Richard Dwyer
Manager of Licensing,
Nunavut Water Board
Delivered electronically to: richard.dwyer@nwb-oen.ca and licensing@nwb-oen.ca

March 31, 2025

Re: 2024 Annual Reports for the Lupin Mine Project: Water Licence No: 2AM-LUP2032

Dear Mr. Dwyer,

Lupin Mines Incorporated (LMI), a wholly owned, indirect subsidiary of Mandalay Resources Corporation (Mandalay) is pleased to present the 2024 Annual Report for the Lupin Mine, satisfying annual reporting obligations under 2AM-LUP2032.

LMI and Mandalay are committed to meeting timelines and objectives outlined in the 2024 Annual Report, with projections to anticipated 2025 site activities towards final closure. These timelines represent our most accurate predictions. These timelines to closure are subject to change, however, due to unforeseen circumstances that could arise, such as the construction of the winter road, contractor availability, weather, site conditions, logistics, and outcomes from engagement.

I appreciate your time to review this annual report. If we can provide any further information, please reach directly, out or contact any of the those cc'd below.

Sincerely,



Frazer Bourchier
President/Chief Executive Officer Mandalay Resources Corporation
f.bourchier@mandalayresources.com.

cc.
Jon Melnyk, JDS Energy & Mining. Jonm@jdsmining.ca
Kellie Leedham, Falkirk Environmental Consultants Ltd. Kellie@falkirk.ca
Max Brownhill, Falkirk Environmental Consultants Ltd. Max@falkirk.ca

2AM-LUP2032

LUPIN MINE SITE

2024 ANNUAL REPORT

PREPARED FOR:

NUNAVUT WATER BOARD

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JON MELNYK, JDS MINING AND ENGINEERING

APPROVED BY:

FRAZER BOURCHIER

PRESIDENT & CHIEF EXECUTIVE OFFICER, MANDALAY RESOURCES INC.

DOCUMENT CONTROL

Document History	Date	Section	Summary of Changes	Author
1	Feb.02, 2025	All	Document Creation	K.Leedham - Falkirk
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4	March 31, 2025	All	Final Review and Issue for Distribution	Frazer Bourchier - Mandalay

This document has been prepared in cooperation with cooperation with JDS Energy and Mining Inc. (JDS), Falkirk Environmental Consultants Ltd., with subject matter expert content provided by WSP Canada Inc., Stantec and SLR Consulting Ltd.

Approved by:



Frazer Bourchier, President & Chief Executive Officer, Mandalay Resources Corp.

March 31, 2025.

Executive Summary

The Mandalay Lupin Mine was in temporary “Care and Maintenance” Phase throughout 2024. The Site was accessed via aircraft and helicopter, as the winter road was not constructed in 2024, restricting the mobilization of any equipment. For the 2024 season, the Lupin Mine camp opened on June 24 through August 5 and August 27 through September 9 for a total of 57 days. During this period, care & maintenance and closure activities included the following:

- Pumping water from Contwoyto Lake for freshwater use and deposit of sewage to the Sewage Lakes Disposal Facility to support camp operations
- Incineration of general camp wastes
- General site maintenance and housekeeping
- General sediment and erosion control works
- 1,660 m^3 of contaminated soil was excavated and disposed underground via the Crown Pillar.
- An "as-built" survey of the Temporary Fuel Farm was completed in June 2024, and corresponding “as-built” drawings were created.
- Ongoing water quality monitoring was conducted, as per the requirements of 2AM-LUP2032.
- A fuel conversion program was undertaken to clean and convert the remaining jet fuel into useable diesel.
- Repairs to dam structures were completed in accordance with priorities identified in the 2023 Geotechnical Inspection.
- Design and installation of a passive limestone drainage system in Cell 4.
- Bulk filled approx. 17,800 m^3 of esker material in the NW corner of Cell 4.
- Annual geotechnical inspection of engineered facilities including the Tailings Containment Area

The following activities did not occur:

- No pumping of water from ponds was used for industrial purposes or dust suppression
- No mobilization or demobilization of equipment was undertaken, as the winter road was not constructed in 2024.
- No mine water discharge from the underground workings
- No unauthorised discharges or spills were reported in 2024.
- No waste was shipped offsite. Wastes, hazardous waste, and chemicals were consolidated and prepared for shipment to a certified acceptance location in Yellowknife via the planned winter road in 2025/2026.
- No reclamation work was undertaken on the underground, waste rock, borrow and quarry areas, landfill, site roads, water management facilities, or explosives magazine.

Crown Indigenous Relations and Northern Affairs (CIRNAC) conducted an inspection at the Lupin Mine site on July 15, 2024 for the Water Licence and associated Land Leases. Representatives from Mandalay were present for this inspection.

EXECUTIVE SUMMARY INUKTITUT

ᐊᓐᓚᔨᖏᖅᑎᒍᑦ ᐅᓂᒃᑦ ᓇᐃᓇᖏᑐᑦ

ᐃᓕᑕᒪᐃ ᓄᐱᓕ ᐅᓴᖏᓐᓂᐊᖏᐃᑦ ᑲᒪᒋᐳᐅᒪᐅᑲᒪᐅᑐᑐᖅ ᐊᐅᓪᓕᑕᐅᓪᓗᓂᓂᓂ ᐊᒻᒪ ᐊᖅᑭᐅᒪᑎᑕᐅᓪᓗᓂ ᐊᖏᖏᔪᓕᒪᖅ ᐊᖏᖏᔪᑦ 2024–ᒥ. ᐃᓕᑕᒪᐃ ᓄᐱᓕ ᐅᓴᖏᓐᓂᐊᖏᐃᑦ ᑲᒪᒋᐳᐅᒪᐅᑲᒪᐅᑐᑦᑐᖅ ᐊᒻᒪ ᐊᐅᓪᓗᑕᐅᑐᑦᑐᓪᓗᓂ ᐊᖏᖏᔪᐊᓵᓂ 2024–ᒥᑦ. ᓄᓇᖓᑦ ᐅᑦᐸᑦᑕᐅᔪᓇᒪᐅᑐᑦᑐᖅ ᐊᑐᖅᓯᑎᑦ ᖃᖓᑎᑕᓯᑦᒥᑦ ᐊᒻᒪᓗ ᖃᓄᖅᑕᒥᔨᓕᓪᓗ ᑕᐃᓵᓇ ᐅᑭᐅᑦᒥᑦ ᐊᖏᔪᑎᑦ ᐋᓇᓴᐅᒪᐅᑐᑎᒃᑦ ᐊᖏᖏᔪᐊᓵᓂ ᐋᓇᓴᐅᔪᓵᓂᓂᓗ 2024-ᒥᑦ. ᐱᑦᑐᐃᓇᐅᒪᐅᑐᑎᑦᑐᖅ ᑕᒪᒪᓇ ᑭᓪᓕᖃᖅᑎᑕᐅᓪᓗᑕ ᓯᖏᓗ ᓄᑎᑦᑎᓂᖏᑎᑦ ᖃᓇᐃᑦᑐᑐᐃᓵᓇᖏᓂ ᐱᖏᓐᓂᒃᑯᐱᑦ ᐃᓐᔪᓂᖏᑦ. ᑕᐃᒪᒪᓕ ᐊᖏᖏᔪᒥᑦ 2024-ᒥᑦ ᐋᓇᐃᓴᐋᓂᖏᔪᑦ ᑐᑐᖓᔨᖏᖅ, ᓗᐱᓪ ᐅᓴᖏᓐᓂᐊᖏᐃᑦ ᒪᑦᑐᐃᓕᓇᖏᑐᖅᑐᑦ ᐊᐅᓚᑦᑎᓪᓗᓂ ᓴᓪ 24-ᒥᑦ ᑎᑭᓗᐃᒍ ᐊᐅᔪᓴᓯ 27–ᒧᑦ ᐊᓪᓚ ᒪᑐᐃᖓᓚᐅᑐᑐᖅ ᐊᑐᖅᓴᐋᐅᓪᓗᓂ ᓯᑎᐱᓇ 9–ᒧᑦ ᓯᖏᓗ ᐅᓪᓗᐃᑦ ᑲᑎᑦᓗᑦᑕ 57–ᓄᑦ. ᑕᒪᓇᓇ ᐊᑐᖅᑎᓪᓗᒍ ᑲᒪᒋᐳᖅᓯᓂᒧᑦ ᑭᓯᑕᓂᑭᓐᓂᒃ ᐊᐅᑦᓯᓂᒧᑦ ᑐᖅᓴᖏᓐᓂᒧᑦ ᐊᑐᖅᑕᒪᐃᓐᓇᖅᑐᑦ ᐊᒻᒪᓗ ᒪᑐᐃᖓᓂᒧᑦ ᐊᑐᖅᑐᐳᖅᑐᑦ ᐱᓕᕆᓂᖅ ᐃᓕᖅᑕᐅᑦᑐᖅ:

- ᐃᒪᖏᑦ ᒥᓪᓗᐊᖏᓗᓪᓂ ᑕᓯᖏᑦ ᐊᑎᖓᒐ ᑲᓂᐅᐃᑐᑐᖅᑐᑦ ᐊᑐᖏᓂᐊᐸᖓᑦ ᐊᑐᖏᓂᐊᖏᓗᓪᓗᓂ ᐊᒻᒪ ᑭᐃᓇᖏᖏᓐᓇᒧᐊᖅᑯᓂᐊᖏᓗᓪᓗᓂ ᑭᐃᓇᖏᖏᓐᓇᒧᐃᑦ ᐃᑲᔪᖅᑐᐃᓚᓂᖏᒧᑦ ᑕᖓᒪᖅᓯᒪᔪᖅ ᐃᓕᑴᖅᑎᑦᑎᓐᓂᒃ ᐊᐅᑦᓯᓂᐊᖏᓗᓪᓗᓂ ᐊᒻᒪᓗ

- ᐊᐢᑕᓯᑦ ᐊᐅᓪᓚᖅᑎᑕᐅᓚᐅᙱᕐᑐᑐᑦ. ᐊᐢᑕᓯᑦ, ᐊᑦᑕᕐᓇᖅᑐᑦ ᐊᐢᑕᓯᑦ ᐃᓚᐅᑭᑎᕽᓴᓪ ᑲᑎᑕᐅᓪᓚᑎᕽᓪ ᐱᙵᑭᕽᖅᑕᐅᓪᓚᑎᕽᓪ ᐊᐅᓪᓚᖅᑎᑕᐅᓂᕐᒧᑦ ᓇᓗᓇᐃᔪᓯᑕᓐᓄᑦ ᐊᙱᕐᖅᑕᐅᓂᕐᒧᑦ ᐃᓂᖏᓚᓂᑦ ᕆᓗᓇᐃᒥ ᐸᕐᓇᔪᑕᐅᓯᒪᔪᓯᑦ ᐅᑭᐅᐳᖅᓯᑦ ᐊᖅᓯᑎᓕᐅᕐᓂᖅ ᐊᕐᕌᒍᕐᑐᓂᖅ 2025–2026.
- ᓄᓇᐅᐸ ᐃᑭᐊᖏᓂᓂ ᐋᑦᑭᑎᐊᖅᑕᐅᔪᖅᓴᓪᑕᐅᙱᕐᑐᑐᑕᖅ ᐅᓴᖅᑲᓂᖅ, ᐊᑐᖅᑐᐊᖅᑕᐅᔪᓂᖅ ᐊᓱᒪ ᑐᐊᐸᔪᑕᕐᕕᖏᓂ, ᐊᔪᑕᕐᕕᖏᓂ, ᐊᖅᓯᑎᓂᖅ, ᐃᒪᓕᓀᖏᓂ, ᐅᕝᕙᓚᓪᓂᑦ ᖃᖅᑕᓱᓂᖅᓂᑦ ᐅᖃᓕᒫᑎᒃᑎᒥ.

ᑭᖏ ᑭᒃᑯᐊᖅᑎᖏᑦ ᓄᓇᖅᑲᖅᑲᓱᒪᔪ ᐊᓚᒪ ᐃᓄᓕᓀᔨᑐᖅᑲᔪᑦ ᐊᐅᓪᓕᕐᓱᔨᖏᑦ ᖃᐅᔨᓴᖅᑎᑦᑎᓕᐅᖅᑐᑦ ᓂᐱᐠ ᐅᓴᕐᓂᓂᐊᕐᕕᖓᒥ ᔪᓕᐃ 15, 2024-ᒥ ᐃᒪᐢᒧᑦ ᓕᐃᓴᓕᓯᒧᑦ ᐊᐢᑐᐊᓂᓕᓪᓗ ᓄᓇᒥᐠ ᐊᑐᖅᑐᐊᑭᑎᑦ. ᑭᓚᖅᑐᖅᑎᐅᔪᑦ ᐃᓕᓐᓂᓕᐃᒥ ᐃᓕᐅᐅᓕᐅᖅᑐᑦ ᖃᐅᔨᓴᕐᓂᕐᒧᑦ.

Executive Summary (Innuinaqtun)

Ataniuyut Unipkangit Naunarhimayut

Una Mandalay Lupin-mi Uyaraqhiukvik umiktauhimayuq Munariyauvluni Havakviuyuq Hannayiuyunit tatvani ukkiumi 2024-mi. Una Havakvik upparauqattaqtuq tingmiakut tatvalu hallikaptakutlu, una ukkiumi apquhiuqtauhimayut hannayauhimangitmat tatvani 2024-mi, taima piyungnangittut ingilgatjutilugit tahapkua angiyut arhalutit. Tatvani 2024-mi havagiyauyut, Una Lupin-mi Uyaraqhiuqvik havakviat angmarhimayuq June 24-min angmaumavluni tatvunga August 5-mut tatvalu angmaumavluni August 27-min tatvunga September 9-mut kititlugit ublut angmaumatitlugu tatva 57-nik ublunik. Tatvuna havagiyautitlugu, munariyautitlugu & havakviuyuq hannatiuyunit tatvalu umiktauvarhuni havagiyauyut tahapkua illaliutilugit:

- Pappautikut imiktakpaktut imiraqhanik tatvanga Tahikjuakmit turhuakut kuviugaqpagait annait tatvunga Annaitnik Kuviviatnut Tahiraqmi ikkayutaungmat hallumania iglukpaqaqvitni havakviat
- Ikkualativikagamik Ingnikvikjuamik ikkualatiqattaqtait ikkakuktaktik
- Havagiyait tatvani havakvikmi hunnanik hannayagiaqaqtunik tatvalu iglukpait hallumapkarhutjuk
- Havaqarhutik hallumailunik halligaqattaqtut huruqtiqpallaqunagulu nuna munagivagait hallumaktirhutjuk
- 1660 m^3-nik ullugiangaktunik hallumairunnik hikmiknik hallagarhimayut tatvalu nunap attanut piruuqpagaat tatvunga kaplunaatut attiqaqtuq Crown Pillar-mik.
- Una "hannayauqaffurhimayuq" naunaiyautauvluni Hadjaqaffuk Attuqtauyurhaq Urhuqjuaqaqvik inniktauhimaliktuq June 2024-mi, tatvalu titiraqtauvluni “hannayauqaffurhimayuq” titirauyaqhutjuk hannahimayaat.
- Huli immaup qanurinninganik takkuqtauqattaqtat, maligiaqaqmata titiqat uvani 2AM-LUP2032.
- Una kasilinnik avuritjutauyuq havagiyauhimayuq hallumaqpairhugit hapkua kasiliiit avuuqhutjuk urhuqjualiuqutauvaktuq tingmitjutit kasilingatnik.
- Ilingaiyarhutjuk hannavagait tahapkua happuhiurhimayut tunngaviit maliqavlutjuk tahapkua hivuliutiyagiaqaqtut havarhat naunaiyaqtauhimayut tatvani 2023-mi Nunanik Takkurutauyaqattaqtut.
- Illiuraqtauhimangmiyuq una angiyuq ukkuhirhalik uyaraq kuviagakvirhaq tatvani Tunngavik 4-mi.
- Tattahimayumik illiuraqtaungmiyuq immatut 17,800 m^3 uappalianik tatvanga pihimayauyumik qinguuqnit illiriyauhimayuq tatvunga Tunnuanut Uatanitup ippuani uma Tunngaviup 4-mi.
- Aipagurangat nunalikinikut nunaitnik havakviup nayugariyaitnik takkuqattaqtut hannayauhimayunik iglutaitnik havakviuyup illaliutivlugit tahapkua Kuviugakviita Hiamaliupkutait Kingnirhimayut Avatingni

Tahapkua titiraqhimayut havariyauyurhat havagiyaungitut:

- Piyuqangituq papautit immaknik attuqtaunguttut immiktaktunik tahiraqnit attuqtauyukhanik tatvani hannaviuyumi havagiyauyunut uvalunin apqutinnik hiuqqamut kinnitiritjutaungittut.

Tahapkua attuqtaungitut uvalunin arhinnaqtaungitut angiyut arhalutit, taimaitmat tatvuna ukkiumi apquhiuqtuqangitmat uvani 2024-mi.

- Piyuqangituq uyaraqhiukvikmi immakmik kuviyuqangituq tatvanga nunap ikkiangani attani havakviuyumit

- Piyuqangituq ataniitnit kuvitquyauhimayunik uvalunin kuviyuqarhimangittuq unipkagiyauyuni tatvani 2024-mi.
- Ikkaguqtauhimayut aullaktitauyuqangittuq havakvikmit. Ikkaquqtauhimayut, Ullurianaktut hallumailgut tatvalu huangayut kuviitaaktut ullurianaaktut katirhuqtauhimayut tatvalu hannaiqtauhimayut puuqtauvlutik aullaktitauniarhimayut illiitariyauhimayunut namariyautiaktunut tutquqvirhauyunut tatvani Yallunaimi attuqlugu tahamna parnaiyaqtauhimayut ukkiumi apquhiuktauhimaliqat 2025/2026-mi.
- Piyuqangitut halligaktauhimangittuq tahamani nunnap ikkiangani atanni,tahapkuanunanilunin attuqtaungitut uyaragalluit, atturhimayut tatvalu hiuraqtaqviuyuni kingirhimayuni, kukvikukvikmi, havakvikmi apquhiuqtauhimayuni, immap hallumarhakviatni iglutaitni, qarraqtautiqaqviqmnilu.

Kavamatuqqatkut Nunaqaqaqtunik Ikkayuqtiuyut tatvalu Ukkiuktaktumi Pivalialiriyiuyut (CIRNAC-kut) havakhimayut takkuqtauhimavlutjuk tamna Lupin-mi Uyaraqhiuqvik tatvani Mine July 15, 2024-mi piqariaqhaita tahapkuninga Immat Attuqtauniaktut Laisirhaitnik tatvalu piqattigiklugit hapkua Nunnanik Attuqniaktaitnik Laisirhaitnik. Tahapkua Kivgaktuiyut Nanminiqaqtutlu katimayiuyutlu tatvani Mandalay-kut Uyaraqhiukviatnit tatvaniqattauyut takkuktautitlugu.

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Introduction

The Lupin Mine (the Mine) is located approximately 285 km southeast of Kugluktuk in the Kitikmeot Region of Nunavut and is owned by Lupin Mines Incorporated (LMI), a wholly owned, indirect subsidiary of Mandalay Resources Corporation (Mandalay). The mine site is situated on the western shore of Contwoyto Lake, approximately 60 km south of the Arctic Circle. It is an underground gold mine that was in operation from 1982 to 2005 with temporary suspensions of activities between January 1998 and April 2000, and again between August 2003 and March 2004. The mine resumed production in March 2004 until February 2005 when the Site was placed into "Care and Maintenance", and no active mining has taken place since.

On October 20, 2017, Mandalay announced, through its wholly owned and independent subsidiary, Lupin Mines Incorporated (LMI), that the Lupin Mine (the Mine) will transition from "Care and Maintenance" to full closure and reclamation, beginning in 2018 through to 2020. An application for renewal and amendment of the current water licence (Application), as well as a Final Closure and Reclamation Plan (FCRP) was submitted to the Nunavut Water Board on July 27, 2018 which underwent an extensive review process and culminated in the issuance of amended Type A Water Licence 2AM- LUP2032 on February 29, 2020 by the Nunavut Water Board (NWB) and approval by the Minister of Crown Indigenous Relations and Northern Affairs Canada (CIRNAC) on April 9, 2020. LMI continued active preparatory work and initiated year one of the active closure phase in Q1 of 2020. At the beginning of 2022 LMI once again entered "Care and Maintenance" with limited on-site activities in 2023.

The 2021-2023 2AM-LUP2032 Annual Reports were submitted together on April 30, 2024. CIRNAC, Environment and Climate Chance Canada (ECCC) and the Nunavut Water Board (NWB) provided additional comments and requests for additional information. These requests were responded to on September 27, 2024 and have been incorporated into these responses, and are summarized in Appendix G.

In the 2024 summer field season, the Mine was accessed via aircraft and helicopter, as the winter road was not constructed in 2024, thus restricting the mobilization of any equipment and limiting on-site activities. The 2024 work was primarily focused on satisfying monitoring and reporting requirements outlined in Licence 2AM-LUP2032, such as water quality monitoring, site water management, and geotechnical investigations. Additionally, maintenance and housekeeping work was undertaken with equipment already located onsite and are further detailed in this report.

Permits allowing for the construction of the 2024/2025 winter road construction to access the Mine and were obtained by Mandalay. However, following a strategic review, Mandalay decided to reschedule the construction of the winter road for the 2025 season. The decision was influenced by the fact that contractor proposals, for the 2025 winter road, did not align with the project's requirements or timeline constraints for the 2025 field season, despite Mandalay issuing the RFP (August 2, 2024) to a mix of local and southern contractors. While we were unable to secure a compliant bid from a local contractor, Mandalay remains committed to supporting local contractors to ensure that the benefits of this project stay in the North as much as possible. As such, some reclamation and closure activities originally scheduled for the 2025 field season have been delayed to future years. These are detailed further in this report.

This 2024 Annual Report was created by Falkirk Environmental Consultants Ltd. (Falkirk) and JDS Energy and Mining Inc. (JDS), who both actively support regulatory and operational planning for the Lupin Mine,

in consultation with the following Subject Matter Experts (SME) who actively participated in studies and monitoring activities at the Site in 2024, including:

- Stantec – Engineer of Record (EOR) for the Tailings Containment Area
- WSP – EOR for the Mine Site
- SLR – SME for water quality in TCA and water quality data interpretations.
- JDS – Mine site management

Part B, Item 2 of the Licence 2AM-LUP2032 requires an Annual Report to be submitted to the NWB prior to March 31 of the year following the calendar year being reported and prepared in accordance with Schedule B of the Licence.

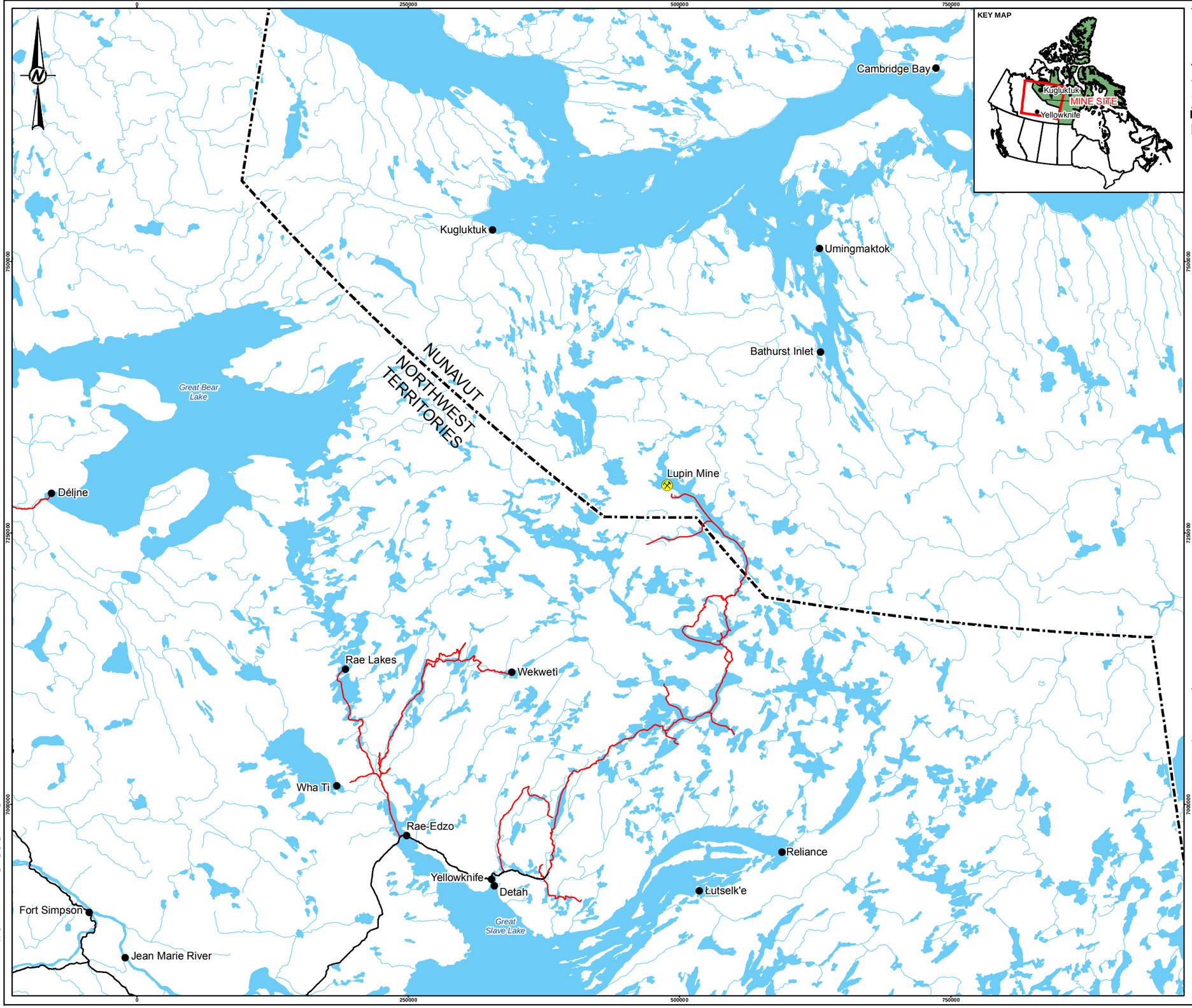
The following sections provide the information as required under Schedule B of Water Licence No. 2AM-LUP2032. The includes appendices to provide further detail on these requirements. Appendices have been created by subject matter experts, relative to their area of practice and role at the Mine.

Location

The Lupin Mine is located approximately 285 km southeast of Kugluktuk, in the Kitikmeot Region of Nunavut, on the western shore of Contwoyto Lake, approximately 60 km south of the Arctic Circle.

Figure 1 (*taken from: 210708 2AM-LUP2032 Appendix B1 - 200928 Final Closure & Reclamation Plan Part 2-IMLE)* shows the general location of the Mine.

Figure 2 *(taken from: 10708 2AM-LUP2032 Appendix B - 200928 Final Closure & Reclamation Plan Part 1-IMLE*) shows a general overview of the Mine layout, including relevant infrastructure and features.



LEGEND

- LUPIN MINE
- POPULATED PLACE
- HIGHWAY
- WINTER ROAD
- WATERCOURSE
- TERRITORIAL/PROVINCIAL BOUNDARY
- WATERBODY

0 75 150

1:3,500,000 KILOMETRES

REFERENCE(S)

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DATUM: NAD83 PROJECTION: UTM ZONE 12

CLIENT
MANDALAY RESOURCES CORPORATION

PROJECT
LUPIN MINE CLOSURE

TITLE
LOCATION PLAN

LUPIN MINES INCORPORATED

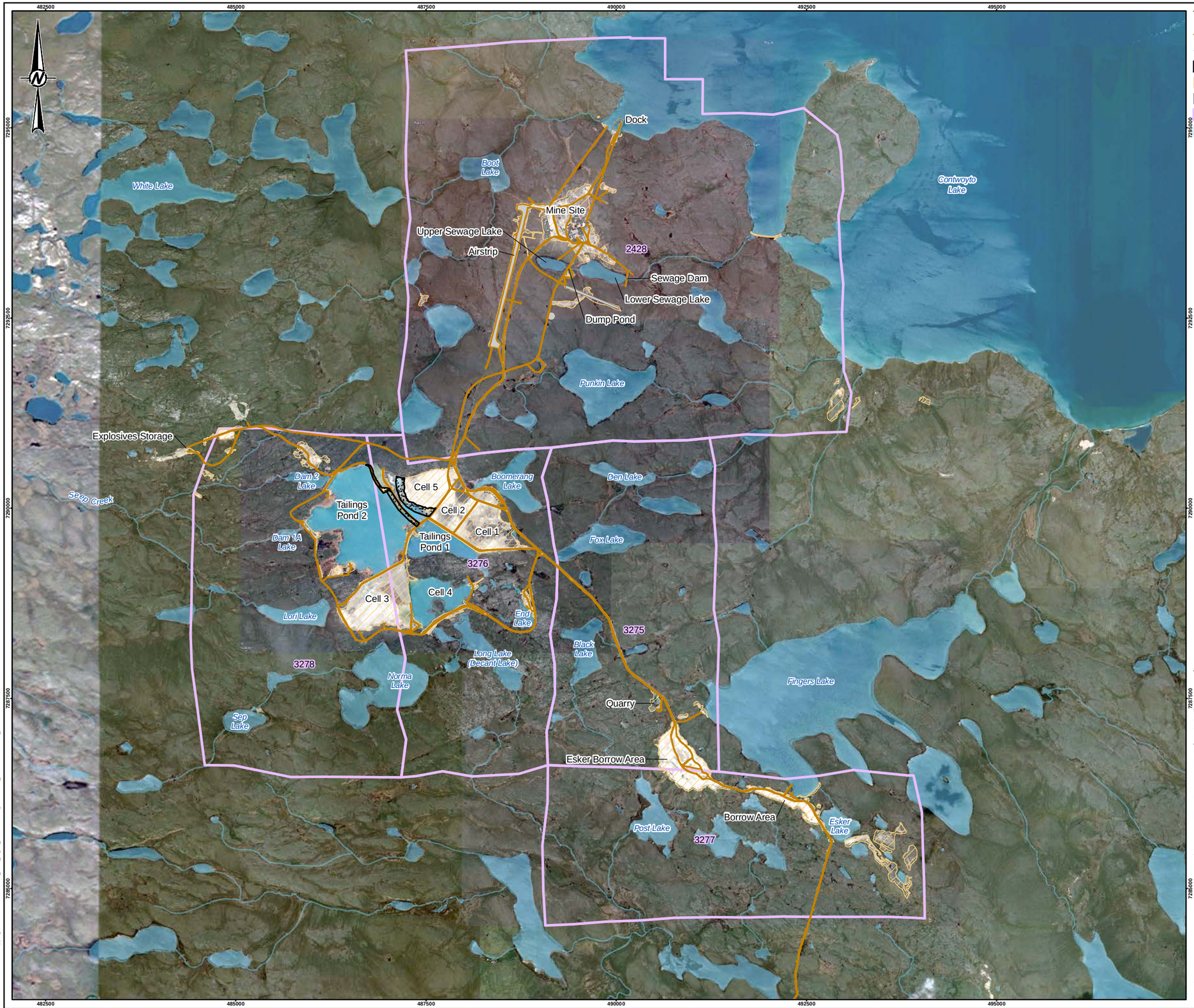
YYYY-MM-DD	2018-01-25
DESIGNED	NC
PREPARED	AA
REVIEWED	KB
APPROVED	KB

PROJECT NO.	CONTROL	REV.	FIGURE
1789942	3000	A	1

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

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LEGEND

- ROAD
- WATERCOURSE
- APPROXIMATE 2017 RECLAMATION WORK
- DISTURBANCE FOOTPRINT
- INFRASTUCTURE FOOTPRINT
- MINERAL LEASE BOUNDARY
- WATERBODY

0 2 4

1:50,000 KILOMETRES

REFERENCE(S)

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DATUM: NAD83 PROJECTION: UTM ZONE 12

CLIENT
MANDALAY RESOURCES CORPORATION

PROJECT
LUPIN MINE CLOSURE

TITLE
GENERAL ARRANGEMENT PLAN - CURRENT CONDITIONS

LUPIN MINES INCORPORATED

YYYY-MM-DD	2018-01-25
DESIGNED	NC
PREPARED	AA
REVIEWED	KB
APPROVED	KB

PROJECT NO.	CONTROL	REV.	FIGURE
1789942	3000	A	3

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REPORTING

The following sections detail the Annual Report Requirements as outlined in Section B of 2AM-LUP2032.

(A) - VOLUME OF WATER PUMPED AT LUP-01

The following section details Monthly and annual quantities of water pumped from Contwoyto Lake at Station LUP-01.

The Lupin Mine camp opened on June 24, 2024. Pumping water from Contwoyto Lake at the causeway began on June 24, 2024 until September 9, 2024 utilizing a submersible pump, filling a 4,542 litre (1,200 usg) plastic tank within a water truck that is used to transport water to the camp's two (2) 4,542 litre storage tanks. The water is then run through a series of filters with disinfection provided by a flow-through Ultraviolet chamber prior to distribution in camp.

The camp was open for 57 days in 2024, June 24 through August 5, and August 27 through September 9, 2024, using a total of 392.79 m^3 of freshwater, for an average water use of 6.89 m^3/day. A Blue-White Industries Model F-1000-RT Totalizer flow meter is used to calculate the daily freshwater consumption. For domestic purposes, these volumes are well within the maximum authorized water use of 250,025 m^3/year during Active Closure and Reclamation Phase under the water licence.

The following table summarizes the monthly and annual quantities in cubic metres of Water pumped from Contwoyto Lake at Monitoring Station LUP-01.

Table 1: Quantity of Water Pumped at LUP-01

2024	J	F	M	A	M	Jun	Jul	Aug	Sep	O	N	D	Average Use
Water Use (m^3/day)						7.31	9.08	3.93	2.31				6.89
Water use (m^3/month)						51.2	281.5	39.3	20.8				98.2
TOTAL USAGE (m^3)	**392.79** m^3												

(B) WATER VOLUMES PUMPED FROM PONDS FOR INDUSTRIAL USE

This section details monthly and annual quantities of water pumped from ponds against the roads, or ponds or lakes proximal to the road for industrial purpose, including dust suppression.

No (zero) water was pumped from ponds against the roads or proximal to the road for either industrial purposes or for dust suppression. Water used for these purposes was taken from the freshwater intake at Contwoyto Lake and included in the overall camp use volumes.

(C) TAILINGS EFFLUENT DISCHARGED AT LUP-10

This section details Monthly and annual quantities of treated Tailings Effluent discharged at Station LUP-10.

No tailings effluent discharge at Station LUP-10 occurred in 2024.

(D) Discharge from LUP-11.

This section details monthly and annual quantities of Mine water discharged at Station LUP-11.

There was zero mine water was discharged from the underground workings at the Lupin Mine Site LUP-11 in 2024 while carrying out closure and reclamation activities.

(E) Treated Sewage Effluent discharged at Station LUP-14.

This section details Monthly and annual quantities of treated Sewage Effluent discharged at LUP-14

One four-inch pump and one syphon line was installed at the Lower Sewage Lake discharge. Controlled effluent release from the Sewage Lakes Disposal Facilities began on August 2, 2024, and continued until August 5, 2025, and again from August 27, 2024, until September 8, 2024. Total volume of effluent discharged at Monitoring Station LUP-14 was approximately 119,710m^3. The following table illustrates the monthly and annual discharge quantity of Sewage Effluent at monitoring Station LUP-14 in 2024. Additional analyses as required under Schedule J are included in Appendix B, in the attached Certificate of Analysis, Lab WO#: YL2400958, Lab WO#YL2401120 and Lab WO#2401443.

Table 2: Sewage Effluent Discharge Quantities at LUP-14

2024	J	F	M	A	M	J	J	Aug	Sep	O	N	D	Average Use
Average Effluent Discharge (m^3/day)								4,204	10,760				7,481
Total Seasonal Discharge (m^3)													**119,710** m^3

(F) Hazardous Waste and Chemical Storage

This section details the types and quantities of Hazardous Waste and Chemicals stored at the Mine.

The following table summarizes the types and quantities of hazardous waste and chemicals remaining on site as of 31 December 2024, to be used or transported offsite.

Table 3: Quantities of hazardous wastes and chemical remaining onsite as of Dec.31, 2024.

Type Hazardous Waste or Chemicals	Quantity to be Used or to be Transported for Final Disposal
Waste Motor Oil	3,000 litres (3 ea – 1,000 L totes) in equipment shop; 14,350 litres (70 ea – 205 L drums) in in seacans ready for demob; 19,000 litres (19 ea – 1,000 L Steel totes) in TPDS; 15,750 litres (21 ea – 750 L plastic totes) in seacans ready for demob;

Type Hazardous Waste or Chemicals	Quantity to be Used or to be Transported for Final Disposal
Contaminated (old) Diesel Fuel	7,380 litres (36 ea – 205 L drums) expired Diesel in seacan; 17,015 litres expired diesel in drums located in the Main Fuel Berm
Contaminated (old) Jet Fuel	4,305 litres (21 ea – 205 L drums) expired AV gas in TPDS; 9,840 litres (48 ea – 205 L Drums) expired AV gas in seacans ready for demobilization; 2,000 litres (2 ea - 1000L steel totes) of waste from fuel conversion located in Main Fuel Berm.
Contaminated (old) Gasoline	3,075 litres (15 ea – 205 L drums) located in fuel berm.
Oily Water	3,000 litres (3 ea - 1,000 L tanks) in TPDS;
Acid Filled Batteries	16 ea - 12V lead/acid batteries in Shop (usable) approx. 20 ea - 12V lead/acid batteries in Shop (dead)
Hydrated Lime	Approx. 800kg (40 ea - 20kg bags) in Cold Storage
Soda Ash	Approx. 10 ea - 907kg totes in Cold Storage
Portland Cement	3,000 kg (150 - 20kg bags) in Cold Storage
Calcium Chloride	Approx. 30 ea - 900kg sacks in Cold Storage
Fuel and Petroleum	453,424L Diesel fuel. Zero (0)L jet fuel
Other	20,820 litres (1 ea – 5,500-gallon pup trailer) antifreeze, motor oil, waste oil mix in TPDS

No waste was shipped offsite in 2024. As all waste, hazardous waste and chemicals will be shipped to Yellowknife via the winter road in the future.

Food waste and cardboard are disposed of via the incinerator. The incinerator is located SE of the main camp.

Fuel and Petroleum Products Inventory Description:

In July 2024, a fuel conversion program was undertaken to clean and convert the remaining jet fuel stored in Tank 15 to usable Diesel. The program was largely successful and as of December 31, 2024, there was approximately 453,424 litres of diesel fuel and 0 litres of jet fuel in storage in large fuel tanks within the Bulk Fuel Storage (Main Tank Farm) and Temporary Tank Farm (TFF).

Additionally, there are several empty 205 litre drums and twenty (20) empty 1,000 litre totes available for spill contingency and/or temporary storage of hydrocarbons or hydrocarbon contaminated water. The Lupin Mine Waste Management Plan (Appendix E) has been updated to reflect best management practices and to address specific information requests from Environment and Climate Change Canada in response to the Lupin 2021-2023 annual reports.

(G) Monitoring Program Summary

This section includes Tabular Summaries of all data generated under the “Monitoring Program” Summary of Monitoring Program, as required by 2AM-LUP2032, Schedule J, Table 1.

Effluent was discharged from the Sewage Lakes Disposal Facility in 2024. Discharge was not required from the Tailings Containment Area or the Bulk Fuel Storage Facility (including the Satellite Tank Farm and the

Third-Party Drum Storage area) in 2024.

Water quantity and water quality monitoring was conducted for discharge from the Sewage Lakes Disposal Facility in 2024 as required by the Monitoring Program Requirements (Schedule J, Table 1) of 2AM-LUP2032. All effluent discharged from the Sewage Lakes Disposal Facility at ID LUP-14 must not exceed the water quality limits as described in Part E, Item 9 of the Water License.

Approval for discharge was received and discharge from the Sewage Lakes Disposal Facility (Monitoring Station LUP-14) began on August 2, 2024. Effluent was discharged between August 02-05, 2024, and August 28 – September 8, 2024. Approximately 33,000 m^3 and 86,000 m^3 of effluent was discharged in August and September, respectively, for a combined annual total of 119,000 m^3.

Water samples were collected on three dates: July 5, July 21, and September 9, 2024. The analytical results of the water samples were compared against the criteria outlined in Part E, Item 9 of 2AM-LUP2032 and were confirmed to be well within the criteria.

A notable result was an exceedance of duplicate QA/QC criteria for sample 'LUP-14D PRE-DECANT' with regards to fecal coliform results. However, both the parent sample result (< 1.0 CFU/100mL) and the duplicate result (6.0 CFU/100mL) were under the discharge criteria.

As there was no discharge from the TCA in 2024, no sampling of the downstream monitoring locations was carried out. Sampling at East Lake, and Boot Lake took place on July 15, 2024, and September 8,2024. See Appendix B, Certificates of Analysis Lab W/O#: YL2400916 and YL2401443.

No sampling took place at LUP-SP-01 to LUP-SP-xx because no seepage was observed.

See Appendix B for the water quality analytical data and the Certificates of Analyses.

Table 4: Tabular Summaries of all data generated under the "Monitoring Program, Schedule J, Table 1."

Station ID	Location	Frequency	Parameter	2024 Annual Update
LUP-01	Freshwater Intake from Contwoyto Lake	Annually	Field, Conventional, Total Metals, and Biological	Refer to Appendix B, Table B2
		Monthly	Quantity of water measured and recorded in cubic metres	Refer to Item 1 (a) above.
LUP-10	Pond 2 discharge at Dam 1A	Daily during periods of Discharge	Field, Conventional, Total Metals, Cyanide, no visible sheen of Oil & Grease	No discharge in 2024

Station ID	Location	Frequency	Parameter	2024 Annual Update
			Quantity of treated effluent discharged, measured and recorded in cubic metres	No discharge in 2024
		Weekly during periods of discharge from the Tailings Containment Area	Nutrients Radium (^{226}RA)	No discharge in 2024
		Monthly (no less than one-month Intervals) commencing with the first day of decant	Cyanide Bioassay	No discharge in 2024
LUP-10a (LUP-102)	Internal station in TCA Pond 2, approximately 100 m upstream from siphon intake	Once prior to initiation of decant and once prior to termination of decant	Field, Conventional, Nutrients, Total Metals, Cyanide, and Radium (^{226}RA), and Bioassay	No decant in 2024
LUP-11	Mine water discharge at automatic sampler in the mill	Not Active		Not Active
LUP-12	Mill tailings taken at the mill	Not Active		Not Active
LUP-14	Decant structure from the Sewage Lakes Disposal Facilities	First day of discharge and then monthly thereafter during periods of flow	Field, Conventional, Nutrients, Total Metals, Biological, and Other: Biochemical Oxygen Demand (BOD5), Total Phosphorus, Total Orthophosphorus - (OPO4), Total Kjeldahl Nitrogen (TKN))	Refer to Appendix B, Table B1

Station ID	Location	Frequency	Parameter	2024 Annual Update
		Monthly	Quantity of treated effluent discharged in cubic metres	Aug 2024: 33,000 m^3 Sept 2024: 86,000 m^3
LUP-15	Discharge from TCA Pond 1 (east pond) into TCA Pond 2 (west pond)	Not Active		Not Active
LUP-16	TCA Pond 2 at center	Not Active		Not Active
LUP-17	TCA Pond 2 upstream of Station LUP-10	Not Active		Not Active
LUP-19	East end of Seep Creek in Dam 2 Lake	Not Active		Not Active
LUP-20	West end of Seep Creek before discharge into Unnamed Lake	Weekly during discharge from the Tailings Containment Area commencing with the first day of discharge	Field, Conventional, Nutrients, Total Metals, Cyanide, and Radium (^{226}RA)	No discharge in 2024
LUP-21	North end of Concession Creek before discharge into Unnamed Lake	Weekly during discharge from the Tailings Containment Area commencing with the first day of discharge	Field, Conventional, Nutrients, Total Metals, Cyanide, and Radium (^{226}RA)	No discharge in 2024
LUP-22	Inner Sun Bay near center and midway between end of peninsula and west shore	Weekly at mid-depth, commencing one (1) week prior to discharge from the Tailings Containment Area and concluding two (2) weeks after cessation of the discharge	Field, Conventional, Nutrients, Total Metals, Cyanide, and Radium (^{226}RA)	No discharge in 2024

Station ID	Location	Frequency	Parameter	2024 Annual Update
LUP-24	Inner Sun Bay near narrows	Weekly at mid-depth, commencing one (1) week prior to discharge from the Tailings Containment Area, and concluding two (2) weeks after cessation of the discharge and when bioassay sample is collected at LUP-10 just prior to termination of decant	Field, Conventional, Nutrients, Total Metals, Cyanide, and Radium (^{226}RA)	No discharge in 2024
LUP-25	Outer Sun Bay (Total Rather than specific metals)	Weekly at mid-depth, commencing one (1) week prior to discharge from the Tailings Containment Area, and concluding two (2) weeks after cessation of the discharge	Field, Conventional, Nutrients, Total Metals, Cyanide, and Radium (^{226}RA)	No discharge in 2024
LUP-26	Contwoyto Lake in bay east of water intake	Not Active		Not Active
LUP-27	Bulk Fuel Storage Facility	Once prior to discharge and weekly during periods of discharge	Field, Conventional, Nutrients, Total Metals, Total Oil and Grease, BTEX	No discharge in 2024
LUP-28	Discharge from the Landfarm Facility	Once prior to discharge and weekly during periods of discharge	Field, Conventional, Nutrients, Total Metals, Total Oil and Grease, BTEX	No discharge in 2024
LUP-29	Landfarm Facility Monitoring Well – Up gradient	Monthly during periods of observed flow – June through September	Field, Conventional, Nutrients, Total Metals, Total Oil and Grease, BTEX	No observed flow while on site

Station ID	Location	Frequency	Parameter	2024 Annual Update
LUP-30a	Landfarm Facility Monitoring Well – Down gradient	Monthly during periods of observed flow – June through September	Field, Conventional, Nutrients, Total Metals, Total Oil and Grease, BTEX	No observed flow while on site
LUP-30b	Landfarm Facility Monitoring Well – Down gradient	Monthly during periods of observed flow – June through September	Field, Conventional, Nutrients, Total Metals, Total Oil and Grease, BTEX	No observed flow while on site
LUP-31	Seepage from the Landfill Facility	Monthly during periods of observed flow	Field, Conventional, Nutrients, Total Metals, Total Oil and Grease, BTEX	No observed flow while on site
LUP-32	Landfill Facility Monitoring Well – Up gradient	Monthly during periods of observed flow – June through September	Field, Conventional, Nutrients, Total Metals, Total Oil and Grease, BTEX	No observed flow while on site
LUP-33a	Landfill Facility Monitoring Well – Down gradient	Monthly during periods of observed flow – June through September	Field, Conventional, Nutrients, Total Metals, Total Oil and Grease, BTEX	No observed flow while on site
LUP-34b	Landfill Facility Monitoring Well – Down gradient	Monthly during periods of observed flow – June through September	Field, Conventional, Nutrients, Total Metals, Total Oil and Grease, BTEX	No observed flow while on site

Station ID	Location	Frequency	Parameter	2024 Annual Update
LUP-35	Seepage from the Landfill Facility	Monthly during periods of observed flow	Field, Conventional, Nutrients, Total Metals, Total Oil and Grease, BTEX	No observed flow while on site
LUP-36	Demolition Landfill Facility Monitoring Well – Up gradient	Monthly during periods of observed flow – June through September	Field, Conventional, Nutrients, Total Metals, Total Oil and Grease, BTEX	No observed flow while on site
LUP-37a	Demolition Landfill Facility Monitoring Well – Down gradient	Monthly during periods of observed flow – June through September	Field, Conventional, Nutrients, Total Metals, Total Oil and Grease, BTEX	No observed flow while on site
LUP-37b	Demolition Landfill Facility Monitoring Well – Down gradient	Monthly during periods of observed flow – June through September	Field, Conventional, Nutrients, Total Metals, Total Oil and Grease, BTEX	No observed flow while on site
LUP-EL-01	East Lake near shoreline near the potential seepage inputs	Twice-yearly: Once in freshet and once in late open-water season, ensuring that baseline samples are collected prior to construction of the waste rock dome.	Field, Conventional, Total Metals	Refer to Appendix B, Table B2
LUP-BL-01	Boot Lake near shoreline near the potential seepage inputs	Twice-yearly: Once in freshet and once in late open-water season, ensuring that baseline samples are collected prior to construction of the waste rock dome.	Field, Conventional, Total Metals	Refer to Appendix B, Table B2

Station ID	Location	Frequency	Parameter	2024 Annual Update
LUP-LSL-01	Lower Sewage Lake near shoreline near the potential seepage inputs	Twice-yearly: Once in freshet and once in late open-water season, ensuring that baseline samples are collected prior to construction of the waste rock dome.	Field, Conventional, Total Metals	Refer to Appendix B, Table B2
LUP-SP-01 to LUP-SP-XX(a)	Seeps from the Waste Rock Dome, Locations of observed seepage or flow from waste rock pile	Twice-yearly: Once in freshet and once in late open-water season	Field, Conventional, Total Metals	No seepage observed
LUP-TCA-01 to LUP-TCA-XX(a)	Seeps from the Tailings Containment Area (TCA), Locations of observed seepage or flow from waste rock pile	Twice-yearly: Once in freshet and once in late open-water season	Field, Conventional, Total Metals	No seepage observed

Notes:
(a) Seep Sampling locations will be added to the post-closure monitoring program as new seeps are documented.

(H) Inspection Results and Actions to Comply

This section details a Summary of actions taken to address concerns or deficiencies listed in inspection reports and/or compliance reports filed by an Inspector.

Crown Indigenous Relations and Northern Affairs (CIRNAC) conducted an inspection at the Lupin Mine on July 15, 2024, for the Water Licence and associated Land Leases. Representatives from Mandalay were present for this inspection.

Inspection form 2024-KIT-001-JB included several general housekeeping items of note that site staff have taken action to address. The table below summarizes compliance issues noted during this inspection and actions taken to address these deficiencies.

Table 5: Summary of 2024-KIT-001-JB Inspection Issues and Remediation

Compliance Issue Observed	Recommendation from CIRNAC to Achieve Compliance	Actions Taken to Achieve Compliance
Part E, Item 10: "The licensee is authorized to treat petroleum hydrocarbon contaminated soil generated by the project at the Landfarm Facility as per the Waste	Ensure all spills/stains and contaminated water are cleaned up and contaminated soil or	A total of 1,660 m^3 of contaminated soil was disposed underground via the Crown Pillar, as per the water license.

Compliance Issue Observed	Recommendation from CIRNAC to Achieve Compliance	Actions Taken to Achieve Compliance
Management Plan (Solid and Hazardous), dated March 2016, or disposed of underground as per the final closure and reclamation plan, sated July 2018 or as otherwise approved by the Board in writing."	water is placed into a Landfarm or underground as per the water license.	This process for disposal of any contaminated soils will continue in the future.
Part G, Item 5: "The licensee shall implement sediment and erosion control measures prior to and during construction, and reclamation and closure, to prevent entry of sediment into water."	Ensure all erosion is being mitigated.	These erosion control issues were primarily associated with Dam walls. The Tailings Containment Area Geotechnical Inspection includes measures that will be taken in 2025 to mitigate these concerns.
Part G, Item 10: "The licensee shall implement preventative and mitigation measures to prevent any chemicals, fuels, or wastes associated with the undertaking from entering a waterbody, unless otherwise authorized under this license."	Ensure all culverts are working properly and not causing any ponding or contributing to erosion. Hazardous waste and used hazardous waste containers should be placed into the hazardous waste berm	The culvert on the Esker Haul Road near Fox Lake will be re-installed in 2025 to address potential drainage issues and associated ponding concerns near the roadway Mine staff will ensure that hazardous wastes and used hazardous waste containers will be placed in the hazardous waste berm and will be managed in accordance with the updated Waste Management Plan.

(I) Water Supply and Waste Management Facility Works

This section details a summary of modifications and/or major maintenance work carried out on the Water Supply and the Waste Management Facilities, including associated structures.

Work completed during the 2024 "care and maintenance"/closure phase period focused on addressing items identified in the 2023 Geotechnical Inspection to the satisfaction of the Engineer of Record. These works included:

- A passive limestone drain was designed and installed in Cell 4 to address the acidic seep in the area
- Water was pumped from Pond 1 to Pond 2 to allow sufficient dam freeboard for 2025 freshet.
- Minor repairs to erosional features were completed on an as needed basis by August 3.
- Nine new thermistors were installed in dam embankments and cover surfaces in July.
- One additional thermistor was installed at the location of the passive limestone drain in July.
- Two new water content sensors installed in Cell 3 and Cell 4 during July.
- Three existing thermistors were repaired in July.
- Regraded embankment crests to improve drainage and reduce erosion

(J) Unauthorized Discharges

This section includes a description of all unauthorized discharges including volumes, spill report line identification number and summaries of any follow-up action taken.

There were no unauthorised discharges or spills reported in 2024.

(K) Revision to Plans, Reports or Manuals

This section details any Applicable revisions for Plans, Reports or Manuals.

The following updates were made:

- The Waste Management Plan was updated to reflect comments made by Environment and Climate Change Canada (ECCC) and to include a more detailed overview of waste materials on site and management practices. This update plan is included in Appendix E.

- Updates to Table 14 of the Final Closure and Reclamation Plan has been updated to reflect schedules works towards reclamation and closure. Additions include closure of Temporary Fuel Farm, including the removal and disposal of liner and regrading of TFF bunds. This table has been adjusted to reflect schedule limitations and changes associated with the winter road not being constructed in 2025, as discussed in section 1. (M). This updated table is included as Appendix C.

- Plans and designs were created for the Cell 4 Passive Limestone Drainage System, and the system was installed. These details are included in Appendix H.

- An as-built" survey of the Temporary Fuel Farm was completed in June 2024. The "as-built" report for the TFF was submitted via email to NWB, CIRNAC, and ECCC on September 27, 2024. The report documented the design and the Construction Quality Assurance (CQA) of the liner and containment bund system. These designs for the Temporary Fuel Facility are included in Appendix F.

(L) Engagement

This section summarizes any public consultation and participation with local organization and residents of nearby communities, including schedule of upcoming events and information sessions.

The focus of public consultation carried out by Mandalay in 2024 was on communications related to the intention to build the 2025 Winter Road, which would allow for equipment mobilization, and other reclamation and closure works needed for Mine progress. When Mandalay decided not to build the 2025 Winter Road, due to reasons previously mentioned in this report, engagement efforts were reduced.

In 2025, Mandalay will engage and communicate with applicable organizations, residents of nearby communities, and Indigenous Groups about reclamation work scheduled for 2025. While no events are yet scheduled for 2025, Mandalay will be engaging in 2025/2026 as appropriate, and when new information or updates is available. Mandalay is committed to engaging in meaningful discussions on reclamation and closure of the Mine. Engagement in 2025 will focus on future site activities planned to achieve final closure of the Lupin Mine. Mandalay intends to address any information requests and

concerns raised while the Mine is reclaimed and progresses towards closure.

(M) Reclamation work completed in 2024 and Anticipated Works for 2025

This section summarizes abandonment and reclamation work completed during the year and an outline of any work anticipated for the next year.

In 2024, the Mine was accessed solely via aircraft and helicopter. Permits allowing for the construction of the 2024/2025 winter road construction to access the Mine were obtained by Mandalay. However, following a strategic review, Mandalay decided to reschedule the construction of the winter road for the 2025 season. The decision was influenced by the fact that contractor proposals, for the 2025 winter road, did not align with the project's requirements or timeline constraints for the 2025 field season, despite Mandalay issuing the RFP (August 2, 2024) to a mix of local and southern contractors. While we were unable to secure a compliant bid from a local contractor, Mandalay remains committed to supporting local contractors to ensure that the benefits of this project stay in the North as much as possible. As such, some reclamation and closure activities originally scheduled for the 2025 field season have been delayed to future years. The table below summarizes reclamation works completed in 2025 and proposed works planed for the 2025 field season.

Table 6: Summary of Works Completed in 2024 and Proposed Works for 2025

Component	Works completed in 2024	Proposed Works proposed in 2025
Underground Mine	No reclamation work completed in 2024.	No reclamation work planned for 2025.
Contaminated Soil	A limited program of hydrocarbon cleanup was undertaken in the Mill Site Area in 2024. Removed soil was placed into the crown pillar. The volumes were as follows: 996 m^3 from the landfarm, 48 m^3 from TP05-25, 72 m^3 from TP17-42, and 108 m^3 from TP17-22 for a total of 1,660 m^3.	• No specific reclamation work of contaminated soil planned for 2025. • Any soil contamination that inadvertently occurs will be managed in accordance with the Waste Management Plan.
Waste Rock	No reclamation work was completed in 2024	No reclamation work planned for 2025
Tailings Containment Area	Work completed in 2024 in the Tailings Containment Area include: • Constructed Passive Limestone Drainage system at Seep in NW Cell 4 • Designed and began bulk placement of esker cover over exposed tailings in NW Cell 4 • Dam Safety Inspection (DSI) • See Appendix D. Safety Review and Dam Safety Inspection Recommendation Management Plan, updated for 2024	Address outstanding findings and recommendations from 2024 annual geotechnical inspection reports, including: • Develop a plan to address Cell 3 drainage swale erosion issues • Continue remediation for exposed tailings and seep in the NW corner of Cell 4 • Assess and design remediation for acidic water located at and adjacent to Cell N

Component	Works completed in 2024	Proposed Works proposed in 2025
		• Assess and design remediation for exposed tailings between the Pond 1 closure elevation and J Dam • Assess and design remediation for exposed tailings between the Pond 2 closure elevation and the proposed M Dam toe • Develop engineered drawings for Dam 1A and J Dam spillways. • Assess and design re-slope of Dam3 • Full details provided in Appendix A, Tailings Containment Area Geotechnical Inspection.
Buildings and Equipment	No demolition or reclamation work was completed in 2024.	No reclamation work planned for 2025
Borrow and Quarry Areas	No reclamation work was completed in 2024	No reclamation work planned for 2025
Chemicals and Fuel	No chemicals were shipped off-site in 2024. A fuel conversion program successfully cleaned and converted the remaining jet fuel stored in Tank 15 to usable Diesel	• Continue preparations for Waste fuel, oils, and chemicals to be demobilized on upcoming winter road. • Potential for cleaning of tank 4.
Machinery and Mobile Equipment	Minor repairs to mobile equipment were completed in 2024.	• Minor repairs to rock trucks, excavators and dozer planned for 2025. • Further equipment will be drained of fluids and placed in the landfill in 2025, some equipment will remain for post closure, but a majority of the equipment will be shipped to Yellowknife via the winter road in upcoming years. • Fluids drained from the equipment are stored in a bermed area to be shipped off-site on the winter road for disposal. See Section 1(f) for a waste inventory on-site as of December 31, 2024.
Landfill	No reclamation work completed in 2024. Fuel drums noted during the CIRNAC inspection were removed from	No reclamation work planned for 2025

Component	Works completed in 2024	Proposed Works proposed in 2025
	the landfill and prepped for shipment off-site.	
Roads	Typical road maintenance was performed in 2024.	Reinstallation of the culvert along the Esker Haul Road near Fox Lake to address drainage issues is planned for 2025
Water Management Facilities	No reclamation work completed in 2024	No reclamation work planned for 2025.
Mobilization/Demobilization	Necessary Winter Roads permits received in 2024.	No reclamation work planned for 2025.
Explosives Magazine	No reclamation work completed in 2024.	Planned to be demobilized via Winter Road in 2026
Emergency Dump Ponds	No reclamation work completed in 2024.	Assess and design remediation for exposed tailings impounded by the emergency tailings dump ponds.
Sewage Lagoons	No reclamation work completed in 2024.	Assess and design spillway configuration, sizing, and specifications at the upper and lower sewage lagoon.

Fuel Storage Facility Update:

As of December 2024, only the former Jet A tank (Tank 15) is in use. MTF Tank 2 and Tank 3 have been cleaned and prepared for deconstruction and disposal in the landfill. One individual tank (MTF Tank 4) has been emptied and prepped for cleaning, deconstruction, and disposal in the landfill. A new Temporary Fuel Farm (TFF) was constructed in September 2023 to store fuel for the completion of closure operations and to allow for the decommissioning of the Main Tank Farm. An "as-built" survey was completed and associated "as-built" drawings were produced in 2024 and are contained in Appendix F. The TFF now contains diesel that was converted from the Jet fuel.

As of December 31, 2024, there was approximately 453,424 litres of diesel fuel and zero (0) litres of jet fuel in storage in large fuel tanks within the Bulk Fuel Storage (Main Tank Farm) and temporary tank farm (TFF).

(N) Additional Details Requested

This section details any other details on water use or waste disposal requested by the Board by November 1 of the year being reported.

Any additional outstanding information requested by the Board and other Regulators is included in Appendix G.

2. SCHEDULE B.2 - POST CLOSURE MONITORING PLAN UPDATE

This section details updates to Schedule B for Annual Reporting Requirements, reflecting the Post Closure Monitoring Plan as outlined in Schedule J, Item 13 of 2AM-LUP2032.

LMI is currently in modified active Care and Maintenance of the Closure Phase. Given that no winter road was constructed in 2024, limiting reclamation activities, Mandalay will update requirements for the Post Closure Phase in the 2025 annual report.

APPENDIX A. 2024 DSI Geotechnical Inspection

2024 Lupin Mine
Tailings Containment Area
Annual Inspection Report

March 17, 2025

Prepared for:

Lupin Mines Incorporated

Prepared by:

Steven Bundrock, P.Eng.
Lindsay Pistner, P.Eng.

Sign-off Sheet

This document entitled 2024 Lupin Mine Tailings Containment Area Annual Inspection Report was prepared by Stantec Consulting Ltd. (“Stantec”) for the account of Lupin Mines Inc. (the “Client”). Any reliance on this document by any third party is strictly prohibited. The material in it reflects Stantec’s professional judgment in light of the scope, schedule and other limitations stated in the document and in the contract between Stantec and the Client. The opinions in the document are based on conditions and information existing at the time the document was published and do not take into account any subsequent changes. In preparing the document, Stantec did not verify information supplied to it by others. Any use which a third party makes of this document is the responsibility of such third party. Such third party agrees that Stantec shall not be responsible for costs or damages of any kind, if any, suffered by it or any other third party as a result of decisions made or actions taken based on this document.

Prepared by _____

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Reviewed and Approved by _____

Steven Bundrock, P.Eng.

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1.0 INTRODUCTION

Lupin Mines Incorporated (LMI), a wholly owned indirect subsidiary of Mandalay Resources, retained Stantec Consulting Ltd. (Stantec) to complete the annual dam safety inspection (DSI) at the Lupin Mine Tailings Containment Area (TCA). Stantec carried out a site visit and dam safety inspection of the TCA in the summer of 2024. This report presents background information, results and recommendations from the DSI.

2.0 BACKGROUND INFORMATION

The Lupin Mine is located on the western shore of Contwoyto Lake, approximately 400 km northeast of Yellowknife, Northwest Territories, in the Kitikmeot Region of Nunavut (Appendix A – Figure 1). The site includes camp and support facilities, fuel storage, an airstrip, overflow and sewage ponds, and the TCA as shown in Appendix A – Figure 2. A plan view of the TCA is provided in Appendix A – Figure 3.

Lupin mining operations ceased in 2005. The Lupin Mine site is currently undergoing active closure activities. Closure activities are detailed in the approved Final Closure and Reclamation Plan, issued by Golder Associates in 2018 (Golder, 2018).

The Lupin Mine operates under the Nunavut Water Licence 2AM-LUP2032 (NWB, 2020), issued to LMI by the Nunavut Water Board (NWB, or The Board). Part J, Condition 12 of the water licence requires an annual geotechnical inspection to be completed for the TCA during ice free, open-water conditions by a Geotechnical Engineer (NWB, 2020). Stantec has provided a qualified person to conduct the geotechnical inspection in order to fulfill the requirements of Part E, Condition 7 of the water licence, which stipulates that the TCA shall be constructed, operated, and maintained to engineering standards such that:

- A minimum freeboard of 1.0 metre is maintained at all times or as recommended by a Geotechnical Engineer and as approved by the Board in writing
- Seepage from the TCA is minimized
- Seepage that occurs is collected and returned immediately to the TCA
- Erosion of constructed facilities is addressed immediately
- The solids fraction of the mill tailings is permanently contained within the TCA or underground as backfill
- Measures are implemented so that the TCA is adequately covered or managed, including the use of approved binding agents, so as to prevent windblown tailings from impacting other areas of the project site

- Transducers are installed and maintained within existing standpipes to collect water level data and ensure tailings saturation.

The water licence further stipulates that during the active Closure and Care and Maintenance Phases, inspections are to be carried out on a bi-weekly basis during freshet (approximately May and June), and monthly during the remainder of the open water period (approximately July to October) for the following:

- Seepage from dams
- Water levels in ponds/cells
- General surface erosion, tension cracks, and/or anomalies on dams
- Records of these inspection are to be kept for review upon the request of Inspector, or as otherwise approved by the Board. More frequent inspections will be performed at the request of an Inspector.

To meet these conditions, this report summarizes Stantec's observations of the TCA's condition in 2024 and presents our recommendations. Previous annual inspections, safety reviews, and risk assessments with respect to the TCA are as follows:

- Construction reporting during active closure activities by JDS, WSP, and LMI
- Inspection Reports from 2018-2023 by Stantec Consulting Ltd
- Inspection Reports from 2016 and 2017 by Norwest Corporation
- Inspection Reports from 2012-2015 by SRK Consulting
- 2015 Dam Safety Review Report by SRK Consulting
- 2023 Dam Safety Review Report by SLR Consulting
- 2012 TCA Risk Assessment and Water Quality Review by SRK Consulting.

While the annual inspection is carried out to satisfy the licence requirements, the format and methodology used are performed in accordance with good engineering practices laid out in Canadian Dam Association (CDA) Dam Safety Guidelines (2013, 2014) and Province of British Columbia Water Management Branch (BCWMB, 2011) Dam Safety Guidelines.

2.1 PROJECT DESCRIPTION

2.1.1 Location and Access

The Lupin Mine is accessible by air or winter road. Air access is serviced by a gravel airstrip, capable of handling large aircraft. Charter flights from Yellowknife support the site. When the mine was in operation, the Tibbitt, Northwest Territories to Contwoyto, Nunavut Winter Road was

utilized to resupply the mine. Since 2005, this winter road terminated at the Ekati Diamond Mine and has not been extended to the Lupin Mine since 2005, when the mine went into the Care and Maintenance Phase. An overland access trail was constructed to the Lupin site in the winter of 2020 to facilitate equipment mobilization for closure activities. This trail was reestablished in order to mobilize additional equipment to site in the winter of 2023/2024, and will be reestablished for equipment demobilization once the closure activities have been completed.

2.1.2 History and Current Status

In accordance with the approved FCRP, the Lupin Mine current closure activities include, but are not limited to, infrastructure demolition, identification and disposal of contaminated soils, water treatment and discharge, water quality and geochemical monitoring, tailings cover and shoreline armouring construction, construction of passive outfalls and spillways, tailings dam resloping and dam repairs, and waste management.

2.1.3 Site Infrastructure

Numerous mine facilities have been decommissioned as part of closure activities, including:

- The mill underground hoist and wheelhouse, ball mill, concentrator, and paste backfill plant (decommissioned and demolished).
- The camp and support facilities which historically included multiple accommodation wings, an office building, recreation facilities, a shop, carpentry building, weather station, cold and warm storage, and generators. Most of these structures were demolished, with only two wings of the camp, the shop, cold storage buildings, and associated generators remaining.
- A waste management incinerator, landfill, and a burn pit.
- Fuel storage facilities (included the main tank farm containing diesel and jet fuel for annual operations). Most of the fuel tanks were decommissioned and demolished. In 2023, a temporary fuel storage berm was constructed to facilitate decommissioning and demolition activities.

In addition to the decommissioned facilities noted above, the following mine facilities remain:

- A gravel airstrip capable of accommodating large aircraft such as Boeing 737s. Airstrip instrumentation has been decommissioned but the airstrip is to remain indefinitely for emergency purposes.
- Gravel roads connecting facilities and the various site infrastructure. These roads were largely still in place at the time of inspection but are to be decommissioned and scarified as part of the FCRP.
- Two sewage lagoons. These facilities are to be decommissioned, drained, and breached as part of closure activities. Spillways are to be constructed through the existing embankments to facilitate passive drainage.

- The TCA, consisting of frozen core dams that contain tailings cells undergoing progressive reclamation which has been completed at several cells. Water treatment equipment was present at the TCA and typically consisted of a water treatment plant at Dam 1A and at the arsenic treatment building, as well as temporary equipment. Various instrumentation is present at the TCA, and consists of a barometer, thermistors, volumetric water content sensors, and pressure transducers.
- Two emergency tailings dump ponds, located along the historical tailings pipeline alignment.

2.2 CLIMATE

Stantec evaluated climate data from an automated weather station known as Lupin (CWIJ) available via the Weather Underground database (WU, 2016). Intermittent climate data was also available from the Environment Canada database under station LUPIN CS Climate ID 230N002. The climate data evaluation was completed in 2018, and updated in 2024, for the period of May 2005 to April 2017. Details from the climate data evaluation were as follows:

- Annual mean temperature: -10.9°C
- Average winter temperature (from October to April): -21°C
- Average summer temperature (from May to September): 8°C
- Average annual precipitation: 592 mm (*data does not differentiate between snow and rain)
- Average wind direction: south-southwest
- Average wind speed: 16 km/h

2.3 SITE GEOLOGICAL CONDITIONS

The Lupin Mine was located in an area underlain by an Archean metaturbidite sequence of the Contwoyto Formation. The rocks have been subjected to both regional and contact metamorphism, which included deformations and intrusions of various ages.

The area was glaciated and experienced isostatic rebound after the glaciers ablated. Runoff related to glaciation washed out erodible soils and formed lakes in low-lying areas. The easily erodible glaciolacustrine and glaciofluvial sands were reworked and displaced by meltwater and resulted in the outcrops present with thin soil veneers, abandoned beaches, and esker formations (Kinross, 2005). Where bedrock is not present at the surface, overburden typically consists of coarse-grained glacial till which is intermittently covered by glaciolacustrine and glaciofluvial deposits. The till is a silty sand with gravel and boulders, with low plasticity and ice content depending on the depth.

A substantial esker deposit, referred to as the Finger Lakes borrow source, is located roughly five km southeast of the TCA. Material at this borrow source has been classified as a gravely sand

and was demonstrated to be geochemically stable under various wetting/drying cycles and leaching. Gravely sand sourced from the Finger Lakes borrow source has been used for most of the progressive reclamation and tailings/contaminated materials cover onsite. Prior to selection for progressive reclamation material, sand and gravel from this source was utilized for road and dam construction. Several other inactive borrow sources consisting of similar esker deposits are present near the TCA perimeter.

2.4 PERMAFROST MONITORING

The site is located within a permafrost region. The active layer has been observed to be variable between depths of 1.25 m to 3 m based on available data. During operation, scheduled monitoring was completed for instrumentation, water level records, water quality, and production volumes. This monitoring program was reduced accordingly during the Care and Maintenance Phase of the mine and is now carried out when work is being done on site, where applicable. Thermistors were installed in several dams and in the tailings cover to monitor performance. Some thermistors are no longer functional and/or are damaged beyond repair. Nine thermistors were drilled and installed in July 2024 in order to support the performance monitoring requirements of the FCRP. Functional thermistors are monitored at least once annually during the geotechnical inspection and more often when site access allows. The results indicate that permafrost remains within the dams and reclaimed tailings, and the results are consistent with reasonable historical variation and limits.

3.0 TAILINGS CONTAINMENT AREA DAMS

The TCA tailings are primarily comprised of amphibole and quartz, which account for 80% of the volume. Pyrrhotite and arsenopyrite make up an additional 17%. Studies have demonstrated that the tailings have a potential for acid generation (Kinross, 2005).

The TCA consisted of eight perimeter dams named Dams 1A, 1B, 1C, 2, 3, 4, 5, and 6 and 11 internal dams named Dams 3a, 3b, 3c, 3d, 3e, J, K, L, M, N, and the Divider Dykes.

Five tailings cells (1 to 5) were used for tailings containment. During reclamation, internal dams 3a, 3b, 3c, and 3e were covered and are no longer considered to be dams. Cells 1 and 2 have been reclaimed. Cells 3 and 5 were covered in 2021 while Cell N was partially covered in 2022. Cell 4 was partially covered during the 2024 construction season. Remaining tailings requiring cover includes isolated areas of exposed tailings situated above the closure elevation within Ponds 1 and 2, additional fill at the Cell 4 northwest corner exposed tailings area, small areas of additional fill at Cell N, and an unquantified volume of tailings situated in the two emergency tailings dump ponds. No tailings have been produced since 2005.

Dams were constructed with esker sands and gravels and fine-grained tailings material. Perimeter dams and K Dam included a geosynthetic liner for seepage control and reduction of fines migration. The dams had frozen cores overlying a permafrost foundation. Perimeter dams ranged in height from one to eight metres and internal dams ranged in height from six to 12 metres.

Most of the tailings were historically contained within the TCA. However, there were two emergency tailings dump ponds which were utilized during adverse weather conditions. The extent, volume, and location of tailings impounded in the emergency dump ponds is unknown but is expected to be limited based on visual observation. The North emergency tailings dump pond is situated between the upper and lower sewage lagoon and the South emergency tailings dump pond is located one kilometre south.

The active closure procedure for water management includes the following steps:

- Runoff is directed from Cell 3 into Cell 4 via the passive drain outfall structure through L Dam.
- From Cell 4, the water is drained by a spillway constructed through the Divider Dykes, where it enters the Chain of Lakes natural drainage system near the southeast corner of the TCA. Comingled water from the natural system and Cell 3/Cell 4 flows into Pond 1.
- Cell 1 and 2 runoff is directed into Pond 1, while the remainder is left on the cover.
- Cell 5 runoff is directed into Pond 1 via the passively draining outfall structure through J Dam.
- Pond 1 water levels are managed by siphoning water across J Dam and into Pond 2.

- Pond 2 water treatment occurs by adding neutralizing products, such as soda ash or lime, to raise the pH to the acceptable water licence discharge criteria. Precipitates from treatment are deposited in Pond 2 and treated water is siphoned to the receiving environment in accordance with the Water Licence requirements (NWB, 2020). Pond 2 does not have a flood overflow structure or means of passively discharging runoff; instead, water is retained, and discharge is restricted until water quality achieves the discharge requirements outlined in the Water Licence.

3.1 DAM CONSEQUENCE CLASSIFICATIONS

Stantec used the CDA Guidelines (CDA, 2013) to determine dam consequence classifications. Classifications and associated incremental losses are presented in Table 3-1.

Table 3-1: CDA Dam Consequence Classifications

Dam Class	Population at Risk[1]	Incremental Losses		
		Loss of Life[2]	Environmental and Cultural Values	Infrastructure and Economics
Low	None	0	• Minimal short-term loss	Low economic losses
			• No long-term loss	Area contains limited infrastructure or services
Significant	Temporary only	Unspecified	• No significant loss or deterioration of fish or wildlife habitat	Losses to recreational facilities, seasonal workplaces, and infrequently used transportation routes
			• Loss of marginal habitat only	
			• Restoration or compensation in kind highly possible	
High	Permanent	10 or fewer	• Significant loss or deterioration of important fish or wildlife habitat	High economic losses affecting infrastructure, public transportation, and commercial facilities
			• Restoration or compensation in kind highly possible	
Very High	Permanent	100 or fewer	• Significant loss or deterioration of critical fish or wildlife habitat	Very high economic losses affecting important infrastructure or services (e.g., highway, industrial facility, storage facilities for dangerous substances)
			• Restoration or compensation in kind possible but impractical	
Extreme	Permanent	More than 100	• Major loss of critical fish or wildlife habitat	Extreme losses affecting critical infrastructure or services (e.g., hospital, major industrial complex, major storage facilities for dangerous substances)
			• Restoration or compensation in kind impossible	

Note 1. Definition for population at risk:
None - There is no identifiable population at risk, so there is no possibility of loss of life other than through unforeseeable misadventure. **Temporary** - People are only temporary in the dam-breach inundation zone (e.g., seasonal cottage use, passing through on transportation routes, participating in recreational activities).
Permanent - The population at risk is ordinarily located in the dam-breach inundation zone (e.g., as permanent resident); three consequence classes (high, very high, extreme) are proposed to allow for more detailed estimate of potential loss life (to assist in decision-making if the appropriate analysis is carried out).
Note 2. Definition for loss of life:
Unspecified - The appropriate level of safety required at a dam where people are temporarily at risk depends on the number of people, the exposure time, the nature of their activity, and other conditions. A higher class could be appropriate, depending on the requirements. However, the design flood requirement, for example, might not be higher if the temporary population is not likely to be present during the flood season.

Based on Stantec's 2024 inspection, dam consequence classifications are outlined in Table 3-2.

Table 3-2: TCA Dam Consequence Classifications

Dam		Consequence Classification	Rationale
Perimeter Dams	1A	Significant	Release of water that may not meet discharge criteria into the environment
	1B	Significant	Release of water that may not meet discharge criteria into the environment
	1C	Significant	Release of water that may not meet discharge criteria into the environment
	2	Significant	Release of water that may not meet discharge criteria into the environment
	3	Low	No free-standing water; stable reclaimed tailings with very limited impact upon failure
	4	Significant	Release of water that may not meet discharge criteria into the environment
	5	Low	No free-standing water; stable reclaimed tailings with very limited impact upon failure
	6	Low	No free-standing water; stable reclaimed tailings with very limited impact upon failure
Internal Dams	3D	Low	Any release of effluent or tailings are contained within the TCA
	J	Low	Any release of effluent or tailings are contained within the TCA
	K	Low	Any release of effluent or tailings are contained within the TCA
	L	Low	Any release of effluent or tailings are contained within the TCA
	M	Low	Any release of effluent or tailings are contained within the TCA
	N	Low	Any release of effluent or tailings are contained within the TCA
	Divider Dykes	Low	Any release of effluent or tailings are contained within the TCA

These consequence classifications are in line with the classifications outlined in the 2015 Dam Safety Review (SRK, 2015) and the 2023 Dam Safety Review (SLR Consulting, 2023).

In 2023, SLR noted that an emergency response plan (ERP) was in place and made recommendations to enhance the ERP such that potential dam safety emergencies are considered and planned for accordingly. Typically, an ERP is informed by an inundation study which identifies impacted areas downstream. However, due to the lack of transportable tailings, and the lack of a permanent population or infrastructure downstream of the TCA, a detailed inundation study has been deemed to be non-applicable. In response to the recommendation from SLR and to update the ERP for closure conditions, a new ERP may be needed. An inundation study may also be needed to guide the ERP. Results of the inundation study would also confirm the adequacy of the dam consequence classifications.

4.0 2024 TCA INSPECTION

4.1 GENERAL

The DSI was completed by Stantec's Steve Bundrock (Engineer of Record) and Lindsay Pistner from July 29 to July 31, 2024. Weather during the site visit was primarily clear to partly cloudy with light winds. No substantial precipitation events occurred during the inspection or in the days leading up to the inspection. Temperatures were typically 10° to 15°C during the day. Access roads were clear and mostly dry and were otherwise in good condition. All key TCA areas were accessible via light duty pickup truck, in the site 4WD Kubota, or on foot.

The DSI included a walkover, visual observation, and photography of the TCA upstream and downstream embankments, dam crest and toe areas, Cell 3 and 5 outfall structures, the Cell 4/Divider Dykes spillway. A cursory inspection of the two emergency tailings dump ponds, and the upper and lower sewage lagoons was also carried out as the structures contain limited ponded water, are generally dormant and have a history of acceptable stability. In addition to collecting observations for existing infrastructure, the recently constructed Cell 4 limestone drain and partial cover surface was inspected.

The inspection team observed for visible signs of instability (cracking, settling, slumping, toe heave, bulging, or other displacement), oversteepened slopes, uneven crests, erosion, ponded water, seeps, material types, fugitive tailings, vegetation, animal burrows, and other indicators of changing or unfavorable physical conditions. Photograph logs are provided in Appendix B. Geochemical observations (mineralization, precipitate, colour and vegetation changes, staining etc.) were also collected. Monitoring results from various instrumentation were collected, including thermistors, pressure sensors, and volumetric water content sensors (VWCs). Instrumentation conditions were documented with photographs. Water sampling and monitoring was carried out at seven locations; three samples were collected from Pond 1 and four samples were collected from Cell 4.

Water samples were packaged, transported, and delivered to the ALS laboratory in Yellowknife on July 31, 2024. Stantec received laboratory results on August 9, 2024.

4.2 INSTRUMENTATION MONITORING RESULTS

4.2.1 Thermistors

Thermistors were installed in the TCA between 1995, 2004, 2022 and 2024, to monitor the thermal performance of the dams, tailings, and covers. The additional thermistors that were drilled and installed in the summer of 2022 and 2024 were executed with the intent of satisfying conditions of the approved Final TCA Closure Plan and the Final Closure and Reclamation Plan. During the Operational Phase of the mine, thermistors were monitored monthly. When the mine

entered the Care and Maintenance Phase, monitoring shifted to a semi-annual frequency. Not all functional thermistors were consistently monitored through the Care and Maintenance Phase.

According to historical records, there were 13 thermistors installed in the dams; three of these have been functional in recent years. Of the functional thermistors, two were located in the perimeter dams and one was located in an internal dam. D3D-1 was noted to have three nonfunctional beads in 2024, including through the permafrost-active layer interface. Historically, this was considered to be a functional instrument. No repairs were attempted in 2024. In 2024, successful repairs were completed at D2-00-02N, D4-3, and D1-00-02N which restored the functionality of these instruments. Two instruments were unable to be repaired without excavating material and should be abandoned, including instruments D1A-00-01S and DK-3. Five of the existing thermistors within dam embankments were fully functional, including D4-1, D4-3, D4-4, D1A-00-02N, and D2-00-02N.

In addition to thermistors installed in the dam embankments, there were ten historical thermistors installed in the reclaimed tailings and cover material, but three of these do not have calibration data on record to evaluate the results and four of them were damaged. In 2024, repairs were attempted at three of the four damaged instruments. It was determined that two of these instruments (TC1-6 and TC1-7) were unrepairable without excavating material and they should be abandoned. Although TC3-1 had a non-functional thermistor bead, this was located at a sufficient depth that an annual assessment of the permafrost-active layer can still be completed, and this instrument should be considered functional. Two of the existing thermistors located in the reclaimed tailings and cover material were functional, including TC1-3 and TC3-1.

Ten new thermistors were installed in July 2024 in TCA dam embankments and cover surfaces, as well as at the location of the passive limestone drain. Limited borehole logging was completed with drilling activities. Post-installation readings were collected at each thermistor to confirm their functionality. However, this data was not incorporated into this report since these temperature readings were noted to be stabilizing; most of the readings appeared to be recording latent heat from drilling and installation. Three thermistors were installed into the cover material/tailings underlying the tailings cells while six were installed in dam embankments and/or their foundation. One thermistor was installed at the constructed limestone drain at the Cell 4 cover area.

For the two existing, functional thermistors in cover material and tailings, and the three repaired thermistors, data series were selected to span August to September from the years 2010 to 2024. Minimum and maximum values were calculated and plotted using data series collected in the 1990s to 2024. Historically, the internal dam thermistors were not monitored as often as the thermistors installed in the perimeter dams and these instruments have a shortened dataset ranging from 2014 to the present day. Monitoring results are presented in Figures 4-1 to 4-7 on the following pages.



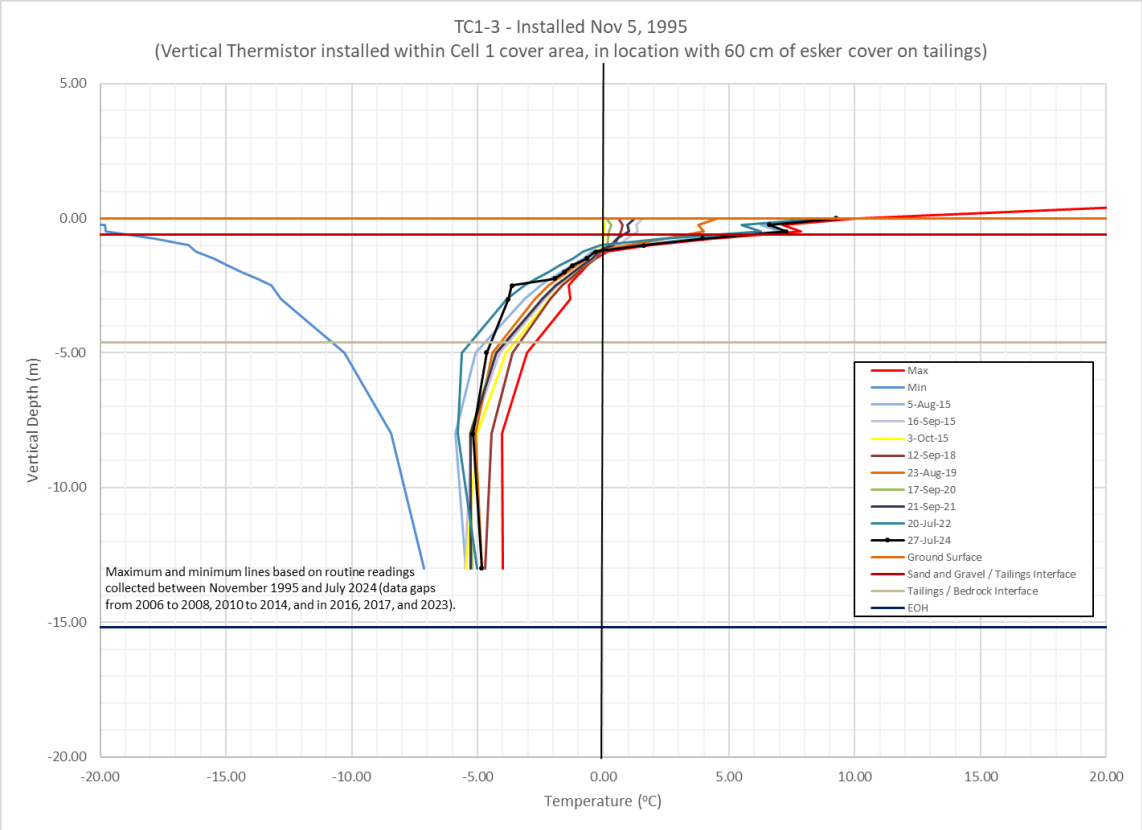


Figure 4-1: TC1-3 Thermistor Results

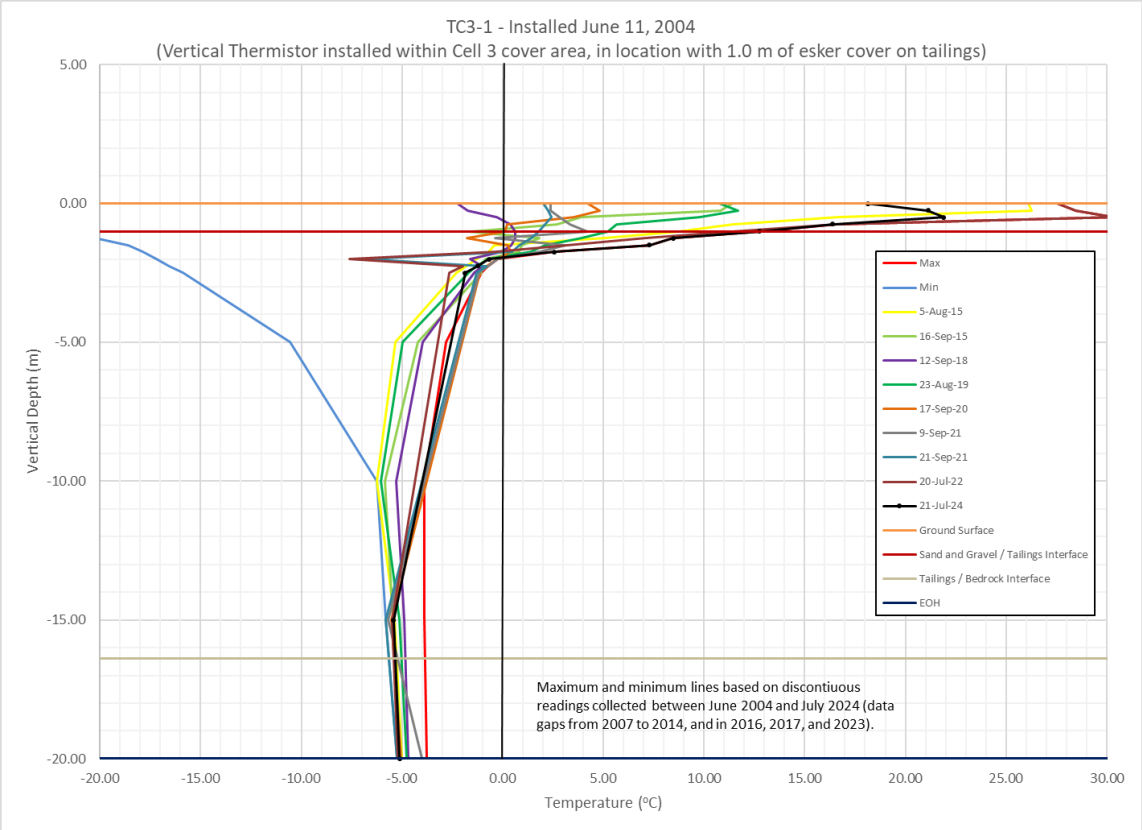


Figure 4-2: TC3-1 Thermistor Results

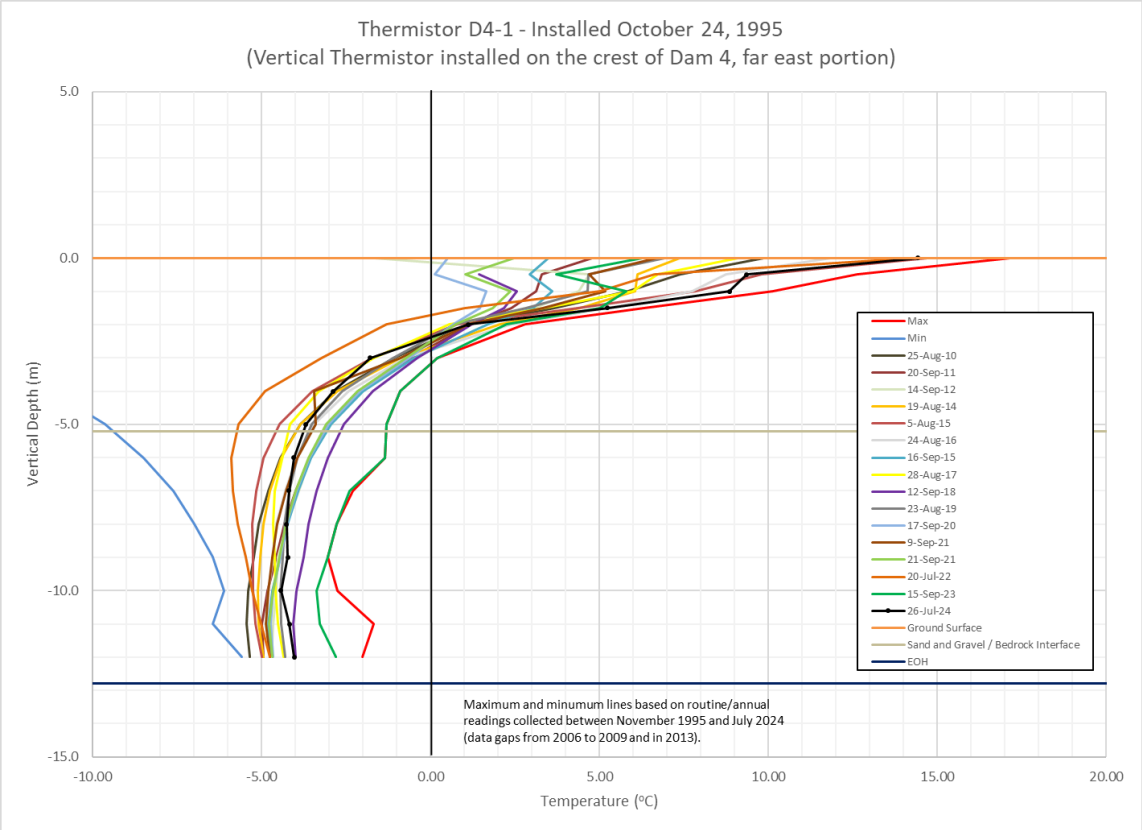


Figure 4-3: D4-1 Thermistor Results

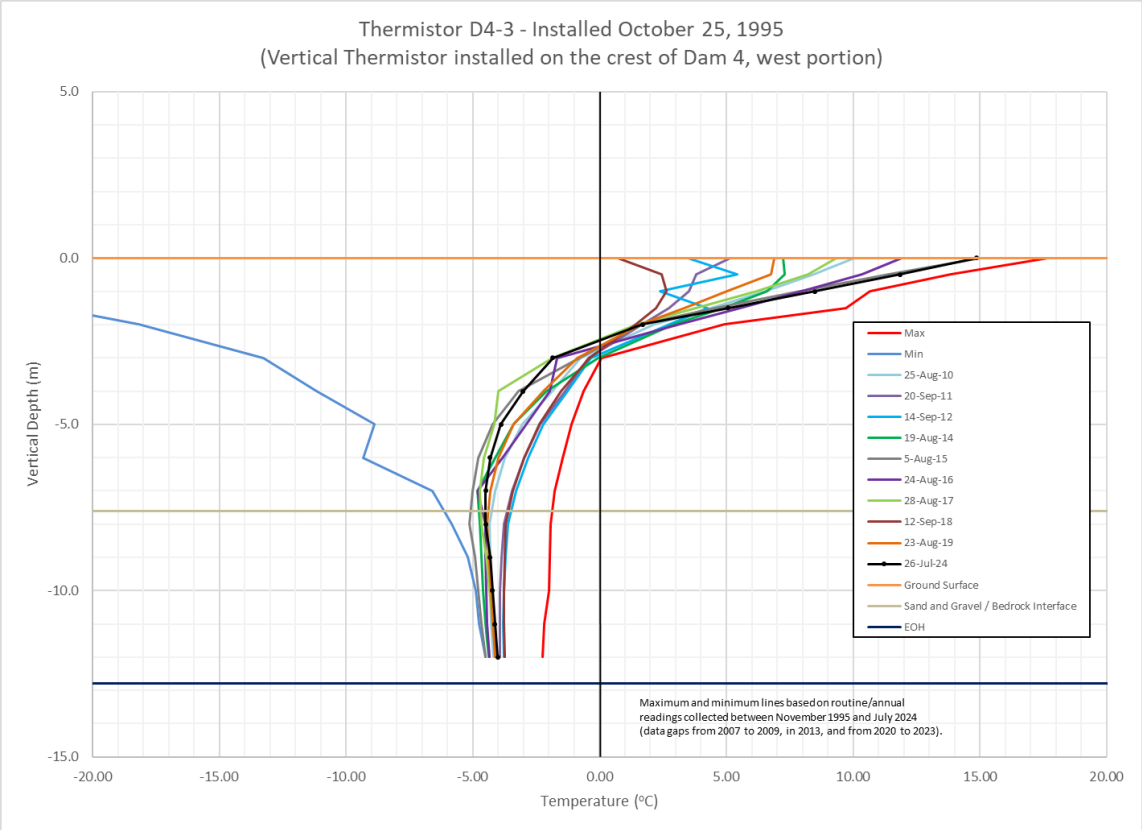


Figure 4-4: D4-3 Thermistor Results

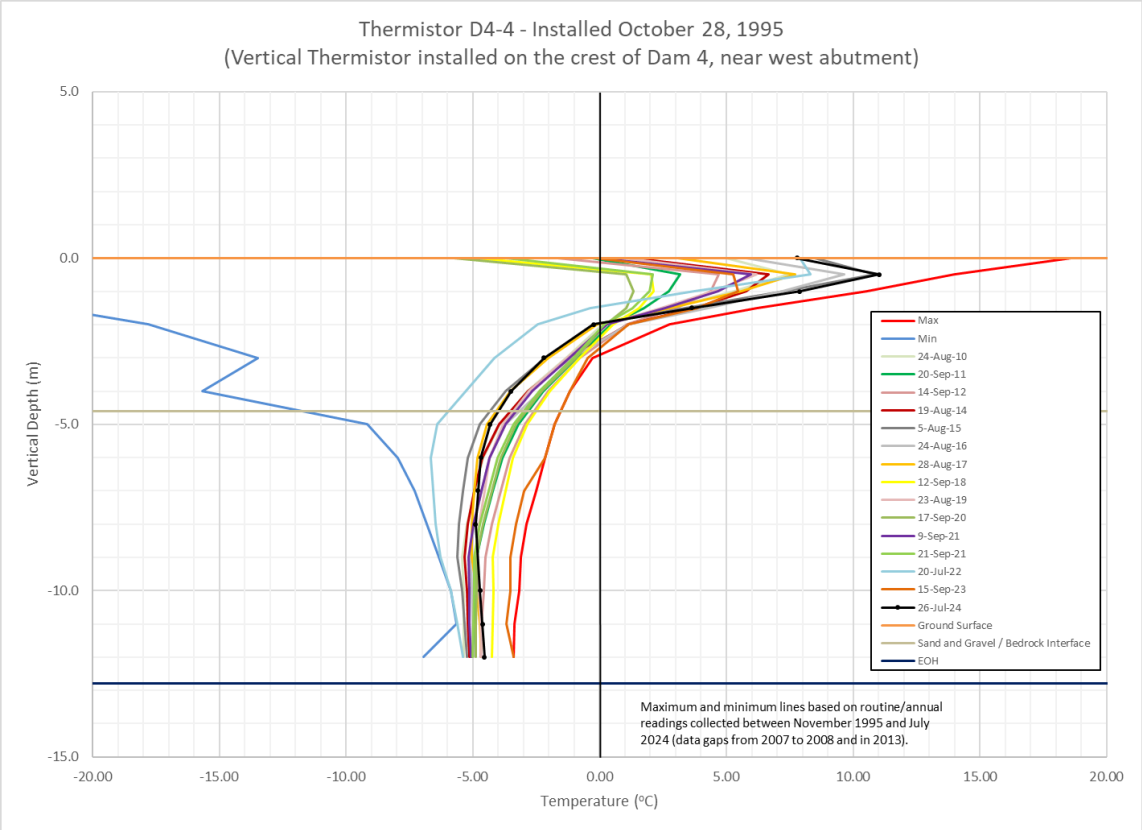


Figure 4-5: D4-4 Thermistor Results

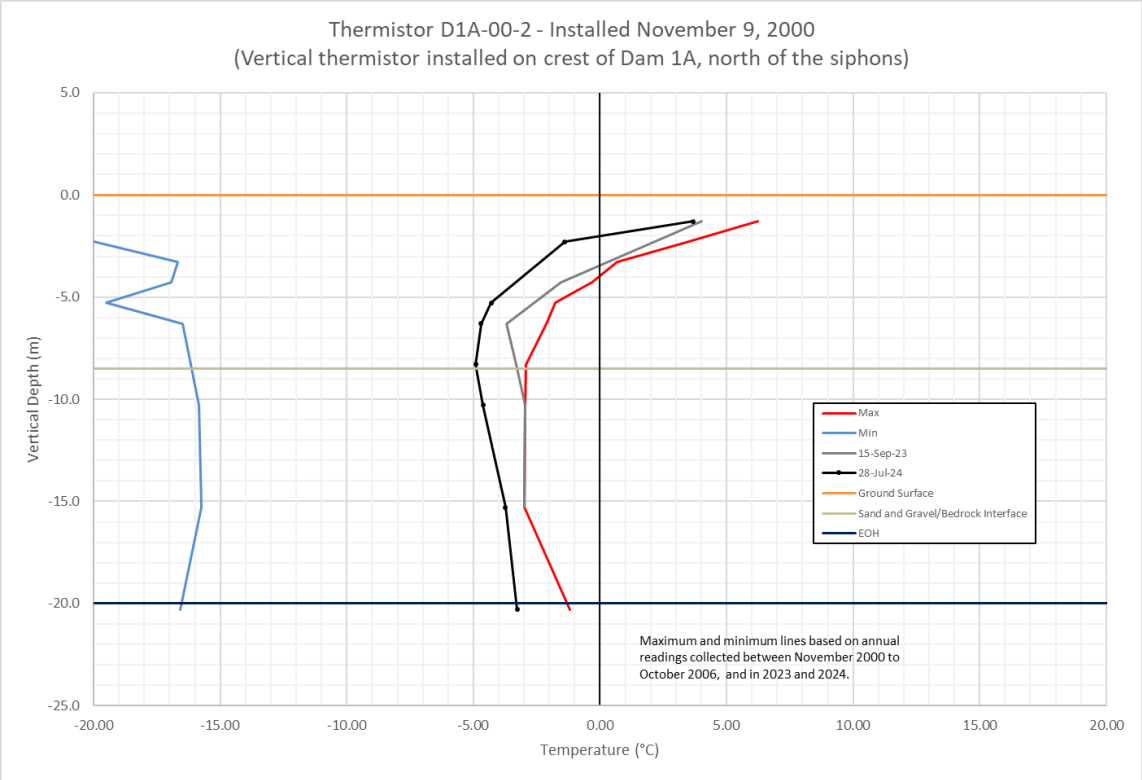


Figure 4-6: D1-00-2 Thermistor Results

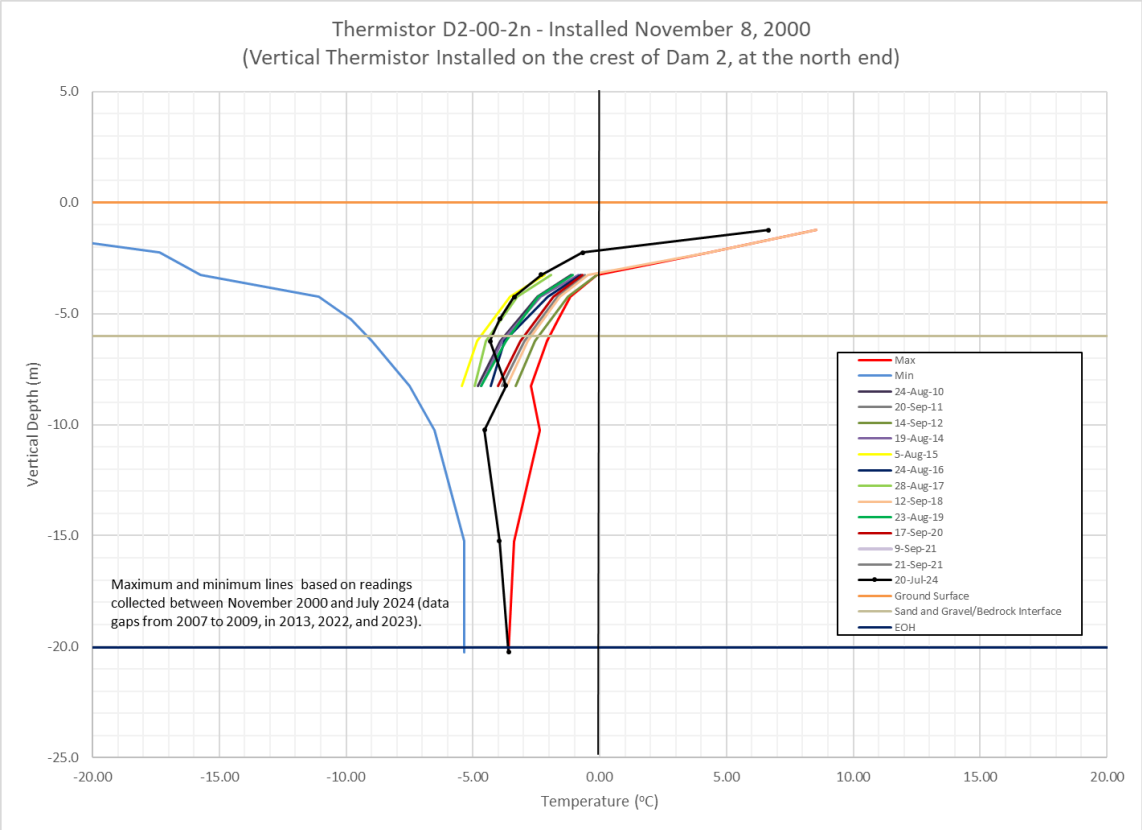


Figure 4-7: D2-00-2N Thermistor Results

Based upon the thermistor monitoring results, the active layer associated with annual summertime permafrost thaw ranged from roughly 1.2 m to slightly less than 3 m deep. For a majority of the instruments, the active layer was observed to be located at a relatively consistent depth of 2.0 m below ground. 2024 results suggest that several thermistor beads were either at, or in excess of, historical maximums that have been plotted on Figures 4-1 to 4-7. Although temperatures were at, or in excess of, historical maximums, results indicated intact permafrost dam cores and foundations below the active zone.

4.2.2 Water Content Sensors

To monitor performance of the tailings cover, volumetric water content sensors were installed in Cell 1 and Cell 3 covers in 2018 with additional sensors installed at Cell 3 and Cell 5 in 2024. These instruments included a TEROS-12 VWC sensor that measures volumetric water content, temperature, and electrical conductivity. The sensor datalogger records results once every 12 hours. Four volumetric water sensors have also been installed. Cell 1 and Cell 5 each have one string of five vertical sensors installed within the cover and Cell 3 has two strings of five vertical sensors installed within the cover (C1-VWC1, C3-VWC1, C3-VWC2, and TC5-VWC1). Sensor information is provided in Table 4-1.

Table 4-1: VWC Installation Details

VWC ID	Cell 1-1		Cell 3-1		Cell 3-2		Cell 5-1	
	Installed: 2018		Installed: 2018		Installed: 2024		Installed: 2024	
	Depth (m)	Material	Depth (m)	Material	Depth (m)	Material	Depth (m)	Material
Port 5	1.0	Fine Sand (Cover)	0.35	Sand and Gravel (Cover)	0.30	Sand (Cover)	0.30	Sand (Cover)
Port 4	1.2	Fine Sand (Cover)	0.5	Sand and Gravel (Cover)	0.50	Sand (Cover)	0.50	Sand (Cover)
Port 3	1.4	Fine Sand (Cover)	0.6	Sand and Gravel (Cover)	1.26	Sand (Cover)	1.3	Sand (Cover)
Port 2	1.6	Fine Sand (Cover)	0.7	Sand and Gravel (Cover)	1.56	Sand (Cover/Tailings Interface)	1.6	Sand (Cover/Tailings Interface)
Port 1	1.8	Tailings	1.0	Sand and Gravel (Cover)	1.76	Tailings	1.8	Tailings

Monitoring is carried out to assess the percent saturation at various depths within the cover material. The Mine Environment Neutral Drainage (MEND) Program (MEND, 2009) demonstrated that a soil cover moisture content (percent saturation) greater than 85% provides an effective barrier against oxidization. Sensors register ice as a dry void so as pore water freezes, the measured water content drops during the winter months.

Data collected from VWCs in 2024 are presented in Figures 4-8 and 4-9. The large data gap associated with the Cell 3-1VWC was the result of a nonfunctional instrument. This instrument was repaired in 2024. Data associated with Cell 3-2VWC and Cell 5-1VWC will be presented in subsequent reports when sufficient data has been collected.

4.2.2.1 Cell 1-1 VWC

Figure 4-8 shows the percentage saturation for the VWC installed in the Cell 1 cover for July 2024 and earlier.

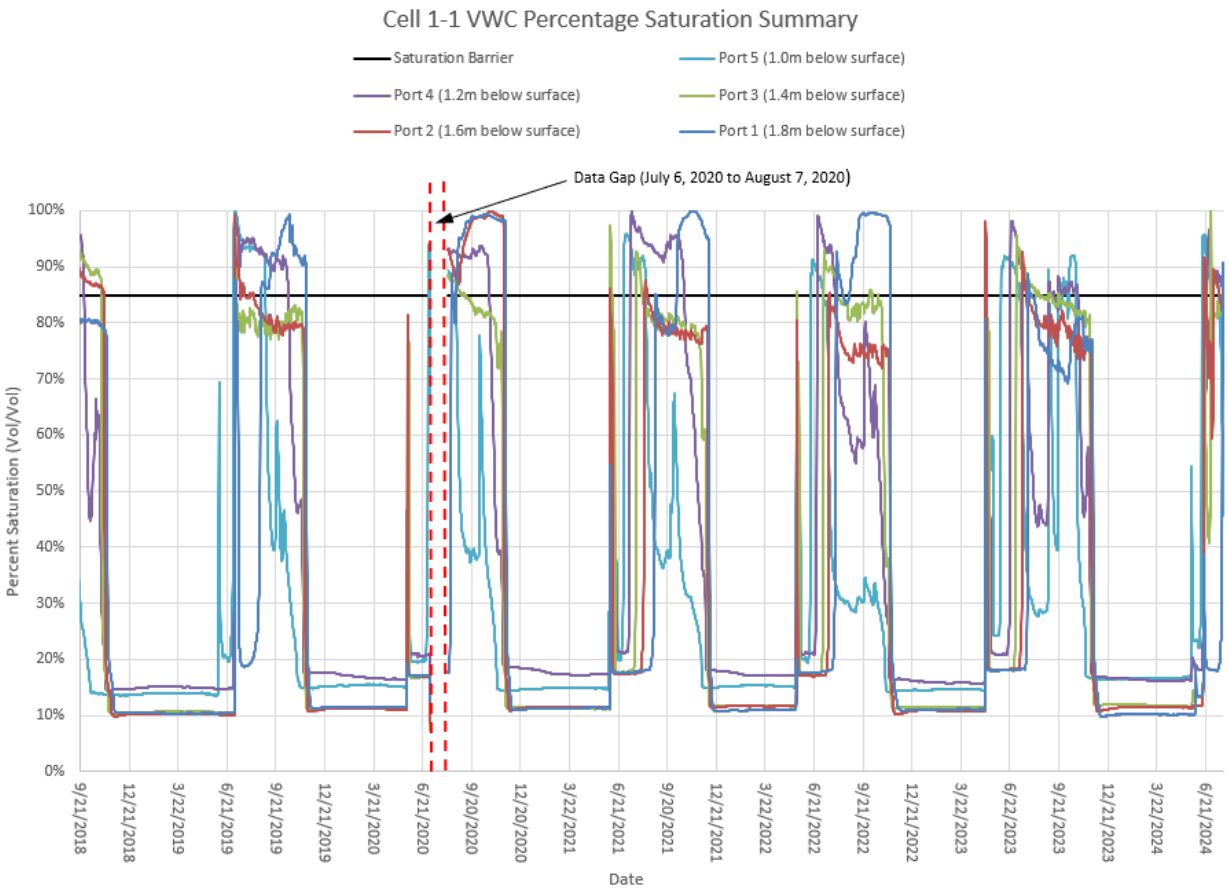


Figure 4-8: Cell 1-1 VWC Results

There was a gap in data collection between July 6th to August 7th, 2020. The cause of the data gap is unknown but has been documented.

4.2.2.2 Cell 3-1 VWC

The functionality of Cell 3-1 VWC was restored in July 2024. Figure 4-9 shows the percentage saturation for the VWC installed in the northern portion of the Cell 3 cover for July 2024 and earlier.

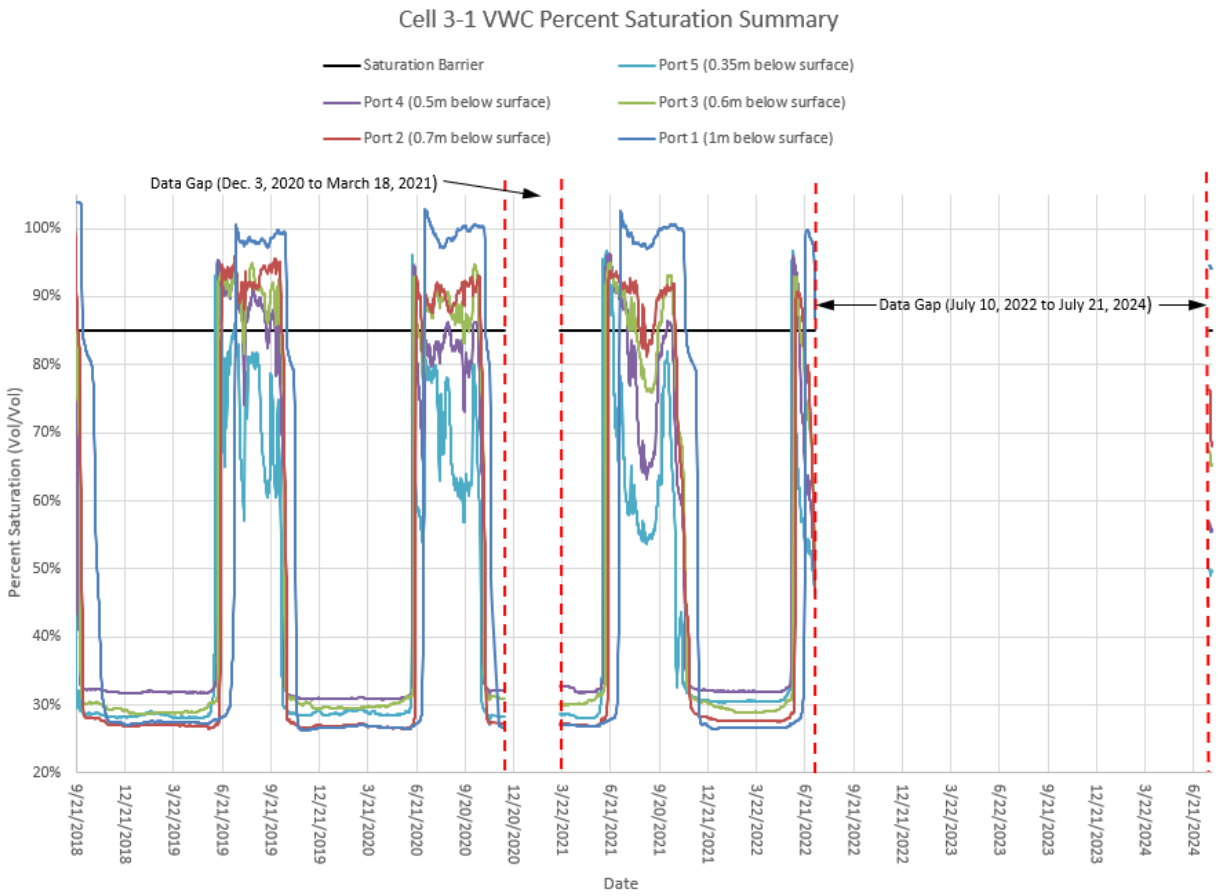


Figure 4-9: Cell 3-1 VWC Results

There were two sizable data gaps associated with Cell 3-VWC1 as indicated on Figure 4-9. The functionality of this instrument was restored in July 2024.

Most of the sensors demonstrated frozen conditions between October and June. The 2022 data indicated Port 4 moisture contents above 85% saturation once thawed. Ports 1, 2, and 3, which are situated deeper than Port 4, showed a variable trend but remained around 80% saturation. It was previously determined that the lower degree of saturation in Ports 1 through 3 could be the result of near freezing temperatures measured at depth. The VWC interprets frozen material as voids, thus reporting a lower degree of saturation. A similar assessment of the data will be required once this instrument collects sufficient data for interpretation.

4.2.3 Transducers

Three In-Situ Level TROLL 400 transducers and one In-Situ BaroTROLL transducer were installed in four standpipes in the Cell 1 cover in 2019. Based on information from Kinross (2006), the standpipes were installed to the tailings/cover contact. Transducers were installed a few centimetres off the bottom of the standpipes. The installation summaries indicated that there was approximately 1.0 m of cover thickness at the three transducer locations. These transducers

provide insight into the historical performance of the tailings and aid in reconciling the VWC data. The transducers were programmed to record the depth of water above the sensor in each standpipe at 4-hour intervals. The transducers are winterized such that they remain operational throughout the freezing period, but water level readings recorded at temperatures below 0°C are not representative of real water/ice thickness.

Water level data downloaded from the transducers are provided in Figure 4-10.

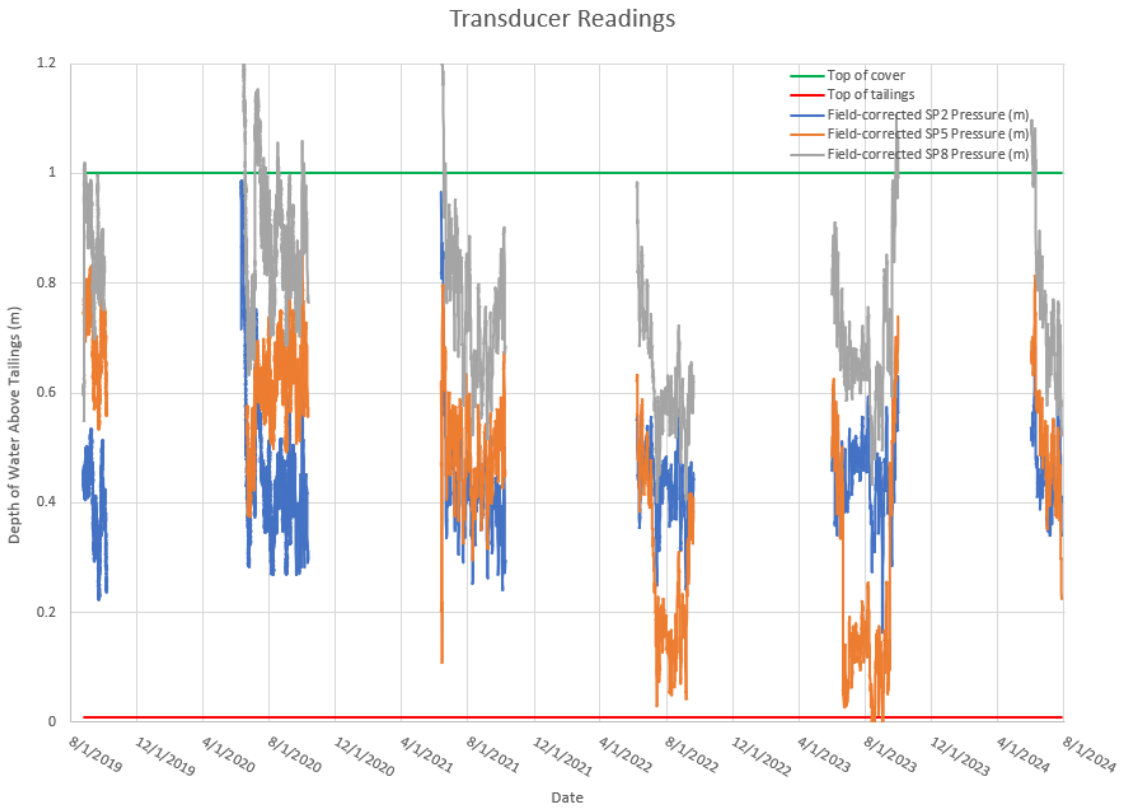


Figure 4-10: Transducer Results

Data collected during the freezing period have been removed from the plots since these results are unreliable. Results collected over the open-water period fluctuate in response to evaporation and precipitation events, but the general trend indicates that there was typically a minimum of 20 cm of water above the contact point of the tailings and cover material over the period of record. Some results show water levels extending beyond the top of cover (ponding on surface).

Instrument SP5 was disturbed by wind or other weather, the instrument cable was repositioned as a result, which raised the transducer elevation. As a result, monitoring results for SP5 were approximately 20 cm lower during 2022 and 2023. The transducer was repositioned in 2023 and based on recent results, it appears that the transducer is now at a similar elevation as originally installed.

According to the data from the transducers, the cover and tailings were saturated at these locations, indicating that the cover was functioning as designed.

4.2.4 Multi-Channel Loggers

One multi-channel logger (TC3-2) was installed in the Cell 3 cover surface in 2021. This instrument records temperature once per day at depths ranging from 1.5 m above ground surface to 5.5 m below ground surface. In total, eight sensors are functional at this instrument which are installed at one metre intervals from 1.5 m above ground surface (Sensor 1) to 5.5 m below ground surface (Sensor 8). Recorded data from this instrument is presented in Figure 4-11.

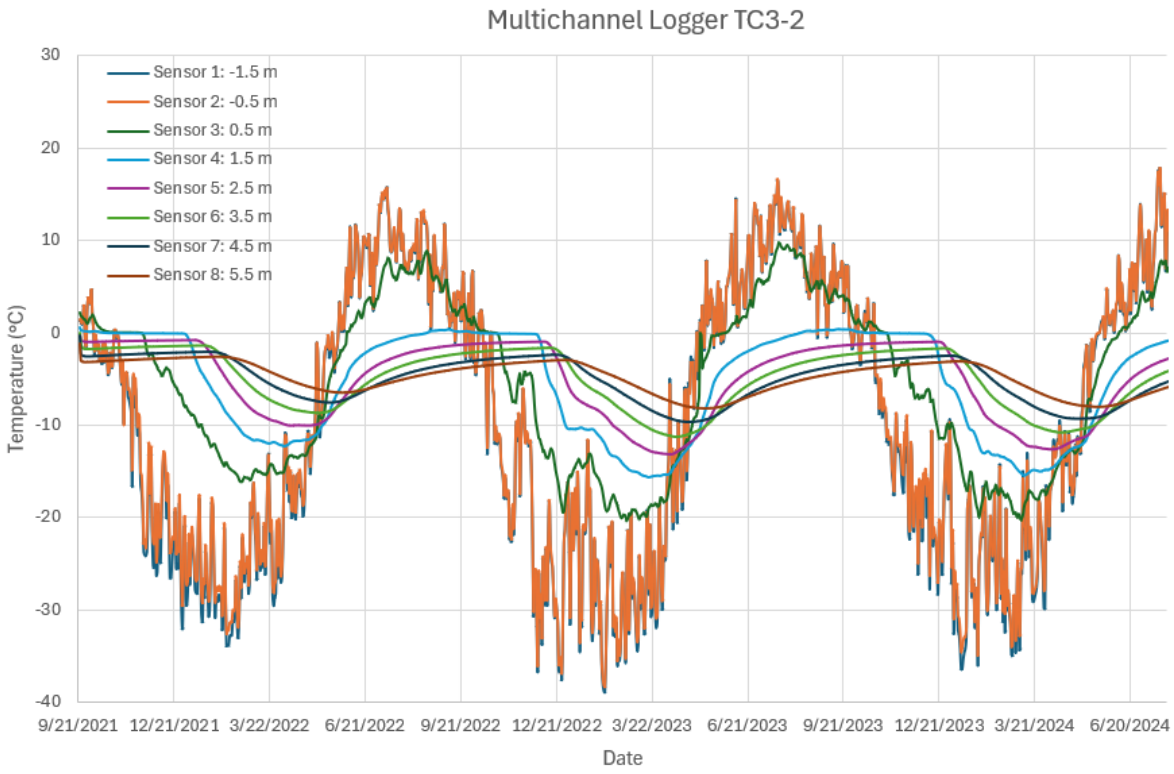


Figure 4-11: TC3-2 Multichannel Logger Results

Upon review of the multichannel logger data, the permafrost active layer at Cell 3 was observed to be located between sensor 4 and sensor 5 (1.5 to 2.5 m depth). Because sensor 4's (1.5 m depth) maximum temperature is typically 0.5°C or lower throughout the year, the actual permafrost depth at Cell 3 is likely at 1.5 m depth. As expected, year-round temperature stability increases with depth. The data appears to be relatively consistent and aside from seasonal variability, no apparent increasing or decreasing trend in temperature has been noted.

4.3 PERIMETER DAMS

The perimeter dams (Dams 1A through 6) were observed to be in stable condition. Minor variations in crest height (<1m) were observed at most dams. Shrubs and grasses vegetated some dam embankments, but does not pose a threat to dam integrity.

On some perimeter dam upstream embankments, erosional features from wave action were observed. These erosional features appear to be unchanged from previous years based on visual observation and photographic records.

Erosional gullies were observed on several downstream embankments. Most of these erosional gullies were noted historically though some fresh features were observed at Dam 4 as well as Dam 2. Erosional gullies varied in size and geometry, and no active erosion was observed at the time of inspection. These features will require filling and compaction with granular material and may need additional armouring or local grading to prevent concentrated flows from impacting the dams. It is recommended that this work be prioritized once geochemical stability is demonstrated throughout the TCA waterbodies and final closure spillways are constructed.

Some recently enlarged erosional features were identified on downstream embankments of the perimeter dams, primarily at Dam 3. Related to this, the existing surface water collection channel and armoured drains along the contact between Cell 1a and Dam 3 were not functioning as intended, as collected flows were not reaching the drains due to improper grading, resulting in erosion in non-armoured sections of the embankment. The erosional features should be backfilled, compacted and armoured to protect against erosion.

Previously observed tension cracking near the crest of Dam 3 appeared to be worsening. A length of 75 m along the crest alignment is cracking. It is recommended that either the area should be resloped to a shallower slope or a toe berm should be constructed to stabilize the area.

During the inspection, perimeter access road berms were being flattened to reduce the likelihood for the development of concentrated surface water flows and erosion. It is recommended that this maintenance activity be completed on an as-needed basis.

Once the final closure activities are completed, the water level across the TCA will be passively managed at elevations lower than the Dam 1A, 1B, 1C, Dam 2, and Dam 5 structure elevations such that these embankments will no longer be performing as water retaining structures.

At the time of inspection, the water surface elevation at Pond 2 was surveyed at 481.08 m.

Water levels within Pond 2 were estimated to be approximately 0.5 m higher than the 2023 inspection water levels and 0.75 m higher than 2022 inspection water levels based on historical survey data and comparisons of visual observations from 2023. In 2024, the perimeter dam freeboard values were estimated to be greater than 4.5 m. This is greater than the minimum freeboard amount of 1.0 m required. Dams 1B, 1C, 5, and 6 did not have water at the toe of their upstream embankments due to low water levels.

