03	E466	15-Sep-2023	21-Sep-2023	180 days	6 days	✓	22-Sep-2023	180 days	7 days	✓
Total Metals (Undigested) : Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine										
HDPE - total (lab preserved) PN06	E466	15-Sep-2023	21-Sep-2023	180 days	6 days	✓	22-Sep-2023	180 days	7 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Total Metals (Undigested) : Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine										
HDPE - total (lab preserved) PN08	E466	15-Sep-2023	21-Sep-2023	180 days	6 days	✓	22-Sep-2023	180 days	7 days	✓
Total Metals : Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - total (lab preserved) PN04	E508-L	16-Sep-2023	26-Sep-2023	28 days	10 days	✓	26-Sep-2023	28 days	0 days	✓
Total Metals : Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - total (lab preserved) PN05	E508-L	16-Sep-2023	26-Sep-2023	28 days	10 days	✓	26-Sep-2023	28 days	0 days	✓
Total Metals : Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - total (lab preserved) PN07	E508-L	16-Sep-2023	26-Sep-2023	28 days	10 days	✓	26-Sep-2023	28 days	0 days	✓
Total Metals : Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - total (lab preserved) PN09	E508-L	16-Sep-2023	26-Sep-2023	28 days	10 days	✓	26-Sep-2023	28 days	0 days	✓
Total Metals : Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - total (lab preserved) PN03	E508-L	15-Sep-2023	26-Sep-2023	28 days	11 days	✓	26-Sep-2023	28 days	0 days	✓
Total Metals : Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - total (lab preserved) PN06	E508-L	15-Sep-2023	26-Sep-2023	28 days	11 days	✓	26-Sep-2023	28 days	0 days	✓
Total Metals : Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - total (lab preserved) PN08	E508-L	15-Sep-2023	26-Sep-2023	28 days	11 days	✓	26-Sep-2023	28 days	0 days	✓
Total Metals : Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - total (lab preserved) TB	E508-L	17-Sep-2023	26-Sep-2023	28 days	9 days	✓	26-Sep-2023	28 days	0 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) TB	E395	17-Sep-2023	----	----	----		21-Sep-2023	7 days	4 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) PN04	E395	16-Sep-2023	----	----	----		21-Sep-2023	7 days	5 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) PN05	E395	16-Sep-2023	----	----	----		21-Sep-2023	7 days	5 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) PN07	E395	16-Sep-2023	----	----	----		21-Sep-2023	7 days	5 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) PN09	E395	16-Sep-2023	----	----	----		21-Sep-2023	7 days	5 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) PN03	E395	15-Sep-2023	----	----	----		21-Sep-2023	7 days	6 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) PN06	E395	15-Sep-2023	----	----	----		21-Sep-2023	7 days	6 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) PN08	E395	15-Sep-2023	----	----	----		21-Sep-2023	7 days	6 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.

EHT: Exceeded ALS recommended hold time prior to analysis.

Rec. HT: ALS recommended hold time (see units).

Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Water**

Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
Alkalinity Species by Titration	E290	1145805	1	18	5.5	5.0	✓
Ammonia by Fluorescence	E298	1150780	1	15	6.6	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1145810	1	18	5.5	5.0	✓
Chloride in Water by IC	E235.Cl	1145809	1	18	5.5	5.0	✓
Conductivity in Water	E100	1145807	1	17	5.8	5.0	✓
Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)	E509-L	1156960	1	8	12.5	5.0	✓
Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine Samples)	E465	1146490	1	8	12.5	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1150782	1	12	8.3	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	1145814	1	13	7.6	5.0	✓
Fluoride in Water by IC	E235.F	1145808	1	18	5.5	5.0	✓
Free Cyanide	E339	1167365	1	8	12.5	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1145811	1	15	6.6	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1145812	1	15	6.6	5.0	✓
pH by Meter	E108	1145806	1	17	5.8	5.0	✓
Reactive Silica by Colourimetry	E392	1147214	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1145813	1	18	5.5	5.0	✓
Total Cyanide	E333	1167363	1	14	7.1	5.0	✓
Total Dissolved Phosphorus by Colourimetry (0.001 mg/L)	E375-U	1146097	1	20	5.0	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	1150777	1	11	9.0	5.0	✓
Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)	E508-L	1154766	1	18	5.5	5.0	✓
Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine Samples)	E466	1146478	1	8	12.5	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1150778	1	15	6.6	5.0	✓
Total Phosphorus by Colourimetry (0.001 mg/L)	E372-S	1146086	1	20	5.0	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	1147148	1	18	5.5	5.0	✓
TSS by Gravimetry	E160	1146678	2	36	5.5	5.0	✓
WAD Cyanide	E336	1167364	1	14	7.1	5.0	✓
Laboratory Control Samples (LCS)							
Alkalinity Species by Titration	E290	1145805	1	18	5.5	5.0	✓
Ammonia by Fluorescence	E298	1150780	1	15	6.6	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1145810	1	18	5.5	5.0	✓
Chloride in Water by IC	E235.Cl	1145809	1	18	5.5	5.0	✓
Conductivity in Water	E100	1145807	1	17	5.8	5.0	✓
Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)	E509-L	1156960	1	8	12.5	5.0	✓
Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine Samples)	E465	1146490	1	8	12.5	5.0	✓

Matrix: **Water**

Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Control Samples (LCS) - Continued							
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1150782	1	12	8.3	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	1145814	1	13	7.6	5.0	✓
Fluoride in Water by IC	E235.F	1145808	1	18	5.5	5.0	✓
Free Cyanide	E339	1167365	1	8	12.5	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1145811	1	15	6.6	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1145812	1	15	6.6	5.0	✓
pH by Meter	E108	1145806	1	17	5.8	5.0	✓
Reactive Silica by Colourimetry	E392	1147214	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1145813	1	18	5.5	5.0	✓
Total Cyanide	E333	1167363	1	14	7.1	5.0	✓
Total Dissolved Phosphorus by Colourimetry (0.001 mg/L)	E375-U	1146097	1	20	5.0	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	1150777	1	11	9.0	5.0	✓
Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)	E508-L	1154766	1	18	5.5	5.0	✓
Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine Samples)	E466	1146478	1	8	12.5	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1150778	1	15	6.6	5.0	✓
Total Phosphorus by Colourimetry (0.001 mg/L)	E372-S	1146086	1	20	5.0	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	1147148	1	18	5.5	5.0	✓
TSS by Gravimetry	E160	1146678	2	36	5.5	5.0	✓
WAD Cyanide	E336	1167364	1	14	7.1	5.0	✓
Method Blanks (MB)							
Alkalinity Species by Titration	E290	1145805	1	18	5.5	5.0	✓
Ammonia by Fluorescence	E298	1150780	1	15	6.6	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1145810	1	18	5.5	5.0	✓
Chloride in Water by IC	E235.Cl	1145809	1	18	5.5	5.0	✓
Conductivity in Water	E100	1145807	1	17	5.8	5.0	✓
Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)	E509-L	1156960	1	8	12.5	5.0	✓
Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine Samples)	E465	1146490	1	8	12.5	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1150782	1	12	8.3	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	1145814	1	13	7.6	5.0	✓
Fluoride in Water by IC	E235.F	1145808	1	18	5.5	5.0	✓
Free Cyanide	E339	1167365	1	8	12.5	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1145811	1	15	6.6	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1145812	1	15	6.6	5.0	✓
Reactive Silica by Colourimetry	E392	1147214	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1145813	1	18	5.5	5.0	✓
Total Cyanide	E333	1167363	1	14	7.1	5.0	✓
Total Dissolved Phosphorus by Colourimetry (0.001 mg/L)	E375-U	1146097	1	20	5.0	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	1150777	1	11	9.0	5.0	✓

Matrix: **Water**

Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Method Blanks (MB) - Continued							
Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)	E508-L	1154766	1	18	5.5	5.0	✓
Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine Samples)	E466	1146478	1	8	12.5	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1150778	1	15	6.6	5.0	✓
Total Phosphorus by Colourimetry (0.001 mg/L)	E372-S	1146086	1	20	5.0	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	1147148	1	18	5.5	5.0	✓
TSS by Gravimetry	E160	1146678	2	36	5.5	5.0	✓
WAD Cyanide	E336	1167364	1	14	7.1	5.0	✓
Matrix Spikes (MS)							
Ammonia by Fluorescence	E298	1150780	1	15	6.6	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1145810	1	18	5.5	5.0	✓
Chloride in Water by IC	E235.Cl	1145809	1	18	5.5	5.0	✓
Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)	E509-L	1156960	1	8	12.5	5.0	✓
Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine Samples)	E465	1146490	1	8	12.5	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1150782	1	12	8.3	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	1145814	1	13	7.6	5.0	✓
Fluoride in Water by IC	E235.F	1145808	1	18	5.5	5.0	✓
Free Cyanide	E339	1167365	1	8	12.5	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1145811	1	15	6.6	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1145812	1	15	6.6	5.0	✓
Reactive Silica by Colourimetry	E392	1147214	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1145813	1	18	5.5	5.0	✓
Total Cyanide	E333	1167363	1	14	7.1	5.0	✓
Total Dissolved Phosphorus by Colourimetry (0.001 mg/L)	E375-U	1146097	1	20	5.0	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	1150777	1	11	9.0	5.0	✓
Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)	E508-L	1154766	1	18	5.5	5.0	✓
Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine Samples)	E466	1146478	1	8	12.5	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1150778	1	15	6.6	5.0	✓
Total Phosphorus by Colourimetry (0.001 mg/L)	E372-S	1146086	1	20	5.0	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	1147148	1	18	5.5	5.0	✓
WAD Cyanide	E336	1167364	1	14	7.1	5.0	✓

Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Conductivity in Water	E100 ALS Environmental - Vancouver	Water	APHA 2510 (mod)	Conductivity, also known as Electrical Conductivity (EC) or Specific Conductance, is measured by immersion of a conductivity cell with platinum electrodes into a water sample. Conductivity measurements are temperature-compensated to 25°C.
pH by Meter	E108 ALS Environmental - Vancouver	Water	APHA 4500-H (mod)	pH is determined by potentiometric measurement with a pH electrode, and is conducted at ambient laboratory temperature (normally 20 ± 5°C). For high accuracy test results, pH should be measured in the field within the recommended 15 minute hold time.
TSS by Gravimetry	E160 ALS Environmental - Vancouver	Water	APHA 2540 D (mod)	Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, following by drying of the filter at 104 ± 1°C, with gravimetric measurement of the filtered solids. Samples containing very high dissolved solid content (i.e. seawaters, brackish waters) may produce a positive bias by this method. Alternate analysis methods are available for these types of samples.
Bromide in Water by IC (Low Level)	E235.Br-L ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Chloride in Water by IC	E235.Cl ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Fluoride in Water by IC	E235.F ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrite in Water by IC (Low Level)	E235.NO2-L ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrate in Water by IC (Low Level)	E235.NO3-L ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Sulfate in Water by IC	E235.SO4 ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Alkalinity Species by Titration	E290 ALS Environmental - Vancouver	Water	APHA 2320 B (mod)	Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.
Ammonia by Fluorescence	E298 ALS Environmental - Vancouver	Water	Method Fialab 100, 2018	Ammonia in water is determined by automated continuous flow analysis with membrane diffusion and fluorescence detection, after reaction with OPA (ortho-phthalaldehyde). This method is approved under US EPA 40 CFR Part 136 (May 2021)
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318 ALS Environmental - Vancouver	Water	Method Fialab 100, 2018	TKN in water is determined by automated continuous flow analysis with membrane diffusion and fluorescence detection, after reaction with OPA (ortho-phthalaldehyde). This method is approved under US EPA 40 CFR Part 136 (May 2021).
Total Cyanide	E333 ALS Environmental - Waterloo	Water	ISO 14403 (mod)	Total or Strong Acid Dissociable (SAD) Cyanide is determined by Continuous Flow Analyzer (CFA) with in-line UV digestion followed by colourmetric analysis. Method Limitation: High levels of thiocyanate (SCN) may cause positive interference (up to 0.5% of SCN concentration).
WAD Cyanide	E336 ALS Environmental - Waterloo	Water	APHA 4500-CN I (mod)	Weak Acid Dissociable (WAD) cyanide is determined by Continuous Flow Analyzer (CFA) with in-line distillation followed by colourmetric analysis.
Free Cyanide	E339 ALS Environmental - Waterloo	Water	ASTM D7237 (mod)	Free Cyanide is determined by Continuous Flow Analyzer (CFA) with in-line gas diffusion followed by colourmetric analysis.
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L ALS Environmental - Vancouver	Water	APHA 5310 B (mod)	Total Organic Carbon (Non-Purgeable), also known as NPOC (total), is a direct measurement of TOC after an acidified sample has been purged to remove inorganic carbon (IC). Analysis is by high temperature combustion with infrared detection of CO_2. NPOC does not include volatile organic species that are purged off with IC. For samples where the majority of total carbon (TC) is comprised of IC (which is common), this method is more accurate and more reliable than the TOC by subtraction method (i.e. TC minus TIC).
Dissolved Organic Carbon by Combustion (Low Level)	E358-L ALS Environmental - Vancouver	Water	APHA 5310 B (mod)	Dissolved Organic Carbon (Non-Purgeable), also known as NPOC (dissolved), is a direct measurement of DOC after a filtered (0.45 micron) sample has been acidified and purged to remove inorganic carbon (IC). Analysis is by high temperature combustion with infrared detection of CO_2. 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 Phosphorus by Colourimetry (0.001 mg/L)	E372-S ALS Environmental - Edmonton	Water	APHA 4500-P E (mod).	Total Phosphorus is determined colourimetrically after heated persulfate digestion of the sample.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Total Dissolved Phosphorus by Colourimetry (0.001 mg/L)	E375-U ALS Environmental - Edmonton	Water	APHA 4500-P E (mod).	Total Dissolved Phosphorus is determined colourmetrically after filtration through a 0.45 micron filter followed by heated persulfate digestion of the sample.
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U ALS Environmental - Vancouver	Water	APHA 4500-P F (mod)	Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter. Field filtration is recommended to ensure test results represent conditions at time of sampling.
Reactive Silica by Colourimetry	E392 ALS Environmental - Vancouver	Water	APHA 4500-SiO2 E (mod)	Silicate (molybdate-reactive silica) is determined by the molybdosilicate-heteropoly blue colourimetric method using a discrete analyzer. Method Limitation: Arsenic (5+) above 100 mg/L is a negative interference on this test
Total Sulfide by Colourimetry (Automated Flow)	E395 ALS Environmental - Vancouver	Water	APHA 4500 -S E-Auto-Colorimetry	Sulfide is determined using the gas dialysis automated methlyene blue colourimetric method. Results expressed "as H2S" if reported represent the maximum possible H2S concentration based on the total sulfide concentration in the sample. The H2S calculation converts Total Sulphide as (S2-) and reports it as Total Sulphide as (H2S)
Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine Samples)	E465 ALS Environmental - Vancouver	Water	EPA 6020B (mod)	Ultra trace metals in water are analyzed by Triple Quadrupole ICPMS. This procedure is intended for pristine field-filtered acid-preserved water samples. The detection limits (LOR) for this test are based on lab instrumental analysis only, not including filtration. Due to the high probability of false positives due to filtration, it is strongly recommended that a filtration blank be analysed to aid in data interpretation.
Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine Samples)	E466 ALS Environmental - Vancouver	Water	EPA 6020B (mod)	Ultra trace metals in water are analyzed by CRC ICPMS, based on US EPA Method 6020B (July 2014). The detection limits provided can only be met for undigested samples. This procedure is intended for colorless, non-turbid, acid-preserved water samples (i.e. pristine water samples), having turbidity < 1 NTU and no odor. Where turbidity exceeds 1 NTU, and/or the sample is colored and has an odor, results may be biased low compared to true Total Metals concentrations. ALS recommends that turbidity analysis be requested on samples submitted for this test to aid with interpretation of results. Where turbidity is <1NTU, undigested metals are equivalent to total metals concentrations.
Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)	E508-L 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 CVAFS.
Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)	E509-L 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 CVAFS.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
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.
TDS in Water (Calculation)	EC103 ALS Environmental - Vancouver	Water	APHA 1030E (mod)	Total Dissolved Solids is calculated based on guidance from APHA Standard Methods (1030E Checking Correctness of Analysis). Dissolved species are used where available. Minor ions are included where data is present.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Ammonia	EP298 ALS Environmental - Vancouver	Water		Sample preparation for Preserved Nutrients Water Quality Analysis.
Digestion for TKN in water	EP318 ALS Environmental - Vancouver	Water	APHA 4500-Norg D (mod)	Samples are digested at high temperature using Sulfuric Acid with Copper catalyst, which converts organic nitrogen sources to Ammonia, which is then quantified by the analytical method as TKN. This method is unsuitable for samples containing high levels of nitrate. If nitrate exceeds TKN concentration by ten times or more, results may be biased low.
Preparation for Total Organic Carbon by Combustion	EP355 ALS Environmental - Vancouver	Water		Preparation for Total Organic Carbon by Combustion
Preparation for Dissolved Organic Carbon for Combustion	EP358 ALS Environmental - Vancouver	Water	APHA 5310 B (mod)	Preparation for Dissolved Organic Carbon
Digestion for Total Phosphorus in water	EP372 ALS Environmental - Edmonton	Water	APHA 4500-P E (mod).	Samples are heated with a persulfate digestion reagent.
Digestion for Dissolved Phosphorus in water	EP375 ALS Environmental - Edmonton	Water	APHA 4500-P E (mod).	Samples are filtered through a 0.45 micron membrane filter and then heated with a persulfate digestion reagent.
Dissolved Metals Water Filtration for Triple Quad ICPMS	EP465 ALS Environmental - Vancouver	Water	APHA 3030B	Low level metals in water are analyzed by Triple Quad ICPMS. This procedure is intended for pristine field-filtered acid-preserved water samples. The detection limits (LOR) for this test are based on lab instrumental analysis only, not including filtration. ALS-supplied field filtration equipment does not support these LOR. Therefore, because of the high probability of false positives due to filtration, it is strongly recommended that a filtration blank be analysed to aid in data interpretation.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Dissolved Mercury Water Filtration (Low Level)	EP509-L ALS Environmental - Vancouver	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HCl.

QUALITY CONTROL REPORT

Work Order	: **YL2301146**	Page	: 1 of 22
Client	: Sabina Gold & Silver Corporation	Laboratory	: ALS Environmental - Yellowknife
Contact	: Merle Keefe	Account Manager	: Oliver Gregg
Address	: 375 - 555 Burrard St. Box 220, Bentall 2 Vancouver BC Canada V7X 1M7	Address	: 314 Old Airport Road, Unit 116 Yellowknife, Northwest Territories Canada X1A 3T3
Telephone	:	Telephone	: 1 867 445 7143
Project	: 22567626	Date Samples Received	: 18-Sep-2023 08:56
PO	: ----	Date Analysis Commenced	: 21-Sep-2023
C-O-C number	: ----	Issue Date	: 06-Oct-2023 17:31
Sampler	: ---- 604 240 6619		
Site	: Sabina/B2Gold Goose Lake		
Quote number	: YL23-SABI100-001		
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
- 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.

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General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number = Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO = Data Quality Objective.
LOR = Limit of Reporting (detection limit).
RPD = Relative Percent Difference
# = Indicates a QC result that did not meet the ALS DQO.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test-specific).

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Physical Tests (QC Lot: 1145805)											
FJ2302399-002	Anonymous	Alkalinity, bicarbonate (as CaCO3)	----	E290	1.0	mg/L	284	278	2.21%	200%	----
		Alkalinity, carbonate (as CaCO3)	----	E290	1.0	mg/L	<1.0	<1.0	0.00%	200%	----
		Alkalinity, hydroxide (as CaCO3)	----	E290	1.0	mg/L	<1.0	<1.0	0.00%	200%	----
		Alkalinity, phenolphthalein (as CaCO3)	----	E290	1.0	mg/L	<1.0	<1.0	0	Diff <2x LOR	----
		Alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	284	278	2.21%	20%	----
Physical Tests (QC Lot: 1145806)											
FJ2302399-002	Anonymous	pH	----	E108	0.10	pH units	8.05	8.05	0.00%	4%	----
Physical Tests (QC Lot: 1145807)											
FJ2302399-002	Anonymous	Conductivity	----	E100	2.0	µS/cm	613	610	0.490%	10%	----
Physical Tests (QC Lot: 1146678)											
VA23C1956-002	Anonymous	Solids, total suspended [TSS]	----	E160	3.0	mg/L	6.2	6.6	0.4	Diff <2x LOR	----
Physical Tests (QC Lot: 1146679)											
YL2301146-003	PN06	Solids, total suspended [TSS]	----	E160	3.0	mg/L	<3.0	<3.0	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1145808)											
FJ2302395-001	Anonymous	Fluoride	16984-48-8	E235.F	0.100	mg/L	0.366	0.331	0.035	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1145809)											
FJ2302395-001	Anonymous	Chloride	16887-00-6	E235.Cl	2.50	mg/L	71.7	71.4	0.367%	20%	----
Anions and Nutrients (QC Lot: 1145810)											
FJ2302395-001	Anonymous	Bromide	24959-67-9	E235.Br-L	0.250	mg/L	<0.250	<0.250	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1145811)											
FJ2302395-001	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	0.0250	mg/L	0.199	0.195	0.0038	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1145812)											
FJ2302395-001	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	0.0050	mg/L	0.0082	0.0090	0.0008	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1145813)											
FJ2302395-001	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	1.50	mg/L	37.7	37.3	1.02%	20%	----
Anions and Nutrients (QC Lot: 1145814)											
FJ2302399-001	Anonymous	Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1146086)											
YL2301146-001	PN08	Phosphorus, total	7723-14-0	E372-S	0.0010	mg/L	0.0052	0.0043	0.0009	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Anions and Nutrients (QC Lot: 1146097)											
YL2301146-001	PN08	Phosphorus, total dissolved	7723-14-0	E375-U	0.0010	mg/L	0.0023	0.0019	0.0004	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1147214)											
VA23C2318-001	Anonymous	Silicate (as SiO2)	7631-86-9	E392	0.50	mg/L	6.06	6.12	0.972%	20%	----
Anions and Nutrients (QC Lot: 1150777)											
KS2303561-001	Anonymous	Kjeldahl nitrogen, total [TKN]	----	E318	0.050	mg/L	0.064	0.063	0.0008	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1150780)											
KS2303514-001	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.100	mg/L	17.0	17.0	0.0262%	20%	----
Cyanides (QC Lot: 1167363)											
YL2301146-001	PN08	Cyanide, strong acid dissociable (Total)	----	E333	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
Cyanides (QC Lot: 1167364)											
YL2301146-001	PN08	Cyanide, weak acid dissociable	----	E336	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
Cyanides (QC Lot: 1167365)											
YL2301146-001	PN08	Cyanide, free	----	E339	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
Organic / Inorganic Carbon (QC Lot: 1150778)											
KS2303518-001	Anonymous	Carbon, total organic [TOC]	----	E355-L	0.50	mg/L	<0.50	<0.50	0	Diff <2x LOR	----
Organic / Inorganic Carbon (QC Lot: 1150782)											
VA23C2225-001	Anonymous	Carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	4.19	4.11	0.08	Diff <2x LOR	----
Total Sulfides (QC Lot: 1147148)											
CG2312981-001	Anonymous	Sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	<0.0015	<0.0015	0	Diff <2x LOR	----
Total Metals (QC Lot: 1154766)											
WT2330290-001	Anonymous	Mercury, total	7439-97-6	E508-L	0.50	ng/L	<0.50	<0.50	0	Diff <2x LOR	----
Total Metals (Undigested) (QC Lot: 1146478)											
YL2301146-001	PN08	Aluminum, total	7429-90-5	E466	0.00020	mg/L	0.0292	0.0286	1.98%	20%	----
		Antimony, total	7440-36-0	E466	0.0000050	mg/L	0.0000095	0.0000097	0.0000002	Diff <2x LOR	----
		Arsenic, total	7440-38-2	E466	0.000010	mg/L	0.000484	0.000476	1.84%	20%	----
		Barium, total	7440-39-3	E466	0.000020	mg/L	0.00852	0.00837	1.73%	20%	----
		Beryllium, total	7440-41-7	E466	0.0000020	mg/L	0.0000029	0.0000024	0.0000004	Diff <2x LOR	----
		Bismuth, total	7440-69-9	E466	0.0000010	mg/L	<0.0000010	<0.0000010	0	Diff <2x LOR	----
		Boron, total	7440-42-8	E466	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
		Cadmium, total	7440-43-9	E466	0.0000025	mg/L	0.0000051	0.0000059	0.0000007	Diff <2x LOR	----
		Calcium, total	7440-70-2	E466	0.010	mg/L	5.71	5.78	1.09%	20%	----
		Cesium, total	7440-46-2	E466	0.0000050	mg/L	0.0000055	0.0000055	0.00000003	Diff <2x LOR	----
		Chromium, total	7440-47-3	E466	0.000040	mg/L	0.000191	0.000193	0.000002	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Total Metals (Undigested) (QC Lot: 1146478) - continued											
YL2301146-001	PN08	Cobalt, total	7440-48-4	E466	0.0000050	mg/L	0.000314	0.000322	2.68%	20%	----
		Copper, total	7440-50-8	E466	0.000050	mg/L	0.00149	0.00148	0.176%	20%	----
		Gallium, total	7440-55-3	E466	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Iron, total	7439-89-6	E466	0.00050	mg/L	0.206	0.210	1.61%	20%	----
		Lanthanum, total	7439-91-0	E466	0.000010	mg/L	0.000273	0.000269	1.42%	20%	----
		Lead, total	7439-92-1	E466	0.0000050	mg/L	0.0000456	0.0000445	0.0000011	Diff <2x LOR	----
		Lithium, total	7439-93-2	E466	0.00010	mg/L	0.00091	0.00090	0.000010	Diff <2x LOR	----
		Magnesium, total	7439-95-4	E466	0.0010	mg/L	2.68	2.72	1.49%	20%	----
		Manganese, total	7439-96-5	E466	0.0000050	mg/L	0.00796	0.00790	0.686%	20%	----
		Molybdenum, total	7439-98-7	E466	0.000010	mg/L	0.000015	0.000015	0.0000002	Diff <2x LOR	----
		Nickel, total	7440-02-0	E466	0.000020	mg/L	0.00385	0.00394	2.32%	20%	----
		Niobium, total	7440-03-1	E466	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Phosphorus, total	7723-14-0	E466	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		Potassium, total	7440-09-7	E466	0.0050	mg/L	0.421	0.421	0.0641%	20%	----
		Rhenium, total	7440-15-5	E466	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
		Rubidium, total	7440-17-7	E466	0.0000050	mg/L	0.00110	0.00110	0.00301%	20%	----
		Selenium, total	7782-49-2	E466	0.000025	mg/L	0.000030	0.000032	0.000002	Diff <2x LOR	----
		Silicon, total	7440-21-3	E466	0.050	mg/L	1.17	1.14	2.13%	20%	----
		Silver, total	7440-22-4	E466	0.0000020	mg/L	0.0000020	<0.0000020	0.00000004	Diff <2x LOR	----
		Sodium, total	7440-23-5	E466	0.010	mg/L	1.08	1.08	0.884%	20%	----
		Strontium, total	7440-24-6	E466	0.000020	mg/L	0.0275	0.0277	0.784%	20%	----
		Sulfur, total	7704-34-9	E466	0.50	mg/L	3.12	3.13	0.01	Diff <2x LOR	----
		Tantalum, total	7440-25-7	E466	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Tellurium, total	13494-80-9	E466	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Thallium, total	7440-28-0	E466	0.0000010	mg/L	0.0000024	0.0000021	0.0000002	Diff <2x LOR	----
		Thorium, total	7440-29-1	E466	0.0000050	mg/L	0.0000172	0.0000207	0.0000035	Diff <2x LOR	----
		Tin, total	7440-31-5	E466	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Titanium, total	7440-32-6	E466	0.000050	mg/L	0.000545	0.000588	7.71%	20%	----
		Tungsten, total	7440-33-7	E466	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Uranium, total	7440-61-1	E466	0.0000010	mg/L	0.0000070	# 0.0000103	0.0000033	Diff <2x LOR	DUP-H
		Vanadium, total	7440-62-2	E466	0.000010	mg/L	0.000116	0.000124	6.72%	20%	----
		Yttrium, total	7440-65-5	E466	0.000010	mg/L	0.000125	0.000124	0.582%	20%	----
		Zinc, total	7440-66-6	E466	0.00010	mg/L	0.00103	0.00102	1.34%	20%	----
		Zirconium, total	7440-67-7	E466	0.000010	mg/L	0.000138	0.000127	7.78%	20%	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Dissolved Metals (QC Lot: 1146490)											
YL2301146-001	PN08	Aluminum, dissolved	7429-90-5	E465	0.00020	mg/L	0.0168	0.0164	2.31%	20%	----
		Antimony, dissolved	7440-36-0	E465	0.0000050	mg/L	0.0000137	0.0000109	0.0000027	Diff <2x LOR	----
		Arsenic, dissolved	7440-38-2	E465	0.000010	mg/L	0.000438	0.000416	5.18%	20%	----
		Barium, dissolved	7440-39-3	E465	0.000020	mg/L	0.00821	0.00814	0.846%	20%	----
		Beryllium, dissolved	7440-41-7	E465	0.0000020	mg/L	0.0000024	0.0000023	0.0000002	Diff <2x LOR	----
		Bismuth, dissolved	7440-69-9	E465	0.0000010	mg/L	0.0000012	0.0000012	0.000000008	Diff <2x LOR	----
		Boron, dissolved	7440-42-8	E465	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
		Cadmium, dissolved	7440-43-9	E465	0.0000025	mg/L	0.0000051	0.0000051	0.000000010	Diff <2x LOR	----
		Calcium, dissolved	7440-70-2	E465	0.010	mg/L	5.65	5.63	0.377%	20%	----
		Cesium, dissolved	7440-46-2	E465	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
		Chromium, dissolved	7440-47-3	E465	0.000040	mg/L	0.000184	0.000174	0.000009	Diff <2x LOR	----
		Cobalt, dissolved	7440-48-4	E465	0.0000050	mg/L	0.000270	0.000278	2.75%	20%	----
		Copper, dissolved	7440-50-8	E465	0.000050	mg/L	0.00128	0.00127	1.38%	20%	----
		Gallium, dissolved	7440-55-3	E465	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Iron, dissolved	7439-89-6	E465	0.00050	mg/L	0.122	0.119	2.23%	20%	----
		Lanthanum, dissolved	7439-91-0	E465	0.000010	mg/L	0.000201	0.000200	0.426%	20%	----
		Lead, dissolved	7439-92-1	E465	0.0000050	mg/L	0.0000597	0.0000610	2.28%	20%	----
		Lithium, dissolved	7439-93-2	E465	0.00010	mg/L	0.00087	0.00087	0.000005	Diff <2x LOR	----
		Magnesium, dissolved	7439-95-4	E465	0.0010	mg/L	2.64	2.61	0.906%	20%	----
		Manganese, dissolved	7439-96-5	E465	0.0000050	mg/L	0.00762	0.00766	0.548%	20%	----
		Molybdenum, dissolved	7439-98-7	E465	0.000010	mg/L	0.000011	0.000012	0.0000007	Diff <2x LOR	----
		Nickel, dissolved	7440-02-0	E465	0.000020	mg/L	0.00377	0.00377	0.152%	20%	----
		Niobium, dissolved	7440-03-1	E465	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Phosphorus, dissolved	7723-14-0	E465	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		Potassium, dissolved	7440-09-7	E465	0.0050	mg/L	0.426	0.428	0.427%	20%	----
		Rhenium, dissolved	7440-15-5	E465	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
		Rubidium, dissolved	7440-17-7	E465	0.0000050	mg/L	0.00106	0.00106	0.0542%	20%	----
		Selenium, dissolved	7782-49-2	E465	0.000025	mg/L	<0.000025	0.000027	0.000002	Diff <2x LOR	----
		Silicon, dissolved	7440-21-3	E465	0.050	mg/L	1.18	1.17	1.01%	20%	----
		Silver, dissolved	7440-22-4	E465	0.0000020	mg/L	<0.0000020	0.0000020	0.000000003	Diff <2x LOR	----
		Sodium, dissolved	7440-23-5	E465	0.010	mg/L	1.06	1.06	0.610%	20%	----
		Strontium, dissolved	7440-24-6	E465	0.000020	mg/L	0.0272	0.0269	1.11%	20%	----
		Sulfur, dissolved	7704-34-9	E465	0.50	mg/L	3.34	3.33	0.01	Diff <2x LOR	----
		Tantalum, dissolved	7440-25-7	E465	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Dissolved Metals (QC Lot: 1146490) - continued											
YL2301146-001	PN08	Tellurium, dissolved	13494-80-9	E465	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Thallium, dissolved	7440-28-0	E465	0.0000010	mg/L	0.0000020	0.0000018	0.0000002	Diff <2x LOR	----
		Thorium, dissolved	7440-29-1	E465	0.0000050	mg/L	0.0000228	0.0000171	0.0000057	Diff <2x LOR	----
		Tin, dissolved	7440-31-5	E465	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Titanium, dissolved	7440-32-6	E465	0.000050	mg/L	0.000219	0.000175	0.000043	Diff <2x LOR	----
		Tungsten, dissolved	7440-33-7	E465	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Uranium, dissolved	7440-61-1	E465	0.0000010	mg/L	0.0000068	0.0000080	0.0000012	Diff <2x LOR	----
		Vanadium, dissolved	7440-62-2	E465	0.000010	mg/L	0.000074	0.000072	0.000002	Diff <2x LOR	----
		Yttrium, dissolved	7440-65-5	E465	0.000010	mg/L	0.000111	0.000109	1.60%	20%	----
		Zinc, dissolved	7440-66-6	E465	0.00010	mg/L	0.00149	0.00150	0.339%	20%	----
		Zirconium, dissolved	7440-67-7	E465	0.000010	mg/L	0.000106	0.000105	0.0445%	20%	----
Dissolved Metals (QC Lot: 1156960)											
YL2301146-001	PN08	Mercury, dissolved	7439-97-6	E509-L	0.50	ng/L	0.75	0.78	0.03	Diff <2x LOR	----

