FINAL

Interim Geochemical Source Term Predictions, Hope Bay Project

Hope Bay Project, Nunavut, Canada

Agnico Eagle Mines Ltd.

SRK Consulting (Canada) Inc. ▪ CAPR003316 ▪ January 2025

srk consulting

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Cover Image(s):
Waste rock stockpile in the Madrid Waste Rock Storage Area, Hope Bay Project

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Useful Definitions

This list contains definitions of symbols, units, abbreviations, and terminology that may be unfamiliar to the reader.

AP	Acid Potential, expressed in units of kg $CaCO_3$/t
CGM	Conceptual Geochemical Model
HCT	Humidity Cell Test
mg/kg	Milligrams per kilogram
mg/L	Milligrams per liter
mg/t	Milligrams per tonne
NP	Neutralization Potential, expressed in units of kg $CaCO_3$/t
non-PAG	Non-potentially acid generating
PAG	Potentially acid generating
QA/QC	Quality Assurance/Quality Control
SFE	Shake-flask extraction
Source Term	Numerical values that predict contact water chemistry for each load source at the mine site which are used in the site-wide water and load balance model
SRK	SRK Consulting (Canada) Inc.
TIA	Tailings Impoundment Area
t_{onset}	Onset time to acidity
TIC	Total inorganic carbon
WLB	Water and Load Balance Model

1 Introduction and Scope

Agnico Eagle Mines Ltd. (Agnico Eagle) retained SRK Consulting (Canada) Inc. (SRK) to develop updated geochemical source terms to be utilized as inputs in the site-wide Water and Load Balance model (WLB) to support a permit amendment of the Hope Bay Project.

This report describes the development of water chemistry predictions for waters contacting various mine facilities (referred to as source terms). The source terms presented in this report are referred to as the “interim” source terms that were derived using geochemical data available in June 2024 in support of the addendum submission to the KitIA. An update to the source terms is planned in 2025 using data from geochemical characterization programs for waste rock and tailings that are currently in progress and designed based on Agnico Eagle’s updated mine plan. The 2025 source terms will be derived in support of the addendum submission to the NIRB and NWB. The source terms are inputs to the site-wide WLB model that is used to project water chemistry at the mine and the receiving environment during operations and the closure period. This report includes:

1. Review of the site layout and updated mine plan, the geological setting of the site, and the geochemical characteristics of the ore and waste materials;
2. The conceptual geochemical models developed for each mine component that guide the data interpretation and source term calculation methods;
3. The methods used to derive site-specific geochemical source terms; and
4. The inputs and calculated source terms.

This report is the deliverable for Task 211 outlined in SRK’s proposal dated May 23, 2024, and approved by PO OL-1422296.

2 Background

2.1 Previous Source Term Predictions

Source terms were last developed for the Hope Bay Project mine plans for Doris, Madrid and Boston documented in the Phase 2 FEIS Application (SRK, 2017a). The source terms developed in SRK (2017a) included waste rock and ore stockpiles, tailings areas at Doris and Boston, underground mines, crown pillar recovery trenches, pads and infrastructure, covers on the tailings areas, nitrogen loadings from blast residues, and the chemistry of process water from the Doris and Boston processing plants. The water chemistry predictions were primarily derived by scaling laboratory tests to field conditions with concentrations limited by solubility controls which were quantified from operational seepage and barrel data from Hope Bay and analog sites.

2.2 Geological Setting

The geological setting of the Hope Bay Project is described in SRK (2015a, 2017b, 2017c, and 2024b), with a summary of the geology for the areas defined in the project description provided in the subsections below.

2.2.1 Regional Geology

Hope Bay lies in the northeast corner of the Archean age Slave Craton of the Canadian Shield, a predominately granite-greenstone-metasedimentary geological terrane. The Slave Craton is host to a number of significant gold, base metals, and diamond deposits. The Hope Bay greenstone belt extends over 80 km in length and is up to 20 km wide. The belt is comprised of mafic to felsic meta-volcanics (mainly meta-basalts), with localized sedimentary and ultramafic rocks, and is bounded by Archean age granite intrusions and gneisses. The greenstone package has been deformed during multiple events and is transected by major north-south trending shear zones that appear to exert a significant control on the occurrence of mineralization, similar to other Archean greenstone gold camps. Overall, the metamorphic grade is lower- to mid-greenschist facies except near the contact with the marginal granitoids where the rocks are hornfelsed to a lower amphibolite-facies metamorphic grade.

2.2.2 Deposit Geology

The Hope Bay Project consists of several deposits including the Doris, Madrid North, Patch 7, and Madrid South deposits shown in Figure 2-1 and Figure 2-2. The primary host lithologies at the deposits are mafic to ultramafic metavolcanics (including tholeiitic and komatiitic basalts; classified as A-Type, B-Type, and C-Type basalts, East Block basalt, and ultramafics), synvolcanic to late felsic to mafic igneous dykes (classified as diabase and late mafic dykes), felsic to mafic porphyritic rocks (classified as felsic porphyry and Wolverine porphyry), fine clastic sedimentary rocks. All deposits show a mineralization that is typical of orogenic-type gold deposits, with gold dominantly hosted within structurally controlled quartz veins or replacement style sulphide mineralization adjacent to shear zones. Notable differences in host rock geology and trace element occurrence that are outlined below.

The geology of the Doris deposit is described in SRK (2015a). The primary host lithologies at Doris are B-Type basalts (Fe-tholeiites), C-Type basalts (Mg-tholeiites), and diabase intrusions (Figure 2-1). Mineralization occurs within a steeply dipping shear zone and fold-hosted quartz vein system, which comprise the two styles of mineralization at the deposit. The first style (fold-hosted) occurs within extensive quartz veins at the contact between B-Type and C-Type basalts along the hinge of anticlinal folds, whereas the second style (shear zone hosted) occurs within a stockwork of quartz veins and veinlets within shear zones along the limbs of the anticlinal folds. Hydrothermal alteration halos are proximal to mineralization and comprise of B-Type and C-Type basalts that have undergone ferroan dolomite-sericite-paragonite alteration. Mineralization is associated with sulphide abundances of up to 14%, consisting of trace to 14% pyrite and trace chalcopyrite, pyrrhotite, and sphalerite, primarily located along vein margins and wall rock fragments. Carbonates primarily occur throughout the deposit as vein fill and pervasive disseminations of ferroan dolomite / ankerite, calcite, and siderite.

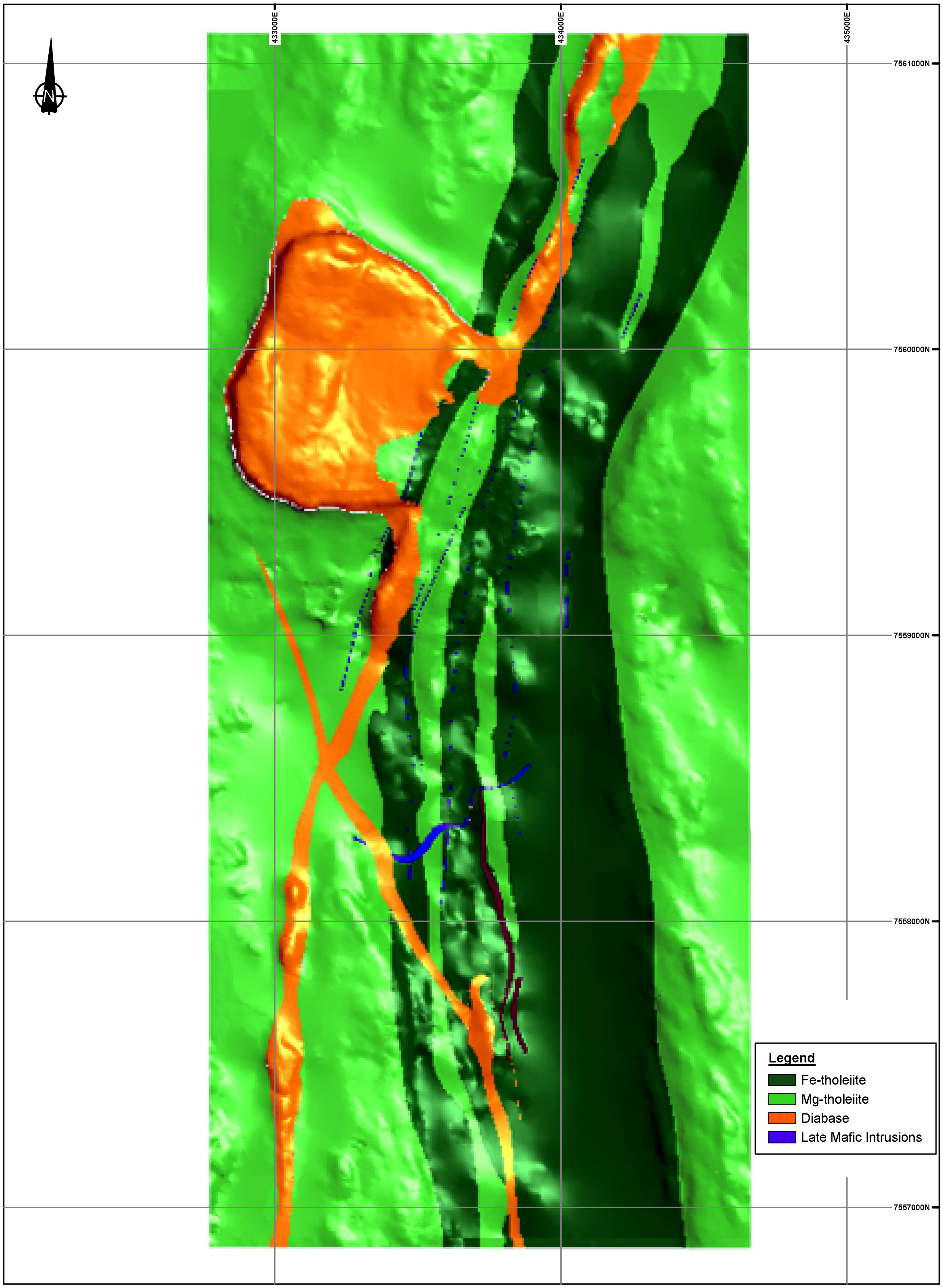
Madrid is located 6 km south of the Doris deposit and is subdivided into three deposits based on deposit style and relative location along the regional Madrid Deformation Zone (MDZ) that defines the mineralization trend from North to South: Madrid North, the Suluk South-Patch 7 corridor and Madrid South.

The geology of Madrid North as it relates to the addendum application is documented in SRK (2024b). Madrid North includes the Naartok (West and East), Rand, Spur, Suluk Main and Suluk East zones (Figure 1-1). The primary host lithologies at Madrid North are A-Type basalts (Fe-Ti-tholeiites), C-Type basalts (Mg-tholeiites), fine clastic sedimentary rocks (with a proport0ion that are graphitic), and mafic and sedimentary rocks that show significant deformation as part of the MDZ. Mineralization occurs within two large-scale, structurally controlled shear zones called the MDZ and Penn Shear with a replacement style of mineralization that consists of the replacement of select lithologies (typically A-Type basalts). The typical alteration assemblage associated with mineralization is an early alteration assemblage of sericite and carbonates (e.g., ankerite / ferroan dolomite and magnesite) with a stockwork of quartz-carbonate veinlets, secondary albite and paragonite, and hematite discolouration at select zones (Naartok West and East). Mineralization is associated with sulphide abundances of up to 16%, consisting of trace to 16% pyrite and trace arsenopyrite, chalcocite, chalcopyrite, cobaltite, covellite, galena, gersdorffite, molybdenite, pyrrhotite, and sphalerite. Carbonates primarily occur throughout the deposit as vein fill and pervasive disseminations of ferroan dolomite / ankerite, calcite, magnesite, and siderite.

The geology of Patch 7 is described in SRK (2024b) The primary host lithologies at Patch 7 are to the same as Madrid North except the presence of ultramafics and minor fine clastic sedimentary rocks. Mineralization is similarly hosted within the MDZ and Penn shear and is primarily hosted within early-stage shear veins in A-Type basalts and ultramafics. Alteration is primarily sericite-carbonate, but with notably higher intensities of quartz-carbonate vein stockworks and lower pyrite content.

The geology of Madrid South is described in SRK (2017c). The deposit includes the Wolverine and Patch 14 zones (Figure 1-1). The primary host lithologies at Madrid South are C-Type basalts (Mg-tholeiites) and felsic porphyries. Mineralization occurs adjacent to the MDZ and gold typically occurs as visible gold or within pyrite in quartz vein systems hosted within narrow shear zones at the contact between the porphyries and C-Type basalts. The alteration assemblage at Madrid South is similar to

Madrid North and Patch 7. Mineralization is associated with sulphide abundances of up to 3%, consisting of trace to 3% pyrite and trace arsenopyrite, chalcopyrite, cobaltite, gersdorffite, pyrrhotite, sphalerite, and tetrahedrite. Carbonates primarily occur throughout the deposit as vein fill and pervasive disseminations of ferroan dolomite / ankerite, calcite, and magnesite.



NOTES
1. Coordinate System: NAD 1983 UTM Zone 13N

REFERENCES

PROJECT PATH: C:\Users\MSMITH\SRK Consulting\FS208 Hope Bay (Doris North, Boston, Madrid) - !ACAD Vancouver\GIS\FIGURES (mxd document)\CAPR003316_HB_Madrid_Geology\CAPR003316_HB_Madrid_Geology.aprx - L-Doris Geology

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LAYOUT: CAPR003316_HB_Madrid_Geology

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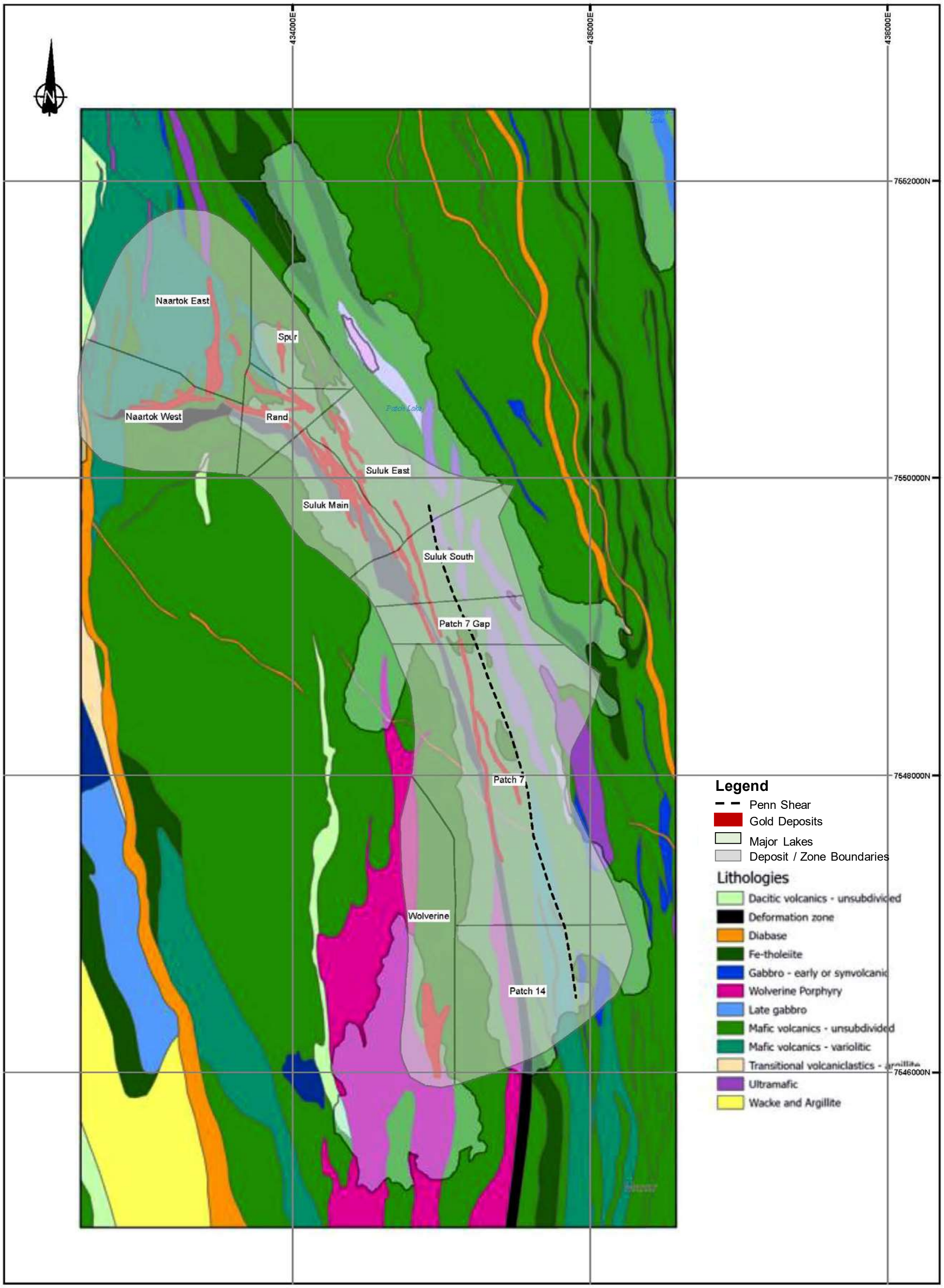
HOPE BAY

Hope Bay 2025 FEIS Amendment Application

Doris Bedrock Geology

DATE:	APPROVED:	FIGURE:
DEC 2024	KWJ	2-1



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1. Coordinate System: NAD 1983 UTM Zone 13N

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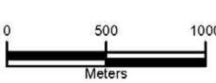

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JOB NO: CAPR003316

LAYOUT: CAPR003316_HB_Madrid_Geology

AGNICO EAGLE

HOPE BAY

Hope Bay 2025 FEIS Amendment Application

Madrid Bedrock Geology

DATE:	APPROVED:	FIGURE:
SEP 2024	KJ	2-2

2.3 Updated Project Description and Mine Plan

The approved and permitted project description is defined in Water Licences 2AM-DOH1335 for Doris and Madrid (NWB 2018a) and 2AM-BOS1835 for Boston (NWB 2018b) and Project Certificates No.003 for Doris (NIRB 2007) and No.009 for Madrid and Boston (NIRB 2018). This section summarizes the proposed updates to the project description that are relevant to prediction of source terms.

The primary changes to the project description at Madrid that are relevant to prediction of source terms include the expansion of the mine to include the Patch 7 deposit, new portal locations and infrastructure (portals, saline and contact water management ponds, etc.). Changes at Doris include surface management of a combined tailings stream in the Doris TIA with associated increase to the capacity and design, and an increase to the milling rate at the Doris Mill from 2,400 tpd to 8,000 tpd. The updated mine plan is summarized as follows:

- Early works and pre-construction are currently ongoing and will conclude in 2026, with construction beginning in 2027 and concluding in 2028. Mining operations will begin in 2028 and conclude in 2038 (Doris) and 2041 (Madrid) after which there will be a 2-year closure period followed by a 3-year post-closure period following operations.
- Underground mining methods will continue at Doris and will be utilized at Madrid. Underground mining methods vary by mine and have implications on the proportion of CRF and URF required for geotechnical stability (Table 7-8). Doris will primarily be mined using the TRP method, while Madrid North and South will primarily utilize the Transverse stoping method. The Patch 7 mining methods will be determined at a later date.
- Three underground portals at Madrid North (at Naartok East, Naartok West and Patch 7) and one at Madrid South along with associated infrastructure (waste rock storage pads, saline water sumps, ore pads, ventilation raises, access roads, etc.).
- There is currently a Crown Pillar Recovery (CPR) trench at the Naartok East. The trench presently contains water. The proposed Naartok East portal is within the CPR and will therefore by hydraulically connected with the Madrid North underground at closure. No other CPR trenches are proposed as part of the mine plan.
- The milling rate at the Doris Mill will be increased to 8,000 tpd from 2,400 tpd.
- Presently, there is one waste rock stockpile and ore stockpile at Doris (Pad T and Pad I, respectively) and one waste rock stockpile at Madrid North Waste Rock Storage Area (WRSA). There is presently one overburden stockpile at Doris adjacent to the Doris Camp and one overburden stockpile at Madrid North. The updated mine plan includes the following changes to surface facilities:
  - Two new waste rock stockpiles at Doris, one of which will include existing waste rock from Pad T,
  - One new ore stockpile at Pad T at Doris,

- Three new waste rock stockpiles at Madrid (one at Madrid North, one at Patch 7, and one at Madrid South) and one expanded stockpile at Madrid North (WRSA),
- Three ore stockpiles at Madrid (one each at Madrid North, Patch 7, and Madrid South).
- The existing Madrid North overburden stockpile will be relocated during operations to the northeast, adjacent to the proposed Naartok West portal and a second overburden stockpile will be adjacent to CWP 2.

- Modifications to the mill and ore processing flow sheet and tailings disposal. After flotation, the sulphide concentrate will be reground and combined with the flotation tailings. Gold is then extracted from the recombined streams, followed by detoxification and disposal of one tailings stream in the Doris TIA. Tailings disposal will be as a slurry in the TIA and will eventually transition to a dry stack within the TIA footprint at approximately Year 5 (2033) of mining operations. Detoxified tailings will no longer be produced nor placed as backfill in the underground mine. At closure, tailings in the Doris TIA will be covered by a geosynthetic membrane followed by a 1 m of construction rock.
- Paste tailings are not a part of the application and will not be considered in the source terms and WLB model.
- Waste rock will be placed as backfill in stopes of the underground mines as uncemented waste rock (URF) and starting in 2027 as cemented rockfill (CRF). Most waste rock brought to surface will be placed as backfill in the Doris and Madrid underground mines.
- Underground backfill at Doris will be a mixture of detoxified tailings that are currently present in the underground, URF, and CRF, while backfill at Madrid (Madrid North, Patch 7, and Madrid South) will be URF and CRF. At closure, the underground will be flooded and numerical groundwater modelling indicates that all backfill will be below the final elevation of flooding (SRK 2024c).
- At closure, all waste rock from Madrid North and Patch 7 will be placed as backfill in the underground mine at closure and all ore will be processed at closure; it will not be used as mine backfill or left on surface. Waste rock from Doris and Madrid South classified as having a low risk of ML/ARD will either be placed as backfill or classified and segregated for placement in a stockpile that will remain on surface as part of the closure plan. A total of ~1.8 million tonnes of waste rock, representing ~11% of total waste rock is projected to remain on surface at Madrid South and Doris (Table 7-6).

3 Geochemical Characteristics

This section summarizes the geochemical characteristics of geological materials which form the basis of source characterization. The geochemical characteristics of ore, waste rock, tailings, and quarry rock from Doris and Madrid (North and South) are documented in SRK (2015a, 2015b, 2017b, 2017c, 2017d, 2017e, 2019, and 2024b). Operational monitoring data for Doris and Madrid North are discussed in Section 6. For Patch 7, the geochemical characterization of waste rock and ore is documented in SRK (2024b).

3.1 Waste Rock

Static and geochemical characterization of waste rock and ore from Doris, Madrid North, Patch 7, and Madrid South are documented in SRK (2015a, 2017b, 2017c, and 2024b).

3.1.1 Doris

The primary sulphide mineral for Doris waste rock is pyrite, with trace chalcopyrite, pyrrhotite, and sphalerite. Sulphide mineral content is generally low, with waste rock having pyrite content ranging from below detection (<1%) to 14% (median = below detection). The primary carbonate minerals are the iron carbonates ferroan dolomite and siderite (SRK 2015a), with lesser calcite. Doris typically has higher calcite abundances than Madrid North and Madrid South, but lower iron carbonate abundances.

Total sulphur content ranged from 0.01 to 9.1%S (median=0.13%S), NP ranged from 1.3 to 410 kg$CaCO_3$/t (median=150 kg$CaCO_3$/t), and TIC ranged from 0.23 to 490 kg$CaCO_3$/t (median=220 kg$CaCO_3$/t). The majority of Doris waste rock is classified as non-PAG[1] (92%), with a minor proportion of samples classified as uncertain (5.9%; n=33) and PAG (2%; n=11).

Based on field and laboratory kinetic data and seepage monitoring of Doris waste rock, waste rock from Doris has a low risk of ML/ARD.

3.1.2 Madrid North

The primary sulphide mineral for Madrid North waste rock is pyrite, with trace chalcocite, chalcopyrite, cobaltite, covellite, galena, gersdorffite, molybdenite, pyrrhotite, and sphalerite. Sulphide mineral content is generally low but higher than Doris and Madrid South, with waste rock having pyrite content ranging from below detection (<1%) to 16% (median = below detection). Gersdorffite ((Fe,Co,Ni)AsS) is present at or above the detection limit (0.01%) in A-Type and C-Type basalts, MDZ, and sediments at Madrid North. Gersdorffite forms a solid solution with cobaltite and trace gersdorffite abundances are linked to increased arsenic, cobalt, and nickel leaching rates (SRK 2019 and 2024b). The primary carbonate minerals are the iron carbonates ferroan dolomite and siderite (SRK 2017b and 2024b), with lesser magnesite and calcite.

[1] NP/AP or TIC/AP values > 3 denote non-potentially acid generating (non-PAG), between 1 and 3 denotes an uncertain ARD potential, and <1 denotes potentially acid generating (PAG) classification

Total sulphur content ranged from 0.02 to 9.6%S (median of 0.2%S), NP and TIC ranged from 1.4 to 650 kg$CaCO_3$/t. The majority of Madrid North waste rock is classified as non-PAG (96%), with a minor proportion of samples classified as uncertain (1 to 3%) and PAG (<1%) that were primarily A-Type basalt or sediments with high sulphur content (3% to ~25%, respectively). MDZ and C-Type had lower sulphur content and were uniformly non-PAG.

Waste rock has the potential for neutral pH arsenic leaching of arsenic in association with the presence of the trace sulphide mineral gersdorffite and elevated solid phase arsenic (SRK 2017b, 2019, and 2024b).

3.1.3 Patch 7

Total sulphur content ranged from 0.04 to 2.3%S (median=0.23%S), NP and TIC ranged from 5 to 610 kg$CaCO_3$/t. The majority of Patch 7 waste rock is classified as non-PAG (97%), with a minor proportion of samples classified as uncertain (3%) and PAG (<1%). Kinetic tests of waste rock and ore from Patch 7 have been initiated but data were not available for interim source term derivation. The bulk geochemical characteristics of Patch 7 waste rock and ore indicated that Patch 7 is a geological and geochemical extension of Madrid North(SRK 2024b). Accordingly, kinetic data for Madrid North waste rock and ore was used to derive interim source terms for Patch 7. Kinetic test data from Patch 7 samples will be integrated into the next iteration of source terms that will be developed in support of the addendum application to the NIRB and NWB.

3.1.4 Madrid South

The primary sulphide mineral for Madrid South waste rock is pyrite, with trace arsenopyrite, chalcopyrite, cobaltite, gersdorffite, pyrrhotite, sphalerite, and tetrahedrite. Sulphide mineral content is generally low, with waste rock having pyrite content ranging from below detection (<1%) to 3%. Gersdorffite ((Fe,Co,Ni)AsS) is present at or above the detection limit (0.01%) in C-Type basalts at Madrid South. Gersdorffite forms a solid solution with cobaltite and trace gersdorffite abundances are linked to increased arsenic, cobalt, and nickel leaching rates (SRK 2017c). The primary carbonate minerals are the iron carbonates ferroan dolomite and siderite (SRK 2017c), with lesser magnesite and calcite. Madrid South and Madrid North typically have higher iron carbonate abundances than Doris, but lower calcite abundances.

Total sulphur content ranged from 0.02 to 2%S (median of 0.06%S), NP and TIC ranged from 17 to 570 kg$CaCO_3$/t. All waste rock at Madrid South is classified as non-PAG. Waste rock has potential for neutral pH leaching of arsenic and possibly cobalt, and nickel (SRK 2017c).

3.1.5 Saline Metal Leaching

High ionic strength saline water increases metal mobility from waste rock at Hope Bay (SRK 2024b), Increased metal mobility due to waste rock in contact with saline groundwater entering the underground mine was quantified by shake flask extraction (SFE) tests on Madrid North waste rock. Saline SFE tests yielded higher concentrations for select constituents and constituent-specific scaling factors were derived by a ratio of saline concentrations and deionized water concentrations (Table 7-4).

3.2 Ore

Ore from each deposit has generally similar mineralogical components and geochemical characteristics to waste rock (Section 3.1), except ore generally has higher ML/ARD potential due to increased sulphur content and solid-phase metals concentrations. Doris and Madrid North had several humidity cell samples classified as ore, whereas Madrid South did not and Patch 7 has several samples with ongoing testing. Madrid North C-Type basalt ore was used to represent Madrid South ore for the purposes of source term development. The ML/ARD potential of ore at each deposit is summarized below:

- Doris: Ore is primarily classified as non-PAG and uncertain (~40% and ~35%, respectively), with a minor proportion of samples classified as PAG (~25%). Neutral pH metal leaching rates are generally low for all constituents (SRK 2015a).
- Madrid North: Ore is primarily classified as non-PAG and uncertain (~50% for each classification) with a small percemtage of PAG samples (3%; n=2). Ore generally had higher arsenic content than waste rock. Neutral pH metal leaching rates indicated by the kinetic test program suggested potential for pH neutral leaching of arsenic, cobalt, and nickel (SRK 2017b and 2024b).
- Patch 7: Ore is primarily classified as non-PAG (~90%) with no uncertain samples and a minor proportion of samples classified as PAG (~10%). Ore generally had higher arsenic content than waste rock. As discussed in Section 3.1.3, Madrid North ore can be used as a surrogate for Patch 7. A kinetic test program for Patch 7 ore is in progress, however results were not available to incorporate into source terms.
- Madrid South: Ore is uniformly non-PAG, with higher arsenic content than waste rock.

3.3 Tailings

3.3.1 Updated Ore Processing Sheet

The updated project description includes a modified ore processing flow sheet referred to as the Alternative Case Metallurgical Scenario to increase gold recovery.

Processing at the Doris mill involved crushing and grinding of the ore followed by gravity separation of free gold. Following gravity separation, a flotation circuit separates concentrate from flotation tailings, the latter which were pumped to the TIA. After gold recovery, the residual solids were detoxified by the Inco-SO_2 process and filtered before disposal as detoxified tailings in the Doris underground mine. The geochemical characterization of metallurgical tailings from Doris, Madrid North, Madrid South and Boston documented as part of Water Licences 2AM-DOH1335 for Doris and Madrid (NWB 2018a) and 2AM-BOS1835 for Boston (NWB 2018b) were produced using this flow sheet (SRK 2015b and 2017d).

The updated flow sheet includes the following modifications:

- After flotation, concentrate is reground after which it is recombined with flotation tailings
- Gold is extracted from the recombined stream and subsequently detoxified using the Inco-SO_2 process
- Combined detoxified tailings are pumped to the Doris TIA for surface disposal, initially as a slurry and later as a dry stack. There is no disposal of tailings in the underground mine.

Static and kinetic geochemical characterization of previous metallurgical flotation tailings, detoxified tailings and mixed tailings from Doris, Madrid North, Madrid South, and Boston are documented in SRK (2015b and 2017d). Geochemical characterization of future metallurgical flotation tailings, sulphide concentrate tailings and combined detoxified tailings from Madrid North (Naartok West zone) was also conducted. Moreover, geochemical monitoring of flotation and detoxified tailings produced by the Doris mill is documented in annual monitoring reports (e.g., SRK 2024a).

3.3.2 Tailings Geochemistry

Doris Mill Flow Sheet

Geochemical monitoring of flotation and detoxified tailings produced from the processing of Doris ore and a blend of ores from Doris and Naartok East (Madrid North) at the Doris mill is documented in annual monitoring reports (e.g., SRK 2024a). Process water chemistry from the mill is discussed in Section 6.3. The static characteristics of Doris mill tailings are consistent with data for metallurgical tailings presented herein.

Static and kinetic geochemical characterization of metallurgical flotation tailings, detoxified tailings and a mixture of both, referred to as mixed tailings from Doris, Madrid North, Madrid South, and Boston are documented in SRK (2015b and 2017d). The bulk characteristics of mixed tailings are projected to be equivalent to combined detoxified tailings from the updated process flow sheet (Section 3.3.1) and accordingly, kinetic data can be used as a surrogate.

For Doris, Madrid North, Madrid South and Boston, sulphide mineralogy in metallurgical tailings was dominated by pyrite, with highest levels in the detoxified tailings (range of 15 to 43%), followed by mixed tailings (range of 1 to 3%), which was higher than flotation tailings (<1%). For Madrid North, trace chalcopyrite, gersdorffite, pyrrhotite, sphalerite, galena, and molybdenite (SRK 2017d).

Carbonate mineralogy for all metallurgical tailings types and areas was dominated by ferroan dolomite (range of 7 to 46%), with trace to minor calcite and/or siderite. Minor magnesite was also indicated at Madrid North and Boston.

For all deposits, detoxified tailings were classified as PAG, and mixed and flotation tailings were non-PAG based on both static and kinetic data. One exception was that 1 sample of mixed tailings from Doris was classified as uncertain. One HCT sample of Doris detoxified tailings from the Central zone developed acidic conditions after ~4 years under laboratory conditions, which corresponds to an onset time of ~32 years under site conditions. All other detoxified tailings maintained neutral pH conditions for the duration of HCT operation.

For Doris, HCTs indicate that there was an increased tendency for arsenic leaching under neutral pH from detoxified tailings relative to other Doris tailings types (SRK 2015b). Notably arsenic leaching rates from Doris are lower than Madrid North and Boston. For Madrid North and Boston tailings, arsenic leaching is the primary metal leaching concern and was highest for Madrid North flotation tailings. Notably, neutral pH arsenic leaching from Madrid North mixed tailings were lower than flotation tailings and detoxified tailings.

For Patch 7 and Madrid South, Madrid North and Boston were respectively determined to be appropriate analogs due to similar geochemical characteristics for ore and/or tailings (Section 3.2, SRK 2017d).

Updated Mill Flow Sheet

Geochemical characterization of metallurgical tailings produced from Patch 7 and Madrid North using the updated flow sheet is currently in progress (SRK in progress). Sulphide content in Naartok West metallurgical tailings was dominated by pyrite with highest levels in sulphide concentrate tailings (19 wt%) followed by combined detoxified tailings (1.8 wt%) which was greater than flotation tailings (0.095 wt%), Carbonate mineralogy was dominated by ferroan dolomite (range of 23 to 36%) with lesser magnesite and calcite. Sulphide concentrate tailings were classified as PAG and combined detoxified and flotation tailings were classified as non-PAG.

Saline Metal Leaching

High ionic strength saline water increases metal mobility in detoxified tailings at Hope Bay (SRK 2024a). Increased metal mobility due to detoxified tailings in contact with saline groundwater entering the underground mine was quantified by SFE tests on metallurgical tailings samples from Naartok West using saline and deionized water. Saline SFE tests yielded higher concentrations for select constituents (e.g., cobalt, manganese, and nickel) and constituent-specific scaling factors were derived by a ratio of saline concentrations and deionized water concentrations (Table 7-5).

3.4 Quarry Rock

Surface pads, infrastructure, and roads are built with quarry rock (primarily C-Type basalt) which is non-PAG with low potential for metal leaching, confirmed through geochemical characterization (SRK 2017e) and more than ten years of operational solids (e.g., SRK 2024a) and operational seepage monitoring (Section 6.2).

Geochemical characterization of C-Type basalt quarry rock showed that it has uniformly low total sulphur content (95^{th} percentile of 0.18%S, n=147) NP and TIC content ranging from 5 to >100s kg $CaCO_3$/t. Quarry rock was classified as non-PAG. There is an overall low risk of metal leaching under neutral conditions as indicated by mostly low solid-phase metals content and low metals concentrations in seepage (Section 6.2).

3.5 Overburden

The Madrid overburden stockpile has saline porewater and contact water due to the presence of natural saline interstitial water prior to mining. High salinity is reflected in the contact water which results in higher metal concentrations for select metals under near-neutral conditions. Ongoing seepage monitoring indicates that drainage is progressively becoming less saline (SRK 2024a). Seepage from the Doris overburden stockpile is non-saline with low metals concentrations based on a single seepage sample collected in 2013 and subsequent downstream mine water drainage at Doris.

4 Conceptual Geochemical Models

Conceptual geochemical models (CGMs) for each mine component were developed for the purpose of source term derivation. Source terms are numerical values that estimate contact water chemistry for each source identified in the conceptual geochemical model for the site. Source terms are expressed either as the estimated water chemistry of water that contacts a given geological material (e.g., in units of mg/L), as a loading that a geological material will contribute to water quality per unit of time (e.g., mg/year), or as a solid-phase concentration to represent suspended load (e.g., mg/kg). These estimates are geochemical inputs (or terms) in the site-wide WLB model (SRK 2024d).

4.1 Overall

The geological setting (Section 2.2), Mine and Closure Plan (Section 2.3), and the geochemical characteristics of geological materials at the site (Section 3) indicate the following general observations on the geochemical performance of wastes and facilities at the site:

- Sulphide oxidation with associated sulphate, metal, and other trace element leaching is a consideration for the project, based on the sulphide mineralogy described in Sections 3.1.1 and 3.1.2.
- The presence of gersdorffite at Madrid is expected to contribute to neutral pH metal leaching of arsenic, cobalt, and nickel. The absence of significant abundances of sulphides or sulphosalts of copper, lead, zinc, and antimony and kinetic test work indicate that neutral pH leaching of these elements may not be important.
- Most of the mine wastes at the Hope Bay are non-PAG with the exception of detoxified tailings and a minor proportion of waste rock from Madrid North and Patch 7. PAG detoxified tailings have been placed underground in the Doris mine and will not be produced as part of the proposed mine plan. The onset of acidity for detoxified tailings is 32 years (Section 3.3.2) and is after the Doris underground operations and reflooding time. PAG waste rock will be placed as backfill in the underground mine and be flooded at closure.
- Sulphate content is generally at or below the detection limit (<0.01 %S) and the majority of the sulphur is present as sulphides suggesting that leaching of secondary sulphate minerals is not expected to be relevant to site water chemistry. This is supported by seepage monitoring of waste rock at the Madrid and Doris.
- Hope Bay has average annual temperatures below freezing and ambient temperatures that are below freezing for seven to eight months of the year. Experience at other sites in cold climates has shown that rates of sulphide oxidation decrease significantly under frozen conditions. The duration of sulphide oxidation at surface is therefore expected to be dominantly limited to the summer months of May to September.
- Doris and Madrid underground mines partially intersect permafrost. Groundwater from a deep, regional source will enter the underground mine as inflow through discrete fractures within the talik zone. A proportion of groundwater that will enter the underground zone is highly saline (SRK

2024c). Higher salinity contact waters will result in increased mobility of select trace metals from mine backfill (e.g., arsenic, cobalt, nickel).

- Following blasting, nitrogen leaching from explosive residuals in the form of nitrite, nitrate, and ammonia are expected to be present on the surface of waste rock and ore and wall rock in underground stopes.
- Cyanide is used to extract gold from the ore. Detoxification of residual cyanide in combined detoxified tailings produces degradation products of cyanide including contain ammonia, nitrate, cyanide destruct species (total, WAD, and free cyanide), cyanate and thiocyanate.
- Sulphide minerals in waste rock placed in surface stockpiles and/or as backfill in underground stopes will oxidize and produce secondary oxidation products. Oxidation will cease when waste rock is flooded in the underground mine. During submergence oxidation products present on the surfaces of waste rock and mine wall will solubilize and contribute loadings.

The following sections indicate the CGMs for specific site facilities and material types.

4.2 Waste Rock Stockpiles

Waste rock is produced from underground mining and will be preferentially placed as backfill. Surplus waste rock is hauled to surface and placed in waste rock stockpiles. Stockpiles containing non-PAG waste rock will remain on surface in post-closure at Doris and Madrid South. The following components of the CGM have been identified:

- Weathering in the waste rock stockpiles will occur under well-oxygenated conditions with movement of oxygen into the facilities driven by diffusive, convective, and advective processes.
- Sulphide minerals will oxidize dominantly during summer months to leach acidity, sulfate, and elements contained in the sulphides that will include iron and trace metals (e.g., arsenic, cobalt, and nickel).
- Dissolution of carbonate minerals will neutralize acidity adding iron, calcium, magnesium, and manganese to solution. Under neutral pH, the iron is not expected to be mobile but dissolution of carbonates is expected to contribute to increased manganese concentrations in solution.
- An excess of buffering potential is expected to result in non-acidic weathering conditions in perpetuity. The small proportion of PAG material is expected to have access to abundant NP from intermingled non-PAG rock due to the low proportion of PAG.
- Leaching of residuals remaining from blasting using ammonium nitrate will contribute nitrogen forms to contact water including nitrate, nitrite, and ammonia.
- Solubility of leached components will be constrained by the formation of specific secondary minerals (e.g., gypsum for sulphate and iron oxyhydroxides for iron) and sorptive processes (e.g., adsorption of arsenic to iron oxyhydroxides). Under neutral to basic conditions, elements that occur in solution as oxyanions (e.g., arsenic) are expected to be more mobile than elements that occur in solution as cations (e.g., cobalt, copper, and nickel).

Over time the contribution from oxidation of sulphide minerals will diminish as the reacting quantity of these minerals decrease. In the long term, contact water will remain non-acidic but sulphate concentrations will gradually decrease.

4.3 Ore Stockpiles

Ore will be produced by underground mining methods and stored in temporary surface stockpiles prior to processing. All ore will be processed at the Doris Mill prior to closure. The CGM for ore stored on surface is similar to waste rock stored on surface (Section 4.2), except it will have a shorter residence time on surface, which is projected to result in a lower amount of secondary oxidation products formed on the ore surface due to weathering.

4.4 Underground Mine

The Doris and Madrid underground mines intersect permafrost and talik. Areas of the underground in permafrost are assumed to be unreactive and will not contribute to loadings. Saline groundwater and fresh lake water are expected to enter the talik zones of the underground mines and interact with exposed and blast-fractured rock in the mine walls and backfill. The concentration of water pumped to the surface is expected to represent loadings within this mixed saline and fresh lake groundwater as well as load from contacting the exposed mine walls and rubble, including the residuals of explosives used for blasting, and mine backfill stored in underground stopes. The source term quantifies loadings from mine materials whereas loadings from groundwater are addressed in the water and load balance. Saline contact water results in increased trace metal leaching due to higher mobility of select trace metals (e.g., arsenic, cobalt, and nickel) under saline conditions.

Backfill materials at Doris include detoxified tailings, URF, and CRF, whereas backfill at Madrid (Madrid will be a mixture of URF and CRF only. In talik areas, backfill will weather under oxic conditions and contribute loadings to groundwater infiltrating the underground with oxidation for each backfill type. URF, CRF, and wall rock are defined by the same ML/ARD groups defined in Section 7.3.4. For wall rock in stopes, a reactive rind of 0.3 m of wall rock is assumed to weather and generate loadings. Based on SRK's and Agnico's experience, the process of mixing and placing CRF results in 80 to 85% of waste rock being encapsulated in cement. Accordingly, 15 to 20% of the waste rock volume in CRF will contribute to loadings, as it is assumed that the cement will prevent oxidation and the subsequent generation of secondary weathering products on the waste rock surface. Water contact with CRF may lead to higher pH's due to the presence of abundant alkalinity within cement. Experience at other sites has shown that this may increase solubility of elements occurring in solution as oxyanions (e.g., arsenic) that are more mobile at alkaline pH.

At closure, oxidation products that have accumulated on the surface, mine wall rock, and backfill that were previously flushed are solubilized as the mine refloods.

4.5 Crown Pillar Recovery Trench

Water in the Naartok East CPR trench, a small open pit, will receive chemical loadings from contact water run-off from partially exposed trench walls. The walls are non-PAG with rates of metal leaching from the exposed overburden and blast fractured wall rock influenced by high salinity from melting of saline interstitial porewater within the overburden in the trench walls. The Naartok East CPR trench will be hydraulically connected to the underground mine and will be flooded at closure.

4.6 Doris Mill Process Water

The proposed ore processing flow sheet in the updated mine plan differs from the flow sheet used to produce Doris and Madrid metallurgical tailings for geochemical characterization (SRK 2015b and 2017d) and tailings produced to date at the Doris Mill (SRK 2022). The proposed ore processing flow sheet consists of combining the flotation tailings and sulphide concentrate, leaching the combined mixture with cyanide, then detoxifying the mixture using the Inco-SO2 process (Section 3.3.2). resulting in the production and management of one tailings stream referred to as combined detoxified tailings. The following elements of the conceptual model have been identified:

- Chemical loadings introduced by processing will be derived from leaching of explosives residuals (e.g., nitrate, nitrite, and ammonia), leaching of secondary minerals formed in or present in ore prior to processing, and oxidation of sulphides occurring during processing.
- Cyanide in the tailings solids will undergo destruction by the INCO-SO_2 process which will convert cyanide to ammonia, nitrate, nitrite, WAD and free cyanide, CNO and SCN and will also produce sulphate as a byproduct (Botz, 2001). Formation of cyanide complexation can enhance the aqueous solubility of base metals including cobalt, copper, and nickel at neutral pH and elevated concentrations of these constituents may occur within the process water and the tailings supernatant pond during operations.

4.7 Doris Tailings Impoundment Area

The current ore flow sheet produces combined detoxified tailings as a single stream that will be pumped to the Doris TIA as a slurry. Tailings are conventionally deposited by spigot to the tailings beaches at the Doris TIA until 2033, when a filtration plant will come online and tailings will be dry-stacked on top of the existing tailings beaches. The following components of the CGM have been identified:

- The TIA will receive combined detoxified tailings slurry which will contribute chemical loadings of cyanide destruct species (e.g., total, weak acid-dissociable, and free cyanide) and degradation products (e.g., cyanate and thiocyanate), explosives residues in the form of nitrogen species (e.g., nitrate, nitrite, and ammonia) and dissolved trace metals (e.g., arsenic, cobalt, nickel, and antimony) present within process water to the tailings pond.
- During operations, diffusive transport of oxygen limits the depth of reactive tailings on the beaches to ~10 cm for and thermal modeling indicates that active layer is ~3 m for the dry stack (SRK 2017a). Moreover, the reactive layer of tailings will remain exposed to the atmosphere and

therefore oxidize for a relatively short duration prior to subsequently being covered by freshly deposited tailings.

- In closure, the depth of reactive tailings on the beaches will continue to be limited by diffusive transport of oxygen to ~5 cm. The active permafrost layer in the dry stack will be slightly deeper (~3.2 m) based on thermal modelling. Frozen tailings at depth will be relatively inert and will not contribute loadings to infiltrating waters. Infiltration into the tailings will be limited by an overlying geosynthetic membrane, which is expected to significantly decrease loadings from the tailings.

4.8 Overburden Stockpiles

In general, contact water characteristics from overburden are expected to be weathering of overburden and controlled mainly by equilibration with secondary minerals present and the thawing of pore ice within overburden. Interstitial overburden porewater from Doris overburden was observed to be non-saline and non-acidic with low metal leaching potential. Overburden generally consists of marine clay and silt (TMAC 2020).

At Madrid North, the process of cryoconcentration or the presence of residual saline water in overburden has resulted in overburden with highly saline porewater. The release of saline water from overburden is expected to be the biggest risk from a water quality perspective, with saline water also potentially leading to increased metal mobility. The load contributed to contact water will reflect weathering of non-PAG overburden with moderate metal leaching potential under saline, non-acidic conditions. Saline contact water is expected to occur from the Madrid Overburden Stockpile in the future, however, recent seepage monitoring indicates that seepage is progressively becoming less saline (SRK 2024a), so there is a possibility that non-saline conditions will develop.

4.9 Surface Pads and Infrastructure

All existing infrastructure at Doris and Madrid and the North and South dams at the Doris TIA were constructed using quarry rock (C-Type basalt) with low ML/ARD potential except for selected infrastructure pads at Madrid that were constructed during mining of the Naartok East CPR (e.g., SRK 2024a) . Waste rock used for selected infrastructure currently present at Madrid was confirmed to be non-PAG with a low risk of metal leaching through confirmatory sampling of solids and seepage monitoring. The load from construction rock to contact water will reflect weathering of non-PAG rock with low metal leaching potential under non-acidic conditions.

4.10 Increased Metal Mobility Under Saline Conditions

Saline groundwater from a deep, regional source is expected to infiltrate the underground mines at Doris and Madrid and will be in contact with underground backfill and mine walls. Increased mobility of select metals at neutral pH under saline conditions has been observed at Hope Bay. At Doris, groundwater infiltrating the mine can have varying salinity concentrations. Groundwater had higher observed concentrations of chloride in earlier years of mining at Doris and became more dilute over time through mixing with Doris Lake water. Based on the hydrogeological model for Madrid (SRK, 2024c), salinity is expected to be highest initially and will decrease later in the mine life as the relative contribution of lake water increases. Due to changes in salinity over time, selected trace metals are expected to show higher solubility in earlier years of the mine life compared to later years at both areas.

Saline contact water on the surface has been identified historically at the Madrid Portal Pad, Naartok East Crown Pillar Recovery, and Madrid Overburden Stockpile as naturally occurring saline porewater within overburden or as an artefact of the use of calcium chloride drilling brines.

4.11 Total Suspended Solids

Total suspended solids (TSS) is a measurement of the suspended particles that are present in the contact waters of geological materials. Suspended metals are a component of TSS and originate from erosion of the source material (e.g., construction rock, tailings, waste rock). Suspended metals are expected to not be affected by chemical or mineralogical fractionation during erosion. The sum of suspended metals from erosion of the source material and dissolved metals from leaching of soluble weathering products on source material surfaces yields total metals concentrations.

4.12 Nitrogen Model

Leaching of explosive residuals (nitrite, nitrate, and ammonia) are present on the surfaces of waste rock and ore. An initial flush of nitrogen species is expected after placement of freshly blasted waste rock, followed by reduced chemical loadings over time as the residual amount of remaining explosive residuals decreases.

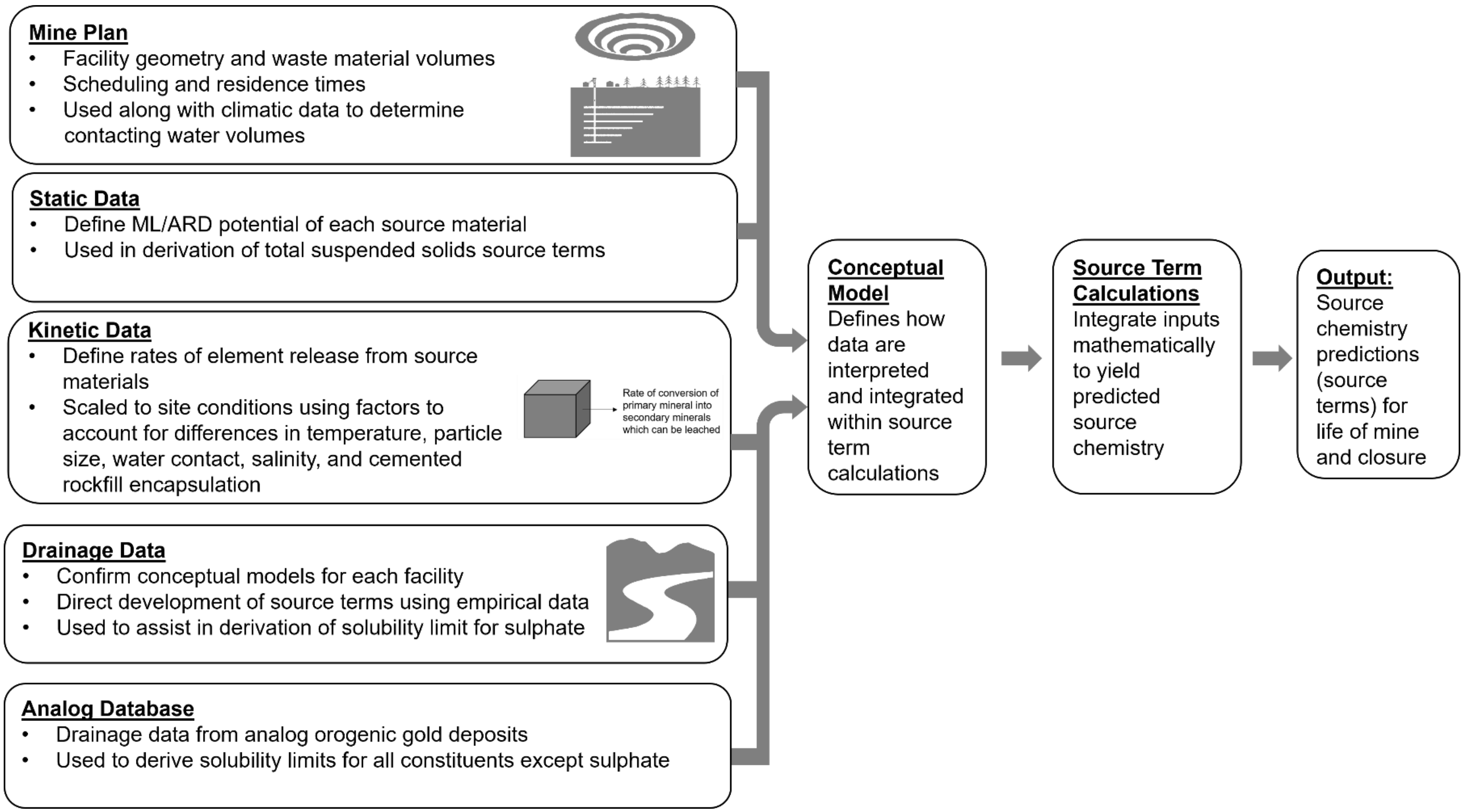
5 Study Design and Calculation Methods

The overall study design for development of water chemistry predictions for the mine facilities at Hope Bay was focused on the integration of the updated mine plan and conceptual model for each mine facility with the existing static, kinetic, and site water quality and seepage monitoring data. The approach for integration of these components in summarized in Figure 5-1 and outlined as follows:

- The **mine plan** was used to define the geometry, mass, and other physical attributes of each source. This included:
  - The mass of material that was weathering and contributing load as a function of time for each source;
  - The maximum and closure footprints (e.g., in units of m^2) of each surface facility (e.g., stockpiles and tailings facilities);
  - The volume and type of water interacting with the source. For surface sources, this is a function of the source footprint and climatic information as well as the proportion of total precipitation that infiltrates a facility. For the underground mine, this is the mine inflows into the talik zone of the mine and the proportions of inflow that are saline water and freshwater.
  - The waste rock produced over the life of mine by rock type and deposit;
  - The schedule of ore processing; and
  - The geometry of underground stopes and the volume and respective proportions of URF, CRF, and/or detoxified tailings already placed (Doris mine only) as backfill in underground stopes as a function of time.
- The **static data** for each source were used primarily to define the ML/ARD potential of the source and determine total suspended metals content.
- The **kinetic data** were used to define the rates of element release from each source under the prevailing non-acidic weathering conditions.
- The **seepage data**, which reflect more than a decade of monitoring the chemistry of water contacting mine facilities at the site, were used in the following ways:
  - The site seepage chemistry data were reviewed (Section 6) to verify that the CGM for each facility was representative;
  - The site seepage data were used to develop empirical based source terms for some sources where the existing data was expected to reflect future conditions at the site. This included source terms for surface pads and infrastructure, overburden stockpiles at Madrid North and Doris, the Naartok East CPR, run-off from the construction rock covers overlying the tailings beaches and dry stack in closure, and process water from ore processing; and
  - The site seepage data were used in the development of solubility limits as part of the analog database (Section 7.3.6).

The review of site seepage data is presented in Section 6, with the methods and inputs used to calculate the source term for each mine facility detailed in Section 7.

Figure 5-1: Summary of Study Design and Calculation Methods



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https://srk.sharepoint.com/:p:/r/sites/NACAPR003316/Deliverables/Interim%20Source%20Term%20Report/040_Figures/HopeBay_SourceCalculation_Approach.pptx?d=w450004cf28f2411da32d0120798264bc&csf=1&web=1&e=sCubJO

6 Evaluation of Site Drainage Chemistry Trends

Drainage trends for the period of 2011 to Q4 2023 were evaluated for each of the stations summarized in Table 6-1, with 2023 seepage stations shown in Appendix C.

Seepage and water quality samples are collected by Hope Bay site staff and shipped to ALS Laboratories in Edmonton, Alberta. SRK conducted rigorous data quality checks that are documented in the annual seepage monitoring results report (i.e., SRK 2024a) and all data were considered acceptable.

Table 6-1: Summary of Seepage Monitoring Sites

Site ID	Site Type	Description	Easting	Northing
Doris Pad I	Waste Rock and Ore Seepage	Seepage from the toe of Doris Pad I	Varies[1]	
Madrid WRSA	Waste Rock Seepage	Seepage from the toe of the Madrid Waste Rock Storage Area (WRSA)		
Madrid CWP Berm		Seepage from the toe of the Madrid Contact Water Pond Berm		
Madrid Overburden Stockpile	Overburden Seepage	Toe of Madrid Overburden Stockpile		
Doris Surface Pads and Infrastructure	Construction Rock Seepage	As-built construction in the Doris area		
Madrid Surface Pads and Infrastructure		As-built construction in the Madrid area		
NDSP		TIA North Dam Seepage at weir		
SDSP		TIA South Dam Seepage		
TL-11	Detoxified Tailings Backfill Seepage	All backfilled tailings stations in the Doris Underground Mine	Varies[2]	
Naartok E CPR	Overburden and Waste Rock Pit Wall Drainage	Naartok East CPR Pit Lake	433711	7550788
MMS1-N	Waste Rock Seepage Collection Pond	Madrid WRSA Collection Pond	433203	7549907
MMS1-S		Madrid WRSA Collection Pond	433191	7549850
MMS1-S1	Waste Rock Drainage	Madrid WRSA Sump	432923	7550015
MMS1-S2		Madrid WRSA Sump	432980	7550185
MMS1-S3		Madrid WRSA Sump	433110	7550107
MMS1-S4		Madrid WRSA Sump	433319	7549842
TL-1	Reclaim Water Quality	Doris TIA Pond at Reclaim Pipeline	434692	7558927
TL-5	Process Water Quality	Process Plant Tailings Slurry Supernatant (Pump Box)	433132	7559181

Source: https://srk.sharepoint.com/sites/NACAPR003316/Internal/100 Source Term Derivation/[HopeBayFEIS_SourceTerms_CAPR003316_KWJ_JED_Rev00.xlsx]

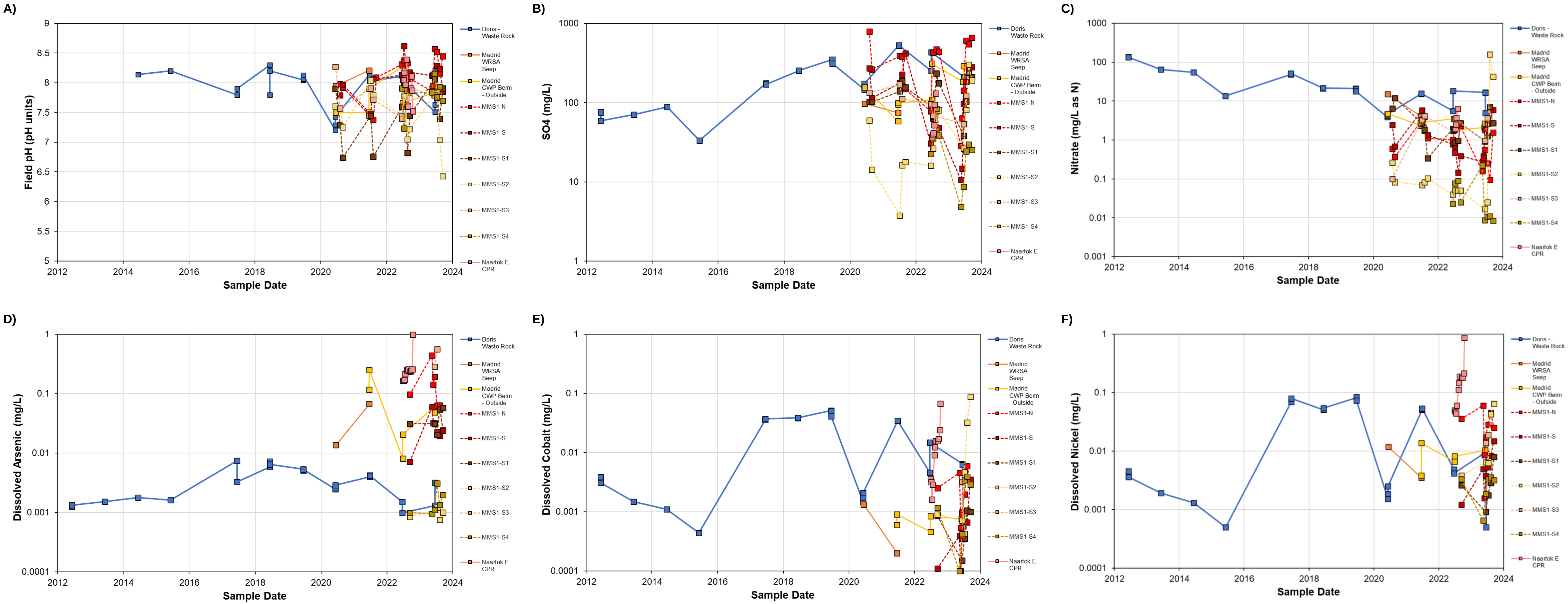
Notes: Coordinates provided in the WGS 84 UTM Zone 13 North

1. Annual seepage surveys are conducted to locate suitable seepage stations; seepage locations at each facility vary by year.
2. Underground seepage surveys are conducted in safe areas (accounting for oxygen levels); survey and seepage stations vary by year.

6.1 Waste Rock and Ore Drainage Trends

Trends in waste rock and ore drainage chemistry from 2012 to 2024 for key parameters are shown in Figure 6-1 with a complete list of time series charts provided in Appendix B.

Figure 6-1: Waste Rock Drainage Trends for Key Parameters. A) Field pH, B) Dissolved Sulphate, C) Nitrate, D) Dissolved Arsenic, E) Dissolved Cobalt, F) Dissolved Nickel



Source: https://srk.sharepoint.com/sites/NACAPR003316/Internal/100 Source Term Derivation/[HopeBayFEIS_SourceTerms_CAPR003316_KWJ_JED_Rev00.xlsx]

6.1.1 Waste Rock and Ore Not Predicted to Develop ARD

Based on the conceptual model and the static and kinetic geochemical characterization work completed to date, waste rock and ore are expected to weather under non-acidic conditions in the long-term.

Trends in waste rock and ore seepage pH and alkalinity (Figure 6-1 and Appendix B) show all seep samples had pHs ≥ 6 with no significant trends. Alkalinity has shown marked seasonal variations influenced by hydrological cycles but continues to remain stable in all waste rock and ore stockpile seeps in the range of 30 to 380 mg/L as $CaCO_3$.

6.1.2 Sulphate Leaching is Correlated with Cumulative Rock Mass

Sulphate is expected to be correlated with cumulative rock mass because sulphate has no observed solubility limits up to the gypsum saturation limit. This was confirmed by review of the site seepage data (Figure 6-1), which showed that sulphate increased over time at Doris as waste rock was progressively placed on waste rock stockpiles from 2015 to 2022.

6.1.3 Element Leaching at Neutral pH is Low with Exception of Arsenic

Low trace element concentrations were observed under non-acidic conditions present in the waste rock stockpiles (Figure 6-1). The exception was arsenic, which showed low concentrations at Doris (all concentrations <0.01 mg/L) but higher concentrations at Madrid North (median of 0.028 mg/L; P95 of 0.29 mg/L). This is consistent with the geochemical characterization of these deposits (Sections 3.1.1 and 3.1.2), which shows the presence of gersdorffite and higher concentrations of arsenic from waste rock at Madrid. Sulphate concentrations at Doris (median of 210 mg/L; P95 of 530 mg/L) were relatively low and similar to Madrid North (median of 100 mg/L; P95 of 470 mg/L). Cobalt and nickel concentrations in seepage were also low and showed equivalent trends for Doris waste rock, whereas at Madrid North concentrations varied with medians of 0.00091 and 0.0065 mg/L, respectively and 95th percentile concentrations of 0.0073 and 0.046 mg/L, respectively.

Most of the observed drainage concentrations for the key metal leaching parameters in Figure 6-1 (sulphate, arsenic, cobalt, and nickel) were shown to be lower than the solubility limits (Table 7-15), indicating that the facility was not large enough, or release rates were not high enough, for concentrations to reach solubility limits.

6.1.4 Blast Residual Leaching is Correlated with Waste Rock Placement

Reviewing trends for nitrate (Figure 6-1), nitrite, (Appendix B), and ammonia (Appendix B), nitrate, nitrite, and ammonia showed similar trends from the start of monitoring, with decreases in concentrations during periods without waste rock placement and increases when freshly blasted waste rock is placed. Nitrogen species concentrations at Madrid North show oscillating trends, which also suggests the decay of nitrogen species following initial leaching of freshly blasted waste rock and confirms the conceptual model for nitrogen (Section 4.12). Nitrate is the dominant nitrogen form, with concentrations in the range of 0.0083 to 158 mg/L as N (median of 2.3 mg/L as N) followed by ammonia (0.005 to 69 mg/L as N; median of 0.35 mg/L as N) and nitrite (<0.001 to 1.3 mg/L as N; median of 0.02 mg/L as N).

6.1.5 Solubility Constraints Influence Seepage Chemistry

The conceptual model and source term development methods account for concentrations of most constituents to be limited by solubility constraints.

Waste rock seepage data for sulphate (Figure 6-1) showed that seepage concentrations in waste rock and ore seepage from 2012 to 2024 (max of 790 mg/L) were lower than the calculated gypsum solubility limit for neutral pH conditions (1800 mg/L; Section 7.3.6). However, the expected maximum volumes of the future waste rock stockpiles (Table 7-6) far exceed the current stockpile volumes meaning that sulphate may reach the gypsum solubility limit in the future.

Other constituents expected to be constrained at neutral pH including arsenic, cobalt, chromium, copper, nickel, and zinc showed lower concentrations than the observed upper bounds derived using the analog database (Section 7.3.6; Table 7-15).

6.2 Construction Rock and TIA Dam Seepage Trends

Generally low constituent concentrations were observed in seepage from construction rock and the TIA dam (Appendix C). Sulphate concentrations ranged from 0.3 to 110 mg/L (median of 16 mg/L) and arsenic concentrations ranged from <0.0001 to 0.015 mg/L (median of 0.00055 mg/L), which was notably lower than waste rock (Section 6.1.3). This confirms the conceptual model for construction rock (Section 4.9).

6.3 Reclaim and Process Water Trends

Trends in the TIA pond water (indicated at the reclaim or TL-1) and process water (TL-5) chemistry from 2011 to 2024 for key parameters are shown in Figure 6-2 with a complete list of time series charts provided in Appendix D.

6.3.1 Ore Processing Results in Dissolution of Oxidation Products Present in Ore

Generally low metals concentrations were observed under non-acidic conditions present in the Doris TIA reclaim water, whereas metals concentrations in process water were consistently higher (Figure 6-2; Appendix D). This indicates that ore processing resulted in a flush of load from the ore to process water. Sulphate showed a large increase in reclaim water from February 2017 onwards which coincides with the start of tailings discharge into the TIA and was elevated in process water (medians of 660 and 1900 mg/L, respectively; P95 of 850 and 2,800 mg/L, respectively). Similar trends are observed in metals concentrations after 2017, particularly arsenic (medians of 0.0019 and 0.0028 mg/L, respectively; P95 of 0.0028 and 0.011 mg/L, respectively) and nickel (medians of 0.0093 and

0.071 mg/L, respectively; P95 of 0.021 and 0.54 mg/L, respectively), although concentrations were still low in reclaim water.

Compared to the 2017 FEIS predictions for base case source terms for process water, observed concentrations of arsenic and cobalt at TL-5 were within range of Doris (0.0079 and 0.0096 mg/L, respectively; SRK 2017a), whereas cobalt was within range of Madrid North (0.0096 mg/L). Observed sulphate and nickel concentrations were higher than the 2017 FEIS base case predictions for Doris (130 and 0.013 mg/L, respectively) and Madrid (490 and 0.07 mg/L, respectively).

6.3.2 Detoxified Cyanide Species and Degradation Products

The process water chemistry results (Figure 6-2; Appendix D) show that at TL-1 and TL-5, the cyanide degradation products ammonia (median concentrations of 4.1 and 27 mg/L as N, respectively), cyanate (median concentrations of 2 and 38 mg/L, respectively), and thiocyanate (median concentrations of 0.5 and 18 mg/L, respectively) were consistently present with concentrations uniformly higher in process water. Nitrate, which can form from oxidation of reduced nitrogen forms such as ammonium (NH_4) was also consistently present with median concentrations of 3.9 and 14 mg/L as N, respectively. Sulphate, which is produced as a byproduct of the Inco-SO_2 detoxification process (Botz, 2001) was also consistently present (median of 660 and 1900 mg/L, respectively).

Cyanide destruct species measured in the reclaim and process water were total cyanide (medians of 0.045 and 1.5 mg/L, respectively), weak acid dissociable (WAD) cyanide (medians of 0.005 and 0.11 mg/L, respectively) and free cyanide (medians of 0.0056 and 0.076 mg/L, respectively).

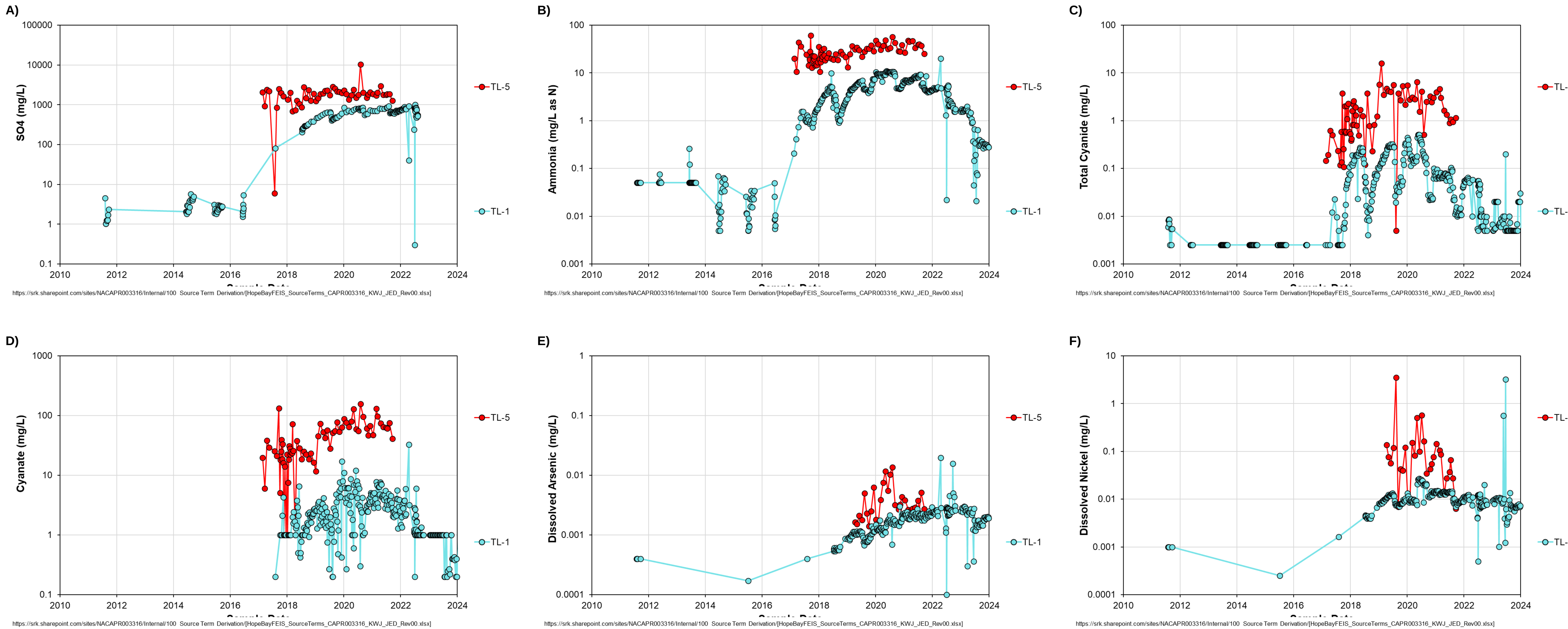
6.3.3 Cyanide Increases Solubility of Some Divalent Metals

Based on the conceptual model (Section 4.6), formation of strong acid dissociable cyanide complexes may lead to an increased solubility of several divalent metals including cadmium, cobalt, copper, iron, nickel and zinc at neutral pH.

Review of the water chemistry trends for TL-1 and TL-5 (Figure 6-2; Appendix D) shows that strong acid dissociable cyanide complexes could be leading to increased solubility of base metals relative to typical levels observed in waste rock seepage at neutral pH, with dissolved concentrations of copper up to 150 mg/L and nickel up to 3.5 mg/L (both of~40x higher than the maximum waste rock seepage concentrations). Cadmium, cobalt, iron, and zinc levels did not appear strongly influenced by the presence of cyanide species as they showed similar levels in waste rock and ore seepage.