Previous annual inspections noted seepage at the downstream toe of Dam 2 near its northeastern abutment. This seepage was historically collected in two seepage collection dams/ponds downstream of Dam 2. Since 2021 closure activities, Pond 2 water levels have been maintained at a lower elevation than the seepage collection pond. This supports the conclusion that the source of any water in the Dam 2 collection ponds is not a result of seepage, but instead is runoff from upstream areas. Ponded water was observed in the northern seepage collection dam/pond during the inspection. The amount of ponded water appeared to be less than what was observed in 2022 and 2023, presumably due to dry conditions onsite. The southern seepage collection pond was dry in 2024. Ponded water in the seepage collection ponds was not pumped back into the TCA in 2024 and was instead left to evaporate. It is recommended that the seepage pond berms be removed and regraded to restore the original ground conditions downstream of Dam 2, thus preventing ponds from impounding runoff.

Numerous animal burrows, likely caused by Siksiks or Lemmings, were observed on perimeter dam embankments and crests. Burrows were most common on western and southern slopes and near/at the dam crest. New burrows were observed in 2024 on the crest of Dam 1C. Burrows are not expected to be a major concern for the structures due to reduced water levels across the TCA but may serve as a preferential seepage pathway if water levels are higher.

As noted in Section 3.2, instrumentation repairs and new installation occurred at the perimeter dams in 2024. Additional details can be reviewed in Section 3.2. Instrumentation appeared to be in acceptable condition at the time of inspection.

4.4 INTERNAL DAMS

Major earthworks activities were completed in 2024, as part of the closure activities as well as routine maintenance. 2024 activities included placement of an esker cover on the exposed tailings in the NW section of Cell 4 and construction of a limestone drain system. Additional fill and shoreline armouring remain to be completed. Heat maps were generated which identified the depth of cover on exposed Cell 4 tailings, included in Appendix C.

A limestone drain system was also constructed in 2024 to neutralize acidic seepage water. The drain was installed downgradient of the seep and included a screened outlet, geotextile filter cloth, and limestone fill. A thermistor was installed to monitor thermal performance of the surrounding Cell 4 cover. Based upon observations made by JDS and Stantec construction personnel, the historical seep was not actively discharging during drain construction.

At J Dam, freeboard was measured to be 3.71 m on July 30. The Divider Dykes were surveyed as having approximately 3.0 m of freeboard which has remained consistent as a result of the constructed spillway through the Divider Dykes. During the 2024 DSI inspection, a small sump, plywood, and rock check dam were located within the Cell 4 spillway. It was recommended that these items be removed and the small sump filled with riprap material to restore its full function.

The Cell N diversion ditch was concentrating flow and eroding the N Dam downstream toe area in 2024. It is recommended that the ditch be filled and compacted with cover material to encourage

sheet flow and reduce erosion. A heat map was produced for the Cell N surface, indicating depth of cover, included as Appendix C.

Existing erosional features that were identified in previous DSIs and DSRs appeared to be similar in size, shape, and overall geometry. Some new erosional features were noted on upstream and downstream embankments by the inspection team. Small windrows created by road grading appear to be contributing to this issue as they trap and direct water to a single low spot on dam crests producing a higher volume of flow off the dam.

New, recent erosion was observed at several locations on the M Dam downstream embankment and crest. It is expected that these erosional features will be covered and remediated during the planned resloping works.

Existing erosional features related to wave action and scour appeared to be similar in size and extent to observations collected in previous years.

Minor amounts of shrubs and grasses were noted to vegetate some dam slopes and, to a lesser extent, the esker cover surfaces but do not pose a threat to stability. Revegetation of the esker cover surfaces is beneficial and is a crucial part of the closure plan.

The K Dam reslope completed in 2022 appeared to be performing adequately. Some minor erosional features (rills) were identified. The thermistor on K Dam was damaged during regrading work and repairs should be attempted in 2025.

The Cell 3 tailings cover, drainage swale, and outfall structure incorporated in L Dam were completed in 2021. Similar to observations made in 2023, the drainage swale had multiple erosional gullies (estimated to be 30-50 cm deep and 2 m wide) adjacent to it. Some accumulation of sediment was also observed on the floor of the drainage swale. The outfall structure appeared to be functioning adequately but was not actively discharging water at the time of inspection. In response to the progressive erosion of the cover surface adjacent to the Cell 3 drainage swale, mitigation will be required in 2025 which may include resloping side slopes, filling and compacting erosional features, realignment of the swale, and/or armouring with coarse material.

The Cell 5 tailings cover and outfall structure in J Dam were completed in 2021. Minimal to no erosion has been noted for the added Cell 5 infrastructure. The tailings cover and outfall structure appeared to be functioning adequately, and no active discharge was occurring at the time of inspection. Additional fill was placed in the outfall to allow for haulage in 2024 and this material should be removed when haulage is complete.

No seepage or saturated areas were identified in the downstream toe areas.

As noted in Section 4.2, instrumentation repairs and new installation occurred at the internal dams in 2024. Additional details can be reviewed in Section 4.2. Instrumentation appeared to be in acceptable condition at the time of inspection.



5.0 RECOMMENDATIONS

Table 5-1 summarizes the observations and recommendations related to the 2024 inspection. For comparison purposes, the findings from the 2023 inspection report have been tabulated.

Table 5-1: Inspection Observations and Recommendations

Inspection Item	2024 Inspection			2023 Inspection	
	Estimated Freeboard (m)[(2)]	Observation	Recommendations	Observations	Recommendations
Perimeter Dams					
Dam 1A	5.23[(2)]	No progressive deterioration was observed for erosional features. Repairs were attempted at thermistor D1A-00-01 but were not completed. Repairs at D1A-00-02 also remain.	Monitor erosional features for progressive deterioration and fill and compact during spillway construction. Repair instruments.	No progressive deterioration was observed for erosional features. The centre dewatering siphon was broken. Animal burrows present near crest.	Continue to monitor erosional features for progressive deterioration. If no deterioration is observed, make repairs during final spillway construction. Repair the centre siphon if additional dewatering capacity is anticipated. Monitor for increased animal activity and consider backfilling burrows.
Dam 1B	4.72[(2)]	No progressive deterioration was observed for erosional features. Animal burrows were present near crest.	Monitor erosional features for progressive deterioration and fill and compact during spillway construction	No progressive deterioration was observed for erosional features. Animal burrows present near crest. The Pond 2 shoreline was located a significant distance from the upstream toe.	Monitor for increased animal activity and consider backfilling burrows.
Dam 1C	4.64[(2)]	No progressive deterioration was observed for historical erosional features. Animal burrows observed on crest of Dam 1C. The Pond 2 shoreline was located at a significant distance from the upstream toe.	Monitor erosional features for progressive deterioration and fill and compact during spillway construction.	Fresh erosional features were noted near the crest and on the downstream embankment. The Pond 2 shoreline was located a significant distance from the upstream toe.	Continue to monitor erosional features for progressive deterioration. Consider backfilling and compacting erosional features with well-graded esker sand and gravels and consider removing windrows from dam crest.

Recommendations

Inspection Item	2024 Inspection			2023 Inspection	
	Estimated Freeboard (m)[2]	Observation	Recommendations	Observations	Recommendations
Dam 2	5.28[2]	New and historical erosional features were observed. The NW seepage collection pond contained presumed runoff. Thermistor D2-00-02 was repaired. Thermistor D2-00-03 cable was severed and was not repaired. Thermistor D2-4-2024 was installed.	Fill and compact erosional features. Remove windrows from the dam crest. Pump water from seepage collection ponds back to Pond 2. Remove/regrade pond embankments. Repair D2-00-03.	Historical erosional features were observed. The SW seepage collection pond was dry, the NW seepage collection pond contained presumed runoff. The Pond 2 water elevation was lower than the ponded water elevation at the seepage collection system. The damaged thermistor was not repaired. Pond 2 was contacting the upstream toe in some locations.	Continue to monitor erosional features for progressive deterioration. Consider backfilling and compacting erosional features with well-graded esker sand and gravels and consider removing windrows from dam crest. Pump water from seepage collection system back to Pond 2 (or other suitable location in the TCA).
Dam 3	No water is impounded by this dam	New tension cracking, enlarged erosional features, and existing animal burrows were observed. Volunteer vegetation continued to establish on the tailings cover surface.	Fill and compact and armour erosional features. Reslope or construct a toe berm downstream of the tension crack area.	Tension cracking, erosional features, and animal burrows were observed. Volunteer vegetation is occurring on the tailings cover surface.	Monitor tension cracks and erosional features for progressive deterioration. Consider backfilling and compacting features and regrade if features persist. Monitor for increased animal activity and consider backfilling burrows.
Dam 4	N/A[3]	New erosional features and existing erosional features were observed. Thermistor D4-3 was repaired.	Fill and compact erosional features. Remove windrows from dam crests.	Erosional features on the upstream and downstream embankments were observed. Historical erosional repairs appeared to be performing adequately. One of the three thermistors was not reporting results.	Consider backfilling and compacting erosional features and consider removing windrows from dam crest. Repair the thermistor if practicable.

Recommendations

Inspection Item	2024 Inspection			2023 Inspection	
	Estimated Freeboard (m)[2]	Observation	Recommendations	Observations	Recommendations
Dam 5	N/A[1]	No progressive deterioration was observed for the historical erosional features.	Fill and compact erosional features.	No progressive deterioration was observed for the historical erosional features.	Continue to monitor erosional features for progressive deterioration.
Dam 6	N/A[1]	No progressive deterioration was observed for the historical erosional features.	Fill and compact erosional features. Remove windrows from the dam crest.	Erosional features were observed near the crest and downstream embankment. The surface water management feature added in 2021 appeared to be functioning adequately.	Continue to monitor erosional features for progressive deterioration. Consider backfilling and compacting features and removing windrows from dam crest.
Internal Dams					
Dams 3A to 3D	No water is impounded by these dams	No progressive deterioration was observed for historical erosional features and wave-action erosion at Dam 3D. Thermistor TC2-2-2024 was installed in the Cell 2 cover.	Fill, compact and if needed, armour wave action and other erosional features.	Historical erosional features and wave-action erosion were noted. No progressive deteriorations were observed for the historical erosional features.	Continue to monitor the historical wave-action erosion and erosional features for any progressive deterioration.

Recommendations

Inspection Item	2024 Inspection			2023 Inspection	
	Estimated Freeboard (m)[2]	Observation	Recommendations	Observations	Recommendations
Dam J	3.71[2]	Siphon intakes were decommissioned. Pumping of water from Pond 1 to Pond 2 was carried out. No progressive deterioration observed for historical wave-action erosion. Thermistor DJ-1-2024 was installed.	Armour areas of wave-action erosion as needed. Update the Pond 1 closure elevation on detailed design drawings to reflect design changes	Historical wave-action erosion was noted. No progressive deterioration was observed for the historical wave-action erosion.	Continue to monitor the historical wave-action erosion for progressive deterioration. Update the Pond 1 closure elevation listed on the detailed design drawings to reflect recent discussions and design changes.
Dam K	N/A[1]	The recently completed embankment re-slope has been performing well. Minor erosional features were noted. Thermistor DK-3's severed cable was located below ground surface. Repairs were attempted but not completed in 2024.	Monitor erosion. Attempt repair of damaged thermistor and abandon the instrument if repairs are not feasible.	Overall, the recently completed embankment re-slope has been performing well. Minor erosional features (riling) were noted. A thermistor is damaged at this location.	Continue to monitor these rills and the re-sloped embankment for progressive deterioration. Complete repairs to the damaged thermistor.

Recommendations

Inspection Item	2024 Inspection			2023 Inspection	
	Estimated Freeboard (m)[2]	Observation	Recommendations	Observations	Recommendations
Dam L	N/A[4]	Historical erosion features were noted near the crest and downstream embankment at L Dam. The Cell 3 outfall structure appeared to be functioning adequately. Discharge was not occurring. The Cell 3 drainage swale had multiple new erosional gullies and sediment accumulation was observed. Thermistor DL-1-2024 was installed in Dam L. Thermistor DL-2-2024 was installed in the limestone drain. TC3-VWC2 was installed.	Fill and compact erosion. Remove windrows from dam crest. Monitor the outfall structure for deformation or performance issues. Mitigate Cell 3 drainage swale issues by resloping side slopes, filling and compacting erosional features, realigning the drainage swale, and/or armouring.	Presumed fresh erosional features were noted near the crest and downstream embankment at L Dam. The Cell 3 outfall structure incorporated in L Dam appeared to be functioning adequately. Discharge was not occurring at the time of inspection. The Cell 3 drainage swale had multiple erosional gullies and sediment accumulation was observed in the swale bottom. This was also noted by SLR Consulting in their DSR Report.	Monitor erosional features for progressive deterioration. Consider backfilling and compacting features and removing windrows from dam crest. Continue to monitor the outfall structure for deformation and/or performance issues. Work with the EoR and DSR Engineer to develop a long-term strategy to mitigate freshet-related erosion at the Cell 3 drainage swale.

Recommendations

Inspection Item	2024 Inspection			2023 Inspection	
	Estimated Freeboard (m)[2]	Observation	Recommendations	Observations	Recommendations
Dam M	N/A[4]	The Cell 5 outfall structure appeared to be functioning adequately. Discharge was not occurring at the time of inspection. Some portions of the outfall were backfilled to allow for haulage to pass through the area. Existing erosional features were noted near the crest and on the downstream embankment. Historical tension cracking/erosion appeared to be largely unchanged from historical observations. Tailings exists at the M Dam toe area. Thermistor TC5-1-2024 and DM-1-2024 were installed. TC5-VWC1 was installed.	Remove backfill material when haulage is complete. Reslope the downstream embankment to 2.1H:1V. Fill and compact erosional. Cover exposed tailings with fill or water cap.	The Cell 5 outfall structure in J Dam appeared to be functioning adequately. Discharge was not occurring at the time of inspection. Fresh erosional features were noted near the crest and on the downstream embankment at M Dam. Historical tension cracking/erosion appeared to be largely unchanged from historical observations. Fine-grained material (presumed tailings) exists at the M Dam toe area. This material was underwater prior to 2022 and has largely been uncharacterized. A similar observation was made by SLR Consulting in the DSR Report.	Continue to monitor the Cell 5 outfall structure for deformation and/or performance issues. Complete resloping of the downstream embankment to the design 2.1H:1V. Continue to monitor fresh and historical erosional features for progressive deterioration. If no progressive deterioration is observed, complete repairs to these features during re-sloping activities. Consider updating the stability model and designs to reflect the in-situ conditions at M Dam. Add 1 m of clean fill on the exposed tailings between the Pond 2 closure shoreline and the M Dam design toe. Update the Pond 2 closure elevation in the detailed design to reflect changes.

Recommendations

Inspection Item	2024 Inspection			2023 Inspection	
	Estimated Freeboard (m)[2]	Observation	Recommendations	Observations	Recommendations
Dam N	N/A[5]	Erosion was observed at the downstream toe near the NW corner of Cell N. Heat maps for depth of cover are included as Appendix C. Thermistor DN-1-2024 and TCN-1-2024 were installed.	Fill and compact cover material at NW corner to achieve 1.0 m cover.	Ponded water was present on and adjacent to the 1.0 m cover surface at Cell N – water sampling indicated that this water was acidic. No erosion was observed – the cover surface and diversion ditches appeared to be performing well.	Consider having a water quality specialist interpret the laboratory and field parameter results and identify potential improvements. Continue to monitor cell cover, N Dam, and the added diversion ditch for progressive deterioration.

Recommendations

Inspection Item	2024 Inspection			2023 Inspection	
	Estimated Freeboard (m)[2]	Observation	Recommendations	Observations	Recommendations
Divider Dykes	3.09[3]	A small sump, plywood, and rock check dam were located in the Divider Dykes spillway. The spillway was functioning adequately. Discharge was occurring at the time of inspection. Historical tension cracks and erosional features were unchanged. Esker cover was placed on historically exposed tailings at the NW corner of Cell 4. Based on analyses, 50% of the cover surface at Cell 4 was placed in 2024. The passive limestone drain was completed in July 2024 in accordance with design guidance.	Remove the sump, plywood, and rock check dam from the constructed spillway. Backfill the sump with riprap. Monitor the spillway for deformation or performance issues. Place clean esker fill on the historically exposed area of tailings at the NW corner of Cell 4 to bring the final cover surface to at least 1.0 m. Armour the shoreline. Monitor the passive limestone drain system. Consider collecting water samples downstream of this feature during active discharge to monitor water quality.	The spillway incorporated in the Divider Dykes appeared to be functioning adequately. Discharge was not occurring at the time of inspection. A localized section of exposed geotextile was observed, though conditions appeared to be similar to historical observations. Historical tension cracks and erosional features appeared to be largely unchanged when compared to historical observations.	Continue to monitor the spillway for deformation and/or performance issues.

Notes:
1. Water is not adjacent to the dam to determine available freeboard.
2. Freeboard was measured with survey equipment on July 31, 2024.
3. A spillway is constructed to passively manage water to be below the dam structure.
4. An outfall structure is constructed to passively manage water below the dam structure.
5. Cell has been covered in 1.0 m of esker material. Cover surface ties-in to the dam crest, no water is impounded in this cell as a result.

5.1 DAM 2 COLLECTION POND

In response to dewatering efforts over the past few years, ponded water levels at Pond 2 remained lower than water impounded in the Dam 2 collection pond. The 2022 DSI concluded that the source of water in the collection pond was not due to seepage from Pond 2, but surface run-on from the surrounding native ground upgradient of the pond. Previous DSIs recommended that operational procedures be reconsidered as the water in the pond should not be considered as impacted water. Based on the results of this DSI, these recommendations remain valid.

5.2 MAINTENANCE AND CLOSURE PRIORITIES

The following maintenance and closure items documented in Table 5-1 should be prioritized:

1. Reslope Dam M in accordance with the closure design.
2. Continue to execute remediation for the NW corner of Cell 4. As detailed in Appendix C, additional fill should be added to achieve 1.0 m of esker cover over tailings. Also, complete shoreline protection (riprap).
3. Design and execute improvements for managing the acidic seep(s) at Cell N.
4. Assess onsite conditions and develop detailed drawings for spillway designs for Dam 1A, J Dam, and the two sewage lagoons.
5. Assess onsite conditions and develop a strategy for covering or removing tailings impounded in the two emergency tailings dump ponds.
6. Assess the Cell 3/Dam L drainage swale erosion issue for potential to worsen over time. If needed, identify and implement remediation which may include placement of riprap, regrading, realignment and/or other approaches.

After the completion of the priority maintenance, LMI should carry out the following:

- Fill and compact large and progressing erosional features (see Table 5-1 above) with well graded esker sand and gravel during spillway construction and resloping activities.
- Continue to remove windrows from dam crests and access roads to reduce the extent to which ponded water can accumulate on the crests.
- Repair thermistors and any other damaged instruments where possible (as indicated in Table 5-1).
- Secure monitoring instruments on mounting systems.

6.0 LIMITATIONS

This annual inspection report has been prepared for the sole benefit of Lupin Mines Inc. or its agent and may not be used by any third party without the express written consent of Stantec and LMI. Any use which a third party makes of this report is the responsibility of such third party.

The annual inspection performed by Stantec is based on information provided by others. Stantec has a right to reasonably rely on the information and data provided by LMI or obtained from generally acceptable sources within the industry without independent verification except to the extent such verification is expressly included in the services. Unless expressly stated otherwise, assumptions, data and information supplied by, or gathered from other sources upon which Stantec opinion as set out herein is based has not been verified by Stantec and Stantec makes no representation as to its accuracy and disclaims all liability with respect thereto.

The findings and conclusions in this annual inspection report are limited in terms of accuracy to the time, scope, and purpose for which the report was prepared and do not necessarily represent the conditions at any other time. An annual inspection is not intended to reflect the status of the dam for any significant period and reflects the current conditions at the time of issuance of the report. It is critical to note that the condition of the dams depends on numerous and constantly changing internal and external conditions and is evolutionary in nature. It would be incorrect to assume that the present conditions of the dams will continue to represent the condition of the dams in the future. Only through continued care and inspection can there be any chance that unsafe conditions will be detected. The information, opinions, and/or recommendations made in this report are in accordance with Stantec's present understanding of the site-specific project as described by LMI and observed by Stantec. The applicability of these is restricted to the site conditions encountered at the time of the investigation or study. If the proposed site-specific project differs or is modified from what is described in this report or if the site conditions are altered, this report is no longer valid unless Stantec is requested by LMI to review and revise the report to reflect the differing or modified project specifics and/or the altered site conditions.

Preparation of this report, and all associated work, was conducted in accordance with the normally accepted standard of care for the specific professional service provided to LMI. No other warranty is made and Stantec does not guarantee the performance of the project in any respect, only that its engineering work and judgements rendered meet the standard of care.

Should any site or sub-surface conditions be encountered that are different from those described in this report, Stantec must be notified immediately to assess if the varying or unexpected conditions are substantial and if reassessments of the report conclusions or recommendations are required. Stantec will not be responsible to any party for damages incurred as a result of failing to notify Stantec that differing site or sub-surface conditions are present upon becoming aware of such conditions.

7.0 REFERENCES

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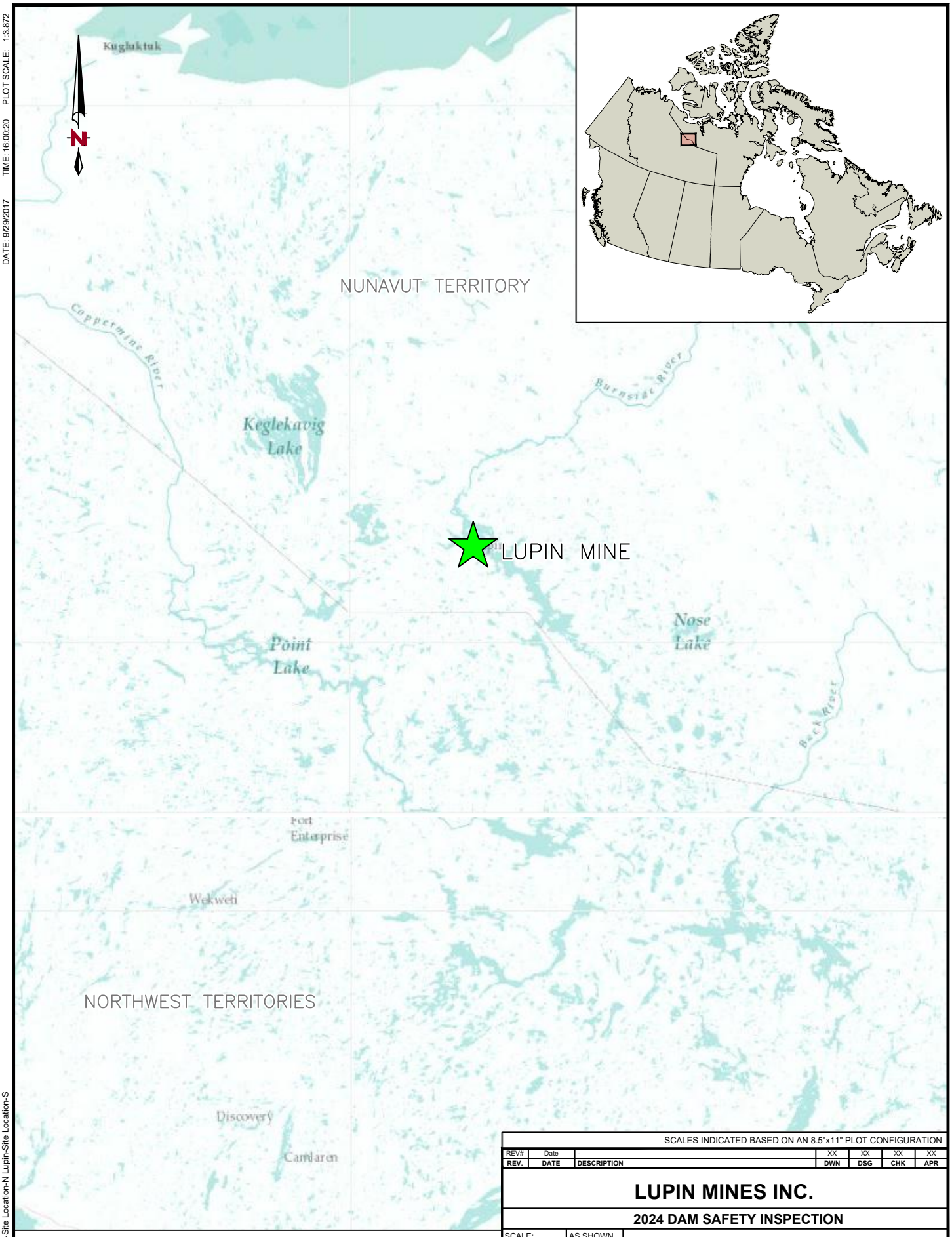
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Appendix A SITE FIGURES



DATE: 9/29/2017 TIME: 16:00:20 PLOT SCALE: 1:3,872

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XREF FILE(S):
IMAGE FILE(S): Lupin-Site Location-N Lupin-Site Location-S

SCALES INDICATED BASED ON AN 8.5"x11" PLOT CONFIGURATION

REV#	Date	-	XX	XX	XX	XX
REV.	DATE	DESCRIPTION	DWN	DSG	CHK	APR

LUPIN MINES INC.

2024 DAM SAFETY INSPECTION

SCALE:	AS SHOWN
DATE:	2016-10-20
CO-ORD. SYS.:	UTM-NAD83-12
DRW'N BY:	KM
DSG'N BY:	--
REV'D BY:	AT
APP'D BY:	SE

SITE LOCATION

Stantec

PROJECT NO.:	FIG. NO.:	REV.:
169524561	1	A



1000m 500 0 1000 2000 3000m

SCALE 1:50,000

SCALES INDICATED BASED ON AN 8.5"x11" PLOT CONFIGURATION

REV#	Date	-	XX	XX	XX	XX
REV.	DATE	DESCRIPTION	DWN	DSG	CHK	APR

LUPIN MINES INC.

2024 DAM SAFETY INSPECTION

SCALE:	AS SHOWN
DATE:	2016-10-20
CO-ORD. SYS.:	UTM-NAD83-12
DRW'N BY:	KM
DSG'N BY:	--
REV'D BY:	AT
APP'D BY:	SE

SITE OVERVIEW

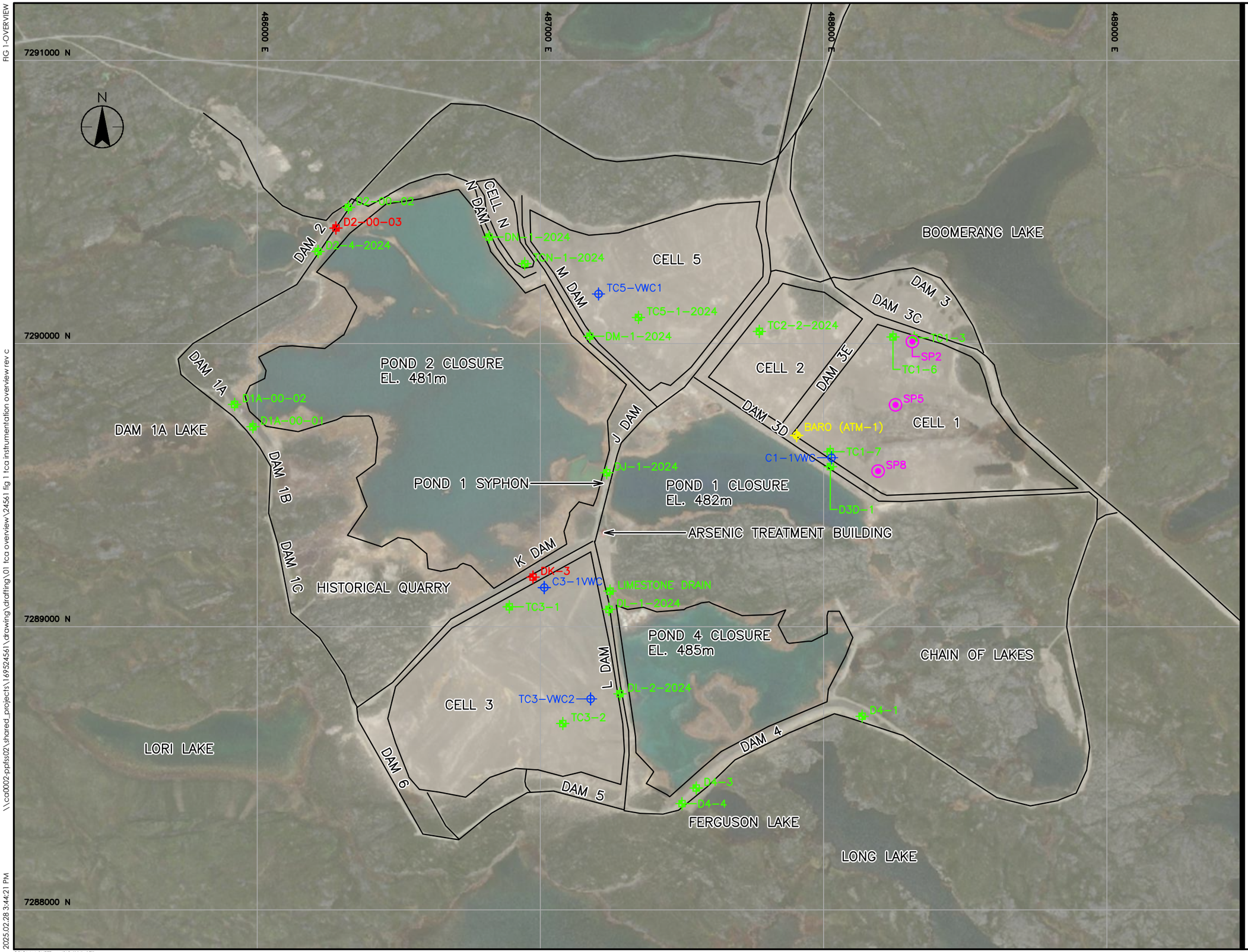
Stantec

PROJECT NO.:	FIG. NO.:	REV.:
169524561	2	A

PLOT SCALE: 1:3,872
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XREF FILE(S):
IMAGE FILE(S): Lupin-NE Lupin-NW Lupin-SW lupin_mine_wv2_2012aug21_north lupin_mine_wv2_2012aug21_south

FIG 1-OVERVIEW



\\ca0002-ppfss02\shared_projects\169524561\drawing\drafting\01 tca overview\24561 fig 1 tca instrumentation overview rev c

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ORIGINAL SHEET - ANSI B (11 "x 17")

Stantec

Stantec
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Calgary, AB, T2A 7H8
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Legend

- MINE BOUNDARY
- THERMISTOR (ACTIVELY MONITORED)
- THERMISTOR (DAMAGED)
- VOLUMETRIC WATER CONTENT SENSORS
- HYDRAULIC WATER LEVEL TRANSDUCERS
- ATMOSPHERIC PRESSURE GAUGE

Notes

1. COORDINATES: UTM ZONE 12N.
2. AERIAL IMAGERY CAPTURED FROM GOOGLE EARTH ON 2024 MAY.

250m 0 100 200 400m

SCALE 1:12,500

Client/Project Logo

MANDALAY RESOURCES

Client/Project
MANDALAY RESOURCES

LUPIN TCA OVERVIEW

Project No.:169524561

Title
TCA INSTRUMENTATION OVERVIEW PLAN

Scale: 1:12500 Figure No. 3

TV	SS	SB	2025.02.28
Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Revision: C

File Name: 24561 FIG 1 TCA INSTRUMENTATION OVERVIEW REV C

Appendix B PHOTOGRAPHIC LOG



Photo 1: Overview of the Dam 1A crest as viewed from near the southeast abutment.



Photo 2: Overview of the Dam 1A crest and upstream embankment.

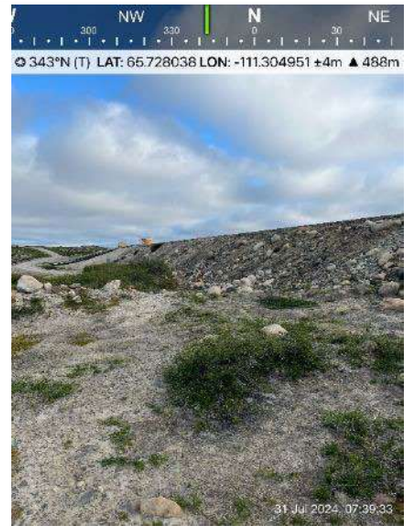


Photo 3: Overview of the downstream embankment at Dam 1A.



Photo 4: Thermistor on Dam 1A.

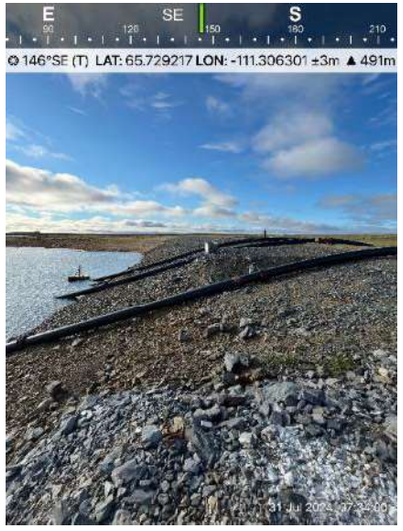


Photo 5: Dewatering siphons routed over the crest of Dam 1A.



Photo 6: An old metal cylinder on the downstream slope of Dam 1A. Minor erosional features (rills and small gullies) were also observed in the vicinity.

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Site Inspection Photograph Log for Dam 1A		
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Photo 7: Overview of the crest at Dam 1B, and the downstream area.



Photo 8: Overview of the downstream embankment and toe area at Dam 1B.



Photo 9: Overview of the upstream embankment at Dam 1B.



Photo 10: Two small animal burrows situated near the crest of Dam 1B.



Photo 11: General conditions at Dam 1B at the time of inspection.

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Site Inspection Photograph Log for Dam 1B		
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Photo 12: Overview of the crest and upstream embankment at Dam 1C.



Photo 13: Overview of the downstream embankment and toe area at Dam 1C.



Photo 14: Instance of a small erosional feature extending from the crest to the downstream embankment at Dam 1C.



Photo 15: Overview of the crest and the northeast abutment at Dam 2.

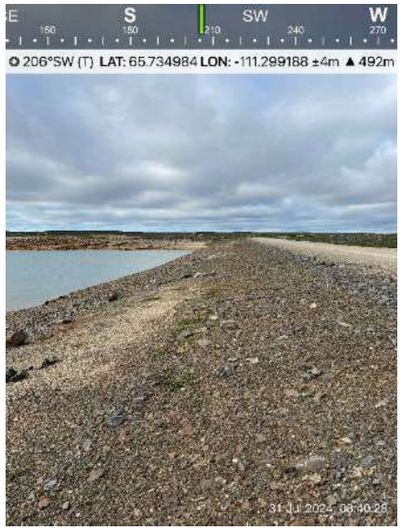


Photo 16: The upstream embankment and Pond 2 at Dam 2.



Photo 17: The downstream embankment at Dam 2 and the NW seepage collection pond, which had water present at the time of inspection, presumably runoff.



Photo 18: Thermistor D2-4-2024, installed on July 21, 2024, on Dam 2.

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Photo 19: Overview of the crest at Dam 3.



Photo 20: Tension cracking on the downstream embankment, circled in red.

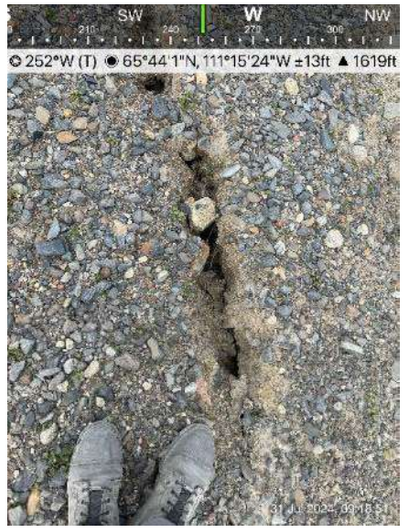


Photo 21: Close up of the tension cracking on the downstream embankment.



Photo 22: Overview of the existing tailings cover at Dam 3.

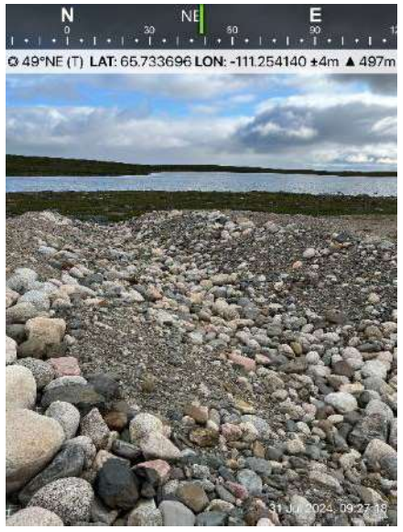


Photo 23: Overview of the surface water management feature at Dam 3.

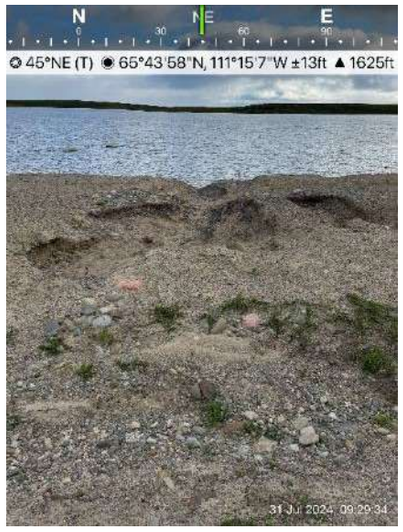


Photo 24: An erosional feature situated near the crest and on the downstream embankment of Dam 3.



Photo 25: Erosional feature developing on the downstream embankment of Dam 3.

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Photo 26: Overview of the crest at Dam 4. The windrows were graded prior to the inspection.



Photo 27: The downstream embankment and toe area at Dam 4.



Photo 28: Overview of the crest and upstream embankment at Dam 4.



Photo 29: Dam 4 southwest abutment. The windrows were graded and tied into natural ground at the abutment.

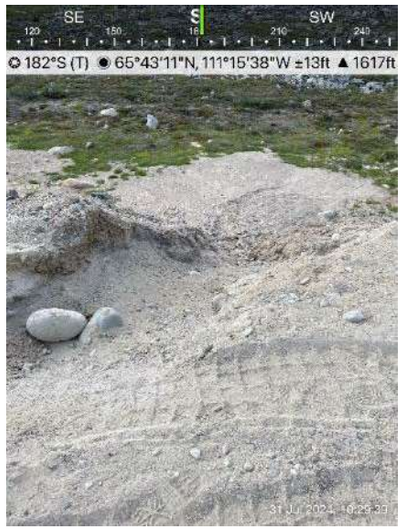


Photo 30: Overview of an existing erosional feature on the downstream embankment at Dam 4.



Photo 31: Thermistor D4-3. The thermistor was repaired on July 26, 2024.

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Site Inspection Photograph Log for Dam 4		
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Photo 32: Overview of the crest and upstream embankment at Dam 5.



Photo 33: Overview of the downstream embankment at Dam 5.



Photo 34: Overview of Dam 6 and the upstream embankment.

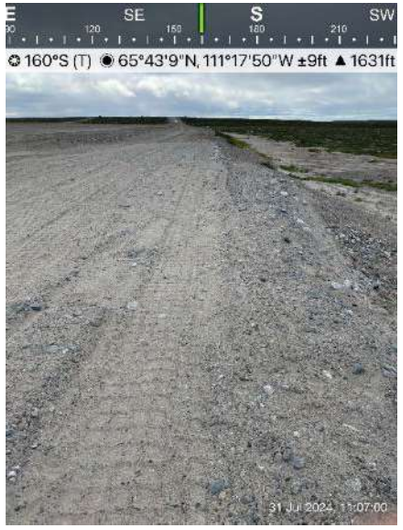


Photo 35: Overview of the crest, downstream embankment, and toe area at Dam 6.



Photo 36: An erosional feature situated near the crest on the downstream embankment at Dam 6.



Photo 37: Overview of the surface water management feature on Dam 6.

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Photo 38: Overview of the crest at Dam 3D.



Photo 39: Overview of the downstream embankment at Dam 3D.



Photo 40: Existing erosional feature near the crest on the downstream embankment at Dam 3D.



Photo 41: The upstream embankment at J Dam.



Photo 42: Downstream embankment at J Dam.



Photo 43: Pumps on the upstream embankment of J Dam.

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Site Inspection Photograph Log for Dam 3D and J Dam			
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Photo 44: The downstream embankment and toe area at K Dam, viewed from near its southwest abutment.



Photo 45: Crest and downstream embankment of K Dam, viewed from the southwest abutment.



Photo 46: Overview of the K Dam downstream embankment and toe area as viewed from near its right northeast abutment.

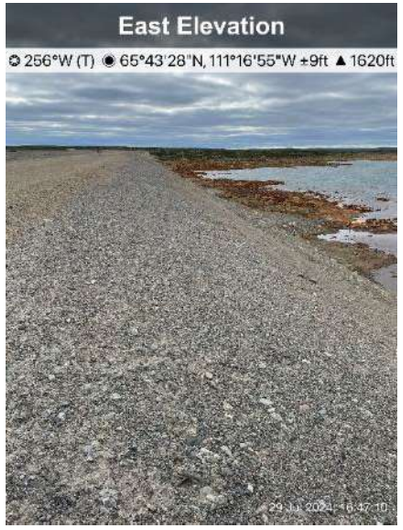


Photo 47: Overview of the K Dam crest and downstream embankment.

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	2024 Dam Safety Inspection	
Site Inspection Photograph Log for K Dam		
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Photo 48: The downstream embankment at L Dam, viewed form the north abutment.



Photo 49: Esker cover placed over the installed limestone drain in the NW corner of Cell 4, looking north.



Photo 50: Esker cover placed over the limestone drain on Cell 4, looking south.

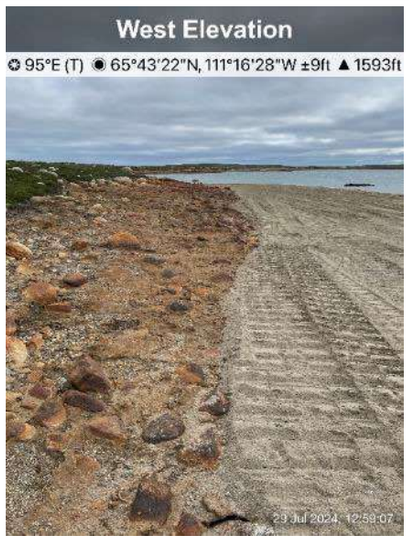


Photo 51: Extent of esker cover placed on the exposed shoreline tailings.



Photo 52: Overview of the esker cover placed over previously exposed tailings and the limestone drain in the NW corner of Cell 4.



Photo 53: Overview of the crest at M Dam, with thermistor DM-1-2024 in the background, installed on July 22, 2024.



Photo 54: Overview of the downstream embankment at M Dam, looking south.



Photo 55: Erosional features on the downstream embankment at M Dam.

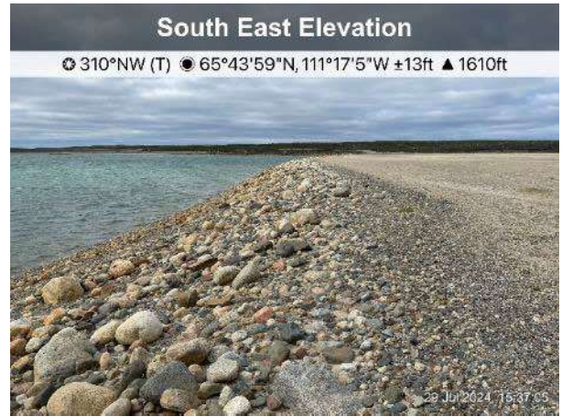


Photo 56: Overview of the crest and downstream embankment at N Dam.



Photo 57: Thermistor DN-1-2024, installed in N Dam on July 21, 2024.



Photo 58: The field-fit diversion ditch on the NW corner of Cell N.

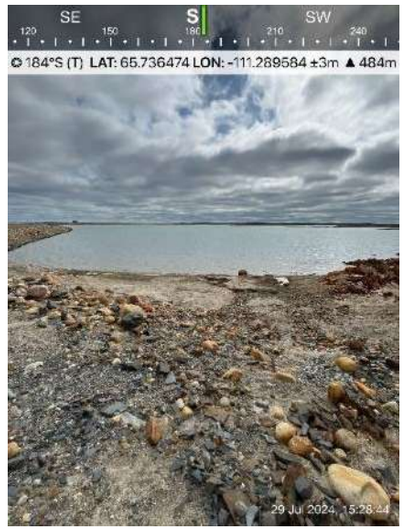


Photo 59: Erosional feature downstream of the field-fit diversion ditch on the NW corner of Cell N.

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	2024 Dam Safety Inspection	
Site Inspection Photograph Log for Dams M and N		
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Photo 60: Overview of the South Divider Dyke crest as viewed from near its south abutment.

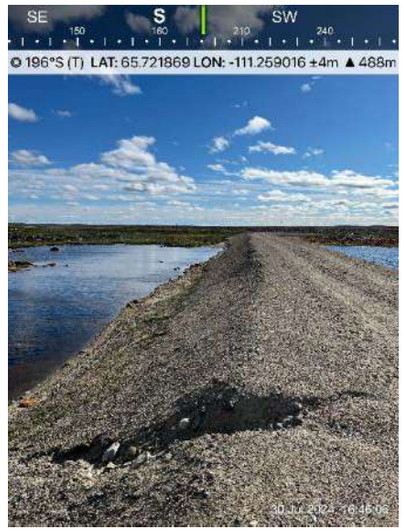


Photo 61: Existing erosional feature on the crest and downstream embankment on the South Divider Dyke.



Photo 62: Existing erosional feature on the crest and upstream embankment of the South Divider Dyke.



Photo 63: Divider Dyke spillway, looking southwest towards Cell 4.



Photo 64: Plywood and small rock check dam in the Divider Dyke spillway.

Appendix C ESKER COVER DEPTH HEAT MAPS

487200 487300 487400 487500

7289100

7289000



NOTES
1. All units are in metres unless otherwise noted.
2. The existing ground tailings surface was generated from 20 cm resolution photogrammetry data collected on August 21, 2021. The as-built cover surface was generated from 10 cm resolution photogrammetry data collected on July 30, 2024. Data collection, post-processing, and DEM generation were completed by Stantec Geomatics.
3. Hot Spot Analysis was performed by Stantec Consulting.

N

1:1,000

0 12.5 25 50 75 100 Metres

Legend

As-Built Cover Depth

- 2 m
- 1.75 m
- 1.5 m
- 1.25 m
- 1 m
- 0.75 m
- 0.5 m
- 0.25 m
- 0 m

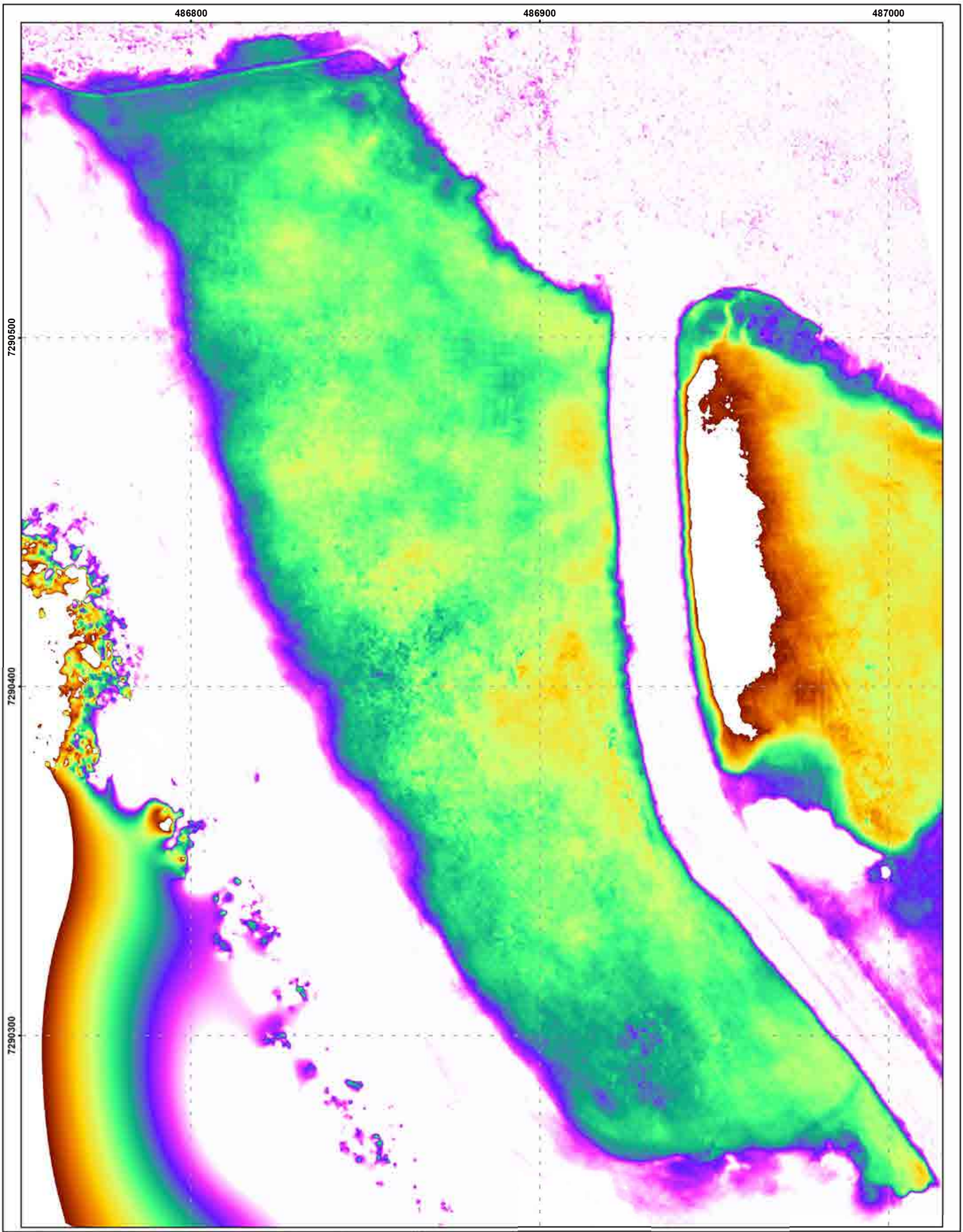
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MANDALAY RESOURCES

Lupin Mine Closure - 2024 Engineering Support

Cell 4: Cover Surface As-Built Heat Map (Photogrammetry)

Date: Sep 19, 2024		Coordinate System: NAD 1983 UTM Zone 12N	Project # 169524561	Revision A
Drawn By: MM	Chkd By:			
Stantec		Document Path:		





Legend

As-Built Cover Depth

- 2 m
- 1.75 m
- 1.5 m
- 1.25 m
- 1 m
- 0.75 m
- 0.5 m
- 0.25 m
- 0 m

N

1:1,000

0 12.5 25 50 75 100 Metres

DISCLAIMER: THIS DOCUMENT HAS BEEN PREPARED BASED ON INFORMATION PROVIDED BY OTHERS AS CITED IN THE NOTES SECTION. STANTEC HAS NOT VERIFIED THE ACCURACY AND/OR COMPLETENESS OF THIS INFORMATION AND SHALL NOT BE RESPONSIBLE FOR ANY ERRORS OR OMISSIONS WHICH MAY BE INCORPORATED HEREIN AS A RESULT. STANTEC ASSUMES NO RESPONSIBILITY FOR DATA SUPPLIED IN ELECTRONIC FORMAT, AND THE RECIPIENT ACCEPTS FULL RESPONSIBILITY FOR VERIFYING THE ACCURACY AND COMPLETENESS OF THE DATA.

MANDALAY RESOURCES

2024 Lupin Mine Closure Engineering Support

Cell N Cover Surface As-Built Heat Map

Date: Sep 19, 2024	Coordinate System: NAD 1983 UTM Zone 12N	Project # 169524561	Revision 0
Drawn By: MM / Chkd By:			

Stantec

Document Path:

NOTES
1. All units are in metres unless otherwise noted.
2. The existing Ground tailings surface was generated from 20 cm photogrammetry data collected on September 12, 2019. The as-built cover surface was generated from 10 cm photogrammetry data collected on August 2, 2024. Data collection, post-processing, and DEM generation were completed by Stantec Geomatics.
3. Hot Spot Analysis was performed by Stantec Consulting.

APPENDIX B. 2024 Water Sampling Data and Certificates of Analysis

TABLE B1: Effluent Quality Results from Sewage Lake at Station LUP-14		Sample Location	LUP-14 Pre Decant					
		Sample ID	LUP-14 Pre Decant D	LUP-14 Pre Decant	LUP-14 Pre decant	LUP-14D PRE DECANT	LUP-14	LUP-14 PD
		Date Sampled	05-Jul-2024	05-Jul-2024	21-Jul-2024	21-Jul-2024	09-Sep-2024	09-Sep-2024
		Time Sampled	09:57	10:05	14:50	13:06	11:57	11:59
Parameters	**Units**	**Water Licence Sewage Lake Effluent Criteria**						
Field Measured								
pH	pH unit	6.5-9.0	7.1	7.1	7.02	7.02	7.08	7.06
Specific Conductivity	µS/cm	nc	244	244	240	240	196	196
Temperature	deg °C	nc	12.6	12.6	18.9	18.9	8.9	8.9
Dissolved Oxygen	mg/L	nc	10.4	10.4	10.26	10.26	11.23	11.24
Conventional Parmeters								
pH	pH unit	6.5-9.0	7.53	7.54	7.45	-	7.18	7.31
Conductivity	µS/cm	nc	275	272	266	-	279	278
Acidity (as CaCO3)	mg/L	nc	-	-	<2.0	-		
Alkalinity, bicarbonate (as HCO3)	mg/L	nc	-	-	-	-	27.6	28.9
Alkalinity, carbonate (as CO3)	mg/L	nc	-	-	-	-	<1.0	<1.0
Alkalinity, hydroxide (as OH)	mg/L	nc	-	-	-	-	<1.0	<1.0
Alkalinity, bicarbonate (as CaCO3)	mg/L	nc	18.9	18.9	-	-	-	-
Alkalinity, carbonate (as CaCO3)	mg/L	nc	<2.0	<2.0	-	-	-	-
Alkalinity, hydroxide (as CaCO3)	mg/L	nc	<2.0	<2.0	-	-	-	-
Alkalinity, phenolphthalein (as CaCO3)	mg/L	nc	<2.0	<2.0	-	-	-	-
Alkalinity, total (as CaCO3)	mg/L	nc	18.9	18.9	22.7	-	22.6	23.7
Hardness (as CaCO3), dissolved	mg/L	nc	-	-	-	-	94.8	94.3
Hardness (as CaCO3), from total Ca/Mg	mg/L	nc	89.7	91.0	93.2	-	95.2	96.0
Solids, total dissolved [TDS]	mg/L	nc	-	-	162	-	-	-
Solids, total dissolved [TDS], calculated	mg/L	nc	-	-	-	-	161	161
Solids, total suspended [TSS]	mg/L	35	8.3	<3.0	7.4	-	-	-
Microbiological Tests								
Coliforms, thermotolerant [fecal]	CFU/100mL	1000	<1.0	<1.0	<1.0	6.0	<1.0	<1.0
Anions and Nutrients								
Bromide	mg/L	nc	-	-	0.166	-	-	-
Chloride	mg/L	nc	-	-	19.6	-	18.8	18.8
Fluoride	mg/L	nc	-	-	0.083	-	0.075	0.074
Kjeldahl nitrogen, total [TKN]	mg/L	nc	-	-	0.407	-	0.411	0.431
Nitrate (as N)	mg/L	nc	-	-	<0.0030	-	<0.020	<0.020
Nitrate + Nitrite (as N)	mg/L	nc	-	-		-	<0.0500	<0.0500
Nitrite (as N)	mg/L	nc	-	-	<0.0010	-	<0.010	<0.010
Phosphate, ortho-, dissolved (as P)	mg/L	nc	-	-		-	<0.0010	<0.0010
Phosphorus, total	mg/L	nc	-	-	0.0111	-	0.0118	0.0126
Sulfate (as SO4)	mg/L	nc	-	-	74.5	-	77.6	77.1
Ion Balance								
Anion sum	meq/L	nc	-	-	-	-	2.60	2.61
Cation sum	meq/L	nc	-	-	-	-	2.54	2.53
Ion balance (APHA)	%	nc	-	-	-	-	-1.17	-1.56
Ion balance (cations/anions)	%	nc	-	-	-	-	97.7	96.9
Total Metals								
Aluminum, total	mg/L	nc	0.0524	0.0310	0.0154	-	0.0300	0.0206
Antimony, total	mg/L	nc	<0.00010	<0.00010	<0.00010	-	<0.00010	<0.00010
Arsenic, total	mg/L	0.05	0.00567	0.00514	0.00511	-	0.00723	0.00687
Barium, total	mg/L	nc	0.0141	0.0137	0.0136	-	0.0131	0.0132
Beryllium, total	mg/L	nc	<0.000100	<0.000100	<0.000100	-	<0.000100	<0.000100
Bismuth, total	mg/L	nc	<0.000050	<0.000050	<0.000050	-	<0.000050	<0.000050
Boron, total	mg/L	nc	0.079	0.077	0.078	-	0.085	0.090
Cadmium, total	mg/L	nc	0.0000174	0.0000087	<0.0000050	-	0.0000056	<0.0000050
Calcium, total	mg/L	nc	26.7	27.2	27.2	-	27.6	27.7
Cesium, total	mg/L	nc	0.000100	0.000096	0.000098	-	0.000120	0.000107

TABLE B1: Effluent Quality Results from Sewage Lake at Station LUP-14		Sample Location	LUP-14 Pre Decant					
		Sample ID	LUP-14 Pre Decant D	LUP-14 Pre Decant	LUP-14 Pre decant	LUP-14D PRE DECANT	LUP-14	LUP-14 PD
		Date Sampled	05-Jul-2024	05-Jul-2024	21-Jul-2024	21-Jul-2024	09-Sep-2024	09-Sep-2024
		Time Sampled	09:57	10:05	14:50	13:06	11:57	11:59
Parameters	**Units**	**Water Licence Sewage Lake Effluent Criteria**						
Chromium, total	mg/L	nc	<0.00050	<0.00050	<0.00050	-	<0.00050	<0.00050
Cobalt, total	mg/L	nc	0.00111	0.00051	0.00032	-	0.00077	0.00048
Copper, total	mg/L	0.2	0.00132	0.00114	0.00092	-	0.00118	0.00113
Iron, total	mg/L	nc	0.226	0.122	0.063	-	0.195	0.169
Lead, total	mg/L	0.05	0.000092	0.000100	<0.000050	-	<0.000050	0.000088
Lithium, total	mg/L	nc	0.0121	0.0122	0.0144	-	0.0136	0.0146
Magnesium, total	mg/L	nc	5.59	5.60	6.15	-	6.38	6.53
Manganese, total	mg/L	nc	0.0607	0.0304	0.0260	-	0.0186	0.0155
Mercury, total	mg/L	nc	<0.0000050	<0.0000050	<0.0000050	-	<0.0000050	<0.0000050
Molybdenum, total	mg/L	nc	0.000140	0.000124	0.000147	-	0.000192	0.000202
Nickel, total	mg/L	0.3	0.00647	0.00575	0.00469	-	0.00628	0.00548
Phosphorus, total	mg/L	nc	<0.050	<0.050	<0.050	-	<0.050	<0.050
Potassium, total	mg/L	nc	2.92	2.94	2.98	-	3.24	3.26
Rubidium, total	mg/L	nc	0.00595	0.00593	0.00602	-	0.00624	0.00634
Selenium, total	mg/L	nc	<0.000050	<0.000050	<0.000050	-	<0.000050	<0.000050
Silicon, total	mg/L	nc	0.17	<0.10	<0.10	-	0.38	0.34
Silver, total	mg/L	nc	<0.000010	<0.000010	<0.000010	-	<0.000010	<0.000010
Sodium, total	mg/L	nc	12.4	12.6	12.3	-	13.1	13.3
Strontium, total	mg/L	nc	0.162	0.160	0.171	-	0.183	0.177
Sulfur, total	mg/L	nc	24.8	24.8	24.9	-	27.6	27.2
Tellurium, total	mg/L	nc	<0.00020	<0.00020	<0.00020	-	<0.00020	<0.00020
Thallium, total	mg/L	nc	<0.000010	<0.000010	<0.000010	-	<0.000010	<0.000010
Thorium, total	mg/L	nc	<0.00010	<0.00010	<0.00010	-	<0.00010	<0.00010
Tin, total	mg/L	nc	<0.00010	<0.00010	<0.00010	-	<0.00010	<0.00010
Titanium, total	mg/L	nc	0.00124	0.00084	<0.00030	-	0.00033	0.00037
Tungsten, total	mg/L	nc	<0.00010	<0.00010	<0.00010	-	<0.00010	0.00013
Uranium, total	mg/L	nc	0.000025	0.000023	0.000023	-	0.000082	0.000021
Vanadium, total	mg/L	nc	<0.00050	<0.00050	<0.00050	-	<0.00050	<0.00050
Zinc, total	mg/L	0.5	0.0041	0.0035	<0.0030	-	<0.0030	<0.0030
Zirconium, total	mg/L	nc	<0.00020	<0.00020	<0.00020	-	<0.00020	<0.00020
Aggregate Organics								
Biochemical oxygen demand [BOD]	mg/L	30	-	-	<2.0	<2.0	-	-
Oil & grease (visible sheen)	-	no visible sheen	-	-	-	-	-	-

Notes:

nc = no criteria listed

- = sample not analyzed for parameter indicated

mg/L -= milligram per litre

µg/L = microgram per litre

pH = potential of hydrogen

< = less than reported detection limit

µS/cm = microsiemens per centimeter

deg °C = degrees celsius

meq/L = milliequivalents per liter

% = percent

CFU/100mL = colony forming units per 100 millilitres

Water Licence Sewage Lake Effluent Criteria — As described in Water License No. 2AM-LUP2032, Part E, Item 9

TABLE B2: Water Quality Results from Contwoyto Lake (Station LUP-01), Boot Lake, East Lake and Lower Sewage Lake		Sample Location	LUP-01			LUP-BL-01		LUP-EL-01		LUP-LSL-01		
		Sample ID	Sample 1	LUP-01	Contwoyto Lake	LUP-BL-01	LUP-BL-01	LUP-EL-01	LUP-EL-01	LUP-LSL-01	LUP-LSL-01D	LUP-LSL-01
		Date Sampled	25-Jun-2024	15-Jul-2024	10-Jul-2024	15-Jul-2024	08-Sep-2024	15-Jul-2024	08-Sep-2024	3-Jun-2024	3-Jun-2024	08-Sep-2024
		Time Sampled	00:00	07:11	14:30	08:06	14:48	07:39	15:14	13:38	13:38	00:00
Parameters	Units	CCME WQG Freshwater Aquatic Life										
		Short-term	Long-term									
Field Measured												
pH	pH unit	ng	6.5-9.0	6.48	6.55	6.45	6.22	5.91	5.21	4.75	6.9	6.9	6.75
Specific Conductivity	µS/cm	ng	ng	18.8	14.3	31.4	85.1	75.7	122	97.2	130.1	130.1	196.3
Temperature	deg °C	ng	ng	5.5	6.7	6.5	10.6	9.3	8.8	7.5	7.4	7.4	9.3
Dissolved Oxygen	mg/L	ng	6.5	10.34	10.22	10.1	11.85	11.54	10.18	10.79	10.99	10.99	11.53
Conventional Parmeters												
pH	pH units	ng	6.5-9.0	6.70	6.70	6.78	6.77	6.29	5.80	4.81	7.09	7.06	7.24
Conductivity	µS/cm	ng	ng	-	14.6	34.0	36.9	105	122	142	142	142	279
Acidity (as CaCO3)	mg/L	ng	ng	-	-	<2.0	-	-	-	-	-	-	-
Alkalinity, bicarbonate (as HCO3)	mg/L	ng	ng	-	-	-	-	2.4	-	<1.0	-	-	28.8
Alkalinity, carbonate (as CO3)	mg/L	ng	ng	-	-	-	-	<1.0	-	<1.0	-	-	<1.0
Alkalinity, hydroxide (as OH)	mg/L	ng	ng	-	-	-	-	<1.0	-	<1.0	-	-	<1.0
Alkalinity, bicarbonate (as CaCO3)	mg/L	ng	ng	-	3.2	-	3.9	-	<2.0	-	7.2	6.1	-
Alkalinity, carbonate (as CaCO3)	mg/L	ng	ng	-	<2.0	-	<2.0	-	<2.0	-	<2.0	<2.0	-
Alkalinity, hydroxide (as CaCO3)	mg/L	ng	ng	-	<2.0	-	<2.0	-	<2.0	-	<2.0	<2.0	-
Alkalinity, phenolphthalein (as CaCO3)	mg/L	ng	ng	-	<2.0	-	<2.0	-	<2.0	-	<2.0	<2.0	-
Alkalinity, total (as CaCO3)	mg/L	ng	ng	3.7	3.2	3.9	3.9	2.0	<2.0	<2.0	7.2	6.1	23.6
Hardness (as CaCO3), dissolved	mg/L	ng	ng	-	-	10.3	-	37.2	-	50.1	-	-	93.6
Hardness (as CaCO3), from total Ca/Mg	mg/L	ng	ng	8.55	5.15	10.8	13.0	37.5	49.7	50.9	45.5	45.1	95.1
Solids, total dissolved [TDS]	mg/L	ng	ng	-	-	30	-	-	-	-	-	-	-
Solids, total dissolved [TDS], calculated	mg/L	ng	ng	-	-	-	-	61.5	-	87.5	-	-	160
Solids, total suspended [TSS]	mg/L	ng	ng	<1.0	<3.0	2.1	<3.0	-	5.4	-	<3.0	6.1	-
Microbiological Tests												
Coliforms, thermotolerant [fecal]	CFU/100 mL	-	-	-	<1.0	-	-	-	-	-	-	-	-
Anions and Nutrients												
Bromide	mg/L	ng	ng	-	-	0.0081	-	-	-	-	-	-	
Chloride	mg/L	640	120	-	-	0.46	-	1.34	-	1.05	-	-	18.9
Fluoride	mg/L	ng	0.12	-	-	0.030	-	0.057	-	0.098	-	-	0.076
Nitrate (as N)	mg/L	124	2.9	-	-	0.0087	-	<0.020	-	0.026	-	-	<0.020
Nitrate + Nitrite (as N)	mg/L	ng	ng	-	-	-	-	<0.0500	-	<0.0500	-	-	<0.0500
Nitrite (as N)	mg/L	ng	0.06	-	-	<0.0010	-	<0.010	-	<0.010	-	-	<0.010
Sulfate (as SO4)	mg/L	ng	ng	-	-	8.89	-	38.4	-	54.2	-	-	77.1
Cyanides												
Cyanide, strong acid dissociable (Total)	mg/L	ng	0.0005	-	-	<0.0050	-	-	-	-	-	-	-
Ion Balance												
Anion sum	meq/L	ng	ng	-	-	-	-	0.88	-	1.16	-	-	2.61
Cation sum	meq/L	ng	ng	-	-	-	-	0.90	-	1.21	-	-	2.52
Ion balance (APHA)	%	ng	ng	-	-	-	-	1.12	-	2.11	-	-	-1.75
Ion balance (cations/anions)	%	ng	ng	-	-	-	-	102	-	104	-	-	96.6

TABLE B2: Water Quality Results from Contwoyto Lake (Station LUP-01), Boot Lake, East Lake and Lower Sewage Lake		Sample Location	LUP-01			LUP-BL-01		LUP-EL-01		LUP-LSL-01		
		Sample ID	Sample 1	LUP-01	Contwoyto Lake	LUP-BL-01	LUP-BL-01	LUP-EL-01	LUP-EL-01	LUP-LSL-01	LUP-LSL-01D	LUP-LSL-01
		Date Sampled	25-Jun-2024	15-Jul-2024	10-Jul-2024	15-Jul-2024	08-Sep-2024	15-Jul-2024	08-Sep-2024	3-Jun-2024	3-Jun-2024	08-Sep-2024
		Time Sampled	00:00	07:11	14:30	08:06	14:48	07:39	15:14	13:38	13:38	00:00
Parameters	Units	CCME WQG Freshwater Aquatic Life										
		Short-term	Long-term									
Total Metals												
Aluminum, total	mg/L	ng	0.0050 - 0.10[a, b]	0.0187	0.0069	0.0256	0.0271	0.190	0.133	0.394	0.0736	0.0704	0.0208
Antimony, total	mg/L	ng	ng	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic, total	mg/L	ng	0.0050	0.00062	0.00048	0.00102	0.00104	0.00088	0.00204	0.00230	0.00345	0.00314	0.00673
Barium, total	mg/L	ng	ng	0.00394	0.00236	0.00444	0.00416	0.0117	0.0207	0.0307	0.0140	0.0139	0.0124
Beryllium, total	mg/L	ng	ng	<0.000100	<0.000100	<0.000100	<0.000100	<0.000100	<0.000100	0.000201	<0.000100	<0.000100	<0.000100
Bismuth, total	mg/L	ng	ng	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron, total	mg/L	29	1.5	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.019	0.018	0.089
Cadmium, total	mg/L	0.00011-0.00199[c,d]	0.00004-0.00015[c,e]	0.0000072	<0.0000050	0.0000068	0.0000069	0.0000682	0.0000778	0.000126	0.0000822	0.0000682	<0.0000050
Calcium, total	mg/L	ng	ng	1.66	1.03	2.06	2.14	7.77	8.07	9.32	12.3	12.1	27.7
Cesium, total	mg/L	ng	ng	0.000015	<0.000010	0.000020	0.000022	0.000049	0.000077	0.000080	0.000080	0.000084	0.000111
Chromium, total	mg/L	ng	0.0010	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00054	<0.00050	<0.00050	<0.00050
Cobalt, total	mg/L	ng	ng	0.00033	<0.00010	0.00080	0.00040	0.0128	0.00679	0.0410	0.00664	0.00682	0.00040
Copper, total	mg/L	ng	0.0020-0.0023[c,f]	0.00113	0.00065	0.00122	0.00166	0.00311	0.00586	0.00688	0.00203	0.00213	0.00088
Iron, total	mg/L	ng	0.30	0.032	<0.010	0.131	0.093	0.153	0.201	0.489	0.508	0.508	0.163
Lead, total	mg/L	ng	ng	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000055	0.000076	0.000486	0.000406	<0.000050
Lithium, total	mg/L	ng	ng	0.0020	<0.0010	0.0030	0.0035	0.0071	0.0070	0.0100	0.0045	0.0042	0.0145
Magnesium, total	mg/L	ng	ng	1.07	0.626	1.37	1.87	4.40	7.17	6.70	3.60	3.62	6.29
Manganese, total	mg/L	ng	ng	0.00419	0.00180	0.0117	0.00690	0.111	0.0735	0.337	0.146	0.141	0.0111
Mercury, total	mg/L	ng	0.000026	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum, total	mg/L	ng	0.073	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000067	0.000062	0.000183
Nickel, total	mg/L	ng	0.025 - 0.092[c,g]	0.00312	0.00091	0.00363	0.00360	0.0309	0.0519	0.0753	0.00852	0.00849	0.00522
Phosphorus, total	mg/L	ng	ng	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium, total	mg/L	ng	ng	0.510	0.406	0.533	0.651	1.01	1.05	0.741	1.78	1.73	3.17
Rubidium, total	mg/L	ng	ng	0.00144	0.00122	0.00151	0.00192	0.00257	0.00364	0.00216	0.00420	0.00388	0.00614
Selenium, total	mg/L	ng	0.0010	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Silicon, total	mg/L	ng	ng	0.18	0.11	0.21	0.19	1.67	<0.10	4.44	0.85	0.87	0.33
Silver, total	mg/L	ng	0.00025	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium, total	mg/L	ng	ng	0.916	0.568	1.12	1.33	2.59	3.29	2.63	3.84	3.64	13.1
Strontium, total	mg/L	ng	ng	0.00938	0.00594	0.0118	0.0128	0.0370	0.0460	0.0505	0.0694	0.0692	0.176
Sulfur, total	mg/L	ng	ng	2.22	0.85	2.76	3.85	12.9	17.5	18.5	15.3	15.3	27.1
Tellurium, total	mg/L	ng	ng	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Thallium, total	mg/L	ng	0.00080	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000015	0.000015	<0.000010
Thorium, total	mg/L	ng	ng	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Tin, total	mg/L	ng	ng	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00031	<0.00010	<0.00010	<0.00010	<0.00010
Titanium, total	mg/L	ng	ng	<0.00030	<0.00030	<0.00030	<0.00030	0.00045	0.00147	0.00133	0.00107	0.00113	0.00035
Tungsten, total	mg/L	ng	ng	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Uranium, total	mg/L	0.033	0.015	0.000023	0.000019	0.000025	0.000022	0.000033	0.000035	0.000042	0.000031	0.000029	0.000021
Vanadium, total	mg/L	ng	ng	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc, total	mg/L	0.033-0.037[h]	0.0063 - 0.058[i]	0.0030*	<0.0030*	<0.0030*	<0.0030*	0.0179*	0.0240	0.0387	0.0209*	0.0203*	<0.0030
Zirconium, total	mg/L	ng	ng	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00025	<0.00020	<0.00020	<0.00020

Notes:

[a] = guideline is pH dependent. The guideline range shown is based on the pH range observed in the dataset (4.8 to 7.2). The guideline is calculated based on the individual pH for each sample.

[b] = guideline is pH dependent: 0.005 mg/L at pH < 6.5 and 0.1 mg/L at pH ≥ 6.5.

[c] = guideline is hardness dependent. The guideline range shown is based on the hardness range observed in the dataset (5 to 95 mg/L). The guideline is calculated based on the individual hardness value for each sample.

[d] = guideline is for dissolved cadmium, but comparison to total cadmium is appropriate when no dissolved cadmium concentrations are available. The short-term dissolved cadmium guideline is hardness dependent. When the water hardness is 0 to < 5.3 mg/L, the short-term benchmark is 0.11 µg/L. At hardness ≥ 5.3 to ≤ 360 mg/L, using the following equation: Benchmark (µg/L) = 10{1.016(log[hardness mg·L-1]) – 1.71}. The guideline is calculated based on the individual hardness for each sample.

[e] = guideline is for dissolved cadmium, but comparison to total cadmium is appropriate when no dissolved cadmium concentrations are available. The long-term dissolved cadmium guideline is hardness dependent. When the water hardness is > 0 to < 17 mg/L, the CWQG is 0.04 µg/L. At hardness ≥ 17 to ≤ 280 mg/L, use the following equation: Benchmark (µg/L) = 10{0.83(log[hardness mg·L-1]) – 2.46}. The guideline is calculated based on the individual hardness for each sample.

[f] = The long-term copper guideline is hardness dependent. When the water hardness is 0 to ≤ 60 mg/L, CWQG is 25 µg/L. At hardness > 60 to ≤ 180 mg/L, use the following equation: CWQG (µg/L) = 0.2 * e{0.8545[ln(hardness mg·L-1)]-1.465}. The guideline is calculated based on the individual hardness for each sample.

[g] = guideline is for dissolved nickel, but comparison to total nickel is appropriate when no dissolved nickel concentrations are available. The long-term dissolved nickel guideline is hardness dependent. When the water hardness is 0 to ≤ 60 mg/L, CWQG is 25 µg/L. At hardness > 60 to ≤ 180 mg/L, use the following equation: CWQG (µg/L) = e{0.76[ln(hardness mg·L-1)]+1.06}. The guideline is calculated based on the individual hardness for each sample.

[h] = guideline is for dissolved zinc, but comparison to total zinc is appropriate when no dissolved zinc concentrations are available. The short-term dissolved zinc guideline is hardness and DOC dependent. If dissolved zinc exceeds the most stringent value of 37 µg/L, use the following calculation: Benchmark (µg/L) = exp(0.833[ln(hardness mg·L-1)] + 0.240[ln(DOC mg·L-1)] + 0.526). The benchmark equation is valid between hardness 13.8 and 250.5 mg CaCO3·L-1 and DOC 0.3 and 17.3 mg·L-1, which is the range of data used to derive the hardness and DOC slopes. Extrapolations should not be made above the upper hardness limit of 250.5 mg CaCO3·L-1 or above the upper DOC limit of 17.3 mg·L-1. For hardness below 13.8 mg CaCO3·L-1 or DOC below 0.3 mg·L-1, where users want a more stringent benchmark, they should extrapolate with caution and contact their local authority for advice. The guideline is calculated based on the individual hardness and DOC measurements for each sample. A most stringent DOC value of 0.3 mg/L was used where data was unavailable.

[i] = guideline is for dissolved zinc, but comparison to total zinc is appropriate when no dissolved zinc concentrations are available. The long-term dissolved zinc guideline is pH, hardness and DOC dependent. If dissolved zince exceeds the most stringent value of 6 µg/L, use the following calculation: CWQG (µg/L) = exp(0.947[ln(hardness mg·L-1)] - 0.815[pH] + 0.398[ln(DOC mg·L-1)] + 4.625). The CWQG equation is valid between hardness 23.4 and 399 mg CaCO3·L−1, pH 6.5 and 8.13 and DOC 0.3 to 22.9 mg·L−1, which is the range of data used to derive the hardness, pH and DOC slopes. Extrapolations should not be made above the upper hardness limit of 399 mg CaCO3·L-1, above the upper DOC limit of 22.9 mg·L-1 or below the lower pH limit of 6.5. For hardness below 23.4 mg CaCO3·L-1, DOC below 0.3 mg·L-1 or pH above 8.13, where users want a more stringent WQG, they should extrapolate with caution and contact their local authority for advice. The guideline is calculated based on the individual pH, hardness and DOC measurements for each sample. A most stringent DOC value of 0.3 mg/L was used where data was unavailable.

* = sample is outside the recommended pH or hardness range.
ng = no guideline listed
- = sample not analyzed for parameter indicated
mg/L -= milligram per litre
µg/L = microgram per litre
pH = potential of hydrogen
< = less than reported detection limit
µS/cm = microsiemens per centimeter
deg °C = degrees celsius
meq/L = milliequivalents per liter
% = percent
CFU/100mL = colony forming units per 100 millilitres

CCME WQG Freshwater Aquatic Life (long term)	CCME Water Quality Guidelines for the Protection of Aquatic Life, Freshwater (Long-term)
CCME WQG Freshwater Aquatic Life (short term)	CCME Water Quality Guidelines for the Protection of Aquatic Life, Freshwater (Short-term)

CCME = Canadian Council of Ministers of the Environment

Table B3: Water Quality Exceedances Comparison from 2021 and 2024 Data for Boot Lake, East Lake, and Lower Sewage Lake		CCME WQG Freshwater Aquatic Life				LUP-BL-01				LUP-EL-01				LUP-LSL-01			
		2024 Calculated Guidelines		2021 Calculated Guidelines		2024		2021		2024		2021		2024		2021	
Parameters	Units	Short-term	Long-term	Short-term	Long-term	15-Jul-2024	08-Sep-2024	25-Jun-2021	30-Aug-2021	15-Jul-2024	08-Sep-2024	25-Jun-2021	30-Aug-2021	3-Jun-2024	08-Sep-2024	18-Jun-2021	30-Aug-2021
Total Metals																	
Aluminum, total	mg/L	ng	0.0050 - 0.10[a, b]	ng	0.0050 - 0.10[a, b]	0.0271	0.19	0.057	0.028	0.133	0.394	0.19	0.17	0.0736	0.0208	0.14	0.027
Arsenic, total	mg/L	ng	0.005	ng	0.005	-	-	-	-	-	-	-	-	0.00345	0.00673	0.008	0.0053
Copper, total	mg/L	ng	0.0020-0.0023[c,d]	ng	0.002	0.00166	0.00311	0.0014	0.0016	0.00586	0.00688	0.0046	0.0063	0.00203	0.00088	0.0026	0.0011
Iron, total	mg/L	ng	0.3	ng	0.3	-	-	-	-	0.201	0.489	0.21	0.34	0.508	0.163	0.43	0.12
Nickel, total	mg/L	ng	0.025 - 0.092[c,e]	ng	0.025 - 0.065[c,e]	0.0036	0.0309	0.0041	0.0036	0.0519	0.0753	0.016	0.031	-	-	-	-
Zinc, total	mg/L	0.033-0.037[f]	0.0063 - 0.058[g]	0.011-0.039[f]	0.0063 - 0.015[g]	<0.003	0.0179	<0.003	<0.003	0.024	0.0387	0.0096	0.013	0.0209	<0.003	0.03	<0.003

Notes:

Exceedance

No exceedance

[a] = guideline is pH dependent. The guideline range shown is based on the pH range observed in the dataset (from 2021 and 2024 dataset). The guideline is calculated based on the individual pH for each sample.

[b] = guideline is pH dependent: 0.005 mg/L at pH < 6.5 and 0.1 mg/L at pH ≥ 6.5.

[c] = guideline is hardness dependent. The guideline range shown is based on the hardness range observed in the dataset (from 2021 and 2024 dataset). The guideline is calculated based on the individual hardness value for each sample.

[d] = The long-term copper guideline is hardness dependent. When the water hardness is 0 to ≤ 60 mg/L, CWQG is 25 µg/L. At hardness > 60 to ≤ 180 mg/L, use the following equation: CWQG (µg/L) = 0.2 * e{0.8545[ln(hardness mg·L-1)]-1.465}. The guideline is calculated based on the individual hardness for each sample.

[e] = guideline is for dissolved nickel, but comparison to total nickel is appropriate when no dissolved nickel concentrations are available. The long-term dissolved nickel guideline is hardness dependent. When the water hardness is 0 to ≤ 60 mg/L, CWQG is 25 µg/L. At hardness > 60 to ≤ 180 mg/L, use the following equation: CWQG (µg/L) = e{0.76[ln(hardness mg·L-1)]+1.06}. The guideline is calculated based on the individual hardness for each sample.

[f] = guideline is for dissolved zinc, but comparison to total zinc is appropriate when no dissolved zinc concentrations are available. The short-term dissolved zinc guideline is hardness and DOC dependent. If dissolved zinc exceeds the most stringent value of 37 µg/L, use the following calculation: Benchmark (µg/L) = exp(0.833[ln(hardness mg·L-1)] + 0.240[ln(DOC mg·L-1)] + 0.526). The benchmark equation is valid between hardness 13.8 and 250.5 mg CaCO3·L-1 and DOC 0.3 and 17.3 mg·L-1, which is the range of data used to derive the hardness and DOC slopes. Extrapolations should not be made above the upper hardness limit of 250.5 mg CaCO3·L-1 or above the upper DOC limit of 17.3 mg·L-1. For hardness below 13.8 mg CaCO3·L-1 or DOC below 0.3 mg·L-1, where users want a more stringent benchmark, they should extrapolate with caution and contact their local authority for advice. The guideline is calculated based on the individual hardness and DOC measurements for each sample. A most stringent DOC value of 0.3 mg/L was used where data was unavailable.

[g] = guideline is for dissolved zinc, but comparison to total zinc is appropriate when no dissolved zinc concentrations are available. The long-term dissolved zinc guideline is pH, hardness and DOC dependent. If dissolved zince exceeds the most stringent value of 6 µg/L, use the following calculation: CWQG (µg/L) = exp(0.947[ln(hardness mg·L-1)] - 0.815[pH] + 0.398[ln(DOC mg·L-1)] + 4.625). The CWQG equation is valid between hardness 23.4 and 399 mg CaCO3·L −1, pH 6.5 and 8.13 and DOC 0.3 to 22.9 mg·L−1, which is the range of data used to derive the hardness, pH and DOC slopes. Extrapolations should not be made above the upper hardness limit of 399 mg CaCO3·L-1, above the upper DOC limit of 22.9 mg·L-1 or below the lower pH limit of 6.5. For hardness below 23.4 mg CaCO3·L-1, DOC below 0.3 mg·L-1 or pH above 8.13, where users want a more stringent WQG, they should extrapolate with caution and contact their local authority for advice. The guideline is calculated based on the individual pH, hardness and DOC measurements for each sample. A most stringent DOC value of 0.3 mg/L was used where data was unavailable.

ng = no guideline listed

- = no exceedances in 2021 or 2024, not compared

mg/L = milligram per litre

< = less than reported detection limit

CCME WQG Freshwater Aquatic Life (long term) — CCME Water Quality Guidelines for the Protection of Aquatic Life, Freshwater (Long-term)

CCME WQG Freshwater Aquatic Life (short term) — CCME Water Quality Guidelines for the Protection of Aquatic Life, Freshwater (Short-term)

CCME = Canadian Council of Ministers of the Environment

CERTIFICATE OF ANALYSIS

Work Order	: **YL2400590**	Page	: 1 of 4
Amendment	: **1**		
Client	: **Elgin Mining Inc.**	Laboratory	: ALS Environmental - Yellowknife
Contact	: Jon Melnyk	Account Manager	: Oliver Gregg
Address	: 750 West Pender Street Suite 201 Vancouver BC Canada V6C 2T7	Address	: 314 Old Airport Road, Unit 116 Yellowknife NT Canada X1A 3T3
Telephone	: ----	Telephone	: 1 867 445 7143
Project	: ----	Date Samples Received	: 05-Jun-2024 13:30
PO	: ----	Date Analysis Commenced	: 10-Jun-2024
C-O-C number	: ----	Issue Date	: 18-Jun-2024 13:54
Sampler	: ----		
Site	: ----		
Quote number	: YL24-ELMI100-001		
No. of samples received	: 2		
No. of samples analysed	: 2		

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

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

Signatories

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

Signatories	*Position*	*Laboratory Department*
Cindy Tang	Team Leader - Inorganics	Inorganics, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia
Owen Cheng		Metals, Burnaby, British Columbia

General Comments

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

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

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

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

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

LOR: Limit of Reporting (detection limit).

Unit	*Description*
µS/cm	microsiemens per centimetre
mg/L	milligrams 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.

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID: LUP-LSL-01	LUP-LSL-01D	----	----	----
					Client sampling date / time: 05-Jun-2024 00:00	05-Jun-2024 00:00	----	----	----
					YL2400590-001	YL2400590-002	--------	--------	--------
					Result	Result	----	----	----
Physical Tests									
Alkalinity, bicarbonate (as CaCO3)	----	E290/VA	2.0	mg/L	7.2	6.1	----	----	----
Alkalinity, carbonate (as CaCO3)	----	E290/VA	2.0	mg/L	<2.0	<2.0	----	----	----
Alkalinity, hydroxide (as CaCO3)	----	E290/VA	2.0	mg/L	<2.0	<2.0	----	----	----
Alkalinity, phenolphthalein (as CaCO3)	----	E290/VA	2.0	mg/L	<2.0	<2.0	----	----	----
Alkalinity, total (as CaCO3)	----	E290/VA	2.0	mg/L	7.2	6.1	----	----	----
Conductivity	----	E100/VA	2.0	µS/cm	142	142	----	----	----
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/VA	0.60	mg/L	45.5	45.1	----	----	----
pH	----	E108/VA	0.10	pH units	7.09	7.06	----	----	----
Solids, total suspended [TSS]	----	E160/VA	3.0	mg/L	<3.0	6.1	----	----	----
Total Metals									
Aluminum, total	7429-90-5	E420/VA	0.0030	mg/L	0.0736	0.0704	----	----	----
Antimony, total	7440-36-0	E420/VA	0.00010	mg/L	<0.00010	<0.00010	----	----	----
Arsenic, total	7440-38-2	E420/VA	0.00010	mg/L	0.00345	0.00314	----	----	----
Barium, total	7440-39-3	E420/VA	0.00010	mg/L	0.0140	0.0139	----	----	----
Beryllium, total	7440-41-7	E420/VA	0.000100	mg/L	<0.000100	<0.000100	----	----	----
Bismuth, total	7440-69-9	E420/VA	0.000050	mg/L	<0.000050	<0.000050	----	----	----
Boron, total	7440-42-8	E420/VA	0.010	mg/L	0.019	0.018	----	----	----
Cadmium, total	7440-43-9	E420/VA	0.0000050	mg/L	0.0000822	0.0000682	----	----	----
Calcium, total	7440-70-2	E420/VA	0.050	mg/L	12.3	12.1	----	----	----
Cesium, total	7440-46-2	E420/VA	0.000010	mg/L	0.000080	0.000084	----	----	----
Chromium, total	7440-47-3	E420/VA	0.00050	mg/L	<0.00050	<0.00050	----	----	----
Cobalt, total	7440-48-4	E420/VA	0.00010	mg/L	0.00664	0.00682	----	----	----
Copper, total	7440-50-8	E420/VA	0.00050	mg/L	0.00203	0.00213	----	----	----
Iron, total	7439-89-6	E420/VA	0.010	mg/L	0.508	0.508	----	----	----
Lead, total	7439-92-1	E420/VA	0.000050	mg/L	0.000486	0.000406	----	----	----
Lithium, total	7439-93-2	E420/VA	0.0010	mg/L	0.0045	0.0042	----	----	----
Magnesium, total	7439-95-4	E420/VA	0.0050	mg/L	3.60	3.62	----	----	----
Manganese, total	7439-96-5	E420/VA	0.00010	mg/L	0.146	0.141	----	----	----
Mercury, total	7439-97-6	E508/VA	0.0000050	mg/L	<0.0000050	<0.0000050	----	----	----

Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	LUP-LSL-01	LUP-LSL-01D	----	----	----
					Client sampling date / time	05-Jun-2024 00:00	05-Jun-2024 00:00	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit		YL2400590-001	YL2400590-002	--------	--------	--------
						Result	Result	----	----	----
Total Metals										
Molybdenum, total	7439-98-7	E420/VA	0.000050	mg/L		0.000067	0.000062	----	----	----
Nickel, total	7440-02-0	E420/VA	0.00050	mg/L		0.00852	0.00849	----	----	----
Phosphorus, total	7723-14-0	E420/VA	0.050	mg/L		<0.050	<0.050	----	----	----
Potassium, total	7440-09-7	E420/VA	0.050	mg/L		1.78	1.73	----	----	----
Rubidium, total	7440-17-7	E420/VA	0.00020	mg/L		0.00420	0.00388	----	----	----
Selenium, total	7782-49-2	E420/VA	0.000050	mg/L		<0.000050	<0.000050	----	----	----
Silicon, total	7440-21-3	E420/VA	0.10	mg/L		0.85	0.87	----	----	----
Silver, total	7440-22-4	E420/VA	0.000010	mg/L		<0.000010	<0.000010	----	----	----
Sodium, total	7440-23-5	E420/VA	0.050	mg/L		3.84	3.64	----	----	----
Strontium, total	7440-24-6	E420/VA	0.00020	mg/L		0.0694	0.0692	----	----	----
Sulfur, total	7704-34-9	E420/VA	0.50	mg/L		15.3	15.3	----	----	----
Tellurium, total	13494-80-9	E420/VA	0.00020	mg/L		<0.00020	<0.00020	----	----	----
Thallium, total	7440-28-0	E420/VA	0.000010	mg/L		0.000015	0.000015	----	----	----
Thorium, total	7440-29-1	E420/VA	0.00010	mg/L		<0.00010	<0.00010	----	----	----
Tin, total	7440-31-5	E420/VA	0.00010	mg/L		<0.00010	<0.00010	----	----	----
Titanium, total	7440-32-6	E420/VA	0.00030	mg/L		0.00107	0.00113	----	----	----
Tungsten, total	7440-33-7	E420/VA	0.00010	mg/L		<0.00010	<0.00010	----	----	----
Uranium, total	7440-61-1	E420/VA	0.000010	mg/L		0.000031	0.000029	----	----	----
Vanadium, total	7440-62-2	E420/VA	0.00050	mg/L		<0.00050	<0.00050	----	----	----
Zinc, total	7440-66-6	E420/VA	0.0030	mg/L		0.0209	0.0203	----	----	----
Zirconium, total	7440-67-7	E420/VA	0.00020	mg/L		<0.00020	<0.00020	----	----	----

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	: **YL2400590**	Page	: 1 of 6
Amendment	: **1**		
Client	: **Elgin Mining Inc.**	Laboratory	: ALS Environmental - Yellowknife
Contact	: Jon Melnyk	Account Manager	: Oliver Gregg
Address	: 750 West Pender Street Suite 201 Vancouver BC Canada V6C 2T7	Address	: 314 Old Airport Road, Unit 116 Yellowknife, Northwest Territories Canada X1A 3T3
Telephone	: ----	Telephone	: 1 867 445 7143
Project	: ----	Date Samples Received	: 05-Jun-2024 13:30
PO	: ----	Issue Date	: 18-Jun-2024 14:04
C-O-C number	: ----		
Sampler	: ----		
Site	: ----		
Quote number	: YL24-ELMI100-001		
No. of samples received	: 2		
No. of samples analysed	: 2		

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

Key

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

Workorder Comments

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

Summary of Outliers

Outliers : Quality Control Samples

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

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

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

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Analysis Holding Time Compliance

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

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

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

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

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Alkalinity Species by Titration										
HDPE LUP-LSL-01	E290	05-Jun-2024	12-Jun-2024	14 days	8 days	✓	14-Jun-2024	14 days	9 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE LUP-LSL-01D	E290	05-Jun-2024	12-Jun-2024	14 days	8 days	✓	14-Jun-2024	14 days	9 days	✓
Physical Tests : Conductivity in Water										
HDPE LUP-LSL-01	E100	05-Jun-2024	12-Jun-2024	28 days	8 days	✓	14-Jun-2024	28 days	9 days	✓
Physical Tests : Conductivity in Water										
HDPE LUP-LSL-01D	E100	05-Jun-2024	12-Jun-2024	28 days	8 days	✓	14-Jun-2024	28 days	9 days	✓
Physical Tests : pH by Meter										
HDPE LUP-LSL-01	E108	05-Jun-2024	12-Jun-2024	0.25 hrs	182 hrs	× EHTR-FM	14-Jun-2024	0.25 hrs	227 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE LUP-LSL-01D	E108	05-Jun-2024	12-Jun-2024	0.25 hrs	182 hrs	× EHTR-FM	14-Jun-2024	0.25 hrs	227 hrs	× EHTR-FM
Physical Tests : TSS by Gravimetry										
HDPE LUP-LSL-01	E160	05-Jun-2024	----	----	----		11-Jun-2024	7 days	6 days	✓

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : TSS by Gravimetry										
HDPE										
LUP-LSL-01D	E160	05-Jun-2024	----	----	----		11-Jun-2024	7 days	6 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid)										
LUP-LSL-01	E508	05-Jun-2024	12-Jun-2024	28 days	7 days	✓	12-Jun-2024	28 days	7 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid)										
LUP-LSL-01D	E508	05-Jun-2024	12-Jun-2024	28 days	7 days	✓	12-Jun-2024	28 days	7 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved)										
LUP-LSL-01	E420	05-Jun-2024	10-Jun-2024	180 days	6 days	✓	11-Jun-2024	180 days	7 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved)										
LUP-LSL-01D	E420	05-Jun-2024	10-Jun-2024	180 days	6 days	✓	11-Jun-2024	180 days	7 days	✓

Legend & Qualifier Definitions

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

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

Quality Control Parameter Frequency Compliance

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

Matrix: **Water**

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

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
Alkalinity Species by Titration	E290	1489920	1	9	11.1	5.0	✓
Conductivity in Water	E100	1489921	1	5	20.0	5.0	✓
pH by Meter	E108	1489919	1	11	9.0	5.0	✓
Total Mercury in Water by CVAAS	E508	1488759	1	10	10.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1481597	1	20	5.0	5.0	✓
TSS by Gravimetry	E160	1486294	1	14	7.1	5.0	✓
Laboratory Control Samples (LCS)							
Alkalinity Species by Titration	E290	1489920	1	9	11.1	5.0	✓
Conductivity in Water	E100	1489921	1	5	20.0	5.0	✓
pH by Meter	E108	1489919	1	11	9.0	5.0	✓
Total Mercury in Water by CVAAS	E508	1488759	1	10	10.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1481597	1	20	5.0	5.0	✓
TSS by Gravimetry	E160	1486294	1	14	7.1	5.0	✓
Method Blanks (MB)							
Alkalinity Species by Titration	E290	1489920	1	9	11.1	5.0	✓
Conductivity in Water	E100	1489921	1	5	20.0	5.0	✓
Total Mercury in Water by CVAAS	E508	1488759	1	10	10.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1481597	1	20	5.0	5.0	✓
TSS by Gravimetry	E160	1486294	1	14	7.1	5.0	✓
Matrix Spikes (MS)							
Total Mercury in Water by CVAAS	E508	1488759	1	10	10.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1481597	1	20	5.0	5.0	✓

Methodology References and Summaries

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

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Conductivity in Water	E100 ALS Environmental - Vancouver	Water	APHA 2510 (mod)	Conductivity, also known as Electrical Conductivity (EC) or Specific Conductance, is measured by immersion of a conductivity cell with platinum electrodes into a water sample. Conductivity measurements are temperature-compensated to 25°C.
pH by Meter	E108 ALS Environmental - Vancouver	Water	APHA 4500-H (mod)	pH is determined by potentiometric measurement with a pH electrode, and is conducted at ambient laboratory temperature (normally 20 ± 5°C). For high accuracy test results, pH should be measured in the field within the recommended 15 minute hold time.
TSS by Gravimetry	E160 ALS Environmental - Vancouver	Water	APHA 2540 D (mod)	Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, following by drying of the filter at 104 ± 1°C, with gravimetric measurement of the filtered solids. Samples containing very high dissolved solid content (i.e. seawaters, brackish waters) may produce a positive bias by this method. Alternate analysis methods are available for these types of samples.
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.
Total Metals in Water by CRC ICPMS	E420 ALS Environmental - Vancouver	Water	EPA 200.2/6020B (mod)	Water samples are digested with nitric and hydrochloric acids, and analyzed by Collision/Reaction Cell ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
Total Mercury in Water by CVAAS	E508 ALS Environmental - Vancouver	Water	EPA 1631E (mod)	Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS
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.

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QUALITY CONTROL REPORT

Work Order	: **YL2400590**	Page	: 1 of 10
Amendment	: **1**		
Client	: Elgin Mining Inc.	Laboratory	: ALS Environmental - Yellowknife
Contact	: Jon Melnyk	Account Manager	: Oliver Gregg
Address	: 750 West Pender Street Suite 201 Vancouver BC Canada V6C 2T7	Address	: 314 Old Airport Road, Unit 116 Yellowknife, Northwest Territories Canada X1A 3T3
Telephone	: ----	Telephone	: 1 867 445 7143
Project	: ----	Date Samples Received	: 05-Jun-2024 13:30
PO	: ----	Date Analysis Commenced	: 10-Jun-2024
C-O-C number	: ----	Issue Date	: 18-Jun-2024 13:53
Sampler	: ----		
Site	: ----		
Quote number	: YL24-ELMI100-001		
No. of samples received	: 2		
No. of samples analysed	: 2		

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

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percent Difference (RPD) and Data Quality Objectives
- 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
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Vancouver Metals, Burnaby, British Columbia
Owen Cheng		Vancouver Metals, Burnaby, British Columbia

General Comments

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

Key :

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

Workorder Comments

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

Laboratory Duplicate (DUP) Report

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

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Physical Tests (QC Lot: 1486294)											
VA24B3361-004	Anonymous	Solids, total suspended [TSS]	----	E160	3.0	mg/L	4.9	5.3	0.4	Diff <2x LOR	----
Physical Tests (QC Lot: 1489919)											
VA24B2788-001	Anonymous	pH	----	E108	0.10	pH units	7.73	7.74	0.129%	4%	----
Physical Tests (QC Lot: 1489920)											
KS2402117-003	Anonymous	Alkalinity, bicarbonate (as CaCO3)	----	E290	1.0	mg/L	334	339	1.40%	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	334	339	1.40%	20%	----
Physical Tests (QC Lot: 1489921)											
VA24B2788-001	Anonymous	Conductivity	----	E100	2.0	µS/cm	3640	3580	1.66%	10%	----
Total Metals (QC Lot: 1481597)											
VA24B2847-001	Anonymous	Aluminum, total	7429-90-5	E420	0.0030	mg/L	<0.0030	0.0030	0.00005	Diff <2x LOR	----
		Antimony, total	7440-36-0	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Arsenic, total	7440-38-2	E420	0.00010	mg/L	0.00395	0.00400	1.32%	20%	----
		Barium, total	7440-39-3	E420	0.00010	mg/L	0.0227	0.0230	1.24%	20%	----
		Beryllium, total	7440-41-7	E420	0.000020	mg/L	<0.000020	<0.000020	0	Diff <2x LOR	----
		Bismuth, total	7440-69-9	E420	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Boron, total	7440-42-8	E420	0.010	mg/L	0.017	0.017	0.0002	Diff <2x LOR	----
		Cadmium, total	7440-43-9	E420	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
		Calcium, total	7440-70-2	E420	0.050	mg/L	22.1	22.0	0.442%	20%	----
		Cesium, total	7440-46-2	E420	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Chromium, total	7440-47-3	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Cobalt, total	7440-48-4	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Copper, total	7440-50-8	E420	0.00050	mg/L	0.00246	0.00256	0.00010	Diff <2x LOR	----
		Iron, total	7439-89-6	E420	0.010	mg/L	0.010	0.010	0.0003	Diff <2x LOR	----
		Lead, total	7439-92-1	E420	0.000050	mg/L	0.000074	0.000074	0.0000007	Diff <2x LOR	----
		Lithium, total	7439-93-2	E420	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Magnesium, total	7439-95-4	E420	0.0050	mg/L	17.6	18.2	2.87%	20%	----
		Manganese, total	7439-96-5	E420	0.00010	mg/L	0.00059	0.00054	0.00005	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Total Metals (QC Lot: 1481597) - continued											
VA24B2847-001	Anonymous	Molybdenum, total	7439-98-7	E420	0.000050	mg/L	0.00519	0.00510	1.71%	20%	----
		Nickel, total	7440-02-0	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Phosphorus, total	7723-14-0	E420	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Potassium, total	7440-09-7	E420	0.050	mg/L	1.90	1.97	3.59%	20%	----
		Rubidium, total	7440-17-7	E420	0.00020	mg/L	0.00028	0.00032	0.00004	Diff <2x LOR	----
		Selenium, total	7782-49-2	E420	0.000050	mg/L	0.000145	0.000136	0.000010	Diff <2x LOR	----
		Silicon, total	7440-21-3	E420	0.10	mg/L	6.40	6.40	0.0142%	20%	----
		Silver, total	7440-22-4	E420	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Sodium, total	7440-23-5	E420	0.050	mg/L	8.38	8.41	0.405%	20%	----
		Strontium, total	7440-24-6	E420	0.00020	mg/L	0.206	0.201	2.18%	20%	----
		Sulfur, total	7704-34-9	E420	0.50	mg/L	13.3	13.2	1.06%	20%	----
		Tellurium, total	13494-80-9	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		Thallium, total	7440-28-0	E420	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Thorium, total	7440-29-1	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Tin, total	7440-31-5	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Titanium, total	7440-32-6	E420	0.00030	mg/L	<0.00030	<0.00030	0	Diff <2x LOR	----
		Tungsten, total	7440-33-7	E420	0.00010	mg/L	0.00023	0.00023	0.000002	Diff <2x LOR	----
		Uranium, total	7440-61-1	E420	0.000010	mg/L	0.00179	0.00180	0.472%	20%	----
		Vanadium, total	7440-62-2	E420	0.00050	mg/L	0.00127	0.00127	0.000004	Diff <2x LOR	----
		Zinc, total	7440-66-6	E420	0.0030	mg/L	<0.0030	<0.0030	0	Diff <2x LOR	----
		Zirconium, total	7440-67-7	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
Total Metals (QC Lot: 1488759)											
VA24B3077-005	Anonymous	Mercury, total	7439-97-6	E508	0.0000050	mg/L	0.0000064	0.0000062	0.0000001	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: 1486294)						
Solids, total suspended [TSS]	----	E160	3	mg/L	<3.0	----
Physical Tests (QCLot: 1489920)						
Alkalinity, bicarbonate (as CaCO3)	----	E290	1	mg/L	1.3	----
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	1.3	----
Physical Tests (QCLot: 1489921)						
Conductivity	----	E100	1	µS/cm	<1.0	----
Total Metals (QCLot: 1481597)						
Aluminum, total	7429-90-5	E420	0.003	mg/L	<0.0030	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	<0.00010	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	<0.00010	----
Barium, total	7440-39-3	E420	0.0001	mg/L	<0.00010	----
Beryllium, total	7440-41-7	E420	0.00002	mg/L	<0.000020	----
Bismuth, total	7440-69-9	E420	0.00005	mg/L	<0.000050	----
Boron, total	7440-42-8	E420	0.01	mg/L	<0.010	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	<0.0000050	----
Calcium, total	7440-70-2	E420	0.05	mg/L	<0.050	----
Cesium, total	7440-46-2	E420	0.00001	mg/L	<0.000010	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	<0.00050	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	<0.00010	----
Copper, total	7440-50-8	E420	0.0005	mg/L	<0.00050	----
Iron, total	7439-89-6	E420	0.01	mg/L	<0.010	----
Lead, total	7439-92-1	E420	0.00005	mg/L	<0.000050	----
Lithium, total	7439-93-2	E420	0.001	mg/L	<0.0010	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	<0.0050	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	<0.00010	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	<0.000050	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	<0.00050	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	<0.050	----
Potassium, total	7440-09-7	E420	0.05	mg/L	<0.050	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (QCLot: 1481597) - continued						
Rubidium, total	7440-17-7	E420	0.0002	mg/L	<0.00020	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	<0.000050	----
Silicon, total	7440-21-3	E420	0.1	mg/L	<0.10	----
Silver, total	7440-22-4	E420	0.00001	mg/L	<0.000010	----
Sodium, total	7440-23-5	E420	0.05	mg/L	<0.050	----
Strontium, total	7440-24-6	E420	0.0002	mg/L	<0.00020	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	<0.50	----
Tellurium, total	13494-80-9	E420	0.0002	mg/L	<0.00020	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	<0.000010	----
Thorium, total	7440-29-1	E420	0.0001	mg/L	<0.00010	----
Tin, total	7440-31-5	E420	0.0001	mg/L	<0.00010	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	<0.00030	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	<0.00010	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	<0.000010	----
Vanadium, total	7440-62-2	E420	0.0005	mg/L	<0.00050	----
Zinc, total	7440-66-6	E420	0.003	mg/L	<0.0030	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	<0.00020	----
Total Metals (QCLot: 1488759)						
Mercury, total	7439-97-6	E508	0.000005	mg/L	<0.0000050	----

Laboratory Control Sample (LCS) Report

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

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 1486294)									
Solids, total suspended [TSS]	----	E160	3	mg/L	150 mg/L	106	85.0	115	----
Physical Tests (QCLot: 1489919)									
pH	----	E108	----	pH units	7 pH units	100	98.0	102	----
Physical Tests (QCLot: 1489920)									
Alkalinity, phenolphthalein (as CaCO3)	----	E290	1	mg/L	229 mg/L	101	75.0	125	----
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	500 mg/L	104	85.0	115	----
Physical Tests (QCLot: 1489921)									
Conductivity	----	E100	1	µS/cm	147 µS/cm	101	90.0	110	----
Total Metals (QCLot: 1481597)									
Aluminum, total	7429-90-5	E420	0.003	mg/L	2 mg/L	106	80.0	120	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	1 mg/L	104	80.0	120	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	1 mg/L	106	80.0	120	----
Barium, total	7440-39-3	E420	0.0001	mg/L	0.25 mg/L	103	80.0	120	----
Beryllium, total	7440-41-7	E420	0.00002	mg/L	0.1 mg/L	107	80.0	120	----
Bismuth, total	7440-69-9	E420	0.00005	mg/L	1 mg/L	104	80.0	120	----
Boron, total	7440-42-8	E420	0.01	mg/L	1 mg/L	107	80.0	120	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	0.1 mg/L	103	80.0	120	----
Calcium, total	7440-70-2	E420	0.05	mg/L	50 mg/L	102	80.0	120	----
Cesium, total	7440-46-2	E420	0.00001	mg/L	0.05 mg/L	104	80.0	120	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	0.25 mg/L	103	80.0	120	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	0.25 mg/L	103	80.0	120	----
Copper, total	7440-50-8	E420	0.0005	mg/L	0.25 mg/L	99.1	80.0	120	----
Iron, total	7439-89-6	E420	0.01	mg/L	1 mg/L	106	80.0	120	----
Lead, total	7439-92-1	E420	0.00005	mg/L	0.5 mg/L	105	80.0	120	----
Lithium, total	7439-93-2	E420	0.001	mg/L	0.25 mg/L	109	80.0	120	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	50 mg/L	105	80.0	120	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	0.25 mg/L	102	80.0	120	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	0.25 mg/L	104	80.0	120	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	0.5 mg/L	101	80.0	120	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	10 mg/L	100	80.0	120	----
Potassium, total	7440-09-7	E420	0.05	mg/L	50 mg/L	110	80.0	120	----
Rubidium, total	7440-17-7	E420	0.0002	mg/L	0.1 mg/L	98.7	80.0	120	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Total Metals (QCLot: 1481597) - continued									
Selenium, total	7782-49-2	E420	0.00005	mg/L	1 mg/L	101	80.0	120	----
Silicon, total	7440-21-3	E420	0.1	mg/L	10 mg/L	108	80.0	120	----
Silver, total	7440-22-4	E420	0.00001	mg/L	0.1 mg/L	98.4	80.0	120	----
Sodium, total	7440-23-5	E420	0.05	mg/L	50 mg/L	103	80.0	120	----
Strontium, total	7440-24-6	E420	0.0002	mg/L	0.25 mg/L	106	80.0	120	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	50 mg/L	98.0	80.0	120	----
Tellurium, total	13494-80-9	E420	0.0002	mg/L	0.1 mg/L	103	80.0	120	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	1 mg/L	104	80.0	120	----
Thorium, total	7440-29-1	E420	0.0001	mg/L	0.1 mg/L	102	80.0	120	----
Tin, total	7440-31-5	E420	0.0001	mg/L	0.5 mg/L	102	80.0	120	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	0.25 mg/L	103	80.0	120	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	0.1 mg/L	101	80.0	120	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	0.005 mg/L	107	80.0	120	----
Vanadium, total	7440-62-2	E420	0.0005	mg/L	0.5 mg/L	104	80.0	120	----
Zinc, total	7440-66-6	E420	0.003	mg/L	0.5 mg/L	99.7	80.0	120	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	0.1 mg/L	104	80.0	120	----
Total Metals (QCLot: 1488759)									
Mercury, total	7439-97-6	E508	0.000005	mg/L	0 mg/L	93.2	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
Total Metals (QCLot: 1481597)										
VA24B2847-002	Anonymous	Aluminum, total	7429-90-5	E420	0.186 mg/L	0.2 mg/L	93.2	70.0	130	----
		Antimony, total	7440-36-0	E420	0.0187 mg/L	0.02 mg/L	93.4	70.0	130	----
		Arsenic, total	7440-38-2	E420	0.0193 mg/L	0.02 mg/L	96.7	70.0	130	----
		Barium, total	7440-39-3	E420	ND mg/L	----	ND	70.0	130	----
		Beryllium, total	7440-41-7	E420	0.0388 mg/L	0.04 mg/L	97.0	70.0	130	----
		Bismuth, total	7440-69-9	E420	0.00993 mg/L	0.01 mg/L	99.3	70.0	130	----
		Boron, total	7440-42-8	E420	0.100 mg/L	0.1 mg/L	100	70.0	130	----
		Cadmium, total	7440-43-9	E420	0.00379 mg/L	0.004 mg/L	94.7	70.0	130	----
		Calcium, total	7440-70-2	E420	ND mg/L	----	ND	70.0	130	----
		Cesium, total	7440-46-2	E420	0.00962 mg/L	0.01 mg/L	96.2	70.0	130	----
		Chromium, total	7440-47-3	E420	0.0380 mg/L	0.04 mg/L	95.1	70.0	130	----
		Cobalt, total	7440-48-4	E420	0.0186 mg/L	0.02 mg/L	93.2	70.0	130	----
		Copper, total	7440-50-8	E420	0.0180 mg/L	0.02 mg/L	89.8	70.0	130	----
		Iron, total	7439-89-6	E420	1.90 mg/L	2 mg/L	94.9	70.0	130	----
		Lead, total	7439-92-1	E420	0.0194 mg/L	0.02 mg/L	97.1	70.0	130	----
		Lithium, total	7439-93-2	E420	0.0974 mg/L	0.1 mg/L	97.4	70.0	130	----
		Magnesium, total	7439-95-4	E420	ND mg/L	----	ND	70.0	130	----
		Manganese, total	7439-96-5	E420	0.0187 mg/L	0.02 mg/L	93.4	70.0	130	----
		Molybdenum, total	7439-98-7	E420	0.0194 mg/L	0.02 mg/L	96.9	70.0	130	----
		Nickel, total	7440-02-0	E420	0.0364 mg/L	0.04 mg/L	91.1	70.0	130	----
		Phosphorus, total	7723-14-0	E420	9.56 mg/L	10 mg/L	95.6	70.0	130	----
		Potassium, total	7440-09-7	E420	3.61 mg/L	4 mg/L	90.3	70.0	130	----
		Rubidium, total	7440-17-7	E420	0.0177 mg/L	0.02 mg/L	88.6	70.0	130	----
		Selenium, total	7782-49-2	E420	0.0382 mg/L	0.04 mg/L	95.4	70.0	130	----
		Silicon, total	7440-21-3	E420	9.33 mg/L	10 mg/L	93.3	70.0	130	----
		Silver, total	7440-22-4	E420	0.00385 mg/L	0.004 mg/L	96.2	70.0	130	----
		Sodium, total	7440-23-5	E420	ND mg/L	----	ND	70.0	130	----
		Strontium, total	7440-24-6	E420	ND mg/L	----	ND	70.0	130	----
		Sulfur, total	7704-34-9	E420	19.3 mg/L	20 mg/L	96.4	70.0	130	----
		Tellurium, total	13494-80-9	E420	0.0375 mg/L	0.04 mg/L	93.8	70.0	130	----
		Thallium, total	7440-28-0	E420	0.00378 mg/L	0.004 mg/L	94.6	70.0	130	----
		Thorium, total	7440-29-1	E420	0.0172 mg/L	0.02 mg/L	86.3	70.0	130	----
		Tin, total	7440-31-5	E420	0.0189 mg/L	0.02 mg/L	94.4	70.0	130	----
		Titanium, total	7440-32-6	E420	0.0373 mg/L	0.04 mg/L	93.2	70.0	130	----
		Tungsten, total	7440-33-7	E420	0.0192 mg/L	0.02 mg/L	96.3	70.0	130	----
		Uranium, total	7440-61-1	E420	0.00399 mg/L	0.004 mg/L	99.7	70.0	130	----
		Vanadium, total	7440-62-2	E420	0.0953 mg/L	0.1 mg/L	95.3	70.0	130	----
		Zinc, total	7440-66-6	E420	0.360 mg/L	0.4 mg/L	90.1	70.0	130	----
		Zirconium, total	7440-67-7	E420	0.0396 mg/L	0.04 mg/L	99.1	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
Total Metals (QCLot: 1488759)										
VA24B3077-006	Anonymous	Mercury, total	7439-97-6	E508	0.0000964 mg/L	0 mg/L	96.4	70.0	130	----

CERTIFICATE OF ANALYSIS

Work Order	: **YL2400731**	Page	: 1 of 4
Client	: **Elgin Mining Inc.**	Laboratory	: ALS Environmental - Yellowknife
Contact	: Jon Melnyk	Account Manager	: Oliver Gregg
Address	: 750 West Pender Street Suite 201 Vancouver BC Canada V6C 2T7	Address	: 314 Old Airport Road, Unit 116 Yellowknife NT Canada X1A 3T3
Telephone	: ----	Telephone	: 1 867 445 7143
Project	: ----	Date Samples Received	: 25-Jun-2024 09:46
PO	: ----	Date Analysis Commenced	: 28-Jun-2024
C-O-C number	: ----	Issue Date	: 10-Jul-2024 15:52
Sampler	: ----		
Site	: ----		
Quote number	: YL23-ELMI100-001		
No. of samples received	: 1		
No. of samples analysed	: 1		

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

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

Signatories

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

Signatories	*Position*	*Laboratory Department*
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia
Maya Urquhart	Lab Analyst	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*
mg/L	milligrams 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.

Sample Comments

Sample	Client Id	*Comment*
YL2400731-001	Sample 1	Water sample(s) for total mercury analysis was not submitted in glass or PTFE container with HCl preservative. Results may be biased low.

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID: Sample 1	----	----	----	----
					Client sampling date / time: 25-Jun-2024 00:00	----	----	----	----
					YL2400731-001	--------	--------	--------	--------
					Result	----	----	----	----
Physical Tests									
Alkalinity, total (as CaCO3)	----	E290/VA	1.0	mg/L	3.7	----	----	----	----
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/VA	0.60	mg/L	8.55	----	----	----	----
pH	----	E108/VA	0.10	pH units	6.70	----	----	----	----
Solids, total suspended [TSS]	----	E160-L/VA	1.0	mg/L	<1.0	----	----	----	----
Total Metals									
Aluminum, total	7429-90-5	E420/VA	0.0030	mg/L	0.0187	----	----	----	----
Antimony, total	7440-36-0	E420/VA	0.00010	mg/L	<0.00010	----	----	----	----
Arsenic, total	7440-38-2	E420/VA	0.00010	mg/L	0.00062	----	----	----	----
Barium, total	7440-39-3	E420/VA	0.00010	mg/L	0.00394	----	----	----	----
Beryllium, total	7440-41-7	E420/VA	0.000100	mg/L	<0.000100	----	----	----	----
Bismuth, total	7440-69-9	E420/VA	0.000050	mg/L	<0.000050	----	----	----	----
Boron, total	7440-42-8	E420/VA	0.010	mg/L	<0.010	----	----	----	----
Cadmium, total	7440-43-9	E420/VA	0.0000050	mg/L	0.0000072	----	----	----	----
Calcium, total	7440-70-2	E420/VA	0.050	mg/L	1.66	----	----	----	----
Cesium, total	7440-46-2	E420/VA	0.000010	mg/L	0.000015	----	----	----	----
Chromium, total	7440-47-3	E420/VA	0.00050	mg/L	<0.00050	----	----	----	----
Cobalt, total	7440-48-4	E420/VA	0.00010	mg/L	0.00033	----	----	----	----
Copper, total	7440-50-8	E420/VA	0.00050	mg/L	0.00113	----	----	----	----
Iron, total	7439-89-6	E420/VA	0.010	mg/L	0.032	----	----	----	----
Lead, total	7439-92-1	E420/VA	0.000050	mg/L	<0.000050	----	----	----	----
Lithium, total	7439-93-2	E420/VA	0.0010	mg/L	0.0020	----	----	----	----
Magnesium, total	7439-95-4	E420/VA	0.0050	mg/L	1.07	----	----	----	----
Manganese, total	7439-96-5	E420/VA	0.00010	mg/L	0.00419	----	----	----	----
Mercury, total	7439-97-6	E508/VA	0.0000050	mg/L	<0.0000050	----	----	----	----
Molybdenum, total	7439-98-7	E420/VA	0.000050	mg/L	<0.000050	----	----	----	----
Nickel, total	7440-02-0	E420/VA	0.00050	mg/L	0.00312	----	----	----	----
Phosphorus, total	7723-14-0	E420/VA	0.050	mg/L	<0.050	----	----	----	----
Potassium, total	7440-09-7	E420/VA	0.050	mg/L	0.510	----	----	----	----
Rubidium, total	7440-17-7	E420/VA	0.00020	mg/L	0.00144	----	----	----	----

Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	Sample 1	----	----	----	----
					Client sampling date / time	25-Jun-2024 00:00	----	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit		YL2400731-001	--------	--------	--------	--------
						Result	----	----	----	----
Total Metals										
Selenium, total	7782-49-2	E420/VA	0.000050	mg/L		<0.000050	----	----	----	----
Silicon, total	7440-21-3	E420/VA	0.10	mg/L		0.18	----	----	----	----
Silver, total	7440-22-4	E420/VA	0.000010	mg/L		<0.000010	----	----	----	----
Sodium, total	7440-23-5	E420/VA	0.050	mg/L		0.916	----	----	----	----
Strontium, total	7440-24-6	E420/VA	0.00020	mg/L		0.00938	----	----	----	----
Sulfur, total	7704-34-9	E420/VA	0.50	mg/L		2.22	----	----	----	----
Tellurium, total	13494-80-9	E420/VA	0.00020	mg/L		<0.00020	----	----	----	----
Thallium, total	7440-28-0	E420/VA	0.000010	mg/L		<0.000010	----	----	----	----
Thorium, total	7440-29-1	E420/VA	0.00010	mg/L		<0.00010	----	----	----	----
Tin, total	7440-31-5	E420/VA	0.00010	mg/L		<0.00010	----	----	----	----
Titanium, total	7440-32-6	E420/VA	0.00030	mg/L		<0.00030	----	----	----	----
Tungsten, total	7440-33-7	E420/VA	0.00010	mg/L		<0.00010	----	----	----	----
Uranium, total	7440-61-1	E420/VA	0.000010	mg/L		0.000023	----	----	----	----
Vanadium, total	7440-62-2	E420/VA	0.00050	mg/L		<0.00050	----	----	----	----
Zinc, total	7440-66-6	E420/VA	0.0030	mg/L		0.0030	----	----	----	----
Zirconium, total	7440-67-7	E420/VA	0.00020	mg/L		<0.00020	----	----	----	----

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.

right solutions.
right partner.

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **YL2400731**	Page	: 1 of 5
Client	: **Elgin Mining Inc.**	Laboratory	: ALS Environmental - Yellowknife
Contact	: Jon Melnyk	Account Manager	: Oliver Gregg
Address	: 750 West Pender Street Suite 201 Vancouver BC Canada V6C 2T7	Address	: 314 Old Airport Road, Unit 116 Yellowknife, Northwest Territories Canada X1A 3T3
Telephone	: ----	Telephone	: 1 867 445 7143
Project	: ----	Date Samples Received	: 25-Jun-2024 09:46
PO	: ----	Issue Date	: 10-Jul-2024 15:53
C-O-C number	: ----		
Sampler	: ----		
Site	: ----		
Quote number	: YL23-ELMI100-001		
No. of samples received	: 1		
No. of samples analysed	: 1		

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

Key

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

Workorder Comments

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

Summary of Outliers

Outliers : Quality Control Samples

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

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

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

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Analysis Holding Time Compliance

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

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

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

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

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Alkalinity Species by Titration										
HDPE										
Sample 1	E290	25-Jun-2024	30-Jun-2024	14 days	6 days	✓	02-Jul-2024	14 days	8 days	✓
Physical Tests : pH by Meter										
HDPE										
Sample 1	E108	25-Jun-2024	30-Jun-2024	0.25 hrs	136 hrs	× EHTR-FM	02-Jul-2024	0.25 hrs	185 hrs	× EHTR-FM
Physical Tests : TSS by Gravimetry (Low Level)										
HDPE										
Sample 1	E160-L	25-Jun-2024	----	----	----		30-Jun-2024	7 days	6 days	✓
Total Metals : Total Mercury in Water by CVAAS										
HDPE										
Sample 1	E508	25-Jun-2024	04-Jul-2024	0 hrs	234 hrs	× UCP	04-Jul-2024	0 hrs	234 hrs	× UCP
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved)										
Sample 1	E420	25-Jun-2024	28-Jun-2024	180 days	4 days	✓	30-Jun-2024	180 days	6 days	✓

Legend & Qualifier Definitions

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

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

UCP: Unsuitable Container and/or Preservative used (invalidates standard hold time). Maximum hold time of zero applied. Test results may be biased low / unreliable, and may not meet regulatory requirements.

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	1522789	1	10	10.0	5.0	✓
pH by Meter	E108	1522787	1	14	7.1	5.0	✓
Total Mercury in Water by CVAAS	E508	1528831	1	16	6.2	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1518974	1	18	5.5	5.0	✓
Laboratory Control Samples (LCS)							
Alkalinity Species by Titration	E290	1522789	1	10	10.0	5.0	✓
pH by Meter	E108	1522787	1	14	7.1	5.0	✓
Total Mercury in Water by CVAAS	E508	1528831	1	16	6.2	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1518974	1	18	5.5	5.0	✓
TSS by Gravimetry (Low Level)	E160-L	1522395	1	20	5.0	5.0	✓
Method Blanks (MB)							
Alkalinity Species by Titration	E290	1522789	1	10	10.0	5.0	✓
Total Mercury in Water by CVAAS	E508	1528831	1	16	6.2	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1518974	1	18	5.5	5.0	✓
TSS by Gravimetry (Low Level)	E160-L	1522395	1	20	5.0	5.0	✓
Matrix Spikes (MS)							
Total Mercury in Water by CVAAS	E508	1528831	1	16	6.2	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1518974	2	18	11.1	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
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 (Low Level)	E160-L 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.
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.
Total Metals in Water by CRC ICPMS	E420 ALS Environmental - Vancouver	Water	EPA 200.2/6020B (mod)	Water samples are digested with nitric and hydrochloric acids, and analyzed by Collision/Reaction Cell ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
Total Mercury in Water by CVAAS	E508 ALS Environmental - Vancouver	Water	EPA 1631E (mod)	Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS
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.