Qualifiers

Qualifier	*Description*
DUP-H	*Duplicate results outside ALS DQO, due to sample heterogeneity.*

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: 1145805)						
Alkalinity, bicarbonate (as CaCO3)	----	E290	1	mg/L	<1.0	----
Alkalinity, carbonate (as CaCO3)	----	E290	1	mg/L	<1.0	----
Alkalinity, hydroxide (as CaCO3)	----	E290	1	mg/L	<1.0	----
Alkalinity, phenolphthalein (as CaCO3)	----	E290	1	mg/L	<1.0	----
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	<1.0	----
Physical Tests (QCLot: 1145807)						
Conductivity	----	E100	1	µS/cm	<1.0	----
Physical Tests (QCLot: 1146678)						
Solids, total suspended [TSS]	----	E160	3	mg/L	<3.0	----
Physical Tests (QCLot: 1146679)						
Solids, total suspended [TSS]	----	E160	3	mg/L	<3.0	----
Anions and Nutrients (QCLot: 1145808)						
Fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 1145809)						
Chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 1145810)						
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 1145811)						
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 1145812)						
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 1145813)						
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	----
Anions and Nutrients (QCLot: 1145814)						
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 1146086)						
Phosphorus, total	7723-14-0	E372-S	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 1146097)						
Phosphorus, total dissolved	7723-14-0	E375-U	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 1147214)						
Silicate (as SiO2)	7631-86-9	E392	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 1150777)						

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Anions and Nutrients (QCLot: 1150777) - continued						
Kjeldahl nitrogen, total [TKN]	----	E318	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 1150780)						
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	----
Cyanides (QCLot: 1167363)						
Cyanide, strong acid dissociable (Total)	----	E333	0.002	mg/L	<0.0020	----
Cyanides (QCLot: 1167364)						
Cyanide, weak acid dissociable	----	E336	0.002	mg/L	<0.0020	----
Cyanides (QCLot: 1167365)						
Cyanide, free	----	E339	0.002	mg/L	<0.0020	----
Organic / Inorganic Carbon (QCLot: 1150778)						
Carbon, total organic [TOC]	----	E355-L	0.5	mg/L	<0.50	----
Organic / Inorganic Carbon (QCLot: 1150782)						
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	<0.50	----
Total Sulfides (QCLot: 1147148)						
Sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	<0.0015	----
Total Metals (QCLot: 1154766)						
Mercury, total	7439-97-6	E508-L	0.5	ng/L	<0.50	----
Total Metals (Undigested) (QCLot: 1146478)						
Aluminum, total	7429-90-5	E466	0.0002	mg/L	<0.00020	----
Antimony, total	7440-36-0	E466	0.000005	mg/L	<0.0000050	----
Arsenic, total	7440-38-2	E466	0.00001	mg/L	<0.000010	----
Barium, total	7440-39-3	E466	0.00002	mg/L	<0.000020	----
Beryllium, total	7440-41-7	E466	0.000002	mg/L	<0.0000020	----
Bismuth, total	7440-69-9	E466	0.000001	mg/L	<0.0000010	----
Boron, total	7440-42-8	E466	0.005	mg/L	<0.0050	----
Cadmium, total	7440-43-9	E466	0.0000025	mg/L	<0.0000025	----
Calcium, total	7440-70-2	E466	0.01	mg/L	<0.010	----
Cesium, total	7440-46-2	E466	0.000005	mg/L	<0.0000050	----
Chromium, total	7440-47-3	E466	0.00004	mg/L	<0.000040	----
Cobalt, total	7440-48-4	E466	0.000005	mg/L	<0.0000050	----
Copper, total	7440-50-8	E466	0.00005	mg/L	<0.000050	----
Gallium, total	7440-55-3	E466	0.00005	mg/L	<0.000050	----
Iron, total	7439-89-6	E466	0.0005	mg/L	<0.00050	----
Lanthanum, total	7439-91-0	E466	0.00001	mg/L	<0.000010	----
Lead, total	7439-92-1	E466	0.000005	mg/L	<0.0000050	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (Undigested) (QCLot: 1146478) - continued						
Lithium, total	7439-93-2	E466	0.0001	mg/L	<0.00010	----
Magnesium, total	7439-95-4	E466	0.001	mg/L	<0.0010	----
Manganese, total	7439-96-5	E466	0.000005	mg/L	<0.0000050	----
Molybdenum, total	7439-98-7	E466	0.00001	mg/L	<0.000010	----
Nickel, total	7440-02-0	E466	0.00002	mg/L	<0.000020	----
Niobium, total	7440-03-1	E466	0.0001	mg/L	<0.00010	----
Phosphorus, total	7723-14-0	E466	0.01	mg/L	<0.010	----
Potassium, total	7440-09-7	E466	0.005	mg/L	<0.0050	----
Rhenium, total	7440-15-5	E466	0.000005	mg/L	<0.0000050	----
Rubidium, total	7440-17-7	E466	0.000005	mg/L	<0.0000050	----
Selenium, total	7782-49-2	E466	0.000025	mg/L	<0.000025	----
Silicon, total	7440-21-3	E466	0.05	mg/L	<0.050	----
Silver, total	7440-22-4	E466	0.000002	mg/L	<0.0000020	----
Sodium, total	7440-23-5	E466	0.01	mg/L	<0.010	----
Strontium, total	7440-24-6	E466	0.00002	mg/L	<0.000020	----
Sulfur, total	7704-34-9	E466	0.5	mg/L	<0.50	----
Tantalum, total	7440-25-7	E466	0.0001	mg/L	<0.00010	----
Tellurium, total	13494-80-9	E466	0.00001	mg/L	<0.000010	----
Thallium, total	7440-28-0	E466	0.000001	mg/L	<0.0000010	----
Thorium, total	7440-29-1	E466	0.000005	mg/L	<0.0000050	----
Tin, total	7440-31-5	E466	0.00001	mg/L	<0.000010	----
Titanium, total	7440-32-6	E466	0.00005	mg/L	<0.000050	----
Tungsten, total	7440-33-7	E466	0.00001	mg/L	<0.000010	----
Uranium, total	7440-61-1	E466	0.000001	mg/L	<0.0000010	----
Vanadium, total	7440-62-2	E466	0.00001	mg/L	<0.000010	----
Yttrium, total	7440-65-5	E466	0.00001	mg/L	<0.000010	----
Zinc, total	7440-66-6	E466	0.0001	mg/L	<0.00010	----
Zirconium, total	7440-67-7	E466	0.00001	mg/L	<0.000010	----
Dissolved Metals (QCLot: 1146490)						
Aluminum, dissolved	7429-90-5	E465	0.0002	mg/L	<0.00020	----
Antimony, dissolved	7440-36-0	E465	0.000005	mg/L	<0.0000050	----
Arsenic, dissolved	7440-38-2	E465	0.00001	mg/L	<0.000010	----
Barium, dissolved	7440-39-3	E465	0.00002	mg/L	<0.000020	----
Beryllium, dissolved	7440-41-7	E465	0.000002	mg/L	<0.0000020	----
Bismuth, dissolved	7440-69-9	E465	0.000001	mg/L	<0.0000010	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Dissolved Metals (QCLot: 1146490) - continued						
Boron, dissolved	7440-42-8	E465	0.005	mg/L	<0.0050	----
Cadmium, dissolved	7440-43-9	E465	0.0000025	mg/L	<0.0000025	----
Calcium, dissolved	7440-70-2	E465	0.01	mg/L	<0.010	----
Cesium, dissolved	7440-46-2	E465	0.000005	mg/L	<0.0000050	----
Chromium, dissolved	7440-47-3	E465	0.00004	mg/L	<0.000040	----
Cobalt, dissolved	7440-48-4	E465	0.000005	mg/L	<0.0000050	----
Copper, dissolved	7440-50-8	E465	0.00005	mg/L	<0.000050	----
Gallium, dissolved	7440-55-3	E465	0.00005	mg/L	<0.000050	----
Iron, dissolved	7439-89-6	E465	0.0005	mg/L	<0.00050	----
Lanthanum, dissolved	7439-91-0	E465	0.00001	mg/L	<0.000010	----
Lead, dissolved	7439-92-1	E465	0.000005	mg/L	<0.0000050	----
Lithium, dissolved	7439-93-2	E465	0.0001	mg/L	<0.00010	----
Magnesium, dissolved	7439-95-4	E465	0.001	mg/L	<0.0010	----
Manganese, dissolved	7439-96-5	E465	0.000005	mg/L	<0.0000050	----
Molybdenum, dissolved	7439-98-7	E465	0.00001	mg/L	<0.000010	----
Nickel, dissolved	7440-02-0	E465	0.00002	mg/L	<0.000020	----
Niobium, dissolved	7440-03-1	E465	0.0001	mg/L	<0.00010	----
Phosphorus, dissolved	7723-14-0	E465	0.01	mg/L	<0.010	----
Potassium, dissolved	7440-09-7	E465	0.005	mg/L	<0.0050	----
Rhenium, dissolved	7440-15-5	E465	0.000005	mg/L	<0.0000050	----
Rubidium, dissolved	7440-17-7	E465	0.000005	mg/L	<0.0000050	----
Selenium, dissolved	7782-49-2	E465	0.000025	mg/L	<0.000025	----
Silicon, dissolved	7440-21-3	E465	0.05	mg/L	<0.050	----
Silver, dissolved	7440-22-4	E465	0.000002	mg/L	<0.0000020	----
Sodium, dissolved	7440-23-5	E465	0.01	mg/L	<0.010	----
Strontium, dissolved	7440-24-6	E465	0.00002	mg/L	<0.000020	----
Sulfur, dissolved	7704-34-9	E465	0.5	mg/L	<0.50	----
Tantalum, dissolved	7440-25-7	E465	0.0001	mg/L	<0.00010	----
Tellurium, dissolved	13494-80-9	E465	0.00001	mg/L	<0.000010	----
Thallium, dissolved	7440-28-0	E465	0.000001	mg/L	<0.0000010	----
Thorium, dissolved	7440-29-1	E465	0.000005	mg/L	<0.0000050	----
Tin, dissolved	7440-31-5	E465	0.00001	mg/L	<0.000010	----
Titanium, dissolved	7440-32-6	E465	0.00005	mg/L	<0.000050	----
Tungsten, dissolved	7440-33-7	E465	0.00001	mg/L	<0.000010	----
Uranium, dissolved	7440-61-1	E465	0.000001	mg/L	<0.0000010	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Dissolved Metals (QCLot: 1146490) - continued						
Vanadium, dissolved	7440-62-2	E465	0.00001	mg/L	<0.000010	----
Yttrium, dissolved	7440-65-5	E465	0.00001	mg/L	<0.000010	----
Zinc, dissolved	7440-66-6	E465	0.0001	mg/L	<0.00010	----
Zirconium, dissolved	7440-67-7	E465	0.00001	mg/L	<0.000010	----
Dissolved Metals (QCLot: 1156960)						
Mercury, dissolved	7439-97-6	E509-L	0.5	ng/L	<0.50	----

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: 1145805)									
Alkalinity, phenolphthalein (as CaCO3)	----	E290	1	mg/L	229 mg/L	97.1	75.0	125	----
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	500 mg/L	109	85.0	115	----
Physical Tests (QCLot: 1145806)									
pH	----	E108	----	pH units	7 pH units	100	98.0	102	----
Physical Tests (QCLot: 1145807)									
Conductivity	----	E100	1	µS/cm	146.9 µS/cm	97.4	90.0	110	----
Physical Tests (QCLot: 1146678)									
Solids, total suspended [TSS]	----	E160	3	mg/L	150 mg/L	101	85.0	115	----
Physical Tests (QCLot: 1146679)									
Solids, total suspended [TSS]	----	E160	3	mg/L	150 mg/L	93.0	85.0	115	----
Anions and Nutrients (QCLot: 1145808)									
Fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	99.8	90.0	110	----
Anions and Nutrients (QCLot: 1145809)									
Chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	102	90.0	110	----
Anions and Nutrients (QCLot: 1145810)									
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	0.5 mg/L	101	85.0	115	----
Anions and Nutrients (QCLot: 1145811)									
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: 1145812)									
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	0.5 mg/L	99.0	90.0	110	----
Anions and Nutrients (QCLot: 1145813)									
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	104	90.0	110	----
Anions and Nutrients (QCLot: 1145814)									
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.001	mg/L	0.03 mg/L	100	80.0	120	----
Anions and Nutrients (QCLot: 1146086)									
Phosphorus, total	7723-14-0	E372-S	0.001	mg/L	0.05 mg/L	100	80.0	120	----
Anions and Nutrients (QCLot: 1146097)									
Phosphorus, total dissolved	7723-14-0	E375-U	0.001	mg/L	0.05 mg/L	102	80.0	120	----
Anions and Nutrients (QCLot: 1147214)									
Silicate (as SiO2)	7631-86-9	E392	0.5	mg/L	10 mg/L	102	85.0	115	----
Anions and Nutrients (QCLot: 1150777)									

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Anions and Nutrients (QCLot: 1150777) - continued									
Kjeldahl nitrogen, total [TKN]	----	E318	0.05	mg/L	4 mg/L	101	75.0	125	----
Anions and Nutrients (QCLot: 1150780)									
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	100	85.0	115	----
Cyanides (QCLot: 1167363)									
Cyanide, strong acid dissociable (Total)	----	E333	0.002	mg/L	0.25 mg/L	94.6	80.0	120	----
Cyanides (QCLot: 1167364)									
Cyanide, weak acid dissociable	----	E336	0.002	mg/L	0.125 mg/L	98.6	80.0	120	----
Cyanides (QCLot: 1167365)									
Cyanide, free	----	E339	0.002	mg/L	0.125 mg/L	102	80.0	120	----
Organic / Inorganic Carbon (QCLot: 1150778)									
Carbon, total organic [TOC]	----	E355-L	0.5	mg/L	8.57 mg/L	104	80.0	120	----
Organic / Inorganic Carbon (QCLot: 1150782)									
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	8.57 mg/L	105	80.0	120	----
Total Sulfides (QCLot: 1147148)									
Sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	0.08 mg/L	106	80.0	120	----
Total Metals (QCLot: 1154766)									
Mercury, total	7439-97-6	E508-L	0.5	ng/L	5 ng/L	89.2	80.0	120	----
Total Metals (Undigested) (QCLot: 1146478)									
Aluminum, total	7429-90-5	E466	0.0002	mg/L	2 mg/L	99.8	80.0	120	----
Antimony, total	7440-36-0	E466	0.000005	mg/L	1 mg/L	112	80.0	120	----
Arsenic, total	7440-38-2	E466	0.00001	mg/L	1 mg/L	103	80.0	120	----
Barium, total	7440-39-3	E466	0.00002	mg/L	0.25 mg/L	107	80.0	120	----
Beryllium, total	7440-41-7	E466	0.000002	mg/L	0.1 mg/L	102	80.0	120	----
Bismuth, total	7440-69-9	E466	0.000001	mg/L	1 mg/L	104	80.0	120	----
Boron, total	7440-42-8	E466	0.005	mg/L	1 mg/L	96.7	80.0	120	----
Cadmium, total	7440-43-9	E466	0.0000025	mg/L	0.1 mg/L	102	80.0	120	----
Calcium, total	7440-70-2	E466	0.01	mg/L	50 mg/L	99.2	80.0	120	----
Cesium, total	7440-46-2	E466	0.000005	mg/L	0.05 mg/L	102	80.0	120	----
Chromium, total	7440-47-3	E466	0.00004	mg/L	0.25 mg/L	98.5	80.0	120	----
Cobalt, total	7440-48-4	E466	0.000005	mg/L	0.25 mg/L	97.9	80.0	120	----
Copper, total	7440-50-8	E466	0.00005	mg/L	0.25 mg/L	95.5	80.0	120	----
Gallium, total	7440-55-3	E466	0.00005	mg/L	0.25 mg/L	96.5	80.0	120	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Total Metals (Undigested) (QCLot: 1146478) - continued									
Iron, total	7439-89-6	E466	0.0005	mg/L	1 mg/L	98.8	80.0	120	----
Lanthanum, total	7439-91-0	E466	0.00001	mg/L	0.1 mg/L	101	80.0	120	----
Lead, total	7439-92-1	E466	0.000005	mg/L	0.5 mg/L	104	80.0	120	----
Lithium, total	7439-93-2	E466	0.0001	mg/L	0.25 mg/L	105	80.0	120	----
Magnesium, total	7439-95-4	E466	0.001	mg/L	50 mg/L	97.6	80.0	120	----
Manganese, total	7439-96-5	E466	0.000005	mg/L	0.25 mg/L	99.0	80.0	120	----
Molybdenum, total	7439-98-7	E466	0.00001	mg/L	0.25 mg/L	98.1	80.0	120	----
Nickel, total	7440-02-0	E466	0.00002	mg/L	0.5 mg/L	95.5	80.0	120	----
Niobium, total	7440-03-1	E466	0.0001	mg/L	0.05 mg/L	101	80.0	120	----
Phosphorus, total	7723-14-0	E466	0.01	mg/L	10 mg/L	104	80.0	120	----
Potassium, total	7440-09-7	E466	0.005	mg/L	50 mg/L	97.0	80.0	120	----
Rhenium, total	7440-15-5	E466	0.000005	mg/L	0.1 mg/L	106	80.0	120	----
Rubidium, total	7440-17-7	E466	0.000005	mg/L	0.1 mg/L	96.7	80.0	120	----
Selenium, total	7782-49-2	E466	0.000025	mg/L	1 mg/L	99.6	80.0	120	----
Silicon, total	7440-21-3	E466	0.05	mg/L	10 mg/L	105	80.0	120	----
Silver, total	7440-22-4	E466	0.000002	mg/L	0.1 mg/L	96.9	80.0	120	----
Sodium, total	7440-23-5	E466	0.01	mg/L	50 mg/L	98.5	80.0	120	----
Strontium, total	7440-24-6	E466	0.00002	mg/L	0.25 mg/L	98.3	80.0	120	----
Sulfur, total	7704-34-9	E466	0.5	mg/L	50 mg/L	104	80.0	120	----
Tantalum, total	7440-25-7	E466	0.0001	mg/L	0.1 mg/L	108	80.0	120	----
Tellurium, total	13494-80-9	E466	0.00001	mg/L	0.1 mg/L	101	80.0	120	----
Thallium, total	7440-28-0	E466	0.000001	mg/L	1 mg/L	100	80.0	120	----
Thorium, total	7440-29-1	E466	0.000005	mg/L	0.1 mg/L	98.4	80.0	120	----
Tin, total	7440-31-5	E466	0.00001	mg/L	0.5 mg/L	102	80.0	120	----
Titanium, total	7440-32-6	E466	0.00005	mg/L	0.25 mg/L	102	80.0	120	----
Tungsten, total	7440-33-7	E466	0.00001	mg/L	0.1 mg/L	98.9	80.0	120	----
Uranium, total	7440-61-1	E466	0.000001	mg/L	0.005 mg/L	110	80.0	120	----
Vanadium, total	7440-62-2	E466	0.00001	mg/L	0.5 mg/L	102	80.0	120	----
Yttrium, total	7440-65-5	E466	0.00001	mg/L	0.1 mg/L	100	80.0	120	----
Zinc, total	7440-66-6	E466	0.0001	mg/L	0.5 mg/L	96.3	80.0	120	----
Zirconium, total	7440-67-7	E466	0.00001	mg/L	0.1 mg/L	98.6	80.0	120	----
Dissolved Metals (QCLot: 1146490)									
Aluminum, dissolved	7429-90-5	E465	0.0002	mg/L	2 mg/L	102	80.0	120	----
Antimony, dissolved	7440-36-0	E465	0.000005	mg/L	1 mg/L	108	80.0	120	----
Arsenic, dissolved	7440-38-2	E465	0.00001	mg/L	1 mg/L	110	80.0	120	----

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: 1146490) - continued									
Barium, dissolved	7440-39-3	E465	0.00002	mg/L	0.25 mg/L	104	80.0	120	----
Beryllium, dissolved	7440-41-7	E465	0.000002	mg/L	0.1 mg/L	96.4	80.0	120	----
Bismuth, dissolved	7440-69-9	E465	0.000001	mg/L	1 mg/L	102	80.0	120	----
Boron, dissolved	7440-42-8	E465	0.005	mg/L	1 mg/L	91.4	80.0	120	----
Cadmium, dissolved	7440-43-9	E465	0.0000025	mg/L	0.1 mg/L	99.2	80.0	120	----
Calcium, dissolved	7440-70-2	E465	0.01	mg/L	50 mg/L	100	80.0	120	----
Cesium, dissolved	7440-46-2	E465	0.000005	mg/L	0.05 mg/L	101	80.0	120	----
Chromium, dissolved	7440-47-3	E465	0.00004	mg/L	0.25 mg/L	97.8	80.0	120	----
Cobalt, dissolved	7440-48-4	E465	0.000005	mg/L	0.25 mg/L	95.2	80.0	120	----
Copper, dissolved	7440-50-8	E465	0.00005	mg/L	0.25 mg/L	95.0	80.0	120	----
Gallium, dissolved	7440-55-3	E465	0.00005	mg/L	0.25 mg/L	98.7	80.0	120	----
Iron, dissolved	7439-89-6	E465	0.0005	mg/L	1 mg/L	103	80.0	120	----
Lanthanum, dissolved	7439-91-0	E465	0.00001	mg/L	0.1 mg/L	102	80.0	120	----
Lead, dissolved	7439-92-1	E465	0.000005	mg/L	0.5 mg/L	102	80.0	120	----
Lithium, dissolved	7439-93-2	E465	0.0001	mg/L	0.25 mg/L	100	80.0	120	----
Magnesium, dissolved	7439-95-4	E465	0.001	mg/L	50 mg/L	97.1	80.0	120	----
Manganese, dissolved	7439-96-5	E465	0.000005	mg/L	0.25 mg/L	103	80.0	120	----
Molybdenum, dissolved	7439-98-7	E465	0.00001	mg/L	0.25 mg/L	97.0	80.0	120	----
Nickel, dissolved	7440-02-0	E465	0.00002	mg/L	0.5 mg/L	98.2	80.0	120	----
Niobium, dissolved	7440-03-1	E465	0.0001	mg/L	0.05 mg/L	104	80.0	120	----
Phosphorus, dissolved	7723-14-0	E465	0.01	mg/L	10 mg/L	103	80.0	120	----
Potassium, dissolved	7440-09-7	E465	0.005	mg/L	50 mg/L	101	80.0	120	----
Rhenium, dissolved	7440-15-5	E465	0.000005	mg/L	0.1 mg/L	101	80.0	120	----
Rubidium, dissolved	7440-17-7	E465	0.000005	mg/L	0.1 mg/L	98.5	80.0	120	----
Selenium, dissolved	7782-49-2	E465	0.000025	mg/L	1 mg/L	101	80.0	120	----
Silicon, dissolved	7440-21-3	E465	0.05	mg/L	10 mg/L	107	80.0	120	----
Silver, dissolved	7440-22-4	E465	0.000002	mg/L	0.1 mg/L	101	80.0	120	----
Sodium, dissolved	7440-23-5	E465	0.01	mg/L	50 mg/L	97.7	80.0	120	----
Strontium, dissolved	7440-24-6	E465	0.00002	mg/L	0.25 mg/L	100	80.0	120	----
Sulfur, dissolved	7704-34-9	E465	0.5	mg/L	50 mg/L	106	80.0	120	----
Tantalum, dissolved	7440-25-7	E465	0.0001	mg/L	0.1 mg/L	104	80.0	120	----
Tellurium, dissolved	13494-80-9	E465	0.00001	mg/L	0.1 mg/L	97.9	80.0	120	----
Thallium, dissolved	7440-28-0	E465	0.000001	mg/L	1 mg/L	102	80.0	120	----
Thorium, dissolved	7440-29-1	E465	0.000005	mg/L	0.1 mg/L	101	80.0	120	----
Tin, dissolved	7440-31-5	E465	0.00001	mg/L	0.5 mg/L	101	80.0	120	----
Titanium, dissolved	7440-32-6	E465	0.00005	mg/L	0.25 mg/L	108	80.0	120	----

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: 1146490) - continued									
Tungsten, dissolved	7440-33-7	E465	0.00001	mg/L	0.1 mg/L	104	80.0	120	----
Uranium, dissolved	7440-61-1	E465	0.000001	mg/L	0.005 mg/L	100	80.0	120	----
Vanadium, dissolved	7440-62-2	E465	0.00001	mg/L	0.5 mg/L	103	80.0	120	----
Yttrium, dissolved	7440-65-5	E465	0.00001	mg/L	0.1 mg/L	105	80.0	120	----
Zinc, dissolved	7440-66-6	E465	0.0001	mg/L	0.5 mg/L	97.8	80.0	120	----
Zirconium, dissolved	7440-67-7	E465	0.00001	mg/L	0.1 mg/L	102	80.0	120	----
Mercury, dissolved	7439-97-6	E509-L	0.5	ng/L	5 ng/L	89.1	80.0	120	----

Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for the associated sample (or similar samples) may be subject to bias. ND – Recovery not determined, background level >= 1x spike level.

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Anions and Nutrients (QCLot: 1145808)										
FJ2302399-001	Anonymous	Fluoride	16984-48-8	E235.F	5.20 mg/L	5 mg/L	104	75.0	125	----
Anions and Nutrients (QCLot: 1145809)										
FJ2302399-001	Anonymous	Chloride	16887-00-6	E235.Cl	518 mg/L	500 mg/L	104	75.0	125	----
Anions and Nutrients (QCLot: 1145810)										
FJ2302399-001	Anonymous	Bromide	24959-67-9	E235.Br-L	2.53 mg/L	2.5 mg/L	101	75.0	125	----
Anions and Nutrients (QCLot: 1145811)										
FJ2302399-001	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-L	13.0 mg/L	12.5 mg/L	104	75.0	125	----
Anions and Nutrients (QCLot: 1145812)										
FJ2302399-001	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	2.42 mg/L	2.5 mg/L	96.8	75.0	125	----
Anions and Nutrients (QCLot: 1145813)										
FJ2302399-001	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	505 mg/L	500 mg/L	101	75.0	125	----
Anions and Nutrients (QCLot: 1145814)										
FJ2302399-002	Anonymous	Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0297 mg/L	0.03 mg/L	98.9	70.0	130	----
Anions and Nutrients (QCLot: 1146086)										
YL2301146-002	PN03	Phosphorus, total	7723-14-0	E372-S	0.0608 mg/L	0.067 mg/L	90.7	70.0	130	----
Anions and Nutrients (QCLot: 1146097)										
YL2301146-002	PN03	Phosphorus, total dissolved	7723-14-0	E375-U	0.0620 mg/L	0.067 mg/L	92.5	70.0	130	----
Anions and Nutrients (QCLot: 1147214)										
VA23C2318-002	Anonymous	Silicate (as SiO2)	7631-86-9	E392	10.0 mg/L	10 mg/L	100	75.0	125	----
Anions and Nutrients (QCLot: 1150777)										
VA23C2225-001	Anonymous	Kjeldahl nitrogen, total [TKN]	----	E318	2.54 mg/L	2.5 mg/L	102	70.0	130	----
Anions and Nutrients (QCLot: 1150780)										
KS2303518-001	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0994 mg/L	0.1 mg/L	99.4	75.0	125	----
Cyanides (QCLot: 1167363)										
YL2301146-001	PN08	Cyanide, strong acid dissociable (Total)	----	E333	0.237 mg/L	0.25 mg/L	94.8	75.0	125	----
Cyanides (QCLot: 1167364)										
YL2301146-001	PN08	Cyanide, weak acid dissociable	----	E336	0.126 mg/L	0.125 mg/L	101	75.0	125	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Cyanides (QCLot: 1167365)										
YL2301146-001	PN08	Cyanide, free	----	E339	0.127 mg/L	0.125 mg/L	102	75.0	125	----
Organic / Inorganic Carbon (QCLot: 1150778)										
KS2303561-001	Anonymous	Carbon, total organic [TOC]	----	E355-L	5.13 mg/L	5 mg/L	102	70.0	130	----
Organic / Inorganic Carbon (QCLot: 1150782)										
YL2301146-001	PN08	Carbon, dissolved organic [DOC]	----	E358-L	ND mg/L	5 mg/L	ND	70.0	130	----
Total Sulfides (QCLot: 1147148)										
CG2312981-002	Anonymous	Sulfide, total (as S)	18496-25-8	E395	0.221 mg/L	0.2 mg/L	110	75.0	125	----
Total Metals (QCLot: 1154766)										
WT2330290-002	Anonymous	Mercury, total	7439-97-6	E508-L	4.48 ng/L	5 ng/L	89.5	70.0	130	----
Total Metals (Undigested) (QCLot: 1146478)										
YL2301146-002	PN03	Aluminum, total	7429-90-5	E466	0.192 mg/L	0.2 mg/L	96.1	70.0	130	----
		Antimony, total	7440-36-0	E466	0.0206 mg/L	0.02 mg/L	103	70.0	130	----
		Arsenic, total	7440-38-2	E466	0.0198 mg/L	0.02 mg/L	99.2	70.0	130	----
		Barium, total	7440-39-3	E466	0.0205 mg/L	0.02 mg/L	102	70.0	130	----
		Beryllium, total	7440-41-7	E466	0.0404 mg/L	0.04 mg/L	101	70.0	130	----
		Bismuth, total	7440-69-9	E466	0.00978 mg/L	0.01 mg/L	97.8	70.0	130	----
		Boron, total	7440-42-8	E466	0.0908 mg/L	0.1 mg/L	90.8	70.0	130	----
		Cadmium, total	7440-43-9	E466	0.00398 mg/L	0.004 mg/L	99.4	70.0	130	----
		Calcium, total	7440-70-2	E466	3.87 mg/L	4 mg/L	96.8	70.0	130	----
		Cesium, total	7440-46-2	E466	0.0101 mg/L	0.01 mg/L	101	70.0	130	----
		Chromium, total	7440-47-3	E466	0.0414 mg/L	0.04 mg/L	104	70.0	130	----
		Cobalt, total	7440-48-4	E466	0.0197 mg/L	0.02 mg/L	98.5	70.0	130	----
		Copper, total	7440-50-8	E466	0.0190 mg/L	0.02 mg/L	95.1	70.0	130	----
		Gallium, total	7440-55-3	E466	0.00240 mg/L	0.0025 mg/L	95.8	70.0	130	----
		Iron, total	7439-89-6	E466	2.01 mg/L	2 mg/L	101	70.0	130	----
		Lanthanum, total	7439-91-0	E466	0.00250 mg/L	0.0025 mg/L	100	70.0	130	----
		Lead, total	7439-92-1	E466	0.0200 mg/L	0.02 mg/L	100.0	70.0	130	----
		Lithium, total	7439-93-2	E466	0.0998 mg/L	0.1 mg/L	99.8	70.0	130	----
		Magnesium, total	7439-95-4	E466	ND mg/L	1 mg/L	ND	70.0	130	----
		Manganese, total	7439-96-5	E466	0.0192 mg/L	0.02 mg/L	95.8	70.0	130	----
		Molybdenum, total	7439-98-7	E466	0.0194 mg/L	0.02 mg/L	97.0	70.0	130	----
		Nickel, total	7440-02-0	E466	0.0392 mg/L	0.04 mg/L	98.1	70.0	130	----
		Niobium, total	7440-03-1	E466	0.00244 mg/L	0.0025 mg/L	97.8	70.0	130	----
		Phosphorus, total	7723-14-0	E466	10.0 mg/L	10 mg/L	100	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Total Metals (Undigested) (QCLot: 1146478) - continued										
YL2301146-002	PN03	Potassium, total	7440-09-7	E466	3.79 mg/L	4 mg/L	94.7	70.0	130	----
		Rhenium, total	7440-15-5	E466	0.00258 mg/L	0.0025 mg/L	103	70.0	130	----
		Rubidium, total	7440-17-7	E466	0.0195 mg/L	0.02 mg/L	97.4	70.0	130	----
		Selenium, total	7782-49-2	E466	0.0424 mg/L	0.04 mg/L	106	70.0	130	----
		Silicon, total	7440-21-3	E466	9.18 mg/L	10 mg/L	91.8	70.0	130	----
		Silver, total	7440-22-4	E466	0.00379 mg/L	0.004 mg/L	94.8	70.0	130	----
		Sodium, total	7440-23-5	E466	1.86 mg/L	2 mg/L	93.3	70.0	130	----
		Strontium, total	7440-24-6	E466	0.0193 mg/L	0.02 mg/L	96.6	70.0	130	----
		Sulfur, total	7704-34-9	E466	19.0 mg/L	20 mg/L	94.9	70.0	130	----
		Tantalum, total	7440-25-7	E466	0.00247 mg/L	0.0025 mg/L	98.8	70.0	130	----
		Tellurium, total	13494-80-9	E466	0.0433 mg/L	0.04 mg/L	108	70.0	130	----
		Thallium, total	7440-28-0	E466	0.00381 mg/L	0.004 mg/L	95.4	70.0	130	----
		Thorium, total	7440-29-1	E466	0.0187 mg/L	0.02 mg/L	93.5	70.0	130	----
		Tin, total	7440-31-5	E466	0.0192 mg/L	0.02 mg/L	96.1	70.0	130	----
		Titanium, total	7440-32-6	E466	0.0392 mg/L	0.04 mg/L	98.0	70.0	130	----
		Tungsten, total	7440-33-7	E466	0.0190 mg/L	0.02 mg/L	95.0	70.0	130	----
		Uranium, total	7440-61-1	E466	0.00416 mg/L	0.004 mg/L	104	70.0	130	----
		Vanadium, total	7440-62-2	E466	0.107 mg/L	0.1 mg/L	107	70.0	130	----
		Yttrium, total	7440-65-5	E466	0.00247 mg/L	0.0025 mg/L	98.6	70.0	130	----
		Zinc, total	7440-66-6	E466	0.425 mg/L	0.4 mg/L	106	70.0	130	----
		Zirconium, total	7440-67-7	E466	0.0384 mg/L	0.04 mg/L	95.9	70.0	130	----
Dissolved Metals (QCLot: 1146490)										
YL2301146-002	PN03	Aluminum, dissolved	7429-90-5	E465	0.213 mg/L	0.2 mg/L	106	70.0	130	----
		Antimony, dissolved	7440-36-0	E465	0.0206 mg/L	0.02 mg/L	103	70.0	130	----
		Arsenic, dissolved	7440-38-2	E465	0.0214 mg/L	0.02 mg/L	107	70.0	130	----
		Barium, dissolved	7440-39-3	E465	0.0215 mg/L	0.02 mg/L	108	70.0	130	----
		Beryllium, dissolved	7440-41-7	E465	0.0394 mg/L	0.04 mg/L	98.5	70.0	130	----
		Bismuth, dissolved	7440-69-9	E465	0.00975 mg/L	0.01 mg/L	97.5	70.0	130	----
		Boron, dissolved	7440-42-8	E465	0.0919 mg/L	0.1 mg/L	91.9	70.0	130	----
		Cadmium, dissolved	7440-43-9	E465	0.00400 mg/L	0.004 mg/L	100	70.0	130	----
		Calcium, dissolved	7440-70-2	E465	3.98 mg/L	4 mg/L	99.5	70.0	130	----
		Cesium, dissolved	7440-46-2	E465	0.00995 mg/L	0.01 mg/L	99.5	70.0	130	----
		Chromium, dissolved	7440-47-3	E465	0.0420 mg/L	0.04 mg/L	105	70.0	130	----
		Cobalt, dissolved	7440-48-4	E465	0.0202 mg/L	0.02 mg/L	101	70.0	130	----
		Copper, dissolved	7440-50-8	E465	0.0189 mg/L	0.02 mg/L	94.3	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Dissolved Metals (QCLot: 1146490) - continued										
YL2301146-002	PN03	Gallium, dissolved	7440-55-3	E465	0.00257 mg/L	0.0025 mg/L	103	70.0	130	----
		Iron, dissolved	7439-89-6	E465	2.05 mg/L	2 mg/L	103	70.0	130	----
		Lanthanum, dissolved	7439-91-0	E465	0.00266 mg/L	0.0025 mg/L	106	70.0	130	----
		Lead, dissolved	7439-92-1	E465	0.0198 mg/L	0.02 mg/L	98.8	70.0	130	----
		Lithium, dissolved	7439-93-2	E465	0.0977 mg/L	0.1 mg/L	97.7	70.0	130	----
		Magnesium, dissolved	7439-95-4	E465	ND mg/L	1 mg/L	ND	70.0	130	----
		Manganese, dissolved	7439-96-5	E465	0.0206 mg/L	0.02 mg/L	103	70.0	130	----
		Molybdenum, dissolved	7439-98-7	E465	0.0198 mg/L	0.02 mg/L	99.1	70.0	130	----
		Nickel, dissolved	7440-02-0	E465	0.0430 mg/L	0.04 mg/L	108	70.0	130	----
		Niobium, dissolved	7440-03-1	E465	0.00262 mg/L	0.0025 mg/L	105	70.0	130	----
		Phosphorus, dissolved	7723-14-0	E465	10.3 mg/L	10 mg/L	103	70.0	130	----
		Potassium, dissolved	7440-09-7	E465	4.01 mg/L	4 mg/L	100	70.0	130	----
		Rhenium, dissolved	7440-15-5	E465	0.00262 mg/L	0.0025 mg/L	105	70.0	130	----
		Rubidium, dissolved	7440-17-7	E465	0.0205 mg/L	0.02 mg/L	103	70.0	130	----
		Selenium, dissolved	7782-49-2	E465	0.0437 mg/L	0.04 mg/L	109	70.0	130	----
		Silicon, dissolved	7440-21-3	E465	9.58 mg/L	10 mg/L	95.8	70.0	130	----
		Silver, dissolved	7440-22-4	E465	0.00403 mg/L	0.004 mg/L	101	70.0	130	----
		Sodium, dissolved	7440-23-5	E465	1.91 mg/L	2 mg/L	95.6	70.0	130	----
		Strontium, dissolved	7440-24-6	E465	0.0211 mg/L	0.02 mg/L	105	70.0	130	----
		Sulfur, dissolved	7704-34-9	E465	20.2 mg/L	20 mg/L	101	70.0	130	----
		Tantalum, dissolved	7440-25-7	E465	0.00250 mg/L	0.0025 mg/L	100	70.0	130	----
		Tellurium, dissolved	13494-80-9	E465	0.0432 mg/L	0.04 mg/L	108	70.0	130	----
		Thallium, dissolved	7440-28-0	E465	0.00395 mg/L	0.004 mg/L	98.7	70.0	130	----
		Thorium, dissolved	7440-29-1	E465	0.0176 mg/L	0.02 mg/L	88.1	70.0	130	----
		Tin, dissolved	7440-31-5	E465	0.0194 mg/L	0.02 mg/L	96.9	70.0	130	----
		Titanium, dissolved	7440-32-6	E465	0.0428 mg/L	0.04 mg/L	107	70.0	130	----
		Tungsten, dissolved	7440-33-7	E465	0.0201 mg/L	0.02 mg/L	101	70.0	130	----
		Uranium, dissolved	7440-61-1	E465	0.00383 mg/L	0.004 mg/L	95.8	70.0	130	----
		Vanadium, dissolved	7440-62-2	E465	0.115 mg/L	0.1 mg/L	115	70.0	130	----
		Yttrium, dissolved	7440-65-5	E465	0.00276 mg/L	0.0025 mg/L	110	70.0	130	----
		Zinc, dissolved	7440-66-6	E465	0.429 mg/L	0.4 mg/L	107	70.0	130	----
		Zirconium, dissolved	7440-67-7	E465	0.0402 mg/L	0.04 mg/L	100	70.0	130	----
Dissolved Metals (QCLot: 1156960)										
YL2301146-002	PN03	Mercury, dissolved	7439-97-6	E509-L	4.64 ng/L	5 ng/L	92.8	70.0	130	----