The presence of elevated concentrations of these parameters means the source term calculation methods will need to incorporate the site drainage data or results from metallurgical test work rather than utilizing results of laboratory kinetic tests which were operated using lixiviant that did not contain strong acid dissociable cyanide complexes.

Figure 6-2: Reclaim and Process Water Trends for Key Parameters. A) Dissolved Sulphate, B) Ammonia, C) Total Cyanide, D) Cyanate, E) Dissolved Arsenic, F) Dissolved Nickel



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7 Geochemical Source Terms

7.1 Introduction

7.1.1 Definition of a "Source Term"

Source terms are numerical values that estimate contact water chemistry for each source identified in the conceptual geochemical model for the site (Section 4).

7.1.2 Use of Site Water Quality Data in Source Term Development

At Hope Bay, review of the site water quality database (Section 6) identified a database representing numerous water quality monitoring points that have been sampled monthly during mine operations. In some cases, the water quality monitoring points come close to representing undiluted source chemistry for construction rock, overburden, and process water. The site water quality database has therefore been incorporated into the source term development methods.

7.1.3 Evaluation of Uncertainty

Source terms are calculated based on existing site water quality monitoring data, laboratory kinetic data, and laboratory static data for the geological materials within the mine plan. The calculations contain uncertainty which need to be reflected in the development of the water quality model and in the interpretation of model results. The approach used for Hope Bay incorporates uncertainty by modeling source terms that reflect two conditions or cases. The first case uses typical inputs to the source term calculation and is intended to represent the expected outcome of the planned waste and water management approach. This is referred to as the "Base Case". A second case ("Upper Case") considers upper limit uncertainty in the inputs that are intended to provide an upper bound of the calculated source terms.

Two sources of geochemical uncertainty were incorporated in the model:

- The input weathering rates or site water quality statistics used for each source; and
- The solubility control for each element.

The input weathering rates or loadings were varied to account for potential variations in material reactivity. The solubility control for each element was varied for parameters with identified solubility controls to reflect uncertainty in site-specific solubility controls.

Base Case and Upper Case scenarios for input weathering rates and solubility controls have been determined using median (Base Case) and 95th percentile (Upper Case) statistics.

7.1.4 List of Source Terms

Table 7-1 provides a list of the source terms identified based on the mine plan and conceptual models.

Table 7-1: Source Term List

Term(s)	Source	Phase	Conceptual Model
2, 3, 8, 9, 11, 13	Waste Rock Stockpiles	Operations (Doris (2), Madrid North (2), Patch 7, Madrid South)	Load will reflect weathering under non-acidic conditions which will be dissolved in infiltrating waters.
4, 14		Closure (Doris, Madrid South)	Load will reflect weathering under non-acidic conditions which will be dissolved in infiltrating waters.
1, 10, 12, 15	Ore Stockpiles	Operations (Doris, Madrid North, Patch 7, Madrid South)	Load will reflect weathering of ore under non-acidic conditions which will be dissolved in infiltrating waters.
5, 17	Overburden Stockpiles	Operations (Doris and Madrid North)	Load will reflect release of porewater and equilibration with secondary minerals present within overburden under non-acidic conditions.
18		Closure (Madrid North)	Madrid North overburden contact water is assumed to be reclaimed (non-saline) at closure, with chemistry reaching similar concentrations to background following closure.
16	Naartok East Crown Pillar Recovery	Operations	Load from weathering of waste rock and overburden under non-acidic, saline conditions which will be dissolved in infiltrating waters. The trench is hydraulically connected to the Madrid North underground via the portal, so at closure the water will flow into the UG workings.
25	Surface Pads and Infrastructure and TIA Dam	Operations and Closure	Load will reflect weathering of construction (quarry) rock and non-PAG, low metal leaching potential waste rock under non-acidic conditions which will be dissolved in non-saline infiltrating waters. Infrastructure will be left in place at closure.
26, 27	TIA Tailings Beaches	Operations	Exposed tailings beaches will weather under unsaturated conditions with the depth of reactive tailings limited by diffusive transport of oxygen. Load will be dissolved by infiltration. The tailings dry stack will be implemented in 2033 which will substantially decrease the exposed footprint of the beaches.
28, 29, 30		Closure	The closure plan involves a geomembrane cover directly over the tailings and an overlying 1 m thick layer of construction rock. Load will represent run-off from the construction rock cover and an assumed 5% infiltration (Power et al., 2017) through the geomembrane, which will dissolve load developed within the reactive depth of the underlying tailings under non-acidic conditions. Sensitivity case with no geomembrane cover is also considered.
31	TIA Dry Stack	Operations	Exposed tailings in the dry stack will weather under unsaturated conditions with rates of sulphide oxidation limited by the depth of the active layer. Load will be dissolved by infiltration.
32, 33, 34		Closure	In closure, the dry stack has the same cover configuration as the tailings beaches, except that a deeper reactive depth is expected based on thermal modelling. Sensitivity case with no geomembrane cover is also considered.
6, 19, 21, 23	Underground Mine	Operations (Doris, Madrid North, Patch 7, Madrid South)	Load will reflect weathering of fractured rock on stope walls (0.3 m assumed reactive thickness), URF and CRF, and detoxified tailings (Doris only). Load will be solubilized by groundwater inflows that are fresh or saline, the latter which will result in increased leaching of some metals. Oxidation and weathering will occur in areas not in permafrost (talik zone).
7, 20, 22, 24		Closure (Doris, Madrid North, Patch 7, Madrid South)	Underground stopes and backfill materials will accumulate secondary oxidation products due to inefficiencies of leaching which will be flushed as a one-time load as the underground is reflooded at closure.
35, 36a, 36b, 36c, 36d, 37, 38, 39, 40, 41, 42, 43, 44	Total Suspended Solids (TSS)	Operations (Construction Rock, Doris TIA (4), Waste Rock (4), Underground Mine (4))	Represents total metals content in TSS from: construction rock, tailings, waste rock, and underground areas for all deposits. This is used to convert dissolved concentrations to total concentrations in the WLB based on expected TSS. The calculation approach assumes the source material is eroded without any chemical or mineralogical fractionation.
45	Process Water	Operations	Load will reflect flushing of soluble products in ore from Doris, Madrid North, Patch 7, and Madrid South, as well as blast residues and byproducts of the cyanide destruct circuit. Presence of cyanide complexes will likely increase solubility of some divalent metals; particularly copper.
--	Nitrogen Loadings	Operations	Load will reflect leaching of explosives residuals. Loadings are calculated in the WLB model based on loss factors and speciation that have been calibrated with site data.

Source: https://srk.sharepoint.com/sites/NACAPR003316/Internal/100 Source Term Derivation/[HopeBayFEIS_SourceTerms_CAPR003316_KWJ_JED_Rev00.xlsx]

7.2 Source Term Development Methods

The following sections describe calculation methods for each source term. Inputs are described in Section 7.3.

7.2.1 Unsaturated Source Terms

Source terms calculated using the unsaturated calculation method are summarized in Table 7-2 and include all waste rock and ore stockpiles (Term 1 to Term 4, Term 8 to Term 15), underground mines during operations (Term 6, Term 19, Term 21, Term 23), and infiltration to exposed tailings beaches and dry stack during operations and closure (Term 26, Term 27, Term 29 to Term 31, Term 31, Term 33, Term 34).

Source terms for unsaturated waste rock sources were calculated by deriving field scale weathering rates followed by calculation of load released using the following methods:

- Surface stockpiles: tonnages derived from waste facility tonnages and infiltration volumes derived from facility footprints from the updated mine plan engineering designs, mean annual precipitation (MAP) and infiltration rates (Section 7.3.5). The load was dissolved in the infiltrating waters with the predicted concentrations compared to solubility controls.
- Underground mine: tonnages derived from backfill volumes and stope surface areas and infiltration volumes derived from groundwater inflow rates into the talik zone of the mine (SRK 2024c). Tonnages were apportioned according to the ratio of saline and freshwater groundwater to calculate loads. Loads were dissolved in the inflowing groundwater volume. Predicted concentrations were compared to solubility controls.

The steps in the calculation are:

1. Determine input weathering rates (R_P) from laboratory tests (HCTs) for each chemical parameter (P).
    a. For underground source terms, input weathering rates (R_P) are multiplied by a saline scaling factor (k_s) to account for increased metal mobility from interactions with saline groundwater. The saline rates are applied to the proportion of inflowing waters that are expected to be saline, whereas the unscaled input weathering rates are applied to the proportion of inflowing freshwater.
2. Scale laboratory measured weathering rates (R_P) to the field scale (R_P') for each material type by accounting for differences in particle size (k_p), temperature (k_t), and contact with infiltrating or inflowing waters (k_c).

$$R_P' = R_P \times k_t \times k_p \times k_c$$

3. Calculate load available for flushing (LP(t)) by multiplying the field scale weathering rate (R_P') by the mass of the facility at time (t) (M(t)):

$$L_P(t) = R_P' \times M(t)$$

   a. Tonnages of reactive waste rock in CRF were calculated using a CRF factor (k_e) to account for waste rock encapsulated in cement, which is assumed to be unreactive.

4. Dissolve the available load at time (t) ($L_p(t)$) into the infiltration volume at time (t) (I(t)) to obtain potential contact water constituent concentrations ($C_P(t)$).

$$C_P(t) = L_P(t) \div I(t)$$

5. Compare $C_p(t)$ to expected solubility limits for parameter p (C_p') and use the following rules to calculate the source term at time t for parameter p (C_p"(t):

$$\text{If } C_P(t) > C_P' \text{ then } C_P''(t) = C_P'$$

$$\text{If } C_P(t) < C_P' \text{ then } C_P''(t) = C_P(t)$$

7.2.2 Source Terms Developed Based on Site Drainage Chemistry Data

Doris Overburden Stockpile

There was a single applicable seepage sample from the Doris overburden stockpile that was applied directly as the source term. The seepage sample showed that drainage from the stockpile was non-acidic and non-saline with low metals concentrations.

Madrid North Overburden Stockpile

Review of seepage data from the Madrid North Overburden Stockpile showed source chemistry that was non-acidic and saline with elevated metals concentrations for select metals due to increased solubility in saline conditions. As trends were observed to be showing a stable or decreasing trend as of the latest data, the source term was calculated using the median (base case) and 95th percentile (upper case) concentrations for samples collected from Q3 2020 to Q4 2023.

Naartok East CPR Trench

Review of drainage data from the Naartok East CPR trench (Section 6.1) showed source chemistry that was non-acidic and saline and with elevated metals concentrations for select metals (e.g., arsenic, cobalt, and nickel) relative to non-saline sources onsite. As trends were observed to be increasing for the period of data collected (Figure 6-1), the source term was calculated using the 75th percentile (base case) and 95th percentile (upper case) concentrations for samples collected from Q2 2020 to Q4 2022.

Surface Pads and Infrastructure and TIA Dams

Review of seepage data from surface pads and infrastructure and the TIA dams (Section 6.2) showed source chemistry that was non-acidic with overall low metals concentrations relative to seepage chemistry for waste rock and ore. As trends were observed to be stable over time with no significant trends, the source term was calculated using the median (base case) and 95th percentile (upper case) concentrations of the construction rock seepage data from Q3 2012 to Q4 2023.

Doris TIA Tailings Closure Cover

The source geological materials for the tailings cover at closure is equivalent to the construction rock used for surface pads and infrastructure and TIA Dam. The source term was calculated using the same method as for surface pads and infrastructure.

Process Water

Review of reclaim and process water data (Section 6.3) showed source chemistry that was non-acidic with relatively low metals concentrations in reclaim water and elevated metals concentrations in process water. As trends were observed to be stable as of the latest data, the source term component representing Doris process water was calculated using the median (base case) and 95th percentile (upper case) concentrations of process water data constrained to the period of Doris ore processing (Q1 2017 to Q1 2018). The components representing Madrid North, Patch 7, and Madrid South process water were calculated using the median (base case) and 95th percentile (upper case) concentrations of metallurgical test process water data for mixed and combined detoxified tailings (Madrid North only). Madrid North process water data was used to represent Patch 7 and Boston process water data was used to represent Madrid South based on geochemical comparisons (Section 3).

7.2.3 Flushing Sources

Flushing source terms were needed for underground stope walls and backfilled waste rock that will be flooded at closure. Secondary oxidation products accumulate on the surfaces of these materials. The source term assumes that oxidation products not flushed by infiltrating waters during operations will be solubilized by waters reflooding the mine at closure.

For the underground stopes and backfilled waste rock from the Doris, Madrid North, Patch 7, and Madrid South deposits (Term 7, Term 20, Term 22, Term 24), the loads available for flushing was calculated using the unsaturated source term method outlined in Section 7.2.1 based on the material volumes in the final year of mining operations and residence times of 11, 59, 57, and 56 years, respectively, which reflects the average weathering period for stope walls and mine backfill during operations and the reflood period (Table 7-17). The contact factor (k_c) was adjusted to 1 minus the operational contact factor to reflect the fact that all remaining load is expected to be flushed during inundation. Scaling of laboratory measured weathering rates (R_P) to the field scale (R_P') for flushing sources is as follows:

$$R_P' = R_P \times k_t \times k_p \times (1-k_c)$$

Calculation of the available load for flushing and subsequent conversion to concentrations is the same as unsaturated source terms (Section 7.2.1) except that for concentration conversions, the load is dissolved into the total void volume in each underground mine, which assumes that the underground will be completely flooded.

7.2.4 Metals Content in Total Suspended Solids

The source terms reflect dissolved concentrations resulting from mineral weathering reactions and subsequent dissolution of oxidation products by contact water. However, guidelines for receiving water quality are based on total metals concentrations for most parameters. Therefore, a method to quantify total metals concentrations uses the following equation:

$$[M]_{Total}(mg/L) = [M]_{dissolved}(mg/L) + \frac{[M]_{solid}(mg/kg) \times TSS(mg/L)}{10^6(mg/kg)}$$

Where:

- $[M]_{dissolved}$ is the concentration calculated for geochemical source terms representing geochemical weathering processes for the applicable project feature.
- $[M]_{solid}$ is the metals concentration in the solid (e.g. construction rock, waste rock, tailings) that could be eroded at the source to represent TSS in contact water. The metals concentrations used for source terms were the median and 95th percentile statistics of static datasets for the base case and upper case, respectively, for each source material.
- TSS is total suspended solids concentration within contact water which is assumed to be at the regulatory limit for the purposes of the source terms.

The static datasets used for source terms for each source material were as follows:

- Construction rock – Construction rock monitoring samples collected on-site from 2011 to 2023.
- Doris tailings – Flotation and detoxified tailings monitoring samples collected on-site from 2017 to 2021, weighed by proportion used to produce combined detoxified tailings.
- Madrid North and Patch 7 tailings – Mixed tailings humidity cell static data from Madrid North, also used as an analog for Patch 7.
- Madrid South tailings - Flotation and detoxified tailings humidity cell static data, weighed by proportion used to produce combined detoxified tailings. Mixed tailings data were not available.
- Waste rock – Waste rock from each deposit collected for ABA and metals characterization programs.

The method is based on the simplifying assumption that the erosion of source materials does not result in chemical or mineralogical fractionation.

7.3 Source Term Inputs

7.3.1 Summary

Table 7-2 summarizes the inputs used for the source terms. The following sections describe each input.

Table 7-2: Summary of Source Term Inputs

Term	Source	Calculation Method	Year from	Year to	Infiltration	Rate Scaling				Reporting Unit
					L/m2/yr	Temperature	Particle Size	Contact	Composite	
1	Doris Pad T Ore Pile	Unsaturated Source	2033	2033	62	0.25	0.2	0.8	0.04	mg/L
2	Doris Waste Rock Stockpile #1 (West)	Unsaturated Source	2028	2028	62	0.25	0.2	0.8	0.04	mg/L
3	Doris Waste Rock Stockpile #2 (Pad U)	Unsaturated Source	2028	2028	62	0.25	0.2	0.8	0.04	mg/L
4	Doris Waste Rock Stockpile #2 (Pad U) - Closure	Unsaturated Source	2038	--	62	0.25	0.2	0.8	0.04	mg/L
6	Doris UG Mine Area	Unsaturated Source	2024	2038	--	0.25	0.2[1 + 2] 1[3]	0.2[1] 0.15[2 + 3]	0.01[1] 0.0075[2] 0.038[3]	mg/L
7	Doris UG Mine Area - Reflooding	Flushing Source	2038	--	--	0.25	0.2[1 + 2] 1[3]	0.8[1] 0.85[2 + 3]	0.04[1] 0.043[2] 0.21[3]	mg/L
8	Madrid North Waste Rock Stockpile #1 (South, Existing)	Unsaturated Source	2030	2030	62	0.25	0.2	0.8	0.04	mg/L
9	Madrid North Waste Rock Stockpile #2 (North)	Unsaturated Source	2030	2030	62	0.25	0.2	0.8	0.04	mg/L
10	Madrid North Ore Pile	Unsaturated Source	2029	2029	62	0.25	0.2	0.8	0.04	mg/L
11	Patch 7 Waste Rock Stockpile	Unsaturated Source	2034	2034	62	0.25	0.2	0.8	0.04	mg/L
12	Patch 7 Ore Pile	Unsaturated Source	2033	2033	62	0.25	0.2	0.8	0.04	mg/L
13	Madrid South Waste Rock Stockpile	Unsaturated Source	2037	2037	62	0.25	0.2	0.8	0.04	mg/L
14	Madrid South Waste Rock Stockpile - Closure	Unsaturated Source	2041	2041	62	0.25	0.2	0.8	0.04	mg/L
15	Madrid South Ore Pile	Unsaturated Source	2038	2038	62	0.25	0.2	0.8	0.04	mg/L
19	Madrid North UG Mine Area	Unsaturated Source	2024	2041	--	0.25	0.2	0.2[1] 0.15[2]	0.01[1] 0.0075[2]	mg/L
20	Madrid North UG Mine Area - Reflooding	Flushing Source	2041	--	--	0.25	0.2	0.8[1] 0.85[2]	0.04[1] 0.043[2]	mg/L
21	Patch 7 UG Mine Area	Unsaturated Source	2024	2041	--	0.25	0.2	0.2[1] 0.15[2]	0.01[1] 0.0075[2]	mg/L
22	Patch 7 UG Mine Area - Reflooding	Flushing Source	2041	--	--	0.25	0.2	0.8[1] 0.85[2]	0.04[1] 0.043[2]	mg/L
23	Madrid South UG Mine Area	Unsaturated Source	2024	2041	--	0.25	0.2	0.2[1] 0.15[2]	0.01[1] 0.0075[2]	mg/L
24	Madrid South UG Mine Area - Reflooding	Flushing Source	2041	--	--	0.25	0.2	0.8[1] 0.85[2]	0.04[1] 0.043[2]	mg/L
26	Doris TIA Exposed Tailings Beaches (Operations, Pre Dry Stack)	Unsaturated Source	2024	2033	30	0.15	1	1	0.15	mg/L
27	Doris TIA Exposed Tailings Beaches (Operations, Post Dry Stack)	Unsaturated Source	2033	2041	30	0.15	1	1	0.15	mg/L
29	Doris TIA Exposed Tailings Beaches (Closure, Cover Case: Infiltration)	Unsaturated Source	2041	--	0.5	0.15	1	1	0.15	mg/L
30	Doris TIA Exposed Tailings Beaches (Closure, Uncovered Case)	Unsaturated Source	2041	--	62[4] 30[3]	0.15	1	1	0.15	mg/L
31	Tailings Dry Stack (Operations)	Unsaturated Source	2033	2041	30	0.15	1	1	0.15	mg/L
33	Tailings Dry Stack (Closure, Cover Case: Infiltration)	Unsaturated Source	2041	--	0.5	0.15	1	1	0.15	mg/L

Term	Source	Calculation Method	Year from	Year to	Infiltration	Rate Scaling				Reporting Unit
34	Tailings Dry Stack (Closure, Uncovered Case)	Unsaturated Source	2041	--	62[4] 30[3]	0.15	1	1	0.15	mg/L
45	Loading Added to Process Water by Ore Processing	Site Drainage Data (Doris) and Aging Test Data (Madrid North, Patch 7, Madrid South)	2024	2041	--	--	--	--	--	mg/L

Source: https://srk.sharepoint.com/sites/NACAPR003316/Internal/100 Source Term Derivation/[HopeBayFEIS_SourceTerms_CAPR003316_KWJ_JED_Rev00.xlsx]

Notes:

1. Waste rock
2. CRF
3. Tailings
4. Construction Rock

7.3.2 Release Rates

Weathering rates in units of mg/kg/week for each waste rock and tailings humidity cell tests were calculated as averages following the initial flush of soluble weathering products accumulated prior to testing of the samples.

The overall input weathering rates for each material type were calculated as the median (base case) and 95th percentile (upper case) of all available humidity cell tests by material type and deposit. Weathering rates from waste rock humidity cell tests were grouped according to life of mine rock type proportions and ML/ARD potential as described in Section 7.3.4 and tailings humidity cells were grouped according to relevant tailings types in the previous and proposed flow sheets (Section 3.3.2).

Using the methods outlined above, select input weathering rates used to derive base case source terms are shown in Table 7-3 and the full list of input weathering rates used to derive base case and upper case source terms are shown in Appendix E.

Saline scaling factors (k_s) were applied to select constituents and varied for waste rock and tailings (Table 7-4 and Table 7-5, respectively). Scaling factors represent the ratio of saline to deionized SFE concentrations and were applied for constituents with ratios greater than 1. The scaling factors were applied for underground mine backfill and stope walls that will be in contact with saline groundwater (Sections 4.4 and 4.10). For the underground source terms, saline scaling factors are applied to weathering rates to account for increased metal mobility under saline conditions (Section 7.2.1).

Table 7-3: Selected Waste Rock, Ore, and Tailings Input Weathering Rates Used to Calculate Base Case Source Terms

Material	Group	SO4	Alkalinity	Al	Sb	As	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Hg	Mo	Ni	K	Se	Na	U	Zn
Units		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Doris Ore	--	3.1	10	0.0036	0.000026	0.00011	0.0000024	3.1	0.000049	0.000022	0.00018	0.00099	0.000014	1.4	0.0022	0.0000041	0.00011	0.000051	0.12	0.000027	0.042	0.0000019	0.00047
Madrid North Ore	1	25	8.7	0.003	0.000061	0.0067	0.0000038	8.7	0.000045	0.0003	0.00016	0.0042	0.000054	4.6	0.002	0.0000009	0.0003	0.0021	0.13	0.000071	0.09	0.0000037	0.00033
	2	10	9.3	0.025	0.00039	0.077	0.0000023	3.4	0.000069	0.00055	0.00024	0.0047	0.0000083	1.8	0.0039	0.0000026	0.00018	0.00089	0.15	0.000065	0.082	0.0000022	0.0019
	Overall	23	8.7	0.0058	0.0001	0.016	0.0000036	8.1	0.000048	0.00033	0.00017	0.0042	0.000049	4.2	0.0022	0.0000011	0.00028	0.002	0.13	0.00007	0.089	0.0000035	0.00052
Patch 7 Ore	1	25	8.7	0.003	0.000061	0.0067	0.0000038	8.7	0.000045	0.0003	0.00016	0.0042	0.000054	4.6	0.002	0.0000009	0.0003	0.0021	0.13	0.000071	0.09	0.0000037	0.00033
	2	10	9.3	0.025	0.00039	0.077	0.0000023	3.4	0.000069	0.00055	0.00024	0.0047	0.0000083	1.8	0.0039	0.0000026	0.00018	0.00089	0.15	0.000065	0.082	0.0000022	0.0019
	Overall	23	8.7	0.0057	0.0001	0.015	0.0000036	8.1	0.000048	0.00033	0.00017	0.0042	0.000049	4.2	0.0022	0.0000011	0.00028	0.002	0.13	0.00007	0.089	0.0000035	0.00052
Madrid South Ore	--	10	9.3	0.025	0.00039	0.077	0.0000023	3.4	0.000069	0.00055	0.00024	0.0047	0.0000083	1.8	0.0039	0.0000026	0.00018	0.00089	0.15	0.000065	0.082	0.0000022	0.0019
Doris Waste Rock	--	0.82	12	0.026	0.000028	0.0003	0.0000027	2.9	0.000056	0.000017	0.00021	0.0036	0.000018	1.4	0.0043	0.0000059	0.000057	0.000037	0.2	0.000033	0.15	0.0000041	0.00027
Madrid North Waste Rock	1	5.9	7.7	0.011	0.00075	0.084	0.0000024	3.2	0.000063	0.00035	0.0002	0.0045	0.000026	1.5	0.0029	0.0000036	0.00039	0.0023	0.16	0.000099	0.11	0.0000073	0.0016
	2	1.2	9	0.025	0.0001	0.007	0.0000026	2.3	0.000068	0.000073	0.00026	0.005	0.000022	0.94	0.0021	0.0000049	0.00014	0.00011	0.22	0.000056	0.14	0.0000091	0.00094
	Overall	4.3	8.2	0.016	0.00053	0.057	0.0000025	2.9	0.000065	0.00025	0.00022	0.0047	0.000025	1.3	0.0026	0.0000041	0.0003	0.0016	0.18	0.000084	0.12	0.0000079	0.0014
Patch 7 Waste Rock	1	3.2	7.3	0.012	0.00069	0.053	0.0000024	2.3	0.000065	0.00026	0.00019	0.0045	0.000021	1.2	0.0029	0.0000039	0.00037	0.0011	0.16	0.00009	0.12	0.0000072	0.0017
	2	1.8	9.4	0.02	0.00025	0.027	0.000003	2.4	0.000068	0.00024	0.00031	0.0048	0.000023	1.2	0.0023	0.0000055	0.00032	0.00023	0.37	0.000068	0.14	0.000015	0.0014
	Overall	2.5	8.3	0.016	0.00048	0.04	0.0000027	2.4	0.000067	0.00025	0.00025	0.0047	0.000022	1.2	0.0026	0.0000047	0.00035	0.0007	0.27	0.000079	0.13	0.000011	0.0016
Madrid South Waste Rock	--	1	9.4	0.018	0.00028	0.0025	0.0000023	2.4	0.000045	0.000028	0.0003	0.0013	0.000024	1.2	0.0023	0.00000091	0.000081	0.00005	0.26	0.000046	0.12	0.0000017	0.00033
Doris Flotation Tailings	--	4.8	25	0.016	0.00011	0.0027	0.0000054	6.1	0.000066	0.000062	0.0009	0.0053	0.000028	2.7	0.016	0.0000019	0.00068	0.00000041	0.21	0.00013	0.16	0.0000096	0.00033
Doris Mixed Tailings	--	15	15	0.013	0.000032	0.001	0.0000042	8.9	0.000054	0.00012	0.00065	0.015	0.000042	6.1	0.016	0.0000011	0.00038	0.00018	0.3	0.0001	0.13	0.0000072	0.001
Doris Detox Tailings	--	300	22	0.03	0.000037	0.00052	0.00022	80	0.00024	0.0057	0.0013	0.15	0.00019	27	0.32	0.00000095	0.000068	0.0043	1.7	0.0062	2.2	0.000027	0.015
Madrid North Mixed / Combined Detoxified Tailings	--	140	52	0.0067	0.0011	0.037	0.000016	37	0.0016	0.006	0.00062	0.067	0.00005	30	0.021	0.006	0.0034	0.015	0.81	0.00037	4.2	0.000033	0.0019
Madrid South Mixed Tailings	--	12	34	0.0022	0.00029	0.0031	0.0000028	8.5	0.000051	0.0002	0.00034	0.0038	0.0000081	6.8	0.0052	0.0000013	0.00043	0.00068	0.13	0.00023	0.07	0.0000035	0.00093

Source: https://srk.sharepoint.com/sites/NACAPR003316/Internal/100 Source Term Derivation/[HopeBayFEIS_SourceTerms_CAPR003316_KWJ_JED_Rev00.xlsx]

Table 7-4: Saline Scaling Factors for Waste Rock

	F	As	Ba	B	Cd	Cr	Co	Cu	Mn	Mo	Ni	Se	Ag	U	V
Saline Scaling Factor		1.3	96				140		47			4			2.4

Source: https://srk.sharepoint.com/sites/NACAPR003316/Internal/100 Source Term Derivation/[HopeBayFEIS_SourceTerms_CAPR003316_KWJ_JED_Rev00.xlsx]

Table 7-5: Saline Scaling Factors for Tailings

	F	As	Ba	B	Cd	Cr	Co	Cu	Mn	Mo	Ni	Se	Ag	U	V
Saline Scaling Factor	1.1		6.9	30	120	2.9	1.7	6.7	7.4	1.5	6.2	1.1	6.1	1.6	

Source: https://srk.sharepoint.com/sites/NACAPR003316/Internal/100 Source Term Derivation/[HopeBayFEIS_SourceTerms_CAPR003316_KWJ_JED_Rev00.xlsx]

7.3.3 Comparison to 2017 Release Rates

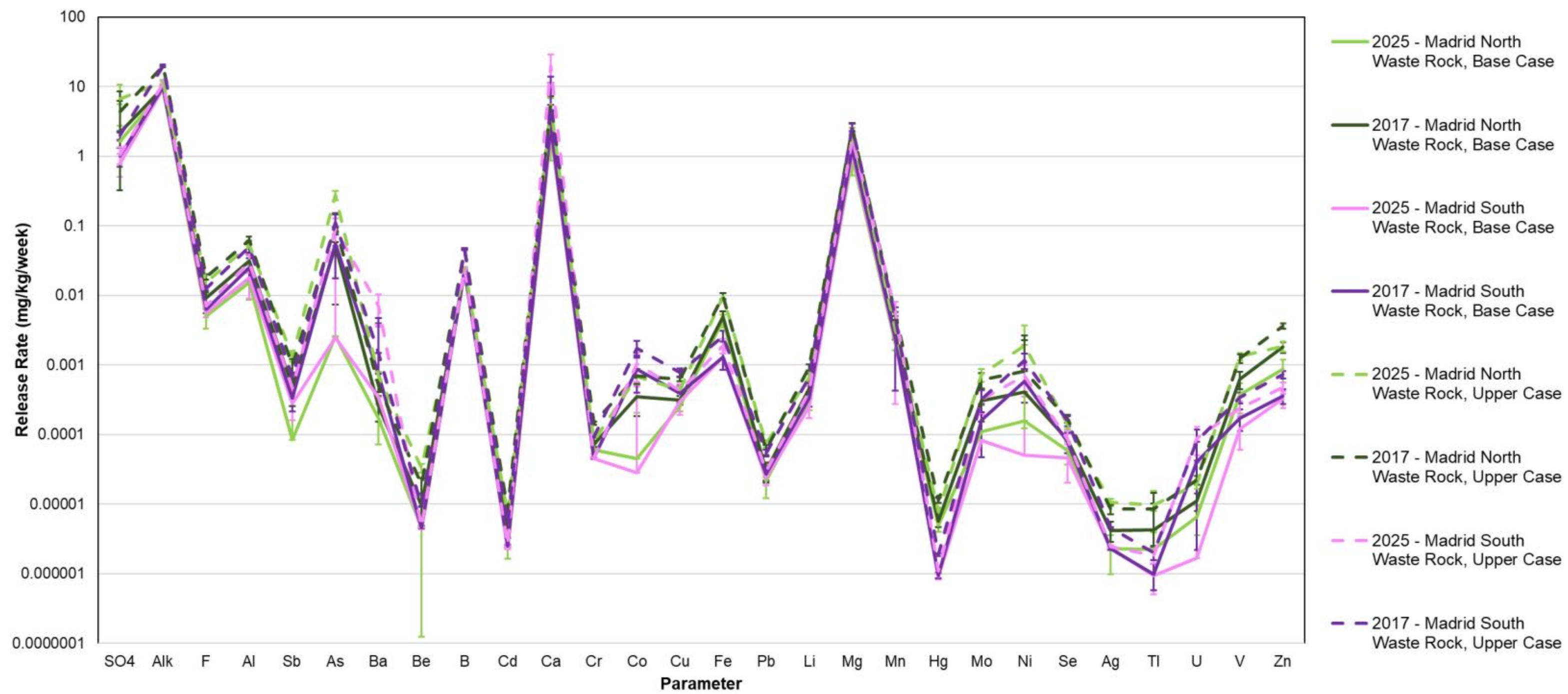
Figure 7-1 to Figure 7-3 present comparisons between humidity cell release rate inputs used to develop the 2025 source terms and inputs used for the 2017 source terms for waste rock, ore, and tailings. The 2025 inputs are presented as un-scaled laboratory release rates and do not consider the life of mine rock type proportions or groupings based on ML/ARD potential.

The findings of the comparison are summarized as follows:

- The input release rates for Madrid North and Madrid South waste rock were the same order of magnitude for 2025 and 2017 (Figure 7-1). Waste rock inputs from 2017 were higher than 2025 for sulphate, arsenic, cobalt, and nickel for the following reasons:
  - Different calculation methods were used to derive the base and upper case inputs. The 2025 source terms used the median and 95th percentile statistics, respectively, whereas the 2017 source terms used the 75th percentile statistics and the 75th percentile statistics multiplied by two, respectively (SRK 2017).
  - An updated gold cut-off grade of 4 grams-per-ton for ore classification (TMAC 2020) resulted in slightly different sample sets for waste rock and ore compared to 2017 source terms.
- The input release rates for Madrid North and Madrid South ore were roughly equivalent between 2025 and 2017 (Figure 7-2).
- Input release rates for Doris flotation tailings in 2025 were the same order of magnitude as flotation tailings in 2017, except arsenic which was higher in 2017 (Figure 7-3). For the 2017 source terms, only Madrid North HCT tailings data was used because Madrid ore was scheduled to be milled last and would therefore be on surface at closure.

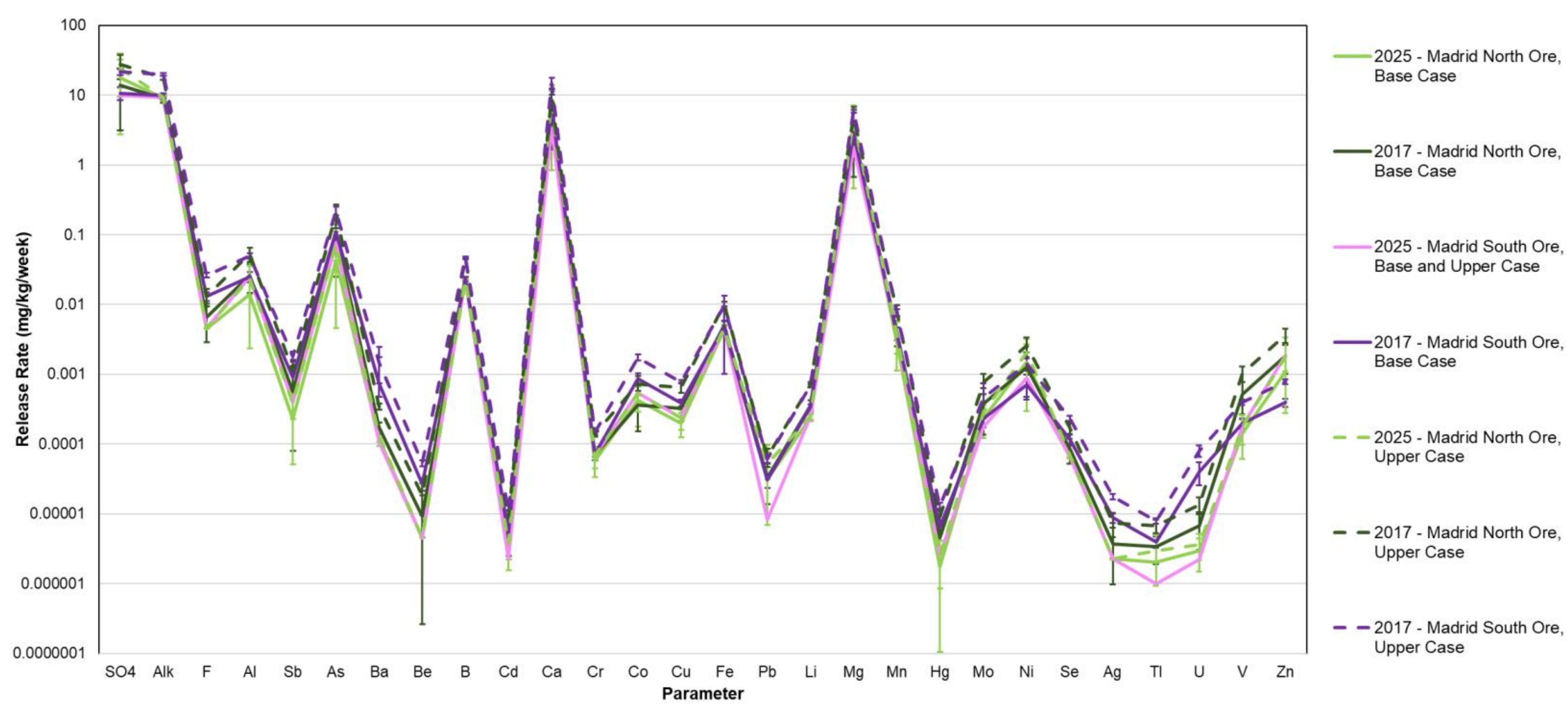
- Input release rates for Doris detoxified tailings were slightly higher in 2017 than 2025 for arsenic, cobalt, and nickel (Figure 7-3) due to 2017 input rates being calculated from the maximum rates from Doris, Madrid North, and Boston humidity cells.

Figure 7-1: Input Release Rate Comparison - Waste Rock



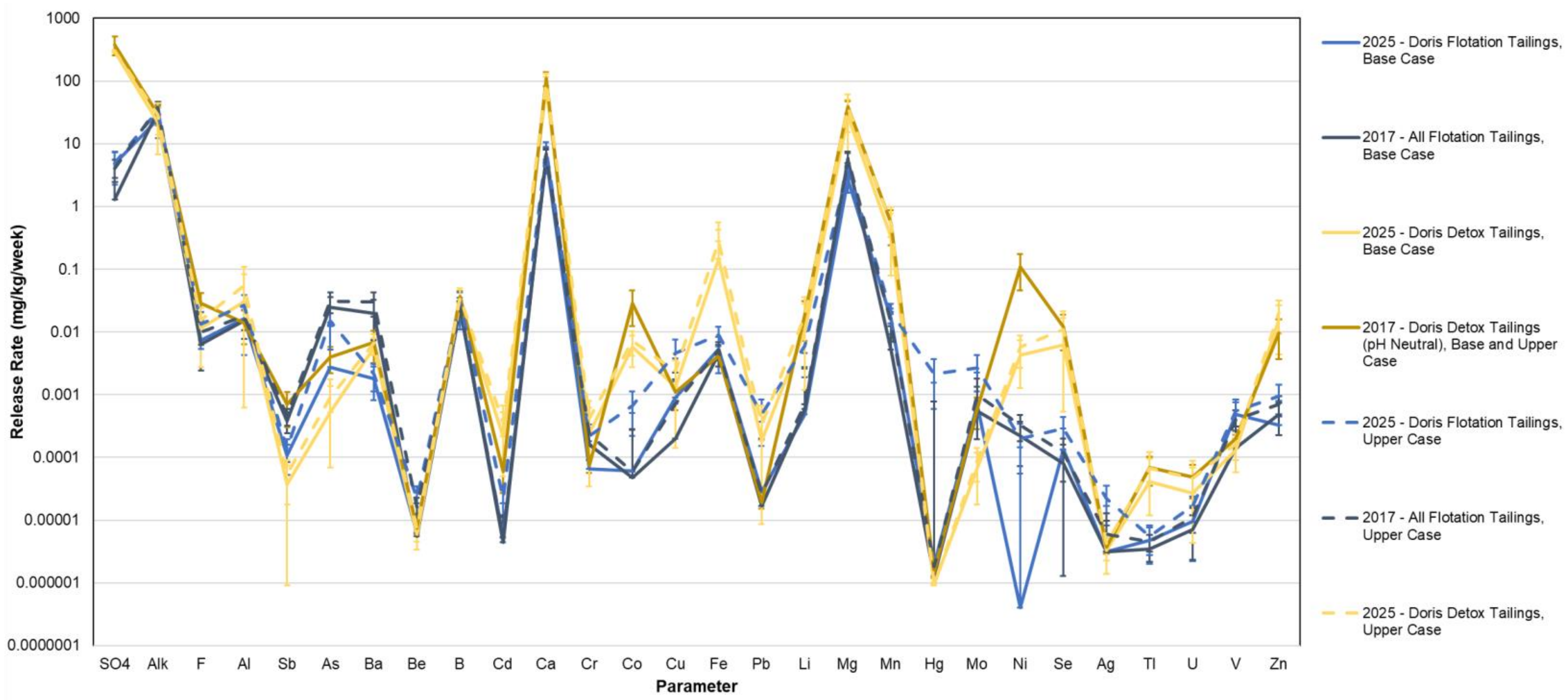
Notes: Error bars represent 95% confidence intervals on the median and 95th percentile statistics for the base and upper case, respectively.

Figure 7-2: Input Release Rate Comparison - Ore



Notes: Error bars represent 95% confidence intervals on the median and 95th percentile statistics for the base and upper case, respectively.

Figure 7-3: Input Release Rate Comparison - Tailings



Notes: Error bars represent 95% confidence intervals on the median and 95th percentile statistics for the base and upper case, respectively.

Source: https://srk.sharepoint.com/sites/NACAPR003316/Internal/100 Source Term Derivation/[HopeBayFEIS_SourceTerms_CAPR003316_KWJ_JED_Rev01.xlsx]

7.3.4 Scaling Factors

Scaling factors (k) are used to scale laboratory kinetic rates to field conditions (Section 7.2.1) and were estimated from a combination of experience (e.g., Day et al., 2014), previous studies, laboratory data and professional judgement:

- Temperature (k_T) – Calculated using the Arrhenius equation to be 0.25 for waste rock stockpiles, 0.15 for tailings placed on surface, and 0.25 for underground backfill. The calculations used an assumption that internal stockpile and underground temperatures are 10 ºC and the energy of activation for pyrite of 95.5 kJ/mol from Ahnonen and Tuovinen (1991). The assumption of internal stockpile temperatures assumes a low to moderate level of internal heating, that residual heat from summer placement is retained, and is based on experience monitoring internal waste rock dump temperatures at other sites.
- Particle size (k_p) – Assumed to be 0.2. This factor is based on data available within the literature for particle size distribution analysis of full-scale waste rock dumps (e.g., MEND Report 1.41.4 and Morin and Hutt (2001)). The scaling factor of 0.2 means that for water infiltrating each facility, 20% of the material will be of the reactive grain size to provide loading to that infiltrating water. This factor is supported by the comparison of particle size to reactive particle surface area presented in Morin and Hutt (2001), which shows that a fines content of 20% will comprise 94% of the reactive surface area of a typical mine facility meaning that the chemical contribution of the coarser particles can be ignored with little error. For tailings sources the factor was set to 1 (i.e., no factor applied).
- Contact with waters (k_c) – Assumed to be 0.8 and 1 for surface waste rock and tailings, respectively, and 0.2 and 0.15 for underground waste rock and detoxified tailings, respectively. For surface facilities, infiltration is expected to occur over the entire footprint of the facility. Based on experience, matrix flow is dominant within surface waste rock stockpiles, with minor channelized flow due to preferential flow paths, resulting in 80% of waste rock contacting infiltrating waters. No preferential flow paths are assumed to occur within surface tailings. For the underground mine, inflow occurs through discrete fractures in mine walls and channelized flow through preferential flow paths is expected to dominate. Accordingly, flushing of soluble weathering products on material surfaces is assumed to be inefficient; 20% of URF backfill and stope walls and 15% of CRF and detoxified tailings backfill are expected to contact inflowing waters during operations. The lower value for tailings relates to the grain size of tailings. In closure, the remaining soluble products are expected to be flushed during the reflooding period, resulting in contact factors of 0.8 and 0.85, respectively.

7.3.5 Material Quantities and Scheduling

Inputs to calculate the geochemically reactive volumes for unsaturated source terms included surface facility volumes and footprints, waste rock and ore production and underground backfill schedule, and underground stope areas, as discussed in the sections below.

Surface Facilities

Volumes and footprints of surface facilities were extracted by SRK from the engineering design drawings received in September 2024. A list of surface facilities and their respective geometries are presented in Table 7-6.

Waste Rock

Maximum volumes and footprints for the waste rock stockpiles at each deposit and closure volumes and footprints for stockpiles at Doris and Madrid South are presented in Table 7-6. The life of mine underground waste rock backfill schedule and volumes were integrated into underground source terms for each underground mine. The backfill schedule by deposit is presented in Table 7-7. The proportion of CRF and URF backfill at each underground mine was derived based on the on the mining methods described in Section 2.3 and input from Agnico's cemented rock fill subject matter expert (Table 7-8). As the mining method has not yet been determined for Patch 7, Agnico Eagle projected that Patch 7 will be mined using the same methods as Madrid North, due to similarities in geology.

Agnico Eagle provided life of mine waste rock tonnages for each underground mine and surface stockpile using ML/ARD waste rock lithologies (e.g. SRK 2024b), the mine plan, waste rock and backfill schedules, and geological models. The life of mine waste rock tonnages by rock type and deposit are presented in Table 7-9, and are summarized as follows:

- Doris: The major rock types (proportion ≥ 10 %) are B-Type basalt, C-Type basalt, and diabase and the minor rock type is late mafic intrusives. Ore is typically found in B-Type and C-Type basalts.
- Madrid North: The major rock types are A-Type basalt, C-Type basalt, MDZ, and sediments. Minor rock types are diabase, felsic porphyry, Wolverine porphyry, late mafic dykes, and ultramafics. Ore is typically found in A-Type basalt, MDZ, and sediments.
- Patch 7: The major rock types are A-Type basalt, C-Type basalt, MDZ, and ultramafics. Minor rock types are East Block basalt, diabase, felsic porphyry, late mafic dykes, sediments, and Wolverine porphyry. Ore is typically found in A-Type basalt, MDZ, and ultramafics.
- Madrid South: The major rock types are C-Type basalt and felsic porphyry, and minor rock types are diabase, late mafic dykes, and Wolverine porphyry. Ore is typically found in C-Type basalt and felsic porphyry.

As described in Section 2.3, during operations there are waste rock stockpiles at Doris, Madrid North, Patch 7 and Madrid South and in post-closure, stockpiles of waste rock with a low risk of ML/ARD will be present at Doris and Madrid South. Waste rock from each mine has been grouped by ML/ARD potential, which is reflected in the source terms. The groups identified from existing geochemical characterization data (Section 3.1) are as follows:

- Doris: waste rock is not differentiated as the ML/ARD potential and metal leaching rates for the rock types are similar.

- Madrid North: waste rock is grouped into two groupings representing based on the existing geochemical data:
  - Group 1 (higher ML/ARD potential): A-Type basalt, felsic porphyry, late mafic dykes, and sediments.
  - Group 2 (lower ML/ARD potential): C-type basalt, diabase, MDZ, ultramafics, and Wolverine porphyry.
- Patch 7: waste rock is grouped into two groups based on the existing geochemical data:
  - Group 1 (higher ML/ARD potential): A-Type basalt, felsic porphyry, late mafic dykes, sediments, and ultramafics.
  - Group 2 (lower ML/ARD potential): C-type basalt, East Block basalt, diabase, MDZ, and Wolverine porphyry.
- Madrid South: waste rock is not differentiated as the ML/ARD potential and metal leaching rates for the rock types are similar. Although C-Type has the highest ML/ARD potential of the rock types, the difference compared to lower ML/ARD potential rock types is less notable than observed at Madrid North and Patch 7.

Table 7-6: Surface Facility Geometries

Facility	Material Type	Maximum Volume	Maximum Footprint	Volume in Closure	Footprint in Closure
		m^3	m^2	m^3	m^2
Doris Pad T Ore Pile	Ore	75,463	8,844	--	--
Doris Waste Rock Stockpile #1 (West)	Waste	411,226	47,634	--	--
Doris Waste Rock Stockpile #2 (Pad U)	Waste	290,078	26,976	146,000	25,528
Madrid North Waste Rock Stockpile #1 (South, Existing)	Waste	254,105	33,012	--	--
Madrid North Waste Rock Stockpile #2 (North)	Waste	1,203,321	62,568	--	--
Madrid North Ore Pile	Ore	544,462	46,981	--	--
Patch 7 Waste Rock Stockpile	Waste	843,591	66,945	--	--
Patch 7 Ore Pile	Ore	527,413	54,545	--	--
Madrid South Waste Rock Stockpile	Waste	976,558	87,942	742,000	69,093
Madrid South Ore Pile	Ore	157,551	16,813	--	--
Doris Overburden Stockpile	Overburden	325,863	36,207	325,863	36,207
Madrid Overburden Stockpile (New)	Overburden	326,250	51,073	326,250	51,073
Madrid Overburden Stockpile (Existing)	Overburden	31,250	21,055	31,250	21,055
Doris TIA Exposed Tailings Beaches - without dry stack	Tailings	6,300,000	1,303,657	--	--
Doris TIA Exposed Tailings Beaches - with dry stack	Tailings	78,858	16,318	78,858	16,318
Tailings Dry Stack	Tailings	18,788,889	1,914,937	18,788,889	1,914,937

Source: https://srk.sharepoint.com/sites/NACAPR003316/Internal/100 Source Term Derivation/[HopeBayFEIS_SourceTerms_CAPR003316_KWJ_JED_Rev00.xlsx]

Table 7-7: Life of Mine Underground Backfill Schedule by Mine

Year	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041
Doris (t)[1]	-	-	-	-	92,702	355,507	378,327	299,322	320,906	351,132	123,368	43,582	45,495	30,084	0	0	0	0
Madrid North (t)	-	-	-	97,546	198,390	693,884	930,110	1,184,371	1,278,238	1,235,807	1,497,657	1,522,669	1,324,285	1,013,382	617,370	734,916	413,738	216,167
Patch 7 (t)	-	-	-	-	-	-	-	50,335	240,642	306,055	326,546	372,834	429,592	492,742	425,086	403,477	510,735	318,114
Madrid South (t)	-	-	-	-	-	-	-	-	-	5,363	26,035	91,479	125,379	166,789	216,812	234,132	153,645	13,387

Source: https://srk.sharepoint.com/sites/NACAPR003316/Internal/100 Source Term Derivation/[HopeBayFEIS_SourceTerms_CAPR003316_KWJ_JED_Rev00.xlsx]

Note: The backfill is apportioned according to the CRF and URF proportions at each underground mine.

1. There is existing backfill at Doris comprised of 240,570 tonnes of detoxified tailings and 1,137,026 tonnes of URF.

Table 7-8: CRF and URF Proportions by Mine

Mine	CRF Proportion (%)	URF Proportion (%)
Doris	63%	37%
Madrid North	79%	21%
Patch 7	79%	21%
Madrid South	79%	21%

Source: https://srk.sharepoint.com/sites/NACAPR003316/Internal/100 Source Term Derivation/[HopeBayFEIS_SourceTerms_CAPR003316_KWJ_JED_Rev00.xlsx]

Notes: Refer to text for details.

Table 7-9: Waste Rock Life of Mine Tonnages by Deposit and Rock Type

Deposit	Rock Type	Volume (t)	Proportion (%)
Doris	B-Type Basalt	1,653,070	48%
	C-Type Basalt	1,291,814	37%
	Diabase	490,822	14%
	Late Mafic Intrusives	32,030	1%
	Total	**3,467,736**	**--**
Madrid North	A-Type Basalt	4,180,151	53%
	C-Type Basalt	1,707,287	22%
	Diabase	52,860	0.67%
	Felsic Porphyry	20,201	0.26%
	Late Dykes	22,567	0.29%
	Madrid Deformation Zone (MDZ)	798,111	10%
	Sediments	959,473	12%
	Ultramafics	122,438	1.6%
	Wolverine Porphyry	20,406	0.26%
	Total	**7,883,492**	**--**
Patch 7	A-Type Basalt	866,808	27%
	C-Type Basalt	465,620	14%
	Diabase	26,284	0.82%
	East Block Basalts	203	0.01%
	Felsic Porphyry	1,027	0.03%
	Late Dykes	12,771	0.40%
	Madrid Deformation Zone (MDZ)	919,770	29%
	Sediments	161,072	5%
	Ultramafics	630,406	20%
	Wolverine Porphyry	137,480	4.30%
	Total	**3,221,441**	**--**
Madrid South	C-Type Basalt	1,586,778	63%
	Diabase	11,524	0.50%
	Felsic Porphyry	829,518	33%
	Late Dykes	24,386	1%
	Wolverine Porphyry	64,263	3%
	Total	**2,516,469**	**--**

Source: https://srk.sharepoint.com/sites/NACAPR003316/Internal/100 Source Term Derivation/[HopeBayFEIS_SourceTerms_CAPR003316_KWJ_JED_Rev00.xlsx]

Note: Tonnages at Doris and Madrid North include previously produced waste rock

Ore

As described in Section 2.3, there will be ore storage pads at Doris, Madrid North, Patch 7 and Madrid South during operations. Maximum volumes and footprints for the ore stockpiles at each deposit are presented in Table 7-6. Agnico Eagle provided life of mine ore tonnages using ML/ARD lithologies (e.g. SRK 2024b), the mine plan, ore mining schedules, and geological models. The life of mine ore tonnages by rock type and deposit are presented in Table 7-10. The ML/ARD groups identified from existing geochemical characterization data are identical to waste rock, with different rock type proportions as shown in Table 7-10. The ore processing schedule for each deposit was implemented into the process water source term. The ore processing schedule by deposit is presented in Table 7-11.

Table 7-10: Ore Life of Mine Tonnages by Deposit and Rock Type

Mine Area	Lithology	Volume (t)	Proportion (%)
Doris	B-Type Basalt	1,901,886	53%
	C-Type Basalt	1,636,840	45%
	Diabase	25,493	0.71%
	Late Mafic Intrusives	51,539	1.4%
	Total	**3,615,758**	**--**
Madrid North	A-Type Basalt	14,205,351	75%
	C-Type Basalt	1,204,953	6.4%
	Diabase	28,029	0.15%
	Felsic Porphyry	52,956	0.28%
	Late Dykes	91,659	0.48%
	Madrid Deformation Zone (MDZ)	493,039	2.6%
	Sediments	2,329,073	12%
	Ultramafics	466,498	2.5%
	Wolverine Porphyry	44,806	0.24%
	Total	**18,916,364**	**--**
Patch 7	A-Type Basalt	2,797,460	48%
	C-Type Basalt	0	0%
	Diabase	0	0%
	East Block Basalts	0	0%
	Felsic Porphyry	0	0%
	Late Dykes	99,980	1.7%
	Madrid Deformation Zone (MDZ)	617,869	11%
	Sediments	292,096	5%
	Ultramafics	2,034,517	35%
	Wolverine Porphyry	0	0%
	Total	**5,841,922**	**--**
Madrid South	C-Type Basalt	1,099,913	71%
	Diabase	0	0%
	Felsic Porphyry	381,897	25%
	Late Dykes	1,095	0.07%
	Wolverine Porphyry	56,138	3.6%
	Total	**1,539,044**	**--**

Source: https://srk.sharepoint.com/sites/NACAPR003316/Internal/100 Source Term Derivation/[HopeBayFEIS_SourceTerms_CAPR003316_KWJ_JED_Rev00.xlsx

Table 7-11: Ore Processing Schedule by Deposit

Deposit	Units	Year																	
		2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041
Doris	tonnes per year	-	-	-	-	239,987	719,839	671,065	536,434	575,977	520,937	178,610	65,094	64,682	43,133	-	-	-	-
Madrid North	tonnes per year	-	-	-	-	216,263	744,161	1,518,935	2,356,164	2,301,084	2,270,162	2,025,763	2,012,114	1,676,988	1,279,436	801,853	924,308	513,478	275,656
Patch 7	tonnes per year	-	-	-	-	-	-	-	-	- -	84,994	638,058	690,804	971,457	1,363,912	575,686	494,558	632,276	390,178
Madrid South	tonnes per year	-	-	-	-	-	-	-	27,402	42,939	51,907	77,570	151,988	206,873	241,519	298,245	255,683	170,371	14,547

Source: https://srk.sharepoint.com/sites/NACAPR003316/Internal/100 Source Term Derivation/[HopeBayFEIS_SourceTerms_CAPR003316_KWJ_JED_Rev00.xlsx]

Tailings

Maximum volumes and footprints for the TIA beaches and dry stack used in source terms are presented in Table 7-6. The dry stack is assumed to come online in 2033 which results in a smaller exposed volume and footprint for the TIA beaches.

Underground Stope Areas

SRK extracted the cumulative surface areas of the underground stope walls using the DXF mine plan files provided by Agnico in July 2024 using Deswik software. Underground stope walls were factored into underground source terms for the operational period prior to completion of mine reflooding (2028 to 2041) during which 0.3 m depth of wall rock in stopes is expected to weather, contact infiltrating waters, and contribute loadings. The geology of the stope walls is assumed to be equivalent to waste rock produced from the underground mine at each deposit, with the same rock type proportions (Table 7-9).

7.3.6 Contact Water Flow Rates

Contact waters interacting with geological materials originate from precipitation for surface facilities and groundwater inflows for the underground mine.

Annual infiltration of meteoric water to surface (Table 7-2) was calculated from MAP at Hope Bay (280 L/m^2/year; SRK 2024d) and infiltration factors developed for the WLB (SRK, 2024d). For uncovered rock and uncovered tailings, the infiltration factors were 0.22 and 0.11, respectively. For closure, infiltration through the geomembrane cover on tailings beaches and the dry stack was calculated using MAP for months with rainfall (June, July, August, and September) and 5% infiltration based on performance monitoring of constructed geomembrane covers (i.e.; Power et al., 2017). Groundwater inflow rates by year were provided by the groundwater model (Section 7.4.3) using the base case for each underground mine (Table 7-12).

Table 7-12: Base Case Groundwater Inflow Rates for the Underground Mines (m3/day)

Mine	Year																	
	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041
Doris	1,629	1,650	1,759	1,884	1,942	2,049	2,233	2,262	2,268	2,272	2,272	2,271	2,271	2,271	2,270	0	0	0
Madrid North	0	0	0	0	95	181	245	364	482	548	636	691	741	782	786	798	796	803
Patch 7	0	0	0	0	0	1	17	59	100	127	136	175	207	241	244	243	244	244
Madrid South	0	0	0	0	0	0	0	8	31	45	56	68	74	80	80	88	86	85

Source: https://srk.sharepoint.com/sites/NACAPR003316/Internal/100 Source Term Derivation/[HopeBayFEIS_SourceTerms_CAPR003316_KWJ_JED_Rev00.xlsx]

7.3.7 Solubility Limits

Thermodynamic Solubility Controls

For Hope Bay, a sulphate solubility limit was determined using thermodynamic data. Solubility of sulphate is expected to be controlled by the mineral gypsum. While gypsum contains calcium and sulphate, the concentration of sulfate in equilibrium with gypsum is a function of all major cations in solution (calcium and magnesium in this case) due to the common ion effect for sulphate minerals. Essentially, as the ratio of magnesium to calcium increases, so does the sulphate solubility control. The median and 95th percentile molar ratio of magnesium to calcium concentrations (0.51 and 1.2 mole/mole respectively) indicated by the waste rock seepage were used to calculate a base case sulphate solubility limit of 1800 mg/L and an upper case sulphate solubility limit of 2400 mg/L. The calculation was performed in the geochemical modelling code PHREEQC using the MINTEQ V.4 thermodynamic database. This is in agreement with site seepage data, which showed a 95th percentile sulphate concentration of 1900 mg/L.

Analog Database

The previous Hope Bay source term analog database described in SRK (2017a) was updated with drainage data collected from 2017 to 2024 for the relevant analog sites. The methodology of developing the analog database is provided below:

A global search for mines of low-sulphide gold-quartz vein deposits using United States Geological Survey, BC MINFILE and Geological of Survey of Canada websites resulted in identification of 18 candidate sites and five mining districts in Alaska that each contained numerous small mines that were studied collectively. Field-scale water chemistry data were found for 11 mines, including Con Mine (NWT), Giant (NWT), Detour Gold (Ontario), Discovery (NWT), Colomac (NWT), Bralorne (BC), Congress (BC), Wayside (BC), Ashanti (Ghana), Polaris-Taku (BC), Hope Bay (NU) and five Alaskan mining districts ((Fairbanks, Willow Creek, Juneau, Nuka Bay and McKinley Lake).

Review of the datasets obtained indicated that Giant (NWT), Detour Gold (Ontario), Bralorne (BC), Wayside (BC), and Polaris-Taku (BC) had relevant data for near contact water chemistry for waste rock and/or tailings.

Table 7-13 summarizes the types of samples used from each site. Small scale field tests from Hope Bay were included in the analog database because comparison of results from similar scale tests with full scale under controlled conditions have shown that, for non-acidic conditions, the small scale tests can show similar solubility constraints as the full scale.

To develop the solubility limits for development of source terms, the following procedure was used:

- Scatter plots of pH vs concentrations for each parameter were evaluated to determine if expected solubility relationships existed.
- Each plot was reviewed to assess the distribution of the data relative to the Hope Bay site data.

- The solubility limit was determined to be the 95th percentile of analog concentrations for a given pH range (i.e., pH 7 to 8.5). For waste rock and ore on surface, the 95th percentile was calculated without the inclusion of underground sump water quality data from the Hope Bay site, whereas underground solubility limits considered the underground sumps. Underground solubility limits were also applied to surface tailings in the Doris TIA to account for changes in tailings management (Sections 2.3 and 4.7).
- Each parameter was assessed to determine if a solubility limit could be applied to the waste rock and ore stockpiles, surface tailings in the Doris TIA, and underground mines.

Results of the assessment of the analog database are presented in Table 7-14.

Table 7-13: Updated Sites in the Orogenic Gold Deposit Analog Database

Mine or District	Type of Data
Bralorne	Drainage from adit and within underground workings
Detour Gold	Seepage from waste rock and ore stockpiles
Giant	Open pit and stockpile seeps
Giant	Surface water from open pits
Hope Bay	Boston - ore and waste rock seepage
Hope Bay	Doris, Madrid North, Madrid South, and Boston- onsite barrel tests
Hope Bay	Doris - seepage from infrastructure (ST-2)
Hope Bay	Doris - seepage and drainage from waste rock stockpile
Hope Bay	Madrid - seepage and drainage from waste rock stockpile
Hope Bay	Underground - pre and post treatment water from underground sump
Polaris-Taku	Portal drainage and seeps, and pumped water from underground flooded workings
Wayside	Adit drainage

Source: https://srk.sharepoint.com/sites/NACAPR003316/Internal/100 Source Term Derivation/[HopeBay_AnalogueSourceWQ_CAPR003316_KWJ_Rev01.xlsx]

Table 7-14: Analog Database Assessment

Parameter	Rationale	Waste Rock and Ore	Tailings	Underground Mine	Analog Value	
					Waste Rock and Ore	Tailings and Underground
SO4	P95 seepage statistic is not approaching gypsum solubility (2211 mg/L), so use of analog is inappropriate. Instead, apply site-specific gypsum solubility limit	Yes	Yes	Yes	1300	1300
Alkalinity	Equilibrium controls on alkalinity therefore site data appropriate. Apply P95 values for respective areas	Yes	Yes	Yes	310	310
Hardness	Analog data suggests upper equilibrium limit, with a small portion of samples above the limit. Apply P95 values for respective areas	Yes	Yes	Yes	1600	3900
F	Analog data set suggest upper equilibrium limit. There are some scatter of data above this apparent limit. Apply P95 values for respective areas	Yes	Yes	Yes	1	2
Cl	Analog data set suggest upper equilibrium limit. There are some scatter of data above this apparent limit. Apply P95 values for respective areas	No	No	No	980	8400
Total CN	Cyanide is a reagent in ore processing and will be present in higher concentrations in areas influenced by tailings. Apply P95 value for waste rock and detection limit issues for underground sumps. Instead apply P95 value from reclaim/process water at Hope Bay (TL-1 and TL-5) for Doris underground	Yes	Yes	Yes	0.054	2.5
Al	Distribution of analog data suggests an equilibrium limit. Apply P95 values for respective areas	Yes	Yes	Yes	0.064	0.098
Sb	Distribution of analog data suggests an equilibrium limit. Apply P95 values for respective areas	Yes	Yes	Yes	0.017	0.014
As	Distribution of analog data suggests an equilibrium limit. Apply P95 values for respective areas. Equilibrium controls due to adsorption to Fe hydroxides	Yes	Yes	Yes	2.4	2.3
Ba	Equilibrium controls on barium (solubility of barite or adsorption to hydroxides). Apply P95 values for respective areas	Yes	Yes	Yes	0.067	0.066
Be	Detection limit issues with overall data set. No samples above detection limits from Hope Bay. Apply P95 values for respective areas	Yes	Yes	Yes	0.001	0.002
B	Distribution of analog data suggests an equilibrium limit. Apply P95 values for respective areas	Yes	Yes	Yes	1.5	2.2
Cd	Detection limit issues with overall data set. Used P95 values because i) lower detection limits compared to other data sets and ii) some samples above detection limits	Yes	Yes	Yes	0.0002	0.0002
Ca	Underground is influenced by inflow of saline groundwater. Apply P95 values for respective areas	Yes	Yes	Yes	370	510
Cr	Chromium generally insoluble. Detection limit issues with overall data set. Used P95 values because i) lower detection limits compared to other data sets and ii) some samples above detection limits	Yes	Yes	Yes	0.005	0.01
Co	Distribution of analog data suggests an equilibrium limit. Apply P95 values for respective areas	Yes	Yes	Yes	0.031	0.024
Cu	Equilibrium controls on copper (copper hydroxides) at neutral pH. Apply P95 values for respective areas	Yes	Yes	Yes	0.015	0.016
Fe	Equilibrium controls on iron (iron hydroxides) at neutral pH. Apply P95 values for respective areas	Yes	Yes	Yes	1.6	1.5
Pb	Equilibrium controls on lead (precipitation, adsorption, co-precipitation) Apply P95 values for respective areas	Yes	Yes	Yes	0.001	0.001
Li	No weathering products at low solubility. Large range of data for Hope Bay sample set, with a scatter of Hope Bay data higher than all other sites. Apply P95 values for respective areas	Yes	Yes	Yes	0.035	0.082
Mg	Apply P95 values for respective areas	Yes	Yes	Yes	93	420
Mn	Apply P95 values for respective areas Some scatter of data points above this limit collected from Hope Bay.	Yes	Yes	Yes	0.67	1
Hg	Detection limit issues with overall data set. No samples above detection from Hope Bay. Apply P95 values for respective areas (detection limit)	Yes	Yes	Yes	0.0001	0.0001
Mo	Geochemical controls on molybdenum apparent within dataset. Apply P95 values for respective areas	Yes	Yes	Yes	0.017	0.014
Ni	Geochemical controls on nickel apparent within dataset. Use analog value. Apply P95 values for respective areas	Yes	Yes	Yes	0.13	0.092
P	Detection limit issues with overall data set. Apply P95 values for respective areas	Yes	Yes	Yes	0.3	1

Parameter	Rationale	Waste Rock and Ore	Tailings	Underground Mine	Analog Value	
K	Underground is influenced by inflow of saline groundwater. Apply P95 values for respective areas	Yes	Yes	Yes	26	110
Se	Selenium has no known equilibrium control. Therefore, application of a solubility limit is not supported.	No	No	No	0.0068	0.006
Ag	Detection limit issues with overall data set. Apply P95 values for respective areas	Yes	Yes	Yes	0.00033	0.00026
Na	Underground is influenced by inflow of saline groundwater. Apply P95 values for respective areas	Yes	Yes	Yes	220	3600
Tl	Detection limit issues with overall data set. Apply P95 values for respective areas	Yes	Yes	Yes	0.0002	0.0002
U	Analog data set suggest upper equilibrium limit. Apply P95 values for respective areas	Yes	Yes	Yes	0.0073	0.007
V	Detection limit issues with overall data set. Apply P95 values for respective areas	Yes	Yes	Yes	0.005	0.01
Zn	Equilibrium and other geochemical controls on zinc. Apply P95 values for respective areas	Yes	Yes	Yes	0.042	0.064

Source: https://srk.sharepoint.com/sites/NACAPR003316/Internal/100 Source Term Derivation/[HopeBay_AnalogueSourceWQ_CAPR003316_KWJ_Rev01.xlsx]

Solubility Limit Derivation

Solubility limits (C_p') for constituents except sulphate were based on the analog values for the respective mine components. Solubility limits were generated for two mine component groups: waste rock and ore, and tailings (Doris TIA) and underground mines. For these constituents, solubility limits were developed using the following rules:

- If a parameter was unrelated to sulphide oxidation, then the analog value was applied directly as the solubility limit (C_p') for that parameter (Table 7-14).
- If a parameter was related to sulphide oxidation, then (C_p') was calculated for the base case and upper case scenarios using the following expression:

  $C_p' = C_p^{statistic} \times (C_p^{statistic}/C_{SO4})$

  Where $C_p^{statistic}$ is the appropriate analog value for each constituent and C_{SO4} was the thermodynamically calculated sulphate solubility limit for each case.
- If a parameter had no observed solubility control (i.e. secondary minerals and/or attenuation mechanisms demonstrated at site, then the parameter was left unconstrained for the current source terms. This applied to chloride, all cyanide forms and degradation products except total cyanide, and selenium.

The solubility limits derived using the method stated above are summarized in Table 7-15.

Table 7-15: Summary of Solubility Limits (mg/L)

Source Term Scenario	SO4	Alkalinity	F	Cl	Total CN	Al	Sb	As	Ba	Be	B	Cd	Ca
Correlated with Sulphide Oxidation	Yes	Yes	Yes	No	No	No	Yes	Yes	No	No	No	Yes	Yes
Solubility Limit - Waste Rock and Ore	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Solubility Limit - Tailings and Underground	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Base Case - Waste Rock and Ore	1800	430	1.4	--	0.054	0.064	0.024	3.3	0.067	0.001	1.5	0.00028	510
Upper Case - Waste Rock and Ore	2400	580	1.9	--	0.054	0.064	0.032	4.5	0.067	0.001	1.5	0.00037	680
Base Case - Tailings and Underground	1800	430	2.8	--	2.5	0.098	0.02	3.2	0.066	0.002	2.2	0.00028	700
Upper Case - Tailings and Underground	2400	570	3.7	--	2.5	0.098	0.026	4.3	0.066	0.002	2.2	0.00037	940

Source Term Scenario	Cr	Co	Cu	Fe	Pb	Li	Mg	Mn	Hg	Mo	Ni	P	K	Se	Ag	Na	Tl	U	V	Zn
Correlated with Sulphide Oxidation	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes	Yes	No	Yes
Solubility Limit - Waste Rock and Ore	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
Solubility Limit - Tailings and Underground	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
Base Case - Waste Rock and Ore	0.0069	0.043	0.021	2.2	0.0014	0.048	130	0.93	0.0001	0.023	0.18	0.3	36	--	0.00033	300	0.00028	0.01	0.005	0.058
Upper Case - Waste Rock and Ore	0.0093	0.057	0.028	3	0.0019	0.064	170	1.2	0.0001	0.031	0.24	0.3	48	--	0.00033	410	0.00037	0.014	0.005	0.077
Base Case - Tailings and Underground	0.014	0.034	0.022	2.1	0.0014	0.11	580	1.4	0.0001	0.02	0.13	1	150	--	0.00026	5000	0.00028	0.0097	0.01	0.089
Upper Case - Tailings and Underground	0.019	0.045	0.029	2.8	0.0019	0.15	780	1.9	0.0001	0.027	0.17	1	200	--	0.00026	6800	0.00037	0.013	0.01	0.12

Source: https://srk.sharepoint.com/sites/NACAPR003316/Internal/100 Source Term Derivation/[HopeBay_AnalogueSourceWQ_CAPR003316_KWJ_Rev01.xlsx]

Notes

"--" indicates parameter was left unconstrained

7.4 Source Term Assumptions

7.4.1 Doris TIA Beaches and Dry Stack

Assumptions made for the Doris TIA tailings beaches and dry stack included the reactive depths that were used to calculate the reactive masses of tailings used for source term development. The reactive depths for tailings beaches and the dry stack were derived from calculation of the maximum depth of diffusive oxygen transport (SRK 2017a) and thermal modelling (SRK 2017f), respectively. Reactive depth assumptions for tailings beaches and the dry stack are presented in Table 7-16. The current tailings beaches utilized the same assumptions as the previous tailings beaches, whereas the Boston dry stack assumptions in SRK (2017f) were utilized for the current dry stack.

Table 7-16: Doris TIA Tailings Reactive Depths

Facility	Phase	Base Case Reactive Depth (m)	Worst Case Reactive Depth (m)
Tailings Beaches	Operations	0.1	0.1
	Closure	0.05	0.05
Tailings Dry Stack	Operations	2.5	2.5
	Closure	2.95	3.2

Source: https://srk.sharepoint.com/sites/NACAPR003316/Internal/100 Source Term Derivation/[HopeBayFEIS_SourceTerms_CAPR003316_KWJ_JED_Rev00.xlsx]

7.4.2 CRF

A scaling factor to account for cement encapsulation (k_e) was applied to CRF backfill volumes. The scaling factor was assumed to be 0.15 for the base case and 0.2 for the upper case based on SRK's and Agnico Eagle's professional experience. The scaling factors represent the amount of rock that is unencapsulated (URF) and assume that the encapsulated portion of CRF is unreactive and will therefore not contribute to chemical loadings (Section 4.4).