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QUALITY CONTROL REPORT

Work Order	: **YL2400731**	Page	: 1 of 10
Client	: Elgin Mining Inc.	Laboratory	: ALS Environmental - Yellowknife
Contact	: Jon Melnyk	Account Manager	: Oliver Gregg
Address	: 750 West Pender Street Suite 201 Vancouver BC Canada V6C 2T7	Address	: 314 Old Airport Road, Unit 116 Yellowknife, Northwest Territories Canada X1A 3T3
Telephone	: ----	Telephone	: 1 867 445 7143
Project	: ----	Date Samples Received	: 25-Jun-2024 09:46
PO	: ----	Date Analysis Commenced	: 28-Jun-2024
C-O-C number	: ----	Issue Date	: 10-Jul-2024 15:57
Sampler	: ----		
Site	: ----		
Quote number	: YL23-ELMI100-001		
No. of samples received	: 1		
No. of samples analysed	: 1		

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

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percent Difference (RPD) and Data Quality Objectives
- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

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

Signatories	*Position*	*Laboratory Department*
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Vancouver Metals, Burnaby, British Columbia
Maya Urquhart	Lab Analyst	Vancouver Metals, Burnaby, British Columbia
Tracy Harley	Supervisor - Water Quality Instrumentation	Vancouver Inorganics, Burnaby, British Columbia

General Comments

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

Key :

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

Workorder Comments

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

Laboratory Duplicate (DUP) Report

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

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Physical Tests (QC Lot: 1522787)											
VA24B5458-003	Anonymous	pH	----	E108	0.10	pH units	8.36	8.36	0.00%	4%	----
Physical Tests (QC Lot: 1522789)											
VA24B5458-003	Anonymous	Alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	293	292	0.311%	20%	----
Total Metals (QC Lot: 1518974)											
VA24B5373-001	Anonymous	Aluminum, total	7429-90-5	E420	0.0150	mg/L	0.183	0.185	1.05%	20%	----
		Antimony, total	7440-36-0	E420	0.00050	mg/L	0.0194	0.0195	0.485%	20%	----
		Arsenic, total	7440-38-2	E420	0.00050	mg/L	0.0294	0.0302	2.38%	20%	----
		Barium, total	7440-39-3	E420	0.00050	mg/L	0.0363	0.0368	1.32%	20%	----
		Beryllium, total	7440-41-7	E420	0.000100	mg/L	<0.000100	<0.000100	0	Diff <2x LOR	----
		Bismuth, total	7440-69-9	E420	0.000250	mg/L	<0.000250	<0.000250	0	Diff <2x LOR	----
		Boron, total	7440-42-8	E420	0.050	mg/L	0.362	0.364	0.002	Diff <2x LOR	----
		Cadmium, total	7440-43-9	E420	0.000110	mg/L	<0.000110	<0.000110	0	Diff <2x LOR	----
		Calcium, total	7440-70-2	E420	0.250	mg/L	493	490	0.549%	20%	----
		Cesium, total	7440-46-2	E420	0.000050	mg/L	0.00102	0.00103	1.30%	20%	----
		Chromium, total	7440-47-3	E420	0.00250	mg/L	<0.00250	<0.00250	0	Diff <2x LOR	----
		Cobalt, total	7440-48-4	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Copper, total	7440-50-8	E420	0.00250	mg/L	0.0150	0.0186	0.00362	Diff <2x LOR	----
		Iron, total	7439-89-6	E420	0.050	mg/L	0.073	0.074	0.0007	Diff <2x LOR	----
		Lead, total	7439-92-1	E420	0.000250	mg/L	<0.000250	<0.000250	0	Diff <2x LOR	----
		Lithium, total	7439-93-2	E420	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
		Magnesium, total	7439-95-4	E420	0.0250	mg/L	1.11	1.15	3.89%	20%	----
		Manganese, total	7439-96-5	E420	0.00050	mg/L	0.00184	0.00182	0.00002	Diff <2x LOR	----
		Molybdenum, total	7439-98-7	E420	0.000250	mg/L	0.346	0.343	0.678%	20%	----
		Nickel, total	7440-02-0	E420	0.00250	mg/L	<0.00250	<0.00250	0	Diff <2x LOR	----
		Phosphorus, total	7723-14-0	E420	0.250	mg/L	0.370	0.345	0.025	Diff <2x LOR	----
		Potassium, total	7440-09-7	E420	0.250	mg/L	197	207	4.79%	20%	----
		Rubidium, total	7440-17-7	E420	0.00100	mg/L	0.122	0.122	0.142%	20%	----
		Selenium, total	7782-49-2	E420	0.000250	mg/L	0.0302	0.0302	0.0456%	20%	----
		Silicon, total	7440-21-3	E420	0.50	mg/L	11.0	11.3	2.42%	20%	----
		Silver, total	7440-22-4	E420	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Total Metals (QC Lot: 1518974) - continued											
VA24B5373-001	Anonymous	Sodium, total	7440-23-5	E420	0.250	mg/L	1770	1820	2.76%	20%	----
		Strontium, total	7440-24-6	E420	0.00100	mg/L	7.18	7.28	1.49%	20%	----
		Sulfur, total	7704-34-9	E420	2.50	mg/L	1930	1980	2.47%	20%	----
		Tellurium, total	13494-80-9	E420	0.00100	mg/L	<0.00100	<0.00100	0	Diff <2x LOR	----
		Thallium, total	7440-28-0	E420	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Thorium, total	7440-29-1	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Tin, total	7440-31-5	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Titanium, total	7440-32-6	E420	0.00150	mg/L	<0.00150	<0.00150	0	Diff <2x LOR	----
		Tungsten, total	7440-33-7	E420	0.00050	mg/L	0.00713	0.00708	0.596%	20%	----
		Uranium, total	7440-61-1	E420	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Vanadium, total	7440-62-2	E420	0.00250	mg/L	0.0999	0.103	3.30%	20%	----
		Zinc, total	7440-66-6	E420	0.0150	mg/L	<0.0150	<0.0150	0	Diff <2x LOR	----
		Zirconium, total	7440-67-7	E420	0.00100	mg/L	<0.00100	<0.00100	0	Diff <2x LOR	----
Total Metals (QC Lot: 1528831)											
VA24B5793-001	Anonymous	Mercury, total	7439-97-6	E508	0.0000050	mg/L	0.0000192	0.0000173	0.0000018	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: 1522395)						
Solids, total suspended [TSS]	----	E160-L	1	mg/L	<1.0	----
Physical Tests (QCLot: 1522789)						
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	1.8	----
Total Metals (QCLot: 1518974)						
Aluminum, total	7429-90-5	E420	0.003	mg/L	<0.0030	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	<0.00010	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	<0.00010	----
Barium, total	7440-39-3	E420	0.0001	mg/L	<0.00010	----
Beryllium, total	7440-41-7	E420	0.00002	mg/L	<0.000020	----
Bismuth, total	7440-69-9	E420	0.00005	mg/L	<0.000050	----
Boron, total	7440-42-8	E420	0.01	mg/L	<0.010	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	<0.0000050	----
Calcium, total	7440-70-2	E420	0.05	mg/L	<0.050	----
Cesium, total	7440-46-2	E420	0.00001	mg/L	<0.000010	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	<0.00050	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	<0.00010	----
Copper, total	7440-50-8	E420	0.0005	mg/L	<0.00050	----
Iron, total	7439-89-6	E420	0.01	mg/L	<0.010	----
Lead, total	7439-92-1	E420	0.00005	mg/L	<0.000050	----
Lithium, total	7439-93-2	E420	0.001	mg/L	<0.0010	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	<0.0050	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	<0.00010	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	<0.000050	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	<0.00050	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	<0.050	----
Potassium, total	7440-09-7	E420	0.05	mg/L	<0.050	----
Rubidium, total	7440-17-7	E420	0.0002	mg/L	<0.00020	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	<0.000050	----
Silicon, total	7440-21-3	E420	0.1	mg/L	<0.10	----
Silver, total	7440-22-4	E420	0.00001	mg/L	<0.000010	----
Sodium, total	7440-23-5	E420	0.05	mg/L	<0.050	----
Strontium, total	7440-24-6	E420	0.0002	mg/L	<0.00020	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (QCLot: 1518974) - continued						
Sulfur, total	7704-34-9	E420	0.5	mg/L	<0.50	----
Tellurium, total	13494-80-9	E420	0.0002	mg/L	<0.00020	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	<0.000010	----
Thorium, total	7440-29-1	E420	0.0001	mg/L	<0.00010	----
Tin, total	7440-31-5	E420	0.0001	mg/L	<0.00010	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	<0.00030	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	<0.00010	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	<0.000010	----
Vanadium, total	7440-62-2	E420	0.0005	mg/L	<0.00050	----
Zinc, total	7440-66-6	E420	0.003	mg/L	<0.0030	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	<0.00020	----
Total Metals (QCLot: 1528831)						
Mercury, total	7439-97-6	E508	0.000005	mg/L	<0.0000050	----

Laboratory Control Sample (LCS) Report

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

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 1522395)									
Solids, total suspended [TSS]	----	E160-L	1	mg/L	150 mg/L	87.7	85.0	115	----
Physical Tests (QCLot: 1522787)									
pH	----	E108	----	pH units	7 pH units	100	98.0	102	----
Physical Tests (QCLot: 1522789)									
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	500 mg/L	115	85.0	115	----
Total Metals (QCLot: 1518974)									
Aluminum, total	7429-90-5	E420	0.003	mg/L	2 mg/L	105	80.0	120	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	1 mg/L	101	80.0	120	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	1 mg/L	112	80.0	120	----
Barium, total	7440-39-3	E420	0.0001	mg/L	0.25 mg/L	108	80.0	120	----
Beryllium, total	7440-41-7	E420	0.00002	mg/L	0.1 mg/L	102	80.0	120	----
Bismuth, total	7440-69-9	E420	0.00005	mg/L	1 mg/L	109	80.0	120	----
Boron, total	7440-42-8	E420	0.01	mg/L	1 mg/L	100	80.0	120	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	0.1 mg/L	106	80.0	120	----
Calcium, total	7440-70-2	E420	0.05	mg/L	50 mg/L	102	80.0	120	----
Cesium, total	7440-46-2	E420	0.00001	mg/L	0.05 mg/L	103	80.0	120	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	0.25 mg/L	104	80.0	120	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	0.25 mg/L	106	80.0	120	----
Copper, total	7440-50-8	E420	0.0005	mg/L	0.25 mg/L	107	80.0	120	----
Iron, total	7439-89-6	E420	0.01	mg/L	1 mg/L	106	80.0	120	----
Lead, total	7439-92-1	E420	0.00005	mg/L	0.5 mg/L	108	80.0	120	----
Lithium, total	7439-93-2	E420	0.001	mg/L	0.25 mg/L	103	80.0	120	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	50 mg/L	101	80.0	120	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	0.25 mg/L	107	80.0	120	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	0.25 mg/L	103	80.0	120	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	0.5 mg/L	108	80.0	120	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	10 mg/L	112	80.0	120	----
Potassium, total	7440-09-7	E420	0.05	mg/L	50 mg/L	109	80.0	120	----
Rubidium, total	7440-17-7	E420	0.0002	mg/L	0.1 mg/L	107	80.0	120	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	1 mg/L	104	80.0	120	----
Silicon, total	7440-21-3	E420	0.1	mg/L	10 mg/L	110	80.0	120	----
Silver, total	7440-22-4	E420	0.00001	mg/L	0.1 mg/L	97.4	80.0	120	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
					Target Concentration	LCS	Low	High	Qualifier
Total Metals (QCLot: 1518974) - continued									
Sodium, total	7440-23-5	E420	0.05	mg/L	50 mg/L	108	80.0	120	----
Strontium, total	7440-24-6	E420	0.0002	mg/L	0.25 mg/L	106	80.0	120	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	50 mg/L	108	80.0	120	----
Tellurium, total	13494-80-9	E420	0.0002	mg/L	0.1 mg/L	95.3	80.0	120	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	1 mg/L	106	80.0	120	----
Thorium, total	7440-29-1	E420	0.0001	mg/L	0.1 mg/L	105	80.0	120	----
Tin, total	7440-31-5	E420	0.0001	mg/L	0.5 mg/L	103	80.0	120	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	0.25 mg/L	103	80.0	120	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	0.1 mg/L	104	80.0	120	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	0.005 mg/L	109	80.0	120	----
Vanadium, total	7440-62-2	E420	0.0005	mg/L	0.5 mg/L	105	80.0	120	----
Zinc, total	7440-66-6	E420	0.003	mg/L	0.5 mg/L	103	80.0	120	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	0.1 mg/L	92.4	80.0	120	----
Total Metals (QCLot: 1528831)									
Mercury, total	7439-97-6	E508	0.000005	mg/L	0 mg/L	90.8	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
Total Metals (QCLot: 1518974)										
VA24B5373-002	Anonymous	Nickel, total	7440-02-0	E420	0.0400 mg/L	0.04 mg/L	100	70.0	130	----
VA24B5373-002	Anonymous	Aluminum, total	7429-90-5	E420	0.191 mg/L	0.2 mg/L	95.6	70.0	130	----
		Antimony, total	7440-36-0	E420	0.0186 mg/L	0.02 mg/L	92.9	70.0	130	----
		Arsenic, total	7440-38-2	E420	0.0201 mg/L	0.02 mg/L	100	70.0	130	----
		Barium, total	7440-39-3	E420	0.0188 mg/L	0.02 mg/L	93.8	70.0	130	----
		Beryllium, total	7440-41-7	E420	0.0382 mg/L	0.04 mg/L	95.6	70.0	130	----
		Bismuth, total	7440-69-9	E420	0.0102 mg/L	0.01 mg/L	102	70.0	130	----
		Boron, total	7440-42-8	E420	0.096 mg/L	0.1 mg/L	96.6	70.0	130	----
		Cadmium, total	7440-43-9	E420	0.00394 mg/L	0.004 mg/L	98.6	70.0	130	----
		Calcium, total	7440-70-2	E420	3.73 mg/L	4 mg/L	93.2	70.0	130	----
		Cesium, total	7440-46-2	E420	0.00956 mg/L	0.01 mg/L	95.6	70.0	130	----
		Chromium, total	7440-47-3	E420	0.0386 mg/L	0.04 mg/L	96.6	70.0	130	----
		Cobalt, total	7440-48-4	E420	0.0194 mg/L	0.02 mg/L	97.2	70.0	130	----
		Copper, total	7440-50-8	E420	0.0198 mg/L	0.02 mg/L	98.9	70.0	130	----
		Iron, total	7439-89-6	E420	1.92 mg/L	2 mg/L	95.9	70.0	130	----
		Lead, total	7439-92-1	E420	0.0196 mg/L	0.02 mg/L	98.0	70.0	130	----
		Lithium, total	7439-93-2	E420	0.0933 mg/L	0.1 mg/L	93.3	70.0	130	----
		Magnesium, total	7439-95-4	E420	0.940 mg/L	1 mg/L	94.0	70.0	130	----
		Manganese, total	7439-96-5	E420	0.0195 mg/L	0.02 mg/L	97.6	70.0	130	----
		Molybdenum, total	7439-98-7	E420	0.0188 mg/L	0.02 mg/L	94.1	70.0	130	----
		Phosphorus, total	7723-14-0	E420	9.94 mg/L	10 mg/L	99.4	70.0	130	----
		Potassium, total	7440-09-7	E420	3.92 mg/L	4 mg/L	98.1	70.0	130	----
		Rubidium, total	7440-17-7	E420	0.0196 mg/L	0.02 mg/L	98.1	70.0	130	----
		Selenium, total	7782-49-2	E420	0.0379 mg/L	0.04 mg/L	94.7	70.0	130	----
		Silicon, total	7440-21-3	E420	9.50 mg/L	10 mg/L	95.0	70.0	130	----
		Silver, total	7440-22-4	E420	0.00393 mg/L	0.004 mg/L	98.2	70.0	130	----
		Sodium, total	7440-23-5	E420	1.97 mg/L	2 mg/L	98.7	70.0	130	----
		Strontium, total	7440-24-6	E420	0.0193 mg/L	0.02 mg/L	96.4	70.0	130	----
		Sulfur, total	7704-34-9	E420	18.9 mg/L	20 mg/L	94.5	70.0	130	----
		Tellurium, total	13494-80-9	E420	0.0378 mg/L	0.04 mg/L	94.5	70.0	130	----
		Thallium, total	7440-28-0	E420	0.00383 mg/L	0.004 mg/L	95.7	70.0	130	----
		Thorium, total	7440-29-1	E420	0.0204 mg/L	0.02 mg/L	102	70.0	130	----
		Tin, total	7440-31-5	E420	0.0190 mg/L	0.02 mg/L	94.8	70.0	130	----
		Titanium, total	7440-32-6	E420	0.0376 mg/L	0.04 mg/L	94.0	70.0	130	----
		Tungsten, total	7440-33-7	E420	0.0186 mg/L	0.02 mg/L	93.1	70.0	130	----
		Uranium, total	7440-61-1	E420	0.00395 mg/L	0.004 mg/L	98.7	70.0	130	----
		Vanadium, total	7440-62-2	E420	0.0952 mg/L	0.1 mg/L	95.2	70.0	130	----
		Zinc, total	7440-66-6	E420	0.388 mg/L	0.4 mg/L	97.0	70.0	130	----
		Zirconium, total	7440-67-7	E420	0.0370 mg/L	0.04 mg/L	92.6	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Total Metals (QCLot: 1528831)										
VA24B5793-002	Anonymous	Mercury, total	7439-97-6	E508	0.0000800 mg/L	0 mg/L	80.0	70.0	130	----

CERTIFICATE OF ANALYSIS

Work Order	: **YL2400819**	Page	: 1 of 4
Amendment	: **1**		
Client	: **Elgin Mining Inc.**	Laboratory	: ALS Environmental - Yellowknife
Contact	: Jon Melnyk	Account Manager	: Oliver Gregg
Address	: 750 West Pender Street Suite 201 Vancouver BC Canada V6C 2T7	Address	: 314 Old Airport Road, Unit 116 Yellowknife NT Canada X1A 3T3
Telephone	: ----	Telephone	: 1 867 445 7143
Project	: ----	Date Samples Received	: 05-Jul-2024 13:45
PO	: ----	Date Analysis Commenced	: 05-Jul-2024
C-O-C number	: ----	Issue Date	: 18-Jul-2024 11:54
Sampler	: ----		
Site	: ----		
Quote number	: YL24-ELMI100-001		
No. of samples received	: 2		
No. of samples analysed	: 2		

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

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

Signatories

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

Signatories	*Position*	*Laboratory Department*
Kate Dimitrova	Supervisor - Inorganic	Inorganics, Burnaby, British Columbia
Kim Jensen	Department Manager - Metals	Metals, Burnaby, British Columbia
Oliver Gregg	Client Services Supervisor	External Subcontracting, Yellowknife, Northwest Territories
Owen Cheng		Metals, Burnaby, British Columbia

General Comments

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

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

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

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

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

LOR: Limit of Reporting (detection limit).

Unit	*Description*
µS/cm	microsiemens per centimetre
CFU/100mL	colony forming units per hundred millilitres
mg/L	milligrams 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.

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	LUP-14 Pre Decant	LUP-14 Pre Decant D	----	----	----
					Client sampling date / time	05-Jul-2024 10:05	05-Jul-2024 09:57	----	----	----
						YL2400819-001	YL2400819-002	--------	--------	--------
						Result	Result	----	----	----
Physical Tests										
Alkalinity, bicarbonate (as CaCO3)	----	E290/VA	2.0	mg/L		18.9	18.9	----	----	----
Alkalinity, carbonate (as CaCO3)	----	E290/VA	2.0	mg/L		<2.0	<2.0	----	----	----
Alkalinity, hydroxide (as CaCO3)	----	E290/VA	2.0	mg/L		<2.0	<2.0	----	----	----
Alkalinity, phenolphthalein (as CaCO3)	----	E290/VA	2.0	mg/L		<2.0	<2.0	----	----	----
Alkalinity, total (as CaCO3)	----	E290/VA	2.0	mg/L		18.9	18.9	----	----	----
Conductivity	----	E100/VA	2.0	µS/cm		272	275	----	----	----
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/VA	0.60	mg/L		91.0	89.7	----	----	----
pH	----	E108/VA	0.10	pH units		7.54	7.53	----	----	----
Solids, total suspended [TSS]	----	E160/VA	3.0	mg/L		<3.0	8.3	----	----	----
Microbiological Tests										
Coliforms, thermotolerant [fecal]	----	FC-MF/1Y	1.0	CFU/100mL		<1.0	<1.0	----	----	----
Total Metals										
Aluminum, total	7429-90-5	E420/VA	0.0030	mg/L		0.0310	0.0524	----	----	----
Antimony, total	7440-36-0	E420/VA	0.00010	mg/L		<0.00010	<0.00010	----	----	----
Arsenic, total	7440-38-2	E420/VA	0.00010	mg/L		0.00514	0.00567	----	----	----
Barium, total	7440-39-3	E420/VA	0.00010	mg/L		0.0137	0.0141	----	----	----
Beryllium, total	7440-41-7	E420/VA	0.000100	mg/L		<0.000100	<0.000100	----	----	----
Bismuth, total	7440-69-9	E420/VA	0.000050	mg/L		<0.000050	<0.000050	----	----	----
Boron, total	7440-42-8	E420/VA	0.010	mg/L		0.077	0.079	----	----	----
Cadmium, total	7440-43-9	E420/VA	0.0000050	mg/L		0.0000087	0.0000174	----	----	----
Calcium, total	7440-70-2	E420/VA	0.050	mg/L		27.2	26.7	----	----	----
Cesium, total	7440-46-2	E420/VA	0.000010	mg/L		0.000096	0.000100	----	----	----
Chromium, total	7440-47-3	E420/VA	0.00050	mg/L		<0.00050	<0.00050	----	----	----
Cobalt, total	7440-48-4	E420/VA	0.00010	mg/L		0.00051	0.00111	----	----	----
Copper, total	7440-50-8	E420/VA	0.00050	mg/L		0.00114	0.00132	----	----	----
Iron, total	7439-89-6	E420/VA	0.010	mg/L		0.122	0.226	----	----	----
Lead, total	7439-92-1	E420/VA	0.000050	mg/L		0.000100	0.000092	----	----	----
Lithium, total	7439-93-2	E420/VA	0.0010	mg/L		0.0122	0.0121	----	----	----
Magnesium, total	7439-95-4	E420/VA	0.0050	mg/L		5.60	5.59	----	----	----
Manganese, total	7439-96-5	E420/VA	0.00010	mg/L		0.0304	0.0607	----	----	----

Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	LUP-14 Pre Decant	LUP-14 Pre Decant D	----	----	----
					Client sampling date / time	05-Jul-2024 10:05	05-Jul-2024 09:57	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit		YL2400819-001	YL2400819-002	--------	--------	--------
						Result	Result	----	----	----
Total Metals										
Mercury, total	7439-97-6	E508/VA	0.0000050	mg/L		<0.0000050	<0.0000050	----	----	----
Molybdenum, total	7439-98-7	E420/VA	0.000050	mg/L		0.000124	0.000140	----	----	----
Nickel, total	7440-02-0	E420/VA	0.00050	mg/L		0.00575	0.00647	----	----	----
Phosphorus, total	7723-14-0	E420/VA	0.050	mg/L		<0.050	<0.050	----	----	----
Potassium, total	7440-09-7	E420/VA	0.050	mg/L		2.94	2.92	----	----	----
Rubidium, total	7440-17-7	E420/VA	0.00020	mg/L		0.00593	0.00595	----	----	----
Selenium, total	7782-49-2	E420/VA	0.000050	mg/L		<0.000050	<0.000050	----	----	----
Silicon, total	7440-21-3	E420/VA	0.10	mg/L		<0.10	0.17	----	----	----
Silver, total	7440-22-4	E420/VA	0.000010	mg/L		<0.000010	<0.000010	----	----	----
Sodium, total	7440-23-5	E420/VA	0.050	mg/L		12.6	12.4	----	----	----
Strontium, total	7440-24-6	E420/VA	0.00020	mg/L		0.160	0.162	----	----	----
Sulfur, total	7704-34-9	E420/VA	0.50	mg/L		24.8	24.8	----	----	----
Tellurium, total	13494-80-9	E420/VA	0.00020	mg/L		<0.00020	<0.00020	----	----	----
Thallium, total	7440-28-0	E420/VA	0.000010	mg/L		<0.000010	<0.000010	----	----	----
Thorium, total	7440-29-1	E420/VA	0.00010	mg/L		<0.00010	<0.00010	----	----	----
Tin, total	7440-31-5	E420/VA	0.00010	mg/L		<0.00010	<0.00010	----	----	----
Titanium, total	7440-32-6	E420/VA	0.00030	mg/L		0.00084	0.00124	----	----	----
Tungsten, total	7440-33-7	E420/VA	0.00010	mg/L		<0.00010	<0.00010	----	----	----
Uranium, total	7440-61-1	E420/VA	0.000010	mg/L		0.000023	0.000025	----	----	----
Vanadium, total	7440-62-2	E420/VA	0.00050	mg/L		<0.00050	<0.00050	----	----	----
Zinc, total	7440-66-6	E420/VA	0.0030	mg/L		0.0035	0.0041	----	----	----
Zirconium, total	7440-67-7	E420/VA	0.00020	mg/L		<0.00020	<0.00020	----	----	----

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	: **YL2400819**	Page	: 1 of 7
Amendment	: 1		
Client	: **Elgin Mining Inc.**	Laboratory	: ALS Environmental - Yellowknife
Contact	: Jon Melnyk	Account Manager	: Oliver Gregg
Address	: 750 West Pender Street Suite 201 Vancouver BC Canada V6C 2T7	Address	: 314 Old Airport Road, Unit 116 Yellowknife, Northwest Territories Canada X1A 3T3
Telephone	: ----	Telephone	: 1 867 445 7143
Project	: ----	Date Samples Received	: 05-Jul-2024 13:45
PO	: ----	Issue Date	: 18-Jul-2024 11:55
C-O-C number	: ----		
Sampler	: ----		
Site	: ----		
Quote number	: YL24-ELMI100-001		
No. of samples received	: 2		
No. of samples analysed	: 2		

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

Key

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

Workorder Comments

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

Summary of Outliers

Outliers : Quality Control Samples

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

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

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

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Analysis Holding Time Compliance

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

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

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

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

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Microbiological Tests : Fecal Coliforms in Water by MF										
Sterile HDPE (Sodium thiosulphate) LUP-14 Pre Decant	FC-MF	05-Jul-2024	----	----	----		05-Jul-2024	30 hrs	5 hrs	✓
Microbiological Tests : Fecal Coliforms in Water by MF										
Sterile HDPE (Sodium thiosulphate) LUP-14 Pre Decant D	FC-MF	05-Jul-2024	----	----	----		05-Jul-2024	30 hrs	6 hrs	✓
Physical Tests : Alkalinity Species by Titration										
HDPE LUP-14 Pre Decant	E290	05-Jul-2024	11-Jul-2024	14 days	7 days	✓	12-Jul-2024	14 days	7 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE LUP-14 Pre Decant D	E290	05-Jul-2024	11-Jul-2024	14 days	7 days	✓	12-Jul-2024	14 days	7 days	✓
Physical Tests : Conductivity in Water										
HDPE LUP-14 Pre Decant	E100	05-Jul-2024	11-Jul-2024	28 days	7 days	✓	12-Jul-2024	28 days	7 days	✓
Physical Tests : Conductivity in Water										
HDPE LUP-14 Pre Decant D	E100	05-Jul-2024	11-Jul-2024	28 days	7 days	✓	12-Jul-2024	28 days	7 days	✓
Physical Tests : pH by Meter										
HDPE LUP-14 Pre Decant	E108	05-Jul-2024	11-Jul-2024	0.25 hrs	157 hrs	× EHTR-FM	12-Jul-2024	0.25 hrs	171 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										
LUP-14 Pre Decant D	E108	05-Jul-2024	11-Jul-2024	0.25 hrs	157 hrs	× EHTR-FM	12-Jul-2024	0.25 hrs	171 hrs	× EHTR-FM
Physical Tests : TSS by Gravimetry										
HDPE										
LUP-14 Pre Decant	E160	05-Jul-2024	----	----	----		11-Jul-2024	7 days	6 days	✓
Physical Tests : TSS by Gravimetry										
HDPE										
LUP-14 Pre Decant D	E160	05-Jul-2024	----	----	----		11-Jul-2024	7 days	6 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid)										
LUP-14 Pre Decant	E508	05-Jul-2024	12-Jul-2024	28 days	7 days	✓	12-Jul-2024	28 days	7 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid)										
LUP-14 Pre Decant D	E508	05-Jul-2024	12-Jul-2024	28 days	7 days	✓	12-Jul-2024	28 days	7 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved)										
LUP-14 Pre Decant	E420	05-Jul-2024	11-Jul-2024	180 days	6 days	✓	12-Jul-2024	180 days	7 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved)										
LUP-14 Pre Decant D	E420	05-Jul-2024	11-Jul-2024	180 days	6 days	✓	12-Jul-2024	180 days	7 days	✓

Legend & Qualifier Definitions

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

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

Quality Control Parameter Frequency Compliance

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

Matrix: **Water**

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

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
Alkalinity Species by Titration	E290	1540720	1	18	5.5	5.0	✓
Conductivity in Water	E100	1540721	1	17	5.8	5.0	✓
pH by Meter	E108	1540719	1	19	5.2	5.0	✓
Total Mercury in Water by CVAAS	E508	1540891	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1538108	1	16	6.2	5.0	✓
TSS by Gravimetry	E160	1540178	1	20	5.0	5.0	✓
Laboratory Control Samples (LCS)							
Alkalinity Species by Titration	E290	1540720	1	18	5.5	5.0	✓
Conductivity in Water	E100	1540721	1	17	5.8	5.0	✓
pH by Meter	E108	1540719	1	19	5.2	5.0	✓
Total Mercury in Water by CVAAS	E508	1540891	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1538108	1	16	6.2	5.0	✓
TSS by Gravimetry	E160	1540178	1	20	5.0	5.0	✓
Method Blanks (MB)							
Alkalinity Species by Titration	E290	1540720	1	18	5.5	5.0	✓
Conductivity in Water	E100	1540721	1	17	5.8	5.0	✓
Total Mercury in Water by CVAAS	E508	1540891	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1538108	1	16	6.2	5.0	✓
TSS by Gravimetry	E160	1540178	1	20	5.0	5.0	✓
Matrix Spikes (MS)							
Total Mercury in Water by CVAAS	E508	1540891	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1538108	1	16	6.2	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.
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.
Total Metals in Water by CRC ICPMS	E420 ALS Environmental - Vancouver	Water	EPA 200.2/6020B (mod)	Water samples are digested with nitric and hydrochloric acids, and analyzed by Collision/Reaction Cell ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
Total Mercury in Water by CVAAS	E508 ALS Environmental - Vancouver	Water	EPA 1631E (mod)	Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS
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.
Fecal Coliforms in Water by MF	FC-MF Taiga Environmental Laboratory - 4601 - 52nd Avenue P.O. BOX 1500 Yellowknife Northwest Territories Canada X1A 2R3	Water	APHA 9222D	See attached report.

QUALITY CONTROL REPORT

Work Order	: **YL2400819**	Page	: 1 of 10
Amendment	: **1**		
Client	: Elgin Mining Inc.	Laboratory	: ALS Environmental - Yellowknife
Contact	: Jon Melnyk	Account Manager	: Oliver Gregg
Address	: 750 West Pender Street Suite 201 Vancouver BC Canada V6C 2T7	Address	: 314 Old Airport Road, Unit 116 Yellowknife, Northwest Territories Canada X1A 3T3
Telephone	: ----	Telephone	: 1 867 445 7143
Project	: ----	Date Samples Received	: 05-Jul-2024 13:45
PO	: ----	Date Analysis Commenced	: 05-Jul-2024
C-O-C number	: ----	Issue Date	: 18-Jul-2024 11:54
Sampler	: ----		
Site	: ----		
Quote number	: YL24-ELMI100-001		
No. of samples received	: 2		
No. of samples analysed	: 2		

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

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percent Difference (RPD) and Data Quality Objectives
- 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*
Kate Dimitrova	Supervisor - Inorganic	Vancouver Inorganics, Burnaby, British Columbia
Kim Jensen	Department Manager - Metals	Vancouver Metals, Burnaby, British Columbia
Oliver Gregg	Client Services Supervisor	Taiga Environmental Laboratory External Subcontracting, Yellowknife, Northwest Territories
Owen Cheng		Vancouver Metals, Burnaby, British Columbia

General Comments

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

Key :

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

Workorder Comments

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

Laboratory Duplicate (DUP) Report

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

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Physical Tests (QC Lot: 1540178)											
FJ2401954-002	Anonymous	Solids, total suspended [TSS]	----	E160	3.0	mg/L	<3.0	<3.0	0	Diff <2x LOR	----
Physical Tests (QC Lot: 1540719)											
YL2400842-001	Anonymous	pH	----	E108	0.10	pH units	7.96	8.01	0.626%	4%	----
Physical Tests (QC Lot: 1540720)											
YL2400842-001	Anonymous	Alkalinity, bicarbonate (as CaCO3)	----	E290	1.0	mg/L	80.3	79.1	1.50%	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	2.0	mg/L	80.3	79.1	1.50%	20%	----
Physical Tests (QC Lot: 1540721)											
YL2400842-001	Anonymous	Conductivity	----	E100	2.0	µS/cm	264	262	0.760%	10%	----
Total Metals (QC Lot: 1538108)											
VA24B6484-001	Anonymous	Aluminum, total	7429-90-5	E420	0.0030	mg/L	195 µg/L	0.203	4.18%	20%	----
		Antimony, total	7440-36-0	E420	0.00010	mg/L	0.56 µg/L	0.00056	0.000007	Diff <2x LOR	----
		Arsenic, total	7440-38-2	E420	0.00010	mg/L	1.25 µg/L	0.00122	2.22%	20%	----
		Barium, total	7440-39-3	E420	0.00010	mg/L	76.1 µg/L	0.0741	2.68%	20%	----
		Beryllium, total	7440-41-7	E420	0.000100	mg/L	<0.100 µg/L	<0.000100	0	Diff <2x LOR	----
		Bismuth, total	7440-69-9	E420	0.000050	mg/L	<0.050 µg/L	<0.000050	0	Diff <2x LOR	----
		Boron, total	7440-42-8	E420	0.010	mg/L	127 µg/L	0.128	0.952%	20%	----
		Cadmium, total	7440-43-9	E420	0.0000250	mg/L	<0.0250 µg/L	<0.0000250	0	Diff <2x LOR	----
		Calcium, total	7440-70-2	E420	0.050	mg/L	89500 µg/L	89.6	0.0252%	20%	----
		Cesium, total	7440-46-2	E420	0.000010	mg/L	0.040 µg/L	0.000043	0.000003	Diff <2x LOR	----
		Chromium, total	7440-47-3	E420	0.00050	mg/L	0.66 µg/L	0.00075	0.00009	Diff <2x LOR	----
		Cobalt, total	7440-48-4	E420	0.00010	mg/L	0.28 µg/L	0.00034	0.00005	Diff <2x LOR	----
		Copper, total	7440-50-8	E420	0.00050	mg/L	3.36 µg/L	0.00335	0.000004	Diff <2x LOR	----
		Iron, total	7439-89-6	E420	0.010	mg/L	558 µg/L	0.641	13.9%	20%	----
		Lead, total	7439-92-1	E420	0.000050	mg/L	0.402 µg/L	0.000421	0.000019	Diff <2x LOR	----
		Lithium, total	7439-93-2	E420	0.0010	mg/L	1.3 µg/L	0.0014	0.00004	Diff <2x LOR	----
		Magnesium, total	7439-95-4	E420	0.0050	mg/L	26800 µg/L	26.5	1.08%	20%	----
		Manganese, total	7439-96-5	E420	0.00010	mg/L	342 µg/L	0.342	0.162%	20%	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Total Metals (QC Lot: 1538108) - continued											
VA24B6484-001	Anonymous	Molybdenum, total	7439-98-7	E420	0.000050	mg/L	8.29 µg/L	0.00821	0.944%	20%	----
		Nickel, total	7440-02-0	E420	0.00050	mg/L	0.65 µg/L	0.00072	0.00007	Diff <2x LOR	----
		Phosphorus, total	7723-14-0	E420	0.050	mg/L	56 µg/L	0.061	0.006	Diff <2x LOR	----
		Potassium, total	7440-09-7	E420	0.050	mg/L	5810 µg/L	5.68	2.31%	20%	----
		Rubidium, total	7440-17-7	E420	0.00020	mg/L	4.75 µg/L	0.00472	0.559%	20%	----
		Selenium, total	7782-49-2	E420	0.000050	mg/L	0.137 µg/L	0.000139	0.000002	Diff <2x LOR	----
		Silicon, total	7440-21-3	E420	0.10	mg/L	10300 µg/L	10.7	3.42%	20%	----
		Silver, total	7440-22-4	E420	0.000010	mg/L	<0.010 µg/L	<0.000010	0	Diff <2x LOR	----
		Sodium, total	7440-23-5	E420	0.050	mg/L	120000 µg/L	119	0.874%	20%	----
		Strontium, total	7440-24-6	E420	0.00020	mg/L	475 µg/L	0.476	0.0969%	20%	----
		Sulfur, total	7704-34-9	E420	0.50	mg/L	13400 µg/L	13.8	3.34%	20%	----
		Tellurium, total	13494-80-9	E420	0.00020	mg/L	<0.20 µg/L	<0.00020	0	Diff <2x LOR	----
		Thallium, total	7440-28-0	E420	0.000010	mg/L	<0.010 µg/L	<0.000010	0	Diff <2x LOR	----
		Thorium, total	7440-29-1	E420	0.00010	mg/L	<0.10 µg/L	<0.00010	0	Diff <2x LOR	----
		Tin, total	7440-31-5	E420	0.00010	mg/L	0.22 µg/L	0.00025	0.00004	Diff <2x LOR	----
		Titanium, total	7440-32-6	E420	0.0102	mg/L	<10.2 µg/L	<0.0102	0	Diff <2x LOR	----
		Tungsten, total	7440-33-7	E420	0.00010	mg/L	<0.10 µg/L	0.00010	0.000005	Diff <2x LOR	----
		Uranium, total	7440-61-1	E420	0.000010	mg/L	0.865 µg/L	0.000876	1.24%	20%	----
		Vanadium, total	7440-62-2	E420	0.00050	mg/L	2.13 µg/L	0.00222	0.00009	Diff <2x LOR	----
		Zinc, total	7440-66-6	E420	0.0030	mg/L	9.1 µg/L	0.0097	0.0006	Diff <2x LOR	----
		Zirconium, total	7440-67-7	E420	0.00020	mg/L	<0.20 µg/L	0.00023	0.00003	Diff <2x LOR	----
Total Metals (QC Lot: 1540891)											
VA24B6651-006	Anonymous	Mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----

Method Blank (MB) Report

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

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 1540178)						
Solids, total suspended [TSS]	----	E160	3	mg/L	<3.0	----
Physical Tests (QCLot: 1540720)						
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: 1540721)						
Conductivity	----	E100	1	µS/cm	<1.0	----
Total Metals (QCLot: 1538108)						
Aluminum, total	7429-90-5	E420	0.003	mg/L	<0.0030	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	<0.00010	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	<0.00010	----
Barium, total	7440-39-3	E420	0.0001	mg/L	<0.00010	----
Beryllium, total	7440-41-7	E420	0.00002	mg/L	<0.000020	----
Bismuth, total	7440-69-9	E420	0.00005	mg/L	<0.000050	----
Boron, total	7440-42-8	E420	0.01	mg/L	<0.010	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	<0.0000050	----
Calcium, total	7440-70-2	E420	0.05	mg/L	<0.050	----
Cesium, total	7440-46-2	E420	0.00001	mg/L	<0.000010	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	<0.00050	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	<0.00010	----
Copper, total	7440-50-8	E420	0.0005	mg/L	<0.00050	----
Iron, total	7439-89-6	E420	0.01	mg/L	<0.010	----
Lead, total	7439-92-1	E420	0.00005	mg/L	<0.000050	----
Lithium, total	7439-93-2	E420	0.001	mg/L	<0.0010	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	<0.0050	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	<0.00010	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	<0.000050	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	<0.00050	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	<0.050	----
Potassium, total	7440-09-7	E420	0.05	mg/L	<0.050	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (QCLot: 1538108) - continued						
Rubidium, total	7440-17-7	E420	0.0002	mg/L	<0.00020	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	<0.000050	----
Silicon, total	7440-21-3	E420	0.1	mg/L	<0.10	----
Silver, total	7440-22-4	E420	0.00001	mg/L	<0.000010	----
Sodium, total	7440-23-5	E420	0.05	mg/L	<0.050	----
Strontium, total	7440-24-6	E420	0.0002	mg/L	<0.00020	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	<0.50	----
Tellurium, total	13494-80-9	E420	0.0002	mg/L	<0.00020	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	<0.000010	----
Thorium, total	7440-29-1	E420	0.0001	mg/L	<0.00010	----
Tin, total	7440-31-5	E420	0.0001	mg/L	<0.00010	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	<0.00030	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	<0.00010	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	<0.000010	----
Vanadium, total	7440-62-2	E420	0.0005	mg/L	<0.00050	----
Zinc, total	7440-66-6	E420	0.003	mg/L	<0.0030	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	<0.00020	----
Total Metals (QCLot: 1540891)						
Mercury, total	7439-97-6	E508	0.000005	mg/L	<0.0000050	----

Laboratory Control Sample (LCS) Report

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

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 1540178)									
Solids, total suspended [TSS]	----	E160	3	mg/L	150 mg/L	94.8	85.0	115	----
Physical Tests (QCLot: 1540719)									
pH	----	E108	----	pH units	7 pH units	100	98.0	102	----
Physical Tests (QCLot: 1540720)									
Alkalinity, phenolphthalein (as CaCO3)	----	E290	1	mg/L	229 mg/L	110	75.0	125	----
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	500 mg/L	109	85.0	115	----
Physical Tests (QCLot: 1540721)									
Conductivity	----	E100	1	µS/cm	147 µS/cm	101	90.0	110	----
Total Metals (QCLot: 1538108)									
Aluminum, total	7429-90-5	E420	0.003	mg/L	2 mg/L	95.0	80.0	120	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	1 mg/L	96.6	80.0	120	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	1 mg/L	103	80.0	120	----
Barium, total	7440-39-3	E420	0.0001	mg/L	0.25 mg/L	94.2	80.0	120	----
Beryllium, total	7440-41-7	E420	0.00002	mg/L	0.1 mg/L	88.6	80.0	120	----
Bismuth, total	7440-69-9	E420	0.00005	mg/L	1 mg/L	95.3	80.0	120	----
Boron, total	7440-42-8	E420	0.01	mg/L	1 mg/L	94.5	80.0	120	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	0.1 mg/L	95.2	80.0	120	----
Calcium, total	7440-70-2	E420	0.05	mg/L	50 mg/L	96.4	80.0	120	----
Cesium, total	7440-46-2	E420	0.00001	mg/L	0.05 mg/L	93.0	80.0	120	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	0.25 mg/L	93.0	80.0	120	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	0.25 mg/L	95.7	80.0	120	----
Copper, total	7440-50-8	E420	0.0005	mg/L	0.25 mg/L	94.3	80.0	120	----
Iron, total	7439-89-6	E420	0.01	mg/L	1 mg/L	99.8	80.0	120	----
Lead, total	7439-92-1	E420	0.00005	mg/L	0.5 mg/L	93.8	80.0	120	----
Lithium, total	7439-93-2	E420	0.001	mg/L	0.25 mg/L	85.8	80.0	120	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	50 mg/L	94.8	80.0	120	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	0.25 mg/L	97.7	80.0	120	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	0.25 mg/L	94.3	80.0	120	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	0.5 mg/L	95.5	80.0	120	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	10 mg/L	110	80.0	120	----
Potassium, total	7440-09-7	E420	0.05	mg/L	50 mg/L	100	80.0	120	----
Rubidium, total	7440-17-7	E420	0.0002	mg/L	0.1 mg/L	101	80.0	120	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Total Metals (QCLot: 1538108) - continued									
Selenium, total	7782-49-2	E420	0.00005	mg/L	1 mg/L	98.4	80.0	120	----
Silicon, total	7440-21-3	E420	0.1	mg/L	10 mg/L	100	80.0	120	----
Silver, total	7440-22-4	E420	0.00001	mg/L	0.1 mg/L	87.9	80.0	120	----
Sodium, total	7440-23-5	E420	0.05	mg/L	50 mg/L	101	80.0	120	----
Strontium, total	7440-24-6	E420	0.0002	mg/L	0.25 mg/L	94.1	80.0	120	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	50 mg/L	87.0	80.0	120	----
Tellurium, total	13494-80-9	E420	0.0002	mg/L	0.1 mg/L	96.5	80.0	120	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	1 mg/L	95.1	80.0	120	----
Thorium, total	7440-29-1	E420	0.0001	mg/L	0.1 mg/L	93.5	80.0	120	----
Tin, total	7440-31-5	E420	0.0001	mg/L	0.5 mg/L	92.2	80.0	120	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	0.25 mg/L	91.8	80.0	120	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	0.1 mg/L	89.8	80.0	120	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	0.005 mg/L	93.4	80.0	120	----
Vanadium, total	7440-62-2	E420	0.0005	mg/L	0.5 mg/L	97.0	80.0	120	----
Zinc, total	7440-66-6	E420	0.003	mg/L	0.5 mg/L	95.8	80.0	120	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	0.1 mg/L	92.1	80.0	120	----
Total Metals (QCLot: 1540891)									
Mercury, total	7439-97-6	E508	0.000005	mg/L	0 mg/L	97.1	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
Total Metals (QCLot: 1538108)										
VA24B6484-002	Anonymous	Aluminum, total	7429-90-5	E420	ND mg/L	----	ND	70.0	130	----
		Antimony, total	7440-36-0	E420	0.0183 mg/L	0.02 mg/L	91.4	70.0	130	----
		Arsenic, total	7440-38-2	E420	0.0204 mg/L	0.02 mg/L	102	70.0	130	----
		Barium, total	7440-39-3	E420	ND mg/L	----	ND	70.0	130	----
		Beryllium, total	7440-41-7	E420	0.0370 mg/L	0.04 mg/L	92.6	70.0	130	----
		Bismuth, total	7440-69-9	E420	0.00932 mg/L	0.01 mg/L	93.2	70.0	130	----
		Boron, total	7440-42-8	E420	0.103 mg/L	0.1 mg/L	103	70.0	130	----
		Cadmium, total	7440-43-9	E420	0.00385 mg/L	0.004 mg/L	96.2	70.0	130	----
		Calcium, total	7440-70-2	E420	ND mg/L	----	ND	70.0	130	----
		Cesium, total	7440-46-2	E420	0.00943 mg/L	0.01 mg/L	94.3	70.0	130	----
		Chromium, total	7440-47-3	E420	0.0376 mg/L	0.04 mg/L	94.1	70.0	130	----
		Cobalt, total	7440-48-4	E420	0.0193 mg/L	0.02 mg/L	96.4	70.0	130	----
		Copper, total	7440-50-8	E420	0.0183 mg/L	0.02 mg/L	91.6	70.0	130	----
		Iron, total	7439-89-6	E420	1.88 mg/L	2 mg/L	94.1	70.0	130	----
		Lead, total	7439-92-1	E420	0.0185 mg/L	0.02 mg/L	92.4	70.0	130	----
		Lithium, total	7439-93-2	E420	0.0907 mg/L	0.1 mg/L	90.7	70.0	130	----
		Magnesium, total	7439-95-4	E420	0.960 mg/L	1 mg/L	96.0	70.0	130	----
		Manganese, total	7439-96-5	E420	0.0195 mg/L	0.02 mg/L	97.5	70.0	130	----
		Molybdenum, total	7439-98-7	E420	ND mg/L	----	ND	70.0	130	----
		Nickel, total	7440-02-0	E420	0.0384 mg/L	0.04 mg/L	96.1	70.0	130	----
		Phosphorus, total	7723-14-0	E420	10.2 mg/L	10 mg/L	102	70.0	130	----
		Potassium, total	7440-09-7	E420	ND mg/L	----	ND	70.0	130	----
		Rubidium, total	7440-17-7	E420	0.0204 mg/L	0.02 mg/L	102	70.0	130	----
		Selenium, total	7782-49-2	E420	0.0383 mg/L	0.04 mg/L	95.8	70.0	130	----
		Silicon, total	7440-21-3	E420	9.42 mg/L	10 mg/L	94.2	70.0	130	----
		Silver, total	7440-22-4	E420	0.00371 mg/L	0.004 mg/L	92.7	70.0	130	----
		Sodium, total	7440-23-5	E420	ND mg/L	----	ND	70.0	130	----
		Strontium, total	7440-24-6	E420	ND mg/L	----	ND	70.0	130	----
		Sulfur, total	7704-34-9	E420	19.6 mg/L	20 mg/L	97.8	70.0	130	----
		Tellurium, total	13494-80-9	E420	0.0385 mg/L	0.04 mg/L	96.2	70.0	130	----
		Thallium, total	7440-28-0	E420	0.00354 mg/L	0.004 mg/L	88.4	70.0	130	----
		Thorium, total	7440-29-1	E420	0.0200 mg/L	0.02 mg/L	99.8	70.0	130	----
		Tin, total	7440-31-5	E420	0.0185 mg/L	0.02 mg/L	92.4	70.0	130	----
		Titanium, total	7440-32-6	E420	0.0382 mg/L	0.04 mg/L	95.5	70.0	130	----
		Tungsten, total	7440-33-7	E420	0.0178 mg/L	0.02 mg/L	89.2	70.0	130	----
		Uranium, total	7440-61-1	E420	0.00383 mg/L	0.004 mg/L	95.8	70.0	130	----
		Vanadium, total	7440-62-2	E420	0.0978 mg/L	0.1 mg/L	97.8	70.0	130	----
		Zinc, total	7440-66-6	E420	0.384 mg/L	0.4 mg/L	95.9	70.0	130	----
		Zirconium, total	7440-67-7	E420	0.0369 mg/L	0.04 mg/L	92.3	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Total Metals (QCLot: 1540891)										
VA24B6652-001	Anonymous	Mercury, total	7439-97-6	E508	0.0000974 mg/L	0 mg/L	97.4	70.0	130	----

CERTIFICATE OF ANALYSIS

Work Order	: **YL2400821**	Page	: 1 of 3
Client	: **Elgin Mining Inc.**	Laboratory	: ALS Environmental - Yellowknife
Contact	: Jon Melnyk	Account Manager	: Oliver Gregg
Address	: 750 West Pender Street Suite 201 Vancouver BC Canada V6C 2T7	Address	: 314 Old Airport Road, Unit 116 Yellowknife NT Canada X1A 3T3
Telephone	: ----	Telephone	: 1 867 445 7143
Project	: ----	Date Samples Received	: 05-Jul-2024 13:45
PO	: ----	Date Analysis Commenced	: 05-Jul-2024
C-O-C number	: ----	Issue Date	: 17-Jul-2024 15:46
Sampler	: ----		
Site	: ----		
Quote number	: YL24-ELMI100-001		
No. of samples received	: 2		
No. of samples analysed	: 2		

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

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

Signatories

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

Signatories	*Position*	*Laboratory Department*
Janice Leung	Supervisor - Organics Instrumentation	Organics, Burnaby, British Columbia
Kate Dimitrova	Supervisor - Inorganic	Inorganics, Burnaby, British Columbia
Kim Jensen	Department Manager - Metals	Metals, Burnaby, British Columbia
Oliver Gregg	Client Services Supervisor	External Subcontracting, Yellowknife, Northwest Territories

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
CFU/100mL	colony forming units per hundred millilitres
mg/L	milligrams 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.

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	Pond 2-A	Pond 2-B	----	----	----
					Client sampling date / time	05-Jul-2024 00:00	05-Jul-2024 00:00	----	----	----
						YL2400821-001	YL2400821-002	--------	--------	--------
						Result	Result	----	----	----
Physical Tests										
pH	----	E108/VA	0.10	pH units		5.33	5.72	----	----	----
Solids, total suspended [TSS]	----	E160/VA	3.0	mg/L		19.1	<3.0	----	----	----
Microbiological Tests										
Coliforms, thermotolerant [fecal]	----	FC-MF/1Y	1.0	CFU/100mL		<1.0	<1.0	----	----	----
Total Metals										
Arsenic, total	7440-38-2	E420/VA	0.00010	mg/L		0.0120	0.00724	----	----	----
Copper, total	7440-50-8	E420/VA	0.00050	mg/L		0.00624	0.00414	----	----	----
Lead, total	7439-92-1	E420/VA	0.000050	mg/L		0.000248	0.000139	----	----	----
Nickel, total	7440-02-0	E420/VA	0.00050	mg/L		0.0600	0.0555	----	----	----
Zinc, total	7440-66-6	E420/VA	0.0030	mg/L		0.154	0.153	----	----	----
Aggregate Organics										
Biochemical oxygen demand [BOD]	----	BOD5/1Y	2.0	mg/L		<2.0	<2.0	----	----	----
Oil & grease (visible sheen)	----	E566/VA	-	-		Absent	Absent	----	----	----

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	: **YL2400821**	Page	: 1 of 6
Client	: **Elgin Mining Inc.**	Laboratory	: ALS Environmental - Yellowknife
Contact	: Jon Melnyk	Account Manager	: Oliver Gregg
Address	: 750 West Pender Street Suite 201 Vancouver BC Canada V6C 2T7	Address	: 314 Old Airport Road, Unit 116 Yellowknife, Northwest Territories Canada X1A 3T3
Telephone	: ----	Telephone	: 1 867 445 7143
Project	: ----	Date Samples Received	: 05-Jul-2024 13:45
PO	: ----	Issue Date	: 17-Jul-2024 15:45
C-O-C number	: ----		
Sampler	: ----		
Site	: ----		
Quote number	: YL24-ELMI100-001		
No. of samples received	: 2		
No. of samples analysed	: 2		

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

Key

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

Workorder Comments

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

Summary of Outliers

Outliers : Quality Control Samples

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

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

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

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Analysis Holding Time Compliance

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

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

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

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

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	*Method*	*Sampling Date*	*Extraction / Preparation*				*Analysis*			
			Preparation Date	*Holding Times* Rec	*Holding Times* Actual	*Eval*	*Analysis Date*	*Holding Times* Rec	*Holding Times* Actual	*Eval*
Aggregate Organics : Biochemical Oxygen Demand (BOD) 5-day										
HDPE [BOD HT-48h] Pond 2-A	BOD5	05-Jul-2024	----	----	----		05-Jul-2024	48 hrs	16 hrs	✓
Aggregate Organics : Biochemical Oxygen Demand (BOD) 5-day										
HDPE [BOD HT-48h] Pond 2-B	BOD5	05-Jul-2024	----	----	----		05-Jul-2024	48 hrs	16 hrs	✓
Aggregate Organics : Oil & Grease by Visible Sheen										
Amber glass (hydrochloric acid) Pond 2-A	E566	05-Jul-2024	----	----	----		12-Jul-2024	28 days	8 days	✓
Aggregate Organics : Oil & Grease by Visible Sheen										
Amber glass (hydrochloric acid) Pond 2-B	E566	05-Jul-2024	----	----	----		12-Jul-2024	28 days	8 days	✓
Microbiological Tests : Fecal Coliforms in Water by MF										
Sterile HDPE (Sodium thiosulphate) Pond 2-A	FC-MF	05-Jul-2024	----	----	----		05-Jul-2024	30 hrs	16 hrs	✓
Microbiological Tests : Fecal Coliforms in Water by MF										
Sterile HDPE (Sodium thiosulphate) Pond 2-B	FC-MF	05-Jul-2024	----	----	----		05-Jul-2024	30 hrs	16 hrs	✓
Physical Tests : pH by Meter										
HDPE Pond 2-A	E108	05-Jul-2024	11-Jul-2024	0.25 hrs	167 hrs	× EHTR-FM	12-Jul-2024	0.25 hrs	181 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										
Pond 2-B	E108	05-Jul-2024	11-Jul-2024	0.25 hrs	167 hrs	✗ EHTR-FM	12-Jul-2024	0.25 hrs	181 hrs	✗ EHTR-FM
Physical Tests : TSS by Gravimetry										
HDPE										
Pond 2-A	E160	05-Jul-2024	----	----	----		11-Jul-2024	7 days	7 days	✓
Physical Tests : TSS by Gravimetry										
HDPE										
Pond 2-B	E160	05-Jul-2024	----	----	----		11-Jul-2024	7 days	7 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved)										
Pond 2-A	E420	05-Jul-2024	11-Jul-2024	180 days	7 days	✓	12-Jul-2024	180 days	7 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved)										
Pond 2-B	E420	05-Jul-2024	11-Jul-2024	180 days	7 days	✓	12-Jul-2024	180 days	7 days	✓

Legend & Qualifier Definitions

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

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

Quality Control Parameter Frequency Compliance

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

Matrix: **Water**

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

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
pH by Meter	E108	1540719	1	19	5.2	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1538108	1	16	6.2	5.0	✓
TSS by Gravimetry	E160	1540178	1	20	5.0	5.0	✓
Laboratory Control Samples (LCS)							
pH by Meter	E108	1540719	1	19	5.2	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1538108	1	16	6.2	5.0	✓
TSS by Gravimetry	E160	1540178	1	20	5.0	5.0	✓
Method Blanks (MB)							
Total Metals in Water by CRC ICPMS	E420	1538108	1	16	6.2	5.0	✓
TSS by Gravimetry	E160	1540178	1	20	5.0	5.0	✓
Matrix Spikes (MS)							
Total Metals in Water by CRC ICPMS	E420	1538108	1	16	6.2	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
Biochemical Oxygen Demand (BOD) 5-day	BOD5 Taiga Environmental Laboratory - 4601 - 52nd Avenue P.O. BOX 1500 Yellowknife Northwest Territories Canada X1A 2R3	Water	SM5210B	Sample was diluted, seeded, and incubated at specified temperature for 5 days. Dissolved oxygen is measured initially and after incubation, and the BOD is computed from the difference between initial and final DO.
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.
Total Metals in Water by CRC ICPMS	E420 ALS Environmental - Vancouver	Water	EPA 200.2/6020B (mod)	Water samples are digested with nitric and hydrochloric acids, and analyzed by Collision/Reaction Cell ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
Oil & Grease by Visible Sheen	E566 ALS Environmental - Vancouver	Water	Alberta Energy Regulator, Drilling waste Management, Directive 050, July 2016	Use a qualitivative visual observation of rainbow sheen to determine the presence or absence of oil and grease on water.
Fecal Coliforms in Water by MF	FC-MF Taiga Environmental Laboratory - 4601 - 52nd Avenue P.O. BOX 1500 Yellowknife Northwest Territories Canada X1A 2R3	Water	APHA 9222D	See attached report.

QUALITY CONTROL REPORT

Work Order	: **YL2400821**	Page	: 1 of 4
Client	: Elgin Mining Inc.	Laboratory	: ALS Environmental - Yellowknife
Contact	: Jon Melnyk	Account Manager	: Oliver Gregg
Address	: 750 West Pender Street Suite 201 Vancouver BC Canada V6C 2T7	Address	: 314 Old Airport Road, Unit 116 Yellowknife, Northwest Territories Canada X1A 3T3
Telephone	: ----	Telephone	: 1 867 445 7143
Project	: ----	Date Samples Received	: 05-Jul-2024 13:45
PO	: ----	Date Analysis Commenced	: 05-Jul-2024
C-O-C number	: ----	Issue Date	: 17-Jul-2024 15:54
Sampler	: ----		
Site	: ----		
Quote number	: YL24-ELMI100-001		
No. of samples received	: 2		
No. of samples analysed	: 2		

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

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percent Difference (RPD) and Data Quality Objectives
- 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*
Janice Leung	Supervisor - Organics Instrumentation	Vancouver Organics, Burnaby, British Columbia
Kate Dimitrova	Supervisor - Inorganic	Vancouver Inorganics, Burnaby, British Columbia
Kim Jensen	Department Manager - Metals	Vancouver Metals, Burnaby, British Columbia
Oliver Gregg	Client Services Supervisor	Taiga Environmental Laboratory External Subcontracting, Yellowknife, Northwest Territories

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: 1540178)											
FJ2401954-002	Anonymous	Solids, total suspended [TSS]	----	E160	3.0	mg/L	<3.0	<3.0	0	Diff <2x LOR	----
Physical Tests (QC Lot: 1540719)											
YL2400842-001	Anonymous	pH	----	E108	0.10	pH units	7.96	8.01	0.626%	4%	----
Total Metals (QC Lot: 1538108)											
VA24B6484-001	Anonymous	Arsenic, total	7440-38-2	E420	0.00010	mg/L	1.25 µg/L	0.00122	2.22%	20%	----
		Copper, total	7440-50-8	E420	0.00050	mg/L	3.36 µg/L	0.00335	0.000004	Diff <2x LOR	----
		Lead, total	7439-92-1	E420	0.000050	mg/L	0.402 µg/L	0.000421	0.000019	Diff <2x LOR	----
		Nickel, total	7440-02-0	E420	0.00050	mg/L	0.65 µg/L	0.00072	0.00007	Diff <2x LOR	----
		Zinc, total	7440-66-6	E420	0.0030	mg/L	9.1 µg/L	0.0097	0.0006	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: 1540178)						
Solids, total suspended [TSS]	----	E160	3	mg/L	<3.0	----
Total Metals (QCLot: 1538108)						
Arsenic, total	7440-38-2	E420	0.0001	mg/L	<0.00010	----
Copper, total	7440-50-8	E420	0.0005	mg/L	<0.00050	----
Lead, total	7439-92-1	E420	0.00005	mg/L	<0.000050	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	<0.00050	----
Zinc, total	7440-66-6	E420	0.003	mg/L	<0.0030	----

Laboratory Control Sample (LCS) Report

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

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 1540178)									
Solids, total suspended [TSS]	----	E160	3	mg/L	150 mg/L	94.8	85.0	115	----
Physical Tests (QCLot: 1540719)									
pH	----	E108	----	pH units	7 pH units	100	98.0	102	----
Total Metals (QCLot: 1538108)									
Arsenic, total	7440-38-2	E420	0.0001	mg/L	1 mg/L	103	80.0	120	----
Copper, total	7440-50-8	E420	0.0005	mg/L	0.25 mg/L	94.3	80.0	120	----
Lead, total	7439-92-1	E420	0.00005	mg/L	0.5 mg/L	93.8	80.0	120	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	0.5 mg/L	95.5	80.0	120	----
Zinc, total	7440-66-6	E420	0.003	mg/L	0.5 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
Total Metals (QCLot: 1538108)										
VA24B6484-002	Anonymous	Arsenic, total	7440-38-2	E420	0.0204 mg/L	0.02 mg/L	102	70.0	130	----
		Copper, total	7440-50-8	E420	0.0183 mg/L	0.02 mg/L	91.6	70.0	130	----
		Lead, total	7439-92-1	E420	0.0185 mg/L	0.02 mg/L	92.4	70.0	130	----
		Nickel, total	7440-02-0	E420	0.0384 mg/L	0.04 mg/L	96.1	70.0	130	----
		Zinc, total	7440-66-6	E420	0.384 mg/L	0.4 mg/L	95.9	70.0	130	----

CERTIFICATE OF ANALYSIS

Work Order	: **YL2400835**	Page	: 1 of 10
Client	: **Elgin Mining Inc.**	Laboratory	: ALS Environmental - Yellowknife
Contact	: Karyn Lewis	Account Manager	: Oliver Gregg
Address	: 750 West Pender Street Suite 201 Vancouver BC Canada V6C 2T7	Address	: 314 Old Airport Road, Unit 116 Yellowknife NT Canada X1A 3T3
Telephone	: 604 682 3366	Telephone	: 1 867 445 7143
Project	: ----	Date Samples Received	: 05-Jul-2024 16:00
PO	: ----	Date Analysis Commenced	: 11-Jul-2024
C-O-C number	: ----	Issue Date	: 17-Jul-2024 13:20
Sampler	: ----		
Site	: ----		
Quote number	: YL23-ELMI100-001		
No. of samples received	: 9		
No. of samples analysed	: 9		

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

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

Signatories

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

Signatories	*Position*	*Laboratory Department*
Angela Ren	Team Leader - Metals	Metals, Burnaby, British Columbia
Chau Tran	Analyst	Metals, Burnaby, British Columbia
Daniel Shabestani	Lab Assistant	Metals, Burnaby, British Columbia
Kate Dimitrova	Supervisor - Inorganic	Inorganics, Burnaby, British Columbia
Owen Cheng		Metals, Burnaby, British Columbia
Robin Weeks	Team Leader - Metals	Inorganics, Burnaby, British Columbia
Robin Weeks	Team Leader - Metals	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
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*
DLA	*Detection Limit adjusted for required dilution.*
DLDS	*Detection Limit Raised: Dilution required due to high Dissolved Solids / Electrical Conductivity.*
DLM	*Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).*

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	Pond 1-A	Pond 1-B	Pond 2-A	Pond 2-B	Pond 2-C
					Client sampling date / time	05-Jul-2024 11:30	05-Jul-2024 12:30	05-Jul-2024 12:45	05-Jul-2024 12:15	05-Jul-2024 12:30
						YL2400835-001	YL2400835-002	YL2400835-003	YL2400835-004	YL2400835-005
						Result	Result	Result	Result	Result
Physical Tests										
Acidity (as CaCO3)	----	E283/VA	2.0	mg/L		14.3	17.4	3.0	2.5	4.2
Alkalinity, total (as CaCO3)	----	E290/VA	1.0	mg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Conductivity	----	E100/VA	1.0	µS/cm		345	359	423	426	437
Hardness (as CaCO3), dissolved	----	EC100/VA	0.60	mg/L		105	102	130	130	134
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/VA	0.60	mg/L		102	104	128	132	135
pH	----	E108/VA	0.10	pH units		4.21	4.11	5.36	5.60	5.02
Solids, total dissolved [TDS]	----	E162/VA	10	mg/L		236	237	296	298	306
Solids, total suspended [TSS]	----	E160-L/VA	1.0	mg/L		3.2	1.6	4.5	3.8	1.8
Anions and Nutrients										
Bromide	24959-67-9	E235.Br-U/VA	0.0050	mg/L		0.0875	0.0916	0.176	0.175	0.178
Chloride	16887-00-6	E235.Cl-L/VA	0.10	mg/L		7.03	7.06	14.4	14.6	14.4
Fluoride	16984-48-8	E235.F-L/VA	0.010	mg/L		0.126	0.130	0.108	0.102	0.116
Nitrate (as N)	14797-55-8	E235.NO3-T/VA	0.0030	mg/L		0.311	0.311	0.406	0.400	0.418
Nitrite (as N)	14797-65-0	E235.NO2-L/VA	0.0010	mg/L		<0.0010	0.0014	0.0012	0.0022	0.0012
Sulfate (as SO4)	14808-79-8	E235.SO4-L/VA	0.050	mg/L		139	144	172	174	178
Cyanides										
Cyanide, strong acid dissociable (Total)	----	E333/VA	0.0050	mg/L		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Total Metals										
Aluminum, total	7429-90-5	E420/VA	0.0030	mg/L		1.22	1.38	0.142	0.112	0.351
Antimony, total	7440-36-0	E420/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic, total	7440-38-2	E420/VA	0.00010	mg/L		0.0149	0.0112	0.0123	0.0129	0.0407
Barium, total	7440-39-3	E420/VA	0.00010	mg/L		0.0132	0.0131	0.0159	0.0167	0.0173
Beryllium, total	7440-41-7	E420/VA	0.000100	mg/L		0.000314	0.000335	<0.000100	<0.000100	0.000104
Bismuth, total	7440-69-9	E420/VA	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron, total	7440-42-8	E420/VA	0.010	mg/L		0.026	0.027	0.043	0.043	0.044
Cadmium, total	7440-43-9	E420/VA	0.0000050	mg/L		0.000262	0.000281	0.000127	0.000124	0.000177
Calcium, total	7440-70-2	E420/VA	0.050	mg/L		28.6	29.4	38.2	39.6	40.4
Cesium, total	7440-46-2	E420/VA	0.000010	mg/L		0.000048	0.000056	0.000031	0.000029	0.000064

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	Pond 1-A	Pond 1-B	Pond 2-A	Pond 2-B	Pond 2-C
					Client sampling date / time	05-Jul-2024 11:30	05-Jul-2024 12:30	05-Jul-2024 12:45	05-Jul-2024 12:15	05-Jul-2024 12:30
						YL2400835-001	YL2400835-002	YL2400835-003	YL2400835-004	YL2400835-005
						Result	Result	Result	Result	Result
Total Metals										
Chromium, total	7440-47-3	E420/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Cobalt, total	7440-48-4	E420/VA	0.00010	mg/L		0.0517	0.0536	0.0130	0.0123	0.0266
Copper, total	7440-50-8	E420/VA	0.00050	mg/L		0.0364	0.0393	0.00544	0.00462	0.0123
Iron, total	7439-89-6	E420/VA	0.010	mg/L		0.735	1.52	0.391	0.357	0.612
Lead, total	7439-92-1	E420/VA	0.000050	mg/L		0.00233	0.00219	0.000256	0.000265	0.000851
Lithium, total	7439-93-2	E420/VA	0.0010	mg/L		0.0222	0.0232	0.0193	0.0189	0.0195
Magnesium, total	7439-95-4	E420/VA	0.0050	mg/L		7.33	7.44	7.86	8.02	8.27
Manganese, total	7439-96-5	E420/VA	0.00010	mg/L		0.689	0.708	0.467	0.463	0.576
Mercury, total	7439-97-6	E508/VA	0.0000050	mg/L		<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum, total	7439-98-7	E420/VA	0.000050	mg/L		<0.000050	<0.000050	0.000074	0.000080	0.000096
Nickel, total	7440-02-0	E420/VA	0.00050	mg/L		0.109	0.113	0.0566	0.0559	0.0695
Phosphorus, total	7723-14-0	E420/VA	0.050	mg/L		<0.050	<0.050	<0.050	<0.050	<0.050
Potassium, total	7440-09-7	E420/VA	0.050	mg/L		2.73	2.74	3.30	3.37	3.36
Rubidium, total	7440-17-7	E420/VA	0.00020	mg/L		0.00168	0.00174	0.00160	0.00163	0.00179
Selenium, total	7782-49-2	E420/VA	0.000050	mg/L		<0.000050	0.000054	<0.000050	<0.000050	<0.000050
Silicon, total	7440-21-3	E420/VA	0.10	mg/L		2.78	2.80	0.90	0.71	0.93
Silver, total	7440-22-4	E420/VA	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium, total	7440-23-5	E420/VA	0.050	mg/L		14.0	14.0	26.3	27.6	26.4
Strontium, total	7440-24-6	E420/VA	0.00020	mg/L		0.147	0.151	0.191	0.195	0.199
Sulfur, total	7704-34-9	E420/VA	0.50	mg/L		46.5	48.0	57.3	57.6	59.8
Tellurium, total	13494-80-9	E420/VA	0.00020	mg/L		<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Thallium, total	7440-28-0	E420/VA	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Thorium, total	7440-29-1	E420/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Tin, total	7440-31-5	E420/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium, total	7440-32-6	E420/VA	0.00030	mg/L		0.00100	0.00060	0.00059	<0.00090 DLM	<0.00120 DLM
Tungsten, total	7440-33-7	E420/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Uranium, total	7440-61-1	E420/VA	0.000010	mg/L		0.000269	0.000315	0.000029	0.000026	0.000038
Vanadium, total	7440-62-2	E420/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc, total	7440-66-6	E420/VA	0.0030	mg/L		0.537	0.546	0.156	0.162	0.190
Zirconium, total	7440-67-7	E420/VA	0.00020	mg/L		<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Dissolved Metals										

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	Pond 1-A	Pond 1-B	Pond 2-A	Pond 2-B	Pond 2-C
					Client sampling date / time	05-Jul-2024 11:30	05-Jul-2024 12:30	05-Jul-2024 12:45	05-Jul-2024 12:15	05-Jul-2024 12:30
						YL2400835-001	YL2400835-002	YL2400835-003	YL2400835-004	YL2400835-005
						Result	Result	Result	Result	Result
Dissolved Metals										
Aluminum, dissolved	7429-90-5	E421/VA	0.0010	mg/L		1.23	1.36	0.0840	0.0473	0.264
Antimony, dissolved	7440-36-0	E421/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic, dissolved	7440-38-2	E421/VA	0.00010	mg/L		0.00911	0.00896	0.00230	0.00165	0.00337
Barium, dissolved	7440-39-3	E421/VA	0.00010	mg/L		0.0129	0.0130	0.0163	0.0164	0.0173
Beryllium, dissolved	7440-41-7	E421/VA	0.000100	mg/L		0.000313	0.000318	<0.000100	<0.000100	<0.000100
Bismuth, dissolved	7440-69-9	E421/VA	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron, dissolved	7440-42-8	E421/VA	0.010	mg/L		0.026	0.025	0.040	0.041	0.042
Cadmium, dissolved	7440-43-9	E421/VA	0.0000050	mg/L		0.000278	0.000281	0.000130	0.000130	0.000173
Calcium, dissolved	7440-70-2	E421/VA	0.050	mg/L		28.9	27.5	37.8	37.5	39.0
Cesium, dissolved	7440-46-2	E421/VA	0.000010	mg/L		0.000039	0.000052	0.000027	0.000022	0.000039
Chromium, dissolved	7440-47-3	E421/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Cobalt, dissolved	7440-48-4	E421/VA	0.00010	mg/L		0.0518	0.0517	0.0132	0.0123	0.0262
Copper, dissolved	7440-50-8	E421/VA	0.00020	mg/L		0.0356	0.0376	0.00492	0.00400	0.0110
Iron, dissolved	7439-89-6	E421/VA	0.010	mg/L		0.685	1.50	0.169	0.122	0.176
Lead, dissolved	7439-92-1	E421/VA	0.000050	mg/L		0.00224	0.00217	0.000067	<0.000050	0.000196
Lithium, dissolved	7439-93-2	E421/VA	0.0010	mg/L		0.0235	0.0228	0.0177	0.0177	0.0190
Magnesium, dissolved	7439-95-4	E421/VA	0.0050	mg/L		8.02	8.08	8.57	8.90	8.84
Manganese, dissolved	7439-96-5	E421/VA	0.00010	mg/L		0.743	0.754	0.494	0.492	0.615
Mercury, dissolved	7439-97-6	E509/VA	0.0000050	mg/L		<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum, dissolved	7439-98-7	E421/VA	0.000050	mg/L		<0.000050	<0.000050	<0.000050	0.000054	<0.000050
Nickel, dissolved	7440-02-0	E421/VA	0.00050	mg/L		0.109	0.109	0.0571	0.0554	0.0684
Phosphorus, dissolved	7723-14-0	E421/VA	0.050	mg/L		<0.050	<0.050	<0.050	<0.050	<0.050
Potassium, dissolved	7440-09-7	E421/VA	0.050	mg/L		2.70	2.63	3.18	3.27	3.25
Rubidium, dissolved	7440-17-7	E421/VA	0.00020	mg/L		0.00164	0.00163	0.00164	0.00164	0.00172
Selenium, dissolved	7782-49-2	E421/VA	0.000050	mg/L		0.000054	<0.000050	<0.000050	<0.000050	0.000055
Silicon, dissolved	7440-21-3	E421/VA	0.050	mg/L		2.76	2.86	0.752	0.669	0.894
Silver, dissolved	7440-22-4	E421/VA	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium, dissolved	7440-23-5	E421/VA	0.050	mg/L		14.1	13.8	25.7	26.3	25.6
Strontium, dissolved	7440-24-6	E421/VA	0.00020	mg/L		0.141	0.146	0.183	0.181	0.189
Sulfur, dissolved	7704-34-9	E421/VA	0.50	mg/L		47.6	49.9	61.3	59.9	62.9
Tellurium, dissolved	13494-80-9	E421/VA	0.00020	mg/L		<0.00020	<0.00020	<0.00020	<0.00020	<0.00020

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	Pond 1-A	Pond 1-B	Pond 2-A	Pond 2-B	Pond 2-C
					Client sampling date / time	05-Jul-2024 11:30	05-Jul-2024 12:30	05-Jul-2024 12:45	05-Jul-2024 12:15	05-Jul-2024 12:30
						YL2400835-001	YL2400835-002	YL2400835-003	YL2400835-004	YL2400835-005
						Result	Result	Result	Result	Result
Dissolved Metals										
Thallium, dissolved	7440-28-0	E421/VA	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Thorium, dissolved	7440-29-1	E421/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Tin, dissolved	7440-31-5	E421/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium, dissolved	7440-32-6	E421/VA	0.00030	mg/L		<0.00030	<0.00030	<0.00030	<0.00030	<0.00030
Tungsten, dissolved	7440-33-7	E421/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Uranium, dissolved	7440-61-1	E421/VA	0.000010	mg/L		0.000268	0.000317	0.000020	0.000014	0.000027
Vanadium, dissolved	7440-62-2	E421/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc, dissolved	7440-66-6	E421/VA	0.0010	mg/L		0.524	0.518	0.152	0.152	0.181
Zirconium, dissolved	7440-67-7	E421/VA	0.00020	mg/L		<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Dissolved mercury filtration location	----	EP509/VA	-	-		Field	Field	Field	Field	Field
Dissolved metals filtration location	----	EP421/VA	-	-		Field	Field	Field	Field	Field

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

Please refer to the Accreditation section for an explanation of analyte accreditations.

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	Pond 2-D	Pond 2-E	Cell 4-C	Cell 4-E	----
					Client sampling date / time	05-Jul-2024 13:00	05-Jul-2024 13:30	05-Jul-2024 13:45	05-Jul-2024 14:00	----
						YL2400835-006	YL2400835-007	YL2400835-008	YL2400835-009	--------
						Result	Result	Result	Result	----
Physical Tests										
Acidity (as CaCO3)	----	E283/VA	2.0	mg/L		18.9	3.7	54.8	56.1	----
Alkalinity, total (as CaCO3)	----	E290/VA	1.0	mg/L		<1.0	<1.0	<1.0	<1.0	----
Conductivity	----	E100/VA	1.0	µS/cm		477	436	778	784	----
Hardness (as CaCO3), dissolved	----	EC100/VA	0.60	mg/L		142	130	196	193	----
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/VA	0.60	mg/L		147	142	198	194	----
pH	----	E108/VA	0.10	pH units		4.44	4.68	3.45	3.45	----
Solids, total dissolved [TDS]	----	E162/VA	10	mg/L		329	311	495	509	----
Solids, total suspended [TSS]	----	E160-L/VA	1.0	mg/L		1.6	245	1.5	<1.0	----
Anions and Nutrients										
Bromide	24959-67-9	E235.Br-U/VA	0.0050	mg/L		0.179	0.183	0.144	0.132	----
Chloride	16887-00-6	E235.Cl-L/VA	0.10	mg/L		14.5	14.6	18.1	18.0	----
Fluoride	16984-48-8	E235.F-L/VA	0.010	mg/L		0.154	0.099	0.222	0.222	----
Nitrate (as N)	14797-55-8	E235.NO3-T/VA	0.0030	mg/L		0.373	0.409	0.0358	0.0336	----
Nitrite (as N)	14797-65-0	E235.NO2-L/VA	0.0010	mg/L		0.0019	0.0012	<0.0050 DLDS	<0.0050 DLDS	----
Sulfate (as SO4)	14808-79-8	E235.SO4-L/VA	0.050	mg/L		199	176	315	315	----
Cyanides										
Cyanide, strong acid dissociable (Total)	----	E333/VA	0.0050	mg/L		<0.0050	<0.0050	0.0076	0.0078	----
Total Metals										
Aluminum, total	7429-90-5	E420/VA	0.0030	mg/L		1.29	4.35	3.33	3.30	----
Antimony, total	7440-36-0	E420/VA	0.00010	mg/L		<0.00010	0.00020	<0.00010	<0.00010	----
Arsenic, total	7440-38-2	E420/VA	0.00010	mg/L		0.0415	2.98	0.108	0.128	----
Barium, total	7440-39-3	E420/VA	0.00010	mg/L		0.0180	0.0373	0.0200	0.0200	----
Beryllium, total	7440-41-7	E420/VA	0.000100	mg/L		0.000250	0.000118	0.000436	0.000433	----
Bismuth, total	7440-69-9	E420/VA	0.000050	mg/L		<0.000050	0.000217	<0.000050	<0.000050	----
Boron, total	7440-42-8	E420/VA	0.010	mg/L		0.043	0.044	0.062	0.061	----
Cadmium, total	7440-43-9	E420/VA	0.0000050	mg/L		0.000216	0.000151	0.000281	0.000282	----
Calcium, total	7440-70-2	E420/VA	0.050	mg/L		43.8	40.7	60.4	59.1	----
Cesium, total	7440-46-2	E420/VA	0.000010	mg/L		0.000054	0.000934	0.000066	0.000063	----

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	Pond 2-D	Pond 2-E	Cell 4-C	Cell 4-E	----
					Client sampling date / time	05-Jul-2024 13:00	05-Jul-2024 13:30	05-Jul-2024 13:45	05-Jul-2024 14:00	----
						YL2400835-006	YL2400835-007	YL2400835-008	YL2400835-009	--------
						Result	Result	Result	Result	----
Total Metals										
Chromium, total	7440-47-3	E420/VA	0.00050	mg/L		0.00050	0.0118	0.00118	0.00122	----
Cobalt, total	7440-48-4	E420/VA	0.00010	mg/L		0.0346	0.0160	0.0822	0.0824	----
Copper, total	7440-50-8	E420/VA	0.00050	mg/L		0.0184	0.0218	0.100	0.101	----
Iron, total	7439-89-6	E420/VA	0.010	mg/L		4.67	23.7	5.65	6.18	----
Lead, total	7439-92-1	E420/VA	0.000050	mg/L		0.000449	0.0399	0.0477	0.0469	----
Lithium, total	7439-93-2	E420/VA	0.0010	mg/L		0.0228	0.0227	0.0456	0.0453	----
Magnesium, total	7439-95-4	E420/VA	0.0050	mg/L		9.11	9.77	11.5	11.4	----
Manganese, total	7439-96-5	E420/VA	0.00010	mg/L		0.550	0.503	1.41	1.43	----
Mercury, total	7439-97-6	E508/VA	0.0000050	mg/L		<0.0000050	<0.0000050	<0.0000050	<0.0000050	----
Molybdenum, total	7439-98-7	E420/VA	0.000050	mg/L		<0.000050	0.000785	0.000060	0.000057	----
Nickel, total	7440-02-0	E420/VA	0.00050	mg/L		0.106	0.0634	0.195	0.195	----
Phosphorus, total	7723-14-0	E420/VA	0.050	mg/L		<0.050	0.289	<0.050	<0.050	----
Potassium, total	7440-09-7	E420/VA	0.050	mg/L		3.40	3.69	4.64	4.59	----
Rubidium, total	7440-17-7	E420/VA	0.00020	mg/L		0.00168	0.00446	0.00282	0.00286	----
Selenium, total	7782-49-2	E420/VA	0.000050	mg/L		<0.000050	0.000215	0.000085	0.000088	----
Silicon, total	7440-21-3	E420/VA	0.10	mg/L		1.24	6.20	8.32	8.11	----
Silver, total	7440-22-4	E420/VA	0.000010	mg/L		<0.000010	0.000036	0.000013	<0.000010	----
Sodium, total	7440-23-5	E420/VA	0.050	mg/L		26.8	25.6	34.4	34.3	----
Strontium, total	7440-24-6	E420/VA	0.00020	mg/L		0.208	0.209	0.362	0.356	----
Sulfur, total	7704-34-9	E420/VA	0.50	mg/L		66.9	56.9	105	103	----
Tellurium, total	13494-80-9	E420/VA	0.00020	mg/L		<0.00020	<0.00040 DLA	<0.00020	<0.00020	----
Thallium, total	7440-28-0	E420/VA	0.000010	mg/L		<0.000010	0.000022	<0.000010	<0.000010	----
Thorium, total	7440-29-1	E420/VA	0.00010	mg/L		<0.00010	<0.00085 DLM	<0.00010	<0.00010	----
Tin, total	7440-31-5	E420/VA	0.00010	mg/L		<0.00010	0.00022	<0.00010	<0.00010	----
Titanium, total	7440-32-6	E420/VA	0.00030	mg/L		<0.00150 DLM	0.0830	<0.00030	<0.00030	----
Tungsten, total	7440-33-7	E420/VA	0.00010	mg/L		<0.00010	0.0125	<0.00010	<0.00010	----
Uranium, total	7440-61-1	E420/VA	0.000010	mg/L		0.000319	0.000718	0.000880	0.000868	----
Vanadium, total	7440-62-2	E420/VA	0.00050	mg/L		<0.00050	0.00754	<0.00050	<0.00050	----
Zinc, total	7440-66-6	E420/VA	0.0030	mg/L		0.325	0.185	1.21	1.22	----
Zirconium, total	7440-67-7	E420/VA	0.00020	mg/L		<0.00020	<0.00050 DLM	<0.00020	<0.00020	----
Dissolved Metals										

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	Pond 2-D	Pond 2-E	Cell 4-C	Cell 4-E	----
					Client sampling date / time	05-Jul-2024 13:00	05-Jul-2024 13:30	05-Jul-2024 13:45	05-Jul-2024 14:00	----
						YL2400835-006	YL2400835-007	YL2400835-008	YL2400835-009	--------
						Result	Result	Result	Result	----
Dissolved Metals										
Aluminum, dissolved	7429-90-5	E421/VA	0.0010	mg/L		1.25	0.0343	3.29	3.28	----
Antimony, dissolved	7440-36-0	E421/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	----
Arsenic, dissolved	7440-38-2	E421/VA	0.00010	mg/L		0.0116	0.0443	0.101	0.118	----
Barium, dissolved	7440-39-3	E421/VA	0.00010	mg/L		0.0188	0.0170	0.0186	0.0196	----
Beryllium, dissolved	7440-41-7	E421/VA	0.000100	mg/L		0.000214	<0.000100	0.000436	0.000403	----
Bismuth, dissolved	7440-69-9	E421/VA	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	----
Boron, dissolved	7440-42-8	E421/VA	0.010	mg/L		0.043	0.040	0.059	0.057	----
Cadmium, dissolved	7440-43-9	E421/VA	0.0000050	mg/L		0.000224	0.000115	0.000294	0.000292	----
Calcium, dissolved	7440-70-2	E421/VA	0.050	mg/L		40.6	37.5	58.2	57.3	----
Cesium, dissolved	7440-46-2	E421/VA	0.000010	mg/L		0.000038	0.000033	0.000060	0.000060	----
Chromium, dissolved	7440-47-3	E421/VA	0.00050	mg/L		<0.00050	<0.00050	0.00112	0.00120	----
Cobalt, dissolved	7440-48-4	E421/VA	0.00010	mg/L		0.0359	0.0138	0.0850	0.0854	----
Copper, dissolved	7440-50-8	E421/VA	0.00020	mg/L		0.0183	0.00082	0.0964	0.0967	----
Iron, dissolved	7439-89-6	E421/VA	0.010	mg/L		4.57	0.500	5.58	6.08	----
Lead, dissolved	7439-92-1	E421/VA	0.000050	mg/L		0.000227	0.00125	0.0481	0.0478	----
Lithium, dissolved	7439-93-2	E421/VA	0.0010	mg/L		0.0215	0.0171	0.0491	0.0452	----
Magnesium, dissolved	7439-95-4	E421/VA	0.0050	mg/L		9.82	8.80	12.3	12.2	----
Manganese, dissolved	7439-96-5	E421/VA	0.00010	mg/L		0.636	0.525	1.54	1.52	----
Mercury, dissolved	7439-97-6	E509/VA	0.0000050	mg/L		<0.0000050	<0.0000050	<0.0000050	<0.0000050	----
Molybdenum, dissolved	7439-98-7	E421/VA	0.000050	mg/L		<0.000050	0.000070	0.000062	0.000051	----
Nickel, dissolved	7440-02-0	E421/VA	0.00050	mg/L		0.108	0.0566	0.188	0.190	----
Phosphorus, dissolved	7723-14-0	E421/VA	0.050	mg/L		<0.050	<0.050	<0.050	<0.050	----
Potassium, dissolved	7440-09-7	E421/VA	0.050	mg/L		3.39	3.27	4.93	4.72	----
Rubidium, dissolved	7440-17-7	E421/VA	0.00020	mg/L		0.00181	0.00169	0.00263	0.00267	----
Selenium, dissolved	7782-49-2	E421/VA	0.000050	mg/L		<0.000050	0.000051	0.000084	0.000104	----
Silicon, dissolved	7440-21-3	E421/VA	0.050	mg/L		1.23	0.738	8.72	8.62	----
Silver, dissolved	7440-22-4	E421/VA	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	----
Sodium, dissolved	7440-23-5	E421/VA	0.050	mg/L		26.4	26.6	32.8	32.8	----
Strontium, dissolved	7440-24-6	E421/VA	0.00020	mg/L		0.198	0.182	0.344	0.348	----
Sulfur, dissolved	7704-34-9	E421/VA	0.50	mg/L		68.8	60.6	110	110	----
Tellurium, dissolved	13494-80-9	E421/VA	0.00020	mg/L		<0.00020	<0.00020	<0.00020	<0.00020	----

Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	Pond 2-D	Pond 2-E	Cell 4-C	Cell 4-E	----
					Client sampling date / time	05-Jul-2024 13:00	05-Jul-2024 13:30	05-Jul-2024 13:45	05-Jul-2024 14:00	----
Analyte	CAS Number	Method/Lab	LOR	Unit		YL2400835-006	YL2400835-007	YL2400835-008	YL2400835-009	--------
						Result	Result	Result	Result	----
Dissolved Metals										
Thallium, dissolved	7440-28-0	E421/VA	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	----
Thorium, dissolved	7440-29-1	E421/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	----
Tin, dissolved	7440-31-5	E421/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	----
Titanium, dissolved	7440-32-6	E421/VA	0.00030	mg/L		<0.00030	<0.00030	<0.00030	<0.00030	----
Tungsten, dissolved	7440-33-7	E421/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	----
Uranium, dissolved	7440-61-1	E421/VA	0.000010	mg/L		0.000300	0.000011	0.000850	0.000850	----
Vanadium, dissolved	7440-62-2	E421/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	----
Zinc, dissolved	7440-66-6	E421/VA	0.0010	mg/L		0.320	0.148	1.20	1.20	----
Zirconium, dissolved	7440-67-7	E421/VA	0.00020	mg/L		<0.00020	<0.00020	<0.00020	<0.00020	----
Dissolved mercury filtration location	----	EP509/VA	-	-		Field	Field	Field	Field	----
Dissolved metals filtration location	----	EP421/VA	-	-		Field	Field	Field	Field	----

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

Please refer to the Accreditation section for an explanation of analyte accreditations.

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QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **YL2400835**	Page	: 1 of 26
Client	: **Elgin Mining Inc.**	Laboratory	: ALS Environmental - Yellowknife
Contact	: Karyn Lewis	Account Manager	: Oliver Gregg
Address	: 750 West Pender Street Suite 201 Vancouver BC Canada V6C 2T7	Address	: 314 Old Airport Road, Unit 116 Yellowknife, Northwest Territories Canada X1A 3T3
Telephone	: 604 682 3366	Telephone	: 1 867 445 7143
Project	: ----	Date Samples Received	: 05-Jul-2024 16:00
PO	: ----	Issue Date	: 17-Jul-2024 13:13
C-O-C number	: ----		
Sampler	: ----		
Site	: ----		
Quote number	: YL23-ELMI100-001		
No. of samples received	: 9		
No. of samples analysed	: 9		

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

Key

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

Workorder Comments

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

Summary of Outliers

Outliers : Quality Control Samples

- No 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	QC-MRG3-1540695 001	----	Aluminum, total	7429-90-5	E420	0.0050 B mg/L	0.003 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 : Bromide by IC (Ultra Trace Level)										
HDPE Cell 4-C	E235.Br-U	05-Jul-2024	12-Jul-2024	28 days	7 days	✓	12-Jul-2024	28 days	7 days	✓
Anions and Nutrients : Bromide by IC (Ultra Trace Level)										
HDPE Cell 4-E	E235.Br-U	05-Jul-2024	12-Jul-2024	28 days	7 days	✓	12-Jul-2024	28 days	7 days	✓
Anions and Nutrients : Bromide by IC (Ultra Trace Level)										
HDPE Pond 1-A	E235.Br-U	05-Jul-2024	12-Jul-2024	28 days	7 days	✓	12-Jul-2024	28 days	7 days	✓
Anions and Nutrients : Bromide by IC (Ultra Trace Level)										
HDPE Pond 1-B	E235.Br-U	05-Jul-2024	12-Jul-2024	28 days	7 days	✓	12-Jul-2024	28 days	7 days	✓
Anions and Nutrients : Bromide by IC (Ultra Trace Level)										
HDPE Pond 2-A	E235.Br-U	05-Jul-2024	12-Jul-2024	28 days	7 days	✓	12-Jul-2024	28 days	7 days	✓
Anions and Nutrients : Bromide by IC (Ultra Trace Level)										
HDPE Pond 2-B	E235.Br-U	05-Jul-2024	12-Jul-2024	28 days	7 days	✓	12-Jul-2024	28 days	7 days	✓
Anions and Nutrients : Bromide by IC (Ultra Trace Level)										
HDPE Pond 2-C	E235.Br-U	05-Jul-2024	12-Jul-2024	28 days	7 days	✓	12-Jul-2024	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 by IC (Ultra Trace Level)										
HDPE Pond 2-D	E235.Br-U	05-Jul-2024	12-Jul-2024	28 days	7 days	✓	12-Jul-2024	28 days	7 days	✓
Anions and Nutrients : Bromide by IC (Ultra Trace Level)										
HDPE Pond 2-E	E235.Br-U	05-Jul-2024	12-Jul-2024	28 days	7 days	✓	12-Jul-2024	28 days	7 days	✓
Anions and Nutrients : Chloride in Water by IC (Low Level)										
HDPE Cell 4-C	E235.Cl-L	05-Jul-2024	12-Jul-2024	28 days	7 days	✓	12-Jul-2024	28 days	7 days	✓
Anions and Nutrients : Chloride in Water by IC (Low Level)										
HDPE Cell 4-E	E235.Cl-L	05-Jul-2024	12-Jul-2024	28 days	7 days	✓	12-Jul-2024	28 days	7 days	✓
Anions and Nutrients : Chloride in Water by IC (Low Level)										
HDPE Pond 1-A	E235.Cl-L	05-Jul-2024	12-Jul-2024	28 days	7 days	✓	12-Jul-2024	28 days	7 days	✓
Anions and Nutrients : Chloride in Water by IC (Low Level)										
HDPE Pond 1-B	E235.Cl-L	05-Jul-2024	12-Jul-2024	28 days	7 days	✓	12-Jul-2024	28 days	7 days	✓
Anions and Nutrients : Chloride in Water by IC (Low Level)										
HDPE Pond 2-A	E235.Cl-L	05-Jul-2024	12-Jul-2024	28 days	7 days	✓	12-Jul-2024	28 days	7 days	✓
Anions and Nutrients : Chloride in Water by IC (Low Level)										
HDPE Pond 2-B	E235.Cl-L	05-Jul-2024	12-Jul-2024	28 days	7 days	✓	12-Jul-2024	28 days	7 days	✓
Anions and Nutrients : Chloride in Water by IC (Low Level)										
HDPE Pond 2-C	E235.Cl-L	05-Jul-2024	12-Jul-2024	28 days	7 days	✓	12-Jul-2024	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 : Chloride in Water by IC (Low Level)										
HDPE										
Pond 2-D	E235.Cl-L	05-Jul-2024	12-Jul-2024	28 days	7 days	✓	12-Jul-2024	28 days	7 days	✓
Anions and Nutrients : Chloride in Water by IC (Low Level)										
HDPE										
Pond 2-E	E235.Cl-L	05-Jul-2024	12-Jul-2024	28 days	7 days	✓	12-Jul-2024	28 days	7 days	✓
Anions and Nutrients : Fluoride in Water by IC (Low Level)										
HDPE										
Cell 4-C	E235.F-L	05-Jul-2024	12-Jul-2024	28 days	7 days	✓	12-Jul-2024	28 days	7 days	✓
Anions and Nutrients : Fluoride in Water by IC (Low Level)										
HDPE										
Cell 4-E	E235.F-L	05-Jul-2024	12-Jul-2024	28 days	7 days	✓	12-Jul-2024	28 days	7 days	✓
Anions and Nutrients : Fluoride in Water by IC (Low Level)										
HDPE										
Pond 1-A	E235.F-L	05-Jul-2024	12-Jul-2024	28 days	7 days	✓	12-Jul-2024	28 days	7 days	✓
Anions and Nutrients : Fluoride in Water by IC (Low Level)										
HDPE										
Pond 1-B	E235.F-L	05-Jul-2024	12-Jul-2024	28 days	7 days	✓	12-Jul-2024	28 days	7 days	✓
Anions and Nutrients : Fluoride in Water by IC (Low Level)										
HDPE										
Pond 2-A	E235.F-L	05-Jul-2024	12-Jul-2024	28 days	7 days	✓	12-Jul-2024	28 days	7 days	✓
Anions and Nutrients : Fluoride in Water by IC (Low Level)										
HDPE										
Pond 2-B	E235.F-L	05-Jul-2024	12-Jul-2024	28 days	7 days	✓	12-Jul-2024	28 days	7 days	✓
Anions and Nutrients : Fluoride in Water by IC (Low Level)										
HDPE										
Pond 2-C	E235.F-L	05-Jul-2024	12-Jul-2024	28 days	7 days	✓	12-Jul-2024	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 : Fluoride in Water by IC (Low Level)										
HDPE										
Pond 2-D	E235.F-L	05-Jul-2024	12-Jul-2024	28 days	7 days	✓	12-Jul-2024	28 days	7 days	✓
Anions and Nutrients : Fluoride in Water by IC (Low Level)										
HDPE										
Pond 2-E	E235.F-L	05-Jul-2024	12-Jul-2024	28 days	7 days	✓	12-Jul-2024	28 days	7 days	✓
Anions and Nutrients : Nitrate in Water by IC (Trace Level)										
HDPE										
Cell 4-C	E235.NO3-T	05-Jul-2024	12-Jul-2024	3 days	6 days	× EHT	12-Jul-2024	3 days	6 days	× EHT
Anions and Nutrients : Nitrate in Water by IC (Trace Level)										
HDPE										
Cell 4-E	E235.NO3-T	05-Jul-2024	12-Jul-2024	3 days	6 days	× EHT	12-Jul-2024	3 days	6 days	× EHT
Anions and Nutrients : Nitrate in Water by IC (Trace Level)										
HDPE										
Pond 1-A	E235.NO3-T	05-Jul-2024	12-Jul-2024	3 days	6 days	× EHT	12-Jul-2024	3 days	6 days	× EHT
Anions and Nutrients : Nitrate in Water by IC (Trace Level)										
HDPE										
Pond 1-B	E235.NO3-T	05-Jul-2024	12-Jul-2024	3 days	6 days	× EHT	12-Jul-2024	3 days	6 days	× EHT
Anions and Nutrients : Nitrate in Water by IC (Trace Level)										
HDPE										
Pond 2-A	E235.NO3-T	05-Jul-2024	12-Jul-2024	3 days	6 days	× EHT	12-Jul-2024	3 days	6 days	× EHT
Anions and Nutrients : Nitrate in Water by IC (Trace Level)										
HDPE										
Pond 2-B	E235.NO3-T	05-Jul-2024	12-Jul-2024	3 days	6 days	× EHT	12-Jul-2024	3 days	6 days	× EHT
Anions and Nutrients : Nitrate in Water by IC (Trace Level)										
HDPE										
Pond 2-C	E235.NO3-T	05-Jul-2024	12-Jul-2024	3 days	6 days	× EHT	12-Jul-2024	3 days	6 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 Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Nitrate in Water by IC (Trace Level)										
HDPE Pond 2-D	E235.NO3-T	05-Jul-2024	12-Jul-2024	3 days	6 days	× EHT	12-Jul-2024	3 days	6 days	× EHT
Anions and Nutrients : Nitrate in Water by IC (Trace Level)										
HDPE Pond 2-E	E235.NO3-T	05-Jul-2024	12-Jul-2024	3 days	6 days	× EHT	12-Jul-2024	3 days	6 days	× EHT
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE Cell 4-C	E235.NO2-L	05-Jul-2024	12-Jul-2024	3 days	6 days	× EHT	12-Jul-2024	3 days	6 days	× EHT
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE Cell 4-E	E235.NO2-L	05-Jul-2024	12-Jul-2024	3 days	6 days	× EHT	12-Jul-2024	3 days	6 days	× EHT
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE Pond 1-A	E235.NO2-L	05-Jul-2024	12-Jul-2024	3 days	6 days	× EHT	12-Jul-2024	3 days	6 days	× EHT
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE Pond 1-B	E235.NO2-L	05-Jul-2024	12-Jul-2024	3 days	6 days	× EHT	12-Jul-2024	3 days	6 days	× EHT
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE Pond 2-A	E235.NO2-L	05-Jul-2024	12-Jul-2024	3 days	6 days	× EHT	12-Jul-2024	3 days	6 days	× EHT
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE Pond 2-B	E235.NO2-L	05-Jul-2024	12-Jul-2024	3 days	6 days	× EHT	12-Jul-2024	3 days	6 days	× EHT
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE Pond 2-C	E235.NO2-L	05-Jul-2024	12-Jul-2024	3 days	6 days	× EHT	12-Jul-2024	3 days	6 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 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 Pond 2-D	E235.NO2-L	05-Jul-2024	12-Jul-2024	3 days	6 days	✗ EHT	12-Jul-2024	3 days	6 days	✗ EHT
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE Pond 2-E	E235.NO2-L	05-Jul-2024	12-Jul-2024	3 days	6 days	✗ EHT	12-Jul-2024	3 days	6 days	✗ EHT
Anions and Nutrients : Sulfate in Water by IC (Low Level)										
HDPE Cell 4-C	E235.SO4-L	05-Jul-2024	12-Jul-2024	28 days	7 days	✓	12-Jul-2024	28 days	7 days	✓
Anions and Nutrients : Sulfate in Water by IC (Low Level)										
HDPE Cell 4-E	E235.SO4-L	05-Jul-2024	12-Jul-2024	28 days	7 days	✓	12-Jul-2024	28 days	7 days	✓
Anions and Nutrients : Sulfate in Water by IC (Low Level)										
HDPE Pond 1-A	E235.SO4-L	05-Jul-2024	12-Jul-2024	28 days	7 days	✓	12-Jul-2024	28 days	7 days	✓
Anions and Nutrients : Sulfate in Water by IC (Low Level)										
HDPE Pond 1-B	E235.SO4-L	05-Jul-2024	12-Jul-2024	28 days	7 days	✓	12-Jul-2024	28 days	7 days	✓
Anions and Nutrients : Sulfate in Water by IC (Low Level)										
HDPE Pond 2-A	E235.SO4-L	05-Jul-2024	12-Jul-2024	28 days	7 days	✓	12-Jul-2024	28 days	7 days	✓
Anions and Nutrients : Sulfate in Water by IC (Low Level)										
HDPE Pond 2-B	E235.SO4-L	05-Jul-2024	12-Jul-2024	28 days	7 days	✓	12-Jul-2024	28 days	7 days	✓
Anions and Nutrients : Sulfate in Water by IC (Low Level)										
HDPE Pond 2-C	E235.SO4-L	05-Jul-2024	12-Jul-2024	28 days	7 days	✓	12-Jul-2024	28 days	7 days	✓

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Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Sulfate in Water by IC (Low Level)										
HDPE										
Pond 2-D	E235.SO4-L	05-Jul-2024	12-Jul-2024	28 days	7 days	✓	12-Jul-2024	28 days	7 days	✓
Anions and Nutrients : Sulfate in Water by IC (Low Level)										
HDPE										
Pond 2-E	E235.SO4-L	05-Jul-2024	12-Jul-2024	28 days	7 days	✓	12-Jul-2024	28 days	7 days	✓
Cyanides : Total Cyanide										
UV-inhibited HDPE - total (sodium hydroxide)										
Cell 4-C	E333	05-Jul-2024	12-Jul-2024	14 days	7 days	✓	12-Jul-2024	14 days	7 days	✓
Cyanides : Total Cyanide										
UV-inhibited HDPE - total (sodium hydroxide)										
Cell 4-E	E333	05-Jul-2024	12-Jul-2024	14 days	7 days	✓	12-Jul-2024	14 days	7 days	✓
Cyanides : Total Cyanide										
UV-inhibited HDPE - total (sodium hydroxide)										
Pond 1-A	E333	05-Jul-2024	12-Jul-2024	14 days	7 days	✓	12-Jul-2024	14 days	7 days	✓
Cyanides : Total Cyanide										
UV-inhibited HDPE - total (sodium hydroxide)										
Pond 1-B	E333	05-Jul-2024	12-Jul-2024	14 days	7 days	✓	12-Jul-2024	14 days	7 days	✓
Cyanides : Total Cyanide										
UV-inhibited HDPE - total (sodium hydroxide)										
Pond 2-A	E333	05-Jul-2024	12-Jul-2024	14 days	7 days	✓	12-Jul-2024	14 days	7 days	✓
Cyanides : Total Cyanide										
UV-inhibited HDPE - total (sodium hydroxide)										
Pond 2-B	E333	05-Jul-2024	12-Jul-2024	14 days	7 days	✓	12-Jul-2024	14 days	7 days	✓
Cyanides : Total Cyanide										
UV-inhibited HDPE - total (sodium hydroxide)										
Pond 2-C	E333	05-Jul-2024	12-Jul-2024	14 days	7 days	✓	12-Jul-2024	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)										
Pond 2-D	E333	05-Jul-2024	12-Jul-2024	14 days	7 days	✓	12-Jul-2024	14 days	7 days	✓
Cyanides : Total Cyanide										
UV-inhibited HDPE - total (sodium hydroxide)										
Pond 2-E	E333	05-Jul-2024	12-Jul-2024	14 days	7 days	✓	12-Jul-2024	14 days	7 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)										
Cell 4-C	E509	05-Jul-2024	12-Jul-2024	28 days	7 days	✓	12-Jul-2024	28 days	7 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)										
Cell 4-E	E509	05-Jul-2024	12-Jul-2024	28 days	7 days	✓	12-Jul-2024	28 days	7 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)										
Pond 1-A	E509	05-Jul-2024	12-Jul-2024	28 days	7 days	✓	12-Jul-2024	28 days	7 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)										
Pond 1-B	E509	05-Jul-2024	12-Jul-2024	28 days	7 days	✓	12-Jul-2024	28 days	7 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)										
Pond 2-A	E509	05-Jul-2024	12-Jul-2024	28 days	7 days	✓	12-Jul-2024	28 days	7 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)										
Pond 2-B	E509	05-Jul-2024	12-Jul-2024	28 days	7 days	✓	12-Jul-2024	28 days	7 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)										
Pond 2-C	E509	05-Jul-2024	12-Jul-2024	28 days	7 days	✓	12-Jul-2024	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	
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)										
Pond 2-D	E509	05-Jul-2024	12-Jul-2024	28 days	7 days	✓	12-Jul-2024	28 days	7 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)										
Pond 2-E	E509	05-Jul-2024	12-Jul-2024	28 days	7 days	✓	12-Jul-2024	28 days	7 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
Cell 4-C	E421	05-Jul-2024	12-Jul-2024	180 days	7 days	✓	12-Jul-2024	180 days	7 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
Cell 4-E	E421	05-Jul-2024	12-Jul-2024	180 days	7 days	✓	12-Jul-2024	180 days	7 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
Pond 1-A	E421	05-Jul-2024	12-Jul-2024	180 days	7 days	✓	12-Jul-2024	180 days	7 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
Pond 1-B	E421	05-Jul-2024	12-Jul-2024	180 days	7 days	✓	12-Jul-2024	180 days	7 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
Pond 2-A	E421	05-Jul-2024	12-Jul-2024	180 days	7 days	✓	12-Jul-2024	180 days	7 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
Pond 2-B	E421	05-Jul-2024	12-Jul-2024	180 days	7 days	✓	12-Jul-2024	180 days	7 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
Pond 2-C	E421	05-Jul-2024	12-Jul-2024	180 days	7 days	✓	12-Jul-2024	180 days	7 days	✓

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
Pond 2-D	E421	05-Jul-2024	12-Jul-2024	180 days	7 days	✓	12-Jul-2024	180 days	7 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
Pond 2-E	E421	05-Jul-2024	12-Jul-2024	180 days	7 days	✓	12-Jul-2024	180 days	7 days	✓
Physical Tests : Acidity by Titration										
HDPE										
Cell 4-C	E283	05-Jul-2024	12-Jul-2024	14 days	7 days	✓	12-Jul-2024	14 days	7 days	✓
Physical Tests : Acidity by Titration										
HDPE										
Cell 4-E	E283	05-Jul-2024	12-Jul-2024	14 days	7 days	✓	12-Jul-2024	14 days	7 days	✓
Physical Tests : Acidity by Titration										
HDPE										
Pond 1-A	E283	05-Jul-2024	12-Jul-2024	14 days	7 days	✓	12-Jul-2024	14 days	7 days	✓
Physical Tests : Acidity by Titration										
HDPE										
Pond 1-B	E283	05-Jul-2024	12-Jul-2024	14 days	7 days	✓	12-Jul-2024	14 days	7 days	✓
Physical Tests : Acidity by Titration										
HDPE										
Pond 2-A	E283	05-Jul-2024	12-Jul-2024	14 days	7 days	✓	12-Jul-2024	14 days	7 days	✓
Physical Tests : Acidity by Titration										
HDPE										
Pond 2-B	E283	05-Jul-2024	12-Jul-2024	14 days	7 days	✓	12-Jul-2024	14 days	7 days	✓
Physical Tests : Acidity by Titration										
HDPE										
Pond 2-C	E283	05-Jul-2024	12-Jul-2024	14 days	7 days	✓	12-Jul-2024	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 : Acidity by Titration										
HDPE Pond 2-D	E283	05-Jul-2024	12-Jul-2024	14 days	7 days	✓	12-Jul-2024	14 days	7 days	✓
Physical Tests : Acidity by Titration										
HDPE Pond 2-E	E283	05-Jul-2024	12-Jul-2024	14 days	7 days	✓	12-Jul-2024	14 days	7 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE Cell 4-C	E290	05-Jul-2024	12-Jul-2024	14 days	7 days	✓	13-Jul-2024	14 days	8 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE Cell 4-E	E290	05-Jul-2024	12-Jul-2024	14 days	7 days	✓	13-Jul-2024	14 days	8 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE Pond 1-A	E290	05-Jul-2024	12-Jul-2024	14 days	7 days	✓	13-Jul-2024	14 days	8 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE Pond 1-B	E290	05-Jul-2024	12-Jul-2024	14 days	7 days	✓	13-Jul-2024	14 days	8 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE Pond 2-A	E290	05-Jul-2024	12-Jul-2024	14 days	7 days	✓	13-Jul-2024	14 days	8 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE Pond 2-B	E290	05-Jul-2024	12-Jul-2024	14 days	7 days	✓	13-Jul-2024	14 days	8 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE Pond 2-C	E290	05-Jul-2024	12-Jul-2024	14 days	7 days	✓	13-Jul-2024	14 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
Physical Tests : Alkalinity Species by Titration										
HDPE Pond 2-D	E290	05-Jul-2024	12-Jul-2024	14 days	7 days	✓	13-Jul-2024	14 days	8 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE Pond 2-E	E290	05-Jul-2024	12-Jul-2024	14 days	7 days	✓	13-Jul-2024	14 days	8 days	✓
Physical Tests : Conductivity in Water										
HDPE Cell 4-C	E100	05-Jul-2024	12-Jul-2024	28 days	7 days	✓	13-Jul-2024	28 days	8 days	✓
Physical Tests : Conductivity in Water										
HDPE Cell 4-E	E100	05-Jul-2024	12-Jul-2024	28 days	7 days	✓	13-Jul-2024	28 days	8 days	✓
Physical Tests : Conductivity in Water										
HDPE Pond 1-A	E100	05-Jul-2024	12-Jul-2024	28 days	7 days	✓	13-Jul-2024	28 days	8 days	✓
Physical Tests : Conductivity in Water										
HDPE Pond 1-B	E100	05-Jul-2024	12-Jul-2024	28 days	7 days	✓	13-Jul-2024	28 days	8 days	✓
Physical Tests : Conductivity in Water										
HDPE Pond 2-A	E100	05-Jul-2024	12-Jul-2024	28 days	7 days	✓	13-Jul-2024	28 days	8 days	✓
Physical Tests : Conductivity in Water										
HDPE Pond 2-B	E100	05-Jul-2024	12-Jul-2024	28 days	7 days	✓	13-Jul-2024	28 days	8 days	✓
Physical Tests : Conductivity in Water										
HDPE Pond 2-C	E100	05-Jul-2024	12-Jul-2024	28 days	7 days	✓	13-Jul-2024	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
Physical Tests : Conductivity in Water										
HDPE Pond 2-D	E100	05-Jul-2024	12-Jul-2024	28 days	7 days	✓	13-Jul-2024	28 days	8 days	✓
Physical Tests : Conductivity in Water										
HDPE Pond 2-E	E100	05-Jul-2024	12-Jul-2024	28 days	7 days	✓	13-Jul-2024	28 days	8 days	✓
Physical Tests : pH by Meter										
HDPE Cell 4-E	E108	05-Jul-2024	12-Jul-2024	0.25 hrs	156 hrs	× EHTR-FM	13-Jul-2024	0.25 hrs	190 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE Cell 4-C	E108	05-Jul-2024	12-Jul-2024	0.25 hrs	156 hrs	× EHTR-FM	13-Jul-2024	0.25 hrs	191 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE Pond 2-E	E108	05-Jul-2024	12-Jul-2024	0.25 hrs	156 hrs	× EHTR-FM	13-Jul-2024	0.25 hrs	191 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE Pond 2-D	E108	05-Jul-2024	12-Jul-2024	0.25 hrs	157 hrs	× EHTR-FM	13-Jul-2024	0.25 hrs	191 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE Pond 1-B	E108	05-Jul-2024	12-Jul-2024	0.25 hrs	157 hrs	× EHTR-FM	13-Jul-2024	0.25 hrs	192 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE Pond 2-A	E108	05-Jul-2024	12-Jul-2024	0.25 hrs	157 hrs	× EHTR-FM	13-Jul-2024	0.25 hrs	192 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE Pond 2-C	E108	05-Jul-2024	12-Jul-2024	0.25 hrs	157 hrs	× EHTR-FM	13-Jul-2024	0.25 hrs	192 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 Pond 2-B	E108	05-Jul-2024	12-Jul-2024	0.25 hrs	158 hrs	× EHTR-FM	13-Jul-2024	0.25 hrs	192 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE Pond 1-A	E108	05-Jul-2024	12-Jul-2024	0.25 hrs	158 hrs	× EHTR-FM	13-Jul-2024	0.25 hrs	193 hrs	× EHTR-FM
Physical Tests : TDS by Gravimetry										
HDPE Cell 4-C	E162	05-Jul-2024	----	----	----		11-Jul-2024	7 days	6 days	✓
Physical Tests : TDS by Gravimetry										
HDPE Cell 4-E	E162	05-Jul-2024	----	----	----		11-Jul-2024	7 days	6 days	✓
Physical Tests : TDS by Gravimetry										
HDPE Pond 1-A	E162	05-Jul-2024	----	----	----		11-Jul-2024	7 days	6 days	✓
Physical Tests : TDS by Gravimetry										
HDPE Pond 1-B	E162	05-Jul-2024	----	----	----		11-Jul-2024	7 days	6 days	✓
Physical Tests : TDS by Gravimetry										
HDPE Pond 2-A	E162	05-Jul-2024	----	----	----		11-Jul-2024	7 days	6 days	✓
Physical Tests : TDS by Gravimetry										
HDPE Pond 2-B	E162	05-Jul-2024	----	----	----		11-Jul-2024	7 days	6 days	✓
Physical Tests : TDS by Gravimetry										
HDPE Pond 2-C	E162	05-Jul-2024	----	----	----		11-Jul-2024	7 days	6 days	✓

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : TDS by Gravimetry										
HDPE										
Pond 2-D	E162	05-Jul-2024	----	----	----		11-Jul-2024	7 days	6 days	✓
Physical Tests : TDS by Gravimetry										
HDPE										
Pond 2-E	E162	05-Jul-2024	----	----	----		11-Jul-2024	7 days	6 days	✓
Physical Tests : TSS by Gravimetry (Low Level)										
HDPE [TSS-WB]										
Cell 4-C	E160-L	05-Jul-2024	----	----	----		11-Jul-2024	7 days	6 days	✓
Physical Tests : TSS by Gravimetry (Low Level)										
HDPE [TSS-WB]										
Cell 4-E	E160-L	05-Jul-2024	----	----	----		11-Jul-2024	7 days	6 days	✓
Physical Tests : TSS by Gravimetry (Low Level)										
HDPE [TSS-WB]										
Pond 1-A	E160-L	05-Jul-2024	----	----	----		11-Jul-2024	7 days	6 days	✓
Physical Tests : TSS by Gravimetry (Low Level)										
HDPE [TSS-WB]										
Pond 1-B	E160-L	05-Jul-2024	----	----	----		11-Jul-2024	7 days	6 days	✓
Physical Tests : TSS by Gravimetry (Low Level)										
HDPE [TSS-WB]										
Pond 2-A	E160-L	05-Jul-2024	----	----	----		11-Jul-2024	7 days	6 days	✓
Physical Tests : TSS by Gravimetry (Low Level)										
HDPE [TSS-WB]										
Pond 2-B	E160-L	05-Jul-2024	----	----	----		11-Jul-2024	7 days	6 days	✓
Physical Tests : TSS by Gravimetry (Low Level)										
HDPE [TSS-WB]										
Pond 2-C	E160-L	05-Jul-2024	----	----	----		11-Jul-2024	7 days	6 days	✓

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : TSS by Gravimetry (Low Level)										
HDPE [TSS-WB] Pond 2-D	E160-L	05-Jul-2024	----	----	----		11-Jul-2024	7 days	6 days	✓
Physical Tests : TSS by Gravimetry (Low Level)										
HDPE [TSS-WB] Pond 2-E	E160-L	05-Jul-2024	----	----	----		11-Jul-2024	7 days	6 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid) Cell 4-C	E508	05-Jul-2024	12-Jul-2024	28 days	7 days	✓	12-Jul-2024	28 days	7 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid) Cell 4-E	E508	05-Jul-2024	12-Jul-2024	28 days	7 days	✓	12-Jul-2024	28 days	7 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid) Pond 1-A	E508	05-Jul-2024	12-Jul-2024	28 days	7 days	✓	12-Jul-2024	28 days	7 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid) Pond 1-B	E508	05-Jul-2024	12-Jul-2024	28 days	7 days	✓	12-Jul-2024	28 days	7 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid) Pond 2-A	E508	05-Jul-2024	12-Jul-2024	28 days	7 days	✓	12-Jul-2024	28 days	7 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid) Pond 2-B	E508	05-Jul-2024	12-Jul-2024	28 days	7 days	✓	12-Jul-2024	28 days	7 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid) Pond 2-C	E508	05-Jul-2024	12-Jul-2024	28 days	7 days	✓	12-Jul-2024	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	
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid)										
Pond 2-D	E508	05-Jul-2024	12-Jul-2024	28 days	7 days	✓	12-Jul-2024	28 days	7 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid)										
Pond 2-E	E508	05-Jul-2024	12-Jul-2024	28 days	7 days	✓	12-Jul-2024	28 days	7 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved)										
Pond 2-A	E420	05-Jul-2024	12-Jul-2024	180 days	7 days	✓	12-Jul-2024	180 days	7 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved)										
Pond 2-B	E420	05-Jul-2024	12-Jul-2024	180 days	7 days	✓	12-Jul-2024	180 days	7 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved)										
Pond 2-D	E420	05-Jul-2024	12-Jul-2024	180 days	7 days	✓	12-Jul-2024	180 days	7 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved)										
Cell 4-C	E420	05-Jul-2024	12-Jul-2024	180 days	7 days	✓	13-Jul-2024	180 days	8 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved)										
Cell 4-E	E420	05-Jul-2024	12-Jul-2024	180 days	7 days	✓	13-Jul-2024	180 days	8 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved)										
Pond 1-A	E420	05-Jul-2024	12-Jul-2024	180 days	7 days	✓	13-Jul-2024	180 days	8 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved)										
Pond 1-B	E420	05-Jul-2024	12-Jul-2024	180 days	7 days	✓	13-Jul-2024	180 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		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved)										
Pond 2-C	E420	05-Jul-2024	12-Jul-2024	180 days	7 days	✓	13-Jul-2024	180 days	8 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved)										
Pond 2-E	E420	05-Jul-2024	12-Jul-2024	180 days	7 days	✓	13-Jul-2024	180 days	8 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)							
Acidity by Titration	E283	1540803	1	9	11.1	5.0	✓
Alkalinity Species by Titration	E290	1540800	1	10	10.0	5.0	✓
Bromide by IC (Ultra Trace Level)	E235.Br-U	1540809	1	9	11.1	5.0	✓
Chloride in Water by IC (Low Level)	E235.Cl-L	1540807	1	9	11.1	5.0	✓
Conductivity in Water	E100	1540802	1	14	7.1	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1540899	1	17	5.8	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1540889	1	9	11.1	5.0	✓
Fluoride in Water by IC (Low Level)	E235.F-L	1540808	1	9	11.1	5.0	✓
Nitrate in Water by IC (Trace Level)	E235.NO3-T	1540805	1	14	7.1	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1540806	1	14	7.1	5.0	✓
pH by Meter	E108	1540801	1	15	6.6	5.0	✓
Sulfate in Water by IC (Low Level)	E235.SO4-L	1540810	1	9	11.1	5.0	✓
TDS by Gravimetry	E162	1540661	1	19	5.2	5.0	✓
Total Cyanide	E333	1541871	1	19	5.2	5.0	✓
Total Mercury in Water by CVAAS	E508	1540891	2	28	7.1	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1540695	2	15	13.3	5.0	✓
Laboratory Control Samples (LCS)							
Acidity by Titration	E283	1540803	1	9	11.1	5.0	✓
Alkalinity Species by Titration	E290	1540800	1	10	10.0	5.0	✓
Bromide by IC (Ultra Trace Level)	E235.Br-U	1540809	1	9	11.1	5.0	✓
Chloride in Water by IC (Low Level)	E235.Cl-L	1540807	1	9	11.1	5.0	✓
Conductivity in Water	E100	1540802	1	14	7.1	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1540899	1	17	5.8	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1540889	1	9	11.1	5.0	✓
Fluoride in Water by IC (Low Level)	E235.F-L	1540808	1	9	11.1	5.0	✓
Nitrate in Water by IC (Trace Level)	E235.NO3-T	1540805	1	14	7.1	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1540806	1	14	7.1	5.0	✓
pH by Meter	E108	1540801	1	15	6.6	5.0	✓
Sulfate in Water by IC (Low Level)	E235.SO4-L	1540810	1	9	11.1	5.0	✓
TDS by Gravimetry	E162	1540661	1	19	5.2	5.0	✓
Total Cyanide	E333	1541871	1	19	5.2	5.0	✓
Total Mercury in Water by CVAAS	E508	1540891	2	28	7.1	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1540695	1	15	6.6	5.0	✓
TSS by Gravimetry (Low Level)	E160-L	1540662	1	9	11.1	5.0	✓
Method Blanks (MB)							

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							
Acidity by Titration	E283	1540803	1	9	11.1	5.0	✓
Alkalinity Species by Titration	E290	1540800	1	10	10.0	5.0	✓
Bromide by IC (Ultra Trace Level)	E235.Br-U	1540809	1	9	11.1	5.0	✓
Chloride in Water by IC (Low Level)	E235.Cl-L	1540807	1	9	11.1	5.0	✓
Conductivity in Water	E100	1540802	1	14	7.1	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1540899	1	17	5.8	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1540889	1	9	11.1	5.0	✓
Fluoride in Water by IC (Low Level)	E235.F-L	1540808	1	9	11.1	5.0	✓
Nitrate in Water by IC (Trace Level)	E235.NO3-T	1540805	1	14	7.1	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1540806	1	14	7.1	5.0	✓
Sulfate in Water by IC (Low Level)	E235.SO4-L	1540810	1	9	11.1	5.0	✓
TDS by Gravimetry	E162	1540661	1	19	5.2	5.0	✓
Total Cyanide	E333	1541871	1	19	5.2	5.0	✓
Total Mercury in Water by CVAAS	E508	1540891	2	28	7.1	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1540695	1	15	6.6	5.0	✓
TSS by Gravimetry (Low Level)	E160-L	1540662	1	9	11.1	5.0	✓
Matrix Spikes (MS)							
Bromide by IC (Ultra Trace Level)	E235.Br-U	1540809	1	9	11.1	5.0	✓
Chloride in Water by IC (Low Level)	E235.Cl-L	1540807	1	9	11.1	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1540899	1	17	5.8	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1540889	1	9	11.1	5.0	✓
Fluoride in Water by IC (Low Level)	E235.F-L	1540808	1	9	11.1	5.0	✓
Nitrate in Water by IC (Trace Level)	E235.NO3-T	1540805	1	14	7.1	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1540806	1	14	7.1	5.0	✓
Sulfate in Water by IC (Low Level)	E235.SO4-L	1540810	1	9	11.1	5.0	✓
Total Cyanide	E333	1541871	1	19	5.2	5.0	✓
Total Mercury in Water by CVAAS	E508	1540891	2	28	7.1	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1540695	1	15	6.6	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 (Low Level)	E160-L 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 by IC (Ultra Trace Level)	E235.Br-U 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 (Low Level)	E235.Cl-L 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 (Low Level)	E235.F-L 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 (Trace Level)	E235.NO3-T ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Sulfate in Water by IC (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.
Acidity by Titration	E283 ALS Environmental - Vancouver	Water	APHA 2310 B (mod)	Acidity is determined by potentiometric titration to pH endpoint of 8.3
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.
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).
Total Metals in Water by CRC ICPMS	E420 ALS Environmental - Vancouver	Water	EPA 200.2/6020B (mod)	Water samples are digested with nitric and hydrochloric acids, and analyzed by Collision/Reaction Cell ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
Dissolved Metals in Water by CRC ICPMS	E421 ALS Environmental - Vancouver	Water	APHA 3030B/EPA 6020B (mod)	Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by Collision/Reaction Cell ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
Total Mercury in Water by CVAAS	E508 ALS Environmental - Vancouver	Water	EPA 1631E (mod)	Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS
Dissolved Mercury in Water by CVAAS	E509 ALS Environmental - Vancouver	Water	APHA 3030B/EPA 1631E (mod)	Water samples are filtered (0.45 um), preserved with HCl, then undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS.
Dissolved Hardness (Calculated)	EC100 ALS Environmental - Vancouver	Water	APHA 2340B	“Hardness (as CaCO3), dissolved” is calculated from the sum of dissolved Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. “Total Hardness” refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because it is a property of water due to dissolved divalent cations.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Hardness (Calculated) from Total Ca/Mg	EC100A ALS Environmental - Vancouver	Water	APHA 2340B	"Hardness (as CaCO3), from total Ca/Mg" is calculated from the sum of total Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. "Total Hardness" refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because it is a property of water due to dissolved divalent cations. Hardness from total Ca/Mg is normally comparable to Dissolved Hardness in non-turbid waters.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Dissolved Metals Water Filtration	EP421 ALS Environmental - Vancouver	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HNO3.
Dissolved Mercury Water Filtration	EP509 ALS Environmental - Vancouver	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HCl.