CHAIN OF CUSTODY

ALS Laboratory

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE/TIME: 2023/09/17 645	DATE/TIME: 23/09/18	DATE/TIME: 8:56	DATE/TIME:

CLIENT:	B2Gold	TURNAROUND REQUIREMENTS : (Standard TAT may be longer for some tests e.g., Ultra Trace Organics)	☐ Standard TAT (List due date): ☐ Non Standard or urgent TAT (List due date):
PROJECT:	22567626		
SITE:	Sabina / B2Gold Goose Lake		
PURCHASE ORDER NO.:	Quote number: YL23-SABI100-001 Date: 23-Jun-2023	Equis Code: 176233659	
PROJECT MANAGER:	Merle Keefe CONTACT PH:		
SAMPLER:	D. Mullen SAMPLER MOBILE:		
EMAIL REPORTS TO:	mkeefe@b2gold.com zenovia.craciunescu@wsp.com, beatriz.cupe.flores@wsp.com	EMAIL INVOICE TO:	mkeefe@b2gold.com

FOR LABORATORY USE ONLY (Circle)

Custody Seal Intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt	4.5 °C		
Other comments:			

SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE ONLY	SAMPLE DETAILS (Solid(S) Water(W))		MATRIX:	CONTAINER INFORMATION		ANALYSIS REQUIRED										Additional Information
SAMPLE	Sample identification (This description will appear on the report)	DATE / TIME (dd-mm-yyyy)	MATRIX	TOTAL CONTAINERS	Total Metals + Hg LOW LEVEL	Dissolved Metals + Hg LOW LEVEL	Total Nutrients	Dissolved Nutrients	General Parameters / Routine	Total Sulphides	Cyanides (total, WAD, free)					Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
	PN08	15-09-2023 / 9:20	W	10	X	X	X	X	X	X	X					
	PN03	15-09-2023 / 13:55	W	10	X	X	X	X	X	X	X					DISSOLVED METALS & NUTRIENT
	PN06	15-09-2023 / 15:35	W	10	X	X	X	X	X	X	X					FIELD FILTERED
	PN09	16-09-2023 / 8:45	W	10	X	X	X	X	X	X	X					
	PN04	16-09-2023 / 10:20	W	10	X	X	X	X	X	X	X					SAMPLES ON ICE
	PN07	16-09-2023 / 11:35	W	10	X	X	X	X	X	X	X					
	PN05	16-09-2023 / 12:25	W	10	X	X	X	X	X	X	X					
	TB	17-09-2023 / 7:00	W	10	X	X	X	X	X	X	X					TB DISS, METALS + Hg & NUTRIENTS NOT FIELD FILTERED
				TOTAL	80											

Environmental Division
Yellowknife
Work Order Reference
YL2301146

Telephone : +1 867 873 5593

CERTIFICATE OF ANALYSIS

Work Order	: **YL2301147**	Page	: 1 of 17
Client	: **Sabina Gold & Silver Corporation**	Laboratory	: ALS Environmental - Yellowknife
Contact	: Merle Keefe	Account Manager	: Oliver Gregg
Address	: 375 - 555 Burrard St. Box 220, Bentall 2 Vancouver BC Canada V7X 1M7	Address	: 314 Old Airport Road, Unit 116 Yellowknife NT Canada X1A 3T3
Telephone	: 604 240 6619	Telephone	: 1 867 445 7143
Project	: 22567626	Date Samples Received	: 18-Sep-2023 09:38
PO	: ----	Date Analysis Commenced	: 20-Sep-2023
C-O-C number	: ----	Issue Date	: 05-Oct-2023 14:00
Sampler	: ----		
Site	: Sabina/B2Gold Goose Lake		
Quote number	: YL23-SABI100-001		
No. of samples received	: 13		
No. of samples analysed	: 13		

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
Alicia Chandra	Analsyt	Inorganics, Burnaby, British Columbia
Dan Gebert	Laboratory Analyst	Metals, Burnaby, British Columbia
Greg Pokocky	Manager - Inorganics	Inorganics, Waterloo, Ontario
Jing Liu	Lab Assistant	Inorganics, Edmonton, Alberta
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia
Michael Webb	Lab Analyst	Metals, Burnaby, British Columbia
Miles Gropen	Department Manager - Inorganics	Inorganics, Burnaby, British Columbia
Robin Weeks	Team Leader - Metals	Inorganics, Burnaby, British Columbia
Robin Weeks	Team Leader - Metals	Metals, Burnaby, British Columbia

General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Please refer to Quality Control Interpretive report (QCI) for information regarding Holding Time compliance.

Key : CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances

LOR: Limit of Reporting (detection limit).

Unit	*Description*
-	no units
µS/cm	microsiemens per centimetre
mg/L	milligrams per litre
ng/L	nanograms per litre
pH units	pH units

<: 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*
DTC	*Dissolved concentration exceeds total. Results were confirmed by re-analysis.*

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	GLSE-T	GLSE-M	Field Dup	GLSE-B	GLWB-T
					Client sampling date / time	14-Sep-2023 10:30	14-Sep-2023 10:35	14-Sep-2023 10:35	14-Sep-2023 11:00	14-Sep-2023 13:30
						YL2301147-001	YL2301147-002	YL2301147-003	YL2301147-004	YL2301147-005
						Result	Result	Result	Result	Result
Physical Tests										
Alkalinity, bicarbonate (as CaCO3)	----	E290/VA	1.0	mg/L		5.7	5.8	5.7	5.9	4.2
Alkalinity, carbonate (as CaCO3)	----	E290/VA	1.0	mg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Alkalinity, hydroxide (as CaCO3)	----	E290/VA	1.0	mg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Alkalinity, phenolphthalein (as CaCO3)	----	E290/VA	1.0	mg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Alkalinity, total (as CaCO3)	----	E290/VA	1.0	mg/L		5.7	5.8	5.7	5.9	4.2
Conductivity	----	E100/VA	2.0	µS/cm		60.3	45.8	46.0	45.1	158
Hardness (as CaCO3), dissolved	----	EC100/VA	0.50	mg/L		17.8	17.3	17.5	17.8	65.5
pH	----	E108/VA	0.10	pH units		6.90	6.94	6.92	6.91	6.77
Solids, total dissolved [TDS], calculated	----	EC103/VA	1.0	mg/L		26.8	26.7	26.6	27.0	89.5
Solids, total suspended [TSS]	----	E160/VA	3.0	mg/L		4.2	4.6	4.2	<3.0	<3.0
Anions and Nutrients										
Ammonia, total (as N)	7664-41-7	E298/VA	0.0050	mg/L		0.0215	0.0197	0.0176	0.0206	0.588
Bromide	24959-67-9	E235.Br-L/VA	0.050	mg/L		<0.050	<0.050	<0.050	<0.050	0.271
Chloride	16887-00-6	E235.Cl/VA	0.50	mg/L		3.69	3.70	3.65	3.64	27.0
Fluoride	16984-48-8	E235.F/VA	0.020	mg/L		0.029	0.030	0.026	0.024	0.021
Kjeldahl nitrogen, total [TKN]	----	E318/VA	0.050	mg/L		0.224	0.259	0.228	0.226	1.01
Nitrate (as N)	14797-55-8	E235.NO3-L/VA	0.0050	mg/L		0.0976	0.106	0.0957	0.0950	2.31
Nitrite (as N)	14797-65-0	E235.NO2-L/VA	0.0010	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	0.0074
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U/VA	0.0010	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Phosphorus, total	7723-14-0	E372-S/EO	0.0010	mg/L		0.0022	0.0029	0.0025	0.0025	0.0038
Phosphorus, total dissolved	7723-14-0	E375-U/EO	0.0010	mg/L		0.0014	<0.0010	<0.0010	<0.0010	<0.0010
Silicate (as SiO2)	7631-86-9	E392/VA	0.50	mg/L		<0.50	<0.50	<0.50	<0.50	1.66
Sulfate (as SO4)	14808-79-8	E235.SO4/VA	0.30	mg/L		8.09	8.07	8.07	8.07	17.7
Cyanides										
Cyanide, free	----	E339/WT	0.0050	mg/L		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Cyanide, strong acid dissociable (Total)	----	E333/WT	0.0050	mg/L		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Cyanide, weak acid dissociable	----	E336/WT	0.0050	mg/L		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Organic / Inorganic Carbon										

Analytical Results

Sub-Matrix: Water (Matrix: Water)				Client sample ID	GLSE-T	GLSE-M	Field Dup	GLSE-B	GLWB-T
				Client sampling date / time	14-Sep-2023 10:30	14-Sep-2023 10:35	14-Sep-2023 10:35	14-Sep-2023 11:00	14-Sep-2023 13:30
Analyte	CAS Number	Method/Lab	LOR	Unit	YL2301147-001	YL2301147-002	YL2301147-003	YL2301147-004	YL2301147-005
					Result	Result	Result	Result	Result
Organic / Inorganic Carbon									
Carbon, dissolved organic [DOC]	----	E358-L/VA	0.50	mg/L	3.63	3.59	3.64	3.70	3.86
Carbon, total organic [TOC]	----	E355-L/VA	0.50	mg/L	3.82	4.01	4.16	4.16	4.50
Total Sulfides									
Sulfide, total (as S)	18496-25-8	E395/VA	0.0015	mg/L	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015
Sulfide, total (as H2S)	7783-06-4	E395/VA	0.0016	mg/L	<0.0016	<0.0016	<0.0016	<0.0016	<0.0016
Total Metals									
Mercury, total	7439-97-6	E508-L/VA	0.50	ng/L	0.63	0.59	0.53	0.68	0.96
Total Metals (Undigested)									
Aluminum, total	7429-90-5	E466/VA	0.00020	mg/L	0.0126	0.0107	0.00992	0.00996	0.0518
Antimony, total	7440-36-0	E466/VA	0.0000050	mg/L	0.0000135	0.0000076	0.0000090	0.0000084	0.0000109
Arsenic, total	7440-38-2	E466/VA	0.000010	mg/L	0.000277	0.000250	0.000268	0.000264	0.000306
Barium, total	7440-39-3	E466/VA	0.000020	mg/L	0.00632	0.00618	0.00621	0.00618	0.0317
Beryllium, total	7440-41-7	E466/VA	0.0000020	mg/L	<0.0000020	<0.0000020	<0.0000020	<0.0000020	0.0000145
Bismuth, total	7440-69-9	E466/VA	0.0000010	mg/L	<0.0000010	<0.0000010	<0.0000010	<0.0000010	<0.0000010
Boron, total	7440-42-8	E466/VA	0.0050	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Cadmium, total	7440-43-9	E466/VA	0.0000025	mg/L	0.0000038	0.0000036	0.0000051	0.0000036	0.0000743
Calcium, total	7440-70-2	E466/VA	0.010	mg/L	3.70	3.72	3.69	3.68	15.5
Cesium, total	7440-46-2	E466/VA	0.0000050	mg/L	0.0000075	0.0000076	0.0000074	0.0000074	0.0000458
Chromium, total	7440-47-3	E466/VA	0.000040	mg/L	0.000070	0.000059	0.000061	0.000059	0.000097
Cobalt, total	7440-48-4	E466/VA	0.0000050	mg/L	0.000159	0.000157	0.000155	0.000155	0.00370
Copper, total	7440-50-8	E466/VA	0.000050	mg/L	0.00133	0.00130	0.00131	0.00127	0.00215
Gallium, total	7440-55-3	E466/VA	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Iron, total	7439-89-6	E466/VA	0.00050	mg/L	0.0423	0.0416	0.0408	0.0415	0.0588
Lanthanum, total	7439-91-0	E466/VA	0.000010	mg/L	0.000084	0.000084	0.000085	0.000086	0.000622
Lead, total	7439-92-1	E466/VA	0.0000050	mg/L	0.0000419	0.0000132	0.0000162	0.0000089	0.0000310
Lithium, total	7439-93-2	E466/VA	0.00010	mg/L	0.00072	0.00073	0.00072	0.00073	0.00168
Magnesium, total	7439-95-4	E466/VA	0.0010	mg/L	2.01	2.05	2.02	2.00	5.46
Manganese, total	7439-96-5	E466/VA	0.0000050	mg/L	0.00340	0.00322	0.00326	0.00317	0.0526
Molybdenum, total	7439-98-7	E466/VA	0.000010	mg/L	0.000014	0.000014	0.000014	0.000015	0.000015
Nickel, total	7440-02-0	E466/VA	0.000020	mg/L	0.00271	0.00268	0.00264	0.00264	0.0150

Analytical Results

Sub-Matrix: **Water**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	GLSE-T	GLSE-M	Field Dup	GLSE-B	GLWB-T
					Client sampling date / time	14-Sep-2023 10:30	14-Sep-2023 10:35	14-Sep-2023 10:35	14-Sep-2023 11:00	14-Sep-2023 13:30
						YL2301147-001	YL2301147-002	YL2301147-003	YL2301147-004	YL2301147-005
						Result	Result	Result	Result	Result
Total Metals (Undigested)										
Niobium, total	7440-03-1	E466/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Phosphorus, total	7723-14-0	E466/VA	0.010	mg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Potassium, total	7440-09-7	E466/VA	0.0050	mg/L		0.470	0.466	0.472	0.464	1.08
Rhenium, total	7440-15-5	E466/VA	0.0000050	mg/L		<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Rubidium, total	7440-17-7	E466/VA	0.0000050	mg/L		0.00122	0.00123	0.00122	0.00122	0.00346
Selenium, total	7782-49-2	E466/VA	0.000025	mg/L		0.000031	0.000027	0.000029	0.000029	0.000062
Silicon, total	7440-21-3	E466/VA	0.050	mg/L		0.204	0.190	0.197	0.191	0.775
Silver, total	7440-22-4	E466/VA	0.0000020	mg/L		<0.0000020	<0.0000020	<0.0000020	<0.0000020	0.0000022
Sodium, total	7440-23-5	E466/VA	0.010	mg/L		0.721	0.729	0.723	0.716	1.49
Strontium, total	7440-24-6	E466/VA	0.000020	mg/L		0.0196	0.0196	0.0195	0.0191	0.118
Sulfur, total	7704-34-9	E466/VA	0.50	mg/L		2.89	2.82	2.84	2.86	5.87
Tantalum, total	7440-25-7	E466/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Tellurium, total	13494-80-9	E466/VA	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Thallium, total	7440-28-0	E466/VA	0.0000010	mg/L		0.0000015	0.0000013	0.0000014	0.0000017	0.0000070
Thorium, total	7440-29-1	E466/VA	0.0000050	mg/L		0.0000062	<0.0000050	<0.0000050	<0.0000050	0.0000173
Tin, total	7440-31-5	E466/VA	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Titanium, total	7440-32-6	E466/VA	0.000050	mg/L		0.000203	0.000134	0.000242	0.000401	0.000236
Tungsten, total	7440-33-7	E466/VA	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Uranium, total	7440-61-1	E466/VA	0.0000010	mg/L		0.0000053	0.0000035	0.0000060	0.0000048	0.0000074
Vanadium, total	7440-62-2	E466/VA	0.000010	mg/L		0.000034	0.000032	0.000033	0.000037	0.000050
Yttrium, total	7440-65-5	E466/VA	0.000010	mg/L		0.000037	0.000035	0.000036	0.000035	0.000230
Zinc, total	7440-66-6	E466/VA	0.00010	mg/L		0.00086	0.00059	0.00070	0.00050	0.00661
Zirconium, total	7440-67-7	E466/VA	0.000010	mg/L		0.000020	0.000021	0.000020	0.000019	0.000053
Dissolved Metals										
Aluminum, dissolved	7429-90-5	E465/VA	0.00020	mg/L		0.00452	0.00438	0.00450	0.00442	0.0289
Antimony, dissolved	7440-36-0	E465/VA	0.0000050	mg/L		0.0000102	0.0000087	0.0000106	0.0000081	0.0000095
Arsenic, dissolved	7440-38-2	E465/VA	0.000010	mg/L		0.000236	0.000232	0.000237	0.000254	0.000268
Barium, dissolved	7440-39-3	E465/VA	0.000020	mg/L		0.00614	0.00606	0.00623	0.00615	0.0341
Beryllium, dissolved	7440-41-7	E465/VA	0.0000020	mg/L		<0.0000020	<0.0000020	<0.0000020	<0.0000020	0.0000154
Bismuth, dissolved	7440-69-9	E465/VA	0.0000010	mg/L		<0.0000010	<0.0000010	0.0000010	<0.0000010	<0.0000010

Analytical Results

Sub-Matrix: **Water**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	GLSE-T	GLSE-M	Field Dup	GLSE-B	GLWB-T
					Client sampling date / time	14-Sep-2023 10:30	14-Sep-2023 10:35	14-Sep-2023 10:35	14-Sep-2023 11:00	14-Sep-2023 13:30
						YL2301147-001	YL2301147-002	YL2301147-003	YL2301147-004	YL2301147-005
						Result	Result	Result	Result	Result
Dissolved Metals										
Boron, dissolved	7440-42-8	E465/VA	0.0050	mg/L		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Cadmium, dissolved	7440-43-9	E465/VA	0.0000025	mg/L		0.0000039	0.0000035	0.0000039	0.0000027	0.0000791
Calcium, dissolved	7440-70-2	E465/VA	0.010	mg/L		3.76	3.61	3.68	3.73	16.8
Cesium, dissolved	7440-46-2	E465/VA	0.0000050	mg/L		0.0000071	0.0000068	0.0000074	0.0000072	0.0000496
Chromium, dissolved	7440-47-3	E465/VA	0.000040	mg/L		0.000054	0.000049	0.000050	0.000049	0.000070
Cobalt, dissolved	7440-48-4	E465/VA	0.0000050	mg/L		0.000115	0.000118	0.000116	0.000128	0.00423
Copper, dissolved	7440-50-8	E465/VA	0.000050	mg/L		0.00116	0.00113	0.00118	0.00114	0.00199
Dissolved metals filtration location	----	EP465/VA	-	-		Field	Field	Field	Field	Field
Gallium, dissolved	7440-55-3	E465/VA	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Iron, dissolved	7439-89-6	E465/VA	0.00050	mg/L		0.0126	0.0114	0.0120	0.0144	0.0218
Lanthanum, dissolved	7439-91-0	E465/VA	0.000010	mg/L		0.000056	0.000054	0.000054	0.000061	0.000611
Lead, dissolved	7439-92-1	E465/VA	0.0000050	mg/L		<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000067
Lithium, dissolved	7439-93-2	E465/VA	0.00010	mg/L		0.00072	0.00075	0.00072	0.00073	0.00181
Magnesium, dissolved	7439-95-4	E465/VA	0.0010	mg/L		2.05	2.02	2.02	2.06	5.72
Manganese, dissolved	7439-96-5	E465/VA	0.0000050	mg/L		0.00244	0.00232	0.00238	0.00256	0.0598
Mercury, dissolved	7439-97-6	E509-L/VA	0.50	ng/L		<0.50	<0.50	0.52	0.68	0.57
Molybdenum, dissolved	7439-98-7	E465/VA	0.000010	mg/L		0.000022	0.000016	0.000019	0.000019	0.000016
Nickel, dissolved	7440-02-0	E465/VA	0.000020	mg/L		0.00257	0.00256	0.00258	0.00262	0.0164
Niobium, dissolved	7440-03-1	E465/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Phosphorus, dissolved	7723-14-0	E465/VA	0.010	mg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Potassium, dissolved	7440-09-7	E465/VA	0.0050	mg/L		0.474	0.460	0.470	0.475	1.14
Rhenium, dissolved	7440-15-5	E465/VA	0.0000050	mg/L		<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Rubidium, dissolved	7440-17-7	E465/VA	0.0000050	mg/L		0.00123	0.00120	0.00122	0.00123	0.00368
Selenium, dissolved	7782-49-2	E465/VA	0.000025	mg/L		<0.000025	<0.000025	0.000027	<0.000025	0.000065
Silicon, dissolved	7440-21-3	E465/VA	0.050	mg/L		0.185	0.186	0.183	0.192	0.790
Silver, dissolved	7440-22-4	E465/VA	0.0000020	mg/L		<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020
Sodium, dissolved	7440-23-5	E465/VA	0.010	mg/L		0.727	0.712	0.714	0.727	1.48
Strontium, dissolved	7440-24-6	E465/VA	0.000020	mg/L		0.0197	0.0190	0.0196	0.0197	0.130
Sulfur, dissolved	7704-34-9	E465/VA	0.50	mg/L		2.74	2.81	2.79	2.85	6.15
Tantalum, dissolved	7440-25-7	E465/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010

Analytical Results

Sub-Matrix: **Water**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	GLSE-T	GLSE-M	Field Dup	GLSE-B	GLWB-T
					Client sampling date / time	14-Sep-2023 10:30	14-Sep-2023 10:35	14-Sep-2023 10:35	14-Sep-2023 11:00	14-Sep-2023 13:30
						YL2301147-001	YL2301147-002	YL2301147-003	YL2301147-004	YL2301147-005
						Result	Result	Result	Result	Result
Dissolved Metals										
Tellurium, dissolved	13494-80-9	E465/VA	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Thallium, dissolved	7440-28-0	E465/VA	0.0000010	mg/L		0.0000015	0.0000014	0.0000013	0.0000013	0.0000070
Thorium, dissolved	7440-29-1	E465/VA	0.0000050	mg/L		<0.0000050	0.0000064	0.0000063	<0.0000050	<0.0000050
Tin, dissolved	7440-31-5	E465/VA	0.000010	mg/L		<0.000010	<0.000010	0.000012	<0.000010	<0.000010
Titanium, dissolved	7440-32-6	E465/VA	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	0.000101
Tungsten, dissolved	7440-33-7	E465/VA	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Uranium, dissolved	7440-61-1	E465/VA	0.0000010	mg/L		0.0000034	0.0000031	0.0000033	0.0000037	0.0000073
Vanadium, dissolved	7440-62-2	E465/VA	0.000010	mg/L		0.000023	0.000020	0.000022	0.000022	0.000028
Yttrium, dissolved	7440-65-5	E465/VA	0.000010	mg/L		0.000024	0.000024	0.000024	0.000027	0.000209
Zinc, dissolved	7440-66-6	E465/VA	0.00010	mg/L		0.00061	0.00062	0.00062	0.00048	0.00680
Zirconium, dissolved	7440-67-7	E465/VA	0.000010	mg/L		0.000018	0.000016	0.000015	0.000014	0.000040
Dissolved mercury filtration location	----	EP509-L/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.