7.4.3 Groundwater Model Inputs

The assumptions utilized for the underground mines are presented in Table 7-17 and are summarized as follows:

- The proportion of underground workings in permafrost and talik zones are documented in SRK (2017a). As Patch 7 was not a component of SRK (2017a), the average of the Madrid North and Madrid South talik proportions was utilized. The volume of backfill and wall rock contributing load in the underground source terms was calculated based on the proportion of the mine in talik . Areas of the mine in permafrost are assumed to be unreactive. The final source terms will utilize updated results from the current groundwater model (SRK 2024c).

- The proportion of saline water and freshwater inflows into the talik zones of the underground are documented in SRK (2017a). The average of the Madrid North and Madrid South inflow proportions were utilized for Patch 7.
- Reflood times in closure were calculated using the SRK (2024c) groundwater model and represent the duration required to completely flood each underground mine. Total exposure times are applied to loadings for underground source terms in closure to reflect the cumulative load available for flushing (Section 7.2.3).
- The total void volume of each underground mine was determined in the WLB model using inputs from the current groundwater model and assumed porosity of 0.3 (SRK 2017a , SRK 2024c, SRK 2024d). Total void volume represents the volume of water after reflood to convert loadings to concentrations for the underground source terms in closure (Section 7.2.3).

Table 7-17: Groundwater Model Assumptions for Underground Mine Source Terms

Mine	Thermal Conditions		Groundwater Type		Reflood Time	Total Void Volume
	Permafrost (%)	Talik (%)	Saline (%)	Freshwater (%)	Years	m^3
Doris	36%	64%	30%	70%	3.6	815,602
Madrid North	43%	57%	4%	96%	51.6	2,745,900
Patch 7	29%	71%	7%	93%	51.6	901,435
Madrid South	16%	84%	10%	90%	51.6	404,439

Source: https://srk.sharepoint.com/sites/NACAPR003316/Internal/100 Source Term Derivation/[HopeBayFEIS_SourceTerms_CAPR003316_KWJ_JED_Rev00.xlsx]

7.5 Source Term Results and Discussion

A summary of the base case and upper case source term results are presented in Table 7-18 and Table 7-19, respectively. Complete base case and upper case source term results are presented in Appendix F and Appendix G, respectively.

Major findings from the source term results are summarized below:

- For waste rock stockpiles, Madrid North typically had the highest sulphate and arsenic concentrations due to higher weathering rates (Table 7-3) and / or larger stockpile volumes (Table 7-6) compared to other waste rock stockpiles.
- Ore stockpiles had equivalent concentrations for all deposits as most constituents were at solubility limits (Table 7-15).
- For underground mines, Doris had notably higher sulphate concentrations than other deposits due to detoxified tailings backfill. Sulphate release rates for Doris detoxified tailings are one to two orders of magnitude greater than waste rock. Arsenic concentrations were highest at Madrid North due to higher waste rock weathering rates (Table 7-3) and / or greater backfill volumes (Table 7-7)
- For the Doris TIA, tailings managed in the dry stack had higher concentrations than the tailings beaches for most constituents due to a thicker reactive layer and therefore higher volume of reactive tailings (Table 7-16).
- Ore processing source terms show a decrease in sulphate and an increase in arsenic over time as ore from Doris is depleted and mining at Madrid North and Patch 7 progresses (Table 7-11).

Table 7-18: Summary of Base Case Source Term Results

Term	Source	Year	Units	SO4	Alk	F	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co	Cu	Fe	Pb	Li	Mg	Mn	Hg	Mo	Ni	Se	Ag	Na	Tl	U	V	Zn
1	Doris Pad T Ore Pile	Max	mg/L	1800	430	1.4	0.064	0.024	3.3	0.067	0.001	1.5	0.0003	510	0.0069	0.043	0.021	2.2	0.0014	0.048	130	0.93	0.0001	0.023	0.18	0.039	0.0003	49	0.0003	0.0019	0.005	0.058
2	Doris Waste Rock Stockpile #1 (West)	Max	mg/L	480	430	1.4	0.064	0.016	0.17	0.067	0.001	1.5	0.0003	510	0.0069	0.0098	0.021	2.1	0.0014	0.048	130	0.93	0.0001	0.023	0.021	0.019	0.0003	85	0.0003	0.0024	0.005	0.058
3	Doris Waste Rock Stockpile #2 (Pad U)	Max	mg/L	590	430	1.4	0.064	0.021	0.22	0.067	0.001	1.5	0.0003	510	0.0069	0.012	0.021	2.2	0.0014	0.048	130	0.93	0.0001	0.023	0.027	0.024	0.0003	110	0.0003	0.0029	0.005	0.058
4	Doris Waste Rock Stockpile #2 (Pad U) - Closure	2046 onwards	mg/L	320	430	1.4	0.064	0.011	0.12	0.064	0.001	1.5	0.0003	510	0.0069	0.0065	0.021	1.4	0.0014	0.048	130	0.93	0.0001	0.022	0.014	0.013	0.0003	56	0.0003	0.0016	0.005	0.058
5	Doris Overburden Stockpile	Max	mg/L	13	65	0.034	0.048	0.0001	0.0018	0	0.0001	0.047	1E-05	16	0.0001	0.0001	0.015	0.023	5E-05	0	5.2	0.0061	1E-05	0.0004	0.001	0.0003	1E-05	19	1E-05	0.0002	0.0015	0.011
6	Doris UG Mine Area	2024	mg/L	150	21	0.012	0.037	4E-05	0.0005	0.012	1E-05	0.17	0.0003	43	0.0002	0.0041	0.002	0.077	0.0001	0.0055	15	0.53	5E-06	9E-05	0.0056	0.0033	8E-06	1.2	2E-05	2E-05	0.0002	0.008
		2028	mg/L	130	18	0.011	0.032	4E-05	0.0005	0.01	1E-05	0.14	0.0003	36	0.0002	0.0034	0.0017	0.065	9E-05	0.0046	13	0.45	5E-06	7E-05	0.0047	0.0028	7E-06	1	2E-05	2E-05	0.0002	0.0067
		2032	mg/L	110	20	0.012	0.037	4E-05	0.0005	0.01	1E-05	0.13	0.0003	32	0.0002	0.0032	0.0015	0.057	9E-05	0.0041	11	0.41	6E-06	9E-05	0.004	0.0024	7E-06	0.95	2E-05	2E-05	0.0002	0.0058
		2036	mg/L	110	22	0.014	0.043	5E-05	0.0006	0.011	1E-05	0.13	0.0003	33	0.0002	0.0034	0.0016	0.058	9E-05	0.0041	12	0.42	7E-06	1E-04	0.004	0.0024	8E-06	0.97	2E-05	2E-05	0.0002	0.0059
		2038	mg/L	110	23	0.014	0.043	5E-05	0.0006	0.012	1E-05	0.13	0.0003	33	0.0002	0.0034	0.0016	0.058	9E-05	0.0041	12	0.42	8E-06	1E-04	0.004	0.0024	8E-06	0.98	2E-05	2E-05	0.0002	0.0059
7	Doris UG Mine Area - Reflooding	When inundated	mg/L	6900	800	0.48	1.5	0.0017	0.021	0.43	0.00047	5.4	0.12	1400	0.008	0.14	0.065	2.4	0.0036	0.17	490	17	0.00024	0.0034	0.17	0.1	0.0003	40	0.00073	0.00066	0.007	0.25
8	Madrid North Waste Rock Stockpile #1 (South, Existing)	Max	mg/L	1800	430	1.4	0.064	0.024	3.3	0.067	0.001	1.5	0.0003	510	0.0069	0.043	0.021	2.2	0.0014	0.048	130	0.93	0.0001	0.023	0.18	0.044	0.0003	64	0.0003	0.0041	0.005	0.058
9	Madrid North Waste Rock Stockpile #2 (North)	Max	mg/L	1800	430	1.4	0.064	0.024	3.3	0.067	0.001	1.5	0.0003	510	0.0069	0.043	0.021	2.2	0.0014	0.048	130	0.93	0.0001	0.023	0.18	0.11	0.0003	160	0.0003	0.01	0.005	0.058
10	Madrid North Ore Pile	Max	mg/L	1800	430	1.4	0.064	0.024	3.3	0.067	0.001	1.5	0.0003	510	0.0069	0.043	0.021	2.2	0.0014	0.048	130	0.93	0.0001	0.023	0.18	0.055	0.0003	69	0.0003	0.0027	0.005	0.058
11	Patch 7 Waste Rock Stockpile	Max	mg/L	1800	430	1.4	0.064	0.024	3.3	0.067	0.001	1.5	0.0003	510	0.0069	0.043	0.021	2.2	0.0014	0.048	130	0.93	0.0001	0.023	0.18	0.067	0.0003	110	0.0003	0.0094	0.005	0.058
12	Patch 7 Ore Pile	Max	mg/L	1800	430	1.4	0.064	0.024	3.3	0.067	0.001	1.5	0.0003	510	0.0069	0.043	0.021	2.2	0.0014	0.048	130	0.93	0.0001	0.023	0.18	0.046	0.0003	58	0.0003	0.0023	0.005	0.058
13	Madrid South Waste Rock Stockpile	Max	mg/L	590	430	1.4	0.064	0.024	1.9	0.067	0.001	1.5	0.0003	510	0.0069	0.021	0.021	0.97	0.0014	0.048	130	0.93	0.0001	0.023	0.038	0.034	0.0003	90	0.0003	0.0013	0.005	0.058
14	Madrid South Waste Rock Stockpile - Closure	2046 onwards	mg/L	570	430	1.4	0.064	0.024	1.8	0.067	0.001	1.5	0.0003	510	0.0069	0.02	0.021	0.93	0.0014	0.048	130	0.93	0.0001	0.023	0.036	0.033	0.0003	87	0.0003	0.0012	0.005	0.058
15	Madrid South Ore Pile	Max	mg/L	1800	430	1.4	0.064	0.024	3.3	0.067	0.001	1.5	0.0003	510	0.0069	0.043	0.021	2.2	0.0014	0.048	130	0.93	0.0001	0.023	0.18	0.041	0.0003	52	0.0003	0.0014	0.005	0.058
16	Naartok East CPR Trench	Max	mg/L	84	83	0	0.017	0.0036	0.25	0	0.0001	0.47	4E-05	160	0.0005	0.017	0.0054	0.035	0.0002	0	86	0.19	5E-06	0.02	0.19	0.0051	4E-05	590	4E-05	0.0056	0.0019	0.033
17	Madrid Overburden Stockpiles - Saline Seepage	Until reclaimed	mg/L	910	170	0.4	0.02	0.0006	0.0022	0	0.0002	0.65	9E-05	250	0.0008	0.0041	0.0053	0.17	0.0004	0	280	1.3	5E-06	0.0054	0.0099	0.0009	6E-05	1800	6E-05	0.01	0.003	0.0068
18	Madrid Overburden Stockpiles - Non-Saline Seepage - Closure	After reclamation	mg/L	5.4	74	0.037	0.023	0.0001	0.002	0	0.0001	0.018	5E-06	24	0.0005	0.0003	0.0055	0.034	5E-05	0	3.7	0.036	1E-05	0.0004	0.0017	0.0001	1E-05	9	1E-05	0.0001	0.0005	0.0022
19	Madrid North UG Mine Area	2028	mg/L	3.9	7.3	0.005	0.014	0.0005	0.053	0.0006	5E-06	0.02	2E-06	2.6	6E-05	0.0013	0.0002	0.0042	2E-05	0.0003	1.2	0.0057	4E-06	0.0003	0.0014	8E-05	3E-06	0.11	5E-06	7E-06	0.0004	0.0012
		2032	mg/L	13	26	0.018	0.05	0.0017	0.18	0.0019	2E-05	0.071	8E-06	9.1	0.0002	0.0045	0.0007	0.015	8E-05	0.0009	4.2	0.02	1E-05	0.001	0.0049	0.0003	9E-06	0.39	2E-05	3E-05	0.0012	0.0043
		2036	mg/L	21	41	0.028	0.079	0.0026	0.29	0.0031	3E-05	0.11	1E-05	15	0.0003	0.0072	0.0011	0.023	0.0001	0.0014	6.6	0.031	2E-05	0.0015	0.0079	0.0005	1E-05	0.61	3E-05	4E-05	0.002	0.0068
		2041	mg/L	27	52	0.035	0.098	0.0033	0.37	0.0039	4E-05	0.14	2E-05	18	0.0004	0.0091	0.0014	0.029	0.0002	0.0018	8.4	0.04	3E-05	0.0019	0.01	0.0006	2E-05	0.78	3E-05	5E-05	0.0025	0.0086
20	Madrid North UG Mine Area - Reflooding	When inundated	mg/L	740	1400	0.96	2.7	0.091	10	0.11	0.00098	3.9	0.00043	500	0.011	0.25	0.037	0.8	0.0043	0.048	230	1.1	0.0007	0.052	0.27	0.016	0.00047	21	0.00091	0.0014	0.068	0.23

Term	Source	Year	Units	SO4	Alk	F	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co	Cu	Fe	Pb	Li	Mg	Mn	Hg	Mo	Ni	Se	Ag	Na	Tl	U	V	Zn
21	Patch 7 UG Mine Area	2031	mg/L	0.66	2.2	0.0016	0.0041	0.0001	0.011	0.0002	2E-06	0.006	7E-07	0.61	2E-05	0.0006	6E-05	0.0012	6E-06	8E-05	0.31	0.0024	1E-06	9E-05	0.0002	2E-05	8E-07	0.033	7E-07	3E-06	1E-04	0.0004
		2035	mg/L	8.7	29	0.021	0.055	0.0017	0.14	0.0032	3E-05	0.079	9E-06	8.1	0.0002	0.0084	0.0009	0.016	8E-05	0.001	4.1	0.032	2E-05	0.0012	0.0024	0.0003	1E-05	0.44	9E-06	4E-05	0.0013	0.0055
		2039	mg/L	16	53	0.039	0.098	0.0031	0.26	0.006	5E-05	0.15	2E-05	15	0.0004	0.016	0.0016	0.03	0.0001	0.0019	7.7	0.06	3E-05	0.0022	0.0045	0.0006	2E-05	0.82	2E-05	7E-05	0.0023	0.01
		2041	mg/L	21	69	0.051	0.098	0.004	0.34	0.0078	6E-05	0.19	2E-05	20	0.0006	0.02	0.002	0.039	0.0002	0.0025	10	0.078	4E-05	0.0029	0.0058	0.0007	3E-05	1.1	2E-05	9E-05	0.003	0.013
22	Patch 7 UG Mine Area - Reflooding	When inundated	mg/L	550	1600	1.2	3	0.11	9	0.19	0.0013	4.6	0.00052	470	0.013	0.5	0.046	0.92	0.0044	0.058	240	2	0.0009	0.071	0.17	0.018	0.0006	25	0.0005	0.002	0.076	0.32
23	Madrid South UG Mine Area	2033	mg/L	0.034	0.4	0.0002	0.0008	1E-05	0.0001	0.0002	2E-07	0.001	1E-07	0.1	2E-06	2E-05	1E-05	6E-05	1E-06	1E-05	0.05	0.0005	4E-08	4E-06	2E-06	3E-06	1E-07	0.0052	4E-08	7E-08	6E-06	1E-05
		2037	mg/L	2.2	27	0.016	0.051	0.0008	0.0072	0.01	1E-05	0.065	7E-06	6.7	0.0001	0.0012	0.0008	0.0037	7E-05	0.0007	3.3	0.036	3E-06	0.0002	0.0001	0.0002	7E-06	0.34	3E-06	5E-06	0.0004	0.0009
		2041	mg/L	6.5	78	0.046	0.098	0.0023	0.021	0.03	4E-05	0.19	2E-05	19	0.0004	0.0034	0.0025	0.011	0.0002	0.0021	9.5	0.1	8E-06	0.0007	0.0004	0.0005	2E-05	0.99	8E-06	1E-05	0.0011	0.0027
24	Madrid South UG Mine Area - Reflooding	When inundated	mg/L	120	1400	0.85	2.7	0.042	0.39	0.54	0.00068	3.5	0.00035	360	0.0068	0.063	0.045	0.2	0.0036	0.038	180	1.9	0.00014	0.012	0.0076	0.009	0.00035	18	0.00014	0.00025	0.021	0.05
25	General Developed Areas and TIA Dams	Max	mg/L	16	110	0.038	0.025	0.0001	0.0006	0	0.0001	0.034	8E-06	37	0.0005	0.0002	0.0063	0.07	5E-05	0	7.4	0.008	5E-06	0.0005	0.0009	0.0002	1E-05	19	1E-05	0.0002	0.0005	0.0016
26	Doris TIA Exposed Tailings Beaches (Operations, Pre Dry Stack)	Until 2033	mg/L	1800	430	0.18	0.098	0.02	0.9	0.066	0.0003	0.64	0.0003	700	0.014	0.034	0.022	1.7	0.0014	0.047	580	0.66	0.0001	0.02	0.13	0.01	0.0003	100	0.0002	0.0009	0.0035	0.053
27	Doris TIA Exposed Tailings Beaches (Operations, Post Dry Stack)	From 2033	mg/L	1800	430	0.17	0.098	0.02	1.1	0.066	0.0003	0.6	0.0003	700	0.014	0.034	0.021	2	0.0014	0.049	580	0.66	0.0001	0.02	0.13	0.012	0.0003	130	0.0003	0.001	0.003	0.06
28	Doris TIA Exposed Tailings Beaches (Closure, Cover Case: Runoff)	2046 onwards	mg/L	16	110	0.038	0.025	0.0001	0.0006	0	0.0001	0.034	8E-06	37	0.0005	0.0002	0.0063	0.07	5E-05	0	7.4	0.008	5E-06	0.0005	0.0009	0.0002	1E-05	19	1E-05	0.0002	0.0005	0.0016
29	Doris TIA Exposed Tailings Beaches (Closure, Cover Case: Infiltration)	2046 onwards	mg/L	1800	430	2.8	0.098	0.02	3.2	0.066	0.002	2.2	0.0003	700	0.014	0.034	0.022	2.1	0.0014	0.11	580	1.4	0.0001	0.02	0.13	0.35	0.0003	3800	0.0003	0.0097	0.01	0.089
30	Doris TIA Exposed Tailings Beaches (Closure, Uncovered Case)	2046 onwards	mg/L	1800	430	0.16	0.098	0.017	0.56	0.066	0.0004	0.37	0.0003	660	0.014	0.034	0.022	1.2	0.0009	0.025	470	0.35	0.0001	0.02	0.13	0.0062	0.0003	100	0.0001	0.0009	0.0025	0.033
31	Tailings Dry Stack (Operations)	From 2033	mg/L	1800	430	2.8	0.098	0.02	3.2	0.066	0.002	2.2	0.0003	700	0.014	0.034	0.022	2.1	0.0014	0.11	580	1.4	0.0001	0.02	0.13	0.4	0.0003	4400	0.0003	0.0097	0.01	0.089
32	Tailings Dry Stack (Closure, Cover Case: Runoff)	2046 onwards	mg/L	16	110	0.038	0.025	0.0001	0.0006	0	0.0001	0.034	8E-06	37	0.0005	0.0002	0.0063	0.07	5E-05	0	7.4	0.008	5E-06	0.0005	0.0009	0.0002	1E-05	19	1E-05	0.0002	0.0005	0.0016
33	Tailings Dry Stack (Closure, Cover Case: Infiltration)	2046 onwards	mg/L	1800	430	2.8	0.098	0.02	3.2	0.066	0.002	2.2	0.0003	700	0.014	0.034	0.022	2.1	0.0014	0.11	580	1.4	0.0001	0.02	0.13	24	0.0003	5000	0.0003	0.0097	0.01	0.089
34	Tailings Dry Stack (Closure, Uncovered Case)	2046 onwards	mg/L	1800	430	2.8	0.098	0.02	3.2	0.066	0.002	2.2	0.0003	700	0.014	0.034	0.022	2.1	0.0014	0.11	580	1.4	0.0001	0.02	0.13	0.32	0.0003	3400	0.0003	0.0097	0.01	0.089
35	Total Metals Content in TSS - Construction Rock	Max	mg/kg	0	0	0	33000	0.1	3.3	6	0	20	0.1	51000	150	39	140	61000	2.2	0	25000	1300	0.01	0.3	61	0.5	0.1	190	0.1	0.1	150	81
36a	Total Metals Content in TSS - Combined Detoxified Doris Tailings	Max	mg/kg	0	0	0	9000	0.24	70	13	0	20	0.53	29000	44	43	710	53000	53	0	13000	950	0.017	0.58	45	1.6	2.4	910	0.2	0.1	40	250
36b	Total Metals Content in TSS - Combined Detoxified Madrid North Tailings	Max	mg/kg	0	0	0	8200	0.83	520	24	0	20	0.25	72000	220	51	170	62000	6.6	0	34000	1400	0.04	4.3	350	0.6	0.13	500	0.075	0.095	47	98
36c	Total Metals Content in TSS - Combined Detoxified Patch 7 Tailings	Max	mg/kg	0	0	0	8200	0.83	520	24	0	20	0.25	72000	220	51	170	62000	6.6	0	34000	1400	0.04	4.3	350	0.6	0.13	500	0.075	0.095	47	98
36d	Total Metals Content in TSS - Combined Detoxified Madrid South Tailings	Max	mg/kg	0	0	0	1300	0.26	400	5.8	0	20	0.21	43000	88	35	120	46000	7	0	15000	690	0	5.1	82	1.7	0.28	230	0.1	0.11	12	34

Term	Source	Year	Units	SO4	Alk	F	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co	Cu	Fe	Pb	Li	Mg	Mn	Hg	Mo	Ni	Se	Ag	Na	Tl	U	V	Zn
37	Total Metals Content in TSS - Doris Waste Rock	Max	mg/kg	0	0	0	24000	0.1	5.3	10	2	20	0.1	50000	26	31	38	93000	1.7	0	17000	1800	10	1.1	4	0.5	0.1	560	0.1	0.1	74	110
38	Total Metals Content in TSS - Madrid North Waste Rock	Max	mg/kg	0	0	0	25000	0.2	62	15	0.2	0	0.1	70000	170	47	120	69000	1.3	0	35000	1500	0.01	0.5	140	0.8	0.1	450	0.1	0.1	120	60
39	Total Metals Content in TSS - Patch 7 Waste Rock	Max	mg/kg	0	0	0	12000	0.25	89	12	0.3	0	0.09	73000	220	63	150	80000	0.7	0	40000	1500	0.01	0.61	350	1	0.06	400	0.02	0.05	86	51
40	Total Metals Content in TSS - Madrid South Waste Rock	Max	mg/kg	0	0	0	14000	0.1	6	14	0	20	0.1	37000	130	32	83	46000	1.1	0	24000	910	10	0.3	75	0.5	0.1	660	0.1	0.1	48	54
41	Total Metals Content in TSS - Doris UG	Max	mg/kg	0	0	0	17000	0.1	21	7.2	1.4	15	0.24	37000	24	29	51	75000	4.5	0	12000	1300	7	1.3	7.6	1	0.16	420	0.075	0.075	52	100
42	Total Metals Content in TSS - Madrid North UG	Max	mg/kg	0	0	0	11000	0.086	27	6.5	0.086	0	0.043	30000	72	20	53	30000	0.56	0	15000	630	0.0043	0.22	60	0.35	0.043	190	0.043	0.043	51	26
43	Total Metals Content in TSS - Patch 7 UG	Max	mg/kg	0	0	0	5400	0.11	40	5.4	0.13	0	0.04	32000	100	28	65	36000	0.31	0	18000	680	0.0045	0.27	160	0.45	0.027	180	0.009	0.022	38	23
44	Total Metals Content in TSS - Madrid South UG	Max	mg/kg	0	0	0	6700	0.047	2.8	6.6	0	9.4	0.047	18000	63	15	39	22000	0.52	0	11000	430	4.7	0.14	35	0.24	0.047	310	0.047	0.047	23	25
45	Loading Added to Process Water by Ore Processing	2028	mg/L	1000	140	0.089	0.032	0.0099	0.3	0	0.0013	0.017	1E-04	33	0.001	0.0004	0.89	0.051	0.0005	0	30	0.036	5E-05	0.067	0.14	0.0026	0.0002	80	0.0002	0.0005	0.0003	0.01
		2032	mg/L	570	180	0.11	0.043	0.017	0.5	0	0.0021	0.0063	0.0002	37	0.0017	0.0001	1.5	0.059	0.0008	0	46	0.024	0.0002	0.11	0.23	0.0044	0.0004	96	0.0002	0.0008	1E-04	0.017
		2036	mg/L	350	210	0.12	0.046	0.02	0.58	0	0.0025	0.0007	0.0002	46	0.0022	2E-05	1.7	0.073	0.0009	0	58	0.02	0.0006	0.13	0.27	0.0056	0.0005	110	0.0003	0.0009	1E-05	0.021
		2041	mg/L	310	210	0.12	0.049	0.021	0.63	0	0.0026	0	0.0002	40	0.0021	0	1.8	0.064	0.001	0	56	0.017	0.0003	0.14	0.28	0.0055	0.0005	110	0.0003	0.001	0	0.02

Source: https://srk.sharepoint.com/sites/NACAPR003316/Internal/100 Source Term Derivation/[HopeBayFEIS_SourceTerms_CAPR003316_KWJ_JED_Rev00.xlsx]

Table 7-19: Summary of Upper Case Source Term Results

Term	Source	Year	Units	SO4	Alk	F	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co	Cu	Fe	Pb	Li	Mg	Mn	Hg	Mo	Ni	Se	Ag	Na	Tl	U	V	Zn
1	Doris Pad T Ore Pile	Max	mg/L	2400	580	1.9	0.064	0.032	4.5	0.067	0.001	1.5	0.0004	680	0.0093	0.057	0.028	2.4	0.0019	0.064	170	1.2	0.0001	0.031	0.24	0.039	0.0003	49	0.0004	0.002	0.005	0.077
2	Doris Waste Rock Stockpile #1 (West)	Max	mg/L	1100	580	1.9	0.064	0.032	0.89	0.067	0.001	1.5	0.0004	680	0.0093	0.056	0.028	3	0.0019	0.064	170	1.2	0.0001	0.031	0.16	0.033	0.0003	410	0.0004	0.0099	0.005	0.077
3	Doris Waste Rock Stockpile #2 (Pad U)	Max	mg/L	1400	580	1.9	0.064	0.032	1.1	0.067	0.001	1.5	0.0004	680	0.0093	0.057	0.028	3	0.0019	0.064	170	1.2	0.0001	0.031	0.2	0.041	0.0003	410	0.0004	0.012	0.005	0.077
4	Doris Waste Rock Stockpile #2 (Pad U) - Closure	2046 onwards	mg/L	730	580	1.9	0.064	0.032	0.59	0.067	0.001	1.5	0.0004	680	0.0093	0.037	0.028	3	0.0019	0.064	170	1.2	0.0001	0.031	0.11	0.022	0.0003	410	0.0004	0.0066	0.005	0.077
5	Doris Overburden Stockpile	Max	mg/L	13	65	0.034	0.048	0.0001	0.0018	0	0.0001	0.047	1E-05	16	0.0001	0.0001	0.015	0.023	5E-05	0	5.2	0.0061	1E-05	0.0004	0.001	0.0003	1E-05	19	1E-05	0.0002	0.0015	0.011
6	Doris UG Mine Area	2024	mg/L	150	27	0.021	0.08	1E-04	0.0019	0.015	3E-05	0.2	0.0004	52	0.0004	0.0077	0.0035	0.15	0.0002	0.0097	21	0.88	7E-06	0.0002	0.0076	0.0059	2E-05	3.9	4E-05	4E-05	0.002	0.011
		2028	mg/L	130	23	0.018	0.068	8E-05	0.0016	0.013	3E-05	0.17	0.0004	43	0.0003	0.0065	0.0029	0.13	0.0002	0.0081	18	0.74	6E-06	0.0001	0.0064	0.0049	1E-05	3.3	3E-05	4E-05	0.0017	0.009
		2032	mg/L	110	26	0.021	0.084	0.0001	0.002	0.014	4E-05	0.15	0.0004	39	0.0003	0.0072	0.0026	0.12	0.0002	0.0071	16	0.68	8E-06	0.0002	0.0056	0.0043	2E-05	3.7	3E-05	4E-05	0.0024	0.0079
		2036	mg/L	110	29	0.025	0.097	0.0001	0.0024	0.015	5E-05	0.16	0.0004	39	0.0003	0.0081	0.0027	0.12	0.0002	0.0072	16	0.71	1E-05	0.0002	0.0056	0.0043	2E-05	4.2	3E-05	4E-05	0.0028	0.008
		2038	mg/L	110	30	0.025	0.098	0.0001	0.0024	0.015	5E-05	0.16	0.0004	39	0.0003	0.0081	0.0027	0.12	0.0002	0.0072	16	0.71	1E-05	0.0002	0.0056	0.0043	2E-05	4.2	3E-05	4E-05	0.0029	0.008
7	Doris UG Mine Area - Reflooding	When inundated	mg/L	7100	1100	0.85	3.3	0.0041	0.08	0.56	0.0014	6.5	0.2	1600	0.013	0.29	0.11	4.9	0.0072	0.31	680	29	0.00032	0.007	0.24	0.18	0.00059	150	0.0012	0.0015	0.091	0.34
8	Madrid North Waste Rock Stockpile #1 (South, Existing)	Max	mg/L	2400	580	1.9	0.064	0.032	4.5	0.067	0.001	1.5	0.0004	680	0.0093	0.057	0.028	3	0.0019	0.064	170	1.2	0.0001	0.031	0.24	0.07	0.0003	290	0.0004	0.0069	0.005	0.077
9	Madrid North Waste Rock Stockpile #2 (North)	Max	mg/L	2400	580	1.9	0.064	0.032	4.5	0.067	0.001	1.5	0.0004	680	0.0093	0.057	0.028	3	0.0019	0.064	170	1.2	0.0001	0.031	0.24	0.17	0.0003	410	0.0004	0.014	0.005	0.077
10	Madrid North Ore Pile	Max	mg/L	2400	580	1.9	0.064	0.032	4.5	0.067	0.001	1.5	0.0004	680	0.0093	0.057	0.028	3	0.0019	0.064	170	1.2	0.0001	0.031	0.24	0.055	0.0003	69	0.0004	0.0027	0.005	0.077
11	Patch 7 Waste Rock Stockpile	Max	mg/L	2400	580	1.9	0.064	0.032	4.5	0.067	0.001	1.5	0.0004	680	0.0093	0.057	0.028	3	0.0019	0.064	170	1.2	0.0001	0.031	0.24	0.1	0.0003	410	0.0004	0.013	0.005	0.077
12	Patch 7 Ore Pile	Max	mg/L	2400	580	1.9	0.064	0.032	4.5	0.067	0.001	1.5	0.0004	680	0.0093	0.057	0.028	2.7	0.0019	0.064	170	1.2	0.0001	0.031	0.24	0.046	0.0003	58	0.0004	0.0023	0.005	0.077
13	Madrid South Waste Rock Stockpile	Max	mg/L	780	580	1.9	0.064	0.032	4.5	0.067	0.001	1.5	0.0004	680	0.0093	0.057	0.028	1.4	0.0019	0.064	170	1.2	0.0001	0.031	0.24	0.064	0.0003	410	0.0004	0.014	0.005	0.077
14	Madrid South Waste Rock Stockpile - Closure	2046 onwards	mg/L	760	580	1.9	0.064	0.032	4.5	0.067	0.001	1.5	0.0004	680	0.0093	0.057	0.028	1.4	0.0019	0.064	170	1.2	0.0001	0.031	0.24	0.062	0.0003	410	0.0004	0.014	0.005	0.077
15	Madrid South Ore Pile	Max	mg/L	2400	580	1.9	0.064	0.032	4.5	0.067	0.001	1.5	0.0004	680	0.0093	0.057	0.028	2.9	0.0019	0.064	170	1.2	0.0001	0.031	0.24	0.041	0.0003	52	0.0004	0.0014	0.005	0.077
16	Naartok East CPR Trench	Max	mg/L	130	150	0	0.02	0.014	0.98	0	0.0004	1.7	0.0001	270	0.002	0.067	0.0075	0.2	0.001	0	540	0.56	5E-06	0.031	0.86	0.012	0.0002	4200	0.0002	0.019	0.01	0.15
17	Madrid Overburden Stockpiles - Saline Seepage	Until reclaimed	mg/L	3300	300	2	0.062	0.005	0.0059	0	0.0024	1.9	0.0025	1200	0.005	0.089	0.014	11	0.0025	0	2300	7.9	1E-05	0.022	0.067	0.0031	0.0005	15000	0.0005	0.038	0.025	0.05
18	Madrid Overburden Stockpiles - Non-Saline Seepage - Closure	After reclamation	mg/L	5.4	74	0.037	0.023	0.0001	0.002	0	0.0001	0.018	5E-06	24	0.0005	0.0003	0.0055	0.034	5E-05	0	3.7	0.036	1E-05	0.0004	0.0017	0.0001	1E-05	9	1E-05	0.0001	0.0005	0.0022
19	Madrid North UG Mine Area	2028	mg/L	7	8.8	0.0098	0.023	0.0011	0.18	0.0014	1E-05	0.023	4E-06	3.8	7E-05	0.0033	0.0004	0.0058	4E-05	0.0004	1.7	0.009	6E-06	0.0007	0.0028	0.0001	5E-06	0.55	1E-05	1E-05	0.0007	0.0016
		2032	mg/L	24	30	0.034	0.079	0.0038	0.62	0.0049	5E-05	0.079	1E-05	13	0.0003	0.011	0.0013	0.02	0.0001	0.0014	5.8	0.031	2E-05	0.0023	0.0098	0.0005	2E-05	1.9	3E-05	5E-05	0.0023	0.0056

Term	Source	Year	Units	SO4	Alk	F	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co	Cu	Fe	Pb	Li	Mg	Mn	Hg	Mo	Ni	Se	Ag	Na	Tl	U	V	Zn
		2036	mg/L	38	48	0.054	0.098	0.006	0.98	0.0078	7E-05	0.13	2E-05	21	0.0004	0.018	0.0021	0.032	0.0002	0.0023	9.2	0.049	3E-05	0.0036	0.015	0.0008	3E-05	3	5E-05	7E-05	0.0037	0.0089
		2041	mg/L	48	61	0.068	0.098	0.0075	1.2	0.0098	9E-05	0.16	3E-05	26	0.0005	0.023	0.0026	0.04	0.0002	0.0029	12	0.062	4E-05	0.0046	0.019	0.001	3E-05	3.8	7E-05	9E-05	0.0047	0.011
20	Madrid North UG Mine Area - Reflooding	When inundated	mg/L	1300	1700	1.9	4.4	0.21	34	0.27	0.0025	4.4	0.00075	730	0.014	0.63	0.073	1.1	0.0066	0.08	320	1.7	0.0011	0.13	0.54	0.027	0.0009	100	0.0018	0.0025	0.13	0.31
21	Patch 7 UG Mine Area	2031	mg/L	1.2	2.6	0.0031	0.0062	0.0003	0.039	0.0006	5E-06	0.0067	1E-06	0.84	2E-05	0.0015	0.0001	0.0016	9E-06	0.0001	0.44	0.0038	2E-06	0.0002	0.0004	4E-05	2E-06	0.14	2E-06	4E-06	0.0002	0.0005
		2035	mg/L	16	33	0.04	0.081	0.0036	0.5	0.0083	6E-05	0.087	2E-05	11	0.0003	0.019	0.0015	0.021	0.0001	0.0017	5.6	0.049	2E-05	0.0024	0.0053	0.0005	2E-05	1.8	2E-05	6E-05	0.0022	0.0065
		2039	mg/L	29	62	0.074	0.098	0.0066	0.92	0.015	0.0001	0.16	3E-05	20	0.0005	0.035	0.0028	0.039	0.0002	0.0031	10	0.091	5E-05	0.0044	0.0098	0.0009	4E-05	3.4	4E-05	0.0001	0.0041	0.012
		2041	mg/L	38	80	0.096	0.098	0.0086	1.2	0.02	0.0001	0.21	4E-05	26	0.0007	0.045	0.0037	0.05	0.0003	0.0041	13	0.12	6E-05	0.0057	0.013	0.0012	5E-05	4.4	5E-05	0.0001	0.0054	0.016
22	Patch 7 UG Mine Area - Reflooding	When inundated	mg/L	1000	1900	2.2	4.3	0.22	30	0.54	0.0028	5.1	0.00081	640	0.016	1.1	0.089	1.2	0.0063	0.093	330	3.1	0.0014	0.14	0.36	0.029	0.001	110	0.0012	0.003	0.13	0.38
23	Madrid South UG Mine Area	2033	mg/L	0.049	0.52	0.0003	0.0014	2E-05	0.0043	0.0034	2E-07	0.0012	1E-07	0.94	2E-06	0.0007	2E-05	9E-05	1E-06	2E-05	0.085	0.0016	5E-08	2E-05	3E-05	5E-06	1E-07	0.029	9E-08	4E-06	1E-05	2E-05
		2037	mg/L	3.2	33	0.021	0.091	0.0014	0.28	0.066	1E-05	0.074	8E-06	60	0.0001	0.045	0.0013	0.0057	9E-05	0.0013	5.4	0.1	3E-06	0.001	0.0021	0.0003	7E-06	1.9	6E-06	0.0003	0.0008	0.0014
		2041	mg/L	9.1	96	0.061	0.098	0.004	0.8	0.066	4E-05	0.21	2E-05	170	0.0004	0.045	0.0037	0.017	0.0003	0.0036	16	0.29	1E-05	0.0028	0.006	0.001	2E-05	5.4	2E-05	0.0008	0.0024	0.0041
24	Madrid South UG Mine Area - Reflooding	When inundated	mg/L	170	1800	1.1	4.9	0.075	15	12	0.00075	4	0.00041	3200	0.0075	2.5	0.069	0.31	0.0048	0.068	290	5.4	0.00018	0.051	0.11	0.018	0.0004	100	0.00029	0.014	0.045	0.077
25	General Developed Areas and TIA Dams	Max	mg/L	76	140	0.093	0.1	0.0005	0.0018	0	0.0005	0.1	5E-05	55	0.001	0.0005	0.011	0.19	0.0005	0	15	0.14	1E-05	0.0017	0.0032	0.001	2E-05	52	0.0002	0.0003	0.001	0.005
26	Doris TIA Exposed Tailings Beaches (Operations, Pre Dry Stack)	Until 2033	mg/L	2400	570	0.24	0.098	0.026	1.7	0.066	0.002	0.97	0.0004	940	0.019	0.045	0.029	2.8	0.0019	0.098	780	1.3	0.0001	0.027	0.17	0.026	0.0003	200	0.0004	0.0043	0.0098	0.12
27	Doris TIA Exposed Tailings Beaches (Operations, Post Dry Stack)	From 2033	mg/L	2400	570	0.17	0.098	0.026	2	0.066	0.0016	0.84	0.0004	940	0.019	0.045	0.029	2.8	0.0019	0.056	780	1.2	0.0001	0.027	0.17	0.021	0.0003	230	0.0004	0.0023	0.0043	0.11
28	Doris TIA Exposed Tailings Beaches (Closure, Cover Case: Runoff)	2046 onwards	mg/L	76	140	0.093	0.1	0.0005	0.0018	0	0.0005	0.1	5E-05	55	0.001	0.0005	0.011	0.19	0.0005	0	15	0.14	1E-05	0.0017	0.0032	0.001	2E-05	52	0.0002	0.0003	0.001	0.005
29	Doris TIA Exposed Tailings Beaches (Closure, Cover Case: Infiltration)	2046 onwards	mg/L	2400	570	3.7	0.098	0.026	4.3	0.066	0.002	2.2	0.0004	940	0.019	0.045	0.029	2.8	0.0019	0.15	780	1.9	0.0001	0.027	0.17	0.62	0.0003	6800	0.0004	0.013	0.01	0.12
30	Doris TIA Exposed Tailings Beaches (Closure, Uncovered Case)	2046 onwards	mg/L	2400	570	0.28	0.098	0.026	0.98	0.066	0.0018	0.63	0.0004	940	0.019	0.045	0.029	2.2	0.0019	0.028	490	0.91	0.0001	0.027	0.17	0.012	0.0003	220	0.0004	0.0018	0.0042	0.065
31	Tailings Dry Stack (Operations)	From 2033	mg/L	2400	570	3.7	0.098	0.026	4.3	0.066	0.002	2.2	0.0004	940	0.019	0.045	0.029	2.8	0.0019	0.15	780	1.9	0.0001	0.027	0.17	0.72	0.0003	6800	0.0004	0.013	0.01	0.12
32	Tailings Dry Stack (Closure, Cover Case: Runoff)	2046 onwards	mg/L	76	140	0.093	0.1	0.0005	0.0018	0	0.0005	0.1	5E-05	55	0.001	0.0005	0.011	0.19	0.0005	0	15	0.14	1E-05	0.0017	0.0032	0.001	2E-05	52	0.0002	0.0003	0.001	0.005
33	Tailings Dry Stack (Closure, Cover Case: Infiltration)	2046 onwards	mg/L	2400	570	3.7	0.098	0.026	4.3	0.066	0.002	2.2	0.0004	940	0.019	0.045	0.029	2.8	0.0019	0.15	780	1.9	0.0001	0.027	0.17	44	0.0003	6800	0.0004	0.013	0.01	0.12
34	Tailings Dry Stack (Closure, Uncovered Case)	2046 onwards	mg/L	2400	570	3.7	0.098	0.026	4.3	0.066	0.002	2.2	0.0004	940	0.019	0.045	0.029	2.8	0.0019	0.15	780	1.9	0.0001	0.027	0.17	0.63	0.0003	6800	0.0004	0.013	0.01	0.12
35	Total Metals Content in TSS - Construction Rock	Max	mg/kg	0	0	0	41000	0.1	31	48	0	47	0.3	82000	1000	68	190	86000	7.9	0	38000	1900	0.01	0.9	550	0.81	54	790	0.1	0.2	220	120
36a	Total Metals Content in TSS - Combined Detoxified Doris Tailings	Max	mg/kg	0	0	0	13000	0.56	160	56	0	36	1.3	39000	74	75	1500	71000	130	0	16000	1200	0.039	1.1	74	2.7	7.4	1400	0.31	0.11	65	590

Term	Source	Year	Units	SO4	Alk	F	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co	Cu	Fe	Pb	Li	Mg	Mn	Hg	Mo	Ni	Se	Ag	Na	Tl	U	V	Zn
36b	Total Metals Content in TSS - Combined Detoxified Madrid North Tailings	Max	mg/kg	0	0	0	10000	0.85	520	27	0	20	0.39	75000	240	56	220	64000	9.5	0	35000	1600	0.04	6.7	350	0.6	0.15	770	0.098	0.1	55	150
36c	Total Metals Content in TSS - Combined Detoxified Patch 7 Tailings	Max	mg/kg	0	0	0	10000	0.85	520	27	0	20	0.39	75000	240	56	220	64000	9.5	0	35000	1600	0.04	6.7	350	0.6	0.15	770	0.098	0.1	55	150
36d	Total Metals Content in TSS - Combined Detoxified Madrid South Tailings	Max	mg/kg	0	0	0	3500	1.4	420	17	0	20	0.55	57000	98	41	130	58000	57	0	21000	1000	0	6.8	110	2.1	1.1	710	0.1	0.11	21	65
37	Total Metals Content in TSS - Doris Waste Rock	Max	mg/kg	0	0	0	64000	63	71	140	2	28	6	82000	130	52	440	110000	10	0	34000	2500	10	2.4	100	30	85	14000	20	0.18	370	160
38	Total Metals Content in TSS - Madrid North Waste Rock	Max	mg/kg	0	0	0	55000	35	810	150	2	0	3	110000	780	93	240	99000	10	0	63000	2300	0.02	2	740	10	1.9	9300	20	0.37	270	120
39	Total Metals Content in TSS - Patch 7 Waste Rock	Max	mg/kg	0	0	0	42000	2.7	850	150	0.7	0	0.18	120000	910	96	270	100000	3.1	0	94000	2300	0.01	1.4	890	1	0.3	1100	0.091	0.17	310	100
40	Total Metals Content in TSS - Madrid South Waste Rock	Max	mg/kg	0	0	0	45000	0.4	140	80	0	20	0.11	86000	240	45	130	69000	3.5	0	40000	1500	10	0.9	120	0.7	0.2	1400	0.1	0.2	180	81
41	Total Metals Content in TSS - Doris UG	Max	mg/kg	0	0	0	46000	45	68	100	1.4	21	4.4	60000	96	45	340	92000	10	0	25000	1800	7.1	2.3	79	22	61	10000	14	0.14	260	150
42	Total Metals Content in TSS - Madrid North UG	Max	mg/kg	0	0	0	26000	16	380	70	0.93	0	1.4	49000	360	43	110	46000	4.6	0	29000	1000	0.0093	0.93	340	4.6	0.9	4300	9.3	0.17	130	55
43	Total Metals Content in TSS - Patch 7 UG	Max	mg/kg	0	0	0	20000	1.3	410	70	0.34	0	0.087	60000	440	46	130	49000	1.5	0	45000	1100	0.0048	0.65	430	0.48	0.14	530	0.044	0.082	150	49
44	Total Metals Content in TSS - Madrid South UG	Max	mg/kg	0	0	0	23000	0.2	73	40	0	10	0.055	43000	120	22	65	35000	1.8	0	20000	730	5	0.45	60	0.35	0.1	680	0.05	0.1	92	41
45	Loading Added to Process Water by Ore Processing	2028	mg/L	3400	110	0.13	0.024	0.015	1.2	0	6E-05	0.058	1E-06	49	0.0001	0.23	0.065	0.026	1E-04	0	14	0.037	5E-06	0.016	0.0099	0.0022	3E-05	850	2E-05	0.0007	0.0014	0.0042
		2032	mg/L	4000	130	0.17	0.03	0.024	1.9	0	0.0003	0.075	3E-06	65	0.0003	0.38	0.1	0.019	0.0002	0	19	0.026	0.0001	0.028	0.016	0.0039	6E-05	1400	5E-05	0.0011	0.0019	0.0066
		2036	mg/L	4200	150	0.19	0.032	0.029	2.2	0	0.0012	0.08	4E-06	77	0.0007	0.43	0.12	0.029	0.0003	0	27	0.023	0.0007	0.035	0.02	0.0055	0.0001	1600	0.0002	0.0014	0.0021	0.01
		2041	mg/L	4400	150	0.2	0.033	0.03	2.4	0	0.0004	0.085	3E-06	74	0.0003	0.47	0.13	0.014	0.0002	0	22	0.019	0.0002	0.034	0.019	0.0049	7E-05	1700	7E-05	0.0014	0.0023	0.008

Source: https://srk.sharepoint.com/sites/NACAPR003316/Internal/100 Source Term Derivation/[HopeBayFEIS_SourceTerms_CAPR003316_KWJ_JED_Rev00.xlsx]

8 Conclusions

Based on the conceptual geochemical models which have been validated through monitoring of contact water chemistry over the life of mine and geochemical characterization results developed to-date, interim geochemical source terms have been developed for Doris and Madrid to reflect Agnico Eagle's updated mine plan and for use as inputs to the site wide water and load balance model (SRK 2024d). These source terms represent the proposed operational and closure phases of the mine plan and available data.

Base and upper case geochemical source terms (contact water chemistry) were estimated for the following Doris and Madrid mine components:

- Doris, Madrid North, Patch 7, and Madrid South waste rock and ore stockpiles;
- Doris and Madrid overburden stockpiles;
- Naartok East crown pillar recovery trench;
- Doris TIA tailings beaches and dry stack;
- Surface pads and infrastructure at Doris and Madrid and other facilities constructed primarily from quarry rock (e.g., Doris TIA Dams, quarry rock closure covers on the Doris TIA facilities);
- Doris, Madrid North, Patch 7, and Madrid South underground mines (including reflooded closure scenario);
- Total metals content in suspended solids from construction rock, combined detoxified tailings disposed in the Doris TIA, waste rock, and underground mine backfill and stopes.
- Doris Mill process water.

The source terms reflect the current understanding of the reactivity of each waste type present at Hope Bay. Implications for water management and environmental effects of the project will be evaluated in the accompanying water and load balance model (SRK 2024d). Agnico Eagle has initiated a kinetic test work program for waste rock, ore and tailings for Madrid, including Patch 7, and is committed to updating the source terms with these data in support of the addendum submission to the Nunavut Planning Commission, NWB, and NIRB.

Closure

This report, Interim Geochemical Source Term Predictions for the 2025 FEIS Amendment Application, Hope Bay Project, was prepared by

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EGBC Permit to Practice Reg. No.: EGBC 1003655

All data used as source material plus the text, tables, figures, and attachments of this document have been reviewed and prepared in accordance with generally accepted professional engineering and environmental practices.

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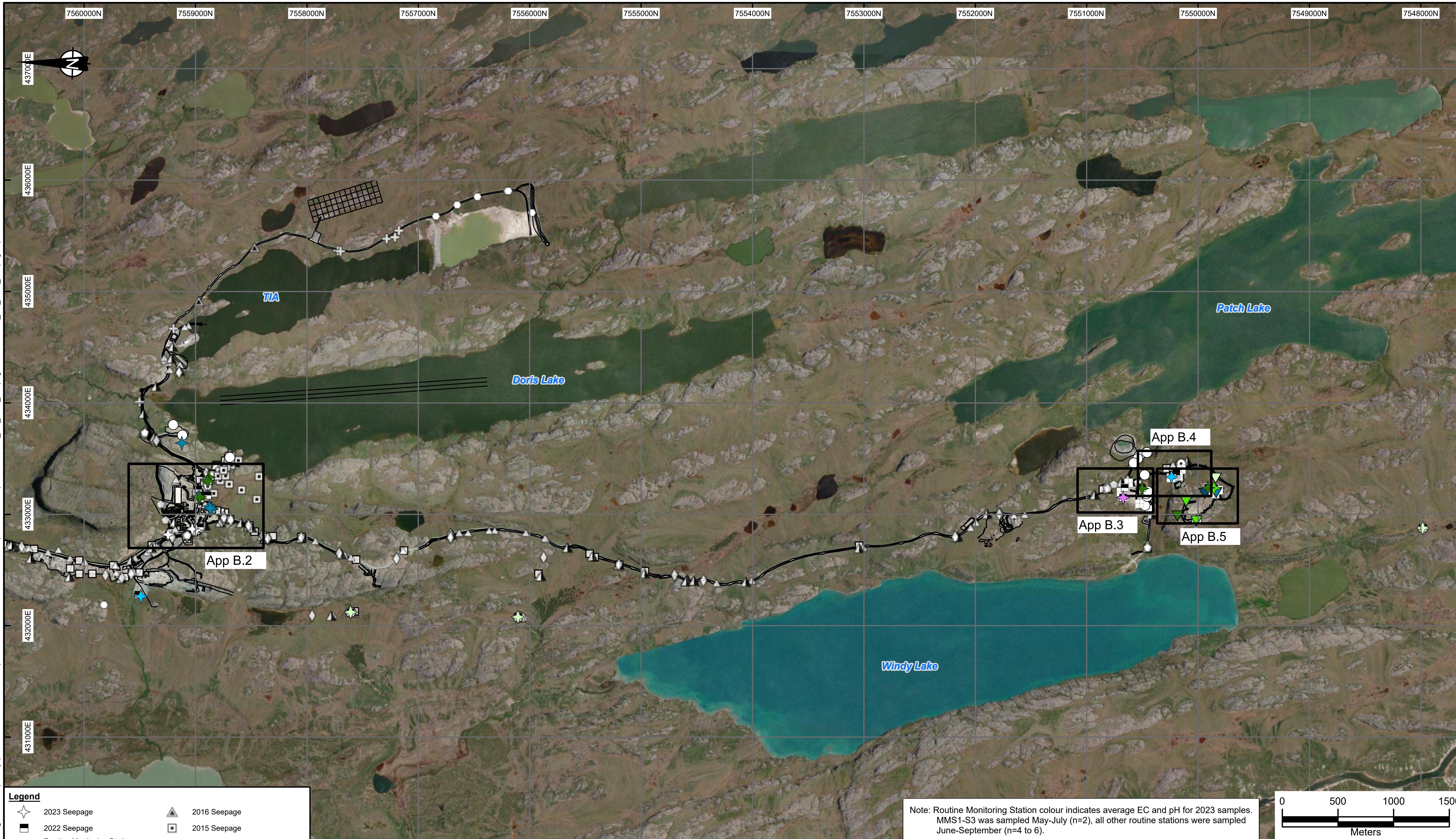
Appendix A 2023 Site Seepage Monitoring Sites



Note: Routine Monitoring Station colour indicates average EC and pH for 2023 samples. MMS1-S3 was sampled May-July (n=2), all other routine stations were sampled June-September (n=4 to 6).

Legend

- 2023 Seepage
- 2022 Seepage
- Routine Monitoring Station (2020-2023)
- 2021 Seepage
- 2020 Seepage
- 2019 Seepage
- 2018 Seepage
- 2017 Seepage
- 2016 Seepage
- 2015 Seepage
- 2014 Seepage
- 2013 Seepage
- 2012 Seepage
- 2011 Seepage
- 2010 Seepage
- Camp Layout Infrastructure

	pH < 7	7 < pH < 8	pH > 8
EC ≤ 500 uS/cm			
500 uS/cm < EC < 2000 uS/cm			
EC > 2000 uS/cm			

srk consulting

SRK JOB NO.: CAPR003316

FILE NAME: CAPR002393_HB_2023_Seepage

AGNICO EAGLE

Hope Bay Gold Project

2023 Doris/Madrid Seepage Monitoring

Seep Survey Locations

DATE:	APPROVED:	FIGURE:
Nov 2024	KWJ	App B.1

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Legend

- 2023 Seepage
- 2022 Seepage
- Routine Monitoring Station (2020-2023)
- 2021 Seepage
- 2020 Seepage
- 2019 Seepage
- 2018 Seepage
- 2017 Seepage
- 2016 Seepage
- 2015 Seepage
- 2014 Seepage
- 2013 Seepage
- 2012 Seepage
- 2011 Seepage
- 2010 Seepage
- Camp Layout Infrastructure

	pH < 7	7 < pH < 8	pH > 8
EC ≤ 500 uS/cm			
500 uS/cm < EC < 2000 uS/cm			
EC > 2000 uS/cm			

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SRK JOB NO.: CAPR003316

FILE NAME: CAPR002393_HB_2023_Seepage

AGNICO EAGLE

Hope Bay Gold Project

2023 Doris/Madrid Seepage Monitoring

Doris Seep Survey Locations

DATE:	APPROVED:	FIGURE:
Nov 2024	KWJ	App B.2

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Legend

- 2023 Seepage
- 2022 Seepage
- Routine Monitoring Station (2020-2023)
- 2021 Seepage
- 2020 Seepage
- 2019 Seepage
- 2018 Seepage
- 2017 Seepage
- 2016 Seepage
- 2015 Seepage
- 2014 Seepage
- 2013 Seepage
- 2012 Seepage
- 2011 Seepage
- 2010 Seepage
- Camp Layout Infrastructure

	pH < 7	7 < pH < 8	pH > 8
EC ≤ 500 uS/cm			
500 uS/cm < EC < 2000 uS/cm			
EC > 2000 uS/cm			

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SRK JOB NO.: CAPR003316

FILE NAME: CAPR002393_HB_2023_Seepage

AGNICO EAGLE

Hope Bay Gold Project

2023 Doris/Madrid Seepage Monitoring

Madrid North Overburden Stockpile Seep Survey Locations

DATE: Nov 2024 | APPROVED: KWJ | FIGURE: App B.3

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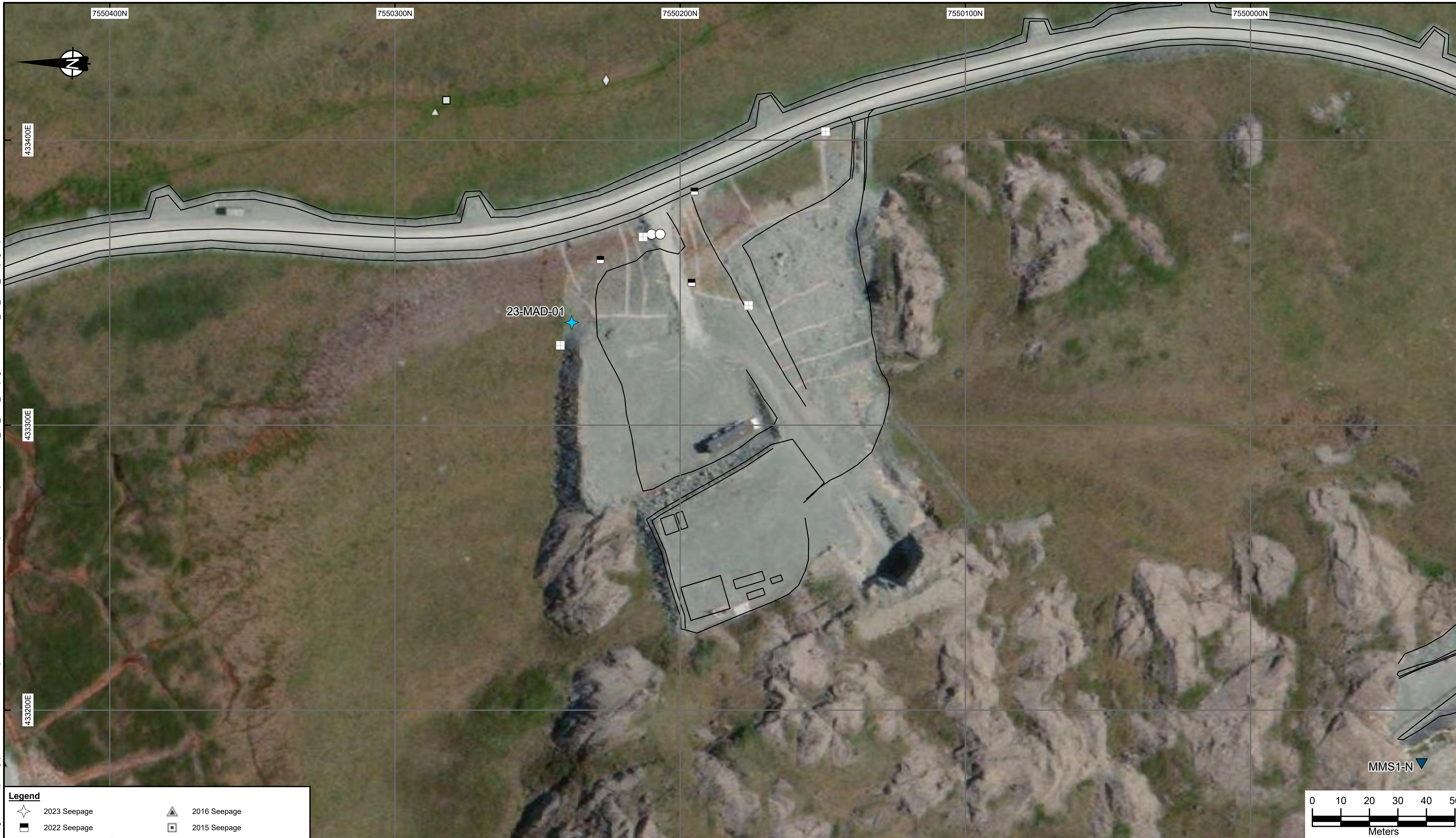

Legend

- 2023 Seepage
- 2022 Seepage
- Routine Monitoring Station (2020-2023)
- 2021 Seepage
- 2020 Seepage
- 2019 Seepage
- 2018 Seepage
- 2017 Seepage
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- 2012 Seepage
- 2011 Seepage
- 2010 Seepage
- Camp Layout Infrastructure

	pH < 7	7 < pH < 8	pH > 8
EC ≤ 500 uS/cm			
500 uS/cm < EC < 2000 uS/cm			
EC > 2000 uS/cm			

srk consulting

SRK JOB NO.: CAPR003316

FILE NAME: CAPR002393_HB_2023_Seepage

AGNICO EAGLE

Hope Bay Gold Project

2023 Doris/Madrid Seepage Monitoring

Madrid North Portal Pad
Seep Survey Locations

DATE: Nov 2024 | APPROVED: KWJ | FIGURE: App B.4

C:\Users\MSMITH\SRK Consulting\FS208 Hope Bay (Doris North, Boston, Madrid) - !ACAD Vancouver\GIS\FIGURES (mxd document)\CAPR002393_HB_2023_Seepage\CAPR002393_HB_2023_Seepage.aprx

C:\Users\MSMITH\SRK Consulting\FS208 Hope Bay (Doris North, Boston, Madrid) - !ACAD Vancouver\GIS\FIGURES (mxd document)\CAPR002393_HB_2023_Seepage\CAPR002393_HB_2023_Seepage.aprx

Legend

- 2023 Seepage
- 2022 Seepage
- Routine Monitoring Station (2020-2023)
- 2021 Seepage
- 2020 Seepage
- 2019 Seepage
- 2018 Seepage
- 2017 Seepage
- 2016 Seepage
- 2015 Seepage
- 2014 Seepage
- 2013 Seepage
- 2012 Seepage
- 2011 Seepage
- 2010 Seepage
- Camp Layout Infrastructure

	pH < 7	7 < pH < 8	pH > 8
EC ≤ 500 uS/cm			
500 uS/cm < EC < 2000 uS/cm			
EC > 2000 uS/cm			

srk consulting

SRK JOB NO.: CAPR003316

FILE NAME: CAPR002393_HB_2023_Seepage

AGNICO EAGLE

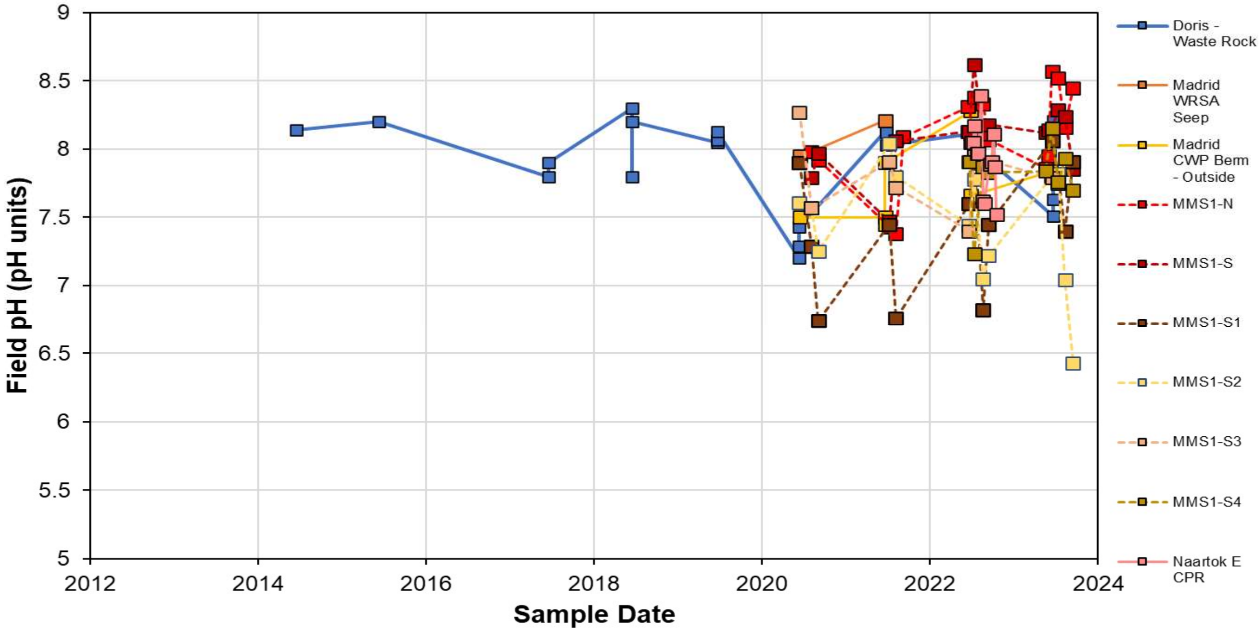
Hope Bay Gold Project

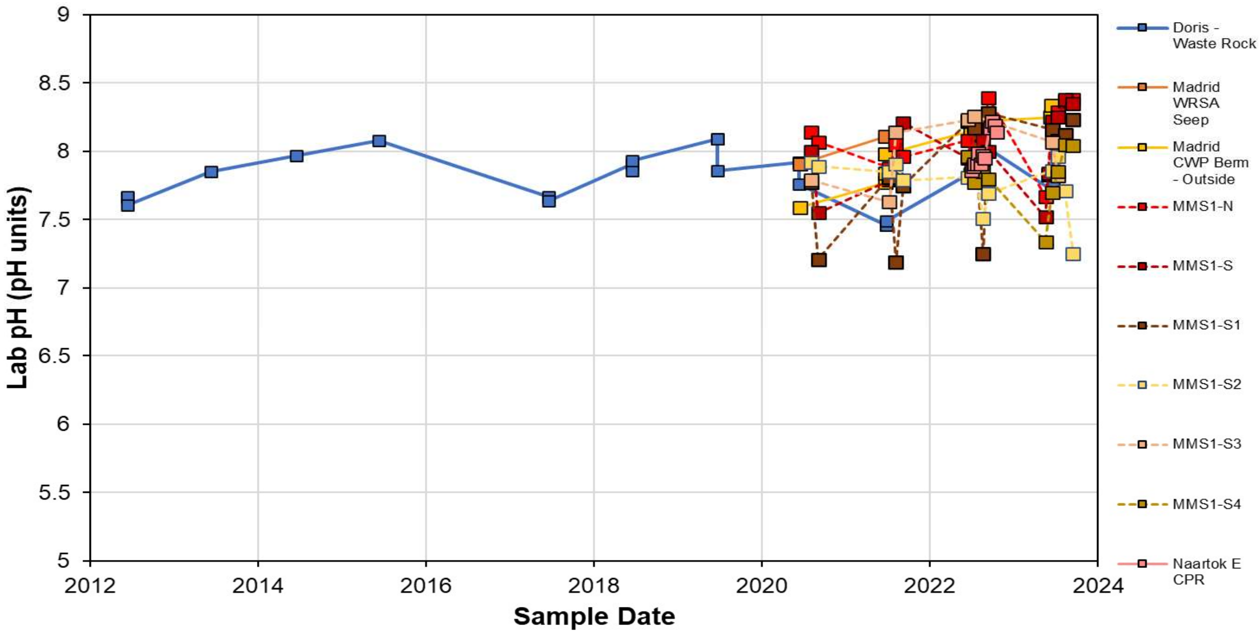
2023 Doris/Madrid Seepage Monitoring

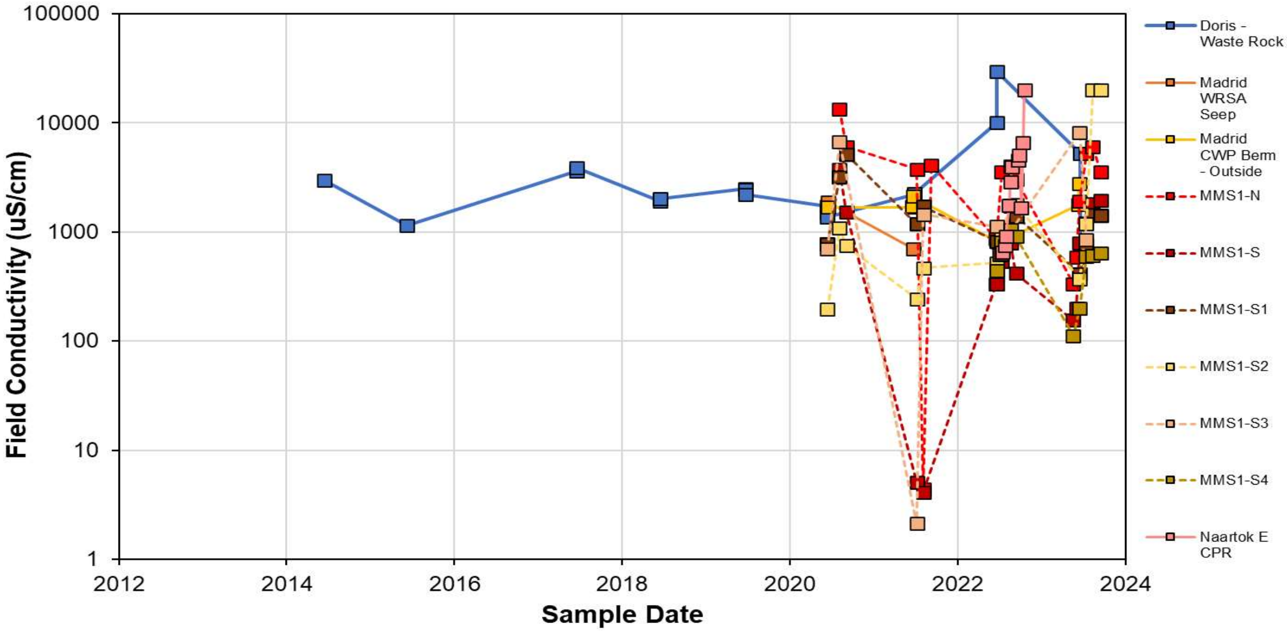
Madrid North WRSA Seep Survey and Routine Monitoring Locations

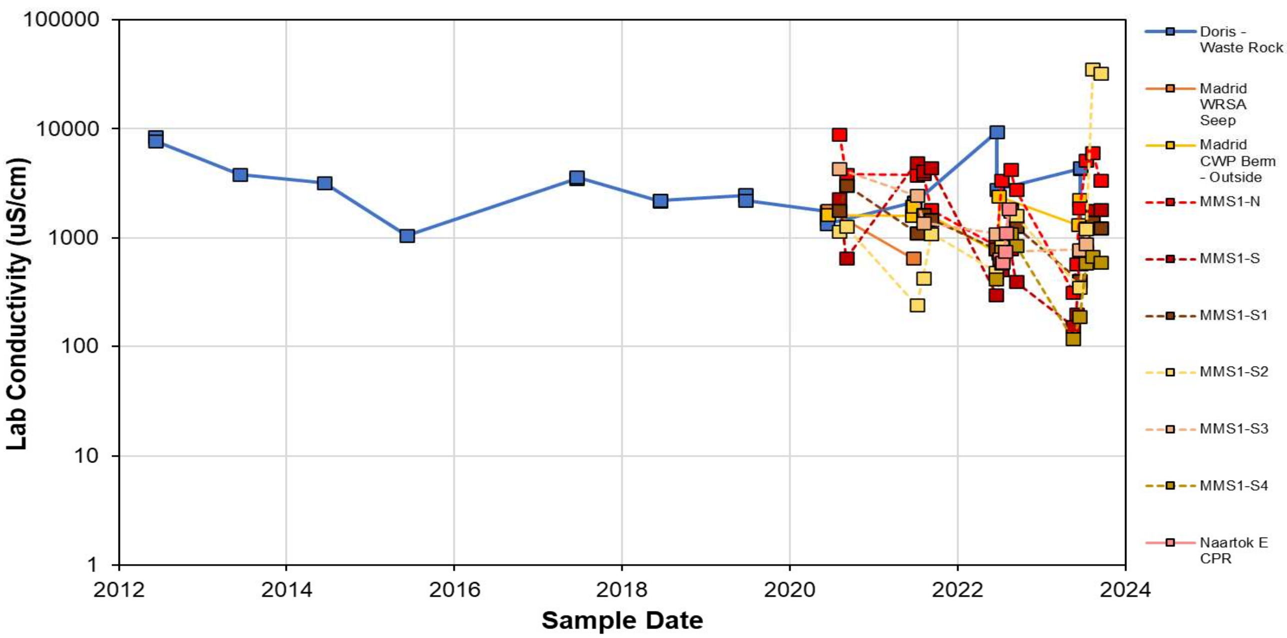
DATE: Nov | APPROVED: KWJ | FIGURE: App B.5