QUALITY CONTROL REPORT

Work Order	: **YL2400835**	Page	: 1 of 17
Client	: Elgin Mining Inc.	Laboratory	: ALS Environmental - Yellowknife
Contact	: Karyn Lewis	Account Manager	: Oliver Gregg
Address	: 750 West Pender Street Suite 201 Vancouver BC Canada V6C 2T7	Address	: 314 Old Airport Road, Unit 116 Yellowknife, Northwest Territories Canada X1A 3T3
Telephone	: 604 682 3366	Telephone	: 1 867 445 7143
Project	: ----	Date Samples Received	: 05-Jul-2024 16:00
PO	: ----	Date Analysis Commenced	: 11-Jul-2024
C-O-C number	: ----	Issue Date	: 17-Jul-2024 13:12
Sampler	: ----		
Site	: ----		
Quote number	: YL23-ELMI100-001		
No. of samples received	: 9		
No. of samples analysed	: 9		

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

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percent Difference (RPD) and Data Quality Objectives
- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

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

Signatories	*Position*	*Laboratory Department*
Angela Ren	Team Leader - Metals	Vancouver Metals, Burnaby, British Columbia
Chau Tran	Analyst	Vancouver Metals, Burnaby, British Columbia
Daniel Shabestani	Lab Assistant	Vancouver Metals, Burnaby, British Columbia
Kate Dimitrova	Supervisor - Inorganic	Vancouver Inorganics, Burnaby, British Columbia
Owen Cheng		Vancouver Metals, Burnaby, British Columbia
Robin Weeks	Team Leader - Metals	Vancouver Inorganics, Burnaby, British Columbia
Robin Weeks	Team Leader - Metals	Vancouver Metals, Burnaby, British Columbia
Tracy Harley	Supervisor - Water Quality Instrumentation	Vancouver Inorganics, Burnaby, British Columbia

General Comments

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

Key :

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

Workorder Comments

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

Laboratory Duplicate (DUP) Report

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

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Physical Tests (QC Lot: 1540661)											
VA24B6657-001	Anonymous	Solids, total dissolved [TDS]	----	E162	20	mg/L	415	421	1.56%	20%	----
Physical Tests (QC Lot: 1540800)											
YL2400835-002	Pond 1-B	Alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	<1.0	<1.0	0	Diff <2x LOR	----
Physical Tests (QC Lot: 1540801)											
YL2400835-002	Pond 1-B	pH	----	E108	0.10	pH units	4.11	4.11	0	Diff <2x LOR	----
Physical Tests (QC Lot: 1540802)											
YL2400835-002	Pond 1-B	Conductivity	----	E100	1.0	µS/cm	359	359	0.00%	10%	----
Physical Tests (QC Lot: 1540803)											
YL2400835-002	Pond 1-B	Acidity (as CaCO3)	----	E283	2.0	mg/L	17.4	17.5	0.1	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1540805)											
VA24B6547-001	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-T	0.0030	mg/L	0.0207	0.0195	0.0012	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1540806)											
VA24B6547-001	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	<0.0010	0.0017	0.0007	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1540807)											
YL2400835-001	Pond 1-A	Chloride	16887-00-6	E235.Cl-L	0.10	mg/L	7.03	7.00	0.439%	20%	----
Anions and Nutrients (QC Lot: 1540808)											
YL2400835-001	Pond 1-A	Fluoride	16984-48-8	E235.F-L	0.010	mg/L	0.126	0.124	1.52%	20%	----
Anions and Nutrients (QC Lot: 1540809)											
YL2400835-001	Pond 1-A	Bromide	24959-67-9	E235.Br-U	0.0050	mg/L	0.0875	0.0892	1.99%	20%	----
Anions and Nutrients (QC Lot: 1540810)											
YL2400835-001	Pond 1-A	Sulfate (as SO4)	14808-79-8	E235.SO4-L	0.050	mg/L	139	138	1.20%	20%	----
Cyanides (QC Lot: 1541871)											
VA24B6679-001	Anonymous	Cyanide, strong acid dissociable (Total)	----	E333	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
Total Metals (QC Lot: 1540695)											
YL2400864-001	Anonymous	Titanium, total	7440-32-6	E420	0.0300	mg/L	<0.0300	<0.0300	0	Diff <2x LOR	----
YL2400864-001	Anonymous	Aluminum, total	7429-90-5	E420	0.0300	mg/L	2.86	2.92	1.95%	20%	----
		Antimony, total	7440-36-0	E420	0.00100	mg/L	0.0272	0.0267	1.90%	20%	----
		Arsenic, total	7440-38-2	E420	0.00100	mg/L	0.00579	0.00527	0.00052	Diff <2x LOR	----
		Barium, total	7440-39-3	E420	0.00100	mg/L	5.04	5.13	1.74%	20%	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Total Metals (QC Lot: 1540695) - continued											
YL2400864-001	Anonymous	Beryllium, total	7440-41-7	E420	0.000200	mg/L	0.000330	0.000358	0.000027	Diff <2x LOR	----
		Bismuth, total	7440-69-9	E420	0.000500	mg/L	0.000683	0.000690	0.000007	Diff <2x LOR	----
		Boron, total	7440-42-8	E420	0.100	mg/L	15.0	14.6	2.89%	20%	----
		Cadmium, total	7440-43-9	E420	0.0000500	mg/L	0.0254	0.0256	0.455%	20%	----
		Calcium, total	7440-70-2	E420	0.500	mg/L	2460	2430	1.40%	20%	----
		Cesium, total	7440-46-2	E420	0.000100	mg/L	0.00690	0.00668	3.33%	20%	----
		Chromium, total	7440-47-3	E420	0.00500	mg/L	0.0328	0.0274	0.00540	Diff <2x LOR	----
		Cobalt, total	7440-48-4	E420	0.00100	mg/L	0.0624	0.0634	1.54%	20%	----
		Copper, total	7440-50-8	E420	0.00500	mg/L	0.190	0.193	1.29%	20%	----
		Iron, total	7439-89-6	E420	0.100	mg/L	4.45	4.42	0.611%	20%	----
		Lead, total	7439-92-1	E420	0.000500	mg/L	0.0858	0.0838	2.26%	20%	----
		Lithium, total	7439-93-2	E420	0.0100	mg/L	1.49	1.48	0.754%	20%	----
		Magnesium, total	7439-95-4	E420	0.0500	mg/L	622	630	1.24%	20%	----
		Manganese, total	7439-96-5	E420	0.00100	mg/L	4.49	4.61	2.56%	20%	----
		Molybdenum, total	7439-98-7	E420	0.000500	mg/L	0.346	0.343	1.08%	20%	----
		Nickel, total	7440-02-0	E420	0.00500	mg/L	1.18	1.18	0.612%	20%	----
		Phosphorus, total	7723-14-0	E420	0.500	mg/L	0.732	0.777	0.046	Diff <2x LOR	----
		Potassium, total	7440-09-7	E420	0.500	mg/L	509	524	2.99%	20%	----
		Rubidium, total	7440-17-7	E420	0.00200	mg/L	0.559	0.575	2.90%	20%	----
		Selenium, total	7782-49-2	E420	0.000500	mg/L	0.00124	0.00122	0.000019	Diff <2x LOR	----
		Silicon, total	7440-21-3	E420	1.00	mg/L	21.0	21.0	0.0288%	20%	----
		Silver, total	7440-22-4	E420	0.000100	mg/L	0.0126	0.0124	1.74%	20%	----
		Sodium, total	7440-23-5	E420	0.500	mg/L	4840	4920	1.78%	20%	----
		Strontium, total	7440-24-6	E420	0.00200	mg/L	27.2	26.5	2.48%	20%	----
		Sulfur, total	7704-34-9	E420	5.00	mg/L	683	661	3.25%	20%	----
		Tellurium, total	13494-80-9	E420	0.00200	mg/L	<0.00200	<0.00200	0	Diff <2x LOR	----
		Thallium, total	7440-28-0	E420	0.000100	mg/L	0.00158	0.00154	2.28%	20%	----
		Thorium, total	7440-29-1	E420	0.00100	mg/L	<0.00100	<0.00100	0	Diff <2x LOR	----
		Tin, total	7440-31-5	E420	0.00100	mg/L	<0.00100	<0.00100	0	Diff <2x LOR	----
		Tungsten, total	7440-33-7	E420	0.00100	mg/L	0.00415	0.00403	0.00012	Diff <2x LOR	----
		Uranium, total	7440-61-1	E420	0.000100	mg/L	0.00717	0.00709	1.15%	20%	----
		Vanadium, total	7440-62-2	E420	0.00500	mg/L	0.00680	0.00672	0.00008	Diff <2x LOR	----
		Zinc, total	7440-66-6	E420	0.0300	mg/L	34.4	34.6	0.717%	20%	----
		Zirconium, total	7440-67-7	E420	0.00260	mg/L	<0.00260	<0.00260	0	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Total Metals (QC Lot: 1540891)											
VA24B6651-006	Anonymous	Mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Total Metals (QC Lot: 1540892)											
YL2400835-002	Pond 1-B	Mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1540889)											
YL2400835-001	Pond 1-A	Aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	1.23	1.23	0.113%	20%	----
		Antimony, dissolved	7440-36-0	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	0.00911	0.00898	1.50%	20%	----
		Barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.0129	0.0131	1.42%	20%	----
		Beryllium, dissolved	7440-41-7	E421	0.000100	mg/L	0.000313	0.000310	0.000004	Diff <2x LOR	----
		Bismuth, dissolved	7440-69-9	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Boron, dissolved	7440-42-8	E421	0.010	mg/L	0.026	0.026	0.00005	Diff <2x LOR	----
		Cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L	0.000278	0.000276	0.956%	20%	----
		Calcium, dissolved	7440-70-2	E421	0.050	mg/L	28.9	28.8	0.622%	20%	----
		Cesium, dissolved	7440-46-2	E421	0.000010	mg/L	0.000039	0.000039	0.00000008	Diff <2x LOR	----
		Chromium, dissolved	7440-47-3	E421	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Cobalt, dissolved	7440-48-4	E421	0.00010	mg/L	0.0518	0.0522	0.818%	20%	----
		Copper, dissolved	7440-50-8	E421	0.00020	mg/L	0.0356	0.0356	0.0744%	20%	----
		Iron, dissolved	7439-89-6	E421	0.010	mg/L	0.685	0.702	2.46%	20%	----
		Lead, dissolved	7439-92-1	E421	0.000050	mg/L	0.00224	0.00224	0.151%	20%	----
		Lithium, dissolved	7439-93-2	E421	0.0010	mg/L	0.0235	0.0227	3.59%	20%	----
		Magnesium, dissolved	7439-95-4	E421	0.0050	mg/L	8.02	8.31	3.54%	20%	----
		Manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.743	0.746	0.369%	20%	----
		Molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Nickel, dissolved	7440-02-0	E421	0.00050	mg/L	0.109	0.110	0.586%	20%	----
		Phosphorus, dissolved	7723-14-0	E421	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Potassium, dissolved	7440-09-7	E421	0.050	mg/L	2.70	2.72	0.997%	20%	----
		Rubidium, dissolved	7440-17-7	E421	0.00020	mg/L	0.00164	0.00166	0.00002	Diff <2x LOR	----
		Selenium, dissolved	7782-49-2	E421	0.000050	mg/L	0.000054	0.000053	0.0000007	Diff <2x LOR	----
		Silicon, dissolved	7440-21-3	E421	0.050	mg/L	2.76	2.89	4.68%	20%	----
		Silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Sodium, dissolved	7440-23-5	E421	0.050	mg/L	14.1	14.1	0.287%	20%	----
		Strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.141	0.143	1.98%	20%	----
		Sulfur, dissolved	7704-34-9	E421	0.50	mg/L	47.6	49.6	4.01%	20%	----
		Tellurium, dissolved	13494-80-9	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Dissolved Metals (QC Lot: 1540889) - continued											
YL2400835-001	Pond 1-A	Thallium, dissolved	7440-28-0	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Thorium, dissolved	7440-29-1	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Tin, dissolved	7440-31-5	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Titanium, dissolved	7440-32-6	E421	0.00030	mg/L	<0.00030	<0.00030	0	Diff <2x LOR	----
		Tungsten, dissolved	7440-33-7	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Uranium, dissolved	7440-61-1	E421	0.000010	mg/L	0.000268	0.000259	3.40%	20%	----
		Vanadium, dissolved	7440-62-2	E421	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Zinc, dissolved	7440-66-6	E421	0.0010	mg/L	0.524	0.522	0.367%	20%	----
		Zirconium, dissolved	7440-67-7	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1540899)											
VA24B6749-001	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----

Method Blank (MB) Report

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

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 1540661)						
Solids, total dissolved [TDS]	----	E162	10	mg/L	<10	----
Physical Tests (QCLot: 1540662)						
Solids, total suspended [TSS]	----	E160-L	1	mg/L	<1.0	----
Physical Tests (QCLot: 1540800)						
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	<1.0	----
Physical Tests (QCLot: 1540802)						
Conductivity	----	E100	1	µS/cm	1.4	----
Physical Tests (QCLot: 1540803)						
Acidity (as CaCO3)	----	E283	2	mg/L	<2.0	----
Anions and Nutrients (QCLot: 1540805)						
Nitrate (as N)	14797-55-8	E235.NO3-T	0.003	mg/L	<0.0030	----
Anions and Nutrients (QCLot: 1540806)						
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 1540807)						
Chloride	16887-00-6	E235.Cl-L	0.1	mg/L	<0.10	----
Anions and Nutrients (QCLot: 1540808)						
Fluoride	16984-48-8	E235.F-L	0.01	mg/L	<0.010	----
Anions and Nutrients (QCLot: 1540809)						
Bromide	24959-67-9	E235.Br-U	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 1540810)						
Sulfate (as SO4)	14808-79-8	E235.SO4-L	0.05	mg/L	<0.050	----
Cyanides (QCLot: 1541871)						
Cyanide, strong acid dissociable (Total)	----	E333	0.002	mg/L	<0.0020	----
Total Metals (QCLot: 1540695)						
Aluminum, total	7429-90-5	E420	0.003	mg/L	# 0.0050	B
Antimony, total	7440-36-0	E420	0.0001	mg/L	<0.00010	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	<0.00010	----
Barium, total	7440-39-3	E420	0.0001	mg/L	<0.00010	----
Beryllium, total	7440-41-7	E420	0.00002	mg/L	<0.000020	----
Bismuth, total	7440-69-9	E420	0.00005	mg/L	<0.000050	----
Boron, total	7440-42-8	E420	0.01	mg/L	<0.010	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	<0.0000050	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (QCLot: 1540695) - continued						
Calcium, total	7440-70-2	E420	0.05	mg/L	<0.050	----
Cesium, total	7440-46-2	E420	0.00001	mg/L	<0.000010	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	<0.00050	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	<0.00010	----
Copper, total	7440-50-8	E420	0.0005	mg/L	<0.00050	----
Iron, total	7439-89-6	E420	0.01	mg/L	<0.010	----
Lead, total	7439-92-1	E420	0.00005	mg/L	<0.000050	----
Lithium, total	7439-93-2	E420	0.001	mg/L	<0.0010	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	<0.0050	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	<0.00010	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	<0.000050	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	<0.00050	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	<0.050	----
Potassium, total	7440-09-7	E420	0.05	mg/L	<0.050	----
Rubidium, total	7440-17-7	E420	0.0002	mg/L	<0.00020	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	<0.000050	----
Silicon, total	7440-21-3	E420	0.1	mg/L	<0.10	----
Silver, total	7440-22-4	E420	0.00001	mg/L	<0.000010	----
Sodium, total	7440-23-5	E420	0.05	mg/L	<0.050	----
Strontium, total	7440-24-6	E420	0.0002	mg/L	<0.00020	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	<0.50	----
Tellurium, total	13494-80-9	E420	0.0002	mg/L	<0.00020	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	<0.000010	----
Thorium, total	7440-29-1	E420	0.0001	mg/L	<0.00010	----
Tin, total	7440-31-5	E420	0.0001	mg/L	<0.00010	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	<0.00030	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	<0.00010	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	<0.000010	----
Vanadium, total	7440-62-2	E420	0.0005	mg/L	<0.00050	----
Zinc, total	7440-66-6	E420	0.003	mg/L	<0.0030	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	<0.00020	----
Total Metals (QCLot: 1540891)						
Mercury, total	7439-97-6	E508	0.000005	mg/L	<0.0000050	----
Total Metals (QCLot: 1540892)						
Mercury, total	7439-97-6	E508	0.000005	mg/L	<0.0000050	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Dissolved Metals (QCLot: 1540889)						
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	<0.0010	----
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	<0.00010	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	<0.00010	----
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	<0.00010	----
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	<0.000020	----
Bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	<0.000050	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	<0.010	----
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	<0.0000050	----
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	<0.050	----
Cesium, dissolved	7440-46-2	E421	0.00001	mg/L	<0.000010	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	<0.00050	----
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	<0.00010	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	<0.00020	----
Iron, dissolved	7439-89-6	E421	0.01	mg/L	<0.010	----
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	<0.000050	----
Lithium, dissolved	7439-93-2	E421	0.001	mg/L	<0.0010	----
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	<0.0050	----
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	<0.00010	----
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	<0.000050	----
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	<0.00050	----
Phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	<0.050	----
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	<0.050	----
Rubidium, dissolved	7440-17-7	E421	0.0002	mg/L	<0.00020	----
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	<0.000050	----
Silicon, dissolved	7440-21-3	E421	0.05	mg/L	<0.050	----
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	<0.000010	----
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	<0.050	----
Strontium, dissolved	7440-24-6	E421	0.0002	mg/L	<0.00020	----
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	<0.50	----
Tellurium, dissolved	13494-80-9	E421	0.0002	mg/L	<0.00020	----
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	<0.000010	----
Thorium, dissolved	7440-29-1	E421	0.0001	mg/L	<0.00010	----
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	<0.00010	----
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	<0.00030	----
Tungsten, dissolved	7440-33-7	E421	0.0001	mg/L	<0.00010	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Dissolved Metals (QCLot: 1540889) - continued						
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	<0.000010	----
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	<0.00050	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	<0.0010	----
Zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	<0.00020	----
Dissolved Metals (QCLot: 1540899)						
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	<0.0000050	----

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	Target Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 1540661)									
Solids, total dissolved [TDS]	----	E162	10	mg/L	1000 mg/L	100	85.0	115	----
Physical Tests (QCLot: 1540662)									
Solids, total suspended [TSS]	----	E160-L	1	mg/L	150 mg/L	96.2	85.0	115	----
Physical Tests (QCLot: 1540800)									
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	500 mg/L	108	85.0	115	----
Physical Tests (QCLot: 1540801)									
pH	----	E108	----	pH units	7 pH units	100	98.0	102	----
Physical Tests (QCLot: 1540802)									
Conductivity	----	E100	1	µS/cm	147 µS/cm	95.9	90.0	110	----
Physical Tests (QCLot: 1540803)									
Acidity (as CaCO3)	----	E283	2	mg/L	50 mg/L	96.8	85.0	115	----
Anions and Nutrients (QCLot: 1540805)									
Nitrate (as N)	14797-55-8	E235.NO3-T	0.003	mg/L	2.5 mg/L	99.1	90.0	110	----
Anions and Nutrients (QCLot: 1540806)									
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: 1540807)									
Chloride	16887-00-6	E235.Cl-L	0.1	mg/L	100 mg/L	99.4	90.0	110	----
Anions and Nutrients (QCLot: 1540808)									
Fluoride	16984-48-8	E235.F-L	0.01	mg/L	1 mg/L	100	90.0	110	----
Anions and Nutrients (QCLot: 1540809)									
Bromide	24959-67-9	E235.Br-U	0.005	mg/L	0.5 mg/L	97.7	85.0	115	----
Anions and Nutrients (QCLot: 1540810)									
Sulfate (as SO4)	14808-79-8	E235.SO4-L	0.05	mg/L	100 mg/L	99.9	90.0	110	----
Cyanides (QCLot: 1541871)									
Cyanide, strong acid dissociable (Total)	----	E333	0.002	mg/L	0.25 mg/L	96.2	80.0	120	----
Total Metals (QCLot: 1540695)									
Aluminum, total	7429-90-5	E420	0.003	mg/L	2 mg/L	96.1	80.0	120	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	1 mg/L	100	80.0	120	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	1 mg/L	101	80.0	120	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Total Metals (QCLot: 1540695) - continued									
Barium, total	7440-39-3	E420	0.0001	mg/L	0.25 mg/L	104	80.0	120	----
Beryllium, total	7440-41-7	E420	0.00002	mg/L	0.1 mg/L	99.0	80.0	120	----
Bismuth, total	7440-69-9	E420	0.00005	mg/L	1 mg/L	103	80.0	120	----
Boron, total	7440-42-8	E420	0.01	mg/L	1 mg/L	98.8	80.0	120	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	0.1 mg/L	99.6	80.0	120	----
Calcium, total	7440-70-2	E420	0.05	mg/L	50 mg/L	102	80.0	120	----
Cesium, total	7440-46-2	E420	0.00001	mg/L	0.05 mg/L	99.3	80.0	120	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	0.25 mg/L	98.8	80.0	120	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	0.25 mg/L	95.5	80.0	120	----
Copper, total	7440-50-8	E420	0.0005	mg/L	0.25 mg/L	96.2	80.0	120	----
Iron, total	7439-89-6	E420	0.01	mg/L	1 mg/L	95.0	80.0	120	----
Lead, total	7439-92-1	E420	0.00005	mg/L	0.5 mg/L	101	80.0	120	----
Lithium, total	7439-93-2	E420	0.001	mg/L	0.25 mg/L	100	80.0	120	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	50 mg/L	96.6	80.0	120	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	0.25 mg/L	97.9	80.0	120	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	0.25 mg/L	104	80.0	120	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	0.5 mg/L	95.6	80.0	120	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	10 mg/L	101	80.0	120	----
Potassium, total	7440-09-7	E420	0.05	mg/L	50 mg/L	98.0	80.0	120	----
Rubidium, total	7440-17-7	E420	0.0002	mg/L	0.1 mg/L	99.4	80.0	120	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	1 mg/L	92.8	80.0	120	----
Silicon, total	7440-21-3	E420	0.1	mg/L	10 mg/L	99.5	80.0	120	----
Silver, total	7440-22-4	E420	0.00001	mg/L	0.1 mg/L	93.0	80.0	120	----
Sodium, total	7440-23-5	E420	0.05	mg/L	50 mg/L	93.2	80.0	120	----
Strontium, total	7440-24-6	E420	0.0002	mg/L	0.25 mg/L	104	80.0	120	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	50 mg/L	83.4	80.0	120	----
Tellurium, total	13494-80-9	E420	0.0002	mg/L	0.1 mg/L	103	80.0	120	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	1 mg/L	101	80.0	120	----
Thorium, total	7440-29-1	E420	0.0001	mg/L	0.1 mg/L	100	80.0	120	----
Tin, total	7440-31-5	E420	0.0001	mg/L	0.5 mg/L	100	80.0	120	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	0.25 mg/L	93.4	80.0	120	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	0.1 mg/L	102	80.0	120	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	0.005 mg/L	103	80.0	120	----
Vanadium, total	7440-62-2	E420	0.0005	mg/L	0.5 mg/L	98.7	80.0	120	----
Zinc, total	7440-66-6	E420	0.003	mg/L	0.5 mg/L	97.2	80.0	120	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	0.1 mg/L	98.2	80.0	120	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
					Target Concentration	LCS	Low	High	Qualifier
Total Metals (QCLot: 1540891)									
Mercury, total	7439-97-6	E508	0.000005	mg/L	0 mg/L	97.1	80.0	120	----
Total Metals (QCLot: 1540892)									
Mercury, total	7439-97-6	E508	0.000005	mg/L	0 mg/L	100	80.0	120	----
Dissolved Metals (QCLot: 1540889)									
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	2 mg/L	98.8	80.0	120	----
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	1 mg/L	97.2	80.0	120	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	1 mg/L	104	80.0	120	----
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	0.25 mg/L	101	80.0	120	----
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	0.1 mg/L	95.7	80.0	120	----
Bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	1 mg/L	99.9	80.0	120	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	1 mg/L	98.0	80.0	120	----
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	0.1 mg/L	104	80.0	120	----
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	50 mg/L	96.4	80.0	120	----
Cesium, dissolved	7440-46-2	E421	0.00001	mg/L	0.05 mg/L	93.9	80.0	120	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	0.25 mg/L	101	80.0	120	----
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	0.25 mg/L	99.8	80.0	120	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	0.25 mg/L	98.8	80.0	120	----
Iron, dissolved	7439-89-6	E421	0.01	mg/L	1 mg/L	96.8	80.0	120	----
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	0.5 mg/L	99.4	80.0	120	----
Lithium, dissolved	7439-93-2	E421	0.001	mg/L	0.25 mg/L	93.9	80.0	120	----
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	50 mg/L	108	80.0	120	----
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	0.25 mg/L	99.2	80.0	120	----
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	0.25 mg/L	96.9	80.0	120	----
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	0.5 mg/L	101	80.0	120	----
Phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	10 mg/L	96.5	80.0	120	----
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	50 mg/L	97.0	80.0	120	----
Rubidium, dissolved	7440-17-7	E421	0.0002	mg/L	0.1 mg/L	98.9	80.0	120	----
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	1 mg/L	106	80.0	120	----
Silicon, dissolved	7440-21-3	E421	0.05	mg/L	10 mg/L	106	80.0	120	----
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	0.1 mg/L	90.6	80.0	120	----
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	50 mg/L	96.9	80.0	120	----
Strontium, dissolved	7440-24-6	E421	0.0002	mg/L	0.25 mg/L	96.9	80.0	120	----
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	50 mg/L	95.0	80.0	120	----
Tellurium, dissolved	13494-80-9	E421	0.0002	mg/L	0.1 mg/L	92.9	80.0	120	----
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	1 mg/L	99.6	80.0	120	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Dissolved Metals (QCLot: 1540889) - continued									
Thorium, dissolved	7440-29-1	E421	0.0001	mg/L	0.1 mg/L	95.8	80.0	120	----
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	0.5 mg/L	96.4	80.0	120	----
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	0.25 mg/L	99.6	80.0	120	----
Tungsten, dissolved	7440-33-7	E421	0.0001	mg/L	0.1 mg/L	100	80.0	120	----
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	0.005 mg/L	102	80.0	120	----
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	0.5 mg/L	103	80.0	120	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	0.5 mg/L	94.6	80.0	120	----
Zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	0.1 mg/L	85.2	80.0	120	----
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0 mg/L	100	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: 1540805)										
VA24B6551-001	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-T	2.53 mg/L	2.5 mg/L	101	75.0	125	----
Anions and Nutrients (QCLot: 1540806)										
VA24B6551-001	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	0.507 mg/L	0.5 mg/L	101	75.0	125	----
Anions and Nutrients (QCLot: 1540807)										
YL2400835-002	Pond 1-B	Chloride	16887-00-6	E235.Cl-L	101 mg/L	100 mg/L	101	75.0	125	----
Anions and Nutrients (QCLot: 1540808)										
YL2400835-002	Pond 1-B	Fluoride	16984-48-8	E235.F-L	1.05 mg/L	1 mg/L	105	75.0	125	----
Anions and Nutrients (QCLot: 1540809)										
YL2400835-002	Pond 1-B	Bromide	24959-67-9	E235.Br-U	0.501 mg/L	0.5 mg/L	100	75.0	125	----
Anions and Nutrients (QCLot: 1540810)										
YL2400835-002	Pond 1-B	Sulfate (as SO4)	14808-79-8	E235.SO4-L	ND mg/L	----	ND	75.0	125	----
Cyanides (QCLot: 1541871)										
VA24B6679-002	Anonymous	Cyanide, strong acid dissociable (Total)	----	E333	----	----		75.0	125	----
Total Metals (QCLot: 1540695)										
YL2400864-002	Anonymous	Aluminum, total	7429-90-5	E420	ND mg/L	----	ND	70.0	130	----
		Antimony, total	7440-36-0	E420	0.396 mg/L	0.4 mg/L	98.9	70.0	130	----
		Arsenic, total	7440-38-2	E420	0.415 mg/L	0.4 mg/L	104	70.0	130	----
		Barium, total	7440-39-3	E420	ND mg/L	----	ND	70.0	130	----
		Beryllium, total	7440-41-7	E420	0.756 mg/L	0.8 mg/L	94.5	70.0	130	----
		Bismuth, total	7440-69-9	E420	0.186 mg/L	0.2 mg/L	92.8	70.0	130	----
		Boron, total	7440-42-8	E420	ND mg/L	----	ND	70.0	130	----
		Cadmium, total	7440-43-9	E420	0.0803 mg/L	0.08 mg/L	100	70.0	130	----
		Calcium, total	7440-70-2	E420	ND mg/L	----	ND	70.0	130	----
		Cesium, total	7440-46-2	E420	0.202 mg/L	0.2 mg/L	101	70.0	130	----
		Chromium, total	7440-47-3	E420	ND mg/L	----	ND	70.0	130	----
		Cobalt, total	7440-48-4	E420	0.382 mg/L	0.4 mg/L	95.5	70.0	130	----
		Copper, total	7440-50-8	E420	ND mg/L	----	ND	70.0	130	----
		Iron, total	7439-89-6	E420	ND mg/L	----	ND	70.0	130	----
		Lead, total	7439-92-1	E420	0.376 mg/L	0.4 mg/L	94.0	70.0	130	----
		Lithium, total	7439-93-2	E420	1.83 mg/L	2 mg/L	91.5	70.0	130	----
		Magnesium, total	7439-95-4	E420	ND mg/L	----	ND	70.0	130	----
		Manganese, total	7439-96-5	E420	ND mg/L	----	ND	70.0	130	----
		Molybdenum, total	7439-98-7	E420	0.430 mg/L	0.4 mg/L	107	70.0	130	----
		Nickel, total	7440-02-0	E420	ND mg/L	----	ND	70.0	130	----
		Phosphorus, total	7723-14-0	E420	198 mg/L	200 mg/L	99.0	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Total Metals (QCLot: 1540695) - continued										
YL2400864-002	Anonymous	Potassium, total	7440-09-7	E420	ND mg/L	----	ND	70.0	130	----
		Rubidium, total	7440-17-7	E420	ND mg/L	----	ND	70.0	130	----
		Selenium, total	7782-49-2	E420	0.791 mg/L	0.8 mg/L	98.9	70.0	130	----
		Silicon, total	7440-21-3	E420	ND mg/L	----	ND	70.0	130	----
		Silver, total	7440-22-4	E420	0.0794 mg/L	0.08 mg/L	99.3	70.0	130	----
		Sodium, total	7440-23-5	E420	ND mg/L	----	ND	70.0	130	----
		Strontium, total	7440-24-6	E420	ND mg/L	----	ND	70.0	130	----
		Sulfur, total	7704-34-9	E420	391 mg/L	400 mg/L	97.8	70.0	130	----
		Tellurium, total	13494-80-9	E420	0.857 mg/L	0.8 mg/L	107	70.0	130	----
		Thallium, total	7440-28-0	E420	0.0736 mg/L	0.08 mg/L	91.9	70.0	130	----
		Thorium, total	7440-29-1	E420	0.442 mg/L	0.4 mg/L	110	70.0	130	----
		Tin, total	7440-31-5	E420	0.400 mg/L	0.4 mg/L	100	70.0	130	----
		Titanium, total	7440-32-6	E420	ND mg/L	----	ND	70.0	130	----
		Tungsten, total	7440-33-7	E420	0.402 mg/L	0.4 mg/L	100	70.0	130	----
		Uranium, total	7440-61-1	E420	0.0780 mg/L	0.08 mg/L	97.5	70.0	130	----
		Vanadium, total	7440-62-2	E420	2.03 mg/L	2 mg/L	102	70.0	130	----
		Zinc, total	7440-66-6	E420	ND mg/L	----	ND	70.0	130	----
		Zirconium, total	7440-67-7	E420	0.838 mg/L	0.8 mg/L	105	70.0	130	----
Total Metals (QCLot: 1540891)										
VA24B6652-001	Anonymous	Mercury, total	7439-97-6	E508	0.0000974 mg/L	0 mg/L	97.4	70.0	130	----
Total Metals (QCLot: 1540892)										
YL2400835-003	Pond 2-A	Mercury, total	7439-97-6	E508	0.0000994 mg/L	0 mg/L	99.4	70.0	130	----
Dissolved Metals (QCLot: 1540889)										
YL2400835-002	Pond 1-B	Aluminum, dissolved	7429-90-5	E421	ND mg/L	----	ND	70.0	130	----
		Antimony, dissolved	7440-36-0	E421	0.0180 mg/L	0.02 mg/L	90.0	70.0	130	----
		Arsenic, dissolved	7440-38-2	E421	0.0197 mg/L	0.02 mg/L	98.3	70.0	130	----
		Barium, dissolved	7440-39-3	E421	0.0189 mg/L	0.02 mg/L	94.7	70.0	130	----
		Beryllium, dissolved	7440-41-7	E421	0.0385 mg/L	0.04 mg/L	96.3	70.0	130	----
		Bismuth, dissolved	7440-69-9	E421	0.00909 mg/L	0.01 mg/L	90.9	70.0	130	----
		Boron, dissolved	7440-42-8	E421	0.098 mg/L	0.1 mg/L	98.6	70.0	130	----
		Cadmium, dissolved	7440-43-9	E421	0.00376 mg/L	0.004 mg/L	94.0	70.0	130	----
		Calcium, dissolved	7440-70-2	E421	ND mg/L	----	ND	70.0	130	----
		Cesium, dissolved	7440-46-2	E421	0.00925 mg/L	0.01 mg/L	92.5	70.0	130	----
		Chromium, dissolved	7440-47-3	E421	0.0387 mg/L	0.04 mg/L	96.6	70.0	130	----
		Cobalt, dissolved	7440-48-4	E421	ND mg/L	----	ND	70.0	130	----
		Copper, dissolved	7440-50-8	E421	ND mg/L	----	ND	70.0	130	----
		Iron, dissolved	7439-89-6	E421	1.86 mg/L	2 mg/L	93.1	70.0	130	----
		Lead, dissolved	7439-92-1	E421	0.0190 mg/L	0.02 mg/L	95.0	70.0	130	----
		Lithium, dissolved	7439-93-2	E421	0.0957 mg/L	0.1 mg/L	95.7	70.0	130	----
		Magnesium, dissolved	7439-95-4	E421	ND mg/L	----	ND	70.0	130	----
		Manganese, dissolved	7439-96-5	E421	ND mg/L	----	ND	70.0	130	----
		Molybdenum, dissolved	7439-98-7	E421	0.0191 mg/L	0.02 mg/L	95.4	70.0	130	----
		Nickel, dissolved	7440-02-0	E421	ND mg/L	----	ND	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Dissolved Metals (QCLot: 1540889) - continued										
YL2400835-002	Pond 1-B	Phosphorus, dissolved	7723-14-0	E421	9.53 mg/L	10 mg/L	95.3	70.0	130	----
		Potassium, dissolved	7440-09-7	E421	4.04 mg/L	4 mg/L	101	70.0	130	----
		Rubidium, dissolved	7440-17-7	E421	0.0192 mg/L	0.02 mg/L	96.1	70.0	130	----
		Selenium, dissolved	7782-49-2	E421	0.0392 mg/L	0.04 mg/L	98.0	70.0	130	----
		Silicon, dissolved	7440-21-3	E421	9.20 mg/L	10 mg/L	92.0	70.0	130	----
		Silver, dissolved	7440-22-4	E421	0.00377 mg/L	0.004 mg/L	94.3	70.0	130	----
		Sodium, dissolved	7440-23-5	E421	ND mg/L	----	ND	70.0	130	----
		Strontium, dissolved	7440-24-6	E421	ND mg/L	----	ND	70.0	130	----
		Sulfur, dissolved	7704-34-9	E421	ND mg/L	----	ND	70.0	130	----
		Tellurium, dissolved	13494-80-9	E421	0.0377 mg/L	0.04 mg/L	94.2	70.0	130	----
		Thallium, dissolved	7440-28-0	E421	0.00365 mg/L	0.004 mg/L	91.2	70.0	130	----
		Thorium, dissolved	7440-29-1	E421	0.0195 mg/L	0.02 mg/L	97.5	70.0	130	----
		Tin, dissolved	7440-31-5	E421	0.0185 mg/L	0.02 mg/L	92.6	70.0	130	----
		Titanium, dissolved	7440-32-6	E421	0.0390 mg/L	0.04 mg/L	97.6	70.0	130	----
		Tungsten, dissolved	7440-33-7	E421	0.0190 mg/L	0.02 mg/L	94.9	70.0	130	----
		Uranium, dissolved	7440-61-1	E421	0.00372 mg/L	0.004 mg/L	92.9	70.0	130	----
		Vanadium, dissolved	7440-62-2	E421	0.0974 mg/L	0.1 mg/L	97.4	70.0	130	----
		Zinc, dissolved	7440-66-6	E421	ND mg/L	----	ND	70.0	130	----
		Zirconium, dissolved	7440-67-7	E421	0.0367 mg/L	0.04 mg/L	91.8	70.0	130	----
Dissolved Metals (QCLot: 1540899)										
VA24B6749-002	Anonymous	Mercury, dissolved	7439-97-6	E509	0.000101 mg/L	0 mg/L	101	70.0	130	----

CERTIFICATE OF ANALYSIS

Work Order	: **YL2400881**	Page	: 1 of 6
Client	: **Elgin Mining Inc.**	Laboratory	: ALS Environmental - Yellowknife
Contact	: Shane Leggett	Account Manager	: Oliver Gregg
Address	: 750 West Pender Street Suite 201 Vancouver BC Canada V6C 2T7	Address	: 314 Old Airport Road, Unit 116 Yellowknife NT Canada X1A 3T3
Telephone	: ----	Telephone	: 1 867 445 7143
Project	: ----	Date Samples Received	: 11-Jul-2024 14:25
PO	: ----	Date Analysis Commenced	: 15-Jul-2024
C-O-C number	: ----	Issue Date	: 24-Jul-2024 10:53
Sampler	: ----		
Site	: ----		
Quote number	: YL23-ELMI100-001		
No. of samples received	: 5		
No. of samples analysed	: 5		

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

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

Signatories

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

Signatories	*Position*	*Laboratory Department*
Dan Gebert	Laboratory Analyst	Metals, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia
Lindsay Gung	Supervisor - Water Chemistry	Inorganics, Burnaby, British Columbia
Maya Urquhart	Lab Analyst	Metals, Burnaby, British Columbia

General Comments

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

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

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

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

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

LOR: Limit of Reporting (detection limit).

Unit	*Description*
-	no units
µS/cm	microsiemens per centimetre
mg/L	milligrams 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*
DLDS	*Detection Limit Raised: Dilution required due to high Dissolved Solids / Electrical Conductivity.*
DLM	*Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).*

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	Cell 4-A	Cell 4-B	Pond 1-B	Pond 1-D	Contwoyto Lake
					Client sampling date / time	10-Jul-2024 15:00	10-Jul-2024 15:15	10-Jul-2024 14:45	10-Jul-2024 14:30	10-Jul-2024 14:30
						YL2400881-001	YL2400881-002	YL2400881-003	YL2400881-004	YL2400881-005
						Result	Result	Result	Result	Result
Physical Tests										
Acidity (as CaCO3)	----	E283/VA	2.0	mg/L		56.7	57.0	20.0	14.9	<2.0
Alkalinity, total (as CaCO3)	----	E290/VA	1.0	mg/L		<1.0	<1.0	<1.0	<1.0	3.9
Conductivity	----	E100/VA	1.0	µS/cm		812	821	384	368	34.0
Hardness (as CaCO3), dissolved	----	EC100/VA	0.60	mg/L		186	188	100	96.7	10.3
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/VA	0.60	mg/L		193	191	102	99.8	10.8
pH	----	E108/VA	0.10	pH units		3.46	3.45	4.08	4.13	6.78
Solids, total dissolved [TDS]	----	E162/VA	10	mg/L		500	489	236	245	30
Solids, total suspended [TSS]	----	E160-L/VA	1.0	mg/L		40.4	6.5	<1.0	26.9	2.1
Anions and Nutrients										
Bromide	24959-67-9	E235.Br-U/VA	0.0050	mg/L		0.267	0.256	0.0719	0.0806	0.0081
Chloride	16887-00-6	E235.Cl-L/VA	0.10	mg/L		17.3	17.5	6.93	7.02	0.46
Fluoride	16984-48-8	E235.F-L/VA	0.010	mg/L		0.171	0.173	0.115	0.106	0.030
Nitrate (as N)	14797-55-8	E235.NO3-T/VA	0.0030	mg/L		0.0333	0.0357	0.311	0.318	0.0087
Nitrite (as N)	14797-65-0	E235.NO2-L/VA	0.0010	mg/L		<0.0050 DLDS	<0.0050 DLDS	<0.0010	<0.0010	<0.0010
Sulfate (as SO4)	14808-79-8	E235.SO4-L/VA	0.050	mg/L		297	302	144	141	8.89
Cyanides										
Cyanide, strong acid dissociable (Total)	----	E333/VA	0.0050	mg/L		0.0069	0.0068	<0.0050	0.0061	<0.0050
Total Metals										
Aluminum, total	7429-90-5	E420/VA	0.0030	mg/L		3.39	3.28	1.47	1.49	0.0256
Antimony, total	7440-36-0	E420/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic, total	7440-38-2	E420/VA	0.00010	mg/L		0.0715	0.0876	0.00984	0.0472	0.00102
Barium, total	7440-39-3	E420/VA	0.00010	mg/L		0.0199	0.0194	0.0128	0.0147	0.00444
Beryllium, total	7440-41-7	E420/VA	0.000100	mg/L		0.000456	0.000457	0.000347	0.000329	<0.000100
Bismuth, total	7440-69-9	E420/VA	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron, total	7440-42-8	E420/VA	0.010	mg/L		0.062	0.062	0.028	0.027	<0.010
Cadmium, total	7440-43-9	E420/VA	0.0000050	mg/L		0.000266	0.000270	0.000279	0.000256	0.0000068
Calcium, total	7440-70-2	E420/VA	0.050	mg/L		59.1	58.8	28.7	28.1	2.06
Cesium, total	7440-46-2	E420/VA	0.000010	mg/L		0.000076	0.000088	0.000066	0.000149	0.000020

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	Cell 4-A	Cell 4-B	Pond 1-B	Pond 1-D	Contwoyto Lake
					Client sampling date / time	10-Jul-2024 15:00	10-Jul-2024 15:15	10-Jul-2024 14:45	10-Jul-2024 14:30	10-Jul-2024 14:30
						YL2400881-001	YL2400881-002	YL2400881-003	YL2400881-004	YL2400881-005
						Result	Result	Result	Result	Result
Total Metals										
Chromium, total	7440-47-3	E420/VA	0.00050	mg/L		0.00122	0.00119	<0.00050	0.00093	<0.00050
Cobalt, total	7440-48-4	E420/VA	0.00010	mg/L		0.0798	0.0782	0.0529	0.0515	0.00080
Copper, total	7440-50-8	E420/VA	0.00050	mg/L		0.0992	0.0970	0.0402	0.0386	0.00122
Iron, total	7439-89-6	E420/VA	0.010	mg/L		4.69	4.52	1.97	1.27	0.131
Lead, total	7439-92-1	E420/VA	0.000050	mg/L		0.0483	0.0483	0.00224	0.00335	<0.000050
Lithium, total	7439-93-2	E420/VA	0.0010	mg/L		0.0501	0.0495	0.0239	0.0231	0.0030
Magnesium, total	7439-95-4	E420/VA	0.0050	mg/L		11.0	10.8	7.39	7.20	1.37
Manganese, total	7439-96-5	E420/VA	0.00010	mg/L		1.44	1.38	0.688	0.670	0.0117
Mercury, total	7439-97-6	E508/VA	0.0000050	mg/L		<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum, total	7439-98-7	E420/VA	0.000050	mg/L		0.000056	0.000054	<0.000050	0.000091	<0.000050
Nickel, total	7440-02-0	E420/VA	0.00050	mg/L		0.187	0.183	0.112	0.108	0.00363
Phosphorus, total	7723-14-0	E420/VA	0.050	mg/L		<0.050	<0.050	<0.050	<0.050	<0.050
Potassium, total	7440-09-7	E420/VA	0.050	mg/L		4.80	4.64	2.70	2.75	0.533
Rubidium, total	7440-17-7	E420/VA	0.00020	mg/L		0.00280	0.00276	0.00170	0.00200	0.00151
Selenium, total	7782-49-2	E420/VA	0.000050	mg/L		0.000082	0.000073	0.000058	<0.000050	<0.000050
Silicon, total	7440-21-3	E420/VA	0.10	mg/L		8.60	8.53	2.90	3.11	0.21
Silver, total	7440-22-4	E420/VA	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium, total	7440-23-5	E420/VA	0.050	mg/L		36.8	34.7	14.8	14.3	1.12
Strontium, total	7440-24-6	E420/VA	0.00020	mg/L		0.367	0.370	0.153	0.150	0.0118
Sulfur, total	7704-34-9	E420/VA	0.50	mg/L		106	104	48.7	45.8	2.76
Tellurium, total	13494-80-9	E420/VA	0.00020	mg/L		<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Thallium, total	7440-28-0	E420/VA	0.000010	mg/L		<0.000010	<0.000010	<0.000010	0.000010	<0.000010
Thorium, total	7440-29-1	E420/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Tin, total	7440-31-5	E420/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium, total	7440-32-6	E420/VA	0.00030	mg/L		<0.00180 DLM	<0.00120 DLM	<0.00090 DLM	0.0151	<0.00030
Tungsten, total	7440-33-7	E420/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Uranium, total	7440-61-1	E420/VA	0.000010	mg/L		0.000898	0.000918	0.000366	0.000334	0.000025
Vanadium, total	7440-62-2	E420/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	0.00067	<0.00050
Zinc, total	7440-66-6	E420/VA	0.0030	mg/L		1.15	1.11	0.525	0.510	<0.0030
Zirconium, total	7440-67-7	E420/VA	0.00020	mg/L		<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Dissolved Metals										

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	Cell 4-A	Cell 4-B	Pond 1-B	Pond 1-D	Contwoyto Lake
					Client sampling date / time	10-Jul-2024 15:00	10-Jul-2024 15:15	10-Jul-2024 14:45	10-Jul-2024 14:30	10-Jul-2024 14:30
						YL2400881-001	YL2400881-002	YL2400881-003	YL2400881-004	YL2400881-005
						Result	Result	Result	Result	Result
Dissolved Metals										
Aluminum, dissolved	7429-90-5	E421/VA	0.0010	mg/L		3.40	3.43	1.51	1.24	0.0189
Antimony, dissolved	7440-36-0	E421/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic, dissolved	7440-38-2	E421/VA	0.00010	mg/L		0.0643	0.0585	0.00862	0.00814	0.00086
Barium, dissolved	7440-39-3	E421/VA	0.00010	mg/L		0.0199	0.0195	0.0129	0.0129	0.00405
Beryllium, dissolved	7440-41-7	E421/VA	0.000100	mg/L		0.000434	0.000448	0.000356	0.000320	<0.000100
Bismuth, dissolved	7440-69-9	E421/VA	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron, dissolved	7440-42-8	E421/VA	0.010	mg/L		0.058	0.058	0.026	0.025	<0.010
Cadmium, dissolved	7440-43-9	E421/VA	0.0000050	mg/L		0.000269	0.000280	0.000281	0.000267	0.0000059
Calcium, dissolved	7440-70-2	E421/VA	0.050	mg/L		56.2	57.0	27.8	26.8	1.93
Cesium, dissolved	7440-46-2	E421/VA	0.000010	mg/L		0.000072	0.000077	0.000060	0.000051	0.000019
Chromium, dissolved	7440-47-3	E421/VA	0.00050	mg/L		0.00106	0.00113	<0.00050	<0.00050	<0.00050
Cobalt, dissolved	7440-48-4	E421/VA	0.00010	mg/L		0.0792	0.0800	0.0534	0.0518	0.00071
Copper, dissolved	7440-50-8	E421/VA	0.00020	mg/L		0.0971	0.0982	0.0396	0.0358	0.00111
Iron, dissolved	7439-89-6	E421/VA	0.010	mg/L		4.61	4.30	2.07	0.609	0.083
Lead, dissolved	7439-92-1	E421/VA	0.000050	mg/L		0.0487	0.0472	0.00223	0.00237	<0.000050
Lithium, dissolved	7439-93-2	E421/VA	0.0010	mg/L		0.0490	0.0489	0.0250	0.0230	0.0029
Magnesium, dissolved	7439-95-4	E421/VA	0.0050	mg/L		11.2	11.2	7.55	7.24	1.33
Manganese, dissolved	7439-96-5	E421/VA	0.00010	mg/L		1.40	1.40	0.689	0.677	0.00985
Mercury, dissolved	7439-97-6	E509/VA	0.0000050	mg/L		<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum, dissolved	7439-98-7	E421/VA	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Nickel, dissolved	7440-02-0	E421/VA	0.00050	mg/L		0.186	0.187	0.111	0.108	0.00338
Phosphorus, dissolved	7723-14-0	E421/VA	0.050	mg/L		<0.050	<0.050	<0.050	<0.050	<0.050
Potassium, dissolved	7440-09-7	E421/VA	0.050	mg/L		4.87	4.88	2.76	2.77	0.544
Rubidium, dissolved	7440-17-7	E421/VA	0.00020	mg/L		0.00251	0.00266	0.00172	0.00157	0.00148
Selenium, dissolved	7782-49-2	E421/VA	0.000050	mg/L		0.000056	0.000082	0.000059	<0.000050	<0.000050
Silicon, dissolved	7440-21-3	E421/VA	0.050	mg/L		8.83	8.94	2.94	2.82	0.163
Silver, dissolved	7440-22-4	E421/VA	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium, dissolved	7440-23-5	E421/VA	0.050	mg/L		36.6	36.4	14.8	14.9	1.10
Strontium, dissolved	7440-24-6	E421/VA	0.00020	mg/L		0.367	0.369	0.153	0.150	0.0118
Sulfur, dissolved	7704-34-9	E421/VA	0.50	mg/L		109	108	49.0	46.7	2.72
Tellurium, dissolved	13494-80-9	E421/VA	0.00020	mg/L		<0.00020	<0.00020	<0.00020	<0.00020	<0.00020

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	Cell 4-A	Cell 4-B	Pond 1-B	Pond 1-D	Contwoyto Lake
					Client sampling date / time	10-Jul-2024 15:00	10-Jul-2024 15:15	10-Jul-2024 14:45	10-Jul-2024 14:30	10-Jul-2024 14:30
						YL2400881-001	YL2400881-002	YL2400881-003	YL2400881-004	YL2400881-005
						Result	Result	Result	Result	Result
Dissolved Metals										
Thallium, dissolved	7440-28-0	E421/VA	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Thorium, dissolved	7440-29-1	E421/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Tin, dissolved	7440-31-5	E421/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium, dissolved	7440-32-6	E421/VA	0.00030	mg/L		<0.00030	<0.00030	<0.00030	<0.00030	<0.00030
Tungsten, dissolved	7440-33-7	E421/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Uranium, dissolved	7440-61-1	E421/VA	0.000010	mg/L		0.000898	0.000916	0.000360	0.000284	0.000023
Vanadium, dissolved	7440-62-2	E421/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc, dissolved	7440-66-6	E421/VA	0.0010	mg/L		1.15	1.18	0.544	0.528	0.0023
Zirconium, dissolved	7440-67-7	E421/VA	0.00020	mg/L		<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Dissolved mercury filtration location	----	EP509/VA	-	-		Field	Field	Field	Field	Field
Dissolved metals filtration location	----	EP421/VA	-	-		Field	Field	Field	Field	Field

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

Please refer to the Accreditation section for an explanation of analyte accreditations.

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QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **YL2400881**	Page	: 1 of 17
Client	: **Elgin Mining Inc.**	Laboratory	: ALS Environmental - Yellowknife
Contact	: Shane Leggett	Account Manager	: Oliver Gregg
Address	: 750 West Pender Street Suite 201 Vancouver BC Canada V6C 2T7	Address	: 314 Old Airport Road, Unit 116 Yellowknife, Northwest Territories Canada X1A 3T3
Telephone	: ----	Telephone	: 1 867 445 7143
Project	: ----	Date Samples Received	: 11-Jul-2024 14:25
PO	: ----	Issue Date	: 24-Jul-2024 10:54
C-O-C number	: ----		
Sampler	: ----		
Site	: ----		
Quote number	: YL23-ELMI100-001		
No. of samples received	: 5		
No. of samples analysed	: 5		

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

Key

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

Workorder Comments

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

Summary of Outliers

Outliers : Quality Control Samples

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

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

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

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Analysis Holding Time Compliance

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

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

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

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

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Bromide by IC (Ultra Trace Level)										
HDPE Cell 4-A	E235.Br-U	10-Jul-2024	15-Jul-2024	28 days	5 days	✓	15-Jul-2024	28 days	5 days	✓
Anions and Nutrients : Bromide by IC (Ultra Trace Level)										
HDPE Cell 4-B	E235.Br-U	10-Jul-2024	15-Jul-2024	28 days	5 days	✓	15-Jul-2024	28 days	5 days	✓
Anions and Nutrients : Bromide by IC (Ultra Trace Level)										
HDPE Contwoyto Lake	E235.Br-U	10-Jul-2024	15-Jul-2024	28 days	5 days	✓	15-Jul-2024	28 days	5 days	✓
Anions and Nutrients : Bromide by IC (Ultra Trace Level)										
HDPE Pond 1-B	E235.Br-U	10-Jul-2024	15-Jul-2024	28 days	5 days	✓	15-Jul-2024	28 days	5 days	✓
Anions and Nutrients : Bromide by IC (Ultra Trace Level)										
HDPE Pond 1-D	E235.Br-U	10-Jul-2024	15-Jul-2024	28 days	5 days	✓	15-Jul-2024	28 days	5 days	✓
Anions and Nutrients : Chloride in Water by IC (Low Level)										
HDPE Cell 4-A	E235.Cl-L	10-Jul-2024	15-Jul-2024	28 days	5 days	✓	15-Jul-2024	28 days	5 days	✓
Anions and Nutrients : Chloride in Water by IC (Low Level)										
HDPE Cell 4-B	E235.Cl-L	10-Jul-2024	15-Jul-2024	28 days	5 days	✓	15-Jul-2024	28 days	5 days	✓

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Chloride in Water by IC (Low Level)										
HDPE Contwoyto Lake	E235.Cl-L	10-Jul-2024	15-Jul-2024	28 days	5 days	✓	15-Jul-2024	28 days	5 days	✓
Anions and Nutrients : Chloride in Water by IC (Low Level)										
HDPE Pond 1-B	E235.Cl-L	10-Jul-2024	15-Jul-2024	28 days	5 days	✓	15-Jul-2024	28 days	5 days	✓
Anions and Nutrients : Chloride in Water by IC (Low Level)										
HDPE Pond 1-D	E235.Cl-L	10-Jul-2024	15-Jul-2024	28 days	5 days	✓	15-Jul-2024	28 days	5 days	✓
Anions and Nutrients : Fluoride in Water by IC (Low Level)										
HDPE Cell 4-A	E235.F-L	10-Jul-2024	15-Jul-2024	28 days	5 days	✓	15-Jul-2024	28 days	5 days	✓
Anions and Nutrients : Fluoride in Water by IC (Low Level)										
HDPE Cell 4-B	E235.F-L	10-Jul-2024	15-Jul-2024	28 days	5 days	✓	15-Jul-2024	28 days	5 days	✓
Anions and Nutrients : Fluoride in Water by IC (Low Level)										
HDPE Contwoyto Lake	E235.F-L	10-Jul-2024	15-Jul-2024	28 days	5 days	✓	15-Jul-2024	28 days	5 days	✓
Anions and Nutrients : Fluoride in Water by IC (Low Level)										
HDPE Pond 1-B	E235.F-L	10-Jul-2024	15-Jul-2024	28 days	5 days	✓	15-Jul-2024	28 days	5 days	✓
Anions and Nutrients : Fluoride in Water by IC (Low Level)										
HDPE Pond 1-D	E235.F-L	10-Jul-2024	15-Jul-2024	28 days	5 days	✓	15-Jul-2024	28 days	5 days	✓
Anions and Nutrients : Nitrate in Water by IC (Trace Level)										
HDPE Cell 4-A	E235.NO3-T	10-Jul-2024	15-Jul-2024	3 days	4 days	× EHT	15-Jul-2024	3 days	5 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 Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Nitrate in Water by IC (Trace Level)										
HDPE Cell 4-B	E235.NO3-T	10-Jul-2024	15-Jul-2024	3 days	4 days	× EHT	15-Jul-2024	3 days	5 days	× EHT
Anions and Nutrients : Nitrate in Water by IC (Trace Level)										
HDPE Contwoyto Lake	E235.NO3-T	10-Jul-2024	15-Jul-2024	3 days	4 days	× EHT	15-Jul-2024	3 days	5 days	× EHT
Anions and Nutrients : Nitrate in Water by IC (Trace Level)										
HDPE Pond 1-B	E235.NO3-T	10-Jul-2024	15-Jul-2024	3 days	4 days	× EHT	15-Jul-2024	3 days	5 days	× EHT
Anions and Nutrients : Nitrate in Water by IC (Trace Level)										
HDPE Pond 1-D	E235.NO3-T	10-Jul-2024	15-Jul-2024	3 days	4 days	× EHT	15-Jul-2024	3 days	5 days	× EHT
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE Cell 4-A	E235.NO2-L	10-Jul-2024	15-Jul-2024	3 days	4 days	× EHT	15-Jul-2024	3 days	5 days	× EHT
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE Cell 4-B	E235.NO2-L	10-Jul-2024	15-Jul-2024	3 days	4 days	× EHT	15-Jul-2024	3 days	5 days	× EHT
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE Contwoyto Lake	E235.NO2-L	10-Jul-2024	15-Jul-2024	3 days	4 days	× EHT	15-Jul-2024	3 days	5 days	× EHT
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE Pond 1-B	E235.NO2-L	10-Jul-2024	15-Jul-2024	3 days	4 days	× EHT	15-Jul-2024	3 days	5 days	× EHT
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE Pond 1-D	E235.NO2-L	10-Jul-2024	15-Jul-2024	3 days	4 days	× EHT	15-Jul-2024	3 days	5 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	
Anions and Nutrients : Sulfate in Water by IC (Low Level)										
HDPE										
Cell 4-A	E235.SO4-L	10-Jul-2024	15-Jul-2024	28 days	5 days	✓	15-Jul-2024	28 days	5 days	✓
Anions and Nutrients : Sulfate in Water by IC (Low Level)										
HDPE										
Cell 4-B	E235.SO4-L	10-Jul-2024	15-Jul-2024	28 days	5 days	✓	15-Jul-2024	28 days	5 days	✓
Anions and Nutrients : Sulfate in Water by IC (Low Level)										
HDPE										
Contwoyto Lake	E235.SO4-L	10-Jul-2024	15-Jul-2024	28 days	5 days	✓	15-Jul-2024	28 days	5 days	✓
Anions and Nutrients : Sulfate in Water by IC (Low Level)										
HDPE										
Pond 1-B	E235.SO4-L	10-Jul-2024	15-Jul-2024	28 days	5 days	✓	15-Jul-2024	28 days	5 days	✓
Anions and Nutrients : Sulfate in Water by IC (Low Level)										
HDPE										
Pond 1-D	E235.SO4-L	10-Jul-2024	15-Jul-2024	28 days	5 days	✓	15-Jul-2024	28 days	5 days	✓
Cyanides : Total Cyanide										
UV-inhibited HDPE - total (sodium hydroxide)										
Cell 4-A	E333	10-Jul-2024	18-Jul-2024	14 days	8 days	✓	18-Jul-2024	14 days	8 days	✓
Cyanides : Total Cyanide										
UV-inhibited HDPE - total (sodium hydroxide)										
Cell 4-B	E333	10-Jul-2024	18-Jul-2024	14 days	8 days	✓	18-Jul-2024	14 days	8 days	✓
Cyanides : Total Cyanide										
UV-inhibited HDPE - total (sodium hydroxide)										
Contwoyto Lake	E333	10-Jul-2024	18-Jul-2024	14 days	8 days	✓	18-Jul-2024	14 days	8 days	✓
Cyanides : Total Cyanide										
UV-inhibited HDPE - total (sodium hydroxide)										
Pond 1-B	E333	10-Jul-2024	18-Jul-2024	14 days	8 days	✓	18-Jul-2024	14 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
Cyanides : Total Cyanide										
UV-inhibited HDPE - total (sodium hydroxide)										
Pond 1-D	E333	10-Jul-2024	18-Jul-2024	14 days	8 days	✓	18-Jul-2024	14 days	8 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)										
Cell 4-A	E509	10-Jul-2024	16-Jul-2024	28 days	6 days	✓	16-Jul-2024	28 days	6 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)										
Cell 4-B	E509	10-Jul-2024	16-Jul-2024	28 days	6 days	✓	16-Jul-2024	28 days	6 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)										
Contwoyto Lake	E509	10-Jul-2024	16-Jul-2024	28 days	6 days	✓	16-Jul-2024	28 days	6 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)										
Pond 1-B	E509	10-Jul-2024	16-Jul-2024	28 days	6 days	✓	16-Jul-2024	28 days	6 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)										
Pond 1-D	E509	10-Jul-2024	16-Jul-2024	28 days	6 days	✓	16-Jul-2024	28 days	6 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
Cell 4-A	E421	10-Jul-2024	17-Jul-2024	180 days	7 days	✓	17-Jul-2024	180 days	7 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
Cell 4-B	E421	10-Jul-2024	17-Jul-2024	180 days	7 days	✓	17-Jul-2024	180 days	7 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
Contwoyto Lake	E421	10-Jul-2024	17-Jul-2024	180 days	7 days	✓	17-Jul-2024	180 days	7 days	✓

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) Pond 1-B	E421	10-Jul-2024	17-Jul-2024	180 days	7 days	✓	17-Jul-2024	180 days	7 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) Pond 1-D	E421	10-Jul-2024	17-Jul-2024	180 days	7 days	✓	17-Jul-2024	180 days	7 days	✓
Physical Tests : Acidity by Titration										
HDPE Cell 4-A	E283	10-Jul-2024	15-Jul-2024	14 days	5 days	✓	15-Jul-2024	14 days	5 days	✓
Physical Tests : Acidity by Titration										
HDPE Cell 4-B	E283	10-Jul-2024	15-Jul-2024	14 days	5 days	✓	15-Jul-2024	14 days	5 days	✓
Physical Tests : Acidity by Titration										
HDPE Contwoyto Lake	E283	10-Jul-2024	15-Jul-2024	14 days	5 days	✓	15-Jul-2024	14 days	5 days	✓
Physical Tests : Acidity by Titration										
HDPE Pond 1-B	E283	10-Jul-2024	15-Jul-2024	14 days	5 days	✓	15-Jul-2024	14 days	5 days	✓
Physical Tests : Acidity by Titration										
HDPE Pond 1-D	E283	10-Jul-2024	15-Jul-2024	14 days	5 days	✓	15-Jul-2024	14 days	5 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE Cell 4-A	E290	10-Jul-2024	15-Jul-2024	14 days	5 days	✓	17-Jul-2024	14 days	7 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE Cell 4-B	E290	10-Jul-2024	15-Jul-2024	14 days	5 days	✓	17-Jul-2024	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 Contwoyto Lake	E290	10-Jul-2024	15-Jul-2024	14 days	5 days	✓	17-Jul-2024	14 days	7 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE Pond 1-B	E290	10-Jul-2024	15-Jul-2024	14 days	5 days	✓	17-Jul-2024	14 days	7 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE Pond 1-D	E290	10-Jul-2024	15-Jul-2024	14 days	5 days	✓	17-Jul-2024	14 days	7 days	✓
Physical Tests : Conductivity in Water										
HDPE Cell 4-A	E100	10-Jul-2024	15-Jul-2024	28 days	5 days	✓	17-Jul-2024	28 days	7 days	✓
Physical Tests : Conductivity in Water										
HDPE Cell 4-B	E100	10-Jul-2024	15-Jul-2024	28 days	5 days	✓	17-Jul-2024	28 days	7 days	✓
Physical Tests : Conductivity in Water										
HDPE Contwoyto Lake	E100	10-Jul-2024	15-Jul-2024	28 days	5 days	✓	17-Jul-2024	28 days	7 days	✓
Physical Tests : Conductivity in Water										
HDPE Pond 1-B	E100	10-Jul-2024	15-Jul-2024	28 days	5 days	✓	17-Jul-2024	28 days	7 days	✓
Physical Tests : Conductivity in Water										
HDPE Pond 1-D	E100	10-Jul-2024	15-Jul-2024	28 days	5 days	✓	17-Jul-2024	28 days	7 days	✓
Physical Tests : pH by Meter										
HDPE Cell 4-A	E108	10-Jul-2024	15-Jul-2024	0.25 hrs	118 hrs	× EHTR-FM	17-Jul-2024	0.25 hrs	162 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 Cell 4-B	E108	10-Jul-2024	15-Jul-2024	0.25 hrs	118 hrs	× EHTR-FM	17-Jul-2024	0.25 hrs	162 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE Pond 1-B	E108	10-Jul-2024	15-Jul-2024	0.25 hrs	118 hrs	× EHTR-FM	17-Jul-2024	0.25 hrs	162 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE Contwoyto Lake	E108	10-Jul-2024	15-Jul-2024	0.25 hrs	118 hrs	× EHTR-FM	17-Jul-2024	0.25 hrs	163 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE Pond 1-D	E108	10-Jul-2024	15-Jul-2024	0.25 hrs	118 hrs	× EHTR-FM	17-Jul-2024	0.25 hrs	163 hrs	× EHTR-FM
Physical Tests : TDS by Gravimetry										
HDPE Cell 4-A	E162	10-Jul-2024	----	----	----		17-Jul-2024	7 days	7 days	✓
Physical Tests : TDS by Gravimetry										
HDPE Cell 4-B	E162	10-Jul-2024	----	----	----		17-Jul-2024	7 days	7 days	✓
Physical Tests : TDS by Gravimetry										
HDPE Contwoyto Lake	E162	10-Jul-2024	----	----	----		17-Jul-2024	7 days	7 days	✓
Physical Tests : TDS by Gravimetry										
HDPE Pond 1-B	E162	10-Jul-2024	----	----	----		17-Jul-2024	7 days	7 days	✓
Physical Tests : TDS by Gravimetry										
HDPE Pond 1-D	E162	10-Jul-2024	----	----	----		17-Jul-2024	7 days	7 days	✓

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : TSS by Gravimetry (Low Level)										
HDPE [TSS-WB] Cell 4-A	E160-L	10-Jul-2024	----	----	----		17-Jul-2024	7 days	7 days	✓
Physical Tests : TSS by Gravimetry (Low Level)										
HDPE [TSS-WB] Cell 4-B	E160-L	10-Jul-2024	----	----	----		17-Jul-2024	7 days	7 days	✓
Physical Tests : TSS by Gravimetry (Low Level)										
HDPE [TSS-WB] Contwoyto Lake	E160-L	10-Jul-2024	----	----	----		17-Jul-2024	7 days	7 days	✓
Physical Tests : TSS by Gravimetry (Low Level)										
HDPE [TSS-WB] Pond 1-B	E160-L	10-Jul-2024	----	----	----		17-Jul-2024	7 days	7 days	✓
Physical Tests : TSS by Gravimetry (Low Level)										
HDPE [TSS-WB] Pond 1-D	E160-L	10-Jul-2024	----	----	----		17-Jul-2024	7 days	7 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid) Cell 4-A	E508	10-Jul-2024	16-Jul-2024	28 days	6 days	✓	16-Jul-2024	28 days	6 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid) Cell 4-B	E508	10-Jul-2024	16-Jul-2024	28 days	6 days	✓	16-Jul-2024	28 days	6 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid) Contwoyto Lake	E508	10-Jul-2024	16-Jul-2024	28 days	6 days	✓	16-Jul-2024	28 days	6 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid) Pond 1-B	E508	10-Jul-2024	16-Jul-2024	28 days	6 days	✓	16-Jul-2024	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
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid)										
Pond 1-D	E508	10-Jul-2024	16-Jul-2024	28 days	6 days	✓	16-Jul-2024	28 days	6 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved)										
Cell 4-A	E420	10-Jul-2024	17-Jul-2024	180 days	7 days	✓	18-Jul-2024	180 days	8 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved)										
Cell 4-B	E420	10-Jul-2024	17-Jul-2024	180 days	7 days	✓	18-Jul-2024	180 days	8 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved)										
Contwoyto Lake	E420	10-Jul-2024	17-Jul-2024	180 days	7 days	✓	18-Jul-2024	180 days	8 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved)										
Pond 1-B	E420	10-Jul-2024	17-Jul-2024	180 days	7 days	✓	18-Jul-2024	180 days	8 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved)										
Pond 1-D	E420	10-Jul-2024	17-Jul-2024	180 days	7 days	✓	18-Jul-2024	180 days	8 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)							
Acidity by Titration	E283	1545328	1	18	5.5	5.0	✓
Alkalinity Species by Titration	E290	1545323	1	18	5.5	5.0	✓
Bromide by IC (Ultra Trace Level)	E235.Br-U	1545339	1	5	20.0	5.0	✓
Chloride in Water by IC (Low Level)	E235.Cl-L	1545338	1	5	20.0	5.0	✓
Conductivity in Water	E100	1545324	1	18	5.5	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1548255	1	19	5.2	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1546305	1	20	5.0	5.0	✓
Fluoride in Water by IC (Low Level)	E235.F-L	1545337	1	5	20.0	5.0	✓
Nitrate in Water by IC (Trace Level)	E235.NO3-T	1545336	1	5	20.0	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1545333	1	18	5.5	5.0	✓
pH by Meter	E108	1545322	1	18	5.5	5.0	✓
Sulfate in Water by IC (Low Level)	E235.SO4-L	1545335	1	5	20.0	5.0	✓
TDS by Gravimetry	E162	1550030	1	12	8.3	5.0	✓
Total Cyanide	E333	1551764	1	8	12.5	5.0	✓
Total Mercury in Water by CVAAS	E508	1548055	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1546280	1	20	5.0	5.0	✓
Laboratory Control Samples (LCS)							
Acidity by Titration	E283	1545328	1	18	5.5	5.0	✓
Alkalinity Species by Titration	E290	1545323	1	18	5.5	5.0	✓
Bromide by IC (Ultra Trace Level)	E235.Br-U	1545339	1	5	20.0	5.0	✓
Chloride in Water by IC (Low Level)	E235.Cl-L	1545338	1	5	20.0	5.0	✓
Conductivity in Water	E100	1545324	1	18	5.5	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1548255	1	19	5.2	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1546305	1	20	5.0	5.0	✓
Fluoride in Water by IC (Low Level)	E235.F-L	1545337	1	5	20.0	5.0	✓
Nitrate in Water by IC (Trace Level)	E235.NO3-T	1545336	1	5	20.0	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1545333	1	18	5.5	5.0	✓
pH by Meter	E108	1545322	1	18	5.5	5.0	✓
Sulfate in Water by IC (Low Level)	E235.SO4-L	1545335	1	5	20.0	5.0	✓
TDS by Gravimetry	E162	1550030	1	12	8.3	5.0	✓
Total Cyanide	E333	1551764	1	8	12.5	5.0	✓
Total Mercury in Water by CVAAS	E508	1548055	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1546280	1	20	5.0	5.0	✓
TSS by Gravimetry (Low Level)	E160-L	1550024	1	15	6.6	5.0	✓
Method Blanks (MB)							

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							
Acidity by Titration	E283	1545328	1	18	5.5	5.0	✓
Alkalinity Species by Titration	E290	1545323	1	18	5.5	5.0	✓
Bromide by IC (Ultra Trace Level)	E235.Br-U	1545339	1	5	20.0	5.0	✓
Chloride in Water by IC (Low Level)	E235.Cl-L	1545338	1	5	20.0	5.0	✓
Conductivity in Water	E100	1545324	1	18	5.5	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1548255	1	19	5.2	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1546305	1	20	5.0	5.0	✓
Fluoride in Water by IC (Low Level)	E235.F-L	1545337	1	5	20.0	5.0	✓
Nitrate in Water by IC (Trace Level)	E235.NO3-T	1545336	1	5	20.0	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1545333	1	18	5.5	5.0	✓
Sulfate in Water by IC (Low Level)	E235.SO4-L	1545335	1	5	20.0	5.0	✓
TDS by Gravimetry	E162	1550030	1	12	8.3	5.0	✓
Total Cyanide	E333	1551764	1	8	12.5	5.0	✓
Total Mercury in Water by CVAAS	E508	1548055	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1546280	1	20	5.0	5.0	✓
TSS by Gravimetry (Low Level)	E160-L	1550024	1	15	6.6	5.0	✓
Matrix Spikes (MS)							
Bromide by IC (Ultra Trace Level)	E235.Br-U	1545339	1	5	20.0	5.0	✓
Chloride in Water by IC (Low Level)	E235.Cl-L	1545338	1	5	20.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1548255	1	19	5.2	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1546305	1	20	5.0	5.0	✓
Fluoride in Water by IC (Low Level)	E235.F-L	1545337	1	5	20.0	5.0	✓
Nitrate in Water by IC (Trace Level)	E235.NO3-T	1545336	1	5	20.0	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1545333	1	18	5.5	5.0	✓
Sulfate in Water by IC (Low Level)	E235.SO4-L	1545335	1	5	20.0	5.0	✓
Total Cyanide	E333	1551764	1	8	12.5	5.0	✓
Total Mercury in Water by CVAAS	E508	1548055	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1546280	1	20	5.0	5.0	✓

Methodology References and Summaries

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

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Conductivity in Water	E100 ALS Environmental - Vancouver	Water	APHA 2510 (mod)	Conductivity, also known as Electrical Conductivity (EC) or Specific Conductance, is measured by immersion of a conductivity cell with platinum electrodes into a water sample. Conductivity measurements are temperature-compensated to 25°C.
pH by Meter	E108 ALS Environmental - Vancouver	Water	APHA 4500-H (mod)	pH is determined by potentiometric measurement with a pH electrode, and is conducted at ambient laboratory temperature (normally 20 ± 5°C). For high accuracy test results, pH should be measured in the field within the recommended 15 minute hold time.
TSS by Gravimetry (Low Level)	E160-L 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 by IC (Ultra Trace Level)	E235.Br-U 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 (Low Level)	E235.Cl-L 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 (Low Level)	E235.F-L 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 (Trace Level)	E235.NO3-T ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Sulfate in Water by IC (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.
Acidity by Titration	E283 ALS Environmental - Vancouver	Water	APHA 2310 B (mod)	Acidity is determined by potentiometric titration to pH endpoint of 8.3
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.
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).
Total Metals in Water by CRC ICPMS	E420 ALS Environmental - Vancouver	Water	EPA 200.2/6020B (mod)	Water samples are digested with nitric and hydrochloric acids, and analyzed by Collision/Reaction Cell ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
Dissolved Metals in Water by CRC ICPMS	E421 ALS Environmental - Vancouver	Water	APHA 3030B/EPA 6020B (mod)	Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by Collision/Reaction Cell ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
Total Mercury in Water by CVAAS	E508 ALS Environmental - Vancouver	Water	EPA 1631E (mod)	Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS
Dissolved Mercury in Water by CVAAS	E509 ALS Environmental - Vancouver	Water	APHA 3030B/EPA 1631E (mod)	Water samples are filtered (0.45 um), preserved with HCl, then undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS.
Dissolved Hardness (Calculated)	EC100 ALS Environmental - Vancouver	Water	APHA 2340B	“Hardness (as CaCO3), dissolved” is calculated from the sum of dissolved Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. “Total Hardness” refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because it is a property of water due to dissolved divalent cations.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Hardness (Calculated) from Total Ca/Mg	EC100A ALS Environmental - Vancouver	Water	APHA 2340B	"Hardness (as CaCO3), from total Ca/Mg" is calculated from the sum of total Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. "Total Hardness" refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because it is a property of water due to dissolved divalent cations. Hardness from total Ca/Mg is normally comparable to Dissolved Hardness in non-turbid waters.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Dissolved Metals Water Filtration	EP421 ALS Environmental - Vancouver	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HNO3.
Dissolved Mercury Water Filtration	EP509 ALS Environmental - Vancouver	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HCl.

QUALITY CONTROL REPORT

Work Order	: **YL2400881**	Page	: 1 of 17
Client	: Elgin Mining Inc.	Laboratory	: ALS Environmental - Yellowknife
Contact	: Shane Leggett	Account Manager	: Oliver Gregg
Address	: 750 West Pender Street Suite 201 Vancouver BC Canada V6C 2T7	Address	: 314 Old Airport Road, Unit 116 Yellowknife, Northwest Territories Canada X1A 3T3
Telephone	: ----	Telephone	: 1 867 445 7143
Project	: ----	Date Samples Received	: 11-Jul-2024 14:25
PO	: ----	Date Analysis Commenced	: 15-Jul-2024
C-O-C number	: ----	Issue Date	: 24-Jul-2024 10:55
Sampler	: ----		
Site	: ----		
Quote number	: YL23-ELMI100-001		
No. of samples received	: 5		
No. of samples analysed	: 5		

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

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percent Difference (RPD) and Data Quality Objectives
- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

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

Signatories	*Position*	*Laboratory Department*
Dan Gebert	Laboratory Analyst	Vancouver Metals, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Vancouver Metals, Burnaby, British Columbia
Lindsay Gung	Supervisor - Water Chemistry	Vancouver Inorganics, Burnaby, British Columbia
Maya Urquhart	Lab Analyst	Vancouver Metals, Burnaby, British Columbia

General Comments

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

Key :

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

Workorder Comments

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

Laboratory Duplicate (DUP) Report

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

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Physical Tests (QC Lot: 1545322)											
VA24B6896-003	Anonymous	pH	----	E108	0.10	pH units	7.54	7.54	0.00%	4%	----
Physical Tests (QC Lot: 1545323)											
VA24B6896-003	Anonymous	Alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	19.0	19.0	0.00%	20%	----
Physical Tests (QC Lot: 1545324)											
VA24B6896-003	Anonymous	Conductivity	----	E100	2.0	µS/cm	94.7	95.0	0.316%	10%	----
Physical Tests (QC Lot: 1545328)											
VA24B6896-002	Anonymous	Acidity (as CaCO3)	----	E283	2.0	mg/L	<2.0	<2.0	0	Diff <2x LOR	----
Physical Tests (QC Lot: 1550030)											
VA24B7017-001	Anonymous	Solids, total dissolved [TDS]	----	E162	13	mg/L	70	69	0.7	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1545333)											
VA24B6896-001	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: 1545335)											
YL2400881-001	Cell 4-A	Sulfate (as SO4)	14808-79-8	E235.SO4-L	0.250	mg/L	297	301	1.32%	20%	----
Anions and Nutrients (QC Lot: 1545336)											
YL2400881-001	Cell 4-A	Nitrate (as N)	14797-55-8	E235.NO3-T	0.0150	mg/L	0.0333	0.0371	0.0038	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1545337)											
YL2400881-001	Cell 4-A	Fluoride	16984-48-8	E235.F-L	0.050	mg/L	0.171	0.170	0.001	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1545338)											
YL2400881-001	Cell 4-A	Chloride	16887-00-6	E235.Cl-L	0.50	mg/L	17.3	17.5	1.17%	20%	----
Anions and Nutrients (QC Lot: 1545339)											
YL2400881-001	Cell 4-A	Bromide	24959-67-9	E235.Br-U	0.0250	mg/L	0.267	0.284	6.18%	20%	----
Cyanides (QC Lot: 1551764)											
VA24B6573-003	Anonymous	Cyanide, strong acid dissociable (Total)	----	E333	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
Total Metals (QC Lot: 1546280)											
FJ2401989-001	Anonymous	Aluminum, total	7429-90-5	E420	0.0030	mg/L	0.663	0.613	7.86%	20%	----
		Antimony, total	7440-36-0	E420	0.00010	mg/L	0.00052	0.00050	0.00002	Diff <2x LOR	----
		Arsenic, total	7440-38-2	E420	0.00010	mg/L	0.00078	0.00079	0.000009	Diff <2x LOR	----
		Barium, total	7440-39-3	E420	0.00010	mg/L	0.0597	0.0580	2.76%	20%	----
		Beryllium, total	7440-41-7	E420	0.000100	mg/L	<0.000100	<0.000100	0	Diff <2x LOR	----

Sub-Matrix: **Water**

Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Laboratory Duplicate (DUP) Report						
					LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Total Metals (QC Lot: 1546280) - continued											
FJ2401989-001	Anonymous	Bismuth, total	7440-69-9	E420	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Boron, total	7440-42-8	E420	0.010	mg/L	0.021	0.021	0.00008	Diff <2x LOR	----
		Cadmium, total	7440-43-9	E420	0.0000050	mg/L	0.0000446	0.0000429	0.0000016	Diff <2x LOR	----
		Calcium, total	7440-70-2	E420	0.050	mg/L	32.5	33.2	2.12%	20%	----
		Cesium, total	7440-46-2	E420	0.000010	mg/L	0.000069	0.000065	0.000004	Diff <2x LOR	----
		Chromium, total	7440-47-3	E420	0.00050	mg/L	0.00118	0.00113	0.00006	Diff <2x LOR	----
		Cobalt, total	7440-48-4	E420	0.00010	mg/L	0.00030	0.00030	0.000003	Diff <2x LOR	----
		Copper, total	7440-50-8	E420	0.00050	mg/L	0.0150	0.0150	0.0243%	20%	----
		Iron, total	7439-89-6	E420	0.010	mg/L	0.347	0.330	5.09%	20%	----
		Lead, total	7439-92-1	E420	0.000050	mg/L	0.000778	0.000779	0.0965%	20%	----
		Lithium, total	7439-93-2	E420	0.0010	mg/L	0.0061	0.0060	0.00004	Diff <2x LOR	----
		Magnesium, total	7439-95-4	E420	0.0050	mg/L	8.24	8.41	2.05%	20%	----
		Manganese, total	7439-96-5	E420	0.00010	mg/L	0.0110	0.0109	1.58%	20%	----
		Molybdenum, total	7439-98-7	E420	0.000050	mg/L	0.00865	0.00836	3.39%	20%	----
		Nickel, total	7440-02-0	E420	0.00050	mg/L	0.00217	0.00214	0.00003	Diff <2x LOR	----
		Phosphorus, total	7723-14-0	E420	0.050	mg/L	<0.050	0.052	0.002	Diff <2x LOR	----
		Potassium, total	7440-09-7	E420	0.050	mg/L	6.64	6.62	0.314%	20%	----
		Rubidium, total	7440-17-7	E420	0.00020	mg/L	0.00973	0.0101	3.63%	20%	----
		Selenium, total	7782-49-2	E420	0.000050	mg/L	0.000710	0.000630	11.9%	20%	----
		Silicon, total	7440-21-3	E420	0.10	mg/L	3.12	2.96	5.28%	20%	----
		Silver, total	7440-22-4	E420	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Sodium, total	7440-23-5	E420	0.050	mg/L	13.4	13.6	0.823%	20%	----
		Strontium, total	7440-24-6	E420	0.00020	mg/L	0.165	0.157	4.89%	20%	----
		Sulfur, total	7704-34-9	E420	0.50	mg/L	10.7	10.5	1.82%	20%	----
		Tellurium, total	13494-80-9	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		Thallium, total	7440-28-0	E420	0.000010	mg/L	0.000013	0.000011	0.000002	Diff <2x LOR	----
		Thorium, total	7440-29-1	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Tin, total	7440-31-5	E420	0.00010	mg/L	0.00086	0.00084	0.00002	Diff <2x LOR	----
		Titanium, total	7440-32-6	E420	0.00030	mg/L	0.00854	0.00955	11.2%	20%	----
		Tungsten, total	7440-33-7	E420	0.00010	mg/L	0.00055	0.00055	0.000002	Diff <2x LOR	----
		Uranium, total	7440-61-1	E420	0.000010	mg/L	0.000720	0.000724	0.548%	20%	----
		Vanadium, total	7440-62-2	E420	0.00050	mg/L	0.00295	0.00276	0.00019	Diff <2x LOR	----
		Zinc, total	7440-66-6	E420	0.0030	mg/L	0.0272	0.0268	0.0004	Diff <2x LOR	----
		Zirconium, total	7440-67-7	E420	0.00040	mg/L	<0.00040	<0.00040	0	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Total Metals (QC Lot: 1548055)											
VA24B6602-007	Anonymous	Mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1546305)											
FJ2401989-001	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	0.172	0.171	0.268%	20%	----
		Antimony, dissolved	7440-36-0	E421	0.00010	mg/L	0.00049	0.00048	0.00001	Diff <2x LOR	----
		Arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	0.00052	0.00051	0.00001	Diff <2x LOR	----
		Barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.0480	0.0475	0.883%	20%	----
		Beryllium, dissolved	7440-41-7	E421	0.000100	mg/L	<0.000100	<0.000100	0	Diff <2x LOR	----
		Bismuth, dissolved	7440-69-9	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Boron, dissolved	7440-42-8	E421	0.010	mg/L	0.021	0.021	0.00006	Diff <2x LOR	----
		Cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L	0.0000143	0.0000137	0.0000006	Diff <2x LOR	----
		Calcium, dissolved	7440-70-2	E421	0.050	mg/L	32.2	32.2	0.117%	20%	----
		Cesium, dissolved	7440-46-2	E421	0.000010	mg/L	0.000027	0.000027	0.0000004	Diff <2x LOR	----
		Chromium, dissolved	7440-47-3	E421	0.00050	mg/L	0.00064	0.00061	0.00003	Diff <2x LOR	----
		Cobalt, dissolved	7440-48-4	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Copper, dissolved	7440-50-8	E421	0.00020	mg/L	0.00121	0.00119	0.00002	Diff <2x LOR	----
		Iron, dissolved	7439-89-6	E421	0.010	mg/L	0.018	0.018	0.0003	Diff <2x LOR	----
		Lead, dissolved	7439-92-1	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Lithium, dissolved	7439-93-2	E421	0.0010	mg/L	0.0060	0.0059	0.0001	Diff <2x LOR	----
		Magnesium, dissolved	7439-95-4	E421	0.0050	mg/L	8.12	8.12	0.0699%	20%	----
		Manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.00181	0.00181	0.152%	20%	----
		Molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.00953	0.00941	1.20%	20%	----
		Nickel, dissolved	7440-02-0	E421	0.00050	mg/L	0.00118	0.00120	0.00002	Diff <2x LOR	----
		Phosphorus, dissolved	7723-14-0	E421	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Potassium, dissolved	7440-09-7	E421	0.050	mg/L	6.35	6.65	4.67%	20%	----
		Rubidium, dissolved	7440-17-7	E421	0.00020	mg/L	0.00987	0.00990	0.376%	20%	----
		Selenium, dissolved	7782-49-2	E421	0.000050	mg/L	0.000866	0.000811	6.57%	20%	----
		Silicon, dissolved	7440-21-3	E421	0.050	mg/L	2.70	2.63	2.53%	20%	----
		Silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Sodium, dissolved	7440-23-5	E421	0.050	mg/L	13.4	13.4	0.475%	20%	----
		Strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.162	0.161	0.645%	20%	----
		Sulfur, dissolved	7704-34-9	E421	0.50	mg/L	10.3	10.4	0.817%	20%	----
		Tellurium, dissolved	13494-80-9	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		Thallium, dissolved	7440-28-0	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Thorium, dissolved	7440-29-1	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----

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: 1546305) - continued											
FJ2401989-001	Anonymous	Tin, dissolved	7440-31-5	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Titanium, dissolved	7440-32-6	E421	0.00030	mg/L	0.00060	0.00072	0.00012	Diff <2x LOR	----
		Tungsten, dissolved	7440-33-7	E421	0.00010	mg/L	0.00073	0.00074	0.000008	Diff <2x LOR	----
		Uranium, dissolved	7440-61-1	E421	0.000010	mg/L	0.000605	0.000619	2.29%	20%	----
		Vanadium, dissolved	7440-62-2	E421	0.00050	mg/L	0.00192	0.00189	0.00003	Diff <2x LOR	----
		Zinc, dissolved	7440-66-6	E421	0.0010	mg/L	0.0035	0.0035	0.000006	Diff <2x LOR	----
		Zirconium, dissolved	7440-67-7	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1548255)											
VA24B6580-002	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----

Method Blank (MB) Report

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

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 1545323)						
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	<1.0	----
Physical Tests (QCLot: 1545324)						
Conductivity	----	E100	1	µS/cm	<1.0	----
Physical Tests (QCLot: 1545328)						
Acidity (as CaCO3)	----	E283	2	mg/L	<2.0	----
Physical Tests (QCLot: 1550024)						
Solids, total suspended [TSS]	----	E160-L	1	mg/L	<1.0	----
Physical Tests (QCLot: 1550030)						
Solids, total dissolved [TDS]	----	E162	10	mg/L	<10	----
Anions and Nutrients (QCLot: 1545333)						
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 1545335)						
Sulfate (as SO4)	14808-79-8	E235.SO4-L	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 1545336)						
Nitrate (as N)	14797-55-8	E235.NO3-T	0.003	mg/L	<0.0030	----
Anions and Nutrients (QCLot: 1545337)						
Fluoride	16984-48-8	E235.F-L	0.01	mg/L	<0.010	----
Anions and Nutrients (QCLot: 1545338)						
Chloride	16887-00-6	E235.Cl-L	0.1	mg/L	<0.10	----
Anions and Nutrients (QCLot: 1545339)						
Bromide	24959-67-9	E235.Br-U	0.005	mg/L	<0.0050	----
Cyanides (QCLot: 1551764)						
Cyanide, strong acid dissociable (Total)	----	E333	0.002	mg/L	<0.0020	----
Total Metals (QCLot: 1546280)						
Aluminum, total	7429-90-5	E420	0.003	mg/L	<0.0030	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	<0.00010	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	<0.00010	----
Barium, total	7440-39-3	E420	0.0001	mg/L	<0.00010	----
Beryllium, total	7440-41-7	E420	0.00002	mg/L	<0.000020	----
Bismuth, total	7440-69-9	E420	0.00005	mg/L	<0.000050	----
Boron, total	7440-42-8	E420	0.01	mg/L	<0.010	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	<0.0000050	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (QCLot: 1546280) - continued						
Calcium, total	7440-70-2	E420	0.05	mg/L	<0.050	----
Cesium, total	7440-46-2	E420	0.00001	mg/L	<0.000010	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	<0.00050	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	<0.00010	----
Copper, total	7440-50-8	E420	0.0005	mg/L	<0.00050	----
Iron, total	7439-89-6	E420	0.01	mg/L	<0.010	----
Lead, total	7439-92-1	E420	0.00005	mg/L	<0.000050	----
Lithium, total	7439-93-2	E420	0.001	mg/L	<0.0010	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	<0.0050	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	<0.00010	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	<0.000050	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	<0.00050	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	<0.050	----
Potassium, total	7440-09-7	E420	0.05	mg/L	<0.050	----
Rubidium, total	7440-17-7	E420	0.0002	mg/L	<0.00020	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	<0.000050	----
Silicon, total	7440-21-3	E420	0.1	mg/L	<0.10	----
Silver, total	7440-22-4	E420	0.00001	mg/L	<0.000010	----
Sodium, total	7440-23-5	E420	0.05	mg/L	<0.050	----
Strontium, total	7440-24-6	E420	0.0002	mg/L	<0.00020	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	<0.50	----
Tellurium, total	13494-80-9	E420	0.0002	mg/L	<0.00020	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	<0.000010	----
Thorium, total	7440-29-1	E420	0.0001	mg/L	<0.00010	----
Tin, total	7440-31-5	E420	0.0001	mg/L	<0.00010	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	<0.00030	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	<0.00010	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	<0.000010	----
Vanadium, total	7440-62-2	E420	0.0005	mg/L	<0.00050	----
Zinc, total	7440-66-6	E420	0.003	mg/L	<0.0030	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	<0.00020	----
Total Metals (QCLot: 1548055)						
Mercury, total	7439-97-6	E508	0.000005	mg/L	<0.0000050	----
Dissolved Metals (QCLot: 1546305)						
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	<0.0010	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Dissolved Metals (QCLot: 1546305) - continued						
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	<0.00010	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	<0.00010	----
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	<0.00010	----
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	<0.000020	----
Bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	<0.000050	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	<0.010	----
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	<0.0000050	----
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	<0.050	----
Cesium, dissolved	7440-46-2	E421	0.00001	mg/L	<0.000010	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	<0.00050	----
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	<0.00010	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	<0.00020	----
Iron, dissolved	7439-89-6	E421	0.01	mg/L	<0.010	----
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	<0.000050	----
Lithium, dissolved	7439-93-2	E421	0.001	mg/L	<0.0010	----
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	<0.0050	----
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	<0.00010	----
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	<0.000050	----
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	<0.00050	----
Phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	<0.050	----
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	<0.050	----
Rubidium, dissolved	7440-17-7	E421	0.0002	mg/L	<0.00020	----
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	<0.000050	----
Silicon, dissolved	7440-21-3	E421	0.05	mg/L	<0.050	----
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	<0.000010	----
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	<0.050	----
Strontium, dissolved	7440-24-6	E421	0.0002	mg/L	<0.00020	----
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	<0.50	----
Tellurium, dissolved	13494-80-9	E421	0.0002	mg/L	<0.00020	----
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	<0.000010	----
Thorium, dissolved	7440-29-1	E421	0.0001	mg/L	<0.00010	----
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	<0.00010	----
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	<0.00030	----
Tungsten, dissolved	7440-33-7	E421	0.0001	mg/L	<0.00010	----
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	<0.000010	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Dissolved Metals (QCLot: 1546305) - continued						
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	<0.00050	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	<0.0010	----
Zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	<0.00020	----
Dissolved Metals (QCLot: 1548255)						
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	<0.0000050	----

Laboratory Control Sample (LCS) Report

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

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 1545322)									
pH	----	E108	----	pH units	7 pH units	100	98.0	102	----
Physical Tests (QCLot: 1545323)									
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	500 mg/L	93.2	85.0	115	----
Physical Tests (QCLot: 1545324)									
Conductivity	----	E100	1	µS/cm	147 µS/cm	100	90.0	110	----
Physical Tests (QCLot: 1545328)									
Acidity (as CaCO3)	----	E283	2	mg/L	50 mg/L	100	85.0	115	----
Physical Tests (QCLot: 1550024)									
Solids, total suspended [TSS]	----	E160-L	1	mg/L	150 mg/L	90.7	85.0	115	----
Physical Tests (QCLot: 1550030)									
Solids, total dissolved [TDS]	----	E162	10	mg/L	1000 mg/L	107	85.0	115	----
Anions and Nutrients (QCLot: 1545333)									
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: 1545335)									
Sulfate (as SO4)	14808-79-8	E235.SO4-L	0.05	mg/L	100 mg/L	98.4	90.0	110	----
Anions and Nutrients (QCLot: 1545336)									
Nitrate (as N)	14797-55-8	E235.NO3-T	0.003	mg/L	2.5 mg/L	97.1	90.0	110	----
Anions and Nutrients (QCLot: 1545337)									
Fluoride	16984-48-8	E235.F-L	0.01	mg/L	1 mg/L	96.9	90.0	110	----
Anions and Nutrients (QCLot: 1545338)									
Chloride	16887-00-6	E235.Cl-L	0.1	mg/L	100 mg/L	97.4	90.0	110	----
Anions and Nutrients (QCLot: 1545339)									
Bromide	24959-67-9	E235.Br-U	0.005	mg/L	0.5 mg/L	96.5	85.0	115	----
Cyanides (QCLot: 1551764)									
Cyanide, strong acid dissociable (Total)	----	E333	0.002	mg/L	0.25 mg/L	99.6	80.0	120	----
Total Metals (QCLot: 1546280)									
Aluminum, total	7429-90-5	E420	0.003	mg/L	2 mg/L	97.5	80.0	120	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	1 mg/L	100	80.0	120	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	1 mg/L	104	80.0	120	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Total Metals (QCLot: 1546280) - continued									
Barium, total	7440-39-3	E420	0.0001	mg/L	0.25 mg/L	99.4	80.0	120	----
Beryllium, total	7440-41-7	E420	0.00002	mg/L	0.1 mg/L	104	80.0	120	----
Bismuth, total	7440-69-9	E420	0.00005	mg/L	1 mg/L	104	80.0	120	----
Boron, total	7440-42-8	E420	0.01	mg/L	1 mg/L	101	80.0	120	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	0.1 mg/L	94.6	80.0	120	----
Calcium, total	7440-70-2	E420	0.05	mg/L	50 mg/L	101	80.0	120	----
Cesium, total	7440-46-2	E420	0.00001	mg/L	0.05 mg/L	103	80.0	120	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	0.25 mg/L	97.1	80.0	120	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	0.25 mg/L	97.0	80.0	120	----
Copper, total	7440-50-8	E420	0.0005	mg/L	0.25 mg/L	98.0	80.0	120	----
Iron, total	7439-89-6	E420	0.01	mg/L	1 mg/L	99.7	80.0	120	----
Lead, total	7439-92-1	E420	0.00005	mg/L	0.5 mg/L	103	80.0	120	----
Lithium, total	7439-93-2	E420	0.001	mg/L	0.25 mg/L	105	80.0	120	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	50 mg/L	96.6	80.0	120	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	0.25 mg/L	98.1	80.0	120	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	0.25 mg/L	104	80.0	120	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	0.5 mg/L	96.6	80.0	120	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	10 mg/L	91.8	80.0	120	----
Potassium, total	7440-09-7	E420	0.05	mg/L	50 mg/L	99.6	80.0	120	----
Rubidium, total	7440-17-7	E420	0.0002	mg/L	0.1 mg/L	97.6	80.0	120	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	1 mg/L	95.2	80.0	120	----
Silicon, total	7440-21-3	E420	0.1	mg/L	10 mg/L	98.7	80.0	120	----
Silver, total	7440-22-4	E420	0.00001	mg/L	0.1 mg/L	96.1	80.0	120	----
Sodium, total	7440-23-5	E420	0.05	mg/L	50 mg/L	104	80.0	120	----
Strontium, total	7440-24-6	E420	0.0002	mg/L	0.25 mg/L	105	80.0	120	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	50 mg/L	99.6	80.0	120	----
Tellurium, total	13494-80-9	E420	0.0002	mg/L	0.1 mg/L	102	80.0	120	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	1 mg/L	102	80.0	120	----
Thorium, total	7440-29-1	E420	0.0001	mg/L	0.1 mg/L	99.0	80.0	120	----
Tin, total	7440-31-5	E420	0.0001	mg/L	0.5 mg/L	97.6	80.0	120	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	0.25 mg/L	95.0	80.0	120	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	0.1 mg/L	103	80.0	120	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	0.005 mg/L	106	80.0	120	----
Vanadium, total	7440-62-2	E420	0.0005	mg/L	0.5 mg/L	99.6	80.0	120	----
Zinc, total	7440-66-6	E420	0.003	mg/L	0.5 mg/L	93.8	80.0	120	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	0.1 mg/L	98.0	80.0	120	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
					Target Concentration	LCS	Low	High	Qualifier
Total Metals (QCLot: 1548055)									
Mercury, total	7439-97-6	E508	0.000005	mg/L	0 mg/L	96.3	80.0	120	----
Dissolved Metals (QCLot: 1546305)									
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	2 mg/L	98.3	80.0	120	----
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	1 mg/L	101	80.0	120	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	1 mg/L	105	80.0	120	----
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	0.25 mg/L	99.7	80.0	120	----
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	0.1 mg/L	98.4	80.0	120	----
Bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	1 mg/L	105	80.0	120	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	1 mg/L	95.6	80.0	120	----
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	0.1 mg/L	100	80.0	120	----
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	50 mg/L	97.7	80.0	120	----
Cesium, dissolved	7440-46-2	E421	0.00001	mg/L	0.05 mg/L	105	80.0	120	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	0.25 mg/L	99.0	80.0	120	----
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	0.25 mg/L	99.6	80.0	120	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	0.25 mg/L	99.6	80.0	120	----
Iron, dissolved	7439-89-6	E421	0.01	mg/L	1 mg/L	105	80.0	120	----
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	0.5 mg/L	107	80.0	120	----
Lithium, dissolved	7439-93-2	E421	0.001	mg/L	0.25 mg/L	95.4	80.0	120	----
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	50 mg/L	98.0	80.0	120	----
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	0.25 mg/L	98.8	80.0	120	----
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	0.25 mg/L	104	80.0	120	----
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	0.5 mg/L	99.5	80.0	120	----
Phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	10 mg/L	89.1	80.0	120	----
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	50 mg/L	100	80.0	120	----
Rubidium, dissolved	7440-17-7	E421	0.0002	mg/L	0.1 mg/L	98.6	80.0	120	----
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	1 mg/L	99.0	80.0	120	----
Silicon, dissolved	7440-21-3	E421	0.05	mg/L	10 mg/L	106	80.0	120	----
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	0.1 mg/L	97.1	80.0	120	----
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	50 mg/L	102	80.0	120	----
Strontium, dissolved	7440-24-6	E421	0.0002	mg/L	0.25 mg/L	107	80.0	120	----
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	50 mg/L	93.2	80.0	120	----
Tellurium, dissolved	13494-80-9	E421	0.0002	mg/L	0.1 mg/L	103	80.0	120	----
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	1 mg/L	108	80.0	120	----
Thorium, dissolved	7440-29-1	E421	0.0001	mg/L	0.1 mg/L	103	80.0	120	----
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	0.5 mg/L	101	80.0	120	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
					Target Concentration	LCS	Low	High	Qualifier
Dissolved Metals (QCLot: 1546305) - continued									
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	0.25 mg/L	93.7	80.0	120	----
Tungsten, dissolved	7440-33-7	E421	0.0001	mg/L	0.1 mg/L	105	80.0	120	----
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	0.005 mg/L	107	80.0	120	----
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	0.5 mg/L	101	80.0	120	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	0.5 mg/L	103	80.0	120	----
Zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	0.1 mg/L	97.4	80.0	120	----
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0 mg/L	95.3	80.0	120	----

Matrix Spike (MS) Report

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

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Anions and Nutrients (QCLot: 1545333)										
VA24B6896-002	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	0.503 mg/L	0.5 mg/L	100	75.0	125	----
Anions and Nutrients (QCLot: 1545335)										
YL2400881-002	Cell 4-B	Sulfate (as SO4)	14808-79-8	E235.SO4-L	478 mg/L	500 mg/L	95.6	75.0	125	----
Anions and Nutrients (QCLot: 1545336)										
YL2400881-002	Cell 4-B	Nitrate (as N)	14797-55-8	E235.NO3-T	12.2 mg/L	12.5 mg/L	97.2	75.0	125	----
Anions and Nutrients (QCLot: 1545337)										
YL2400881-002	Cell 4-B	Fluoride	16984-48-8	E235.F-L	4.84 mg/L	5 mg/L	96.8	75.0	125	----
Anions and Nutrients (QCLot: 1545338)										
YL2400881-002	Cell 4-B	Chloride	16887-00-6	E235.Cl-L	486 mg/L	500 mg/L	97.3	75.0	125	----
Anions and Nutrients (QCLot: 1545339)										
YL2400881-002	Cell 4-B	Bromide	24959-67-9	E235.Br-U	2.28 mg/L	2.5 mg/L	91.1	75.0	125	----
Cyanides (QCLot: 1551764)										
VA24B6573-004	Anonymous	Cyanide, strong acid dissociable (Total)	----	E333	0.240 mg/L	0.25 mg/L	95.9	75.0	125	----
Total Metals (QCLot: 1546280)										
FJ2402014-001	Anonymous	Aluminum, total	7429-90-5	E420	0.185 mg/L	0.2 mg/L	92.4	70.0	130	----
		Antimony, total	7440-36-0	E420	0.0201 mg/L	0.02 mg/L	100	70.0	130	----
		Arsenic, total	7440-38-2	E420	0.0205 mg/L	0.02 mg/L	103	70.0	130	----
		Barium, total	7440-39-3	E420	0.0194 mg/L	0.02 mg/L	97.1	70.0	130	----
		Beryllium, total	7440-41-7	E420	0.0393 mg/L	0.04 mg/L	98.4	70.0	130	----
		Bismuth, total	7440-69-9	E420	0.00932 mg/L	0.01 mg/L	93.2	70.0	130	----
		Boron, total	7440-42-8	E420	0.098 mg/L	0.1 mg/L	98.1	70.0	130	----
		Cadmium, total	7440-43-9	E420	0.00368 mg/L	0.004 mg/L	92.0	70.0	130	----
		Calcium, total	7440-70-2	E420	ND mg/L	----	ND	70.0	130	----
		Cesium, total	7440-46-2	E420	0.0104 mg/L	0.01 mg/L	104	70.0	130	----
		Chromium, total	7440-47-3	E420	0.0378 mg/L	0.04 mg/L	94.4	70.0	130	----
		Cobalt, total	7440-48-4	E420	0.0184 mg/L	0.02 mg/L	92.0	70.0	130	----
		Copper, total	7440-50-8	E420	0.0176 mg/L	0.02 mg/L	88.1	70.0	130	----
		Iron, total	7439-89-6	E420	1.85 mg/L	2 mg/L	92.7	70.0	130	----
		Lead, total	7439-92-1	E420	0.0183 mg/L	0.02 mg/L	91.7	70.0	130	----
		Lithium, total	7439-93-2	E420	ND mg/L	----	ND	70.0	130	----
		Magnesium, total	7439-95-4	E420	ND mg/L	----	ND	70.0	130	----
		Manganese, total	7439-96-5	E420	0.0188 mg/L	0.02 mg/L	94.2	70.0	130	----
		Molybdenum, total	7439-98-7	E420	0.0219 mg/L	0.02 mg/L	109	70.0	130	----
		Nickel, total	7440-02-0	E420	0.0354 mg/L	0.04 mg/L	88.4	70.0	130	----
		Phosphorus, total	7723-14-0	E420	9.32 mg/L	10 mg/L	93.2	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Total Metals (QCLot: 1546280) - continued										
FJ2402014-001	Anonymous	Potassium, total	7440-09-7	E420	3.79 mg/L	4 mg/L	94.9	70.0	130	----
		Rubidium, total	7440-17-7	E420	0.0185 mg/L	0.02 mg/L	92.3	70.0	130	----
		Selenium, total	7782-49-2	E420	0.0435 mg/L	0.04 mg/L	109	70.0	130	----
		Silicon, total	7440-21-3	E420	9.69 mg/L	10 mg/L	96.9	70.0	130	----
		Silver, total	7440-22-4	E420	0.00393 mg/L	0.004 mg/L	98.3	70.0	130	----
		Sodium, total	7440-23-5	E420	ND mg/L	----	ND	70.0	130	----
		Strontium, total	7440-24-6	E420	ND mg/L	----	ND	70.0	130	----
		Sulfur, total	7704-34-9	E420	ND mg/L	----	ND	70.0	130	----
		Tellurium, total	13494-80-9	E420	0.0434 mg/L	0.04 mg/L	108	70.0	130	----
		Thallium, total	7440-28-0	E420	0.00368 mg/L	0.004 mg/L	91.9	70.0	130	----
		Thorium, total	7440-29-1	E420	0.0200 mg/L	0.02 mg/L	100	70.0	130	----
		Tin, total	7440-31-5	E420	0.0195 mg/L	0.02 mg/L	97.4	70.0	130	----
		Titanium, total	7440-32-6	E420	0.0409 mg/L	0.04 mg/L	102	70.0	130	----
		Tungsten, total	7440-33-7	E420	0.0198 mg/L	0.02 mg/L	98.8	70.0	130	----
		Uranium, total	7440-61-1	E420	ND mg/L	----	ND	70.0	130	----
		Vanadium, total	7440-62-2	E420	0.0992 mg/L	0.1 mg/L	99.2	70.0	130	----
		Zinc, total	7440-66-6	E420	0.357 mg/L	0.4 mg/L	89.4	70.0	130	----
		Zirconium, total	7440-67-7	E420	0.0445 mg/L	0.04 mg/L	111	70.0	130	----
Total Metals (QCLot: 1548055)										
VA24B6745-001	Anonymous	Mercury, total	7439-97-6	E508	0.0000950 mg/L	0 mg/L	95.0	70.0	130	----
Dissolved Metals (QCLot: 1546305)										
FJ2402001-001	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.188 mg/L	0.2 mg/L	94.0	70.0	130	----
		Antimony, dissolved	7440-36-0	E421	0.0199 mg/L	0.02 mg/L	99.7	70.0	130	----
		Arsenic, dissolved	7440-38-2	E421	0.0213 mg/L	0.02 mg/L	106	70.0	130	----
		Barium, dissolved	7440-39-3	E421	ND mg/L	----	ND	70.0	130	----
		Beryllium, dissolved	7440-41-7	E421	0.0392 mg/L	0.04 mg/L	98.1	70.0	130	----
		Bismuth, dissolved	7440-69-9	E421	0.00924 mg/L	0.01 mg/L	92.4	70.0	130	----
		Boron, dissolved	7440-42-8	E421	0.091 mg/L	0.1 mg/L	91.1	70.0	130	----
		Cadmium, dissolved	7440-43-9	E421	0.00401 mg/L	0.004 mg/L	100	70.0	130	----
		Calcium, dissolved	7440-70-2	E421	ND mg/L	----	ND	70.0	130	----
		Cesium, dissolved	7440-46-2	E421	0.0104 mg/L	0.01 mg/L	104	70.0	130	----
		Chromium, dissolved	7440-47-3	E421	0.0384 mg/L	0.04 mg/L	96.0	70.0	130	----
		Cobalt, dissolved	7440-48-4	E421	0.0196 mg/L	0.02 mg/L	98.1	70.0	130	----
		Copper, dissolved	7440-50-8	E421	0.0191 mg/L	0.02 mg/L	95.3	70.0	130	----
		Iron, dissolved	7439-89-6	E421	1.92 mg/L	2 mg/L	96.0	70.0	130	----
		Lead, dissolved	7439-92-1	E421	0.0198 mg/L	0.02 mg/L	99.1	70.0	130	----
		Lithium, dissolved	7439-93-2	E421	0.0971 mg/L	0.1 mg/L	97.1	70.0	130	----
		Magnesium, dissolved	7439-95-4	E421	ND mg/L	----	ND	70.0	130	----
		Manganese, dissolved	7439-96-5	E421	0.0191 mg/L	0.02 mg/L	95.7	70.0	130	----
		Molybdenum, dissolved	7439-98-7	E421	0.0209 mg/L	0.02 mg/L	104	70.0	130	----
		Nickel, dissolved	7440-02-0	E421	0.0382 mg/L	0.04 mg/L	95.4	70.0	130	----
		Phosphorus, dissolved	7723-14-0	E421	9.69 mg/L	10 mg/L	96.9	70.0	130	----
		Potassium, dissolved	7440-09-7	E421	3.89 mg/L	4 mg/L	97.2	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Dissolved Metals (QCLot: 1546305) - continued										
FJ2402001-001	Anonymous	Rubidium, dissolved	7440-17-7	E421	0.0189 mg/L	0.02 mg/L	94.4	70.0	130	----
		Selenium, dissolved	7782-49-2	E421	0.0432 mg/L	0.04 mg/L	108	70.0	130	----
		Silicon, dissolved	7440-21-3	E421	9.74 mg/L	10 mg/L	97.4	70.0	130	----
		Silver, dissolved	7440-22-4	E421	0.00402 mg/L	0.004 mg/L	100	70.0	130	----
		Sodium, dissolved	7440-23-5	E421	2.01 mg/L	2 mg/L	100	70.0	130	----
		Strontium, dissolved	7440-24-6	E421	ND mg/L	----	ND	70.0	130	----
		Sulfur, dissolved	7704-34-9	E421	ND mg/L	----	ND	70.0	130	----
		Tellurium, dissolved	13494-80-9	E421	0.0437 mg/L	0.04 mg/L	109	70.0	130	----
		Thallium, dissolved	7440-28-0	E421	0.00398 mg/L	0.004 mg/L	99.6	70.0	130	----
		Thorium, dissolved	7440-29-1	E421	0.0214 mg/L	0.02 mg/L	107	70.0	130	----
		Tin, dissolved	7440-31-5	E421	0.0198 mg/L	0.02 mg/L	98.8	70.0	130	----
		Titanium, dissolved	7440-32-6	E421	0.0382 mg/L	0.04 mg/L	95.5	70.0	130	----
		Tungsten, dissolved	7440-33-7	E421	0.0203 mg/L	0.02 mg/L	102	70.0	130	----
		Uranium, dissolved	7440-61-1	E421	0.00411 mg/L	0.004 mg/L	103	70.0	130	----
		Vanadium, dissolved	7440-62-2	E421	0.100 mg/L	0.1 mg/L	100	70.0	130	----
		Zinc, dissolved	7440-66-6	E421	0.400 mg/L	0.4 mg/L	100.0	70.0	130	----
		Zirconium, dissolved	7440-67-7	E421	0.0423 mg/L	0.04 mg/L	106	70.0	130	----
Dissolved Metals (QCLot: 1548255)										
VA24B6580-003	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000978 mg/L	0 mg/L	97.8	70.0	130	----

CERTIFICATE OF ANALYSIS

Work Order	:	**YL2400916**			
Amendment	:	**1**			
Client	:	**Elgin Mining Inc.**	Laboratory	:	ALS Environmental - Vancouver
Contact	:	Jon Melnyk	Account Manager	:	Oliver Gregg
Address	:	750 West Pender Street Suite 201 Vancouver British Columbia Canada V6C 2T7	Address	:	8081 Lougheed Highway Burnaby BC Canada V5A 1W9
Telephone	:	----	Telephone	:	1 867 445 7143
Project	:	----	Date Samples Received	:	16-Jul-2024 11:12
PO	:	----	Date Analysis Commenced	:	16-Jul-2024
C-O-C number	:	----	Issue Date	:	25-Jul-2024 11:54
Sampler	:	----			
Site	:	----			
Quote number	:	YL24-ELMI100-001			
No. of samples received	:	3			
No. of samples analysed	:	3			

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

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

Signatories

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

Signatories	*Position*	*Laboratory Department*
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Inorganics, Burnaby, British Columbia
Kim Jensen	Department Manager - Metals	Metals, Burnaby, British Columbia
Oliver Gregg	Client Services Supervisor	External Subcontracting, Yellowknife, Northwest Territories

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*
µS/cm	microsiemens per centimetre
pH units	pH units
mg/L	milligrams per litre
CFU/100mL	colony forming units per hundred millilitres

<: 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)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	LUP-01	LUP-EL-01	LUP-EL-01	----	----
					Client sampling date / time	15-Jul-2024 07:11	15-Jul-2024 07:39	15-Jul-2024 08:06	----	----
						YL2400916-001	YL2400916-002	YL2400916-003	----	----
						Result	Result	Result	----	----
Physical Tests										
Alkalinity, bicarbonate (as CaCO3)	----	E290/VA	2.0	mg/L		3.2	<2.0	3.9	----	----
Alkalinity, carbonate (as CaCO3)	----	E290/VA	2.0	mg/L		<2.0	<2.0	<2.0	----	----
Alkalinity, hydroxide (as CaCO3)	----	E290/VA	2.0	mg/L		<2.0	<2.0	<2.0	----	----
Alkalinity, phenolphthalein (as CaCO3)	----	E290/VA	2.0	mg/L		<2.0	<2.0	<2.0	----	----
Alkalinity, total (as CaCO3)	----	E290/VA	2.0	mg/L		3.2	<2.0	3.9	----	----
Conductivity	----	E100/VA	2.0	µS/cm		14.6	122	36.9	----	----
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/VA	0.60	mg/L		5.15	49.7	13.0	----	----
pH	----	E108/VA	0.10	pH units		6.70	5.80	6.77	----	----
Solids, total suspended [TSS]	----	E160/VA	3.0	mg/L		<3.0	5.4	<3.0	----	----
Microbiological Tests										
Coliforms, thermotolerant [fecal]	----	FC-MF/1Y	1.0	CFU/100 mL		<1.0	----	----	----	----
Total Metals										
Aluminum, total	7429-90-5	E420/VA	0.0030	mg/L		0.0069	0.133	0.0271	----	----
Antimony, total	7440-36-0	E420/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	----	----
Arsenic, total	7440-38-2	E420/VA	0.00010	mg/L		0.00048	0.00204	0.00104	----	----
Barium, total	7440-39-3	E420/VA	0.00010	mg/L		0.00236	0.0207	0.00416	----	----
Beryllium, total	7440-41-7	E420/VA	0.000100	mg/L		<0.000100	<0.000100	<0.000100	----	----
Bismuth, total	7440-69-9	E420/VA	0.000050	mg/L		<0.000050	<0.000050	<0.000050	----	----
Boron, total	7440-42-8	E420/VA	0.010	mg/L		<0.010	<0.010	<0.010	----	----
Cadmium, total	7440-43-9	E420/VA	0.0000050	mg/L		<0.0000050	0.0000778	0.0000069	----	----
Calcium, total	7440-70-2	E420/VA	0.050	mg/L		1.03	8.07	2.14	----	----
Cesium, total	7440-46-2	E420/VA	0.000010	mg/L		<0.000010	0.000077	0.000022	----	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	LUP-01	LUP-EL-01	LUP-EL-01	----	----
					Client sampling date / time	15-Jul-2024 07:11	15-Jul-2024 07:39	15-Jul-2024 08:06	----	----
						YL2400916-001	YL2400916-002	YL2400916-003	----	----
						Result	Result	Result	----	----
Total Metals										
Chromium, total	7440-47-3	E420/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	----	----
Cobalt, total	7440-48-4	E420/VA	0.00010	mg/L		<0.00010	0.00679	0.00040	----	----
Copper, total	7440-50-8	E420/VA	0.00050	mg/L		0.00065	0.00586	0.00166	----	----
Iron, total	7439-89-6	E420/VA	0.010	mg/L		<0.010	0.201	0.093	----	----
Lead, total	7439-92-1	E420/VA	0.000050	mg/L		<0.000050	0.000055	<0.000050	----	----
Lithium, total	7439-93-2	E420/VA	0.0010	mg/L		<0.0010	0.0070	0.0035	----	----
Magnesium, total	7439-95-4	E420/VA	0.0050	mg/L		0.626	7.17	1.87	----	----
Manganese, total	7439-96-5	E420/VA	0.00010	mg/L		0.00180	0.0735	0.00690	----	----
Mercury, total	7439-97-6	E508/VA	0.0000050	mg/L		<0.0000050	<0.0000050	<0.0000050	----	----
Molybdenum, total	7439-98-7	E420/VA	0.000050	mg/L		<0.000050	<0.000050	<0.000050	----	----
Nickel, total	7440-02-0	E420/VA	0.00050	mg/L		0.00091	0.0519	0.00360	----	----
Phosphorus, total	7723-14-0	E420/VA	0.050	mg/L		<0.050	<0.050	<0.050	----	----
Potassium, total	7440-09-7	E420/VA	0.050	mg/L		0.406	1.05	0.651	----	----
Rubidium, total	7440-17-7	E420/VA	0.00020	mg/L		0.00122	0.00364	0.00192	----	----
Selenium, total	7782-49-2	E420/VA	0.000050	mg/L		<0.000050	<0.000050	<0.000050	----	----
Silicon, total	7440-21-3	E420/VA	0.10	mg/L		0.11	<0.10	0.19	----	----
Silver, total	7440-22-4	E420/VA	0.000010	mg/L		<0.000010	<0.000010	<0.000010	----	----
Sodium, total	7440-23-5	E420/VA	0.050	mg/L		0.568	3.29	1.33	----	----
Strontium, total	7440-24-6	E420/VA	0.00020	mg/L		0.00594	0.0460	0.0128	----	----
Sulfur, total	7704-34-9	E420/VA	0.50	mg/L		0.85	17.5	3.85	----	----
Tellurium, total	13494-80-9	E420/VA	0.00020	mg/L		<0.00020	<0.00020	<0.00020	----	----
Thallium, total	7440-28-0	E420/VA	0.000010	mg/L		<0.000010	<0.000010	<0.000010	----	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	LUP-01	LUP-EL-01	LUP-EL-01	----	----
					Client sampling date / time	15-Jul-2024 07:11	15-Jul-2024 07:39	15-Jul-2024 08:06	----	----
						YL2400916-001	YL2400916-002	YL2400916-003	----	----
						Result	Result	Result	----	----
Total Metals										
Thorium, total	7440-29-1	E420/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	----	----
Tin, total	7440-31-5	E420/VA	0.00010	mg/L		<0.00010	0.00031	<0.00010	----	----
Titanium, total	7440-32-6	E420/VA	0.00030	mg/L		<0.00030	0.00147	<0.00030	----	----
Tungsten, total	7440-33-7	E420/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	----	----
Uranium, total	7440-61-1	E420/VA	0.000010	mg/L		0.000019	0.000035	0.000022	----	----
Vanadium, total	7440-62-2	E420/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	----	----
Zinc, total	7440-66-6	E420/VA	0.0030	mg/L		<0.0030	0.0240	<0.0030	----	----
Zirconium, total	7440-67-7	E420/VA	0.00020	mg/L		<0.00020	<0.00020	<0.00020	----	----

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	: **YL2400916**	Page	: 1 of 7
Amendment	: **1**		
Client	: **Elgin Mining Inc.**	Laboratory	: ALS Environmental - Yellowknife
Contact	: Jon Melnyk	Account Manager	: Oliver Gregg
Address	: 750 West Pender Street Suite 201 Vancouver BC Canada V6C 2T7	Address	: 314 Old Airport Road, Unit 116 Yellowknife, Northwest Territories Canada X1A 3T3
Telephone	: ----	Telephone	: 1 867 445 7143
Project	: ----	Date Samples Received	: 16-Jul-2024 11:12
PO	: ----	Issue Date	: 25-Jul-2024 11:48
C-O-C number	: ----		
Sampler	: ----		
Site	: ----		
Quote number	: YL24-ELMI100-001		
No. of samples received	: 3		
No. of samples analysed	: 3		

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

Key

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

Workorder Comments

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

Summary of Outliers

Outliers : Quality Control Samples

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

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

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

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Analysis Holding Time Compliance

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

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

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

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

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	*Method*	*Sampling Date*	*Extraction / Preparation*				*Analysis*			
			Preparation Date	*Holding Times* Rec	*Holding Times* Actual	*Eval*	*Analysis Date*	*Holding Times* Rec	*Holding Times* Actual	*Eval*
Microbiological Tests : Fecal Coliforms in Water by MF										
Sterile HDPE (Sodium thiosulphate) LUP-01	FC-MF	15-Jul-2024	----	----	----		16-Jul-2024	30 hrs	28 hrs	✓
Physical Tests : Alkalinity Species by Titration										
HDPE LUP-01	E290	15-Jul-2024	20-Jul-2024	14 days	5 days	✓	22-Jul-2024	14 days	7 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE LUP-EL-01, LUP-EL-01	E290	15-Jul-2024	20-Jul-2024	14 days	5 days	✓	22-Jul-2024	14 days	7 days	✓
Physical Tests : Conductivity in Water										
HDPE LUP-01	E100	15-Jul-2024	20-Jul-2024	28 days	5 days	✓	22-Jul-2024	28 days	7 days	✓
Physical Tests : Conductivity in Water										
HDPE LUP-EL-01, LUP-EL-01	E100	15-Jul-2024	20-Jul-2024	28 days	5 days	✓	22-Jul-2024	28 days	7 days	✓
Physical Tests : pH by Meter										
HDPE LUP-EL-01	E108	15-Jul-2024	20-Jul-2024	0.25 hrs	126 hrs	× EHTR-FM	22-Jul-2024	0.25 hrs	169 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE LUP-EL-01	E108	15-Jul-2024	20-Jul-2024	0.25 hrs	127 hrs	× EHTR-FM	22-Jul-2024	0.25 hrs	169 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										
LUP-01	E108	15-Jul-2024	20-Jul-2024	0.25 hrs	127 hrs	× EHTR-FM	22-Jul-2024	0.25 hrs	170 hrs	× EHTR-FM
Physical Tests : TSS by Gravimetry										
HDPE										
LUP-01	E160	15-Jul-2024	----	----	----		22-Jul-2024	7 days	7 days	✓
Physical Tests : TSS by Gravimetry										
HDPE										
LUP-EL-01, LUP-EL-01	E160	15-Jul-2024	----	----	----		22-Jul-2024	7 days	7 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid)										
LUP-01	E508	15-Jul-2024	23-Jul-2024	28 days	8 days	✓	23-Jul-2024	28 days	8 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid)										
LUP-EL-01, LUP-EL-01	E508	15-Jul-2024	23-Jul-2024	28 days	8 days	✓	23-Jul-2024	28 days	8 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved)										
LUP-01	E420	15-Jul-2024	20-Jul-2024	180 days	5 days	✓	23-Jul-2024	180 days	8 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved)										
LUP-EL-01, LUP-EL-01	E420	15-Jul-2024	20-Jul-2024	180 days	5 days	✓	23-Jul-2024	180 days	8 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	1556072	1	16	6.2	5.0	✓
Conductivity in Water	E100	1556073	1	10	10.0	5.0	✓
pH by Meter	E108	1556071	1	11	9.0	5.0	✓
Total Mercury in Water by CVAAS	E508	1558861	1	7	14.2	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1554810	1	20	5.0	5.0	✓
TSS by Gravimetry	E160	1557758	1	9	11.1	5.0	✓
Laboratory Control Samples (LCS)							
Alkalinity Species by Titration	E290	1556072	1	16	6.2	5.0	✓
Conductivity in Water	E100	1556073	1	10	10.0	5.0	✓
pH by Meter	E108	1556071	1	11	9.0	5.0	✓
Total Mercury in Water by CVAAS	E508	1558861	1	7	14.2	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1554810	1	20	5.0	5.0	✓
TSS by Gravimetry	E160	1557758	1	9	11.1	5.0	✓
Method Blanks (MB)							
Alkalinity Species by Titration	E290	1556072	1	16	6.2	5.0	✓
Conductivity in Water	E100	1556073	1	10	10.0	5.0	✓
Total Mercury in Water by CVAAS	E508	1558861	1	7	14.2	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1554810	1	20	5.0	5.0	✓
TSS by Gravimetry	E160	1557758	1	9	11.1	5.0	✓
Matrix Spikes (MS)							
Total Mercury in Water by CVAAS	E508	1558861	1	7	14.2	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1554810	1	20	5.0	5.0	✓

Methodology References and Summaries

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

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Conductivity in Water	E100 ALS Environmental - Vancouver	Water	APHA 2510 (mod)	Conductivity, also known as Electrical Conductivity (EC) or Specific Conductance, is measured by immersion of a conductivity cell with platinum electrodes into a water sample. Conductivity measurements are temperature-compensated to 25°C.
pH by Meter	E108 ALS Environmental - Vancouver	Water	APHA 4500-H (mod)	pH is determined by potentiometric measurement with a pH electrode, and is conducted at ambient laboratory temperature (normally 20 ± 5°C). For high accuracy test results, pH should be measured in the field within the recommended 15 minute hold time.
TSS by Gravimetry	E160 ALS Environmental - Vancouver	Water	APHA 2540 D (mod)	Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, following by drying of the filter at 104 ± 1°C, with gravimetric measurement of the filtered solids. Samples containing very high dissolved solid content (i.e. seawaters, brackish waters) may produce a positive bias by this method. Alternate analysis methods are available for these types of samples.
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.
Total Metals in Water by CRC ICPMS	E420 ALS Environmental - Vancouver	Water	EPA 200.2/6020B (mod)	Water samples are digested with nitric and hydrochloric acids, and analyzed by Collision/Reaction Cell ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
Total Mercury in Water by CVAAS	E508 ALS Environmental - Vancouver	Water	EPA 1631E (mod)	Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS
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.
Fecal Coliforms in Water by MF	FC-MF Taiga Environmental Laboratory - 4601 - 52nd Avenue P.O. BOX 1500 Yellowknife Northwest Territories Canada X1A 2R3	Water	APHA 9222D	See attached report.