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	GLWB-M	GLWB-B	GLCB-T	GLCB-M	GLCB-B
					Client sampling date / time	14-Sep-2023 13:35	14-Sep-2023 13:40	14-Sep-2023 15:00	14-Sep-2023 15:05	14-Sep-2023 15:10
						YL2301147-006	YL2301147-007	YL2301147-008	YL2301147-009	YL2301147-010
						Result	Result	Result	Result	Result
Physical Tests										
Alkalinity, bicarbonate (as CaCO3)	----	E290/VA	1.0	mg/L		4.4	4.6	5.9	6.1	5.7
Alkalinity, carbonate (as CaCO3)	----	E290/VA	1.0	mg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Alkalinity, hydroxide (as CaCO3)	----	E290/VA	1.0	mg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Alkalinity, phenolphthalein (as CaCO3)	----	E290/VA	1.0	mg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Alkalinity, total (as CaCO3)	----	E290/VA	1.0	mg/L		4.4	4.6	5.9	6.1	5.7
Conductivity	----	E100/VA	2.0	µS/cm		170	168	46.2	46.2	45.9
Hardness (as CaCO3), dissolved	----	EC100/VA	0.50	mg/L		61.1	64.3	17.5	17.9	18.2
pH	----	E108/VA	0.10	pH units		6.80	6.78	6.97	6.96	6.97
Solids, total dissolved [TDS], calculated	----	EC103/VA	1.0	mg/L		91.1	91.3	27.1	27.8	27.9
Solids, total suspended [TSS]	----	E160/VA	3.0	mg/L		3.2	3.4	<3.0	<3.0	4.0
Anions and Nutrients										
Ammonia, total (as N)	7664-41-7	E298/VA	0.0050	mg/L		0.694	0.639	0.0240	0.0218	0.0219
Bromide	24959-67-9	E235.Br-L/VA	0.050	mg/L		0.280	0.263	<0.050	<0.050	<0.050
Chloride	16887-00-6	E235.Cl/VA	0.50	mg/L		28.8	28.2	3.72	3.72	4.20
Fluoride	16984-48-8	E235.F/VA	0.020	mg/L		0.027	0.028	0.034	<0.020	0.031
Kjeldahl nitrogen, total [TKN]	----	E318/VA	0.050	mg/L		1.04	0.983	0.229	0.221	0.216
Nitrate (as N)	14797-55-8	E235.NO3-L/VA	0.0050	mg/L		2.45	2.40	0.103	0.104	0.103
Nitrite (as N)	14797-65-0	E235.NO2-L/VA	0.0010	mg/L		0.0080	0.0067	<0.0010	<0.0010	<0.0010
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U/VA	0.0010	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Phosphorus, total	7723-14-0	E372-S/EO	0.0010	mg/L		0.0031	0.0033	0.0030	0.0029	0.0027
Phosphorus, total dissolved	7723-14-0	E375-U/EO	0.0010	mg/L		<0.0010	<0.0010	0.0014	<0.0010	<0.0010
Silicate (as SiO2)	7631-86-9	E392/VA	0.50	mg/L		1.72	1.69	<0.50	<0.50	<0.50
Sulfate (as SO4)	14808-79-8	E235.SO4/VA	0.30	mg/L		18.2	18.0	8.12	8.12	8.08
Cyanides										
Cyanide, free	----	E339/WT	0.0050	mg/L		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Cyanide, strong acid dissociable (Total)	----	E333/WT	0.0050	mg/L		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Cyanide, weak acid dissociable	----	E336/WT	0.0050	mg/L		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Organic / Inorganic Carbon										

Analytical Results

Sub-Matrix: **Water**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	GLWB-M	GLWB-B	GLCB-T	GLCB-M	GLCB-B
					Client sampling date / time	14-Sep-2023 13:35	14-Sep-2023 13:40	14-Sep-2023 15:00	14-Sep-2023 15:05	14-Sep-2023 15:10
						YL2301147-006	YL2301147-007	YL2301147-008	YL2301147-009	YL2301147-010
						Result	Result	Result	Result	Result
Organic / Inorganic Carbon										
Carbon, dissolved organic [DOC]	----	E358-L/VA	0.50	mg/L		4.02	4.01	3.75	4.22	4.00
Carbon, total organic [TOC]	----	E355-L/VA	0.50	mg/L		4.21	4.14	3.93	4.09	3.92
Total Sulfides										
Sulfide, total (as S)	18496-25-8	E395/VA	0.0015	mg/L		<0.0015	<0.0015	<0.0015	<0.0015	<0.0015
Sulfide, total (as H2S)	7783-06-4	E395/VA	0.0016	mg/L		<0.0016	<0.0016	<0.0016	<0.0016	<0.0016
Total Metals										
Mercury, total	7439-97-6	E508-L/VA	0.50	ng/L		0.88	0.86	0.70	0.60	0.62
Total Metals (Undigested)										
Aluminum, total	7429-90-5	E466/VA	0.00020	mg/L		0.0542	0.0575	0.00426	0.0109	0.00962
Antimony, total	7440-36-0	E466/VA	0.0000050	mg/L		0.0000093	0.0000089	0.0000091	0.0000086	0.0000077
Arsenic, total	7440-38-2	E466/VA	0.000010	mg/L		0.000296	0.000275	0.000239	0.000257	0.000260
Barium, total	7440-39-3	E466/VA	0.000020	mg/L		0.0322	0.0339	0.00617	0.00639	0.00623
Beryllium, total	7440-41-7	E466/VA	0.0000020	mg/L		0.0000150	0.0000164	<0.0000020	<0.0000020	<0.0000020
Bismuth, total	7440-69-9	E466/VA	0.0000010	mg/L		<0.0000010	<0.0000010	<0.0000010	<0.0000010	<0.0000010
Boron, total	7440-42-8	E466/VA	0.0050	mg/L		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Cadmium, total	7440-43-9	E466/VA	0.0000025	mg/L		0.0000769	0.0000829	0.0000040	0.0000049	0.0000045
Calcium, total	7440-70-2	E466/VA	0.010	mg/L		16.0	16.9	3.67	3.78	3.70
Cesium, total	7440-46-2	E466/VA	0.0000050	mg/L		0.0000473	0.0000498	0.0000074	0.0000075	0.0000079
Chromium, total	7440-47-3	E466/VA	0.000040	mg/L		0.000094	0.000106	0.000047	0.000063	0.000057
Cobalt, total	7440-48-4	E466/VA	0.0000050	mg/L		0.00388	0.00426	0.000115	0.000156	0.000159
Copper, total	7440-50-8	E466/VA	0.000050	mg/L		0.00216	0.00224	0.00112	0.00137	0.00128
Gallium, total	7440-55-3	E466/VA	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Iron, total	7439-89-6	E466/VA	0.00050	mg/L		0.0614	0.0614	0.0119	0.0415	0.0407
Lanthanum, total	7439-91-0	E466/VA	0.000010	mg/L		0.000646	0.000702	0.000059	0.000085	0.000086
Lead, total	7439-92-1	E466/VA	0.0000050	mg/L		0.0000248	0.0000229	<0.0000050	0.0000313	0.0000119
Lithium, total	7439-93-2	E466/VA	0.00010	mg/L		0.00167	0.00179	0.00079	0.00074	0.00073
Magnesium, total	7439-95-4	E466/VA	0.0010	mg/L		5.56	5.83	2.09	2.09	2.02
Manganese, total	7439-96-5	E466/VA	0.0000050	mg/L		0.0560	0.0618	0.00228	0.00321	0.00312
Molybdenum, total	7439-98-7	E466/VA	0.000010	mg/L		0.000025	0.000013	0.000014	0.000019	0.000014
Nickel, total	7440-02-0	E466/VA	0.000020	mg/L		0.0155	0.0166	0.00256	0.00272	0.00266

Analytical Results

Sub-Matrix: **Water**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	GLWB-M	GLWB-B	GLCB-T	GLCB-M	GLCB-B
					Client sampling date / time	14-Sep-2023 13:35	14-Sep-2023 13:40	14-Sep-2023 15:00	14-Sep-2023 15:05	14-Sep-2023 15:10
						YL2301147-006	YL2301147-007	YL2301147-008	YL2301147-009	YL2301147-010
						Result	Result	Result	Result	Result
Total Metals (Undigested)										
Niobium, total	7440-03-1	E466/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Phosphorus, total	7723-14-0	E466/VA	0.010	mg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Potassium, total	7440-09-7	E466/VA	0.0050	mg/L		1.10	1.16	0.456	0.477	0.467
Rhenium, total	7440-15-5	E466/VA	0.0000050	mg/L		<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Rubidium, total	7440-17-7	E466/VA	0.0000050	mg/L		0.00355	0.00372	0.00116	0.00124	0.00122
Selenium, total	7782-49-2	E466/VA	0.000025	mg/L		0.000072	0.000064	<0.000025	<0.000025	<0.000025
Silicon, total	7440-21-3	E466/VA	0.050	mg/L		0.774	0.805	0.191	0.200	0.198
Silver, total	7440-22-4	E466/VA	0.0000020	mg/L		<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020
Sodium, total	7440-23-5	E466/VA	0.010	mg/L		1.45	1.53	0.738	0.751	0.727
Strontium, total	7440-24-6	E466/VA	0.000020	mg/L		0.124	0.131	0.0190	0.0198	0.0194
Sulfur, total	7704-34-9	E466/VA	0.50	mg/L		6.02	6.08	2.90	2.89	2.94
Tantalum, total	7440-25-7	E466/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Tellurium, total	13494-80-9	E466/VA	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Thallium, total	7440-28-0	E466/VA	0.0000010	mg/L		0.0000069	0.0000072	0.0000014	0.0000014	0.0000013
Thorium, total	7440-29-1	E466/VA	0.0000050	mg/L		0.0000114	0.0000104	<0.0000050	<0.0000050	<0.0000050
Tin, total	7440-31-5	E466/VA	0.000010	mg/L		<0.000010	<0.000010	<0.000010	0.000038	<0.000010
Titanium, total	7440-32-6	E466/VA	0.000050	mg/L		0.000253	0.000296	<0.000050	0.000149	0.000123
Tungsten, total	7440-33-7	E466/VA	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Uranium, total	7440-61-1	E466/VA	0.0000010	mg/L		0.0000072	0.0000103	0.0000039	0.0000050	0.0000057
Vanadium, total	7440-62-2	E466/VA	0.000010	mg/L		0.000051	0.000052	0.000020	0.000036	0.000032
Yttrium, total	7440-65-5	E466/VA	0.000010	mg/L		0.000236	0.000247	0.000025	0.000035	0.000036
Zinc, total	7440-66-6	E466/VA	0.00010	mg/L		0.00646	0.00721	0.00046	0.00101	0.00058
Zirconium, total	7440-67-7	E466/VA	0.000010	mg/L		0.000071	0.000049	0.000017	0.000019	0.000019
Dissolved Metals										
Aluminum, dissolved	7429-90-5	E465/VA	0.00020	mg/L		0.0261	0.0289	0.0101 DTC	0.00454	0.00489
Antimony, dissolved	7440-36-0	E465/VA	0.0000050	mg/L		0.0000098	0.0000092	0.0000098	0.0000078	0.0000079
Arsenic, dissolved	7440-38-2	E465/VA	0.000010	mg/L		0.000255	0.000250	0.000268	0.000234	0.000246
Barium, dissolved	7440-39-3	E465/VA	0.000020	mg/L		0.0311	0.0326	0.00631	0.00617	0.00607
Beryllium, dissolved	7440-41-7	E465/VA	0.0000020	mg/L		0.0000146	0.0000138	<0.0000020	<0.0000020	<0.0000020
Bismuth, dissolved	7440-69-9	E465/VA	0.0000010	mg/L		<0.0000010	<0.0000010	<0.0000010	<0.0000010	<0.0000010

Analytical Results

Sub-Matrix: **Water**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	GLWB-M	GLWB-B	GLCB-T	GLCB-M	GLCB-B
					Client sampling date / time	14-Sep-2023 13:35	14-Sep-2023 13:40	14-Sep-2023 15:00	14-Sep-2023 15:05	14-Sep-2023 15:10
						YL2301147-006	YL2301147-007	YL2301147-008	YL2301147-009	YL2301147-010
						Result	Result	Result	Result	Result
Dissolved Metals										
Boron, dissolved	7440-42-8	E465/VA	0.0050	mg/L		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Cadmium, dissolved	7440-43-9	E465/VA	0.0000025	mg/L		0.0000708	0.0000771	0.0000037	<0.0000025	0.0000034
Calcium, dissolved	7440-70-2	E465/VA	0.010	mg/L		15.5	16.4	3.62	3.74	3.81
Cesium, dissolved	7440-46-2	E465/VA	0.0000050	mg/L		0.0000459	0.0000479	0.0000075	0.0000074	0.0000074
Chromium, dissolved	7440-47-3	E465/VA	0.000040	mg/L		0.000068	0.000071	0.000073	0.000046	0.000048
Cobalt, dissolved	7440-48-4	E465/VA	0.0000050	mg/L		0.00372	0.00397	0.000174 DTC	0.000119	0.000120
Copper, dissolved	7440-50-8	E465/VA	0.000050	mg/L		0.00191	0.00195	0.00136	0.00112	0.00115
Dissolved metals filtration location	----	EP465/VA	-	-		Field	Field	Field	Field	Field
Gallium, dissolved	7440-55-3	E465/VA	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Iron, dissolved	7439-89-6	E465/VA	0.00050	mg/L		0.0207	0.0226	0.0413 DTC	0.0107	0.0120
Lanthanum, dissolved	7439-91-0	E465/VA	0.000010	mg/L		0.000549	0.000577	0.000089 DTC	0.000057	0.000059
Lead, dissolved	7439-92-1	E465/VA	0.0000050	mg/L		0.0000069	0.0000111	0.0000159 DTC	<0.0000050	<0.0000050
Lithium, dissolved	7439-93-2	E465/VA	0.00010	mg/L		0.00167	0.00171	0.00084	0.00075	0.00073
Magnesium, dissolved	7439-95-4	E465/VA	0.0010	mg/L		5.44	5.67	2.06	2.08	2.12
Manganese, dissolved	7439-96-5	E465/VA	0.0000050	mg/L		0.0525	0.0569	0.00325 DTC	0.00233	0.00236
Mercury, dissolved	7439-97-6	E509-L/VA	0.50	ng/L		0.59	0.61	0.56	0.53	0.51
Molybdenum, dissolved	7439-98-7	E465/VA	0.000010	mg/L		0.000020	0.000013	0.000011	0.000014	0.000013
Nickel, dissolved	7440-02-0	E465/VA	0.000020	mg/L		0.0149	0.0158	0.00276	0.00263	0.00262
Niobium, dissolved	7440-03-1	E465/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Phosphorus, dissolved	7723-14-0	E465/VA	0.010	mg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Potassium, dissolved	7440-09-7	E465/VA	0.0050	mg/L		1.09	1.12	0.451	0.478	0.482
Rhenium, dissolved	7440-15-5	E465/VA	0.0000050	mg/L		<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Rubidium, dissolved	7440-17-7	E465/VA	0.0000050	mg/L		0.00344	0.00358	0.00114	0.00122	0.00123
Selenium, dissolved	7782-49-2	E465/VA	0.000025	mg/L		0.000066	0.000063	<0.000025	<0.000025	<0.000025
Silicon, dissolved	7440-21-3	E465/VA	0.050	mg/L		0.761	0.775	0.199	0.184	0.186
Silver, dissolved	7440-22-4	E465/VA	0.0000020	mg/L		<0.0000020	<0.0000020	<0.0000020	<0.0000020	<0.0000020
Sodium, dissolved	7440-23-5	E465/VA	0.010	mg/L		1.41	1.45	0.725	0.726	0.735
Strontium, dissolved	7440-24-6	E465/VA	0.000020	mg/L		0.119	0.124	0.0186	0.0198	0.0199
Sulfur, dissolved	7704-34-9	E465/VA	0.50	mg/L		5.97	6.02	2.89	2.73	2.87
Tantalum, dissolved	7440-25-7	E465/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010

Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	GLWB-M	GLWB-B	GLCB-T	GLCB-M	GLCB-B
					Client sampling date / time	14-Sep-2023 13:35	14-Sep-2023 13:40	14-Sep-2023 15:00	14-Sep-2023 15:05	14-Sep-2023 15:10
Analyte	CAS Number	Method/Lab	LOR	Unit		YL2301147-006	YL2301147-007	YL2301147-008	YL2301147-009	YL2301147-010
						Result	Result	Result	Result	Result
Dissolved Metals										
Tellurium, dissolved	13494-80-9	E465/VA	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Thallium, dissolved	7440-28-0	E465/VA	0.0000010	mg/L		0.0000066	0.0000070	0.0000017	0.0000013	0.0000014
Thorium, dissolved	7440-29-1	E465/VA	0.0000050	mg/L		0.0000095	0.0000062	<0.0000050	<0.0000050	0.0000053
Tin, dissolved	7440-31-5	E465/VA	0.000010	mg/L		<0.000010	0.000013	<0.000010	<0.000010	<0.000010
Titanium, dissolved	7440-32-6	E465/VA	0.000050	mg/L		0.000051	0.000053	0.000150 DTC	<0.000050	0.000062
Tungsten, dissolved	7440-33-7	E465/VA	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Uranium, dissolved	7440-61-1	E465/VA	0.0000010	mg/L		0.0000054	0.0000061	0.0000058	0.0000037	0.0000038
Vanadium, dissolved	7440-62-2	E465/VA	0.000010	mg/L		0.000029	0.000030	0.000038	0.000021	0.000020
Yttrium, dissolved	7440-65-5	E465/VA	0.000010	mg/L		0.000192	0.000201	0.000036	0.000024	0.000025
Zinc, dissolved	7440-66-6	E465/VA	0.00010	mg/L		0.00608	0.00639	0.00073 DTC	0.00043	0.00044
Zirconium, dissolved	7440-67-7	E465/VA	0.000010	mg/L		0.000042	0.000043	0.000020	0.000016	0.000015
Dissolved mercury filtration location	----	EP509-L/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.

Analytical Results

Sub-Matrix: Water (Matrix: Water)				Client sample ID	GLTL-T	GLTL-M	GLTL-B	----	----
				Client sampling date / time	14-Sep-2023 15:45	14-Sep-2023 15:50	14-Sep-2023 15:55	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit	YL2301147-011	YL2301147-012	YL2301147-013	--------	--------
					Result	Result	Result	----	----
Physical Tests									
Alkalinity, bicarbonate (as CaCO3)	----	E290/VA	1.0	mg/L	5.9	6.1	6.0	----	----
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, phenolphthalein (as CaCO3)	----	E290/VA	1.0	mg/L	<1.0	<1.0	<1.0	----	----
Alkalinity, total (as CaCO3)	----	E290/VA	1.0	mg/L	5.9	6.1	6.0	----	----
Conductivity	----	E100/VA	2.0	µS/cm	43.5	43.5	43.7	----	----
Hardness (as CaCO3), dissolved	----	EC100/VA	0.50	mg/L	17.1	17.2	17.2	----	----
pH	----	E108/VA	0.10	pH units	6.97	6.97	6.97	----	----
Solids, total dissolved [TDS], calculated	----	EC103/VA	1.0	mg/L	26.2	26.9	26.3	----	----
Solids, total suspended [TSS]	----	E160/VA	3.0	mg/L	4.0	4.0	4.0	----	----
Anions and Nutrients									
Ammonia, total (as N)	7664-41-7	E298/VA	0.0050	mg/L	0.0185	0.0175	0.0196	----	----
Bromide	24959-67-9	E235.Br-L/VA	0.050	mg/L	<0.050	<0.050	<0.050	----	----
Chloride	16887-00-6	E235.Cl/VA	0.50	mg/L	3.36	3.36	3.37	----	----
Fluoride	16984-48-8	E235.F/VA	0.020	mg/L	0.032	0.026	0.029	----	----
Kjeldahl nitrogen, total [TKN]	----	E318/VA	0.050	mg/L	0.235	0.215	0.238	----	----
Nitrate (as N)	14797-55-8	E235.NO3-L/VA	0.0050	mg/L	0.0603	0.0633	0.0623	----	----
Nitrite (as N)	14797-65-0	E235.NO2-L/VA	0.0010	mg/L	<0.0010	<0.0010	<0.0010	----	----
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U/VA	0.0010	mg/L	<0.0010	<0.0010	<0.0010	----	----
Phosphorus, total	7723-14-0	E372-S/EO	0.0010	mg/L	0.0033	0.0030	0.0029	----	----
Phosphorus, total dissolved	7723-14-0	E375-U/EO	0.0010	mg/L	<0.0010	<0.0010	<0.0010	----	----
Silicate (as SiO2)	7631-86-9	E392/VA	0.50	mg/L	<0.50	<0.50	<0.50	----	----
Sulfate (as SO4)	14808-79-8	E235.SO4/VA	0.30	mg/L	7.75	7.74	7.75	----	----
Cyanides									
Cyanide, free	----	E339/WT	0.0050	mg/L	<0.0050	<0.0050	<0.0050	----	----
Cyanide, strong acid dissociable (Total)	----	E333/WT	0.0050	mg/L	<0.0050	<0.0050	<0.0050	----	----
Cyanide, weak acid dissociable	----	E336/WT	0.0050	mg/L	<0.0050	<0.0050	<0.0050	----	----
Organic / Inorganic Carbon									

Analytical Results

Sub-Matrix: **Water**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	GLTL-T	GLTL-M	GLTL-B	----	----
					Client sampling date / time	14-Sep-2023 15:45	14-Sep-2023 15:50	14-Sep-2023 15:55	----	----
						YL2301147-011	YL2301147-012	YL2301147-013	--------	--------
						Result	Result	Result	----	----
Organic / Inorganic Carbon										
Carbon, dissolved organic [DOC]	----	E358-L/VA	0.50	mg/L		3.96	4.48	3.92	----	----
Carbon, total organic [TOC]	----	E355-L/VA	0.50	mg/L		4.24	4.21	4.16	----	----
Total Sulfides										
Sulfide, total (as S)	18496-25-8	E395/VA	0.0015	mg/L		<0.0015	<0.0015	<0.0015	----	----
Sulfide, total (as H2S)	7783-06-4	E395/VA	0.0016	mg/L		<0.0016	<0.0016	<0.0016	----	----
Total Metals										
Mercury, total	7439-97-6	E508-L/VA	0.50	ng/L		0.86	0.80	0.80	----	----
Total Metals (Undigested)										
Aluminum, total	7429-90-5	E466/VA	0.00020	mg/L		0.0103	0.00958	0.00981	----	----
Antimony, total	7440-36-0	E466/VA	0.0000050	mg/L		0.0000094	0.0000070	0.0000076	----	----
Arsenic, total	7440-38-2	E466/VA	0.000010	mg/L		0.000283	0.000236	0.000252	----	----
Barium, total	7440-39-3	E466/VA	0.000020	mg/L		0.00610	0.00580	0.00582	----	----
Beryllium, total	7440-41-7	E466/VA	0.0000020	mg/L		<0.0000020	<0.0000020	<0.0000020	----	----
Bismuth, total	7440-69-9	E466/VA	0.0000010	mg/L		<0.0000010	<0.0000010	<0.0000010	----	----
Boron, total	7440-42-8	E466/VA	0.0050	mg/L		<0.0050	<0.0050	<0.0050	----	----
Cadmium, total	7440-43-9	E466/VA	0.0000025	mg/L		0.0000033	0.0000050	0.0000038	----	----
Calcium, total	7440-70-2	E466/VA	0.010	mg/L		3.66	3.52	3.51	----	----
Cesium, total	7440-46-2	E466/VA	0.0000050	mg/L		0.0000073	0.0000067	0.0000066	----	----
Chromium, total	7440-47-3	E466/VA	0.000040	mg/L		0.000073	0.000066	0.000066	----	----
Cobalt, total	7440-48-4	E466/VA	0.0000050	mg/L		0.000125	0.000119	0.000121	----	----
Copper, total	7440-50-8	E466/VA	0.000050	mg/L		0.00131	0.00126	0.00124	----	----
Gallium, total	7440-55-3	E466/VA	0.000050	mg/L		<0.000050	<0.000050	<0.000050	----	----
Iron, total	7439-89-6	E466/VA	0.00050	mg/L		0.0602	0.0566	0.0554	----	----
Lanthanum, total	7439-91-0	E466/VA	0.000010	mg/L		0.000085	0.000082	0.000082	----	----
Lead, total	7439-92-1	E466/VA	0.0000050	mg/L		0.0000152	0.0000099	0.0000129	----	----
Lithium, total	7439-93-2	E466/VA	0.00010	mg/L		0.00072	0.00071	0.00070	----	----
Magnesium, total	7439-95-4	E466/VA	0.0010	mg/L		2.07	2.00	1.97	----	----
Manganese, total	7439-96-5	E466/VA	0.0000050	mg/L		0.00372	0.00353	0.00338	----	----
Molybdenum, total	7439-98-7	E466/VA	0.000010	mg/L		0.000014	0.000013	0.000013	----	----
Nickel, total	7440-02-0	E466/VA	0.000020	mg/L		0.00251	0.00239	0.00234	----	----

Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	GLTL-T	GLTL-M	GLTL-B	----	----
					Client sampling date / time	14-Sep-2023 15:45	14-Sep-2023 15:50	14-Sep-2023 15:55	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit		YL2301147-011	YL2301147-012	YL2301147-013	--------	--------
						Result	Result	Result	----	----
Total Metals (Undigested)										
Niobium, total	7440-03-1	E466/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	----	----
Phosphorus, total	7723-14-0	E466/VA	0.010	mg/L		<0.010	<0.010	<0.010	----	----
Potassium, total	7440-09-7	E466/VA	0.0050	mg/L		0.478	0.459	0.450	----	----
Rhenium, total	7440-15-5	E466/VA	0.0000050	mg/L		<0.0000050	<0.0000050	<0.0000050	----	----
Rubidium, total	7440-17-7	E466/VA	0.0000050	mg/L		0.00123	0.00118	0.00116	----	----
Selenium, total	7782-49-2	E466/VA	0.000025	mg/L		0.000031	<0.000025	<0.000025	----	----
Silicon, total	7440-21-3	E466/VA	0.050	mg/L		0.220	0.194	0.198	----	----
Silver, total	7440-22-4	E466/VA	0.0000020	mg/L		<0.0000020	<0.0000020	<0.0000020	----	----
Sodium, total	7440-23-5	E466/VA	0.010	mg/L		0.764	0.741	0.724	----	----
Strontium, total	7440-24-6	E466/VA	0.000020	mg/L		0.0188	0.0179	0.0177	----	----
Sulfur, total	7704-34-9	E466/VA	0.50	mg/L		2.94	2.70	2.72	----	----
Tantalum, total	7440-25-7	E466/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	----	----
Tellurium, total	13494-80-9	E466/VA	0.000010	mg/L		<0.000010	<0.000010	<0.000010	----	----
Thallium, total	7440-28-0	E466/VA	0.0000010	mg/L		0.0000013	0.0000013	0.0000013	----	----
Thorium, total	7440-29-1	E466/VA	0.0000050	mg/L		<0.0000050	0.0000065	0.0000063	----	----
Tin, total	7440-31-5	E466/VA	0.000010	mg/L		<0.000010	<0.000010	<0.000010	----	----
Titanium, total	7440-32-6	E466/VA	0.000050	mg/L		0.000115	0.000111	0.000106	----	----
Tungsten, total	7440-33-7	E466/VA	0.000010	mg/L		<0.000010	<0.000010	<0.000010	----	----
Uranium, total	7440-61-1	E466/VA	0.0000010	mg/L		0.0000054	0.0000065	0.0000043	----	----
Vanadium, total	7440-62-2	E466/VA	0.000010	mg/L		0.000038	0.000036	0.000036	----	----
Yttrium, total	7440-65-5	E466/VA	0.000010	mg/L		0.000039	0.000036	0.000036	----	----
Zinc, total	7440-66-6	E466/VA	0.00010	mg/L		0.00063	0.00089	0.00050	----	----
Zirconium, total	7440-67-7	E466/VA	0.000010	mg/L		0.000020	0.000020	0.000022	----	----
Dissolved Metals										
Aluminum, dissolved	7429-90-5	E465/VA	0.00020	mg/L		0.00499	0.00475	0.00486	----	----
Antimony, dissolved	7440-36-0	E465/VA	0.0000050	mg/L		0.0000078	0.0000073	0.0000080	----	----
Arsenic, dissolved	7440-38-2	E465/VA	0.000010	mg/L		0.000228	0.000214	0.000223	----	----
Barium, dissolved	7440-39-3	E465/VA	0.000020	mg/L		0.00570	0.00579	0.00567	----	----
Beryllium, dissolved	7440-41-7	E465/VA	0.0000020	mg/L		<0.0000020	<0.0000020	<0.0000020	----	----
Bismuth, dissolved	7440-69-9	E465/VA	0.0000010	mg/L		<0.0000010	<0.0000010	0.0000012	----	----

Analytical Results

Sub-Matrix: **Water**
(Matrix: **Water**)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	GLTL-T	GLTL-M	GLTL-B	----	----
					Client sampling date / time	14-Sep-2023 15:45	14-Sep-2023 15:50	14-Sep-2023 15:55	----	----
						YL2301147-011	YL2301147-012	YL2301147-013	--------	--------
						Result	Result	Result	----	----
Dissolved Metals										
Boron, dissolved	7440-42-8	E465/VA	0.0050	mg/L		<0.0050	<0.0050	<0.0050	----	----
Cadmium, dissolved	7440-43-9	E465/VA	0.0000025	mg/L		<0.0000025	0.0000031	0.0000027	----	----
Calcium, dissolved	7440-70-2	E465/VA	0.010	mg/L		3.56	3.56	3.54	----	----
Cesium, dissolved	7440-46-2	E465/VA	0.0000050	mg/L		0.0000067	0.0000066	0.0000066	----	----
Chromium, dissolved	7440-47-3	E465/VA	0.000040	mg/L		0.000057	0.000054	0.000065	----	----
Cobalt, dissolved	7440-48-4	E465/VA	0.0000050	mg/L		0.0000905	0.0000925	0.0000926	----	----
Copper, dissolved	7440-50-8	E465/VA	0.000050	mg/L		0.00112	0.00114	0.00114	----	----
Dissolved metals filtration location	----	EP465/VA	-	-		Field	Field	Field	----	----
Gallium, dissolved	7440-55-3	E465/VA	0.000050	mg/L		<0.000050	<0.000050	<0.000050	----	----
Iron, dissolved	7439-89-6	E465/VA	0.00050	mg/L		0.0214	0.0202	0.0210	----	----
Lanthanum, dissolved	7439-91-0	E465/VA	0.000010	mg/L		0.000056	0.000056	0.000056	----	----
Lead, dissolved	7439-92-1	E465/VA	0.0000050	mg/L		<0.0000050	<0.0000050	<0.0000050	----	----
Lithium, dissolved	7439-93-2	E465/VA	0.00010	mg/L		0.00071	0.00071	0.00071	----	----
Magnesium, dissolved	7439-95-4	E465/VA	0.0010	mg/L		1.99	2.02	2.03	----	----
Manganese, dissolved	7439-96-5	E465/VA	0.0000050	mg/L		0.00271	0.00278	0.00272	----	----
Mercury, dissolved	7439-97-6	E509-L/VA	0.50	ng/L		0.68	<0.50	0.53	----	----
Molybdenum, dissolved	7439-98-7	E465/VA	0.000010	mg/L		0.000016	0.000012	0.000014	----	----
Nickel, dissolved	7440-02-0	E465/VA	0.000020	mg/L		0.00233	0.00241	0.00237	----	----
Niobium, dissolved	7440-03-1	E465/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	----	----
Phosphorus, dissolved	7723-14-0	E465/VA	0.010	mg/L		<0.010	<0.010	<0.010	----	----
Potassium, dissolved	7440-09-7	E465/VA	0.0050	mg/L		0.459	0.461	0.455	----	----
Rhenium, dissolved	7440-15-5	E465/VA	0.0000050	mg/L		<0.0000050	<0.0000050	<0.0000050	----	----
Rubidium, dissolved	7440-17-7	E465/VA	0.0000050	mg/L		0.00118	0.00118	0.00118	----	----
Selenium, dissolved	7782-49-2	E465/VA	0.000025	mg/L		<0.000025	<0.000025	0.000026	----	----
Silicon, dissolved	7440-21-3	E465/VA	0.050	mg/L		0.188	0.190	0.189	----	----
Silver, dissolved	7440-22-4	E465/VA	0.0000020	mg/L		<0.0000020	<0.0000020	<0.0000020	----	----
Sodium, dissolved	7440-23-5	E465/VA	0.010	mg/L		0.728	0.734	0.723	----	----
Strontium, dissolved	7440-24-6	E465/VA	0.000020	mg/L		0.0179	0.0179	0.0179	----	----
Sulfur, dissolved	7704-34-9	E465/VA	0.50	mg/L		2.64	2.60	2.66	----	----
Tantalum, dissolved	7440-25-7	E465/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	----	----

Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	GLTL-T	GLTL-M	GLTL-B	----	----
					Client sampling date / time	14-Sep-2023 15:45	14-Sep-2023 15:50	14-Sep-2023 15:55	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit		YL2301147-011	YL2301147-012	YL2301147-013	--------	--------
						Result	Result	Result	----	----
Dissolved Metals										
Tellurium, dissolved	13494-80-9	E465/VA	0.000010	mg/L		<0.000010	<0.000010	<0.000010	----	----
Thallium, dissolved	7440-28-0	E465/VA	0.0000010	mg/L		0.0000013	0.0000013	0.0000012	----	----
Thorium, dissolved	7440-29-1	E465/VA	0.0000050	mg/L		0.0000054	<0.0000050	0.0000053	----	----
Tin, dissolved	7440-31-5	E465/VA	0.000010	mg/L		<0.000010	<0.000010	<0.000010	----	----
Titanium, dissolved	7440-32-6	E465/VA	0.000050	mg/L		<0.000050	<0.000050	<0.000050	----	----
Tungsten, dissolved	7440-33-7	E465/VA	0.000010	mg/L		<0.000010	<0.000010	<0.000010	----	----
Uranium, dissolved	7440-61-1	E465/VA	0.0000010	mg/L		0.0000038	0.0000039	0.0000034	----	----
Vanadium, dissolved	7440-62-2	E465/VA	0.000010	mg/L		0.000025	0.000024	0.000025	----	----
Yttrium, dissolved	7440-65-5	E465/VA	0.000010	mg/L		0.000026	0.000026	0.000027	----	----
Zinc, dissolved	7440-66-6	E465/VA	0.00010	mg/L		0.00042	0.00039	0.00044	----	----
Zirconium, dissolved	7440-67-7	E465/VA	0.000010	mg/L		0.000020	0.000018	0.000021	----	----
Dissolved mercury filtration location	----	EP509-L/VA	-	-		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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QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **YL2301147**	Page	: 1 of 50
Client	: **Sabina Gold & Silver Corporation**	Laboratory	: ALS Environmental - Yellowknife
Contact	: Merle Keefe	Account Manager	: Oliver Gregg
Address	: 375 - 555 Burrard St. Box 220, Bentall 2 Vancouver BC Canada V7X 1M7	Address	: 314 Old Airport Road, Unit 116 Yellowknife, Northwest Territories Canada X1A 3T3
Telephone	: 604 240 6619	Telephone	: 1 867 445 7143
Project	: 22567626	Date Samples Received	: 18-Sep-2023 09:38
PO	: ----	Issue Date	: 05-Oct-2023 14:01
C-O-C number	: ----		
Sampler	: ----		
Site	: Sabina/B2Gold Goose Lake		
Quote number	: YL23-SABI100-001		
No. of samples received	: 13		
No. of samples analysed	: 13		

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 Duplicate outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- No Matrix Spike outliers occur.
- Method Blank value outliers occur - please see following pages for full details.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- Analysis Holding Time Outliers exist - please see following pages for full details.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **Water**

Analyte Group	Laboratory sample ID	Client/Ref Sample ID	Analyte	CAS Number	Method	Result	Limits	Comment
Method Blank (MB) Values								
Anions and Nutrients	QC-MRG6-1145121 001	----	Nitrate (as N)	14797-55-8	E235.NO3-L	0.0060 B mg/L	0.005 mg/L	Blank result exceeds permitted value

Result Qualifiers

Qualifier	Description
B	*Method Blank exceeds ALS DQO. Associated sample results which are < Limit of Reporting or > 5 times blank level are considered reliable.*

Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
Field Dup	E298	14-Sep-2023	23-Sep-2023	28 days	9 days	✓	26-Sep-2023	28 days	12 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
GLCB-B	E298	14-Sep-2023	23-Sep-2023	28 days	9 days	✓	26-Sep-2023	28 days	12 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
GLCB-M	E298	14-Sep-2023	23-Sep-2023	28 days	9 days	✓	26-Sep-2023	28 days	12 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
GLCB-T	E298	14-Sep-2023	23-Sep-2023	28 days	9 days	✓	26-Sep-2023	28 days	12 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
GLSE-B	E298	14-Sep-2023	23-Sep-2023	28 days	9 days	✓	26-Sep-2023	28 days	12 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
GLSE-M	E298	14-Sep-2023	23-Sep-2023	28 days	9 days	✓	26-Sep-2023	28 days	12 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
GLSE-T	E298	14-Sep-2023	23-Sep-2023	28 days	9 days	✓	26-Sep-2023	28 days	12 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
GLTL-B	E298	14-Sep-2023	23-Sep-2023	28 days	9 days	✓	26-Sep-2023	28 days	12 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
GLTL-M	E298	14-Sep-2023	23-Sep-2023	28 days	9 days	✓	26-Sep-2023	28 days	12 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
GLTL-T	E298	14-Sep-2023	23-Sep-2023	28 days	9 days	✓	26-Sep-2023	28 days	12 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
GLWB-B	E298	14-Sep-2023	23-Sep-2023	28 days	9 days	✓	26-Sep-2023	28 days	12 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
GLWB-M	E298	14-Sep-2023	23-Sep-2023	28 days	9 days	✓	26-Sep-2023	28 days	12 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
GLWB-T	E298	14-Sep-2023	23-Sep-2023	28 days	9 days	✓	26-Sep-2023	28 days	12 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
GLCB-B	E235.Br-L	14-Sep-2023	20-Sep-2023	28 days	6 days	✓	21-Sep-2023	28 days	7 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
GLCB-M	E235.Br-L	14-Sep-2023	20-Sep-2023	28 days	6 days	✓	21-Sep-2023	28 days	7 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
GLCB-T	E235.Br-L	14-Sep-2023	20-Sep-2023	28 days	6 days	✓	21-Sep-2023	28 days	7 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
GLTL-B	E235.Br-L	14-Sep-2023	20-Sep-2023	28 days	6 days	✓	21-Sep-2023	28 days	7 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
GLTL-M	E235.Br-L	14-Sep-2023	20-Sep-2023	28 days	6 days	✓	21-Sep-2023	28 days	7 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
GLTL-T	E235.Br-L	14-Sep-2023	20-Sep-2023	28 days	6 days	✓	21-Sep-2023	28 days	7 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
GLWB-B	E235.Br-L	14-Sep-2023	20-Sep-2023	28 days	6 days	✓	21-Sep-2023	28 days	7 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
GLWB-M	E235.Br-L	14-Sep-2023	20-Sep-2023	28 days	6 days	✓	21-Sep-2023	28 days	7 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
GLWB-T	E235.Br-L	14-Sep-2023	20-Sep-2023	28 days	6 days	✓	21-Sep-2023	28 days	7 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
Field Dup	E235.Br-L	14-Sep-2023	20-Sep-2023	28 days	7 days	✓	21-Sep-2023	28 days	7 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
GLSE-B	E235.Br-L	14-Sep-2023	20-Sep-2023	28 days	7 days	✓	21-Sep-2023	28 days	7 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
GLSE-M	E235.Br-L	14-Sep-2023	20-Sep-2023	28 days	7 days	✓	21-Sep-2023	28 days	7 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
GLSE-T	E235.Br-L	14-Sep-2023	20-Sep-2023	28 days	7 days	✓	21-Sep-2023	28 days	7 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE										
GLCB-B	E235.Cl	14-Sep-2023	20-Sep-2023	28 days	6 days	✓	21-Sep-2023	28 days	7 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE										
GLCB-M	E235.Cl	14-Sep-2023	20-Sep-2023	28 days	6 days	✓	21-Sep-2023	28 days	7 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE										
GLCB-T	E235.Cl	14-Sep-2023	20-Sep-2023	28 days	6 days	✓	21-Sep-2023	28 days	7 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE										
GLTL-B	E235.Cl	14-Sep-2023	20-Sep-2023	28 days	6 days	✓	21-Sep-2023	28 days	7 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE										
GLTL-M	E235.Cl	14-Sep-2023	20-Sep-2023	28 days	6 days	✓	21-Sep-2023	28 days	7 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE										
GLTL-T	E235.Cl	14-Sep-2023	20-Sep-2023	28 days	6 days	✓	21-Sep-2023	28 days	7 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE										
GLWB-B	E235.Cl	14-Sep-2023	20-Sep-2023	28 days	6 days	✓	21-Sep-2023	28 days	7 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE										
GLWB-M	E235.Cl	14-Sep-2023	20-Sep-2023	28 days	6 days	✓	21-Sep-2023	28 days	7 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Chloride in Water by IC										
HDPE GLWB-T	E235.Cl	14-Sep-2023	20-Sep-2023	28 days	6 days	✓	21-Sep-2023	28 days	7 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE Field Dup	E235.Cl	14-Sep-2023	20-Sep-2023	28 days	7 days	✓	21-Sep-2023	28 days	7 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE GLSE-B	E235.Cl	14-Sep-2023	20-Sep-2023	28 days	7 days	✓	21-Sep-2023	28 days	7 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE GLSE-M	E235.Cl	14-Sep-2023	20-Sep-2023	28 days	7 days	✓	21-Sep-2023	28 days	7 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE GLSE-T	E235.Cl	14-Sep-2023	20-Sep-2023	28 days	7 days	✓	21-Sep-2023	28 days	7 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001										
HDPE Field Dup	E378-U	14-Sep-2023	20-Sep-2023	3 days	6 days	× EHTR	22-Sep-2023	3 days	8 days	× EHTR-FM
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001										
HDPE GLCB-B	E378-U	14-Sep-2023	20-Sep-2023	3 days	6 days	× EHTR	22-Sep-2023	3 days	8 days	× EHTR-FM
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001										
HDPE GLCB-M	E378-U	14-Sep-2023	20-Sep-2023	3 days	6 days	× EHTR	22-Sep-2023	3 days	8 days	× EHTR-FM

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001										
HDPE GLCB-T	E378-U	14-Sep-2023	20-Sep-2023	3 days	6 days	× EHTR	22-Sep-2023	3 days	8 days	× EHTR-FM
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001										
HDPE GLSE-B	E378-U	14-Sep-2023	20-Sep-2023	3 days	6 days	× EHTR	22-Sep-2023	3 days	8 days	× EHTR-FM
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001										
HDPE GLSE-M	E378-U	14-Sep-2023	20-Sep-2023	3 days	6 days	× EHTR	22-Sep-2023	3 days	8 days	× EHTR-FM
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001										
HDPE GLSE-T	E378-U	14-Sep-2023	20-Sep-2023	3 days	6 days	× EHTR	22-Sep-2023	3 days	8 days	× EHTR-FM
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001										
HDPE GLTL-B	E378-U	14-Sep-2023	20-Sep-2023	3 days	6 days	× EHTR	22-Sep-2023	3 days	8 days	× EHTR-FM
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001										
HDPE GLTL-M	E378-U	14-Sep-2023	20-Sep-2023	3 days	6 days	× EHTR	22-Sep-2023	3 days	8 days	× EHTR-FM
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001										
HDPE GLTL-T	E378-U	14-Sep-2023	20-Sep-2023	3 days	6 days	× EHTR	22-Sep-2023	3 days	8 days	× EHTR-FM

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001										
HDPE GLWB-B	E378-U	14-Sep-2023	20-Sep-2023	3 days	6 days	× EHTR	22-Sep-2023	3 days	8 days	× EHTR-FM
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001										
HDPE GLWB-M	E378-U	14-Sep-2023	20-Sep-2023	3 days	6 days	× EHTR	22-Sep-2023	3 days	8 days	× EHTR-FM
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001										
HDPE GLWB-T	E378-U	14-Sep-2023	20-Sep-2023	3 days	6 days	× EHTR	22-Sep-2023	3 days	8 days	× EHTR-FM
Anions and Nutrients : Fluoride in Water by IC										
HDPE GLCB-B	E235.F	14-Sep-2023	20-Sep-2023	28 days	6 days	✓	21-Sep-2023	28 days	7 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE GLCB-M	E235.F	14-Sep-2023	20-Sep-2023	28 days	6 days	✓	21-Sep-2023	28 days	7 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE GLCB-T	E235.F	14-Sep-2023	20-Sep-2023	28 days	6 days	✓	21-Sep-2023	28 days	7 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE GLTL-B	E235.F	14-Sep-2023	20-Sep-2023	28 days	6 days	✓	21-Sep-2023	28 days	7 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE GLTL-M	E235.F	14-Sep-2023	20-Sep-2023	28 days	6 days	✓	21-Sep-2023	28 days	7 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Fluoride in Water by IC										
HDPE GLTL-T	E235.F	14-Sep-2023	20-Sep-2023	28 days	6 days	✓	21-Sep-2023	28 days	7 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE GLWB-B	E235.F	14-Sep-2023	20-Sep-2023	28 days	6 days	✓	21-Sep-2023	28 days	7 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE GLWB-M	E235.F	14-Sep-2023	20-Sep-2023	28 days	6 days	✓	21-Sep-2023	28 days	7 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE GLWB-T	E235.F	14-Sep-2023	20-Sep-2023	28 days	6 days	✓	21-Sep-2023	28 days	7 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE Field Dup	E235.F	14-Sep-2023	20-Sep-2023	28 days	7 days	✓	21-Sep-2023	28 days	7 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE GLSE-B	E235.F	14-Sep-2023	20-Sep-2023	28 days	7 days	✓	21-Sep-2023	28 days	7 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE GLSE-M	E235.F	14-Sep-2023	20-Sep-2023	28 days	7 days	✓	21-Sep-2023	28 days	7 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE GLSE-T	E235.F	14-Sep-2023	20-Sep-2023	28 days	7 days	✓	21-Sep-2023	28 days	7 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE Field Dup	E235.NO3-L	14-Sep-2023	20-Sep-2023	3 days	6 days	× EHTR	21-Sep-2023	3 days	6 days	× EHTR-FM

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE GLCB-B	E235.NO3-L	14-Sep-2023	20-Sep-2023	3 days	6 days	× EHTR	21-Sep-2023	3 days	6 days	× EHTR-FM
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE GLCB-M	E235.NO3-L	14-Sep-2023	20-Sep-2023	3 days	6 days	× EHTR	21-Sep-2023	3 days	6 days	× EHTR-FM
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE GLCB-T	E235.NO3-L	14-Sep-2023	20-Sep-2023	3 days	6 days	× EHTR	21-Sep-2023	3 days	6 days	× EHTR-FM
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE GLSE-B	E235.NO3-L	14-Sep-2023	20-Sep-2023	3 days	6 days	× EHTR	21-Sep-2023	3 days	6 days	× EHTR-FM
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE GLSE-M	E235.NO3-L	14-Sep-2023	20-Sep-2023	3 days	6 days	× EHTR	21-Sep-2023	3 days	6 days	× EHTR-FM
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE GLSE-T	E235.NO3-L	14-Sep-2023	20-Sep-2023	3 days	6 days	× EHTR	21-Sep-2023	3 days	6 days	× EHTR-FM
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE GLTL-B	E235.NO3-L	14-Sep-2023	20-Sep-2023	3 days	6 days	× EHTR	21-Sep-2023	3 days	6 days	× EHTR-FM
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE GLTL-M	E235.NO3-L	14-Sep-2023	20-Sep-2023	3 days	6 days	× EHTR	21-Sep-2023	3 days	6 days	× EHTR-FM
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE GLTL-T	E235.NO3-L	14-Sep-2023	20-Sep-2023	3 days	6 days	× EHTR	21-Sep-2023	3 days	6 days	× EHTR-FM

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
GLWB-B	E235.NO3-L	14-Sep-2023	20-Sep-2023	3 days	6 days	× EHTR	21-Sep-2023	3 days	6 days	× EHTR-FM
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
GLWB-M	E235.NO3-L	14-Sep-2023	20-Sep-2023	3 days	6 days	× EHTR	21-Sep-2023	3 days	6 days	× EHTR-FM
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
GLWB-T	E235.NO3-L	14-Sep-2023	20-Sep-2023	3 days	6 days	× EHTR	21-Sep-2023	3 days	6 days	× EHTR-FM
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
Field Dup	E235.NO2-L	14-Sep-2023	20-Sep-2023	3 days	6 days	× EHTR	21-Sep-2023	3 days	6 days	× EHTR-FM
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
GLCB-B	E235.NO2-L	14-Sep-2023	20-Sep-2023	3 days	6 days	× EHTR	21-Sep-2023	3 days	6 days	× EHTR-FM
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
GLCB-M	E235.NO2-L	14-Sep-2023	20-Sep-2023	3 days	6 days	× EHTR	21-Sep-2023	3 days	6 days	× EHTR-FM
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
GLCB-T	E235.NO2-L	14-Sep-2023	20-Sep-2023	3 days	6 days	× EHTR	21-Sep-2023	3 days	6 days	× EHTR-FM
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
GLSE-B	E235.NO2-L	14-Sep-2023	20-Sep-2023	3 days	6 days	× EHTR	21-Sep-2023	3 days	6 days	× EHTR-FM
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
GLSE-M	E235.NO2-L	14-Sep-2023	20-Sep-2023	3 days	6 days	× EHTR	21-Sep-2023	3 days	6 days	× EHTR-FM

Matrix: **Water**

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Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
GLSE-T	E235.NO2-L	14-Sep-2023	20-Sep-2023	3 days	6 days	× EHTR	21-Sep-2023	3 days	6 days	× EHTR-FM
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
GLTL-B	E235.NO2-L	14-Sep-2023	20-Sep-2023	3 days	6 days	× EHTR	21-Sep-2023	3 days	6 days	× EHTR-FM
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
GLTL-M	E235.NO2-L	14-Sep-2023	20-Sep-2023	3 days	6 days	× EHTR	21-Sep-2023	3 days	6 days	× EHTR-FM
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
GLTL-T	E235.NO2-L	14-Sep-2023	20-Sep-2023	3 days	6 days	× EHTR	21-Sep-2023	3 days	6 days	× EHTR-FM
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
GLWB-B	E235.NO2-L	14-Sep-2023	20-Sep-2023	3 days	6 days	× EHTR	21-Sep-2023	3 days	6 days	× EHTR-FM
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
GLWB-M	E235.NO2-L	14-Sep-2023	20-Sep-2023	3 days	6 days	× EHTR	21-Sep-2023	3 days	6 days	× EHTR-FM
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
GLWB-T	E235.NO2-L	14-Sep-2023	20-Sep-2023	3 days	6 days	× EHTR	21-Sep-2023	3 days	6 days	× EHTR-FM
Anions and Nutrients : Reactive Silica by Colourimetry										
HDPE										
Field Dup	E392	14-Sep-2023	----	----	----		21-Sep-2023	28 days	7 days	✓
Anions and Nutrients : Reactive Silica by Colourimetry										
HDPE										
GLCB-B	E392	14-Sep-2023	----	----	----		21-Sep-2023	28 days	7 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Reactive Silica by Colourimetry										
HDPE GLCB-M	E392	14-Sep-2023	----	----	----		21-Sep-2023	28 days	7 days	✓
Anions and Nutrients : Reactive Silica by Colourimetry										
HDPE GLCB-T	E392	14-Sep-2023	----	----	----		21-Sep-2023	28 days	7 days	✓
Anions and Nutrients : Reactive Silica by Colourimetry										
HDPE GLSE-B	E392	14-Sep-2023	----	----	----		21-Sep-2023	28 days	7 days	✓
Anions and Nutrients : Reactive Silica by Colourimetry										
HDPE GLSE-M	E392	14-Sep-2023	----	----	----		21-Sep-2023	28 days	7 days	✓
Anions and Nutrients : Reactive Silica by Colourimetry										
HDPE GLSE-T	E392	14-Sep-2023	----	----	----		21-Sep-2023	28 days	7 days	✓
Anions and Nutrients : Reactive Silica by Colourimetry										
HDPE GLTL-B	E392	14-Sep-2023	----	----	----		21-Sep-2023	28 days	7 days	✓
Anions and Nutrients : Reactive Silica by Colourimetry										
HDPE GLTL-M	E392	14-Sep-2023	----	----	----		21-Sep-2023	28 days	7 days	✓
Anions and Nutrients : Reactive Silica by Colourimetry										
HDPE GLTL-T	E392	14-Sep-2023	----	----	----		21-Sep-2023	28 days	7 days	✓
Anions and Nutrients : Reactive Silica by Colourimetry										
HDPE GLWB-B	E392	14-Sep-2023	----	----	----		21-Sep-2023	28 days	7 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Reactive Silica by Colourimetry										
HDPE										
GLWB-M	E392	14-Sep-2023	----	----	----		21-Sep-2023	28 days	7 days	✓
Anions and Nutrients : Reactive Silica by Colourimetry										
HDPE										
GLWB-T	E392	14-Sep-2023	----	----	----		21-Sep-2023	28 days	7 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
GLCB-B	E235.SO4	14-Sep-2023	20-Sep-2023	28 days	6 days	✓	21-Sep-2023	28 days	7 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
GLCB-M	E235.SO4	14-Sep-2023	20-Sep-2023	28 days	6 days	✓	21-Sep-2023	28 days	7 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
GLCB-T	E235.SO4	14-Sep-2023	20-Sep-2023	28 days	6 days	✓	21-Sep-2023	28 days	7 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
GLTL-B	E235.SO4	14-Sep-2023	20-Sep-2023	28 days	6 days	✓	21-Sep-2023	28 days	7 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
GLTL-M	E235.SO4	14-Sep-2023	20-Sep-2023	28 days	6 days	✓	21-Sep-2023	28 days	7 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
GLTL-T	E235.SO4	14-Sep-2023	20-Sep-2023	28 days	6 days	✓	21-Sep-2023	28 days	7 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
GLWB-B	E235.SO4	14-Sep-2023	20-Sep-2023	28 days	6 days	✓	21-Sep-2023	28 days	7 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Sulfate in Water by IC										
HDPE GLWB-M	E235.SO4	14-Sep-2023	20-Sep-2023	28 days	6 days	✓	21-Sep-2023	28 days	7 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE GLWB-T	E235.SO4	14-Sep-2023	20-Sep-2023	28 days	6 days	✓	21-Sep-2023	28 days	7 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE Field Dup	E235.SO4	14-Sep-2023	20-Sep-2023	28 days	7 days	✓	21-Sep-2023	28 days	7 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE GLSE-B	E235.SO4	14-Sep-2023	20-Sep-2023	28 days	7 days	✓	21-Sep-2023	28 days	7 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE GLSE-M	E235.SO4	14-Sep-2023	20-Sep-2023	28 days	7 days	✓	21-Sep-2023	28 days	7 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE GLSE-T	E235.SO4	14-Sep-2023	20-Sep-2023	28 days	7 days	✓	21-Sep-2023	28 days	7 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (0.001 mg/L)										
Amber glass dissolved (sulfuric acid) Field Dup	E375-U	14-Sep-2023	22-Sep-2023	28 days	8 days	✓	22-Sep-2023	28 days	8 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (0.001 mg/L)										
Amber glass dissolved (sulfuric acid) GLCB-B	E375-U	14-Sep-2023	22-Sep-2023	28 days	8 days	✓	22-Sep-2023	28 days	8 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (0.001 mg/L)										
Amber glass dissolved (sulfuric acid) GLCB-M	E375-U	14-Sep-2023	22-Sep-2023	28 days	8 days	✓	22-Sep-2023	28 days	8 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (0.001 mg/L)										
Amber glass dissolved (sulfuric acid) GLCB-T	E375-U	14-Sep-2023	22-Sep-2023	28 days	8 days	✓	22-Sep-2023	28 days	8 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (0.001 mg/L)										
Amber glass dissolved (sulfuric acid) GLSE-B	E375-U	14-Sep-2023	22-Sep-2023	28 days	8 days	✓	22-Sep-2023	28 days	8 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (0.001 mg/L)										
Amber glass dissolved (sulfuric acid) GLSE-M	E375-U	14-Sep-2023	22-Sep-2023	28 days	8 days	✓	22-Sep-2023	28 days	8 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (0.001 mg/L)										
Amber glass dissolved (sulfuric acid) GLSE-T	E375-U	14-Sep-2023	22-Sep-2023	28 days	8 days	✓	22-Sep-2023	28 days	8 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (0.001 mg/L)										
Amber glass dissolved (sulfuric acid) GLTL-B	E375-U	14-Sep-2023	22-Sep-2023	28 days	8 days	✓	22-Sep-2023	28 days	8 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (0.001 mg/L)										
Amber glass dissolved (sulfuric acid) GLTL-M	E375-U	14-Sep-2023	22-Sep-2023	28 days	8 days	✓	22-Sep-2023	28 days	8 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (0.001 mg/L)										
Amber glass dissolved (sulfuric acid) GLTL-T	E375-U	14-Sep-2023	22-Sep-2023	28 days	8 days	✓	22-Sep-2023	28 days	8 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (0.001 mg/L)										
Amber glass dissolved (sulfuric acid) GLWB-B	E375-U	14-Sep-2023	22-Sep-2023	28 days	8 days	✓	22-Sep-2023	28 days	8 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (0.001 mg/L)										
Amber glass dissolved (sulfuric acid) GLWB-M	E375-U	14-Sep-2023	22-Sep-2023	28 days	8 days	✓	22-Sep-2023	28 days	8 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (0.001 mg/L)										
Amber glass dissolved (sulfuric acid) GLWB-T	E375-U	14-Sep-2023	22-Sep-2023	28 days	8 days	✓	22-Sep-2023	28 days	8 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) Field Dup	E318	14-Sep-2023	23-Sep-2023	28 days	9 days	✓	26-Sep-2023	28 days	12 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) GLCB-B	E318	14-Sep-2023	23-Sep-2023	28 days	9 days	✓	26-Sep-2023	28 days	12 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) GLCB-M	E318	14-Sep-2023	23-Sep-2023	28 days	9 days	✓	26-Sep-2023	28 days	12 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) GLCB-T	E318	14-Sep-2023	23-Sep-2023	28 days	9 days	✓	26-Sep-2023	28 days	12 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) GLSE-B	E318	14-Sep-2023	23-Sep-2023	28 days	9 days	✓	26-Sep-2023	28 days	12 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) GLSE-M	E318	14-Sep-2023	23-Sep-2023	28 days	9 days	✓	26-Sep-2023	28 days	12 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) GLSE-T	E318	14-Sep-2023	23-Sep-2023	28 days	9 days	✓	26-Sep-2023	28 days	12 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) GLTL-B	E318	14-Sep-2023	23-Sep-2023	28 days	9 days	✓	26-Sep-2023	28 days	12 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid)										
GLTL-M	E318	14-Sep-2023	23-Sep-2023	28 days	9 days	✓	26-Sep-2023	28 days	12 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid)										
GLTL-T	E318	14-Sep-2023	23-Sep-2023	28 days	9 days	✓	26-Sep-2023	28 days	12 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid)										
GLWB-B	E318	14-Sep-2023	23-Sep-2023	28 days	9 days	✓	26-Sep-2023	28 days	12 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid)										
GLWB-M	E318	14-Sep-2023	23-Sep-2023	28 days	9 days	✓	26-Sep-2023	28 days	12 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid)										
GLWB-T	E318	14-Sep-2023	23-Sep-2023	28 days	9 days	✓	26-Sep-2023	28 days	12 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.001 mg/L)										
Amber glass total (sulfuric acid)										
Field Dup	E372-S	14-Sep-2023	22-Sep-2023	28 days	8 days	✓	22-Sep-2023	28 days	8 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.001 mg/L)										
Amber glass total (sulfuric acid)										
GLCB-B	E372-S	14-Sep-2023	22-Sep-2023	28 days	8 days	✓	22-Sep-2023	28 days	8 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.001 mg/L)										
Amber glass total (sulfuric acid)										
GLCB-M	E372-S	14-Sep-2023	22-Sep-2023	28 days	8 days	✓	22-Sep-2023	28 days	8 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.001 mg/L)										
Amber glass total (sulfuric acid)										
GLCB-T	E372-S	14-Sep-2023	22-Sep-2023	28 days	8 days	✓	22-Sep-2023	28 days	8 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Total Phosphorus by Colourimetry (0.001 mg/L)										
Amber glass total (sulfuric acid)										
GLSE-B	E372-S	14-Sep-2023	22-Sep-2023	28 days	8 days	✓	22-Sep-2023	28 days	8 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.001 mg/L)										
Amber glass total (sulfuric acid)										
GLSE-M	E372-S	14-Sep-2023	22-Sep-2023	28 days	8 days	✓	22-Sep-2023	28 days	8 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.001 mg/L)										
Amber glass total (sulfuric acid)										
GLSE-T	E372-S	14-Sep-2023	22-Sep-2023	28 days	8 days	✓	22-Sep-2023	28 days	8 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.001 mg/L)										
Amber glass total (sulfuric acid)										
GLTL-B	E372-S	14-Sep-2023	22-Sep-2023	28 days	8 days	✓	22-Sep-2023	28 days	8 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.001 mg/L)										
Amber glass total (sulfuric acid)										
GLTL-M	E372-S	14-Sep-2023	22-Sep-2023	28 days	8 days	✓	22-Sep-2023	28 days	8 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.001 mg/L)										
Amber glass total (sulfuric acid)										
GLTL-T	E372-S	14-Sep-2023	22-Sep-2023	28 days	8 days	✓	22-Sep-2023	28 days	8 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.001 mg/L)										
Amber glass total (sulfuric acid)										
GLWB-B	E372-S	14-Sep-2023	22-Sep-2023	28 days	8 days	✓	22-Sep-2023	28 days	8 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.001 mg/L)										
Amber glass total (sulfuric acid)										
GLWB-M	E372-S	14-Sep-2023	22-Sep-2023	28 days	8 days	✓	22-Sep-2023	28 days	8 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.001 mg/L)										
Amber glass total (sulfuric acid)										
GLWB-T	E372-S	14-Sep-2023	22-Sep-2023	28 days	8 days	✓	22-Sep-2023	28 days	8 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : Free Cyanide										
UV-inhibited HDPE - total (sodium hydroxide)										
GLCB-B	E339	14-Sep-2023	29-Sep-2023	14 days	14 days	✓	29-Sep-2023	14 days	14 days	✓
Cyanides : Free Cyanide										
UV-inhibited HDPE - total (sodium hydroxide)										
GLCB-M	E339	14-Sep-2023	29-Sep-2023	14 days	14 days	✓	29-Sep-2023	14 days	14 days	✓
Cyanides : Free Cyanide										
UV-inhibited HDPE - total (sodium hydroxide)										
GLCB-T	E339	14-Sep-2023	29-Sep-2023	14 days	14 days	✓	29-Sep-2023	14 days	14 days	✓
Cyanides : Free Cyanide										
UV-inhibited HDPE - total (sodium hydroxide)										
GLTL-B	E339	14-Sep-2023	29-Sep-2023	14 days	14 days	✓	29-Sep-2023	14 days	14 days	✓
Cyanides : Free Cyanide										
UV-inhibited HDPE - total (sodium hydroxide)										
GLTL-M	E339	14-Sep-2023	29-Sep-2023	14 days	14 days	✓	29-Sep-2023	14 days	14 days	✓
Cyanides : Free Cyanide										
UV-inhibited HDPE - total (sodium hydroxide)										
GLTL-T	E339	14-Sep-2023	29-Sep-2023	14 days	14 days	✓	29-Sep-2023	14 days	14 days	✓
Cyanides : Free Cyanide										
UV-inhibited HDPE - total (sodium hydroxide)										
GLWB-B	E339	14-Sep-2023	29-Sep-2023	14 days	14 days	✓	29-Sep-2023	14 days	14 days	✓
Cyanides : Free Cyanide										
UV-inhibited HDPE - total (sodium hydroxide)										
GLWB-M	E339	14-Sep-2023	29-Sep-2023	14 days	14 days	✓	29-Sep-2023	14 days	15 days	× EHT
Cyanides : Free Cyanide										
UV-inhibited HDPE - total (sodium hydroxide)										
GLWB-T	E339	14-Sep-2023	29-Sep-2023	14 days	14 days	✓	29-Sep-2023	14 days	15 days	× EHT

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : Free Cyanide										
UV-inhibited HDPE - total (sodium hydroxide)										
Field Dup	E339	14-Sep-2023	29-Sep-2023	14 days	15 days	× EHT	29-Sep-2023	14 days	15 days	× EHT
Cyanides : Free Cyanide										
UV-inhibited HDPE - total (sodium hydroxide)										
GLSE-B	E339	14-Sep-2023	29-Sep-2023	14 days	15 days	× EHT	29-Sep-2023	14 days	15 days	× EHT
Cyanides : Free Cyanide										
UV-inhibited HDPE - total (sodium hydroxide)										
GLSE-M	E339	14-Sep-2023	29-Sep-2023	14 days	15 days	× EHT	29-Sep-2023	14 days	15 days	× EHT
Cyanides : Free Cyanide										
UV-inhibited HDPE - total (sodium hydroxide)										
GLSE-T	E339	14-Sep-2023	29-Sep-2023	14 days	15 days	× EHT	29-Sep-2023	14 days	15 days	× EHT
Cyanides : Total Cyanide										
UV-inhibited HDPE - total (sodium hydroxide)										
GLCB-B	E333	14-Sep-2023	29-Sep-2023	14 days	14 days	✓	29-Sep-2023	14 days	14 days	✓
Cyanides : Total Cyanide										
UV-inhibited HDPE - total (sodium hydroxide)										
GLCB-M	E333	14-Sep-2023	29-Sep-2023	14 days	14 days	✓	29-Sep-2023	14 days	14 days	✓
Cyanides : Total Cyanide										
UV-inhibited HDPE - total (sodium hydroxide)										
GLCB-T	E333	14-Sep-2023	29-Sep-2023	14 days	14 days	✓	29-Sep-2023	14 days	14 days	✓
Cyanides : Total Cyanide										
UV-inhibited HDPE - total (sodium hydroxide)										
GLTL-B	E333	14-Sep-2023	29-Sep-2023	14 days	14 days	✓	29-Sep-2023	14 days	14 days	✓
Cyanides : Total Cyanide										
UV-inhibited HDPE - total (sodium hydroxide)										
GLTL-M	E333	14-Sep-2023	29-Sep-2023	14 days	14 days	✓	29-Sep-2023	14 days	14 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : Total Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) GLTL-T	E333	14-Sep-2023	29-Sep-2023	14 days	14 days	✓	29-Sep-2023	14 days	14 days	✓
Cyanides : Total Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) GLWB-B	E333	14-Sep-2023	29-Sep-2023	14 days	14 days	✓	29-Sep-2023	14 days	14 days	✓
Cyanides : Total Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) GLWB-M	E333	14-Sep-2023	29-Sep-2023	14 days	14 days	✓	29-Sep-2023	14 days	15 days	× EHT
Cyanides : Total Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) GLWB-T	E333	14-Sep-2023	29-Sep-2023	14 days	14 days	✓	29-Sep-2023	14 days	15 days	× EHT
Cyanides : Total Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) Field Dup	E333	14-Sep-2023	29-Sep-2023	14 days	15 days	× EHT	29-Sep-2023	14 days	15 days	× EHT
Cyanides : Total Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) GLSE-B	E333	14-Sep-2023	29-Sep-2023	14 days	15 days	× EHT	29-Sep-2023	14 days	15 days	× EHT
Cyanides : Total Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) GLSE-M	E333	14-Sep-2023	29-Sep-2023	14 days	15 days	× EHT	29-Sep-2023	14 days	15 days	× EHT
Cyanides : Total Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) GLSE-T	E333	14-Sep-2023	29-Sep-2023	14 days	15 days	× EHT	29-Sep-2023	14 days	15 days	× EHT
Cyanides : WAD Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) GLCB-B	E336	14-Sep-2023	29-Sep-2023	14 days	14 days	✓	29-Sep-2023	14 days	14 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : WAD Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) GLCB-M	E336	14-Sep-2023	29-Sep-2023	14 days	14 days	✓	29-Sep-2023	14 days	14 days	✓
Cyanides : WAD Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) GLCB-T	E336	14-Sep-2023	29-Sep-2023	14 days	14 days	✓	29-Sep-2023	14 days	14 days	✓
Cyanides : WAD Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) GLTL-B	E336	14-Sep-2023	29-Sep-2023	14 days	14 days	✓	29-Sep-2023	14 days	14 days	✓
Cyanides : WAD Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) GLTL-M	E336	14-Sep-2023	29-Sep-2023	14 days	14 days	✓	29-Sep-2023	14 days	14 days	✓
Cyanides : WAD Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) GLTL-T	E336	14-Sep-2023	29-Sep-2023	14 days	14 days	✓	29-Sep-2023	14 days	14 days	✓
Cyanides : WAD Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) GLWB-B	E336	14-Sep-2023	29-Sep-2023	14 days	14 days	✓	29-Sep-2023	14 days	14 days	✓
Cyanides : WAD Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) GLWB-M	E336	14-Sep-2023	29-Sep-2023	14 days	14 days	✓	29-Sep-2023	14 days	15 days	× EHT
Cyanides : WAD Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) GLWB-T	E336	14-Sep-2023	29-Sep-2023	14 days	14 days	✓	29-Sep-2023	14 days	15 days	× EHT
Cyanides : WAD Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) Field Dup	E336	14-Sep-2023	29-Sep-2023	14 days	15 days	× EHT	29-Sep-2023	14 days	15 days	× EHT