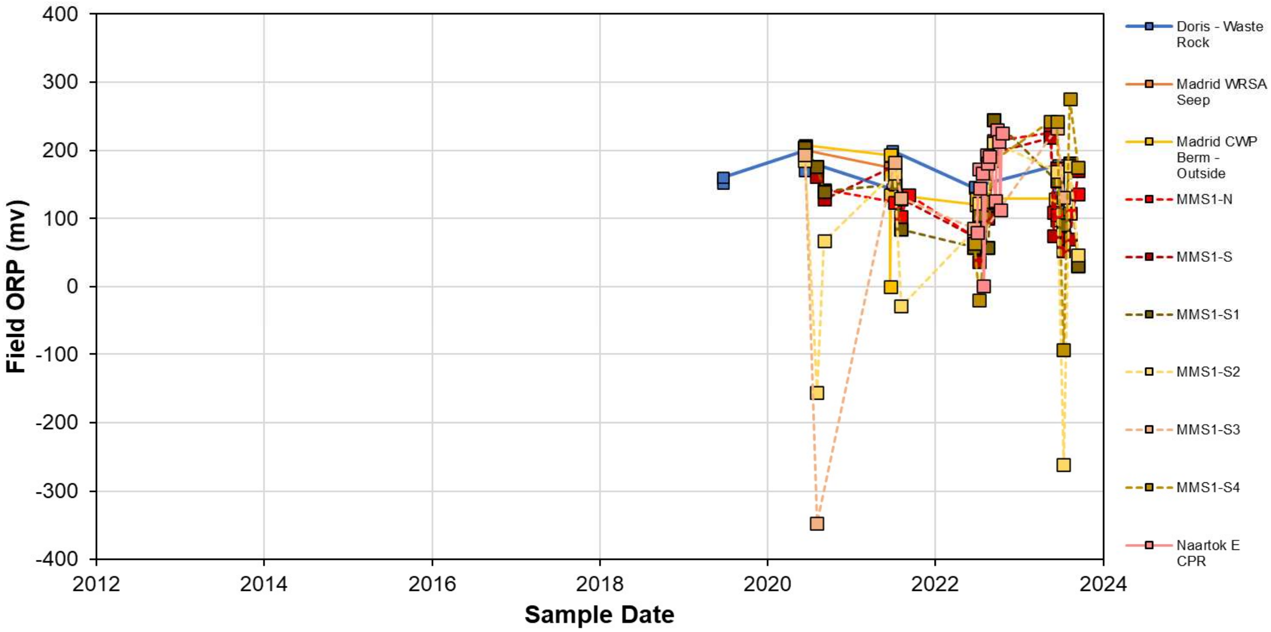
Appendix B Waste Rock and Ore Drainage Chemistry Timeseries Charts

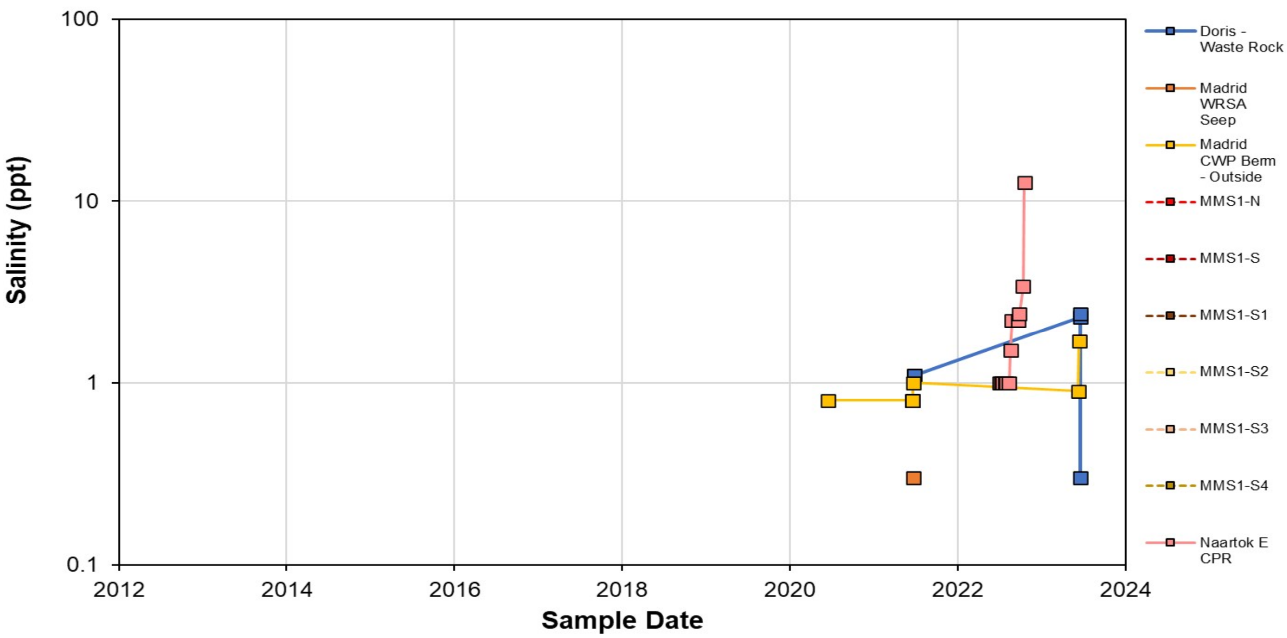

9
8.5
8
7.5
7
6.5
6
5.5
5
Field pH (pH units)
2012
2014
2016
2018
2020
2022
2024
Sample Date
Doris - Waste Rock
Madrid WRSA Seep
Madrid CWP Berm - Outside
MMS1-N
MMS1-S
MMS1-S1
MMS1-S2
MMS1-S3
MMS1-S4
Naartok E CPR

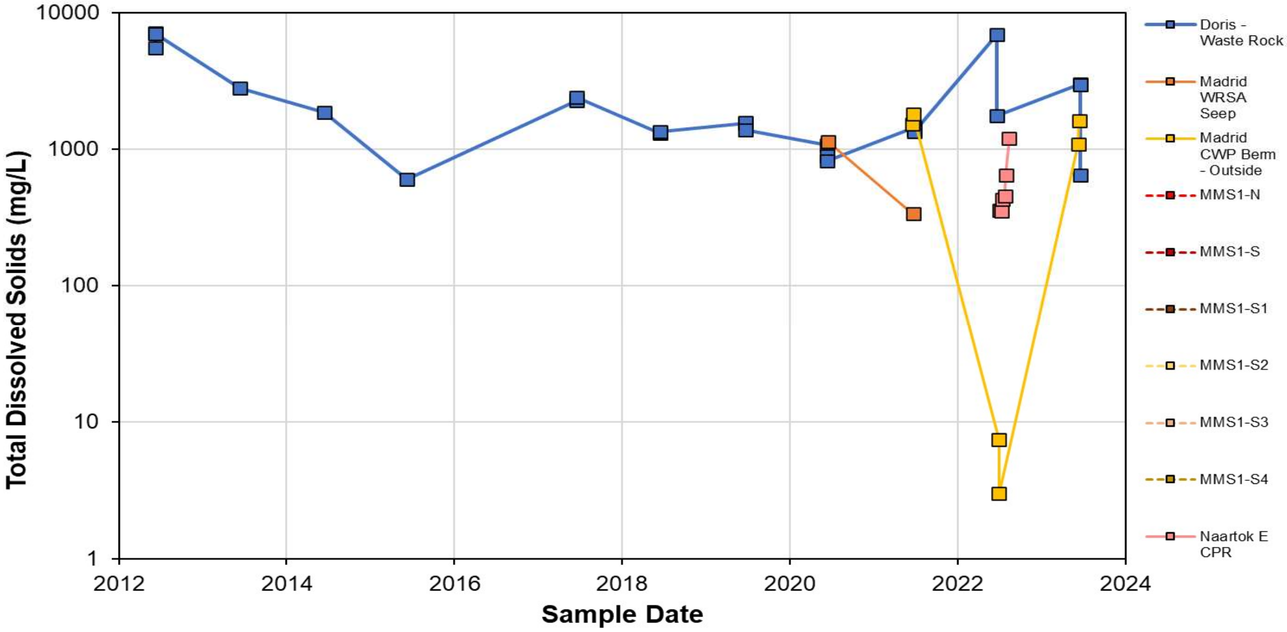

9
8.5
8
7.5
7
6.5
6
5.5
5
Lab pH (pH units)
2012
2014
2016
2018
2020
2022
2024
Sample Date
Doris - Waste Rock
Madrid WRSA Seep
Madrid CWP Berm - Outside
MMS1-N
MMS1-S
MMS1-S1
MMS1-S2
MMS1-S3
MMS1-S4
Naartok E CPR

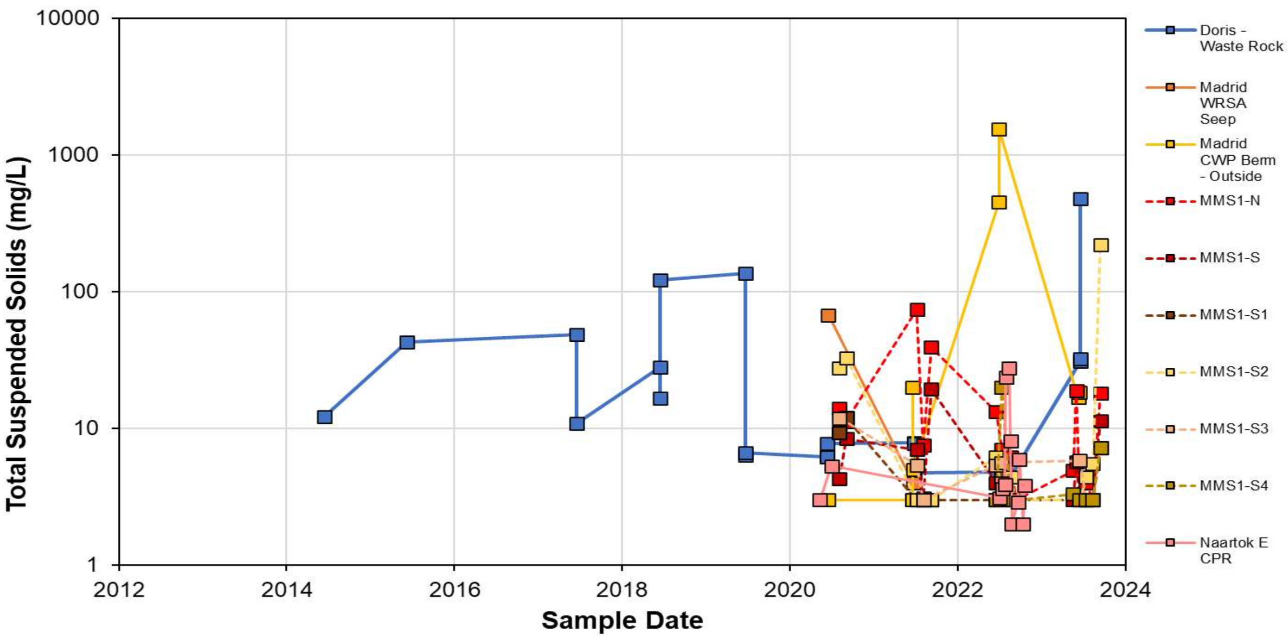

100000
10000
1000
100
10
1
Field Conductivity (uS/cm)
2012
2014
2016
2018
2020
2022
2024
Sample Date
Doris - Waste Rock
Madrid WRSA Seep
Madrid CWP Berm - Outside
MMS1-N
MMS1-S
MMS1-S1
MMS1-S2
MMS1-S3
MMS1-S4
Naartok E CPR

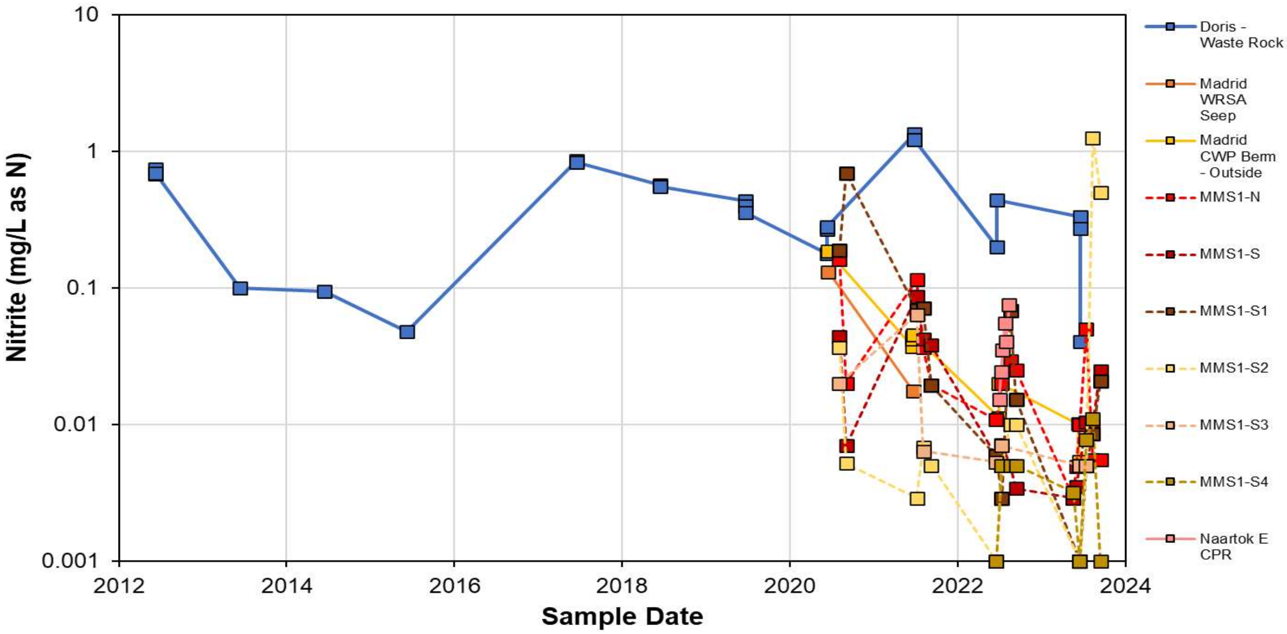

100000
10000
1000
100
10
1
Lab Conductivity (uS/cm)
2012
2014
2016
2018
2020
2022
2024
Sample Date
Doris - Waste Rock
Madrid WRSA Seep
Madrid CWP Berm - Outside
MMS1-N
MMS1-S
MMS1-S1
MMS1-S2
MMS1-S3
MMS1-S4
Naartok E CPR

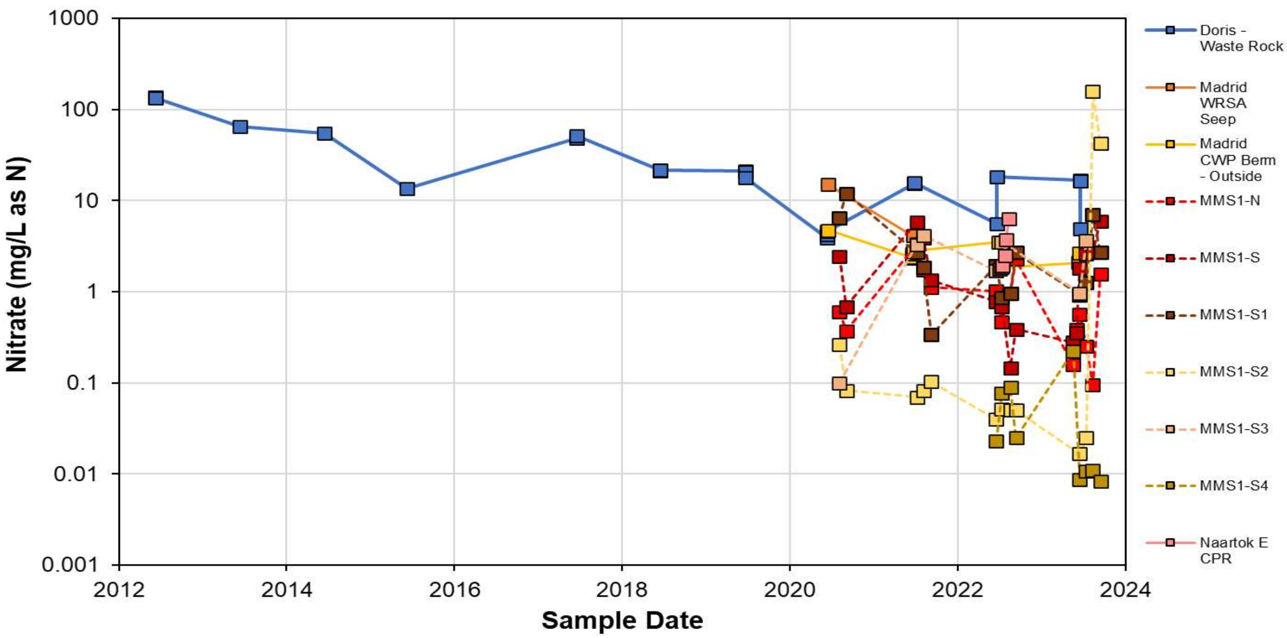

400
300
200
100
0
-100
-200
-300
-400
Field ORP (mv)
2012
2014
2016
2018
2020
2022
2024
Sample Date
Doris - Waste Rock
Madrid WRSA Seep
Madrid CWP Berm - Outside
MMS1-N
MMS1-S
MMS1-S1
MMS1-S2
MMS1-S3
MMS1-S4
Naartok E CPR

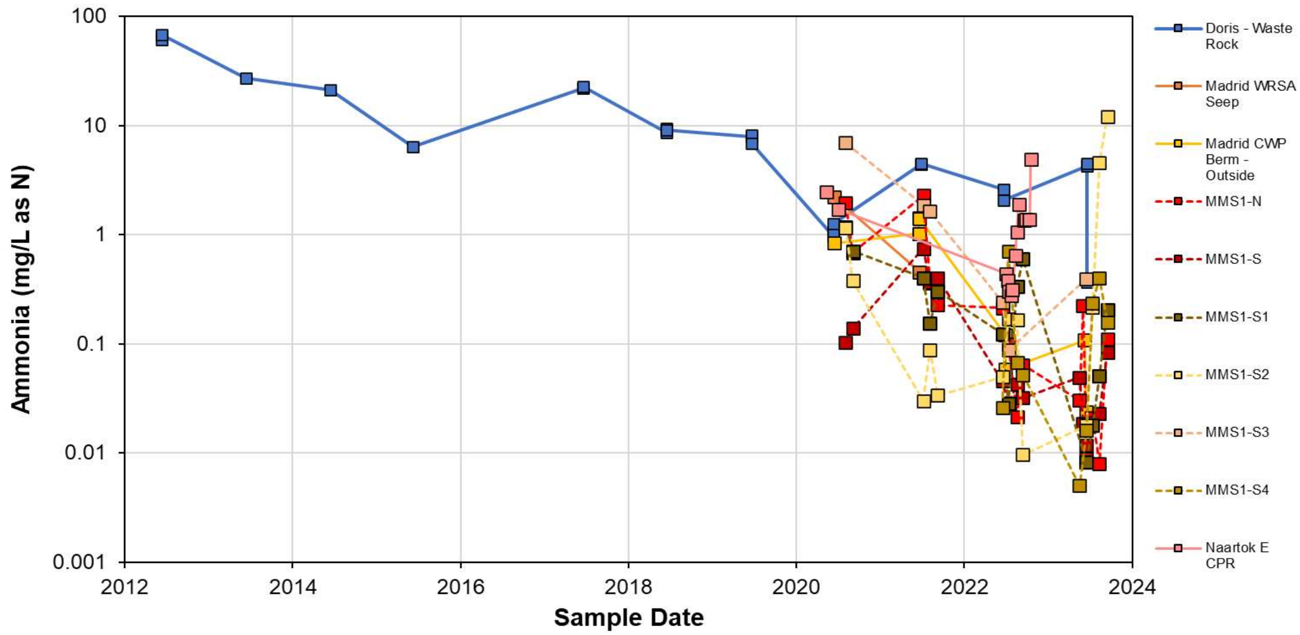

100
10
1
0.1
Salinity (ppt)
2012
2014
2016
2018
2020
2022
2024
Sample Date
Doris - Waste Rock
Madrid WRSA Seep
Madrid CWP Berm - Outside
MMS1-N
MMS1-S
MMS1-S1
MMS1-S2
MMS1-S3
MMS1-S4
Naartok E CPR

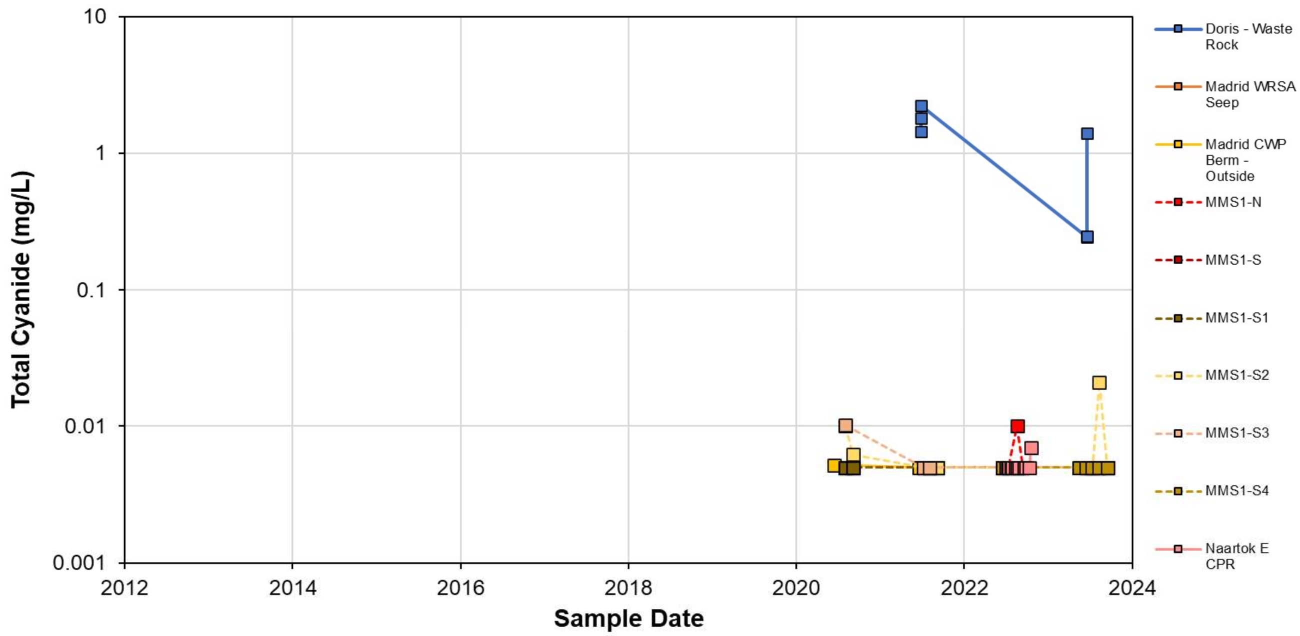

Total Dissolved Solids (mg/L)
10000
1000
100
10
1
2012
2014
2016
2018
2020
2022
2024
Sample Date
Doris - Waste Rock
Madrid WRSA Seep
Madrid CWP Berm - Outside
MMS1-N
MMS1-S
MMS1-S1
MMS1-S2
MMS1-S3
MMS1-S4
Naartok E CPR

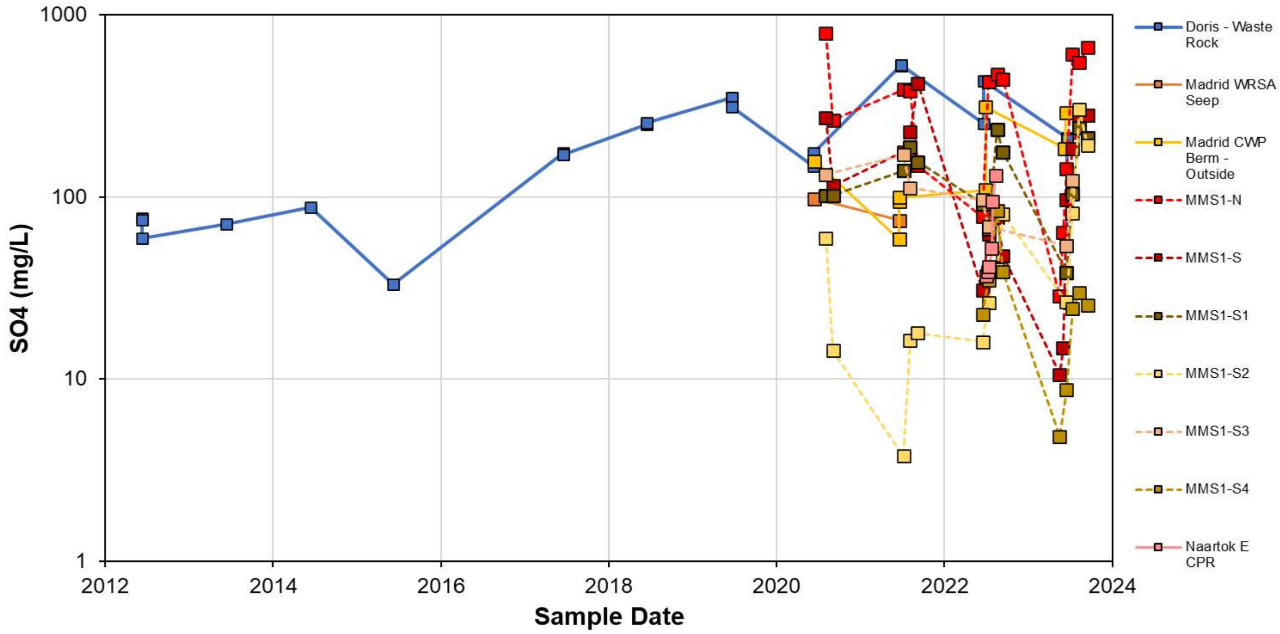

Total Suspended Solids (mg/L)
10000
1000
100
10
1
2012
2014
2016
2018
2020
2022
2024
Sample Date
Doris - Waste Rock
Madrid WRSA Seep
Madrid CWP Berm - Outside
MMS1-N
MMS1-S
MMS1-S1
MMS1-S2
MMS1-S3
MMS1-S4
Naartok E CPR

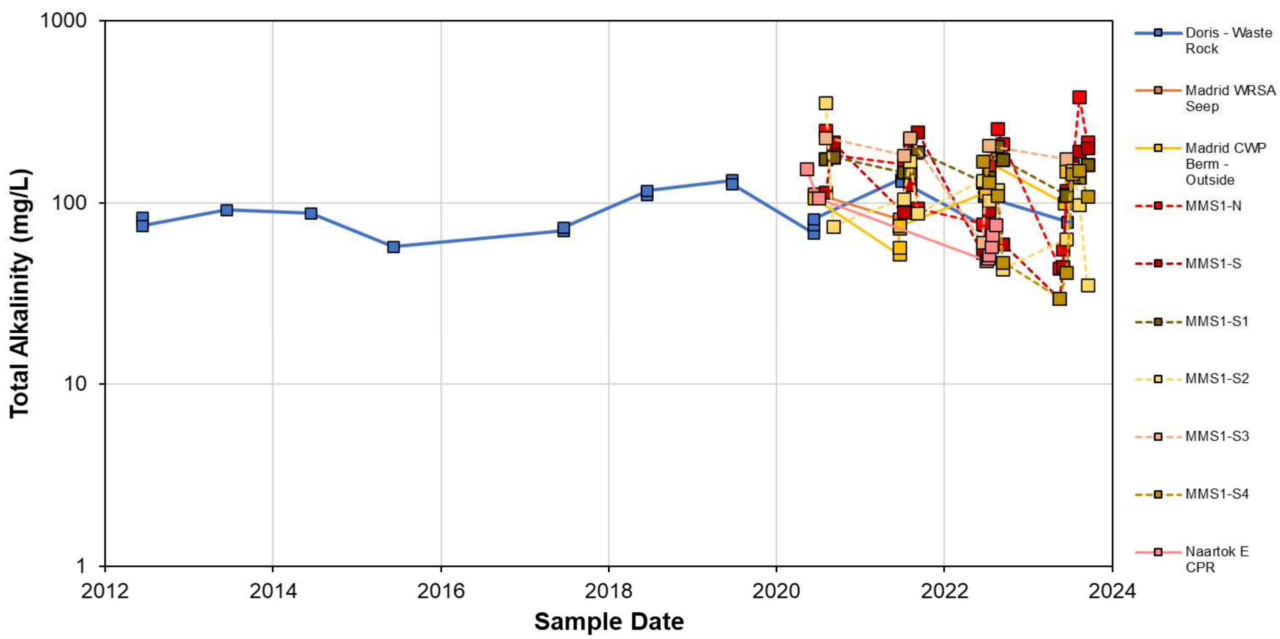

Nitrite (mg/L as N)
10
1
0.1
0.01
0.001
2012
2014
2016
2018
2020
2022
2024
Sample Date
Doris - Waste Rock
Madrid WRSA Seep
Madrid CWP Berm - Outside
MMS1-N
MMS1-S
MMS1-S1
MMS1-S2
MMS1-S3
MMS1-S4
Naartok E CPR

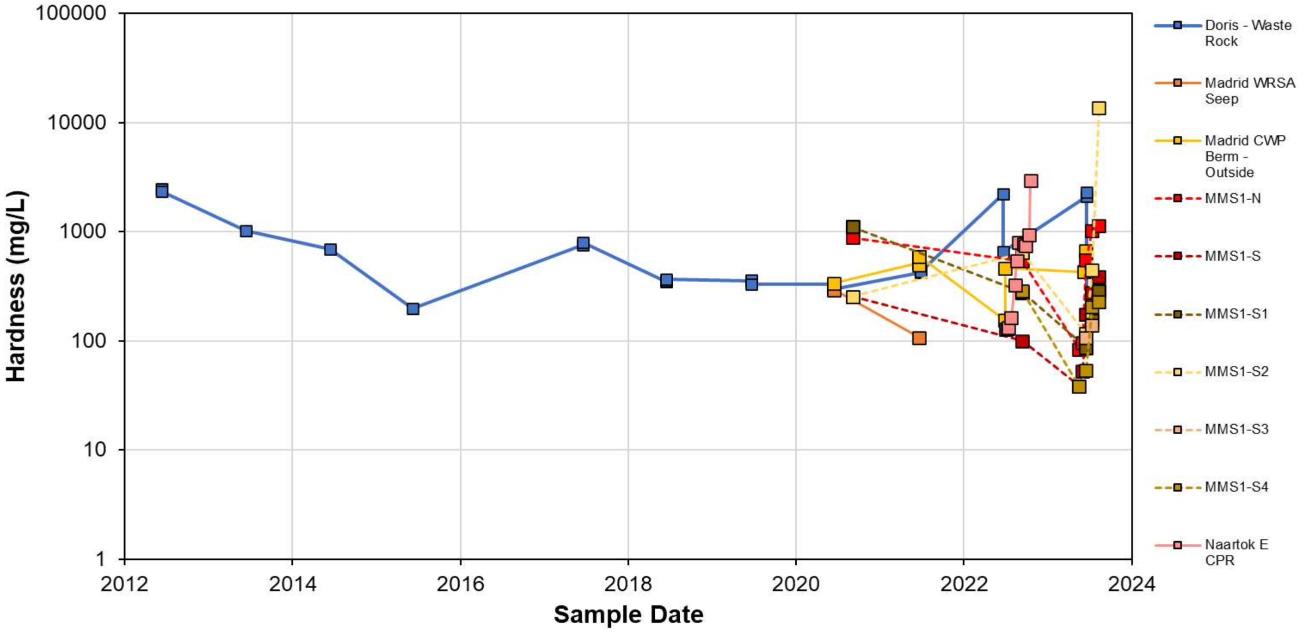

Nitrate (mg/L as N)
1000
100
10
1
0.1
0.01
0.001
2012
2014
2016
2018
2020
2022
2024
Sample Date
Doris - Waste Rock
Madrid WRSA Seep
Madrid CWP Berm - Outside
MMS1-N
MMS1-S
MMS1-S1
MMS1-S2
MMS1-S3
MMS1-S4
Naartok E CPR

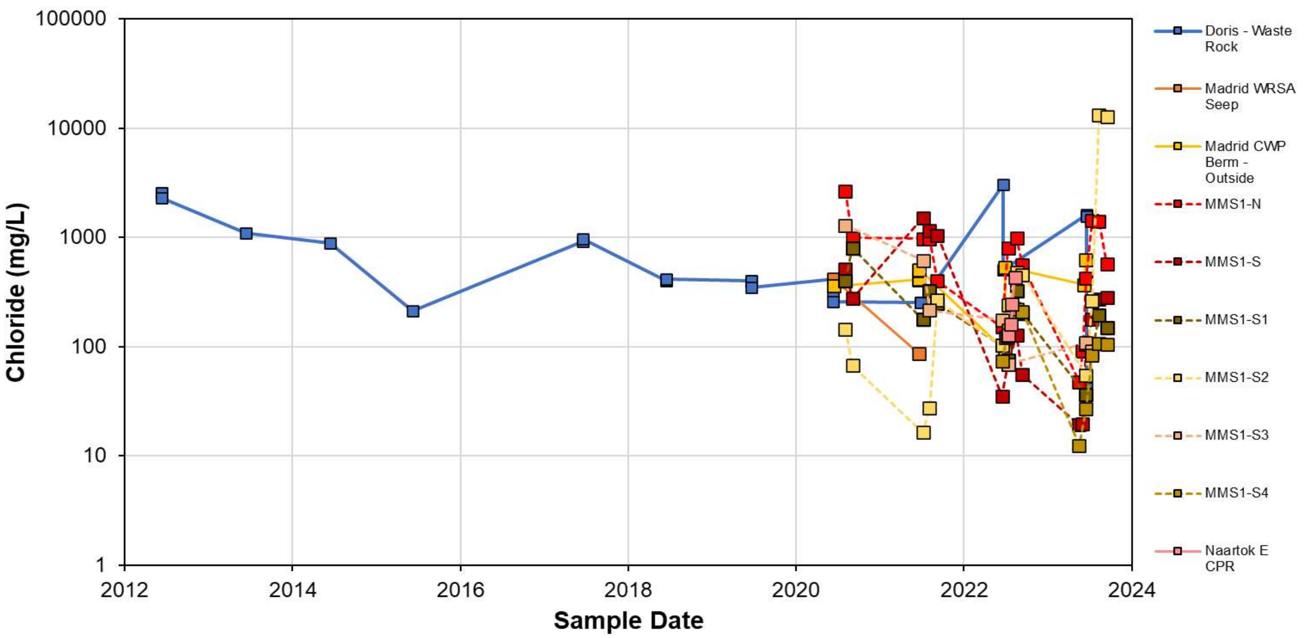

100
10
1
0.1
0.01
0.001
Ammonia (mg/L as N)
2012
2014
2016
2018
2020
2022
2024
Sample Date
Doris - Waste Rock
Madrid WRSA Seep
Madrid CWP Berm - Outside
MMS1-N
MMS1-S
MMS1-S1
MMS1-S2
MMS1-S3
MMS1-S4
Naartok E CPR

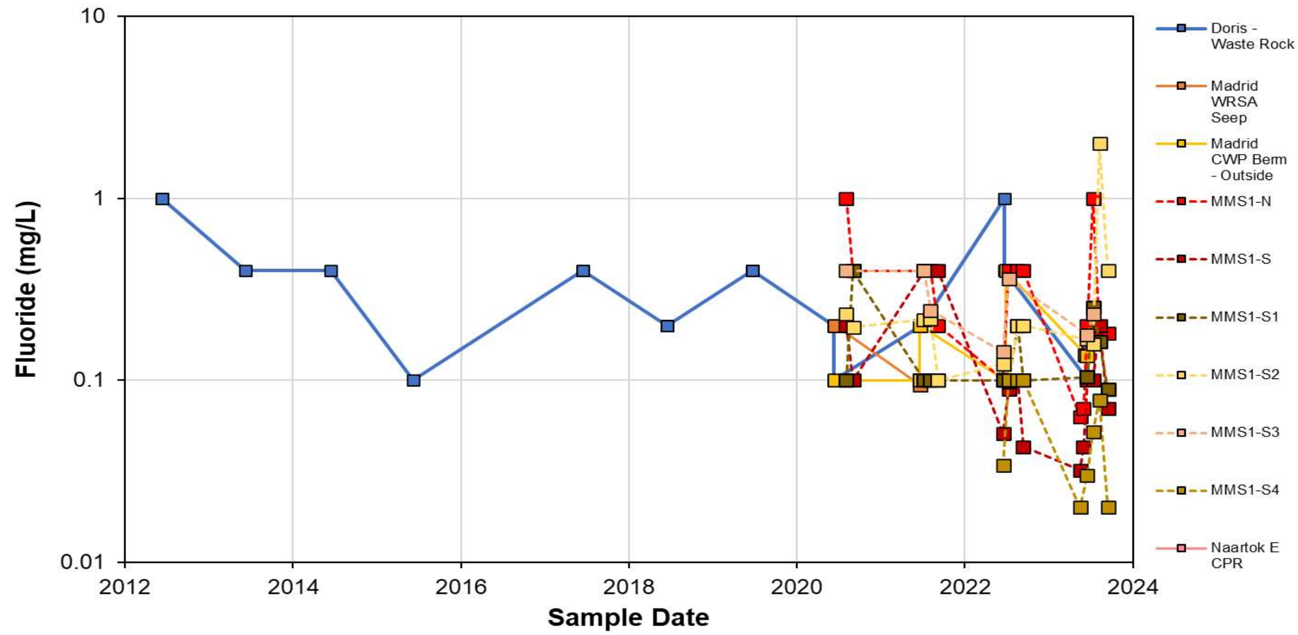

10
1
0.1
0.01
0.001
Total Cyanide (mg/L)
2012
2014
2016
2018
2020
2022
2024
Sample Date
Doris - Waste Rock
Madrid WRSA Seep
Madrid CWP Berm - Outside
MMS1-N
MMS1-S
MMS1-S1
MMS1-S2
MMS1-S3
MMS1-S4
Naartok E CPR

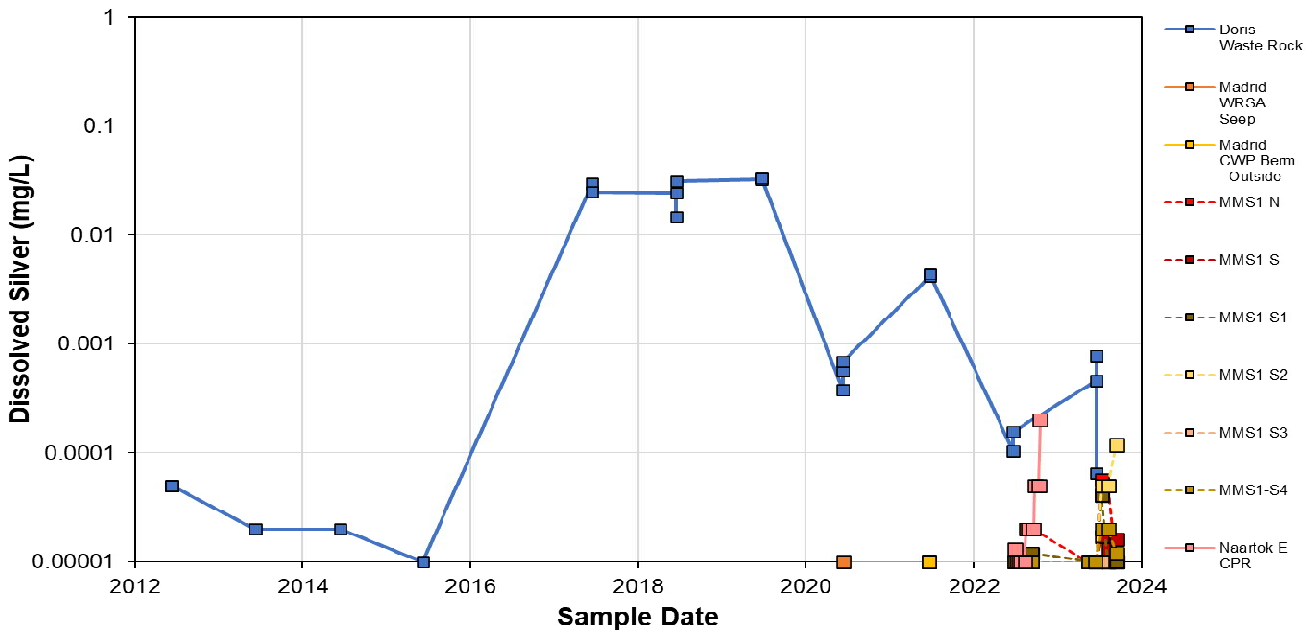

1000
100
10
1
SO4 (mg/L)
2012
2014
2016
2018
2020
2022
2024
Sample Date
Doris - Waste Rock
Madrid WRSA Seep
Madrid CWP Berm - Outside
MMS1-N
MMS1-S
MMS1-S1
MMS1-S2
MMS1-S3
MMS1-S4
Naartok E CPR

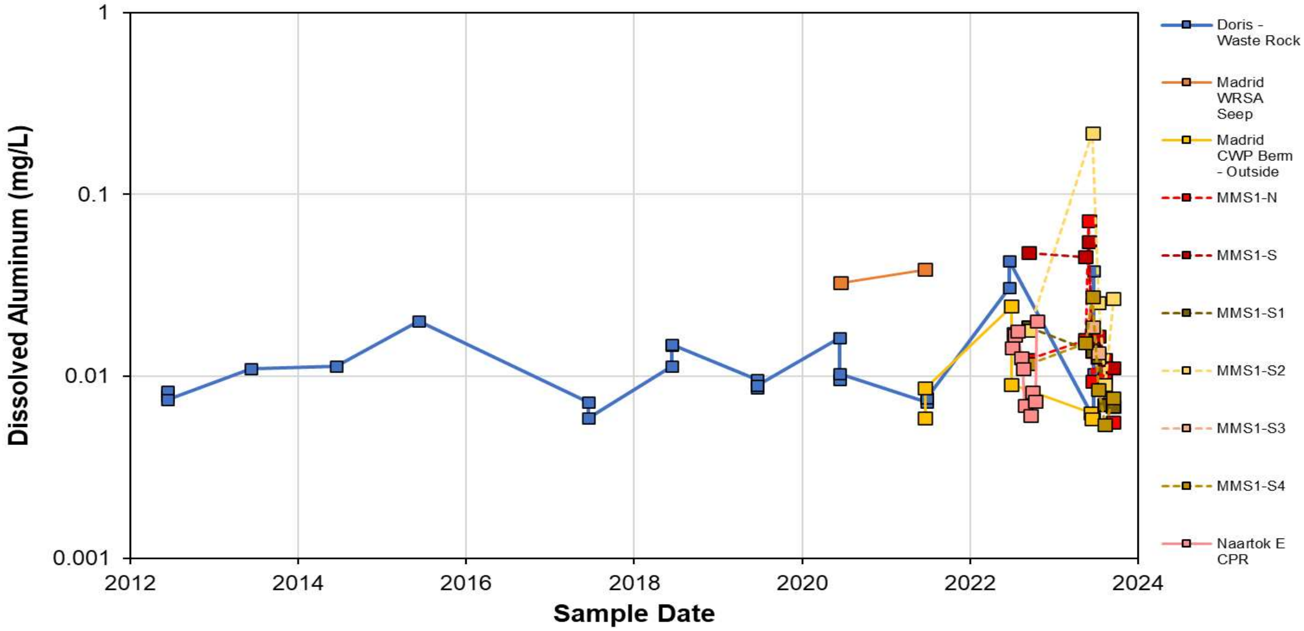

1000
100
10
1
Total Alkalinity (mg/L)
2012
2014
2016
2018
2020
2022
2024
Sample Date
Doris - Waste Rock
Madrid WRSA Seep
Madrid CWP Berm - Outside
MMS1-N
MMS1-S
MMS1-S1
MMS1-S2
MMS1-S3
MMS1-S4
Naartok E CPR

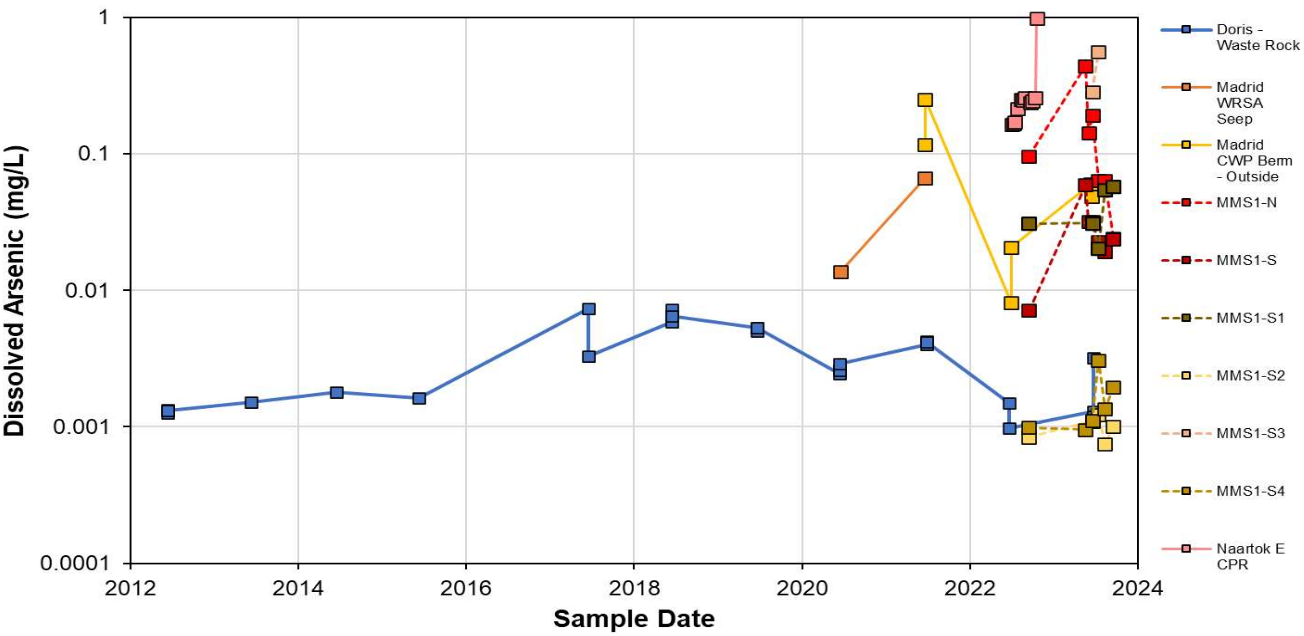

100000
10000
1000
100
10
1
Hardness (mg/L)
2012
2014
2016
2018
2020
2022
2024
Sample Date
Doris - Waste Rock
Madrid WRSA Seep
Madrid CWP Berm - Outside
MMS1-N
MMS1-S
MMS1-S1
MMS1-S2
MMS1-S3
MMS1-S4
Naartok E CPR

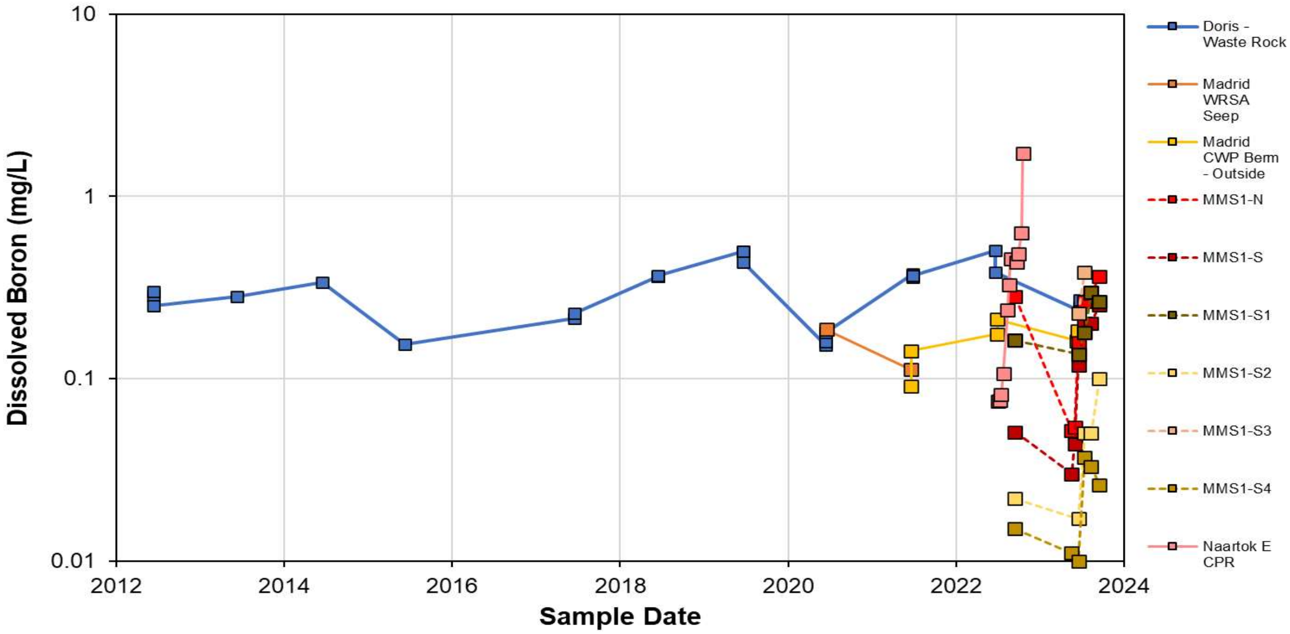

100000
10000
1000
100
10
1
Chloride (mg/L)
2012
2014
2016
2018
2020
2022
2024
Sample Date
Doris - Waste Rock
Madrid WRSA Seep
Madrid CWP Berm - Outside
MMS1-N
MMS1-S
MMS1-S1
MMS1-S2
MMS1-S3
MMS1-S4
Naartok E CPR

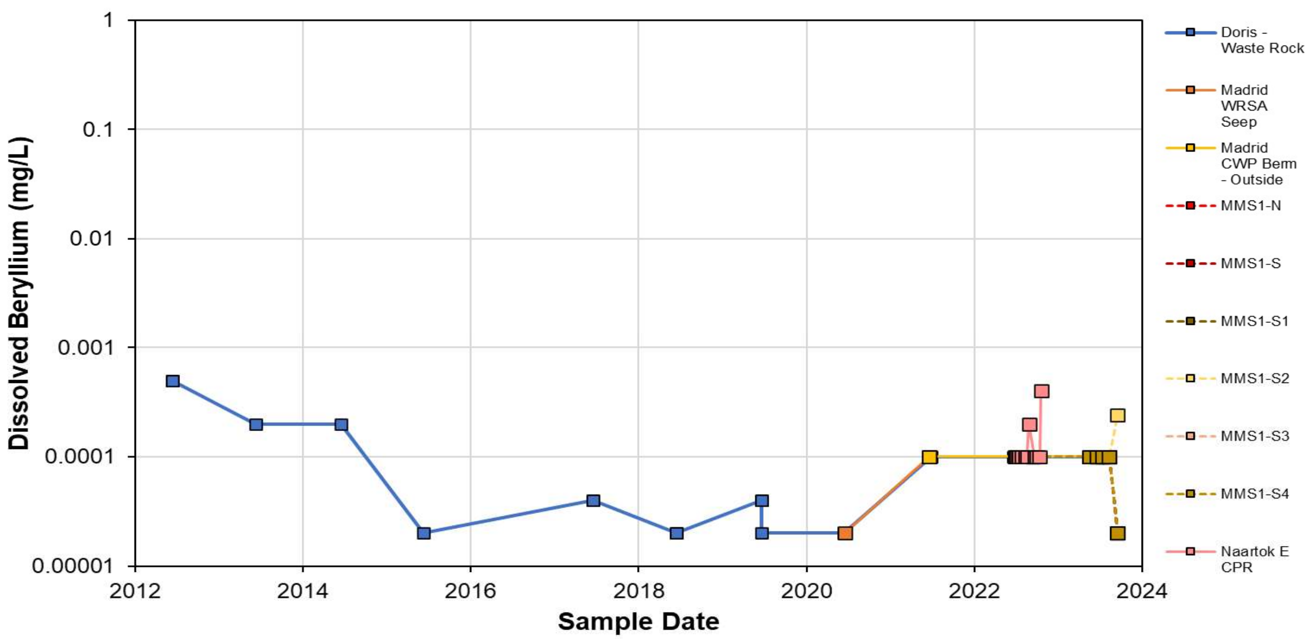

10
1
0.1
0.01
Fluoride (mg/L)
2012
2014
2016
2018
2020
2022
2024
Sample Date
Doris - Waste Rock
Madrid WRSA Seep
Madrid CWP Berm - Outside
MMS1-N
MMS1-S
MMS1-S1
MMS1-S2
MMS1-S3
MMS1-S4
Naartok E CPR

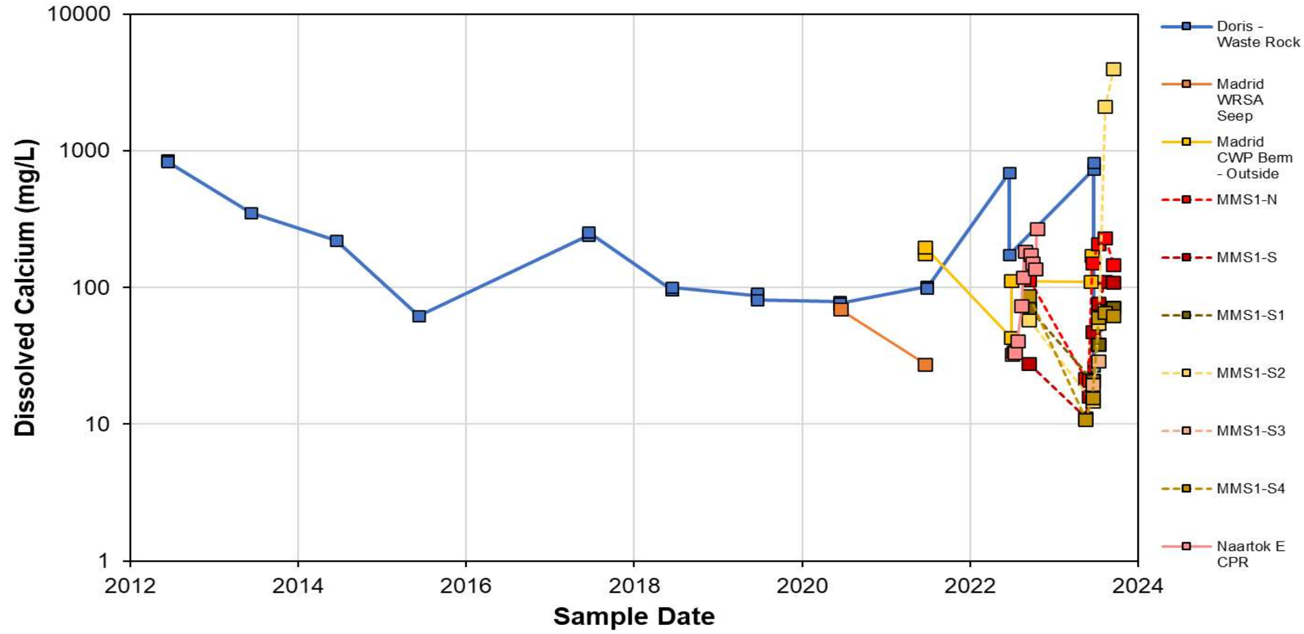

1
0.1
0.01
0.001
0.0001
0.00001
Dissolved Silver (mg/L)
2012
2014
2016
2018
2020
2022
2024
Sample Date
Doris Waste Rock
Madrid WRSA Seep
Madrid CWP Berm Outside
MMS1 N
MMS1 S
MMS1 S1
MMS1 S2
MMS1 S3
MMS1-S4
Naartok E CPR

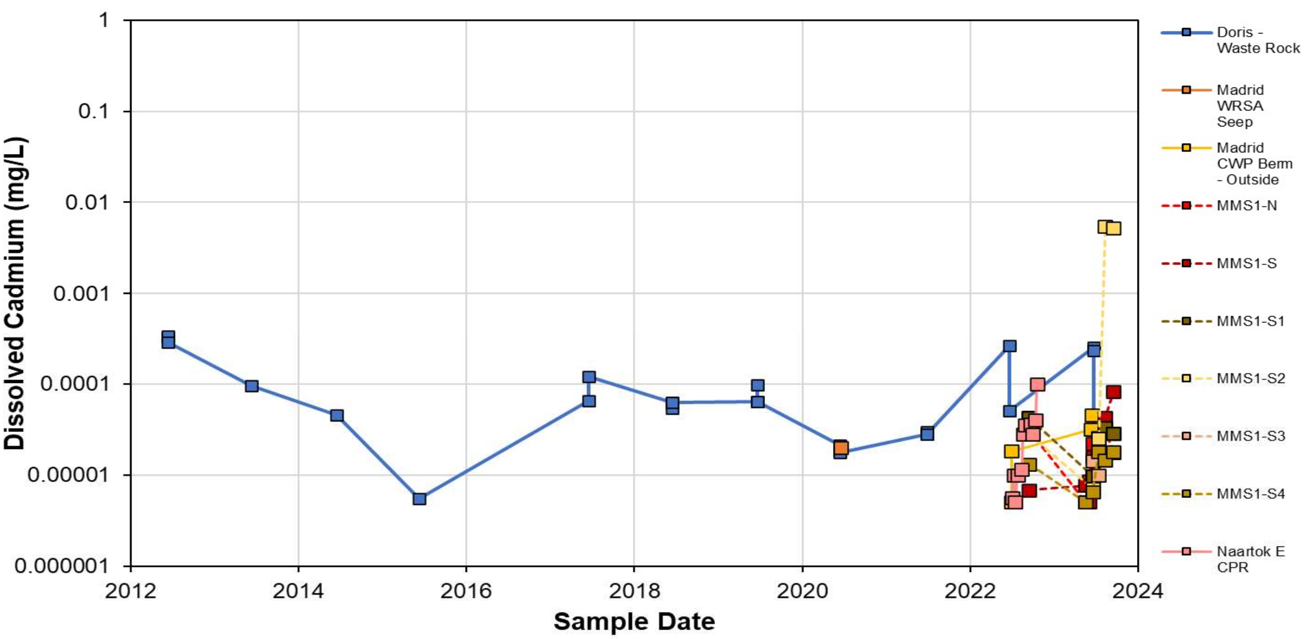

Dissolved Aluminum (mg/L)
1
0.1
0.01
0.001
2012
2014
2016
2018
2020
2022
2024
Sample Date
Doris - Waste Rock
Madrid WRSA Seep
Madrid CWP Berm - Outside
MMS1-N
MMS1-S
MMS1-S1
MMS1-S2
MMS1-S3
MMS1-S4
Naartok E CPR

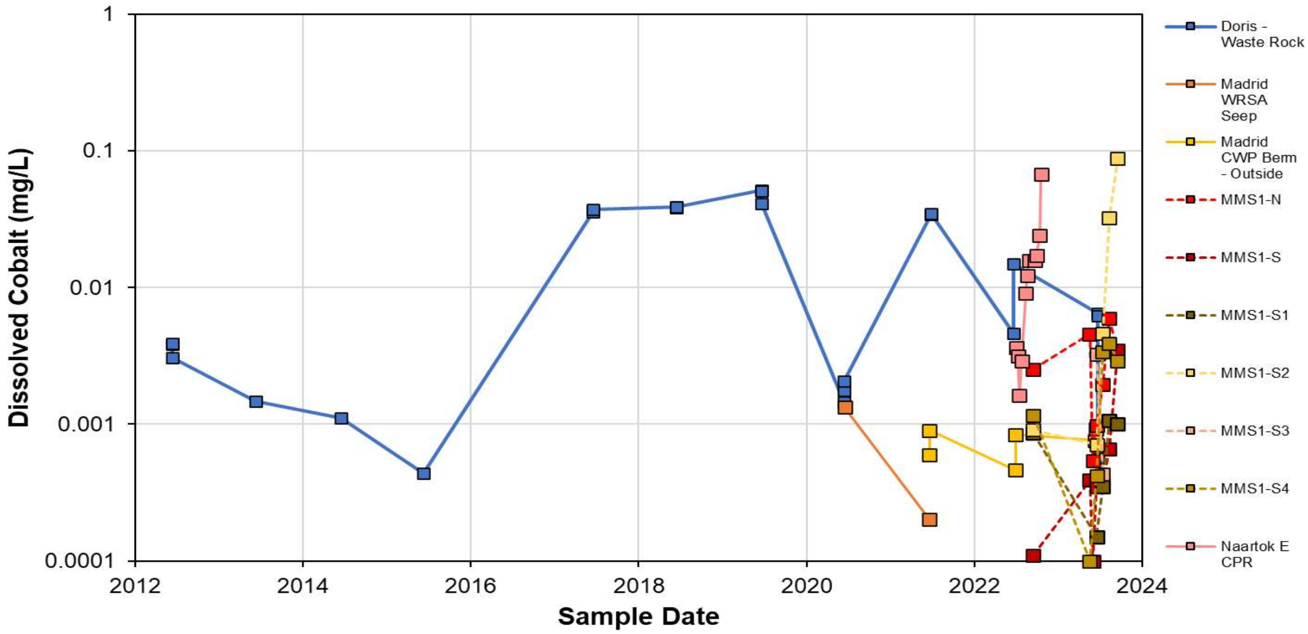

Dissolved Arsenic (mg/L)
1
0.1
0.01
0.001
0.0001
2012
2014
2016
2018
2020
2022
2024
Sample Date
Doris - Waste Rock
Madrid WRSA Seep
Madrid CWP Berm - Outside
MMS1-N
MMS1-S
MMS1-S1
MMS1-S2
MMS1-S3
MMS1-S4
Naartok E CPR

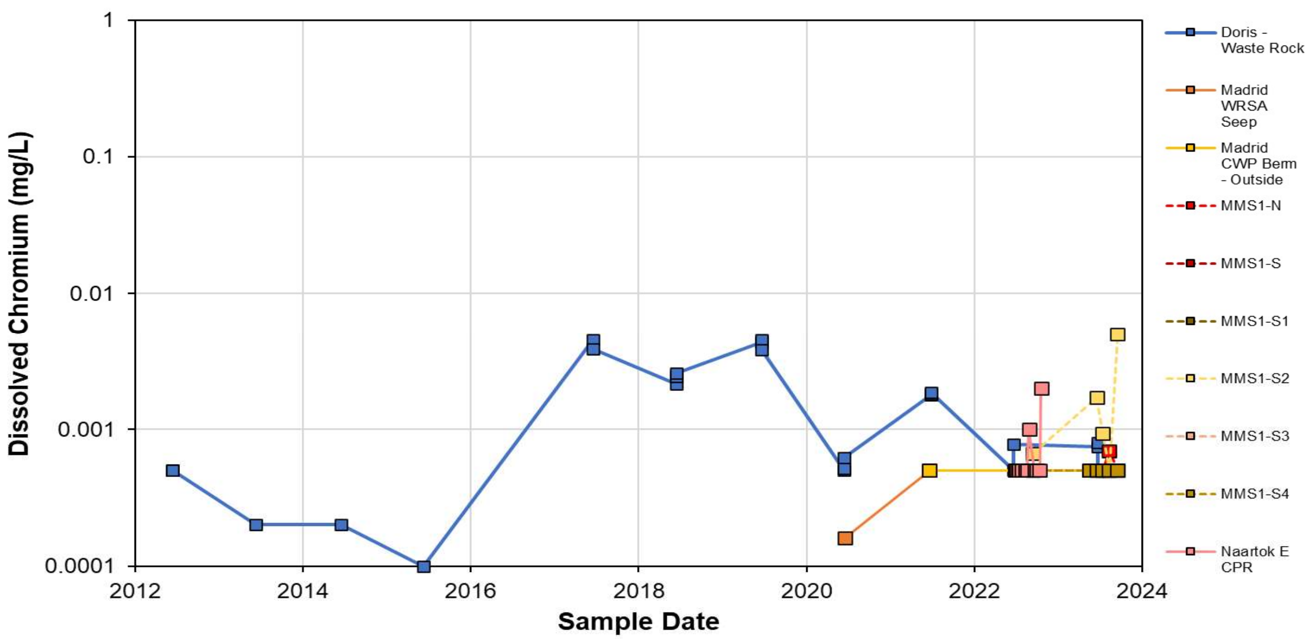

10
1
0.1
0.01
Dissolved Boron (mg/L)
2012
2014
2016
2018
2020
2022
2024
Sample Date
Doris - Waste Rock
Madrid WRSA Seep
Madrid CWP Berm - Outside
MMS1-N
MMS1-S
MMS1-S1
MMS1-S2
MMS1-S3
MMS1-S4
Naartok E CPR

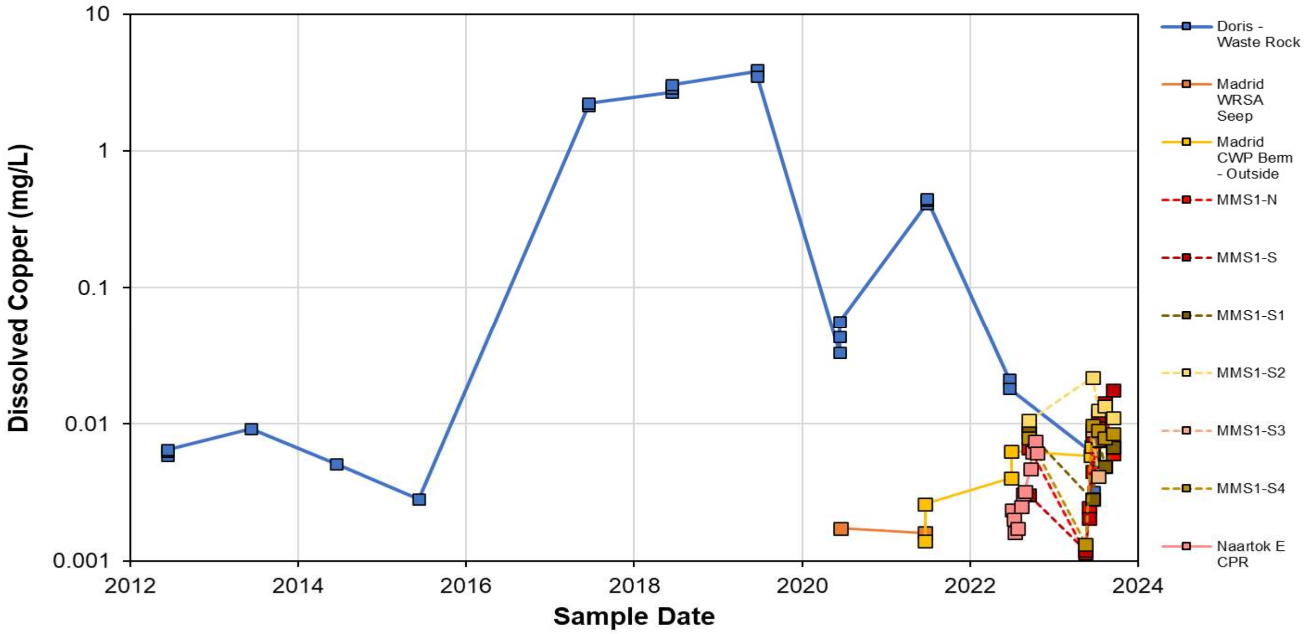

1
0.1
0.01
0.001
0.0001
0.00001
Dissolved Beryllium (mg/L)
2012
2014
2016
2018
2020
2022
2024
Sample Date
Doris - Waste Rock
Madrid WRSA Seep
Madrid CWP Berm - Outside
MMS1-N
MMS1-S
MMS1-S1
MMS1-S2
MMS1-S3
MMS1-S4
Naartok E CPR

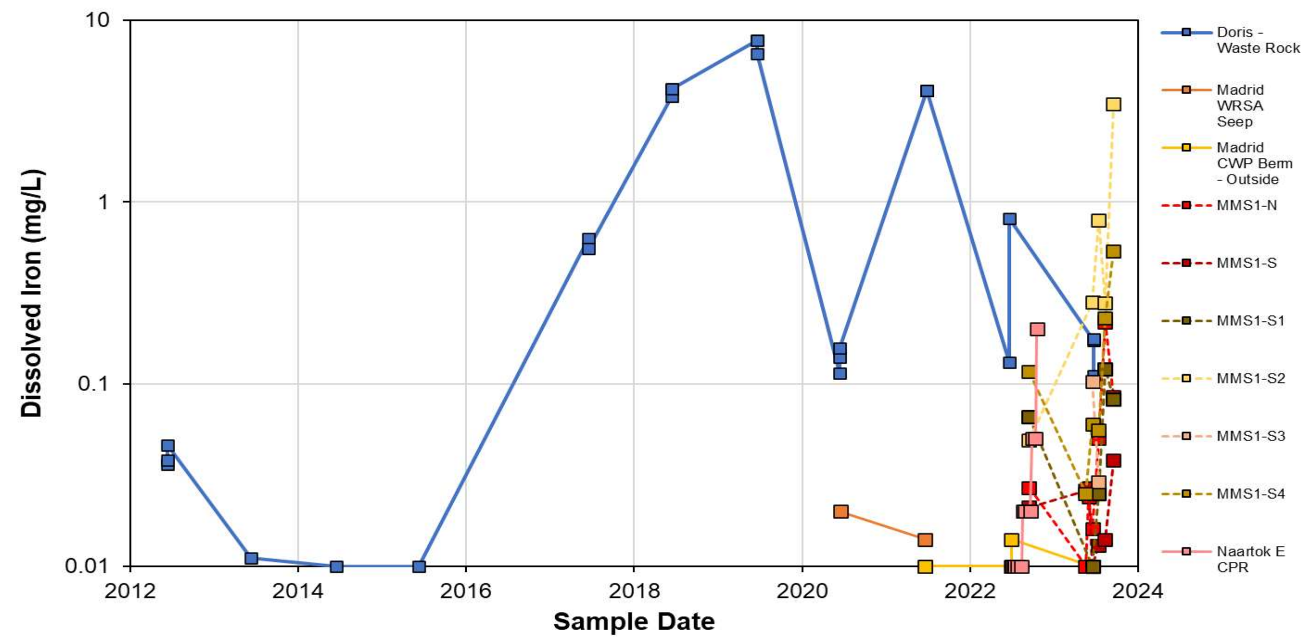

Dissolved Calcium (mg/L)
10000
1000
100
10
1
2012
2014
2016
2018
2020
2022
2024
Sample Date
Doris - Waste Rock
Madrid WRSA Seep
Madrid CWP Berm - Outside
MMS1-N
MMS1-S
MMS1-S1
MMS1-S2
MMS1-S3
MMS1-S4
Naartok E CPR

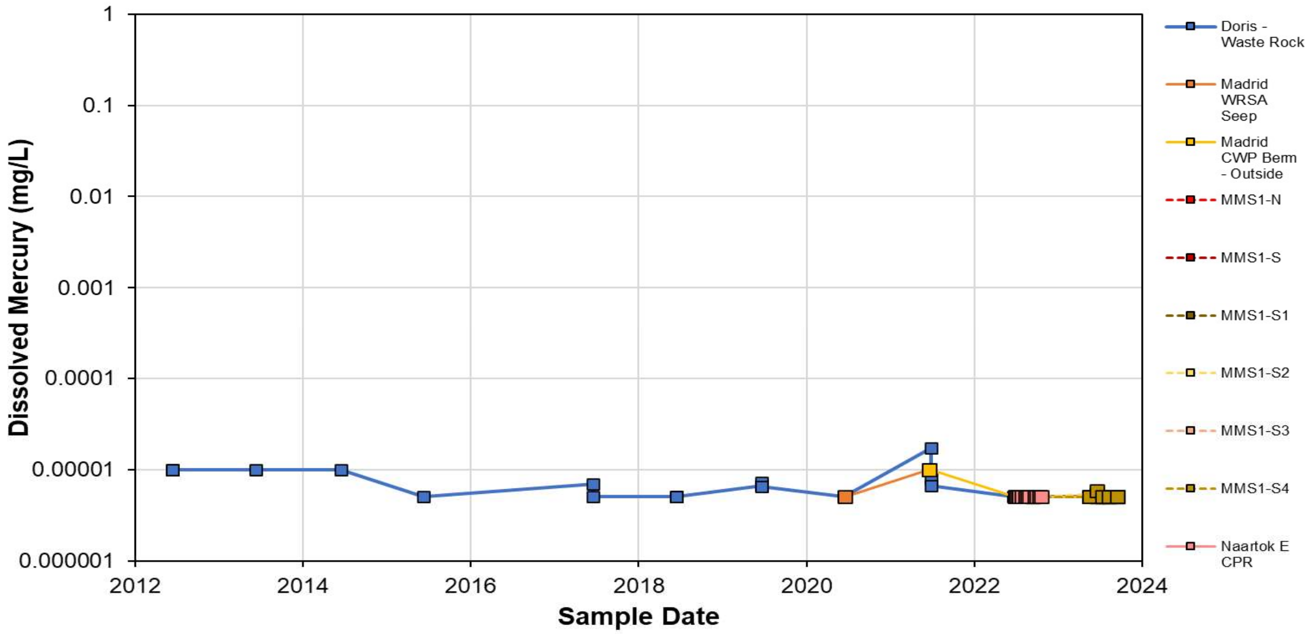

Dissolved Cadmium (mg/L)
1
0.1
0.01
0.001
0.0001
0.00001
0.000001
2012
2014
2016
2018
2020
2022
2024
Sample Date
Doris - Waste Rock
Madrid WRSA Seep
Madrid CWP Berm - Outside
MMS1-N
MMS1-S
MMS1-S1
MMS1-S2
MMS1-S3
MMS1-S4
Naartok E CPR