QUALITY CONTROL REPORT

Work Order	: **YL2400916**	Page	: 1 of 10
Amendment	: **1**		
Client	: Elgin Mining Inc.	Laboratory	: ALS Environmental - Yellowknife
Contact	: Jon Melnyk	Account Manager	: Oliver Gregg
Address	: 750 West Pender Street Suite 201 Vancouver BC Canada V6C 2T7	Address	: 314 Old Airport Road, Unit 116 Yellowknife, Northwest Territories Canada X1A 3T3
Telephone	: ----	Telephone	: 1 867 445 7143
Project	: ----	Date Samples Received	: 16-Jul-2024 11:12
PO	: ----	Date Analysis Commenced	: 16-Jul-2024
C-O-C number	: ----	Issue Date	: 25-Jul-2024 11:48
Sampler	: ----		
Site	: ----		
Quote number	: YL24-ELMI100-001		
No. of samples received	: 3		
No. of samples analysed	: 3		

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

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percent Difference (RPD) and Data Quality Objectives
- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

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

Signatories	*Position*	*Laboratory Department*
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Vancouver Inorganics, Burnaby, British Columbia
Kim Jensen	Department Manager - Metals	Vancouver Metals, Burnaby, British Columbia
Oliver Gregg	Client Services Supervisor	Taiga Environmental Laboratory External Subcontracting, Yellowknife, Northwest Territories
Owen Cheng		Vancouver Metals, Burnaby, British Columbia

General Comments

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

Key :

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

Workorder Comments

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

Laboratory Duplicate (DUP) Report

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

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Physical Tests (QC Lot: 1556071)											
FJ2402073-002	Anonymous	pH	----	E108	0.10	pH units	8.33	8.34	0.120%	4%	----
Physical Tests (QC Lot: 1556072)											
FJ2402073-002	Anonymous	Alkalinity, bicarbonate (as CaCO3)	----	E290	1.0	mg/L	266	265	0.226%	200%	----
		Alkalinity, carbonate (as CaCO3)	----	E290	1.0	mg/L	3.8	4.0	5.13%	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	1.9	2.0	0.1	Diff <2x LOR	----
		Alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	270	269	0.148%	20%	----
Physical Tests (QC Lot: 1556073)											
FJ2402073-002	Anonymous	Conductivity	----	E100	2.0	µS/cm	611	618	1.14%	10%	----
Physical Tests (QC Lot: 1557758)											
VA24B7138-001	Anonymous	Solids, total suspended [TSS]	----	E160	3.0	mg/L	<3.0	<3.0	0	Diff <2x LOR	----
Total Metals (QC Lot: 1554810)											
FJ2402064-001	Anonymous	Aluminum, total	7429-90-5	E420	0.0030	mg/L	0.0129	0.0129	0.00003	Diff <2x LOR	----
		Antimony, total	7440-36-0	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Arsenic, total	7440-38-2	E420	0.00010	mg/L	0.00354	0.00355	0.285%	20%	----
		Barium, total	7440-39-3	E420	0.00010	mg/L	0.337	0.344	1.99%	20%	----
		Beryllium, total	7440-41-7	E420	0.000100	mg/L	<0.000100	<0.000100	0	Diff <2x LOR	----
		Bismuth, total	7440-69-9	E420	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Boron, total	7440-42-8	E420	0.010	mg/L	0.240	0.241	0.709%	20%	----
		Cadmium, total	7440-43-9	E420	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
		Calcium, total	7440-70-2	E420	0.050	mg/L	86.6	89.5	3.21%	20%	----
		Cesium, total	7440-46-2	E420	0.000010	mg/L	0.000012	0.000011	0.000001	Diff <2x LOR	----
		Chromium, total	7440-47-3	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Cobalt, total	7440-48-4	E420	0.00010	mg/L	0.00075	0.00076	0.00001	Diff <2x LOR	----
		Copper, total	7440-50-8	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Iron, total	7439-89-6	E420	0.010	mg/L	15.2	15.4	0.720%	20%	----
		Lead, total	7439-92-1	E420	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Lithium, total	7439-93-2	E420	0.0010	mg/L	0.0707	0.0714	0.989%	20%	----
		Magnesium, total	7439-95-4	E420	0.0050	mg/L	20.1	20.6	2.31%	20%	----
		Manganese, total	7439-96-5	E420	0.00010	mg/L	0.957	0.994	3.77%	20%	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Total Metals (QC Lot: 1554810) - continued											
FJ2402064-001	Anonymous	Molybdenum, total	7439-98-7	E420	0.000050	mg/L	0.00559	0.00560	0.323%	20%	----
		Nickel, total	7440-02-0	E420	0.00050	mg/L	0.00054	0.00056	0.00002	Diff <2x LOR	----
		Phosphorus, total	7723-14-0	E420	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Potassium, total	7440-09-7	E420	0.050	mg/L	1.54	1.59	3.60%	20%	----
		Rubidium, total	7440-17-7	E420	0.00020	mg/L	0.00242	0.00244	0.528%	20%	----
		Selenium, total	7782-49-2	E420	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Silicon, total	7440-21-3	E420	0.10	mg/L	6.11	6.15	0.747%	20%	----
		Silver, total	7440-22-4	E420	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Sodium, total	7440-23-5	E420	0.050	mg/L	40.7	42.0	3.03%	20%	----
		Strontium, total	7440-24-6	E420	0.00020	mg/L	0.385	0.391	1.44%	20%	----
		Sulfur, total	7704-34-9	E420	0.50	mg/L	1.36	1.28	0.08	Diff <2x LOR	----
		Tellurium, total	13494-80-9	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		Thallium, total	7440-28-0	E420	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Thorium, total	7440-29-1	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Tin, total	7440-31-5	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Titanium, total	7440-32-6	E420	0.00030	mg/L	<0.00030	<0.00030	0	Diff <2x LOR	----
		Tungsten, total	7440-33-7	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Uranium, total	7440-61-1	E420	0.000010	mg/L	0.000478	0.000472	1.31%	20%	----
		Vanadium, total	7440-62-2	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Zinc, total	7440-66-6	E420	0.0030	mg/L	<0.0030	<0.0030	0	Diff <2x LOR	----
		Zirconium, total	7440-67-7	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
Total Metals (QC Lot: 1558861)											
YL2400913-002	Anonymous	Mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----

Method Blank (MB) Report

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

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 1556072)						
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: 1556073)						
Conductivity	----	E100	1	µS/cm	<1.0	----
Physical Tests (QCLot: 1557758)						
Solids, total suspended [TSS]	----	E160	3	mg/L	<3.0	----
Total Metals (QCLot: 1554810)						
Aluminum, total	7429-90-5	E420	0.003	mg/L	<0.0030	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	<0.00010	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	<0.00010	----
Barium, total	7440-39-3	E420	0.0001	mg/L	<0.00010	----
Beryllium, total	7440-41-7	E420	0.00002	mg/L	<0.000020	----
Bismuth, total	7440-69-9	E420	0.00005	mg/L	<0.000050	----
Boron, total	7440-42-8	E420	0.01	mg/L	<0.010	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	<0.0000050	----
Calcium, total	7440-70-2	E420	0.05	mg/L	<0.050	----
Cesium, total	7440-46-2	E420	0.00001	mg/L	<0.000010	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	<0.00050	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	<0.00010	----
Copper, total	7440-50-8	E420	0.0005	mg/L	<0.00050	----
Iron, total	7439-89-6	E420	0.01	mg/L	<0.010	----
Lead, total	7439-92-1	E420	0.00005	mg/L	<0.000050	----
Lithium, total	7439-93-2	E420	0.001	mg/L	<0.0010	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	<0.0050	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	<0.00010	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	<0.000050	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	<0.00050	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	<0.050	----
Potassium, total	7440-09-7	E420	0.05	mg/L	<0.050	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (QCLot: 1554810) - continued						
Rubidium, total	7440-17-7	E420	0.0002	mg/L	<0.00020	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	<0.000050	----
Silicon, total	7440-21-3	E420	0.1	mg/L	<0.10	----
Silver, total	7440-22-4	E420	0.00001	mg/L	<0.000010	----
Sodium, total	7440-23-5	E420	0.05	mg/L	<0.050	----
Strontium, total	7440-24-6	E420	0.0002	mg/L	<0.00020	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	<0.50	----
Tellurium, total	13494-80-9	E420	0.0002	mg/L	<0.00020	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	<0.000010	----
Thorium, total	7440-29-1	E420	0.0001	mg/L	<0.00010	----
Tin, total	7440-31-5	E420	0.0001	mg/L	<0.00010	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	<0.00030	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	<0.00010	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	<0.000010	----
Vanadium, total	7440-62-2	E420	0.0005	mg/L	<0.00050	----
Zinc, total	7440-66-6	E420	0.003	mg/L	<0.0030	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	<0.00020	----
Total Metals (QCLot: 1558861)						
Mercury, total	7439-97-6	E508	0.000005	mg/L	<0.0000050	----

Laboratory Control Sample (LCS) Report

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

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 1556071)									
pH	----	E108	----	pH units	7 pH units	100	98.0	102	----
Physical Tests (QCLot: 1556072)									
Alkalinity, phenolphthalein (as CaCO3)	----	E290	1	mg/L	229 mg/L	106	75.0	125	----
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	500 mg/L	101	85.0	115	----
Physical Tests (QCLot: 1556073)									
Conductivity	----	E100	1	µS/cm	147 µS/cm	93.0	90.0	110	----
Physical Tests (QCLot: 1557758)									
Solids, total suspended [TSS]	----	E160	3	mg/L	150 mg/L	85.3	85.0	115	----
Total Metals (QCLot: 1554810)									
Aluminum, total	7429-90-5	E420	0.003	mg/L	2 mg/L	112	80.0	120	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	1 mg/L	104	80.0	120	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	1 mg/L	109	80.0	120	----
Barium, total	7440-39-3	E420	0.0001	mg/L	0.25 mg/L	100	80.0	120	----
Beryllium, total	7440-41-7	E420	0.00002	mg/L	0.1 mg/L	100	80.0	120	----
Bismuth, total	7440-69-9	E420	0.00005	mg/L	1 mg/L	101	80.0	120	----
Boron, total	7440-42-8	E420	0.01	mg/L	1 mg/L	89.2	80.0	120	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	0.1 mg/L	102	80.0	120	----
Calcium, total	7440-70-2	E420	0.05	mg/L	50 mg/L	99.5	80.0	120	----
Cesium, total	7440-46-2	E420	0.00001	mg/L	0.05 mg/L	102	80.0	120	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	0.25 mg/L	108	80.0	120	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	0.25 mg/L	105	80.0	120	----
Copper, total	7440-50-8	E420	0.0005	mg/L	0.25 mg/L	105	80.0	120	----
Iron, total	7439-89-6	E420	0.01	mg/L	1 mg/L	97.0	80.0	120	----
Lead, total	7439-92-1	E420	0.00005	mg/L	0.5 mg/L	100	80.0	120	----
Lithium, total	7439-93-2	E420	0.001	mg/L	0.25 mg/L	95.2	80.0	120	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	50 mg/L	106	80.0	120	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	0.25 mg/L	108	80.0	120	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	0.25 mg/L	104	80.0	120	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	0.5 mg/L	107	80.0	120	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	10 mg/L	114	80.0	120	----
Potassium, total	7440-09-7	E420	0.05	mg/L	50 mg/L	104	80.0	120	----
Rubidium, total	7440-17-7	E420	0.0002	mg/L	0.1 mg/L	110	80.0	120	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Total Metals (QCLot: 1554810) - continued									
Selenium, total	7782-49-2	E420	0.00005	mg/L	1 mg/L	105	80.0	120	----
Silicon, total	7440-21-3	E420	0.1	mg/L	10 mg/L	111	80.0	120	----
Silver, total	7440-22-4	E420	0.00001	mg/L	0.1 mg/L	100	80.0	120	----
Sodium, total	7440-23-5	E420	0.05	mg/L	50 mg/L	110	80.0	120	----
Strontium, total	7440-24-6	E420	0.0002	mg/L	0.25 mg/L	102	80.0	120	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	50 mg/L	104	80.0	120	----
Tellurium, total	13494-80-9	E420	0.0002	mg/L	0.1 mg/L	106	80.0	120	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	1 mg/L	100	80.0	120	----
Thorium, total	7440-29-1	E420	0.0001	mg/L	0.1 mg/L	98.5	80.0	120	----
Tin, total	7440-31-5	E420	0.0001	mg/L	0.5 mg/L	103	80.0	120	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	0.25 mg/L	105	80.0	120	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	0.1 mg/L	102	80.0	120	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	0.005 mg/L	102	80.0	120	----
Vanadium, total	7440-62-2	E420	0.0005	mg/L	0.5 mg/L	106	80.0	120	----
Zinc, total	7440-66-6	E420	0.003	mg/L	0.5 mg/L	103	80.0	120	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	0.1 mg/L	98.2	80.0	120	----
Total Metals (QCLot: 1558861)									
Mercury, total	7439-97-6	E508	0.000005	mg/L	0 mg/L	100	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
Total Metals (QCLot: 1554810)										
FJ2402064-002	Anonymous	Aluminum, total	7429-90-5	E420	0.202 mg/L	0.2 mg/L	101	70.0	130	----
		Antimony, total	7440-36-0	E420	0.0202 mg/L	0.02 mg/L	101	70.0	130	----
		Arsenic, total	7440-38-2	E420	0.0211 mg/L	0.02 mg/L	106	70.0	130	----
		Barium, total	7440-39-3	E420	ND mg/L	----	ND	70.0	130	----
		Beryllium, total	7440-41-7	E420	0.0391 mg/L	0.04 mg/L	97.8	70.0	130	----
		Bismuth, total	7440-69-9	E420	0.00926 mg/L	0.01 mg/L	92.6	70.0	130	----
		Boron, total	7440-42-8	E420	0.090 mg/L	0.1 mg/L	90.2	70.0	130	----
		Cadmium, total	7440-43-9	E420	0.00401 mg/L	0.004 mg/L	100	70.0	130	----
		Calcium, total	7440-70-2	E420	ND mg/L	----	ND	70.0	130	----
		Cesium, total	7440-46-2	E420	0.0102 mg/L	0.01 mg/L	102	70.0	130	----
		Chromium, total	7440-47-3	E420	0.0410 mg/L	0.04 mg/L	102	70.0	130	----
		Cobalt, total	7440-48-4	E420	0.0195 mg/L	0.02 mg/L	97.3	70.0	130	----
		Copper, total	7440-50-8	E420	0.0192 mg/L	0.02 mg/L	96.2	70.0	130	----
		Iron, total	7439-89-6	E420	1.92 mg/L	2 mg/L	95.8	70.0	130	----
		Lead, total	7439-92-1	E420	0.0192 mg/L	0.02 mg/L	95.9	70.0	130	----
		Lithium, total	7439-93-2	E420	0.0916 mg/L	0.1 mg/L	91.6	70.0	130	----
		Magnesium, total	7439-95-4	E420	ND mg/L	----	ND	70.0	130	----
		Manganese, total	7439-96-5	E420	0.0183 mg/L	0.02 mg/L	91.6	70.0	130	----
		Molybdenum, total	7439-98-7	E420	0.0210 mg/L	0.02 mg/L	105	70.0	130	----
		Nickel, total	7440-02-0	E420	0.0385 mg/L	0.04 mg/L	96.2	70.0	130	----
		Phosphorus, total	7723-14-0	E420	10.9 mg/L	10 mg/L	109	70.0	130	----
		Potassium, total	7440-09-7	E420	3.81 mg/L	4 mg/L	95.3	70.0	130	----
		Rubidium, total	7440-17-7	E420	0.0201 mg/L	0.02 mg/L	100	70.0	130	----
		Selenium, total	7782-49-2	E420	0.0425 mg/L	0.04 mg/L	106	70.0	130	----
		Silicon, total	7440-21-3	E420	9.46 mg/L	10 mg/L	94.6	70.0	130	----
		Silver, total	7440-22-4	E420	0.00432 mg/L	0.004 mg/L	108	70.0	130	----
		Sodium, total	7440-23-5	E420	ND mg/L	----	ND	70.0	130	----
		Strontium, total	7440-24-6	E420	ND mg/L	----	ND	70.0	130	----
		Sulfur, total	7704-34-9	E420	22.5 mg/L	20 mg/L	112	70.0	130	----
		Tellurium, total	13494-80-9	E420	0.0422 mg/L	0.04 mg/L	105	70.0	130	----
		Thallium, total	7440-28-0	E420	0.00374 mg/L	0.004 mg/L	93.5	70.0	130	----
		Thorium, total	7440-29-1	E420	0.0193 mg/L	0.02 mg/L	96.4	70.0	130	----
		Tin, total	7440-31-5	E420	0.0201 mg/L	0.02 mg/L	100	70.0	130	----
		Titanium, total	7440-32-6	E420	0.0389 mg/L	0.04 mg/L	97.3	70.0	130	----
		Tungsten, total	7440-33-7	E420	0.0199 mg/L	0.02 mg/L	99.3	70.0	130	----
		Uranium, total	7440-61-1	E420	0.00392 mg/L	0.004 mg/L	98.0	70.0	130	----
		Vanadium, total	7440-62-2	E420	0.101 mg/L	0.1 mg/L	101	70.0	130	----
		Zinc, total	7440-66-6	E420	0.387 mg/L	0.4 mg/L	96.9	70.0	130	----
		Zirconium, total	7440-67-7	E420	0.0394 mg/L	0.04 mg/L	98.5	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Total Metals (QCLot: 1558861)										
YL2400913-003	Anonymous	Mercury, total	7439-97-6	E508	0.0000990 mg/L	0 mg/L	99.0	70.0	130	----

CHAIN OF CUSTODY

ALS Laboratory

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE/TIME:	DATE/TIME: JULY 16/24 11:12	DATE/TIME:	DATE/TIME:

CLIENT:	Elgin Mining Inc.	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:	2024 Lupin Mine		
SITE:	Lupin		
PURCHASE ORDER NO.:		ALS QUOTE NC YL23-ELMI100-001	
PROJECT MANAGER:	JON MELNYK	CONTACT PH: 403-862-7904	
SAMPLER:		SAMPLER MOBILE:	
EMAIL REPORTS TO:	JONM@JDSMINING.CA	EMAIL INVOICE TO:	PAYABLES@MANDALAYRESOURCES.com
SPECIAL HANDLING/STORAGE OR DISPOSAL:			

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:	12.3 °C		
Other comments:			

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	Residue	Dissolved metals + Hg	Total metals + Hg	Mine Biology						Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
*	Cantoya [redacted]	~~Jul~~ 15-07-2024 7:11		4	✓		✓	✓						
	LUP-EL-01	15-07-2024/7:39		3	✓		✓							
	Bad Lake [redacted]	15-07-2024/8:06		3	✓		✓							
				TOTAL										

Environmental Division
Yellowknife
Work Order Reference
YL2400916

Telephone : +1 867 873 5593

CERTIFICATE OF ANALYSIS

Work Order	: **YL2400958**	Page	: 1 of 9
Client	: **Elgin Mining Inc.**	Laboratory	: ALS Environmental - Yellowknife
Contact	: Jon Melnyk	Account Manager	: Oliver Gregg
Address	: 750 West Pender Street Suite 201 Vancouver BC Canada V6C 2T7	Address	: 314 Old Airport Road, Unit 116 Yellowknife NT Canada X1A 3T3
Telephone	: ----	Telephone	: 1 867 445 7143
Project	: ----	Date Samples Received	: 22-Jul-2024 09:02
PO	: ----	Date Analysis Commenced	: 23-Jul-2024
C-O-C number	: ----	Issue Date	: 01-Aug-2024 17:30
Sampler	: ----		
Site	: ----		
Quote number	: YL23-ELMI100-001		
No. of samples received	: 7		
No. of samples analysed	: 7		

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

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

Signatories

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

Signatories	*Position*	*Laboratory Department*
Ilnaz Badbezanchi	Supervisor - Metals Prep & Mercury	Metals, Burnaby, British Columbia
Kaitlyn Gardner	Account Manager Assistant	External Subcontracting, Yellowknife, Northwest Territories
Maya Urquhart	Lab Analyst	Metals, Burnaby, British Columbia
Miles Gropen	Department Manager - Inorganics	Inorganics, Burnaby, British Columbia
Monica Ko	Lab Assistant	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
CFU/100mL	colony forming units per hundred millilitres
mg/L	milligrams 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*
DLM	*Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).*

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	P2-A	P2-B	P2-C	P2-D	P2-E
					Client sampling date / time	18-Jul-2024 10:25	18-Jul-2024 10:08	18-Jul-2024 09:50	18-Jul-2024 09:34	18-Jul-2024 10:39
						YL2400958-001	YL2400958-002	YL2400958-003	YL2400958-004	YL2400958-005
						Result	Result	Result	Result	Result
Physical Tests										
Acidity (as CaCO3)	----	E283/VA	2.0	mg/L		3.5	3.0	3.9	11.4	7.0
Alkalinity, total (as CaCO3)	----	E290/VA	1.0	mg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Conductivity	----	E100/VA	1.0	µS/cm		440	440	436	462	463
Hardness (as CaCO3), dissolved	----	EC100/VA	0.60	mg/L		124	133	115	122	123
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/VA	0.60	mg/L		144	136	137	143	144
pH	----	E108/VA	0.10	pH units		5.08	5.34	5.04	4.64	4.52
Solids, total dissolved [TDS]	----	E162/VA	10	mg/L		324	336	344	383	346
Solids, total suspended [TSS]	----	E160-L/VA	1.0	mg/L		71.6	1.1	<1.0	<1.0	37.6
Anions and Nutrients										
Bromide	24959-67-9	E235.Br-U/VA	0.0050	mg/L		0.181	0.176	0.178	0.181	0.180
Chloride	16887-00-6	E235.Cl-L/VA	0.10	mg/L		15.0	14.9	14.6	15.2	15.0
Fluoride	16984-48-8	E235.F-L/VA	0.010	mg/L		0.117	0.106	0.112	0.127	0.118
Nitrate (as N)	14797-55-8	E235.NO3-T/VA	0.0030	mg/L		0.408	0.406	0.394	0.408	0.381
Nitrite (as N)	14797-65-0	E235.NO2-L/VA	0.0010	mg/L		<0.0010	0.0011	<0.0010	0.0010	0.0015
Sulfate (as SO4)	14808-79-8	E235.SO4-L/VA	0.050	mg/L		180	178	176	193	188
Cyanides										
Cyanide, strong acid dissociable (Total)	----	E333/VA	0.0050	mg/L		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Total Metals										
Aluminum, total	7429-90-5	E420/VA	0.0030	mg/L		1.47	0.169	0.165	0.692	0.713
Antimony, total	7440-36-0	E420/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic, total	7440-38-2	E420/VA	0.00010	mg/L		0.195	0.0297	0.0200	0.0346	0.198
Barium, total	7440-39-3	E420/VA	0.00010	mg/L		0.0231	0.0168	0.0173	0.0176	0.0206
Beryllium, total	7440-41-7	E420/VA	0.000100	mg/L		0.000116	<0.000100	<0.000100	0.000136	<0.000100
Bismuth, total	7440-69-9	E420/VA	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron, total	7440-42-8	E420/VA	0.010	mg/L		0.043	0.042	0.042	0.044	0.046
Cadmium, total	7440-43-9	E420/VA	0.0000050	mg/L		0.000147	0.000127	0.000139	0.000172	0.000141
Calcium, total	7440-70-2	E420/VA	0.050	mg/L		42.6	40.2	40.6	42.2	42.6
Cesium, total	7440-46-2	E420/VA	0.000010	mg/L		0.000361	0.000034	0.000038	0.000047	0.000155

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	P2-A	P2-B	P2-C	P2-D	P2-E
					Client sampling date / time	18-Jul-2024 10:25	18-Jul-2024 10:08	18-Jul-2024 09:50	18-Jul-2024 09:34	18-Jul-2024 10:39
						YL2400958-001	YL2400958-002	YL2400958-003	YL2400958-004	YL2400958-005
						Result	Result	Result	Result	Result
Total Metals										
Chromium, total	7440-47-3	E420/VA	0.00050	mg/L		0.00347	<0.00050	<0.00050	<0.00050	0.00142
Cobalt, total	7440-48-4	E420/VA	0.00010	mg/L		0.0151	0.0135	0.0153	0.0238	0.0152
Copper, total	7440-50-8	E420/VA	0.00050	mg/L		0.0171	0.00514	0.00615	0.0100	0.0114
Iron, total	7439-89-6	E420/VA	0.010	mg/L		3.66	0.610	0.494	2.71	3.20
Lead, total	7439-92-1	E420/VA	0.000050	mg/L		0.00369	0.000607	0.000456	0.000609	0.00342
Lithium, total	7439-93-2	E420/VA	0.0010	mg/L		0.0222	0.0205	0.0198	0.0220	0.0209
Magnesium, total	7439-95-4	E420/VA	0.0050	mg/L		9.18	8.63	8.74	9.11	9.19
Manganese, total	7439-96-5	E420/VA	0.00010	mg/L		0.554	0.534	0.554	0.593	0.556
Mercury, total	7439-97-6	E508/VA	0.0000050	mg/L		0.0000053	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum, total	7439-98-7	E420/VA	0.000050	mg/L		0.000381	0.000082	0.000064	0.000061	0.000226
Nickel, total	7440-02-0	E420/VA	0.00050	mg/L		0.0655	0.0597	0.0614	0.0820	0.0639
Phosphorus, total	7723-14-0	E420/VA	0.050	mg/L		0.109	<0.050	<0.050	<0.050	<0.050
Potassium, total	7440-09-7	E420/VA	0.050	mg/L		3.65	3.40	3.38	3.44	3.55
Rubidium, total	7440-17-7	E420/VA	0.00020	mg/L		0.00304	0.00169	0.00185	0.00160	0.00229
Selenium, total	7782-49-2	E420/VA	0.000050	mg/L		0.000083	<0.000050	<0.000050	<0.000050	0.000061
Silicon, total	7440-21-3	E420/VA	0.10	mg/L		1.89	0.73	0.74	1.02	1.36
Silver, total	7440-22-4	E420/VA	0.000010	mg/L		0.000029	<0.000010	<0.000010	<0.000010	<0.000010
Sodium, total	7440-23-5	E420/VA	0.050	mg/L		27.2	27.2	26.7	26.8	26.9
Strontium, total	7440-24-6	E420/VA	0.00020	mg/L		0.201	0.197	0.200	0.208	0.203
Sulfur, total	7704-34-9	E420/VA	0.50	mg/L		59.1	60.5	60.3	65.4	62.0
Tellurium, total	13494-80-9	E420/VA	0.00020	mg/L		<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Thallium, total	7440-28-0	E420/VA	0.000010	mg/L		0.000014	<0.000010	<0.000010	<0.000010	<0.000010
Thorium, total	7440-29-1	E420/VA	0.00010	mg/L		<0.00020 DLM	<0.00010	<0.00010	<0.00010	<0.00010
Tin, total	7440-31-5	E420/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium, total	7440-32-6	E420/VA	0.00030	mg/L		0.0470	<0.00090 DLM	<0.00030	<0.00090 DLM	0.0181
Tungsten, total	7440-33-7	E420/VA	0.00010	mg/L		0.00037	<0.00010	<0.00010	<0.00010	0.00039
Uranium, total	7440-61-1	E420/VA	0.000010	mg/L		0.000300	0.000037	0.000034	0.000177	0.000161
Vanadium, total	7440-62-2	E420/VA	0.00050	mg/L		0.00225	<0.00050	<0.00050	<0.00050	0.00098
Zinc, total	7440-66-6	E420/VA	0.0030	mg/L		0.181	0.170	0.176	0.254	0.184
Zirconium, total	7440-67-7	E420/VA	0.00020	mg/L		<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Dissolved Metals										

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	P2-A	P2-B	P2-C	P2-D	P2-E
					Client sampling date / time	18-Jul-2024 10:25	18-Jul-2024 10:08	18-Jul-2024 09:50	18-Jul-2024 09:34	18-Jul-2024 10:39
						YL2400958-001	YL2400958-002	YL2400958-003	YL2400958-004	YL2400958-005
						Result	Result	Result	Result	Result
Dissolved Metals										
Aluminum, dissolved	7429-90-5	E421/VA	0.0010	mg/L		0.0984	0.0878	0.118	0.574	0.189
Antimony, dissolved	7440-36-0	E421/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic, dissolved	7440-38-2	E421/VA	0.00010	mg/L		0.00461	0.00273	0.00406	0.00299	0.0308
Barium, dissolved	7440-39-3	E421/VA	0.00010	mg/L		0.0182	0.0170	0.0173	0.0180	0.0184
Beryllium, dissolved	7440-41-7	E421/VA	0.000100	mg/L		<0.000100	<0.000100	<0.000100	0.000134	<0.000100
Bismuth, dissolved	7440-69-9	E421/VA	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron, dissolved	7440-42-8	E421/VA	0.010	mg/L		0.043	0.046	0.040	0.042	0.043
Cadmium, dissolved	7440-43-9	E421/VA	0.0000050	mg/L		0.000146	0.000141	0.000140	0.000173	0.000147
Calcium, dissolved	7440-70-2	E421/VA	0.050	mg/L		36.5	38.2	33.0	35.2	35.1
Cesium, dissolved	7440-46-2	E421/VA	0.000010	mg/L		0.000031	0.000038	0.000038	0.000032	0.000042
Chromium, dissolved	7440-47-3	E421/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Cobalt, dissolved	7440-48-4	E421/VA	0.00010	mg/L		0.0127	0.0139	0.0136	0.0204	0.0135
Copper, dissolved	7440-50-8	E421/VA	0.00020	mg/L		0.00452	0.00458	0.00528	0.00819	0.00639
Iron, dissolved	7439-89-6	E421/VA	0.010	mg/L		0.226	0.212	0.227	1.81	1.06
Lead, dissolved	7439-92-1	E421/VA	0.000050	mg/L		0.000163	0.000153	0.000209	0.000245	0.00105
Lithium, dissolved	7439-93-2	E421/VA	0.0010	mg/L		0.0162	0.0184	0.0151	0.0164	0.0153
Magnesium, dissolved	7439-95-4	E421/VA	0.0050	mg/L		8.12	9.07	7.85	8.31	8.70
Manganese, dissolved	7439-96-5	E421/VA	0.00010	mg/L		0.440	0.523	0.468	0.488	0.488
Mercury, dissolved	7439-97-6	E509/VA	0.0000050	mg/L		<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum, dissolved	7439-98-7	E421/VA	0.000050	mg/L		0.000066	0.000054	<0.000050	<0.000050	<0.000050
Nickel, dissolved	7440-02-0	E421/VA	0.00050	mg/L		0.0536	0.0596	0.0532	0.0700	0.0560
Phosphorus, dissolved	7723-14-0	E421/VA	0.050	mg/L		<0.050	<0.050	<0.050	<0.050	<0.050
Potassium, dissolved	7440-09-7	E421/VA	0.050	mg/L		3.06	3.28	3.04	3.09	3.26
Rubidium, dissolved	7440-17-7	E421/VA	0.00020	mg/L		0.00170	0.00186	0.00175	0.00174	0.00183
Selenium, dissolved	7782-49-2	E421/VA	0.000050	mg/L		<0.000050	0.000064	<0.000050	<0.000050	<0.000050
Silicon, dissolved	7440-21-3	E421/VA	0.050	mg/L		0.647	0.667	0.687	0.837	0.844
Silver, dissolved	7440-22-4	E421/VA	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium, dissolved	7440-23-5	E421/VA	0.050	mg/L		24.7	27.2	24.1	24.2	24.9
Strontium, dissolved	7440-24-6	E421/VA	0.00020	mg/L		0.182	0.212	0.188	0.186	0.189
Sulfur, dissolved	7704-34-9	E421/VA	0.50	mg/L		50.2	57.2	52.1	51.2	54.8
Tellurium, dissolved	13494-80-9	E421/VA	0.00020	mg/L		<0.00020	<0.00020	<0.00020	<0.00020	<0.00020

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	P2-A	P2-B	P2-C	P2-D	P2-E
					Client sampling date / time	18-Jul-2024 10:25	18-Jul-2024 10:08	18-Jul-2024 09:50	18-Jul-2024 09:34	18-Jul-2024 10:39
						YL2400958-001	YL2400958-002	YL2400958-003	YL2400958-004	YL2400958-005
						Result	Result	Result	Result	Result
Dissolved Metals										
Thallium, dissolved	7440-28-0	E421/VA	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Thorium, dissolved	7440-29-1	E421/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Tin, dissolved	7440-31-5	E421/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium, dissolved	7440-32-6	E421/VA	0.00030	mg/L		<0.00030	<0.00030	<0.00030	<0.00030	<0.00030
Tungsten, dissolved	7440-33-7	E421/VA	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Uranium, dissolved	7440-61-1	E421/VA	0.000010	mg/L		0.000018	0.000021	0.000022	0.000132	0.000044
Vanadium, dissolved	7440-62-2	E421/VA	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc, dissolved	7440-66-6	E421/VA	0.0010	mg/L		0.158	0.168	0.160	0.228	0.175
Zirconium, dissolved	7440-67-7	E421/VA	0.00020	mg/L		<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Dissolved mercury filtration location	----	EP509/VA	-	-		Field	Field	Field	Field	Field
Dissolved metals filtration location	----	EP421/VA	-	-		Laboratory	Laboratory	Laboratory	Laboratory	Laboratory

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	LUP-14 Pre decant	LUP-14D PRE DECANT	----	----	----
					Client sampling date / time	18-Jul-2024 14:50	21-Jul-2024 13:06	----	----	----
						YL2400958-006	YL2400958-007	--------	--------	--------
						Result	Result	----	----	----
Physical Tests										
Acidity (as CaCO3)	----	E283/VA	2.0	mg/L		<2.0	----	----	----	----
Alkalinity, total (as CaCO3)	----	E290/VA	1.0	mg/L		22.7	----	----	----	----
Conductivity	----	E100/VA	1.0	µS/cm		266	----	----	----	----
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/VA	0.60	mg/L		93.2	----	----	----	----
pH	----	E108/VA	0.10	pH units		7.45	----	----	----	----
Solids, total dissolved [TDS]	----	E162/VA	10	mg/L		162	----	----	----	----
Solids, total suspended [TSS]	----	E160-L/VA	1.0	mg/L		7.4	----	----	----	----
Anions and Nutrients										
Bromide	24959-67-9	E235.Br-U/VA	0.0050	mg/L		0.166	----	----	----	----
Chloride	16887-00-6	E235.Cl-L/VA	0.10	mg/L		19.6	----	----	----	----
Fluoride	16984-48-8	E235.F-L/VA	0.010	mg/L		0.083	----	----	----	----
Kjeldahl nitrogen, total [TKN]	----	E318/VA	0.050	mg/L		0.407	----	----	----	----
Nitrate (as N)	14797-55-8	E235.NO3-T/VA	0.0030	mg/L		<0.0030	----	----	----	----
Nitrite (as N)	14797-65-0	E235.NO2-L/VA	0.0010	mg/L		<0.0010	----	----	----	----
Phosphorus, total	7723-14-0	E372-U/VA	0.0020	mg/L		0.0111	----	----	----	----
Sulfate (as SO4)	14808-79-8	E235.SO4-L/VA	0.050	mg/L		74.5	----	----	----	----
Microbiological Tests										
Coliforms, thermotolerant [fecal]	----	FC-MF/1Y	1.0	CFU/100mL		<1.0	6.0	----	----	----
Total Metals										
Aluminum, total	7429-90-5	E420/VA	0.0030	mg/L		0.0154	----	----	----	----
Antimony, total	7440-36-0	E420/VA	0.00010	mg/L		<0.00010	----	----	----	----
Arsenic, total	7440-38-2	E420/VA	0.00010	mg/L		0.00511	----	----	----	----
Barium, total	7440-39-3	E420/VA	0.00010	mg/L		0.0136	----	----	----	----
Beryllium, total	7440-41-7	E420/VA	0.000100	mg/L		<0.000100	----	----	----	----
Bismuth, total	7440-69-9	E420/VA	0.000050	mg/L		<0.000050	----	----	----	----
Boron, total	7440-42-8	E420/VA	0.010	mg/L		0.078	----	----	----	----
Cadmium, total	7440-43-9	E420/VA	0.0000050	mg/L		<0.0000050	----	----	----	----
Calcium, total	7440-70-2	E420/VA	0.050	mg/L		27.2	----	----	----	----

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	LUP-14 Pre decant	LUP-14D PRE DECANT	----	----	----
					Client sampling date / time	18-Jul-2024 14:50	21-Jul-2024 13:06	----	----	----
						YL2400958-006	YL2400958-007	--------	--------	--------
						Result	Result	----	----	----
Total Metals										
Cesium, total	7440-46-2	E420/VA	0.000010	mg/L		0.000098	----	----	----	----
Chromium, total	7440-47-3	E420/VA	0.00050	mg/L		<0.00050	----	----	----	----
Cobalt, total	7440-48-4	E420/VA	0.00010	mg/L		0.00032	----	----	----	----
Copper, total	7440-50-8	E420/VA	0.00050	mg/L		0.00092	----	----	----	----
Iron, total	7439-89-6	E420/VA	0.010	mg/L		0.063	----	----	----	----
Lead, total	7439-92-1	E420/VA	0.000050	mg/L		<0.000050	----	----	----	----
Lithium, total	7439-93-2	E420/VA	0.0010	mg/L		0.0144	----	----	----	----
Magnesium, total	7439-95-4	E420/VA	0.0050	mg/L		6.15	----	----	----	----
Manganese, total	7439-96-5	E420/VA	0.00010	mg/L		0.0260	----	----	----	----
Mercury, total	7439-97-6	E508/VA	0.0000050	mg/L		<0.0000050	----	----	----	----
Molybdenum, total	7439-98-7	E420/VA	0.000050	mg/L		0.000147	----	----	----	----
Nickel, total	7440-02-0	E420/VA	0.00050	mg/L		0.00469	----	----	----	----
Phosphorus, total	7723-14-0	E420/VA	0.050	mg/L		<0.050	----	----	----	----
Potassium, total	7440-09-7	E420/VA	0.050	mg/L		2.98	----	----	----	----
Rubidium, total	7440-17-7	E420/VA	0.00020	mg/L		0.00602	----	----	----	----
Selenium, total	7782-49-2	E420/VA	0.000050	mg/L		<0.000050	----	----	----	----
Silicon, total	7440-21-3	E420/VA	0.10	mg/L		<0.10	----	----	----	----
Silver, total	7440-22-4	E420/VA	0.000010	mg/L		<0.000010	----	----	----	----
Sodium, total	7440-23-5	E420/VA	0.050	mg/L		12.3	----	----	----	----
Strontium, total	7440-24-6	E420/VA	0.00020	mg/L		0.171	----	----	----	----
Sulfur, total	7704-34-9	E420/VA	0.50	mg/L		24.9	----	----	----	----
Tellurium, total	13494-80-9	E420/VA	0.00020	mg/L		<0.00020	----	----	----	----
Thallium, total	7440-28-0	E420/VA	0.000010	mg/L		<0.000010	----	----	----	----
Thorium, total	7440-29-1	E420/VA	0.00010	mg/L		<0.00010	----	----	----	----
Tin, total	7440-31-5	E420/VA	0.00010	mg/L		<0.00010	----	----	----	----
Titanium, total	7440-32-6	E420/VA	0.00030	mg/L		<0.00030	----	----	----	----
Tungsten, total	7440-33-7	E420/VA	0.00010	mg/L		<0.00010	----	----	----	----
Uranium, total	7440-61-1	E420/VA	0.000010	mg/L		0.000023	----	----	----	----
Vanadium, total	7440-62-2	E420/VA	0.00050	mg/L		<0.00050	----	----	----	----
Zinc, total	7440-66-6	E420/VA	0.0030	mg/L		<0.0030	----	----	----	----
Zirconium, total	7440-67-7	E420/VA	0.00020	mg/L		<0.00020	----	----	----	----

Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	LUP-14 Pre decant	LUP-14D PRE DECANT	----	----	----
					Client sampling date / time	18-Jul-2024 14:50	21-Jul-2024 13:06	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit		YL2400958-006	YL2400958-007	--------	--------	--------
						Result	Result	----	----	----
Aggregate Organics										
Biochemical oxygen demand [BOD]	----	BOD5/1Y	2.0	mg/L		<2.0	<2.0	----	----	----

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

Please refer to the Accreditation section for an explanation of analyte accreditations.

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QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **YL2400958**	Page	: 1 of 22
Client	: **Elgin Mining Inc.**	Laboratory	: ALS Environmental - Yellowknife
Contact	: Jon Melnyk	Account Manager	: Oliver Gregg
Address	: 750 West Pender Street Suite 201 Vancouver BC Canada V6C 2T7	Address	: 314 Old Airport Road, Unit 116 Yellowknife, Northwest Territories Canada X1A 3T3
Telephone	: ----	Telephone	: 1 867 445 7143
Project	: ----	Date Samples Received	: 22-Jul-2024 09:02
PO	: ----	Issue Date	: 01-Aug-2024 17:30
C-O-C number	: ----		
Sampler	: ----		
Site	: ----		
Quote number	: YL23-ELMI100-001		
No. of samples received	: 7		
No. of samples analysed	: 7		

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

Key

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

Workorder Comments

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

Summary of Outliers

Outliers : Quality Control Samples

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

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

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

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **Water**

Analyte Group	Laboratory sample ID	Client/Ref Sample ID	Analyte	CAS Number	Method	Result	Limits	Comment
Duplicate (DUP) RPDs								
Anions and Nutrients	Anonymous	Anonymous	Kjeldahl nitrogen, total [TKN]	----	E318	0.402 % TKND	Diff <2x LOR	Low Level DUP DQO exceeded (difference > 2 LOR).

Result Qualifiers

Qualifier	Description
TKND	*TKN duplication was poor due to interference from high nitrate, which causes negative bias on TKN.*

Laboratory Control Sample (LCS) Recoveries								
Dissolved Metals	QC-MRG2-1561571002	----	Sulfur, dissolved	7704-34-9	E421	77.0 % MES	80.0-120%	Recovery less than lower control limit

Result Qualifiers

Qualifier	Description
MES	*Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).*

Matrix Spike (MS) Recoveries								
Anions and Nutrients	Anonymous	Anonymous	Kjeldahl nitrogen, total [TKN]	----	E318	11.0 % MSTN	70.0-130%	Recovery less than lower data quality objective

Result Qualifiers

Qualifier	Description
MSTN	*TKN Matrix Spike recovery was low due to interference from high nitrate, which causes negative bias on TKN.*

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*
Aggregate Organics : Biochemical Oxygen Demand (BOD) 5-day										
HDPE [BOD HT-4d] LUP-14D PRE DECANT	BOD5	21-Jul-2024	----	----	----		31-Jul-2024	4 days	10 days	× EHT
Aggregate Organics : Biochemical Oxygen Demand (BOD) 5-day										
HDPE [BOD HT-4d] LUP-14 Pre decant	BOD5	18-Jul-2024	----	----	----		31-Jul-2024	4 days	12 days	× EHTL
Anions and Nutrients : Bromide by IC (Ultra Trace Level)										
HDPE LUP-14 Pre decant	E235.Br-U	18-Jul-2024	23-Jul-2024	28 days	5 days	✓	23-Jul-2024	28 days	5 days	✓
Anions and Nutrients : Bromide by IC (Ultra Trace Level)										
HDPE P2-A	E235.Br-U	18-Jul-2024	23-Jul-2024	28 days	5 days	✓	23-Jul-2024	28 days	5 days	✓
Anions and Nutrients : Bromide by IC (Ultra Trace Level)										
HDPE P2-B	E235.Br-U	18-Jul-2024	23-Jul-2024	28 days	5 days	✓	23-Jul-2024	28 days	5 days	✓
Anions and Nutrients : Bromide by IC (Ultra Trace Level)										
HDPE P2-C	E235.Br-U	18-Jul-2024	23-Jul-2024	28 days	5 days	✓	23-Jul-2024	28 days	5 days	✓
Anions and Nutrients : Bromide by IC (Ultra Trace Level)										
HDPE P2-D	E235.Br-U	18-Jul-2024	23-Jul-2024	28 days	5 days	✓	23-Jul-2024	28 days	5 days	✓

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Bromide by IC (Ultra Trace Level)										
HDPE P2-E	E235.Br-U	18-Jul-2024	23-Jul-2024	28 days	5 days	✓	23-Jul-2024	28 days	5 days	✓
Anions and Nutrients : Chloride in Water by IC (Low Level)										
HDPE LUP-14 Pre decant	E235.Cl-L	18-Jul-2024	23-Jul-2024	28 days	5 days	✓	23-Jul-2024	28 days	5 days	✓
Anions and Nutrients : Chloride in Water by IC (Low Level)										
HDPE P2-A	E235.Cl-L	18-Jul-2024	23-Jul-2024	28 days	5 days	✓	23-Jul-2024	28 days	5 days	✓
Anions and Nutrients : Chloride in Water by IC (Low Level)										
HDPE P2-B	E235.Cl-L	18-Jul-2024	23-Jul-2024	28 days	5 days	✓	23-Jul-2024	28 days	5 days	✓
Anions and Nutrients : Chloride in Water by IC (Low Level)										
HDPE P2-C	E235.Cl-L	18-Jul-2024	23-Jul-2024	28 days	5 days	✓	23-Jul-2024	28 days	5 days	✓
Anions and Nutrients : Chloride in Water by IC (Low Level)										
HDPE P2-D	E235.Cl-L	18-Jul-2024	23-Jul-2024	28 days	5 days	✓	23-Jul-2024	28 days	5 days	✓
Anions and Nutrients : Chloride in Water by IC (Low Level)										
HDPE P2-E	E235.Cl-L	18-Jul-2024	23-Jul-2024	28 days	5 days	✓	23-Jul-2024	28 days	5 days	✓
Anions and Nutrients : Fluoride in Water by IC (Low Level)										
HDPE LUP-14 Pre decant	E235.F-L	18-Jul-2024	23-Jul-2024	28 days	5 days	✓	23-Jul-2024	28 days	5 days	✓
Anions and Nutrients : Fluoride in Water by IC (Low Level)										
HDPE P2-A	E235.F-L	18-Jul-2024	23-Jul-2024	28 days	5 days	✓	23-Jul-2024	28 days	5 days	✓

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Fluoride in Water by IC (Low Level)										
HDPE P2-B	E235.F-L	18-Jul-2024	23-Jul-2024	28 days	5 days	✓	23-Jul-2024	28 days	5 days	✓
Anions and Nutrients : Fluoride in Water by IC (Low Level)										
HDPE P2-C	E235.F-L	18-Jul-2024	23-Jul-2024	28 days	5 days	✓	23-Jul-2024	28 days	5 days	✓
Anions and Nutrients : Fluoride in Water by IC (Low Level)										
HDPE P2-D	E235.F-L	18-Jul-2024	23-Jul-2024	28 days	5 days	✓	23-Jul-2024	28 days	5 days	✓
Anions and Nutrients : Fluoride in Water by IC (Low Level)										
HDPE P2-E	E235.F-L	18-Jul-2024	23-Jul-2024	28 days	5 days	✓	23-Jul-2024	28 days	5 days	✓
Anions and Nutrients : Nitrate in Water by IC (Trace Level)										
HDPE LUP-14 Pre decant	E235.NO3-T	18-Jul-2024	23-Jul-2024	3 days	5 days	× EHTR	23-Jul-2024	3 days	5 days	× EHTR
Anions and Nutrients : Nitrate in Water by IC (Trace Level)										
HDPE P2-A	E235.NO3-T	18-Jul-2024	23-Jul-2024	3 days	5 days	× EHTR	23-Jul-2024	3 days	5 days	× EHTR
Anions and Nutrients : Nitrate in Water by IC (Trace Level)										
HDPE P2-B	E235.NO3-T	18-Jul-2024	23-Jul-2024	3 days	5 days	× EHTR	23-Jul-2024	3 days	5 days	× EHTR
Anions and Nutrients : Nitrate in Water by IC (Trace Level)										
HDPE P2-C	E235.NO3-T	18-Jul-2024	23-Jul-2024	3 days	5 days	× EHTR	23-Jul-2024	3 days	5 days	× EHTR
Anions and Nutrients : Nitrate in Water by IC (Trace Level)										
HDPE P2-D	E235.NO3-T	18-Jul-2024	23-Jul-2024	3 days	5 days	× EHTR	23-Jul-2024	3 days	5 days	× EHTR

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Nitrate in Water by IC (Trace Level)										
HDPE P2-E	E235.NO3-T	18-Jul-2024	23-Jul-2024	3 days	5 days	× EHTR	23-Jul-2024	3 days	5 days	× EHTR
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE LUP-14 Pre decant	E235.NO2-L	18-Jul-2024	23-Jul-2024	3 days	5 days	× EHTR	23-Jul-2024	3 days	5 days	× EHTR
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE P2-A	E235.NO2-L	18-Jul-2024	23-Jul-2024	3 days	5 days	× EHTR	23-Jul-2024	3 days	5 days	× EHTR
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE P2-B	E235.NO2-L	18-Jul-2024	23-Jul-2024	3 days	5 days	× EHTR	23-Jul-2024	3 days	5 days	× EHTR
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE P2-C	E235.NO2-L	18-Jul-2024	23-Jul-2024	3 days	5 days	× EHTR	23-Jul-2024	3 days	5 days	× EHTR
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE P2-D	E235.NO2-L	18-Jul-2024	23-Jul-2024	3 days	5 days	× EHTR	23-Jul-2024	3 days	5 days	× EHTR
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE P2-E	E235.NO2-L	18-Jul-2024	23-Jul-2024	3 days	5 days	× EHTR	23-Jul-2024	3 days	5 days	× EHTR
Anions and Nutrients : Sulfate in Water by IC (Low Level)										
HDPE LUP-14 Pre decant	E235.SO4-L	18-Jul-2024	23-Jul-2024	28 days	5 days	✓	23-Jul-2024	28 days	5 days	✓
Anions and Nutrients : Sulfate in Water by IC (Low Level)										
HDPE P2-A	E235.SO4-L	18-Jul-2024	23-Jul-2024	28 days	5 days	✓	23-Jul-2024	28 days	5 days	✓

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Sulfate in Water by IC (Low Level)										
HDPE P2-B	E235.SO4-L	18-Jul-2024	23-Jul-2024	28 days	5 days	✓	23-Jul-2024	28 days	5 days	✓
Anions and Nutrients : Sulfate in Water by IC (Low Level)										
HDPE P2-C	E235.SO4-L	18-Jul-2024	23-Jul-2024	28 days	5 days	✓	23-Jul-2024	28 days	5 days	✓
Anions and Nutrients : Sulfate in Water by IC (Low Level)										
HDPE P2-D	E235.SO4-L	18-Jul-2024	23-Jul-2024	28 days	5 days	✓	23-Jul-2024	28 days	5 days	✓
Anions and Nutrients : Sulfate in Water by IC (Low Level)										
HDPE P2-E	E235.SO4-L	18-Jul-2024	23-Jul-2024	28 days	5 days	✓	23-Jul-2024	28 days	5 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) LUP-14 Pre decant	E318	18-Jul-2024	27-Jul-2024	28 days	9 days	✓	29-Jul-2024	28 days	11 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid) LUP-14 Pre decant	E372-U	18-Jul-2024	28-Jul-2024	28 days	10 days	✓	29-Jul-2024	28 days	11 days	✓
Cyanides : Total Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) P2-A	E333	18-Jul-2024	31-Jul-2024	14 days	13 days	✓	31-Jul-2024	14 days	13 days	✓
Cyanides : Total Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) P2-B	E333	18-Jul-2024	31-Jul-2024	14 days	13 days	✓	31-Jul-2024	14 days	13 days	✓
Cyanides : Total Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) P2-C	E333	18-Jul-2024	31-Jul-2024	14 days	13 days	✓	31-Jul-2024	14 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
Cyanides : Total Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) P2-D	E333	18-Jul-2024	31-Jul-2024	14 days	13 days	✓	31-Jul-2024	14 days	13 days	✓
Cyanides : Total Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) P2-E	E333	18-Jul-2024	31-Jul-2024	14 days	13 days	✓	31-Jul-2024	14 days	13 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid) P2-A	E509	18-Jul-2024	26-Jul-2024	28 days	8 days	✓	26-Jul-2024	28 days	8 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid) P2-B	E509	18-Jul-2024	26-Jul-2024	28 days	8 days	✓	26-Jul-2024	28 days	8 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid) P2-C	E509	18-Jul-2024	26-Jul-2024	28 days	8 days	✓	26-Jul-2024	28 days	8 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid) P2-D	E509	18-Jul-2024	26-Jul-2024	28 days	8 days	✓	26-Jul-2024	28 days	8 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid) P2-E	E509	18-Jul-2024	26-Jul-2024	28 days	8 days	✓	26-Jul-2024	28 days	8 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) P2-A	E421	18-Jul-2024	24-Jul-2024	180 days	6 days	✓	25-Jul-2024	180 days	7 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) P2-B	E421	18-Jul-2024	24-Jul-2024	180 days	6 days	✓	25-Jul-2024	180 days	7 days	✓

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) P2-C	E421	18-Jul-2024	24-Jul-2024	180 days	6 days	✓	25-Jul-2024	180 days	7 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) P2-D	E421	18-Jul-2024	24-Jul-2024	180 days	6 days	✓	25-Jul-2024	180 days	7 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) P2-E	E421	18-Jul-2024	24-Jul-2024	180 days	6 days	✓	25-Jul-2024	180 days	7 days	✓
Microbiological Tests : Fecal Coliforms in Water by MF										
Sterile HDPE (Sodium thiosulphate) LUP-14D PRE DECANT	FC-MF	21-Jul-2024	----	----	----		31-Jul-2024	30 hrs	240 hrs	× EHTL
Microbiological Tests : Fecal Coliforms in Water by MF										
Sterile HDPE (Sodium thiosulphate) LUP-14 Pre decant	FC-MF	18-Jul-2024	----	----	----		31-Jul-2024	30 hrs	311 hrs	× EHTR
Physical Tests : Acidity by Titration										
HDPE LUP-14 Pre decant	E283	18-Jul-2024	23-Jul-2024	14 days	5 days	✓	24-Jul-2024	14 days	6 days	✓
Physical Tests : Acidity by Titration										
HDPE P2-A	E283	18-Jul-2024	23-Jul-2024	14 days	5 days	✓	24-Jul-2024	14 days	6 days	✓
Physical Tests : Acidity by Titration										
HDPE P2-B	E283	18-Jul-2024	23-Jul-2024	14 days	5 days	✓	24-Jul-2024	14 days	6 days	✓
Physical Tests : Acidity by Titration										
HDPE P2-C	E283	18-Jul-2024	23-Jul-2024	14 days	5 days	✓	24-Jul-2024	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 : Acidity by Titration										
HDPE P2-D	E283	18-Jul-2024	23-Jul-2024	14 days	5 days	✓	24-Jul-2024	14 days	6 days	✓
Physical Tests : Acidity by Titration										
HDPE P2-E	E283	18-Jul-2024	23-Jul-2024	14 days	5 days	✓	24-Jul-2024	14 days	6 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE LUP-14 Pre decant	E290	18-Jul-2024	23-Jul-2024	14 days	5 days	✓	24-Jul-2024	14 days	6 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE P2-A	E290	18-Jul-2024	23-Jul-2024	14 days	5 days	✓	24-Jul-2024	14 days	6 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE P2-B	E290	18-Jul-2024	23-Jul-2024	14 days	5 days	✓	24-Jul-2024	14 days	6 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE P2-C	E290	18-Jul-2024	23-Jul-2024	14 days	5 days	✓	24-Jul-2024	14 days	6 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE P2-D	E290	18-Jul-2024	23-Jul-2024	14 days	5 days	✓	24-Jul-2024	14 days	6 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE P2-E	E290	18-Jul-2024	23-Jul-2024	14 days	5 days	✓	24-Jul-2024	14 days	6 days	✓
Physical Tests : Conductivity in Water										
HDPE LUP-14 Pre decant	E100	18-Jul-2024	23-Jul-2024	28 days	5 days	✓	24-Jul-2024	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 P2-A	E100	18-Jul-2024	23-Jul-2024	28 days	5 days	✓	24-Jul-2024	28 days	6 days	✓
Physical Tests : Conductivity in Water										
HDPE P2-B	E100	18-Jul-2024	23-Jul-2024	28 days	5 days	✓	24-Jul-2024	28 days	6 days	✓
Physical Tests : Conductivity in Water										
HDPE P2-C	E100	18-Jul-2024	23-Jul-2024	28 days	5 days	✓	24-Jul-2024	28 days	6 days	✓
Physical Tests : Conductivity in Water										
HDPE P2-D	E100	18-Jul-2024	23-Jul-2024	28 days	5 days	✓	24-Jul-2024	28 days	6 days	✓
Physical Tests : Conductivity in Water										
HDPE P2-E	E100	18-Jul-2024	23-Jul-2024	28 days	5 days	✓	24-Jul-2024	28 days	6 days	✓
Physical Tests : pH by Meter										
HDPE LUP-14 Pre decant	E108	18-Jul-2024	23-Jul-2024	0.25 hrs	125 hrs	× EHTR-FM	24-Jul-2024	0.25 hrs	141 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE P2-A	E108	18-Jul-2024	23-Jul-2024	0.25 hrs	129 hrs	× EHTR-FM	24-Jul-2024	0.25 hrs	145 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE P2-E	E108	18-Jul-2024	23-Jul-2024	0.25 hrs	129 hrs	× EHTR-FM	24-Jul-2024	0.25 hrs	145 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE P2-B	E108	18-Jul-2024	23-Jul-2024	0.25 hrs	130 hrs	× EHTR-FM	24-Jul-2024	0.25 hrs	146 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 P2-C	E108	18-Jul-2024	23-Jul-2024	0.25 hrs	130 hrs	✗ EHTR-FM	24-Jul-2024	0.25 hrs	146 hrs	✗ EHTR-FM
Physical Tests : pH by Meter										
HDPE P2-D	E108	18-Jul-2024	23-Jul-2024	0.25 hrs	130 hrs	✗ EHTR-FM	24-Jul-2024	0.25 hrs	146 hrs	✗ EHTR-FM
Physical Tests : TDS by Gravimetry										
HDPE LUP-14 Pre decant	E162	18-Jul-2024	----	----	----		25-Jul-2024	7 days	7 days	✓
Physical Tests : TDS by Gravimetry										
HDPE P2-A	E162	18-Jul-2024	----	----	----		25-Jul-2024	7 days	7 days	✓
Physical Tests : TDS by Gravimetry										
HDPE P2-B	E162	18-Jul-2024	----	----	----		25-Jul-2024	7 days	7 days	✓
Physical Tests : TDS by Gravimetry										
HDPE P2-C	E162	18-Jul-2024	----	----	----		25-Jul-2024	7 days	7 days	✓
Physical Tests : TDS by Gravimetry										
HDPE P2-D	E162	18-Jul-2024	----	----	----		25-Jul-2024	7 days	7 days	✓
Physical Tests : TDS by Gravimetry										
HDPE P2-E	E162	18-Jul-2024	----	----	----		25-Jul-2024	7 days	7 days	✓
Physical Tests : TSS by Gravimetry (Low Level)										
HDPE [TSS-WB] LUP-14 Pre decant	E160-L	18-Jul-2024	----	----	----		25-Jul-2024	7 days	7 days	✓

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : TSS by Gravimetry (Low Level)										
HDPE [TSS-WB] P2-A	E160-L	18-Jul-2024	----	----	----		25-Jul-2024	7 days	7 days	✓
Physical Tests : TSS by Gravimetry (Low Level)										
HDPE [TSS-WB] P2-B	E160-L	18-Jul-2024	----	----	----		25-Jul-2024	7 days	7 days	✓
Physical Tests : TSS by Gravimetry (Low Level)										
HDPE [TSS-WB] P2-C	E160-L	18-Jul-2024	----	----	----		25-Jul-2024	7 days	7 days	✓
Physical Tests : TSS by Gravimetry (Low Level)										
HDPE [TSS-WB] P2-D	E160-L	18-Jul-2024	----	----	----		25-Jul-2024	7 days	7 days	✓
Physical Tests : TSS by Gravimetry (Low Level)										
HDPE [TSS-WB] P2-E	E160-L	18-Jul-2024	----	----	----		25-Jul-2024	7 days	7 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial - total (lab preserved) LUP-14 Pre decant	E508	18-Jul-2024	25-Jul-2024	28 days	7 days	✓	25-Jul-2024	28 days	7 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid) P2-A	E508	18-Jul-2024	25-Jul-2024	28 days	7 days	✓	25-Jul-2024	28 days	7 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid) P2-B	E508	18-Jul-2024	25-Jul-2024	28 days	7 days	✓	25-Jul-2024	28 days	7 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid) P2-C	E508	18-Jul-2024	25-Jul-2024	28 days	7 days	✓	25-Jul-2024	28 days	7 days	✓

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid) P2-D	E508	18-Jul-2024	25-Jul-2024	28 days	7 days	✓	25-Jul-2024	28 days	7 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid) P2-E	E508	18-Jul-2024	25-Jul-2024	28 days	7 days	✓	25-Jul-2024	28 days	7 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) LUP-14 Pre decant	E420	18-Jul-2024	24-Jul-2024	180 days	6 days	✓	25-Jul-2024	180 days	7 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) P2-A	E420	18-Jul-2024	24-Jul-2024	180 days	6 days	✓	25-Jul-2024	180 days	7 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) P2-E	E420	18-Jul-2024	24-Jul-2024	180 days	6 days	✓	25-Jul-2024	180 days	7 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) P2-B	E420	18-Jul-2024	24-Jul-2024	180 days	6 days	✓	25-Jul-2024	180 days	8 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) P2-C	E420	18-Jul-2024	24-Jul-2024	180 days	6 days	✓	25-Jul-2024	180 days	8 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) P2-D	E420	18-Jul-2024	24-Jul-2024	180 days	6 days	✓	25-Jul-2024	180 days	8 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.

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)							
Acidity by Titration	E283	1560725	1	10	10.0	5.0	✓
Alkalinity Species by Titration	E290	1560712	1	18	5.5	5.0	✓
Bromide by IC (Ultra Trace Level)	E235.Br-U	1560723	1	6	16.6	5.0	✓
Chloride in Water by IC (Low Level)	E235.Cl-L	1560720	1	6	16.6	5.0	✓
Conductivity in Water	E100	1560713	1	16	6.2	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1566905	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1561571	1	20	5.0	5.0	✓
Fluoride in Water by IC (Low Level)	E235.F-L	1560721	1	6	16.6	5.0	✓
Nitrate in Water by IC (Trace Level)	E235.NO3-T	1560722	1	6	16.6	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1560718	1	16	6.2	5.0	✓
pH by Meter	E108	1560711	1	18	5.5	5.0	✓
Sulfate in Water by IC (Low Level)	E235.SO4-L	1560724	1	6	16.6	5.0	✓
TDS by Gravimetry	E162	1563444	2	21	9.5	5.0	✓
Total Cyanide	E333	1573893	1	13	7.6	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	1568188	1	5	20.0	5.0	✓
Total Mercury in Water by CVAAS	E508	1565029	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1561579	1	20	5.0	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1568456	1	11	9.0	5.0	✓
Laboratory Control Samples (LCS)							
Acidity by Titration	E283	1560725	1	10	10.0	5.0	✓
Alkalinity Species by Titration	E290	1560712	1	18	5.5	5.0	✓
Bromide by IC (Ultra Trace Level)	E235.Br-U	1560723	1	6	16.6	5.0	✓
Chloride in Water by IC (Low Level)	E235.Cl-L	1560720	1	6	16.6	5.0	✓
Conductivity in Water	E100	1560713	1	16	6.2	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1566905	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1561571	1	20	5.0	5.0	✓
Fluoride in Water by IC (Low Level)	E235.F-L	1560721	1	6	16.6	5.0	✓
Nitrate in Water by IC (Trace Level)	E235.NO3-T	1560722	1	6	16.6	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1560718	1	16	6.2	5.0	✓
pH by Meter	E108	1560711	1	18	5.5	5.0	✓
Sulfate in Water by IC (Low Level)	E235.SO4-L	1560724	1	6	16.6	5.0	✓
TDS by Gravimetry	E162	1563444	2	21	9.5	5.0	✓
Total Cyanide	E333	1573893	1	13	7.6	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	1568188	1	5	20.0	5.0	✓
Total Mercury in Water by CVAAS	E508	1565029	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1561579	1	20	5.0	5.0	✓

Matrix: **Water**

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

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Control Samples (LCS) - Continued							
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1568456	1	11	9.0	5.0	✓
TSS by Gravimetry (Low Level)	E160-L	1563405	1	12	8.3	5.0	✓
Method Blanks (MB)							
Acidity by Titration	E283	1560725	1	10	10.0	5.0	✓
Alkalinity Species by Titration	E290	1560712	1	18	5.5	5.0	✓
Bromide by IC (Ultra Trace Level)	E235.Br-U	1560723	1	6	16.6	5.0	✓
Chloride in Water by IC (Low Level)	E235.Cl-L	1560720	1	6	16.6	5.0	✓
Conductivity in Water	E100	1560713	1	16	6.2	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1566905	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1561571	1	20	5.0	5.0	✓
Fluoride in Water by IC (Low Level)	E235.F-L	1560721	1	6	16.6	5.0	✓
Nitrate in Water by IC (Trace Level)	E235.NO3-T	1560722	1	6	16.6	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1560718	1	16	6.2	5.0	✓
Sulfate in Water by IC (Low Level)	E235.SO4-L	1560724	1	6	16.6	5.0	✓
TDS by Gravimetry	E162	1563444	2	21	9.5	5.0	✓
Total Cyanide	E333	1573893	1	13	7.6	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	1568188	1	5	20.0	5.0	✓
Total Mercury in Water by CVAAS	E508	1565029	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1561579	1	20	5.0	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1568456	1	11	9.0	5.0	✓
TSS by Gravimetry (Low Level)	E160-L	1563405	1	12	8.3	5.0	✓
Matrix Spikes (MS)							
Bromide by IC (Ultra Trace Level)	E235.Br-U	1560723	1	6	16.6	5.0	✓
Chloride in Water by IC (Low Level)	E235.Cl-L	1560720	1	6	16.6	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1566905	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1561571	1	20	5.0	5.0	✓
Fluoride in Water by IC (Low Level)	E235.F-L	1560721	1	6	16.6	5.0	✓
Nitrate in Water by IC (Trace Level)	E235.NO3-T	1560722	1	6	16.6	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1560718	1	16	6.2	5.0	✓
Sulfate in Water by IC (Low Level)	E235.SO4-L	1560724	1	6	16.6	5.0	✓
Total Cyanide	E333	1573893	1	13	7.6	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	1568188	1	5	20.0	5.0	✓
Total Mercury in Water by CVAAS	E508	1565029	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1561579	1	20	5.0	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1568456	1	11	9.0	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
Biochemical Oxygen Demand (BOD) 5-day	BOD5 Taiga Environmental Laboratory - 4601 - 52nd Avenue P.O. BOX 1500 Yellowknife Northwest Territories Canada X1A 2R3	Water	SM5210B	Sample was diluted, seeded, and incubated at specified temperature for 5 days. Dissolved oxygen is measured initially and after incubation, and the BOD is computed from the difference between initial and final DO.
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 (Low Level)	E160-L 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 by IC (Ultra Trace Level)	E235.Br-U 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 (Low Level)	E235.Cl-L 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 (Low Level)	E235.F-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
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 (Trace Level)	E235.NO3-T 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.
Acidity by Titration	E283 ALS Environmental - Vancouver	Water	APHA 2310 B (mod)	Acidity is determined by potentiometric titration to pH endpoint of 8.3
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.
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 - 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).
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U ALS Environmental - Vancouver	Water	APHA 4500-P E (mod).	Total Phosphorus is determined colourimetrically using a discrete analyzer after heated persulfate digestion of the sample.
Total Metals in Water by CRC ICPMS	E420 ALS Environmental - Vancouver	Water	EPA 200.2/6020B (mod)	Water samples are digested with nitric and hydrochloric acids, and analyzed by Collision/Reaction Cell ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
Dissolved Metals in Water by CRC ICPMS	E421 ALS Environmental - Vancouver	Water	APHA 3030B/EPA 6020B (mod)	Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by Collision/Reaction Cell ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Total Mercury in Water by CVAAS	E508 ALS Environmental - Vancouver	Water	EPA 1631E (mod)	Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS
Dissolved Mercury in Water by CVAAS	E509 ALS Environmental - Vancouver	Water	APHA 3030B/EPA 1631E (mod)	Water samples are filtered (0.45 um), preserved with HCl, then undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS.
Dissolved Hardness (Calculated)	EC100 ALS Environmental - Vancouver	Water	APHA 2340B	"Hardness (as CaCO3), dissolved" is calculated from the sum of dissolved Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. "Total Hardness" refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because it is a property of water due to dissolved divalent cations.
Hardness (Calculated) from Total Ca/Mg	EC100A ALS Environmental - Vancouver	Water	APHA 2340B	"Hardness (as CaCO3), from total Ca/Mg" is calculated from the sum of total Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. "Total Hardness" refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because it is a property of water due to dissolved divalent cations. Hardness from total Ca/Mg is normally comparable to Dissolved Hardness in non-turbid waters.
Fecal Coliforms in Water by MF	FC-MF Taiga Environmental Laboratory - 4601 - 52nd Avenue P.O. BOX 1500 Yellowknife Northwest Territories Canada X1A 2R3	Water	APHA 9222D	See attached report.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
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.
Digestion for Total Phosphorus in water	EP372 ALS Environmental - Vancouver	Water	APHA 4500-P E (mod).	Samples are heated with a persulfate digestion reagent.
Dissolved Metals Water Filtration	EP421 ALS Environmental - Vancouver	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HNO3.
Dissolved Mercury Water Filtration	EP509	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HCl.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
	ALS Environmental - Vancouver			

QUALITY CONTROL REPORT

Work Order	: **YL2400958**	Page	: 1 of 17
Client	: Elgin Mining Inc.	Laboratory	: ALS Environmental - Yellowknife
Contact	: Jon Melnyk	Account Manager	: Oliver Gregg
Address	: 750 West Pender Street Suite 201 Vancouver BC Canada V6C 2T7	Address	: 314 Old Airport Road, Unit 116 Yellowknife, Northwest Territories Canada X1A 3T3
Telephone	: ----	Telephone	: 1 867 445 7143
Project	: ----	Date Samples Received	: 22-Jul-2024 09:02
PO	: ----	Date Analysis Commenced	: 23-Jul-2024
C-O-C number	: ----	Issue Date	: 01-Aug-2024 17:30
Sampler	: ----		
Site	: ----		
Quote number	: YL23-ELMI100-001		
No. of samples received	: 7		
No. of samples analysed	: 7		

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

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percent Difference (RPD) and Data Quality Objectives
- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

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

Signatories	*Position*	*Laboratory Department*
Ilnaz Badbezanchi	Supervisor - Metals Prep & Mercury	Vancouver Metals, Burnaby, British Columbia
Kaitlyn Gardner	Account Manager Assistant	Taiga Environmental Laboratory External Subcontracting, Yellowknife, Northwest Territories
Maya Urquhart	Lab Analyst	Vancouver Metals, Burnaby, British Columbia
Miles Gropen	Department Manager - Inorganics	Vancouver Inorganics, Burnaby, British Columbia
Monica Ko	Lab Assistant	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: 1560711)											
FJ2402097-001	Anonymous	pH	----	E108	0.10	pH units	8.09	8.11	0.247%	4%	----
Physical Tests (QC Lot: 1560712)											
FJ2402097-001	Anonymous	Alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	90.8	90.8	0.00%	20%	----
Physical Tests (QC Lot: 1560713)											
FJ2402097-001	Anonymous	Conductivity	----	E100	2.0	µS/cm	3450	3460	0.289%	10%	----
Physical Tests (QC Lot: 1560725)											
VA24B7819-002	Anonymous	Acidity (as CaCO3)	----	E283	2.0	mg/L	<2.0	<2.0	0	Diff <2x LOR	----
Physical Tests (QC Lot: 1563444)											
VA24B7687-001	Anonymous	Solids, total dissolved [TDS]	----	E162	20	mg/L	986	1030	4.02%	20%	----
Physical Tests (QC Lot: 1563445)											
YL2400958-006	LUP-14 Pre decant	Solids, total dissolved [TDS]	----	E162	20	mg/L	162	162	0.5	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1560718)											
FJ2402097-001	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	0.0200	mg/L	0.344	0.355	3.14%	20%	----
Anions and Nutrients (QC Lot: 1560720)											
YL2400958-001	P2-A	Chloride	16887-00-6	E235.Cl-L	0.10	mg/L	15.0	14.9	0.554%	20%	----
Anions and Nutrients (QC Lot: 1560721)											
YL2400958-001	P2-A	Fluoride	16984-48-8	E235.F-L	0.010	mg/L	0.117	0.108	8.02%	20%	----
Anions and Nutrients (QC Lot: 1560722)											
YL2400958-001	P2-A	Nitrate (as N)	14797-55-8	E235.NO3-T	0.0030	mg/L	0.408	0.406	0.551%	20%	----
Anions and Nutrients (QC Lot: 1560723)											
YL2400958-001	P2-A	Bromide	24959-67-9	E235.Br-U	0.0050	mg/L	0.181	0.180	0.521%	20%	----
Anions and Nutrients (QC Lot: 1560724)											
YL2400958-001	P2-A	Sulfate (as SO4)	14808-79-8	E235.SO4-L	0.050	mg/L	180	179	0.413%	20%	----
Anions and Nutrients (QC Lot: 1568188)											
VA24B8421-003	Anonymous	Kjeldahl nitrogen, total [TKN]	----	E318	0.050	mg/L	0.452	# <0.050	0.402	Diff <2x LOR	TKND
Anions and Nutrients (QC Lot: 1568456)											
KS2402939-001	Anonymous	Phosphorus, total	7723-14-0	E372-U	0.0020	mg/L	<0.0020	<0.0020	0	Diff <2x LOR	----
Cyanides (QC Lot: 1573893)											
VA24B7994-002	Anonymous	Cyanide, strong acid dissociable (Total)	----	E333	0.0050	mg/L	0.0088	0.0088	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*
Total Metals (QC Lot: 1561579)											
FJ2402097-001	Anonymous	Aluminum, total	7429-90-5	E420	0.0060	mg/L	<0.0060	<0.0060	0	Diff <2x LOR	----
		Antimony, total	7440-36-0	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		Arsenic, total	7440-38-2	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		Barium, total	7440-39-3	E420	0.00020	mg/L	0.0222	0.0226	1.82%	20%	----
		Beryllium, total	7440-41-7	E420	0.000040	mg/L	<0.000040	<0.000040	0	Diff <2x LOR	----
		Bismuth, total	7440-69-9	E420	0.000100	mg/L	<0.000100	<0.000100	0	Diff <2x LOR	----
		Boron, total	7440-42-8	E420	0.020	mg/L	<0.020	<0.020	0	Diff <2x LOR	----
		Cadmium, total	7440-43-9	E420	0.0000100	mg/L	0.0000178	0.0000239	0.0000061	Diff <2x LOR	----
		Calcium, total	7440-70-2	E420	0.100	mg/L	696	675	3.06%	20%	----
		Cesium, total	7440-46-2	E420	0.000020	mg/L	0.000024	0.000024	0.0000009	Diff <2x LOR	----
		Chromium, total	7440-47-3	E420	0.00100	mg/L	<0.00100	<0.00100	0	Diff <2x LOR	----
		Cobalt, total	7440-48-4	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		Copper, total	7440-50-8	E420	0.00100	mg/L	<0.00100	<0.00100	0	Diff <2x LOR	----
		Iron, total	7439-89-6	E420	0.020	mg/L	<0.020	<0.020	0	Diff <2x LOR	----
		Lead, total	7439-92-1	E420	0.000100	mg/L	<0.000100	<0.000100	0	Diff <2x LOR	----
		Lithium, total	7439-93-2	E420	0.0020	mg/L	0.0098	0.0093	0.0005	Diff <2x LOR	----
		Magnesium, total	7439-95-4	E420	0.0100	mg/L	190	187	1.43%	20%	----
		Manganese, total	7439-96-5	E420	0.00020	mg/L	0.00214	0.00245	13.4%	20%	----
		Molybdenum, total	7439-98-7	E420	0.000100	mg/L	0.000787	0.000829	0.000042	Diff <2x LOR	----
		Nickel, total	7440-02-0	E420	0.00100	mg/L	<0.00100	<0.00100	0	Diff <2x LOR	----
		Phosphorus, total	7723-14-0	E420	0.100	mg/L	<0.100	<0.100	0	Diff <2x LOR	----
		Potassium, total	7440-09-7	E420	0.100	mg/L	2.26	2.20	2.33%	20%	----
		Rubidium, total	7440-17-7	E420	0.00040	mg/L	0.00096	0.00101	0.00005	Diff <2x LOR	----
		Selenium, total	7782-49-2	E420	0.000100	mg/L	0.102	0.103	0.548%	20%	----
		Silicon, total	7440-21-3	E420	0.20	mg/L	6.81	6.88	1.10%	20%	----
		Silver, total	7440-22-4	E420	0.000020	mg/L	<0.000020	<0.000020	0	Diff <2x LOR	----
		Sodium, total	7440-23-5	E420	0.100	mg/L	6.38	6.13	3.94%	20%	----
		Strontium, total	7440-24-6	E420	0.00040	mg/L	0.364	0.357	1.82%	20%	----
		Sulfur, total	7704-34-9	E420	1.00	mg/L	721	731	1.30%	20%	----
		Tellurium, total	13494-80-9	E420	0.00040	mg/L	<0.00040	<0.00040	0	Diff <2x LOR	----
		Thallium, total	7440-28-0	E420	0.000020	mg/L	<0.000020	<0.000020	0	Diff <2x LOR	----
		Thorium, total	7440-29-1	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		Tin, total	7440-31-5	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		Titanium, total	7440-32-6	E420	0.00060	mg/L	<0.00060	<0.00060	0	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Total Metals (QC Lot: 1561579) - continued											
FJ2402097-001	Anonymous	Tungsten, total	7440-33-7	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		Uranium, total	7440-61-1	E420	0.000020	mg/L	0.00433	0.00431	0.259%	20%	----
		Vanadium, total	7440-62-2	E420	0.00100	mg/L	<0.00100	<0.00100	0	Diff <2x LOR	----
		Zinc, total	7440-66-6	E420	0.0060	mg/L	<0.0060	<0.0060	0	Diff <2x LOR	----
		Zirconium, total	7440-67-7	E420	0.00040	mg/L	<0.00040	<0.00040	0	Diff <2x LOR	----
Total Metals (QC Lot: 1565029)											
VA24B7683-003	Anonymous	Mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1561571)											
VA24B7882-001	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	0.0011	0.0014	0.0003	Diff <2x LOR	----
		Antimony, dissolved	7440-36-0	E421	0.00010	mg/L	0.00161	0.00163	1.21%	20%	----
		Arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	0.00359	0.00347	3.40%	20%	----
		Barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.0270	0.0248	8.62%	20%	----
		Beryllium, dissolved	7440-41-7	E421	0.000020	mg/L	<0.000020	<0.000020	0	Diff <2x LOR	----
		Bismuth, dissolved	7440-69-9	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Boron, dissolved	7440-42-8	E421	0.010	mg/L	0.082	0.080	0.002	Diff <2x LOR	----
		Cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L	0.0000080	0.0000121	0.0000040	Diff <2x LOR	----
		Calcium, dissolved	7440-70-2	E421	0.050	mg/L	17.4	17.2	1.22%	20%	----
		Cesium, dissolved	7440-46-2	E421	0.000010	mg/L	0.000368	0.000372	1.01%	20%	----
		Chromium, dissolved	7440-47-3	E421	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Cobalt, dissolved	7440-48-4	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Copper, dissolved	7440-50-8	E421	0.00020	mg/L	0.0165	0.0161	2.28%	20%	----
		Iron, dissolved	7439-89-6	E421	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		Lead, dissolved	7439-92-1	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Lithium, dissolved	7439-93-2	E421	0.0010	mg/L	0.0398	0.0402	0.884%	20%	----
		Magnesium, dissolved	7439-95-4	E421	0.0050	mg/L	2.57	2.48	3.56%	20%	----
		Manganese, dissolved	7439-96-5	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.000646	0.000665	2.87%	20%	----
		Nickel, dissolved	7440-02-0	E421	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Phosphorus, dissolved	7723-14-0	E421	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Potassium, dissolved	7440-09-7	E421	0.050	mg/L	0.943	0.912	3.41%	20%	----
		Rubidium, dissolved	7440-17-7	E421	0.00020	mg/L	0.00124	0.00109	0.00015	Diff <2x LOR	----
		Selenium, dissolved	7782-49-2	E421	0.000050	mg/L	0.000071	0.000090	0.000020	Diff <2x LOR	----
		Silicon, dissolved	7440-21-3	E421	0.050	mg/L	2.20	2.17	1.17%	20%	----
		Silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Dissolved Metals (QC Lot: 1561571) - continued											
VA24B7882-001	Anonymous	Sodium, dissolved	7440-23-5	E421	0.050	mg/L	22.7	21.9	3.32%	20%	----
		Strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.543	0.546	0.572%	20%	----
		Sulfur, dissolved	7704-34-9	E421	0.50	mg/L	12.3	12.4	0.512%	20%	----
		Tellurium, dissolved	13494-80-9	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		Thallium, dissolved	7440-28-0	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Thorium, dissolved	7440-29-1	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Tin, dissolved	7440-31-5	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Titanium, dissolved	7440-32-6	E421	0.00030	mg/L	<0.00030	<0.00030	0	Diff <2x LOR	----
		Tungsten, dissolved	7440-33-7	E421	0.00010	mg/L	0.00462	0.00478	3.36%	20%	----
		Uranium, dissolved	7440-61-1	E421	0.000010	mg/L	0.000021	0.000021	0.00000006	Diff <2x LOR	----
		Vanadium, dissolved	7440-62-2	E421	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Zinc, dissolved	7440-66-6	E421	0.0010	mg/L	0.0023	0.0024	0.00002	Diff <2x LOR	----
		Zirconium, dissolved	7440-67-7	E421	0.00030	mg/L	<0.00030	<0.00030	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1566905)											
VA24B7594-007	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----

Qualifiers

Qualifier	*Description*
TKND	*TKN duplication was poor due to interference from high nitrate, which causes negative bias on TKN.*

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: 1560712)						
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	<1.0	----
Physical Tests (QCLot: 1560713)						
Conductivity	----	E100	1	µS/cm	1.8	----
Physical Tests (QCLot: 1560725)						
Acidity (as CaCO3)	----	E283	2	mg/L	<2.0	----
Physical Tests (QCLot: 1563405)						
Solids, total suspended [TSS]	----	E160-L	1	mg/L	<1.0	----
Physical Tests (QCLot: 1563444)						
Solids, total dissolved [TDS]	----	E162	10	mg/L	<10	----
Physical Tests (QCLot: 1563445)						
Solids, total dissolved [TDS]	----	E162	10	mg/L	<10	----
Anions and Nutrients (QCLot: 1560718)						
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 1560720)						
Chloride	16887-00-6	E235.Cl-L	0.1	mg/L	<0.10	----
Anions and Nutrients (QCLot: 1560721)						
Fluoride	16984-48-8	E235.F-L	0.01	mg/L	<0.010	----
Anions and Nutrients (QCLot: 1560722)						
Nitrate (as N)	14797-55-8	E235.NO3-T	0.003	mg/L	<0.0030	----
Anions and Nutrients (QCLot: 1560723)						
Bromide	24959-67-9	E235.Br-U	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 1560724)						
Sulfate (as SO4)	14808-79-8	E235.SO4-L	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 1568188)						
Kjeldahl nitrogen, total [TKN]	----	E318	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 1568456)						
Phosphorus, total	7723-14-0	E372-U	0.002	mg/L	<0.0020	----
Cyanides (QCLot: 1573893)						
Cyanide, strong acid dissociable (Total)	----	E333	0.002	mg/L	<0.0020	----
Total Metals (QCLot: 1561579)						
Aluminum, total	7429-90-5	E420	0.003	mg/L	<0.0030	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	<0.00010	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (QCLot: 1561579) - continued						
Arsenic, total	7440-38-2	E420	0.0001	mg/L	<0.00010	----
Barium, total	7440-39-3	E420	0.0001	mg/L	<0.00010	----
Beryllium, total	7440-41-7	E420	0.00002	mg/L	<0.000020	----
Bismuth, total	7440-69-9	E420	0.00005	mg/L	<0.000050	----
Boron, total	7440-42-8	E420	0.01	mg/L	<0.010	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	<0.0000050	----
Calcium, total	7440-70-2	E420	0.05	mg/L	<0.050	----
Cesium, total	7440-46-2	E420	0.00001	mg/L	<0.000010	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	<0.00050	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	<0.00010	----
Copper, total	7440-50-8	E420	0.0005	mg/L	<0.00050	----
Iron, total	7439-89-6	E420	0.01	mg/L	<0.010	----
Lead, total	7439-92-1	E420	0.00005	mg/L	<0.000050	----
Lithium, total	7439-93-2	E420	0.001	mg/L	<0.0010	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	<0.0050	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	<0.00010	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	<0.000050	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	<0.00050	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	<0.050	----
Potassium, total	7440-09-7	E420	0.05	mg/L	<0.050	----
Rubidium, total	7440-17-7	E420	0.0002	mg/L	<0.00020	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	<0.000050	----
Silicon, total	7440-21-3	E420	0.1	mg/L	<0.10	----
Silver, total	7440-22-4	E420	0.00001	mg/L	<0.000010	----
Sodium, total	7440-23-5	E420	0.05	mg/L	<0.050	----
Strontium, total	7440-24-6	E420	0.0002	mg/L	<0.00020	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	<0.50	----
Tellurium, total	13494-80-9	E420	0.0002	mg/L	<0.00020	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	<0.000010	----
Thorium, total	7440-29-1	E420	0.0001	mg/L	<0.00010	----
Tin, total	7440-31-5	E420	0.0001	mg/L	<0.00010	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	<0.00030	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	<0.00010	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	<0.000010	----
Vanadium, total	7440-62-2	E420	0.0005	mg/L	<0.00050	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (QCLot: 1561579) - continued						
Zinc, total	7440-66-6	E420	0.003	mg/L	<0.0030	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	<0.00020	----
Total Metals (QCLot: 1565029)						
Mercury, total	7439-97-6	E508	0.000005	mg/L	<0.0000050	----
Dissolved Metals (QCLot: 1561571)						
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	<0.0010	----
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	<0.00010	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	<0.00010	----
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	<0.00010	----
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	<0.000020	----
Bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	<0.000050	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	<0.010	----
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	<0.0000050	----
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	<0.050	----
Cesium, dissolved	7440-46-2	E421	0.00001	mg/L	<0.000010	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	<0.00050	----
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	<0.00010	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	<0.00020	----
Iron, dissolved	7439-89-6	E421	0.01	mg/L	<0.010	----
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	<0.000050	----
Lithium, dissolved	7439-93-2	E421	0.001	mg/L	<0.0010	----
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	<0.0050	----
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	<0.00010	----
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	<0.000050	----
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	<0.00050	----
Phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	<0.050	----
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	<0.050	----
Rubidium, dissolved	7440-17-7	E421	0.0002	mg/L	<0.00020	----
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	<0.000050	----
Silicon, dissolved	7440-21-3	E421	0.05	mg/L	<0.050	----
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	<0.000010	----
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	<0.050	----
Strontium, dissolved	7440-24-6	E421	0.0002	mg/L	<0.00020	----
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	<0.50	----
Tellurium, dissolved	13494-80-9	E421	0.0002	mg/L	<0.00020	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Dissolved Metals (QCLot: 1561571) - continued						
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	<0.000010	----
Thorium, dissolved	7440-29-1	E421	0.0001	mg/L	<0.00010	----
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	<0.00010	----
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	<0.00030	----
Tungsten, dissolved	7440-33-7	E421	0.0001	mg/L	<0.00010	----
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	<0.000010	----
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	<0.00050	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	<0.0010	----
Zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	<0.00020	----
Dissolved Metals (QCLot: 1566905)						
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	<0.0000050	----

Laboratory Control Sample (LCS) Report

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

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 1560711)									
pH	----	E108	----	pH units	7 pH units	100	98.0	102	----
Physical Tests (QCLot: 1560712)									
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	500 mg/L	102	85.0	115	----
Physical Tests (QCLot: 1560713)									
Conductivity	----	E100	1	µS/cm	147 µS/cm	99.3	90.0	110	----
Physical Tests (QCLot: 1560725)									
Acidity (as CaCO3)	----	E283	2	mg/L	50 mg/L	97.0	85.0	115	----
Physical Tests (QCLot: 1563405)									
Solids, total suspended [TSS]	----	E160-L	1	mg/L	150 mg/L	91.2	85.0	115	----
Physical Tests (QCLot: 1563444)									
Solids, total dissolved [TDS]	----	E162	10	mg/L	1000 mg/L	105	85.0	115	----
Physical Tests (QCLot: 1563445)									
Solids, total dissolved [TDS]	----	E162	10	mg/L	1000 mg/L	103	85.0	115	----
Anions and Nutrients (QCLot: 1560718)									
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	0.5 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 1560720)									
Chloride	16887-00-6	E235.Cl-L	0.1	mg/L	100 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 1560721)									
Fluoride	16984-48-8	E235.F-L	0.01	mg/L	1 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 1560722)									
Nitrate (as N)	14797-55-8	E235.NO3-T	0.003	mg/L	2.5 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 1560723)									
Bromide	24959-67-9	E235.Br-U	0.005	mg/L	0.5 mg/L	102	85.0	115	----
Anions and Nutrients (QCLot: 1560724)									
Sulfate (as SO4)	14808-79-8	E235.SO4-L	0.05	mg/L	100 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 1568188)									
Kjeldahl nitrogen, total [TKN]	----	E318	0.05	mg/L	4 mg/L	95.1	75.0	125	----
Anions and Nutrients (QCLot: 1568456)									
Phosphorus, total	7723-14-0	E372-U	0.002	mg/L	0.05 mg/L	94.0	80.0	120	----
Cyanides (QCLot: 1573893)									

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Cyanides (QCLot: 1573893) - continued									
Cyanide, strong acid dissociable (Total)	----	E333	0.002	mg/L	0.25 mg/L	99.9	80.0	120	----
Total Metals (QCLot: 1561579)									
Aluminum, total	7429-90-5	E420	0.003	mg/L	2 mg/L	99.4	80.0	120	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	1 mg/L	105	80.0	120	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	1 mg/L	103	80.0	120	----
Barium, total	7440-39-3	E420	0.0001	mg/L	0.25 mg/L	102	80.0	120	----
Beryllium, total	7440-41-7	E420	0.00002	mg/L	0.1 mg/L	93.6	80.0	120	----
Bismuth, total	7440-69-9	E420	0.00005	mg/L	1 mg/L	98.8	80.0	120	----
Boron, total	7440-42-8	E420	0.01	mg/L	1 mg/L	92.4	80.0	120	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	0.1 mg/L	98.2	80.0	120	----
Calcium, total	7440-70-2	E420	0.05	mg/L	50 mg/L	95.9	80.0	120	----
Cesium, total	7440-46-2	E420	0.00001	mg/L	0.05 mg/L	93.5	80.0	120	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	0.25 mg/L	99.2	80.0	120	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	0.25 mg/L	97.9	80.0	120	----
Copper, total	7440-50-8	E420	0.0005	mg/L	0.25 mg/L	95.5	80.0	120	----
Iron, total	7439-89-6	E420	0.01	mg/L	1 mg/L	92.2	80.0	120	----
Lead, total	7439-92-1	E420	0.00005	mg/L	0.5 mg/L	98.1	80.0	120	----
Lithium, total	7439-93-2	E420	0.001	mg/L	0.25 mg/L	99.4	80.0	120	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	50 mg/L	104	80.0	120	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	0.25 mg/L	99.6	80.0	120	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	0.25 mg/L	98.2	80.0	120	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	0.5 mg/L	97.1	80.0	120	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	10 mg/L	106	80.0	120	----
Potassium, total	7440-09-7	E420	0.05	mg/L	50 mg/L	98.9	80.0	120	----
Rubidium, total	7440-17-7	E420	0.0002	mg/L	0.1 mg/L	98.3	80.0	120	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	1 mg/L	97.7	80.0	120	----
Silicon, total	7440-21-3	E420	0.1	mg/L	10 mg/L	102	80.0	120	----
Silver, total	7440-22-4	E420	0.00001	mg/L	0.1 mg/L	89.1	80.0	120	----
Sodium, total	7440-23-5	E420	0.05	mg/L	50 mg/L	96.9	80.0	120	----
Strontium, total	7440-24-6	E420	0.0002	mg/L	0.25 mg/L	102	80.0	120	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	50 mg/L	85.7	80.0	120	----
Tellurium, total	13494-80-9	E420	0.0002	mg/L	0.1 mg/L	88.0	80.0	120	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	1 mg/L	99.6	80.0	120	----
Thorium, total	7440-29-1	E420	0.0001	mg/L	0.1 mg/L	88.8	80.0	120	----
Tin, total	7440-31-5	E420	0.0001	mg/L	0.5 mg/L	95.3	80.0	120	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report: Spike: Target Concentration	Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High	Qualifier
Total Metals (QCLot: 1561579) - continued									
Titanium, total	7440-32-6	E420	0.0003	mg/L	0.25 mg/L	94.7	80.0	120	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	0.1 mg/L	93.4	80.0	120	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	0.005 mg/L	95.1	80.0	120	----
Vanadium, total	7440-62-2	E420	0.0005	mg/L	0.5 mg/L	99.6	80.0	120	----
Zinc, total	7440-66-6	E420	0.003	mg/L	0.5 mg/L	98.1	80.0	120	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	0.1 mg/L	95.5	80.0	120	----
Total Metals (QCLot: 1565029)									
Mercury, total	7439-97-6	E508	0.000005	mg/L	0 mg/L	99.6	80.0	120	----
Dissolved Metals (QCLot: 1561571)									
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	2 mg/L	98.0	80.0	120	----
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	1 mg/L	94.6	80.0	120	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	1 mg/L	97.4	80.0	120	----
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	0.25 mg/L	95.1	80.0	120	----
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	0.1 mg/L	93.4	80.0	120	----
Bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	1 mg/L	80.3	80.0	120	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	1 mg/L	92.7	80.0	120	----
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	0.1 mg/L	82.7	80.0	120	----
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	50 mg/L	92.8	80.0	120	----
Cesium, dissolved	7440-46-2	E421	0.00001	mg/L	0.05 mg/L	95.8	80.0	120	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	0.25 mg/L	96.3	80.0	120	----
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	0.25 mg/L	98.5	80.0	120	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	0.25 mg/L	93.2	80.0	120	----
Iron, dissolved	7439-89-6	E421	0.01	mg/L	1 mg/L	82.2	80.0	120	----
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	0.5 mg/L	91.4	80.0	120	----
Lithium, dissolved	7439-93-2	E421	0.001	mg/L	0.25 mg/L	91.3	80.0	120	----
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	50 mg/L	98.3	80.0	120	----
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	0.25 mg/L	95.5	80.0	120	----
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	0.25 mg/L	95.4	80.0	120	----
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	0.5 mg/L	96.1	80.0	120	----
Phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	10 mg/L	105	80.0	120	----
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	50 mg/L	95.5	80.0	120	----
Rubidium, dissolved	7440-17-7	E421	0.0002	mg/L	0.1 mg/L	101	80.0	120	----
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	1 mg/L	91.4	80.0	120	----
Silicon, dissolved	7440-21-3	E421	0.05	mg/L	10 mg/L	104	80.0	120	----
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	0.1 mg/L	90.1	80.0	120	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Dissolved Metals (QCLot: 1561571) - continued									
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	50 mg/L	95.5	80.0	120	----
Strontium, dissolved	7440-24-6	E421	0.0002	mg/L	0.25 mg/L	101	80.0	120	----
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	50 mg/L	# 77.0	80.0	120	MES
Tellurium, dissolved	13494-80-9	E421	0.0002	mg/L	0.1 mg/L	103	80.0	120	----
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	1 mg/L	88.7	80.0	120	----
Thorium, dissolved	7440-29-1	E421	0.0001	mg/L	0.1 mg/L	85.0	80.0	120	----
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	0.5 mg/L	95.4	80.0	120	----
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	0.25 mg/L	92.7	80.0	120	----
Tungsten, dissolved	7440-33-7	E421	0.0001	mg/L	0.1 mg/L	91.9	80.0	120	----
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	0.005 mg/L	93.3	80.0	120	----
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	0.5 mg/L	98.8	80.0	120	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	0.5 mg/L	97.4	80.0	120	----
Zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	0.1 mg/L	86.9	80.0	120	----
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0 mg/L	93.7	80.0	120	----

Qualifiers

Qualifier	Description
MES	*Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).*

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: 1560718)										
FJ2402097-002	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	0.513 mg/L	0.5 mg/L	103	75.0	125	----
Anions and Nutrients (QCLot: 1560720)										
YL2400958-002	P2-B	Chloride	16887-00-6	E235.Cl-L	104 mg/L	100 mg/L	104	75.0	125	----
Anions and Nutrients (QCLot: 1560721)										
YL2400958-002	P2-B	Fluoride	16984-48-8	E235.F-L	1.05 mg/L	1 mg/L	105	75.0	125	----
Anions and Nutrients (QCLot: 1560722)										
YL2400958-002	P2-B	Nitrate (as N)	14797-55-8	E235.NO3-T	2.61 mg/L	2.5 mg/L	104	75.0	125	----
Anions and Nutrients (QCLot: 1560723)										
YL2400958-002	P2-B	Bromide	24959-67-9	E235.Br-U	0.520 mg/L	0.5 mg/L	104	75.0	125	----
Anions and Nutrients (QCLot: 1560724)										
YL2400958-002	P2-B	Sulfate (as SO4)	14808-79-8	E235.SO4-L	ND mg/L	----	ND	75.0	125	----
Anions and Nutrients (QCLot: 1568188)										
VA24B8421-004	Anonymous	Kjeldahl nitrogen, total [TKN]	----	E318	0.276 mg/L	2.5 mg/L	11.0	70.0	130	MSTN
Anions and Nutrients (QCLot: 1568456)										
VA24B8049-001	Anonymous	Phosphorus, total	7723-14-0	E372-U	0.0477 mg/L	0.05 mg/L	95.5	70.0	130	----
Cyanides (QCLot: 1573893)										
VA24B7994-003	Anonymous	Cyanide, strong acid dissociable (Total)	----	E333	0.475 mg/L	0.5 mg/L	94.9	75.0	125	----
Total Metals (QCLot: 1561579)										
FJ2402097-002	Anonymous	Aluminum, total	7429-90-5	E420	0.186 mg/L	0.2 mg/L	93.2	70.0	130	----
		Antimony, total	7440-36-0	E420	0.0186 mg/L	0.02 mg/L	92.8	70.0	130	----
		Arsenic, total	7440-38-2	E420	0.0205 mg/L	0.02 mg/L	103	70.0	130	----
		Barium, total	7440-39-3	E420	ND mg/L	----	ND	70.0	130	----
		Beryllium, total	7440-41-7	E420	0.0391 mg/L	0.04 mg/L	97.8	70.0	130	----
		Bismuth, total	7440-69-9	E420	0.00931 mg/L	0.01 mg/L	93.1	70.0	130	----
		Boron, total	7440-42-8	E420	0.103 mg/L	0.1 mg/L	103	70.0	130	----
		Cadmium, total	7440-43-9	E420	0.00391 mg/L	0.004 mg/L	97.7	70.0	130	----
		Calcium, total	7440-70-2	E420	ND mg/L	----	ND	70.0	130	----
		Cesium, total	7440-46-2	E420	0.00937 mg/L	0.01 mg/L	93.7	70.0	130	----
		Chromium, total	7440-47-3	E420	0.0390 mg/L	0.04 mg/L	97.5	70.0	130	----
		Cobalt, total	7440-48-4	E420	0.0193 mg/L	0.02 mg/L	96.7	70.0	130	----
		Copper, total	7440-50-8	E420	0.0189 mg/L	0.02 mg/L	94.7	70.0	130	----
		Iron, total	7439-89-6	E420	ND mg/L	----	ND	70.0	130	----
		Lead, total	7439-92-1	E420	0.0189 mg/L	0.02 mg/L	94.4	70.0	130	----
		Lithium, total	7439-93-2	E420	0.101 mg/L	0.1 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
Total Metals (QCLot: 1561579) - continued										
FJ2402097-002	Anonymous	Magnesium, total	7439-95-4	E420	ND mg/L	----	ND	70.0	130	----
		Manganese, total	7439-96-5	E420	ND mg/L	----	ND	70.0	130	----
		Molybdenum, total	7439-98-7	E420	0.0191 mg/L	0.02 mg/L	95.6	70.0	130	----
		Nickel, total	7440-02-0	E420	0.0382 mg/L	0.04 mg/L	95.6	70.0	130	----
		Phosphorus, total	7723-14-0	E420	10.3 mg/L	10 mg/L	103	70.0	130	----
		Potassium, total	7440-09-7	E420	ND mg/L	----	ND	70.0	130	----
		Rubidium, total	7440-17-7	E420	0.0196 mg/L	0.02 mg/L	98.2	70.0	130	----
		Selenium, total	7782-49-2	E420	0.0400 mg/L	0.04 mg/L	99.9	70.0	130	----
		Silicon, total	7440-21-3	E420	9.36 mg/L	10 mg/L	93.6	70.0	130	----
		Silver, total	7440-22-4	E420	0.00380 mg/L	0.004 mg/L	95.0	70.0	130	----
		Sodium, total	7440-23-5	E420	ND mg/L	----	ND	70.0	130	----
		Strontium, total	7440-24-6	E420	ND mg/L	----	ND	70.0	130	----
		Sulfur, total	7704-34-9	E420	18.7 mg/L	20 mg/L	93.6	70.0	130	----
		Tellurium, total	13494-80-9	E420	0.0361 mg/L	0.04 mg/L	90.3	70.0	130	----
		Thallium, total	7440-28-0	E420	0.00369 mg/L	0.004 mg/L	92.2	70.0	130	----
		Thorium, total	7440-29-1	E420	0.0196 mg/L	0.02 mg/L	97.9	70.0	130	----
		Tin, total	7440-31-5	E420	0.0181 mg/L	0.02 mg/L	90.4	70.0	130	----
		Titanium, total	7440-32-6	E420	0.0376 mg/L	0.04 mg/L	93.9	70.0	130	----
		Tungsten, total	7440-33-7	E420	0.0186 mg/L	0.02 mg/L	93.2	70.0	130	----
		Uranium, total	7440-61-1	E420	0.00371 mg/L	0.004 mg/L	92.8	70.0	130	----
		Vanadium, total	7440-62-2	E420	0.0982 mg/L	0.1 mg/L	98.2	70.0	130	----
		Zinc, total	7440-66-6	E420	0.390 mg/L	0.4 mg/L	97.5	70.0	130	----
		Zirconium, total	7440-67-7	E420	0.0405 mg/L	0.04 mg/L	101	70.0	130	----
Total Metals (QCLot: 1565029)										
VA24B7683-004	Anonymous	Mercury, total	7439-97-6	E508	0.0000969 mg/L	0 mg/L	96.9	70.0	130	----
Dissolved Metals (QCLot: 1561571)										
VA24B7882-002	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.203 mg/L	0.2 mg/L	101	70.0	130	----
		Antimony, dissolved	7440-36-0	E421	0.0200 mg/L	0.02 mg/L	100	70.0	130	----
		Arsenic, dissolved	7440-38-2	E421	0.0206 mg/L	0.02 mg/L	103	70.0	130	----
		Barium, dissolved	7440-39-3	E421	ND mg/L	----	ND	70.0	130	----
		Beryllium, dissolved	7440-41-7	E421	0.0374 mg/L	0.04 mg/L	93.4	70.0	130	----
		Bismuth, dissolved	7440-69-9	E421	0.00976 mg/L	0.01 mg/L	97.6	70.0	130	----
		Boron, dissolved	7440-42-8	E421	ND mg/L	----	ND	70.0	130	----
		Cadmium, dissolved	7440-43-9	E421	0.00392 mg/L	0.004 mg/L	97.9	70.0	130	----
		Calcium, dissolved	7440-70-2	E421	ND mg/L	----	ND	70.0	130	----
		Cesium, dissolved	7440-46-2	E421	0.00982 mg/L	0.01 mg/L	98.2	70.0	130	----
		Chromium, dissolved	7440-47-3	E421	0.0397 mg/L	0.04 mg/L	99.3	70.0	130	----
		Cobalt, dissolved	7440-48-4	E421	0.0196 mg/L	0.02 mg/L	97.9	70.0	130	----
		Copper, dissolved	7440-50-8	E421	0.0197 mg/L	0.02 mg/L	98.3	70.0	130	----
		Iron, dissolved	7439-89-6	E421	1.96 mg/L	2 mg/L	98.3	70.0	130	----
		Lead, dissolved	7439-92-1	E421	0.0187 mg/L	0.02 mg/L	93.6	70.0	130	----
		Lithium, dissolved	7439-93-2	E421	0.0913 mg/L	0.1 mg/L	91.3	70.0	130	----
		Magnesium, dissolved	7439-95-4	E421	ND mg/L	----	ND	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Dissolved Metals (QCLot: 1561571) - continued										
VA24B7882-002	Anonymous	Manganese, dissolved	7439-96-5	E421	0.0200 mg/L	0.02 mg/L	100	70.0	130	----
		Molybdenum, dissolved	7439-98-7	E421	0.0198 mg/L	0.02 mg/L	98.9	70.0	130	----
		Nickel, dissolved	7440-02-0	E421	0.0393 mg/L	0.04 mg/L	98.3	70.0	130	----
		Phosphorus, dissolved	7723-14-0	E421	10.5 mg/L	10 mg/L	105	70.0	130	----
		Potassium, dissolved	7440-09-7	E421	3.82 mg/L	4 mg/L	95.6	70.0	130	----
		Rubidium, dissolved	7440-17-7	E421	0.0188 mg/L	0.02 mg/L	94.1	70.0	130	----
		Selenium, dissolved	7782-49-2	E421	0.0380 mg/L	0.04 mg/L	94.9	70.0	130	----
		Silicon, dissolved	7440-21-3	E421	9.32 mg/L	10 mg/L	93.2	70.0	130	----
		Silver, dissolved	7440-22-4	E421	0.00382 mg/L	0.004 mg/L	95.6	70.0	130	----
		Sodium, dissolved	7440-23-5	E421	ND mg/L	----	ND	70.0	130	----
		Strontium, dissolved	7440-24-6	E421	ND mg/L	----	ND	70.0	130	----
		Sulfur, dissolved	7704-34-9	E421	19.2 mg/L	20 mg/L	96.0	70.0	130	----
		Tellurium, dissolved	13494-80-9	E421	0.0410 mg/L	0.04 mg/L	102	70.0	130	----
		Thallium, dissolved	7440-28-0	E421	0.00370 mg/L	0.004 mg/L	92.5	70.0	130	----
		Thorium, dissolved	7440-29-1	E421	0.0206 mg/L	0.02 mg/L	103	70.0	130	----
		Tin, dissolved	7440-31-5	E421	0.0198 mg/L	0.02 mg/L	99.2	70.0	130	----
		Titanium, dissolved	7440-32-6	E421	0.0400 mg/L	0.04 mg/L	100	70.0	130	----
		Tungsten, dissolved	7440-33-7	E421	0.0188 mg/L	0.02 mg/L	93.8	70.0	130	----
		Uranium, dissolved	7440-61-1	E421	0.00373 mg/L	0.004 mg/L	93.3	70.0	130	----
		Vanadium, dissolved	7440-62-2	E421	0.101 mg/L	0.1 mg/L	101	70.0	130	----
		Zinc, dissolved	7440-66-6	E421	0.387 mg/L	0.4 mg/L	96.8	70.0	130	----
		Zirconium, dissolved	7440-67-7	E421	0.0402 mg/L	0.04 mg/L	100	70.0	130	----
Dissolved Metals (QCLot: 1566905)										
VA24B7594-008	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000904 mg/L	0 mg/L	90.4	70.0	130	----

Qualifiers

Qualifier	Description
MSTN	*TKN Matrix Spike recovery was low due to interference from high nitrate, which causes negative bias on TKN.*

CHAIN OF CUSTODY

ALS Laboratory

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE/TIME:	DATE/TIME: JULY 22/24 9:02	DATE/TIME:	DATE/TIME:

CLIENT: Elgin Mining Inc.

PROJECT: Lupin Mine 2024

SITE: Lupin

PURCHASE ORDER NO.:

PROJECT MANAGER: JON MELNYK CONTACT PH: 403-852-2944

SAMPLER: S. Leggett SAMPLER MOBILE: 403-861-0169

EMAIL REPORTS TO: Shane.Leggett@Stantec.com JONM@JDSMINING.CA EMAIL INVOICE TO:

SPECIAL HANDLING/STORAGE OR DISPOSAL:

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):

ALS QUOTE NC YL23-ELMI100-001

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: 6.8 °C

Other comments:

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	Routine	Dissolved metals + Hg	Total metals + Hg	Total cyanide	Nutrients	Mixed Biology	BOD 5	Total Phosphorus	TKN			Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
P2-A	P2-A	18-07-2024/10:25	W	7	✓	✓	✓	✓								
P2-B	P2-B	18-07-2024/10:08	W	7	✓	✓	✓	✓								
P2-C	P2-C	18-07-2024/9:50	W	7	✓	✓	✓	✓								
P2-D	P2-D	18-07-2024/9:34	W	7	✓	✓	✓	✓								
P2-E	P2-E	18-07-2024/10:39		7	✓	✓	✓	✓								
LUP-14	LUP-14 Pre decant	18-07-2024/14:50		7	✓		✓		✓	✓	✓	✓	✓			
LUP-14D	LUP-14D PRE DECANT	21-07-2024/13:06		3						✓	✓					
				TOTAL												

Environmental Division
Yellowknife
Work Order Reference
YL2400958

Telephone : +1 867 873 5593

CERTIFICATE OF ANALYSIS

Work Order	: **YL2401053**	Page	: 1 of 10
Client	: **Elgin Mining Inc.**	Laboratory	: ALS Environmental - Yellowknife
Contact	: Jon Melnyk	Account Manager	: Oliver Gregg
Address	: 750 West Pender Street Suite 201 Vancouver BC Canada V6C 2T7	Address	: 314 Old Airport Road, Unit 116 Yellowknife NT Canada X1A 3T3
Telephone	: ----	Telephone	: 1 867 445 7143
Project	: Lupin Mine 2024	Date Samples Received	: 31-Jul-2024 16:30
PO	: ----	Date Analysis Commenced	: 06-Aug-2024
C-O-C number	: ----	Issue Date	: 09-Aug-2024 07:39
Sampler	: ----		
Site	: ----		
Quote number	: YL23-ELMI100-001		
No. of samples received	: 7		
No. of samples analysed	: 7		

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

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

Signatories

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

Signatories	*Position*	*Laboratory Department*
Angelo Salandanan	Lab Assistant	Metals, Burnaby, British Columbia
Ghazaleh Khanmirzaei	Analyst	Metals, Burnaby, British Columbia
Leon Yang	Analyst	Inorganics, Burnaby, British Columbia
Robin Weeks	Team Leader - Metals	Metals, Burnaby, British Columbia
Sam Silveira	Analyst	Metals, Burnaby, British Columbia

General Comments

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

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

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

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

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

LOR: Limit of Reporting (detection limit).

Unit	*Description*
-	no units
µS/cm	microsiemens per centimetre
mg/L	milligrams 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*
DLA	*Detection Limit adjusted for required dilution.*
DLDS	*Detection Limit Raised: Dilution required due to high Dissolved Solids / Electrical Conductivity.*
DLM	*Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).*

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	P1-A	P1-B	P1-D	C4-A	C4-B
					Client sampling date / time	30-Jul-2024 11:15	30-Jul-2024 10:50	30-Jul-2024 12:00	30-Jul-2024 15:20	30-Jul-2024 14:55
						YL2401053-001	YL2401053-002	YL2401053-003	YL2401053-004	YL2401053-005
						Result	Result	Result	Result	Result
Physical Tests										
Acidity (as CaCO3)	----	E283/VA	2.0	mg/L		15.1	900	15.2	57.8	57.5
Alkalinity, total (as CaCO3)	----	E290/VA	1.0	mg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Conductivity	----	E100/VA	1.0	µS/cm		374	2160	374	881	884
Hardness (as CaCO3), dissolved	----	EC100/VA	0.60	mg/L		102	462	104	203	195
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/VA	0.60	mg/L		103	463	104	208	208
pH	----	E108/VA	0.10	pH units		4.12	3.25	4.14	3.39	3.38
Solids, total dissolved [TDS]	----	E162/VA	10	mg/L		276	2350	271	549	573
Solids, total suspended [TSS]	----	E160-L/VA	1.0	mg/L		<1.0	9.2	4.8	<1.0	<1.0
Anions and Nutrients										
Bromide	24959-67-9	E235.Br-U/VA	0.0050	mg/L		0.0928	0.0996	0.0860	0.236	0.229
Chloride	16887-00-6	E235.Cl-L/VA	0.10	mg/L		7.28	8.73	7.34	19.1	19.3
Fluoride	16984-48-8	E235.F-L/VA	0.010	mg/L		0.115	0.898	0.116	0.198	0.199
Nitrate (as N)	14797-55-8	E235.NO3-T/VA	0.0030	mg/L		0.323	0.200	0.327	0.0298	0.0289
Nitrite (as N)	14797-65-0	E235.NO2-L/VA	0.0010	mg/L		<0.0010	<0.0100 DLDS	<0.0010	<0.0050 DLDS	<0.0050 DLDS
Sulfate (as SO4)	14808-79-8	E235.SO4-L/VA	0.050	mg/L		147	1370	149	334	338
Cyanides										
Cyanide, strong acid dissociable (Total)	----	E333/VA	0.0050	mg/L		<0.0050	<0.0050	<0.0050	0.0095	0.0066
Total Metals										
Aluminum, total	7429-90-5	E420/VA	0.0030	mg/L		1.26	36.3	1.30	3.65	3.60
Antimony, total	7440-36-0	E420/VA	0.00010	mg/L		<0.00010	<0.00050 DLA	<0.00010	<0.00010	<0.00010
Arsenic, total	7440-38-2	E420/VA	0.00010	mg/L		0.0101	0.520	0.0182	0.0953	0.0881
Barium, total	7440-39-3	E420/VA	0.00010	mg/L		0.0140	0.0204	0.0139	0.0227	0.0225
Beryllium, total	7440-41-7	E420/VA	0.000100	mg/L		0.000316	0.00409	0.000317	0.000456	0.000452
Bismuth, total	7440-69-9	E420/VA	0.000050	mg/L		<0.000050	<0.000250 DLA	<0.000050	<0.000050	<0.000050
Boron, total	7440-42-8	E420/VA	0.010	mg/L		0.026	0.120	0.026	0.066	0.066
Cadmium, total	7440-43-9	E420/VA	0.0000050	mg/L		0.000267	0.00208	0.000280	0.000285	0.000286
Calcium, total	7440-70-2	E420/VA	0.050	mg/L		28.7	111	29.2	63.3	63.8
Cesium, total	7440-46-2	E420/VA	0.000010	mg/L		0.000054	0.000342	0.000069	0.000099	0.000092

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	P1-A	P1-B	P1-D	C4-A	C4-B
					Client sampling date / time	30-Jul-2024 11:15	30-Jul-2024 10:50	30-Jul-2024 12:00	30-Jul-2024 15:20	30-Jul-2024 14:55
						YL2401053-001	YL2401053-002	YL2401053-003	YL2401053-004	YL2401053-005
						Result	Result	Result	Result	Result
Total Metals										
Chromium, total	7440-47-3	E420/VA	0.00050	mg/L		<0.00050	0.0119	<0.00050	0.00127	0.00110
Cobalt, total	7440-48-4	E420/VA	0.00010	mg/L		0.0540	0.322	0.0549	0.0908	0.0901
Copper, total	7440-50-8	E420/VA	0.00050	mg/L		0.0380	0.412	0.0411	0.107	0.102
Iron, total	7439-89-6	E420/VA	0.010	mg/L		0.623	375	0.761	4.52	4.18
Lead, total	7439-92-1	E420/VA	0.000050	mg/L		0.00231	0.00488	0.00262	0.0522	0.0522
Lithium, total	7439-93-2	E420/VA	0.0010	mg/L		0.0229	0.139	0.0230	0.0507	0.0500
Magnesium, total	7439-95-4	E420/VA	0.0050	mg/L		7.60	45.1	7.69	12.2	11.9
Manganese, total	7439-96-5	E420/VA	0.00010	mg/L		0.718	3.96	0.738	1.58	1.57
Mercury, total	7439-97-6	E508/VA	0.0000050	mg/L		<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum, total	7439-98-7	E420/VA	0.000050	mg/L		<0.000050	<0.000250 DLA	<0.000050	0.000074	0.000057
Nickel, total	7440-02-0	E420/VA	0.00050	mg/L		0.110	0.646	0.113	0.202	0.199
Phosphorus, total	7723-14-0	E420/VA	0.050	mg/L		<0.050	<0.250 DLA	<0.050	<0.050	<0.050
Potassium, total	7440-09-7	E420/VA	0.050	mg/L		2.86	4.41	2.88	5.36	5.28
Rubidium, total	7440-17-7	E420/VA	0.00020	mg/L		0.00173	0.00588	0.00187	0.00314	0.00292
Selenium, total	7782-49-2	E420/VA	0.000050	mg/L		0.000061	0.000363	<0.000050	0.000101	0.000087
Silicon, total	7440-21-3	E420/VA	0.10	mg/L		3.02	17.9	3.08	10.4	10.0
Silver, total	7440-22-4	E420/VA	0.000010	mg/L		<0.000010	0.000124	<0.000010	0.000012	<0.000010
Sodium, total	7440-23-5	E420/VA	0.050	mg/L		14.4	15.3	14.8	37.8	37.1
Strontium, total	7440-24-6	E420/VA	0.00020	mg/L		0.143	0.558	0.146	0.363	0.360
Sulfur, total	7704-34-9	E420/VA	0.50	mg/L		52.8	512	54.1	131	124
Tellurium, total	13494-80-9	E420/VA	0.00020	mg/L		<0.00020	<0.00100 DLA	<0.00020	<0.00020	<0.00020
Thallium, total	7440-28-0	E420/VA	0.000010	mg/L		<0.000010	<0.000050 DLA	<0.000010	<0.000010	<0.000010
Thorium, total	7440-29-1	E420/VA	0.00010	mg/L		<0.00010	<0.00130 DLM	<0.00010	<0.00010	<0.00010
Tin, total	7440-31-5	E420/VA	0.00010	mg/L		<0.00010	<0.00050 DLA	<0.00010	<0.00010	<0.00010
Titanium, total	7440-32-6	E420/VA	0.00030	mg/L		0.00035	0.0192	0.00145	<0.00180 DLM	<0.00060 DLM
Tungsten, total	7440-33-7	E420/VA	0.00010	mg/L		<0.00010	<0.00050 DLA	<0.00010	<0.00010	<0.00010
Uranium, total	7440-61-1	E420/VA	0.000010	mg/L		0.000291	0.00616	0.000304	0.000877	0.000920
Vanadium, total	7440-62-2	E420/VA	0.00050	mg/L		<0.00050	0.00665	<0.00050	<0.00050	<0.00050
Zinc, total	7440-66-6	E420/VA	0.0030	mg/L		0.518	2.59	0.536	1.24	1.22
Zirconium, total	7440-67-7	E420/VA	0.00020	mg/L		<0.00020	<0.00100 DLA	<0.00020	<0.00020	<0.00020
Dissolved Metals										

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	P1-A	P1-B	P1-D	C4-A	C4-B
					Client sampling date / time	30-Jul-2024 11:15	30-Jul-2024 10:50	30-Jul-2024 12:00	30-Jul-2024 15:20	30-Jul-2024 14:55
						YL2401053-001	YL2401053-002	YL2401053-003	YL2401053-004	YL2401053-005
						Result	Result	Result	Result	Result
Dissolved Metals										
Aluminum, dissolved	7429-90-5	E421/VA	0.0010	mg/L		1.30	36.9	1.30	3.69	3.68
Antimony, dissolved	7440-36-0	E421/VA	0.00010	mg/L		<0.00010	<0.00050 DLA	<0.00010	<0.00010	<0.00010
Arsenic, dissolved	7440-38-2	E421/VA	0.00010	mg/L		0.0115	0.485	0.00873	0.0835	0.0804
Barium, dissolved	7440-39-3	E421/VA	0.00010	mg/L		0.0138	0.0173	0.0144	0.0228	0.0220
Beryllium, dissolved	7440-41-7	E421/VA	0.000100	mg/L		0.000314	0.00418	0.000311	0.000419	0.000422
Bismuth, dissolved	7440-69-9	E421/VA	0.000050	mg/L		<0.000050	<0.000250 DLA	<0.000050	<0.000050	<0.000050
Boron, dissolved	7440-42-8	E421/VA	0.010	mg/L		0.024	0.115	0.023	0.053	0.054
Cadmium, dissolved	7440-43-9	E421/VA	0.0000050	mg/L		0.000264	0.00207	0.000272	0.000274	0.000281
Calcium, dissolved	7440-70-2	E421/VA	0.050	mg/L		26.8	104	27.9	58.3	55.7
Cesium, dissolved	7440-46-2	E421/VA	0.000010	mg/L		0.000055	0.000279	0.000051	0.000080	0.000084
Chromium, dissolved	7440-47-3	E421/VA	0.00050	mg/L		<0.00050	0.00872	<0.00050	0.00104	0.00103
Cobalt, dissolved	7440-48-4	E421/VA	0.00010	mg/L		0.0538	0.322	0.0545	0.0862	0.0867
Copper, dissolved	7440-50-8	E421/VA	0.00020	mg/L		0.0371	0.394	0.0387	0.101	0.0992
Iron, dissolved	7439-89-6	E421/VA	0.010	mg/L		0.588	356	0.566	4.15	3.92
Lead, dissolved	7439-92-1	E421/VA	0.000050	mg/L		0.00242	0.00429	0.00243	0.0523	0.0524
Lithium, dissolved	7439-93-2	E421/VA	0.0010	mg/L		0.0221	0.138	0.0218	0.0456	0.0459
Magnesium, dissolved	7439-95-4	E421/VA	0.0050	mg/L		8.48	49.1	8.30	14.0	13.6
Manganese, dissolved	7439-96-5	E421/VA	0.00010	mg/L		0.783	4.08	0.771	1.64	1.68
Mercury, dissolved	7439-97-6	E509/VA	0.0000050	mg/L		<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum, dissolved	7439-98-7	E421/VA	0.000050	mg/L		<0.000050	<0.000250 DLA	<0.000050	0.000051	<0.000050
Nickel, dissolved	7440-02-0	E421/VA	0.00050	mg/L		0.113	0.651	0.113	0.202	0.202
Phosphorus, dissolved	7723-14-0	E421/VA	0.050	mg/L		<0.050	<0.250 DLA	<0.050	<0.050	<0.050
Potassium, dissolved	7440-09-7	E421/VA	0.050	mg/L		2.90	4.38	2.97	5.29	5.28
Rubidium, dissolved	7440-17-7	E421/VA	0.00020	mg/L		0.00185	0.00564	0.00194	0.00310	0.00305
Selenium, dissolved	7782-49-2	E421/VA	0.000050	mg/L		<0.000050	0.000259	0.000070	0.000068	0.000093
Silicon, dissolved	7440-21-3	E421/VA	0.050	mg/L		2.89	16.4	2.85	9.44	9.65
Silver, dissolved	7440-22-4	E421/VA	0.000010	mg/L		<0.000010	0.000078	<0.000010	<0.000010	<0.000010
Sodium, dissolved	7440-23-5	E421/VA	0.050	mg/L		15.5	15.5	15.2	39.5	38.5
Strontium, dissolved	7440-24-6	E421/VA	0.00020	mg/L		0.147	0.570	0.154	0.374	0.370
Sulfur, dissolved	7704-34-9	E421/VA	0.50	mg/L		50.2	471	48.2	115	117
Tellurium, dissolved	13494-80-9	E421/VA	0.00020	mg/L		<0.00020	<0.00100 DLA	<0.00020	<0.00020	<0.00020

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	P1-A	P1-B	P1-D	C4-A	C4-B
					Client sampling date / time	30-Jul-2024 11:15	30-Jul-2024 10:50	30-Jul-2024 12:00	30-Jul-2024 15:20	30-Jul-2024 14:55
						YL2401053-001	YL2401053-002	YL2401053-003	YL2401053-004	YL2401053-005
						Result	Result	Result	Result	Result
Dissolved Metals										
Thallium, dissolved	7440-28-0	E421/VA	0.000010	mg/L		<0.000010	<0.000050 DLA	<0.000010	<0.000010	<0.000010
Thorium, dissolved	7440-29-1	E421/VA	0.00010	mg/L		<0.00010	0.00112	<0.00010	<0.00010	<0.00010
Tin, dissolved	7440-31-5	E421/VA	0.00010	mg/L		<0.00010	<0.00050 DLA	<0.00010	<0.00010	<0.00010
Titanium, dissolved	7440-32-6	E421/VA	0.00030	mg/L		<0.00030	<0.00150 DLA	<0.00030	<0.00030	<0.00030
Tungsten, dissolved	7440-33-7	E421/VA	0.00010	mg/L		<0.00010	<0.00050 DLA	<0.00010	<0.00010	<0.00010
Uranium, dissolved	7440-61-1	E421/VA	0.000010	mg/L		0.000300	0.00623	0.000284	0.000872	0.000924
Vanadium, dissolved	7440-62-2	E421/VA	0.00050	mg/L		<0.00050	0.00569	<0.00050	<0.00050	<0.00050
Zinc, dissolved	7440-66-6	E421/VA	0.0010	mg/L		0.523	2.50	0.528	1.25	1.27
Zirconium, dissolved	7440-67-7	E421/VA	0.00020	mg/L		<0.00020	<0.00100 DLA	<0.00020	<0.00020	<0.00020
Dissolved mercury filtration location	----	EP509/VA	-	-		Field	Field	Field	Field	Field
Dissolved metals filtration location	----	EP421/VA	-	-		Field	Field	Field	Field	Field

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

Please refer to the Accreditation section for an explanation of analyte accreditations.