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : WAD Cyanide										
UV-inhibited HDPE - total (sodium hydroxide)										
GLSE-B	E336	14-Sep-2023	29-Sep-2023	14 days	15 days	× EHT	29-Sep-2023	14 days	15 days	× EHT
Cyanides : WAD Cyanide										
UV-inhibited HDPE - total (sodium hydroxide)										
GLSE-M	E336	14-Sep-2023	29-Sep-2023	14 days	15 days	× EHT	29-Sep-2023	14 days	15 days	× EHT
Cyanides : WAD Cyanide										
UV-inhibited HDPE - total (sodium hydroxide)										
GLSE-T	E336	14-Sep-2023	29-Sep-2023	14 days	15 days	× EHT	29-Sep-2023	14 days	15 days	× EHT
Dissolved Metals : Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - dissolved (lab preserved)										
Field Dup	E509-L	14-Sep-2023	25-Sep-2023	28 days	11 days	✓	25-Sep-2023	28 days	11 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - dissolved (lab preserved)										
GLCB-B	E509-L	14-Sep-2023	25-Sep-2023	28 days	11 days	✓	25-Sep-2023	28 days	11 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - dissolved (lab preserved)										
GLCB-M	E509-L	14-Sep-2023	25-Sep-2023	28 days	11 days	✓	25-Sep-2023	28 days	11 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - dissolved (lab preserved)										
GLCB-T	E509-L	14-Sep-2023	25-Sep-2023	28 days	11 days	✓	25-Sep-2023	28 days	11 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - dissolved (lab preserved)										
GLSE-B	E509-L	14-Sep-2023	25-Sep-2023	28 days	11 days	✓	25-Sep-2023	28 days	11 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - dissolved (lab preserved)										
GLSE-M	E509-L	14-Sep-2023	25-Sep-2023	28 days	11 days	✓	25-Sep-2023	28 days	11 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Dissolved Metals : Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - dissolved (lab preserved) GLSE-T	E509-L	14-Sep-2023	25-Sep-2023	28 days	11 days	✓	25-Sep-2023	28 days	11 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - dissolved (lab preserved) GLTL-B	E509-L	14-Sep-2023	25-Sep-2023	28 days	11 days	✓	25-Sep-2023	28 days	11 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - dissolved (lab preserved) GLTL-M	E509-L	14-Sep-2023	25-Sep-2023	28 days	11 days	✓	25-Sep-2023	28 days	11 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - dissolved (lab preserved) GLTL-T	E509-L	14-Sep-2023	25-Sep-2023	28 days	11 days	✓	25-Sep-2023	28 days	11 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - dissolved (lab preserved) GLWB-B	E509-L	14-Sep-2023	25-Sep-2023	28 days	11 days	✓	25-Sep-2023	28 days	11 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - dissolved (lab preserved) GLWB-M	E509-L	14-Sep-2023	25-Sep-2023	28 days	11 days	✓	25-Sep-2023	28 days	11 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - dissolved (lab preserved) GLWB-T	E509-L	14-Sep-2023	25-Sep-2023	28 days	11 days	✓	25-Sep-2023	28 days	11 days	✓
Dissolved Metals : Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine										
HDPE - dissolved (lab preserved) Field Dup	E465	14-Sep-2023	26-Sep-2023	180 days	12 days	✓	27-Sep-2023	180 days	13 days	✓
Dissolved Metals : Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine										
HDPE - dissolved (lab preserved) GLCB-B	E465	14-Sep-2023	26-Sep-2023	180 days	12 days	✓	27-Sep-2023	180 days	13 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Dissolved Metals : Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine										
HDPE - dissolved (lab preserved) GLCB-M	E465	14-Sep-2023	26-Sep-2023	180 days	12 days	✓	27-Sep-2023	180 days	13 days	✓
Dissolved Metals : Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine										
HDPE - dissolved (lab preserved) GLCB-T	E465	14-Sep-2023	26-Sep-2023	180 days	12 days	✓	27-Sep-2023	180 days	13 days	✓
Dissolved Metals : Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine										
HDPE - dissolved (lab preserved) GLSE-B	E465	14-Sep-2023	26-Sep-2023	180 days	12 days	✓	27-Sep-2023	180 days	13 days	✓
Dissolved Metals : Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine										
HDPE - dissolved (lab preserved) GLSE-M	E465	14-Sep-2023	26-Sep-2023	180 days	12 days	✓	27-Sep-2023	180 days	13 days	✓
Dissolved Metals : Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine										
HDPE - dissolved (lab preserved) GLSE-T	E465	14-Sep-2023	26-Sep-2023	180 days	12 days	✓	27-Sep-2023	180 days	13 days	✓
Dissolved Metals : Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine										
HDPE - dissolved (lab preserved) GLTL-B	E465	14-Sep-2023	26-Sep-2023	180 days	12 days	✓	27-Sep-2023	180 days	13 days	✓
Dissolved Metals : Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine										
HDPE - dissolved (lab preserved) GLTL-M	E465	14-Sep-2023	26-Sep-2023	180 days	12 days	✓	27-Sep-2023	180 days	13 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Dissolved Metals : Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine										
HDPE - dissolved (lab preserved) GLTL-T	E465	14-Sep-2023	26-Sep-2023	180 days	12 days	✓	27-Sep-2023	180 days	13 days	✓
Dissolved Metals : Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine										
HDPE - dissolved (lab preserved) GLWB-B	E465	14-Sep-2023	26-Sep-2023	180 days	12 days	✓	27-Sep-2023	180 days	13 days	✓
Dissolved Metals : Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine										
HDPE - dissolved (lab preserved) GLWB-M	E465	14-Sep-2023	26-Sep-2023	180 days	12 days	✓	27-Sep-2023	180 days	13 days	✓
Dissolved Metals : Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine										
HDPE - dissolved (lab preserved) GLWB-T	E465	14-Sep-2023	26-Sep-2023	180 days	12 days	✓	27-Sep-2023	180 days	13 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) Field Dup	E358-L	14-Sep-2023	23-Sep-2023	28 days	9 days	✓	23-Sep-2023	28 days	9 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) GLCB-B	E358-L	14-Sep-2023	23-Sep-2023	28 days	9 days	✓	23-Sep-2023	28 days	9 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) GLCB-M	E358-L	14-Sep-2023	23-Sep-2023	28 days	9 days	✓	23-Sep-2023	28 days	9 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) GLCB-T	E358-L	14-Sep-2023	23-Sep-2023	28 days	9 days	✓	23-Sep-2023	28 days	9 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) GLSE-B	E358-L	14-Sep-2023	23-Sep-2023	28 days	9 days	✓	23-Sep-2023	28 days	9 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) GLSE-M	E358-L	14-Sep-2023	23-Sep-2023	28 days	9 days	✓	23-Sep-2023	28 days	9 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) GLSE-T	E358-L	14-Sep-2023	23-Sep-2023	28 days	9 days	✓	23-Sep-2023	28 days	9 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) GLTL-B	E358-L	14-Sep-2023	23-Sep-2023	28 days	9 days	✓	23-Sep-2023	28 days	9 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) GLTL-M	E358-L	14-Sep-2023	23-Sep-2023	28 days	9 days	✓	23-Sep-2023	28 days	9 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) GLTL-T	E358-L	14-Sep-2023	23-Sep-2023	28 days	9 days	✓	23-Sep-2023	28 days	9 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) GLWB-B	E358-L	14-Sep-2023	23-Sep-2023	28 days	9 days	✓	23-Sep-2023	28 days	9 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) GLWB-M	E358-L	14-Sep-2023	23-Sep-2023	28 days	9 days	✓	23-Sep-2023	28 days	9 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) GLWB-T	E358-L	14-Sep-2023	23-Sep-2023	28 days	9 days	✓	23-Sep-2023	28 days	9 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
Field Dup	E355-L	14-Sep-2023	23-Sep-2023	28 days	9 days	✓	23-Sep-2023	28 days	9 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
GLCB-B	E355-L	14-Sep-2023	23-Sep-2023	28 days	9 days	✓	23-Sep-2023	28 days	9 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
GLCB-M	E355-L	14-Sep-2023	23-Sep-2023	28 days	9 days	✓	23-Sep-2023	28 days	9 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
GLCB-T	E355-L	14-Sep-2023	23-Sep-2023	28 days	9 days	✓	23-Sep-2023	28 days	9 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
GLSE-B	E355-L	14-Sep-2023	23-Sep-2023	28 days	9 days	✓	23-Sep-2023	28 days	9 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
GLSE-M	E355-L	14-Sep-2023	23-Sep-2023	28 days	9 days	✓	23-Sep-2023	28 days	9 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
GLSE-T	E355-L	14-Sep-2023	23-Sep-2023	28 days	9 days	✓	23-Sep-2023	28 days	9 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
GLTL-B	E355-L	14-Sep-2023	23-Sep-2023	28 days	9 days	✓	23-Sep-2023	28 days	9 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
GLTL-M	E355-L	14-Sep-2023	23-Sep-2023	28 days	9 days	✓	23-Sep-2023	28 days	9 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
GLTL-T	E355-L	14-Sep-2023	23-Sep-2023	28 days	9 days	✓	23-Sep-2023	28 days	9 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
GLWB-B	E355-L	14-Sep-2023	23-Sep-2023	28 days	9 days	✓	23-Sep-2023	28 days	9 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
GLWB-M	E355-L	14-Sep-2023	23-Sep-2023	28 days	9 days	✓	23-Sep-2023	28 days	9 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
GLWB-T	E355-L	14-Sep-2023	23-Sep-2023	28 days	9 days	✓	23-Sep-2023	28 days	9 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
GLCB-B	E290	14-Sep-2023	20-Sep-2023	14 days	6 days	✓	21-Sep-2023	14 days	7 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
GLCB-M	E290	14-Sep-2023	20-Sep-2023	14 days	6 days	✓	21-Sep-2023	14 days	7 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
GLCB-T	E290	14-Sep-2023	20-Sep-2023	14 days	6 days	✓	21-Sep-2023	14 days	7 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
GLTL-B	E290	14-Sep-2023	20-Sep-2023	14 days	6 days	✓	21-Sep-2023	14 days	7 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
GLTL-M	E290	14-Sep-2023	20-Sep-2023	14 days	6 days	✓	21-Sep-2023	14 days	7 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Alkalinity Species by Titration										
HDPE GLTL-T	E290	14-Sep-2023	20-Sep-2023	14 days	6 days	✓	21-Sep-2023	14 days	7 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE GLWB-B	E290	14-Sep-2023	20-Sep-2023	14 days	6 days	✓	21-Sep-2023	14 days	7 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE GLWB-M	E290	14-Sep-2023	20-Sep-2023	14 days	6 days	✓	21-Sep-2023	14 days	7 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE GLWB-T	E290	14-Sep-2023	20-Sep-2023	14 days	6 days	✓	21-Sep-2023	14 days	7 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE Field Dup	E290	14-Sep-2023	20-Sep-2023	14 days	7 days	✓	21-Sep-2023	14 days	7 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE GLSE-B	E290	14-Sep-2023	20-Sep-2023	14 days	7 days	✓	21-Sep-2023	14 days	7 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE GLSE-M	E290	14-Sep-2023	20-Sep-2023	14 days	7 days	✓	21-Sep-2023	14 days	7 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE GLSE-T	E290	14-Sep-2023	20-Sep-2023	14 days	7 days	✓	21-Sep-2023	14 days	7 days	✓
Physical Tests : Conductivity in Water										
HDPE GLCB-B	E100	14-Sep-2023	20-Sep-2023	28 days	6 days	✓	21-Sep-2023	28 days	7 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Conductivity in Water										
HDPE GLCB-M	E100	14-Sep-2023	20-Sep-2023	28 days	6 days	✓	21-Sep-2023	28 days	7 days	✓
Physical Tests : Conductivity in Water										
HDPE GLCB-T	E100	14-Sep-2023	20-Sep-2023	28 days	6 days	✓	21-Sep-2023	28 days	7 days	✓
Physical Tests : Conductivity in Water										
HDPE GLTL-B	E100	14-Sep-2023	20-Sep-2023	28 days	6 days	✓	21-Sep-2023	28 days	7 days	✓
Physical Tests : Conductivity in Water										
HDPE GLTL-M	E100	14-Sep-2023	20-Sep-2023	28 days	6 days	✓	21-Sep-2023	28 days	7 days	✓
Physical Tests : Conductivity in Water										
HDPE GLTL-T	E100	14-Sep-2023	20-Sep-2023	28 days	6 days	✓	21-Sep-2023	28 days	7 days	✓
Physical Tests : Conductivity in Water										
HDPE GLWB-B	E100	14-Sep-2023	20-Sep-2023	28 days	6 days	✓	21-Sep-2023	28 days	7 days	✓
Physical Tests : Conductivity in Water										
HDPE GLWB-M	E100	14-Sep-2023	20-Sep-2023	28 days	6 days	✓	21-Sep-2023	28 days	7 days	✓
Physical Tests : Conductivity in Water										
HDPE GLWB-T	E100	14-Sep-2023	20-Sep-2023	28 days	6 days	✓	21-Sep-2023	28 days	7 days	✓
Physical Tests : Conductivity in Water										
HDPE Field Dup	E100	14-Sep-2023	20-Sep-2023	28 days	7 days	✓	21-Sep-2023	28 days	7 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Conductivity in Water										
HDPE GLSE-B	E100	14-Sep-2023	20-Sep-2023	28 days	7 days	✓	21-Sep-2023	28 days	7 days	✓
Physical Tests : Conductivity in Water										
HDPE GLSE-M	E100	14-Sep-2023	20-Sep-2023	28 days	7 days	✓	21-Sep-2023	28 days	7 days	✓
Physical Tests : Conductivity in Water										
HDPE GLSE-T	E100	14-Sep-2023	20-Sep-2023	28 days	7 days	✓	21-Sep-2023	28 days	7 days	✓
Physical Tests : pH by Meter										
HDPE GLTL-B	E108	14-Sep-2023	20-Sep-2023	0.25 hrs	151 hrs	× EHTR-FM	21-Sep-2023	0.25 hrs	162 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE GLTL-M	E108	14-Sep-2023	20-Sep-2023	0.25 hrs	151 hrs	× EHTR-FM	21-Sep-2023	0.25 hrs	162 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE GLTL-T	E108	14-Sep-2023	20-Sep-2023	0.25 hrs	152 hrs	× EHTR-FM	21-Sep-2023	0.25 hrs	162 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE GLCB-B	E108	14-Sep-2023	20-Sep-2023	0.25 hrs	152 hrs	× EHTR-FM	21-Sep-2023	0.25 hrs	163 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE GLCB-M	E108	14-Sep-2023	20-Sep-2023	0.25 hrs	152 hrs	× EHTR-FM	21-Sep-2023	0.25 hrs	163 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE GLCB-T	E108	14-Sep-2023	20-Sep-2023	0.25 hrs	152 hrs	× EHTR-FM	21-Sep-2023	0.25 hrs	163 hrs	× EHTR-FM

Matrix: **Water**

Evaluation: ✗ = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : pH by Meter										
HDPE GLWB-B	E108	14-Sep-2023	20-Sep-2023	0.25 hrs	154 hrs	✗ EHTR-FM	21-Sep-2023	0.25 hrs	164 hrs	✗ EHTR-FM
Physical Tests : pH by Meter										
HDPE GLWB-M	E108	14-Sep-2023	20-Sep-2023	0.25 hrs	154 hrs	✗ EHTR-FM	21-Sep-2023	0.25 hrs	164 hrs	✗ EHTR-FM
Physical Tests : pH by Meter										
HDPE GLWB-T	E108	14-Sep-2023	20-Sep-2023	0.25 hrs	154 hrs	✗ EHTR-FM	21-Sep-2023	0.25 hrs	164 hrs	✗ EHTR-FM
Physical Tests : pH by Meter										
HDPE GLSE-B	E108	14-Sep-2023	20-Sep-2023	0.25 hrs	156 hrs	✗ EHTR-FM	21-Sep-2023	0.25 hrs	167 hrs	✗ EHTR-FM
Physical Tests : pH by Meter										
HDPE Field Dup	E108	14-Sep-2023	20-Sep-2023	0.25 hrs	157 hrs	✗ EHTR-FM	21-Sep-2023	0.25 hrs	167 hrs	✗ EHTR-FM
Physical Tests : pH by Meter										
HDPE GLSE-M	E108	14-Sep-2023	20-Sep-2023	0.25 hrs	157 hrs	✗ EHTR-FM	21-Sep-2023	0.25 hrs	167 hrs	✗ EHTR-FM
Physical Tests : pH by Meter										
HDPE GLSE-T	E108	14-Sep-2023	20-Sep-2023	0.25 hrs	157 hrs	✗ EHTR-FM	21-Sep-2023	0.25 hrs	167 hrs	✗ EHTR-FM
Physical Tests : TSS by Gravimetry										
HDPE Field Dup	E160	14-Sep-2023	----	----	----		21-Sep-2023	7 days	7 days	✓
Physical Tests : TSS by Gravimetry										
HDPE GLCB-B	E160	14-Sep-2023	----	----	----		21-Sep-2023	7 days	7 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : TSS by Gravimetry										
HDPE GLCB-M	E160	14-Sep-2023	----	----	----		21-Sep-2023	7 days	7 days	✓
Physical Tests : TSS by Gravimetry										
HDPE GLCB-T	E160	14-Sep-2023	----	----	----		21-Sep-2023	7 days	7 days	✓
Physical Tests : TSS by Gravimetry										
HDPE GLSE-B	E160	14-Sep-2023	----	----	----		21-Sep-2023	7 days	7 days	✓
Physical Tests : TSS by Gravimetry										
HDPE GLSE-M	E160	14-Sep-2023	----	----	----		21-Sep-2023	7 days	7 days	✓
Physical Tests : TSS by Gravimetry										
HDPE GLSE-T	E160	14-Sep-2023	----	----	----		21-Sep-2023	7 days	7 days	✓
Physical Tests : TSS by Gravimetry										
HDPE GLTL-B	E160	14-Sep-2023	----	----	----		21-Sep-2023	7 days	7 days	✓
Physical Tests : TSS by Gravimetry										
HDPE GLTL-M	E160	14-Sep-2023	----	----	----		21-Sep-2023	7 days	7 days	✓
Physical Tests : TSS by Gravimetry										
HDPE GLTL-T	E160	14-Sep-2023	----	----	----		21-Sep-2023	7 days	7 days	✓
Physical Tests : TSS by Gravimetry										
HDPE GLWB-B	E160	14-Sep-2023	----	----	----		21-Sep-2023	7 days	7 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : TSS by Gravimetry										
HDPE GLWB-M	E160	14-Sep-2023	----	----	----		21-Sep-2023	7 days	7 days	✓
Physical Tests : TSS by Gravimetry										
HDPE GLWB-T	E160	14-Sep-2023	----	----	----		21-Sep-2023	7 days	7 days	✓
Total Metals (Undigested) : Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine										
HDPE - total (lab preserved) Field Dup	E466	14-Sep-2023	26-Sep-2023	180 days	12 days	✓	27-Sep-2023	180 days	13 days	✓
Total Metals (Undigested) : Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine										
HDPE - total (lab preserved) GLCB-B	E466	14-Sep-2023	26-Sep-2023	180 days	12 days	✓	27-Sep-2023	180 days	13 days	✓
Total Metals (Undigested) : Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine										
HDPE - total (lab preserved) GLCB-M	E466	14-Sep-2023	26-Sep-2023	180 days	12 days	✓	27-Sep-2023	180 days	13 days	✓
Total Metals (Undigested) : Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine										
HDPE - total (lab preserved) GLCB-T	E466	14-Sep-2023	26-Sep-2023	180 days	12 days	✓	27-Sep-2023	180 days	13 days	✓
Total Metals (Undigested) : Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine										
HDPE - total (lab preserved) GLSE-B	E466	14-Sep-2023	26-Sep-2023	180 days	12 days	✓	27-Sep-2023	180 days	13 days	✓
Total Metals (Undigested) : Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine										
HDPE - total (lab preserved) GLSE-M	E466	14-Sep-2023	26-Sep-2023	180 days	12 days	✓	27-Sep-2023	180 days	13 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Total Metals (Undigested) : Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine										
HDPE - total (lab preserved) GLSE-T	E466	14-Sep-2023	26-Sep-2023	180 days	12 days	✓	27-Sep-2023	180 days	13 days	✓
Total Metals (Undigested) : Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine										
HDPE - total (lab preserved) GLTL-B	E466	14-Sep-2023	26-Sep-2023	180 days	12 days	✓	27-Sep-2023	180 days	13 days	✓
Total Metals (Undigested) : Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine										
HDPE - total (lab preserved) GLTL-M	E466	14-Sep-2023	26-Sep-2023	180 days	12 days	✓	27-Sep-2023	180 days	13 days	✓
Total Metals (Undigested) : Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine										
HDPE - total (lab preserved) GLTL-T	E466	14-Sep-2023	26-Sep-2023	180 days	12 days	✓	27-Sep-2023	180 days	13 days	✓
Total Metals (Undigested) : Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine										
HDPE - total (lab preserved) GLWB-B	E466	14-Sep-2023	26-Sep-2023	180 days	12 days	✓	27-Sep-2023	180 days	13 days	✓
Total Metals (Undigested) : Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine										
HDPE - total (lab preserved) GLWB-M	E466	14-Sep-2023	26-Sep-2023	180 days	12 days	✓	27-Sep-2023	180 days	13 days	✓
Total Metals (Undigested) : Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine										
HDPE - total (lab preserved) GLWB-T	E466	14-Sep-2023	26-Sep-2023	180 days	12 days	✓	27-Sep-2023	180 days	13 days	✓
Total Metals : Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - total (lab preserved) Field Dup	E508-L	14-Sep-2023	26-Sep-2023	28 days	12 days	✓	26-Sep-2023	28 days	0 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Total Metals : Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - total (lab preserved) GLCB-B	E508-L	14-Sep-2023	26-Sep-2023	28 days	12 days	✓	26-Sep-2023	28 days	0 days	✓
Total Metals : Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - total (lab preserved) GLCB-M	E508-L	14-Sep-2023	26-Sep-2023	28 days	12 days	✓	26-Sep-2023	28 days	0 days	✓
Total Metals : Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - total (lab preserved) GLCB-T	E508-L	14-Sep-2023	26-Sep-2023	28 days	12 days	✓	26-Sep-2023	28 days	0 days	✓
Total Metals : Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - total (lab preserved) GLSE-B	E508-L	14-Sep-2023	26-Sep-2023	28 days	12 days	✓	26-Sep-2023	28 days	0 days	✓
Total Metals : Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - total (lab preserved) GLSE-M	E508-L	14-Sep-2023	26-Sep-2023	28 days	12 days	✓	26-Sep-2023	28 days	0 days	✓
Total Metals : Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - total (lab preserved) GLSE-T	E508-L	14-Sep-2023	26-Sep-2023	28 days	12 days	✓	26-Sep-2023	28 days	0 days	✓
Total Metals : Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - total (lab preserved) GLTL-B	E508-L	14-Sep-2023	26-Sep-2023	28 days	12 days	✓	26-Sep-2023	28 days	0 days	✓
Total Metals : Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - total (lab preserved) GLTL-M	E508-L	14-Sep-2023	26-Sep-2023	28 days	12 days	✓	26-Sep-2023	28 days	0 days	✓
Total Metals : Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - total (lab preserved) GLTL-T	E508-L	14-Sep-2023	26-Sep-2023	28 days	12 days	✓	26-Sep-2023	28 days	0 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Total Metals : Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - total (lab preserved)										
GLWB-B	E508-L	14-Sep-2023	26-Sep-2023	28 days	12 days	✓	26-Sep-2023	28 days	0 days	✓
Total Metals : Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - total (lab preserved)										
GLWB-M	E508-L	14-Sep-2023	26-Sep-2023	28 days	12 days	✓	26-Sep-2023	28 days	0 days	✓
Total Metals : Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)										
Pre-cleaned amber glass - total (lab preserved)										
GLWB-T	E508-L	14-Sep-2023	26-Sep-2023	28 days	12 days	✓	26-Sep-2023	28 days	0 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide)										
Field Dup	E395	14-Sep-2023	----	----	----		20-Sep-2023	7 days	6 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide)										
GLCB-B	E395	14-Sep-2023	----	----	----		20-Sep-2023	7 days	6 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide)										
GLCB-M	E395	14-Sep-2023	----	----	----		20-Sep-2023	7 days	6 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide)										
GLCB-T	E395	14-Sep-2023	----	----	----		20-Sep-2023	7 days	6 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide)										
GLSE-B	E395	14-Sep-2023	----	----	----		20-Sep-2023	7 days	6 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide)										
GLSE-M	E395	14-Sep-2023	----	----	----		20-Sep-2023	7 days	6 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) GLSE-T	E395	14-Sep-2023	----	----	----		20-Sep-2023	7 days	6 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) GLTL-B	E395	14-Sep-2023	----	----	----		20-Sep-2023	7 days	6 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) GLTL-M	E395	14-Sep-2023	----	----	----		20-Sep-2023	7 days	6 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) GLTL-T	E395	14-Sep-2023	----	----	----		20-Sep-2023	7 days	6 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) GLWB-B	E395	14-Sep-2023	----	----	----		20-Sep-2023	7 days	6 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) GLWB-M	E395	14-Sep-2023	----	----	----		20-Sep-2023	7 days	6 days	✓
Total Sulfides : Total Sulfide by Colourimetry (Automated Flow)										
HDPE total (zinc acetate+sodium hydroxide) GLWB-T	E395	14-Sep-2023	----	----	----		20-Sep-2023	7 days	6 days	✓

Legend & Qualifier Definitions

EHTR-FM: Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended

EHTR: Exceeded ALS recommended hold time prior to sample receipt.

EHT: Exceeded ALS recommended hold time prior to analysis.

Rec. HT: ALS recommended hold time (see units).

Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Water**

Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
Alkalinity Species by Titration	E290	1145119	1	19	5.2	5.0	✓
Ammonia by Fluorescence	E298	1150169	1	18	5.5	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1145123	1	19	5.2	5.0	✓
Chloride in Water by IC	E235.Cl	1145122	1	19	5.2	5.0	✓
Conductivity in Water	E100	1145120	1	19	5.2	5.0	✓
Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)	E509-L	1152257	1	19	5.2	5.0	✓
Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine Samples)	E465	1146491	1	13	7.6	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1150167	1	18	5.5	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	1145127	1	13	7.6	5.0	✓
Fluoride in Water by IC	E235.F	1145121	1	19	5.2	5.0	✓
Free Cyanide	E339	1161192	1	13	7.6	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1145124	1	19	5.2	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1145125	1	19	5.2	5.0	✓
pH by Meter	E108	1145118	1	19	5.2	5.0	✓
Reactive Silica by Colourimetry	E392	1147214	2	28	7.1	5.0	✓
Sulfate in Water by IC	E235.SO4	1145126	1	19	5.2	5.0	✓
Total Cyanide	E333	1161190	1	20	5.0	5.0	✓
Total Dissolved Phosphorus by Colourimetry (0.001 mg/L)	E375-U	1146097	2	39	5.1	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	1150166	1	18	5.5	5.0	✓
Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)	E508-L	1153786	1	18	5.5	5.0	✓
Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine Samples)	E466	1146479	1	13	7.6	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1150168	1	13	7.6	5.0	✓
Total Phosphorus by Colourimetry (0.001 mg/L)	E372-S	1146086	2	39	5.1	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	1144908	1	20	5.0	5.0	✓
TSS by Gravimetry	E160	1147251	1	19	5.2	5.0	✓
WAD Cyanide	E336	1161191	1	13	7.6	5.0	✓
Laboratory Control Samples (LCS)							
Alkalinity Species by Titration	E290	1145119	1	19	5.2	5.0	✓
Ammonia by Fluorescence	E298	1150169	1	18	5.5	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1145123	1	19	5.2	5.0	✓
Chloride in Water by IC	E235.Cl	1145122	1	19	5.2	5.0	✓
Conductivity in Water	E100	1145120	1	19	5.2	5.0	✓
Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)	E509-L	1152257	1	19	5.2	5.0	✓
Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine Samples)	E465	1146491	1	13	7.6	5.0	✓

Matrix: **Water**

Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Control Samples (LCS) - Continued							
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1150167	1	18	5.5	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	1145127	1	13	7.6	5.0	✓
Fluoride in Water by IC	E235.F	1145121	1	19	5.2	5.0	✓
Free Cyanide	E339	1161192	1	13	7.6	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1145124	1	19	5.2	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1145125	1	19	5.2	5.0	✓
pH by Meter	E108	1145118	1	19	5.2	5.0	✓
Reactive Silica by Colourimetry	E392	1147214	2	28	7.1	5.0	✓
Sulfate in Water by IC	E235.SO4	1145126	1	19	5.2	5.0	✓
Total Cyanide	E333	1161190	1	20	5.0	5.0	✓
Total Dissolved Phosphorus by Colourimetry (0.001 mg/L)	E375-U	1146097	2	39	5.1	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	1150166	1	18	5.5	5.0	✓
Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)	E508-L	1153786	1	18	5.5	5.0	✓
Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine Samples)	E466	1146479	1	13	7.6	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1150168	1	13	7.6	5.0	✓
Total Phosphorus by Colourimetry (0.001 mg/L)	E372-S	1146086	2	39	5.1	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	1144908	1	20	5.0	5.0	✓
TSS by Gravimetry	E160	1147251	1	19	5.2	5.0	✓
WAD Cyanide	E336	1161191	1	13	7.6	5.0	✓
Method Blanks (MB)							
Alkalinity Species by Titration	E290	1145119	1	19	5.2	5.0	✓
Ammonia by Fluorescence	E298	1150169	1	18	5.5	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1145123	1	19	5.2	5.0	✓
Chloride in Water by IC	E235.Cl	1145122	1	19	5.2	5.0	✓
Conductivity in Water	E100	1145120	1	19	5.2	5.0	✓
Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)	E509-L	1152257	1	19	5.2	5.0	✓
Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine Samples)	E465	1146491	1	13	7.6	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1150167	1	18	5.5	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	1145127	1	13	7.6	5.0	✓
Fluoride in Water by IC	E235.F	1145121	1	19	5.2	5.0	✓
Free Cyanide	E339	1161192	1	13	7.6	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1145124	1	19	5.2	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1145125	1	19	5.2	5.0	✓
Reactive Silica by Colourimetry	E392	1147214	2	28	7.1	5.0	✓
Sulfate in Water by IC	E235.SO4	1145126	1	19	5.2	5.0	✓
Total Cyanide	E333	1161190	1	20	5.0	5.0	✓
Total Dissolved Phosphorus by Colourimetry (0.001 mg/L)	E375-U	1146097	2	39	5.1	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	1150166	1	18	5.5	5.0	✓

Matrix: **Water**

Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Method Blanks (MB) - Continued							
Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)	E508-L	1153786	1	18	5.5	5.0	✓
Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine Samples)	E466	1146479	1	13	7.6	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1150168	1	13	7.6	5.0	✓
Total Phosphorus by Colourimetry (0.001 mg/L)	E372-S	1146086	2	39	5.1	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	1144908	1	20	5.0	5.0	✓
TSS by Gravimetry	E160	1147251	1	19	5.2	5.0	✓
WAD Cyanide	E336	1161191	1	13	7.6	5.0	✓
Matrix Spikes (MS)							
Ammonia by Fluorescence	E298	1150169	1	18	5.5	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1145123	1	19	5.2	5.0	✓
Chloride in Water by IC	E235.Cl	1145122	1	19	5.2	5.0	✓
Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)	E509-L	1152257	1	19	5.2	5.0	✓
Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine Samples)	E465	1146491	1	13	7.6	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1150167	1	18	5.5	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	1145127	1	13	7.6	5.0	✓
Fluoride in Water by IC	E235.F	1145121	1	19	5.2	5.0	✓
Free Cyanide	E339	1161192	1	13	7.6	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1145124	1	19	5.2	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1145125	1	19	5.2	5.0	✓
Reactive Silica by Colourimetry	E392	1147214	2	28	7.1	5.0	✓
Sulfate in Water by IC	E235.SO4	1145126	1	19	5.2	5.0	✓
Total Cyanide	E333	1161190	1	20	5.0	5.0	✓
Total Dissolved Phosphorus by Colourimetry (0.001 mg/L)	E375-U	1146097	2	39	5.1	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	1150166	1	18	5.5	5.0	✓
Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)	E508-L	1153786	1	18	5.5	5.0	✓
Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine Samples)	E466	1146479	1	13	7.6	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1150168	1	13	7.6	5.0	✓
Total Phosphorus by Colourimetry (0.001 mg/L)	E372-S	1146086	2	39	5.1	5.0	✓
Total Sulfide by Colourimetry (Automated Flow)	E395	1144908	1	20	5.0	5.0	✓
WAD Cyanide	E336	1161191	1	13	7.6	5.0	✓

Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Conductivity in Water	E100 ALS Environmental - Vancouver	Water	APHA 2510 (mod)	Conductivity, also known as Electrical Conductivity (EC) or Specific Conductance, is measured by immersion of a conductivity cell with platinum electrodes into a water sample. Conductivity measurements are temperature-compensated to 25°C.
pH by Meter	E108 ALS Environmental - Vancouver	Water	APHA 4500-H (mod)	pH is determined by potentiometric measurement with a pH electrode, and is conducted at ambient laboratory temperature (normally 20 ± 5°C). For high accuracy test results, pH should be measured in the field within the recommended 15 minute hold time.
TSS by Gravimetry	E160 ALS Environmental - Vancouver	Water	APHA 2540 D (mod)	Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, following by drying of the filter at 104 ± 1°C, with gravimetric measurement of the filtered solids. Samples containing very high dissolved solid content (i.e. seawaters, brackish waters) may produce a positive bias by this method. Alternate analysis methods are available for these types of samples.
Bromide in Water by IC (Low Level)	E235.Br-L ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Chloride in Water by IC	E235.Cl ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Fluoride in Water by IC	E235.F ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrite in Water by IC (Low Level)	E235.NO2-L ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrate in Water by IC (Low Level)	E235.NO3-L ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Sulfate in Water by IC	E235.SO4 ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Alkalinity Species by Titration	E290 ALS Environmental - Vancouver	Water	APHA 2320 B (mod)	Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.
Ammonia by Fluorescence	E298 ALS Environmental - Vancouver	Water	Method Fialab 100, 2018	Ammonia in water is determined by automated continuous flow analysis with membrane diffusion and fluorescence detection, after reaction with OPA (ortho-phthalaldehyde). This method is approved under US EPA 40 CFR Part 136 (May 2021)
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318 ALS Environmental - Vancouver	Water	Method Fialab 100, 2018	TKN in water is determined by automated continuous flow analysis with membrane diffusion and fluorescence detection, after reaction with OPA (ortho-phthalaldehyde). This method is approved under US EPA 40 CFR Part 136 (May 2021).
Total Cyanide	E333 ALS Environmental - Waterloo	Water	ISO 14403 (mod)	Total or Strong Acid Dissociable (SAD) Cyanide is determined by Continuous Flow Analyzer (CFA) with in-line UV digestion followed by colourmetric analysis. Method Limitation: High levels of thiocyanate (SCN) may cause positive interference (up to 0.5% of SCN concentration).
WAD Cyanide	E336 ALS Environmental - Waterloo	Water	APHA 4500-CN I (mod)	Weak Acid Dissociable (WAD) cyanide is determined by Continuous Flow Analyzer (CFA) with in-line distillation followed by colourmetric analysis.
Free Cyanide	E339 ALS Environmental - Waterloo	Water	ASTM D7237 (mod)	Free Cyanide is determined by Continuous Flow Analyzer (CFA) with in-line gas diffusion followed by colourmetric analysis.
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L ALS Environmental - Vancouver	Water	APHA 5310 B (mod)	Total Organic Carbon (Non-Purgeable), also known as NPOC (total), is a direct measurement of TOC after an acidified sample has been purged to remove inorganic carbon (IC). Analysis is by high temperature combustion with infrared detection of CO_2. NPOC does not include volatile organic species that are purged off with IC. For samples where the majority of total carbon (TC) is comprised of IC (which is common), this method is more accurate and more reliable than the TOC by subtraction method (i.e. TC minus TIC).
Dissolved Organic Carbon by Combustion (Low Level)	E358-L ALS Environmental - Vancouver	Water	APHA 5310 B (mod)	Dissolved Organic Carbon (Non-Purgeable), also known as NPOC (dissolved), is a direct measurement of DOC after a filtered (0.45 micron) sample has been acidified and purged to remove inorganic carbon (IC). Analysis is by high temperature combustion with infrared detection of CO_2. 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 Phosphorus by Colourimetry (0.001 mg/L)	E372-S ALS Environmental - Edmonton	Water	APHA 4500-P E (mod).	Total Phosphorus is determined colourimetrically after heated persulfate digestion of the sample.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Total Dissolved Phosphorus by Colourimetry (0.001 mg/L)	E375-U ALS Environmental - Edmonton	Water	APHA 4500-P E (mod).	Total Dissolved Phosphorus is determined colourmetrically after filtration through a 0.45 micron filter followed by heated persulfate digestion of the sample.
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U ALS Environmental - Vancouver	Water	APHA 4500-P F (mod)	Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter. Field filtration is recommended to ensure test results represent conditions at time of sampling.
Reactive Silica by Colourimetry	E392 ALS Environmental - Vancouver	Water	APHA 4500-SiO2 E (mod)	Silicate (molybdate-reactive silica) is determined by the molybdosilicate-heteropoly blue colourimetric method using a discrete analyzer. Method Limitation: Arsenic (5+) above 100 mg/L is a negative interference on this test
Total Sulfide by Colourimetry (Automated Flow)	E395 ALS Environmental - Vancouver	Water	APHA 4500 -S E-Auto-Colorimetry	Sulfide is determined using the gas dialysis automated methlyene blue colourimetric method. Results expressed "as H2S" if reported represent the maximum possible H2S concentration based on the total sulfide concentration in the sample. The H2S calculation converts Total Sulphide as (S2-) and reports it as Total Sulphide as (H2S)
Dissolved Metals (Field Filtered) in Water by Triple Quad ICPMS (Pristine Samples)	E465 ALS Environmental - Vancouver	Water	EPA 6020B (mod)	Ultra trace metals in water are analyzed by Triple Quadrupole ICPMS. This procedure is intended for pristine field-filtered acid-preserved water samples. The detection limits (LOR) for this test are based on lab instrumental analysis only, not including filtration. Due to the high probability of false positives due to filtration, it is strongly recommended that a filtration blank be analysed to aid in data interpretation.
Total Metals (undigested) in Water by Triple Quad ICPMS (Pristine Samples)	E466 ALS Environmental - Vancouver	Water	EPA 6020B (mod)	Ultra trace metals in water are analyzed by CRC ICPMS, based on US EPA Method 6020B (July 2014). The detection limits provided can only be met for undigested samples. This procedure is intended for colorless, non-turbid, acid-preserved water samples (i.e. pristine water samples), having turbidity < 1 NTU and no odor. Where turbidity exceeds 1 NTU, and/or the sample is colored and has an odor, results may be biased low compared to true Total Metals concentrations. ALS recommends that turbidity analysis be requested on samples submitted for this test to aid with interpretation of results. Where turbidity is <1NTU, undigested metals are equivalent to total metals concentrations.
Total Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)	E508-L 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 CVAFS.
Dissolved Mercury in Water by CVAFS (Low Level, LOR = 0.5 ppt)	E509-L 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 CVAFS.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
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.
TDS in Water (Calculation)	EC103 ALS Environmental - Vancouver	Water	APHA 1030E (mod)	Total Dissolved Solids is calculated based on guidance from APHA Standard Methods (1030E Checking Correctness of Analysis). Dissolved species are used where available. Minor ions are included where data is present.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Ammonia	EP298 ALS Environmental - Vancouver	Water		Sample preparation for Preserved Nutrients Water Quality Analysis.
Digestion for TKN in water	EP318 ALS Environmental - Vancouver	Water	APHA 4500-Norg D (mod)	Samples are digested at high temperature using Sulfuric Acid with Copper catalyst, which converts organic nitrogen sources to Ammonia, which is then quantified by the analytical method as TKN. This method is unsuitable for samples containing high levels of nitrate. If nitrate exceeds TKN concentration by ten times or more, results may be biased low.
Preparation for Total Organic Carbon by Combustion	EP355 ALS Environmental - Vancouver	Water		Preparation for Total Organic Carbon by Combustion
Preparation for Dissolved Organic Carbon for Combustion	EP358 ALS Environmental - Vancouver	Water	APHA 5310 B (mod)	Preparation for Dissolved Organic Carbon
Digestion for Total Phosphorus in water	EP372 ALS Environmental - Edmonton	Water	APHA 4500-P E (mod).	Samples are heated with a persulfate digestion reagent.
Digestion for Dissolved Phosphorus in water	EP375 ALS Environmental - Edmonton	Water	APHA 4500-P E (mod).	Samples are filtered through a 0.45 micron membrane filter and then heated with a persulfate digestion reagent.
Dissolved Metals Water Filtration for Triple Quad ICPMS	EP465 ALS Environmental - Vancouver	Water	APHA 3030B	Low level metals in water are analyzed by Triple Quad ICPMS. This procedure is intended for pristine field-filtered acid-preserved water samples. The detection limits (LOR) for this test are based on lab instrumental analysis only, not including filtration. ALS-supplied field filtration equipment does not support these LOR. Therefore, because of the high probability of false positives due to filtration, it is strongly recommended that a filtration blank be analysed to aid in data interpretation.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Dissolved Mercury Water Filtration (Low Level)	EP509-L ALS Environmental - Vancouver	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HCl.

QUALITY CONTROL REPORT

Work Order	: **YL2301147**	Page	: 1 of 22
Client	: Sabina Gold & Silver Corporation	Laboratory	: ALS Environmental - Yellowknife
Contact	: Merle Keefe	Account Manager	: Oliver Gregg
Address	: 375 - 555 Burrard St. Box 220, Bentall 2 Vancouver BC Canada V7X 1M7	Address	: 314 Old Airport Road, Unit 116 Yellowknife, Northwest Territories Canada X1A 3T3
Telephone	:	Telephone	: 1 867 445 7143
Project	: 22567626	Date Samples Received	: 18-Sep-2023 09:38
PO	: ----	Date Analysis Commenced	: 20-Sep-2023
C-O-C number	: ----	Issue Date	: 05-Oct-2023 14:00
Sampler	: ---- 604 240 6619		
Site	: Sabina/B2Gold Goose Lake		
Quote number	: YL23-SABI100-001		
No. of samples received	: 13		
No. of samples analysed	: 13		

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
Alicia Chandra	Analsyt	Vancouver Inorganics, Burnaby, British Columbia
Dan Gebert	Laboratory Analyst	Vancouver Metals, Burnaby, British Columbia
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Robin Weeks	Team Leader - Metals	Vancouver Inorganics, Burnaby, British Columbia
Robin Weeks	Team Leader - Metals	Vancouver Metals, Burnaby, British Columbia

General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number = Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO = Data Quality Objective.
LOR = Limit of Reporting (detection limit).
RPD = Relative Percent Difference
# = Indicates a QC result that did not meet the ALS DQO.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test-specific).

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Physical Tests (QC Lot: 1145118)											
YL2301147-003	Field Dup	pH	----	E108	0.10	pH units	6.92	6.96	0.576%	4%	----
Physical Tests (QC Lot: 1145119)											
YL2301147-003	Field Dup	Alkalinity, bicarbonate (as CaCO3)	----	E290	1.0	mg/L	5.7	6.4	11.6%	200%	----
		Alkalinity, carbonate (as CaCO3)	----	E290	1.0	mg/L	<1.0	<1.0	0.00%	200%	----
		Alkalinity, hydroxide (as CaCO3)	----	E290	1.0	mg/L	<1.0	<1.0	0.00%	200%	----
		Alkalinity, phenolphthalein (as CaCO3)	----	E290	1.0	mg/L	<1.0	<1.0	0	Diff <2x LOR	----
		Alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	5.7	6.4	0.7	Diff <2x LOR	----
Physical Tests (QC Lot: 1145120)											
YL2301147-003	Field Dup	Conductivity	----	E100	2.0	µS/cm	46.0	44.4	3.54%	10%	----
Physical Tests (QC Lot: 1147251)											
WR2301136-002	Anonymous	Solids, total suspended [TSS]	----	E160	3.0	mg/L	127	119	6.84%	20%	----
Anions and Nutrients (QC Lot: 1145121)											
YL2301147-001	GLSE-T	Fluoride	16984-48-8	E235.F	0.020	mg/L	0.029	0.029	0.0002	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1145122)											
YL2301147-001	GLSE-T	Chloride	16887-00-6	E235.Cl	0.50	mg/L	3.69	3.70	0.007	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1145123)											
YL2301147-001	GLSE-T	Bromide	24959-67-9	E235.Br-L	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1145124)											
YL2301147-001	GLSE-T	Nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	0.0976	0.0963	1.41%	20%	----
Anions and Nutrients (QC Lot: 1145125)											
YL2301147-001	GLSE-T	Nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1145126)											
YL2301147-001	GLSE-T	Sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	8.09	8.07	0.292%	20%	----
Anions and Nutrients (QC Lot: 1145127)											
YL2301147-001	GLSE-T	Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1146086)											
YL2301146-001	Anonymous	Phosphorus, total	7723-14-0	E372-S	0.0010	mg/L	0.0052	0.0043	0.0009	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1146087)											
YL2301147-013	GLTL-B	Phosphorus, total	7723-14-0	E372-S	0.0010	mg/L	0.0029	0.0027	0.0002	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Anions and Nutrients (QC Lot: 1146097)											
YL2301146-001	Anonymous	Phosphorus, total dissolved	7723-14-0	E375-U	0.0010	mg/L	0.0023	0.0019	0.0004	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1146098)											
YL2301147-013	GLTL-B	Phosphorus, total dissolved	7723-14-0	E375-U	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1147214)											
VA23C2318-001	Anonymous	Silicate (as SiO2)	7631-86-9	E392	0.50	mg/L	6.06	6.12	0.972%	20%	----
Anions and Nutrients (QC Lot: 1147215)											
YL2301147-006	GLWB-M	Silicate (as SiO2)	7631-86-9	E392	0.50	mg/L	1.72	1.73	0.007	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1150166)											
YL2301147-001	GLSE-T	Kjeldahl nitrogen, total [TKN]	----	E318	0.050	mg/L	0.224	0.212	0.012	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1150169)											
YL2301147-001	GLSE-T	Ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	0.0215	0.0218	0.0004	Diff <2x LOR	----
Cyanides (QC Lot: 1161190)											
YL2301147-001	GLSE-T	Cyanide, strong acid dissociable (Total)	----	E333	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
Cyanides (QC Lot: 1161191)											
YL2301147-001	GLSE-T	Cyanide, weak acid dissociable	----	E336	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
Cyanides (QC Lot: 1161192)											
YL2301147-001	GLSE-T	Cyanide, free	----	E339	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
Organic / Inorganic Carbon (QC Lot: 1150167)											
YL2301147-001	GLSE-T	Carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	3.63	3.80	0.17	Diff <2x LOR	----
Organic / Inorganic Carbon (QC Lot: 1150168)											
YL2301147-001	GLSE-T	Carbon, total organic [TOC]	----	E355-L	0.50	mg/L	3.82	4.08	0.26	Diff <2x LOR	----
Total Sulfides (QC Lot: 1144908)											
CG2312925-001	Anonymous	Sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	0.0038	0.0041	0.0004	Diff <2x LOR	----
Total Metals (QC Lot: 1153786)											
FJ2302402-001	Anonymous	Mercury, total	7439-97-6	E508-L	0.50	ng/L	<0.50	<0.50	0	Diff <2x LOR	----
Total Metals (Undigested) (QC Lot: 1146479)											
YL2301147-001	GLSE-T	Aluminum, total	7429-90-5	E466	0.00020	mg/L	0.0126	0.0108	15.4%	20%	----
		Antimony, total	7440-36-0	E466	0.0000050	mg/L	0.0000135	0.0000135	0.00000002	Diff <2x LOR	----
		Arsenic, total	7440-38-2	E466	0.000010	mg/L	0.000277	0.000262	5.52%	20%	----
		Barium, total	7440-39-3	E466	0.000020	mg/L	0.00632	0.00640	1.38%	20%	----
		Beryllium, total	7440-41-7	E466	0.0000020	mg/L	<0.0000020	<0.0000020	0	Diff <2x LOR	----
		Bismuth, total	7440-69-9	E466	0.0000010	mg/L	<0.0000010	<0.0000010	0	Diff <2x LOR	----
		Boron, total	7440-42-8	E466	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Total Metals (Undigested) (QC Lot: 1146479) - continued											
YL2301147-001	GLSE-T	Cadmium, total	7440-43-9	E466	0.0000025	mg/L	0.0000038	0.0000051	0.0000013	Diff <2x LOR	----
		Calcium, total	7440-70-2	E466	0.010	mg/L	3.70	3.72	0.599%	20%	----
		Cesium, total	7440-46-2	E466	0.0000050	mg/L	0.0000075	0.0000077	0.0000002	Diff <2x LOR	----
		Chromium, total	7440-47-3	E466	0.000040	mg/L	0.000070	0.000075	0.000005	Diff <2x LOR	----
		Cobalt, total	7440-48-4	E466	0.0000050	mg/L	0.000159	0.000161	1.26%	20%	----
		Copper, total	7440-50-8	E466	0.000050	mg/L	0.00133	0.00134	0.582%	20%	----
		Gallium, total	7440-55-3	E466	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Iron, total	7439-89-6	E466	0.00050	mg/L	0.0423	0.0437	3.32%	20%	----
		Lanthanum, total	7439-91-0	E466	0.000010	mg/L	0.000084	0.000091	0.000007	Diff <2x LOR	----
		Lead, total	7439-92-1	E466	0.0000050	mg/L	0.0000419	0.0000425	0.0000006	Diff <2x LOR	----
		Lithium, total	7439-93-2	E466	0.00010	mg/L	0.00072	0.00075	0.00003	Diff <2x LOR	----
		Magnesium, total	7439-95-4	E466	0.0010	mg/L	2.01	2.06	2.65%	20%	----
		Manganese, total	7439-96-5	E466	0.0000050	mg/L	0.00340	0.00336	1.08%	20%	----
		Molybdenum, total	7439-98-7	E466	0.000010	mg/L	0.000014	0.000014	0.0000003	Diff <2x LOR	----
		Nickel, total	7440-02-0	E466	0.000020	mg/L	0.00271	0.00267	1.59%	20%	----
		Niobium, total	7440-03-1	E466	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Phosphorus, total	7723-14-0	E466	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		Potassium, total	7440-09-7	E466	0.0050	mg/L	0.470	0.474	0.839%	20%	----
		Rhenium, total	7440-15-5	E466	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
		Rubidium, total	7440-17-7	E466	0.0000050	mg/L	0.00122	0.00123	0.304%	20%	----
		Selenium, total	7782-49-2	E466	0.000025	mg/L	0.000031	0.000034	0.000003	Diff <2x LOR	----
		Silicon, total	7440-21-3	E466	0.050	mg/L	0.204	0.193	0.010	Diff <2x LOR	----
		Silver, total	7440-22-4	E466	0.0000020	mg/L	<0.0000020	<0.0000020	0	Diff <2x LOR	----
		Sodium, total	7440-23-5	E466	0.010	mg/L	0.721	0.723	0.268%	20%	----
		Strontium, total	7440-24-6	E466	0.000020	mg/L	0.0196	0.0197	0.936%	20%	----
		Sulfur, total	7704-34-9	E466	0.50	mg/L	2.89	2.82	0.07	Diff <2x LOR	----
		Tantalum, total	7440-25-7	E466	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Tellurium, total	13494-80-9	E466	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Thallium, total	7440-28-0	E466	0.0000010	mg/L	0.0000015	0.0000016	0.00000009	Diff <2x LOR	----
		Thorium, total	7440-29-1	E466	0.0000050	mg/L	0.0000062	<0.0000050	0.0000012	Diff <2x LOR	----
		Tin, total	7440-31-5	E466	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Titanium, total	7440-32-6	E466	0.000050	mg/L	0.000203	0.000188	0.000015	Diff <2x LOR	----
		Tungsten, total	7440-33-7	E466	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Uranium, total	7440-61-1	E466	0.0000010	mg/L	0.0000053	0.0000060	0.0000007	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Total Metals (Undigested) (QC Lot: 1146479) - continued											
YL2301147-001	GLSE-T	Vanadium, total	7440-62-2	E466	0.000010	mg/L	0.000034	0.000036	0.000002	Diff <2x LOR	----
		Yttrium, total	7440-65-5	E466	0.000010	mg/L	0.000037	0.000034	0.000002	Diff <2x LOR	----
		Zinc, total	7440-66-6	E466	0.00010	mg/L	0.00086	0.00086	0.0000004	Diff <2x LOR	----
		Zirconium, total	7440-67-7	E466	0.000010	mg/L	0.000020	0.000020	0.0000009	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1146491)											
YL2301147-001	GLSE-T	Aluminum, dissolved	7429-90-5	E465	0.00020	mg/L	0.00452	0.00464	2.56%	20%	----
		Antimony, dissolved	7440-36-0	E465	0.0000050	mg/L	0.0000102	0.0000097	0.0000005	Diff <2x LOR	----
		Arsenic, dissolved	7440-38-2	E465	0.000010	mg/L	0.000236	0.000246	3.92%	20%	----
		Barium, dissolved	7440-39-3	E465	0.000020	mg/L	0.00614	0.00622	1.42%	20%	----
		Beryllium, dissolved	7440-41-7	E465	0.0000020	mg/L	<0.0000020	<0.0000020	0	Diff <2x LOR	----
		Bismuth, dissolved	7440-69-9	E465	0.0000010	mg/L	<0.0000010	0.0000010	0.00000003	Diff <2x LOR	----
		Boron, dissolved	7440-42-8	E465	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
		Cadmium, dissolved	7440-43-9	E465	0.0000025	mg/L	0.0000039	<0.0000025	0.0000014	Diff <2x LOR	----
		Calcium, dissolved	7440-70-2	E465	0.010	mg/L	3.76	3.77	0.136%	20%	----
		Cesium, dissolved	7440-46-2	E465	0.0000050	mg/L	0.0000071	0.0000072	0.00000009	Diff <2x LOR	----
		Chromium, dissolved	7440-47-3	E465	0.000040	mg/L	0.000054	0.000056	0.000001	Diff <2x LOR	----
		Cobalt, dissolved	7440-48-4	E465	0.0000050	mg/L	0.000115	0.000121	5.17%	20%	----
		Copper, dissolved	7440-50-8	E465	0.000050	mg/L	0.00116	0.00118	1.14%	20%	----
		Gallium, dissolved	7440-55-3	E465	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Iron, dissolved	7439-89-6	E465	0.00050	mg/L	0.0126	0.0126	0.286%	20%	----
		Lanthanum, dissolved	7439-91-0	E465	0.000010	mg/L	0.000056	0.000058	0.000002	Diff <2x LOR	----
		Lead, dissolved	7439-92-1	E465	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
		Lithium, dissolved	7439-93-2	E465	0.00010	mg/L	0.00072	0.00072	0.000001	Diff <2x LOR	----
		Magnesium, dissolved	7439-95-4	E465	0.0010	mg/L	2.05	2.08	1.66%	20%	----
		Manganese, dissolved	7439-96-5	E465	0.0000050	mg/L	0.00244	0.00244	0.0186%	20%	----
		Molybdenum, dissolved	7439-98-7	E465	0.000010	mg/L	0.000022	0.000022	0.0000008	Diff <2x LOR	----
		Nickel, dissolved	7440-02-0	E465	0.000020	mg/L	0.00257	0.00264	2.75%	20%	----
		Niobium, dissolved	7440-03-1	E465	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Phosphorus, dissolved	7723-14-0	E465	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		Potassium, dissolved	7440-09-7	E465	0.0050	mg/L	0.474	0.477	0.465%	20%	----
		Rhenium, dissolved	7440-15-5	E465	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
		Rubidium, dissolved	7440-17-7	E465	0.0000050	mg/L	0.00123	0.00124	0.619%	20%	----
		Selenium, dissolved	7782-49-2	E465	0.000025	mg/L	<0.000025	<0.000025	0	Diff <2x LOR	----
		Silicon, dissolved	7440-21-3	E465	0.050	mg/L	0.185	0.181	0.004	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Dissolved Metals (QC Lot: 1146491) - continued											
YL2301147-001	GLSE-T	Silver, dissolved	7440-22-4	E465	0.0000020	mg/L	<0.0000020	<0.0000020	0	Diff <2x LOR	----
		Sodium, dissolved	7440-23-5	E465	0.010	mg/L	0.727	0.733	0.864%	20%	----
		Strontium, dissolved	7440-24-6	E465	0.000020	mg/L	0.0197	0.0198	0.794%	20%	----
		Sulfur, dissolved	7704-34-9	E465	0.50	mg/L	2.74	2.83	0.09	Diff <2x LOR	----
		Tantalum, dissolved	7440-25-7	E465	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Tellurium, dissolved	13494-80-9	E465	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Thallium, dissolved	7440-28-0	E465	0.0000010	mg/L	0.0000015	0.0000016	0.0000002	Diff <2x LOR	----
		Thorium, dissolved	7440-29-1	E465	0.0000050	mg/L	<0.0000050	0.0000065	0.0000015	Diff <2x LOR	----
		Tin, dissolved	7440-31-5	E465	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Titanium, dissolved	7440-32-6	E465	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Tungsten, dissolved	7440-33-7	E465	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Uranium, dissolved	7440-61-1	E465	0.0000010	mg/L	0.0000034	0.0000027	0.0000007	Diff <2x LOR	----
		Vanadium, dissolved	7440-62-2	E465	0.000010	mg/L	0.000023	0.000025	0.000001	Diff <2x LOR	----
		Yttrium, dissolved	7440-65-5	E465	0.000010	mg/L	0.000024	0.000025	0.0000006	Diff <2x LOR	----
		Zinc, dissolved	7440-66-6	E465	0.00010	mg/L	0.00061	0.00063	0.00002	Diff <2x LOR	----
		Zirconium, dissolved	7440-67-7	E465	0.000010	mg/L	0.000018	0.000017	0.0000004	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1152257)											
WP2323464-001	Anonymous	Mercury, dissolved	7439-97-6	E509-L	0.50	ng/L	0.65	0.54	0.10	Diff <2x LOR	----

Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 1145119)						
Alkalinity, bicarbonate (as CaCO3)	----	E290	1	mg/L	<1.0	----
Alkalinity, carbonate (as CaCO3)	----	E290	1	mg/L	<1.0	----
Alkalinity, hydroxide (as CaCO3)	----	E290	1	mg/L	<1.0	----
Alkalinity, phenolphthalein (as CaCO3)	----	E290	1	mg/L	<1.0	----
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	<1.0	----
Physical Tests (QCLot: 1145120)						
Conductivity	----	E100	1	µS/cm	1.2	----
Physical Tests (QCLot: 1147251)						
Solids, total suspended [TSS]	----	E160	3	mg/L	<3.0	----
Anions and Nutrients (QCLot: 1145121)						
Fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 1145122)						
Chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 1145123)						
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 1145124)						
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	# 0.0060	B
Anions and Nutrients (QCLot: 1145125)						
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 1145126)						
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	----
Anions and Nutrients (QCLot: 1145127)						
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 1146086)						
Phosphorus, total	7723-14-0	E372-S	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 1146087)						
Phosphorus, total	7723-14-0	E372-S	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 1146097)						
Phosphorus, total dissolved	7723-14-0	E375-U	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 1146098)						
Phosphorus, total dissolved	7723-14-0	E375-U	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 1147214)						

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Anions and Nutrients (QCLot: 1147214) - continued						
Silicate (as SiO2)	7631-86-9	E392	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 1147215)						
Silicate (as SiO2)	7631-86-9	E392	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 1150166)						
Kjeldahl nitrogen, total [TKN]	----	E318	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 1150169)						
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	----
Cyanides (QCLot: 1161190)						
Cyanide, strong acid dissociable (Total)	----	E333	0.002	mg/L	<0.0020	----
Cyanides (QCLot: 1161191)						
Cyanide, weak acid dissociable	----	E336	0.002	mg/L	<0.0020	----
Cyanides (QCLot: 1161192)						
Cyanide, free	----	E339	0.002	mg/L	<0.0020	----
Organic / Inorganic Carbon (QCLot: 1150167)						
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	<0.50	----
Organic / Inorganic Carbon (QCLot: 1150168)						
Carbon, total organic [TOC]	----	E355-L	0.5	mg/L	<0.50	----
Total Sulfides (QCLot: 1144908)						
Sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	<0.0015	----
Total Metals (QCLot: 1153786)						
Mercury, total	7439-97-6	E508-L	0.5	ng/L	<0.50	----
Total Metals (Undigested) (QCLot: 1146479)						
Aluminum, total	7429-90-5	E466	0.0002	mg/L	<0.00020	----
Antimony, total	7440-36-0	E466	0.000005	mg/L	<0.0000050	----
Arsenic, total	7440-38-2	E466	0.00001	mg/L	<0.000010	----
Barium, total	7440-39-3	E466	0.00002	mg/L	<0.000020	----
Beryllium, total	7440-41-7	E466	0.000002	mg/L	<0.0000020	----
Bismuth, total	7440-69-9	E466	0.000001	mg/L	<0.0000010	----
Boron, total	7440-42-8	E466	0.005	mg/L	<0.0050	----
Cadmium, total	7440-43-9	E466	0.0000025	mg/L	<0.0000025	----
Calcium, total	7440-70-2	E466	0.01	mg/L	<0.010	----
Cesium, total	7440-46-2	E466	0.000005	mg/L	<0.0000050	----
Chromium, total	7440-47-3	E466	0.00004	mg/L	<0.000040	----
Cobalt, total	7440-48-4	E466	0.000005	mg/L	<0.0000050	----
Copper, total	7440-50-8	E466	0.00005	mg/L	<0.000050	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (Undigested) (QCLot: 1146479) - continued						
Gallium, total	7440-55-3	E466	0.00005	mg/L	<0.000050	----
Iron, total	7439-89-6	E466	0.0005	mg/L	<0.00050	----
Lanthanum, total	7439-91-0	E466	0.00001	mg/L	<0.000010	----
Lead, total	7439-92-1	E466	0.000005	mg/L	<0.0000050	----
Lithium, total	7439-93-2	E466	0.0001	mg/L	<0.00010	----
Magnesium, total	7439-95-4	E466	0.001	mg/L	<0.0010	----
Manganese, total	7439-96-5	E466	0.000005	mg/L	<0.0000050	----
Molybdenum, total	7439-98-7	E466	0.00001	mg/L	<0.000010	----
Nickel, total	7440-02-0	E466	0.00002	mg/L	<0.000020	----
Niobium, total	7440-03-1	E466	0.0001	mg/L	<0.00010	----
Phosphorus, total	7723-14-0	E466	0.01	mg/L	<0.010	----
Potassium, total	7440-09-7	E466	0.005	mg/L	<0.0050	----
Rhenium, total	7440-15-5	E466	0.000005	mg/L	<0.0000050	----
Rubidium, total	7440-17-7	E466	0.000005	mg/L	<0.0000050	----
Selenium, total	7782-49-2	E466	0.000025	mg/L	<0.000025	----
Silicon, total	7440-21-3	E466	0.05	mg/L	<0.050	----
Silver, total	7440-22-4	E466	0.000002	mg/L	<0.0000020	----
Sodium, total	7440-23-5	E466	0.01	mg/L	<0.010	----
Strontium, total	7440-24-6	E466	0.00002	mg/L	<0.000020	----
Sulfur, total	7704-34-9	E466	0.5	mg/L	<0.50	----
Tantalum, total	7440-25-7	E466	0.0001	mg/L	<0.00010	----
Tellurium, total	13494-80-9	E466	0.00001	mg/L	<0.000010	----
Thallium, total	7440-28-0	E466	0.000001	mg/L	<0.0000010	----
Thorium, total	7440-29-1	E466	0.000005	mg/L	<0.0000050	----
Tin, total	7440-31-5	E466	0.00001	mg/L	<0.000010	----
Titanium, total	7440-32-6	E466	0.00005	mg/L	<0.000050	----
Tungsten, total	7440-33-7	E466	0.00001	mg/L	<0.000010	----
Uranium, total	7440-61-1	E466	0.000001	mg/L	<0.0000010	----
Vanadium, total	7440-62-2	E466	0.00001	mg/L	<0.000010	----
Yttrium, total	7440-65-5	E466	0.00001	mg/L	<0.000010	----
Zinc, total	7440-66-6	E466	0.0001	mg/L	<0.00010	----
Zirconium, total	7440-67-7	E466	0.00001	mg/L	<0.000010	----
Dissolved Metals (QCLot: 1146491)						
Aluminum, dissolved	7429-90-5	E465	0.0002	mg/L	<0.00020	----
Antimony, dissolved	7440-36-0	E465	0.000005	mg/L	<0.0000050	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Dissolved Metals (QCLot: 1146491) - continued						
Arsenic, dissolved	7440-38-2	E465	0.00001	mg/L	<0.000010	----
Barium, dissolved	7440-39-3	E465	0.00002	mg/L	<0.000020	----
Beryllium, dissolved	7440-41-7	E465	0.000002	mg/L	<0.0000020	----
Bismuth, dissolved	7440-69-9	E465	0.000001	mg/L	<0.0000010	----
Boron, dissolved	7440-42-8	E465	0.005	mg/L	<0.0050	----
Cadmium, dissolved	7440-43-9	E465	0.0000025	mg/L	<0.0000025	----
Calcium, dissolved	7440-70-2	E465	0.01	mg/L	<0.010	----
Cesium, dissolved	7440-46-2	E465	0.000005	mg/L	<0.0000050	----
Chromium, dissolved	7440-47-3	E465	0.00004	mg/L	<0.000040	----
Cobalt, dissolved	7440-48-4	E465	0.000005	mg/L	<0.0000050	----
Copper, dissolved	7440-50-8	E465	0.00005	mg/L	<0.000050	----
Gallium, dissolved	7440-55-3	E465	0.00005	mg/L	<0.000050	----
Iron, dissolved	7439-89-6	E465	0.0005	mg/L	<0.00050	----
Lanthanum, dissolved	7439-91-0	E465	0.00001	mg/L	<0.000010	----
Lead, dissolved	7439-92-1	E465	0.000005	mg/L	<0.0000050	----
Lithium, dissolved	7439-93-2	E465	0.0001	mg/L	<0.00010	----
Magnesium, dissolved	7439-95-4	E465	0.001	mg/L	<0.0010	----
Manganese, dissolved	7439-96-5	E465	0.000005	mg/L	<0.0000050	----
Molybdenum, dissolved	7439-98-7	E465	0.00001	mg/L	<0.000010	----
Nickel, dissolved	7440-02-0	E465	0.00002	mg/L	<0.000020	----
Niobium, dissolved	7440-03-1	E465	0.0001	mg/L	<0.00010	----
Phosphorus, dissolved	7723-14-0	E465	0.01	mg/L	<0.010	----
Potassium, dissolved	7440-09-7	E465	0.005	mg/L	<0.0050	----
Rhenium, dissolved	7440-15-5	E465	0.000005	mg/L	<0.0000050	----
Rubidium, dissolved	7440-17-7	E465	0.000005	mg/L	<0.0000050	----
Selenium, dissolved	7782-49-2	E465	0.000025	mg/L	<0.000025	----
Silicon, dissolved	7440-21-3	E465	0.05	mg/L	<0.050	----
Silver, dissolved	7440-22-4	E465	0.000002	mg/L	<0.0000020	----
Sodium, dissolved	7440-23-5	E465	0.01	mg/L	<0.010	----
Strontium, dissolved	7440-24-6	E465	0.00002	mg/L	<0.000020	----
Sulfur, dissolved	7704-34-9	E465	0.5	mg/L	<0.50	----
Tantalum, dissolved	7440-25-7	E465	0.0001	mg/L	<0.00010	----
Tellurium, dissolved	13494-80-9	E465	0.00001	mg/L	<0.000010	----
Thallium, dissolved	7440-28-0	E465	0.000001	mg/L	<0.0000010	----
Thorium, dissolved	7440-29-1	E465	0.000005	mg/L	<0.0000050	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Dissolved Metals (QCLot: 1146491) - continued						
Tin, dissolved	7440-31-5	E465	0.00001	mg/L	<0.000010	----
Titanium, dissolved	7440-32-6	E465	0.00005	mg/L	<0.000050	----
Tungsten, dissolved	7440-33-7	E465	0.00001	mg/L	<0.000010	----
Uranium, dissolved	7440-61-1	E465	0.000001	mg/L	<0.0000010	----
Vanadium, dissolved	7440-62-2	E465	0.00001	mg/L	<0.000010	----
Yttrium, dissolved	7440-65-5	E465	0.00001	mg/L	<0.000010	----
Zinc, dissolved	7440-66-6	E465	0.0001	mg/L	<0.00010	----
Zirconium, dissolved	7440-67-7	E465	0.00001	mg/L	<0.000010	----
Dissolved Metals (QCLot: 1152257)						
Mercury, dissolved	7439-97-6	E509-L	0.5	ng/L	<0.50	----