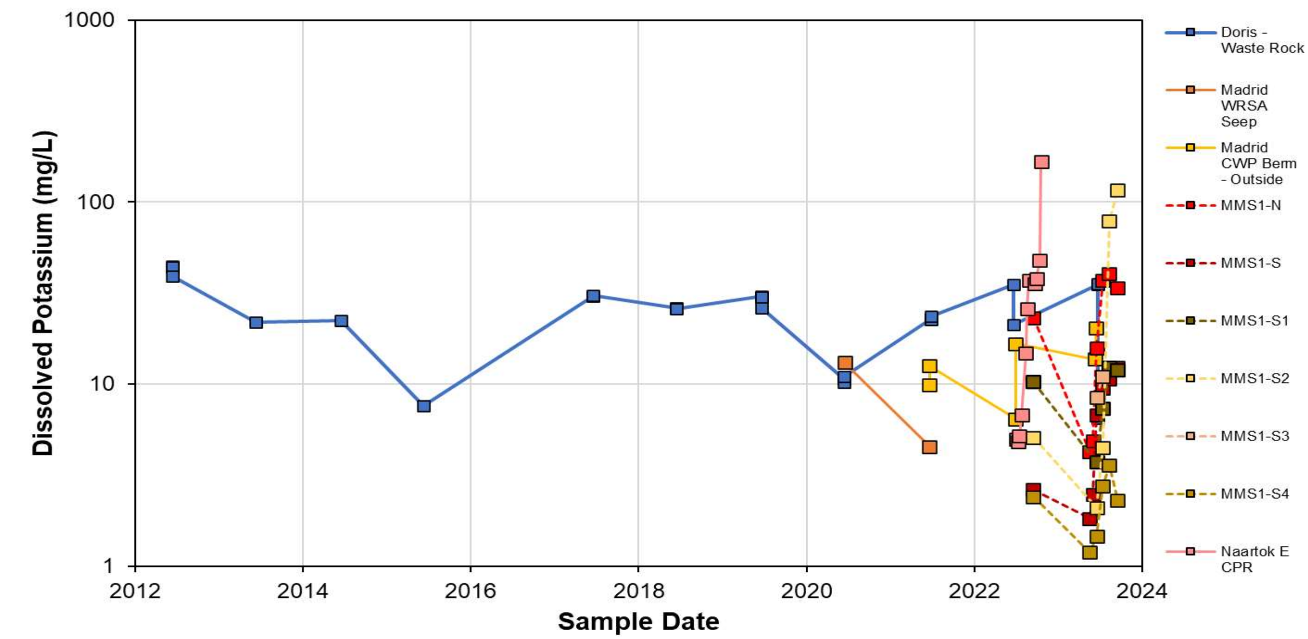

Dissolved Cobalt (mg/L)
1
0.1
0.01
0.001
0.0001
2012
2014
2016
2018
2020
2022
2024
Sample Date
Doris - Waste Rock
Madrid WRSA Seep
Madrid CWP Berm - Outside
MMS1-N
MMS1-S
MMS1-S1
MMS1-S2
MMS1-S3
MMS1-S4
Naartok E CPR

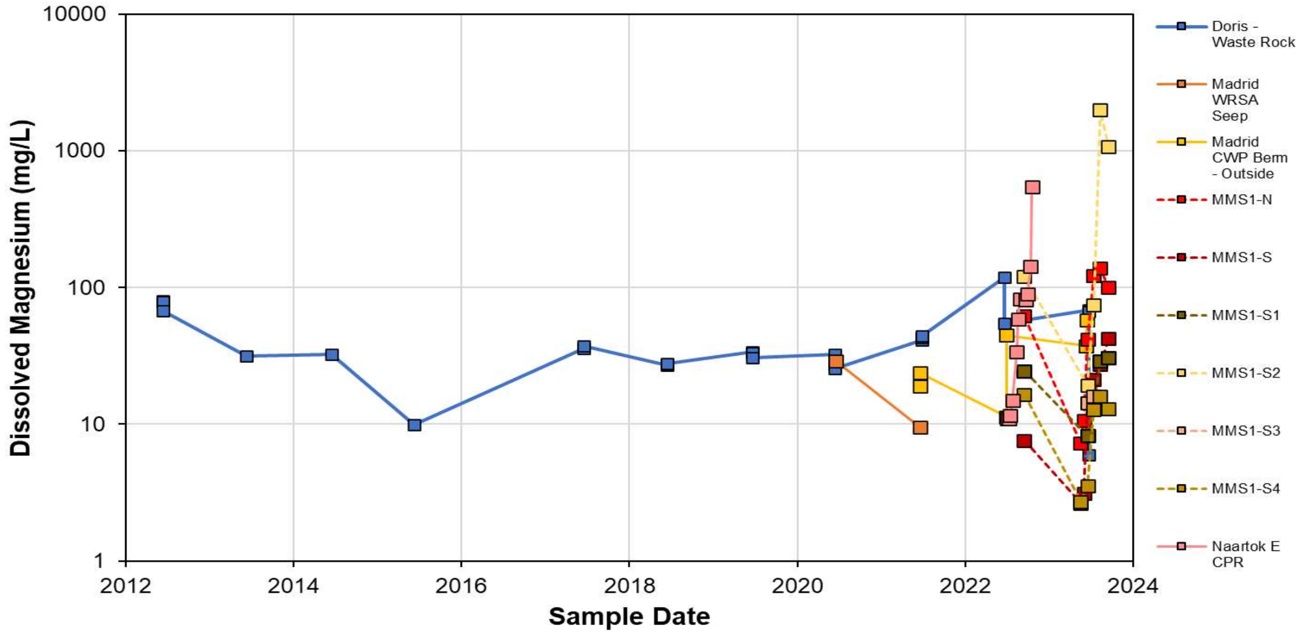

Dissolved Chromium (mg/L)
1
0.1
0.01
0.001
0.0001
2012
2014
2016
2018
2020
2022
2024
Sample Date
Doris - Waste Rock
Madrid WRSA Seep
Madrid CWP Berm - Outside
MMS1-N
MMS1-S
MMS1-S1
MMS1-S2
MMS1-S3
MMS1-S4
Naartok E CPR

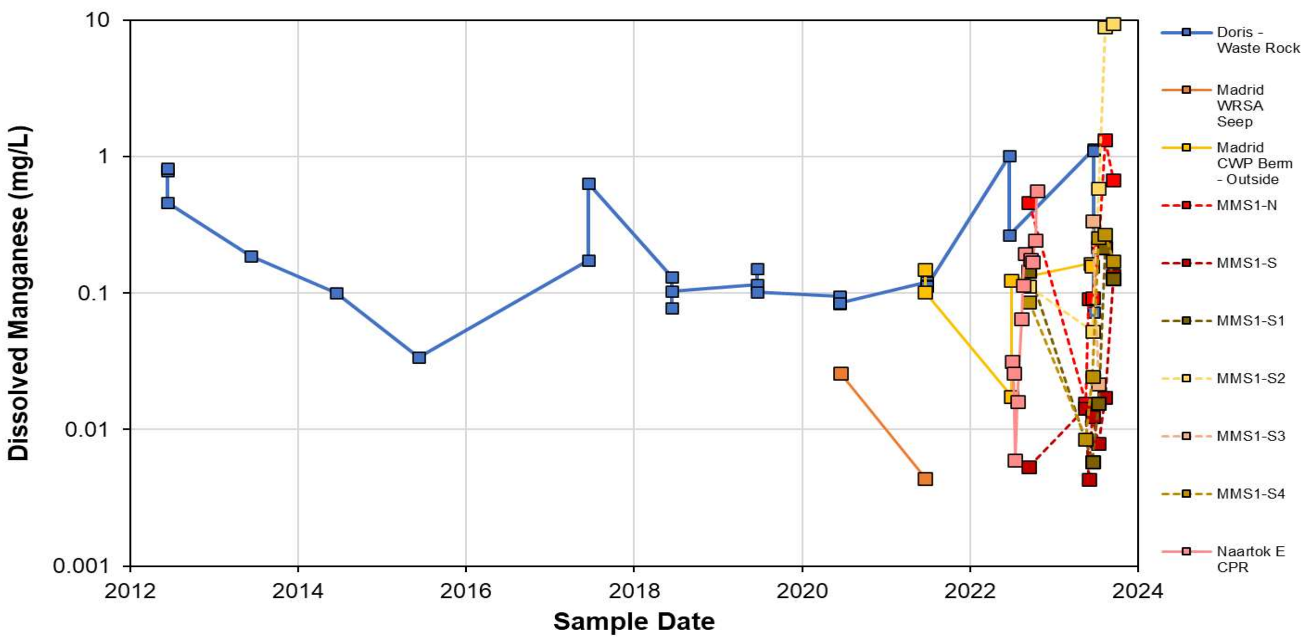

10
1
0.1
0.01
0.001
Dissolved Copper (mg/L)
2012
2014
2016
2018
2020
2022
2024
Sample Date
Doris - Waste Rock
Madrid WRSA Seep
Madrid CWP Berm - Outside
MMS1-N
MMS1-S
MMS1-S1
MMS1-S2
MMS1-S3
MMS1-S4
Naartok E CPR

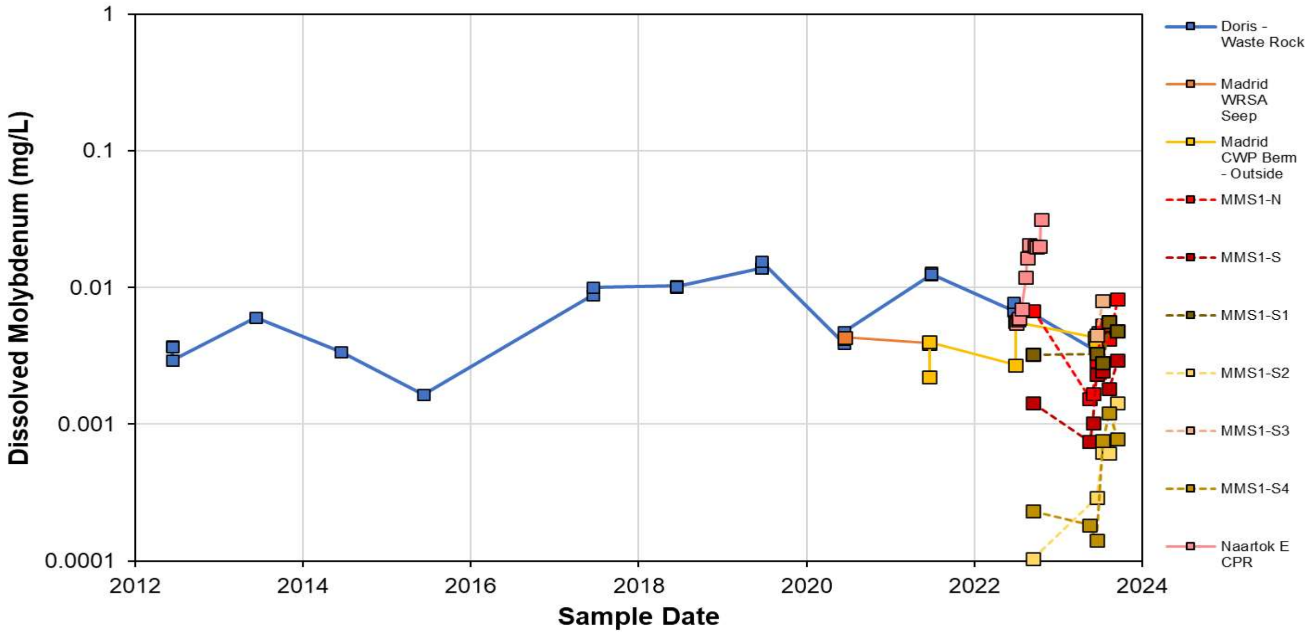

10
1
0.1
0.01
Dissolved Iron (mg/L)
2012
2014
2016
2018
2020
2022
2024
Sample Date
Doris - Waste Rock
Madrid WRSA Seep
Madrid CWP Berm - Outside
MMS1-N
MMS1-S
MMS1-S1
MMS1-S2
MMS1-S3
MMS1-S4
Naartok E CPR

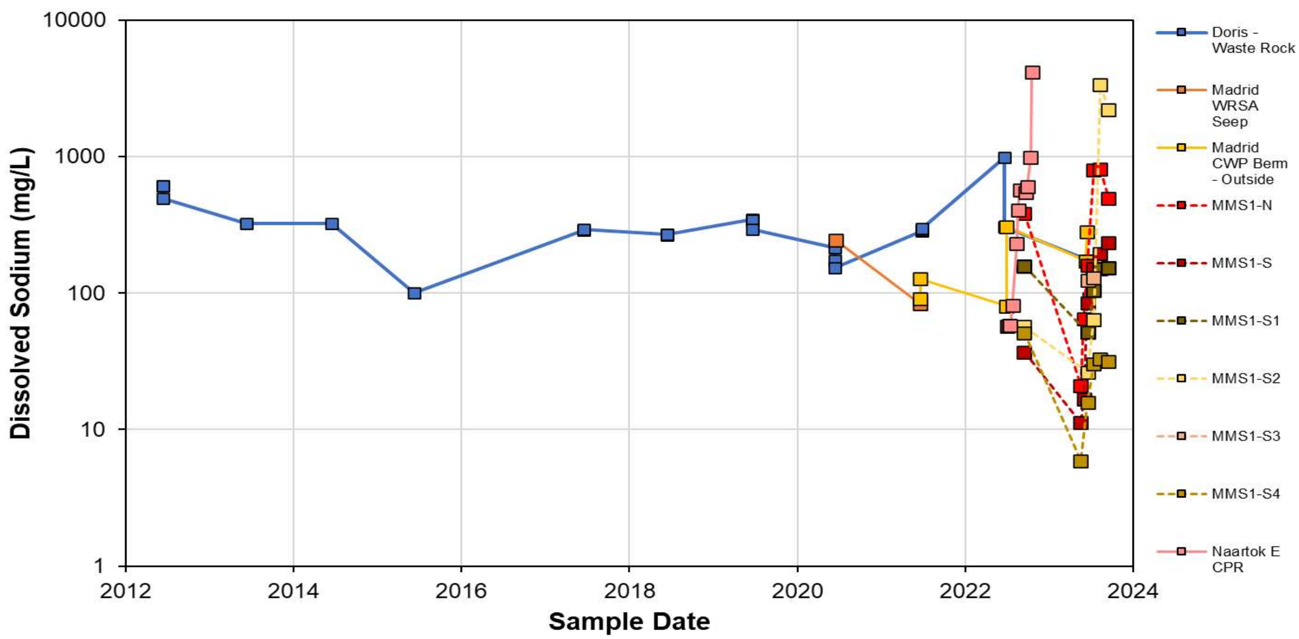

1
0.1
0.01
0.001
0.0001
0.00001
0.000001
Dissolved Mercury (mg/L)
2012
2014
2016
2018
2020
2022
2024
Sample Date
Doris - Waste Rock
Madrid WRSA Seep
Madrid CWP Berm - Outside
MMS1-N
MMS1-S
MMS1-S1
MMS1-S2
MMS1-S3
MMS1-S4
Naartok E CPR

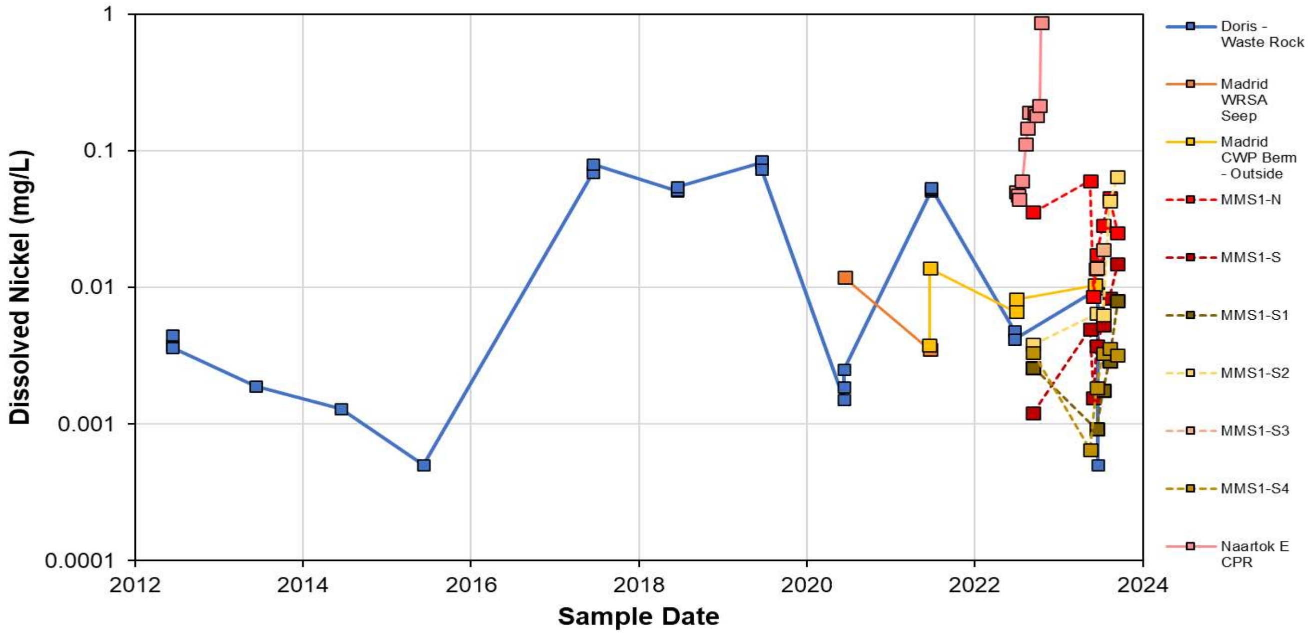

1000
100
10
1
Dissolved Potassium (mg/L)
2012
2014
2016
2018
2020
2022
2024
Sample Date
Doris - Waste Rock
Madrid WRSA Seep
Madrid CWP Berm - Outside
MMS1-N
MMS1-S
MMS1-S1
MMS1-S2
MMS1-S3
MMS1-S4
Naartok E CPR

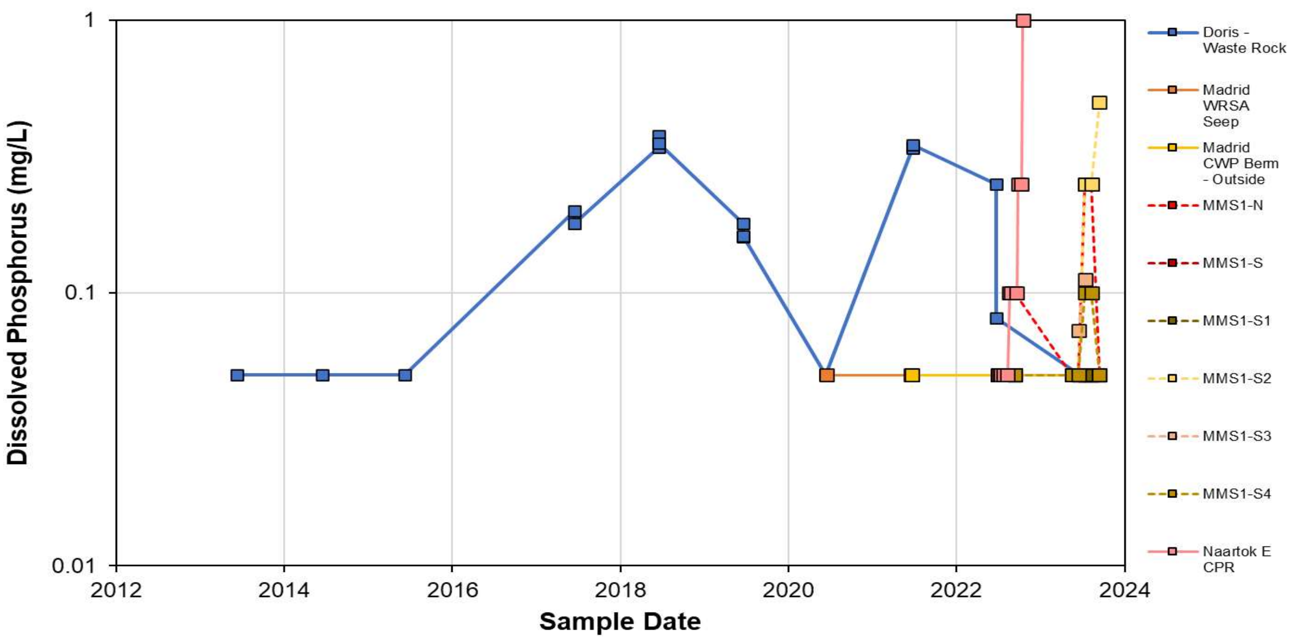

10000
1000
100
10
1
Dissolved Magnesium (mg/L)
2012
2014
2016
2018
2020
2022
2024
Sample Date
Doris - Waste Rock
Madrid WRSA Seep
Madrid CWP Berm - Outside
MMS1-N
MMS1-S
MMS1-S1
MMS1-S2
MMS1-S3
MMS1-S4
Naartok E CPR

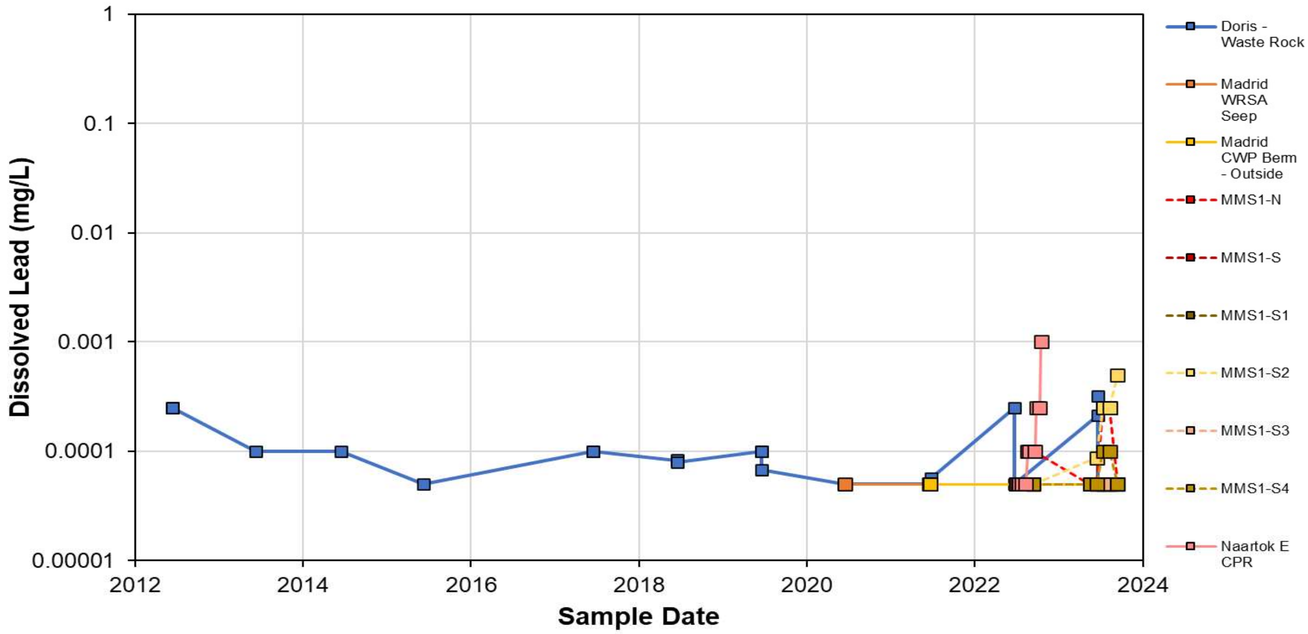

10
1
0.1
0.01
0.001
Dissolved Manganese (mg/L)
2012
2014
2016
2018
2020
2022
2024
Sample Date
Doris - Waste Rock
Madrid WRSA Seep
Madrid CWP Berm - Outside
MMS1-N
MMS1-S
MMS1-S1
MMS1-S2
MMS1-S3
MMS1-S4
Naartok E CPR


Dissolved Molybdenum (mg/L)
1
0.1
0.01
0.001
0.0001
2012
2014
2016
2018
2020
2022
2024
Sample Date
Doris - Waste Rock
Madrid WRSA Seep
Madrid CWP Berm - Outside
MMS1-N
MMS1-S
MMS1-S1
MMS1-S2
MMS1-S3
MMS1-S4
Naartok E CPR

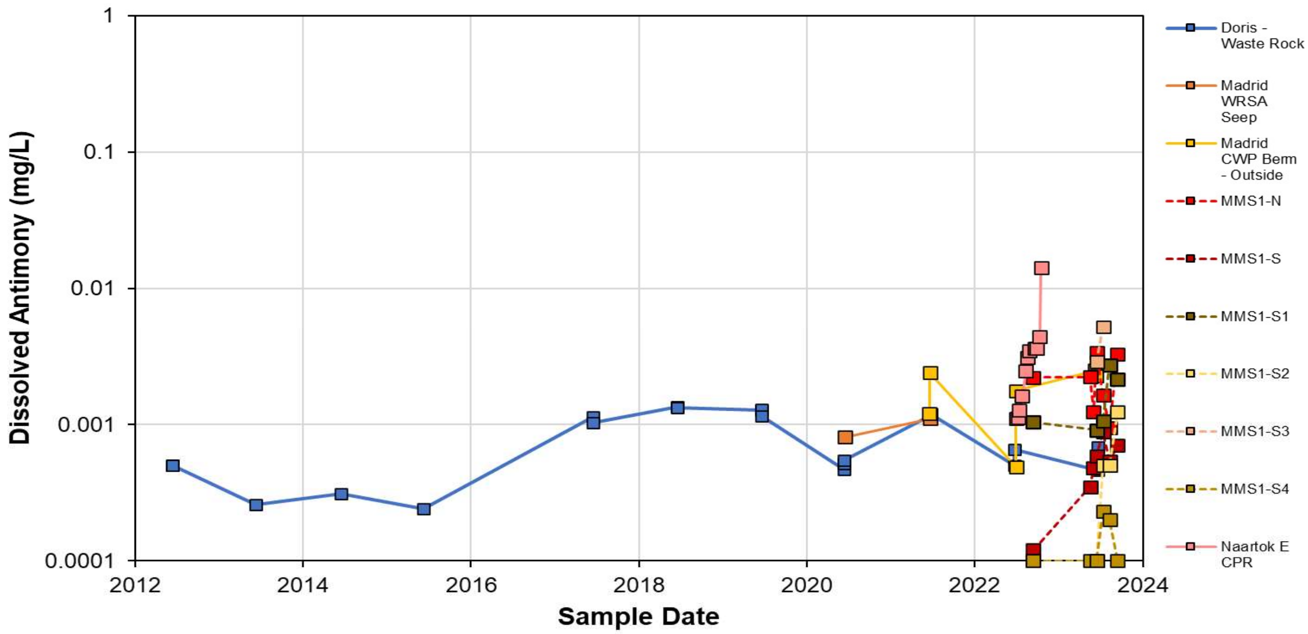

Dissolved Sodium (mg/L)
10000
1000
100
10
1
2012
2014
2016
2018
2020
2022
2024
Sample Date
Doris - Waste Rock
Madrid WRSA Seep
Madrid CWP Berm - Outside
MMS1-N
MMS1-S
MMS1-S1
MMS1-S2
MMS1-S3
MMS1-S4
Naartok E CPR


Dissolved Nickel (mg/L)
1
0.1
0.01
0.001
0.0001
2012
2014
2016
2018
2020
2022
2024
Sample Date
Doris - Waste Rock
Madrid WRSA Seep
Madrid CWP Berm - Outside
MMS1-N
MMS1-S
MMS1-S1
MMS1-S2
MMS1-S3
MMS1-S4
Naartok E CPR

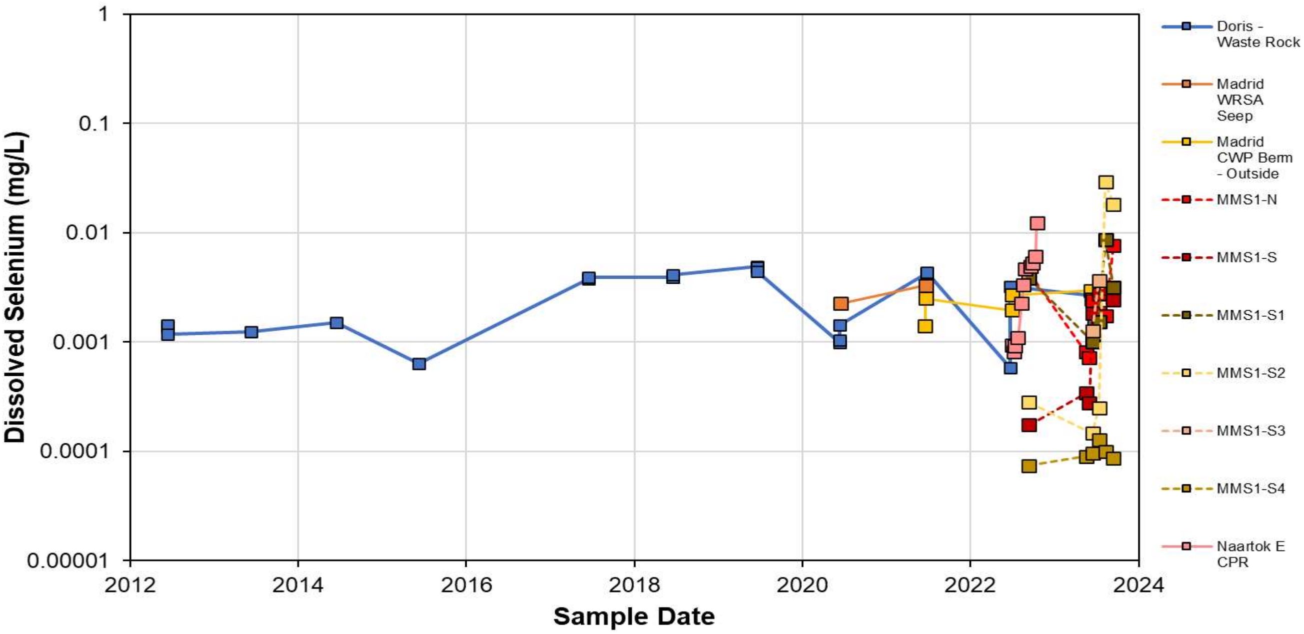

Dissolved Phosphorus (mg/L)
1
0.1
0.01
2012
2014
2016
2018
2020
2022
2024
Sample Date
Doris - Waste Rock
Madrid WRSA Seep
Madrid CWP Berm - Outside
MMS1-N
MMS1-S
MMS1-S1
MMS1-S2
MMS1-S3
MMS1-S4
Naartok E CPR

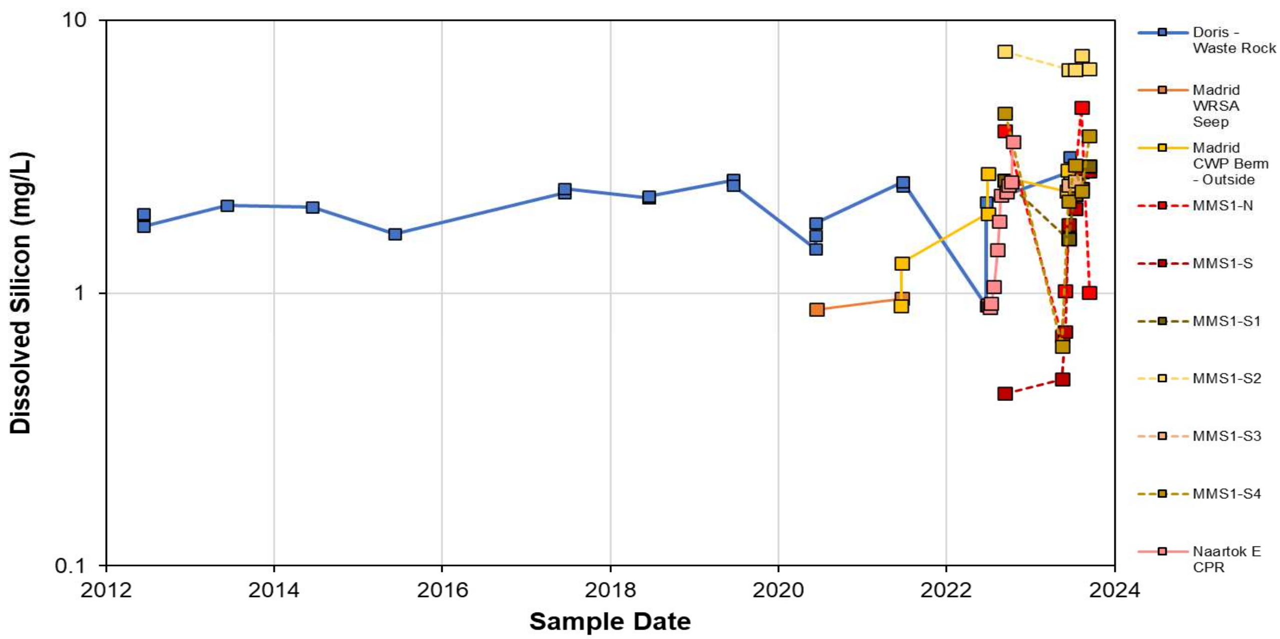


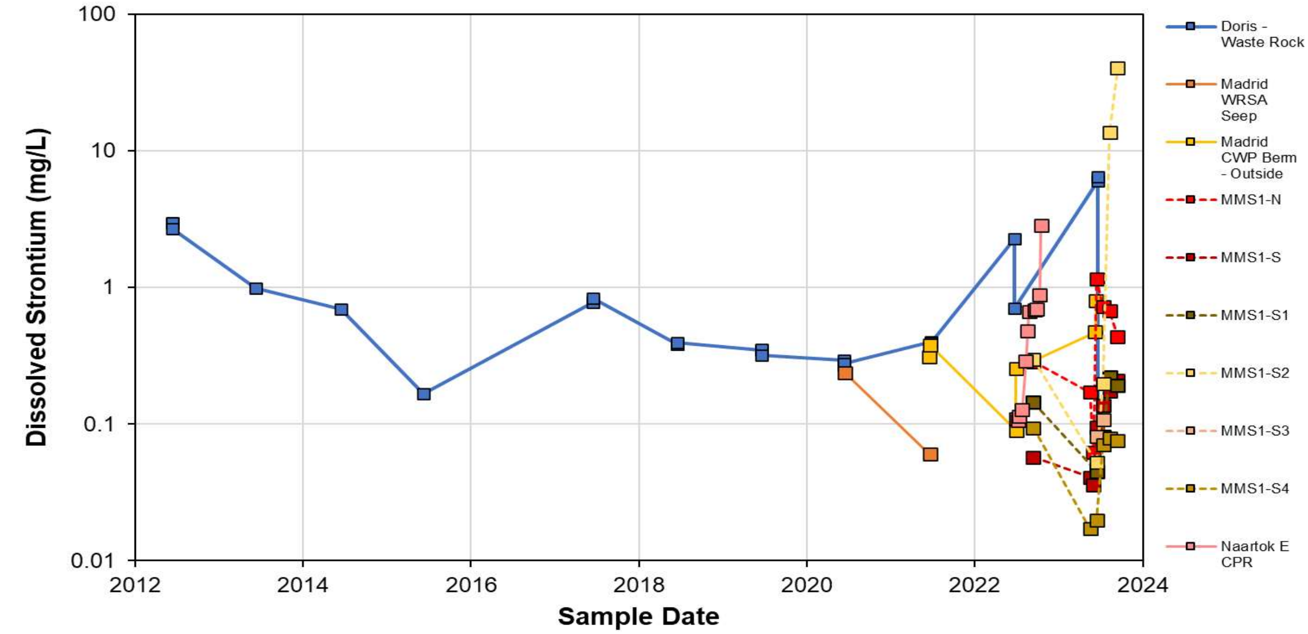
Dissolved Lead (mg/L)
1
0.1
0.01
0.001
0.0001
0.00001
2012
2014
2016
2018
2020
2022
2024
Sample Date
Doris - Waste Rock
Madrid WRSA Seep
Madrid CWP Berm - Outside
MMS1-N
MMS1-S
MMS1-S1
MMS1-S2
MMS1-S3
MMS1-S4
Naartok E CPR

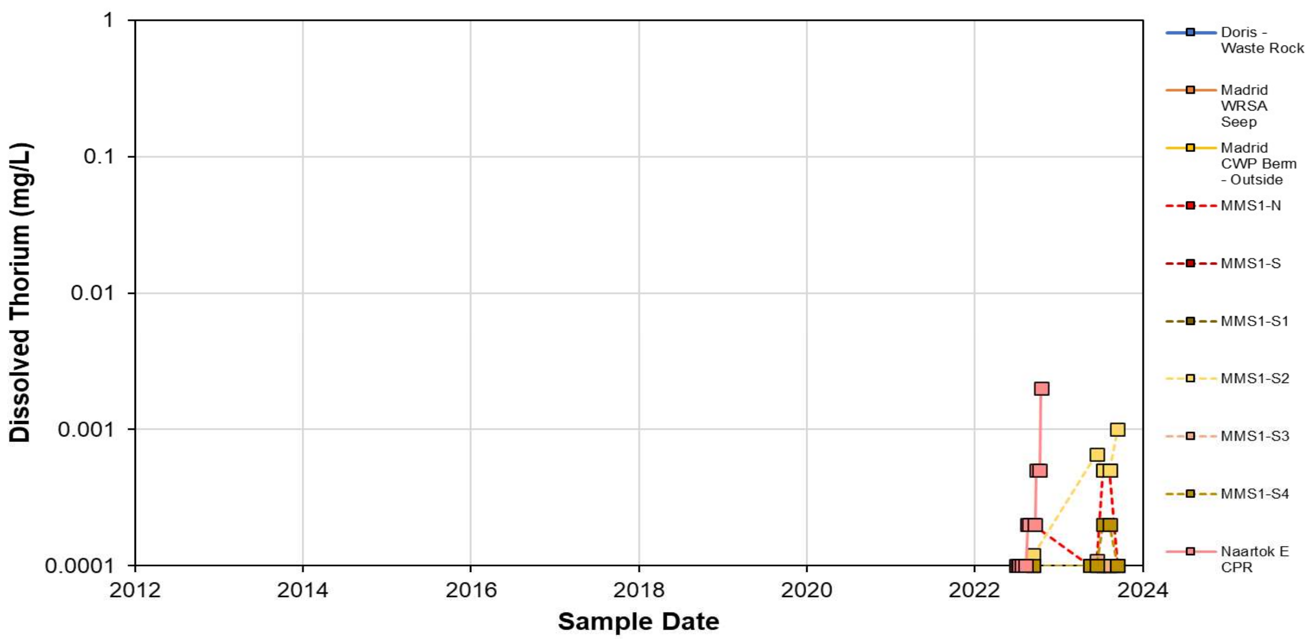


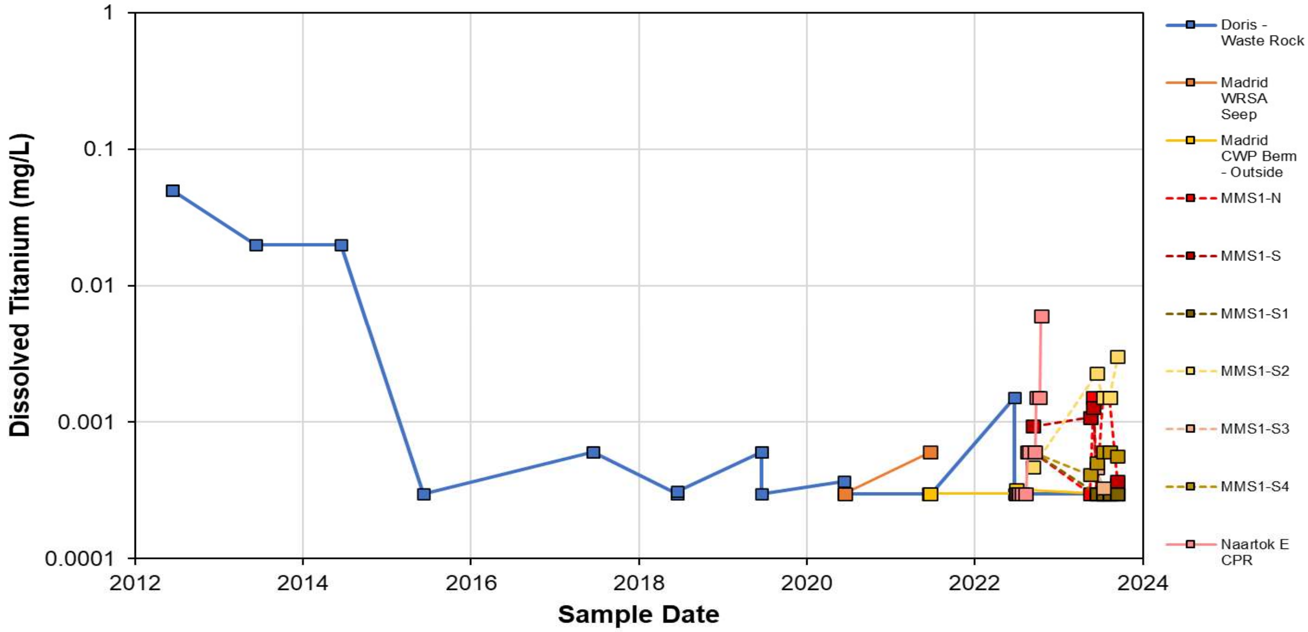
Dissolved Antimony (mg/L)
1
0.1
0.01
0.001
0.0001
2012
2014
2016
2018
2020
2022
2024
Sample Date
Doris - Waste Rock
Madrid WRSA Seep
Madrid CWP Berm - Outside
MMS1-N
MMS1-S
MMS1-S1
MMS1-S2
MMS1-S3
MMS1-S4
Naartok E CPR

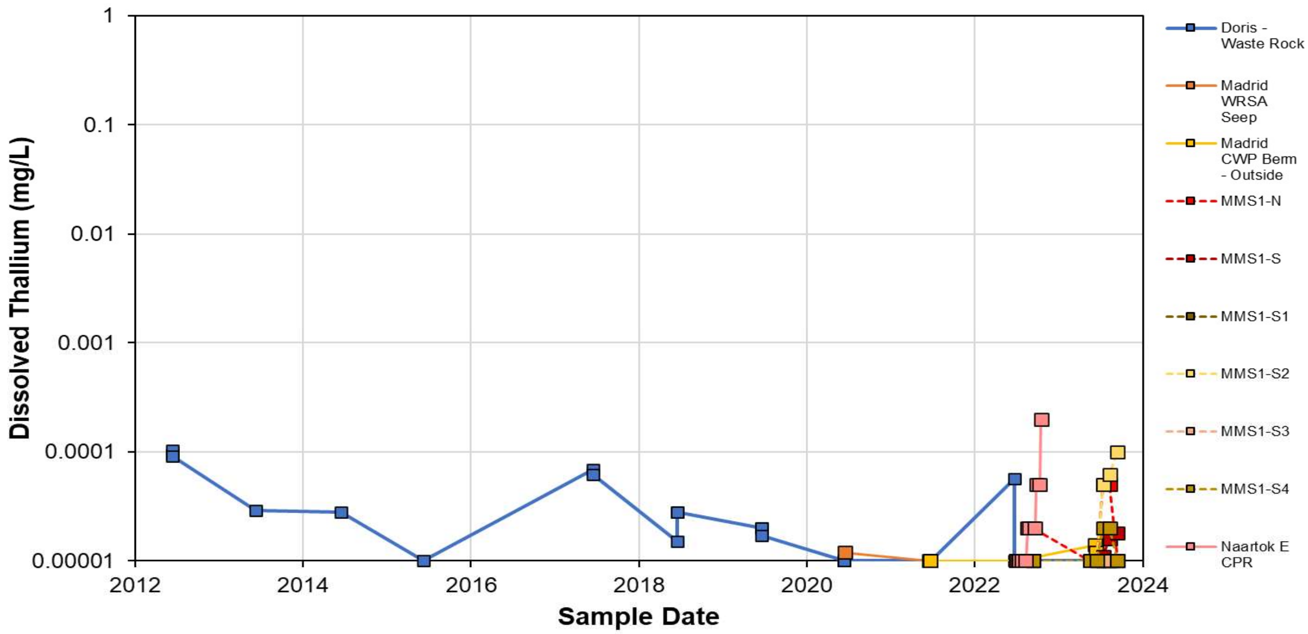

Dissolved Selenium (mg/L)
1
0.1
0.01
0.001
0.0001
0.00001
2012
2014
2016
2018
2020
2022
2024
Sample Date
Doris - Waste Rock
Madrid WRSA Seep
Madrid CWP Berm - Outside
MMS1-N
MMS1-S
MMS1-S1
MMS1-S2
MMS1-S3
MMS1-S4
Naartok E CPR

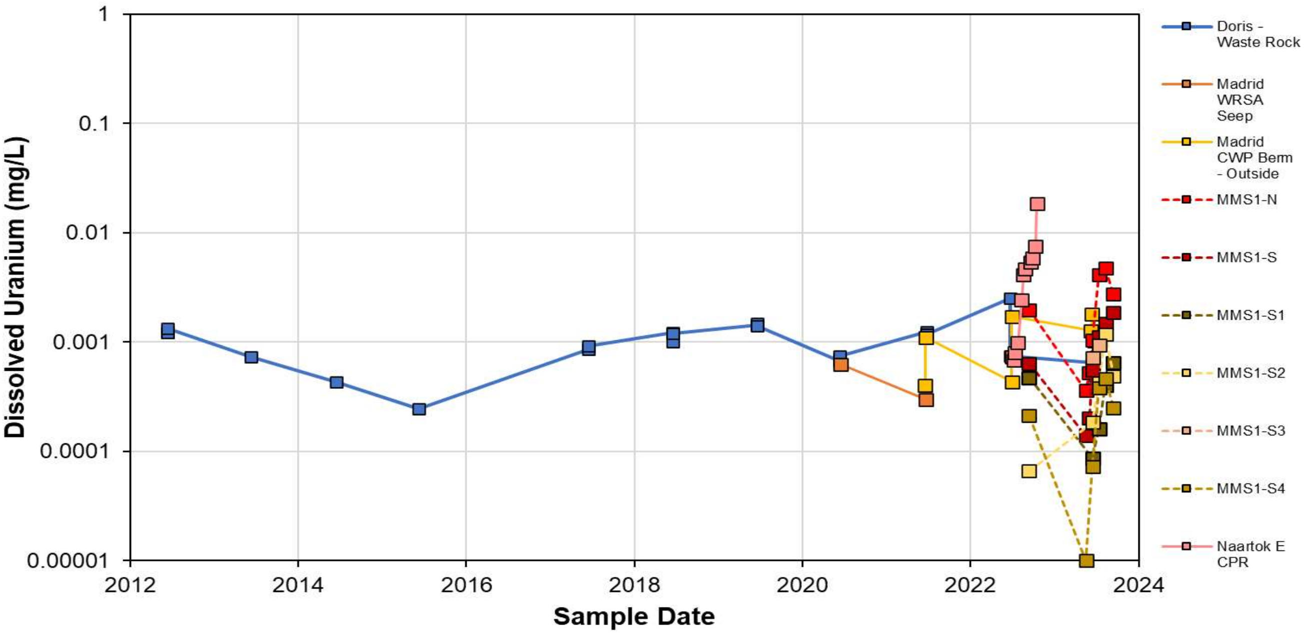

Dissolved Silicon (mg/L)
10
1
0.1
2012
2014
2016
2018
2020
2022
2024
Sample Date
Doris - Waste Rock
Madrid WRSA Seep
Madrid CWP Berm - Outside
MMS1-N
MMS1-S
MMS1-S1
MMS1-S2
MMS1-S3
MMS1-S4
Naartok E CPR

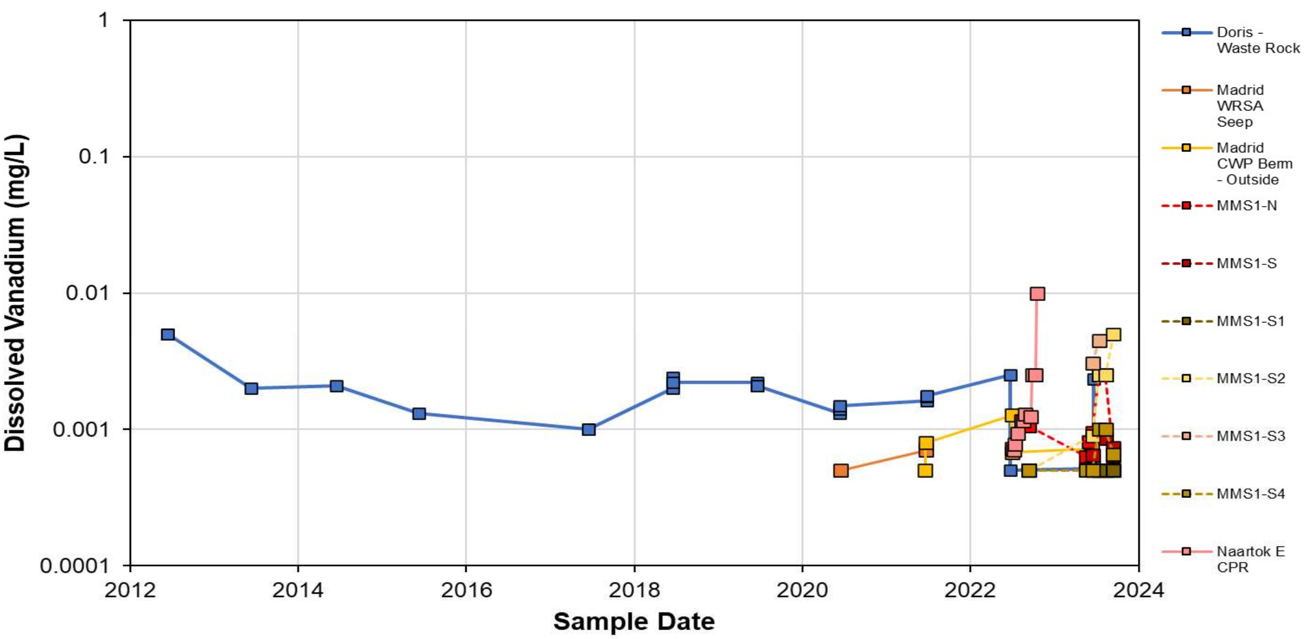

Dissolved Strontium (mg/L)
100
10
1
0.1
0.01
2012
2014
2016
2018
2020
2022
2024
Sample Date
Doris - Waste Rock
Madrid WRSA Seep
Madrid CWP Berm - Outside
MMS1-N
MMS1-S
MMS1-S1
MMS1-S2
MMS1-S3
MMS1-S4
Naartok E CPR

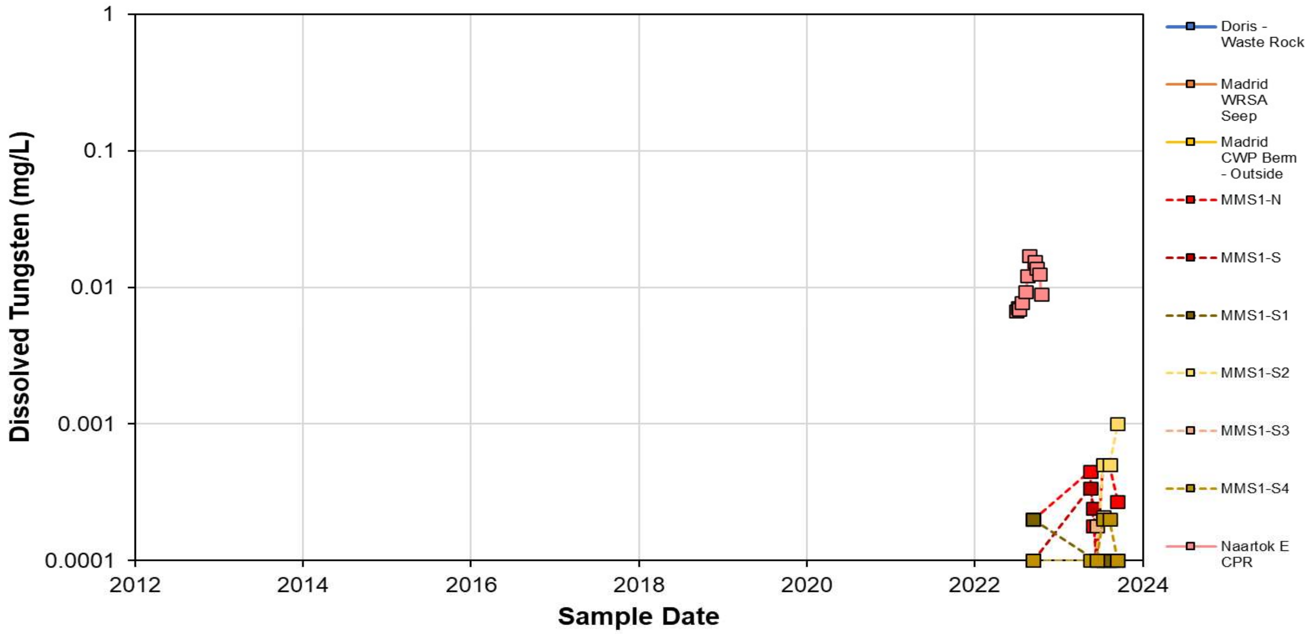

Dissolved Thorium (mg/L)
1
0.1
0.01
0.001
0.0001
2012
2014
2016
2018
2020
2022
2024
Sample Date
Doris - Waste Rock
Madrid WRSA Seep
Madrid CWP Berm - Outside
MMS1-N
MMS1-S
MMS1-S1
MMS1-S2
MMS1-S3
MMS1-S4
Naartok E CPR

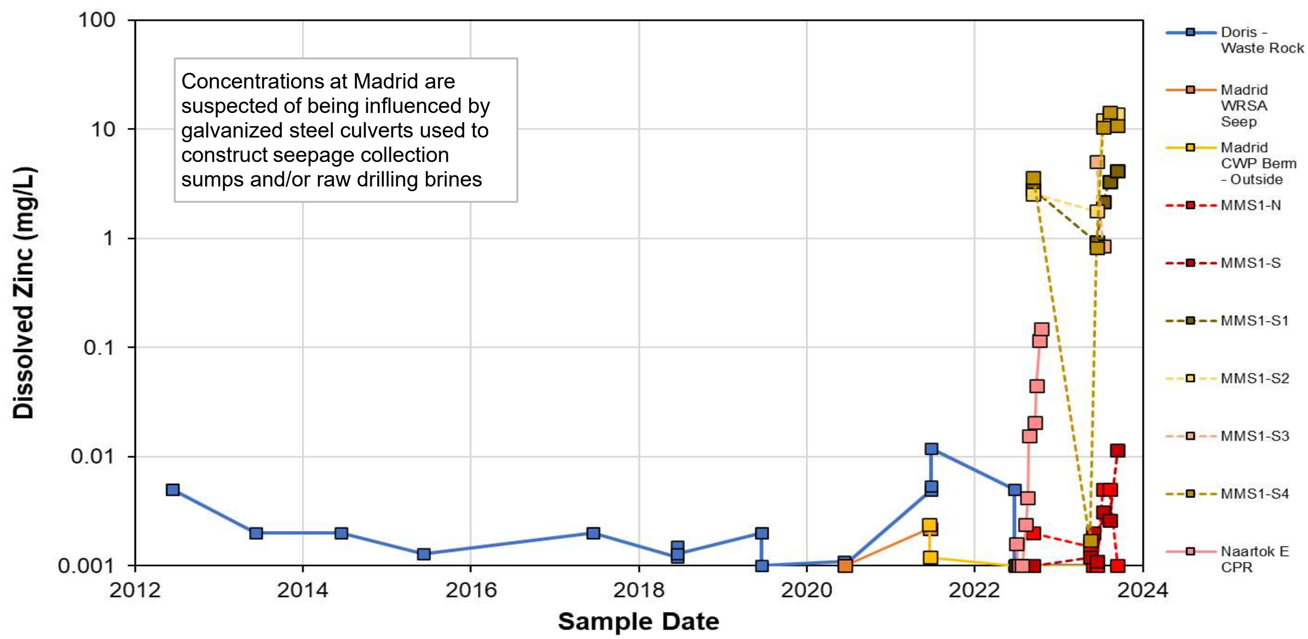

Dissolved Titanium (mg/L)
1
0.1
0.01
0.001
0.0001
2012
2014
2016
2018
2020
2022
2024
Sample Date
Doris - Waste Rock
Madrid WRSA Seep
Madrid CWP Berm - Outside
MMS1-N
MMS1-S
MMS1-S1
MMS1-S2
MMS1-S3
MMS1-S4
Naartok E CPR


Dissolved Thallium (mg/L)
1
0.1
0.01
0.001
0.0001
0.00001
2012
2014
2016
2018
2020
2022
2024
Sample Date
Doris - Waste Rock
Madrid WRSA Seep
Madrid CWP Berm - Outside
MMS1-N
MMS1-S
MMS1-S1
MMS1-S2
MMS1-S3
MMS1-S4
Naartok E CPR

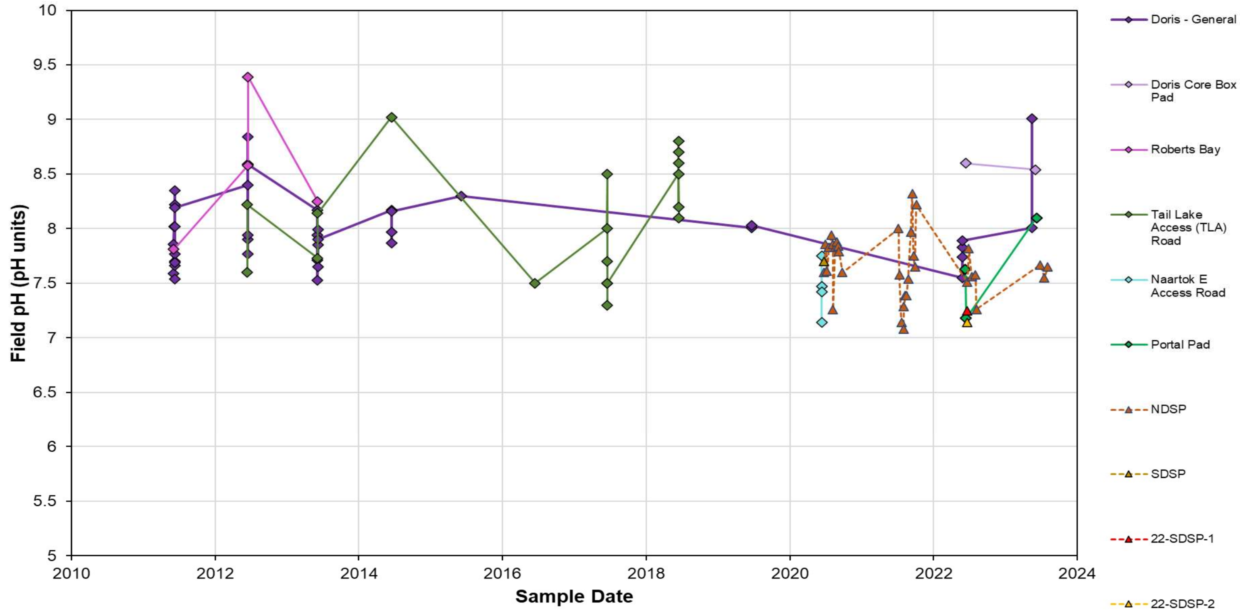

Dissolved Uranium (mg/L)
1
0.1
0.01
0.001
0.0001
0.00001
2012
2014
2016
2018
2020
2022
2024
Sample Date
Doris - Waste Rock
Madrid WRSA Seep
Madrid CWP Berm - Outside
MMS1-N
MMS1-S
MMS1-S1
MMS1-S2
MMS1-S3
MMS1-S4
Naartok E CPR

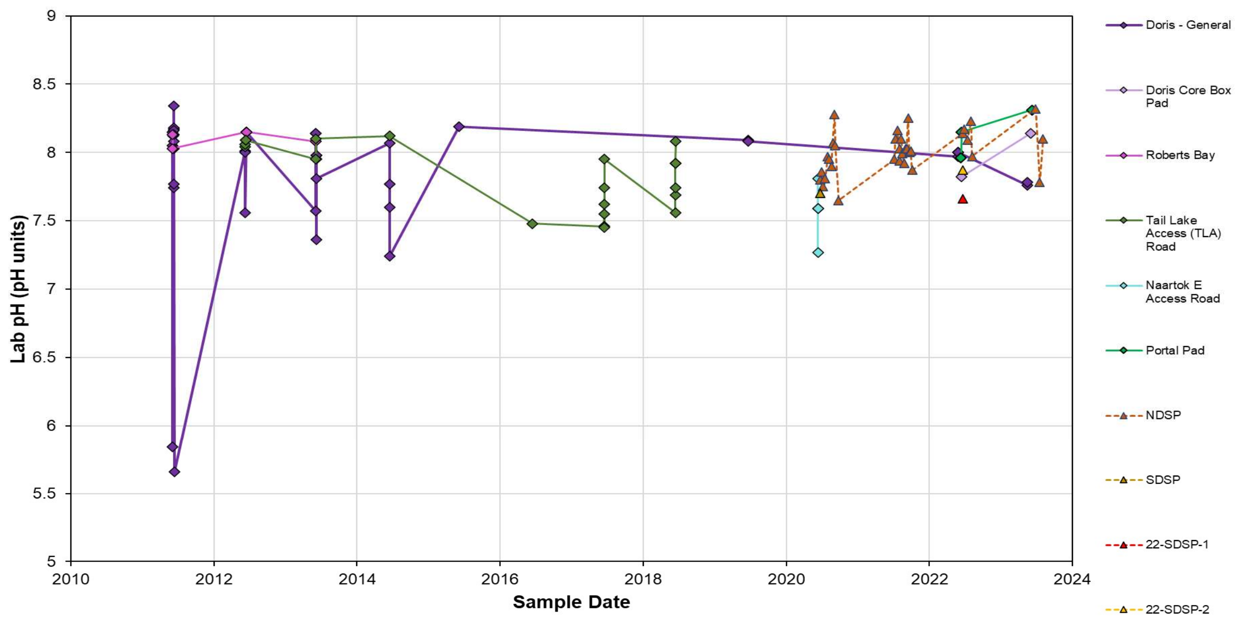

Dissolved Vanadium (mg/L)
1
0.1
0.01
0.001
0.0001
2012
2014
2016
2018
2020
2022
2024
Sample Date
Doris - Waste Rock
Madrid WRSA Seep
Madrid CWP Berm - Outside
MMS1-N
MMS1-S
MMS1-S1
MMS1-S2
MMS1-S3
MMS1-S4
Naartok E CPR

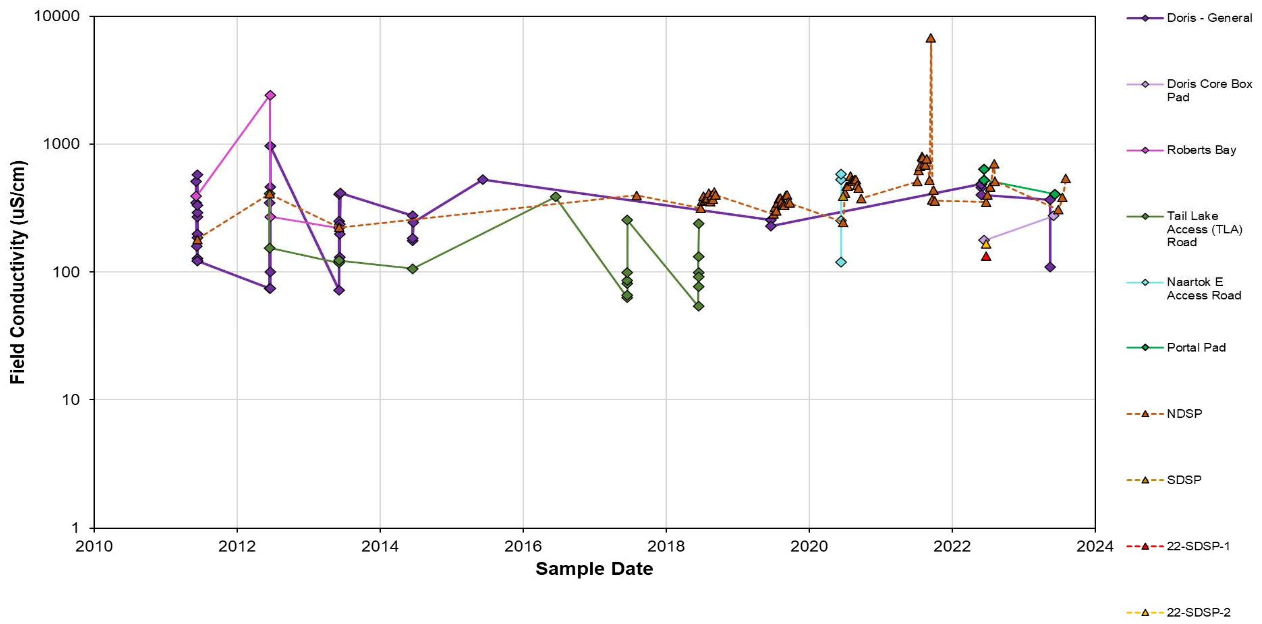

1
0.1
0.01
0.001
0.0001
Dissolved Tungsten (mg/L)
2012
2014
2016
2018
2020
2022
2024
Sample Date
Doris - Waste Rock
Madrid WRSA Seep
Madrid CWP Berm - Outside
MMS1-N
MMS1-S
MMS1-S1
MMS1-S2
MMS1-S3
MMS1-S4
Naartok E CPR

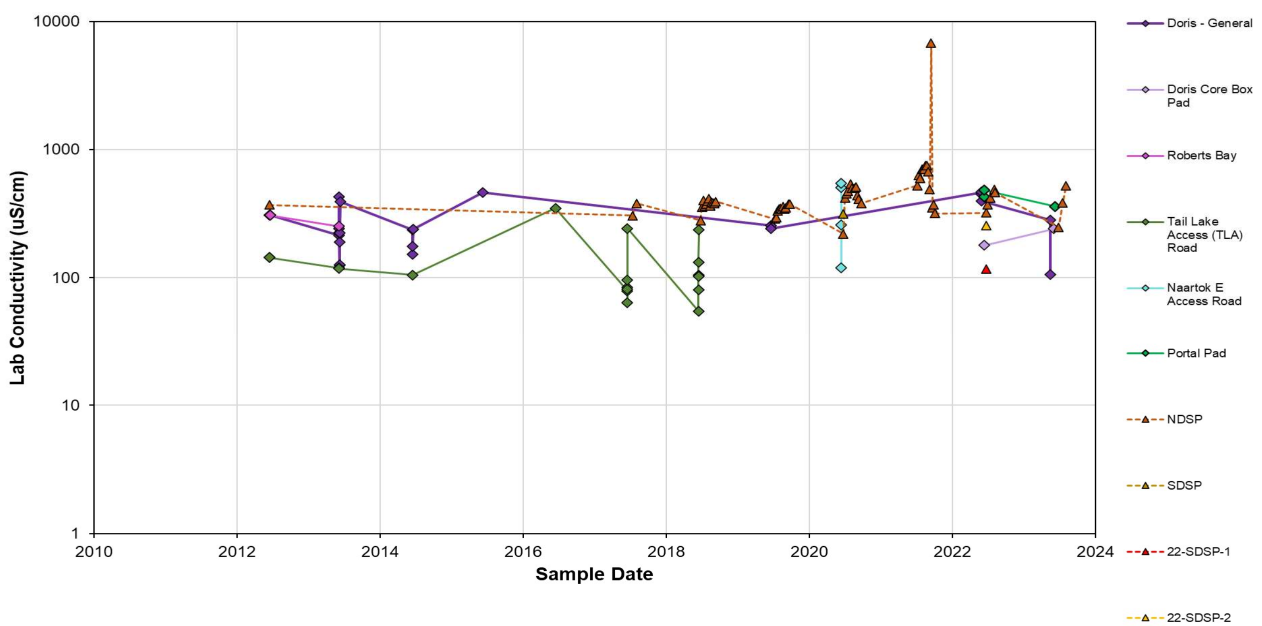

100
10
1
0.1
0.01
0.001
Dissolved Zinc (mg/L)
Concentrations at Madrid are suspected of being influenced by galvanized steel culverts used to construct seepage collection sumps and/or raw drilling brines
2012
2014
2016
2018
2020
2022
2024
Sample Date
Doris - Waste Rock
Madrid WRSA Seep
Madrid CWP Berm - Outside
MMS1-N
MMS1-S
MMS1-S1
MMS1-S2
MMS1-S3
MMS1-S4
Naartok E CPR

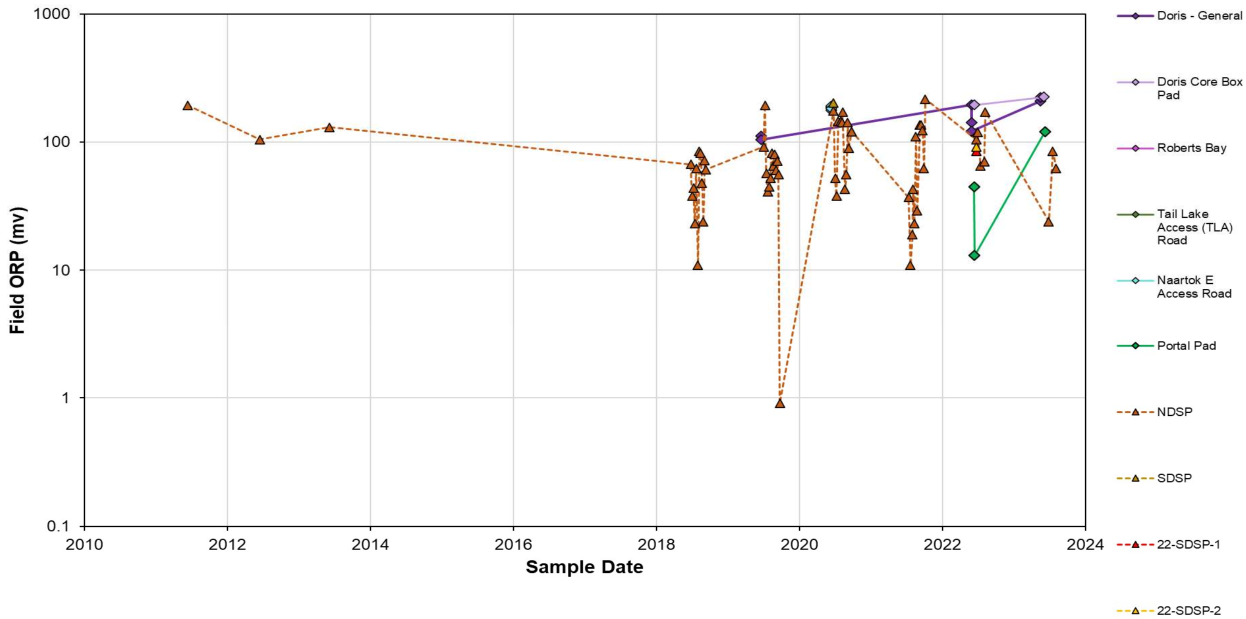
Appendix C Construction Rock and TIA Dam Seepage Timeseries Charts

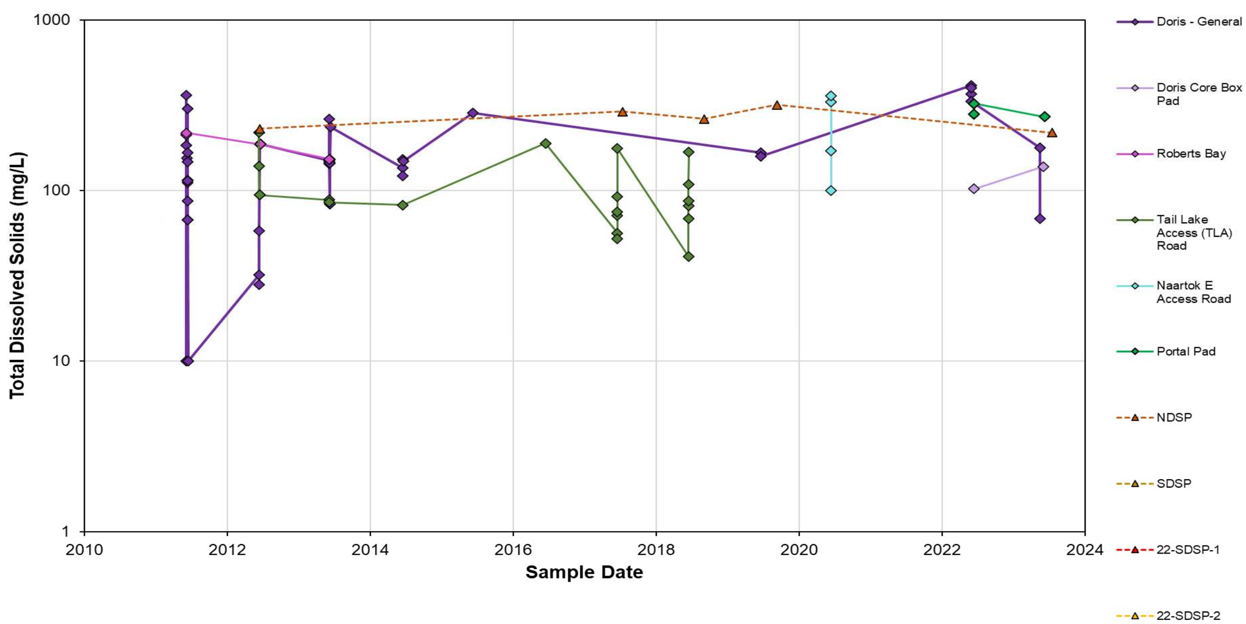

Field pH (pH units)
Sample Date
10
9.5
9
8.5
8
7.5
7
6.5
6
5.5
5
2010
2012
2014
2016
2018
2020
2022
2024
Doris - General
Doris Core Box Pad
Roberts Bay
Tail Lake Access (TLA) Road
Naartok E Access Road
Portal Pad
NDSP
SDSP
22-SDSP-1
22-SDSP-2