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	C4-C	C4-E	----	----	----
					Client sampling date / time	30-Jul-2024 11:15	30-Jul-2024 12:35	----	----	----
						YL2401053-006	YL2401053-007	--------	--------	--------
						Result	Result	----	----	----
Physical Tests										
Acidity (as CaCO3)	----	E283/VA	2.0	mg/L		58.9	104	----	----	----
Alkalinity, total (as CaCO3)	----	E290/VA	1.0	mg/L		<1.0	<1.0	----	----	----
Conductivity	----	E100/VA	1.0	µS/cm		884	1200	----	----	----
Hardness (as CaCO3), dissolved	----	EC100/VA	0.60	mg/L		202	248	----	----	----
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/VA	0.60	mg/L		204	269	----	----	----
pH	----	E108/VA	0.10	pH units		3.39	3.44	----	----	----
Solids, total dissolved [TDS]	----	E162/VA	10	mg/L		575	788	----	----	----
Solids, total suspended [TSS]	----	E160-L/VA	1.0	mg/L		<1.0	16.7	----	----	----
Anions and Nutrients										
Bromide	24959-67-9	E235.Br-U/VA	0.0050	mg/L		0.227	0.286	----	----	----
Chloride	16887-00-6	E235.Cl-L/VA	0.10	mg/L		19.5	26.0	----	----	----
Fluoride	16984-48-8	E235.F-L/VA	0.010	mg/L		0.196	0.230	----	----	----
Nitrate (as N)	14797-55-8	E235.NO3-T/VA	0.0030	mg/L		0.0497	0.0327	----	----	----
Nitrite (as N)	14797-65-0	E235.NO2-L/VA	0.0010	mg/L		0.0105	<0.0050 DLDS	----	----	----
Sulfate (as SO4)	14808-79-8	E235.SO4-L/VA	0.050	mg/L		339	483	----	----	----
Cyanides										
Cyanide, strong acid dissociable (Total)	----	E333/VA	0.0050	mg/L		0.0066	0.0163	----	----	----
Total Metals										
Aluminum, total	7429-90-5	E420/VA	0.0030	mg/L		3.52	4.17	----	----	----
Antimony, total	7440-36-0	E420/VA	0.00010	mg/L		<0.00010	<0.00010	----	----	----
Arsenic, total	7440-38-2	E420/VA	0.00010	mg/L		0.134	0.949	----	----	----
Barium, total	7440-39-3	E420/VA	0.00010	mg/L		0.0220	0.0270	----	----	----
Beryllium, total	7440-41-7	E420/VA	0.000100	mg/L		0.000426	0.000863	----	----	----
Bismuth, total	7440-69-9	E420/VA	0.000050	mg/L		<0.000050	<0.000050	----	----	----
Boron, total	7440-42-8	E420/VA	0.010	mg/L		0.064	0.146	----	----	----
Cadmium, total	7440-43-9	E420/VA	0.0000050	mg/L		0.000275	0.000812	----	----	----
Calcium, total	7440-70-2	E420/VA	0.050	mg/L		62.3	79.1	----	----	----
Cesium, total	7440-46-2	E420/VA	0.000010	mg/L		0.000076	0.000186	----	----	----

Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	C4-C	C4-E	----	----	----
					Client sampling date / time	30-Jul-2024 11:15	30-Jul-2024 12:35	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit		YL2401053-006	YL2401053-007	--------	--------	--------
						Result	Result	----	----	----
Total Metals										
Chromium, total	7440-47-3	E420/VA	0.00050	mg/L		0.00114	0.00218	----	----	----
Cobalt, total	7440-48-4	E420/VA	0.00010	mg/L		0.0879	0.142	----	----	----
Copper, total	7440-50-8	E420/VA	0.00050	mg/L		0.0988	0.114	----	----	----
Iron, total	7439-89-6	E420/VA	0.010	mg/L		4.85	38.1	----	----	----
Lead, total	7439-92-1	E420/VA	0.000050	mg/L		0.0547	0.0617	----	----	----
Lithium, total	7439-93-2	E420/VA	0.0010	mg/L		0.0492	0.0693	----	----	----
Magnesium, total	7439-95-4	E420/VA	0.0050	mg/L		11.9	17.4	----	----	----
Manganese, total	7439-96-5	E420/VA	0.00010	mg/L		1.53	2.30	----	----	----
Mercury, total	7439-97-6	E508/VA	0.0000050	mg/L		<0.0000050	<0.0000050	----	----	----
Molybdenum, total	7439-98-7	E420/VA	0.000050	mg/L		0.000075	0.000557	----	----	----
Nickel, total	7440-02-0	E420/VA	0.00050	mg/L		0.196	0.409	----	----	----
Phosphorus, total	7723-14-0	E420/VA	0.050	mg/L		<0.050	<0.050	----	----	----
Potassium, total	7440-09-7	E420/VA	0.050	mg/L		5.18	7.50	----	----	----
Rubidium, total	7440-17-7	E420/VA	0.00020	mg/L		0.00288	0.00459	----	----	----
Selenium, total	7782-49-2	E420/VA	0.000050	mg/L		0.000104	0.000262	----	----	----
Silicon, total	7440-21-3	E420/VA	0.10	mg/L		10.1	11.3	----	----	----
Silver, total	7440-22-4	E420/VA	0.000010	mg/L		<0.000010	0.000097	----	----	----
Sodium, total	7440-23-5	E420/VA	0.050	mg/L		36.5	111	----	----	----
Strontium, total	7440-24-6	E420/VA	0.00020	mg/L		0.361	0.439	----	----	----
Sulfur, total	7704-34-9	E420/VA	0.50	mg/L		128	243	----	----	----
Tellurium, total	13494-80-9	E420/VA	0.00020	mg/L		<0.00020	<0.00020	----	----	----
Thallium, total	7440-28-0	E420/VA	0.000010	mg/L		<0.000010	0.000036	----	----	----
Thorium, total	7440-29-1	E420/VA	0.00010	mg/L		<0.00010	<0.00020 DLM	----	----	----
Tin, total	7440-31-5	E420/VA	0.00010	mg/L		<0.00010	<0.00010	----	----	----
Titanium, total	7440-32-6	E420/VA	0.00030	mg/L		<0.00060 DLM	<0.00780 DLM	----	----	----
Tungsten, total	7440-33-7	E420/VA	0.00010	mg/L		<0.00010	0.00058	----	----	----
Uranium, total	7440-61-1	E420/VA	0.000010	mg/L		0.000907	0.00234	----	----	----
Vanadium, total	7440-62-2	E420/VA	0.00050	mg/L		<0.00050	0.00066	----	----	----
Zinc, total	7440-66-6	E420/VA	0.0030	mg/L		1.20	2.30	----	----	----
Zirconium, total	7440-67-7	E420/VA	0.00020	mg/L		<0.00020	<0.00020	----	----	----
Dissolved Metals										

Analytical Results

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

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	C4-C	C4-E	----	----	----
					Client sampling date / time	30-Jul-2024 11:15	30-Jul-2024 12:35	----	----	----
						YL2401053-006	YL2401053-007	--------	--------	--------
						Result	Result	----	----	----
Dissolved Metals										
Aluminum, dissolved	7429-90-5	E421/VA	0.0010	mg/L		3.69	4.15	----	----	----
Antimony, dissolved	7440-36-0	E421/VA	0.00010	mg/L		<0.00010	<0.00010	----	----	----
Arsenic, dissolved	7440-38-2	E421/VA	0.00010	mg/L		0.132	0.827	----	----	----
Barium, dissolved	7440-39-3	E421/VA	0.00010	mg/L		0.0220	0.0227	----	----	----
Beryllium, dissolved	7440-41-7	E421/VA	0.000100	mg/L		0.000428	0.000784	----	----	----
Bismuth, dissolved	7440-69-9	E421/VA	0.000050	mg/L		<0.000050	<0.000050	----	----	----
Boron, dissolved	7440-42-8	E421/VA	0.010	mg/L		0.055	0.115	----	----	----
Cadmium, dissolved	7440-43-9	E421/VA	0.0000050	mg/L		0.000278	0.000806	----	----	----
Calcium, dissolved	7440-70-2	E421/VA	0.050	mg/L		58.1	66.5	----	----	----
Cesium, dissolved	7440-46-2	E421/VA	0.000010	mg/L		0.000077	0.000105	----	----	----
Chromium, dissolved	7440-47-3	E421/VA	0.00050	mg/L		0.00112	0.00125	----	----	----
Cobalt, dissolved	7440-48-4	E421/VA	0.00010	mg/L		0.0868	0.142	----	----	----
Copper, dissolved	7440-50-8	E421/VA	0.00020	mg/L		0.0975	0.108	----	----	----
Iron, dissolved	7439-89-6	E421/VA	0.010	mg/L		4.81	33.7	----	----	----
Lead, dissolved	7439-92-1	E421/VA	0.000050	mg/L		0.0540	0.0586	----	----	----
Lithium, dissolved	7439-93-2	E421/VA	0.0010	mg/L		0.0469	0.0641	----	----	----
Magnesium, dissolved	7439-95-4	E421/VA	0.0050	mg/L		13.9	19.8	----	----	----
Manganese, dissolved	7439-96-5	E421/VA	0.00010	mg/L		1.70	2.55	----	----	----
Mercury, dissolved	7439-97-6	E509/VA	0.0000050	mg/L		<0.0000050	<0.0000050	----	----	----
Molybdenum, dissolved	7439-98-7	E421/VA	0.000050	mg/L		0.000072	0.000478	----	----	----
Nickel, dissolved	7440-02-0	E421/VA	0.00050	mg/L		0.201	0.430	----	----	----
Phosphorus, dissolved	7723-14-0	E421/VA	0.050	mg/L		<0.050	<0.050	----	----	----
Potassium, dissolved	7440-09-7	E421/VA	0.050	mg/L		5.32	8.20	----	----	----
Rubidium, dissolved	7440-17-7	E421/VA	0.00020	mg/L		0.00318	0.00449	----	----	----
Selenium, dissolved	7782-49-2	E421/VA	0.000050	mg/L		0.000081	0.000280	----	----	----
Silicon, dissolved	7440-21-3	E421/VA	0.050	mg/L		9.45	10.1	----	----	----
Silver, dissolved	7440-22-4	E421/VA	0.000010	mg/L		<0.000010	0.000105	----	----	----
Sodium, dissolved	7440-23-5	E421/VA	0.050	mg/L		38.7	111	----	----	----
Strontium, dissolved	7440-24-6	E421/VA	0.00020	mg/L		0.380	0.424	----	----	----
Sulfur, dissolved	7704-34-9	E421/VA	0.50	mg/L		113	206	----	----	----
Tellurium, dissolved	13494-80-9	E421/VA	0.00020	mg/L		<0.00020	<0.00020	----	----	----

Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	C4-C	C4-E	----	----	----
					Client sampling date / time	30-Jul-2024 11:15	30-Jul-2024 12:35	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit		YL2401053-006	YL2401053-007	--------	--------	--------
						Result	Result	----	----	----
Dissolved Metals										
Thallium, dissolved	7440-28-0	E421/VA	0.000010	mg/L		<0.000010	0.000031	----	----	----
Thorium, dissolved	7440-29-1	E421/VA	0.00010	mg/L		<0.00010	0.00010	----	----	----
Tin, dissolved	7440-31-5	E421/VA	0.00010	mg/L		<0.00010	<0.00010	----	----	----
Titanium, dissolved	7440-32-6	E421/VA	0.00030	mg/L		<0.00030	<0.00030	----	----	----
Tungsten, dissolved	7440-33-7	E421/VA	0.00010	mg/L		<0.00010	0.00024	----	----	----
Uranium, dissolved	7440-61-1	E421/VA	0.000010	mg/L		0.000890	0.00222	----	----	----
Vanadium, dissolved	7440-62-2	E421/VA	0.00050	mg/L		<0.00050	<0.00050	----	----	----
Zinc, dissolved	7440-66-6	E421/VA	0.0010	mg/L		1.26	2.38	----	----	----
Zirconium, dissolved	7440-67-7	E421/VA	0.00020	mg/L		<0.00020	<0.00020	----	----	----
Dissolved mercury filtration location	----	EP509/VA	-	-		Field	Field	----	----	----
Dissolved metals filtration location	----	EP421/VA	-	-		Field	Field	----	----	----

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

Please refer to the Accreditation section for an explanation of analyte accreditations.

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QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **YL2401053**	Page	: 1 of 21
Client	: **Elgin Mining Inc.**	Laboratory	: ALS Environmental - Yellowknife
Contact	: Jon Melnyk	Account Manager	: Oliver Gregg
Address	: 750 West Pender Street Suite 201 Vancouver BC Canada V6C 2T7	Address	: 314 Old Airport Road, Unit 116 Yellowknife, Northwest Territories Canada X1A 3T3
Telephone	: ----	Telephone	: 1 867 445 7143
Project	: Lupin Mine 2024	Date Samples Received	: 31-Jul-2024 16:30
PO	: ----	Issue Date	: 09-Aug-2024 07:40
C-O-C number	: ----		
Sampler	: ----		
Site	: ----		
Quote number	: YL23-ELMI100-001		
No. of samples received	: 7		
No. of samples analysed	: 7		

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

Key

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

Workorder Comments

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

Summary of Outliers

Outliers : Quality Control Samples

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

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

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

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Analysis Holding Time Compliance

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

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

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

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

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Bromide by IC (Ultra Trace Level)										
HDPE C4-A	E235.Br-U	30-Jul-2024	06-Aug-2024	28 days	7 days	✓	06-Aug-2024	28 days	7 days	✓
Anions and Nutrients : Bromide by IC (Ultra Trace Level)										
HDPE C4-B	E235.Br-U	30-Jul-2024	06-Aug-2024	28 days	7 days	✓	06-Aug-2024	28 days	7 days	✓
Anions and Nutrients : Bromide by IC (Ultra Trace Level)										
HDPE C4-C	E235.Br-U	30-Jul-2024	06-Aug-2024	28 days	7 days	✓	06-Aug-2024	28 days	7 days	✓
Anions and Nutrients : Bromide by IC (Ultra Trace Level)										
HDPE C4-E	E235.Br-U	30-Jul-2024	06-Aug-2024	28 days	7 days	✓	06-Aug-2024	28 days	7 days	✓
Anions and Nutrients : Bromide by IC (Ultra Trace Level)										
HDPE P1-A	E235.Br-U	30-Jul-2024	06-Aug-2024	28 days	7 days	✓	06-Aug-2024	28 days	7 days	✓
Anions and Nutrients : Bromide by IC (Ultra Trace Level)										
HDPE P1-B	E235.Br-U	30-Jul-2024	06-Aug-2024	28 days	7 days	✓	06-Aug-2024	28 days	7 days	✓
Anions and Nutrients : Bromide by IC (Ultra Trace Level)										
HDPE P1-D	E235.Br-U	30-Jul-2024	06-Aug-2024	28 days	7 days	✓	06-Aug-2024	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 (Low Level)										
HDPE C4-A	E235.Cl-L	30-Jul-2024	06-Aug-2024	28 days	7 days	✓	06-Aug-2024	28 days	7 days	✓
Anions and Nutrients : Chloride in Water by IC (Low Level)										
HDPE C4-B	E235.Cl-L	30-Jul-2024	06-Aug-2024	28 days	7 days	✓	06-Aug-2024	28 days	7 days	✓
Anions and Nutrients : Chloride in Water by IC (Low Level)										
HDPE C4-C	E235.Cl-L	30-Jul-2024	06-Aug-2024	28 days	7 days	✓	06-Aug-2024	28 days	7 days	✓
Anions and Nutrients : Chloride in Water by IC (Low Level)										
HDPE C4-E	E235.Cl-L	30-Jul-2024	06-Aug-2024	28 days	7 days	✓	06-Aug-2024	28 days	7 days	✓
Anions and Nutrients : Chloride in Water by IC (Low Level)										
HDPE P1-A	E235.Cl-L	30-Jul-2024	06-Aug-2024	28 days	7 days	✓	06-Aug-2024	28 days	7 days	✓
Anions and Nutrients : Chloride in Water by IC (Low Level)										
HDPE P1-B	E235.Cl-L	30-Jul-2024	06-Aug-2024	28 days	7 days	✓	06-Aug-2024	28 days	7 days	✓
Anions and Nutrients : Chloride in Water by IC (Low Level)										
HDPE P1-D	E235.Cl-L	30-Jul-2024	06-Aug-2024	28 days	7 days	✓	06-Aug-2024	28 days	7 days	✓
Anions and Nutrients : Fluoride in Water by IC (Low Level)										
HDPE C4-A	E235.F-L	30-Jul-2024	06-Aug-2024	28 days	7 days	✓	06-Aug-2024	28 days	7 days	✓
Anions and Nutrients : Fluoride in Water by IC (Low Level)										
HDPE C4-B	E235.F-L	30-Jul-2024	06-Aug-2024	28 days	7 days	✓	06-Aug-2024	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 : Fluoride in Water by IC (Low Level)										
HDPE C4-C	E235.F-L	30-Jul-2024	06-Aug-2024	28 days	7 days	✓	06-Aug-2024	28 days	7 days	✓
Anions and Nutrients : Fluoride in Water by IC (Low Level)										
HDPE C4-E	E235.F-L	30-Jul-2024	06-Aug-2024	28 days	7 days	✓	06-Aug-2024	28 days	7 days	✓
Anions and Nutrients : Fluoride in Water by IC (Low Level)										
HDPE P1-A	E235.F-L	30-Jul-2024	06-Aug-2024	28 days	7 days	✓	06-Aug-2024	28 days	7 days	✓
Anions and Nutrients : Fluoride in Water by IC (Low Level)										
HDPE P1-B	E235.F-L	30-Jul-2024	06-Aug-2024	28 days	7 days	✓	06-Aug-2024	28 days	7 days	✓
Anions and Nutrients : Fluoride in Water by IC (Low Level)										
HDPE P1-D	E235.F-L	30-Jul-2024	06-Aug-2024	28 days	7 days	✓	06-Aug-2024	28 days	7 days	✓
Anions and Nutrients : Nitrate in Water by IC (Trace Level)										
HDPE C4-A	E235.NO3-T	30-Jul-2024	06-Aug-2024	3 days	6 days	× EHT	06-Aug-2024	3 days	6 days	× EHT
Anions and Nutrients : Nitrate in Water by IC (Trace Level)										
HDPE C4-B	E235.NO3-T	30-Jul-2024	06-Aug-2024	3 days	6 days	× EHT	06-Aug-2024	3 days	6 days	× EHT
Anions and Nutrients : Nitrate in Water by IC (Trace Level)										
HDPE C4-E	E235.NO3-T	30-Jul-2024	06-Aug-2024	3 days	6 days	× EHT	06-Aug-2024	3 days	7 days	× EHT
Anions and Nutrients : Nitrate in Water by IC (Trace Level)										
HDPE C4-C	E235.NO3-T	30-Jul-2024	06-Aug-2024	3 days	7 days	× EHT	06-Aug-2024	3 days	7 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 Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Nitrate in Water by IC (Trace Level)										
HDPE P1-A	E235.NO3-T	30-Jul-2024	06-Aug-2024	3 days	7 days	× EHT	06-Aug-2024	3 days	7 days	× EHT
Anions and Nutrients : Nitrate in Water by IC (Trace Level)										
HDPE P1-B	E235.NO3-T	30-Jul-2024	06-Aug-2024	3 days	7 days	× EHT	06-Aug-2024	3 days	7 days	× EHT
Anions and Nutrients : Nitrate in Water by IC (Trace Level)										
HDPE P1-D	E235.NO3-T	30-Jul-2024	06-Aug-2024	3 days	7 days	× EHT	06-Aug-2024	3 days	7 days	× EHT
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE C4-A	E235.NO2-L	30-Jul-2024	06-Aug-2024	3 days	6 days	× EHT	06-Aug-2024	3 days	6 days	× EHT
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE C4-B	E235.NO2-L	30-Jul-2024	06-Aug-2024	3 days	6 days	× EHT	06-Aug-2024	3 days	6 days	× EHT
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE C4-E	E235.NO2-L	30-Jul-2024	06-Aug-2024	3 days	6 days	× EHT	06-Aug-2024	3 days	7 days	× EHT
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE C4-C	E235.NO2-L	30-Jul-2024	06-Aug-2024	3 days	7 days	× EHT	06-Aug-2024	3 days	7 days	× EHT
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE P1-A	E235.NO2-L	30-Jul-2024	06-Aug-2024	3 days	7 days	× EHT	06-Aug-2024	3 days	7 days	× EHT
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE P1-B	E235.NO2-L	30-Jul-2024	06-Aug-2024	3 days	7 days	× EHT	06-Aug-2024	3 days	7 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	
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
P1-D	E235.NO2-L	30-Jul-2024	06-Aug-2024	3 days	7 days	× EHT	06-Aug-2024	3 days	7 days	× EHT
Anions and Nutrients : Sulfate in Water by IC (Low Level)										
HDPE										
C4-A	E235.SO4-L	30-Jul-2024	06-Aug-2024	28 days	7 days	✓	06-Aug-2024	28 days	7 days	✓
Anions and Nutrients : Sulfate in Water by IC (Low Level)										
HDPE										
C4-B	E235.SO4-L	30-Jul-2024	06-Aug-2024	28 days	7 days	✓	06-Aug-2024	28 days	7 days	✓
Anions and Nutrients : Sulfate in Water by IC (Low Level)										
HDPE										
C4-C	E235.SO4-L	30-Jul-2024	06-Aug-2024	28 days	7 days	✓	06-Aug-2024	28 days	7 days	✓
Anions and Nutrients : Sulfate in Water by IC (Low Level)										
HDPE										
C4-E	E235.SO4-L	30-Jul-2024	06-Aug-2024	28 days	7 days	✓	06-Aug-2024	28 days	7 days	✓
Anions and Nutrients : Sulfate in Water by IC (Low Level)										
HDPE										
P1-A	E235.SO4-L	30-Jul-2024	06-Aug-2024	28 days	7 days	✓	06-Aug-2024	28 days	7 days	✓
Anions and Nutrients : Sulfate in Water by IC (Low Level)										
HDPE										
P1-B	E235.SO4-L	30-Jul-2024	06-Aug-2024	28 days	7 days	✓	06-Aug-2024	28 days	7 days	✓
Anions and Nutrients : Sulfate in Water by IC (Low Level)										
HDPE										
P1-D	E235.SO4-L	30-Jul-2024	06-Aug-2024	28 days	7 days	✓	06-Aug-2024	28 days	7 days	✓
Cyanides : Total Cyanide										
UV-inhibited HDPE - total (sodium hydroxide)										
C4-A	E333	30-Jul-2024	07-Aug-2024	14 days	8 days	✓	07-Aug-2024	14 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
Cyanides : Total Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) C4-B	E333	30-Jul-2024	07-Aug-2024	14 days	8 days	✓	07-Aug-2024	14 days	8 days	✓
Cyanides : Total Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) C4-C	E333	30-Jul-2024	07-Aug-2024	14 days	8 days	✓	07-Aug-2024	14 days	8 days	✓
Cyanides : Total Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) C4-E	E333	30-Jul-2024	07-Aug-2024	14 days	8 days	✓	07-Aug-2024	14 days	8 days	✓
Cyanides : Total Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) P1-A	E333	30-Jul-2024	07-Aug-2024	14 days	8 days	✓	07-Aug-2024	14 days	8 days	✓
Cyanides : Total Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) P1-B	E333	30-Jul-2024	07-Aug-2024	14 days	8 days	✓	07-Aug-2024	14 days	8 days	✓
Cyanides : Total Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) P1-D	E333	30-Jul-2024	07-Aug-2024	14 days	8 days	✓	07-Aug-2024	14 days	8 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid) C4-A	E509	30-Jul-2024	07-Aug-2024	28 days	8 days	✓	07-Aug-2024	28 days	8 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid) C4-B	E509	30-Jul-2024	07-Aug-2024	28 days	8 days	✓	07-Aug-2024	28 days	8 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid) C4-C	E509	30-Jul-2024	07-Aug-2024	28 days	8 days	✓	07-Aug-2024	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		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)										
C4-E	E509	30-Jul-2024	07-Aug-2024	28 days	8 days	✓	07-Aug-2024	28 days	8 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)										
P1-A	E509	30-Jul-2024	07-Aug-2024	28 days	8 days	✓	07-Aug-2024	28 days	8 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)										
P1-B	E509	30-Jul-2024	07-Aug-2024	28 days	8 days	✓	07-Aug-2024	28 days	8 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)										
P1-D	E509	30-Jul-2024	07-Aug-2024	28 days	8 days	✓	07-Aug-2024	28 days	8 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
C4-A	E421	30-Jul-2024	07-Aug-2024	180 days	8 days	✓	08-Aug-2024	180 days	9 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
C4-B	E421	30-Jul-2024	07-Aug-2024	180 days	8 days	✓	08-Aug-2024	180 days	9 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
C4-C	E421	30-Jul-2024	07-Aug-2024	180 days	8 days	✓	08-Aug-2024	180 days	9 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
C4-E	E421	30-Jul-2024	07-Aug-2024	180 days	8 days	✓	08-Aug-2024	180 days	9 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
P1-A	E421	30-Jul-2024	07-Aug-2024	180 days	8 days	✓	08-Aug-2024	180 days	9 days	✓

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) P1-B	E421	30-Jul-2024	07-Aug-2024	180 days	8 days	✓	08-Aug-2024	180 days	9 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) P1-D	E421	30-Jul-2024	07-Aug-2024	180 days	8 days	✓	08-Aug-2024	180 days	9 days	✓
Physical Tests : Acidity by Titration										
HDPE C4-A	E283	30-Jul-2024	06-Aug-2024	14 days	7 days	✓	06-Aug-2024	14 days	7 days	✓
Physical Tests : Acidity by Titration										
HDPE C4-B	E283	30-Jul-2024	06-Aug-2024	14 days	7 days	✓	06-Aug-2024	14 days	7 days	✓
Physical Tests : Acidity by Titration										
HDPE C4-C	E283	30-Jul-2024	06-Aug-2024	14 days	7 days	✓	06-Aug-2024	14 days	7 days	✓
Physical Tests : Acidity by Titration										
HDPE C4-E	E283	30-Jul-2024	06-Aug-2024	14 days	7 days	✓	06-Aug-2024	14 days	7 days	✓
Physical Tests : Acidity by Titration										
HDPE P1-A	E283	30-Jul-2024	06-Aug-2024	14 days	7 days	✓	06-Aug-2024	14 days	7 days	✓
Physical Tests : Acidity by Titration										
HDPE P1-B	E283	30-Jul-2024	06-Aug-2024	14 days	7 days	✓	06-Aug-2024	14 days	7 days	✓
Physical Tests : Acidity by Titration										
HDPE P1-D	E283	30-Jul-2024	06-Aug-2024	14 days	7 days	✓	06-Aug-2024	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 C4-A	E290	30-Jul-2024	06-Aug-2024	14 days	7 days	✓	06-Aug-2024	14 days	7 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE C4-B	E290	30-Jul-2024	06-Aug-2024	14 days	7 days	✓	06-Aug-2024	14 days	7 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE C4-C	E290	30-Jul-2024	06-Aug-2024	14 days	7 days	✓	06-Aug-2024	14 days	7 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE C4-E	E290	30-Jul-2024	06-Aug-2024	14 days	7 days	✓	06-Aug-2024	14 days	7 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE P1-A	E290	30-Jul-2024	06-Aug-2024	14 days	7 days	✓	06-Aug-2024	14 days	7 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE P1-B	E290	30-Jul-2024	06-Aug-2024	14 days	7 days	✓	06-Aug-2024	14 days	7 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE P1-D	E290	30-Jul-2024	06-Aug-2024	14 days	7 days	✓	06-Aug-2024	14 days	7 days	✓
Physical Tests : Conductivity in Water										
HDPE C4-A	E100	30-Jul-2024	06-Aug-2024	28 days	7 days	✓	06-Aug-2024	28 days	7 days	✓
Physical Tests : Conductivity in Water										
HDPE C4-B	E100	30-Jul-2024	06-Aug-2024	28 days	7 days	✓	06-Aug-2024	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
Physical Tests : Conductivity in Water										
HDPE C4-C	E100	30-Jul-2024	06-Aug-2024	28 days	7 days	✓	06-Aug-2024	28 days	7 days	✓
Physical Tests : Conductivity in Water										
HDPE C4-E	E100	30-Jul-2024	06-Aug-2024	28 days	7 days	✓	06-Aug-2024	28 days	7 days	✓
Physical Tests : Conductivity in Water										
HDPE P1-A	E100	30-Jul-2024	06-Aug-2024	28 days	7 days	✓	06-Aug-2024	28 days	7 days	✓
Physical Tests : Conductivity in Water										
HDPE P1-B	E100	30-Jul-2024	06-Aug-2024	28 days	7 days	✓	06-Aug-2024	28 days	7 days	✓
Physical Tests : Conductivity in Water										
HDPE P1-D	E100	30-Jul-2024	06-Aug-2024	28 days	7 days	✓	06-Aug-2024	28 days	7 days	✓
Physical Tests : pH by Meter										
HDPE C4-A	E108	30-Jul-2024	06-Aug-2024	0.25 hrs	165 hrs	× EHTR-FM	06-Aug-2024	0.25 hrs	168 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE C4-B	E108	30-Jul-2024	06-Aug-2024	0.25 hrs	165 hrs	× EHTR-FM	06-Aug-2024	0.25 hrs	168 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE C4-E	E108	30-Jul-2024	06-Aug-2024	0.25 hrs	168 hrs	× EHTR-FM	06-Aug-2024	0.25 hrs	170 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE P1-D	E108	30-Jul-2024	06-Aug-2024	0.25 hrs	168 hrs	× EHTR-FM	06-Aug-2024	0.25 hrs	171 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 C4-C	E108	30-Jul-2024	06-Aug-2024	0.25 hrs	169 hrs	× EHTR-FM	06-Aug-2024	0.25 hrs	172 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE P1-A	E108	30-Jul-2024	06-Aug-2024	0.25 hrs	169 hrs	× EHTR-FM	06-Aug-2024	0.25 hrs	172 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE P1-B	E108	30-Jul-2024	06-Aug-2024	0.25 hrs	170 hrs	× EHTR-FM	06-Aug-2024	0.25 hrs	172 hrs	× EHTR-FM
Physical Tests : TDS by Gravimetry										
HDPE C4-A	E162	30-Jul-2024	----	----	----		06-Aug-2024	7 days	7 days	✓
Physical Tests : TDS by Gravimetry										
HDPE C4-B	E162	30-Jul-2024	----	----	----		06-Aug-2024	7 days	7 days	✓
Physical Tests : TDS by Gravimetry										
HDPE C4-C	E162	30-Jul-2024	----	----	----		06-Aug-2024	7 days	7 days	✓
Physical Tests : TDS by Gravimetry										
HDPE C4-E	E162	30-Jul-2024	----	----	----		06-Aug-2024	7 days	7 days	✓
Physical Tests : TDS by Gravimetry										
HDPE P1-A	E162	30-Jul-2024	----	----	----		06-Aug-2024	7 days	7 days	✓
Physical Tests : TDS by Gravimetry										
HDPE P1-B	E162	30-Jul-2024	----	----	----		06-Aug-2024	7 days	7 days	✓

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : TDS by Gravimetry										
HDPE P1-D	E162	30-Jul-2024	----	----	----		06-Aug-2024	7 days	7 days	✓
Physical Tests : TSS by Gravimetry (Low Level)										
HDPE [TSS-WB] C4-A	E160-L	30-Jul-2024	----	----	----		06-Aug-2024	7 days	7 days	✓
Physical Tests : TSS by Gravimetry (Low Level)										
HDPE [TSS-WB] C4-B	E160-L	30-Jul-2024	----	----	----		06-Aug-2024	7 days	7 days	✓
Physical Tests : TSS by Gravimetry (Low Level)										
HDPE [TSS-WB] C4-C	E160-L	30-Jul-2024	----	----	----		06-Aug-2024	7 days	7 days	✓
Physical Tests : TSS by Gravimetry (Low Level)										
HDPE [TSS-WB] C4-E	E160-L	30-Jul-2024	----	----	----		06-Aug-2024	7 days	7 days	✓
Physical Tests : TSS by Gravimetry (Low Level)										
HDPE [TSS-WB] P1-A	E160-L	30-Jul-2024	----	----	----		06-Aug-2024	7 days	7 days	✓
Physical Tests : TSS by Gravimetry (Low Level)										
HDPE [TSS-WB] P1-B	E160-L	30-Jul-2024	----	----	----		06-Aug-2024	7 days	7 days	✓
Physical Tests : TSS by Gravimetry (Low Level)										
HDPE [TSS-WB] P1-D	E160-L	30-Jul-2024	----	----	----		06-Aug-2024	7 days	7 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid) C4-A	E508	30-Jul-2024	07-Aug-2024	28 days	8 days	✓	07-Aug-2024	28 days	8 days	✓

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid) C4-B	E508	30-Jul-2024	07-Aug-2024	28 days	8 days	✓	07-Aug-2024	28 days	8 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid) C4-C	E508	30-Jul-2024	07-Aug-2024	28 days	8 days	✓	07-Aug-2024	28 days	8 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid) C4-E	E508	30-Jul-2024	07-Aug-2024	28 days	8 days	✓	07-Aug-2024	28 days	8 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid) P1-A	E508	30-Jul-2024	07-Aug-2024	28 days	8 days	✓	07-Aug-2024	28 days	8 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid) P1-B	E508	30-Jul-2024	07-Aug-2024	28 days	8 days	✓	07-Aug-2024	28 days	8 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid) P1-D	E508	30-Jul-2024	07-Aug-2024	28 days	8 days	✓	07-Aug-2024	28 days	8 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) P1-A	E420	30-Jul-2024	07-Aug-2024	180 days	8 days	✓	07-Aug-2024	180 days	8 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) P1-D	E420	30-Jul-2024	07-Aug-2024	180 days	8 days	✓	07-Aug-2024	180 days	8 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) C4-A	E420	30-Jul-2024	07-Aug-2024	180 days	8 days	✓	08-Aug-2024	180 days	9 days	✓

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	*Method*	*Sampling Date*	*Extraction / Preparation*				*Analysis*			
			Preparation Date	*Holding Times*		*Eval*	*Analysis Date*	*Holding Times*		*Eval*
				Rec	*Actual*			*Rec*	*Actual*	
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) C4-B	E420	30-Jul-2024	07-Aug-2024	180 days	8 days	✓	08-Aug-2024	180 days	9 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) C4-C	E420	30-Jul-2024	07-Aug-2024	180 days	8 days	✓	08-Aug-2024	180 days	9 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) C4-E	E420	30-Jul-2024	07-Aug-2024	180 days	8 days	✓	08-Aug-2024	180 days	9 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) P1-B	E420	30-Jul-2024	07-Aug-2024	180 days	8 days	✓	08-Aug-2024	180 days	9 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)							
Acidity by Titration	E283	1581046	1	10	10.0	5.0	✓
Alkalinity Species by Titration	E290	1581033	1	11	9.0	5.0	✓
Bromide by IC (Ultra Trace Level)	E235.Br-U	1581044	1	8	12.5	5.0	✓
Chloride in Water by IC (Low Level)	E235.Cl-L	1581041	1	8	12.5	5.0	✓
Conductivity in Water	E100	1581034	1	20	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1583864	1	15	6.6	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1581209	1	19	5.2	5.0	✓
Fluoride in Water by IC (Low Level)	E235.F-L	1581042	1	8	12.5	5.0	✓
Nitrate in Water by IC (Trace Level)	E235.NO3-T	1581043	1	8	12.5	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1581039	1	20	5.0	5.0	✓
pH by Meter	E108	1581032	1	20	5.0	5.0	✓
Sulfate in Water by IC (Low Level)	E235.SO4-L	1581045	1	8	12.5	5.0	✓
TDS by Gravimetry	E162	1581361	2	21	9.5	5.0	✓
Total Cyanide	E333	1582921	1	16	6.2	5.0	✓
Total Mercury in Water by CVAAS	E508	1582948	1	13	7.6	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1581165	1	20	5.0	5.0	✓
Laboratory Control Samples (LCS)							
Acidity by Titration	E283	1581046	1	10	10.0	5.0	✓
Alkalinity Species by Titration	E290	1581033	1	11	9.0	5.0	✓
Bromide by IC (Ultra Trace Level)	E235.Br-U	1581044	1	8	12.5	5.0	✓
Chloride in Water by IC (Low Level)	E235.Cl-L	1581041	1	8	12.5	5.0	✓
Conductivity in Water	E100	1581034	1	20	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1583864	1	15	6.6	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1581209	1	19	5.2	5.0	✓
Fluoride in Water by IC (Low Level)	E235.F-L	1581042	1	8	12.5	5.0	✓
Nitrate in Water by IC (Trace Level)	E235.NO3-T	1581043	1	8	12.5	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1581039	1	20	5.0	5.0	✓
pH by Meter	E108	1581032	1	20	5.0	5.0	✓
Sulfate in Water by IC (Low Level)	E235.SO4-L	1581045	1	8	12.5	5.0	✓
TDS by Gravimetry	E162	1581361	2	21	9.5	5.0	✓
Total Cyanide	E333	1582921	1	16	6.2	5.0	✓
Total Mercury in Water by CVAAS	E508	1582948	1	13	7.6	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1581165	1	20	5.0	5.0	✓
TSS by Gravimetry (Low Level)	E160-L	1581358	2	21	9.5	5.0	✓
Method Blanks (MB)							

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							
Acidity by Titration	E283	1581046	1	10	10.0	5.0	✓
Alkalinity Species by Titration	E290	1581033	1	11	9.0	5.0	✓
Bromide by IC (Ultra Trace Level)	E235.Br-U	1581044	1	8	12.5	5.0	✓
Chloride in Water by IC (Low Level)	E235.Cl-L	1581041	1	8	12.5	5.0	✓
Conductivity in Water	E100	1581034	1	20	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1583864	1	15	6.6	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1581209	1	19	5.2	5.0	✓
Fluoride in Water by IC (Low Level)	E235.F-L	1581042	1	8	12.5	5.0	✓
Nitrate in Water by IC (Trace Level)	E235.NO3-T	1581043	1	8	12.5	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1581039	1	20	5.0	5.0	✓
Sulfate in Water by IC (Low Level)	E235.SO4-L	1581045	1	8	12.5	5.0	✓
TDS by Gravimetry	E162	1581361	2	21	9.5	5.0	✓
Total Cyanide	E333	1582921	1	16	6.2	5.0	✓
Total Mercury in Water by CVAAS	E508	1582948	1	13	7.6	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1581165	1	20	5.0	5.0	✓
TSS by Gravimetry (Low Level)	E160-L	1581358	2	21	9.5	5.0	✓
Matrix Spikes (MS)							
Bromide by IC (Ultra Trace Level)	E235.Br-U	1581044	1	8	12.5	5.0	✓
Chloride in Water by IC (Low Level)	E235.Cl-L	1581041	1	8	12.5	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1583864	1	15	6.6	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1581209	1	19	5.2	5.0	✓
Fluoride in Water by IC (Low Level)	E235.F-L	1581042	1	8	12.5	5.0	✓
Nitrate in Water by IC (Trace Level)	E235.NO3-T	1581043	1	8	12.5	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1581039	1	20	5.0	5.0	✓
Sulfate in Water by IC (Low Level)	E235.SO4-L	1581045	1	8	12.5	5.0	✓
Total Cyanide	E333	1582921	1	16	6.2	5.0	✓
Total Mercury in Water by CVAAS	E508	1582948	1	13	7.6	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1581165	1	20	5.0	5.0	✓

Methodology References and Summaries

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

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Conductivity in Water	E100 ALS Environmental - Vancouver	Water	APHA 2510 (mod)	Conductivity, also known as Electrical Conductivity (EC) or Specific Conductance, is measured by immersion of a conductivity cell with platinum electrodes into a water sample. Conductivity measurements are temperature-compensated to 25°C.
pH by Meter	E108 ALS Environmental - Vancouver	Water	APHA 4500-H (mod)	pH is determined by potentiometric measurement with a pH electrode, and is conducted at ambient laboratory temperature (normally 20 ± 5°C). For high accuracy test results, pH should be measured in the field within the recommended 15 minute hold time.
TSS by Gravimetry (Low Level)	E160-L 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 by IC (Ultra Trace Level)	E235.Br-U 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 (Low Level)	E235.Cl-L 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 (Low Level)	E235.F-L 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 (Trace Level)	E235.NO3-T ALS Environmental - Vancouver	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Sulfate in Water by IC (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.
Acidity by Titration	E283 ALS Environmental - Vancouver	Water	APHA 2310 B (mod)	Acidity is determined by potentiometric titration to pH endpoint of 8.3
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.
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).
Total Metals in Water by CRC ICPMS	E420 ALS Environmental - Vancouver	Water	EPA 200.2/6020B (mod)	Water samples are digested with nitric and hydrochloric acids, and analyzed by Collision/Reaction Cell ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
Dissolved Metals in Water by CRC ICPMS	E421 ALS Environmental - Vancouver	Water	APHA 3030B/EPA 6020B (mod)	Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by Collision/Reaction Cell ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
Total Mercury in Water by CVAAS	E508 ALS Environmental - Vancouver	Water	EPA 1631E (mod)	Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS
Dissolved Mercury in Water by CVAAS	E509 ALS Environmental - Vancouver	Water	APHA 3030B/EPA 1631E (mod)	Water samples are filtered (0.45 um), preserved with HCl, then undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS.
Dissolved Hardness (Calculated)	EC100 ALS Environmental - Vancouver	Water	APHA 2340B	“Hardness (as CaCO3), dissolved” is calculated from the sum of dissolved Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. “Total Hardness” refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because it is a property of water due to dissolved divalent cations.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Hardness (Calculated) from Total Ca/Mg	EC100A ALS Environmental - Vancouver	Water	APHA 2340B	"Hardness (as CaCO3), from total Ca/Mg" is calculated from the sum of total Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. "Total Hardness" refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because it is a property of water due to dissolved divalent cations. Hardness from total Ca/Mg is normally comparable to Dissolved Hardness in non-turbid waters.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Dissolved Metals Water Filtration	EP421 ALS Environmental - Vancouver	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HNO3.
Dissolved Mercury Water Filtration	EP509 ALS Environmental - Vancouver	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HCl.

QUALITY CONTROL REPORT

Work Order	: **YL2401053**	Page	: 1 of 17
Client	: Elgin Mining Inc.	Laboratory	: ALS Environmental - Yellowknife
Contact	: Jon Melnyk	Account Manager	: Oliver Gregg
Address	: 750 West Pender Street Suite 201 Vancouver BC Canada V6C 2T7	Address	: 314 Old Airport Road, Unit 116 Yellowknife, Northwest Territories Canada X1A 3T3
Telephone	: ----	Telephone	: 1 867 445 7143
Project	: Lupin Mine 2024	Date Samples Received	: 31-Jul-2024 16:30
PO	: ----	Date Analysis Commenced	: 06-Aug-2024
C-O-C number	: ----	Issue Date	: 09-Aug-2024 07:39
Sampler	: ----		
Site	: ----		
Quote number	: YL23-ELMI100-001		
No. of samples received	: 7		
No. of samples analysed	: 7		

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

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percent Difference (RPD) and Data Quality Objectives
- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

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

Signatories	*Position*	*Laboratory Department*
Angelo Salandanan	Lab Assistant	Vancouver Metals, Burnaby, British Columbia
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Leon Yang	Analyst	Vancouver Inorganics, Burnaby, British Columbia
Robin Weeks	Team Leader - Metals	Vancouver Metals, Burnaby, British Columbia
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General Comments

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

Key :

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

Workorder Comments

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

Laboratory Duplicate (DUP) Report

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

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Physical Tests (QC Lot: 1581032)											
VA24B9060-003	Anonymous	pH	----	E108	0.10	pH units	7.83	7.83	0.00%	4%	----
Physical Tests (QC Lot: 1581033)											
VA24B9060-003	Anonymous	Alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	166	168	0.907%	20%	----
Physical Tests (QC Lot: 1581034)											
VA24B9060-003	Anonymous	Conductivity	----	E100	2.0	µS/cm	382	383	0.261%	10%	----
Physical Tests (QC Lot: 1581046)											
VA24B9060-002	Anonymous	Acidity (as CaCO3)	----	E283	2.0	mg/L	3.7	4.2	0.5	Diff <2x LOR	----
Physical Tests (QC Lot: 1581361)											
VA24B8824-001	Anonymous	Solids, total dissolved [TDS]	----	E162	20	mg/L	1900	2040	7.14%	20%	----
Physical Tests (QC Lot: 1581362)											
YL2401053-007	C4-E	Solids, total dissolved [TDS]	----	E162	20	mg/L	788	824	4.53%	20%	----
Anions and Nutrients (QC Lot: 1581039)											
VA24B9060-001	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	0.0042	0.0041	0.00004	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1581041)											
YL2401051-001	Anonymous	Chloride	16887-00-6	E235.Cl-L	1.00	mg/L	518	519	0.348%	20%	----
Anions and Nutrients (QC Lot: 1581042)											
YL2401051-001	Anonymous	Fluoride	16984-48-8	E235.F-L	0.100	mg/L	0.186	0.189	0.002	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1581043)											
YL2401051-001	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3-T	0.0300	mg/L	11.2	11.2	0.501%	20%	----
Anions and Nutrients (QC Lot: 1581044)											
YL2401051-001	Anonymous	Bromide	24959-67-9	E235.Br-U	0.0500	mg/L	4.42	4.45	0.490%	20%	----
Anions and Nutrients (QC Lot: 1581045)											
YL2401051-001	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4-L	0.500	mg/L	97.6	98.7	1.08%	20%	----
Cyanides (QC Lot: 1582921)											
YL2401027-002	Anonymous	Cyanide, strong acid dissociable (Total)	----	E333	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
Total Metals (QC Lot: 1581165)											
YL2401051-001	Anonymous	Aluminum, total	7429-90-5	E420	0.0030	mg/L	0.150	0.154	2.77%	20%	----
		Antimony, total	7440-36-0	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Arsenic, total	7440-38-2	E420	0.00010	mg/L	0.00038	0.00040	0.00001	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Total Metals (QC Lot: 1581165) - continued											
YL2401051-001	Anonymous	Barium, total	7440-39-3	E420	0.00010	mg/L	0.185	0.190	2.97%	20%	----
		Beryllium, total	7440-41-7	E420	0.000020	mg/L	<0.000020	<0.000020	0	Diff <2x LOR	----
		Bismuth, total	7440-69-9	E420	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Boron, total	7440-42-8	E420	0.010	mg/L	1.11	1.11	0.351%	20%	----
		Cadmium, total	7440-43-9	E420	0.0000050	mg/L	0.000256	0.000245	4.29%	20%	----
		Calcium, total	7440-70-2	E420	0.050	mg/L	183	185	1.04%	20%	----
		Cesium, total	7440-46-2	E420	0.000010	mg/L	0.000056	0.000059	0.000003	Diff <2x LOR	----
		Chromium, total	7440-47-3	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Cobalt, total	7440-48-4	E420	0.00010	mg/L	0.00492	0.00487	0.914%	20%	----
		Copper, total	7440-50-8	E420	0.00050	mg/L	0.00133	0.00135	0.00002	Diff <2x LOR	----
		Iron, total	7439-89-6	E420	0.010	mg/L	0.312	0.326	4.66%	20%	----
		Lead, total	7439-92-1	E420	0.000050	mg/L	0.000059	0.000061	0.000002	Diff <2x LOR	----
		Lithium, total	7439-93-2	E420	0.0010	mg/L	0.0127	0.0135	6.26%	20%	----
		Magnesium, total	7439-95-4	E420	0.0050	mg/L	44.0	43.1	1.93%	20%	----
		Manganese, total	7439-96-5	E420	0.00010	mg/L	0.592	0.598	0.907%	20%	----
		Molybdenum, total	7439-98-7	E420	0.000050	mg/L	0.00410	0.00411	0.353%	20%	----
		Nickel, total	7440-02-0	E420	0.00050	mg/L	0.0180	0.0183	1.42%	20%	----
		Phosphorus, total	7723-14-0	E420	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Potassium, total	7440-09-7	E420	0.050	mg/L	29.9	29.7	0.634%	20%	----
		Rubidium, total	7440-17-7	E420	0.00020	mg/L	0.0228	0.0236	3.31%	20%	----
		Selenium, total	7782-49-2	E420	0.000050	mg/L	0.000212	0.000220	0.000008	Diff <2x LOR	----
		Silicon, total	7440-21-3	E420	0.10	mg/L	4.68	4.74	1.08%	20%	----
		Silver, total	7440-22-4	E420	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Sodium, total	7440-23-5	E420	0.050	mg/L	104	105	0.917%	20%	----
		Strontium, total	7440-24-6	E420	0.00020	mg/L	1.94	1.97	1.64%	20%	----
		Sulfur, total	7704-34-9	E420	0.50	mg/L	39.9	40.8	2.12%	20%	----
		Thallium, total	7440-28-0	E420	0.000010	mg/L	0.000107	0.000109	1.57%	20%	----
		Thorium, total	7440-29-1	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Tin, total	7440-31-5	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Titanium, total	7440-32-6	E420	0.00030	mg/L	0.00606	0.00728	18.3%	20%	----
		Tungsten, total	7440-33-7	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Uranium, total	7440-61-1	E420	0.000010	mg/L	0.000791	0.000812	2.58%	20%	----
		Vanadium, total	7440-62-2	E420	0.00050	mg/L	<0.00050	0.00050	0.000005	Diff <2x LOR	----
		Zinc, total	7440-66-6	E420	0.0030	mg/L	0.0123	0.0122	0.00008	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Total Metals (QC Lot: 1581165) - continued											
YL2401051-001	Anonymous	Zirconium, total	7440-67-7	E420	0.00020	mg/L	<0.00040	<0.00020	0.00020	Diff <2x LOR	----
Total Metals (QC Lot: 1582948)											
VA24B8966-004	Anonymous	Mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1581209)											
YL2401075-001	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	0.0076	0.0079	0.0003	Diff <2x LOR	----
		Antimony, dissolved	7440-36-0	E421	0.00010	mg/L	0.00432	0.00431	0.211%	20%	----
		Arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	0.123	0.123	0.268%	20%	----
		Barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.0388	0.0376	2.91%	20%	----
		Beryllium, dissolved	7440-41-7	E421	0.000100	mg/L	<0.000100	<0.000100	0	Diff <2x LOR	----
		Bismuth, dissolved	7440-69-9	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Boron, dissolved	7440-42-8	E421	0.010	mg/L	0.024	0.024	0.0001	Diff <2x LOR	----
		Cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
		Calcium, dissolved	7440-70-2	E421	0.050	mg/L	59.8	59.4	0.763%	20%	----
		Cesium, dissolved	7440-46-2	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Chromium, dissolved	7440-47-3	E421	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Cobalt, dissolved	7440-48-4	E421	0.00010	mg/L	0.00260	0.00252	3.00%	20%	----
		Copper, dissolved	7440-50-8	E421	0.00020	mg/L	0.00026	0.00025	0.00001	Diff <2x LOR	----
		Iron, dissolved	7439-89-6	E421	0.010	mg/L	0.029	0.030	0.0002	Diff <2x LOR	----
		Lead, dissolved	7439-92-1	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Lithium, dissolved	7439-93-2	E421	0.0010	mg/L	0.0129	0.0131	1.19%	20%	----
		Magnesium, dissolved	7439-95-4	E421	0.0050	mg/L	40.9	41.5	1.50%	20%	----
		Manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.0143	0.0146	1.73%	20%	----
		Molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.000603	0.000600	0.405%	20%	----
		Nickel, dissolved	7440-02-0	E421	0.00050	mg/L	0.00076	0.00074	0.00002	Diff <2x LOR	----
		Phosphorus, dissolved	7723-14-0	E421	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Potassium, dissolved	7440-09-7	E421	0.050	mg/L	5.01	5.15	2.77%	20%	----
		Rubidium, dissolved	7440-17-7	E421	0.00020	mg/L	0.00253	0.00271	6.81%	20%	----
		Selenium, dissolved	7782-49-2	E421	0.000050	mg/L	0.000064	0.000053	0.000010	Diff <2x LOR	----
		Silicon, dissolved	7440-21-3	E421	0.050	mg/L	1.27	1.24	2.15%	20%	----
		Silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Sodium, dissolved	7440-23-5	E421	0.050	mg/L	38.3	39.6	3.19%	20%	----
		Strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.341	0.326	4.58%	20%	----
		Sulfur, dissolved	7704-34-9	E421	0.50	mg/L	48.0	45.5	5.37%	20%	----
		Tellurium, dissolved	13494-80-9	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Dissolved Metals (QC Lot: 1581209) - continued											
YL2401075-001	Anonymous	Thallium, dissolved	7440-28-0	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Thorium, dissolved	7440-29-1	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Tin, dissolved	7440-31-5	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Titanium, dissolved	7440-32-6	E421	0.00030	mg/L	0.00031	<0.00030	0.00001	Diff <2x LOR	----
		Tungsten, dissolved	7440-33-7	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Uranium, dissolved	7440-61-1	E421	0.000010	mg/L	0.000987	0.000994	0.720%	20%	----
		Vanadium, dissolved	7440-62-2	E421	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Zinc, dissolved	7440-66-6	E421	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		Zirconium, dissolved	7440-67-7	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1583864)											
VA24B9451-001	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----

Method Blank (MB) Report

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

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 1581033)						
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	<1.0	----
Physical Tests (QCLot: 1581034)						
Conductivity	----	E100	1	µS/cm	<1.0	----
Physical Tests (QCLot: 1581046)						
Acidity (as CaCO3)	----	E283	2	mg/L	<2.0	----
Physical Tests (QCLot: 1581358)						
Solids, total suspended [TSS]	----	E160-L	1	mg/L	<1.0	----
Physical Tests (QCLot: 1581359)						
Solids, total suspended [TSS]	----	E160-L	1	mg/L	<1.0	----
Physical Tests (QCLot: 1581361)						
Solids, total dissolved [TDS]	----	E162	10	mg/L	<10	----
Physical Tests (QCLot: 1581362)						
Solids, total dissolved [TDS]	----	E162	10	mg/L	<10	----
Anions and Nutrients (QCLot: 1581039)						
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 1581041)						
Chloride	16887-00-6	E235.Cl-L	0.1	mg/L	<0.10	----
Anions and Nutrients (QCLot: 1581042)						
Fluoride	16984-48-8	E235.F-L	0.01	mg/L	<0.010	----
Anions and Nutrients (QCLot: 1581043)						
Nitrate (as N)	14797-55-8	E235.NO3-T	0.003	mg/L	<0.0030	----
Anions and Nutrients (QCLot: 1581044)						
Bromide	24959-67-9	E235.Br-U	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 1581045)						
Sulfate (as SO4)	14808-79-8	E235.SO4-L	0.05	mg/L	<0.050	----
Cyanides (QCLot: 1582921)						
Cyanide, strong acid dissociable (Total)	----	E333	0.002	mg/L	<0.0020	----
Total Metals (QCLot: 1581165)						
Aluminum, total	7429-90-5	E420	0.003	mg/L	<0.0030	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	<0.00010	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	<0.00010	----
Barium, total	7440-39-3	E420	0.0001	mg/L	<0.00010	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (QCLot: 1581165) - continued						
Beryllium, total	7440-41-7	E420	0.00002	mg/L	<0.000020	----
Bismuth, total	7440-69-9	E420	0.00005	mg/L	<0.000050	----
Boron, total	7440-42-8	E420	0.01	mg/L	<0.010	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	<0.0000050	----
Calcium, total	7440-70-2	E420	0.05	mg/L	<0.050	----
Cesium, total	7440-46-2	E420	0.00001	mg/L	<0.000010	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	<0.00050	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	<0.00010	----
Copper, total	7440-50-8	E420	0.0005	mg/L	<0.00050	----
Iron, total	7439-89-6	E420	0.01	mg/L	<0.010	----
Lead, total	7439-92-1	E420	0.00005	mg/L	<0.000050	----
Lithium, total	7439-93-2	E420	0.001	mg/L	<0.0010	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	<0.0050	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	<0.00010	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	<0.000050	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	<0.00050	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	<0.050	----
Potassium, total	7440-09-7	E420	0.05	mg/L	<0.050	----
Rubidium, total	7440-17-7	E420	0.0002	mg/L	<0.00020	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	<0.000050	----
Silicon, total	7440-21-3	E420	0.1	mg/L	<0.10	----
Silver, total	7440-22-4	E420	0.00001	mg/L	<0.000010	----
Sodium, total	7440-23-5	E420	0.05	mg/L	<0.050	----
Strontium, total	7440-24-6	E420	0.0002	mg/L	<0.00020	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	<0.50	----
Tellurium, total	13494-80-9	E420	0.0002	mg/L	<0.00020	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	<0.000010	----
Thorium, total	7440-29-1	E420	0.0001	mg/L	<0.00010	----
Tin, total	7440-31-5	E420	0.0001	mg/L	<0.00010	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	<0.00030	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	<0.00010	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	<0.000010	----
Vanadium, total	7440-62-2	E420	0.0005	mg/L	<0.00050	----
Zinc, total	7440-66-6	E420	0.003	mg/L	<0.0030	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	<0.00020	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (QCLot: 1582948)						
Mercury, total	7439-97-6	E508	0.000005	mg/L	<0.0000050	----
Dissolved Metals (QCLot: 1581209)						
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	<0.0010	----
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	<0.00010	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	<0.00010	----
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	<0.00010	----
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	<0.000020	----
Bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	<0.000050	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	<0.010	----
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	<0.0000050	----
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	<0.050	----
Cesium, dissolved	7440-46-2	E421	0.00001	mg/L	<0.000010	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	<0.00050	----
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	<0.00010	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	<0.00020	----
Iron, dissolved	7439-89-6	E421	0.01	mg/L	<0.010	----
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	<0.000050	----
Lithium, dissolved	7439-93-2	E421	0.001	mg/L	<0.0010	----
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	<0.0050	----
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	<0.00010	----
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	<0.000050	----
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	<0.00050	----
Phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	<0.050	----
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	<0.050	----
Rubidium, dissolved	7440-17-7	E421	0.0002	mg/L	<0.00020	----
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	<0.000050	----
Silicon, dissolved	7440-21-3	E421	0.05	mg/L	<0.050	----
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	<0.000010	----
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	<0.050	----
Strontium, dissolved	7440-24-6	E421	0.0002	mg/L	<0.00020	----
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	<0.50	----
Tellurium, dissolved	13494-80-9	E421	0.0002	mg/L	<0.00020	----
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	<0.000010	----
Thorium, dissolved	7440-29-1	E421	0.0001	mg/L	<0.00010	----
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	<0.00010	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Dissolved Metals (QCLot: 1581209) - continued						
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	<0.00030	----
Tungsten, dissolved	7440-33-7	E421	0.0001	mg/L	<0.00010	----
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	<0.000010	----
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	<0.00050	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	<0.0010	----
Zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	<0.00020	----
Dissolved Metals (QCLot: 1583864)						
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	<0.0000050	----

Laboratory Control Sample (LCS) Report

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

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 1581032)									
pH	----	E108	----	pH units	7 pH units	100	98.0	102	----
Physical Tests (QCLot: 1581033)									
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	500 mg/L	105	85.0	115	----
Physical Tests (QCLot: 1581034)									
Conductivity	----	E100	1	µS/cm	147 µS/cm	100	90.0	110	----
Physical Tests (QCLot: 1581046)									
Acidity (as CaCO3)	----	E283	2	mg/L	50 mg/L	97.8	85.0	115	----
Physical Tests (QCLot: 1581358)									
Solids, total suspended [TSS]	----	E160-L	1	mg/L	150 mg/L	87.8	85.0	115	----
Physical Tests (QCLot: 1581359)									
Solids, total suspended [TSS]	----	E160-L	1	mg/L	150 mg/L	88.2	85.0	115	----
Physical Tests (QCLot: 1581361)									
Solids, total dissolved [TDS]	----	E162	10	mg/L	1000 mg/L	102	85.0	115	----
Physical Tests (QCLot: 1581362)									
Solids, total dissolved [TDS]	----	E162	10	mg/L	1000 mg/L	106	85.0	115	----
Anions and Nutrients (QCLot: 1581039)									
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	0.5 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 1581041)									
Chloride	16887-00-6	E235.Cl-L	0.1	mg/L	100 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 1581042)									
Fluoride	16984-48-8	E235.F-L	0.01	mg/L	1 mg/L	100	90.0	110	----
Anions and Nutrients (QCLot: 1581043)									
Nitrate (as N)	14797-55-8	E235.NO3-T	0.003	mg/L	2.5 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 1581044)									
Bromide	24959-67-9	E235.Br-U	0.005	mg/L	0.5 mg/L	98.5	85.0	115	----
Anions and Nutrients (QCLot: 1581045)									
Sulfate (as SO4)	14808-79-8	E235.SO4-L	0.05	mg/L	100 mg/L	102	90.0	110	----
Cyanides (QCLot: 1582921)									
Cyanide, strong acid dissociable (Total)	----	E333	0.002	mg/L	0.25 mg/L	99.4	80.0	120	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Total Metals (QCLot: 1581165)									
Aluminum, total	7429-90-5	E420	0.003	mg/L	2 mg/L	101	80.0	120	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	1 mg/L	101	80.0	120	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	1 mg/L	106	80.0	120	----
Barium, total	7440-39-3	E420	0.0001	mg/L	0.25 mg/L	101	80.0	120	----
Beryllium, total	7440-41-7	E420	0.00002	mg/L	0.1 mg/L	103	80.0	120	----
Bismuth, total	7440-69-9	E420	0.00005	mg/L	1 mg/L	104	80.0	120	----
Boron, total	7440-42-8	E420	0.01	mg/L	1 mg/L	100	80.0	120	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	0.1 mg/L	100.0	80.0	120	----
Calcium, total	7440-70-2	E420	0.05	mg/L	50 mg/L	106	80.0	120	----
Cesium, total	7440-46-2	E420	0.00001	mg/L	0.05 mg/L	95.4	80.0	120	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	0.25 mg/L	101	80.0	120	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	0.25 mg/L	97.8	80.0	120	----
Copper, total	7440-50-8	E420	0.0005	mg/L	0.25 mg/L	97.8	80.0	120	----
Iron, total	7439-89-6	E420	0.01	mg/L	1 mg/L	100	80.0	120	----
Lead, total	7439-92-1	E420	0.00005	mg/L	0.5 mg/L	104	80.0	120	----
Lithium, total	7439-93-2	E420	0.001	mg/L	0.25 mg/L	112	80.0	120	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	50 mg/L	97.8	80.0	120	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	0.25 mg/L	99.9	80.0	120	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	0.25 mg/L	95.5	80.0	120	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	0.5 mg/L	96.5	80.0	120	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	10 mg/L	102	80.0	120	----
Potassium, total	7440-09-7	E420	0.05	mg/L	50 mg/L	103	80.0	120	----
Rubidium, total	7440-17-7	E420	0.0002	mg/L	0.1 mg/L	101	80.0	120	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	1 mg/L	109	80.0	120	----
Silicon, total	7440-21-3	E420	0.1	mg/L	10 mg/L	110	80.0	120	----
Silver, total	7440-22-4	E420	0.00001	mg/L	0.1 mg/L	92.6	80.0	120	----
Sodium, total	7440-23-5	E420	0.05	mg/L	50 mg/L	103	80.0	120	----
Strontium, total	7440-24-6	E420	0.0002	mg/L	0.25 mg/L	100	80.0	120	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	50 mg/L	105	80.0	120	----
Tellurium, total	13494-80-9	E420	0.0002	mg/L	0.1 mg/L	104	80.0	120	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	1 mg/L	102	80.0	120	----
Thorium, total	7440-29-1	E420	0.0001	mg/L	0.1 mg/L	100	80.0	120	----
Tin, total	7440-31-5	E420	0.0001	mg/L	0.5 mg/L	97.4	80.0	120	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	0.25 mg/L	95.6	80.0	120	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	0.1 mg/L	100	80.0	120	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	0.005 mg/L	102	80.0	120	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Total Metals (QCLot: 1581165) - continued									
Vanadium, total	7440-62-2	E420	0.0005	mg/L	0.5 mg/L	102	80.0	120	----
Zinc, total	7440-66-6	E420	0.003	mg/L	0.5 mg/L	97.3	80.0	120	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	0.1 mg/L	93.5	80.0	120	----
Total Metals (QCLot: 1582948)									
Mercury, total	7439-97-6	E508	0.000005	mg/L	0 mg/L	90.6	80.0	120	----
Dissolved Metals (QCLot: 1581209)									
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	2 mg/L	100	80.0	120	----
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	1 mg/L	94.2	80.0	120	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	1 mg/L	105	80.0	120	----
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	0.25 mg/L	104	80.0	120	----
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	0.1 mg/L	94.0	80.0	120	----
Bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	1 mg/L	100	80.0	120	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	1 mg/L	86.6	80.0	120	----
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	0.1 mg/L	98.0	80.0	120	----
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	50 mg/L	92.8	80.0	120	----
Cesium, dissolved	7440-46-2	E421	0.00001	mg/L	0.05 mg/L	95.0	80.0	120	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	0.25 mg/L	100	80.0	120	----
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	0.25 mg/L	99.6	80.0	120	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	0.25 mg/L	98.0	80.0	120	----
Iron, dissolved	7439-89-6	E421	0.01	mg/L	1 mg/L	91.6	80.0	120	----
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	0.5 mg/L	99.7	80.0	120	----
Lithium, dissolved	7439-93-2	E421	0.001	mg/L	0.25 mg/L	94.0	80.0	120	----
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	50 mg/L	102	80.0	120	----
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	0.25 mg/L	99.9	80.0	120	----
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	0.25 mg/L	94.6	80.0	120	----
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	0.5 mg/L	99.6	80.0	120	----
Phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	10 mg/L	103	80.0	120	----
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	50 mg/L	102	80.0	120	----
Rubidium, dissolved	7440-17-7	E421	0.0002	mg/L	0.1 mg/L	100	80.0	120	----
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	1 mg/L	96.1	80.0	120	----
Silicon, dissolved	7440-21-3	E421	0.05	mg/L	10 mg/L	102	80.0	120	----
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	0.1 mg/L	91.6	80.0	120	----
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	50 mg/L	107	80.0	120	----
Strontium, dissolved	7440-24-6	E421	0.0002	mg/L	0.25 mg/L	99.8	80.0	120	----
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	50 mg/L	103	80.0	120	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Dissolved Metals (QCLot: 1581209) - continued									
Tellurium, dissolved	13494-80-9	E421	0.0002	mg/L	0.1 mg/L	90.7	80.0	120	----
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	1 mg/L	100	80.0	120	----
Thorium, dissolved	7440-29-1	E421	0.0001	mg/L	0.1 mg/L	99.0	80.0	120	----
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	0.5 mg/L	94.7	80.0	120	----
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	0.25 mg/L	93.8	80.0	120	----
Tungsten, dissolved	7440-33-7	E421	0.0001	mg/L	0.1 mg/L	99.6	80.0	120	----
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	0.005 mg/L	102	80.0	120	----
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	0.5 mg/L	103	80.0	120	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	0.5 mg/L	94.1	80.0	120	----
Zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	0.1 mg/L	94.3	80.0	120	----
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0 mg/L	87.5	80.0	120	----

Matrix Spike (MS) Report

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

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Anions and Nutrients (QCLot: 1581039)										
VA24B9060-002	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2-L	0.505 mg/L	0.5 mg/L	101	75.0	125	----
Anions and Nutrients (QCLot: 1581041)										
YL2401053-001	P1-A	Chloride	16887-00-6	E235.Cl-L	102 mg/L	100 mg/L	102	75.0	125	----
Anions and Nutrients (QCLot: 1581042)										
YL2401053-001	P1-A	Fluoride	16984-48-8	E235.F-L	1.03 mg/L	1 mg/L	103	75.0	125	----
Anions and Nutrients (QCLot: 1581043)										
YL2401053-001	P1-A	Nitrate (as N)	14797-55-8	E235.NO3-T	2.53 mg/L	2.5 mg/L	101	75.0	125	----
Anions and Nutrients (QCLot: 1581044)										
YL2401053-001	P1-A	Bromide	24959-67-9	E235.Br-U	0.494 mg/L	0.5 mg/L	98.9	75.0	125	----
Anions and Nutrients (QCLot: 1581045)										
YL2401053-001	P1-A	Sulfate (as SO4)	14808-79-8	E235.SO4-L	ND mg/L	----	ND	75.0	125	----
Cyanides (QCLot: 1582921)										
YL2401027-003	Anonymous	Cyanide, strong acid dissociable (Total)	----	E333	0.254 mg/L	0.25 mg/L	102	75.0	125	----
Total Metals (QCLot: 1581165)										
YL2401078-004	Anonymous	Aluminum, total	7429-90-5	E420	ND mg/L	----	ND	70.0	130	----
		Antimony, total	7440-36-0	E420	0.0180 mg/L	0.02 mg/L	90.2	70.0	130	----
		Arsenic, total	7440-38-2	E420	0.0197 mg/L	0.02 mg/L	98.6	70.0	130	----
		Barium, total	7440-39-3	E420	ND mg/L	----	ND	70.0	130	----
		Beryllium, total	7440-41-7	E420	0.0388 mg/L	0.04 mg/L	96.9	70.0	130	----
		Bismuth, total	7440-69-9	E420	0.0104 mg/L	0.01 mg/L	104	70.0	130	----
		Boron, total	7440-42-8	E420	0.083 mg/L	0.1 mg/L	83.2	70.0	130	----
		Cadmium, total	7440-43-9	E420	0.00381 mg/L	0.004 mg/L	95.2	70.0	130	----
		Calcium, total	7440-70-2	E420	ND mg/L	----	ND	70.0	130	----
		Cesium, total	7440-46-2	E420	0.00952 mg/L	0.01 mg/L	95.2	70.0	130	----
		Chromium, total	7440-47-3	E420	0.0380 mg/L	0.04 mg/L	95.1	70.0	130	----
		Cobalt, total	7440-48-4	E420	0.0189 mg/L	0.02 mg/L	94.6	70.0	130	----
		Copper, total	7440-50-8	E420	0.0188 mg/L	0.02 mg/L	93.8	70.0	130	----
		Iron, total	7439-89-6	E420	1.91 mg/L	2 mg/L	95.6	70.0	130	----
		Lead, total	7439-92-1	E420	0.0194 mg/L	0.02 mg/L	97.2	70.0	130	----
		Lithium, total	7439-93-2	E420	0.0981 mg/L	0.1 mg/L	98.1	70.0	130	----
		Magnesium, total	7439-95-4	E420	ND mg/L	----	ND	70.0	130	----
		Manganese, total	7439-96-5	E420	0.0191 mg/L	0.02 mg/L	95.5	70.0	130	----
		Molybdenum, total	7439-98-7	E420	0.0177 mg/L	0.02 mg/L	88.6	70.0	130	----
		Nickel, total	7440-02-0	E420	0.0374 mg/L	0.04 mg/L	93.6	70.0	130	----
		Phosphorus, total	7723-14-0	E420	9.04 mg/L	10 mg/L	90.4	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Total Metals (QCLot: 1581165) - continued										
YL2401078-004	Anonymous	Potassium, total	7440-09-7	E420	ND mg/L	----	ND	70.0	130	----
		Rubidium, total	7440-17-7	E420	0.0187 mg/L	0.02 mg/L	93.4	70.0	130	----
		Selenium, total	7782-49-2	E420	0.0409 mg/L	0.04 mg/L	102	70.0	130	----
		Silicon, total	7440-21-3	E420	9.37 mg/L	10 mg/L	93.7	70.0	130	----
		Silver, total	7440-22-4	E420	0.00377 mg/L	0.004 mg/L	94.3	70.0	130	----
		Sodium, total	7440-23-5	E420	1.78 mg/L	2 mg/L	89.0	70.0	130	----
		Strontium, total	7440-24-6	E420	ND mg/L	----	ND	70.0	130	----
		Sulfur, total	7704-34-9	E420	ND mg/L	----	ND	70.0	130	----
		Tellurium, total	13494-80-9	E420	0.0380 mg/L	0.04 mg/L	94.9	70.0	130	----
		Thallium, total	7440-28-0	E420	0.00374 mg/L	0.004 mg/L	93.6	70.0	130	----
		Thorium, total	7440-29-1	E420	0.0204 mg/L	0.02 mg/L	102	70.0	130	----
		Tin, total	7440-31-5	E420	0.0184 mg/L	0.02 mg/L	92.0	70.0	130	----
		Titanium, total	7440-32-6	E420	0.0360 mg/L	0.04 mg/L	90.1	70.0	130	----
		Tungsten, total	7440-33-7	E420	0.0204 mg/L	0.02 mg/L	102	70.0	130	----
		Uranium, total	7440-61-1	E420	0.00429 mg/L	0.004 mg/L	107	70.0	130	----
		Vanadium, total	7440-62-2	E420	0.0968 mg/L	0.1 mg/L	96.8	70.0	130	----
		Zinc, total	7440-66-6	E420	0.371 mg/L	0.4 mg/L	92.8	70.0	130	----
		Zirconium, total	7440-67-7	E420	0.0370 mg/L	0.04 mg/L	92.4	70.0	130	----
Total Metals (QCLot: 1582948)										
VA24B8966-005	Anonymous	Mercury, total	7439-97-6	E508	0.0000910 mg/L	0 mg/L	91.0	70.0	130	----
Dissolved Metals (QCLot: 1581209)										
YL2401075-002	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.405 mg/L	0.4 mg/L	101	70.0	130	----
		Antimony, dissolved	7440-36-0	E421	ND mg/L	----	ND	70.0	130	----
		Arsenic, dissolved	7440-38-2	E421	ND mg/L	----	ND	70.0	130	----
		Barium, dissolved	7440-39-3	E421	ND mg/L	----	ND	70.0	130	----
		Beryllium, dissolved	7440-41-7	E421	0.0715 mg/L	0.08 mg/L	89.4	70.0	130	----
		Bismuth, dissolved	7440-69-9	E421	0.0175 mg/L	0.02 mg/L	87.6	70.0	130	----
		Boron, dissolved	7440-42-8	E421	ND mg/L	----	ND	70.0	130	----
		Cadmium, dissolved	7440-43-9	E421	0.00754 mg/L	0.008 mg/L	94.3	70.0	130	----
		Calcium, dissolved	7440-70-2	E421	ND mg/L	----	ND	70.0	130	----
		Cesium, dissolved	7440-46-2	E421	0.0192 mg/L	0.02 mg/L	96.3	70.0	130	----
		Chromium, dissolved	7440-47-3	E421	0.0777 mg/L	0.08 mg/L	97.2	70.0	130	----
		Cobalt, dissolved	7440-48-4	E421	0.0379 mg/L	0.04 mg/L	94.7	70.0	130	----
		Copper, dissolved	7440-50-8	E421	0.0356 mg/L	0.04 mg/L	89.0	70.0	130	----
		Iron, dissolved	7439-89-6	E421	3.83 mg/L	4 mg/L	95.7	70.0	130	----
		Lead, dissolved	7439-92-1	E421	0.0366 mg/L	0.04 mg/L	91.6	70.0	130	----
		Lithium, dissolved	7439-93-2	E421	0.178 mg/L	0.2 mg/L	89.3	70.0	130	----
		Magnesium, dissolved	7439-95-4	E421	ND mg/L	----	ND	70.0	130	----
		Manganese, dissolved	7439-96-5	E421	ND mg/L	----	ND	70.0	130	----
		Molybdenum, dissolved	7439-98-7	E421	0.0396 mg/L	0.04 mg/L	99.0	70.0	130	----
		Nickel, dissolved	7440-02-0	E421	0.0739 mg/L	0.08 mg/L	92.4	70.0	130	----
		Phosphorus, dissolved	7723-14-0	E421	21.5 mg/L	20 mg/L	108	70.0	130	----
		Potassium, dissolved	7440-09-7	E421	ND mg/L	----	ND	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Dissolved Metals (QCLot: 1581209) - continued										
YL2401075-002	Anonymous	Rubidium, dissolved	7440-17-7	E421	0.0394 mg/L	0.04 mg/L	98.5	70.0	130	----
		Selenium, dissolved	7782-49-2	E421	0.0815 mg/L	0.08 mg/L	102	70.0	130	----
		Silicon, dissolved	7440-21-3	E421	19.8 mg/L	20 mg/L	99.2	70.0	130	----
		Silver, dissolved	7440-22-4	E421	0.00738 mg/L	0.008 mg/L	92.3	70.0	130	----
		Sodium, dissolved	7440-23-5	E421	ND mg/L	----	ND	70.0	130	----
		Strontium, dissolved	7440-24-6	E421	ND mg/L	----	ND	70.0	130	----
		Sulfur, dissolved	7704-34-9	E421	ND mg/L	----	ND	70.0	130	----
		Tellurium, dissolved	13494-80-9	E421	0.0788 mg/L	0.08 mg/L	98.5	70.0	130	----
		Thallium, dissolved	7440-28-0	E421	0.00730 mg/L	0.008 mg/L	91.2	70.0	130	----
		Thorium, dissolved	7440-29-1	E421	0.0399 mg/L	0.04 mg/L	99.8	70.0	130	----
		Tin, dissolved	7440-31-5	E421	0.0378 mg/L	0.04 mg/L	94.5	70.0	130	----
		Titanium, dissolved	7440-32-6	E421	0.0820 mg/L	0.08 mg/L	102	70.0	130	----
		Tungsten, dissolved	7440-33-7	E421	0.0387 mg/L	0.04 mg/L	96.7	70.0	130	----
		Uranium, dissolved	7440-61-1	E421	0.00774 mg/L	0.008 mg/L	96.7	70.0	130	----
		Vanadium, dissolved	7440-62-2	E421	0.206 mg/L	0.2 mg/L	103	70.0	130	----
		Zinc, dissolved	7440-66-6	E421	0.704 mg/L	0.8 mg/L	88.0	70.0	130	----
		Zirconium, dissolved	7440-67-7	E421	0.0806 mg/L	0.08 mg/L	101	70.0	130	----
Dissolved Metals (QCLot: 1583864)										
VA24B9592-001	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000866 mg/L	0 mg/L	86.6	70.0	130	----

CHAIN OF CUSTODY

ALS Laboratory

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Lindsay Pistner	[illegible] 1630		
DATE/TIME: 31-07-2024 1pm	DATE/TIME: JULY 31/24	DATE/TIME:	DATE/TIME:

CLIENT:	Elgin Mining Inc.	TURNAROUND REQUIREMENTS : (Standard TAT may be longer for some tests e.g.. Ultra Trace Organics)	☑ Standard TAT (List due date):
PROJECT:	Lupin Mine 2024		☐ Non Standard or urgent TAT (List due date):
SITE:	Lupin Mine		
PURCHASE ORDER NO.:		ALS QUOTE NC YL23-ELMI100-001	
PROJECT MANAGER:	Jon Melnyk	CONTACT PH: 403-862-2994	
SAMPLER:	Lindsay Pistner	SAMPLER MOBILE: 604-315-3741	
EMAIL REPORTS TO:	Jonm@jdsmining.ca, Shane.leggett@stantec.com	EMAIL INVOICE TO:	Payables@mandalayresources.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:	1.9 °C		
Other comments:			

SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE ONLY	SAMPLE DETAILS (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	Routine	Dissolved metals + Hg	Total metals + Hg	Total Cyanide							Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
	P1-A	30-07-2024 11:45am		7	x	x	x	x							
	P1-B	30-07-2024 10:50am		7	x	x	x	x							
	P1-D	30-07-2024 12:40pm		7	x	x	x	x							
	C4-A	30-07-2024 3:20pm		7	x	x	x	x							
	C4-B	30-07-2024 2:55pm		7	x	x	x	x							
	C4-C	30-07-2024 1:15pm		7	x	x	x	x							
	C4-E	30-07-2024 12:35pm		7	x	x	x	x							
		TOTAL													

Environmental Division
Yellowknife
Work Order Reference
YL2401053

Telephone : +1 867 873 5593

CERTIFICATE OF ANALYSIS

Work Order	: **YL2401440**		
Amendment	: **1**		
Client	: **Elgin Mining Inc.**	Laboratory	: ALS Environmental - Calgary
Contact	: Jon Melnyk	Account Manager	: Oliver Gregg
Address	: 750 West Pender Street Suite 201 Vancouver British Columbia Canada V6C 2T7	Address	: 2559 29th Street NE Calgary AB Canada T1Y 7B5
Telephone	: ----	Telephone	: 1 867 445 7143
Project	: LUPIN MINE	Date Samples Received	: 10-Sep-2024 09:30
PO	: ----	Date Analysis Commenced	: 12-Sep-2024
C-O-C number	: ----	Issue Date	: 02-Oct-2024 09:32
Sampler	: ----		
Site	: ----		
Quote number	: YL24-ELMI100-001		
No. of samples received	: 6		
No. of samples analysed	: 6		

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

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

Signatories

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

Signatories	*Position*	*Laboratory Department*
Gurvinder Kour	Lab Assistant	Metals, Calgary, Alberta
Harpreet Chawla	Team Leader - Inorganics	Inorganics, Calgary, Alberta
Jon Fisher	Production Manager, Environmental	Inorganics, Waterloo, Ontario
Katarzyna Glinka	Analyst	Inorganics, Calgary, Alberta
Kevin Baxter	Team Leader - Inorganics	Inorganics, Calgary, Alberta
Kevin Baxter	Team Leader - Inorganics	Metals, Calgary, Alberta
Parker Sgarbossa	Laboratory Analyst	Metals, Calgary, Alberta
Ruifang Zheng	Analyst	Inorganics, Calgary, Alberta
Shirley Li	Team Leader - Inorganics	Metals, Calgary, 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*
mg/L	milligrams per litre
pH units	pH units
µS/cm	microsiemens per centimetre
-	no units
meq/L	milliequivalents per litre
%	percent
NTU	nephelometric turbidity units
CU	colour units (1 cu = 1 mg/l pt)

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

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED on SRN or QCI Report, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Sample Comments

Sample	*Client Id*	*Comment*
YL2401440-006	P2-SEEP	Water sample(s) for total mercury analysis was not submitted in glass or PTFE container with HCl preservative. Results may be biased low.

Qualifiers

Qualifier	Description
DLDS	Detection Limit Raised: Dilution required due to high Dissolved Solids / Electrical Conductivity.
HTA	Analytical holding time was exceeded.
RRR	Refer to report comments for issues regarding this analysis.
RRV	Reported result verified by repeat analysis.
SP	Sample was preserved at the laboratory.

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	Client sample ID	P2-A	P2-B	P2-C	P2-D	P2-E
					Client sampling date / time	08-Sep-2024 00:00	08-Sep-2024 00:00	08-Sep-2024 00:00	08-Sep-2024 00:00	08-Sep-2024 00:00
						YL2401440-001	YL2401440-002	YL2401440-003	YL2401440-004	YL2401440-005
						Result	Result	Result	Result	Result
Physical Tests										
Hardness (as CaCO3), dissolved	----	EC100/CG	0.60	mg/L		129	134	148	116	132
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/CG	0.60	mg/L		132	137	151	115	136
Conductivity	----	E100/CG	2.0	µS/cm		441	444	491	396	454
pH	----	E108/CG	0.10	pH units		4.77 RRV	4.81 RRV	4.35 RRV	4.24 RRV	4.60 RRV
Alkalinity, bicarbonate (as HCO3)	71-52-3	E290/CG	1.0	mg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Alkalinity, carbonate (as CO3)	3812-32-6	E290/CG	1.0	mg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Alkalinity, hydroxide (as OH)	14280-30-9	E290/CG	1.0	mg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Alkalinity, total (as CaCO3)	----	E290/CG	2.0	mg/L		<2.0	<2.0	<2.0	<2.0	<2.0
Solids, total dissolved [TDS], calculated	----	EC103/CG	1.0	mg/L		273	278	307	245	280
Anions and Nutrients										
Chloride	16887-00-6	E235.Cl/CG	0.50	mg/L		13.1	13.5	13.1	8.87	13.4
Fluoride	16984-48-8	E235.F/CG	0.020	mg/L		0.126	0.123	0.171	0.122	0.126
Nitrate (as N)	14797-55-8	E235.NO3/CG	0.020	mg/L		0.404	0.420	0.438	0.338	0.402
Nitrite (as N)	14797-65-0	E235.NO2/CG	0.010	mg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Sulfate (as SO4)	14808-79-8	E235.SO4/CG	0.30	mg/L		178	180	201	161	182
Nitrate + Nitrite (as N)	----	EC235.N+N/CG	0.0500	mg/L		0.404	0.420	0.438	0.338	0.402
Cyanides										
Cyanide, strong acid dissociable (Total)	----	E333/WT	0.0050	mg/L		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Ion Balance										
Anion sum	----	EC101/CG	0.10	meq/L		4.11	4.16	4.59	3.63	4.20
Cation sum	----	EC101/CG	0.10	meq/L		3.86	4.00	4.45	3.48	3.99

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	P2-A	P2-B	P2-C	P2-D	P2-E
Client sample ID									
Client sampling date / time					08-Sep-2024 00:00	08-Sep-2024 00:00	08-Sep-2024 00:00	08-Sep-2024 00:00	08-Sep-2024 00:00
					YL2401440-001	YL2401440-002	YL2401440-003	YL2401440-004	YL2401440-005
					Result	Result	Result	Result	Result
Ion Balance									
Ion balance (APHA)	----	EC101/CG	0.01	%	-3.14	-1.96	-1.55	-2.11	-2.56
Ion balance (cations/anions)	----	EC101/CG	0.010	%	93.9	96.2	96.9	95.9	95.0
Total Metals									
Aluminum, total	7429-90-5	E420/CG	0.0030	mg/L	0.513	0.407	1.53	1.24	0.597
Antimony, total	7440-36-0	E420/CG	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic, total	7440-38-2	E420/CG	0.00010	mg/L	0.00692	0.00802	0.00661	0.00967	0.00746
Barium, total	7440-39-3	E420/CG	0.00010	mg/L	0.0191	0.0191	0.0193	0.0157	0.0190
Beryllium, total	7440-41-7	E420/CG	0.000100	mg/L	0.000162	0.000150	0.000310	0.000305	0.000160
Bismuth, total	7440-69-9	E420/CG	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron, total	7440-42-8	E420/CG	0.010	mg/L	0.043	0.047	0.049	0.035	0.045
Cadmium, total	7440-43-9	E420/CG	0.0000050	mg/L	0.000214	0.000205	0.000299	0.000268	0.000204
Calcium, total	7440-70-2	E420/CG	0.050	mg/L	39.1	41.2	44.3	32.9	40.0
Cesium, total	7440-46-2	E420/CG	0.000010	mg/L	0.000039	0.000039	0.000056	0.000052	0.000045
Chromium, total	7440-47-3	E420/CG	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Cobalt, total	7440-48-4	E420/CG	0.00010	mg/L	0.0281	0.0253	0.0416	0.0463	0.0266
Copper, total	7440-50-8	E420/CG	0.00050	mg/L	0.0165	0.0137	0.0294	0.0314	0.0153
Iron, total	7439-89-6	E420/CG	0.010	mg/L	0.528	0.462	1.22	1.81	0.615
Lead, total	7439-92-1	E420/CG	0.000050	mg/L	0.000374	0.000326	0.000702	0.00164	0.000365
Lithium, total	7439-93-2	E420/CG	0.0010	mg/L	0.0191	0.0204	0.0261	0.0222	0.0197
Magnesium, total	7439-95-4	E420/CG	0.0050	mg/L	8.48	8.36	9.86	7.99	8.69
Manganese, total	7439-96-5	E420/CG	0.00010	mg/L	0.713	0.711	0.808	0.730	0.720

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	Client sample ID	P2-A	P2-B	P2-C	P2-D	P2-E
					Client sampling date / time	08-Sep-2024 00:00	08-Sep-2024 00:00	08-Sep-2024 00:00	08-Sep-2024 00:00	08-Sep-2024 00:00
						YL2401440-001	YL2401440-002	YL2401440-003	YL2401440-004	YL2401440-005
						Result	Result	Result	Result	Result
Total Metals										
Mercury, total	7439-97-6	E508/CG	0.0000050	mg/L		<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum, total	7439-98-7	E420/CG	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Nickel, total	7440-02-0	E420/CG	0.00050	mg/L		0.0928	0.0842	0.122	0.106	0.0879
Phosphorus, total	7723-14-0	E420/CG	0.050	mg/L		<0.050	<0.050	<0.050	<0.050	<0.050
Potassium, total	7440-09-7	E420/CG	0.050	mg/L		3.53	3.55	3.60	3.06	3.50
Rubidium, total	7440-17-7	E420/CG	0.00020	mg/L		0.00204	0.00197	0.00258	0.00197	0.00208
Selenium, total	7782-49-2	E420/CG	0.000050	mg/L		0.000078	0.000074	0.000059	<0.000050	<0.000050
Silicon, total	7440-21-3	E420/CG	0.10	mg/L		1.32	1.12	1.84	2.51	1.23
Silver, total	7440-22-4	E420/CG	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium, total	7440-23-5	E420/CG	0.050	mg/L		25.4	26.1	25.2	17.5	25.8
Strontium, total	7440-24-6	E420/CG	0.00020	mg/L		0.191	0.198	0.215	0.168	0.206
Sulfur, total	7704-34-9	E420/CG	0.50	mg/L		61.1	62.4	70.2	55.0	63.4
Tellurium, total	13494-80-9	E420/CG	0.00020	mg/L		<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Thallium, total	7440-28-0	E420/CG	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Thorium, total	7440-29-1	E420/CG	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Tin, total	7440-31-5	E420/CG	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium, total	7440-32-6	E420/CG	0.00030	mg/L		<0.00030	0.00044	<0.00030	0.00043	<0.00030
Tungsten, total	7440-33-7	E420/CG	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Uranium, total	7440-61-1	E420/CG	0.000010	mg/L		0.000108	0.000067	0.000206	0.000326	0.000096
Vanadium, total	7440-62-2	E420/CG	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc, total	7440-66-6	E420/CG	0.0030	mg/L		0.253	0.256	0.318	0.448	0.263

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	Client sample ID	P2-A	P2-B	P2-C	P2-D	P2-E
					Client sampling date / time	08-Sep-2024 00:00	08-Sep-2024 00:00	08-Sep-2024 00:00	08-Sep-2024 00:00	08-Sep-2024 00:00
						YL2401440-001	YL2401440-002	YL2401440-003	YL2401440-004	YL2401440-005
						Result	Result	Result	Result	Result
Total Metals										
Zirconium, total	7440-67-7	E420/CG	0.00020	mg/L		<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Dissolved Metals										
Aluminum, dissolved	7429-90-5	E421/CG	0.0010	mg/L		0.542	0.401	1.58	1.26	0.584
Antimony, dissolved	7440-36-0	E421/CG	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic, dissolved	7440-38-2	E421/CG	0.00010	mg/L		0.00578	0.00500	0.00547	0.00881	0.00590
Barium, dissolved	7440-39-3	E421/CG	0.00010	mg/L		0.0191	0.0199	0.0195	0.0159	0.0191
Beryllium, dissolved	7440-41-7	E421/CG	0.000100	mg/L		0.000200	0.000150	0.000329	0.000340	0.000174
Bismuth, dissolved	7440-69-9	E421/CG	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron, dissolved	7440-42-8	E421/CG	0.010	mg/L		0.043	0.045	0.047	0.035	0.045
Cadmium, dissolved	7440-43-9	E421/CG	0.0000050	mg/L		0.000219	0.000193	0.000312	0.000267	0.000209
Calcium, dissolved	7440-70-2	E421/CG	0.050	mg/L		38.8	40.5	44.2	34.0	40.0
Cesium, dissolved	7440-46-2	E421/CG	0.000010	mg/L		0.000045	0.000036	0.000056	0.000052	0.000044
Chromium, dissolved	7440-47-3	E421/CG	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Cobalt, dissolved	7440-48-4	E421/CG	0.00010	mg/L		0.0291	0.0249	0.0417	0.0465	0.0264
Copper, dissolved	7440-50-8	E421/CG	0.00020	mg/L		0.0168	0.0133	0.0292	0.0311	0.0152
Iron, dissolved	7439-89-6	E421/CG	0.010	mg/L		0.486	0.406	1.18	1.78	0.560
Lead, dissolved	7439-92-1	E421/CG	0.000050	mg/L		0.000332	0.000231	0.000696	0.00158	0.000316
Lithium, dissolved	7439-93-2	E421/CG	0.0010	mg/L		0.0208	0.0194	0.0249	0.0229	0.0208
Magnesium, dissolved	7439-95-4	E421/CG	0.0050	mg/L		7.78	8.07	9.12	7.67	7.91
Manganese, dissolved	7439-96-5	E421/CG	0.00010	mg/L		0.693	0.704	0.822	0.709	0.688
Mercury, dissolved	7439-97-6	E509/CG	0.0000050	mg/L		<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	Client sample ID	P2-A	P2-B	P2-C	P2-D	P2-E
					Client sampling date / time	08-Sep-2024 00:00	08-Sep-2024 00:00	08-Sep-2024 00:00	08-Sep-2024 00:00	08-Sep-2024 00:00
						YL2401440-001	YL2401440-002	YL2401440-003	YL2401440-004	YL2401440-005
						Result	Result	Result	Result	Result
Dissolved Metals										
Molybdenum, dissolved	7439-98-7	E421/CG	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Nickel, dissolved	7440-02-0	E421/CG	0.00050	mg/L		0.0950	0.0820	0.121	0.106	0.0864
Phosphorus, dissolved	7723-14-0	E421/CG	0.050	mg/L		<0.050	<0.050	<0.050	<0.050	<0.050
Potassium, dissolved	7440-09-7	E421/CG	0.050	mg/L		3.57	3.60	3.69	3.13	3.53
Rubidium, dissolved	7440-17-7	E421/CG	0.00020	mg/L		0.00209	0.00195	0.00250	0.00181	0.00202
Selenium, dissolved	7782-49-2	E421/CG	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Silicon, dissolved	7440-21-3	E421/CG	0.050	mg/L		1.35	1.08	1.81	2.44	1.18
Silver, dissolved	7440-22-4	E421/CG	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium, dissolved	7440-23-5	E421/CG	0.050	mg/L		24.5	25.6	25.2	17.7	25.5
Strontium, dissolved	7440-24-6	E421/CG	0.00020	mg/L		0.195	0.196	0.210	0.166	0.203
Sulfur, dissolved	7704-34-9	E421/CG	0.50	mg/L		62.6	62.6	69.6	54.4	62.8
Tellurium, dissolved	13494-80-9	E421/CG	0.00020	mg/L		<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Thallium, dissolved	7440-28-0	E421/CG	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Thorium, dissolved	7440-29-1	E421/CG	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Tin, dissolved	7440-31-5	E421/CG	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium, dissolved	7440-32-6	E421/CG	0.00030	mg/L		<0.00030	<0.00030	<0.00030	<0.00030	<0.00030
Tungsten, dissolved	7440-33-7	E421/CG	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Uranium, dissolved	7440-61-1	E421/CG	0.000010	mg/L		0.000094	0.000058	0.000199	0.000306	0.000088
Vanadium, dissolved	7440-62-2	E421/CG	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc, dissolved	7440-66-6	E421/CG	0.0010	mg/L		0.257	0.264	0.325	0.466	0.268
Zirconium, dissolved	7440-67-7	E421/CG	0.00020	mg/L		<0.00020	<0.00020	<0.00020	<0.00020	<0.00020

Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	P2-A	P2-B	P2-C	P2-D	P2-E
					Client sampling date / time	08-Sep-2024 00:00	08-Sep-2024 00:00	08-Sep-2024 00:00	08-Sep-2024 00:00	08-Sep-2024 00:00
Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit		YL2401440-001	YL2401440-002	YL2401440-003	YL2401440-004	YL2401440-005
						Result	Result	Result	Result	Result
Dissolved Metals										
Dissolved mercury filtration location	----	EP509/CG	-	-		Field	Field	Field	Field	Field
Dissolved metals filtration location	----	EP421/CG	-	-		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	P2-SEEP	----	----	----	----
					Client sampling date / time	08-Sep-2024 00:00	----	----	----	----
Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit		YL2401440-006	----	----	----	----
						Result	----	----	----	----
Physical Tests										
Colour, true	----	E329/CG	5.0	CU		320 HTA	----	----	----	----
Hardness (as CaCO3), dissolved	----	EC100/CG	0.60	mg/L		383	----	----	----	----
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/CG	0.60	mg/L		392	----	----	----	----
Solids, total dissolved [TDS]	----	E162/CG	10	mg/L		1160	----	----	----	----
Turbidity	----	E121/CG	0.10	NTU		21.9	----	----	----	----
Conductivity	----	E100/CG	2.0	µS/cm		1460	----	----	----	----
pH	----	E108/CG	0.10	pH units		6.60	----	----	----	----
Alkalinity, bicarbonate (as HCO3)	71-52-3	E290/CG	1.0	mg/L		15.1	----	----	----	----
Alkalinity, carbonate (as CO3)	3812-32-6	E290/CG	1.0	mg/L		<1.0	----	----	----	----
Alkalinity, hydroxide (as OH)	14280-30-9	E290/CG	1.0	mg/L		<1.0	----	----	----	----
Alkalinity, total (as CaCO3)	----	E290/CG	2.0	mg/L		12.4	----	----	----	----
Solids, total dissolved [TDS], calculated	----	EC103/CG	1.0	mg/L		1110	----	----	----	----

Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	P2-SEEP	----	----	----	----
					Client sampling date / time	08-Sep-2024 00:00	----	----	----	----
Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit		YL2401440-006	----	----	----	----
						Result	----	----	----	----
Anions and Nutrients										
Chloride	16887-00-6	E235.Cl/CG	0.50	mg/L		31.7	----	----	----	----
Fluoride	16984-48-8	E235.F/CG	0.020	mg/L		0.233	----	----	----	----
Nitrate (as N)	14797-55-8	E235.NO3/CG	0.020	mg/L		6.93	----	----	----	----
Nitrite (as N)	14797-65-0	E235.NO2/CG	0.010	mg/L		<0.050 DLDS	----	----	----	----
Sulfate (as SO4)	14808-79-8	E235.SO4/CG	0.30	mg/L		687	----	----	----	----
Nitrate + Nitrite (as N)	----	EC235.N+N/CG	0.0500	mg/L		6.93	----	----	----	----
Organic / Inorganic Carbon										
Carbon, dissolved organic [DOC]	----	E358-L/CG	0.50	mg/L		0.85 SP	----	----	----	----
Carbon, total organic [TOC]	----	E355-L/CG	0.50	mg/L		0.85 SP	----	----	----	----
Ion Balance										
Anion sum	----	EC101/CG	0.10	meq/L		16.0	----	----	----	----
Cation sum	----	EC101/CG	0.10	meq/L		16.2	----	----	----	----
Ion balance (APHA)	----	EC101/CG	0.01	%		0.62	----	----	----	----
Ion balance (cations/anions)	----	EC101/CG	0.010	%		101	----	----	----	----
Total Metals										
Aluminum, total	7429-90-5	E420/CG	0.0030	mg/L		5.01	----	----	----	----
Antimony, total	7440-36-0	E420/CG	0.00010	mg/L		0.00013	----	----	----	----
Arsenic, total	7440-38-2	E420/CG	0.00010	mg/L		0.0766	----	----	----	----
Barium, total	7440-39-3	E420/CG	0.00010	mg/L		0.0408	----	----	----	----
Beryllium, total	7440-41-7	E420/CG	0.000100	mg/L		0.000658	----	----	----	----
Bismuth, total	7440-69-9	E420/CG	0.000050	mg/L		0.000112	----	----	----	----

Analytical Results

Sub-Matrix: Water (Matrix: Water)				Client sample ID	P2-SEEP	----	----	----	----
				Client sampling date / time	08-Sep-2024 00:00	----	----	----	----
Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	YL2401440-006	----	----	----	----
					Result	----	----	----	----
Total Metals									
Boron, total	7440-42-8	E420/CG	0.010	mg/L	0.094	----	----	----	----
Cadmium, total	7440-43-9	E420/CG	0.0000050	mg/L	0.00124	----	----	----	----
Calcium, total	7440-70-2	E420/CG	0.050	mg/L	114	----	----	----	----
Cesium, total	7440-46-2	E420/CG	0.000010	mg/L	0.000060	----	----	----	----
Chromium, total	7440-47-3	E420/CG	0.00050	mg/L	0.00768	----	----	----	----
Cobalt, total	7440-48-4	E420/CG	0.00010	mg/L	0.149	----	----	----	----
Copper, total	7440-50-8	E420/CG	0.00050	mg/L	0.152	----	----	----	----
Iron, total	7439-89-6	E420/CG	0.010	mg/L	2.37	----	----	----	----
Lead, total	7439-92-1	E420/CG	0.000050	mg/L	0.00170	----	----	----	----
Lithium, total	7439-93-2	E420/CG	0.0010	mg/L	0.0189	----	----	----	----
Magnesium, total	7439-95-4	E420/CG	0.0050	mg/L	26.1	----	----	----	----
Manganese, total	7439-96-5	E420/CG	0.00010	mg/L	2.43	----	----	----	----
Mercury, total	7439-97-6	E508/CG	0.0000050	mg/L	0.0000171 RRR, RRV	----	----	----	----
Molybdenum, total	7439-98-7	E420/CG	0.000050	mg/L	0.00216	----	----	----	----
Nickel, total	7440-02-0	E420/CG	0.00050	mg/L	0.270	----	----	----	----
Phosphorus, total	7723-14-0	E420/CG	0.050	mg/L	0.145	----	----	----	----
Potassium, total	7440-09-7	E420/CG	0.050	mg/L	7.50	----	----	----	----
Rubidium, total	7440-17-7	E420/CG	0.00020	mg/L	0.00716	----	----	----	----
Selenium, total	7782-49-2	E420/CG	0.000050	mg/L	0.000530	----	----	----	----
Silicon, total	7440-21-3	E420/CG	0.10	mg/L	7.26	----	----	----	----
Silver, total	7440-22-4	E420/CG	0.000010	mg/L	0.000142	----	----	----	----

Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	P2-SEEP	----	----	----	----
					Client sampling date / time	08-Sep-2024 00:00	----	----	----	----
Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit		YL2401440-006	----	----	----	----
						Result	----	----	----	----
Total Metals										
Sodium, total	7440-23-5	E420/CG	0.050	mg/L		173	----	----	----	----
Strontium, total	7440-24-6	E420/CG	0.00020	mg/L		0.481	----	----	----	----
Sulfur, total	7704-34-9	E420/CG	0.50	mg/L		252	----	----	----	----
Tellurium, total	13494-80-9	E420/CG	0.00020	mg/L		<0.00020	----	----	----	----
Thallium, total	7440-28-0	E420/CG	0.000010	mg/L		0.000029	----	----	----	----
Thorium, total	7440-29-1	E420/CG	0.00010	mg/L		0.00348	----	----	----	----
Tin, total	7440-31-5	E420/CG	0.00010	mg/L		<0.00010	----	----	----	----
Titanium, total	7440-32-6	E420/CG	0.00030	mg/L		0.0409	----	----	----	----
Tungsten, total	7440-33-7	E420/CG	0.00010	mg/L		0.00013	----	----	----	----
Uranium, total	7440-61-1	E420/CG	0.000010	mg/L		0.00241	----	----	----	----
Vanadium, total	7440-62-2	E420/CG	0.00050	mg/L		0.00442	----	----	----	----
Zinc, total	7440-66-6	E420/CG	0.0030	mg/L		0.908	----	----	----	----
Zirconium, total	7440-67-7	E420/CG	0.00020	mg/L		0.00795	----	----	----	----
Dissolved Metals										
Calcium, dissolved	7440-70-2	E421/CG	0.050	mg/L		112	----	----	----	----
Iron, dissolved	7439-89-6	E421/CG	0.010	mg/L		2.35	----	----	----	----
Magnesium, dissolved	7439-95-4	E421/CG	0.0050	mg/L		25.2	----	----	----	----
Manganese, dissolved	7439-96-5	E421/CG	0.00010	mg/L		2.32	----	----	----	----
Potassium, dissolved	7440-09-7	E421/CG	0.050	mg/L		7.55	----	----	----	----
Sodium, dissolved	7440-23-5	E421/CG	0.050	mg/L		174	----	----	----	----
Dissolved metals filtration location	----	EP421/CG	-	-		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	: **YL2401440**	Page	: 1 of 17
Amendment	: **1**		
Client	: **Elgin Mining Inc.**	Laboratory	: ALS Environmental - Yellowknife
Contact	: Jon Melnyk	Account Manager	: Oliver Gregg
Address	: 750 West Pender Street Suite 201 Vancouver BC Canada V6C 2T7	Address	: 314 Old Airport Road, Unit 116 Yellowknife, Northwest Territories Canada X1A 3T3
Telephone	: ----	Telephone	: 1 867 445 7143
Project	: LUPIN MINE	Date Samples Received	: 10-Sep-2024 09:30
PO	: ----	Issue Date	: 02-Oct-2024 09:31
C-O-C number	: ----		
Sampler	: ----		
Site	: ----		
Quote number	: YL24-ELMI100-001		
No. of samples received	: 6		
No. of samples analysed	: 6		

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

Key

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

Workorder Comments

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

Summary of Outliers

Outliers : Quality Control Samples

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

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

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

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Analysis Holding Time Compliance

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

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

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

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

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Chloride in Water by IC										
HDPE P2-A	E235.Cl	08-Sep-2024	12-Sep-2024	28 days	5 days	✓	12-Sep-2024	28 days	5 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE P2-B	E235.Cl	08-Sep-2024	12-Sep-2024	28 days	5 days	✓	12-Sep-2024	28 days	5 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE P2-C	E235.Cl	08-Sep-2024	12-Sep-2024	28 days	5 days	✓	12-Sep-2024	28 days	5 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE P2-D	E235.Cl	08-Sep-2024	12-Sep-2024	28 days	5 days	✓	12-Sep-2024	28 days	5 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE P2-E	E235.Cl	08-Sep-2024	12-Sep-2024	28 days	5 days	✓	12-Sep-2024	28 days	5 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE P2-SEEP	E235.Cl	08-Sep-2024	12-Sep-2024	28 days	5 days	✓	12-Sep-2024	28 days	5 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE P2-A	E235.F	08-Sep-2024	12-Sep-2024	28 days	5 days	✓	12-Sep-2024	28 days	5 days	✓

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Fluoride in Water by IC										
HDPE P2-B	E235.F	08-Sep-2024	12-Sep-2024	28 days	5 days	✓	12-Sep-2024	28 days	5 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE P2-C	E235.F	08-Sep-2024	12-Sep-2024	28 days	5 days	✓	12-Sep-2024	28 days	5 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE P2-D	E235.F	08-Sep-2024	12-Sep-2024	28 days	5 days	✓	12-Sep-2024	28 days	5 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE P2-E	E235.F	08-Sep-2024	12-Sep-2024	28 days	5 days	✓	12-Sep-2024	28 days	5 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE P2-SEEP	E235.F	08-Sep-2024	12-Sep-2024	28 days	5 days	✓	12-Sep-2024	28 days	5 days	✓
Anions and Nutrients : Nitrate in Water by IC										
HDPE P2-A	E235.NO3	08-Sep-2024	12-Sep-2024	3 days	5 days	✗ EHT	12-Sep-2024	3 days	5 days	✗ EHT
Anions and Nutrients : Nitrate in Water by IC										
HDPE P2-B	E235.NO3	08-Sep-2024	12-Sep-2024	3 days	5 days	✗ EHT	12-Sep-2024	3 days	5 days	✗ EHT
Anions and Nutrients : Nitrate in Water by IC										
HDPE P2-C	E235.NO3	08-Sep-2024	12-Sep-2024	3 days	5 days	✗ EHT	12-Sep-2024	3 days	5 days	✗ EHT
Anions and Nutrients : Nitrate in Water by IC										
HDPE P2-D	E235.NO3	08-Sep-2024	12-Sep-2024	3 days	5 days	✗ EHT	12-Sep-2024	3 days	5 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 Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Nitrate in Water by IC										
HDPE P2-E	E235.NO3	08-Sep-2024	12-Sep-2024	3 days	5 days	× EHT	12-Sep-2024	3 days	5 days	× EHT
Anions and Nutrients : Nitrate in Water by IC										
HDPE P2-SEEP	E235.NO3	08-Sep-2024	12-Sep-2024	3 days	5 days	× EHT	12-Sep-2024	3 days	5 days	× EHT
Anions and Nutrients : Nitrite in Water by IC										
HDPE P2-A	E235.NO2	08-Sep-2024	12-Sep-2024	3 days	5 days	× EHT	12-Sep-2024	3 days	5 days	× EHT
Anions and Nutrients : Nitrite in Water by IC										
HDPE P2-B	E235.NO2	08-Sep-2024	12-Sep-2024	3 days	5 days	× EHT	12-Sep-2024	3 days	5 days	× EHT
Anions and Nutrients : Nitrite in Water by IC										
HDPE P2-C	E235.NO2	08-Sep-2024	12-Sep-2024	3 days	5 days	× EHT	12-Sep-2024	3 days	5 days	× EHT
Anions and Nutrients : Nitrite in Water by IC										
HDPE P2-D	E235.NO2	08-Sep-2024	12-Sep-2024	3 days	5 days	× EHT	12-Sep-2024	3 days	5 days	× EHT
Anions and Nutrients : Nitrite in Water by IC										
HDPE P2-E	E235.NO2	08-Sep-2024	12-Sep-2024	3 days	5 days	× EHT	12-Sep-2024	3 days	5 days	× EHT
Anions and Nutrients : Nitrite in Water by IC										
HDPE P2-SEEP	E235.NO2	08-Sep-2024	12-Sep-2024	3 days	5 days	× EHT	12-Sep-2024	3 days	5 days	× EHT
Anions and Nutrients : Sulfate in Water by IC										
HDPE P2-A	E235.SO4	08-Sep-2024	12-Sep-2024	28 days	5 days	✓	12-Sep-2024	28 days	5 days	✓

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Sulfate in Water by IC										
HDPE P2-B	E235.SO4	08-Sep-2024	12-Sep-2024	28 days	5 days	✓	12-Sep-2024	28 days	5 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE P2-C	E235.SO4	08-Sep-2024	12-Sep-2024	28 days	5 days	✓	12-Sep-2024	28 days	5 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE P2-D	E235.SO4	08-Sep-2024	12-Sep-2024	28 days	5 days	✓	12-Sep-2024	28 days	5 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE P2-E	E235.SO4	08-Sep-2024	12-Sep-2024	28 days	5 days	✓	12-Sep-2024	28 days	5 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE P2-SEEP	E235.SO4	08-Sep-2024	12-Sep-2024	28 days	5 days	✓	12-Sep-2024	28 days	5 days	✓
Cyanides : Total Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) P2-A	E333	08-Sep-2024	16-Sep-2024	14 days	9 days	✓	16-Sep-2024	14 days	9 days	✓
Cyanides : Total Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) P2-B	E333	08-Sep-2024	16-Sep-2024	14 days	9 days	✓	16-Sep-2024	14 days	9 days	✓
Cyanides : Total Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) P2-C	E333	08-Sep-2024	16-Sep-2024	14 days	9 days	✓	16-Sep-2024	14 days	9 days	✓
Cyanides : Total Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) P2-D	E333	08-Sep-2024	16-Sep-2024	14 days	9 days	✓	16-Sep-2024	14 days	9 days	✓

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : Total Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) P2-E	E333	08-Sep-2024	16-Sep-2024	14 days	9 days	✓	16-Sep-2024	14 days	9 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid) P2-A	E509	08-Sep-2024	13-Sep-2024	28 days	6 days	✓	13-Sep-2024	28 days	6 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid) P2-B	E509	08-Sep-2024	13-Sep-2024	28 days	6 days	✓	13-Sep-2024	28 days	6 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid) P2-C	E509	08-Sep-2024	13-Sep-2024	28 days	6 days	✓	13-Sep-2024	28 days	6 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid) P2-D	E509	08-Sep-2024	13-Sep-2024	28 days	6 days	✓	13-Sep-2024	28 days	6 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid) P2-E	E509	08-Sep-2024	13-Sep-2024	28 days	6 days	✓	13-Sep-2024	28 days	6 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) P2-A	E421	08-Sep-2024	13-Sep-2024	180 days	6 days	✓	16-Sep-2024	180 days	8 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) P2-B	E421	08-Sep-2024	13-Sep-2024	180 days	6 days	✓	16-Sep-2024	180 days	8 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) P2-C	E421	08-Sep-2024	13-Sep-2024	180 days	6 days	✓	16-Sep-2024	180 days	8 days	✓

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) P2-D	E421	08-Sep-2024	13-Sep-2024	180 days	6 days	✓	16-Sep-2024	180 days	8 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) P2-E	E421	08-Sep-2024	13-Sep-2024	180 days	6 days	✓	16-Sep-2024	180 days	8 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) P2-SEEP	E421	08-Sep-2024	13-Sep-2024	180 days	6 days	✓	16-Sep-2024	180 days	8 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (lab preserved) P2-SEEP	E358-L	08-Sep-2024	26-Sep-2024	3 days	19 days	× EHT	27-Sep-2024	28 days	1 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (lab preserved) P2-SEEP	E355-L	08-Sep-2024	26-Sep-2024	3 days	19 days	× EHT	27-Sep-2024	28 days	1 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE P2-A	E290	08-Sep-2024	12-Sep-2024	14 days	5 days	✓	12-Sep-2024	14 days	5 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE P2-B	E290	08-Sep-2024	12-Sep-2024	14 days	5 days	✓	12-Sep-2024	14 days	5 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE P2-C	E290	08-Sep-2024	12-Sep-2024	14 days	5 days	✓	12-Sep-2024	14 days	5 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE P2-D	E290	08-Sep-2024	12-Sep-2024	14 days	5 days	✓	12-Sep-2024	14 days	5 days	✓

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Alkalinity Species by Titration										
HDPE P2-E	E290	08-Sep-2024	12-Sep-2024	14 days	5 days	✓	12-Sep-2024	14 days	5 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE P2-SEEP	E290	08-Sep-2024	12-Sep-2024	14 days	5 days	✓	12-Sep-2024	14 days	5 days	✓
Physical Tests : Colour (True) by Spectrometer (5 CU)										
HDPE P2-SEEP	E329	08-Sep-2024	19-Sep-2024	3 days	12 days	× EHT	19-Sep-2024	3 days	12 days	× EHT
Physical Tests : Conductivity in Water										
HDPE P2-A	E100	08-Sep-2024	12-Sep-2024	28 days	5 days	✓	12-Sep-2024	28 days	5 days	✓
Physical Tests : Conductivity in Water										
HDPE P2-B	E100	08-Sep-2024	12-Sep-2024	28 days	5 days	✓	12-Sep-2024	28 days	5 days	✓
Physical Tests : Conductivity in Water										
HDPE P2-C	E100	08-Sep-2024	12-Sep-2024	28 days	5 days	✓	12-Sep-2024	28 days	5 days	✓
Physical Tests : Conductivity in Water										
HDPE P2-D	E100	08-Sep-2024	12-Sep-2024	28 days	5 days	✓	12-Sep-2024	28 days	5 days	✓
Physical Tests : Conductivity in Water										
HDPE P2-E	E100	08-Sep-2024	12-Sep-2024	28 days	5 days	✓	12-Sep-2024	28 days	5 days	✓
Physical Tests : Conductivity in Water										
HDPE P2-SEEP	E100	08-Sep-2024	12-Sep-2024	28 days	5 days	✓	12-Sep-2024	28 days	5 days	✓

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : pH by Meter										
HDPE P2-A	E108	08-Sep-2024	12-Sep-2024	0.25 hrs	112 hrs	× EHTR-FM	12-Sep-2024	0.25 hrs	112 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE P2-B	E108	08-Sep-2024	12-Sep-2024	0.25 hrs	112 hrs	× EHTR-FM	12-Sep-2024	0.25 hrs	112 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE P2-C	E108	08-Sep-2024	12-Sep-2024	0.25 hrs	112 hrs	× EHTR-FM	12-Sep-2024	0.25 hrs	112 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE P2-D	E108	08-Sep-2024	12-Sep-2024	0.25 hrs	112 hrs	× EHTR-FM	12-Sep-2024	0.25 hrs	112 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE P2-E	E108	08-Sep-2024	12-Sep-2024	0.25 hrs	112 hrs	× EHTR-FM	12-Sep-2024	0.25 hrs	112 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE P2-SEEP	E108	08-Sep-2024	12-Sep-2024	0.25 hrs	112 hrs	× EHTR-FM	12-Sep-2024	0.25 hrs	112 hrs	× EHTR-FM
Physical Tests : TDS by Gravimetry										
HDPE P2-SEEP	E162	08-Sep-2024	----	----	----		19-Sep-2024	7 days	12 days	× EHT
Physical Tests : Turbidity by Nephelometry										
HDPE P2-SEEP	E121	08-Sep-2024	----	----	----		20-Sep-2024	3 days	12 days	× EHT
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid) P2-A	E508	08-Sep-2024	13-Sep-2024	28 days	6 days	✓	13-Sep-2024	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
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid) P2-B	E508	08-Sep-2024	13-Sep-2024	28 days	6 days	✓	13-Sep-2024	28 days	6 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid) P2-C	E508	08-Sep-2024	13-Sep-2024	28 days	6 days	✓	13-Sep-2024	28 days	6 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid) P2-D	E508	08-Sep-2024	13-Sep-2024	28 days	6 days	✓	13-Sep-2024	28 days	6 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid) P2-E	E508	08-Sep-2024	13-Sep-2024	28 days	6 days	✓	13-Sep-2024	28 days	6 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid) P2-SEEP	E508	08-Sep-2024	13-Sep-2024	28 days	6 days	✓	13-Sep-2024	28 days	6 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) P2-A	E420	08-Sep-2024	14-Sep-2024	180 days	6 days	✓	16-Sep-2024	180 days	8 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) P2-B	E420	08-Sep-2024	14-Sep-2024	180 days	6 days	✓	16-Sep-2024	180 days	8 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) P2-C	E420	08-Sep-2024	14-Sep-2024	180 days	6 days	✓	16-Sep-2024	180 days	8 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) P2-D	E420	08-Sep-2024	14-Sep-2024	180 days	6 days	✓	16-Sep-2024	180 days	8 days	✓

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved)										
P2-E	E420	08-Sep-2024	14-Sep-2024	180 days	6 days	✓	16-Sep-2024	180 days	8 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved)										
P2-SEEP	E420	08-Sep-2024	14-Sep-2024	180 days	6 days	✓	16-Sep-2024	180 days	8 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	1648421	1	20	5.0	5.0	✓
Chloride in Water by IC	E235.Cl	1648328	1	15	6.6	5.0	✓
Colour (True) by Spectrometer (5 CU)	E329	1661793	1	14	7.1	5.0	✓
Conductivity in Water	E100	1648420	1	20	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1650625	1	16	6.2	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1650113	1	20	5.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1676183	1	7	14.2	5.0	✓
Fluoride in Water by IC	E235.F	1648327	1	15	6.6	5.0	✓
Nitrate in Water by IC	E235.NO3	1648324	1	17	5.8	5.0	✓
Nitrite in Water by IC	E235.NO2	1648325	1	17	5.8	5.0	✓
pH by Meter	E108	1648419	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1648326	1	15	6.6	5.0	✓
TDS by Gravimetry	E162	1661891	1	5	20.0	5.0	✓
Total Cyanide	E333	1653573	2	37	5.4	5.0	✓
Total Mercury in Water by CVAAS	E508	1650624	1	19	5.2	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1650111	1	20	5.0	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1676184	1	7	14.2	5.0	✓
Turbidity by Nephelometry	E121	1661906	1	15	6.6	5.0	✓
Laboratory Control Samples (LCS)							
Alkalinity Species by Titration	E290	1648421	1	20	5.0	5.0	✓
Chloride in Water by IC	E235.Cl	1648328	1	15	6.6	5.0	✓
Colour (True) by Spectrometer (5 CU)	E329	1661793	1	14	7.1	5.0	✓
Conductivity in Water	E100	1648420	1	20	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1650625	1	16	6.2	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1650113	1	20	5.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1676183	1	7	14.2	5.0	✓
Fluoride in Water by IC	E235.F	1648327	1	15	6.6	5.0	✓
Nitrate in Water by IC	E235.NO3	1648324	1	17	5.8	5.0	✓
Nitrite in Water by IC	E235.NO2	1648325	1	17	5.8	5.0	✓
pH by Meter	E108	1648419	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1648326	1	15	6.6	5.0	✓
TDS by Gravimetry	E162	1661891	1	5	20.0	5.0	✓
Total Cyanide	E333	1653573	2	37	5.4	5.0	✓
Total Mercury in Water by CVAAS	E508	1650624	1	19	5.2	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1650111	1	20	5.0	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1676184	1	7	14.2	5.0	✓

Matrix: **Water**

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

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Control Samples (LCS) - Continued							
Turbidity by Nephelometry	E121	1661906	1	15	6.6	5.0	✓
Method Blanks (MB)							
Alkalinity Species by Titration	E290	1648421	1	20	5.0	5.0	✓
Chloride in Water by IC	E235.Cl	1648328	1	15	6.6	5.0	✓
Colour (True) by Spectrometer (5 CU)	E329	1661793	1	14	7.1	5.0	✓
Conductivity in Water	E100	1648420	1	20	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1650625	1	16	6.2	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1650113	1	20	5.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1676183	1	7	14.2	5.0	✓
Fluoride in Water by IC	E235.F	1648327	1	15	6.6	5.0	✓
Nitrate in Water by IC	E235.NO3	1648324	1	17	5.8	5.0	✓
Nitrite in Water by IC	E235.NO2	1648325	1	17	5.8	5.0	✓
Sulfate in Water by IC	E235.SO4	1648326	1	15	6.6	5.0	✓
TDS by Gravimetry	E162	1661891	1	5	20.0	5.0	✓
Total Cyanide	E333	1653573	2	37	5.4	5.0	✓
Total Mercury in Water by CVAAS	E508	1650624	1	19	5.2	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1650111	1	20	5.0	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1676184	1	7	14.2	5.0	✓
Turbidity by Nephelometry	E121	1661906	1	15	6.6	5.0	✓
Matrix Spikes (MS)							
Chloride in Water by IC	E235.Cl	1648328	1	15	6.6	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1650625	1	16	6.2	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1650113	1	20	5.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1676183	1	7	14.2	5.0	✓
Fluoride in Water by IC	E235.F	1648327	1	15	6.6	5.0	✓
Nitrate in Water by IC	E235.NO3	1648324	1	17	5.8	5.0	✓
Nitrite in Water by IC	E235.NO2	1648325	1	17	5.8	5.0	✓
Sulfate in Water by IC	E235.SO4	1648326	1	15	6.6	5.0	✓
Total Cyanide	E333	1653573	2	37	5.4	5.0	✓
Total Mercury in Water by CVAAS	E508	1650624	1	19	5.2	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1650111	1	20	5.0	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1676184	1	7	14.2	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 - Calgary	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 - Calgary	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 - Calgary	Water	APHA 2130 B (mod)	Turbidity is measured by the nephelometric method, by measuring the intensity of light scatter under defined conditions.
TDS by Gravimetry	E162 ALS Environmental - Calgary	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.
Chloride in Water by IC	E235.Cl ALS Environmental - Calgary	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 - Calgary	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrite in Water by IC	E235.NO2 ALS Environmental - Calgary	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrate in Water by IC	E235.NO3 ALS Environmental - Calgary	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 - Calgary	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 - Calgary	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.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Colour (True) by Spectrometer (5 CU)	E329 ALS Environmental - Calgary	Water	APHA 2120 C (mod)	Colour (True Colour) is determined by filtering a sample through a 0.45 micron membrane filter followed by analysis of the filtrate using the platinum-cobalt colourimetric method. Colour measurements can be highly pH dependent, and apply to the pH of the sample as received (at time of testing), without pH adjustment.
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).
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L ALS Environmental - Calgary	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 - Calgary	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 Metals in Water by CRC ICPMS	E420 ALS Environmental - Calgary	Water	EPA 200.2/6020B (mod)	Water samples are digested with nitric and hydrochloric acids, and analyzed by Collision/Reaction Cell ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
Dissolved Metals in Water by CRC ICPMS	E421 ALS Environmental - Calgary	Water	APHA 3030B/EPA 6020B (mod)	Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by Collision/Reaction Cell ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
Total Mercury in Water by CVAAS	E508 ALS Environmental - Calgary	Water	EPA 1631E (mod)	Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS
Dissolved Mercury in Water by CVAAS	E509 ALS Environmental - Calgary	Water	APHA 3030B/EPA 1631E (mod)	Water samples are filtered (0.45 um), preserved with HCl, then undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Dissolved Hardness (Calculated)	EC100 ALS Environmental - Calgary	Water	APHA 2340B	"Hardness (as CaCO3), dissolved" is calculated from the sum of dissolved Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. "Total Hardness" refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because it is a property of water due to dissolved divalent cations.
Hardness (Calculated) from Total Ca/Mg	EC100A ALS Environmental - Calgary	Water	APHA 2340B	"Hardness (as CaCO3), from total Ca/Mg" is calculated from the sum of total Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. "Total Hardness" refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because it is a property of water due to dissolved divalent cations. Hardness from total Ca/Mg is normally comparable to Dissolved Hardness in non-turbid waters.
Ion Balance using Dissolved Metals	EC101 ALS Environmental - Calgary	Water	APHA 1030E	Cation Sum, Anion Sum, and Ion Balance are 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. Ion Balance cannot be calculated accurately for waters with very low electrical conductivity (EC).
TDS in Water (Calculation)	EC103 ALS Environmental - Calgary	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.
Nitrate and Nitrite (as N) (Calculation)	EC235.N+N ALS Environmental - Calgary	Water	EPA 300.0	Nitrate and Nitrite (as N) is a calculated parameter. Nitrate and Nitrite (as N) = Nitrite (as N) + Nitrate (as N).