Qualifiers

Qualifier	Description
B	*Method Blank exceeds ALS DQO. Associated sample results which are < Limit of Reporting or > 5 times blank level are considered reliable.*

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: 1145118)									
pH	----	E108	----	pH units	7 pH units	100	98.0	102	----
Physical Tests (QCLot: 1145119)									
Alkalinity, phenolphthalein (as CaCO3)	----	E290	1	mg/L	229 mg/L	114	75.0	125	----
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	500 mg/L	110	85.0	115	----
Physical Tests (QCLot: 1145120)									
Conductivity	----	E100	1	µS/cm	146.9 µS/cm	93.7	90.0	110	----
Physical Tests (QCLot: 1147251)									
Solids, total suspended [TSS]	----	E160	3	mg/L	150 mg/L	95.0	85.0	115	----
Anions and Nutrients (QCLot: 1145121)									
Fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	105	90.0	110	----
Anions and Nutrients (QCLot: 1145122)									
Chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	102	90.0	110	----
Anions and Nutrients (QCLot: 1145123)									
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	0.5 mg/L	101	85.0	115	----
Anions and Nutrients (QCLot: 1145124)									
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: 1145125)									
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	0.5 mg/L	99.2	90.0	110	----
Anions and Nutrients (QCLot: 1145126)									
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	102	90.0	110	----
Anions and Nutrients (QCLot: 1145127)									
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.001	mg/L	0.03 mg/L	97.2	80.0	120	----
Anions and Nutrients (QCLot: 1146086)									
Phosphorus, total	7723-14-0	E372-S	0.001	mg/L	0.05 mg/L	100	80.0	120	----
Anions and Nutrients (QCLot: 1146087)									
Phosphorus, total	7723-14-0	E372-S	0.001	mg/L	0.05 mg/L	99.5	80.0	120	----
Anions and Nutrients (QCLot: 1146097)									
Phosphorus, total dissolved	7723-14-0	E375-U	0.001	mg/L	0.05 mg/L	102	80.0	120	----
Anions and Nutrients (QCLot: 1146098)									
Phosphorus, total dissolved	7723-14-0	E375-U	0.001	mg/L	0.05 mg/L	99.0	80.0	120	----
Anions and Nutrients (QCLot: 1147214)									

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report: Spike Concentration	Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High	Qualifier
Anions and Nutrients (QCLot: 1147214) - continued									
Silicate (as SiO2)	7631-86-9	E392	0.5	mg/L	10 mg/L	102	85.0	115	----
Anions and Nutrients (QCLot: 1147215)									
Silicate (as SiO2)	7631-86-9	E392	0.5	mg/L	10 mg/L	101	85.0	115	----
Anions and Nutrients (QCLot: 1150166)									
Kjeldahl nitrogen, total [TKN]	----	E318	0.05	mg/L	4 mg/L	103	75.0	125	----
Anions and Nutrients (QCLot: 1150169)									
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	102	85.0	115	----
Cyanides (QCLot: 1161190)									
Cyanide, strong acid dissociable (Total)	----	E333	0.002	mg/L	0.25 mg/L	113	80.0	120	----
Cyanides (QCLot: 1161191)									
Cyanide, weak acid dissociable	----	E336	0.002	mg/L	0.125 mg/L	111	80.0	120	----
Cyanides (QCLot: 1161192)									
Cyanide, free	----	E339	0.002	mg/L	0.125 mg/L	112	80.0	120	----
Organic / Inorganic Carbon (QCLot: 1150167)									
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	8.57 mg/L	99.6	80.0	120	----
Organic / Inorganic Carbon (QCLot: 1150168)									
Carbon, total organic [TOC]	----	E355-L	0.5	mg/L	8.57 mg/L	104	80.0	120	----
Total Sulfides (QCLot: 1144908)									
Sulfide, total (as S)	18496-25-8	E395	0.0015	mg/L	0.08 mg/L	110	80.0	120	----
Total Metals (QCLot: 1153786)									
Mercury, total	7439-97-6	E508-L	0.5	ng/L	5 ng/L	93.4	80.0	120	----
Total Metals (Undigested) (QCLot: 1146479)									
Aluminum, total	7429-90-5	E466	0.0002	mg/L	2 mg/L	104	80.0	120	----
Antimony, total	7440-36-0	E466	0.000005	mg/L	1 mg/L	104	80.0	120	----
Arsenic, total	7440-38-2	E466	0.00001	mg/L	1 mg/L	108	80.0	120	----
Barium, total	7440-39-3	E466	0.00002	mg/L	0.25 mg/L	105	80.0	120	----
Beryllium, total	7440-41-7	E466	0.000002	mg/L	0.1 mg/L	99.5	80.0	120	----
Bismuth, total	7440-69-9	E466	0.000001	mg/L	1 mg/L	101	80.0	120	----
Boron, total	7440-42-8	E466	0.005	mg/L	1 mg/L	92.9	80.0	120	----
Cadmium, total	7440-43-9	E466	0.0000025	mg/L	0.1 mg/L	104	80.0	120	----
Calcium, total	7440-70-2	E466	0.01	mg/L	50 mg/L	102	80.0	120	----
Cesium, total	7440-46-2	E466	0.000005	mg/L	0.05 mg/L	100	80.0	120	----

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 (Undigested) (QCLot: 1146479) - continued									
Chromium, total	7440-47-3	E466	0.00004	mg/L	0.25 mg/L	101	80.0	120	----
Cobalt, total	7440-48-4	E466	0.000005	mg/L	0.25 mg/L	99.2	80.0	120	----
Copper, total	7440-50-8	E466	0.00005	mg/L	0.25 mg/L	97.3	80.0	120	----
Gallium, total	7440-55-3	E466	0.00005	mg/L	0.25 mg/L	99.8	80.0	120	----
Iron, total	7439-89-6	E466	0.0005	mg/L	1 mg/L	102	80.0	120	----
Lanthanum, total	7439-91-0	E466	0.00001	mg/L	0.1 mg/L	102	80.0	120	----
Lead, total	7439-92-1	E466	0.000005	mg/L	0.5 mg/L	102	80.0	120	----
Lithium, total	7439-93-2	E466	0.0001	mg/L	0.25 mg/L	97.2	80.0	120	----
Magnesium, total	7439-95-4	E466	0.001	mg/L	50 mg/L	99.7	80.0	120	----
Manganese, total	7439-96-5	E466	0.000005	mg/L	0.25 mg/L	102	80.0	120	----
Molybdenum, total	7439-98-7	E466	0.00001	mg/L	0.25 mg/L	102	80.0	120	----
Nickel, total	7440-02-0	E466	0.00002	mg/L	0.5 mg/L	101	80.0	120	----
Niobium, total	7440-03-1	E466	0.0001	mg/L	0.05 mg/L	103	80.0	120	----
Phosphorus, total	7723-14-0	E466	0.01	mg/L	10 mg/L	104	80.0	120	----
Potassium, total	7440-09-7	E466	0.005	mg/L	50 mg/L	101	80.0	120	----
Rhenium, total	7440-15-5	E466	0.000005	mg/L	0.1 mg/L	101	80.0	120	----
Rubidium, total	7440-17-7	E466	0.000005	mg/L	0.1 mg/L	102	80.0	120	----
Selenium, total	7782-49-2	E466	0.000025	mg/L	1 mg/L	101	80.0	120	----
Silicon, total	7440-21-3	E466	0.05	mg/L	10 mg/L	104	80.0	120	----
Silver, total	7440-22-4	E466	0.000002	mg/L	0.1 mg/L	99.0	80.0	120	----
Sodium, total	7440-23-5	E466	0.01	mg/L	50 mg/L	99.6	80.0	120	----
Strontium, total	7440-24-6	E466	0.00002	mg/L	0.25 mg/L	104	80.0	120	----
Sulfur, total	7704-34-9	E466	0.5	mg/L	50 mg/L	105	80.0	120	----
Tantalum, total	7440-25-7	E466	0.0001	mg/L	0.1 mg/L	103	80.0	120	----
Tellurium, total	13494-80-9	E466	0.00001	mg/L	0.1 mg/L	102	80.0	120	----
Thallium, total	7440-28-0	E466	0.000001	mg/L	1 mg/L	100	80.0	120	----
Thorium, total	7440-29-1	E466	0.000005	mg/L	0.1 mg/L	103	80.0	120	----
Tin, total	7440-31-5	E466	0.00001	mg/L	0.5 mg/L	103	80.0	120	----
Titanium, total	7440-32-6	E466	0.00005	mg/L	0.25 mg/L	107	80.0	120	----
Tungsten, total	7440-33-7	E466	0.00001	mg/L	0.1 mg/L	102	80.0	120	----
Uranium, total	7440-61-1	E466	0.000001	mg/L	0.005 mg/L	101	80.0	120	----
Vanadium, total	7440-62-2	E466	0.00001	mg/L	0.5 mg/L	104	80.0	120	----
Yttrium, total	7440-65-5	E466	0.00001	mg/L	0.1 mg/L	104	80.0	120	----
Zinc, total	7440-66-6	E466	0.0001	mg/L	0.5 mg/L	99.9	80.0	120	----
Zirconium, total	7440-67-7	E466	0.00001	mg/L	0.1 mg/L	101	80.0	120	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Dissolved Metals (QCLot: 1146491)									
Aluminum, dissolved	7429-90-5	E465	0.0002	mg/L	2 mg/L	103	80.0	120	----
Antimony, dissolved	7440-36-0	E465	0.000005	mg/L	1 mg/L	105	80.0	120	----
Arsenic, dissolved	7440-38-2	E465	0.00001	mg/L	1 mg/L	100	80.0	120	----
Barium, dissolved	7440-39-3	E465	0.00002	mg/L	0.25 mg/L	103	80.0	120	----
Beryllium, dissolved	7440-41-7	E465	0.000002	mg/L	0.1 mg/L	98.1	80.0	120	----
Bismuth, dissolved	7440-69-9	E465	0.000001	mg/L	1 mg/L	102	80.0	120	----
Boron, dissolved	7440-42-8	E465	0.005	mg/L	1 mg/L	92.9	80.0	120	----
Cadmium, dissolved	7440-43-9	E465	0.0000025	mg/L	0.1 mg/L	100	80.0	120	----
Calcium, dissolved	7440-70-2	E465	0.01	mg/L	50 mg/L	102	80.0	120	----
Cesium, dissolved	7440-46-2	E465	0.000005	mg/L	0.05 mg/L	101	80.0	120	----
Chromium, dissolved	7440-47-3	E465	0.00004	mg/L	0.25 mg/L	101	80.0	120	----
Cobalt, dissolved	7440-48-4	E465	0.000005	mg/L	0.25 mg/L	99.6	80.0	120	----
Copper, dissolved	7440-50-8	E465	0.00005	mg/L	0.25 mg/L	99.5	80.0	120	----
Gallium, dissolved	7440-55-3	E465	0.00005	mg/L	0.25 mg/L	96.0	80.0	120	----
Iron, dissolved	7439-89-6	E465	0.0005	mg/L	1 mg/L	102	80.0	120	----
Lanthanum, dissolved	7439-91-0	E465	0.00001	mg/L	0.1 mg/L	100	80.0	120	----
Lead, dissolved	7439-92-1	E465	0.000005	mg/L	0.5 mg/L	102	80.0	120	----
Lithium, dissolved	7439-93-2	E465	0.0001	mg/L	0.25 mg/L	95.5	80.0	120	----
Magnesium, dissolved	7439-95-4	E465	0.001	mg/L	50 mg/L	99.3	80.0	120	----
Manganese, dissolved	7439-96-5	E465	0.000005	mg/L	0.25 mg/L	102	80.0	120	----
Molybdenum, dissolved	7439-98-7	E465	0.00001	mg/L	0.25 mg/L	101	80.0	120	----
Nickel, dissolved	7440-02-0	E465	0.00002	mg/L	0.5 mg/L	101	80.0	120	----
Niobium, dissolved	7440-03-1	E465	0.0001	mg/L	0.05 mg/L	97.1	80.0	120	----
Phosphorus, dissolved	7723-14-0	E465	0.01	mg/L	10 mg/L	102	80.0	120	----
Potassium, dissolved	7440-09-7	E465	0.005	mg/L	50 mg/L	99.5	80.0	120	----
Rhenium, dissolved	7440-15-5	E465	0.000005	mg/L	0.1 mg/L	103	80.0	120	----
Rubidium, dissolved	7440-17-7	E465	0.000005	mg/L	0.1 mg/L	101	80.0	120	----
Selenium, dissolved	7782-49-2	E465	0.000025	mg/L	1 mg/L	98.8	80.0	120	----
Silicon, dissolved	7440-21-3	E465	0.05	mg/L	10 mg/L	102	80.0	120	----
Silver, dissolved	7440-22-4	E465	0.000002	mg/L	0.1 mg/L	95.0	80.0	120	----
Sodium, dissolved	7440-23-5	E465	0.01	mg/L	50 mg/L	98.6	80.0	120	----
Strontium, dissolved	7440-24-6	E465	0.00002	mg/L	0.25 mg/L	103	80.0	120	----
Sulfur, dissolved	7704-34-9	E465	0.5	mg/L	50 mg/L	102	80.0	120	----
Tantalum, dissolved	7440-25-7	E465	0.0001	mg/L	0.1 mg/L	101	80.0	120	----
Tellurium, dissolved	13494-80-9	E465	0.00001	mg/L	0.1 mg/L	95.0	80.0	120	----
Thallium, dissolved	7440-28-0	E465	0.000001	mg/L	1 mg/L	102	80.0	120	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Dissolved Metals (QCLot: 1146491) - continued									
Thorium, dissolved	7440-29-1	E465	0.000005	mg/L	0.1 mg/L	95.8	80.0	120	----
Tin, dissolved	7440-31-5	E465	0.00001	mg/L	0.5 mg/L	99.6	80.0	120	----
Titanium, dissolved	7440-32-6	E465	0.00005	mg/L	0.25 mg/L	100	80.0	120	----
Tungsten, dissolved	7440-33-7	E465	0.00001	mg/L	0.1 mg/L	99.9	80.0	120	----
Uranium, dissolved	7440-61-1	E465	0.000001	mg/L	0.005 mg/L	106	80.0	120	----
Vanadium, dissolved	7440-62-2	E465	0.00001	mg/L	0.5 mg/L	103	80.0	120	----
Yttrium, dissolved	7440-65-5	E465	0.00001	mg/L	0.1 mg/L	98.8	80.0	120	----
Zinc, dissolved	7440-66-6	E465	0.0001	mg/L	0.5 mg/L	99.7	80.0	120	----
Zirconium, dissolved	7440-67-7	E465	0.00001	mg/L	0.1 mg/L	100	80.0	120	----
Mercury, dissolved	7439-97-6	E509-L	0.5	ng/L	5 ng/L	97.6	80.0	120	----

Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for the associated sample (or similar samples) may be subject to bias. ND – Recovery not determined, background level >= 1x spike level.

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Anions and Nutrients (QCLot: 1145121)										
YL2301147-002	GLSE-M	Fluoride	16984-48-8	E235.F	1.11 mg/L	1 mg/L	111	75.0	125	----
Anions and Nutrients (QCLot: 1145122)										
YL2301147-002	GLSE-M	Chloride	16887-00-6	E235.Cl	105 mg/L	100 mg/L	105	75.0	125	----
Anions and Nutrients (QCLot: 1145123)										
YL2301147-002	GLSE-M	Bromide	24959-67-9	E235.Br-L	0.525 mg/L	0.5 mg/L	105	75.0	125	----
Anions and Nutrients (QCLot: 1145124)										
YL2301147-002	GLSE-M	Nitrate (as N)	14797-55-8	E235.NO3-L	2.61 mg/L	2.5 mg/L	104	75.0	125	----
Anions and Nutrients (QCLot: 1145125)										
YL2301147-002	GLSE-M	Nitrite (as N)	14797-65-0	E235.NO2-L	0.508 mg/L	0.5 mg/L	102	75.0	125	----
Anions and Nutrients (QCLot: 1145126)										
YL2301147-002	GLSE-M	Sulfate (as SO4)	14808-79-8	E235.SO4	104 mg/L	100 mg/L	104	75.0	125	----
Anions and Nutrients (QCLot: 1145127)										
YL2301147-002	GLSE-M	Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0361 mg/L	0.03 mg/L	120	70.0	130	----
Anions and Nutrients (QCLot: 1146086)										
YL2301146-002	Anonymous	Phosphorus, total	7723-14-0	E372-S	0.0608 mg/L	0.067 mg/L	90.7	70.0	130	----
Anions and Nutrients (QCLot: 1146087)										
YL2301160-001	Anonymous	Phosphorus, total	7723-14-0	E372-S	0.0605 mg/L	0.067 mg/L	90.3	70.0	130	----
Anions and Nutrients (QCLot: 1146097)										
YL2301146-002	Anonymous	Phosphorus, total dissolved	7723-14-0	E375-U	0.0620 mg/L	0.067 mg/L	92.5	70.0	130	----
Anions and Nutrients (QCLot: 1146098)										
YL2301160-001	Anonymous	Phosphorus, total dissolved	7723-14-0	E375-U	0.0614 mg/L	0.067 mg/L	91.6	70.0	130	----
Anions and Nutrients (QCLot: 1147214)										
VA23C2318-002	Anonymous	Silicate (as SiO2)	7631-86-9	E392	10.0 mg/L	10 mg/L	100	75.0	125	----
Anions and Nutrients (QCLot: 1147215)										
YL2301147-007	GLWB-B	Silicate (as SiO2)	7631-86-9	E392	10.1 mg/L	10 mg/L	101	75.0	125	----
Anions and Nutrients (QCLot: 1150166)										
YL2301147-002	GLSE-M	Kjeldahl nitrogen, total [TKN]	----	E318	2.38 mg/L	2.5 mg/L	95.2	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Anions and Nutrients (QCLot: 1150169)										
YL2301147-002	GLSE-M	Ammonia, total (as N)	7664-41-7	E298	0.1000 mg/L	0.1 mg/L	100.0	75.0	125	----
Cyanides (QCLot: 1161190)										
YL2301147-001	GLSE-T	Cyanide, strong acid dissociable (Total)	----	E333	0.296 mg/L	0.25 mg/L	119	75.0	125	----
Cyanides (QCLot: 1161191)										
YL2301147-001	GLSE-T	Cyanide, weak acid dissociable	----	E336	0.141 mg/L	0.125 mg/L	113	75.0	125	----
Cyanides (QCLot: 1161192)										
YL2301147-001	GLSE-T	Cyanide, free	----	E339	0.136 mg/L	0.125 mg/L	108	75.0	125	----
Organic / Inorganic Carbon (QCLot: 1150167)										
YL2301147-002	GLSE-M	Carbon, dissolved organic [DOC]	----	E358-L	5.21 mg/L	5 mg/L	104	70.0	130	----
Organic / Inorganic Carbon (QCLot: 1150168)										
YL2301147-002	GLSE-M	Carbon, total organic [TOC]	----	E355-L	5.28 mg/L	5 mg/L	106	70.0	130	----
Total Sulfides (QCLot: 1144908)										
CG2312925-002	Anonymous	Sulfide, total (as S)	18496-25-8	E395	0.225 mg/L	0.2 mg/L	113	75.0	125	----
Total Metals (QCLot: 1153786)										
FJ2302405-001	Anonymous	Mercury, total	7439-97-6	E508-L	5.23 ng/L	5 ng/L	105	70.0	130	----
Total Metals (Undigested) (QCLot: 1146479)										
YL2301147-002	GLSE-M	Aluminum, total	7429-90-5	E466	0.214 mg/L	0.2 mg/L	107	70.0	130	----
		Antimony, total	7440-36-0	E466	0.0198 mg/L	0.02 mg/L	99.3	70.0	130	----
		Arsenic, total	7440-38-2	E466	0.0201 mg/L	0.02 mg/L	100	70.0	130	----
		Barium, total	7440-39-3	E466	0.0197 mg/L	0.02 mg/L	98.5	70.0	130	----
		Beryllium, total	7440-41-7	E466	0.0392 mg/L	0.04 mg/L	98.1	70.0	130	----
		Bismuth, total	7440-69-9	E466	0.00946 mg/L	0.01 mg/L	94.6	70.0	130	----
		Boron, total	7440-42-8	E466	0.0923 mg/L	0.1 mg/L	92.3	70.0	130	----
		Cadmium, total	7440-43-9	E466	0.00404 mg/L	0.004 mg/L	101	70.0	130	----
		Calcium, total	7440-70-2	E466	4.02 mg/L	4 mg/L	100	70.0	130	----
		Cesium, total	7440-46-2	E466	0.00941 mg/L	0.01 mg/L	94.1	70.0	130	----
		Chromium, total	7440-47-3	E466	0.0430 mg/L	0.04 mg/L	108	70.0	130	----
		Cobalt, total	7440-48-4	E466	0.0207 mg/L	0.02 mg/L	104	70.0	130	----
		Copper, total	7440-50-8	E466	0.0212 mg/L	0.02 mg/L	106	70.0	130	----
		Gallium, total	7440-55-3	E466	0.00264 mg/L	0.0025 mg/L	106	70.0	130	----
		Iron, total	7439-89-6	E466	2.06 mg/L	2 mg/L	103	70.0	130	----
		Lanthanum, total	7439-91-0	E466	0.00266 mg/L	0.0025 mg/L	106	70.0	130	----
		Lead, total	7439-92-1	E466	0.0191 mg/L	0.02 mg/L	95.7	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Total Metals (Undigested) (QCLot: 1146479) - continued										
YL2301147-002	GLSE-M	Lithium, total	7439-93-2	E466	0.0932 mg/L	0.1 mg/L	93.2	70.0	130	----
		Magnesium, total	7439-95-4	E466	ND mg/L	1 mg/L	ND	70.0	130	----
		Manganese, total	7439-96-5	E466	0.0218 mg/L	0.02 mg/L	109	70.0	130	----
		Molybdenum, total	7439-98-7	E466	0.0205 mg/L	0.02 mg/L	103	70.0	130	----
		Nickel, total	7440-02-0	E466	0.0428 mg/L	0.04 mg/L	107	70.0	130	----
		Niobium, total	7440-03-1	E466	0.00257 mg/L	0.0025 mg/L	103	70.0	130	----
		Phosphorus, total	7723-14-0	E466	10.3 mg/L	10 mg/L	103	70.0	130	----
		Potassium, total	7440-09-7	E466	4.12 mg/L	4 mg/L	103	70.0	130	----
		Rhenium, total	7440-15-5	E466	0.00256 mg/L	0.0025 mg/L	102	70.0	130	----
		Rubidium, total	7440-17-7	E466	0.0209 mg/L	0.02 mg/L	104	70.0	130	----
		Selenium, total	7782-49-2	E466	0.0427 mg/L	0.04 mg/L	107	70.0	130	----
		Silicon, total	7440-21-3	E466	9.23 mg/L	10 mg/L	92.3	70.0	130	----
		Silver, total	7440-22-4	E466	0.00392 mg/L	0.004 mg/L	98.0	70.0	130	----
		Sodium, total	7440-23-5	E466	2.03 mg/L	2 mg/L	102	70.0	130	----
		Strontium, total	7440-24-6	E466	0.0233 mg/L	0.02 mg/L	116	70.0	130	----
		Sulfur, total	7704-34-9	E466	19.4 mg/L	20 mg/L	97.2	70.0	130	----
		Tantalum, total	7440-25-7	E466	0.00241 mg/L	0.0025 mg/L	96.5	70.0	130	----
		Tellurium, total	13494-80-9	E466	0.0434 mg/L	0.04 mg/L	108	70.0	130	----
		Thallium, total	7440-28-0	E466	0.00374 mg/L	0.004 mg/L	93.6	70.0	130	----
		Thorium, total	7440-29-1	E466	0.0187 mg/L	0.02 mg/L	93.3	70.0	130	----
		Tin, total	7440-31-5	E466	0.0193 mg/L	0.02 mg/L	96.7	70.0	130	----
		Titanium, total	7440-32-6	E466	0.0406 mg/L	0.04 mg/L	101	70.0	130	----
		Tungsten, total	7440-33-7	E466	0.0192 mg/L	0.02 mg/L	96.1	70.0	130	----
		Uranium, total	7440-61-1	E466	0.00396 mg/L	0.004 mg/L	98.9	70.0	130	----
		Vanadium, total	7440-62-2	E466	0.109 mg/L	0.1 mg/L	109	70.0	130	----
		Yttrium, total	7440-65-5	E466	0.00271 mg/L	0.0025 mg/L	108	70.0	130	----
		Zinc, total	7440-66-6	E466	0.448 mg/L	0.4 mg/L	112	70.0	130	----
		Zirconium, total	7440-67-7	E466	0.0391 mg/L	0.04 mg/L	97.7	70.0	130	----
Dissolved Metals (QCLot: 1146491)										
YL2301147-002	GLSE-M	Aluminum, dissolved	7429-90-5	E465	0.200 mg/L	0.2 mg/L	100	70.0	130	----
		Antimony, dissolved	7440-36-0	E465	0.0201 mg/L	0.02 mg/L	100	70.0	130	----
		Arsenic, dissolved	7440-38-2	E465	0.0193 mg/L	0.02 mg/L	96.5	70.0	130	----
		Barium, dissolved	7440-39-3	E465	0.0209 mg/L	0.02 mg/L	104	70.0	130	----
		Beryllium, dissolved	7440-41-7	E465	0.0400 mg/L	0.04 mg/L	100.0	70.0	130	----
		Bismuth, dissolved	7440-69-9	E465	0.00978 mg/L	0.01 mg/L	97.8	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Dissolved Metals (QCLot: 1146491) - continued										
YL2301147-002	GLSE-M	Boron, dissolved	7440-42-8	E465	0.0913 mg/L	0.1 mg/L	91.3	70.0	130	----
		Cadmium, dissolved	7440-43-9	E465	0.00403 mg/L	0.004 mg/L	101	70.0	130	----
		Calcium, dissolved	7440-70-2	E465	3.81 mg/L	4 mg/L	95.4	70.0	130	----
		Cesium, dissolved	7440-46-2	E465	0.0102 mg/L	0.01 mg/L	102	70.0	130	----
		Chromium, dissolved	7440-47-3	E465	0.0401 mg/L	0.04 mg/L	100	70.0	130	----
		Cobalt, dissolved	7440-48-4	E465	0.0205 mg/L	0.02 mg/L	102	70.0	130	----
		Copper, dissolved	7440-50-8	E465	0.0186 mg/L	0.02 mg/L	93.0	70.0	130	----
		Gallium, dissolved	7440-55-3	E465	0.00260 mg/L	0.0025 mg/L	104	70.0	130	----
		Iron, dissolved	7439-89-6	E465	1.95 mg/L	2 mg/L	97.5	70.0	130	----
		Lanthanum, dissolved	7439-91-0	E465	0.00264 mg/L	0.0025 mg/L	106	70.0	130	----
		Lead, dissolved	7439-92-1	E465	0.0199 mg/L	0.02 mg/L	99.5	70.0	130	----
		Lithium, dissolved	7439-93-2	E465	0.0949 mg/L	0.1 mg/L	94.9	70.0	130	----
		Magnesium, dissolved	7439-95-4	E465	ND mg/L	1 mg/L	ND	70.0	130	----
		Manganese, dissolved	7439-96-5	E465	0.0191 mg/L	0.02 mg/L	95.4	70.0	130	----
		Molybdenum, dissolved	7439-98-7	E465	0.0199 mg/L	0.02 mg/L	99.4	70.0	130	----
		Nickel, dissolved	7440-02-0	E465	0.0403 mg/L	0.04 mg/L	101	70.0	130	----
		Niobium, dissolved	7440-03-1	E465	0.00256 mg/L	0.0025 mg/L	102	70.0	130	----
		Phosphorus, dissolved	7723-14-0	E465	10.0 mg/L	10 mg/L	100	70.0	130	----
		Potassium, dissolved	7440-09-7	E465	3.64 mg/L	4 mg/L	91.0	70.0	130	----
		Rhenium, dissolved	7440-15-5	E465	0.00280 mg/L	0.0025 mg/L	112	70.0	130	----
		Rubidium, dissolved	7440-17-7	E465	0.0200 mg/L	0.02 mg/L	100	70.0	130	----
		Selenium, dissolved	7782-49-2	E465	0.0419 mg/L	0.04 mg/L	105	70.0	130	----
		Silicon, dissolved	7440-21-3	E465	9.17 mg/L	10 mg/L	91.7	70.0	130	----
		Silver, dissolved	7440-22-4	E465	0.00386 mg/L	0.004 mg/L	96.4	70.0	130	----
		Sodium, dissolved	7440-23-5	E465	1.82 mg/L	2 mg/L	90.9	70.0	130	----
		Strontium, dissolved	7440-24-6	E465	0.0187 mg/L	0.02 mg/L	93.6	70.0	130	----
		Sulfur, dissolved	7704-34-9	E465	18.6 mg/L	20 mg/L	92.8	70.0	130	----
		Tantalum, dissolved	7440-25-7	E465	0.00252 mg/L	0.0025 mg/L	101	70.0	130	----
		Tellurium, dissolved	13494-80-9	E465	0.0412 mg/L	0.04 mg/L	103	70.0	130	----
		Thallium, dissolved	7440-28-0	E465	0.00399 mg/L	0.004 mg/L	99.8	70.0	130	----
		Thorium, dissolved	7440-29-1	E465	0.0184 mg/L	0.02 mg/L	92.1	70.0	130	----
		Tin, dissolved	7440-31-5	E465	0.0191 mg/L	0.02 mg/L	95.4	70.0	130	----
		Titanium, dissolved	7440-32-6	E465	0.0392 mg/L	0.04 mg/L	97.9	70.0	130	----
		Tungsten, dissolved	7440-33-7	E465	0.0193 mg/L	0.02 mg/L	96.5	70.0	130	----
		Uranium, dissolved	7440-61-1	E465	0.00383 mg/L	0.004 mg/L	95.7	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Dissolved Metals (QCLot: 1146491) - continued										
YL2301147-002	GLSE-M	Vanadium, dissolved	7440-62-2	E465	0.105 mg/L	0.1 mg/L	105	70.0	130	----
		Yttrium, dissolved	7440-65-5	E465	0.00264 mg/L	0.0025 mg/L	106	70.0	130	----
		Zinc, dissolved	7440-66-6	E465	0.419 mg/L	0.4 mg/L	105	70.0	130	----
		Zirconium, dissolved	7440-67-7	E465	0.0395 mg/L	0.04 mg/L	98.7	70.0	130	----
Dissolved Metals (QCLot: 1152257)										
WP2323464-002	Anonymous	Mercury, dissolved	7439-97-6	E509-L	4.66 ng/L	5 ng/L	93.3	70.0	130	----

CHAIN OF CUSTODY

ALS Laboratory

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE/TIME: 14/09/2023 6:40	DATE/TIME: 18/09/2023	DATE/TIME:	DATE/TIME:

CLIENT:	B2Gold	TURNAROUND REQUIREMENTS : (Standard TAT may be longer for some tests e.g., Ultra Trace Organics)	☒ Standard TAT (List due date):
PROJECT:	22567626		☐ Non Standard or urgent TAT (List due date):
SITE:	Sabina / B2Gold Goose Lake		
PURCHASE ORDER NO.:	Quote number: YL23-SABI100-001 Date: 23-Jun-2023	Equis Code: 176233659	
PROJECT MANAGER:	Merle Keefe	CONTACT PH:	
SAMPLER:	D. Mullen	SAMPLER MOBILE:	
EMAIL REPORTS TO:	mkeefe@b2gold.com zenovia.craciunescu@wsp.com, beatriz.cupe.flores@wsp.com	EMAIL INVOICE TO:	mkeefe@b2gold.com

FOR LABORATORY USE ONLY (Circle)

Custody Seal Intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	
Other comments:			

SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE ONLY	SAMPLE DETAILS (Solid(S) Water(W))		MATRIX:	CONTAINER INFORMATION	ANALYSIS REQUIRED										Additional Information
SAMPLE	Sample identification (This description will appear on the report)	DATE / TIME (dd-mm-yyyy)	MATRIX	TOTAL CONTAINERS	Total Metals + Hg LOW LEVEL	Dissolved Metals + Hg LOW LEVEL	Total Nutrients	Dissolved Nutrients	General Parameters / Routine	Total Sulphides	Cyanides (total, WAD, free)				Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
	GLSE-T	14-09-2023 / 10:30	W	10	X	X	X	X	X	X	X				
	GLSE-M	14-09-2023 / 10:35	W	10	X	X	X	X	X	X	X				DISSOLVED METALS & NUTRIENT
	Field Dup	14-09-2023 / 10:35	W	10	X	X	X	X	X	X	X				FIELD FILTERED
	GLSE-B	14-09-2023 / 11:00	W	10	X	X	X	X	X	X	X				
	GLWB-T	14-09-2023 / 13:30	W	10	X	X	X	X	X	X	X				SAMPLES ON ICE
	GLWB-M	14-09-2023 / 13:35	W	10	X	X	X	X	X	X	X				
	GLWB-B	14-09-2023 / 13:40	W	10	X	X	X	X	X	X	X				
	GLCB-T	14-09-2023 / 15:00	W	10	X	X	X	X	X	X	X				
	GLCB-M	14-09-2023 / 15:05	W	10	X	X	X	X	X	X	X				
	GLCB-B	14-09-2023 / 15:10	W	10	X	X	X	X	X	X	X				
	GLTL-T	14-09-2023 / 15:45	W	10	X	X	X	X	X	X	X				
	GLTL-M	14-09-2023 / 15:50	W	10	X	X	X	X	X	X	X				
	GLTL-B	14-09-2023 / 15:55	W	10	X	X	X	X	X	X	X				
			TOTAL	130											

Environmental Division
Yellowknife
Work Order Reference
YL2301147

Telephone : +1 867 873 5593

wsp.com