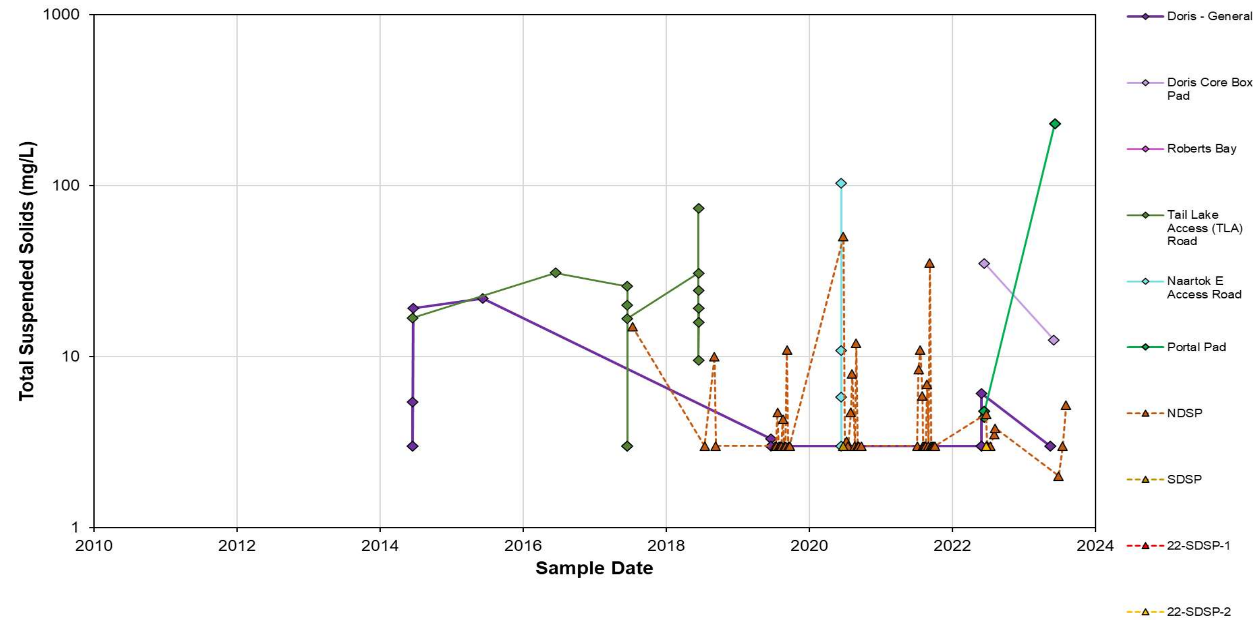

Lab pH (pH units)
Sample Date
9
8.5
8
7.5
7
6.5
6
5.5
5
2010
2012
2014
2016
2018
2020
2022
2024
Doris - General
Doris Core Box Pad
Roberts Bay
Tail Lake Access (TLA) Road
Naartok E Access Road
Portal Pad
NDSP
SDSP
22-SDSP-1
22-SDSP-2

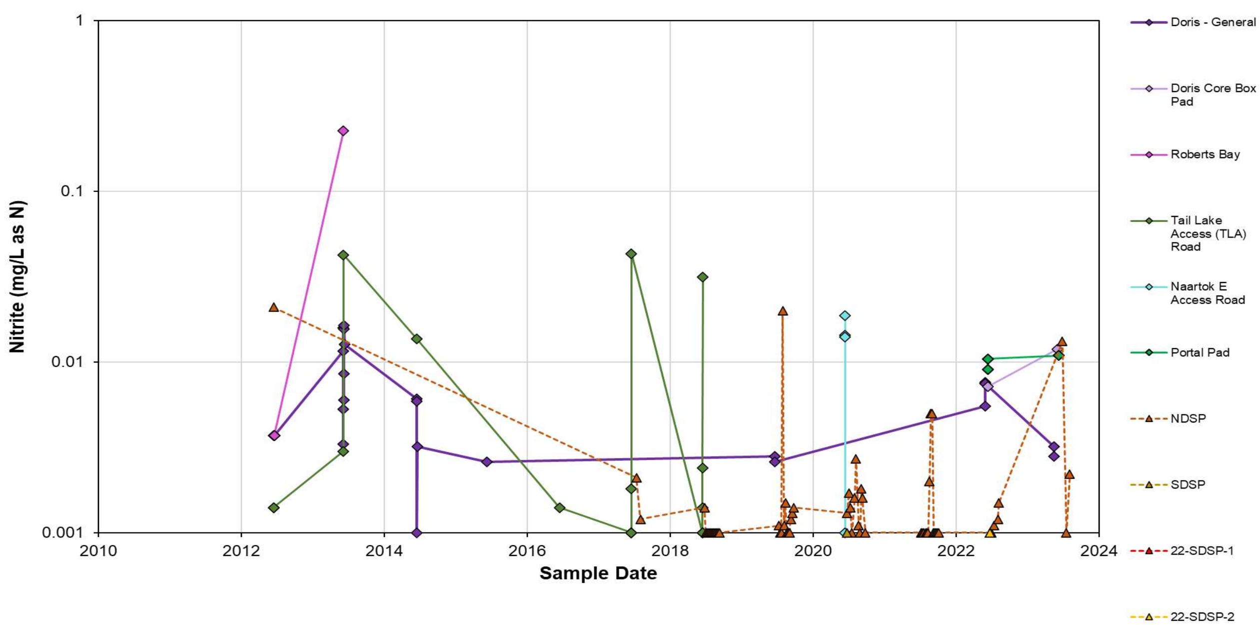

Field Conductivity (uS/cm)
10000
1000
100
10
1
2010
2012
2014
2016
2018
2020
2022
2024
Sample Date
Doris - General
Doris Core Box Pad
Roberts Bay
Tail Lake Access (TLA) Road
Naartok E Access Road
Portal Pad
NDSP
SDSP
22-SDSP-1
22-SDSP-2

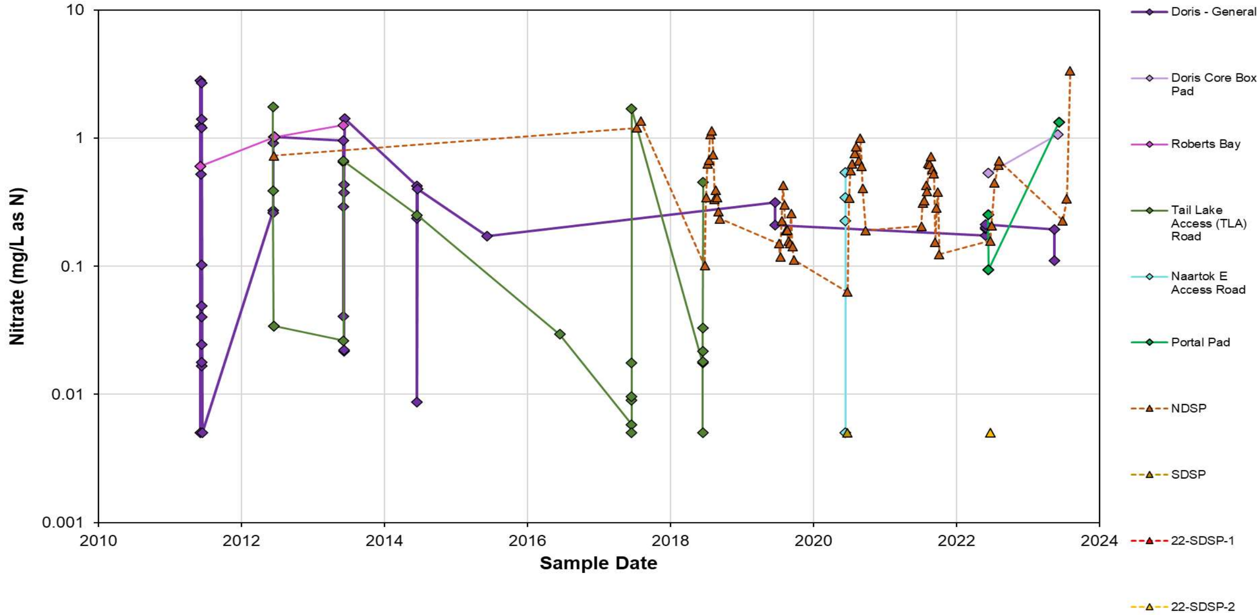

Lab Conductivity (uS/cm)
10000
1000
100
10
1
2010
2012
2014
2016
2018
2020
2022
2024
Sample Date
Doris - General
Doris Core Box Pad
Roberts Bay
Tail Lake Access (TLA) Road
Naartok E Access Road
Portal Pad
NDSP
SDSP
22-SDSP-1
22-SDSP-2

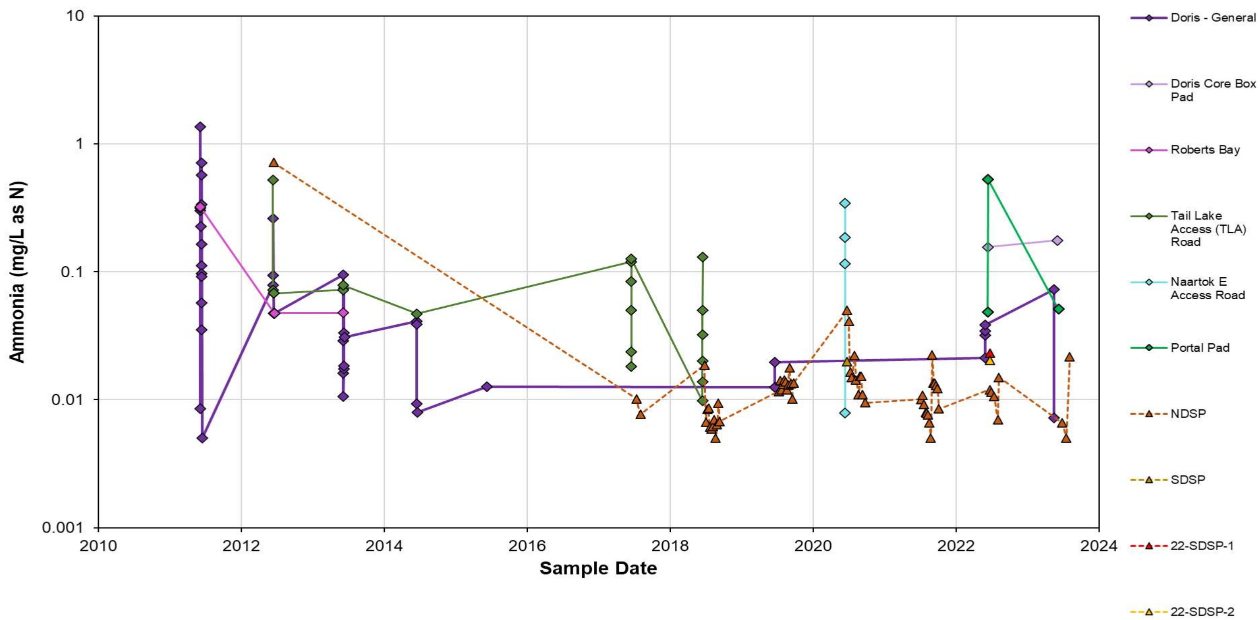

1000
100
10
1
0.1
Field ORP (mv)
2010
2012
2014
2016
2018
2020
2022
2024
Sample Date
Doris - General
Doris Core Box Pad
Roberts Bay
Tail Lake Access (TLA) Road
Naartok E Access Road
Portal Pad
NDSP
SDSP
22-SDSP-1
22-SDSP-2

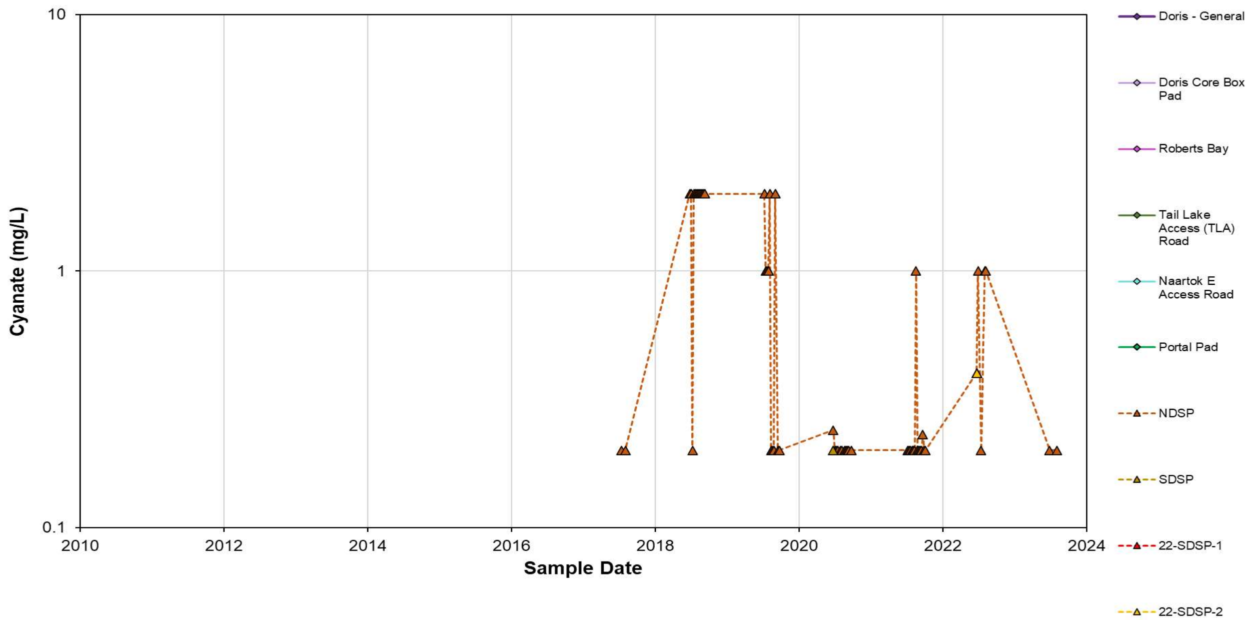

1000
100
10
1
Total Dissolved Solids (mg/L)
2010
2012
2014
2016
2018
2020
2022
2024
Sample Date
Doris - General
Doris Core Box Pad
Roberts Bay
Tail Lake Access (TLA) Road
Naartok E Access Road
Portal Pad
NDSP
SDSP
22-SDSP-1
22-SDSP-2

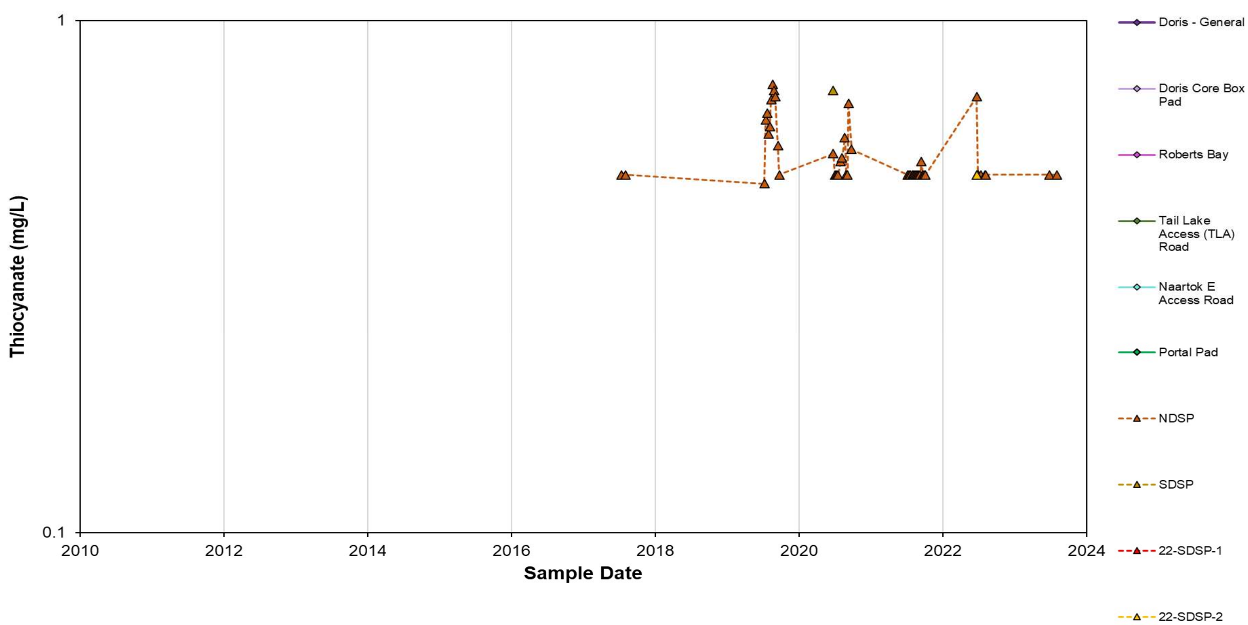

1000
100
10
1
Total Suspended Solids (mg/L)
2010
2012
2014
2016
2018
2020
2022
2024
Sample Date
Doris - General
Doris Core Box Pad
Roberts Bay
Tail Lake Access (TLA) Road
Naartok E Access Road
Portal Pad
NDSP
SDSP
22-SDSP-1
22-SDSP-2

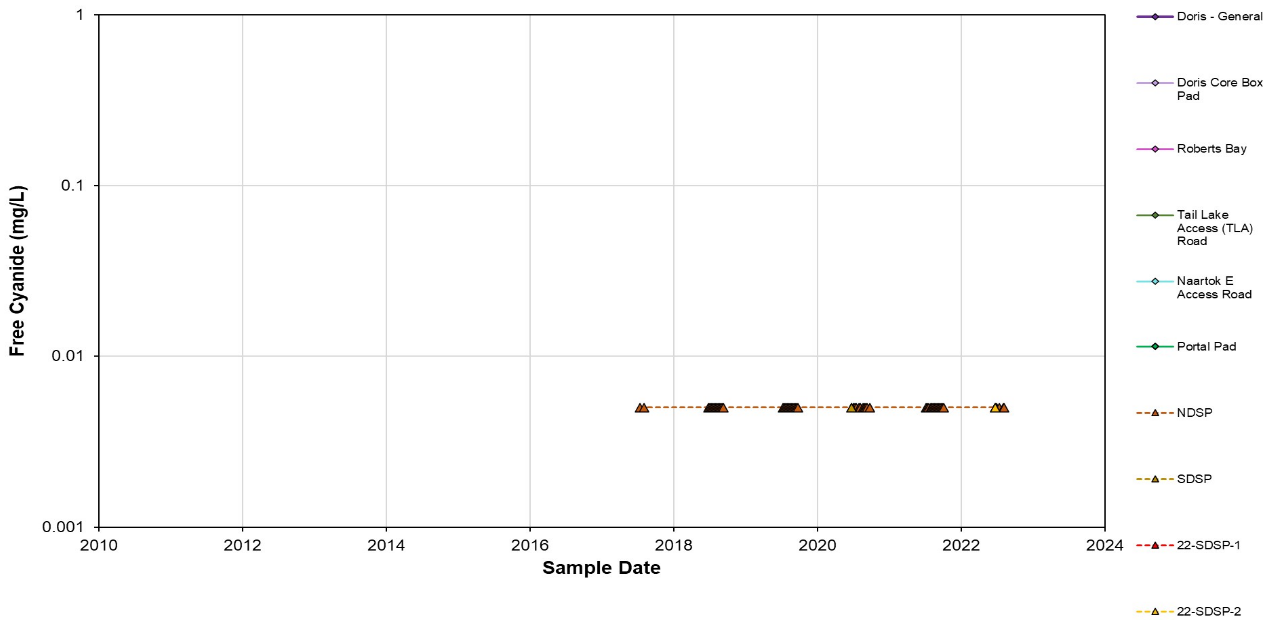

1
0.1
0.01
0.001
Nitrite (mg/L as N)
2010
2012
2014
2016
2018
2020
2022
2024
Sample Date
Doris - General
Doris Core Box Pad
Roberts Bay
Tail Lake Access (TLA) Road
Naartok E Access Road
Portal Pad
NDSP
SDSP
22-SDSP-1
22-SDSP-2

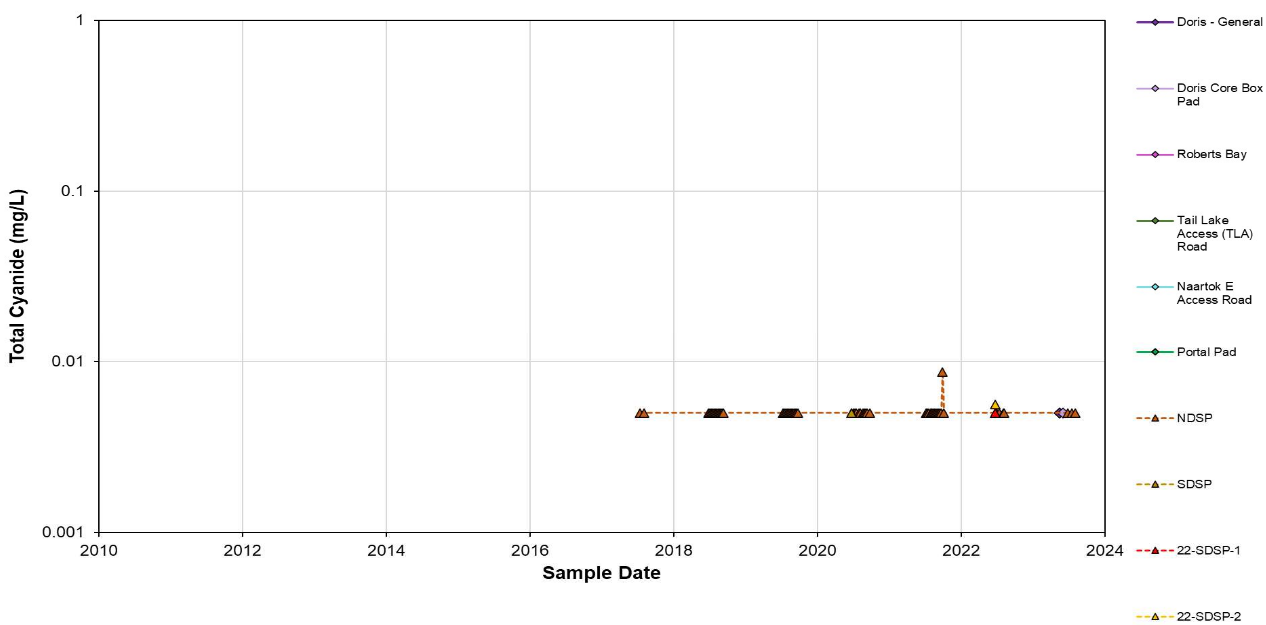

Nitrate (mg/L as N)
10
1
0.1
0.01
0.001
2010
2012
2014
2016
2018
2020
2022
2024
Sample Date
Doris - General
Doris Core Box Pad
Roberts Bay
Tail Lake Access (TLA) Road
Naartok E Access Road
Portal Pad
NDSP
SDSP
22-SDSP-1
22-SDSP-2

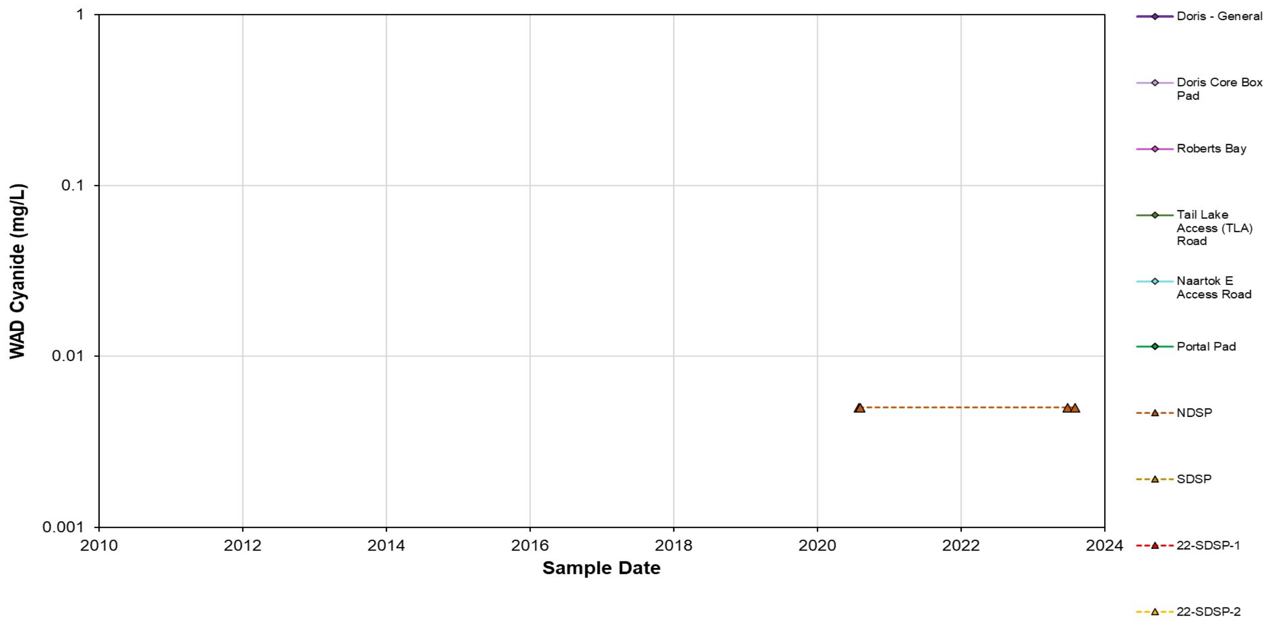

Ammonia (mg/L as N)
10
1
0.1
0.01
0.001
2010
2012
2014
2016
2018
2020
2022
2024
Sample Date
Doris - General
Doris Core Box Pad
Roberts Bay
Tail Lake Access (TLA) Road
Naartok E Access Road
Portal Pad
NDSP
SDSP
22-SDSP-1
22-SDSP-2


10
1
0.1
Cyanate (mg/L)
2010
2012
2014
2016
2018
2020
2022
2024
Sample Date
Doris - General
Doris Core Box Pad
Roberts Bay
Tail Lake Access (TLA) Road
Naartok E Access Road
Portal Pad
NDSP
SDSP
22-SDSP-1
22-SDSP-2

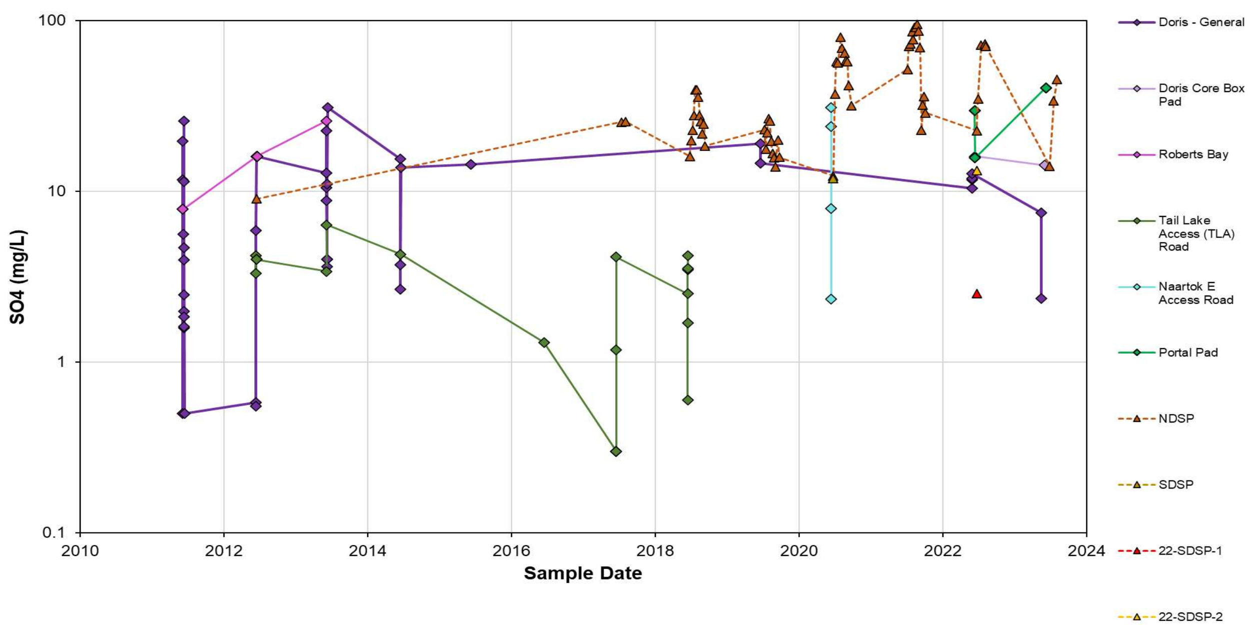

1
0.1
Thiocyanate (mg/L)
2010
2012
2014
2016
2018
2020
2022
2024
Sample Date
Doris - General
Doris Core Box Pad
Roberts Bay
Tail Lake Access (TLA) Road
Naartok E Access Road
Portal Pad
NDSP
SDSP
22-SDSP-1
22-SDSP-2


1
0.1
0.01
0.001
Free Cyanide (mg/L)
2010
2012
2014
2016
2018
2020
2022
2024
Sample Date
Doris - General
Doris Core Box Pad
Roberts Bay
Tail Lake Access (TLA) Road
Naartok E Access Road
Portal Pad
NDSP
SDSP
22-SDSP-1
22-SDSP-2

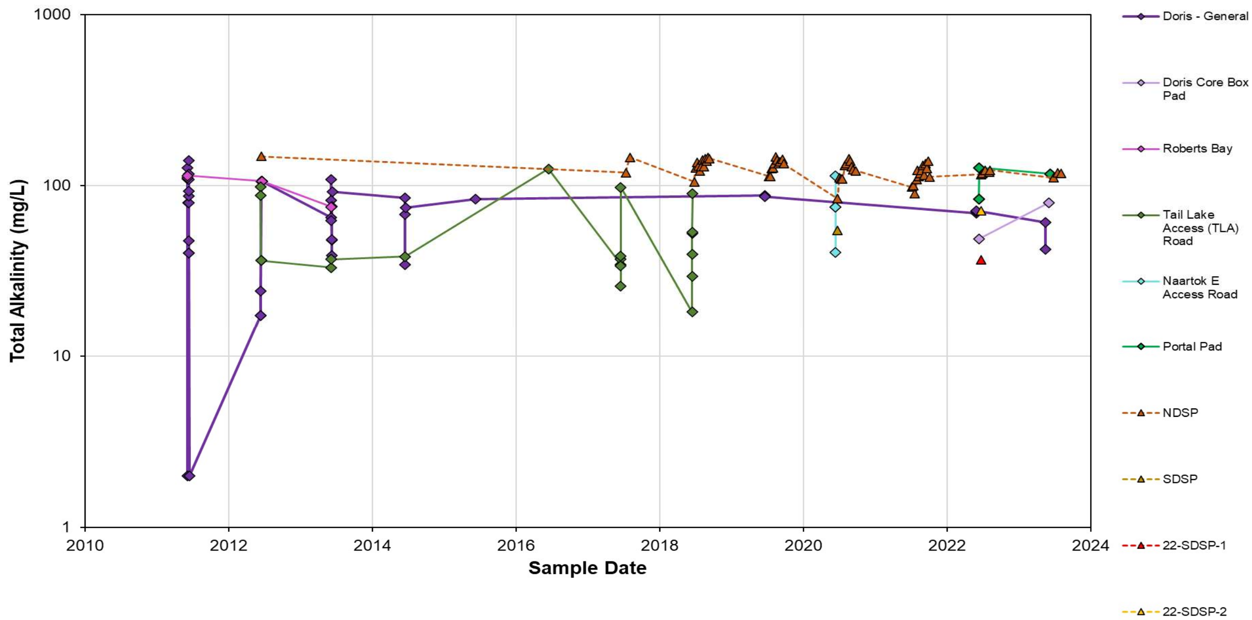

1
0.1
0.01
0.001
Total Cyanide (mg/L)
2010
2012
2014
2016
2018
2020
2022
2024
Sample Date
Doris - General
Doris Core Box Pad
Roberts Bay
Tail Lake Access (TLA) Road
Naartok E Access Road
Portal Pad
NDSP
SDSP
22-SDSP-1
22-SDSP-2

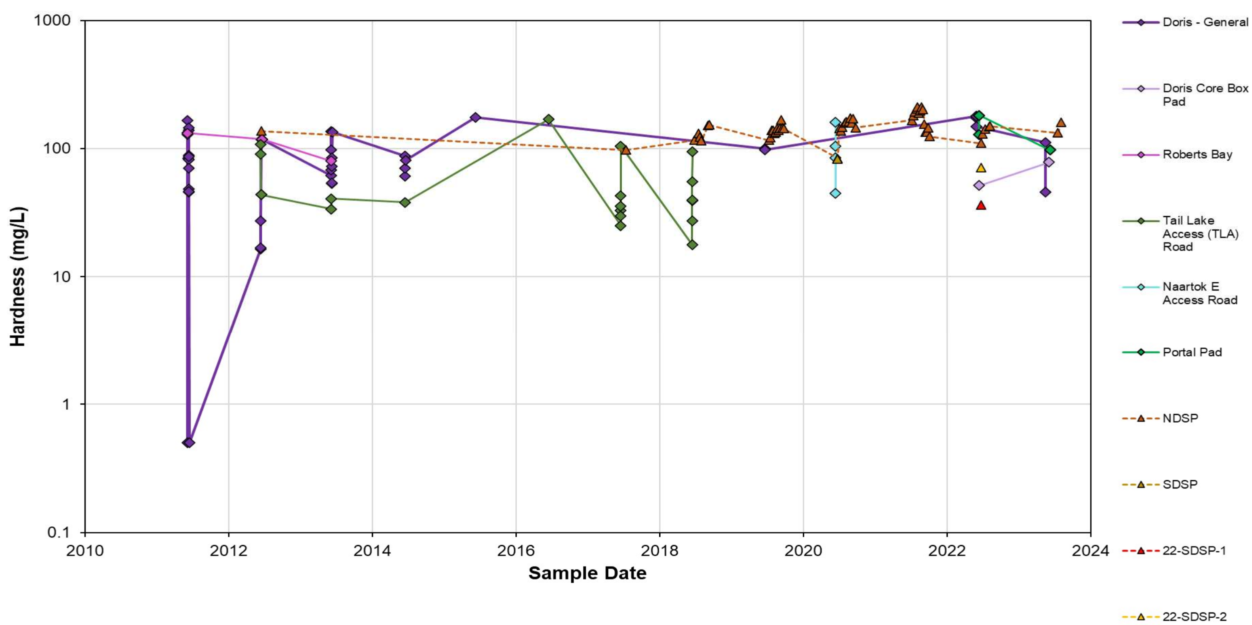


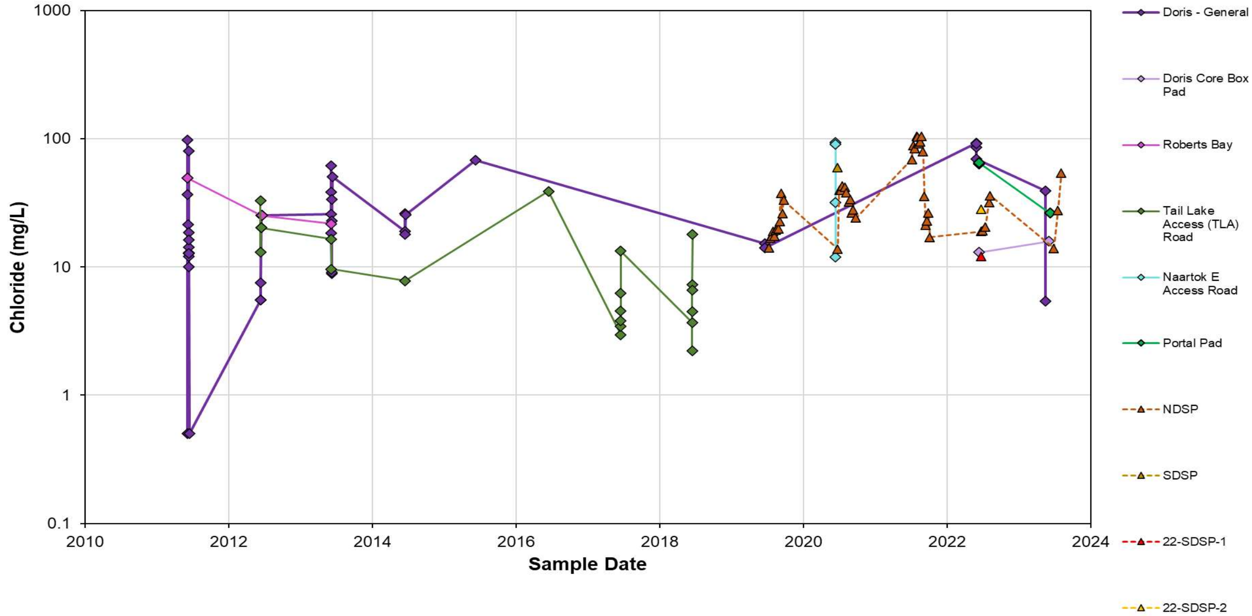
1
0.1
0.01
0.001
WAD Cyanide (mg/L)
2010
2012
2014
2016
2018
2020
2022
2024
Sample Date
Doris - General
Doris Core Box Pad
Roberts Bay
Tail Lake Access (TLA) Road
Naartok E Access Road
Portal Pad
NDSP
SDSP
22-SDSP-1
22-SDSP-2

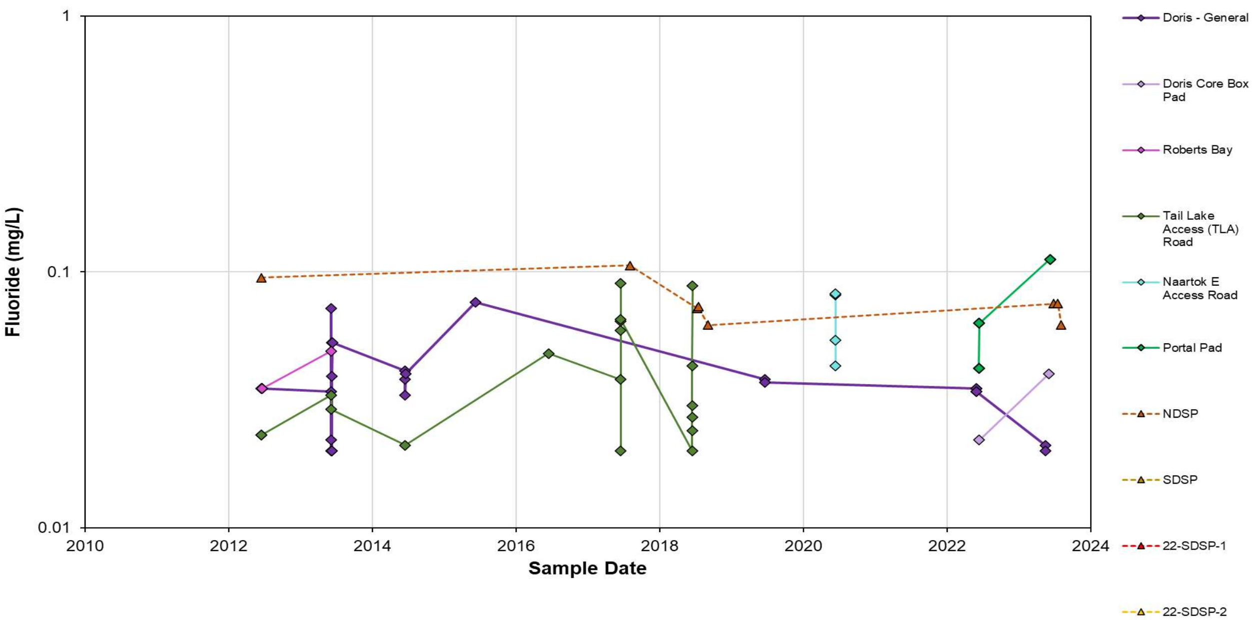


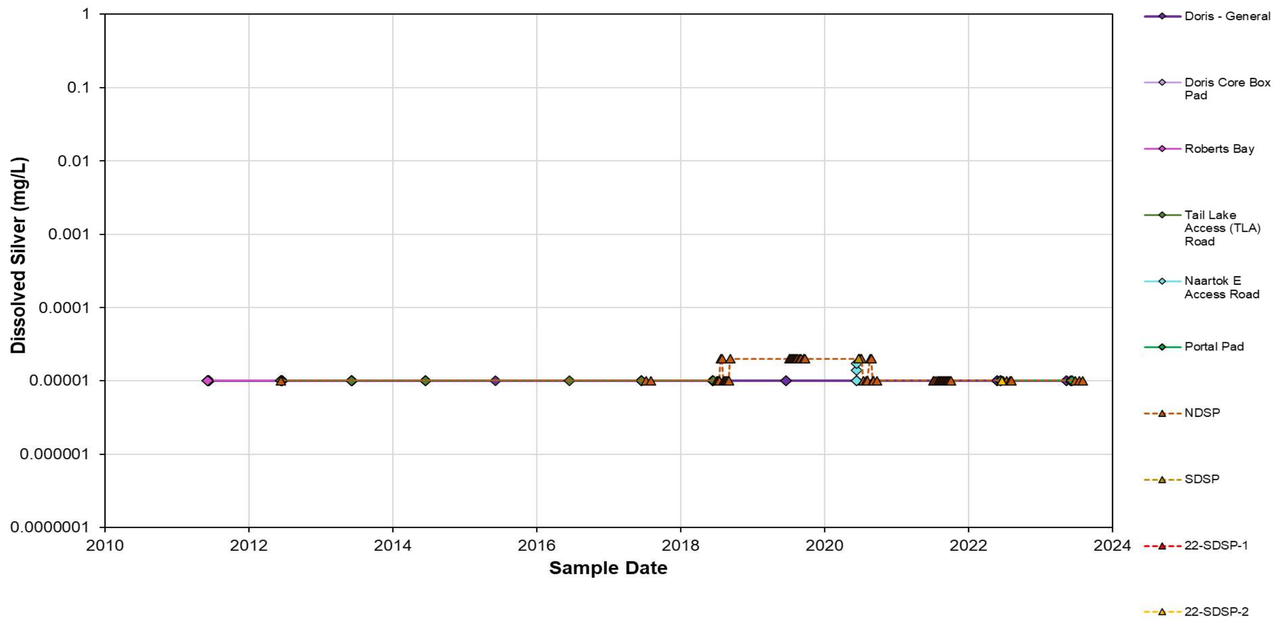
100
10
1
0.1
SO4 (mg/L)
2010
2012
2014
2016
2018
2020
2022
2024
Sample Date
Doris - General
Doris Core Box Pad
Roberts Bay
Tail Lake Access (TLA) Road
Naartok E Access Road
Portal Pad
NDSP
SDSP
22-SDSP-1
22-SDSP-2


1000
100
10
1
Total Alkalinity (mg/L)
2010
2012
2014
2016
2018
2020
2022
2024
Sample Date
Doris - General
Doris Core Box Pad
Roberts Bay
Tail Lake Access (TLA) Road
Naartok E Access Road
Portal Pad
NDSP
SDSP
22-SDSP-1
22-SDSP-2

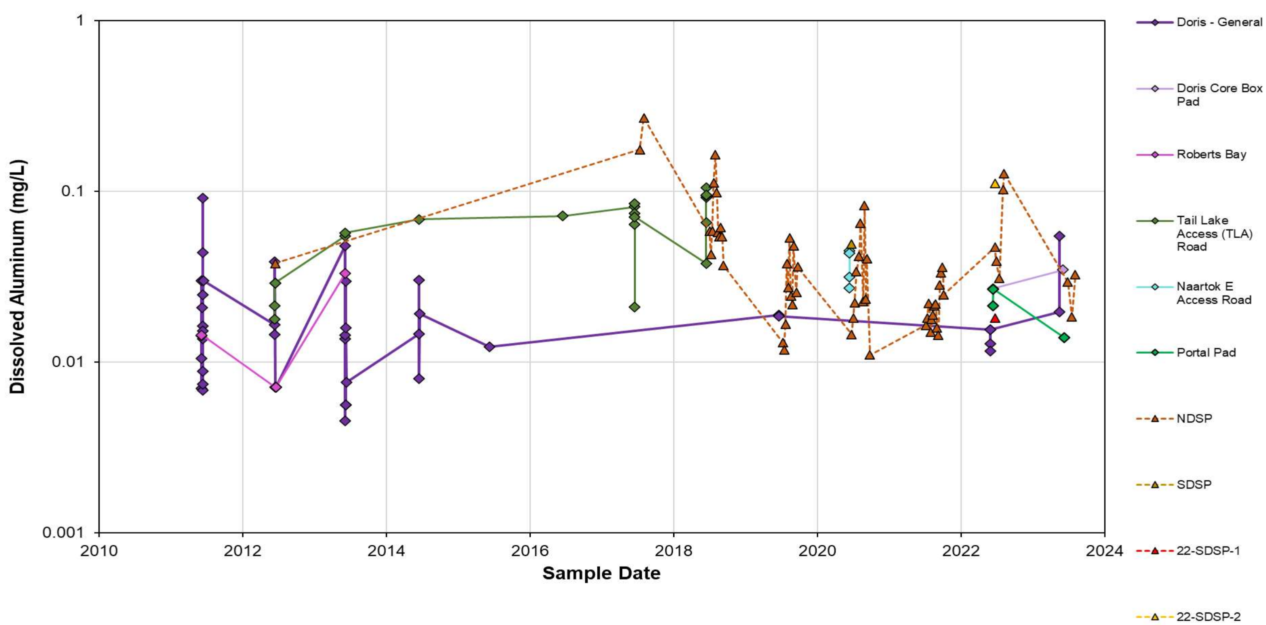

1000
100
10
1
0.1
Hardness (mg/L)
2010
2012
2014
2016
2018
2020
2022
2024
Sample Date
Doris - General
Doris Core Box Pad
Roberts Bay
Tail Lake Access (TLA) Road
Naartok E Access Road
Portal Pad
NDSP
SDSP
22-SDSP-1
22-SDSP-2


1000
100
10
1
0.1
Chloride (mg/L)
2010
2012
2014
2016
2018
2020
2022
2024
Sample Date
Doris - General
Doris Core Box Pad
Roberts Bay
Tail Lake Access (TLA) Road
Naartok E Access Road
Portal Pad
NDSP
SDSP
22-SDSP-1
22-SDSP-2

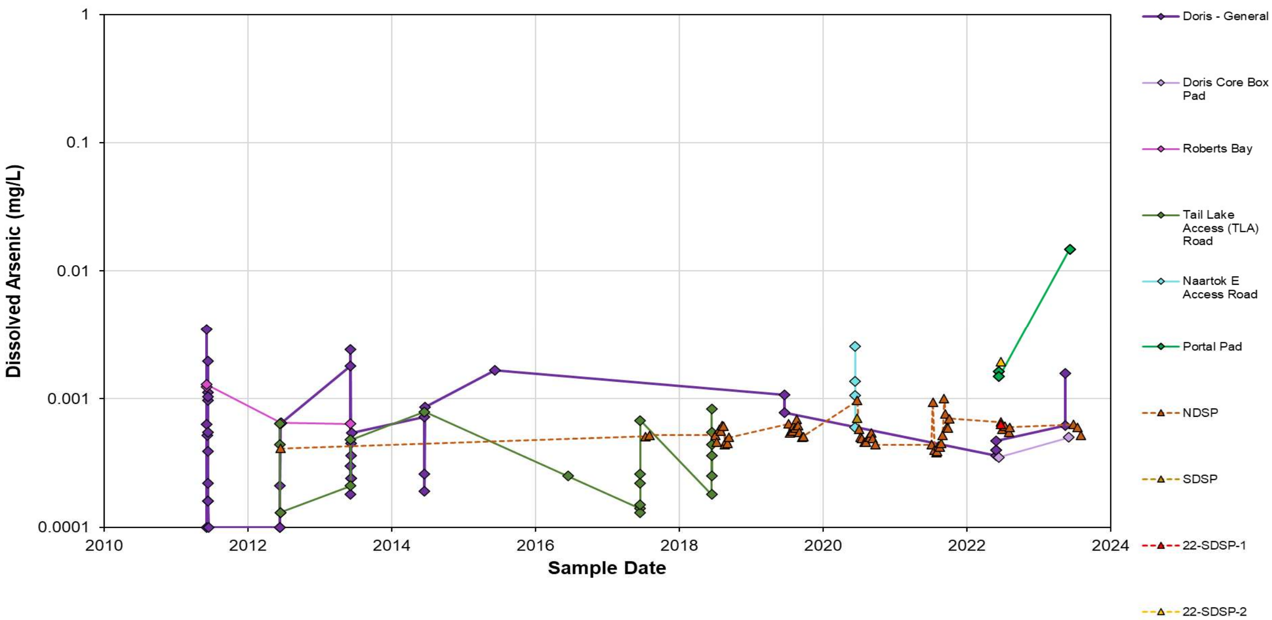

1
0.1
0.01
Fluoride (mg/L)
2010
2012
2014
2016
2018
2020
2022
2024
Sample Date
Doris - General
Doris Core Box Pad
Roberts Bay
Tail Lake Access (TLA) Road
Naartok E Access Road
Portal Pad
NDSP
SDSP
22-SDSP-1
22-SDSP-2

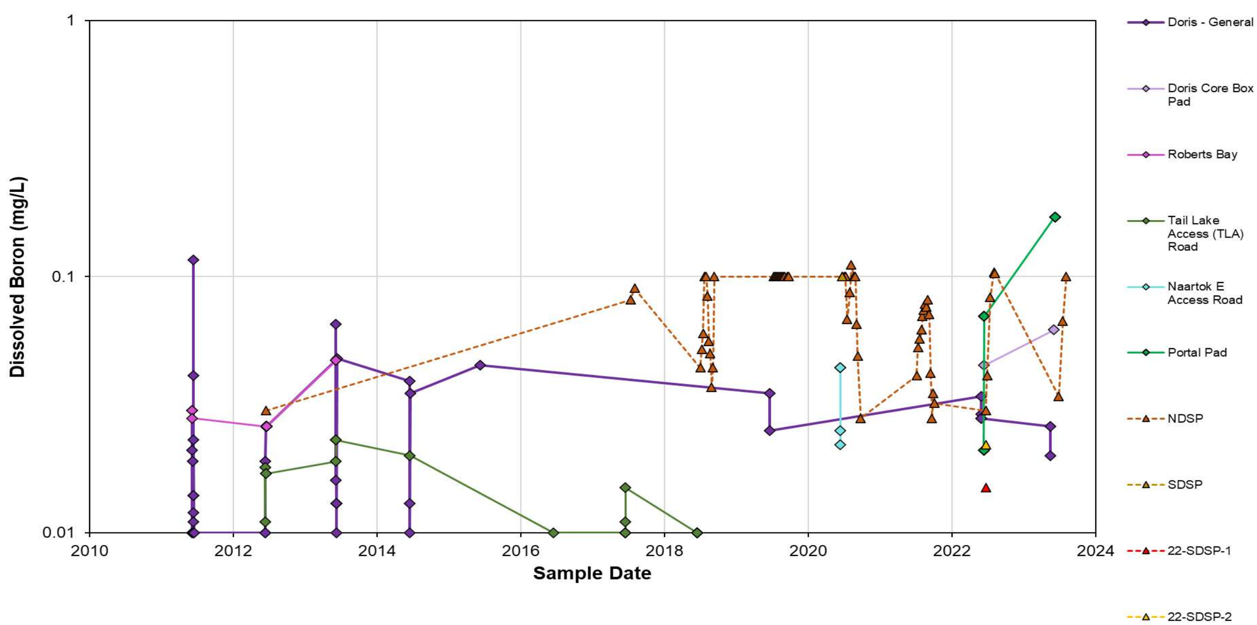


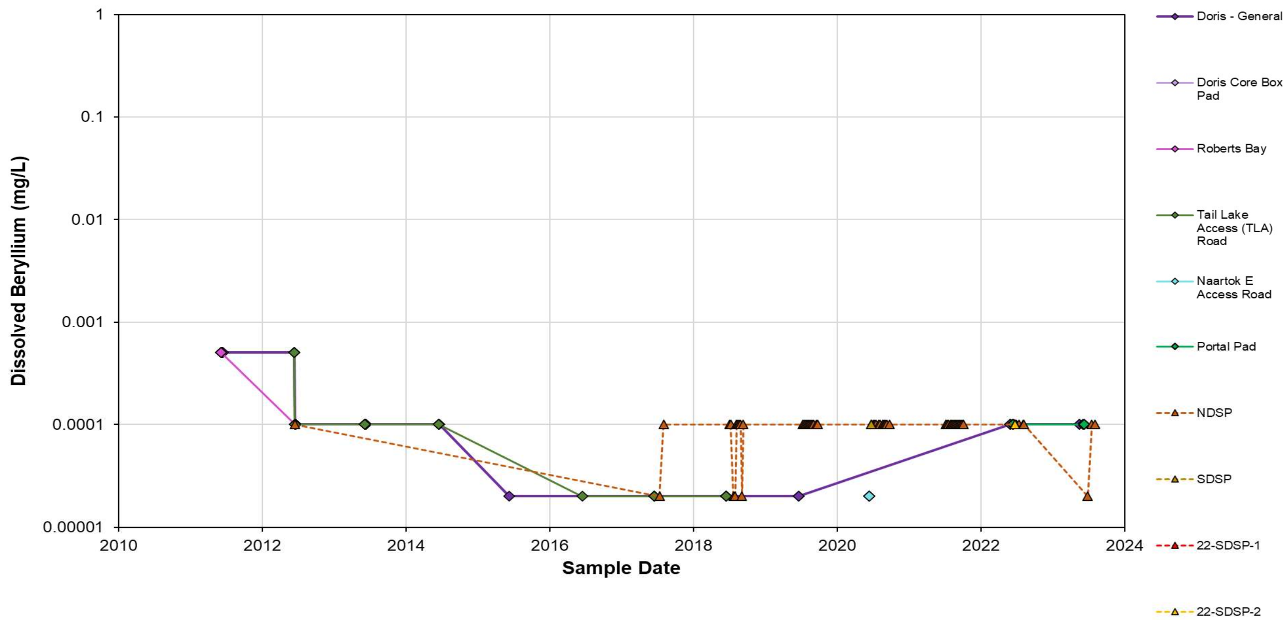
Dissolved Silver (mg/L)
1
0.1
0.01
0.001
0.0001
0.00001
0.000001
0.0000001
2010
2012
2014
2016
2018
2020
2022
2024
Sample Date
Doris - General
Doris Core Box Pad
Roberts Bay
Tail Lake Access (TLA) Road
Naartok E Access Road
Portal Pad
NDSP
SDSP
22-SDSP-1
22-SDSP-2

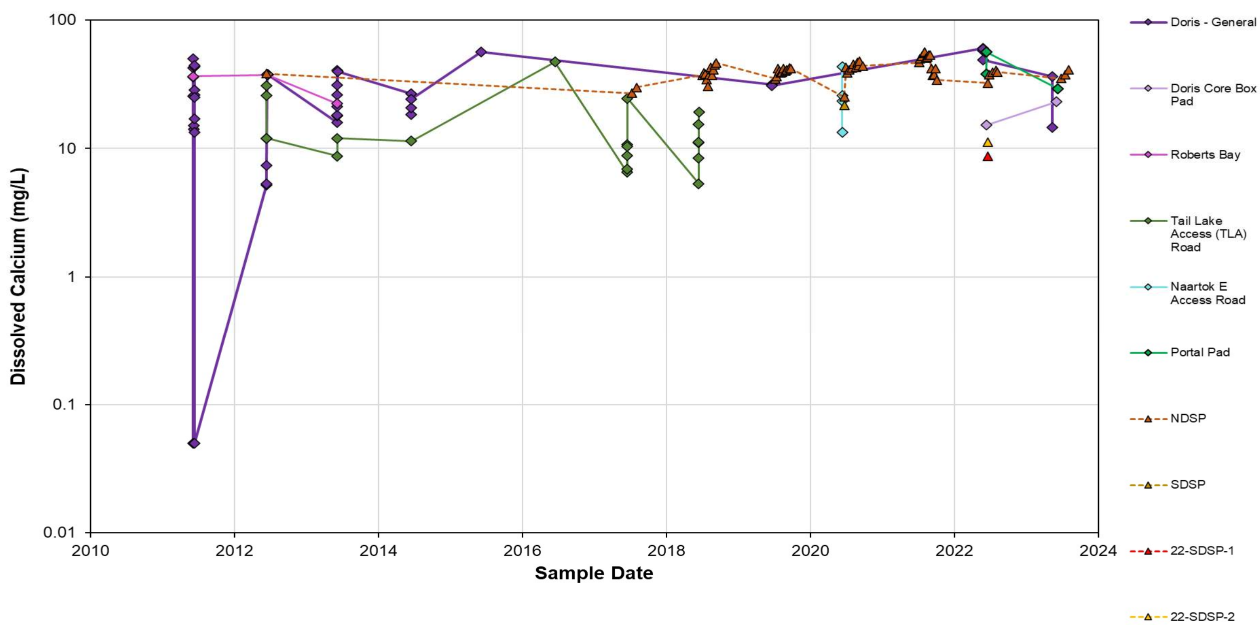


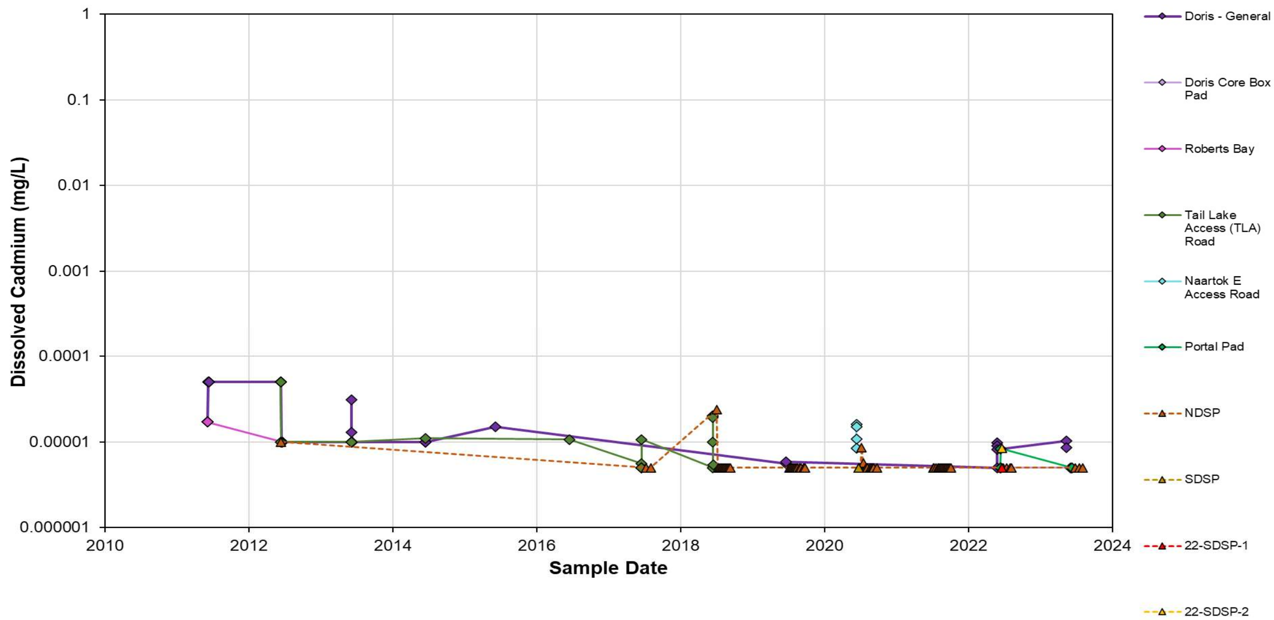
Dissolved Aluminum (mg/L)
1
0.1
0.01
0.001
2010
2012
2014
2016
2018
2020
2022
2024
Sample Date
Doris - General
Doris Core Box Pad
Roberts Bay
Tail Lake Access (TLA) Road
Naartok E Access Road
Portal Pad
NDSP
SDSP
22-SDSP-1
22-SDSP-2


Dissolved Arsenic (mg/L)
1
0.1
0.01
0.001
0.0001
2010
2012
2014
2016
2018
2020
2022
2024
Sample Date
Doris - General
Doris Core Box Pad
Roberts Bay
Tail Lake Access (TLA) Road
Naartok E Access Road
Portal Pad
NDSP
SDSP
22-SDSP-1
22-SDSP-2

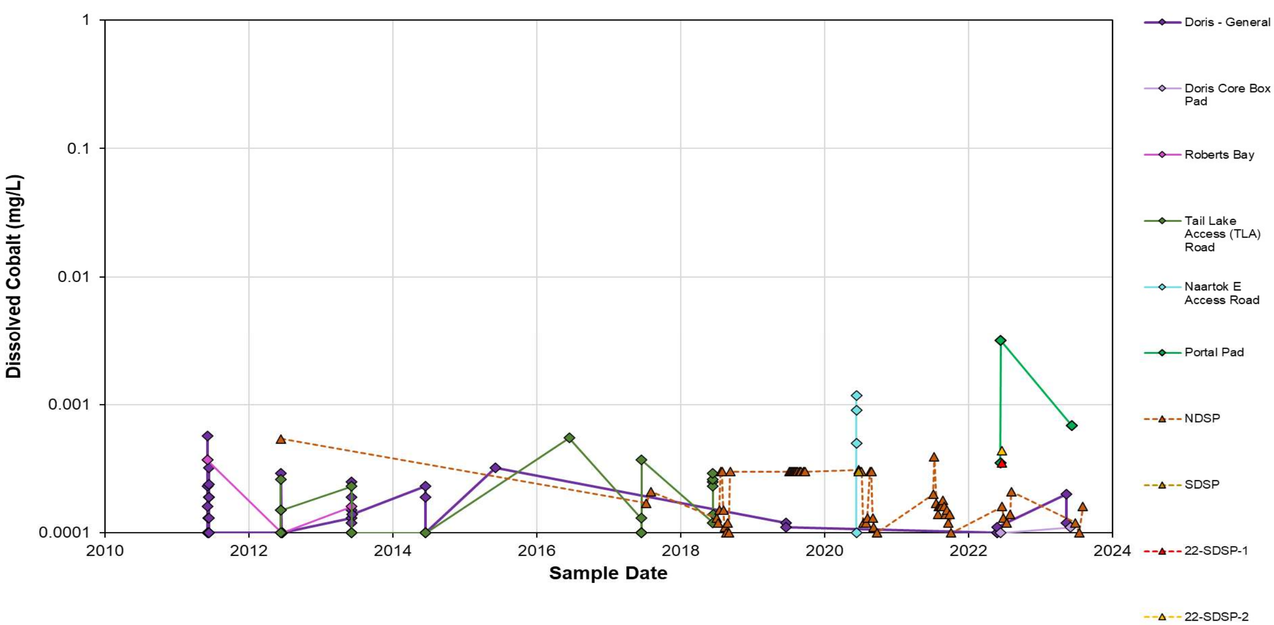

Dissolved Boron (mg/L)
1
0.1
0.01
2010
2012
2014
2016
2018
2020
2022
2024
Sample Date
Doris - General
Doris Core Box Pad
Roberts Bay
Tail Lake Access (TLA) Road
Naartok E Access Road
Portal Pad
NDSP
SDSP
22-SDSP-1
22-SDSP-2


Dissolved Beryllium (mg/L)
1
0.1
0.01
0.001
0.0001
0.00001
2010
2012
2014
2016
2018
2020
2022
2024
Sample Date
Doris - General
Doris Core Box Pad
Roberts Bay
Tail Lake Access (TLA) Road
Naartok E Access Road
Portal Pad
NDSP
SDSP
22-SDSP-1
22-SDSP-2

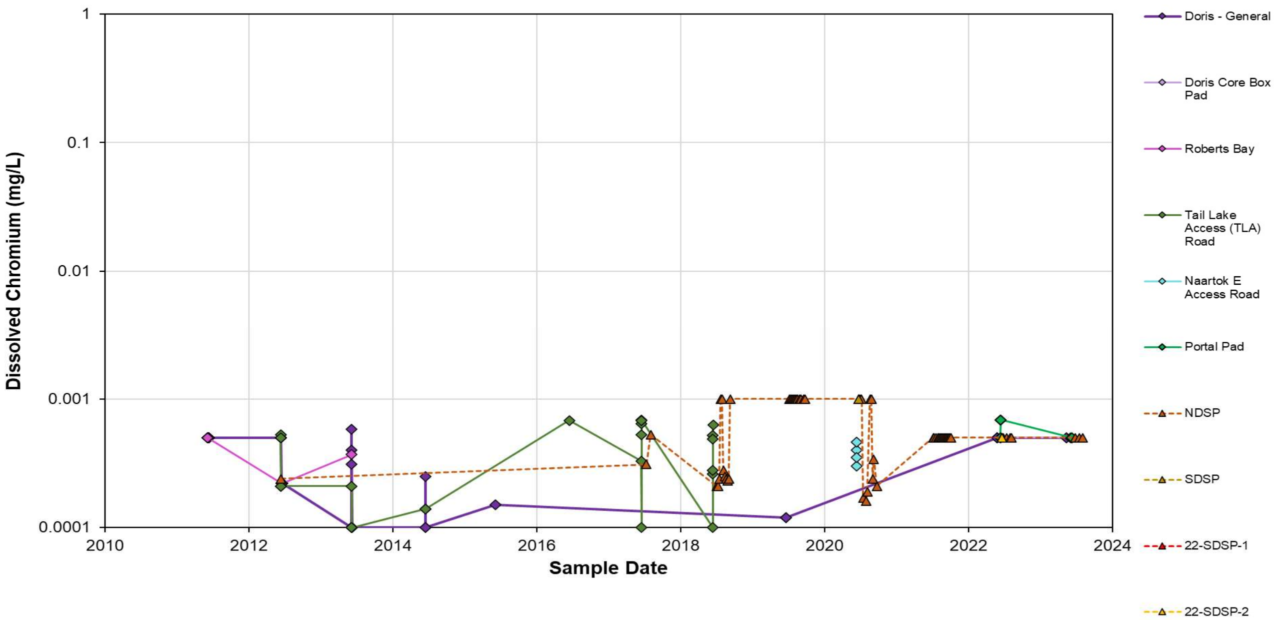

Dissolved Calcium (mg/L)
100
10
1
0.1
0.01
2010
2012
2014
2016
2018
2020
2022
2024
Sample Date
Doris - General
Doris Core Box Pad
Roberts Bay
Tail Lake Access (TLA) Road
Naartok E Access Road
Portal Pad
NDSP
SDSP
22-SDSP-1
22-SDSP-2

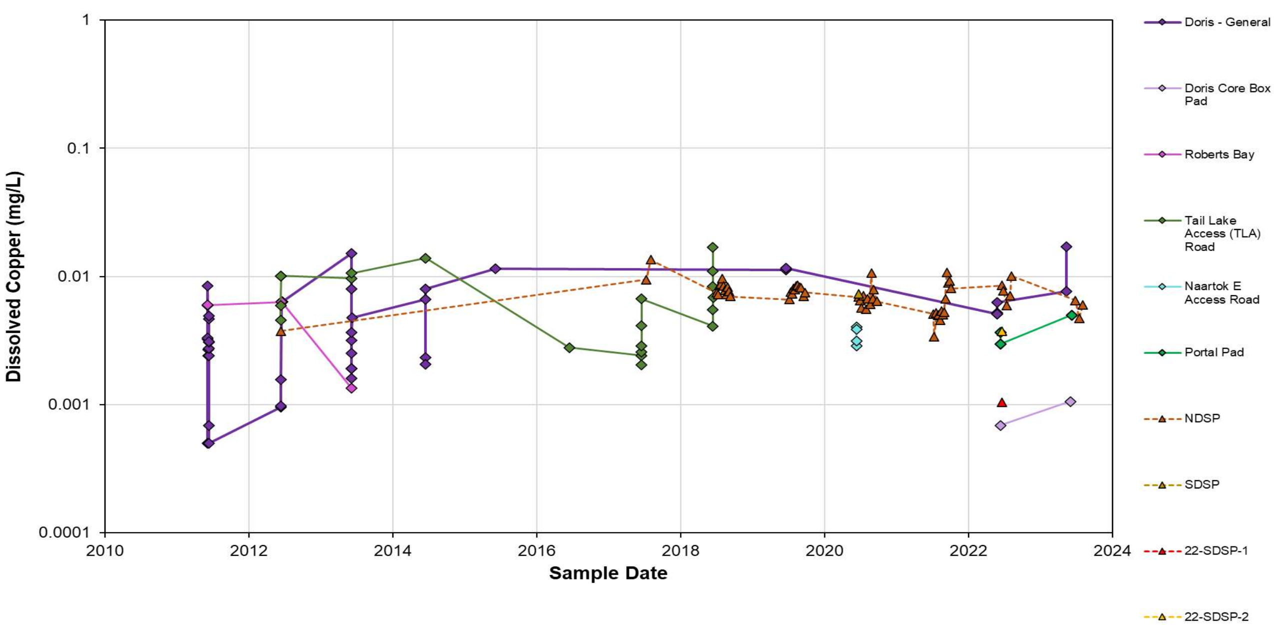


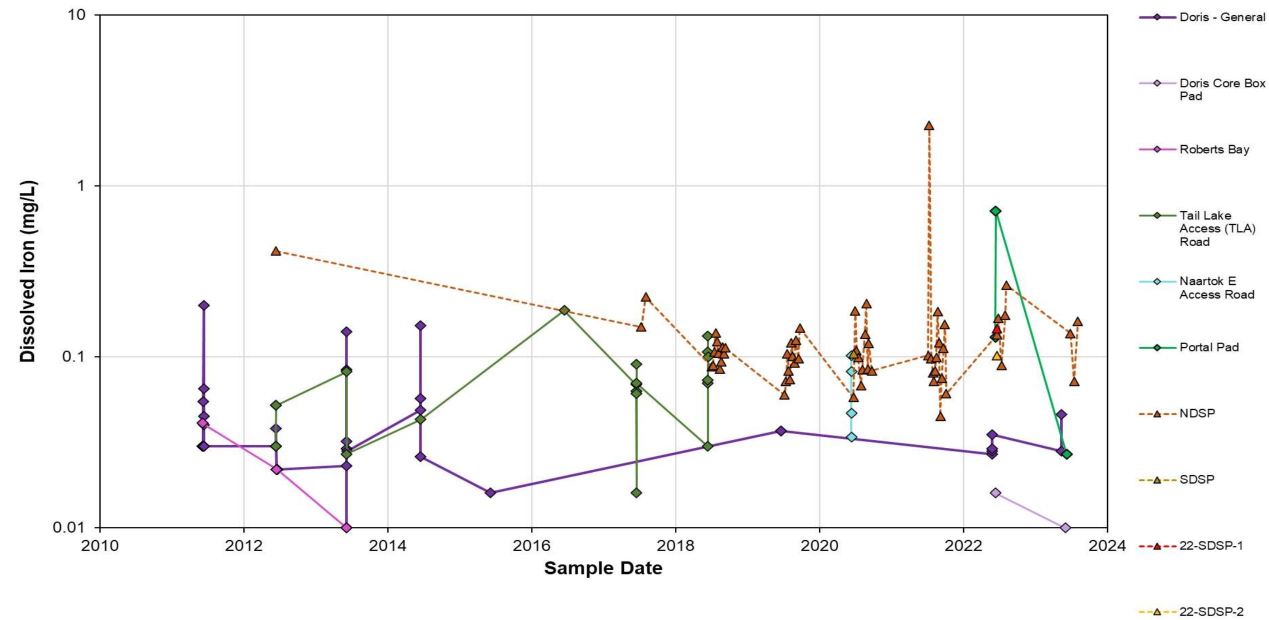
Dissolved Cadmium (mg/L)
1
0.1
0.01
0.001
0.0001
0.00001
0.000001
2010
2012
2014
2016
2018
2020
2022
2024
Sample Date
Doris - General
Doris Core Box Pad
Roberts Bay
Tail Lake Access (TLA) Road
Naartok E Access Road
Portal Pad
NDSP
SDSP
22-SDSP-1
22-SDSP-2