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Total Organic Carbon by Combustion	EP355 ALS Environmental - Calgary	Water		Preparation for Total Organic Carbon by Combustion
Preparation for Dissolved Organic Carbon for Combustion	EP358 ALS Environmental - Calgary	Water	APHA 5310 B (mod)	Preparation for Dissolved Organic Carbon
Dissolved Metals Water Filtration	EP421 ALS Environmental - Calgary	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HNO3.
Dissolved Mercury Water Filtration	EP509 ALS Environmental - Calgary	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HCl.

QUALITY CONTROL REPORT

Work Order	: **YL2401440**	Page	: 1 of 17
Amendment	: **1**		
Client	: Elgin Mining Inc.	Laboratory	: ALS Environmental - Yellowknife
Contact	: Jon Melnyk	Account Manager	: Oliver Gregg
Address	: 750 West Pender Street Suite 201 Vancouver BC Canada V6C 2T7	Address	: 314 Old Airport Road, Unit 116 Yellowknife, Northwest Territories Canada X1A 3T3
Telephone	: ----	Telephone	: 1 867 445 7143
Project	: LUPIN MINE	Date Samples Received	: 10-Sep-2024 09:30
PO	: ----	Date Analysis Commenced	: 12-Sep-2024
C-O-C number	: ----	Issue Date	: 02-Oct-2024 09:32
Sampler	: ----		
Site	: ----		
Quote number	: YL24-ELMI100-001		
No. of samples received	: 6		
No. of samples analysed	: 6		

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

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percent Difference (RPD) and Data Quality Objectives
- 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*
Gurvinder Kour	Lab Assistant	Calgary Metals, Calgary, Alberta
Harpreet Chawla	Team Leader - Inorganics	Calgary Inorganics, Calgary, Alberta
Jon Fisher	Production Manager, Environmental	Waterloo Inorganics, Waterloo, Ontario
Katarzyna Glinka	Analyst	Calgary Inorganics, Calgary, Alberta
Kevin Baxter	Team Leader - Inorganics	Calgary Inorganics, Calgary, Alberta
Kevin Baxter	Team Leader - Inorganics	Calgary Metals, Calgary, Alberta
Parker Sgarbossa	Laboratory Analyst	Calgary Metals, Calgary, Alberta
Ruifang Zheng	Analyst	Calgary Inorganics, Calgary, Alberta
Shirley Li	Team Leader - Inorganics	Calgary Metals, Calgary, 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: 1648419)											
CG2413105-001	Anonymous	pH	----	E108	0.10	pH units	7.98	8.00	0.250%	4%	----
Physical Tests (QC Lot: 1648420)											
CG2413105-001	Anonymous	Conductivity	----	E100	2.0	µS/cm	1970	1940	1.33%	10%	----
Physical Tests (QC Lot: 1648421)											
CG2413105-001	Anonymous	Alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	508	484	4.86%	20%	----
Physical Tests (QC Lot: 1661793)											
CG2413609-001	Anonymous	Colour, true	----	E329	5.0	CU	<5.0	<5.0	0	Diff <2x LOR	----
Physical Tests (QC Lot: 1661891)											
CG2413554-001	Anonymous	Solids, total dissolved [TDS]	----	E162	20	mg/L	1460	1210	18.2%	20%	----
Physical Tests (QC Lot: 1661906)											
CG2413605-001	Anonymous	Turbidity	----	E121	0.10	NTU	21.6	21.6	0.463%	15%	----
Anions and Nutrients (QC Lot: 1648324)											
YL2401440-001	P2-A	Nitrate (as N)	14797-55-8	E235.NO3	0.020	mg/L	0.404	0.408	0.812%	20%	----
Anions and Nutrients (QC Lot: 1648325)											
YL2401440-001	P2-A	Nitrite (as N)	14797-65-0	E235.NO2	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1648326)											
YL2401440-001	P2-A	Sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	178	179	0.794%	20%	----
Anions and Nutrients (QC Lot: 1648327)											
YL2401440-001	P2-A	Fluoride	16984-48-8	E235.F	0.020	mg/L	0.126	0.126	0.0006	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1648328)											
YL2401440-001	P2-A	Chloride	16887-00-6	E235.Cl	0.50	mg/L	13.1	13.2	0.864%	20%	----
Cyanides (QC Lot: 1653573)											
WT2427138-001	Anonymous	Cyanide, strong acid dissociable (Total)	----	E333	0.0020	mg/L	0.0027	0.0027	0.00001	Diff <2x LOR	----
Cyanides (QC Lot: 1653576)											
KS2403724-001	Anonymous	Cyanide, strong acid dissociable (Total)	----	E333	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
Organic / Inorganic Carbon (QC Lot: 1676183)											
CG2413982-001	Anonymous	Carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	2.37	2.61	0.24	Diff <2x LOR	----
Organic / Inorganic Carbon (QC Lot: 1676184)											
CG2413982-001	Anonymous	Carbon, total organic [TOC]	----	E355-L	0.50	mg/L	2.39	2.33	0.06	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Total Metals (QC Lot: 1650111)											
CG2413082-001	Anonymous	Aluminum, total	7429-90-5	E420	0.0030	mg/L	0.0236	0.0227	0.0009	Diff <2x LOR	----
		Antimony, total	7440-36-0	E420	0.00010	mg/L	0.00035	0.00033	0.00001	Diff <2x LOR	----
		Arsenic, total	7440-38-2	E420	0.00010	mg/L	0.00031	0.00034	0.00003	Diff <2x LOR	----
		Barium, total	7440-39-3	E420	0.00010	mg/L	0.679	0.673	0.898%	20%	----
		Beryllium, total	7440-41-7	E420	0.000020	mg/L	<0.020 µg/L	<0.000020	0	Diff <2x LOR	----
		Bismuth, total	7440-69-9	E420	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Boron, total	7440-42-8	E420	0.010	mg/L	0.057	0.059	0.002	Diff <2x LOR	----
		Cadmium, total	7440-43-9	E420	0.0000050	mg/L	0.0313 µg/L	0.0000406	0.0000093	Diff <2x LOR	----
		Calcium, total	7440-70-2	E420	0.050	mg/L	71.0	72.8	2.58%	20%	----
		Cesium, total	7440-46-2	E420	0.000010	mg/L	0.000026	0.000026	0.0000008	Diff <2x LOR	----
		Chromium, total	7440-47-3	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Cobalt, total	7440-48-4	E420	0.00010	mg/L	<0.10 µg/L	<0.00010	0	Diff <2x LOR	----
		Copper, total	7440-50-8	E420	0.00050	mg/L	0.00051	<0.00050	0.00001	Diff <2x LOR	----
		Iron, total	7439-89-6	E420	0.010	mg/L	0.026	0.031	0.005	Diff <2x LOR	----
		Lead, total	7439-92-1	E420	0.000050	mg/L	0.000082	0.000082	0.0000007	Diff <2x LOR	----
		Lithium, total	7439-93-2	E420	0.0010	mg/L	0.210	0.216	2.82%	20%	----
		Magnesium, total	7439-95-4	E420	0.0050	mg/L	33.2	33.5	0.648%	20%	----
		Manganese, total	7439-96-5	E420	0.00010	mg/L	0.00181	0.00163	10.2%	20%	----
		Molybdenum, total	7439-98-7	E420	0.000050	mg/L	0.00174	0.00165	5.18%	20%	----
		Nickel, total	7440-02-0	E420	0.00050	mg/L	0.00093	0.00092	0.00001	Diff <2x LOR	----
		Phosphorus, total	7723-14-0	E420	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Potassium, total	7440-09-7	E420	0.050	mg/L	9.13	9.04	0.966%	20%	----
		Rubidium, total	7440-17-7	E420	0.00020	mg/L	0.00577	0.00589	2.10%	20%	----
		Selenium, total	7782-49-2	E420	0.000050	mg/L	2.16 µg/L	0.00222	2.88%	20%	----
		Silicon, total	7440-21-3	E420	0.10	mg/L	3.27	3.29	0.632%	20%	----
		Silver, total	7440-22-4	E420	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Sodium, total	7440-23-5	E420	0.050	mg/L	20.7	20.8	0.929%	20%	----
		Strontium, total	7440-24-6	E420	0.00020	mg/L	0.298	0.296	0.490%	20%	----
		Sulfur, total	7704-34-9	E420	0.50	mg/L	21.0	21.0	0.127%	20%	----
		Tellurium, total	13494-80-9	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		Thallium, total	7440-28-0	E420	0.000010	mg/L	0.000017	0.000016	0.000001	Diff <2x LOR	----
		Thorium, total	7440-29-1	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Tin, total	7440-31-5	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Titanium, total	7440-32-6	E420	0.00030	mg/L	0.00039	0.00036	0.00003	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Total Metals (QC Lot: 1650111) - continued											
CG2413082-001	Anonymous	Tungsten, total	7440-33-7	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Uranium, total	7440-61-1	E420	0.000010	mg/L	0.00288	0.00286	0.565%	20%	----
		Vanadium, total	7440-62-2	E420	0.00050	mg/L	0.00083	0.00084	0.000007	Diff <2x LOR	----
		Zinc, total	7440-66-6	E420	0.0030	mg/L	<0.0030	<0.0030	0	Diff <2x LOR	----
		Zirconium, total	7440-67-7	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
Total Metals (QC Lot: 1650624)											
CG2413082-001	Anonymous	Mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1650113)											
CG2413082-001	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	0.0045	0.0042	0.0002	Diff <2x LOR	----
		Antimony, dissolved	7440-36-0	E421	0.00010	mg/L	0.00039	0.00038	0.00001	Diff <2x LOR	----
		Arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	0.00029	0.00030	0.00001	Diff <2x LOR	----
		Barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.664	0.674	1.40%	20%	----
		Beryllium, dissolved	7440-41-7	E421	0.000020	mg/L	<0.020 µg/L	<0.000020	0	Diff <2x LOR	----
		Bismuth, dissolved	7440-69-9	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Boron, dissolved	7440-42-8	E421	0.010	mg/L	0.052	0.055	0.002	Diff <2x LOR	----
		Cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L	0.0175 µg/L	0.0000153	0.0000022	Diff <2x LOR	----
		Calcium, dissolved	7440-70-2	E421	0.050	mg/L	67.8	68.4	0.800%	20%	----
		Cesium, dissolved	7440-46-2	E421	0.000010	mg/L	0.000020	0.000019	0.0000007	Diff <2x LOR	----
		Chromium, dissolved	7440-47-3	E421	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Cobalt, dissolved	7440-48-4	E421	0.00010	mg/L	<0.10 µg/L	<0.00010	0	Diff <2x LOR	----
		Copper, dissolved	7440-50-8	E421	0.00020	mg/L	0.00024	0.00026	0.00002	Diff <2x LOR	----
		Iron, dissolved	7439-89-6	E421	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		Lead, dissolved	7439-92-1	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Lithium, dissolved	7439-93-2	E421	0.0010	mg/L	0.208	0.217	4.04%	20%	----
		Magnesium, dissolved	7439-95-4	E421	0.0050	mg/L	33.0	32.6	1.12%	20%	----
		Manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.00014	0.00013	0.00002	Diff <2x LOR	----
		Molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.00164	0.00163	0.924%	20%	----
		Nickel, dissolved	7440-02-0	E421	0.00050	mg/L	0.00070	0.00069	0.000006	Diff <2x LOR	----
		Phosphorus, dissolved	7723-14-0	E421	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Potassium, dissolved	7440-09-7	E421	0.050	mg/L	9.15	9.06	1.02%	20%	----
		Rubidium, dissolved	7440-17-7	E421	0.00020	mg/L	0.00552	0.00562	1.78%	20%	----
		Selenium, dissolved	7782-49-2	E421	0.000050	mg/L	2.55 µg/L	0.00267	4.43%	20%	----
		Silicon, dissolved	7440-21-3	E421	0.050	mg/L	3.15	3.19	1.15%	20%	----
		Silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Dissolved Metals (QC Lot: 1650113) - continued											
CG2413082-001	Anonymous	Sodium, dissolved	7440-23-5	E421	0.050	mg/L	20.0	19.6	2.06%	20%	----
		Strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.284	0.279	1.67%	20%	----
		Sulfur, dissolved	7704-34-9	E421	0.50	mg/L	20.5	20.9	1.72%	20%	----
		Tellurium, dissolved	13494-80-9	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		Thallium, dissolved	7440-28-0	E421	0.000010	mg/L	0.000015	0.000013	0.000002	Diff <2x LOR	----
		Thorium, dissolved	7440-29-1	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Tin, dissolved	7440-31-5	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Titanium, dissolved	7440-32-6	E421	0.00030	mg/L	<0.00030	<0.00030	0	Diff <2x LOR	----
		Tungsten, dissolved	7440-33-7	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Uranium, dissolved	7440-61-1	E421	0.000010	mg/L	0.00287	0.00281	1.96%	20%	----
		Vanadium, dissolved	7440-62-2	E421	0.00050	mg/L	0.00070	0.00068	0.00002	Diff <2x LOR	----
		Zinc, dissolved	7440-66-6	E421	0.0010	mg/L	0.0012	0.0013	0.00005	Diff <2x LOR	----
		Zirconium, dissolved	7440-67-7	E421	0.00030	mg/L	<0.00030	<0.00030	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1650625)											
CG2413082-001	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----

Method Blank (MB) Report

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

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 1648420)						
Conductivity	----	E100	1	µS/cm	<1.0	----
Physical Tests (QCLot: 1648421)						
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	<1.0	----
Physical Tests (QCLot: 1661793)						
Colour, true	----	E329	5	CU	<5.0	----
Physical Tests (QCLot: 1661891)						
Solids, total dissolved [TDS]	----	E162	10	mg/L	<10	----
Physical Tests (QCLot: 1661906)						
Turbidity	----	E121	0.1	NTU	<0.10	----
Anions and Nutrients (QCLot: 1648324)						
Nitrate (as N)	14797-55-8	E235.NO3	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 1648325)						
Nitrite (as N)	14797-65-0	E235.NO2	0.01	mg/L	<0.010	----
Anions and Nutrients (QCLot: 1648326)						
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	----
Anions and Nutrients (QCLot: 1648327)						
Fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 1648328)						
Chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	----
Cyanides (QCLot: 1653573)						
Cyanide, strong acid dissociable (Total)	----	E333	0.002	mg/L	<0.0020	----
Cyanides (QCLot: 1653576)						
Cyanide, strong acid dissociable (Total)	----	E333	0.002	mg/L	<0.0020	----
Organic / Inorganic Carbon (QCLot: 1676183)						
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	<0.50	----
Organic / Inorganic Carbon (QCLot: 1676184)						
Carbon, total organic [TOC]	----	E355-L	0.5	mg/L	<0.50	----
Total Metals (QCLot: 1650111)						
Aluminum, total	7429-90-5	E420	0.003	mg/L	<0.0030	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	<0.00010	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	<0.00010	----
Barium, total	7440-39-3	E420	0.0001	mg/L	<0.00010	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (QCLot: 1650111) - continued						
Beryllium, total	7440-41-7	E420	0.00002	mg/L	<0.000020	----
Bismuth, total	7440-69-9	E420	0.00005	mg/L	<0.000050	----
Boron, total	7440-42-8	E420	0.01	mg/L	<0.010	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	<0.0000050	----
Calcium, total	7440-70-2	E420	0.05	mg/L	<0.050	----
Cesium, total	7440-46-2	E420	0.00001	mg/L	<0.000010	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	<0.00050	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	<0.00010	----
Copper, total	7440-50-8	E420	0.0005	mg/L	<0.00050	----
Iron, total	7439-89-6	E420	0.01	mg/L	<0.010	----
Lead, total	7439-92-1	E420	0.00005	mg/L	<0.000050	----
Lithium, total	7439-93-2	E420	0.001	mg/L	<0.0010	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	<0.0050	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	<0.00010	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	<0.000050	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	<0.00050	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	<0.050	----
Potassium, total	7440-09-7	E420	0.05	mg/L	<0.050	----
Rubidium, total	7440-17-7	E420	0.0002	mg/L	<0.00020	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	<0.000050	----
Silicon, total	7440-21-3	E420	0.1	mg/L	<0.10	----
Silver, total	7440-22-4	E420	0.00001	mg/L	<0.000010	----
Sodium, total	7440-23-5	E420	0.05	mg/L	<0.050	----
Strontium, total	7440-24-6	E420	0.0002	mg/L	<0.00020	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	<0.50	----
Tellurium, total	13494-80-9	E420	0.0002	mg/L	<0.00020	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	<0.000010	----
Thorium, total	7440-29-1	E420	0.0001	mg/L	<0.00010	----
Tin, total	7440-31-5	E420	0.0001	mg/L	<0.00010	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	<0.00030	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	<0.00010	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	<0.000010	----
Vanadium, total	7440-62-2	E420	0.0005	mg/L	<0.00050	----
Zinc, total	7440-66-6	E420	0.003	mg/L	<0.0030	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	<0.00020	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (QCLot: 1650624)						
Mercury, total	7439-97-6	E508	0.000005	mg/L	<0.0000050	----
Dissolved Metals (QCLot: 1650113)						
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	<0.0010	----
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	<0.00010	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	<0.00010	----
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	<0.00010	----
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	<0.000020	----
Bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	<0.000050	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	<0.010	----
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	<0.0000050	----
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	<0.050	----
Cesium, dissolved	7440-46-2	E421	0.00001	mg/L	<0.000010	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	<0.00050	----
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	<0.00010	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	<0.00020	----
Iron, dissolved	7439-89-6	E421	0.01	mg/L	<0.010	----
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	<0.000050	----
Lithium, dissolved	7439-93-2	E421	0.001	mg/L	<0.0010	----
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	<0.0050	----
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	<0.00010	----
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	<0.000050	----
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	<0.00050	----
Phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	<0.050	----
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	<0.050	----
Rubidium, dissolved	7440-17-7	E421	0.0002	mg/L	<0.00020	----
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	<0.000050	----
Silicon, dissolved	7440-21-3	E421	0.05	mg/L	<0.050	----
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	<0.000010	----
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	<0.050	----
Strontium, dissolved	7440-24-6	E421	0.0002	mg/L	<0.00020	----
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	<0.50	----
Tellurium, dissolved	13494-80-9	E421	0.0002	mg/L	<0.00020	----
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	<0.000010	----
Thorium, dissolved	7440-29-1	E421	0.0001	mg/L	<0.00010	----
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	<0.00010	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Dissolved Metals (QCLot: 1650113) - continued						
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	<0.00030	----
Tungsten, dissolved	7440-33-7	E421	0.0001	mg/L	<0.00010	----
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	<0.000010	----
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	<0.00050	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	<0.0010	----
Zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	<0.00020	----
Dissolved Metals (QCLot: 1650625)						
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	<0.0000050	----

Laboratory Control Sample (LCS) Report

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

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 1648419)									
pH	----	E108	----	pH units	7 pH units	101	98.0	102	----
Physical Tests (QCLot: 1648420)									
Conductivity	----	E100	1	µS/cm	147 µS/cm	99.0	90.0	110	----
Physical Tests (QCLot: 1648421)									
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	500 mg/L	102	85.0	115	----
Physical Tests (QCLot: 1661793)									
Colour, true	----	E329	5	CU	100 CU	102	85.0	115	----
Physical Tests (QCLot: 1661891)									
Solids, total dissolved [TDS]	----	E162	10	mg/L	1000 mg/L	91.6	85.0	115	----
Physical Tests (QCLot: 1661906)									
Turbidity	----	E121	0.1	NTU	200 NTU	99.5	85.0	115	----
Anions and Nutrients (QCLot: 1648324)									
Nitrate (as N)	14797-55-8	E235.NO3	0.02	mg/L	2.5 mg/L	96.1	90.0	110	----
Anions and Nutrients (QCLot: 1648325)									
Nitrite (as N)	14797-65-0	E235.NO2	0.01	mg/L	0.5 mg/L	97.8	90.0	110	----
Anions and Nutrients (QCLot: 1648326)									
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	98.9	90.0	110	----
Anions and Nutrients (QCLot: 1648327)									
Fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	99.5	90.0	110	----
Anions and Nutrients (QCLot: 1648328)									
Chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	97.2	90.0	110	----
Cyanides (QCLot: 1653573)									
Cyanide, strong acid dissociable (Total)	----	E333	0.002	mg/L	0.25 mg/L	84.5	80.0	120	----
Cyanides (QCLot: 1653576)									
Cyanide, strong acid dissociable (Total)	----	E333	0.002	mg/L	0.25 mg/L	90.9	80.0	120	----
Organic / Inorganic Carbon (QCLot: 1676183)									
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	8.57 mg/L	108	80.0	120	----
Organic / Inorganic Carbon (QCLot: 1676184)									
Carbon, total organic [TOC]	----	E355-L	0.5	mg/L	8.57 mg/L	107	80.0	120	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Total Metals (QCLot: 1650111)									
Aluminum, total	7429-90-5	E420	0.003	mg/L	2 mg/L	98.7	80.0	120	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	1 mg/L	106	80.0	120	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	1 mg/L	99.4	80.0	120	----
Barium, total	7440-39-3	E420	0.0001	mg/L	0.25 mg/L	93.5	80.0	120	----
Beryllium, total	7440-41-7	E420	0.00002	mg/L	0.1 mg/L	95.8	80.0	120	----
Bismuth, total	7440-69-9	E420	0.00005	mg/L	1 mg/L	102	80.0	120	----
Boron, total	7440-42-8	E420	0.01	mg/L	1 mg/L	106	80.0	120	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	0.1 mg/L	91.4	80.0	120	----
Calcium, total	7440-70-2	E420	0.05	mg/L	50 mg/L	99.4	80.0	120	----
Cesium, total	7440-46-2	E420	0.00001	mg/L	0.05 mg/L	92.6	80.0	120	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	0.25 mg/L	94.5	80.0	120	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	0.25 mg/L	94.1	80.0	120	----
Copper, total	7440-50-8	E420	0.0005	mg/L	0.25 mg/L	92.3	80.0	120	----
Iron, total	7439-89-6	E420	0.01	mg/L	1 mg/L	95.5	80.0	120	----
Lead, total	7439-92-1	E420	0.00005	mg/L	0.5 mg/L	103	80.0	120	----
Lithium, total	7439-93-2	E420	0.001	mg/L	0.25 mg/L	91.3	80.0	120	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	50 mg/L	95.1	80.0	120	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	0.25 mg/L	97.2	80.0	120	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	0.25 mg/L	95.7	80.0	120	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	0.5 mg/L	94.2	80.0	120	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	10 mg/L	100	70.0	130	----
Potassium, total	7440-09-7	E420	0.05	mg/L	50 mg/L	102	80.0	120	----
Rubidium, total	7440-17-7	E420	0.0002	mg/L	0.1 mg/L	101	80.0	120	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	1 mg/L	92.2	80.0	120	----
Silicon, total	7440-21-3	E420	0.1	mg/L	10 mg/L	102	60.0	140	----
Silver, total	7440-22-4	E420	0.00001	mg/L	0.1 mg/L	92.1	80.0	120	----
Sodium, total	7440-23-5	E420	0.05	mg/L	50 mg/L	94.4	80.0	120	----
Strontium, total	7440-24-6	E420	0.0002	mg/L	0.25 mg/L	96.3	80.0	120	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	50 mg/L	93.5	80.0	120	----
Tellurium, total	13494-80-9	E420	0.0002	mg/L	0.1 mg/L	88.8	80.0	120	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	1 mg/L	96.6	80.0	120	----
Thorium, total	7440-29-1	E420	0.0001	mg/L	0.1 mg/L	102	80.0	120	----
Tin, total	7440-31-5	E420	0.0001	mg/L	0.5 mg/L	96.2	80.0	120	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	0.25 mg/L	92.5	80.0	120	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	0.1 mg/L	99.5	80.0	120	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Total Metals (QCLot: 1650111) - continued									
Uranium, total	7440-61-1	E420	0.00001	mg/L	0.005 mg/L	97.3	80.0	120	----
Vanadium, total	7440-62-2	E420	0.0005	mg/L	0.5 mg/L	96.5	80.0	120	----
Zinc, total	7440-66-6	E420	0.003	mg/L	0.5 mg/L	89.8	80.0	120	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	0.1 mg/L	95.6	80.0	120	----
Total Metals (QCLot: 1650624)									
Mercury, total	7439-97-6	E508	0.000005	mg/L	0 mg/L	102	80.0	120	----
Dissolved Metals (QCLot: 1650113)									
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	2 mg/L	103	80.0	120	----
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	1 mg/L	98.8	80.0	120	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	1 mg/L	102	80.0	120	----
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	0.25 mg/L	104	80.0	120	----
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	0.1 mg/L	95.2	80.0	120	----
Bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	1 mg/L	106	80.0	120	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	1 mg/L	110	80.0	120	----
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	0.1 mg/L	95.3	80.0	120	----
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	50 mg/L	100	80.0	120	----
Cesium, dissolved	7440-46-2	E421	0.00001	mg/L	0.05 mg/L	94.6	80.0	120	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	0.25 mg/L	101	80.0	120	----
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	0.25 mg/L	96.9	80.0	120	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	0.25 mg/L	94.1	80.0	120	----
Iron, dissolved	7439-89-6	E421	0.01	mg/L	1 mg/L	98.3	80.0	120	----
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	0.5 mg/L	104	80.0	120	----
Lithium, dissolved	7439-93-2	E421	0.001	mg/L	0.25 mg/L	94.5	80.0	120	----
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	50 mg/L	94.9	80.0	120	----
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	0.25 mg/L	99.0	80.0	120	----
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	0.25 mg/L	100	80.0	120	----
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	0.5 mg/L	96.0	80.0	120	----
Phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	10 mg/L	100	70.0	130	----
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	50 mg/L	105	80.0	120	----
Rubidium, dissolved	7440-17-7	E421	0.0002	mg/L	0.1 mg/L	99.6	80.0	120	----
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	1 mg/L	95.9	80.0	120	----
Silicon, dissolved	7440-21-3	E421	0.05	mg/L	10 mg/L	103	60.0	140	----
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	0.1 mg/L	94.2	80.0	120	----
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	50 mg/L	93.9	80.0	120	----
Strontium, dissolved	7440-24-6	E421	0.0002	mg/L	0.25 mg/L	98.1	80.0	120	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Dissolved Metals (QCLot: 1650113) - continued									
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	50 mg/L	98.0	80.0	120	----
Tellurium, dissolved	13494-80-9	E421	0.0002	mg/L	0.1 mg/L	93.5	80.0	120	----
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	1 mg/L	98.7	80.0	120	----
Thorium, dissolved	7440-29-1	E421	0.0001	mg/L	0.1 mg/L	105	80.0	120	----
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	0.5 mg/L	101	80.0	120	----
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	0.25 mg/L	94.8	80.0	120	----
Tungsten, dissolved	7440-33-7	E421	0.0001	mg/L	0.1 mg/L	103	80.0	120	----
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	0.005 mg/L	102	80.0	120	----
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	0.5 mg/L	98.9	80.0	120	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	0.5 mg/L	97.2	80.0	120	----
Zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	0.1 mg/L	99.0	80.0	120	----
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0 mg/L	99.3	80.0	120	----

Matrix Spike (MS) Report

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

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Anions and Nutrients (QCLot: 1648324)										
YL2401440-002	P2-B	Nitrate (as N)	14797-55-8	E235.NO3	2.42 mg/L	2.5 mg/L	96.6	75.0	125	----
Anions and Nutrients (QCLot: 1648325)										
YL2401440-002	P2-B	Nitrite (as N)	14797-65-0	E235.NO2	0.498 mg/L	0.5 mg/L	99.6	75.0	125	----
Anions and Nutrients (QCLot: 1648326)										
YL2401440-002	P2-B	Sulfate (as SO4)	14808-79-8	E235.SO4	ND mg/L	----	ND	75.0	125	----
Anions and Nutrients (QCLot: 1648327)										
YL2401440-002	P2-B	Fluoride	16984-48-8	E235.F	0.996 mg/L	1 mg/L	99.6	75.0	125	----
Anions and Nutrients (QCLot: 1648328)										
YL2401440-002	P2-B	Chloride	16887-00-6	E235.Cl	97.8 mg/L	100 mg/L	97.8	75.0	125	----
Cyanides (QCLot: 1653573)										
WT2427138-001	Anonymous	Cyanide, strong acid dissociable (Total)	----	E333	0.214 mg/L	0.25 mg/L	85.5	75.0	125	----
Cyanides (QCLot: 1653576)										
KS2403724-001	Anonymous	Cyanide, strong acid dissociable (Total)	----	E333	0.212 mg/L	0.25 mg/L	84.6	75.0	125	----
Organic / Inorganic Carbon (QCLot: 1676183)										
CG2413982-001	Anonymous	Carbon, dissolved organic [DOC]	----	E358-L	3.92 mg/L	5 mg/L	78.3	70.0	130	----
Organic / Inorganic Carbon (QCLot: 1676184)										
CG2413982-001	Anonymous	Carbon, total organic [TOC]	----	E355-L	4.11 mg/L	5 mg/L	82.2	70.0	130	----
Total Metals (QCLot: 1650111)										
CG2413082-002	Anonymous	Aluminum, total	7429-90-5	E420	1.84 mg/L	2 mg/L	91.8	70.0	130	----
		Antimony, total	7440-36-0	E420	0.200 mg/L	0.2 mg/L	99.8	70.0	130	----
		Arsenic, total	7440-38-2	E420	0.185 mg/L	0.2 mg/L	92.5	70.0	130	----
		Barium, total	7440-39-3	E420	0.183 mg/L	0.2 mg/L	91.3	70.0	130	----
		Beryllium, total	7440-41-7	E420	0.358 mg/L	0.4 mg/L	89.6	70.0	130	----
		Bismuth, total	7440-69-9	E420	0.100 mg/L	0.1 mg/L	100	70.0	130	----
		Boron, total	7440-42-8	E420	0.993 mg/L	1 mg/L	99.3	70.0	130	----
		Cadmium, total	7440-43-9	E420	0.0369 mg/L	0.04 mg/L	92.2	70.0	130	----
		Calcium, total	7440-70-2	E420	ND mg/L	----	ND	70.0	130	----
		Cesium, total	7440-46-2	E420	0.0964 mg/L	0.1 mg/L	96.4	70.0	130	----
		Chromium, total	7440-47-3	E420	0.354 mg/L	0.4 mg/L	88.6	70.0	130	----
		Cobalt, total	7440-48-4	E420	0.184 mg/L	0.2 mg/L	92.2	70.0	130	----
		Copper, total	7440-50-8	E420	0.183 mg/L	0.2 mg/L	91.6	70.0	130	----
		Iron, total	7439-89-6	E420	18.3 mg/L	20 mg/L	91.5	70.0	130	----
		Lead, total	7439-92-1	E420	0.197 mg/L	0.2 mg/L	98.5	70.0	130	----
		Lithium, total	7439-93-2	E420	0.842 mg/L	1 mg/L	84.2	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Total Metals (QCLot: 1650111) - continued										
CG2413082-002	Anonymous	Magnesium, total	7439-95-4	E420	ND mg/L	----	ND	70.0	130	----
		Manganese, total	7439-96-5	E420	0.187 mg/L	0.2 mg/L	93.4	70.0	130	----
		Molybdenum, total	7439-98-7	E420	0.192 mg/L	0.2 mg/L	95.8	70.0	130	----
		Nickel, total	7440-02-0	E420	0.369 mg/L	0.4 mg/L	92.3	70.0	130	----
		Phosphorus, total	7723-14-0	E420	92.2 mg/L	100 mg/L	92.2	70.0	130	----
		Potassium, total	7440-09-7	E420	38.1 mg/L	40 mg/L	95.2	70.0	130	----
		Rubidium, total	7440-17-7	E420	0.190 mg/L	0.2 mg/L	95.1	70.0	130	----
		Selenium, total	7782-49-2	E420	0.370 mg/L	0.4 mg/L	92.6	70.0	130	----
		Silicon, total	7440-21-3	E420	89.7 mg/L	100 mg/L	89.7	70.0	130	----
		Silver, total	7440-22-4	E420	0.0391 mg/L	0.04 mg/L	97.8	70.0	130	----
		Sodium, total	7440-23-5	E420	18.6 mg/L	20 mg/L	92.9	70.0	130	----
		Strontium, total	7440-24-6	E420	ND mg/L	----	ND	70.0	130	----
		Sulfur, total	7704-34-9	E420	169 mg/L	200 mg/L	84.3	70.0	130	----
		Tellurium, total	13494-80-9	E420	0.376 mg/L	0.4 mg/L	94.0	70.0	130	----
		Thallium, total	7440-28-0	E420	0.0383 mg/L	0.04 mg/L	95.8	70.0	130	----
		Thorium, total	7440-29-1	E420	0.202 mg/L	0.2 mg/L	101	70.0	130	----
		Tin, total	7440-31-5	E420	0.190 mg/L	0.2 mg/L	95.2	70.0	130	----
		Titanium, total	7440-32-6	E420	0.346 mg/L	0.4 mg/L	86.6	70.0	130	----
		Tungsten, total	7440-33-7	E420	0.194 mg/L	0.2 mg/L	97.0	70.0	130	----
		Uranium, total	7440-61-1	E420	0.0385 mg/L	0.04 mg/L	96.3	70.0	130	----
		Vanadium, total	7440-62-2	E420	0.910 mg/L	1 mg/L	91.0	70.0	130	----
		Zinc, total	7440-66-6	E420	3.65 mg/L	4 mg/L	91.2	70.0	130	----
		Zirconium, total	7440-67-7	E420	0.385 mg/L	0.4 mg/L	96.2	70.0	130	----
Total Metals (QCLot: 1650624)										
CG2413082-002	Anonymous	Mercury, total	7439-97-6	E508	0.000112 mg/L	0 mg/L	112	70.0	130	----
Dissolved Metals (QCLot: 1650113)										
CG2413082-002	Anonymous	Aluminum, dissolved	7429-90-5	E421	1.87 mg/L	2 mg/L	93.4	70.0	130	----
		Antimony, dissolved	7440-36-0	E421	0.200 mg/L	0.2 mg/L	100	70.0	130	----
		Arsenic, dissolved	7440-38-2	E421	0.189 mg/L	0.2 mg/L	94.4	70.0	130	----
		Barium, dissolved	7440-39-3	E421	0.186 mg/L	0.2 mg/L	93.1	70.0	130	----
		Beryllium, dissolved	7440-41-7	E421	0.344 mg/L	0.4 mg/L	86.1	70.0	130	----
		Bismuth, dissolved	7440-69-9	E421	0.0937 mg/L	0.1 mg/L	93.7	70.0	130	----
		Boron, dissolved	7440-42-8	E421	0.997 mg/L	1 mg/L	99.7	70.0	130	----
		Cadmium, dissolved	7440-43-9	E421	0.0375 mg/L	0.04 mg/L	93.7	70.0	130	----
		Calcium, dissolved	7440-70-2	E421	ND mg/L	----	ND	70.0	130	----
		Cesium, dissolved	7440-46-2	E421	0.0916 mg/L	0.1 mg/L	91.6	70.0	130	----
		Chromium, dissolved	7440-47-3	E421	0.379 mg/L	0.4 mg/L	94.7	70.0	130	----
		Cobalt, dissolved	7440-48-4	E421	0.188 mg/L	0.2 mg/L	93.9	70.0	130	----
		Copper, dissolved	7440-50-8	E421	0.188 mg/L	0.2 mg/L	93.8	70.0	130	----
		Iron, dissolved	7439-89-6	E421	18.5 mg/L	20 mg/L	92.7	70.0	130	----
		Lead, dissolved	7439-92-1	E421	0.195 mg/L	0.2 mg/L	97.4	70.0	130	----
		Lithium, dissolved	7439-93-2	E421	0.840 mg/L	1 mg/L	84.0	70.0	130	----
		Magnesium, dissolved	7439-95-4	E421	ND mg/L	----	ND	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Dissolved Metals (QCLot: 1650113) - continued										
CG2413082-002	Anonymous	Manganese, dissolved	7439-96-5	E421	0.190 mg/L	0.2 mg/L	95.2	70.0	130	----
		Molybdenum, dissolved	7439-98-7	E421	0.188 mg/L	0.2 mg/L	93.8	70.0	130	----
		Nickel, dissolved	7440-02-0	E421	0.376 mg/L	0.4 mg/L	94.1	70.0	130	----
		Phosphorus, dissolved	7723-14-0	E421	92.3 mg/L	100 mg/L	92.3	70.0	130	----
		Potassium, dissolved	7440-09-7	E421	39.0 mg/L	40 mg/L	97.5	70.0	130	----
		Rubidium, dissolved	7440-17-7	E421	0.195 mg/L	0.2 mg/L	97.4	70.0	130	----
		Selenium, dissolved	7782-49-2	E421	0.378 mg/L	0.4 mg/L	94.4	70.0	130	----
		Silicon, dissolved	7440-21-3	E421	88.0 mg/L	100 mg/L	88.0	70.0	130	----
		Silver, dissolved	7440-22-4	E421	0.0384 mg/L	0.04 mg/L	95.9	70.0	130	----
		Sodium, dissolved	7440-23-5	E421	18.5 mg/L	20 mg/L	92.3	70.0	130	----
		Strontium, dissolved	7440-24-6	E421	0.177 mg/L	0.2 mg/L	88.6	70.0	130	----
		Sulfur, dissolved	7704-34-9	E421	175 mg/L	200 mg/L	87.7	70.0	130	----
		Tellurium, dissolved	13494-80-9	E421	0.378 mg/L	0.4 mg/L	94.5	70.0	130	----
		Thallium, dissolved	7440-28-0	E421	0.0372 mg/L	0.04 mg/L	92.9	70.0	130	----
		Thorium, dissolved	7440-29-1	E421	0.197 mg/L	0.2 mg/L	98.4	70.0	130	----
		Tin, dissolved	7440-31-5	E421	0.190 mg/L	0.2 mg/L	95.0	70.0	130	----
		Titanium, dissolved	7440-32-6	E421	0.364 mg/L	0.4 mg/L	91.1	70.0	130	----
		Tungsten, dissolved	7440-33-7	E421	0.194 mg/L	0.2 mg/L	97.2	70.0	130	----
		Uranium, dissolved	7440-61-1	E421	0.0376 mg/L	0.04 mg/L	94.0	70.0	130	----
		Vanadium, dissolved	7440-62-2	E421	0.928 mg/L	1 mg/L	92.8	70.0	130	----
		Zinc, dissolved	7440-66-6	E421	3.79 mg/L	4 mg/L	94.8	70.0	130	----
		Zirconium, dissolved	7440-67-7	E421	0.379 mg/L	0.4 mg/L	94.8	70.0	130	----
Dissolved Metals (QCLot: 1650625)										
CG2413082-002	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000970 mg/L	0 mg/L	97.0	70.0	130	----

CHAIN OF CUSTODY

ALS Laboratory

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE/TIME:	DATE/TIME: 930 SEPT 10/24	DATE/TIME:	DATE/TIME:

CLIENT:	Elgin Mining Inc.	**TURNAROUND REQUIREMENTS :** (Standard TAT may be longer for some tests e.g.. Ultra Trace Organics)	☐ Standard TAT **(List due date):** When available
PROJECT:	Lupin Mine		☐ Non Standard or urgent TAT **(List due date):**
SITE:	Lupin Mine Site		
PURCHASE ORDER NO.:		**ALS QUOTE NO.:**	
PROJECT MANAGER:	Jon Melnyk	**CONTACT PH:** 403-862-2994	
SAMPLER:	Jon Melnyk	**SAMPLER MOBILE:**	
EMAIL REPORTS TO:	jonm@idsmining.ca	**EMAIL INVOICE TO:** jonm@idsmining.ca	

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:	12.0 °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	General	Dissolved Metals	Total metals	Total Mercury	Dissolved Mercury	Total Cyanide						P2-SEEP - Unknown Substance
	P2-A	8-Sep-24			Yes	Yes	Yes	Yes	Yes	Yes						Dissolved Mercury and Dissolved Metals were field Filtered
	P2-B	8-Sep-24			Yes	Yes	Yes	Yes	Yes	Yes						Dissolved Mercury and Dissolved Metals were field Filtered
	P2-C	8-Sep-24			Yes	Yes	Yes	Yes	Yes	Yes						Dissolved Mercury and Dissolved Metals were field Filtered
	P2-D	8-Sep-24			Yes	Yes	Yes	Yes	Yes	Yes						Dissolved Mercury and Dissolved Metals were field Filtered
	P2-E	8-Sep-24			Yes	Yes	Yes	Yes	Yes	Yes						Dissolved Mercury and Dissolved Metals were field Filtered
	P2-SEEP	8-Sep-24			Yes	Yes	Yes									Dissolved Metals could not be field filtered
			TOTAL													

Environmental Division
Yellowknife
Work Order Reference
YL2401440

Telephone : +1 867 873 5593

CERTIFICATE OF ANALYSIS

Work Order	:	**YL2401441**			
Client	:	**Elgin Mining Inc.**	Laboratory	:	ALS Environmental - Calgary
Contact	:	Jon Melnyk	Account Manager	:	Oliver Gregg
Address	:	750 West Pender Street Suite 201 Vancouver British Columbia Canada V6C 2T7	Address	:	2559 29th Street NE Calgary AB Canada T1Y 7B5
Telephone	:	----	Telephone	:	1 867 445 7143
Project	:	LUPIN MINE	Date Samples Received	:	10-Sep-2024 09:30
PO	:	----	Date Analysis Commenced	:	12-Sep-2024
C-O-C number	:	----	Issue Date	:	19-Sep-2024 14:24
Sampler	:	----			
Site	:	----			
Quote number	:	YL24-ELMI100-001			
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*
George Huang	Supervisor - Inorganic	Metals, Calgary, Alberta
Gurvinder Kour	Lab Assistant	Metals, Calgary, Alberta
Harpreet Chawla	Team Leader - Inorganics	Inorganics, Calgary, Alberta
Jon Fisher	Production Manager, Environmental	Inorganics, Waterloo, Ontario
Katarzyna Glinka	Analyst	Inorganics, Calgary, Alberta
Kevin Baxter	Team Leader - Inorganics	Inorganics, Calgary, Alberta
Parker Sgarbossa	Laboratory Analyst	Metals, Calgary, Alberta
Shirley Li	Team Leader - Inorganics	Metals, Calgary, 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*
mg/L	milligrams per litre
pH units	pH units
µS/cm	microsiemens per centimetre
-	no units
meq/L	milliequivalents per litre
%	percent

<: 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
RRV	Reported result verified by repeat analysis.

Analytical Results

Sub-Matrix: Water (Matrix: Water)			Client sample ID		P1-A	P1-B	P1-D	C4-E	----
			Client sampling date / time		08-Sep-2024 09:20	08-Sep-2024 09:20	08-Sep-2024 09:20	08-Sep-2024 09:20	----
Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	YL2401441-001	YL2401441-002	YL2401441-003	YL2401441-004	----
					Result	Result	Result	Result	----
Physical Tests									
Hardness (as CaCO3), dissolved	----	EC100/CG	0.60	mg/L	105	114	108	218	----
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/CG	0.60	mg/L	109	112	106	221	----
Conductivity	----	E100/CG	2.0	µS/cm	367	403	359	863	----
pH	----	E108/CG	0.10	pH units	4.12 RRV	4.05 RRV	4.26 RRV	3.45 RRV	----
Alkalinity, bicarbonate (as HCO3)	71-52-3	E290/CG	1.0	mg/L	<1.0	<1.0	<1.0	<1.0	----
Alkalinity, carbonate (as CO3)	3812-32-6	E290/CG	1.0	mg/L	<1.0	<1.0	<1.0	<1.0	----
Alkalinity, hydroxide (as OH)	14280-30-9	E290/CG	1.0	mg/L	<1.0	<1.0	<1.0	<1.0	----
Alkalinity, total (as CaCO3)	----	E290/CG	2.0	mg/L	<2.0	<2.0	<2.0	<2.0	----
Solids, total dissolved [TDS], calculated	----	EC103/CG	1.0	mg/L	220	244	222	534	----
Anions and Nutrients									
Chloride	16887-00-6	E235.Cl/CG	0.50	mg/L	6.84	6.84	6.78	18.3	----
Fluoride	16984-48-8	E235.F/CG	0.020	mg/L	0.115	0.130	0.114	0.257	----
Nitrate (as N)	14797-55-8	E235.NO3/CG	0.020	mg/L	0.314	0.314	0.316	0.056	----
Nitrite (as N)	14797-65-0	E235.NO2/CG	0.010	mg/L	<0.010	<0.010	<0.010	<0.010	----
Sulfate (as SO4)	14808-79-8	E235.SO4/CG	0.30	mg/L	146	162	146	346	----
Nitrate + Nitrite (as N)	----	EC235.N+N/CG	0.0500	mg/L	0.314	0.314	0.316	0.0560	----
Cyanides									
Cyanide, strong acid dissociable (Total)	----	E333/WT	0.0050	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	----
Ion Balance									
Anion sum	----	EC101/CG	0.10	meq/L	3.26	3.60	3.26	7.74	----
Cation sum	----	EC101/CG	0.10	meq/L	3.12	3.48	3.16	7.46	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	P1-A	P1-B	P1-D	C4-E	----
Client sample ID					P1-A	P1-B	P1-D	C4-E	----
Client sampling date / time					08-Sep-2024 09:20	08-Sep-2024 09:20	08-Sep-2024 09:20	08-Sep-2024 09:20	----
					YL2401441-001	YL2401441-002	YL2401441-003	YL2401441-004	----
					Result	Result	Result	Result	----
Ion Balance									
Ion balance (APHA)	----	EC101/CG	0.01	%	-2.19	-1.69	-1.56	-1.84	----
Ion balance (cations/anions)	----	EC101/CG	0.010	%	95.7	96.7	96.9	96.4	----
Total Metals									
Aluminum, total	7429-90-5	E420/CG	0.0030	mg/L	1.50	2.06	1.35	5.25	----
Antimony, total	7440-36-0	E420/CG	0.00010	mg/L	<0.00010	<0.00010	<0.00010	0.00010	----
Arsenic, total	7440-38-2	E420/CG	0.00010	mg/L	0.00751	0.00925	0.00835	1.23	----
Barium, total	7440-39-3	E420/CG	0.00010	mg/L	0.0137	0.0140	0.0132	0.0310	----
Beryllium, total	7440-41-7	E420/CG	0.000100	mg/L	0.000384	0.000471	0.000339	0.000589	----
Bismuth, total	7440-69-9	E420/CG	0.000050	mg/L	<0.000050	<0.000050	<0.000050	0.000096	----
Boron, total	7440-42-8	E420/CG	0.010	mg/L	0.028	0.030	0.027	0.067	----
Cadmium, total	7440-43-9	E420/CG	0.0000050	mg/L	0.000280	0.000325	0.000257	0.000366	----
Calcium, total	7440-70-2	E420/CG	0.050	mg/L	29.7	30.7	28.7	65.1	----
Cesium, total	7440-46-2	E420/CG	0.000010	mg/L	0.000056	0.000051	0.000052	0.000667	----
Chromium, total	7440-47-3	E420/CG	0.00050	mg/L	<0.00050	<0.00050	<0.00050	0.00460	----
Cobalt, total	7440-48-4	E420/CG	0.00010	mg/L	0.0581	0.0704	0.0541	0.100	----
Copper, total	7440-50-8	E420/CG	0.00050	mg/L	0.0388	0.0408	0.0363	0.118	----
Iron, total	7439-89-6	E420/CG	0.010	mg/L	0.936	3.76	0.917	16.2	----
Lead, total	7439-92-1	E420/CG	0.000050	mg/L	0.00212	0.00229	0.00233	0.0798	----
Lithium, total	7439-93-2	E420/CG	0.0010	mg/L	0.0218	0.0224	0.0207	0.0546	----
Magnesium, total	7439-95-4	E420/CG	0.0050	mg/L	8.48	8.68	8.31	14.1	----
Manganese, total	7439-96-5	E420/CG	0.00010	mg/L	0.747	0.836	0.698	1.63	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	Client sample ID	P1-A	P1-B	P1-D	C4-E	----
					Client sampling date / time	08-Sep-2024 09:20	08-Sep-2024 09:20	08-Sep-2024 09:20	08-Sep-2024 09:20	----
						YL2401441-001	YL2401441-002	YL2401441-003	YL2401441-004	----
						Result	Result	Result	Result	----
Total Metals										
Mercury, total	7439-97-6	E508/CG	0.0000050	mg/L		<0.0000050	<0.0000050	<0.0000050	<0.0000050	----
Molybdenum, total	7439-98-7	E420/CG	0.000050	mg/L		<0.000050	<0.000050	<0.000050	0.000412	----
Nickel, total	7440-02-0	E420/CG	0.00050	mg/L		0.117	0.130	0.110	0.227	----
Phosphorus, total	7723-14-0	E420/CG	0.050	mg/L		<0.050	<0.050	<0.050	0.107	----
Potassium, total	7440-09-7	E420/CG	0.050	mg/L		2.98	2.98	2.93	5.86	----
Rubidium, total	7440-17-7	E420/CG	0.00020	mg/L		0.00176	0.00188	0.00192	0.00426	----
Selenium, total	7782-49-2	E420/CG	0.000050	mg/L		0.000050	0.000053	0.000057	0.000126	----
Silicon, total	7440-21-3	E420/CG	0.10	mg/L		3.09	3.22	3.10	12.7	----
Silver, total	7440-22-4	E420/CG	0.000010	mg/L		<0.000010	<0.000010	<0.000010	0.000025	----
Sodium, total	7440-23-5	E420/CG	0.050	mg/L		15.1	14.7	14.6	38.3	----
Strontium, total	7440-24-6	E420/CG	0.00020	mg/L		0.154	0.159	0.154	0.407	----
Sulfur, total	7704-34-9	E420/CG	0.50	mg/L		52.9	59.0	51.5	132	----
Tellurium, total	13494-80-9	E420/CG	0.00020	mg/L		<0.00020	<0.00020	<0.00020	<0.00020	----
Thallium, total	7440-28-0	E420/CG	0.000010	mg/L		<0.000010	<0.000010	<0.000010	0.000018	----
Thorium, total	7440-29-1	E420/CG	0.00010	mg/L		<0.00010	<0.00010	<0.00010	0.00037	----
Tin, total	7440-31-5	E420/CG	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	----
Titanium, total	7440-32-6	E420/CG	0.00030	mg/L		<0.00030	<0.00030	<0.00030	0.0298	----
Tungsten, total	7440-33-7	E420/CG	0.00010	mg/L		<0.00010	<0.00010	<0.00010	0.00298	----
Uranium, total	7440-61-1	E420/CG	0.000010	mg/L		0.000334	0.000362	0.000307	0.00144	----
Vanadium, total	7440-62-2	E420/CG	0.00050	mg/L		<0.00050	<0.00050	<0.00050	0.00207	----
Zinc, total	7440-66-6	E420/CG	0.0030	mg/L		0.536	0.611	0.507	1.17	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	Client sample ID	P1-A	P1-B	P1-D	C4-E	----
					Client sampling date / time	08-Sep-2024 09:20	08-Sep-2024 09:20	08-Sep-2024 09:20	08-Sep-2024 09:20	----
						YL2401441-001	YL2401441-002	YL2401441-003	YL2401441-004	----
						Result	Result	Result	Result	----
Total Metals										
Zirconium, total	7440-67-7	E420/CG	0.00020	mg/L		<0.00020	<0.00020	<0.00020	0.00020	----
Dissolved Metals										
Aluminum, dissolved	7429-90-5	E421/CG	0.0010	mg/L		1.45	2.03	1.32	4.18	----
Antimony, dissolved	7440-36-0	E421/CG	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	----
Arsenic, dissolved	7440-38-2	E421/CG	0.00010	mg/L		0.00621	0.00946	0.00833	0.528	----
Barium, dissolved	7440-39-3	E421/CG	0.00010	mg/L		0.0138	0.0144	0.0134	0.0238	----
Beryllium, dissolved	7440-41-7	E421/CG	0.000100	mg/L		0.000380	0.000479	0.000343	0.000599	----
Bismuth, dissolved	7440-69-9	E421/CG	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	----
Boron, dissolved	7440-42-8	E421/CG	0.010	mg/L		0.027	0.029	0.026	0.063	----
Cadmium, dissolved	7440-43-9	E421/CG	0.0000050	mg/L		0.000288	0.000340	0.000268	0.000386	----
Calcium, dissolved	7440-70-2	E421/CG	0.050	mg/L		29.1	31.4	29.8	64.5	----
Cesium, dissolved	7440-46-2	E421/CG	0.000010	mg/L		0.000053	0.000050	0.000048	0.000092	----
Chromium, dissolved	7440-47-3	E421/CG	0.00050	mg/L		<0.00050	<0.00050	<0.00050	0.00160	----
Cobalt, dissolved	7440-48-4	E421/CG	0.00010	mg/L		0.0565	0.0692	0.0537	0.0992	----
Copper, dissolved	7440-50-8	E421/CG	0.00020	mg/L		0.0375	0.0397	0.0364	0.112	----
Iron, dissolved	7439-89-6	E421/CG	0.010	mg/L		0.863	3.80	0.895	10.1	----
Lead, dissolved	7439-92-1	E421/CG	0.000050	mg/L		0.00211	0.00229	0.00239	0.0668	----
Lithium, dissolved	7439-93-2	E421/CG	0.0010	mg/L		0.0217	0.0227	0.0208	0.0534	----
Magnesium, dissolved	7439-95-4	E421/CG	0.0050	mg/L		7.89	8.56	8.24	13.8	----
Manganese, dissolved	7439-96-5	E421/CG	0.00010	mg/L		0.731	0.819	0.706	1.66	----
Mercury, dissolved	7439-97-6	E509/CG	0.0000050	mg/L		<0.0000050	<0.0000050	<0.0000050	<0.0000050	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	Client sample ID	P1-A	P1-B	P1-D	C4-E	----
					Client sampling date / time	08-Sep-2024 09:20	08-Sep-2024 09:20	08-Sep-2024 09:20	08-Sep-2024 09:20	----
						YL2401441-001	YL2401441-002	YL2401441-003	YL2401441-004	----
						Result	Result	Result	Result	----
Dissolved Metals										
Molybdenum, dissolved	7439-98-7	E421/CG	0.000050	mg/L		<0.000050	<0.000050	<0.000050	0.000156	----
Nickel, dissolved	7440-02-0	E421/CG	0.00050	mg/L		0.115	0.128	0.109	0.228	----
Phosphorus, dissolved	7723-14-0	E421/CG	0.050	mg/L		<0.050	<0.050	<0.050	<0.050	----
Potassium, dissolved	7440-09-7	E421/CG	0.050	mg/L		2.94	2.99	2.94	5.76	----
Rubidium, dissolved	7440-17-7	E421/CG	0.00020	mg/L		0.00179	0.00177	0.00181	0.00332	----
Selenium, dissolved	7782-49-2	E421/CG	0.000050	mg/L		0.000055	0.000051	0.000059	0.000120	----
Silicon, dissolved	7440-21-3	E421/CG	0.050	mg/L		2.99	3.12	3.00	11.0	----
Silver, dissolved	7440-22-4	E421/CG	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	----
Sodium, dissolved	7440-23-5	E421/CG	0.050	mg/L		14.4	14.6	14.7	38.5	----
Strontium, dissolved	7440-24-6	E421/CG	0.00020	mg/L		0.152	0.165	0.153	0.400	----
Sulfur, dissolved	7704-34-9	E421/CG	0.50	mg/L		52.8	58.7	52.1	136	----
Tellurium, dissolved	13494-80-9	E421/CG	0.00020	mg/L		<0.00020	<0.00020	<0.00020	<0.00020	----
Thallium, dissolved	7440-28-0	E421/CG	0.000010	mg/L		<0.000010	<0.000010	<0.000010	0.000011	----
Thorium, dissolved	7440-29-1	E421/CG	0.00010	mg/L		<0.00010	<0.00010	<0.00010	0.00013	----
Tin, dissolved	7440-31-5	E421/CG	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	----
Titanium, dissolved	7440-32-6	E421/CG	0.00030	mg/L		<0.00030	<0.00030	<0.00030	<0.00030	----
Tungsten, dissolved	7440-33-7	E421/CG	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	----
Uranium, dissolved	7440-61-1	E421/CG	0.000010	mg/L		0.000334	0.000361	0.000305	0.00141	----
Vanadium, dissolved	7440-62-2	E421/CG	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	----
Zinc, dissolved	7440-66-6	E421/CG	0.0010	mg/L		0.584	0.669	0.558	1.27	----
Zirconium, dissolved	7440-67-7	E421/CG	0.00020	mg/L		<0.00020	<0.00020	<0.00020	<0.00020	----

Analytical Results

Sub-Matrix: Water (Matrix: Water)				Client sample ID	P1-A	P1-B	P1-D	C4-E	----
				Client sampling date / time	08-Sep-2024 09:20	08-Sep-2024 09:20	08-Sep-2024 09:20	08-Sep-2024 09:20	----
Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	YL2401441-001	YL2401441-002	YL2401441-003	YL2401441-004	----
					Result	Result	Result	Result	----
Dissolved Metals									
Dissolved mercury filtration location	----	EP509/CG	-	-	Field	Field	Field	Field	----
Dissolved metals filtration location	----	EP421/CG	-	-	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	: **YL2401441**	Page	: 1 of 14
Client	: **Elgin Mining Inc.**	Laboratory	: ALS Environmental - Yellowknife
Contact	: Jon Melnyk	Account Manager	: Oliver Gregg
Address	: 750 West Pender Street Suite 201 Vancouver BC Canada V6C 2T7	Address	: 314 Old Airport Road, Unit 116 Yellowknife, Northwest Territories Canada X1A 3T3
Telephone	: ----	Telephone	: 1 867 445 7143
Project	: LUPIN MINE	Date Samples Received	: 10-Sep-2024 09:30
PO	: ----	Issue Date	: 19-Sep-2024 13:28
C-O-C number	: ----		
Sampler	: ----		
Site	: ----		
Quote number	: YL24-ELMI100-001		
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 Method Blank value outliers occur.
- No Duplicate outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- No Matrix Spike outliers occur.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

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

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Analysis Holding Time Compliance

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

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

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

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

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Chloride in Water by IC										
HDPE C4-E	E235.Cl	08-Sep-2024	12-Sep-2024	28 days	4 days	✓	12-Sep-2024	28 days	4 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE P1-A	E235.Cl	08-Sep-2024	12-Sep-2024	28 days	4 days	✓	12-Sep-2024	28 days	4 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE P1-B	E235.Cl	08-Sep-2024	12-Sep-2024	28 days	4 days	✓	12-Sep-2024	28 days	4 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE P1-D	E235.Cl	08-Sep-2024	12-Sep-2024	28 days	4 days	✓	12-Sep-2024	28 days	4 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE C4-E	E235.F	08-Sep-2024	12-Sep-2024	28 days	4 days	✓	12-Sep-2024	28 days	4 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE P1-A	E235.F	08-Sep-2024	12-Sep-2024	28 days	4 days	✓	12-Sep-2024	28 days	4 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE P1-B	E235.F	08-Sep-2024	12-Sep-2024	28 days	4 days	✓	12-Sep-2024	28 days	4 days	✓

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Fluoride in Water by IC										
HDPE P1-D	E235.F	08-Sep-2024	12-Sep-2024	28 days	4 days	✓	12-Sep-2024	28 days	4 days	✓
Anions and Nutrients : Nitrate in Water by IC										
HDPE C4-E	E235.NO3	08-Sep-2024	12-Sep-2024	3 days	4 days	× EHT	12-Sep-2024	3 days	4 days	× EHT
Anions and Nutrients : Nitrate in Water by IC										
HDPE P1-A	E235.NO3	08-Sep-2024	12-Sep-2024	3 days	4 days	× EHT	12-Sep-2024	3 days	4 days	× EHT
Anions and Nutrients : Nitrate in Water by IC										
HDPE P1-B	E235.NO3	08-Sep-2024	12-Sep-2024	3 days	4 days	× EHT	12-Sep-2024	3 days	4 days	× EHT
Anions and Nutrients : Nitrate in Water by IC										
HDPE P1-D	E235.NO3	08-Sep-2024	12-Sep-2024	3 days	4 days	× EHT	12-Sep-2024	3 days	4 days	× EHT
Anions and Nutrients : Nitrite in Water by IC										
HDPE C4-E	E235.NO2	08-Sep-2024	12-Sep-2024	3 days	4 days	× EHT	12-Sep-2024	3 days	4 days	× EHT
Anions and Nutrients : Nitrite in Water by IC										
HDPE P1-A	E235.NO2	08-Sep-2024	12-Sep-2024	3 days	4 days	× EHT	12-Sep-2024	3 days	4 days	× EHT
Anions and Nutrients : Nitrite in Water by IC										
HDPE P1-B	E235.NO2	08-Sep-2024	12-Sep-2024	3 days	4 days	× EHT	12-Sep-2024	3 days	4 days	× EHT
Anions and Nutrients : Nitrite in Water by IC										
HDPE P1-D	E235.NO2	08-Sep-2024	12-Sep-2024	3 days	4 days	× EHT	12-Sep-2024	3 days	4 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 Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Sulfate in Water by IC										
HDPE C4-E	E235.SO4	08-Sep-2024	12-Sep-2024	28 days	4 days	✓	12-Sep-2024	28 days	4 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE P1-A	E235.SO4	08-Sep-2024	12-Sep-2024	28 days	4 days	✓	12-Sep-2024	28 days	4 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE P1-B	E235.SO4	08-Sep-2024	12-Sep-2024	28 days	4 days	✓	12-Sep-2024	28 days	4 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE P1-D	E235.SO4	08-Sep-2024	12-Sep-2024	28 days	4 days	✓	12-Sep-2024	28 days	4 days	✓
Cyanides : Total Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) C4-E	E333	08-Sep-2024	16-Sep-2024	14 days	8 days	✓	16-Sep-2024	14 days	8 days	✓
Cyanides : Total Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) P1-A	E333	08-Sep-2024	16-Sep-2024	14 days	8 days	✓	16-Sep-2024	14 days	8 days	✓
Cyanides : Total Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) P1-B	E333	08-Sep-2024	16-Sep-2024	14 days	8 days	✓	16-Sep-2024	14 days	8 days	✓
Cyanides : Total Cyanide										
UV-inhibited HDPE - total (sodium hydroxide) P1-D	E333	08-Sep-2024	16-Sep-2024	14 days	8 days	✓	16-Sep-2024	14 days	8 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid) C4-E	E509	08-Sep-2024	16-Sep-2024	28 days	8 days	✓	16-Sep-2024	28 days	8 days	✓

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid) P1-A	E509	08-Sep-2024	16-Sep-2024	28 days	8 days	✓	16-Sep-2024	28 days	8 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid) P1-B	E509	08-Sep-2024	16-Sep-2024	28 days	8 days	✓	16-Sep-2024	28 days	8 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid) P1-D	E509	08-Sep-2024	16-Sep-2024	28 days	8 days	✓	16-Sep-2024	28 days	8 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) C4-E	E421	08-Sep-2024	16-Sep-2024	180 days	8 days	✓	17-Sep-2024	180 days	9 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) P1-A	E421	08-Sep-2024	16-Sep-2024	180 days	8 days	✓	17-Sep-2024	180 days	9 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) P1-B	E421	08-Sep-2024	16-Sep-2024	180 days	8 days	✓	17-Sep-2024	180 days	9 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved) P1-D	E421	08-Sep-2024	16-Sep-2024	180 days	8 days	✓	17-Sep-2024	180 days	9 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE C4-E	E290	08-Sep-2024	12-Sep-2024	14 days	4 days	✓	12-Sep-2024	14 days	4 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE P1-A	E290	08-Sep-2024	12-Sep-2024	14 days	4 days	✓	12-Sep-2024	14 days	4 days	✓

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Alkalinity Species by Titration										
HDPE P1-B	E290	08-Sep-2024	12-Sep-2024	14 days	4 days	✓	12-Sep-2024	14 days	4 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE P1-D	E290	08-Sep-2024	12-Sep-2024	14 days	4 days	✓	12-Sep-2024	14 days	4 days	✓
Physical Tests : Conductivity in Water										
HDPE C4-E	E100	08-Sep-2024	12-Sep-2024	28 days	4 days	✓	12-Sep-2024	28 days	4 days	✓
Physical Tests : Conductivity in Water										
HDPE P1-A	E100	08-Sep-2024	12-Sep-2024	28 days	4 days	✓	12-Sep-2024	28 days	4 days	✓
Physical Tests : Conductivity in Water										
HDPE P1-B	E100	08-Sep-2024	12-Sep-2024	28 days	4 days	✓	12-Sep-2024	28 days	4 days	✓
Physical Tests : Conductivity in Water										
HDPE P1-D	E100	08-Sep-2024	12-Sep-2024	28 days	4 days	✓	12-Sep-2024	28 days	4 days	✓
Physical Tests : pH by Meter										
HDPE C4-E	E108	08-Sep-2024	12-Sep-2024	0.25 hrs	103 hrs	× EHTR-FM	12-Sep-2024	0.25 hrs	103 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE P1-A	E108	08-Sep-2024	12-Sep-2024	0.25 hrs	103 hrs	× EHTR-FM	12-Sep-2024	0.25 hrs	103 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE P1-B	E108	08-Sep-2024	12-Sep-2024	0.25 hrs	103 hrs	× EHTR-FM	12-Sep-2024	0.25 hrs	103 hrs	× EHTR-FM

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	*Method*	*Sampling Date*	*Extraction / Preparation*				*Analysis*			
			Preparation Date	*Holding Times*		*Eval*	*Analysis Date*	*Holding Times*		*Eval*
				Rec	*Actual*			*Rec*	*Actual*	
Physical Tests : pH by Meter										
HDPE P1-D	E108	08-Sep-2024	12-Sep-2024	0.25 hrs	103 hrs	× EHTR-FM	12-Sep-2024	0.25 hrs	103 hrs	× EHTR-FM
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid) C4-E	E508	08-Sep-2024	16-Sep-2024	28 days	8 days	✓	16-Sep-2024	28 days	8 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid) P1-A	E508	08-Sep-2024	16-Sep-2024	28 days	8 days	✓	16-Sep-2024	28 days	8 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid) P1-B	E508	08-Sep-2024	16-Sep-2024	28 days	8 days	✓	16-Sep-2024	28 days	8 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid) P1-D	E508	08-Sep-2024	16-Sep-2024	28 days	8 days	✓	16-Sep-2024	28 days	8 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) C4-E	E420	08-Sep-2024	16-Sep-2024	180 days	8 days	✓	17-Sep-2024	180 days	9 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) P1-A	E420	08-Sep-2024	16-Sep-2024	180 days	8 days	✓	17-Sep-2024	180 days	9 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) P1-B	E420	08-Sep-2024	16-Sep-2024	180 days	8 days	✓	17-Sep-2024	180 days	9 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) P1-D	E420	08-Sep-2024	16-Sep-2024	180 days	8 days	✓	17-Sep-2024	180 days	9 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	1648427	1	20	5.0	5.0	✓
Chloride in Water by IC	E235.Cl	1648328	1	15	6.6	5.0	✓
Conductivity in Water	E100	1648426	1	20	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1651020	1	16	6.2	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1652001	1	20	5.0	5.0	✓
Fluoride in Water by IC	E235.F	1648327	1	15	6.6	5.0	✓
Nitrate in Water by IC	E235.NO3	1648324	1	17	5.8	5.0	✓
Nitrite in Water by IC	E235.NO2	1648325	1	17	5.8	5.0	✓
pH by Meter	E108	1648425	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1648326	1	15	6.6	5.0	✓
Total Cyanide	E333	1653576	1	19	5.2	5.0	✓
Total Mercury in Water by CVAAS	E508	1651021	1	15	6.6	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1651999	1	20	5.0	5.0	✓
Laboratory Control Samples (LCS)							
Alkalinity Species by Titration	E290	1648427	1	20	5.0	5.0	✓
Chloride in Water by IC	E235.Cl	1648328	1	15	6.6	5.0	✓
Conductivity in Water	E100	1648426	1	20	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1651020	1	16	6.2	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1652001	1	20	5.0	5.0	✓
Fluoride in Water by IC	E235.F	1648327	1	15	6.6	5.0	✓
Nitrate in Water by IC	E235.NO3	1648324	1	17	5.8	5.0	✓
Nitrite in Water by IC	E235.NO2	1648325	1	17	5.8	5.0	✓
pH by Meter	E108	1648425	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1648326	1	15	6.6	5.0	✓
Total Cyanide	E333	1653576	1	19	5.2	5.0	✓
Total Mercury in Water by CVAAS	E508	1651021	1	15	6.6	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1651999	1	20	5.0	5.0	✓
Method Blanks (MB)							
Alkalinity Species by Titration	E290	1648427	1	20	5.0	5.0	✓
Chloride in Water by IC	E235.Cl	1648328	1	15	6.6	5.0	✓
Conductivity in Water	E100	1648426	1	20	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1651020	1	16	6.2	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1652001	1	20	5.0	5.0	✓
Fluoride in Water by IC	E235.F	1648327	1	15	6.6	5.0	✓
Nitrate in Water by IC	E235.NO3	1648324	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							
Nitrite in Water by IC	E235.NO2	1648325	1	17	5.8	5.0	✓
Sulfate in Water by IC	E235.SO4	1648326	1	15	6.6	5.0	✓
Total Cyanide	E333	1653576	1	19	5.2	5.0	✓
Total Mercury in Water by CVAAS	E508	1651021	1	15	6.6	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1651999	1	20	5.0	5.0	✓
Matrix Spikes (MS)							
Chloride in Water by IC	E235.Cl	1648328	1	15	6.6	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1651020	1	16	6.2	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1652001	1	20	5.0	5.0	✓
Fluoride in Water by IC	E235.F	1648327	1	15	6.6	5.0	✓
Nitrate in Water by IC	E235.NO3	1648324	1	17	5.8	5.0	✓
Nitrite in Water by IC	E235.NO2	1648325	1	17	5.8	5.0	✓
Sulfate in Water by IC	E235.SO4	1648326	1	15	6.6	5.0	✓
Total Cyanide	E333	1653576	1	19	5.2	5.0	✓
Total Mercury in Water by CVAAS	E508	1651021	1	15	6.6	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1651999	1	20	5.0	5.0	✓

Methodology References and Summaries

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

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Conductivity in Water	E100 ALS Environmental - Calgary	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 - Calgary	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.
Chloride in Water by IC	E235.Cl ALS Environmental - Calgary	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 - Calgary	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrite in Water by IC	E235.NO2 ALS Environmental - Calgary	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrate in Water by IC	E235.NO3 ALS Environmental - Calgary	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 - Calgary	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 - Calgary	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.
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).

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Total Metals in Water by CRC ICPMS	E420 ALS Environmental - Calgary	Water	EPA 200.2/6020B (mod)	Water samples are digested with nitric and hydrochloric acids, and analyzed by Collision/Reaction Cell ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
Dissolved Metals in Water by CRC ICPMS	E421 ALS Environmental - Calgary	Water	APHA 3030B/EPA 6020B (mod)	Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by Collision/Reaction Cell ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
Total Mercury in Water by CVAAS	E508 ALS Environmental - Calgary	Water	EPA 1631E (mod)	Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS
Dissolved Mercury in Water by CVAAS	E509 ALS Environmental - Calgary	Water	APHA 3030B/EPA 1631E (mod)	Water samples are filtered (0.45 um), preserved with HCl, then undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS.
Dissolved Hardness (Calculated)	EC100 ALS Environmental - Calgary	Water	APHA 2340B	“Hardness (as CaCO3), dissolved” is calculated from the sum of dissolved Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. “Total Hardness” refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because it is a property of water due to dissolved divalent cations.
Hardness (Calculated) from Total Ca/Mg	EC100A ALS Environmental - Calgary	Water	APHA 2340B	“Hardness (as CaCO3), from total Ca/Mg” is calculated from the sum of total Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. “Total Hardness” refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because it is a property of water due to dissolved divalent cations. Hardness from total Ca/Mg is normally comparable to Dissolved Hardness in non-turbid waters.
Ion Balance using Dissolved Metals	EC101 ALS Environmental - Calgary	Water	APHA 1030E	Cation Sum, Anion Sum, and Ion Balance are 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. Ion Balance cannot be calculated accurately for waters with very low electrical conductivity (EC).
TDS in Water (Calculation)	EC103 ALS Environmental - Calgary	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.
Nitrate and Nitrite (as N) (Calculation)	EC235.N+N ALS Environmental - Calgary	Water	EPA 300.0	Nitrate and Nitrite (as N) is a calculated parameter. Nitrate and Nitrite (as N) = Nitrite (as N) + Nitrate (as N).

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Dissolved Metals Water Filtration	EP421 ALS Environmental - Calgary	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HNO3.
Dissolved Mercury Water Filtration	EP509 ALS Environmental - Calgary	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HCl.

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QUALITY CONTROL REPORT

Work Order	: **YL2401441**	Page	: 1 of 17
Client	: Elgin Mining Inc.	Laboratory	: ALS Environmental - Yellowknife
Contact	: Jon Melnyk	Account Manager	: Oliver Gregg
Address	: 750 West Pender Street Suite 201 Vancouver BC Canada V6C 2T7	Address	: 314 Old Airport Road, Unit 116 Yellowknife, Northwest Territories Canada X1A 3T3
Telephone	: ----	Telephone	: 1 867 445 7143
Project	: LUPIN MINE	Date Samples Received	: 10-Sep-2024 09:30
PO	: ----	Date Analysis Commenced	: 12-Sep-2024
C-O-C number	: ----	Issue Date	: 19-Sep-2024 13:32
Sampler	: ----		
Site	: ----		
Quote number	: YL24-ELMI100-001		
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*
George Huang	Supervisor - Inorganic	Calgary Metals, Calgary, Alberta
Gurvinder Kour	Lab Assistant	Calgary Metals, Calgary, Alberta
Harpreet Chawla	Team Leader - Inorganics	Calgary Inorganics, Calgary, Alberta
Jon Fisher	Production Manager, Environmental	Waterloo Inorganics, Waterloo, Ontario
Katarzyna Glinka	Analyst	Calgary Inorganics, Calgary, Alberta
Kevin Baxter	Team Leader - Inorganics	Calgary Inorganics, Calgary, Alberta
Parker Sgarbossa	Laboratory Analyst	Calgary Metals, Calgary, Alberta
Shirley Li	Team Leader - Inorganics	Calgary Metals, Calgary, 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: 1648425)											
CG2413104-001	Anonymous	pH	----	E108	0.10	pH units	7.82	7.87	0.637%	4%	----
Physical Tests (QC Lot: 1648426)											
CG2413104-001	Anonymous	Conductivity	----	E100	2.0	µS/cm	2080	2090	0.480%	10%	----
Physical Tests (QC Lot: 1648427)											
CG2413104-001	Anonymous	Alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	504	493	2.29%	20%	----
Anions and Nutrients (QC Lot: 1648324)											
YL2401440-001	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3	0.020	mg/L	0.404	0.408	0.812%	20%	----
Anions and Nutrients (QC Lot: 1648325)											
YL2401440-001	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1648326)											
YL2401440-001	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	178	179	0.794%	20%	----
Anions and Nutrients (QC Lot: 1648327)											
YL2401440-001	Anonymous	Fluoride	16984-48-8	E235.F	0.020	mg/L	0.126	0.126	0.0006	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1648328)											
YL2401440-001	Anonymous	Chloride	16887-00-6	E235.Cl	0.50	mg/L	13.1	13.2	0.864%	20%	----
Cyanides (QC Lot: 1653576)											
KS2403724-001	Anonymous	Cyanide, strong acid dissociable (Total)	----	E333	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
Total Metals (QC Lot: 1651021)											
CG2413183-001	Anonymous	Mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Total Metals (QC Lot: 1651999)											
CG2413194-001	Anonymous	Aluminum, total	7429-90-5	E420	0.0030	mg/L	0.0063	0.0059	0.0004	Diff <2x LOR	----
		Antimony, total	7440-36-0	E420	0.00010	mg/L	0.00023	0.00022	0.000005	Diff <2x LOR	----
		Arsenic, total	7440-38-2	E420	0.00010	mg/L	0.00011	<0.00010	0.00001	Diff <2x LOR	----
		Barium, total	7440-39-3	E420	0.00010	mg/L	0.0607	0.0614	1.16%	20%	----
		Beryllium, total	7440-41-7	E420	0.000020	mg/L	<0.020 µg/L	<0.000020	0	Diff <2x LOR	----
		Bismuth, total	7440-69-9	E420	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Boron, total	7440-42-8	E420	0.010	mg/L	0.015	0.015	0.0003	Diff <2x LOR	----
		Cadmium, total	7440-43-9	E420	0.0000050	mg/L	0.0701 µg/L	0.0000704	0.370%	20%	----
		Calcium, total	7440-70-2	E420	0.050	mg/L	91.6	90.3	1.35%	20%	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Total Metals (QC Lot: 1651999) - continued											
CG2413194-001	Anonymous	Cesium, total	7440-46-2	E420	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Chromium, total	7440-47-3	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Cobalt, total	7440-48-4	E420	0.00010	mg/L	<0.10 µg/L	<0.00010	0	Diff <2x LOR	----
		Copper, total	7440-50-8	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Iron, total	7439-89-6	E420	0.010	mg/L	0.035	0.047	0.012	Diff <2x LOR	----
		Lead, total	7439-92-1	E420	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Lithium, total	7439-93-2	E420	0.0010	mg/L	0.0710	0.0705	0.651%	20%	----
		Magnesium, total	7439-95-4	E420	0.0050	mg/L	44.2	43.9	0.642%	20%	----
		Manganese, total	7439-96-5	E420	0.00010	mg/L	0.00782	0.00768	1.70%	20%	----
		Molybdenum, total	7439-98-7	E420	0.000050	mg/L	0.00332	0.00292	13.1%	20%	----
		Nickel, total	7440-02-0	E420	0.00050	mg/L	0.00343	0.00338	0.00005	Diff <2x LOR	----
		Phosphorus, total	7723-14-0	E420	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Potassium, total	7440-09-7	E420	0.050	mg/L	2.12	2.12	0.108%	20%	----
		Rubidium, total	7440-17-7	E420	0.00020	mg/L	0.00128	0.00124	0.00003	Diff <2x LOR	----
		Selenium, total	7782-49-2	E420	0.000050	mg/L	27.5 µg/L	0.0276	0.315%	20%	----
		Silicon, total	7440-21-3	E420	0.10	mg/L	2.15	2.12	1.02%	20%	----
		Silver, total	7440-22-4	E420	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Sodium, total	7440-23-5	E420	0.050	mg/L	5.02	4.98	0.786%	20%	----
		Strontium, total	7440-24-6	E420	0.00020	mg/L	0.161	0.162	0.662%	20%	----
		Sulfur, total	7704-34-9	E420	0.50	mg/L	80.1	80.9	1.04%	20%	----
		Tellurium, total	13494-80-9	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		Thallium, total	7440-28-0	E420	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Thorium, total	7440-29-1	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Tin, total	7440-31-5	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Titanium, total	7440-32-6	E420	0.00030	mg/L	<0.00030	<0.00030	0	Diff <2x LOR	----
		Tungsten, total	7440-33-7	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Uranium, total	7440-61-1	E420	0.000010	mg/L	0.00328	0.00335	1.91%	20%	----
		Vanadium, total	7440-62-2	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Zinc, total	7440-66-6	E420	0.0030	mg/L	0.0035	<0.0030	0.0005	Diff <2x LOR	----
		Zirconium, total	7440-67-7	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1651020)											
CG2413183-001	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1652001)											
CG2413194-001	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	0.0015	0.0013	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*
Dissolved Metals (QC Lot: 1652001) - continued											
CG2413194-001	Anonymous	Antimony, dissolved	7440-36-0	E421	0.00010	mg/L	0.00023	0.00022	0.000007	Diff <2x LOR	----
		Arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.0617	0.0609	1.38%	20%	----
		Beryllium, dissolved	7440-41-7	E421	0.000020	mg/L	<0.020 µg/L	<0.000020	0	Diff <2x LOR	----
		Bismuth, dissolved	7440-69-9	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Boron, dissolved	7440-42-8	E421	0.010	mg/L	0.015	0.015	0.0003	Diff <2x LOR	----
		Cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L	0.0581 µg/L	0.0000591	1.77%	20%	----
		Calcium, dissolved	7440-70-2	E421	0.050	mg/L	89.5	90.8	1.38%	20%	----
		Cesium, dissolved	7440-46-2	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Chromium, dissolved	7440-47-3	E421	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Cobalt, dissolved	7440-48-4	E421	0.00010	mg/L	<0.10 µg/L	<0.00010	0	Diff <2x LOR	----
		Copper, dissolved	7440-50-8	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		Iron, dissolved	7439-89-6	E421	0.010	mg/L	0.021	0.021	0.0002	Diff <2x LOR	----
		Lead, dissolved	7439-92-1	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Lithium, dissolved	7439-93-2	E421	0.0010	mg/L	0.0726	0.0698	3.87%	20%	----
		Magnesium, dissolved	7439-95-4	E421	0.0050	mg/L	41.8	42.9	2.55%	20%	----
		Manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.00681	0.00682	0.170%	20%	----
		Molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.00303	0.00305	0.638%	20%	----
		Nickel, dissolved	7440-02-0	E421	0.00050	mg/L	0.00319	0.00324	0.00004	Diff <2x LOR	----
		Phosphorus, dissolved	7723-14-0	E421	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Potassium, dissolved	7440-09-7	E421	0.050	mg/L	2.06	2.08	1.12%	20%	----
		Rubidium, dissolved	7440-17-7	E421	0.00020	mg/L	0.00122	0.00121	0.000003	Diff <2x LOR	----
		Selenium, dissolved	7782-49-2	E421	0.000050	mg/L	31.7 µg/L	0.0323	1.86%	20%	----
		Silicon, dissolved	7440-21-3	E421	0.050	mg/L	2.00	2.01	0.668%	20%	----
		Silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Sodium, dissolved	7440-23-5	E421	0.050	mg/L	4.70	4.83	2.78%	20%	----
		Strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.160	0.161	0.396%	20%	----
		Sulfur, dissolved	7704-34-9	E421	0.50	mg/L	80.3	80.9	0.732%	20%	----
		Tellurium, dissolved	13494-80-9	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		Thallium, dissolved	7440-28-0	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Thorium, dissolved	7440-29-1	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Tin, dissolved	7440-31-5	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Titanium, dissolved	7440-32-6	E421	0.00030	mg/L	<0.00030	<0.00030	0	Diff <2x LOR	----
		Tungsten, dissolved	7440-33-7	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----

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: 1652001) - continued											
CG2413194-001	Anonymous	Uranium, dissolved	7440-61-1	E421	0.000010	mg/L	0.00319	0.00316	1.01%	20%	----
		Vanadium, dissolved	7440-62-2	E421	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Zinc, dissolved	7440-66-6	E421	0.0010	mg/L	0.0044	0.0043	0.0001	Diff <2x LOR	----
		Zirconium, dissolved	7440-67-7	E421	0.00030	mg/L	<0.00030	<0.00030	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: 1648426)						
Conductivity	----	E100	1	µS/cm	<1.0	----
Physical Tests (QCLot: 1648427)						
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	<1.0	----
Anions and Nutrients (QCLot: 1648324)						
Nitrate (as N)	14797-55-8	E235.NO3	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 1648325)						
Nitrite (as N)	14797-65-0	E235.NO2	0.01	mg/L	<0.010	----
Anions and Nutrients (QCLot: 1648326)						
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	----
Anions and Nutrients (QCLot: 1648327)						
Fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 1648328)						
Chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	----
Cyanides (QCLot: 1653576)						
Cyanide, strong acid dissociable (Total)	----	E333	0.002	mg/L	<0.0020	----
Total Metals (QCLot: 1651021)						
Mercury, total	7439-97-6	E508	0.000005	mg/L	<0.0000050	----
Total Metals (QCLot: 1651999)						
Aluminum, total	7429-90-5	E420	0.003	mg/L	<0.0030	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	<0.00010	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	<0.00010	----
Barium, total	7440-39-3	E420	0.0001	mg/L	<0.00010	----
Beryllium, total	7440-41-7	E420	0.00002	mg/L	<0.000020	----
Bismuth, total	7440-69-9	E420	0.00005	mg/L	<0.000050	----
Boron, total	7440-42-8	E420	0.01	mg/L	<0.010	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	<0.0000050	----
Calcium, total	7440-70-2	E420	0.05	mg/L	<0.050	----
Cesium, total	7440-46-2	E420	0.00001	mg/L	<0.000010	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	<0.00050	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	<0.00010	----
Copper, total	7440-50-8	E420	0.0005	mg/L	<0.00050	----
Iron, total	7439-89-6	E420	0.01	mg/L	<0.010	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (QCLot: 1651999) - continued						
Lead, total	7439-92-1	E420	0.00005	mg/L	<0.000050	----
Lithium, total	7439-93-2	E420	0.001	mg/L	<0.0010	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	<0.0050	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	<0.00010	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	<0.000050	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	<0.00050	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	<0.050	----
Potassium, total	7440-09-7	E420	0.05	mg/L	<0.050	----
Rubidium, total	7440-17-7	E420	0.0002	mg/L	<0.00020	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	<0.000050	----
Silicon, total	7440-21-3	E420	0.1	mg/L	<0.10	----
Silver, total	7440-22-4	E420	0.00001	mg/L	<0.000010	----
Sodium, total	7440-23-5	E420	0.05	mg/L	<0.050	----
Strontium, total	7440-24-6	E420	0.0002	mg/L	<0.00020	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	<0.50	----
Tellurium, total	13494-80-9	E420	0.0002	mg/L	<0.00020	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	<0.000010	----
Thorium, total	7440-29-1	E420	0.0001	mg/L	<0.00010	----
Tin, total	7440-31-5	E420	0.0001	mg/L	<0.00010	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	<0.00030	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	<0.00010	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	<0.000010	----
Vanadium, total	7440-62-2	E420	0.0005	mg/L	<0.00050	----
Zinc, total	7440-66-6	E420	0.003	mg/L	<0.0030	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	<0.00020	----
Dissolved Metals (QCLot: 1651020)						
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	<0.0000050	----
Dissolved Metals (QCLot: 1652001)						
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	<0.0010	----
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	<0.00010	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	<0.00010	----
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	<0.00010	----
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	<0.000020	----
Bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	<0.000050	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	<0.010	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Dissolved Metals (QCLot: 1652001) - continued						
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	<0.0000050	----
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	<0.050	----
Cesium, dissolved	7440-46-2	E421	0.00001	mg/L	<0.000010	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	<0.00050	----
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	<0.00010	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	<0.00020	----
Iron, dissolved	7439-89-6	E421	0.01	mg/L	<0.010	----
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	<0.000050	----
Lithium, dissolved	7439-93-2	E421	0.001	mg/L	<0.0010	----
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	<0.0050	----
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	<0.00010	----
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	<0.000050	----
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	<0.00050	----
Phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	<0.050	----
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	<0.050	----
Rubidium, dissolved	7440-17-7	E421	0.0002	mg/L	<0.00020	----
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	<0.000050	----
Silicon, dissolved	7440-21-3	E421	0.05	mg/L	<0.050	----
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	<0.000010	----
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	<0.050	----
Strontium, dissolved	7440-24-6	E421	0.0002	mg/L	<0.00020	----
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	<0.50	----
Tellurium, dissolved	13494-80-9	E421	0.0002	mg/L	<0.00020	----
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	<0.000010	----
Thorium, dissolved	7440-29-1	E421	0.0001	mg/L	<0.00010	----
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	<0.00010	----
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	<0.00030	----
Tungsten, dissolved	7440-33-7	E421	0.0001	mg/L	<0.00010	----
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	<0.000010	----
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	<0.00050	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	<0.0010	----
Zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	<0.00020	----

Laboratory Control Sample (LCS) Report

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

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 1648425)									
pH	----	E108	----	pH units	7 pH units	101	98.0	102	----
Physical Tests (QCLot: 1648426)									
Conductivity	----	E100	1	µS/cm	147 µS/cm	101	90.0	110	----
Physical Tests (QCLot: 1648427)									
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	500 mg/L	99.6	85.0	115	----
Anions and Nutrients (QCLot: 1648324)									
Nitrate (as N)	14797-55-8	E235.NO3	0.02	mg/L	2.5 mg/L	96.1	90.0	110	----
Anions and Nutrients (QCLot: 1648325)									
Nitrite (as N)	14797-65-0	E235.NO2	0.01	mg/L	0.5 mg/L	97.8	90.0	110	----
Anions and Nutrients (QCLot: 1648326)									
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	98.9	90.0	110	----
Anions and Nutrients (QCLot: 1648327)									
Fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	99.5	90.0	110	----
Anions and Nutrients (QCLot: 1648328)									
Chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	97.2	90.0	110	----
Cyanides (QCLot: 1653576)									
Cyanide, strong acid dissociable (Total)	----	E333	0.002	mg/L	0.25 mg/L	90.9	80.0	120	----
Total Metals (QCLot: 1651021)									
Mercury, total	7439-97-6	E508	0.000005	mg/L	0 mg/L	103	80.0	120	----
Total Metals (QCLot: 1651999)									
Aluminum, total	7429-90-5	E420	0.003	mg/L	2 mg/L	103	80.0	120	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	1 mg/L	95.9	80.0	120	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	1 mg/L	98.0	80.0	120	----
Barium, total	7440-39-3	E420	0.0001	mg/L	0.25 mg/L	97.2	80.0	120	----
Beryllium, total	7440-41-7	E420	0.00002	mg/L	0.1 mg/L	95.3	80.0	120	----
Bismuth, total	7440-69-9	E420	0.00005	mg/L	1 mg/L	90.9	80.0	120	----
Boron, total	7440-42-8	E420	0.01	mg/L	1 mg/L	96.8	80.0	120	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	0.1 mg/L	92.6	80.0	120	----
Calcium, total	7440-70-2	E420	0.05	mg/L	50 mg/L	95.2	80.0	120	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Total Metals (QCLot: 1651999) - continued									
Cesium, total	7440-46-2	E420	0.00001	mg/L	0.05 mg/L	96.6	80.0	120	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	0.25 mg/L	97.6	80.0	120	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	0.25 mg/L	97.0	80.0	120	----
Copper, total	7440-50-8	E420	0.0005	mg/L	0.25 mg/L	94.1	80.0	120	----
Iron, total	7439-89-6	E420	0.01	mg/L	1 mg/L	115	80.0	120	----
Lead, total	7439-92-1	E420	0.00005	mg/L	0.5 mg/L	92.0	80.0	120	----
Lithium, total	7439-93-2	E420	0.001	mg/L	0.25 mg/L	92.5	80.0	120	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	50 mg/L	101	80.0	120	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	0.25 mg/L	96.4	80.0	120	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	0.25 mg/L	97.0	80.0	120	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	0.5 mg/L	95.4	80.0	120	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	10 mg/L	106	70.0	130	----
Potassium, total	7440-09-7	E420	0.05	mg/L	50 mg/L	99.9	80.0	120	----
Rubidium, total	7440-17-7	E420	0.0002	mg/L	0.1 mg/L	96.3	80.0	120	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	1 mg/L	90.2	80.0	120	----
Silicon, total	7440-21-3	E420	0.1	mg/L	10 mg/L	104	60.0	140	----
Silver, total	7440-22-4	E420	0.00001	mg/L	0.1 mg/L	92.3	80.0	120	----
Sodium, total	7440-23-5	E420	0.05	mg/L	50 mg/L	97.2	80.0	120	----
Strontium, total	7440-24-6	E420	0.0002	mg/L	0.25 mg/L	98.6	80.0	120	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	50 mg/L	97.0	80.0	120	----
Tellurium, total	13494-80-9	E420	0.0002	mg/L	0.1 mg/L	88.7	80.0	120	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	1 mg/L	92.3	80.0	120	----
Thorium, total	7440-29-1	E420	0.0001	mg/L	0.1 mg/L	94.3	80.0	120	----
Tin, total	7440-31-5	E420	0.0001	mg/L	0.5 mg/L	95.9	80.0	120	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	0.25 mg/L	99.1	80.0	120	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	0.1 mg/L	97.4	80.0	120	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	0.005 mg/L	96.5	80.0	120	----
Vanadium, total	7440-62-2	E420	0.0005	mg/L	0.5 mg/L	99.1	80.0	120	----
Zinc, total	7440-66-6	E420	0.003	mg/L	0.5 mg/L	91.4	80.0	120	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	0.1 mg/L	97.9	80.0	120	----
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0 mg/L	103	80.0	120	----
Dissolved Metals (QCLot: 1652001)									
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	2 mg/L	104	80.0	120	----
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	1 mg/L	98.7	80.0	120	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	1 mg/L	99.3	80.0	120	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Dissolved Metals (QCLot: 1652001) - continued									
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	0.25 mg/L	100	80.0	120	----
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	0.1 mg/L	101	80.0	120	----
Bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	1 mg/L	94.2	80.0	120	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	1 mg/L	99.4	80.0	120	----
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	0.1 mg/L	95.6	80.0	120	----
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	50 mg/L	99.7	80.0	120	----
Cesium, dissolved	7440-46-2	E421	0.00001	mg/L	0.05 mg/L	101	80.0	120	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	0.25 mg/L	98.2	80.0	120	----
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	0.25 mg/L	98.8	80.0	120	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	0.25 mg/L	96.2	80.0	120	----
Iron, dissolved	7439-89-6	E421	0.01	mg/L	1 mg/L	116	80.0	120	----
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	0.5 mg/L	96.8	80.0	120	----
Lithium, dissolved	7439-93-2	E421	0.001	mg/L	0.25 mg/L	97.6	80.0	120	----
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	50 mg/L	100	80.0	120	----
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	0.25 mg/L	98.1	80.0	120	----
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	0.25 mg/L	104	80.0	120	----
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	0.5 mg/L	97.6	80.0	120	----
Phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	10 mg/L	104	70.0	130	----
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	50 mg/L	101	80.0	120	----
Rubidium, dissolved	7440-17-7	E421	0.0002	mg/L	0.1 mg/L	97.5	80.0	120	----
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	1 mg/L	93.6	80.0	120	----
Silicon, dissolved	7440-21-3	E421	0.05	mg/L	10 mg/L	105	60.0	140	----
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	0.1 mg/L	96.8	80.0	120	----
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	50 mg/L	97.9	80.0	120	----
Strontium, dissolved	7440-24-6	E421	0.0002	mg/L	0.25 mg/L	102	80.0	120	----
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	50 mg/L	100	80.0	120	----
Tellurium, dissolved	13494-80-9	E421	0.0002	mg/L	0.1 mg/L	95.5	80.0	120	----
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	1 mg/L	96.0	80.0	120	----
Thorium, dissolved	7440-29-1	E421	0.0001	mg/L	0.1 mg/L	99.2	80.0	120	----
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	0.5 mg/L	99.2	80.0	120	----
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	0.25 mg/L	98.6	80.0	120	----
Tungsten, dissolved	7440-33-7	E421	0.0001	mg/L	0.1 mg/L	101	80.0	120	----
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	0.005 mg/L	99.6	80.0	120	----
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	0.5 mg/L	100	80.0	120	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	0.5 mg/L	96.5	80.0	120	----
Zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	0.1 mg/L	102	80.0	120	----

Sub-Matrix: **Water**

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

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: 1648324)										
YL2401440-002	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3	2.42 mg/L	2.5 mg/L	96.6	75.0	125	----
Anions and Nutrients (QCLot: 1648325)										
YL2401440-002	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2	0.498 mg/L	0.5 mg/L	99.6	75.0	125	----
Anions and Nutrients (QCLot: 1648326)										
YL2401440-002	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	ND mg/L	----	ND	75.0	125	----
Anions and Nutrients (QCLot: 1648327)										
YL2401440-002	Anonymous	Fluoride	16984-48-8	E235.F	0.996 mg/L	1 mg/L	99.6	75.0	125	----
Anions and Nutrients (QCLot: 1648328)										
YL2401440-002	Anonymous	Chloride	16887-00-6	E235.Cl	97.8 mg/L	100 mg/L	97.8	75.0	125	----
Cyanides (QCLot: 1653576)										
KS2403724-001	Anonymous	Cyanide, strong acid dissociable (Total)	----	E333	0.212 mg/L	0.25 mg/L	84.6	75.0	125	----
Total Metals (QCLot: 1651021)										
CG2413183-002	Anonymous	Mercury, total	7439-97-6	E508	0.0000964 mg/L	0 mg/L	96.4	70.0	130	----
Total Metals (QCLot: 1651999)										
CG2413201-001	Anonymous	Aluminum, total	7429-90-5	E420	1.95 mg/L	2 mg/L	97.6	70.0	130	----
		Antimony, total	7440-36-0	E420	0.194 mg/L	0.2 mg/L	97.3	70.0	130	----
		Arsenic, total	7440-38-2	E420	0.189 mg/L	0.2 mg/L	94.4	70.0	130	----
		Barium, total	7440-39-3	E420	0.192 mg/L	0.2 mg/L	95.9	70.0	130	----
		Beryllium, total	7440-41-7	E420	0.389 mg/L	0.4 mg/L	97.3	70.0	130	----
		Bismuth, total	7440-69-9	E420	0.0980 mg/L	0.1 mg/L	98.0	70.0	130	----
		Boron, total	7440-42-8	E420	0.953 mg/L	1 mg/L	95.3	70.0	130	----
		Cadmium, total	7440-43-9	E420	0.0378 mg/L	0.04 mg/L	94.5	70.0	130	----
		Calcium, total	7440-70-2	E420	ND mg/L	----	ND	70.0	130	----
		Cesium, total	7440-46-2	E420	0.0987 mg/L	0.1 mg/L	98.7	70.0	130	----
		Chromium, total	7440-47-3	E420	0.372 mg/L	0.4 mg/L	93.0	70.0	130	----
		Cobalt, total	7440-48-4	E420	0.193 mg/L	0.2 mg/L	96.7	70.0	130	----
		Copper, total	7440-50-8	E420	0.190 mg/L	0.2 mg/L	94.9	70.0	130	----
		Iron, total	7439-89-6	E420	19.0 mg/L	20 mg/L	95.2	70.0	130	----
		Lead, total	7439-92-1	E420	0.190 mg/L	0.2 mg/L	94.9	70.0	130	----
		Lithium, total	7439-93-2	E420	0.908 mg/L	1 mg/L	90.8	70.0	130	----
		Magnesium, total	7439-95-4	E420	ND mg/L	----	ND	70.0	130	----
		Manganese, total	7439-96-5	E420	0.190 mg/L	0.2 mg/L	95.2	70.0	130	----
		Molybdenum, total	7439-98-7	E420	0.194 mg/L	0.2 mg/L	97.1	70.0	130	----
		Nickel, total	7440-02-0	E420	0.386 mg/L	0.4 mg/L	96.5	70.0	130	----
		Phosphorus, total	7723-14-0	E420	98.8 mg/L	100 mg/L	98.8	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 (QCLot: 1651999) - continued										
CG2413201-001	Anonymous	Potassium, total	7440-09-7	E420	38.9 mg/L	40 mg/L	97.2	70.0	130	----
		Rubidium, total	7440-17-7	E420	0.194 mg/L	0.2 mg/L	96.9	70.0	130	----
		Selenium, total	7782-49-2	E420	0.377 mg/L	0.4 mg/L	94.3	70.0	130	----
		Silicon, total	7440-21-3	E420	88.9 mg/L	100 mg/L	88.9	70.0	130	----
		Silver, total	7440-22-4	E420	0.0403 mg/L	0.04 mg/L	101	70.0	130	----
		Sodium, total	7440-23-5	E420	19.4 mg/L	20 mg/L	97.2	70.0	130	----
		Strontium, total	7440-24-6	E420	0.181 mg/L	0.2 mg/L	90.7	70.0	130	----
		Sulfur, total	7704-34-9	E420	183 mg/L	200 mg/L	91.4	70.0	130	----
		Tellurium, total	13494-80-9	E420	0.380 mg/L	0.4 mg/L	94.9	70.0	130	----
		Thallium, total	7440-28-0	E420	0.0387 mg/L	0.04 mg/L	96.8	70.0	130	----
		Thorium, total	7440-29-1	E420	0.193 mg/L	0.2 mg/L	96.5	70.0	130	----
		Tin, total	7440-31-5	E420	0.194 mg/L	0.2 mg/L	96.9	70.0	130	----
		Titanium, total	7440-32-6	E420	0.376 mg/L	0.4 mg/L	94.0	70.0	130	----
		Tungsten, total	7440-33-7	E420	0.194 mg/L	0.2 mg/L	97.1	70.0	130	----
		Uranium, total	7440-61-1	E420	0.0393 mg/L	0.04 mg/L	98.2	70.0	130	----
		Vanadium, total	7440-62-2	E420	0.958 mg/L	1 mg/L	95.8	70.0	130	----
		Zinc, total	7440-66-6	E420	3.80 mg/L	4 mg/L	94.9	70.0	130	----
		Zirconium, total	7440-67-7	E420	0.390 mg/L	0.4 mg/L	97.6	70.0	130	----
Dissolved Metals (QCLot: 1651020)										
CG2413183-002	Anonymous	Mercury, dissolved	7439-97-6	E509	0.000111 mg/L	0 mg/L	111	70.0	130	----
Dissolved Metals (QCLot: 1652001)										
CG2413201-001	Anonymous	Aluminum, dissolved	7429-90-5	E421	1.92 mg/L	2 mg/L	96.0	70.0	130	----
		Antimony, dissolved	7440-36-0	E421	0.190 mg/L	0.2 mg/L	95.0	70.0	130	----
		Arsenic, dissolved	7440-38-2	E421	0.188 mg/L	0.2 mg/L	94.1	70.0	130	----
		Barium, dissolved	7440-39-3	E421	0.187 mg/L	0.2 mg/L	93.6	70.0	130	----
		Beryllium, dissolved	7440-41-7	E421	0.373 mg/L	0.4 mg/L	93.2	70.0	130	----
		Bismuth, dissolved	7440-69-9	E421	0.0946 mg/L	0.1 mg/L	94.6	70.0	130	----
		Boron, dissolved	7440-42-8	E421	0.922 mg/L	1 mg/L	92.2	70.0	130	----
		Cadmium, dissolved	7440-43-9	E421	0.0382 mg/L	0.04 mg/L	95.6	70.0	130	----
		Calcium, dissolved	7440-70-2	E421	ND mg/L	----	ND	70.0	130	----
		Cesium, dissolved	7440-46-2	E421	0.0956 mg/L	0.1 mg/L	95.6	70.0	130	----
		Chromium, dissolved	7440-47-3	E421	0.377 mg/L	0.4 mg/L	94.4	70.0	130	----
		Cobalt, dissolved	7440-48-4	E421	0.196 mg/L	0.2 mg/L	98.1	70.0	130	----
		Copper, dissolved	7440-50-8	E421	0.190 mg/L	0.2 mg/L	94.8	70.0	130	----
		Iron, dissolved	7439-89-6	E421	18.9 mg/L	20 mg/L	94.6	70.0	130	----
		Lead, dissolved	7439-92-1	E421	0.188 mg/L	0.2 mg/L	94.2	70.0	130	----
		Lithium, dissolved	7439-93-2	E421	0.883 mg/L	1 mg/L	88.3	70.0	130	----
		Magnesium, dissolved	7439-95-4	E421	ND mg/L	----	ND	70.0	130	----
		Manganese, dissolved	7439-96-5	E421	0.191 mg/L	0.2 mg/L	95.4	70.0	130	----
		Molybdenum, dissolved	7439-98-7	E421	0.193 mg/L	0.2 mg/L	96.4	70.0	130	----
		Nickel, dissolved	7440-02-0	E421	0.389 mg/L	0.4 mg/L	97.4	70.0	130	----
		Phosphorus, dissolved	7723-14-0	E421	97.4 mg/L	100 mg/L	97.4	70.0	130	----
		Potassium, dissolved	7440-09-7	E421	39.0 mg/L	40 mg/L	97.6	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
Dissolved Metals (QCLot: 1652001) - continued										
CG2413201-001	Anonymous	Rubidium, dissolved	7440-17-7	E421	0.192 mg/L	0.2 mg/L	96.2	70.0	130	----
		Selenium, dissolved	7782-49-2	E421	0.376 mg/L	0.4 mg/L	94.0	70.0	130	----
		Silicon, dissolved	7440-21-3	E421	86.5 mg/L	100 mg/L	86.5	70.0	130	----
		Silver, dissolved	7440-22-4	E421	0.0392 mg/L	0.04 mg/L	97.9	70.0	130	----
		Sodium, dissolved	7440-23-5	E421	19.3 mg/L	20 mg/L	96.3	70.0	130	----
		Strontium, dissolved	7440-24-6	E421	0.188 mg/L	0.2 mg/L	93.9	70.0	130	----
		Sulfur, dissolved	7704-34-9	E421	179 mg/L	200 mg/L	89.5	70.0	130	----
		Tellurium, dissolved	13494-80-9	E421	0.380 mg/L	0.4 mg/L	95.0	70.0	130	----
		Thallium, dissolved	7440-28-0	E421	0.0382 mg/L	0.04 mg/L	95.5	70.0	130	----
		Thorium, dissolved	7440-29-1	E421	0.192 mg/L	0.2 mg/L	96.2	70.0	130	----
		Tin, dissolved	7440-31-5	E421	0.190 mg/L	0.2 mg/L	94.8	70.0	130	----
		Titanium, dissolved	7440-32-6	E421	0.393 mg/L	0.4 mg/L	98.2	70.0	130	----
		Tungsten, dissolved	7440-33-7	E421	0.194 mg/L	0.2 mg/L	97.1	70.0	130	----
		Uranium, dissolved	7440-61-1	E421	0.0382 mg/L	0.04 mg/L	95.5	70.0	130	----
		Vanadium, dissolved	7440-62-2	E421	0.954 mg/L	1 mg/L	95.4	70.0	130	----
		Zinc, dissolved	7440-66-6	E421	3.93 mg/L	4 mg/L	98.2	70.0	130	----
		Zirconium, dissolved	7440-67-7	E421	0.381 mg/L	0.4 mg/L	95.2	70.0	130	----

CHAIN OF CUSTODY

ALS Laboratory

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE/TIME:	DATE/TIME: 1130 SEPT 10/24	DATE/TIME:	DATE/TIME:

CLIENT:	**Elgin Mining Inc.**	**TURNAROUND REQUIREMENTS :** (Standard TAT may be longer for some tests e.g., Ultra Trace Organics)	☐ Standard TAT **(List due date):**
PROJECT:	**Lupin Mine**		☐ Non Standard or urgent TAT **(List due date):**
SITE:	**Lupin Mine Site**		
PURCHASE ORDER NO.:		**ALS QUOTE NO.:**	
PROJECT MANAGER:	**Jon Melnyk**	**CONTACT PH:**	**403-862-2994**
SAMPLER:	**Jon Melnyk**	**SAMPLER MOBILE:**	
EMAIL REPORTS TO:	jonm@jdsmining.ca	**EMAIL INVOICE TO:**	jonm@jdsmining.ca

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:	12.0		

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	General	Dissolved Metals	Total metals	Total Mercury	Dissolved Mercury	Total Cyanide					Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
	P1-A	8-Sep-24			Yes	Yes	Yes	Yes	Yes	Yes					Dissolved Mercury and Dissolved Metals were field Filtered
	P1-B	8-Sep-24			Yes	Yes	Yes	Yes	Yes	Yes					Dissolved Mercury and Dissolved Metals were field Filtered
	P1-D	8-Sep-24			Yes	Yes	Yes	Yes	Yes	Yes					Dissolved Mercury and Dissolved Metals were field Filtered
	C4-E	9-Sep-24			Yes	Yes	Yes	Yes	Yes	Yes					Dissolved Mercury and Dissolved Metals were field Filtered
				TOTAL											

Environmental Division
Yellowknife
Work Order Reference
YL2401441

Telephone : +1 867 873 5593

CERTIFICATE OF ANALYSIS

Work Order	:	**YL2401443**			
Client	:	**Elgin Mining Inc.**	Laboratory	:	ALS Environmental - Calgary
Contact	:	Jon Melnyk	Account Manager	:	Oliver Gregg
Address	:	750 West Pender Street Suite 201 Vancouver British Columbia Canada V6C 2T7	Address	:	2559 29th Street NE Calgary AB Canada T1Y 7B5
Telephone	:	----	Telephone	:	1 867 445 7143
Project	:	LUPIN MINE	Date Samples Received	:	10-Sep-2024 09:30
PO	:	----	Date Analysis Commenced	:	11-Sep-2024
C-O-C number	:	----	Issue Date	:	20-Sep-2024 01:10
Sampler	:	----			
Site	:	----			
Quote number	:	YL24-ELMI100-001			
No. of samples received	:	5			
No. of samples analysed	:	5			

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

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

Signatories

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

Signatories	*Position*	*Laboratory Department*
Eunice Cura	Lab Analyst	Inorganics, Calgary, Alberta
George Huang	Supervisor - Inorganic	Metals, Calgary, Alberta
Gurvinder Kour	Lab Assistant	Metals, Calgary, Alberta
Harpreet Chawla	Team Leader - Inorganics	Inorganics, Calgary, Alberta
Katarzyna Glinka	Analyst	Inorganics, Calgary, Alberta
Kevin Baxter	Team Leader - Inorganics	Inorganics, Calgary, Alberta
Oliver Gregg	Client Services Supervisor	External Subcontracting, Yellowknife, Northwest Territories
Parker Sgarbossa	Laboratory Analyst	Metals, Calgary, Alberta
Ruifang Zheng	Analyst	Inorganics, Calgary, Alberta
Shirley Li	Team Leader - Inorganics	Metals, Calgary, 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*
mg/L	milligrams per litre
pH units	pH units
µS/cm	microsiemens per centimetre
CFU/100mL	colony forming units per hundred millilitres
-	no units
meq/L	milliequivalents per litre
%	percent

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

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED on SRN or QCI Report, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Sample Comments

Sample	*Client Id*	*Comment*
YL2401443-001	LUP-14	Water sample(s) for dissolved mercury analysis was not submitted in glass or PTFE container with HCl preservative. Results may be biased low.
YL2401443-002	LUP-14 PD	Water sample(s) for dissolved mercury analysis was not submitted in glass or PTFE container with HCl preservative. Results may be biased low.
YL2401443-003	LUP-EL-01	Water sample(s) for dissolved mercury analysis was not submitted in glass or PTFE container with HCl preservative. Results may be biased low.

YL2401443-004	LUP-LSL-01	Water sample(s) for dissolved mercury analysis was not submitted in glass or PTFE container with HCl preservative. Results may be biased low.
YL2401443-005	LUP-BL-01	Water sample(s) for dissolved mercury analysis was not submitted in glass or PTFE container with HCl preservative. Results may be biased low.

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	Client sample ID	LUP-14	LUP-14 PD	LUP-EL-01	LUP-LSL-01	LUP-BL-01
					Client sampling date / time	09-Sep-2024 00:00	09-Sep-2024 00:00	08-Sep-2024 00:00	08-Sep-2024 00:00	08-Sep-2024 00:00
						YL2401443-001	YL2401443-002	YL2401443-003	YL2401443-004	YL2401443-005
						Result	Result	Result	Result	Result
Physical Tests										
Hardness (as CaCO3), dissolved	----	EC100/CG	0.60	mg/L		94.8	94.3	50.1	93.6	37.2
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/CG	0.60	mg/L		95.2	96.0	50.9	95.1	37.5
Conductivity	----	E100/CG	2.0	µS/cm		279	278	142	279	105
pH	----	E108/CG	0.10	pH units		7.18	7.31	4.81	7.24	6.29
Alkalinity, bicarbonate (as HCO3)	71-52-3	E290/CG	1.0	mg/L		27.6	28.9	<1.0	28.8	2.4
Alkalinity, carbonate (as CO3)	3812-32-6	E290/CG	1.0	mg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Alkalinity, hydroxide (as OH)	14280-30-9	E290/CG	1.0	mg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Alkalinity, total (as CaCO3)	----	E290/CG	2.0	mg/L		22.6	23.7	<2.0	23.6	2.0
Solids, total dissolved [TDS], calculated	----	EC103/CG	1.0	mg/L		161	161	87.5	160	61.5
Anions and Nutrients										
Kjeldahl nitrogen, total [TKN]	----	E318/CG	0.050	mg/L		0.411	0.431	----	----	----
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U/CG	0.0010	mg/L		<0.0010	<0.0010	----	----	----
Phosphorus, total	7723-14-0	E372-U/CG	0.0020	mg/L		0.0118	0.0126	----	----	----
Chloride	16887-00-6	E235.Cl/CG	0.50	mg/L		18.8	18.8	1.05	18.9	1.34
Fluoride	16984-48-8	E235.F/CG	0.020	mg/L		0.075	0.074	0.098	0.076	0.057
Nitrate (as N)	14797-55-8	E235.NO3/CG	0.020	mg/L		<0.020	<0.020	0.026	<0.020	<0.020
Nitrite (as N)	14797-65-0	E235.NO2/CG	0.010	mg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Sulfate (as SO4)	14808-79-8	E235.SO4/CG	0.30	mg/L		77.6	77.1	54.2	77.1	38.4
Nitrate + Nitrite (as N)	----	EC235.N+N/CG	0.0500	mg/L		<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
Microbiological Tests										
Coliforms, thermotolerant [fecal]	----	FC-MF/1Y	1.0	CFU/100 mL		<1.0	<1.0	----	----	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	Client sample ID	LUP-14	LUP-14 PD	LUP-EL-01	LUP-LSL-01	LUP-BL-01
					Client sampling date / time	09-Sep-2024 00:00	09-Sep-2024 00:00	08-Sep-2024 00:00	08-Sep-2024 00:00	08-Sep-2024 00:00
						YL2401443-001	YL2401443-002	YL2401443-003	YL2401443-004	YL2401443-005
						Result	Result	Result	Result	Result
Ion Balance										
Anion sum	----	EC101/CG	0.10	meq/L		2.60	2.61	1.16	2.61	0.88
Cation sum	----	EC101/CG	0.10	meq/L		2.54	2.53	1.21	2.52	0.90
Ion balance (APHA)	----	EC101/CG	0.01	%		-1.17	-1.56	2.11	-1.75	1.12
Ion balance (cations/anions)	----	EC101/CG	0.010	%		97.7	96.9	104	96.6	102
Total Metals										
Aluminum, total	7429-90-5	E420/CG	0.0030	mg/L		0.0300	0.0206	0.394	0.0208	0.190
Antimony, total	7440-36-0	E420/CG	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic, total	7440-38-2	E420/CG	0.00010	mg/L		0.00723	0.00687	0.00230	0.00673	0.00088
Barium, total	7440-39-3	E420/CG	0.00010	mg/L		0.0131	0.0132	0.0307	0.0124	0.0117
Beryllium, total	7440-41-7	E420/CG	0.000100	mg/L		<0.000100	<0.000100	0.000201	<0.000100	<0.000100
Bismuth, total	7440-69-9	E420/CG	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron, total	7440-42-8	E420/CG	0.010	mg/L		0.085	0.090	<0.010	0.089	<0.010
Cadmium, total	7440-43-9	E420/CG	0.0000050	mg/L		0.0000056	<0.0000050	0.000126	<0.0000050	0.0000682
Calcium, total	7440-70-2	E420/CG	0.050	mg/L		27.6	27.7	9.32	27.7	7.77
Cesium, total	7440-46-2	E420/CG	0.000010	mg/L		0.000120	0.000107	0.000080	0.000111	0.000049
Chromium, total	7440-47-3	E420/CG	0.00050	mg/L		<0.00050	<0.00050	0.00054	<0.00050	<0.00050
Cobalt, total	7440-48-4	E420/CG	0.00010	mg/L		0.00077	0.00048	0.0410	0.00040	0.0128
Copper, total	7440-50-8	E420/CG	0.00050	mg/L		0.00118	0.00113	0.00688	0.00088	0.00311
Iron, total	7439-89-6	E420/CG	0.010	mg/L		0.195	0.169	0.489	0.163	0.153
Lead, total	7439-92-1	E420/CG	0.000050	mg/L		<0.000050	0.000088	0.000076	<0.000050	<0.000050
Lithium, total	7439-93-2	E420/CG	0.0010	mg/L		0.0136	0.0146	0.0100	0.0145	0.0071

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	Client sample ID	LUP-14	LUP-14 PD	LUP-EL-01	LUP-LSL-01	LUP-BL-01
					Client sampling date / time	09-Sep-2024 00:00	09-Sep-2024 00:00	08-Sep-2024 00:00	08-Sep-2024 00:00	08-Sep-2024 00:00
						YL2401443-001	YL2401443-002	YL2401443-003	YL2401443-004	YL2401443-005
						Result	Result	Result	Result	Result
Total Metals										
Magnesium, total	7439-95-4	E420/CG	0.0050	mg/L		6.38	6.53	6.70	6.29	4.40
Manganese, total	7439-96-5	E420/CG	0.00010	mg/L		0.0186	0.0155	0.337	0.0111	0.111
Mercury, total	7439-97-6	E508/CG	0.0000050	mg/L		<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum, total	7439-98-7	E420/CG	0.000050	mg/L		0.000192	0.000202	<0.000050	0.000183	<0.000050
Nickel, total	7440-02-0	E420/CG	0.00050	mg/L		0.00628	0.00548	0.0753	0.00522	0.0309
Phosphorus, total	7723-14-0	E420/CG	0.050	mg/L		<0.050	<0.050	<0.050	<0.050	<0.050
Potassium, total	7440-09-7	E420/CG	0.050	mg/L		3.24	3.26	0.741	3.17	1.01
Rubidium, total	7440-17-7	E420/CG	0.00020	mg/L		0.00624	0.00634	0.00216	0.00614	0.00257
Selenium, total	7782-49-2	E420/CG	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Silicon, total	7440-21-3	E420/CG	0.10	mg/L		0.38	0.34	4.44	0.33	1.67
Silver, total	7440-22-4	E420/CG	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium, total	7440-23-5	E420/CG	0.050	mg/L		13.1	13.3	2.63	13.1	2.59
Strontium, total	7440-24-6	E420/CG	0.00020	mg/L		0.183	0.177	0.0505	0.176	0.0370
Sulfur, total	7704-34-9	E420/CG	0.50	mg/L		27.6	27.2	18.5	27.1	12.9
Tellurium, total	13494-80-9	E420/CG	0.00020	mg/L		<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Thallium, total	7440-28-0	E420/CG	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Thorium, total	7440-29-1	E420/CG	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Tin, total	7440-31-5	E420/CG	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium, total	7440-32-6	E420/CG	0.00030	mg/L		0.00033	0.00037	0.00133	0.00035	0.00045
Tungsten, total	7440-33-7	E420/CG	0.00010	mg/L		<0.00010	0.00013	<0.00010	<0.00010	<0.00010
Uranium, total	7440-61-1	E420/CG	0.000010	mg/L		0.000082	0.000021	0.000042	0.000021	0.000033

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	Client sample ID	LUP-14	LUP-14 PD	LUP-EL-01	LUP-LSL-01	LUP-BL-01
					Client sampling date / time	09-Sep-2024 00:00	09-Sep-2024 00:00	08-Sep-2024 00:00	08-Sep-2024 00:00	08-Sep-2024 00:00
						YL2401443-001	YL2401443-002	YL2401443-003	YL2401443-004	YL2401443-005
						Result	Result	Result	Result	Result
Total Metals										
Vanadium, total	7440-62-2	E420/CG	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc, total	7440-66-6	E420/CG	0.0030	mg/L		<0.0030	<0.0030	0.0387	<0.0030	0.0179
Zirconium, total	7440-67-7	E420/CG	0.00020	mg/L		<0.00020	<0.00020	0.00025	<0.00020	<0.00020
Dissolved Metals										
Aluminum, dissolved	7429-90-5	E421/CG	0.0010	mg/L		0.0194	0.0131	0.352	0.0121	0.134
Antimony, dissolved	7440-36-0	E421/CG	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Arsenic, dissolved	7440-38-2	E421/CG	0.00010	mg/L		0.00586	0.00584	0.00196	0.00565	0.00094
Barium, dissolved	7440-39-3	E421/CG	0.00010	mg/L		0.0130	0.0130	0.0296	0.0127	0.0118
Beryllium, dissolved	7440-41-7	E421/CG	0.000100	mg/L		<0.000100	<0.000100	0.000206	<0.000100	<0.000100
Bismuth, dissolved	7440-69-9	E421/CG	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron, dissolved	7440-42-8	E421/CG	0.010	mg/L		0.082	0.086	<0.010	0.084	<0.010
Cadmium, dissolved	7440-43-9	E421/CG	0.0000050	mg/L		<0.0000050	<0.0000050	0.000126	<0.0000050	0.0000736
Calcium, dissolved	7440-70-2	E421/CG	0.050	mg/L		27.6	27.4	9.22	27.0	7.70
Cesium, dissolved	7440-46-2	E421/CG	0.000010	mg/L		0.000117	0.000106	0.000074	0.000109	0.000048
Chromium, dissolved	7440-47-3	E421/CG	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Cobalt, dissolved	7440-48-4	E421/CG	0.00010	mg/L		0.00055	0.00032	0.0397	0.00023	0.0125
Copper, dissolved	7440-50-8	E421/CG	0.00020	mg/L		0.00097	0.00098	0.00592	0.00076	0.00276
Iron, dissolved	7439-89-6	E421/CG	0.010	mg/L		0.120	0.108	0.269	0.088	0.077
Lead, dissolved	7439-92-1	E421/CG	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Lithium, dissolved	7439-93-2	E421/CG	0.0010	mg/L		0.0135	0.0141	0.0099	0.0138	0.0068
Magnesium, dissolved	7439-95-4	E421/CG	0.0050	mg/L		6.29	6.28	6.57	6.36	4.36

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	Client sample ID	LUP-14	LUP-14 PD	LUP-EL-01	LUP-LSL-01	LUP-BL-01
					Client sampling date / time	09-Sep-2024 00:00	09-Sep-2024 00:00	08-Sep-2024 00:00	08-Sep-2024 00:00	08-Sep-2024 00:00
						YL2401443-001	YL2401443-002	YL2401443-003	YL2401443-004	YL2401443-005
						Result	Result	Result	Result	Result
Dissolved Metals										
Manganese, dissolved	7439-96-5	E421/CG	0.00010	mg/L		0.0132	0.0107	0.326	0.00588	0.110
Mercury, dissolved	7439-97-6	E509/CG	0.0000050	mg/L		<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum, dissolved	7439-98-7	E421/CG	0.000050	mg/L		0.000186	0.000187	<0.000050	0.000184	<0.000050
Nickel, dissolved	7440-02-0	E421/CG	0.00050	mg/L		0.00602	0.00518	0.0729	0.00494	0.0302
Phosphorus, dissolved	7723-14-0	E421/CG	0.050	mg/L		<0.050	<0.050	<0.050	<0.050	<0.050
Potassium, dissolved	7440-09-7	E421/CG	0.050	mg/L		3.16	3.17	0.724	3.14	0.997
Rubidium, dissolved	7440-17-7	E421/CG	0.00020	mg/L		0.00621	0.00610	0.00218	0.00625	0.00271
Selenium, dissolved	7782-49-2	E421/CG	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Silicon, dissolved	7440-21-3	E421/CG	0.050	mg/L		0.352	0.330	4.39	0.306	1.65
Silver, dissolved	7440-22-4	E421/CG	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium, dissolved	7440-23-5	E421/CG	0.050	mg/L		12.9	12.8	2.61	12.9	2.62
Strontium, dissolved	7440-24-6	E421/CG	0.00020	mg/L		0.175	0.174	0.0504	0.173	0.0374
Sulfur, dissolved	7704-34-9	E421/CG	0.50	mg/L		27.7	28.1	18.6	27.2	13.2
Tellurium, dissolved	13494-80-9	E421/CG	0.00020	mg/L		<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Thallium, dissolved	7440-28-0	E421/CG	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Thorium, dissolved	7440-29-1	E421/CG	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Tin, dissolved	7440-31-5	E421/CG	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium, dissolved	7440-32-6	E421/CG	0.00030	mg/L		<0.00030	<0.00030	0.00054	<0.00030	<0.00030
Tungsten, dissolved	7440-33-7	E421/CG	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Uranium, dissolved	7440-61-1	E421/CG	0.000010	mg/L		0.000030	0.000018	0.000032	0.000017	0.000026
Vanadium, dissolved	7440-62-2	E421/CG	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050

Analytical Results

Sub-Matrix: Water (Matrix: Water)			Client sample ID		LUP-14	LUP-14 PD	LUP-EL-01	LUP-LSL-01	LUP-BL-01
			Client sampling date / time		09-Sep-2024 00:00	09-Sep-2024 00:00	08-Sep-2024 00:00	08-Sep-2024 00:00	08-Sep-2024 00:00
Analyte	CAS Number	Method/Lab/Accreditation	LOR	Unit	YL2401443-001	YL2401443-002	YL2401443-003	YL2401443-004	YL2401443-005
					Result	Result	Result	Result	Result
Dissolved Metals									
Zinc, dissolved	7440-66-6	E421/CG	0.0010	mg/L	0.0028	0.0034	0.0412	0.0024	0.0196
Zirconium, dissolved	7440-67-7	E421/CG	0.00020	mg/L	<0.00020	<0.00020	0.00025	<0.00020	<0.00020
Dissolved mercury filtration location	----	EP509/CG	-	-	Laboratory	Laboratory	Laboratory	Laboratory	Laboratory
Dissolved metals filtration location	----	EP421/CG	-	-	Laboratory	Laboratory	Laboratory	Laboratory	Laboratory
Aggregate Organics									
Biochemical oxygen demand [BOD]	----	BOD5/1Y	2.0	mg/L	3.0	3.0	----	----	----

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

Please refer to the Accreditation section for an explanation of analyte accreditations.

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QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **YL2401443**	Page	: 1 of 16
Client	: **Elgin Mining Inc.**	Laboratory	: ALS Environmental - Yellowknife
Contact	: Jon Melnyk	Account Manager	: Oliver Gregg
Address	: 750 West Pender Street Suite 201 Vancouver BC Canada V6C 2T7	Address	: 314 Old Airport Road, Unit 116 Yellowknife, Northwest Territories Canada X1A 3T3
Telephone	: ----	Telephone	: 1 867 445 7143
Project	: LUPIN MINE	Date Samples Received	: 10-Sep-2024 09:30
PO	: ----	Issue Date	: 19-Sep-2024 10:27
C-O-C number	: ----		
Sampler	: ----		
Site	: ----		
Quote number	: YL24-ELMI100-001		
No. of samples received	: 5		
No. of samples analysed	: 5		

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

Key

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

Workorder Comments

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

Summary of Outliers

Outliers : Quality Control Samples

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

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

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

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Analysis Holding Time Compliance

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

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

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

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

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Aggregate Organics : Biochemical Oxygen Demand (BOD) 5-day										
HDPE [BOD HT-48h]										
LUP-14	BOD5	09-Sep-2024	----	----	----		11-Sep-2024	48 hrs	47 hrs	✓
Aggregate Organics : Biochemical Oxygen Demand (BOD) 5-day										
HDPE [BOD HT-48h]										
LUP-14 PD	BOD5	09-Sep-2024	----	----	----		11-Sep-2024	48 hrs	47 hrs	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE										
LUP-14	E235.Cl	09-Sep-2024	12-Sep-2024	28 days	3 days	✓	12-Sep-2024	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE										
LUP-14 PD	E235.Cl	09-Sep-2024	12-Sep-2024	28 days	3 days	✓	12-Sep-2024	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE										
LUP-BL-01	E235.Cl	08-Sep-2024	12-Sep-2024	28 days	4 days	✓	12-Sep-2024	28 days	4 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE										
LUP-EL-01	E235.Cl	08-Sep-2024	12-Sep-2024	28 days	4 days	✓	12-Sep-2024	28 days	4 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE										
LUP-LSL-01	E235.Cl	08-Sep-2024	12-Sep-2024	28 days	4 days	✓	12-Sep-2024	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 : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE										
LUP-14	E378-U	09-Sep-2024	12-Sep-2024	3 days	3 days	✓	12-Sep-2024	3 days	3 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE										
LUP-14 PD	E378-U	09-Sep-2024	12-Sep-2024	3 days	3 days	✓	12-Sep-2024	3 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
LUP-14	E235.F	09-Sep-2024	12-Sep-2024	28 days	3 days	✓	12-Sep-2024	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
LUP-14 PD	E235.F	09-Sep-2024	12-Sep-2024	28 days	3 days	✓	12-Sep-2024	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
LUP-BL-01	E235.F	08-Sep-2024	12-Sep-2024	28 days	4 days	✓	12-Sep-2024	28 days	4 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
LUP-EL-01	E235.F	08-Sep-2024	12-Sep-2024	28 days	4 days	✓	12-Sep-2024	28 days	4 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
LUP-LSL-01	E235.F	08-Sep-2024	12-Sep-2024	28 days	4 days	✓	12-Sep-2024	28 days	4 days	✓
Anions and Nutrients : Nitrate in Water by IC										
HDPE										
LUP-14	E235.NO3	09-Sep-2024	12-Sep-2024	3 days	3 days	✓	12-Sep-2024	3 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC										
HDPE										
LUP-14 PD	E235.NO3	09-Sep-2024	12-Sep-2024	3 days	3 days	✓	12-Sep-2024	3 days	3 days	✓

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	*Method*	*Sampling Date*	*Extraction / Preparation*				*Analysis*			
			Preparation Date	*Holding Times*		*Eval*	*Analysis Date*	*Holding Times*		*Eval*
				Rec	*Actual*			*Rec*	*Actual*	
Anions and Nutrients : Nitrate in Water by IC										
HDPE										
LUP-BL-01	E235.NO3	08-Sep-2024	12-Sep-2024	3 days	4 days	✗ EHT	12-Sep-2024	3 days	4 days	✗ EHT
Anions and Nutrients : Nitrate in Water by IC										
HDPE										
LUP-EL-01	E235.NO3	08-Sep-2024	12-Sep-2024	3 days	4 days	✗ EHT	12-Sep-2024	3 days	4 days	✗ EHT
Anions and Nutrients : Nitrate in Water by IC										
HDPE										
LUP-LSL-01	E235.NO3	08-Sep-2024	12-Sep-2024	3 days	4 days	✗ EHT	12-Sep-2024	3 days	4 days	✗ EHT
Anions and Nutrients : Nitrite in Water by IC										
HDPE										
LUP-14	E235.NO2	09-Sep-2024	12-Sep-2024	3 days	3 days	✓	12-Sep-2024	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC										
HDPE										
LUP-14 PD	E235.NO2	09-Sep-2024	12-Sep-2024	3 days	3 days	✓	12-Sep-2024	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC										
HDPE										
LUP-BL-01	E235.NO2	08-Sep-2024	12-Sep-2024	3 days	4 days	✗ EHT	12-Sep-2024	3 days	4 days	✗ EHT
Anions and Nutrients : Nitrite in Water by IC										
HDPE										
LUP-EL-01	E235.NO2	08-Sep-2024	12-Sep-2024	3 days	4 days	✗ EHT	12-Sep-2024	3 days	4 days	✗ EHT
Anions and Nutrients : Nitrite in Water by IC										
HDPE										
LUP-LSL-01	E235.NO2	08-Sep-2024	12-Sep-2024	3 days	4 days	✗ EHT	12-Sep-2024	3 days	4 days	✗ EHT
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
LUP-14	E235.SO4	09-Sep-2024	12-Sep-2024	28 days	3 days	✓	12-Sep-2024	28 days	3 days	✓

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
LUP-14 PD	E235.SO4	09-Sep-2024	12-Sep-2024	28 days	3 days	✓	12-Sep-2024	28 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
LUP-BL-01	E235.SO4	08-Sep-2024	12-Sep-2024	28 days	4 days	✓	12-Sep-2024	28 days	4 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
LUP-EL-01	E235.SO4	08-Sep-2024	12-Sep-2024	28 days	4 days	✓	12-Sep-2024	28 days	4 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
LUP-LSL-01	E235.SO4	08-Sep-2024	12-Sep-2024	28 days	4 days	✓	12-Sep-2024	28 days	4 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid)										
LUP-14	E318	09-Sep-2024	16-Sep-2024	28 days	7 days	✓	18-Sep-2024	28 days	9 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid)										
LUP-14 PD	E318	09-Sep-2024	16-Sep-2024	28 days	7 days	✓	18-Sep-2024	28 days	9 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid)										
LUP-14	E372-U	09-Sep-2024	18-Sep-2024	28 days	9 days	✓	18-Sep-2024	28 days	9 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid)										
LUP-14 PD	E372-U	09-Sep-2024	18-Sep-2024	28 days	9 days	✓	18-Sep-2024	28 days	9 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)										
LUP-14	E509	09-Sep-2024	16-Sep-2024	28 days	7 days	✓	16-Sep-2024	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	
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)										
LUP-14 PD	E509	09-Sep-2024	16-Sep-2024	28 days	7 days	✓	16-Sep-2024	28 days	7 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)										
LUP-BL-01	E509	08-Sep-2024	16-Sep-2024	28 days	8 days	✓	16-Sep-2024	28 days	8 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)										
LUP-EL-01	E509	08-Sep-2024	16-Sep-2024	28 days	8 days	✓	16-Sep-2024	28 days	8 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)										
LUP-LSL-01	E509	08-Sep-2024	16-Sep-2024	28 days	8 days	✓	16-Sep-2024	28 days	8 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
LUP-14	E421	09-Sep-2024	16-Sep-2024	180 days	7 days	✓	17-Sep-2024	180 days	8 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
LUP-14 PD	E421	09-Sep-2024	16-Sep-2024	180 days	7 days	✓	17-Sep-2024	180 days	8 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
LUP-BL-01	E421	08-Sep-2024	16-Sep-2024	180 days	8 days	✓	17-Sep-2024	180 days	9 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
LUP-EL-01	E421	08-Sep-2024	16-Sep-2024	180 days	8 days	✓	17-Sep-2024	180 days	9 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE - dissolved (lab preserved)										
LUP-LSL-01	E421	08-Sep-2024	16-Sep-2024	180 days	8 days	✓	17-Sep-2024	180 days	9 days	✓

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Microbiological Tests : Fecal Coliforms in Water by MF										
Sterile HDPE (Sodium thiosulphate) LUP-14	FC-MF	09-Sep-2024	----	----	----		11-Sep-2024	30 hrs	47 hrs	× EHTL
Microbiological Tests : Fecal Coliforms in Water by MF										
Sterile HDPE (Sodium thiosulphate) LUP-14 PD	FC-MF	09-Sep-2024	----	----	----		11-Sep-2024	30 hrs	47 hrs	× EHTL
Physical Tests : Alkalinity Species by Titration										
HDPE LUP-14	E290	09-Sep-2024	12-Sep-2024	14 days	3 days	✓	12-Sep-2024	14 days	3 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE LUP-14 PD	E290	09-Sep-2024	12-Sep-2024	14 days	3 days	✓	12-Sep-2024	14 days	3 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE LUP-BL-01	E290	08-Sep-2024	12-Sep-2024	14 days	4 days	✓	12-Sep-2024	14 days	4 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE LUP-EL-01	E290	08-Sep-2024	12-Sep-2024	14 days	4 days	✓	12-Sep-2024	14 days	4 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE LUP-LSL-01	E290	08-Sep-2024	12-Sep-2024	14 days	4 days	✓	12-Sep-2024	14 days	4 days	✓
Physical Tests : Conductivity in Water										
HDPE LUP-14	E100	09-Sep-2024	12-Sep-2024	28 days	3 days	✓	12-Sep-2024	28 days	3 days	✓
Physical Tests : Conductivity in Water										
HDPE LUP-14 PD	E100	09-Sep-2024	12-Sep-2024	28 days	3 days	✓	12-Sep-2024	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										
LUP-BL-01	E100	08-Sep-2024	12-Sep-2024	28 days	4 days	✓	12-Sep-2024	28 days	4 days	✓
Physical Tests : Conductivity in Water										
HDPE										
LUP-EL-01	E100	08-Sep-2024	12-Sep-2024	28 days	4 days	✓	12-Sep-2024	28 days	4 days	✓
Physical Tests : Conductivity in Water										
HDPE										
LUP-LSL-01	E100	08-Sep-2024	12-Sep-2024	28 days	4 days	✓	12-Sep-2024	28 days	4 days	✓
Physical Tests : pH by Meter										
HDPE										
LUP-BL-01	E108	08-Sep-2024	12-Sep-2024	0.25 hrs	103 hrs	× EHTR-FM	12-Sep-2024	0.25 hrs	103 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE										
LUP-EL-01	E108	08-Sep-2024	12-Sep-2024	0.25 hrs	103 hrs	× EHTR-FM	12-Sep-2024	0.25 hrs	103 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE										
LUP-LSL-01	E108	08-Sep-2024	12-Sep-2024	0.25 hrs	103 hrs	× EHTR-FM	12-Sep-2024	0.25 hrs	103 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE										
LUP-14	E108	09-Sep-2024	12-Sep-2024	0.25 hrs	79 hrs	× EHTR-FM	12-Sep-2024	0.25 hrs	79 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE										
LUP-14 PD	E108	09-Sep-2024	12-Sep-2024	0.25 hrs	79 hrs	× EHTR-FM	12-Sep-2024	0.25 hrs	79 hrs	× EHTR-FM
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid)										
LUP-14	E508	09-Sep-2024	16-Sep-2024	28 days	7 days	✓	16-Sep-2024	28 days	7 days	✓

Matrix: **Water**

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

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid) LUP-14 PD	E508	09-Sep-2024	16-Sep-2024	28 days	7 days	✓	16-Sep-2024	28 days	7 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid) LUP-BL-01	E508	08-Sep-2024	16-Sep-2024	28 days	8 days	✓	16-Sep-2024	28 days	8 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid) LUP-EL-01	E508	08-Sep-2024	16-Sep-2024	28 days	8 days	✓	16-Sep-2024	28 days	8 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid) LUP-LSL-01	E508	08-Sep-2024	16-Sep-2024	28 days	8 days	✓	16-Sep-2024	28 days	8 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) LUP-14	E420	09-Sep-2024	16-Sep-2024	180 days	7 days	✓	17-Sep-2024	180 days	8 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) LUP-14 PD	E420	09-Sep-2024	16-Sep-2024	180 days	7 days	✓	17-Sep-2024	180 days	8 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) LUP-BL-01	E420	08-Sep-2024	16-Sep-2024	180 days	8 days	✓	17-Sep-2024	180 days	9 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) LUP-EL-01	E420	08-Sep-2024	16-Sep-2024	180 days	8 days	✓	17-Sep-2024	180 days	9 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved) LUP-LSL-01	E420	08-Sep-2024	16-Sep-2024	180 days	8 days	✓	17-Sep-2024	180 days	9 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	1648427	1	20	5.0	5.0	✓
Chloride in Water by IC	E235.Cl	1648328	1	15	6.6	5.0	✓
Conductivity in Water	E100	1648426	1	20	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1651020	1	16	6.2	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1652001	1	20	5.0	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	1648688	1	11	9.0	5.0	✓
Fluoride in Water by IC	E235.F	1648327	1	15	6.6	5.0	✓
Nitrate in Water by IC	E235.NO3	1648324	1	17	5.8	5.0	✓
Nitrite in Water by IC	E235.NO2	1648325	1	17	5.8	5.0	✓
pH by Meter	E108	1648425	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1648326	1	15	6.6	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	1651708	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	1651021	1	15	6.6	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1651999	1	20	5.0	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1656034	1	4	25.0	5.0	✓
Laboratory Control Samples (LCS)							
Alkalinity Species by Titration	E290	1648427	1	20	5.0	5.0	✓
Chloride in Water by IC	E235.Cl	1648328	1	15	6.6	5.0	✓
Conductivity in Water	E100	1648426	1	20	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1651020	1	16	6.2	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1652001	1	20	5.0	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	1648688	1	11	9.0	5.0	✓
Fluoride in Water by IC	E235.F	1648327	1	15	6.6	5.0	✓
Nitrate in Water by IC	E235.NO3	1648324	1	17	5.8	5.0	✓
Nitrite in Water by IC	E235.NO2	1648325	1	17	5.8	5.0	✓
pH by Meter	E108	1648425	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1648326	1	15	6.6	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	1651708	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	1651021	1	15	6.6	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1651999	1	20	5.0	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1656034	1	4	25.0	5.0	✓
Method Blanks (MB)							
Alkalinity Species by Titration	E290	1648427	1	20	5.0	5.0	✓
Chloride in Water by IC	E235.Cl	1648328	1	15	6.6	5.0	✓
Conductivity in Water	E100	1648426	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							
Dissolved Mercury in Water by CVAAS	E509	1651020	1	16	6.2	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1652001	1	20	5.0	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	1648688	1	11	9.0	5.0	✓
Fluoride in Water by IC	E235.F	1648327	1	15	6.6	5.0	✓
Nitrate in Water by IC	E235.NO3	1648324	1	17	5.8	5.0	✓
Nitrite in Water by IC	E235.NO2	1648325	1	17	5.8	5.0	✓
Sulfate in Water by IC	E235.SO4	1648326	1	15	6.6	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	1651708	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	1651021	1	15	6.6	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1651999	1	20	5.0	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1656034	1	4	25.0	5.0	✓
Matrix Spikes (MS)							
Chloride in Water by IC	E235.Cl	1648328	1	15	6.6	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1651020	1	16	6.2	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1652001	1	20	5.0	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	1648688	1	11	9.0	5.0	✓
Fluoride in Water by IC	E235.F	1648327	1	15	6.6	5.0	✓
Nitrate in Water by IC	E235.NO3	1648324	1	17	5.8	5.0	✓
Nitrite in Water by IC	E235.NO2	1648325	1	17	5.8	5.0	✓
Sulfate in Water by IC	E235.SO4	1648326	1	15	6.6	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	1651708	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	1651021	1	15	6.6	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1651999	1	20	5.0	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1656034	1	4	25.0	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
Biochemical Oxygen Demand (BOD) 5-day	BOD5 Taiga Environmental Laboratory - 4601 - 52nd Avenue P.O. BOX 1500 Yellowknife Northwest Territories Canada X1A 2R3	Water	SM5210B	Sample was diluted, seeded, and incubated at specified temperature for 5 days. Dissolved oxygen is measured initially and after incubation, and the BOD is computed from the difference between initial and final DO.
Conductivity in Water	E100 ALS Environmental - Calgary	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 - Calgary	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.
Chloride in Water by IC	E235.Cl ALS Environmental - Calgary	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 - Calgary	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrite in Water by IC	E235.NO2 ALS Environmental - Calgary	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrate in Water by IC	E235.NO3 ALS Environmental - Calgary	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 - Calgary	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 - Calgary	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.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318 ALS Environmental - Calgary	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 Phosphorus by Colourimetry (0.002 mg/L)	E372-U ALS Environmental - Calgary	Water	APHA 4500-P E (mod).	Total Phosphorus is determined colourimetrically using a discrete analyzer after heated persulfate digestion of the sample.
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U ALS Environmental - Calgary	Water	APHA 4500-P F (mod)	Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter. Field filtration is recommended to ensure test results represent conditions at time of sampling.
Total Metals in Water by CRC ICPMS	E420 ALS Environmental - Calgary	Water	EPA 200.2/6020B (mod)	Water samples are digested with nitric and hydrochloric acids, and analyzed by Collision/Reaction Cell ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
Dissolved Metals in Water by CRC ICPMS	E421 ALS Environmental - Calgary	Water	APHA 3030B/EPA 6020B (mod)	Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by Collision/Reaction Cell ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
Total Mercury in Water by CVAAS	E508 ALS Environmental - Calgary	Water	EPA 1631E (mod)	Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS
Dissolved Mercury in Water by CVAAS	E509 ALS Environmental - Calgary	Water	APHA 3030B/EPA 1631E (mod)	Water samples are filtered (0.45 um), preserved with HCl, then undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS.
Dissolved Hardness (Calculated)	EC100 ALS Environmental - Calgary	Water	APHA 2340B	“Hardness (as CaCO3), dissolved” is calculated from the sum of dissolved 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 (Calculated) from Total Ca/Mg	EC100A ALS Environmental - Calgary	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.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Ion Balance using Dissolved Metals	EC101 ALS Environmental - Calgary	Water	APHA 1030E	Cation Sum, Anion Sum, and Ion Balance are 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. Ion Balance cannot be calculated accurately for waters with very low electrical conductivity (EC).
TDS in Water (Calculation)	EC103 ALS Environmental - Calgary	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.
Nitrate and Nitrite (as N) (Calculation)	EC235.N+N ALS Environmental - Calgary	Water	EPA 300.0	Nitrate and Nitrite (as N) is a calculated parameter. Nitrate and Nitrite (as N) = Nitrite (as N) + Nitrate (as N).
Fecal Coliforms in Water by MF	FC-MF Taiga Environmental Laboratory - 4601 - 52nd Avenue P.O. BOX 1500 Yellowknife Northwest Territories Canada X1A 2R3	Water	APHA 9222D	See attached report.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Digestion for TKN in water	EP318 ALS Environmental - Calgary	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.
Digestion for Total Phosphorus in water	EP372 ALS Environmental - Calgary	Water	APHA 4500-P E (mod).	Samples are heated with a persulfate digestion reagent.
Dissolved Metals Water Filtration	EP421 ALS Environmental - Calgary	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HNO3.
Dissolved Mercury Water Filtration	EP509 ALS Environmental - Calgary	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HCl.

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QUALITY CONTROL REPORT

Work Order	: **YL2401443**	Page	: 1 of 17
Client	: Elgin Mining Inc.	Laboratory	: ALS Environmental - Yellowknife
Contact	: Jon Melnyk	Account Manager	: Oliver Gregg
Address	: 750 West Pender Street Suite 201 Vancouver BC Canada V6C 2T7	Address	: 314 Old Airport Road, Unit 116 Yellowknife, Northwest Territories Canada X1A 3T3
Telephone	: ----	Telephone	: 1 867 445 7143
Project	: LUPIN MINE	Date Samples Received	: 10-Sep-2024 09:30
PO	: ----	Date Analysis Commenced	: 11-Sep-2024
C-O-C number	: ----	Issue Date	: 19-Sep-2024 10:31
Sampler	: ----		
Site	: ----		
Quote number	: YL24-ELMI100-001		
No. of samples received	: 5		
No. of samples analysed	: 5		

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

This 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*
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Gurvinder Kour	Lab Assistant	Calgary Metals, Calgary, Alberta
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Oliver Gregg	Client Services Supervisor	Taiga Environmental Laboratory External Subcontracting, Yellowknife, Northwest Territories
Parker Sgarbossa	Laboratory Analyst	Calgary Metals, Calgary, Alberta
Ruifang Zheng	Analyst	Calgary Inorganics, Calgary, Alberta
Shirley Li	Team Leader - Inorganics	Calgary Metals, Calgary, 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: 1648425)											
CG2413104-001	Anonymous	pH	----	E108	0.10	pH units	7.82	7.87	0.637%	4%	----
Physical Tests (QC Lot: 1648426)											
CG2413104-001	Anonymous	Conductivity	----	E100	2.0	µS/cm	2080	2090	0.480%	10%	----
Physical Tests (QC Lot: 1648427)											
CG2413104-001	Anonymous	Alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	504	493	2.29%	20%	----
Anions and Nutrients (QC Lot: 1648324)											
YL2401440-001	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3	0.020	mg/L	0.404	0.408	0.812%	20%	----
Anions and Nutrients (QC Lot: 1648325)											
YL2401440-001	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1648326)											
YL2401440-001	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	178	179	0.794%	20%	----
Anions and Nutrients (QC Lot: 1648327)											
YL2401440-001	Anonymous	Fluoride	16984-48-8	E235.F	0.020	mg/L	0.126	0.126	0.0006	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1648328)											
YL2401440-001	Anonymous	Chloride	16887-00-6	E235.Cl	0.50	mg/L	13.1	13.2	0.864%	20%	----
Anions and Nutrients (QC Lot: 1648688)											
CG2413139-001	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: 1651708)											
CG2413127-002	Anonymous	Kjeldahl nitrogen, total [TKN]	----	E318	0.050	mg/L	0.177	0.180	0.003	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1656034)											
VA24C4004-006	Anonymous	Phosphorus, total	7723-14-0	E372-U	0.0040	mg/L	0.131	0.131	0.122%	20%	----
Total Metals (QC Lot: 1651021)											
CG2413183-001	Anonymous	Mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Total Metals (QC Lot: 1651999)											
CG2413194-001	Anonymous	Aluminum, total	7429-90-5	E420	0.0030	mg/L	0.0063	0.0059	0.0004	Diff <2x LOR	----
		Antimony, total	7440-36-0	E420	0.00010	mg/L	0.00023	0.00022	0.000005	Diff <2x LOR	----
		Arsenic, total	7440-38-2	E420	0.00010	mg/L	0.00011	<0.00010	0.00001	Diff <2x LOR	----
		Barium, total	7440-39-3	E420	0.00010	mg/L	0.0607	0.0614	1.16%	20%	----
		Beryllium, total	7440-41-7	E420	0.000020	mg/L	<0.020 µg/L	<0.000020	0	Diff <2x LOR	----
		Bismuth, total	7440-69-9	E420	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Total Metals (QC Lot: 1651999) - continued											
CG2413194-001	Anonymous	Boron, total	7440-42-8	E420	0.010	mg/L	0.015	0.015	0.0003	Diff <2x LOR	----
		Cadmium, total	7440-43-9	E420	0.0000050	mg/L	0.0701 µg/L	0.0000704	0.370%	20%	----
		Calcium, total	7440-70-2	E420	0.050	mg/L	91.6	90.3	1.35%	20%	----
		Cesium, total	7440-46-2	E420	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Chromium, total	7440-47-3	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Cobalt, total	7440-48-4	E420	0.00010	mg/L	<0.10 µg/L	<0.00010	0	Diff <2x LOR	----
		Copper, total	7440-50-8	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Iron, total	7439-89-6	E420	0.010	mg/L	0.035	0.047	0.012	Diff <2x LOR	----
		Lead, total	7439-92-1	E420	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Lithium, total	7439-93-2	E420	0.0010	mg/L	0.0710	0.0705	0.651%	20%	----
		Magnesium, total	7439-95-4	E420	0.0050	mg/L	44.2	43.9	0.642%	20%	----
		Manganese, total	7439-96-5	E420	0.00010	mg/L	0.00782	0.00768	1.70%	20%	----
		Molybdenum, total	7439-98-7	E420	0.000050	mg/L	0.00332	0.00292	13.1%	20%	----
		Nickel, total	7440-02-0	E420	0.00050	mg/L	0.00343	0.00338	0.00005	Diff <2x LOR	----
		Phosphorus, total	7723-14-0	E420	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Potassium, total	7440-09-7	E420	0.050	mg/L	2.12	2.12	0.108%	20%	----
		Rubidium, total	7440-17-7	E420	0.00020	mg/L	0.00128	0.00124	0.00003	Diff <2x LOR	----
		Selenium, total	7782-49-2	E420	0.000050	mg/L	27.5 µg/L	0.0276	0.315%	20%	----
		Silicon, total	7440-21-3	E420	0.10	mg/L	2.15	2.12	1.02%	20%	----
		Silver, total	7440-22-4	E420	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Sodium, total	7440-23-5	E420	0.050	mg/L	5.02	4.98	0.786%	20%	----
		Strontium, total	7440-24-6	E420	0.00020	mg/L	0.161	0.162	0.662%	20%	----
		Sulfur, total	7704-34-9	E420	0.50	mg/L	80.1	80.9	1.04%	20%	----
		Tellurium, total	13494-80-9	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		Thallium, total	7440-28-0	E420	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Thorium, total	7440-29-1	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Tin, total	7440-31-5	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Titanium, total	7440-32-6	E420	0.00030	mg/L	<0.00030	<0.00030	0	Diff <2x LOR	----
		Tungsten, total	7440-33-7	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Uranium, total	7440-61-1	E420	0.000010	mg/L	0.00328	0.00335	1.91%	20%	----
		Vanadium, total	7440-62-2	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Zinc, total	7440-66-6	E420	0.0030	mg/L	0.0035	<0.0030	0.0005	Diff <2x LOR	----
		Zirconium, total	7440-67-7	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1651020)											

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: 1651020) - continued											
CG2413183-001	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1652001)											
CG2413194-001	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	0.0015	0.0013	0.0002	Diff <2x LOR	----
		Antimony, dissolved	7440-36-0	E421	0.00010	mg/L	0.00023	0.00022	0.000007	Diff <2x LOR	----
		Arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.0617	0.0609	1.38%	20%	----
		Beryllium, dissolved	7440-41-7	E421	0.000020	mg/L	<0.020 µg/L	<0.000020	0	Diff <2x LOR	----
		Bismuth, dissolved	7440-69-9	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Boron, dissolved	7440-42-8	E421	0.010	mg/L	0.015	0.015	0.0003	Diff <2x LOR	----
		Cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L	0.0581 µg/L	0.0000591	1.77%	20%	----
		Calcium, dissolved	7440-70-2	E421	0.050	mg/L	89.5	90.8	1.38%	20%	----
		Cesium, dissolved	7440-46-2	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Chromium, dissolved	7440-47-3	E421	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Cobalt, dissolved	7440-48-4	E421	0.00010	mg/L	<0.10 µg/L	<0.00010	0	Diff <2x LOR	----
		Copper, dissolved	7440-50-8	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		Iron, dissolved	7439-89-6	E421	0.010	mg/L	0.021	0.021	0.0002	Diff <2x LOR	----
		Lead, dissolved	7439-92-1	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Lithium, dissolved	7439-93-2	E421	0.0010	mg/L	0.0726	0.0698	3.87%	20%	----
		Magnesium, dissolved	7439-95-4	E421	0.0050	mg/L	41.8	42.9	2.55%	20%	----
		Manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.00681	0.00682	0.170%	20%	----
		Molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.00303	0.00305	0.638%	20%	----
		Nickel, dissolved	7440-02-0	E421	0.00050	mg/L	0.00319	0.00324	0.00004	Diff <2x LOR	----
		Phosphorus, dissolved	7723-14-0	E421	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Potassium, dissolved	7440-09-7	E421	0.050	mg/L	2.06	2.08	1.12%	20%	----
		Rubidium, dissolved	7440-17-7	E421	0.00020	mg/L	0.00122	0.00121	0.000003	Diff <2x LOR	----
		Selenium, dissolved	7782-49-2	E421	0.000050	mg/L	31.7 µg/L	0.0323	1.86%	20%	----
		Silicon, dissolved	7440-21-3	E421	0.050	mg/L	2.00	2.01	0.668%	20%	----
		Silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Sodium, dissolved	7440-23-5	E421	0.050	mg/L	4.70	4.83	2.78%	20%	----
		Strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.160	0.161	0.396%	20%	----
		Sulfur, dissolved	7704-34-9	E421	0.50	mg/L	80.3	80.9	0.732%	20%	----
		Tellurium, dissolved	13494-80-9	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		Thallium, dissolved	7440-28-0	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Thorium, dissolved	7440-29-1	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----

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: 1652001) - continued											
CG2413194-001	Anonymous	Tin, dissolved	7440-31-5	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Titanium, dissolved	7440-32-6	E421	0.00030	mg/L	<0.00030	<0.00030	0	Diff <2x LOR	----
		Tungsten, dissolved	7440-33-7	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Uranium, dissolved	7440-61-1	E421	0.000010	mg/L	0.00319	0.00316	1.01%	20%	----
		Vanadium, dissolved	7440-62-2	E421	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Zinc, dissolved	7440-66-6	E421	0.0010	mg/L	0.0044	0.0043	0.0001	Diff <2x LOR	----
		Zirconium, dissolved	7440-67-7	E421	0.00030	mg/L	<0.00030	<0.00030	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: 1648426)						
Conductivity	----	E100	1	µS/cm	<1.0	----
Physical Tests (QCLot: 1648427)						
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	<1.0	----
Anions and Nutrients (QCLot: 1648324)						
Nitrate (as N)	14797-55-8	E235.NO3	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 1648325)						
Nitrite (as N)	14797-65-0	E235.NO2	0.01	mg/L	<0.010	----
Anions and Nutrients (QCLot: 1648326)						
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	----
Anions and Nutrients (QCLot: 1648327)						
Fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 1648328)						
Chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 1648688)						
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 1651708)						
Kjeldahl nitrogen, total [TKN]	----	E318	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 1656034)						
Phosphorus, total	7723-14-0	E372-U	0.002	mg/L	<0.0020	----
Total Metals (QCLot: 1651021)						
Mercury, total	7439-97-6	E508	0.000005	mg/L	<0.0000050	----
Total Metals (QCLot: 1651999)						
Aluminum, total	7429-90-5	E420	0.003	mg/L	<0.0030	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	<0.00010	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	<0.00010	----
Barium, total	7440-39-3	E420	0.0001	mg/L	<0.00010	----
Beryllium, total	7440-41-7	E420	0.00002	mg/L	<0.000020	----
Bismuth, total	7440-69-9	E420	0.00005	mg/L	<0.000050	----
Boron, total	7440-42-8	E420	0.01	mg/L	<0.010	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	<0.0000050	----
Calcium, total	7440-70-2	E420	0.05	mg/L	<0.050	----
Cesium, total	7440-46-2	E420	0.00001	mg/L	<0.000010	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (QCLot: 1651999) - continued						
Chromium, total	7440-47-3	E420	0.0005	mg/L	<0.00050	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	<0.00010	----
Copper, total	7440-50-8	E420	0.0005	mg/L	<0.00050	----
Iron, total	7439-89-6	E420	0.01	mg/L	<0.010	----
Lead, total	7439-92-1	E420	0.00005	mg/L	<0.000050	----
Lithium, total	7439-93-2	E420	0.001	mg/L	<0.0010	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	<0.0050	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	<0.00010	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	<0.000050	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	<0.00050	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	<0.050	----
Potassium, total	7440-09-7	E420	0.05	mg/L	<0.050	----
Rubidium, total	7440-17-7	E420	0.0002	mg/L	<0.00020	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	<0.000050	----
Silicon, total	7440-21-3	E420	0.1	mg/L	<0.10	----
Silver, total	7440-22-4	E420	0.00001	mg/L	<0.000010	----
Sodium, total	7440-23-5	E420	0.05	mg/L	<0.050	----
Strontium, total	7440-24-6	E420	0.0002	mg/L	<0.00020	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	<0.50	----
Tellurium, total	13494-80-9	E420	0.0002	mg/L	<0.00020	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	<0.000010	----
Thorium, total	7440-29-1	E420	0.0001	mg/L	<0.00010	----
Tin, total	7440-31-5	E420	0.0001	mg/L	<0.00010	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	<0.00030	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	<0.00010	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	<0.000010	----
Vanadium, total	7440-62-2	E420	0.0005	mg/L	<0.00050	----
Zinc, total	7440-66-6	E420	0.003	mg/L	<0.0030	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	<0.00020	----
Dissolved Metals (QCLot: 1651020)						
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	<0.0000050	----
Dissolved Metals (QCLot: 1652001)						
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	<0.0010	----
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	<0.00010	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	<0.00010	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Dissolved Metals (QCLot: 1652001) - continued						
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	<0.00010	----
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	<0.000020	----
Bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	<0.000050	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	<0.010	----
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	<0.0000050	----
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	<0.050	----
Cesium, dissolved	7440-46-2	E421	0.00001	mg/L	<0.000010	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	<0.00050	----
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	<0.00010	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	<0.00020	----
Iron, dissolved	7439-89-6	E421	0.01	mg/L	<0.010	----
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	<0.000050	----
Lithium, dissolved	7439-93-2	E421	0.001	mg/L	<0.0010	----
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	<0.0050	----
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	<0.00010	----
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	<0.000050	----
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	<0.00050	----
Phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	<0.050	----
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	<0.050	----
Rubidium, dissolved	7440-17-7	E421	0.0002	mg/L	<0.00020	----
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	<0.000050	----
Silicon, dissolved	7440-21-3	E421	0.05	mg/L	<0.050	----
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	<0.000010	----
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	<0.050	----
Strontium, dissolved	7440-24-6	E421	0.0002	mg/L	<0.00020	----
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	<0.50	----
Tellurium, dissolved	13494-80-9	E421	0.0002	mg/L	<0.00020	----
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	<0.000010	----
Thorium, dissolved	7440-29-1	E421	0.0001	mg/L	<0.00010	----
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	<0.00010	----
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	<0.00030	----
Tungsten, dissolved	7440-33-7	E421	0.0001	mg/L	<0.00010	----
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	<0.000010	----
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	<0.00050	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	<0.0010	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Dissolved Metals (QCLot: 1652001) - continued						
Zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	<0.00020	----

Laboratory Control Sample (LCS) Report

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

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 1648425)									
pH	----	E108	----	pH units	7 pH units	101	98.0	102	----
Physical Tests (QCLot: 1648426)									
Conductivity	----	E100	1	µS/cm	147 µS/cm	101	90.0	110	----
Physical Tests (QCLot: 1648427)									
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	500 mg/L	99.6	85.0	115	----
Anions and Nutrients (QCLot: 1648324)									
Nitrate (as N)	14797-55-8	E235.NO3	0.02	mg/L	2.5 mg/L	96.1	90.0	110	----
Anions and Nutrients (QCLot: 1648325)									
Nitrite (as N)	14797-65-0	E235.NO2	0.01	mg/L	0.5 mg/L	97.8	90.0	110	----
Anions and Nutrients (QCLot: 1648326)									
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	98.9	90.0	110	----
Anions and Nutrients (QCLot: 1648327)									
Fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	99.5	90.0	110	----
Anions and Nutrients (QCLot: 1648328)									
Chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	97.2	90.0	110	----
Anions and Nutrients (QCLot: 1648688)									
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: 1651708)									
Kjeldahl nitrogen, total [TKN]	----	E318	0.05	mg/L	4 mg/L	97.6	75.0	125	----
Anions and Nutrients (QCLot: 1656034)									
Phosphorus, total	7723-14-0	E372-U	0.002	mg/L	0.03 mg/L	103	80.0	120	----
Total Metals (QCLot: 1651021)									
Mercury, total	7439-97-6	E508	0.000005	mg/L	0 mg/L	103	80.0	120	----
Total Metals (QCLot: 1651999)									
Aluminum, total	7429-90-5	E420	0.003	mg/L	2 mg/L	103	80.0	120	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	1 mg/L	95.9	80.0	120	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	1 mg/L	98.0	80.0	120	----
Barium, total	7440-39-3	E420	0.0001	mg/L	0.25 mg/L	97.2	80.0	120	----
Beryllium, total	7440-41-7	E420	0.00002	mg/L	0.1 mg/L	95.3	80.0	120	----
Bismuth, total	7440-69-9	E420	0.00005	mg/L	1 mg/L	90.9	80.0	120	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Total Metals (QCLot: 1651999) - continued									
Boron, total	7440-42-8	E420	0.01	mg/L	1 mg/L	96.8	80.0	120	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	0.1 mg/L	92.6	80.0	120	----
Calcium, total	7440-70-2	E420	0.05	mg/L	50 mg/L	95.2	80.0	120	----
Cesium, total	7440-46-2	E420	0.00001	mg/L	0.05 mg/L	96.6	80.0	120	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	0.25 mg/L	97.6	80.0	120	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	0.25 mg/L	97.0	80.0	120	----
Copper, total	7440-50-8	E420	0.0005	mg/L	0.25 mg/L	94.1	80.0	120	----
Iron, total	7439-89-6	E420	0.01	mg/L	1 mg/L	115	80.0	120	----
Lead, total	7439-92-1	E420	0.00005	mg/L	0.5 mg/L	92.0	80.0	120	----
Lithium, total	7439-93-2	E420	0.001	mg/L	0.25 mg/L	92.5	80.0	120	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	50 mg/L	101	80.0	120	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	0.25 mg/L	96.4	80.0	120	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	0.25 mg/L	97.0	80.0	120	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	0.5 mg/L	95.4	80.0	120	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	10 mg/L	106	70.0	130	----
Potassium, total	7440-09-7	E420	0.05	mg/L	50 mg/L	99.9	80.0	120	----
Rubidium, total	7440-17-7	E420	0.0002	mg/L	0.1 mg/L	96.3	80.0	120	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	1 mg/L	90.2	80.0	120	----
Silicon, total	7440-21-3	E420	0.1	mg/L	10 mg/L	104	60.0	140	----
Silver, total	7440-22-4	E420	0.00001	mg/L	0.1 mg/L	92.3	80.0	120	----
Sodium, total	7440-23-5	E420	0.05	mg/L	50 mg/L	97.2	80.0	120	----
Strontium, total	7440-24-6	E420	0.0002	mg/L	0.25 mg/L	98.6	80.0	120	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	50 mg/L	97.0	80.0	120	----
Tellurium, total	13494-80-9	E420	0.0002	mg/L	0.1 mg/L	88.7	80.0	120	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	1 mg/L	92.3	80.0	120	----
Thorium, total	7440-29-1	E420	0.0001	mg/L	0.1 mg/L	94.3	80.0	120	----
Tin, total	7440-31-5	E420	0.0001	mg/L	0.5 mg/L	95.9	80.0	120	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	0.25 mg/L	99.1	80.0	120	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	0.1 mg/L	97.4	80.0	120	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	0.005 mg/L	96.5	80.0	120	----
Vanadium, total	7440-62-2	E420	0.0005	mg/L	0.5 mg/L	99.1	80.0	120	----
Zinc, total	7440-66-6	E420	0.003	mg/L	0.5 mg/L	91.4	80.0	120	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	0.1 mg/L	97.9	80.0	120	----
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0 mg/L	103	80.0	120	----
Dissolved Metals (QCLot: 1652001)									

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Dissolved Metals (QCLot: 1652001) - continued									
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	2 mg/L	104	80.0	120	----
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	1 mg/L	98.7	80.0	120	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	1 mg/L	99.3	80.0	120	----
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	0.25 mg/L	100	80.0	120	----
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	0.1 mg/L	101	80.0	120	----
Bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	1 mg/L	94.2	80.0	120	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	1 mg/L	99.4	80.0	120	----
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	0.1 mg/L	95.6	80.0	120	----
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	50 mg/L	99.7	80.0	120	----
Cesium, dissolved	7440-46-2	E421	0.00001	mg/L	0.05 mg/L	101	80.0	120	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	0.25 mg/L	98.2	80.0	120	----
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	0.25 mg/L	98.8	80.0	120	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	0.25 mg/L	96.2	80.0	120	----
Iron, dissolved	7439-89-6	E421	0.01	mg/L	1 mg/L	116	80.0	120	----
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	0.5 mg/L	96.8	80.0	120	----
Lithium, dissolved	7439-93-2	E421	0.001	mg/L	0.25 mg/L	97.6	80.0	120	----
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	50 mg/L	100	80.0	120	----
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	0.25 mg/L	98.1	80.0	120	----
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	0.25 mg/L	104	80.0	120	----
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	0.5 mg/L	97.6	80.0	120	----
Phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	10 mg/L	104	70.0	130	----
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	50 mg/L	101	80.0	120	----
Rubidium, dissolved	7440-17-7	E421	0.0002	mg/L	0.1 mg/L	97.5	80.0	120	----
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	1 mg/L	93.6	80.0	120	----
Silicon, dissolved	7440-21-3	E421	0.05	mg/L	10 mg/L	105	60.0	140	----
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	0.1 mg/L	96.8	80.0	120	----
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	50 mg/L	97.9	80.0	120	----
Strontium, dissolved	7440-24-6	E421	0.0002	mg/L	0.25 mg/L	102	80.0	120	----
Sulfur, dissolved	7704-34-9	E421	0.5	mg/L	50 mg/L	100	80.0	120	----
Tellurium, dissolved	13494-80-9	E421	0.0002	mg/L	0.1 mg/L	95.5	80.0	120	----
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	1 mg/L	96.0	80.0	120	----
Thorium, dissolved	7440-29-1	E421	0.0001	mg/L	0.1 mg/L	99.2	80.0	120	----
Tin, dissolved	7440-31-5	E421	0.0001	mg/L	0.5 mg/L	99.2	80.0	120	----
Titanium, dissolved	7440-32-6	E421	0.0003	mg/L	0.25 mg/L	98.6	80.0	120	----
Tungsten, dissolved	7440-33-7	E421	0.0001	mg/L	0.1 mg/L	101	80.0	120	----
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	0.005 mg/L	99.6	80.0	120	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Dissolved Metals (QCLot: 1652001) - continued									
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	0.5 mg/L	100	80.0	120	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	0.5 mg/L	96.5	80.0	120	----
Zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	0.1 mg/L	102	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: 1648324)										
YL2401440-002	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3	2.42 mg/L	2.5 mg/L	96.6	75.0	125	----
Anions and Nutrients (QCLot: 1648325)										
YL2401440-002	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2	0.498 mg/L	0.5 mg/L	99.6	75.0	125	----
Anions and Nutrients (QCLot: 1648326)										
YL2401440-002	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	ND mg/L	----	ND	75.0	125	----
Anions and Nutrients (QCLot: 1648327)										
YL2401440-002	Anonymous	Fluoride	16984-48-8	E235.F	0.996 mg/L	1 mg/L	99.6	75.0	125	----
Anions and Nutrients (QCLot: 1648328)										
YL2401440-002	Anonymous	Chloride	16887-00-6	E235.Cl	97.8 mg/L	100 mg/L	97.8	75.0	125	----
Anions and Nutrients (QCLot: 1648688)										
CG2413139-002	Anonymous	Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0512 mg/L	0.05 mg/L	102	70.0	130	----
Anions and Nutrients (QCLot: 1651708)										
CG2413131-001	Anonymous	Kjeldahl nitrogen, total [TKN]	----	E318	2.66 mg/L	2.5 mg/L	106	70.0	130	----
Anions and Nutrients (QCLot: 1656034)										
VA24C4004-007	Anonymous	Phosphorus, total	7723-14-0	E372-U	ND mg/L	----	ND	70.0	130	----
Total Metals (QCLot: 1651021)										
CG2413183-002	Anonymous	Mercury, total	7439-97-6	E508	0.0000964 mg/L	0 mg/L	96.4	70.0	130	----
Total Metals (QCLot: 1651999)										
CG2413201-001	Anonymous	Aluminum, total	7429-90-5	E420	1.95 mg/L	2 mg/L	97.6	70.0	130	----
		Antimony, total	7440-36-0	E420	0.194 mg/L	0.2 mg/L	97.3	70.0	130	----
		Arsenic, total	7440-38-2	E420	0.189 mg/L	0.2 mg/L	94.4	70.0	130	----
		Barium, total	7440-39-3	E420	0.192 mg/L	0.2 mg/L	95.9	70.0	130	----
		Beryllium, total	7440-41-7	E420	0.389 mg/L	0.4 mg/L	97.3	70.0	130	----
		Bismuth, total	7440-69-9	E420	0.0980 mg/L	0.1 mg/L	98.0	70.0	130	----
		Boron, total	7440-42-8	E420	0.953 mg/L	1 mg/L	95.3	70.0	130	----
		Cadmium, total	7440-43-9	E420	0.0378 mg/L	0.04 mg/L	94.5	70.0	130	----
		Calcium, total	7440-70-2	E420	ND mg/L	----	ND	70.0	130	----
		Cesium, total	7440-46-2	E420	0.0987 mg/L	0.1 mg/L	98.7	70.0	130	----
		Chromium, total	7440-47-3	E420	0.372 mg/L	0.4 mg/L	93.0	70.0	130	----
		Cobalt, total	7440-48-4	E420	0.193 mg/L	0.2 mg/L	96.7	70.0	130	----
		Copper, total	7440-50-8	E420	0.190 mg/L	0.2 mg/L	94.9	70.0	130	----
		Iron, total	7439-89-6	E420	19.0 mg/L	20 mg/L	95.2	70.0	130	----
		Lead, total	7439-92-1	E420	0.190 mg/L	0.2 mg/L	94.9	70.0	130	----
		Lithium, total	7439-93-2	E420	0.908 mg/L	1 mg/L	90.8	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 (QCLot: 1651999) - continued										
CG2413201-001	Anonymous	Magnesium, total	7439-95-4	E420	ND mg/L	----	ND	70.0	130	----
		Manganese, total	7439-96-5	E420	0.190 mg/L	0.2 mg/L	95.2	70.0	130	----
		Molybdenum, total	7439-98-7	E420	0.194 mg/L	0.2 mg/L	97.1	70.0	130	----
		Nickel, total	7440-02-0	E420	0.386 mg/L	0.4 mg/L	96.5	70.0	130	----
		Phosphorus, total	7723-14-0	E420	98.8 mg/L	100 mg/L	98.8	70.0	130	----
		Potassium, total	7440-09-7	E420	38.9 mg/L	40 mg/L	97.2	70.0	130	----
		Rubidium, total	7440-17-7	E420	0.194 mg/L	0.2 mg/L	96.9	70.0	130	----
		Selenium, total	7782-49-2	E420	0.377 mg/L	0.4 mg/L	94.3	70.0	130	----
		Silicon, total	7440-21-3	E420	88.9 mg/L	100 mg/L	88.9	70.0	130	----
		Silver, total	7440-22-4	E420	0.0403 mg/L	0.04 mg/L	101	70.0	130	----
		Sodium, total	7440-23-5	E420	19.4 mg/L	20 mg/L	97.2	70.0	130	----
		Strontium, total	7440-24-6	E420	0.181 mg/L	0.2 mg/L	90.7	70.0	130	----
		Sulfur, total	7704-34-9	E420	183 mg/L	200 mg/L	91.4	70.0	130	----
		Tellurium, total	13494-80-9	E420	0.380 mg/L	0.4 mg/L	94.9	70.0	130	----
		Thallium, total	7440-28-0	E420	0.0387 mg/L	0.04 mg/L	96.8	70.0	130	----
		Thorium, total	7440-29-1	E420	0.193 mg/L	0.2 mg/L	96.5	70.0	130	----
		Tin, total	7440-31-5	E420	0.194 mg/L	0.2 mg/L	96.9	70.0	130	----
		Titanium, total	7440-32-6	E420	0.376 mg/L	0.4 mg/L	94.0	70.0	130	----
		Tungsten, total	7440-33-7	E420	0.194 mg/L	0.2 mg/L	97.1	70.0	130	----
		Uranium, total	7440-61-1	E420	0.0393 mg/L	0.04 mg/L	98.2	70.0	130	----
		Vanadium, total	7440-62-2	E420	0.958 mg/L	1 mg/L	95.8	70.0	130	----
		Zinc, total	7440-66-6	E420	3.80 mg/L	4 mg/L	94.9	70.0	130	----
		Zirconium, total	7440-67-7	E420	0.390 mg/L	0.4 mg/L	97.6	70.0	130	----
Dissolved Metals (QCLot: 1651020)										
CG2413183-002	Anonymous	Mercury, dissolved	7439-97-6	E509	0.000111 mg/L	0 mg/L	111	70.0	130	----
Dissolved Metals (QCLot: 1652001)										
CG2413201-001	Anonymous	Aluminum, dissolved	7429-90-5	E421	1.92 mg/L	2 mg/L	96.0	70.0	130	----
		Antimony, dissolved	7440-36-0	E421	0.190 mg/L	0.2 mg/L	95.0	70.0	130	----
		Arsenic, dissolved	7440-38-2	E421	0.188 mg/L	0.2 mg/L	94.1	70.0	130	----
		Barium, dissolved	7440-39-3	E421	0.187 mg/L	0.2 mg/L	93.6	70.0	130	----
		Beryllium, dissolved	7440-41-7	E421	0.373 mg/L	0.4 mg/L	93.2	70.0	130	----
		Bismuth, dissolved	7440-69-9	E421	0.0946 mg/L	0.1 mg/L	94.6	70.0	130	----
		Boron, dissolved	7440-42-8	E421	0.922 mg/L	1 mg/L	92.2	70.0	130	----
		Cadmium, dissolved	7440-43-9	E421	0.0382 mg/L	0.04 mg/L	95.6	70.0	130	----
		Calcium, dissolved	7440-70-2	E421	ND mg/L	----	ND	70.0	130	----
		Cesium, dissolved	7440-46-2	E421	0.0956 mg/L	0.1 mg/L	95.6	70.0	130	----
		Chromium, dissolved	7440-47-3	E421	0.377 mg/L	0.4 mg/L	94.4	70.0	130	----
		Cobalt, dissolved	7440-48-4	E421	0.196 mg/L	0.2 mg/L	98.1	70.0	130	----
		Copper, dissolved	7440-50-8	E421	0.190 mg/L	0.2 mg/L	94.8	70.0	130	----
		Iron, dissolved	7439-89-6	E421	18.9 mg/L	20 mg/L	94.6	70.0	130	----
		Lead, dissolved	7439-92-1	E421	0.188 mg/L	0.2 mg/L	94.2	70.0	130	----
		Lithium, dissolved	7439-93-2	E421	0.883 mg/L	1 mg/L	88.3	70.0	130	----
		Magnesium, dissolved	7439-95-4	E421	ND mg/L	----	ND	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Dissolved Metals (QCLot: 1652001) - continued										
CG2413201-001	Anonymous	Manganese, dissolved	7439-96-5	E421	0.191 mg/L	0.2 mg/L	95.4	70.0	130	----
		Molybdenum, dissolved	7439-98-7	E421	0.193 mg/L	0.2 mg/L	96.4	70.0	130	----
		Nickel, dissolved	7440-02-0	E421	0.389 mg/L	0.4 mg/L	97.4	70.0	130	----
		Phosphorus, dissolved	7723-14-0	E421	97.4 mg/L	100 mg/L	97.4	70.0	130	----
		Potassium, dissolved	7440-09-7	E421	39.0 mg/L	40 mg/L	97.6	70.0	130	----
		Rubidium, dissolved	7440-17-7	E421	0.192 mg/L	0.2 mg/L	96.2	70.0	130	----
		Selenium, dissolved	7782-49-2	E421	0.376 mg/L	0.4 mg/L	94.0	70.0	130	----
		Silicon, dissolved	7440-21-3	E421	86.5 mg/L	100 mg/L	86.5	70.0	130	----
		Silver, dissolved	7440-22-4	E421	0.0392 mg/L	0.04 mg/L	97.9	70.0	130	----
		Sodium, dissolved	7440-23-5	E421	19.3 mg/L	20 mg/L	96.3	70.0	130	----
		Strontium, dissolved	7440-24-6	E421	0.188 mg/L	0.2 mg/L	93.9	70.0	130	----
		Sulfur, dissolved	7704-34-9	E421	179 mg/L	200 mg/L	89.5	70.0	130	----
		Tellurium, dissolved	13494-80-9	E421	0.380 mg/L	0.4 mg/L	95.0	70.0	130	----
		Thallium, dissolved	7440-28-0	E421	0.0382 mg/L	0.04 mg/L	95.5	70.0	130	----
		Thorium, dissolved	7440-29-1	E421	0.192 mg/L	0.2 mg/L	96.2	70.0	130	----
		Tin, dissolved	7440-31-5	E421	0.190 mg/L	0.2 mg/L	94.8	70.0	130	----
		Titanium, dissolved	7440-32-6	E421	0.393 mg/L	0.4 mg/L	98.2	70.0	130	----
		Tungsten, dissolved	7440-33-7	E421	0.194 mg/L	0.2 mg/L	97.1	70.0	130	----
		Uranium, dissolved	7440-61-1	E421	0.0382 mg/L	0.04 mg/L	95.5	70.0	130	----
		Vanadium, dissolved	7440-62-2	E421	0.954 mg/L	1 mg/L	95.4	70.0	130	----
		Zinc, dissolved	7440-66-6	E421	3.93 mg/L	4 mg/L	98.2	70.0	130	----
		Zirconium, dissolved	7440-67-7	E421	0.381 mg/L	0.4 mg/L	95.2	70.0	130	----

CHAIN OF CUSTODY

ALS Laboratory

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE/TIME:	DATE/TIME: SEPT 10/24	DATE/TIME:	DATE/TIME:

CLIENT:	**Elgin Mining Inc.**	**TURNAROUND REQUIREMENTS :** (Standard TAT may be longer for some tests e.g.. Ultra Trace Organics)	☐ Standard TAT **(List due date):**
PROJECT:	**Lupin Mine**		☐ Non Standard or urgent TAT **(List due date):**
SITE:	**Lupin Mine Site**		
PURCHASE ORDER NO.:		**ALS QUOTE NO.:**	
PROJECT MANAGER:	**Jon Melnyk**	**CONTACT PH:**	**403-862-2994**
SAMPLER:	**Jon Melnyk**	**SAMPLER MOBILE:**	
EMAIL REPORTS TO:	jonm@jdsmining.ca	**EMAIL INVOICE TO:**	jonm@jdsmining.ca

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:	12.0		

SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE ONLY	SAMPLE DETAILS (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	Routine		Total metals + Hg	Fecal Coliforms	BOD	Total Phosphorus	Total OrthoPhosphorus	Total Kjeldahl Nitrogen (TKN)	Mercury		Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
	LUP-14	9-Sep-24			Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes		
	LUP-14 PD	9-Sep-24			Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes		
	LUP-EL-01	8-Sep-24			Yes		Yes						Yes		
	LUP-LSL-01	8-Sep-24			Yes		Yes						Yes		
	LUP-BL-01	8-Sep-24			Yes		Yes						Yes		

APPENDIX C. Schedule B.2 Summary of Measures for Post Closure Monitoring ("Table 14")

2AM-LUP2032- Lupin Mine 2024 Annual Report. Section B - Table 14 - Post Closure Monitoirng Plan and Final Closure Update

Component	Description	Preparatory Work	Closure Phase					Post-Closure Phase				
		2018	2019-2022	2022-2023	2024	2025	2026	2027	2028	2029	2030	2031
			Active Stage	C&M			Active	Passive Stage				
Underground Mine	Backfilling of shafts to prevent animal or human entrance			X								
	Blasting down crown pillars where required for stability or disposal – to be carried out under approved care and maintenance plan		X									
	Disposing of contaminated soil, waste rock and demolition rubble into open crown pillars – to be carried out under approved care and maintenance plan				X							
	Backfilling of crown pillars with rock fill (to 1.5 m above surface to allow for settlement) – to be carried out under approved care and maintenance plan						X					
	Capping rock fill in crown pillars with 1.0 m of esker material						X					
Waste Rock	Excavate waste rock from perimeter areas and dispose in the open crown pillars, landfill(s) or central waste rock area[a] – to be carried out under approved care and maintenance plan						X					
	Excavate waste rock containing high levels(b) of As, CN or PbNO3 and dispose in shafts or crown pillars to be carried out under approved care and maintenance plan			X								
	Contouring remaining waste rock and capping with 1.0 m of esker material						X					
	Place a 10 m long plug of rock fill in the adit and portal area			X								
Tailings Containment Area	Removal of tailings pipeline; bury in landfill		X									
	Remove any tailings from emergency dump and dispose in crown pillar			X								
	Covering of remaining tailings area with 1.0 m of esker material – to be carried out under approved Final TCA Closure Plan		X		X		X					
	Demolish treatment plant; dispose in landfill(s)						X					
	Installation of permanent monitoring instrumentation – to be carried out under approved Final TCA Closure Plan	X										
	Regrading granular slopes on M Dam			X			X					
Buildings and Equipment	Removal of asbestos containing materials, disposal in landfill(s)		X									
	Remove salvageable materials; consolidate for shipment off-site		X				X					
	Removal of above-ground mechanical and electrical equipment		X				X					
	Demolition of ancillary buildings (shops, storage, camp); disposal of rubble in landfill(s)		X				X					
	Demolition of mine and mill buildings; disposal of rubble in landfill(s)		X									
	Hoe ram concrete foundation slabs; leave in place and cover		X				X					
	Removal of freshwater supply system pumphouse; remove pipeline and dispose in the landfill(s)		X									
	Placement of 0.3 m granular fill over slabs (except in central area where they will be covered by waste rock and esker cover)						X					
	Dismantling and removal of sewage pipeline, lagoon shack and pumping facilities		X									
	Disposal of unsalvageable / un-recyclable non-hazardous waste in landfill(s) – to be carried out under existing approved management plan		X				X					
	Burn combustible material – to be carried out under existing approved licence/permit						X					
Borrow and Quarry Areas	Contouring esker area and placement of erosion protection in drainage paths						X					
Chemicals	Decontaminate: oil, fuel and glycol systems		X									
	Drum paints, solvents, chemicals, glycols, and hazardous materials for shipment to off-site disposal		X		X	X	X					
	Remove ashes from burn pit and bury in landfill(s) > 2m below final grade – to be carried out under existing approved licence/permit		X									
	Burn waste oil – to be carried out under existing approved licence/permit		X				X					
	Consume most of diesel fuel for closure operations			X	X	X	X					
	Burn excess fuel at end of closure activities – to be carried out under existing approved licence/permit								X			
	Empty and purge fuel tanks and dispose in accordance with the Canadian Environmental Protection Act Regulation	X	X	X	X		X		X			
	Remove liner from Temporary Fuel Farm and dispose in landfill											X
	Excavation of hydrocarbon contaminated soils, bury in open crown pillars including landfarm soils		X	X	X		X					
	Flatten bunds around TFF and grade to prevent ponding											X
Machinery and Mobile Equipment	Drain fluid from equipment to be left on-site and dispose equipment in landfill(s)			X			X					
	Drain fluid from equipment used for long-term maintenance (e.g., excavators)[c] and dispose equipment in landfill(s) or off-site											X
Landfill	Place wastes into existing landfill(s) – to be carried out under existing approved management plan		X				X					
	Use waste rock to infill voids and create a stable contoured surface which drains freely		X				X					
	Cover contoured landfill(s) with 1 m of esker material		X				X					
Site Roads	Scarify all-weather roads; remove culverts						X					
Water Management Facilities	Treat water inventory with lime and release to lower water level – to be carried out under existing approved licence/permit		X	X			X		X			
	Construction of spillways in Dam 1A and J Dam; place geotextile and rip rap to 2 m depth										X	
	Excavation of spillways on Upper and Lower Sewage Lakes						X					
Mob/Demob	Mobilize Winter Ice Road maintenance equipment						X	X				
	Operate Winter Ice Road for salvage removal						X	X				

a) The waste rock from the perimeter of the Mill Site Area (shown in Figure 10) will be removed and disposed into the open crown pillars, shafts, landfill(s) or the central waste rock area. Waste rock which will stay on place will be contoured to drain freely and then capped with

APPENDIX D. Lupin Mine Dam Safety Review and Dam Safety Inspection Recommendation Management Plan

September 27, 2024

Re: Summary of Lupin Mine Dam Safety Review and Dam Safety Inspection Recommendation Management Plan

Stantec, the Engineer of Record for the Tailings Containment Area (TCA) conducts Dam Safety Inspections (DSIs) on an annual basis. Mandalay also commissioned a third-party Dam Safety Review (DSR) in 2023, conducted by SLR Consulting.

Table 1, attached to this letter represents a compilation of the 2023 recommendations from the DSI and the DSR conducted that year. The table also presents Mandalay Resources' ongoing actions or commitments to upcoming work related to the recommendations. A target date for when the recommendation can be considered for "closed-out" based on the committed actions is presented.

Mandalay will further update this management plan when the 2024 DSR report is received from Stantec.

Sincerely,

Frazer Bourchier

Table 1 - Summary of Lupin Mine Dam Safety Review and Dam Safety Inspection Recommendation Management Plan. ***March 2025 Update***

Tracking Number	Recommendation	Commitment/Action	Tracking Date
DSR-2024-001	Assess the liquefaction potential for the tailings. As there is potential for the frozen deposited tailings to thaw and it is known that at least M Dam is founded on tailings, the liquefaction potential should be assessed to understand whether the tailings could flow in a dam breach scenario.	Mandalay will undertake a liquefaction assessment of the tailings in M Dam by the end of 2025.	September 2025
DSR-2024-002	Perform dam stability analysis of M Dam considering thawed conditions and verify whether the dam is underlain by tailings. If tailings are present under the dam, consider an Undrained Strength Analysis of thawed tailings.	Mandalay will undertake a stability analysis of M Dam by early 2025.	May 2025
DSR-2024-003	Conduct a dam breach analysis for the TCA. Presently the highest consequence would be a perimeter dam breach releasing contact water into the downstream environment. In the long-term and depending on the findings of the liquefaction potential assessment, a dam breach could release liquefiable tailings into the downstream environment.	Following the 2025 construction season, the need for a dam breach assessment will be determined by the EoR and the Lupin technical team as the site moves to passive closure, and with the benefit of insights gained from additional and ongoing geotechnical assessments currently planned or underway at the Lupin site, including the liquefaction assessment, stability assessment, and risk assessment.	December 2025
DSR-2024-004	Construct a temporary emergency spillway to reduce the risk of dam overtopping before the closure spillway is constructed. The closure spillway could make use parts of the temporary emergency spillway (e.g., the outlet channel). In effect, parts of the closure spillway would be constructed now and later the spillway invert would be lowered to the closure elevation.	This is planned to be completed in 2026	October 2026
DSR-2024-005	Design erosion resistant slopes or drainage features for the dams to ensure long term physical stability of the TCA.	This design work will be completed in 2024 and 2025 and the resulting activities will be executed in 2026	October 2026
DSR-2024-006	Adopt large magnitude events (in exceedance of those required according to the HPC) for seismic and flood design criteria for closure.	These will be incorporated into final closure designs for 2026 work	June 2026
DSR-2024-007	Perform a formal risk assessment for the TCA and document with a risk register. This risk assessment must recognize both the physical and interconnected geochemical risks and cover the transition from active closure to passive closure.	This is planned to be completed in 2025	December 2025
DSR-2024-008	Update or develop a new OMS Manual for the TCA that reflects the current status of the site and is updated regularly as site conditions change and the site transitions to a state of passive closure.	This will be updated for use during the 2025 construction season. It will likely be required to be updated again when the site enters passive closure.	September 2025
DSR-2024-009	Update the Emergency Response Plan to provide clarity and direction for dam safety emergencies.	This will be updated for use during the 2025 construction season.	September 2025
DSR-2024-010	Develop a dam safety corporate policy and identify a responsible tailings facility engineer and accountable executive.	Mandalay has dam safety policies at each of its operations and will develop one for Lupin. Mandalay will identify a responsible tailings facility engineer for the 2025 construction season. Mandalay will identify a accountable executive for the 2025 construction season; name to be confirmed in 2025, but it will likely be the CEO or COO.	September 2025
DSI-2023-001	[Dam 1A] Continue to monitor erosional features for progressive deterioration. If no deterioration is observed, make repairs during final spillway construction. Repair the centre siphon if additional dewatering capacity is anticipated. Monitor for increased animal activity and consider backfilling burrows.	Ongoing: Dam 1A was monitored daily from June 24 to August 5, 2024, and will continue to be monitored during active reclamation activities. Siphons were not operated in 2024.	Final Spillway Construction - TBD
DSI-2023-002	[Dam 1B] Monitor for increased animal activity and consider backfilling burrows.	Ongoing: Dam 1B was monitored daily from June 24 to August 5 and August 28 to September 8, 2024, and will continue to be monitored during active reclamation activities.	October 2025

Tracking Number	Recommendation	Commitment/Action	Tracking Date
DSI-2023-003	[Dam 1C] Continue to monitor erosional features for progressive deterioration. Consider backfilling and compacting erosional features with well-graded esker sand and gravels and consider removing windrows from dam crest.	Ongoing: Dam 1C was monitored daily from June 24 to August 5 and August 28 to September 8, 2024, and will continue to be monitored during active reclamation activities. Windrows removed from Dam Crest in 2024	October 2025
DSI-2023-004	[Dam 2] Continue to monitor erosional features for progressive deterioration. Consider backfilling and compacting erosional features with well- graded esker sand and gravels and consider removing windrows from dam crest. Pump water from seepage collection system back to Pond 2 (or other suitable location in the TCA).	Ongoing: Dam 2 was monitored daily from June 24 to August 5 and August 28 to September 8, 2024, and will continue to be monitored during active reclamation activities. New thermistor installed in 2024. During the 2024 Dam Safety Inspection, it was determined that the ponding located near Dam 2 was runoff, and not seepage.	October 2025
DSI-2023-005	[Dam 3] Monitor tension cracks and erosional features for progressive deterioration. Consider backfilling and compacting features and regrade if features persist. Monitor for increased animal activity and consider backfilling burrows.	Ongoing: Dam C was monitored daily from June 24 to August 5 and August 28 to September 8, 2024, and will continue to be monitored during active reclamation activities. Tension cracks will be monitored in 2025, a plan will be developed in 2025 to address deterioration issues.	October 2025
DSI-2023-006	[Dam 4] Consider backfilling and compacting erosional features and consider removing windrows from dam crest. Repair the thermistor if practicable.	Ongoing: Dam 4 was monitored daily from June 24 to August 5 and August 28 to September 8, 2024, and will continue to be monitored during active reclamation activities. Windrows removed in 2024. Thermistor was repaired in 2024.	October 2025
DSI-2023-007	[Dam 5] Continue to monitor erosional features for progressive deterioration.	Ongoing: Dam 5 was monitored daily from June 24 to August 5 and August 28 to September 8, 2024, and will continue to be monitored during active reclamation activities.	October 2025
DSI-2023-008	[Dam 6] Continue to monitor erosional features for progressive deterioration. Consider backfilling and compacting features and removing windrows from dam crest.	Ongoing: Dam 6 was monitored daily from June 24 to August 5 and August 28 to September 8, 2024, and will continue to be monitored during active reclamation activities. Repaired erosional feature and removed windrows on July 31 2024	October 2025
DSI-2023-009	[Dam 3D] Continue to monitor the historical wave-action erosion and erosional features for any progressive deterioration.	Ongoing: Dam 3D was monitored daily from June 24 to August 5 and August 28 to September 8, 2024, and will continue to be monitored during active reclamation activities.	October 2025
DSI-2023-010	[Dam J] Continue to monitor the historical wave-action erosion for progressive deterioration. Update the Pond 1 closure elevation listed on the detailed design drawings to reflect recent discussions and design changes.	Ongoing: Dam J was monitored daily from June 24 to August 5 and August 28 to September 8, 2024, and will continue to be monitored during active reclamation activities. The crest of Dam J was resurfaced with Grader in 2024. Pond 1 closure elevation will be confirmed and/or updated in 2025	October 2025
DSI-2023-011	[Dam K] Continue to monitor these rills and the re- sloped embankment for progressive deterioration. Complete repairs to the damaged thermistor.	Ongoing: Dam K was monitored daily from June 24 to August 5 and August 28 to September 8, 2024, and will continue to be monitored during active reclamation activities. Thermistor was repaired. New thermistor installed.	October 2025
DSI-2023-012	[Dam L] Monitor erosional features for progressive deterioration. Consider backfilling and compacting features and removing windrows from dam crest. Continue to monitor the outfall structure for deformation and/or performance issues. Work with the EoR and DSR Engineer to develop a long-term strategy to mitigate freshet-related erosion at the Cell 3 drainage swale.	Ongoing: Dam L was monitored daily from June 24 to August 5, 2024 and August 28 to September 8, 2024 and will continue to be monitored during active reclamation activities. A long-term strategy to mitigate freshet-related erosion at the Cell 3 drainage swale is in the progress of development.	October 2025

Tracking Number	Recommendation	Commitment/Action	Tracking Date
DSI-2023-013	[Dam M] Continue to monitor the Cell 5 outfall structure for deformation and/or performance issues. Complete resloping of the downstream embankment to the design 2.1H:1V. Continue to monitor fresh and historical erosional features for progressive deterioration. If no progressive deterioration is observed, complete repairs to these features during re-sloping activities. Consider updating the stability model and designs to reflect the in-situ conditions at M Dam. Add 1 m of clean fill on the exposed tailings between the Pond 2 closure shoreline and the M Dam design toe. Update the Pond 2 closure elevation in the detailed design to reflect changes.	Ongoing: Dam M was monitored daily from June 24 to August 5 and August 28 to September 8, 2024, and will continue to be monitored during active reclamation activities. Dam M resloping and tailings cover installation is scheduled to be executed during the 2026 construction season. Pond 2 Closure elevation will be confirmed and/or updated in 2025.	October 2025
DSI-2023-014	[Dam N] Consider having a water quality specialist interpret the laboratory and field parameter results and identify potential improvements. Continue to monitor cell cover, N Dam, and the added diversion ditch for progressive deterioration.	Ongoing: Dam N was monitored daily from June 24 to August 5 and August 28 to September 8, 2024, and will continue to be monitored during active reclamation activities.	October 2025
DSI-2023-015	[Divider Dykes] Continue to monitor the spillway for deformation and/or performance issues.	Ongoing: The Divider Dyke was monitored daily from June 24 to August 5 and August 28 to September 8, 2024, and will continue to be monitored during active reclamation activities.	October 2025

APPENDIX E. Lupin Mine Waste Management Plan (2025)

Lupin Mine Waste Management Plan (2025)

This plan will be submitted under separate cover at a later date**.**

APPENDIX F. Temporary Fuel Farm (TFF) 2024 As-Built Design Plan

TECHNICAL MEMORANDUM

DATE September 25, 2024 **Reference No.** CA0031158.8527-001-TM-Rev0-6000

TO Frazier Bourchier, President & CEO
Mandalay Resources Corporation

CC Nicole McLaren, Jon Melnyk, Daniel Jenkins and Jacob Chan

FROM Ray Kennedy and Ken Bocking **EMAIL ken.bocking@wsp.com**

DESIGN AND CONSTRUCTION AS-BUILT FOR TEMPORARY FUEL FARM, LUPIN MINE, NUNAVUT

1.0 INTRODUCTION

The former Lupin Gold Mine in Nunavut is currently undergoing Final Closure and Reclamation. Closure construction activities are expected to be completed in 2025. As part of final closure, it is necessary to dismantle the existing Main Tank Farm (MTF), which stored fuel to support the operation of the former mine. It will also be necessary to test the soil underlying the MTF for potential hydrocarbon contamination and to remediate the soil if necessary. To allow this work to proceed, it was necessary to establish as smaller Temporary Fuel Farm (TFF) to store enough fuel to support the final closure construction activities. Fuel remaining in the MTF will be transferred from the MTF to the TFF in the summer of 2024.

WSP Canada Inc. (WSP) designed the TFF, and it was constructed in late summer of 2023. WSP provided construction quality assurance (CQA) inspection during the construction. An “as-built” survey of the TFF was completed in June 2024. This technical memorandum documents the design and CQA inspection of the TFF.

2.0 DESIGN

2.1 TFF Siting

The design drawing for the Temporary Fuel Farm (Dwg. 21503000-0001-MC-0001-1) is attached. It was issued for construction (as Rev. 0) on June 27, 2022.

The location chosen for the TFF is about 150 m north of the north end of the MTF. It is in an area that will not be involved in future demolition or construction of the waste rock “dome” for closure. It is also in an area where there is no known soil contamination.

The subgrade at the TFF site consists of a thin layer of waste rock overlying native soils. In Field Communication FC-GOL-040, WSP confirmed that the existing waste rock layer was a suitable subgrade and could be left in place. It was understood that esker sand spread above the subgrade would infill any voids in the existing surface.

Field Communication FC-GOL-040 also described how the TFF was to be decommissioned as follows:

> *Once the temporary fuel is redundant, any remaining fuel is to be removed from the tanks and burned in the incinerator. The tanks are then to be cleaned and demolished. The liner is to be uncovered and picked up. The debris is to be placed in the onsite landfill. It is anticipated that a small opening will be left in the landfill to receive this debris along with any debris from the maintenance shop. The esker fill should be tested, and once it is shown to be free from hydrocarbon contamination, it can be used in the landfill to infill the debris and/or to cover the opening. Waste rock in the subgrade of the temporary fuel storage area should be picked up and placed in the landfill to infill the debris or to form the 1 m layer of waste rock to cover the waste. This procedure is in keeping with the objectives of the final closure and reclamation plan.*

2.2 Fuel Storage

The TFF was designed to house six vertical above ground fuel storage tanks. Each tank is of steel construction and has a diameter of 3.7 m and a height of 6.1 m. The nominal storage capacity of a single tank is 65,555 L. The aggregate storage capacity of the six tanks is 393,000 L. A minimum of 1.5 m of space is provided between adjacent tanks to allow access.

The tanks are enclosed in a lined earthen bund structure that can contain a spill volume greater than the contents of a single tank without allowing any discharge to the environment.

2.3 Liner System and Earthworks

2.3.1 Liner System

The watertight element of the liner system comprises a 30 mil HAZGUARD 635FR geomembrane. It is commonly used for secondary containment in fuel tank farms because it is resistant to hydrocarbons and has fire retardant properties. A specification sheet for the liner is attached.

The geomembrane was fabricated to its full specified dimensions (34 m x 29 m) by Layfield Geosynthetics in their factory, so no field connections were required. The pre-assembled geomembrane was folded and shipped by truck to Yellowknife. It was then flown from Yellowknife to the Lupin site in early July of 2022.

One layer of LP6 non-woven geotextile was placed below the HAZGUARD liner, and a second layer was placed above the liner. A minimum overlap of 0.6 m was specified between geotextile panels. The construction supervisor, JDS Mining (JDS), reported that a minimum 0.3 m thick layer of compacted esker sand was placed below the liner system to serve as a bedding layer and graded towards the northwest and southwest corners. JDS reported a layer of esker sand at least 0.3 m thick was placed above the liner system to serve as a protection layer.

The perimeter of the liner system (comprising the liner itself plus the two layers of geotextile) was anchored into a 0.4 m to 0.6 m deep anchor trench on the crest of the berm surrounding the TFF.

2.3.2 Earthworks

As shown on the drawing, the six tanks are placed on a rectangular central pad of compacted esker sand fill. The TFF is surrounded by a rectangular berm structure which rises between 1.1 and 1.7 m above the elevation of the central pad. This provides a lined storage containment volume of well over 200,000 L.

The berms have a crest width of approximately 2.2 to 3.4 m. The upstream sideslopes vary from 1.4H:1V to 2H:1V (Horizontal:Vertical), steeper than the IFC design grading of 3H:1V. On-site visual inspections should check the upstream slope of the perimeter berms for movement after periods of heavy rain. The downstream sideslopes are 1.9H:1V to 3.1H:1V. Between the toe of the central pad and the toe of the perimeter berms, there is a narrow swale that is approximately flat. The underlying liner foundation grading remains as intended to facilitate the pumping out of runoff in the spring thaw. The northwest and southwest corners could also be used to collect fuel in the event of a tank leak.

3.0 TFF CONSTRUCTION

3.1 Construction

The TFF was constructed between August 30 and September 23, 2023. The construction was carried out by Discovery Mining Services using onsite equipment. JDS acted as the construction supervisor.

The fill material used to construct the base and perimeter berms of the TFF was “esker sand”, which was obtained from the existing esker borrow pit on the Lupin Mine Site.

The base and perimeter berm geometry constructed by JDS Mining differed from the Issued for Construction (IFC) Drawing. The modifications to the geometry within the liner footprint in Table 1 were identified by WSP during the September 2023 inspection and confirmed to still meet the design intent.

Table 1: Summary of Temporary Fuel Farm Modifications

Component	Modification
TFF	The access ramp is on the east perimeter berm rather than the south berm
Liner Sideslopes Geometry (perimeter berms prior to liner placement)	Approximate measurements by JDS and WSP on September 16 indicated the perimeter berm sideslopes are between 1.4 and 1.9 m from toe to crest
	The inclination of the liner sideslopes is approximately 1.4H:1V to 2H:1V
Liner Foundation	The grading of the liner foundation (base of TFF) was field-fit by JDS to drain to the northwest and southwest corners at varying inclinations
Liner Anchor Trench	The anchor trench depth varies from approximately 0.4 to 0.6 m
	The distance from the upstream crest of the liner sideslopes to the anchor trench varies from approximately 0.4 to 1.1 m
Surface Ditch Grading	The ditches constructed in the esker sand at the toe of the perimeter berms do not appear to be graded to the sump locations; the ditch inverts are approximately flat
Perimeter Berm Geometry (esker sand, above liner)	The upstream sideslopes vary from approximately 1.4H:1V to 2H:1V and downstream slopes vary from approximately 1.9H:1V to 3.1H:1V The perimeter berms rise between 1.1 and 1.7 m above the elevation of the central pad

TFF: Temporary Fuel Farm; H: Horizontal; V:Vertical.

3.2 Inspection

Mr. Ray Kennedy, P.Eng. of WSP provided onsite CQA inspection services between September 13, 2023 and September 16, 2023. Most of the inspection focussed on establishing correct grading of the liner foundation of the TFF to promote drainage and on sloping the perimeter berms. The inspection did not include the eastern sideslopes and perimeter berm of the TFF or the placement of cover materials over the liner as these components were completed after September 16.

On September 16, a small puncture (about 2 mm diameter) was noted in the liner near the southeast corner of the TFF base. This was photographed and documented. Arrangements were made to obtain a patch kit from the liner manufacturer. It is understood that the patch was applied on September 28, after Mr. Kennedy left the site.

Wrinkles in the liner were noted along the upstream slope at the northwest and southwest corners of the TFF. It is understood from communications with JDS that these wrinkles were removed by reorienting the liner prior to placement of the cover material, after Mr. Kennedy left the site.

The edges of the liner were attached to construction equipment by JDS in order to relocate it for earthworks regrading. This resulted in damage to the outer 0.3 to 0.6 m of the liner footprint but these areas are within the liner anchor trench and will not affect the containment of the TFF.

A rubber tire-equipped loader was placed directly on the liner by JDS on September 13 to hold the liner in place during high winds on-site. No subgrade movement or liner issues were identified by WSP in the area of loader trafficking.

WSP's inspection services related to the earthworks construction and the installation of the liner system. Our services did not include inspection of the fuel storage tanks or the piping system to connect them, which were assembled after Mr. Kennedy left the site. It is understood that the inspection of the tanks and the piping has been completed by others.

3.3 As-built Survey

An "as-built" survey of the completed TFF was carried out by Stantec on June 3, 2024. The survey was referenced to UTM coordinates and to geodetic datum. A construction record revision of the TFF drawing is attached as Figure 1.

4.0 SUMMARY

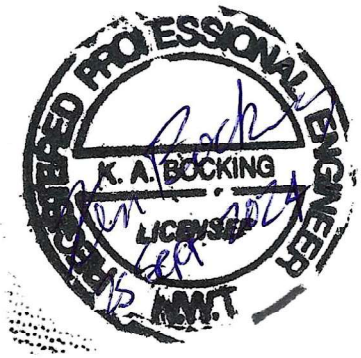
The reader is referred to the Study Limitations section, which follows the text and forms an integral part of this memorandum.

The TFF has been designed to safely store the fuel required for the completion of the closure construction at the former Lupin Mine. The construction modifications noted in Table 1 will not affect the capability of the TFF to safely store the fuel.

The on-site inspection and the "as-built" survey have confirmed that the TFF was constructed in accordance with the design intent.

The TFF can be brought into service.

WSP Canada Inc.



PERMIT TO PRACTICE
WSP Canada Inc.
Signature Ken Bocking
Date 25 Sept 2024
PERMIT NUMBER: P407
NT/NU Association of Professional Engineers and Geoscientists

Ray Kennedy, P.Eng.
Geotechnical Engineer

Ken Bocking, P.Eng.
Fellow, Senior Mine Waste Engineer

KAB/RK/ar

Distribution: Frazier Bourchier, Nicole McLaren, Jon Melnyk, Daniel Jenkins

Attachments: IFC Drawing, Construction Record Drawing (Figure 1) , Liner Specification Sheet

https://wsponlinecan.sharepoint.com/sites/ca-ca00117762668/shared documents/06. deliverables/02 issued/ca0031158.8527-001-tm-6000-rev0-mandalay_temporary fuel farm-as-built report/ca0031158.8527-001-tm-rev0-6000-mandalay-lupin-temporary fuel farm-as-built report 25sep_24.docx

Study Limitations

WSP Canada Inc. (“WSP”) prepared this report solely for the use of the intended recipient, Mandalay Resources Corporation, in accordance with the professional services agreement between the parties. In the event a contract has not been executed, the parties agree that the WSP General Terms for Consultant shall govern their business relationship which was provided to you prior to the preparation of this report.

The report is intended to be used in its entirety. No excerpts may be taken to be representative of the findings in the assessment.

The conclusions presented in this report are based on work performed by trained, professional and technical staff, in accordance with their reasonable interpretation of current and accepted engineering and scientific practices at the time the work was performed.

The content and opinions contained in the present report are based on the observations and/or information available to WSP at the time of preparation, using investigation techniques and engineering analysis methods consistent with those ordinarily exercised by WSP and other engineering/scientific practitioners working under similar conditions, and subject to the same time, financial and physical constraints applicable to this project.

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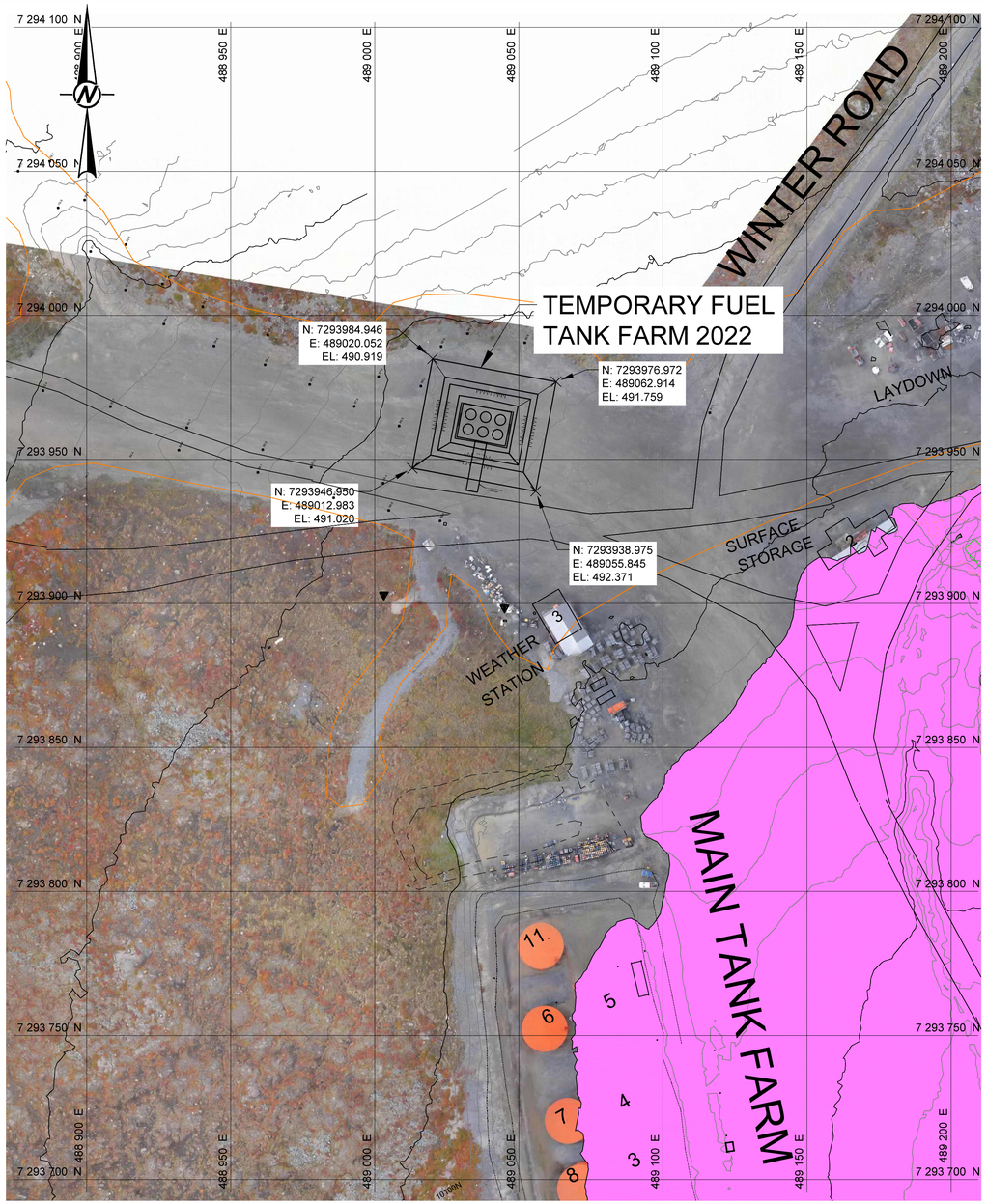
In preparing this report, WSP has relied in good faith on information provided by others, as noted in the report. WSP has reasonably assumed that the information provided is correct and WSP is not responsible for the accuracy or completeness of such information.

Benchmark and elevations used in this report are primarily to establish relative elevation differences between the specific testing and/or sampling locations and should not be used for other purposes, such as grading, excavating, construction, planning, development, etc.

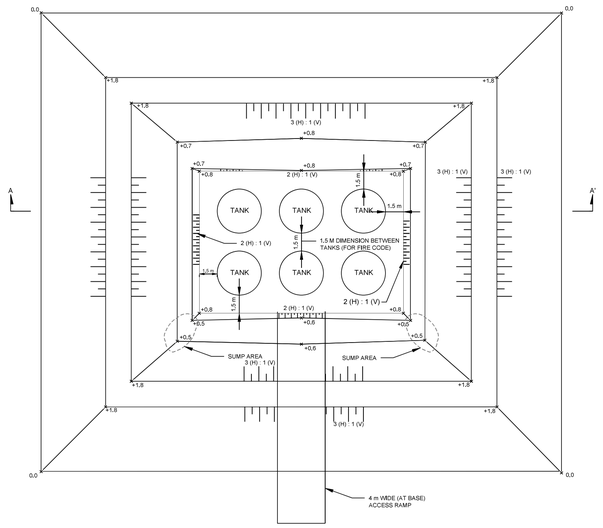
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This limitations statement is considered an integral part of this report.

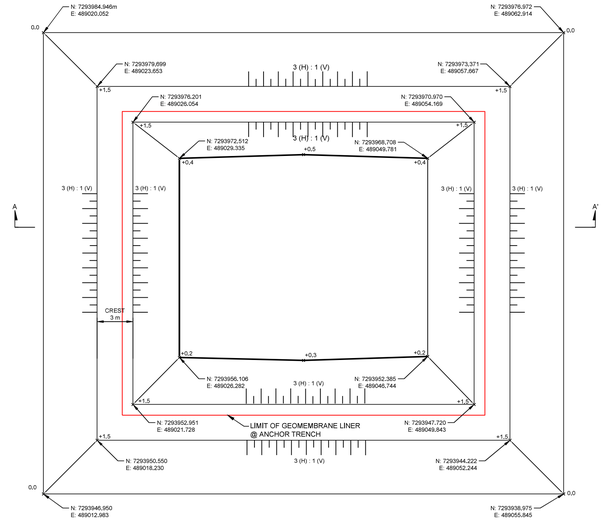
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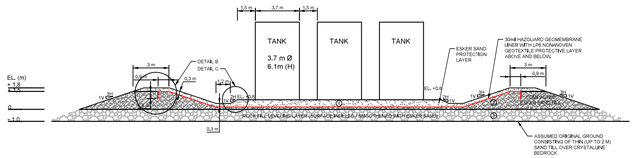
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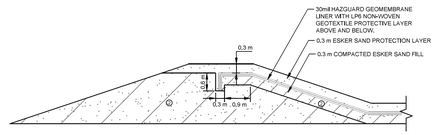
PLAN VIEW TOP OF ESKER SAND PROTECTION LAYER
SCALE 1:250 m



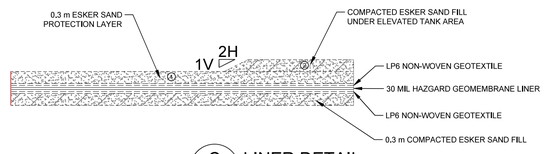
PLAN VIEW TOP OF COMPACTED ESKER SAND FILL [PRIOR TO GEOMEMBRANE PLACEMENT]
SCALE 1:250 m



SCALE 1:250 m A 1 CROSS SECTION A -A'



SCALE N.T.S. B 1 KEY TRENCH DETAIL



SCALE N.T.S. C 1 LINER DETAIL

NOTE(S)

1. HAZGUARD GEOMEMBRANE TO BE SUPPLIED BY LAYFIELD AND INSTALLED AS A SINGLE PANEL.
2. LP6 NON-WOVEN GEOTEXTILE TO BE INSTALLED WITH MINIMUM 0.6 m OVERLAP OF PANELS .
3. ESKER SAND TO BE PLACED/SPREAD IN 150 mm LIFTS USING LOW GROUND PRESSURE EQUIPMENT (e.g., TRACKED BOBCAT). STONES LARGER THAN 75 mm DIAMETER TO BE REMOVED BEFORE PROOF ROLLING COMPACTED SUBGRADE / BERM / TANK AREAS.
4. PROOF ROLLING TO BE COMPLETED OVER SPECIFIED AREAS USING A SMALL ROLLER TO GENTLY COMPACT ESKER SAND UNTIL A MAXIMUM DEFLECTION OF 20mm IS ACHIEVED.

LEGEND

①	ESKER SAND PROTECTION LAYER
②	COMPACTED ESKER SAND FILL
③	ROCK FILL LEVELING LAYER (SURFACE INFILLED / SMOOTHENED WITH ESKER SAND)
x +1.8	ELEVATION RELATIVE TO FINISHED SURFACE OF ROCKFILL LEVELLING LAYER

PERMIT TO PRACTICE
GOLDER ASSOCIATES LTD.
Signature
Date 27/Jun/2022
PERMIT NUMBER: P 049
NT/NU Association of Professional Engineers and Geoscientists

REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED
0	2022-06-27	ISSUED FOR CONSTRUCTION	FB	JG	PD	KAB

SEAL

CLIENT
LUPIN MINES INCORPORATED

CONSULTANT
GOLDER

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PROJECT
LUPIN MINE CLOSURE
NUNAVUT, CANADA

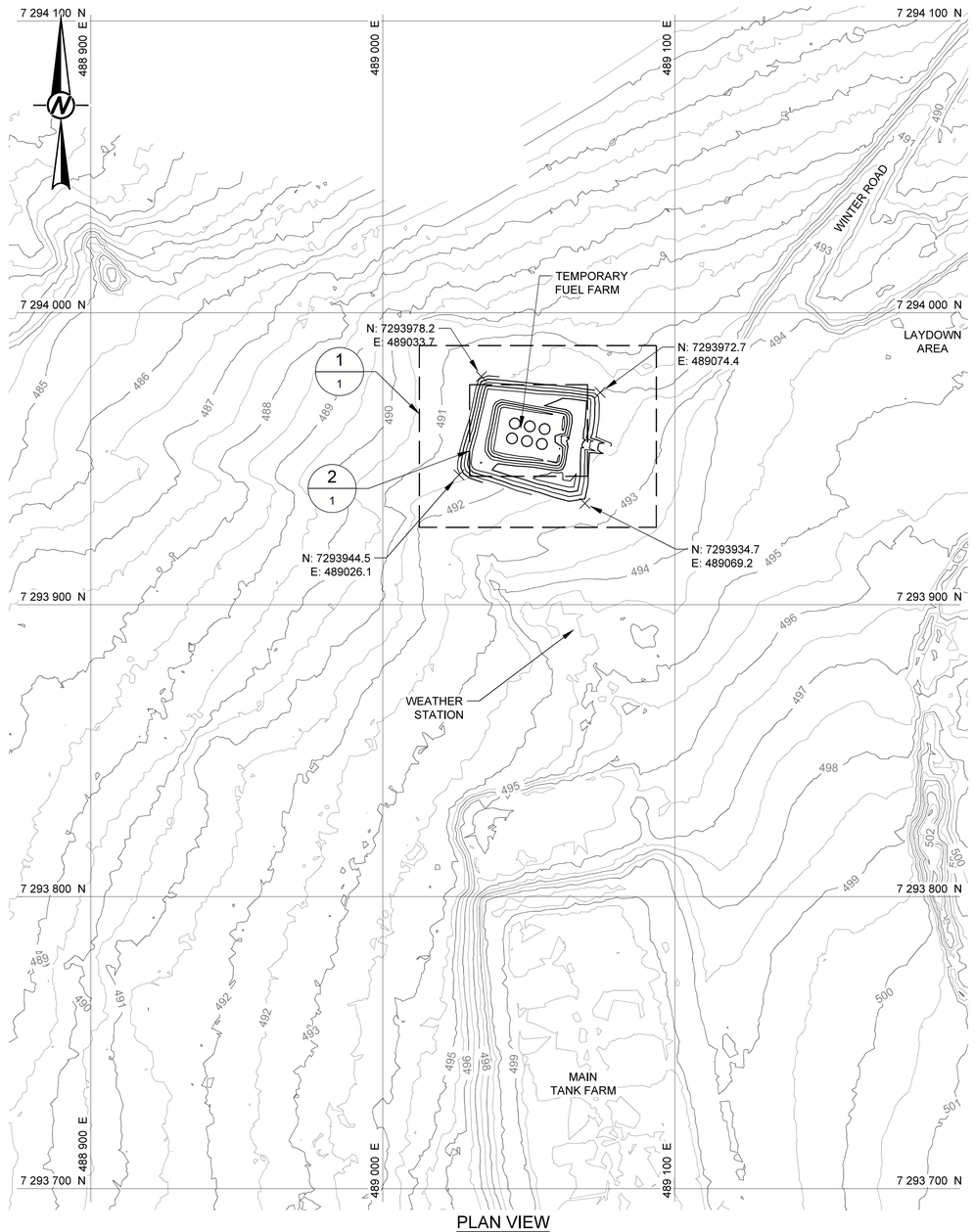
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PROPOSED TEMPORARY FUEL STORAGE

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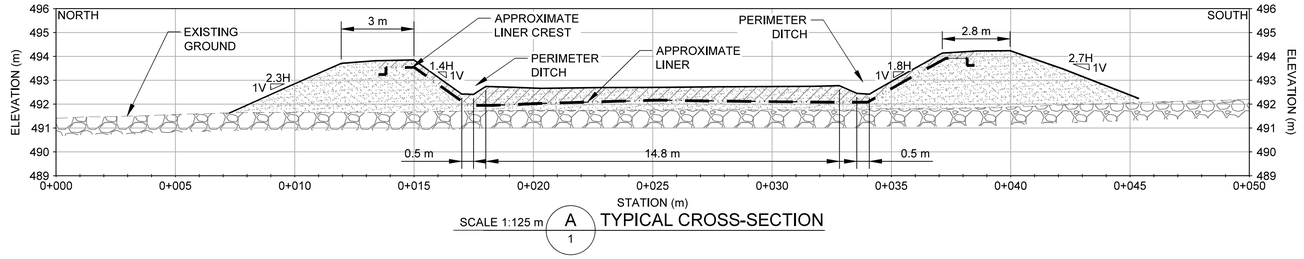
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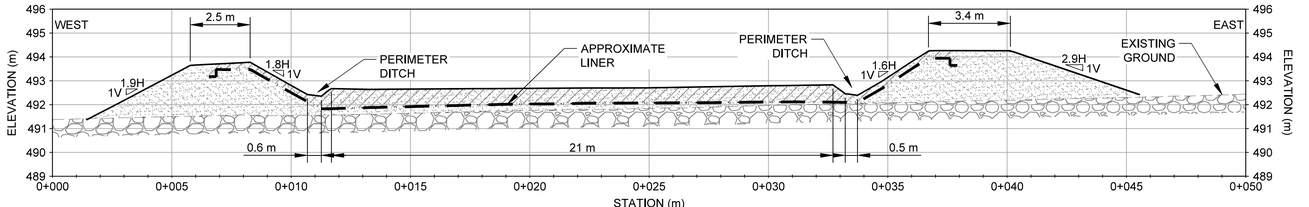
Construction Record Drawing



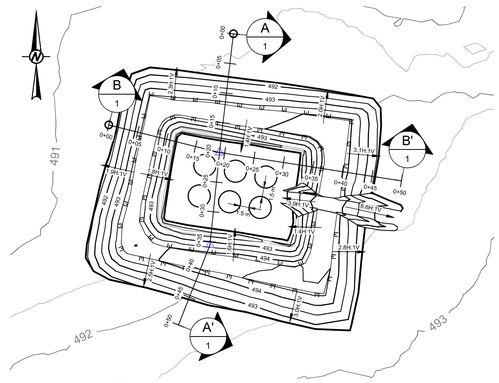
PLAN VIEW
SCALE 1:1,000 m



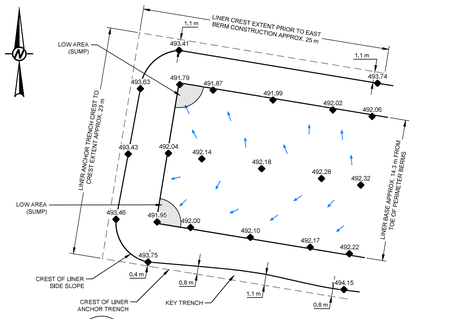
SCALE 1:125 m — A 1 — TYPICAL CROSS-SECTION



SCALE 1:125 m — B 1 — TYPICAL CROSS-SECTION



SCALE 1:500 m — 1 1 — TEMPORARY FUEL STORAGE PAD DETAIL



SCALE 1:300 m — 2 1 — LINER SURVEY AND DRAINAGE DETAIL

LEGEND

- EXISTING GROUND CONTOUR 0.5m AND 1m (SEE REFERENCE 1)
- AS-BUILT BERM CONTOUR 0.5m AND 1m (SEE REFERENCE 2)
- ESKER SAND PROTECTION LAYER
- COMPACTED ESKER SAND FILL
- ROCKFILL LEVELING LAYER (SURFACE INFILLED / SMOOTHENED WITH ESKER SAND)
- LINER
- LINER BASE GRADING - 2023 WSP INSPECTION

NOTES

1. UNITS ARE IN METRES UNLESS OTHERWISE NOTED.
2. COORDINATE SYSTEM IS NAD83(CSRS) / UTM ZONE 12N & CGVD2013.
3. DISCRETE LINER BASE AND CREST ELEVATIONS MEASURED BY WSP AND JDS MINING ON SEPTEMBER 15 AND 16, 2023 WITH A LEVELLOGGER AND BENCHMARK TO MSL CGVD2013.
4. SURVEY WAS PROVIDED FOR THE UPPER SURFACE OF THE TEMPORARY FUEL FARM, COMPRISED OF ESKER SAND. SURVEY WAS NOT AVAILABLE FOR THE UNDERLYING LINER AND BASE GRADES DURING CONSTRUCTION. LINER LOCATION IS APPROXIMATE.
5. LOCATIONS OF THE TANKS ARE APPROXIMATE.

REFERENCES

1. BASE SURFACE PROVIDED BY STANTEC, FLOWN 23 TO 25 AUGUST 2019, RECEIVED: 31 OCTOBER 2019.
2. UPPER SURFACE PROVIDED BY STANTEC, SURVEYED: 03 JUNE 2024, RECEIVED: 10 JUNE 2024, FILE NAME: "20240603_lupin_temporary_fuel_storage_asbuilt.dwg"

PERMIT TO PRACTICE
WSP Canada Inc.
Signature K.W. Bocking
Date 23 Sept 2024
PERMIT NUMBER: P407
NT/NU Association of Professional Engineers and Geoscientists

1:125 — 0 5 10 METRES
1:300 — 0 10 20 METRES
1:500 — 0 20 40 METRES
1:1,000 — 0 50 100 METRES

REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED
0	2024-09-23	ISSUED FINAL	RK	KKJ	RK	KAB

SEAL

CLIENT
LUPIN MINES INCORPORATED

CONSULTANT
WSP E&I CANADA LIMITED
6925 CENTURY AVE. SUITE 100
MISSISSAUGA, ONTARIO
CANADA
[+1] (995) 567-4444

PROJECT
LUPIN MINE CLOSURE PROJECT
NUNAVUT, CANADA

TITLE
TEMPORARY FUEL STORAGE RECORD SURVEY
PLAN VIEW AND TYPICAL CROSS-SECTIONS AND DETAILS

PROJECT NO.	CONTROL	REV.		FIGURE
CA0031158.8527	0001	0	1 of 1	1

Path: \\corp.pbwan.net\CA\CAMIS300\CTX_Data\SIM\Clients\Mandalay_Resources\Lupin_Mine\99_PROJ\CA0031158_8527_Closure_Project\40_PROD\0001_Temporary_Fuel_Storage\ | File Name: CA0031158_8527-0001-CM-0001.dwg | Last Edited By: wds_kyle.johnson Date: 2024-07-16 Time:1:04:28 PM | Printed By: wds_kyle.johnson Date: 2024-09-23 Time:5:14:44 PM
IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI D
0 — 25 mm

Liner Specification Sheet

HAZGARD® 635FR – SECONDARY CONTAINMENT LINER

A HAZGARD® 635FR geomembrane provides the strength and durability required for secondary spill containment. Uniquely resistant to a wide range of chemicals, including hydrocarbons, solvents, acids, bases, and salts, HAZGARD® 635FR geomembranes are some of the most chemically-resistant materials available today.

This unique fire retardant secondary containment geomembrane is an excellent lining material for the containment of flammable and combustible liquids, including; gasoline and alcohol-blended gasoline, diesel and biodiesel-blended diesel, jet fuels, oils, and lubricants.

Material Properties	April **2023**	HAZGARD® 635FR	
	Rev	ASTM	**HAZGARD® 635FR**
	ULC/S668	ULC S668	Yes
	28 day Permeance to Test Fluids*	ULC S668	<10 g/m^2/hr
	30 day Compatibility to Test Fluids*	ULC S668	<10% Wt Change
	30 day Soil Burial	ULC S668	Pass
	Thickness	ASTM D5199	35 mil 0.88 mm
	Tensile Strength	ASTM D751 Grab Method	300 lbs 1330 N
	Tensile Strength	ASTM D638 Strip Method	130 lbs/in 22.7 N/mm
	Elongation	ASTM D751 Grab Method	700%
	Puncture Strength	ASTM D4833	49 lbs 218 N
	Low Temperature	ASTM D1790	-40°F -40°C

*Test Fluids include 16 different flammable, combustible, and oxygenated liquids as defined by the ULC S668

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April 2023	HAZGARD® 635FR Minimum Shop Seam Strengths	
Style	ASTM	**HAZGARD® 635FR**
ULC S668 Seam Strength Requirement	D7749 Grab Method	112 lbs 500 N
Heat Bonded Seam Strength	D6392 25.4 mm (1") Strip	55 lbs 9.6 N/mm
Heat Bonded Peel Adhesion Strength	D6392 25.4 mm (1") Strip	45 lbs 7.9 N/mm

April 2023	HAZGARD® 635FR Minimum Field Seam Strengths	
Style	ASTM	**HAZGARD® 635FR**
ULC S668 Seam Strength Requirement	D7747 Grab Method	112 lbs 500 N
Heat Bonded Seam Strength	D6392 25.4 mm (1") Strip	55 lbs 9.6 N/mm
Heat Bonded Peel Adhesion Strength	D6392 25.4 mm (1") Strip	45 lbs 7.9 N/mm

INSTALLATION

HAZGARD® 635FR liner materials are flexible enough to be prefabricated into large panels. The prefabricated panel is accordion folded, rolled onto a core, and then delivered to the job site secured to a pallet. Prefabricated panels can often cover a small project with a single panel. Often local labor forces can be used to unroll and unfold the panel, while on larger projects trained installation technicians should be brought out to join panels. If field welds are required, then HAZGARD® 635FR materials are welded with wedge welders for production seaming and extrusion welders for repair.

Each liner panel will have a label that will indicate the unrolling and the unfolding direction. Placement of the panel in the correct location prior to unrolling will greatly ease installation. Once the liner material is placed then it should be attached to any required walls and piping and then carefully backfilled.

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APPENDIX G. 2021-2023 Annual Report Additional Requests

SUMMARY OF OUTSTANDING INFORMATION

FROM PREVIOUS ANNUAL REPORTS

Mandalay Resources conducted a review of the response dated July 22, 2024, conducted by Crown Indigenous Relations and Northern Affairs (CIRNAC), Environment and Climate Change Canada (ECCC) and the Nunavut Water Board (NWB) for Annual Reports submitted summarizing the technical review of the Lupin Mine 2021, 2022, 2023 Annual Reports and 2023 Geotechnical Inspection Report related to the Type A Water License No: 2AM-LUP2032, issued to Lupin Mines Incorporated, a wholly owned, indirect subsidiary of Mandalay Resources Corporation. This response was provided on September 27, 2024, and included the commitment to provide additional information as requested in the 2024 Annual Report.

The table below summarizes Regulator responses to any outstanding commitments or information requests resulting from this regulatory review. This table details the incorporation of these requests into the 2024 Annual Report.

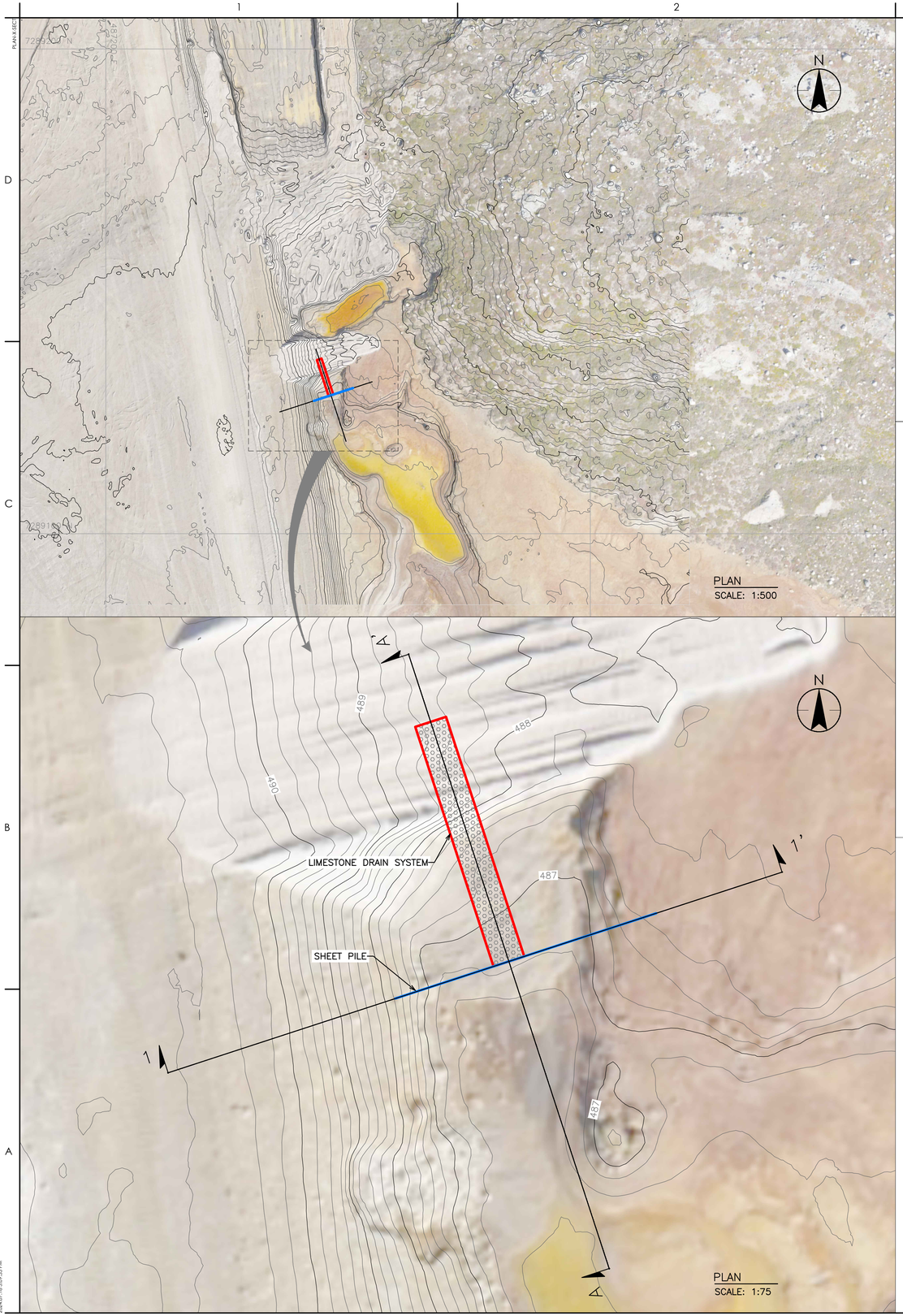
-1able.1 Outstanding Information Clarification from 2AM-LUP2032 2021-2023 Annual Reports

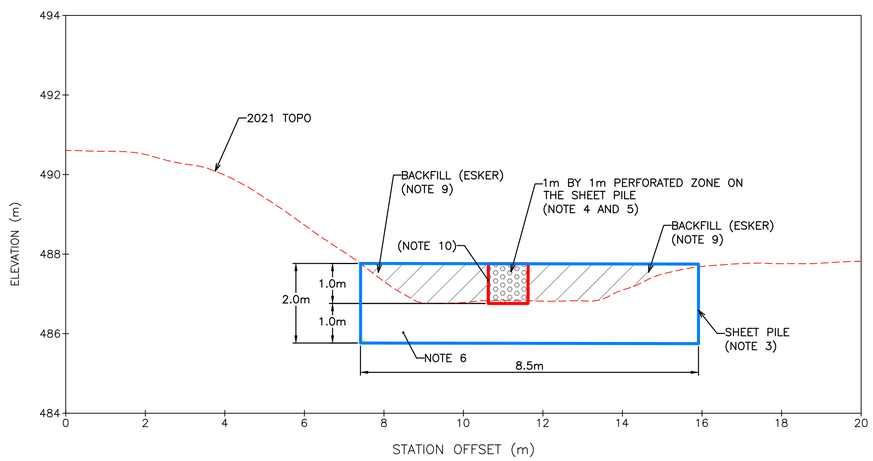
Regulator Request Reference	Request	Response/Reference to Content in 2024 Annual Report
ECCC. Nov.4 Letter	**Water Quality Monitoring Data** 1. Clarify which monitoring locations were sampled in 2023 2. Provide a summary of all water quality monitoring data from the 2023 sampling period and the laboratory result data sheets.	1&2. Clarification regarding the 2023 sampling locations and a summary of the 2023 data will be included as a separate submission from the 2024 Annual report. Future annual report submissions, including 2024, will ensure that Section Item 1(g) of the Annual Report includes a general summary of water quality monitoring data.
ECCC. Nov.4 Letter	**Water Quality Sampling** ECCC recommends that that consideration be given to inclusion of all sampling results, and included targeted monitoring, in future annual reports.	For future annual report submissions, including 2024, Mandalay will ensure that a summary or interpretation of the monitoring results are provided as part of the submission. Appendix B. compares sample results to CCME Water Quality Guidelines for Freshwater Aquatic Life and are clearly flagged either as an "exceedance" or within the acceptable limits.
Outstanding for 2024 AR, from Sept.27 Letter		

Regulator Request Reference	Request	Response/Reference to Content in 2024 Annual Report
CIRNAC R-01	CIRNAC recommends LMI provide an approximate timeframe for addressing the outstanding recommendations from the 2022 and 2023 Annual Inspection Reports to the Board: a. Re-slope Dam M in accordance with the closure design. b. Design and execute remediation for the NW corner of Cell 4. c. Explore potential improvements for managing the acid seep(s) at Cell N. d. Assess onsite conditions and develop final spillway designs for Dam 1A, J Dam, and the two sewage lagoons. e. Assess the Cell 3/Dam L drainage swale erosion issue for potential to worsen over time and complete needed remediation.	LMI submits the following timeline for upcoming works: a. Planned for 2026 construction season. b. Was substantially completed in 2024, will be finished in 2026. c. The acidic seep at Cell N was not observed to be present in 2024. d. Final designs will be completed in 2025. e. Further assessment to be completed in 2025. This information is detailed in Section 1. (I) of 2024 report.
CIRNAC R-02	An approximate date as to when the survey of the TFF will be completed and submitted to the Board for review.	2024 AR section reference: Schedule B. Table 14 regarding closure of Temporary Fuel Farm: removal and disposal of liner and re-grading of TFF bunds.
ECCC 1.	Wastes, including food waste, domestic waste and cardboard are disposed of via the incinerator. The incinerator is located SE of the main camp.	Food waste and cardboard are disposed of via the incinerator. The incinerator is located SE of the main camp. 2024 AR section reference: 1(j)
ECCC 2.	ECCC recommends that the Proponent clarify what the annual temperature averages were in 2023 at site and update the 2023 Geotechnical Inspection Report and 2023 Dam Safety Review with these changes.	Previous calculation of the annual average temperature was based upon historic and perhaps incomplete data. The 2023 Dam Safety Review annual average temperature of -10.9c is based upon well documented data in the Final Reclamation and Closure Plan and is considered to be reliable. LMI will use the -10.9c temperature in future DSIs.
ECCC 6	ECCC recommends that the Proponent include rows in the table in Item 1 (f) of the Annual Reports for non-contaminated diesel and jet fuel, and include information regarding quantities of each material, and their method of storage.	Updated in Table 1(f) 2024 report.

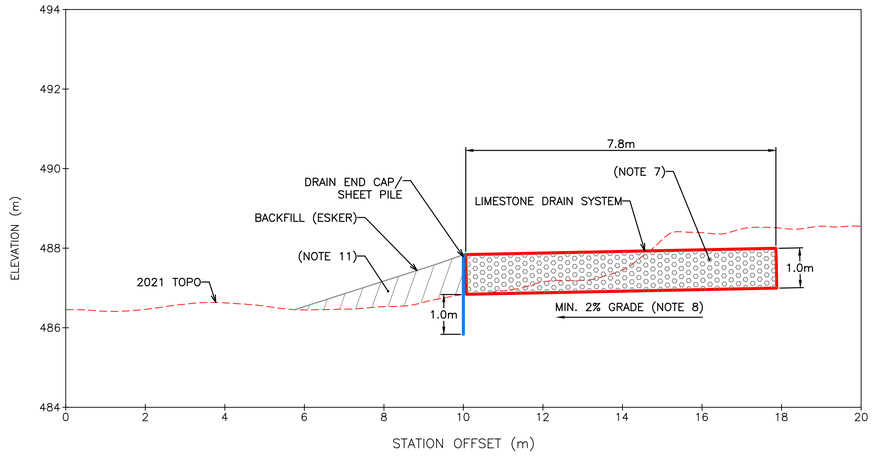
Regulator Request Reference	Request	Response/Reference to Content in 2024 Annual Report
ECCC 9	ECCC recommends that the Proponent include fuels and lubricants in the inventory of chemicals used at the Lupin site, and update their supporting plans, including the Waste Management Plan, with this information.	Addressed under section 6.5 of updated Waste Management Plan (Appendix E, 2025)
ECCC 10	ECCC recommends that the Proponent update the Waste Management Plan to include information on the storage methods for batteries on the Lupin site.	Addressed in section 4.3.1 of updated Waste Management Plan (Appendix E, 2025)
ECCC 11	ECCC recommends that the Proponent clarify the intended method of disposal of metal drums in the Waste Management Plan. Furthermore, ECCC recommends that the Proponent add information to the plan, detailing any cleaning procedures that will be used to remove residual material in metal drums, prior to their disposal.	Addressed in section 4.3.3. of updated Waste Management Plan (Appendix E, 2025)
ECCC 12	ECCC recommends that the Proponent revise the Waste Management Plan, and any other relevant plans and reports, to include a section on the management of sewage and greywater at the Lupin site, including references to other plans where information on sewage and greywater management can be found.	Addressed in section 7 of updated Waste Management Plan (Appendix E, 2025). Incorporated the Disposal Options in table 7-1 for Camp Grey water.

APPENDIX H. Passive Limestone Drainage System Design





SECTION: 1–1'
SCALE: 1:75



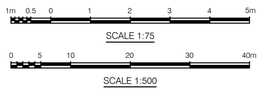
PROFILE: A–A'
SCALE: 1:75

NOTES:

1. COORDINATES ARE PRESENTED IN NAD83 UTM, ZONE 12.
2. AERIAL IMAGERY AND LIDAR SURVEY WERE COLLECTED AUGUST 2021.
3. THE SHEET PILE DIMENSIONS ARE INTENDED TO CUT OFF SEEPAGE AND TIE-IN TO ADJACENT SLOPES. IF AN 8.5 m BY 2 m SHEET PILE IS NOT AVAILABLE, WIDTH COULD BE REDUCED. IN THIS CASE, THE GAP BETWEEN THE SHEET PILE AND ADJACENT SLOPES SHALL BE SEALED USING SANDBAGS OR OTHER METHODS TO PREVENT SEEPAGE.
4. THE SHEET PILE PERFORATED ZONE HAS A 1 m BY 1 m DIMENSION AND SHALL BE PLACED AT THE OUTLET OF THE LIMESTONE DRAIN AND ABOVE THE TAILNGS BASE.
5. THE HOLES IN THE PERFORATED ZONE OF THE SHEET PILE SHALL BE 20 mm DIAMETER WITH 5 cm VERTICAL/HORIZONTAL SPACING FROM CENTER TO CENTER.
6. THE SHEET PILE SHALL BE PLACED TO EXTEND 1 m BELOW THE TAILINGS BASE AT THE INSTALLATION LOCATION. THE PERMOFTOST DEPTH IN THE TAILING AREA COULD BE UP TO 3 m. IF PERMOFTOST ZONE IS ENCOUNTERED SHALLOWER THAN 1 m, THE SHEET PILE SHALL BE PLACED AT THAT LOWER DEPTH THAN 1 m AND PERMOFROST ZONE SHALL NOT BE DISTURBED.
7. THE AVAILABLE VOLUME OF LIMESTONE AT SITE IS EXPECTED TO BE 7.8 m³. IF LESS LIMESTONE IS AVAILABLE CROSS-SECTIONAL AREA OF LIMESTONE SHALL BE KEPT AS 1 m BY 1 m AND THE LENGTH OF THE LIMESTONE SHALL BE REDUCED ACCORDINGLY.
8. THE LONGTIDUINAL GRADE OF THE LIMESTONE BASE SHALL BE MINIMUM 2% AND COULD BE INCREASED DEPENDING ON THE FIELD TOPOGRAPHY.
9. THE AREA BETWEEN LIMESTONE AND TOPOGRAPHY SHALL BE BACKFILLED WITH ESKER MATERIAL.
10. FILTER CLOTH/GEOTEXTILE SHALL BE PLACED AROUND THE LIMESTONE TO MINIMIZE MATERIAL MIGRATION FROM ESKER AND TAILINGS INTO THE LIMESTONE SYSTEM. THE UPSTREAM AND DOWNSTREAM OF THE LIMESTONE SHALL NOT TO BE COVERED WITH FILTER CLOTH/GEOTEXTILE.
11. IN ORDER TO PROVIDE STABILITY OF THE SHEET PILE DURING CONSTRUCTION, DOWNSTREAM BACKFILL AND UPSTREAM LIMESTONE/ESKER SHALL BE PLACED AT THE SAME TIME. THE DOWNSTREAM BACKFILL SHALL BE RIPRAP DOWNSTREAM OF 1 m BY 1 m PERFORATED OUTLET AND ESKER ON BOTH SIDES. THE SLOPE OF BACKFILL MATERIAL SHALL NOT BE STEEPR THAN 1.5H:1V TO PROVIDE THE STABILITY.
12. THE REQUIRED CUT AND FILL VOLUMES ARE NOT PROVIDED AND SHALL BE FIELD FITTED.
13. THE ESKER COVER SHALL BE PLACED ON TOP OF THE LIMESTONE DRAIN SYSTEM ACCORDING TO IFC DESIGN OF CELL 4.
14. THE STRUCTURAL INTEGRITY OF SHEET PILE WAS NOT ASSESSED DUE TO THE LIMITED INFORMATION REGARDING THE SHEET AND SHOULD BE ASSESSED DURING INSTALLATION.

CONSTRUCTION SEQUENCE:

1. PLACE ESKER MATERIAL ADJACENT TO THE LIMESTONE DRAIN SYSTEM AS A CONSTRUCTION PLATFORM.
2. EXCAVATE THE NATURALLY OCCURING ACID WATER FLOW PATH (IF NEEDED) TO CREATE A LIMESTONE PLACEMENT AREA WITH A RELATIVELY CONSISTENT GRADE TO ALLOW FOR CONSISTENT GEOMETRY OF THE LIMESTONE DRAIN (SEE NOTE 8).
3. EXCAVATE A TRENCH (1 M DEEP AND 8.5 m LONG) PERPENDICULAR TO THE DOWNSTREAM OF THE LIMESTONE PLACEMENT AREA FOR PLACING THE SHEET PILE/DRAIN CAP. IF DIMENSIONS OF THE SHEET PILE CHANGE, THE TRENCH LENGTH SHALL BE UPDATED (SEE NOTE 3).
4. DRILL THE REQUIRED HOLES IN THE SHEET PILE ACCORDING TO THE DETAILS PROVIDED IN NOTE 5.
5. PLACE THE PERFORATED SHEET PILE/DRAIN END CAP IN THE TRENCH AND BACKFILL USING TAILINGS TO THE GRADE PROVIDED FOR THE LIMESTONE BASE.
6. IF POSSIBLE, INSTALL A 3 TO 5 SENSOR THERMISTOR STRING IN THE DRAIN END CAP AREA. THE THERMISTOR STRING SHALL HAVE ADEQUATE LENGTH TO BE ACCESSIBLE AFTER PLACING ESKER BACKFILL.
7. BACKFILL AND TAMP AROUND THE END CAP WHILE MAINTAINING THE UPSTREAM AND DOWNSTREAM GRADIENT.
8. PLACE FILTER CLOTH/GEOTEXTILE IN THE BOTTOM AND SIDE SLOPES OF THE LIMESTONE.
9. PLACE THE LIMESTONE IN THE EXCAVATION TRENCH WITH PROVIDED DIMENSIONS (SEE NOTE 7).
10. WRAP/COVER LIMESTONE WITH FILTER CLOTH/GEOTEXTILE.
11. PLACE ESKER COVER OVER LIMESTONE DRAIN.



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Legend
- 490 — 1m CONTOURS
- SHEET PILE
- LIMESTONE DRAIN SYSTEM
- BACKFILL (ESKER)

Issue/Rev	By	Appd	YYYY.MM.DD
Revision			
0	TV	SB	2024.07.18
Issued	By	Appd	YYYY.MM.DD

Permit/Seal

ISSUED FOR CONSTRUCTION

Client/Project
MANDALAY RESOURCES CORPORATION

LUPIN ENGINEERING SUPPORT

Project No.: 169524561
File Name: 24561 DWG 1 LIMESTONE DRAIN SYSTEM_ IFC
Scale: AS SHOWN

Dwn.	Dsgn.	Chkd.	YYYY.MM.DD
TV	AA	SB	2024.07.18

Title
LIMESTONE DRAIN SYSTEM

Revision: 0 Sheet: 1 of 1
Drawing No. 1

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ORIGINAL SHEET - ANSI D (22" x 34")