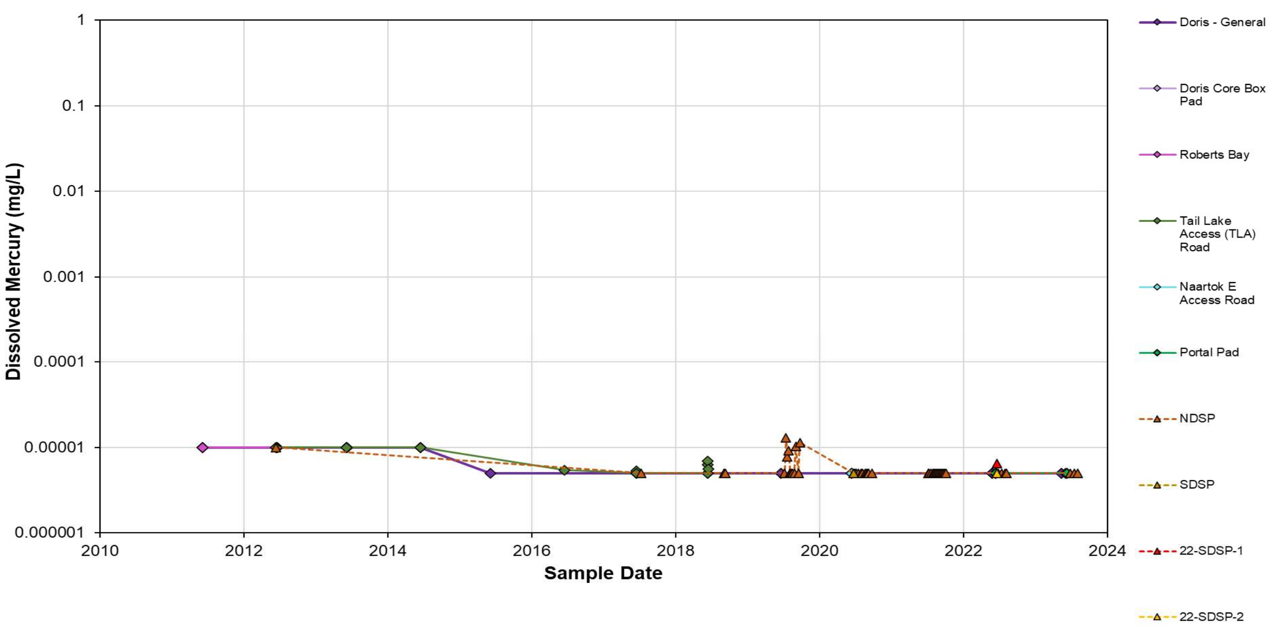


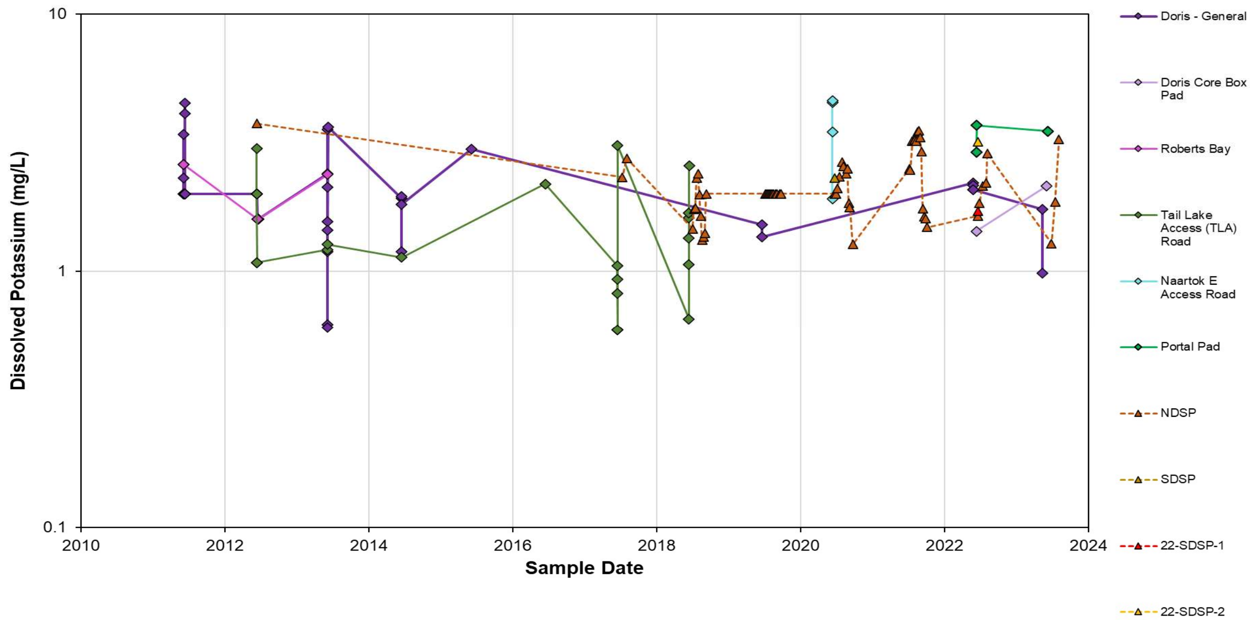
Dissolved Cobalt (mg/L)
1
0.1
0.01
0.001
0.0001
2010
2012
2014
2016
2018
2020
2022
2024
Sample Date
Doris - General
Doris Core Box Pad
Roberts Bay
Tail Lake Access (TLA) Road
Naartok E Access Road
Portal Pad
NDSP
SDSP
22-SDSP-1
22-SDSP-2

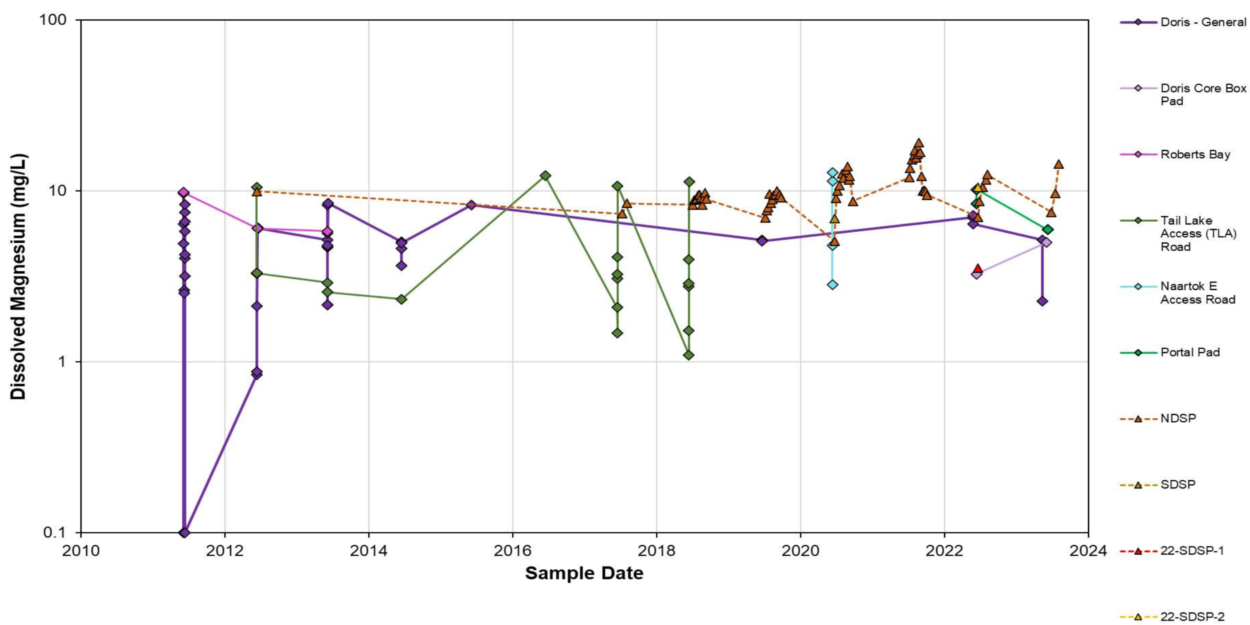

Dissolved Chromium (mg/L)
1
0.1
0.01
0.001
0.0001
2010
2012
2014
2016
2018
2020
2022
2024
Sample Date
Doris - General
Doris Core Box Pad
Roberts Bay
Tail Lake Access (TLA) Road
Naartok E Access Road
Portal Pad
NDSP
SDSP
22-SDSP-1
22-SDSP-2

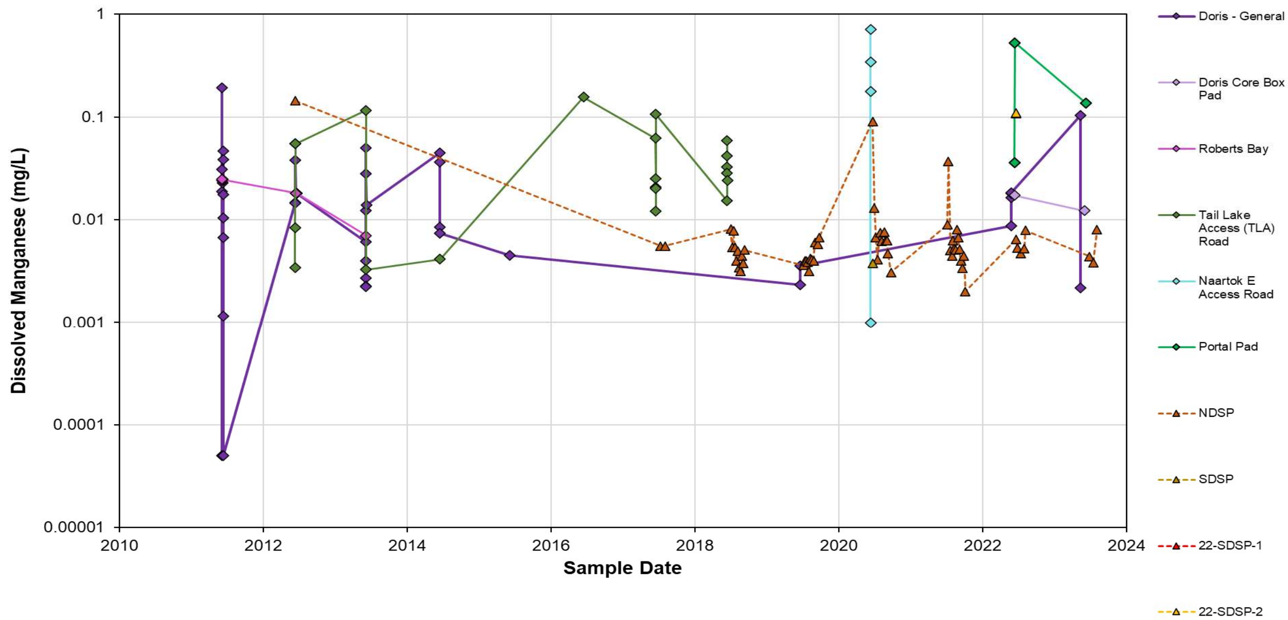

Dissolved Copper (mg/L)
1
0.1
0.01
0.001
0.0001
2010
2012
2014
2016
2018
2020
2022
2024
Sample Date
Doris - General
Doris Core Box Pad
Roberts Bay
Tail Lake Access (TLA) Road
Naartok E Access Road
Portal Pad
NDSP
SDSP
22-SDSP-1
22-SDSP-2


10
1
0.1
0.01
Dissolved Iron (mg/L)
2010
2012
2014
2016
2018
2020
2022
2024
Sample Date
Doris - General
Doris Core Box Pad
Roberts Bay
Tail Lake Access (TLA) Road
Naartok E Access Road
Portal Pad
NDSP
SDSP
22-SDSP-1
22-SDSP-2

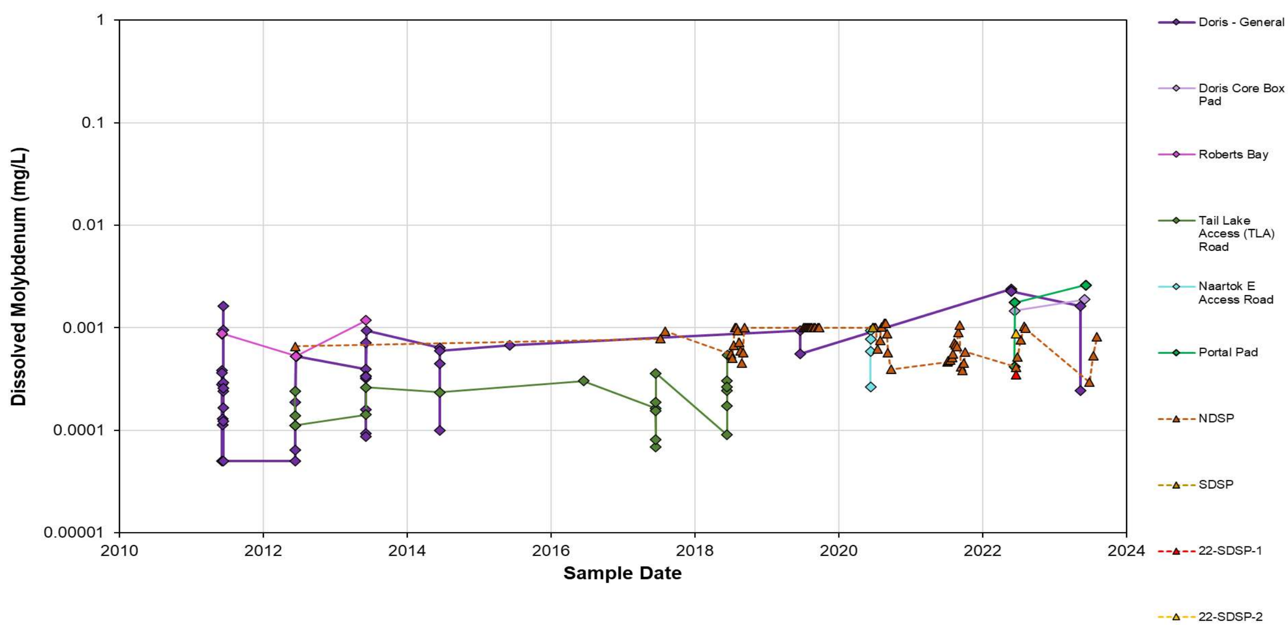

1
0.1
0.01
0.001
0.0001
0.00001
0.000001
Dissolved Mercury (mg/L)
2010
2012
2014
2016
2018
2020
2022
2024
Sample Date
Doris - General
Doris Core Box Pad
Roberts Bay
Tail Lake Access (TLA) Road
Naartok E Access Road
Portal Pad
NDSP
SDSP
22-SDSP-1
22-SDSP-2


Dissolved Potassium (mg/L)
10
1
0.1
2010
2012
2014
2016
2018
2020
2022
2024
Sample Date
Doris - General
Doris Core Box Pad
Roberts Bay
Tail Lake Access (TLA) Road
Naartok E Access Road
Portal Pad
NDSP
SDSP
22-SDSP-1
22-SDSP-2

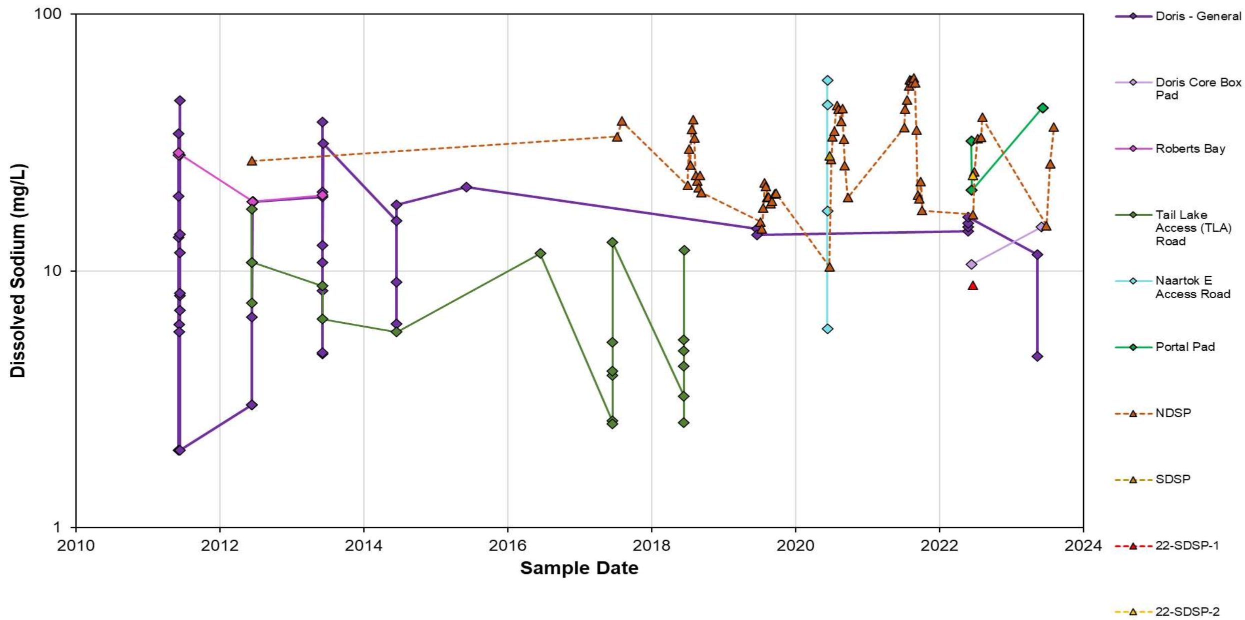

Dissolved Magnesium (mg/L)
100
10
1
0.1
2010
2012
2014
2016
2018
2020
2022
2024
Sample Date
Doris - General
Doris Core Box Pad
Roberts Bay
Tail Lake Access (TLA) Road
Naartok E Access Road
Portal Pad
NDSP
SDSP
22-SDSP-1
22-SDSP-2

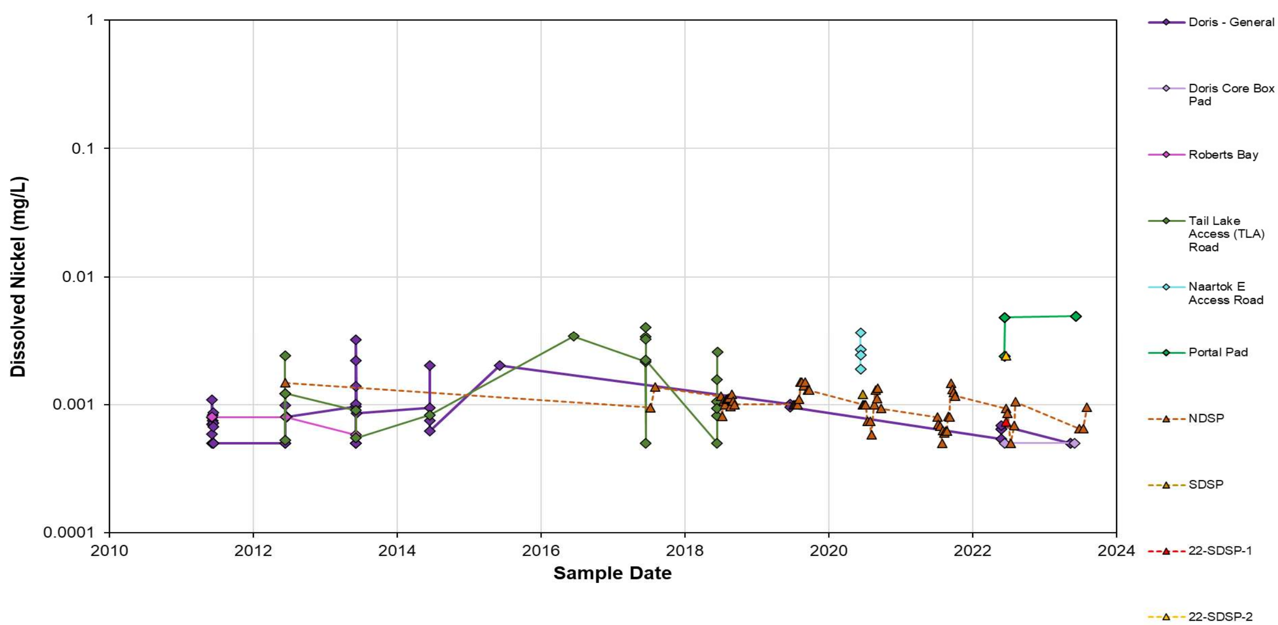


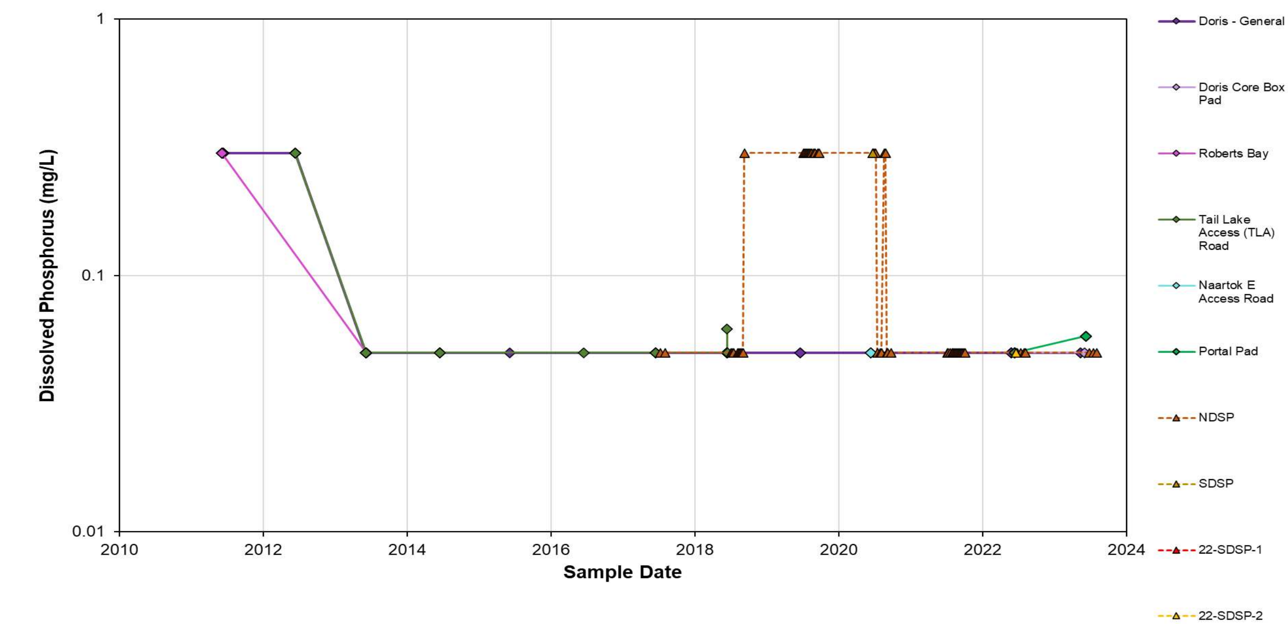
1
0.1
0.01
0.001
0.0001
0.00001
Dissolved Manganese (mg/L)
2010
2012
2014
2016
2018
2020
2022
2024
Sample Date
Doris - General
Doris Core Box Pad
Roberts Bay
Tail Lake Access (TLA) Road
Naartok E Access Road
Portal Pad
NDSP
SDSP
22-SDSP-1
22-SDSP-2

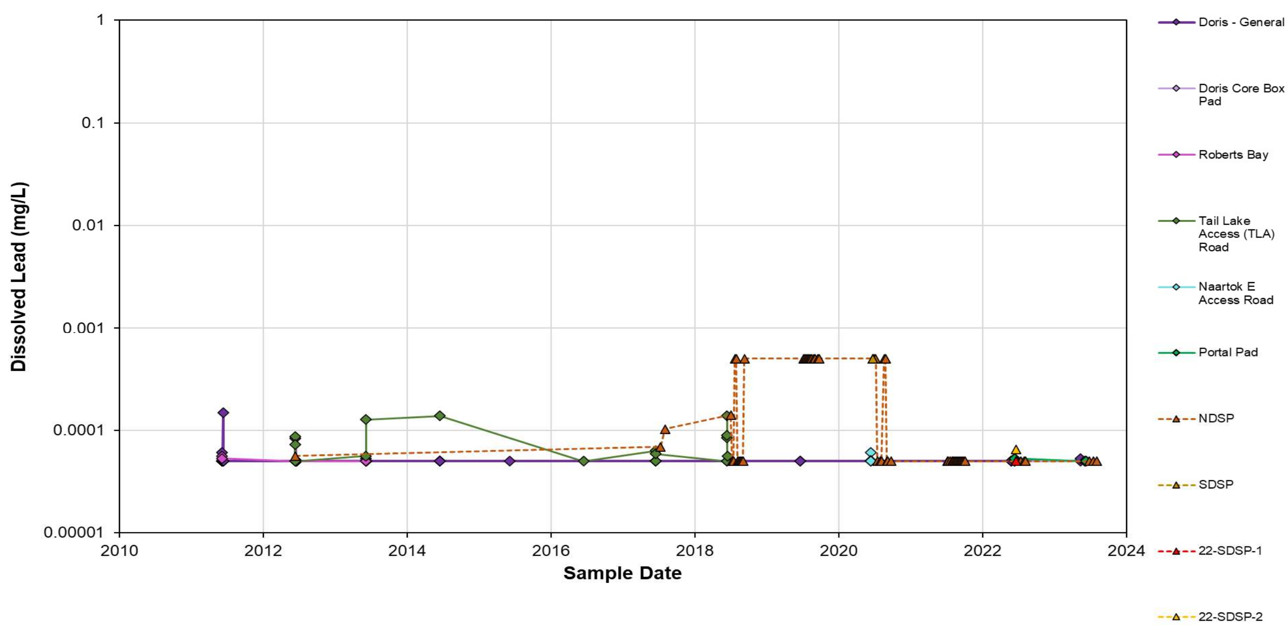


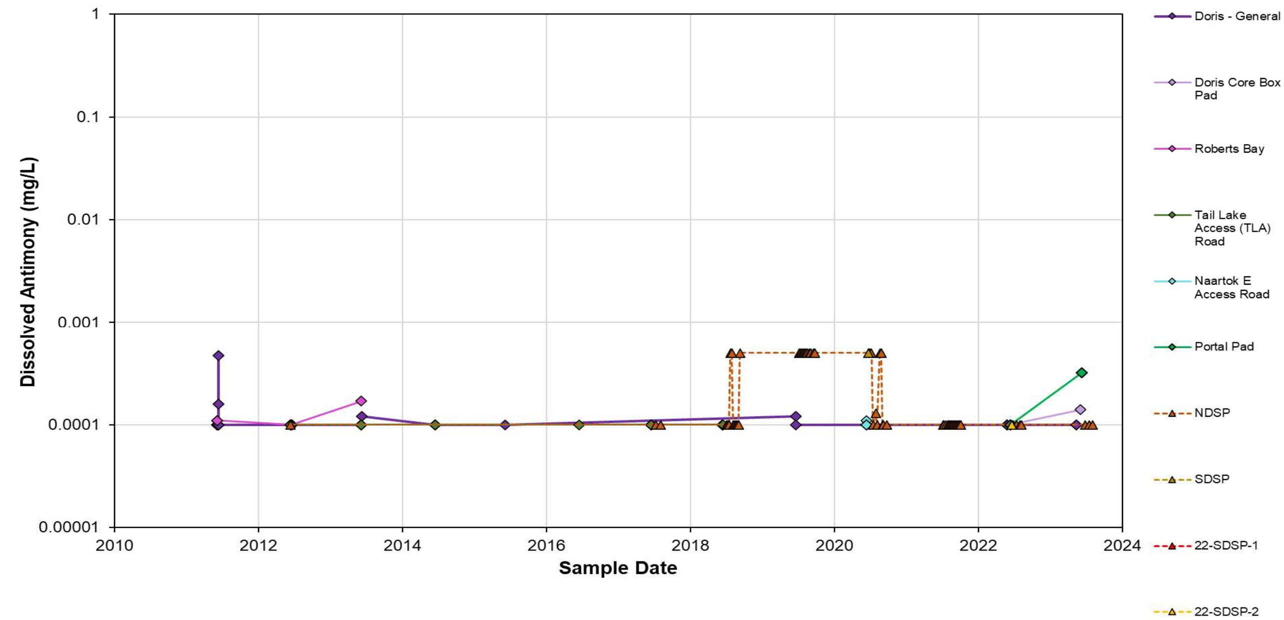
1
0.1
0.01
0.001
0.0001
0.00001
Dissolved Molybdenum (mg/L)
2010
2012
2014
2016
2018
2020
2022
2024
Sample Date
Doris - General
Doris Core Box Pad
Roberts Bay
Tail Lake Access (TLA) Road
Naartok E Access Road
Portal Pad
NDSP
SDSP
22-SDSP-1
22-SDSP-2

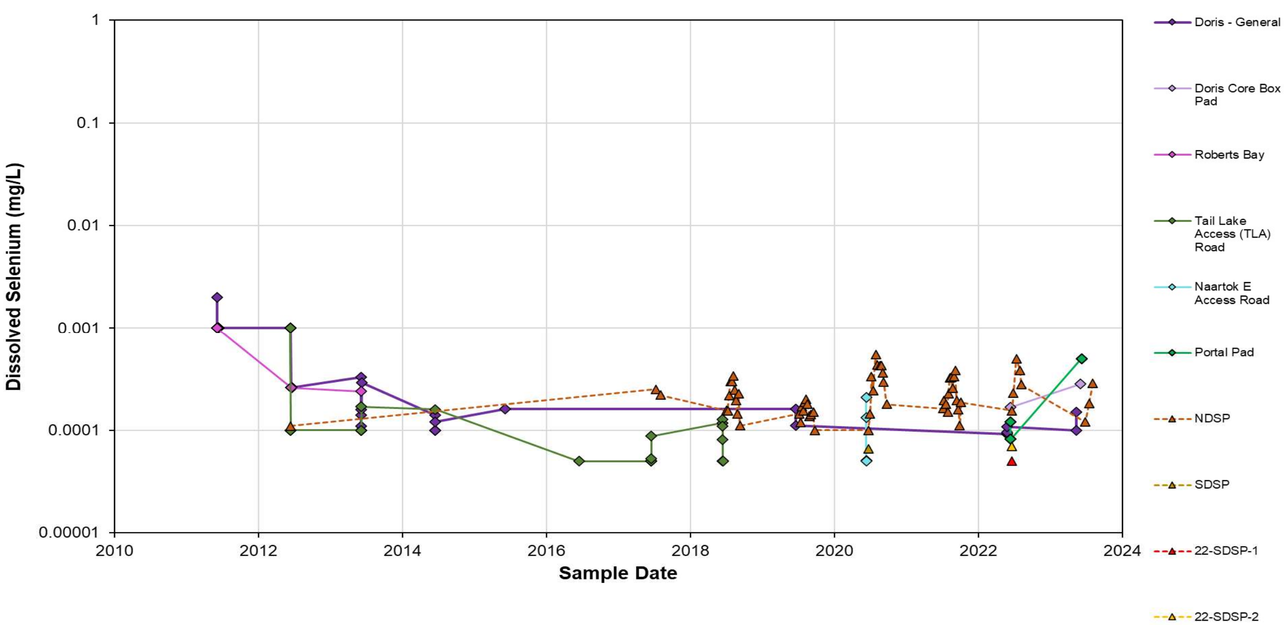

Dissolved Sodium (mg/L)
100
10
1
2010
2012
2014
2016
2018
2020
2022
2024
Sample Date
Doris - General
Doris Core Box Pad
Roberts Bay
Tail Lake Access (TLA) Road
Naartok E Access Road
Portal Pad
NDSP
SDSP
22-SDSP-1
22-SDSP-2

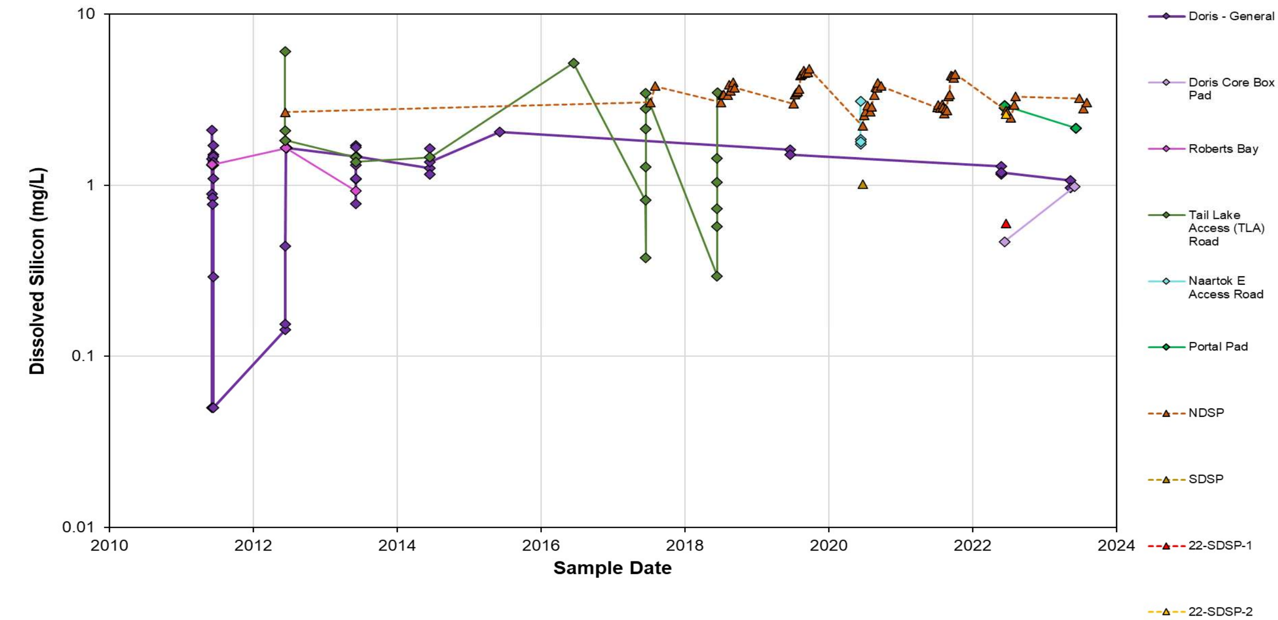

Dissolved Nickel (mg/L)
1
0.1
0.01
0.001
0.0001
2010
2012
2014
2016
2018
2020
2022
2024
Sample Date
Doris - General
Doris Core Box Pad
Roberts Bay
Tail Lake Access (TLA) Road
Naartok E Access Road
Portal Pad
NDSP
SDSP
22-SDSP-1
22-SDSP-2

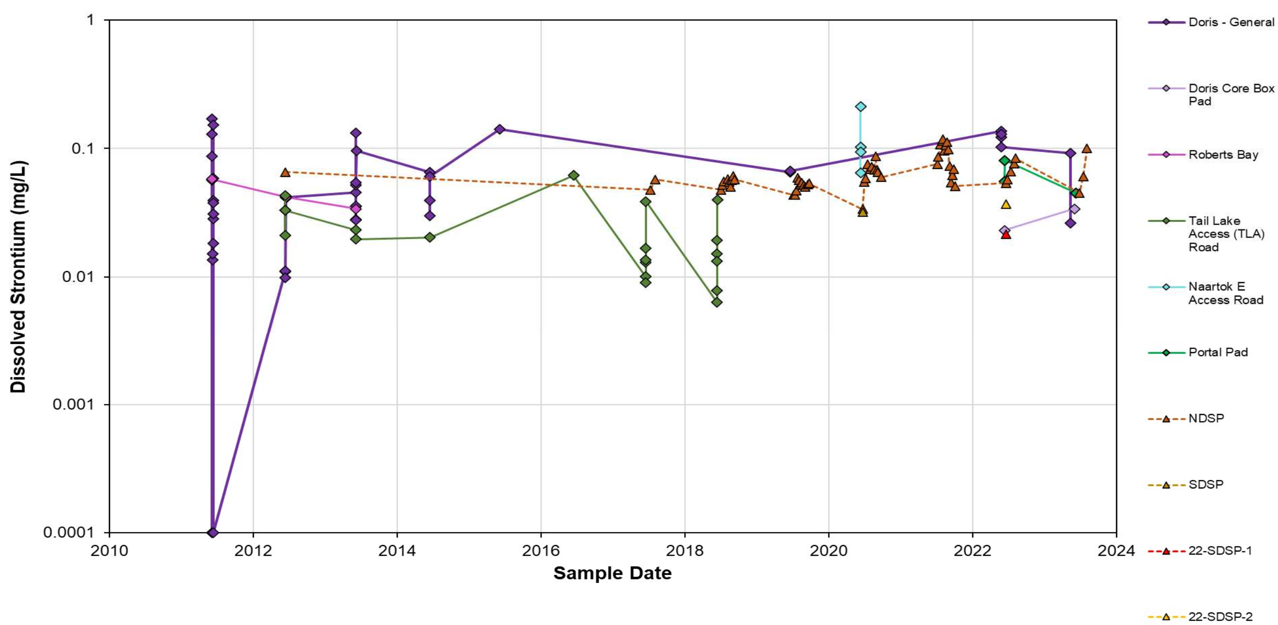

1
0.1
0.01
Dissolved Phosphorus (mg/L)
2010
2012
2014
2016
2018
2020
2022
2024
Sample Date
Doris - General
Doris Core Box Pad
Roberts Bay
Tail Lake Access (TLA) Road
Naartok E Access Road
Portal Pad
NDSP
SDSP
22-SDSP-1
22-SDSP-2

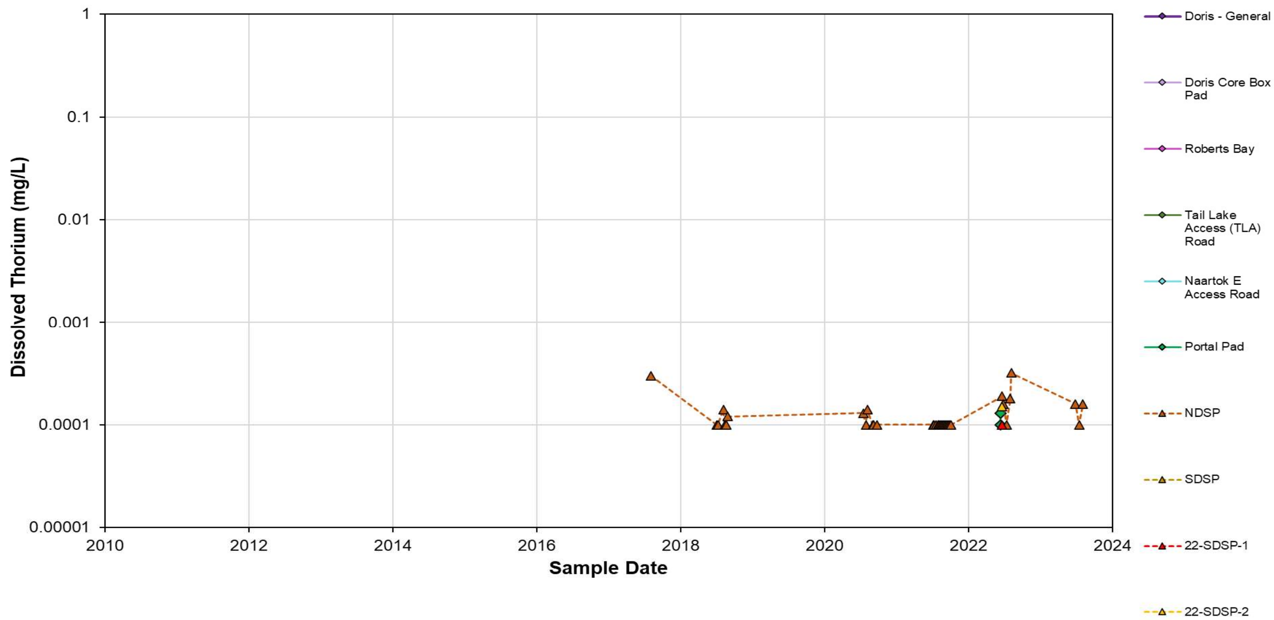

1
0.1
0.01
0.001
0.0001
0.00001
Dissolved Lead (mg/L)
2010
2012
2014
2016
2018
2020
2022
2024
Sample Date
Doris - General
Doris Core Box Pad
Roberts Bay
Tail Lake Access (TLA) Road
Naartok E Access Road
Portal Pad
NDSP
SDSP
22-SDSP-1
22-SDSP-2

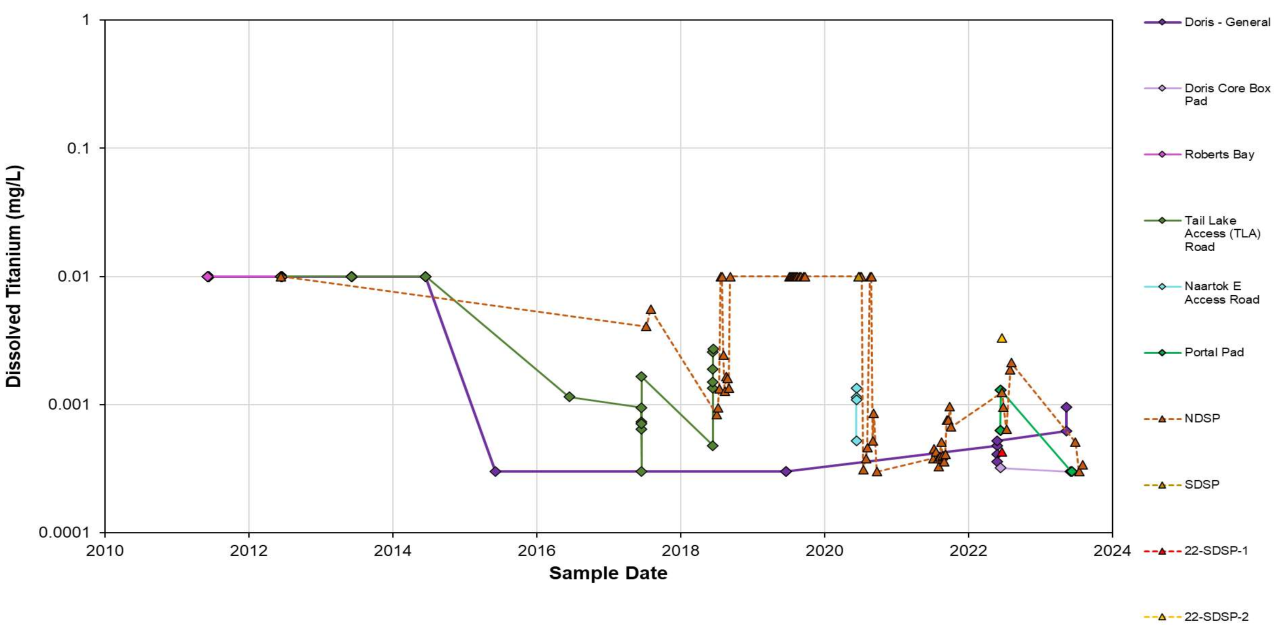

Dissolved Antimony (mg/L)
1
0.1
0.01
0.001
0.0001
0.00001
2010
2012
2014
2016
2018
2020
2022
2024
Sample Date
Doris - General
Doris Core Box Pad
Roberts Bay
Tail Lake Access (TLA) Road
Naartok E Access Road
Portal Pad
NDSP
SDSP
22-SDSP-1
22-SDSP-2

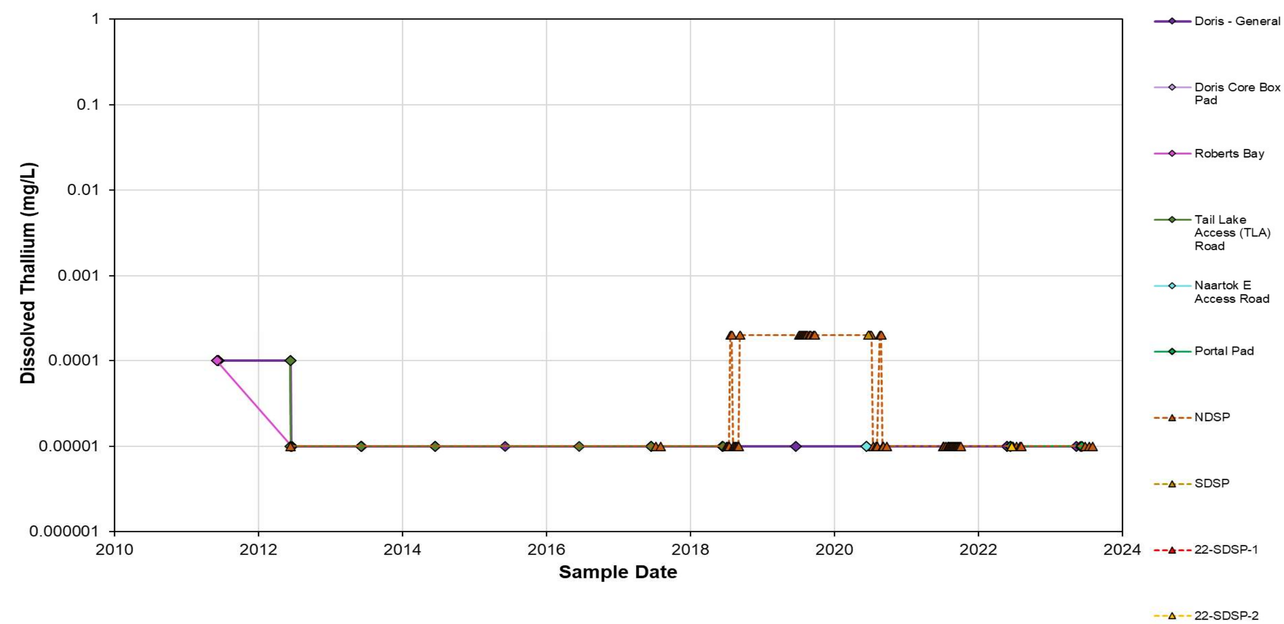

Dissolved Selenium (mg/L)
1
0.1
0.01
0.001
0.0001
0.00001
2010
2012
2014
2016
2018
2020
2022
2024
Sample Date
Doris - General
Doris Core Box Pad
Roberts Bay
Tail Lake Access (TLA) Road
Naartok E Access Road
Portal Pad
NDSP
SDSP
22-SDSP-1
22-SDSP-2


10
1
0.1
0.01
Dissolved Silicon (mg/L)
2010
2012
2014
2016
2018
2020
2022
2024
Sample Date
Doris - General
Doris Core Box Pad
Roberts Bay
Tail Lake Access (TLA) Road
Naartok E Access Road
Portal Pad
NDSP
SDSP
22-SDSP-1
22-SDSP-2

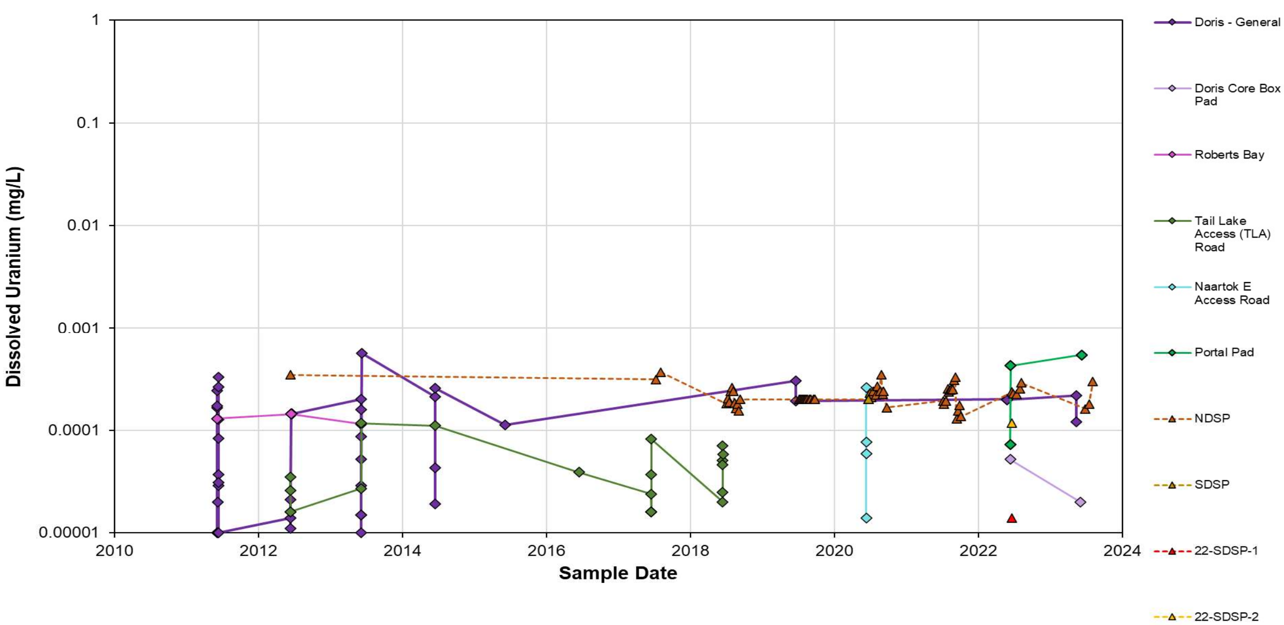

1
0.1
0.01
0.001
0.0001
Dissolved Strontium (mg/L)
2010
2012
2014
2016
2018
2020
2022
2024
Sample Date
Doris - General
Doris Core Box Pad
Roberts Bay
Tail Lake Access (TLA) Road
Naartok E Access Road
Portal Pad
NDSP
SDSP
22-SDSP-1
22-SDSP-2


1
0.1
0.01
0.001
0.0001
0.00001
Dissolved Thorium (mg/L)
2010
2012
2014
2016
2018
2020
2022
2024
Sample Date
Doris - General
Doris Core Box Pad
Roberts Bay
Tail Lake Access (TLA) Road
Naartok E Access Road
Portal Pad
NDSP
SDSP
22-SDSP-1
22-SDSP-2

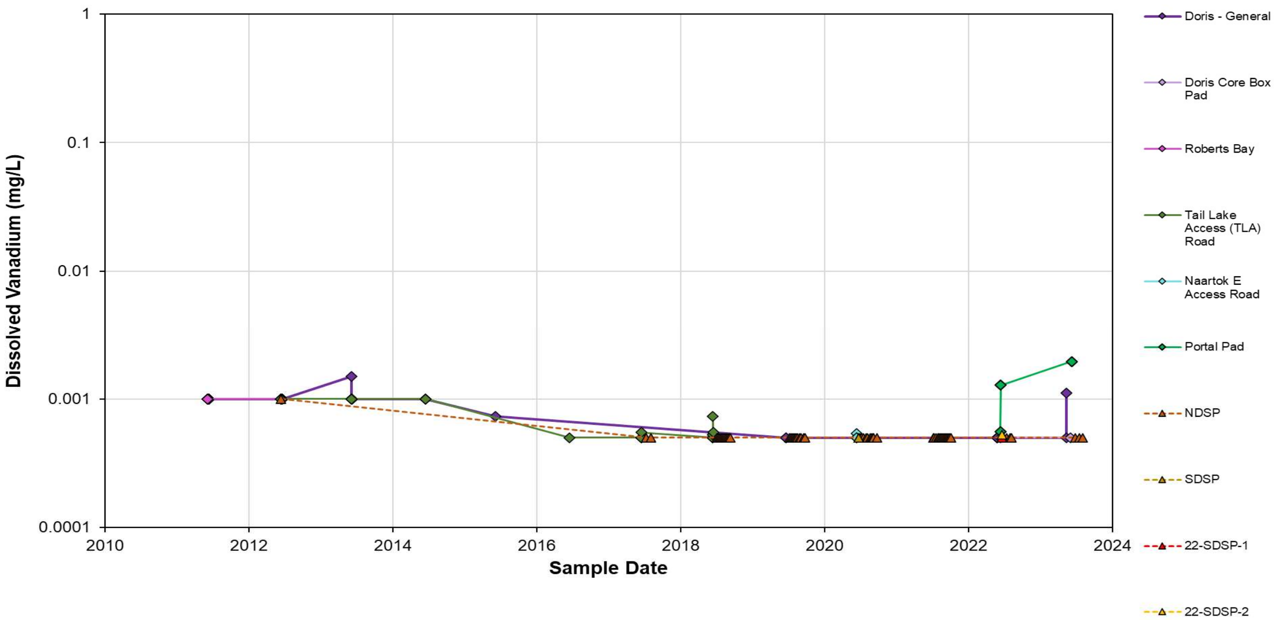

1
0.1
0.01
0.001
0.0001
Dissolved Titanium (mg/L)
2010
2012
2014
2016
2018
2020
2022
2024
Sample Date
Doris - General
Doris Core Box Pad
Roberts Bay
Tail Lake Access (TLA) Road
Naartok E Access Road
Portal Pad
NDSP
SDSP
22-SDSP-1
22-SDSP-2

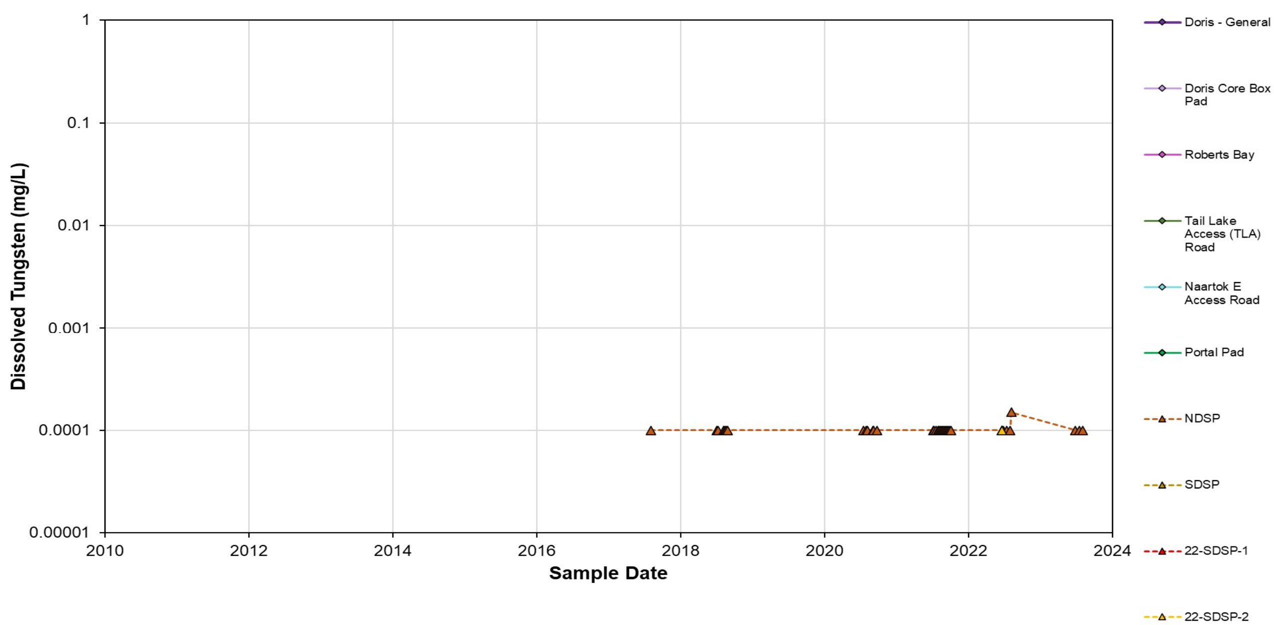


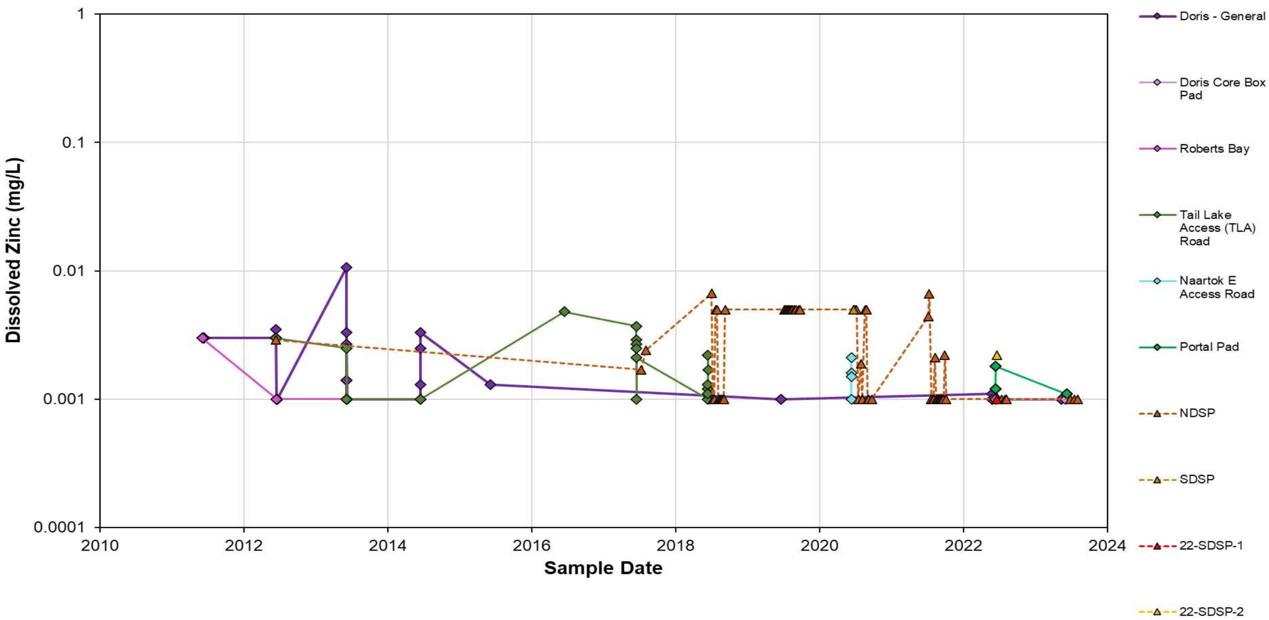
Dissolved Thallium (mg/L)
1
0.1
0.01
0.001
0.0001
0.00001
0.000001
2010
2012
2014
2016
2018
2020
2022
2024
Sample Date
Doris - General
Doris Core Box Pad
Roberts Bay
Tail Lake Access (TLA) Road
Naartok E Access Road
Portal Pad
NDSP
SDSP
22-SDSP-1
22-SDSP-2



Dissolved Uranium (mg/L)
1
0.1
0.01
0.001
0.0001
0.00001
2010
2012
2014
2016
2018
2020
2022
2024
Sample Date
Doris - General
Doris Core Box Pad
Roberts Bay
Tail Lake Access (TLA) Road
Naartok E Access Road
Portal Pad
NDSP
SDSP
22-SDSP-1
22-SDSP-2

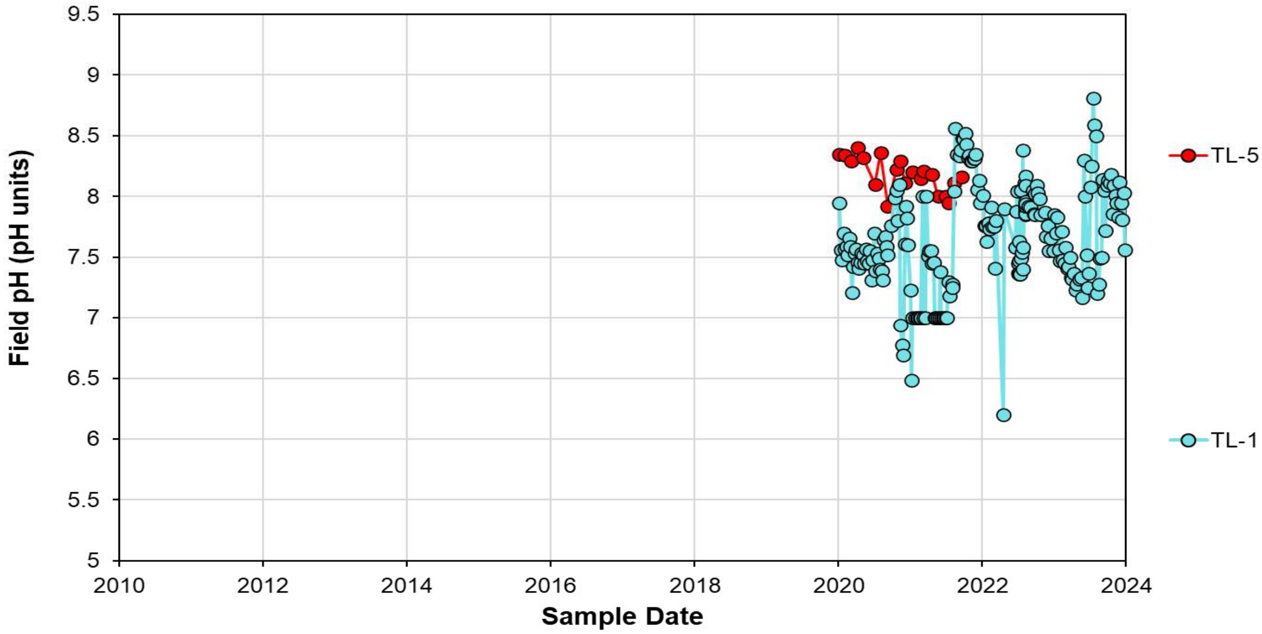

Dissolved Vanadium (mg/L)
1
0.1
0.01
0.001
0.0001
2010
2012
2014
2016
2018
2020
2022
2024
Sample Date
Doris - General
Doris Core Box Pad
Roberts Bay
Tail Lake Access (TLA) Road
Naartok E Access Road
Portal Pad
NDSP
SDSP
22-SDSP-1
22-SDSP-2

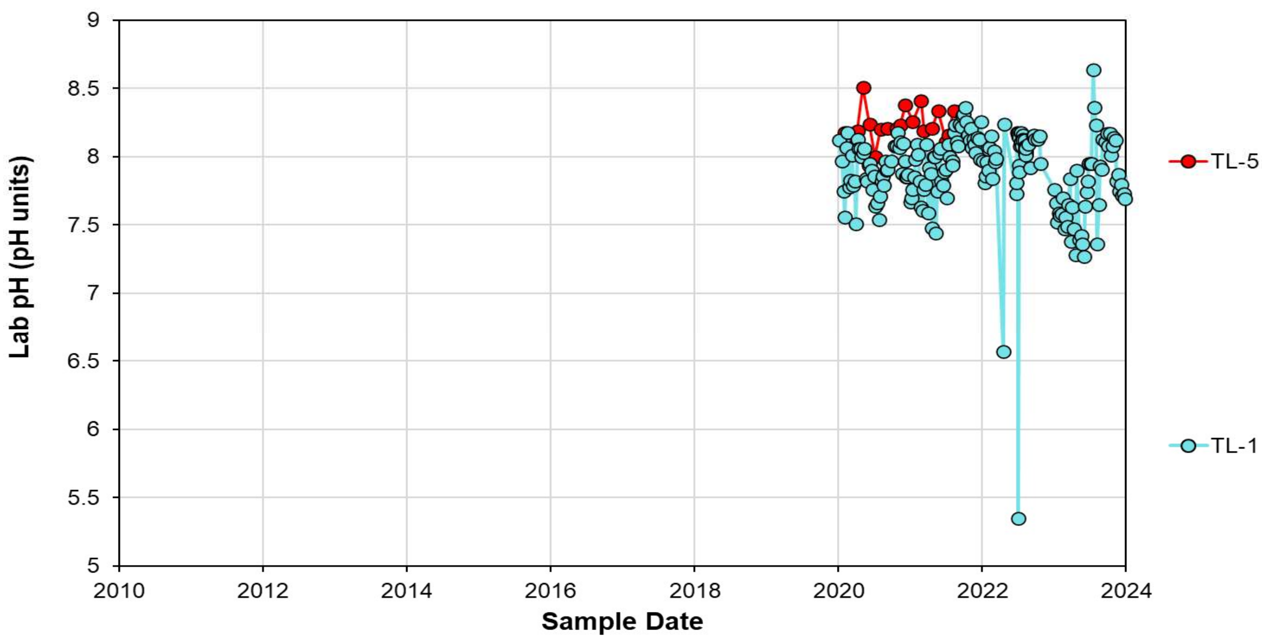

Dissolved Tungsten (mg/L)
1
0.1
0.01
0.001
0.0001
0.00001
2010
2012
2014
2016
2018
2020
2022
2024
Sample Date
Doris - General
Doris Core Box Pad
Roberts Bay
Tail Lake Access (TLA) Road
Naartok E Access Road
Portal Pad
NDSP
SDSP
22-SDSP-1
22-SDSP-2

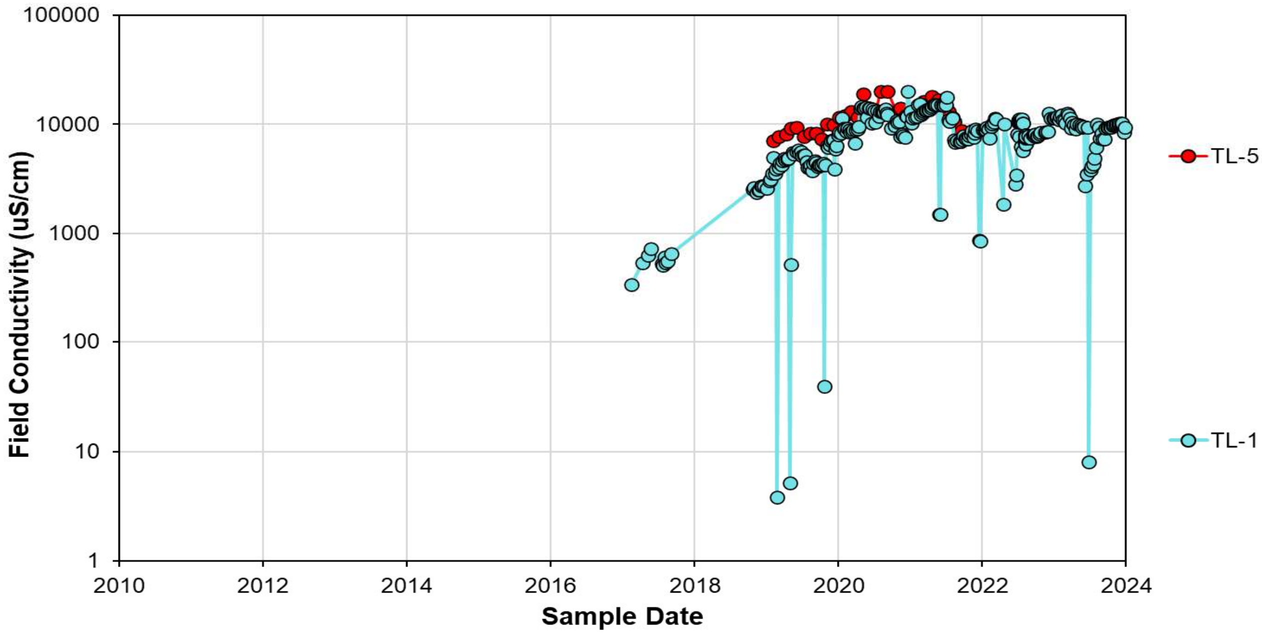


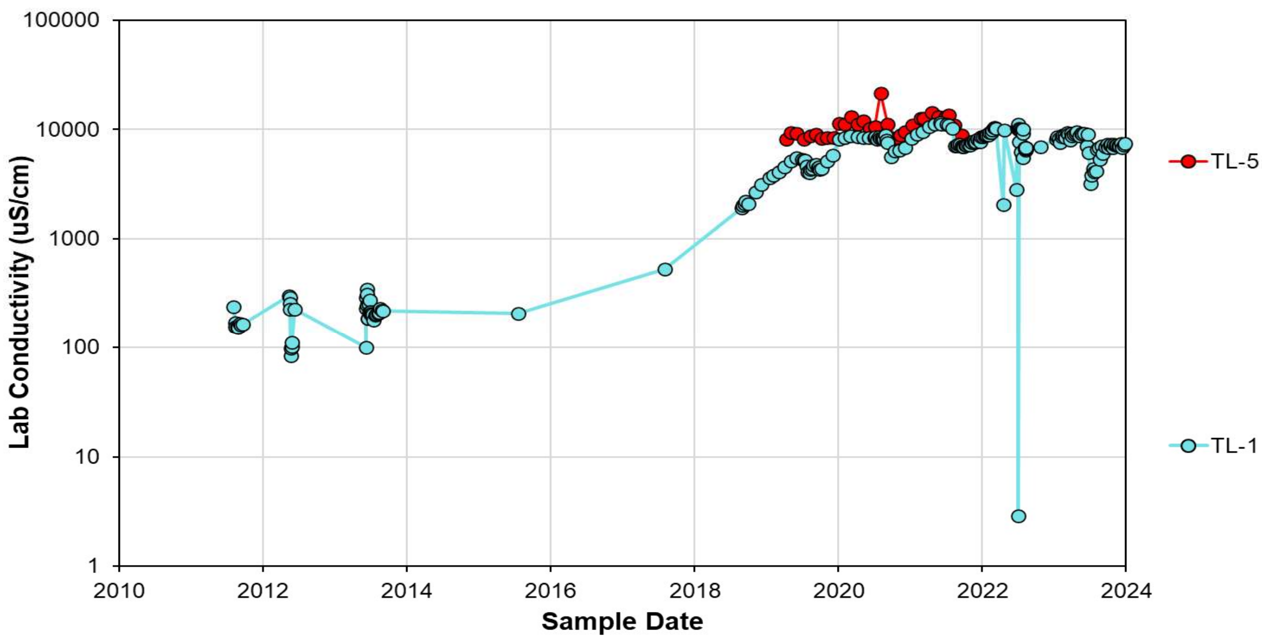
1
0.1
0.01
0.001
0.0001
Dissolved Zinc (mg/L)
2010
2012
2014
2016
2018
2020
2022
2024
Sample Date
Doris - General
Doris Core Box Pad
Roberts Bay
Tail Lake Access (TLA) Road
Naartok E Access Road
Portal Pad
NDSP
SDSP
22-SDSP-1
22-SDSP-2

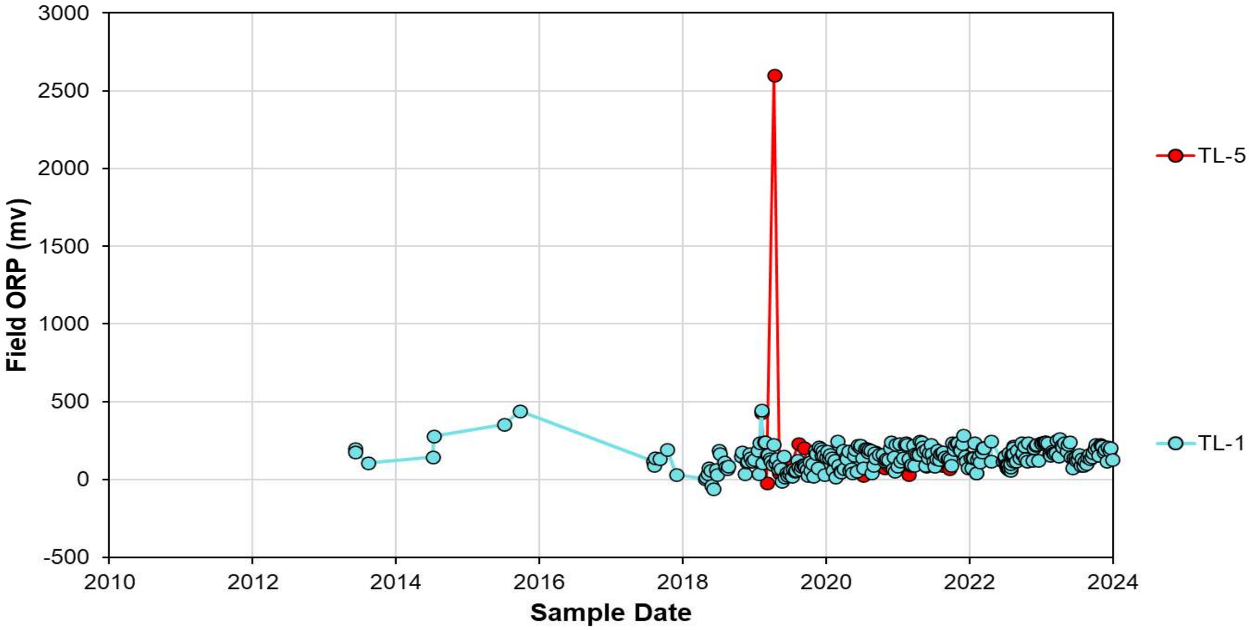
Appendix D Reclaim and Process Water Timeseries Charts

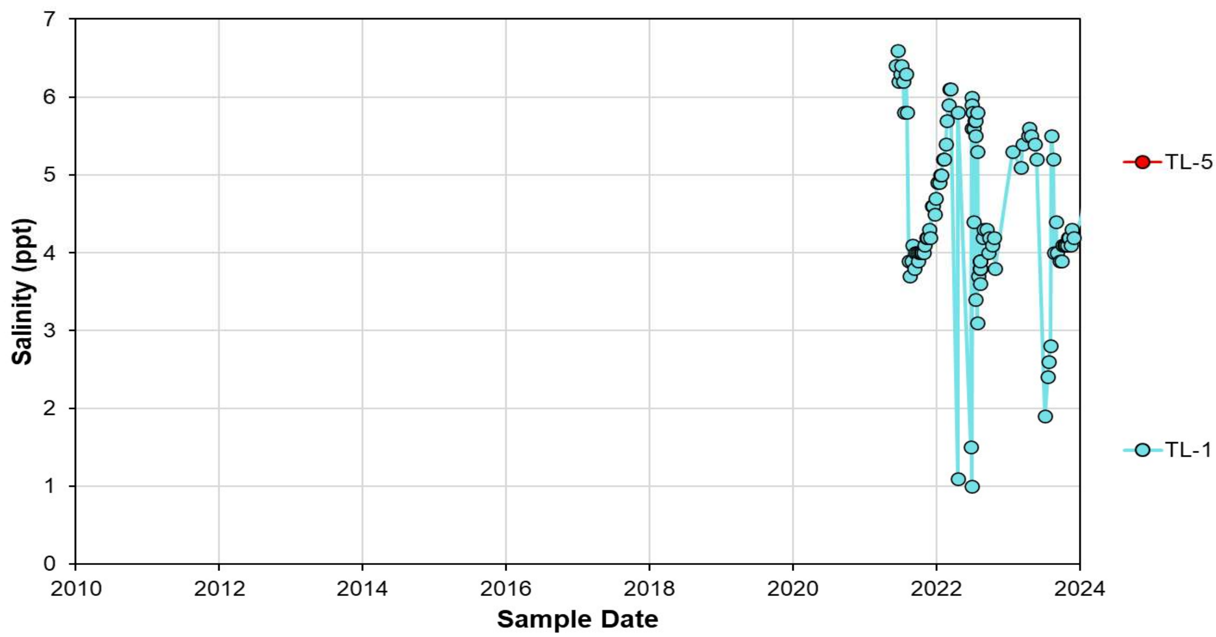

9.5
9
8.5
8
7.5
7
6.5
6
5.5
5
Field pH (pH units)
2010
2012
2014
2016
2018
2020
2022
2024
Sample Date
TL-5
TL-1

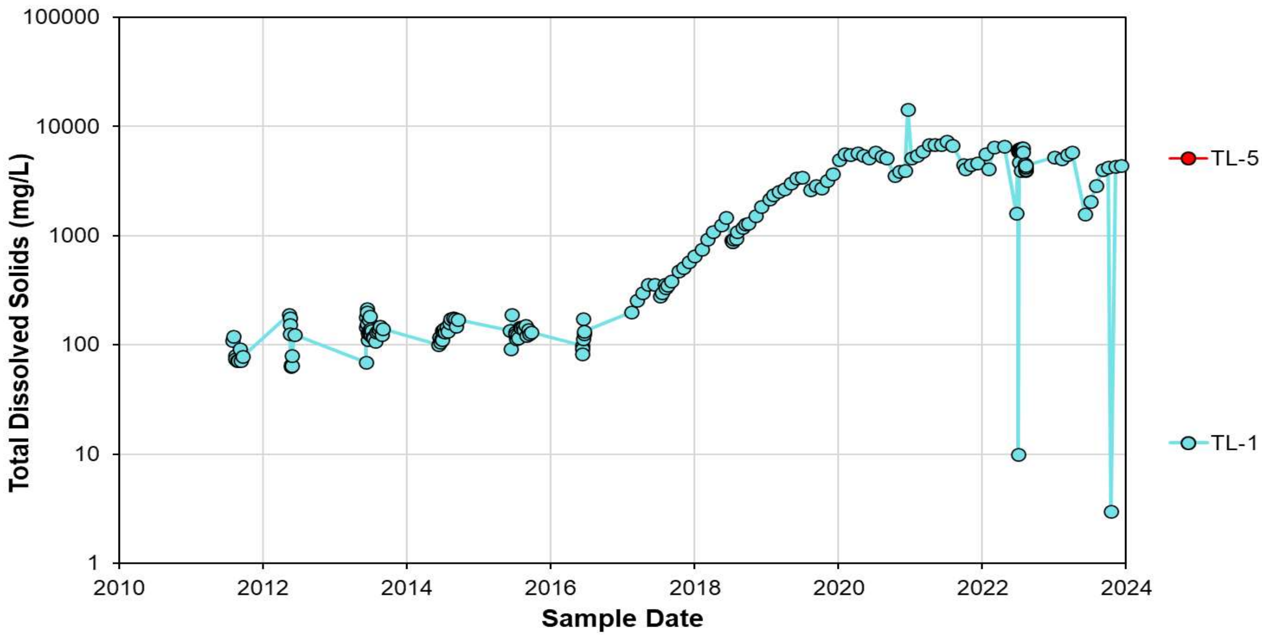

9
8.5
8
7.5
7
6.5
6
5.5
5
Lab pH (pH units)
2010
2012
2014
2016
2018
2020
2022
2024
Sample Date
TL-5
TL-1

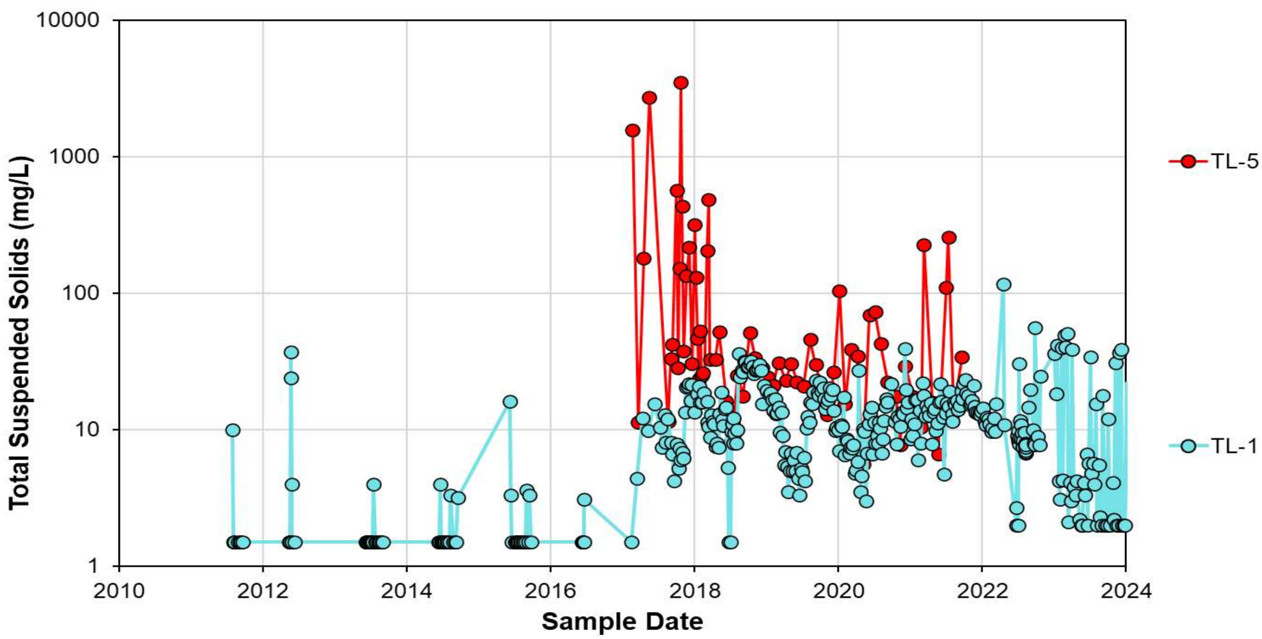

100000
10000
1000
100
10
1
Field Conductivity (uS/cm)
2010
2012
2014
2016
2018
2020
2022
2024
Sample Date
TL-5
TL-1

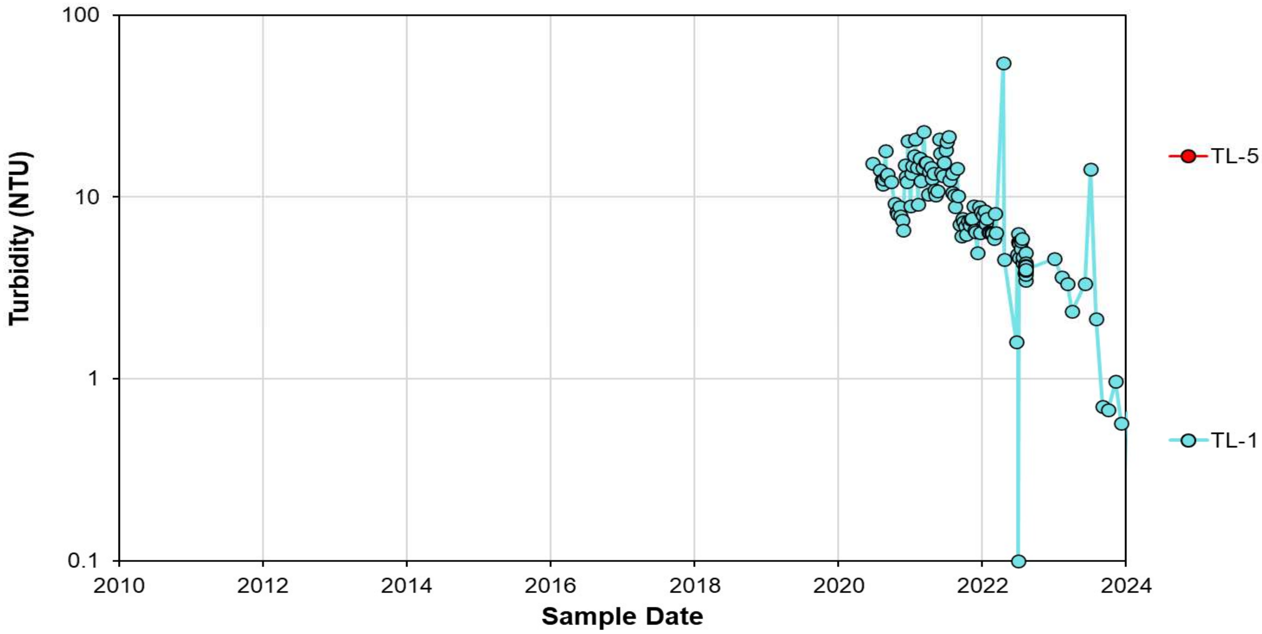

100000
10000
1000
100
10
1
Lab Conductivity (uS/cm)
2010
2012
2014
2016
2018
2020
2022
2024
Sample Date
TL-5
TL-1


3000
2500
2000
1500
1000
500
0
-500
Field ORP (mv)
2010
2012
2014
2016
2018
2020
2022
2024
Sample Date
TL-5
TL-1

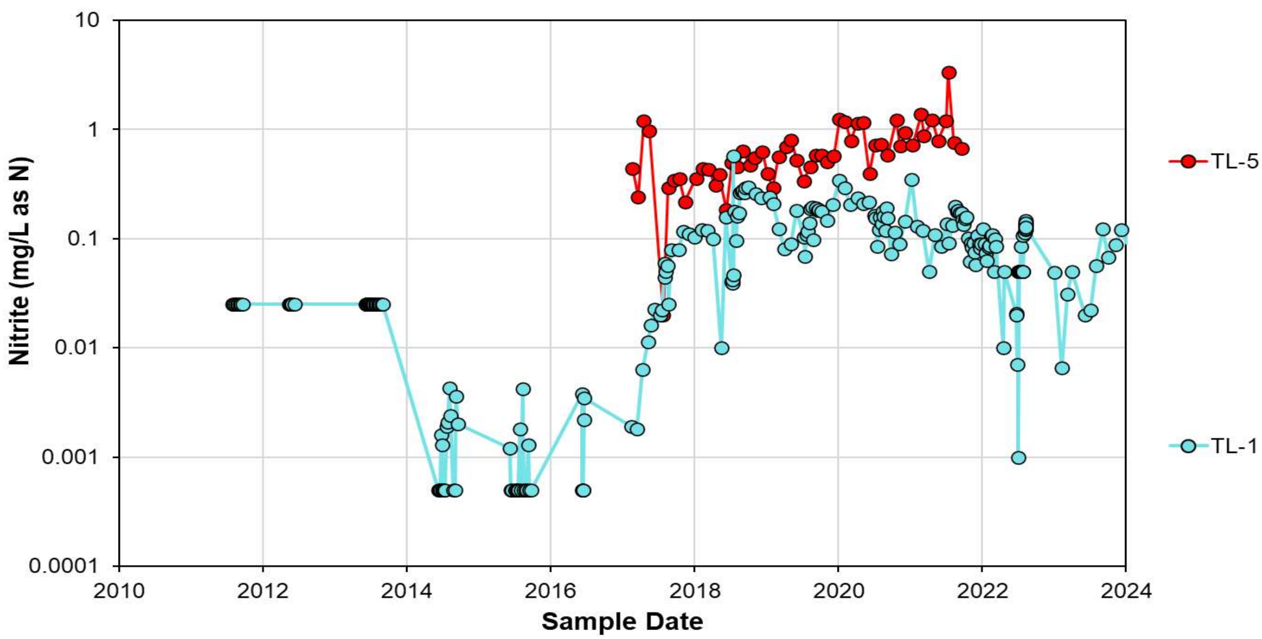

7
6
5
4
3
2
1
0
Salinity (ppt)
2010
2012
2014
2016
2018
2020
2022
2024
Sample Date
TL-5
TL-1


Total Dissolved Solids (mg/L)
Sample Date
TL-5
TL-1

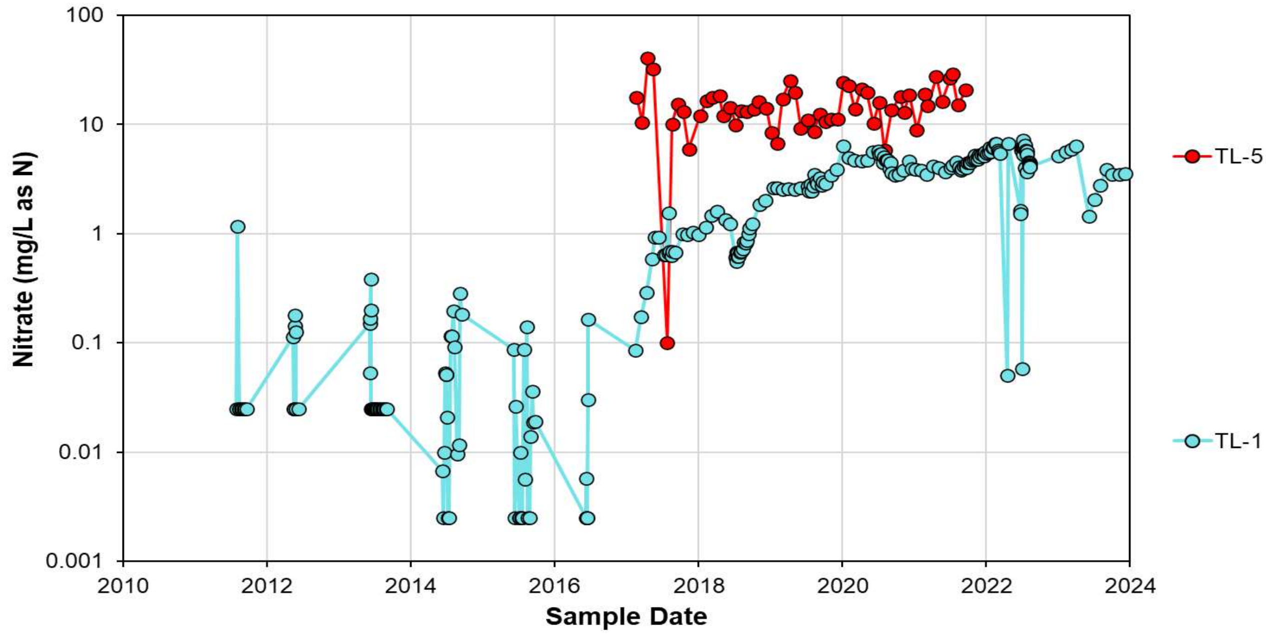

Total Suspended Solids (mg/L)
Sample Date
TL-5
TL-1

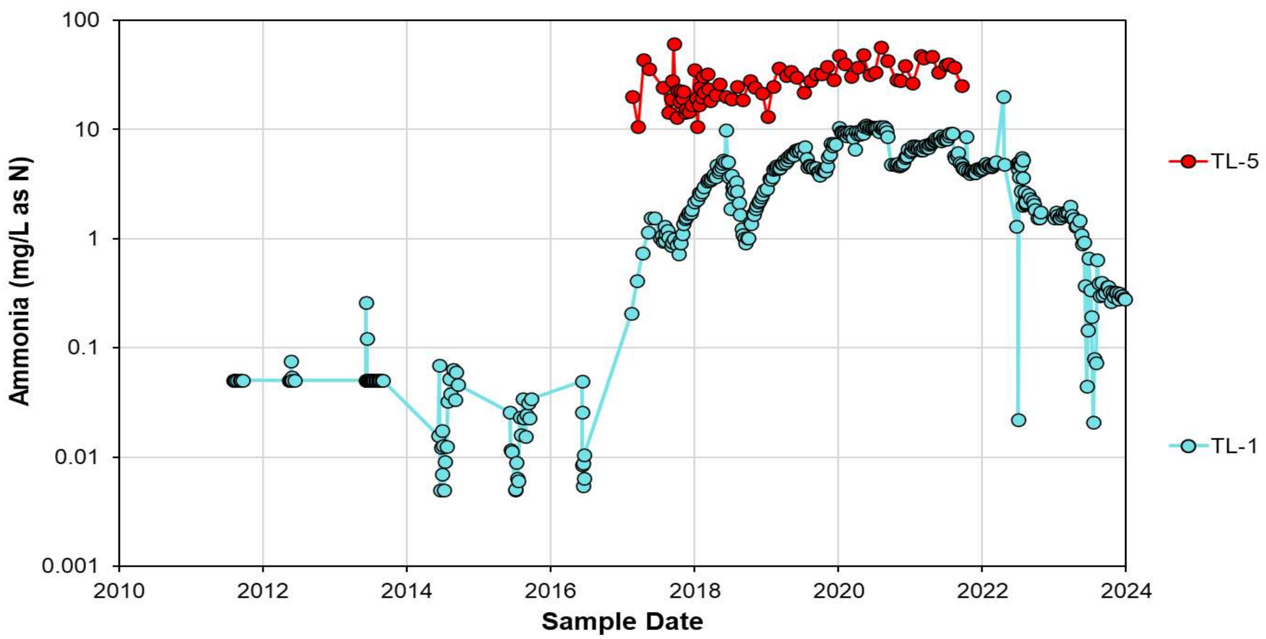


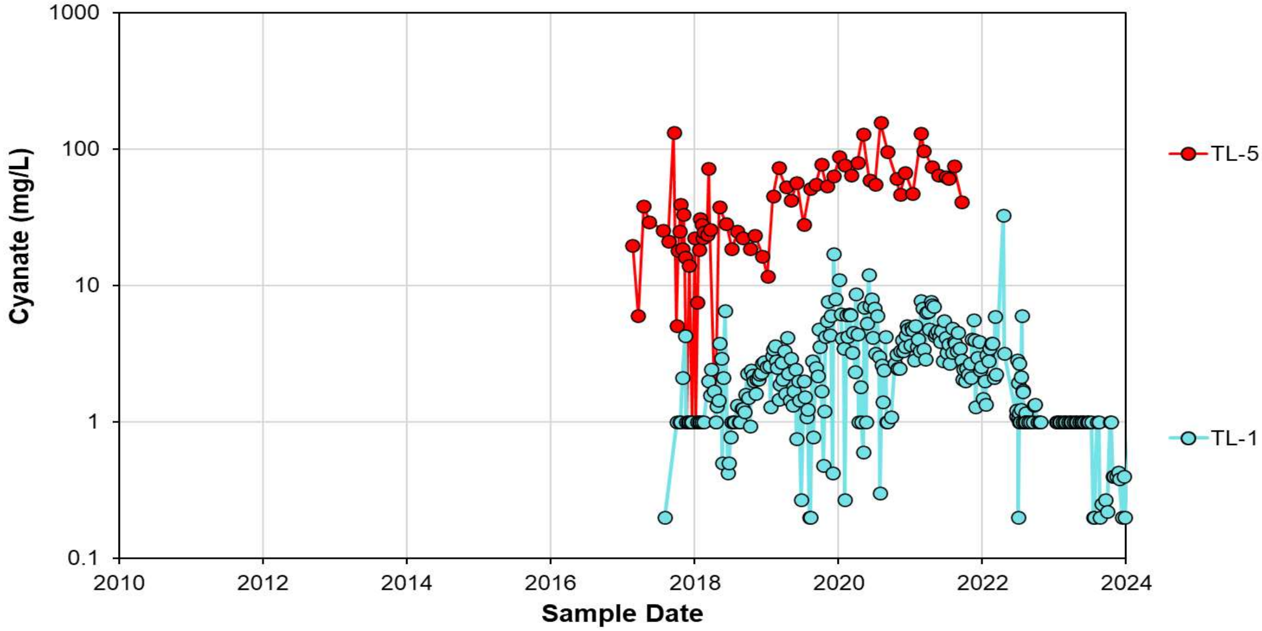
100
10
1
0.1
Turbidity (NTU)
2010
2012
2014
2016
2018
2020
2022
2024
Sample Date
TL-5
TL-1

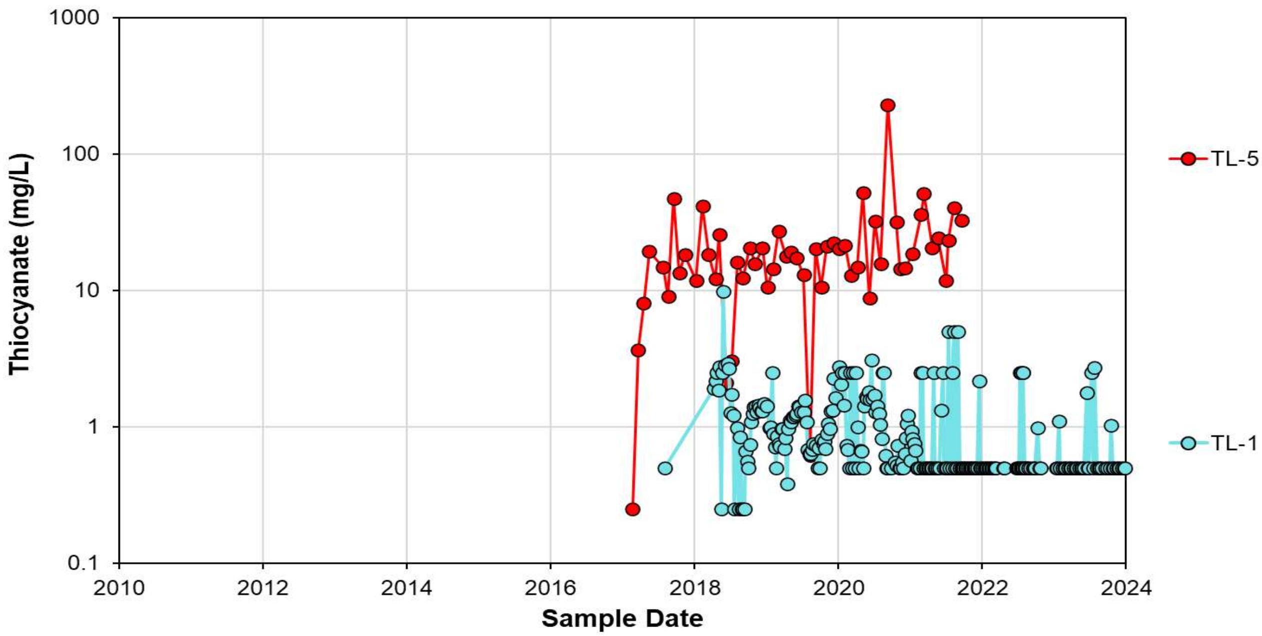


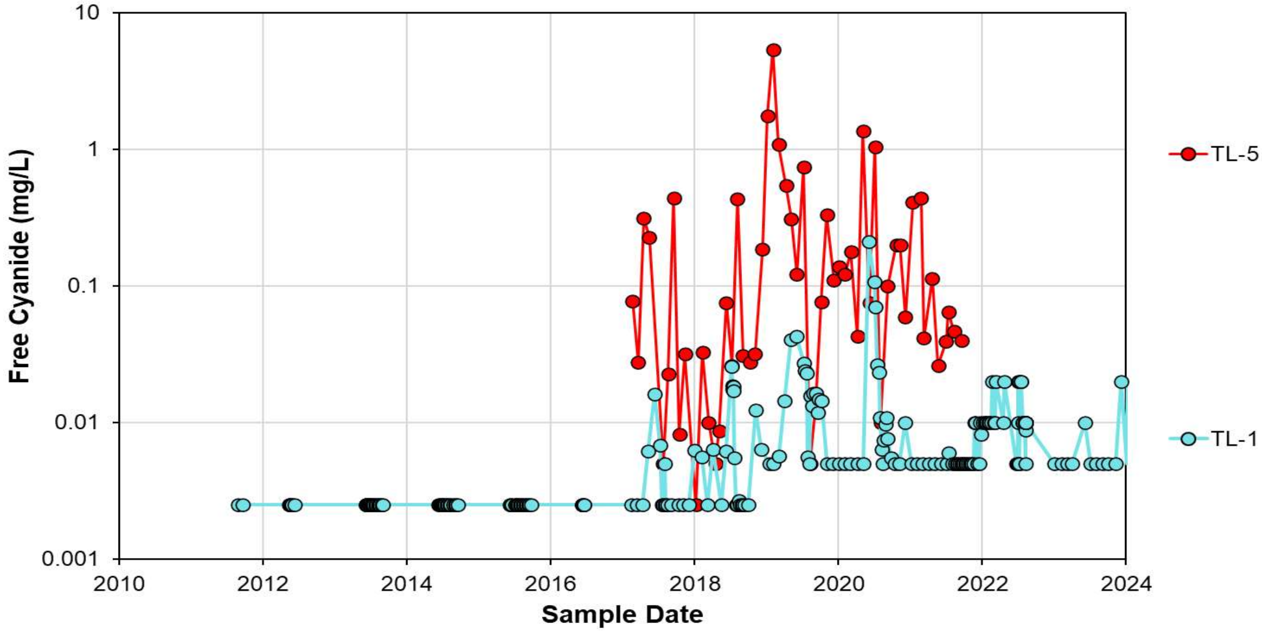
10
1
0.1
0.01
0.001
0.0001
Nitrite (mg/L as N)
2010
2012
2014
2016
2018
2020
2022
2024
Sample Date
TL-5
TL-1

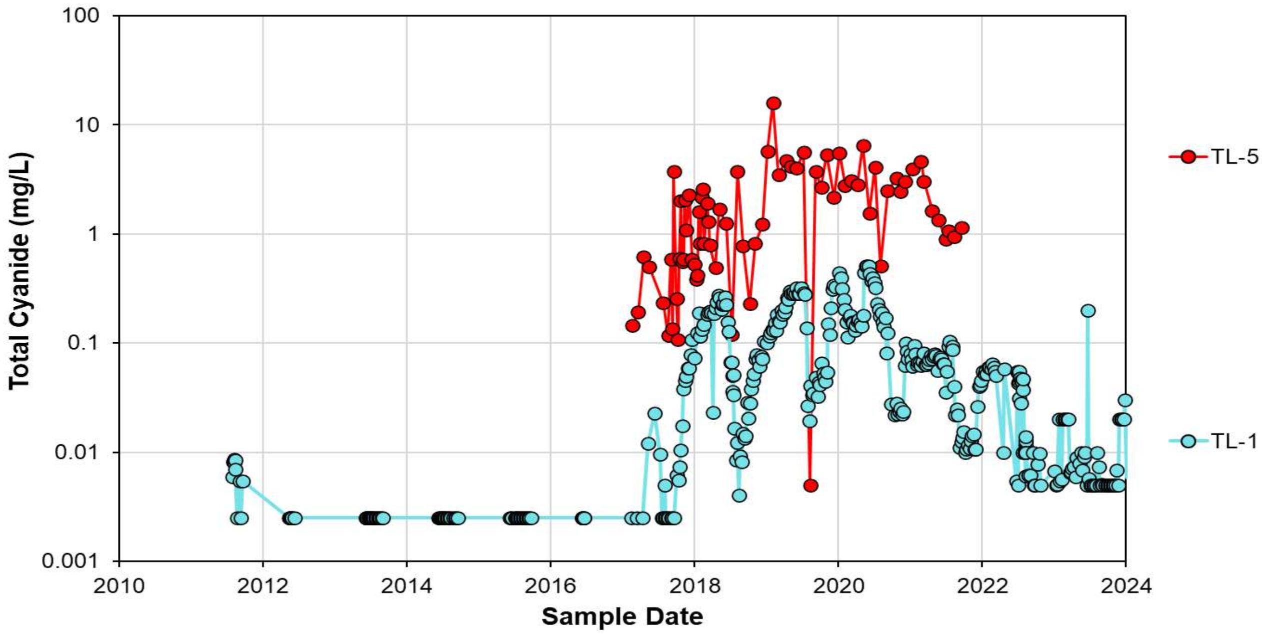

Nitrate (mg/L as N)
100
10
1
0.1
0.01
0.001
2010
2012
2014
2016
2018
2020
2022
2024
Sample Date
TL-5
TL-1

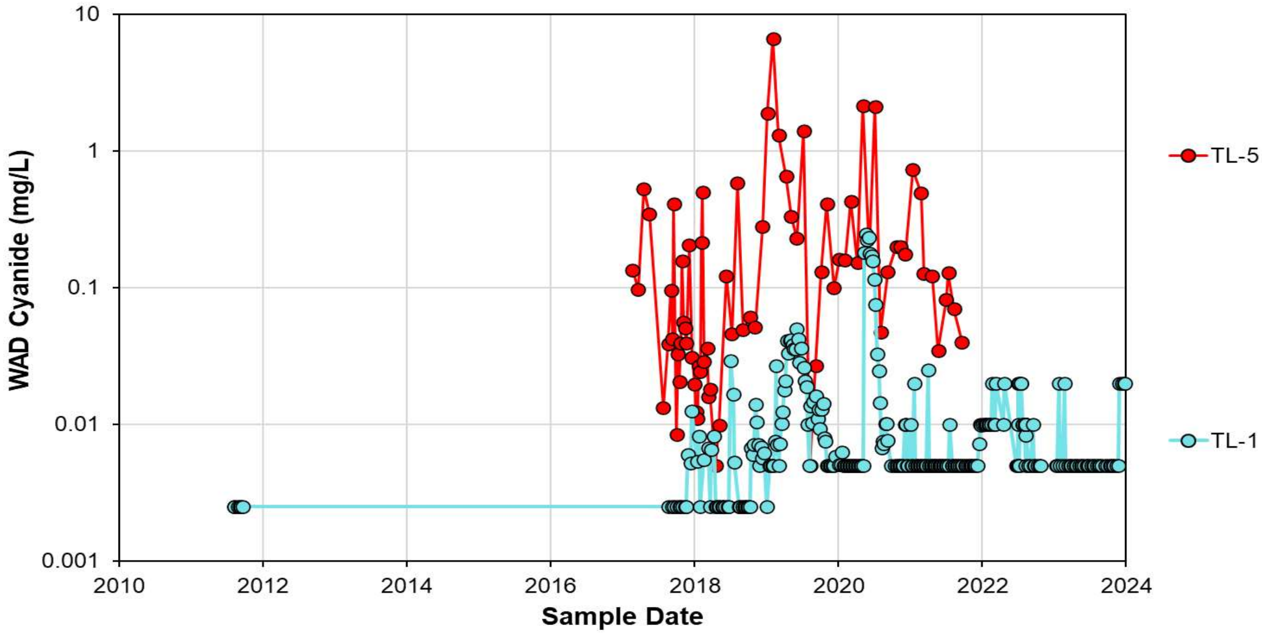

Ammonia (mg/L as N)
100
10
1
0.1
0.01
0.001
2010
2012
2014
2016
2018
2020
2022
2024
Sample Date
TL-5
TL-1

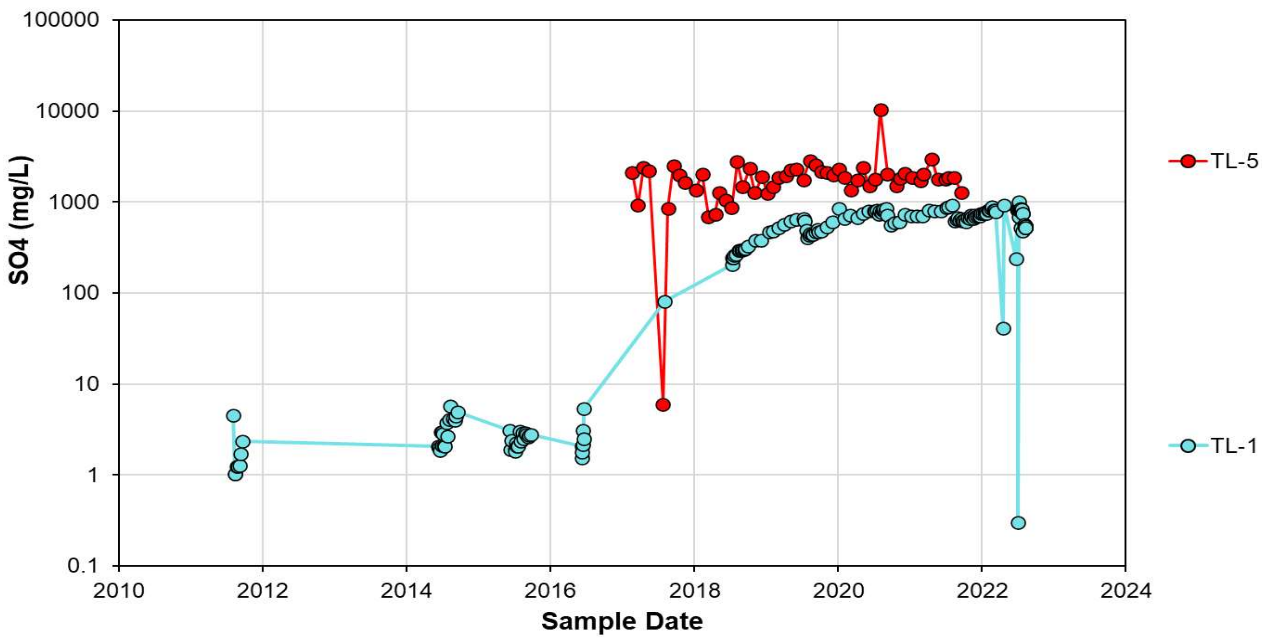

1000
100
10
1
0.1
Cyanate (mg/L)
2010
2012
2014
2016
2018
2020
2022
2024
Sample Date
TL-5
TL-1

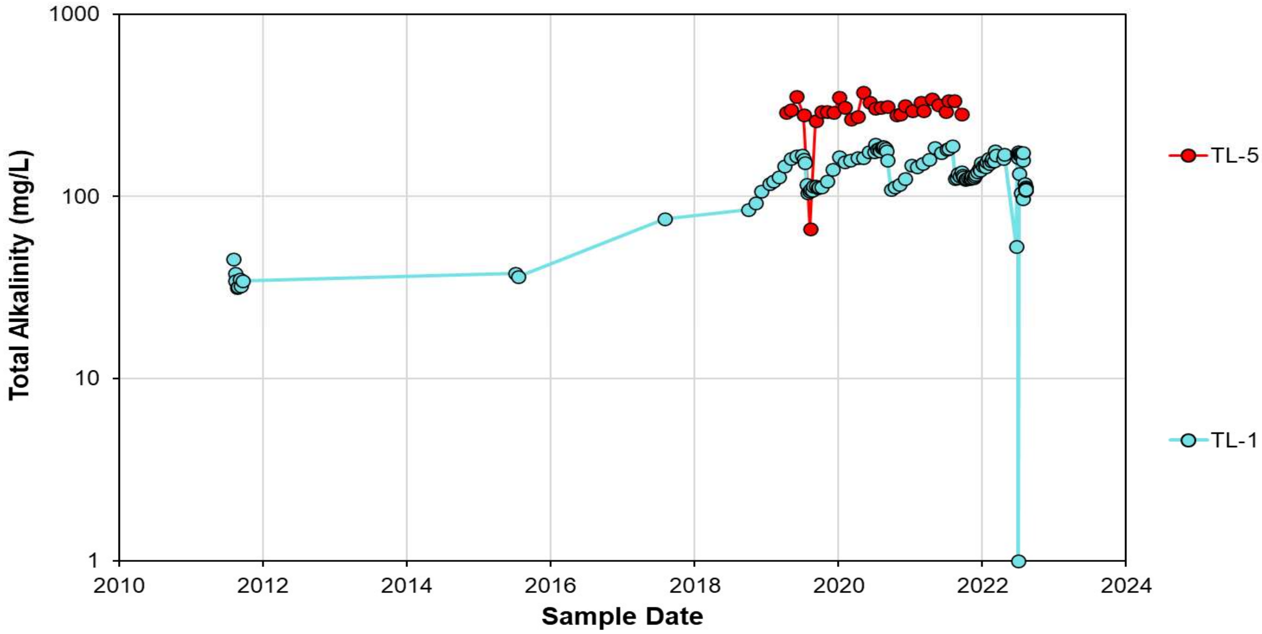

1000
100
10
1
0.1
Thiocyanate (mg/L)
2010
2012
2014
2016
2018
2020
2022
2024
Sample Date
TL-5
TL-1

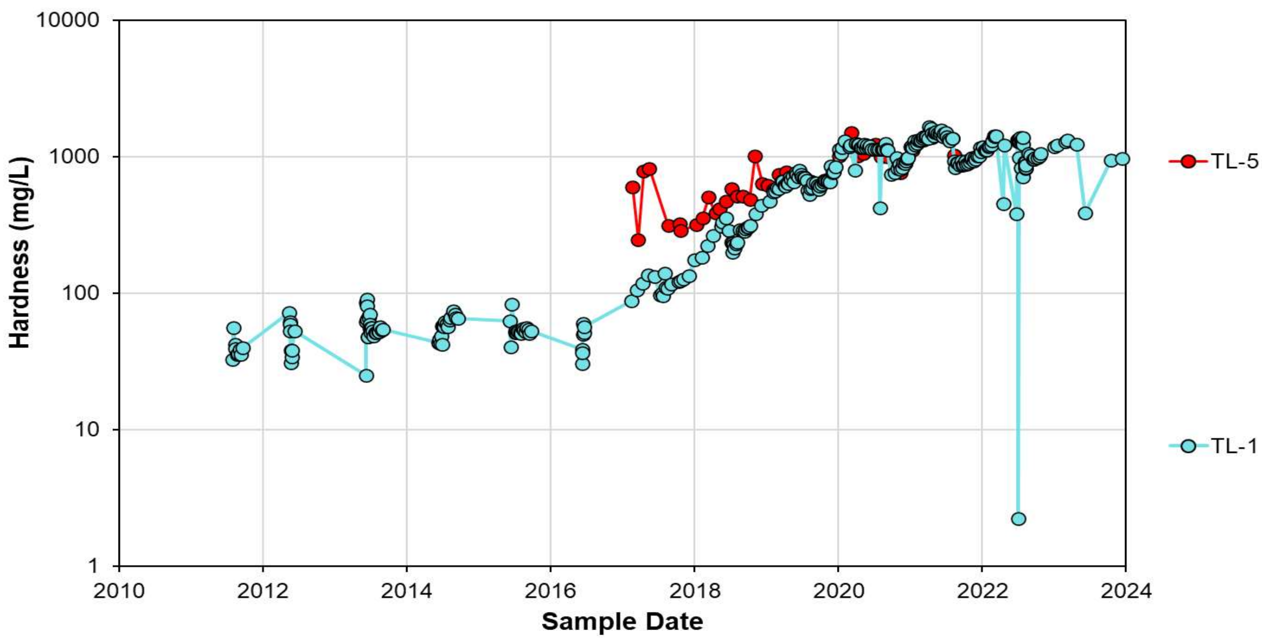

Free Cyanide (mg/L)
10
1
0.1
0.01
0.001
2010
2012
2014
2016
2018
2020
2022
2024
Sample Date
TL-5
TL-1

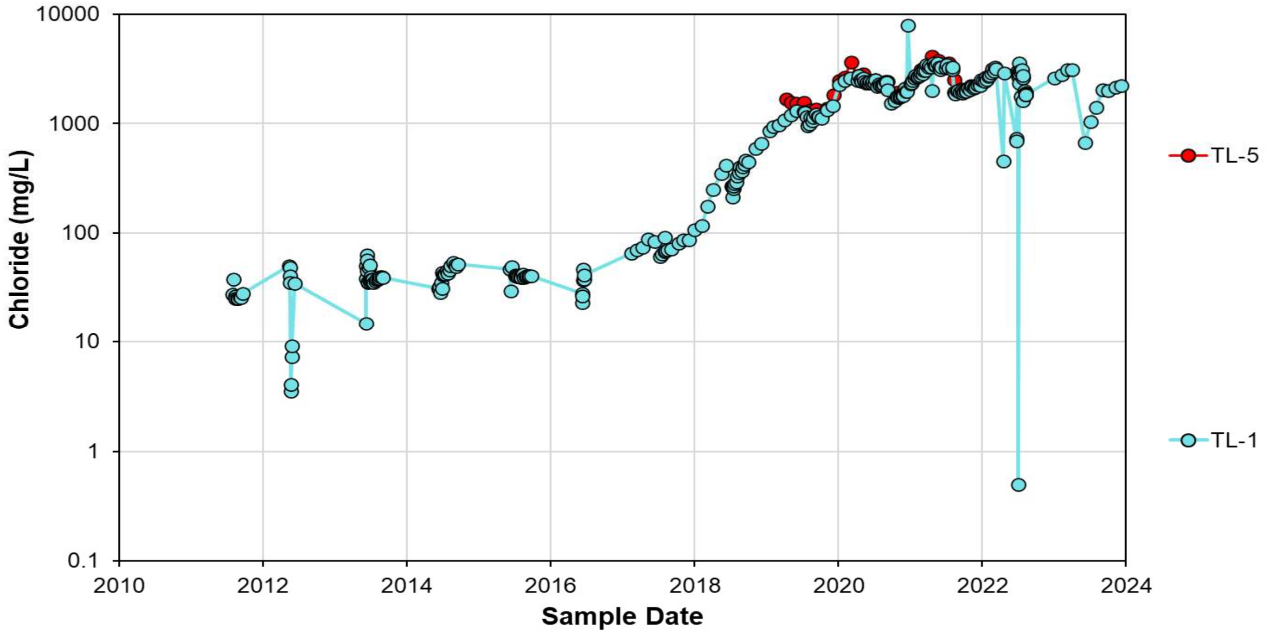

Total Cyanide (mg/L)
100
10
1
0.1
0.01
0.001
2010
2012
2014
2016
2018
2020
2022
2024
Sample Date
TL-5
TL-1

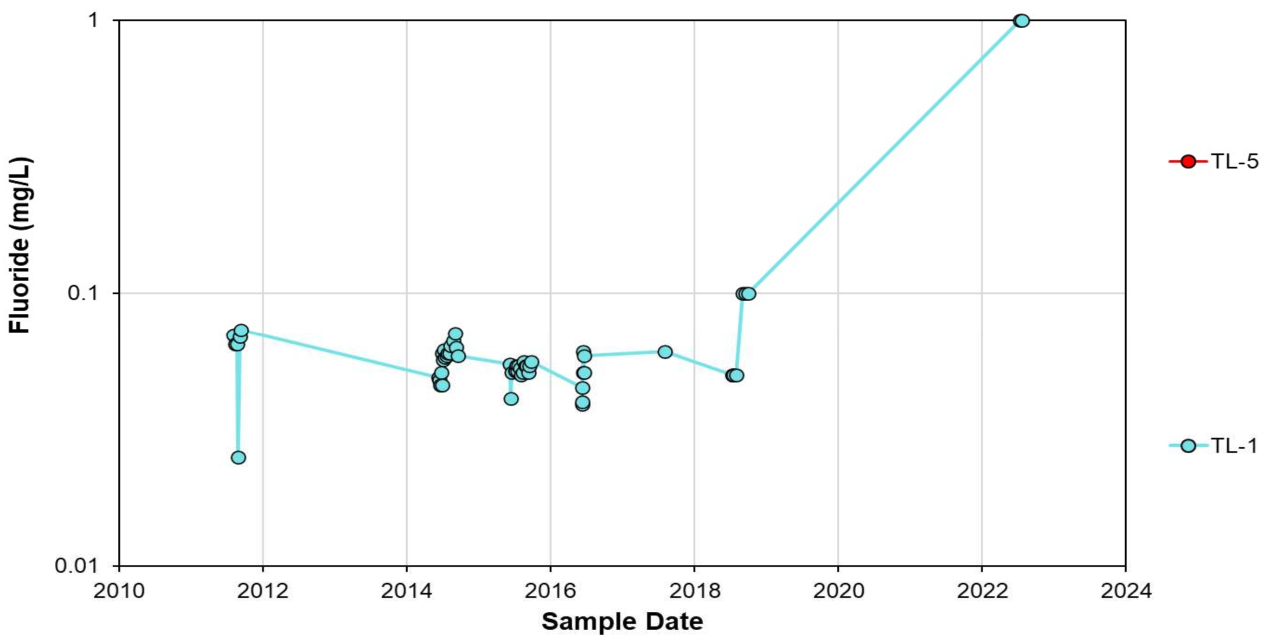

WAD Cyanide (mg/L)
10
1
0.1
0.01
0.001
2010
2012
2014
2016
2018
2020
2022
2024
Sample Date
TL-5
TL-1

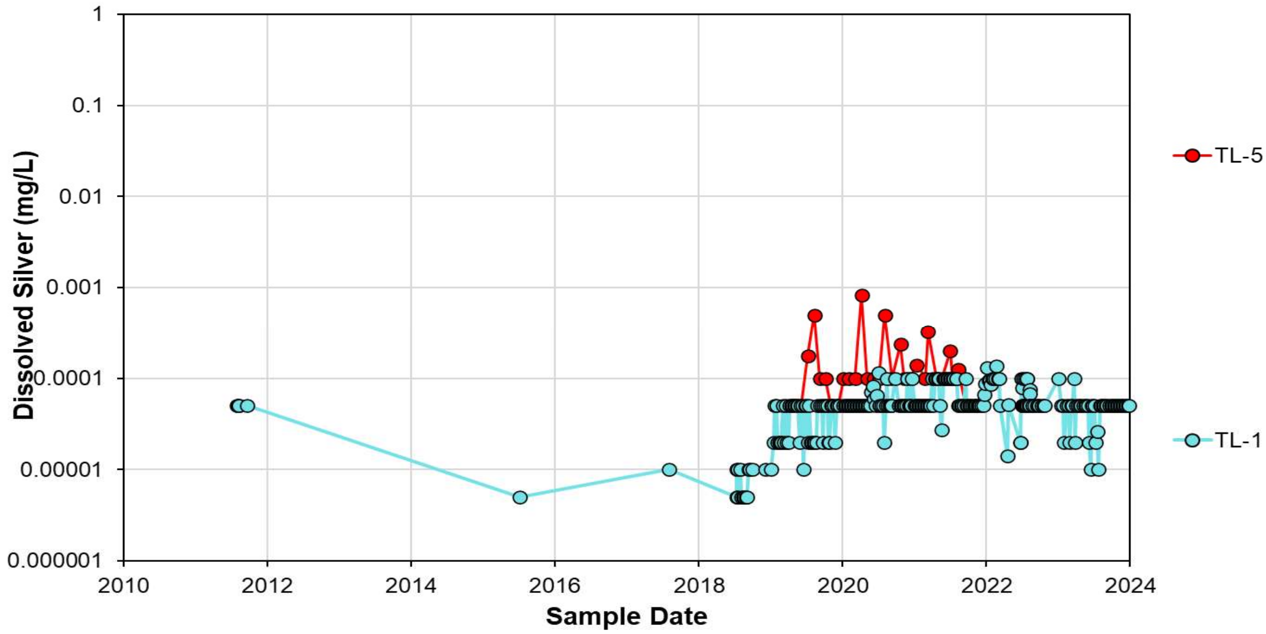

SO4 (mg/L)
100000
10000
1000
100
10
1
0.1
2010
2012
2014
2016
2018
2020
2022
2024
Sample Date
TL-5
TL-1

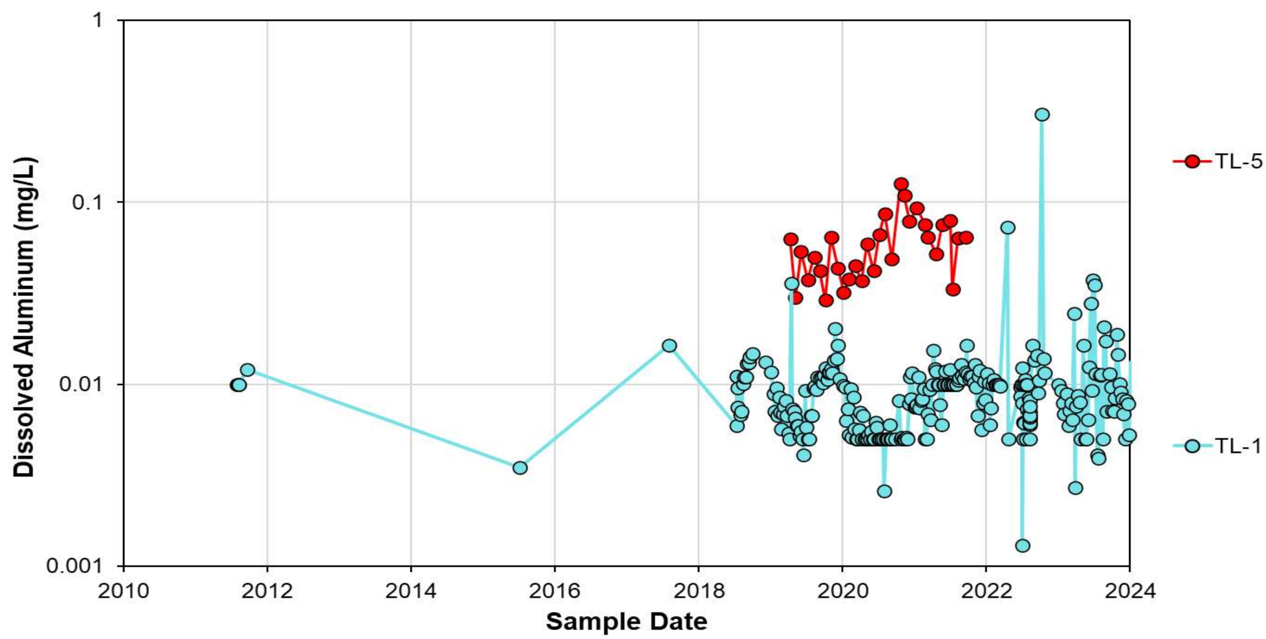

1000
100
10
1
Total Alkalinity (mg/L)
2010
2012
2014
2016
2018
2020
2022
2024
Sample Date
TL-5
TL-1

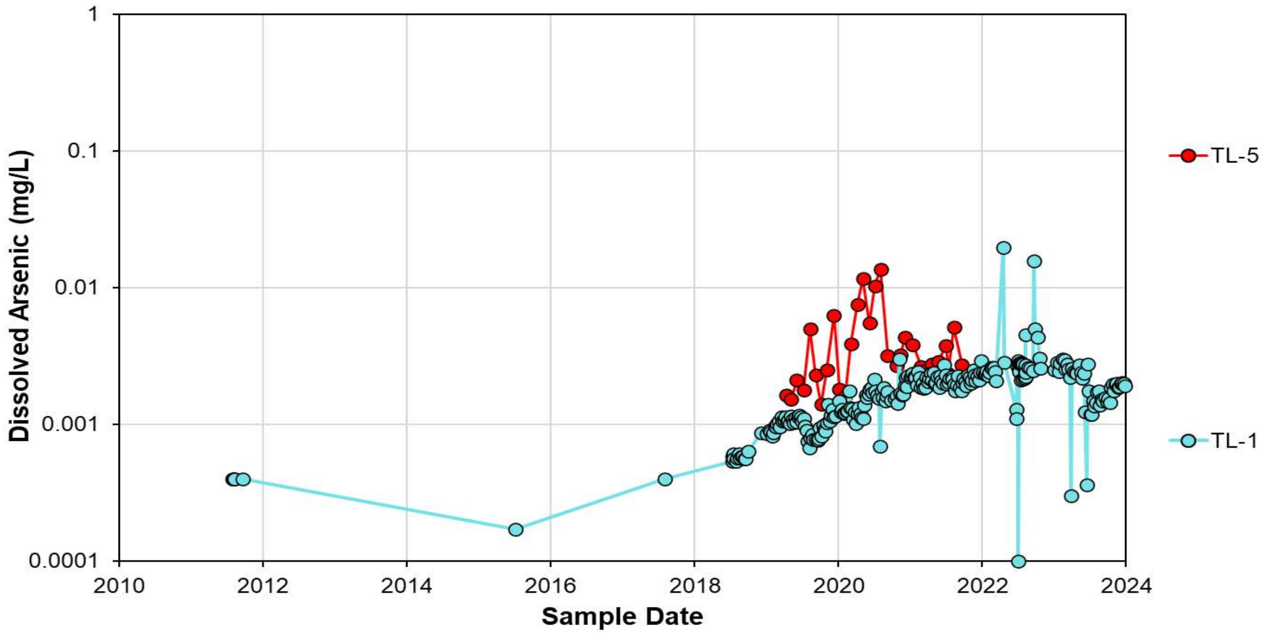

10000
1000
100
10
1
Hardness (mg/L)
2010
2012
2014
2016
2018
2020
2022
2024
Sample Date
TL-5
TL-1

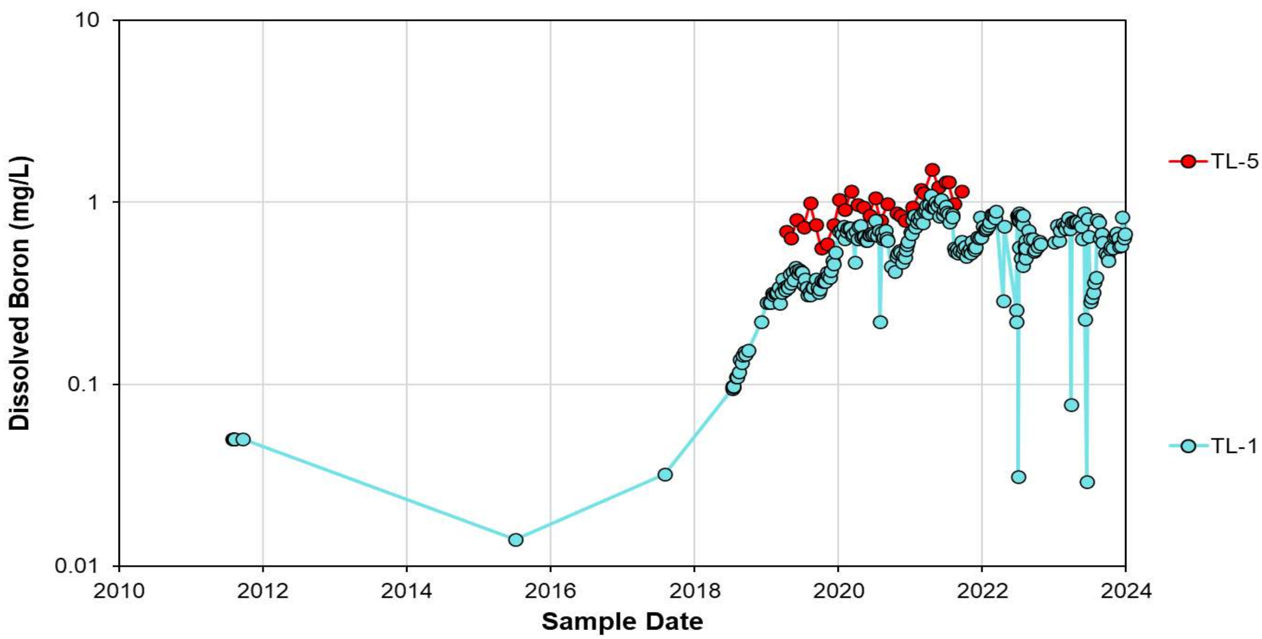

Chloride (mg/L)
10000
1000
100
10
1
0.1
2010
2012
2014
2016
2018
2020
2022
2024
Sample Date
TL-5
TL-1

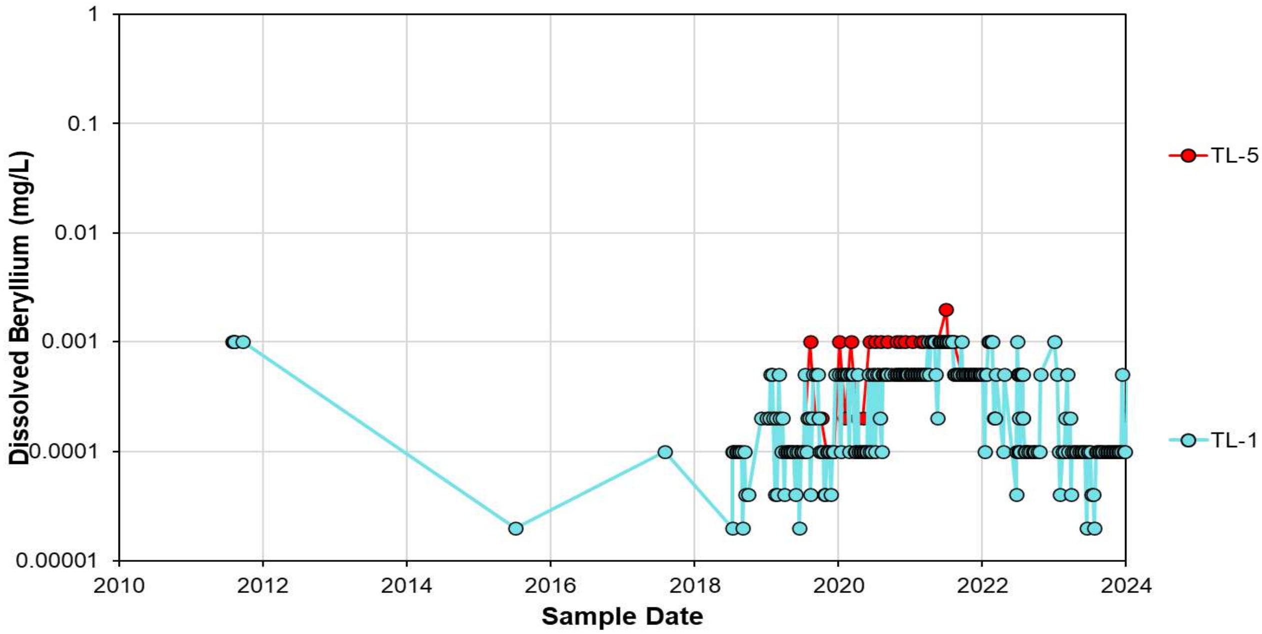

Fluoride (mg/L)
1
0.1
0.01
2010
2012
2014
2016
2018
2020
2022
2024
Sample Date
TL-5
TL-1

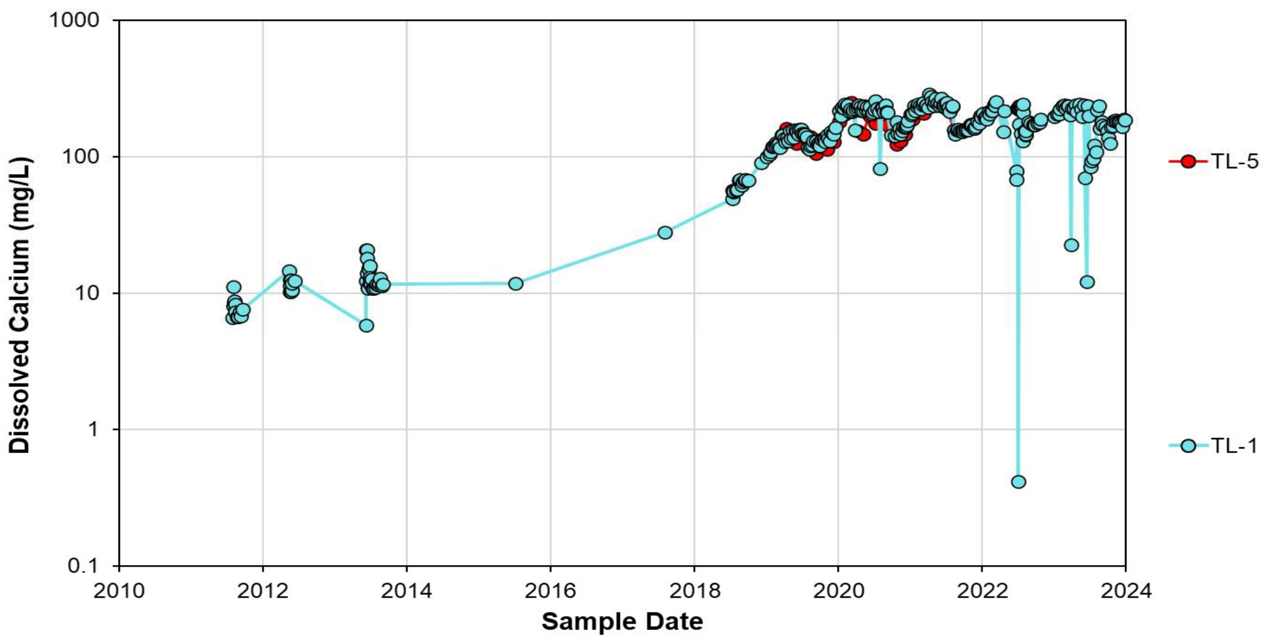

1
0.1
0.01
0.001
0.0001
0.00001
0.000001
Dissolved Silver (mg/L)
2010
2012
2014
2016
2018
2020
2022
2024
Sample Date
TL-5
TL-1

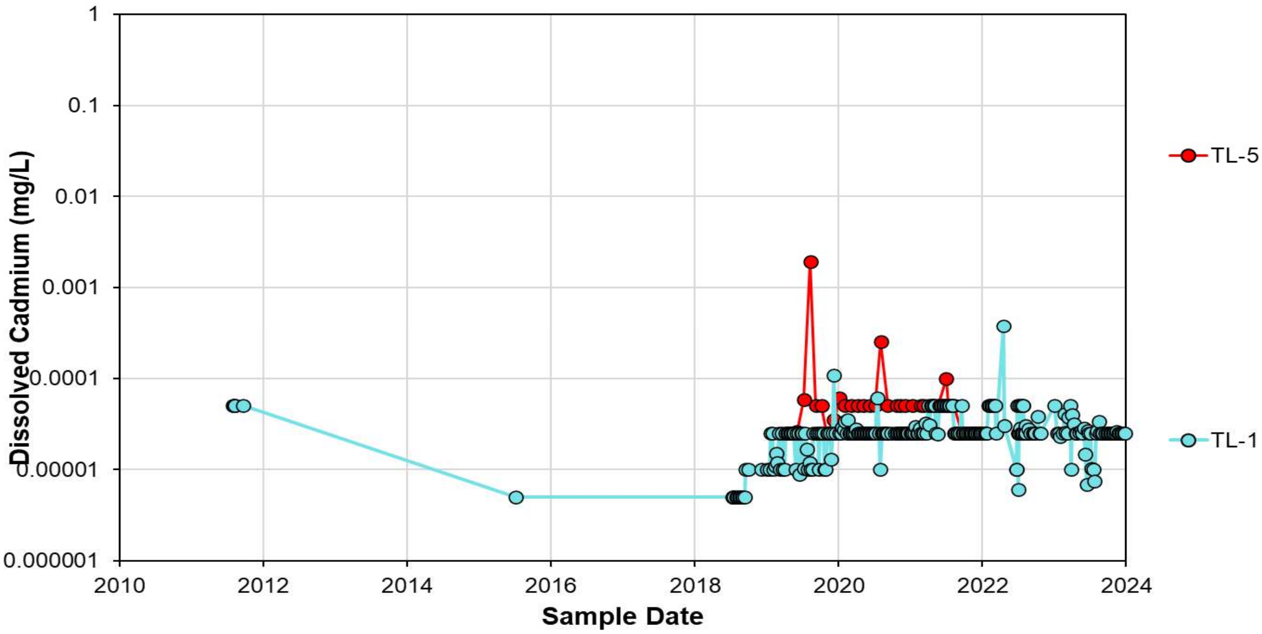

1
0.1
0.01
0.001
Dissolved Aluminum (mg/L)
2010
2012
2014
2016
2018
2020
2022
2024
Sample Date
TL-5
TL-1

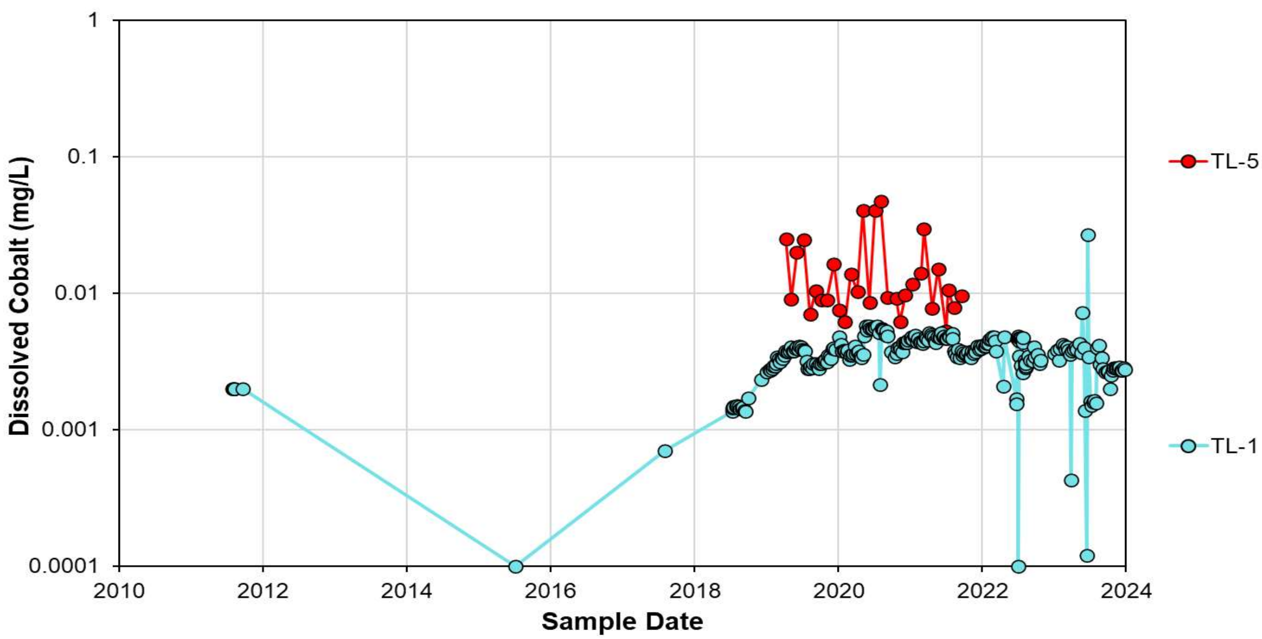

1
0.1
0.01
0.001
0.0001
Dissolved Arsenic (mg/L)
2010
2012
2014
2016
2018
2020
2022
2024
Sample Date
TL-5
TL-1

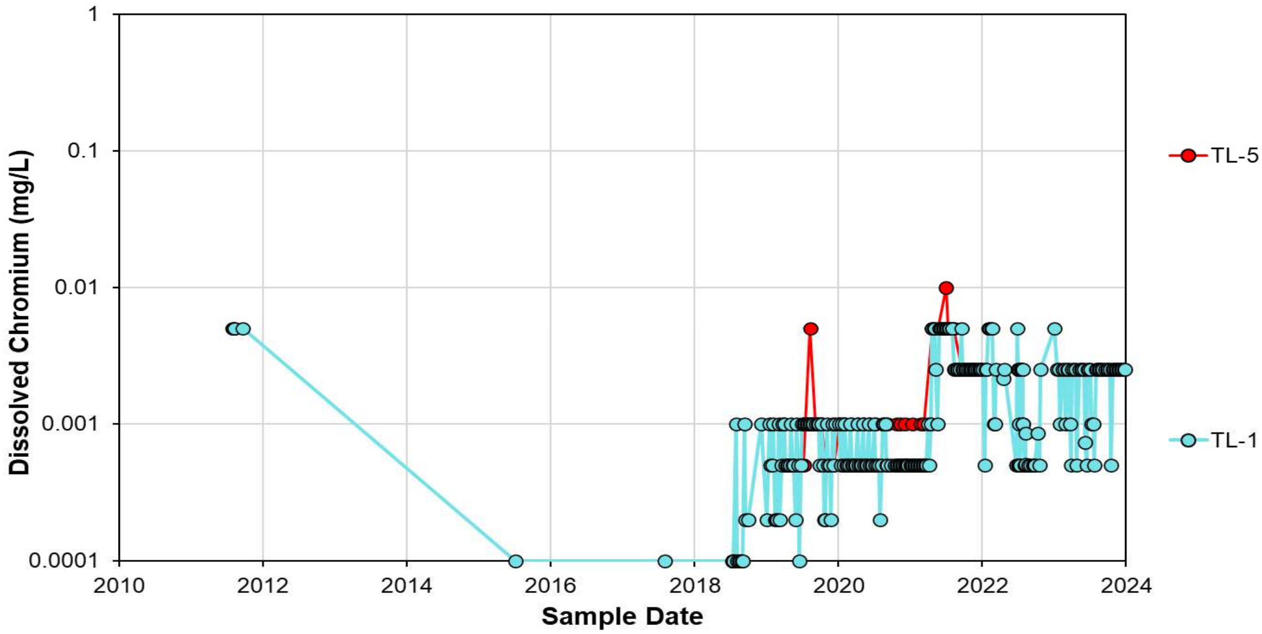

10
1
0.1
0.01
Dissolved Boron (mg/L)
2010
2012
2014
2016
2018
2020
2022
2024
Sample Date
TL-5
TL-1


1
0.1
0.01
0.001
0.0001
0.00001
Dissolved Beryllium (mg/L)
2010
2012
2014
2016
2018
2020
2022
2024
Sample Date
TL-5
TL-1

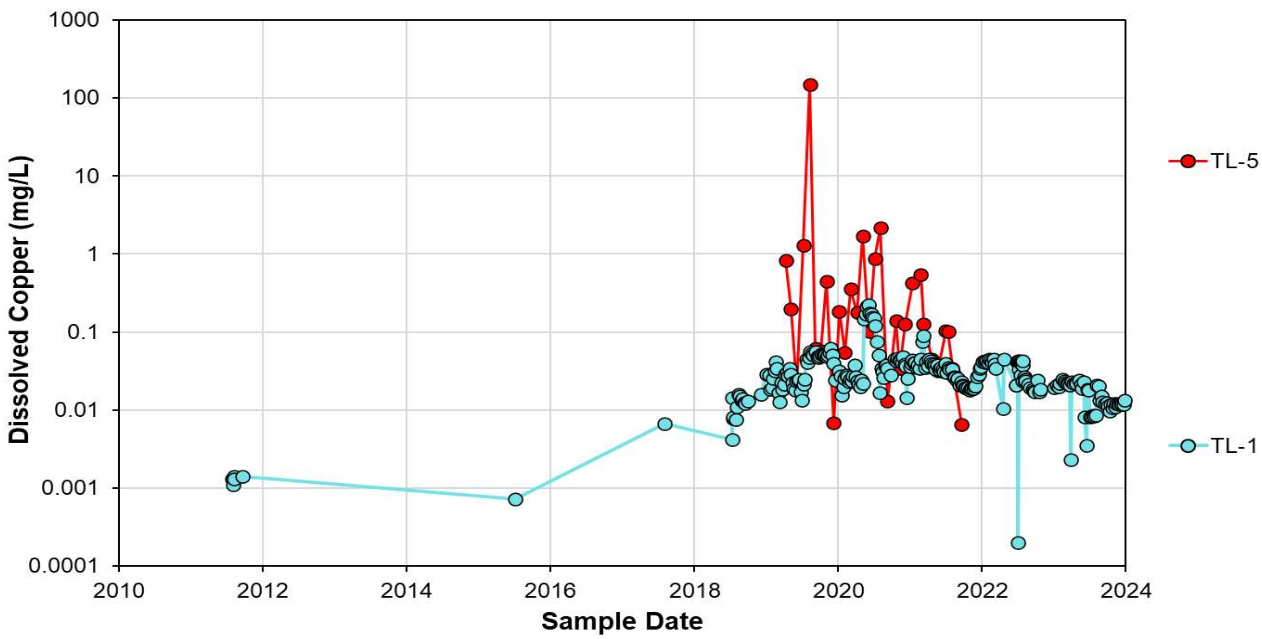

1000
100
10
1
0.1
Dissolved Calcium (mg/L)
2010
2012
2014
2016
2018
2020
2022
2024
Sample Date
TL-5
TL-1


1
0.1
0.01
0.001
0.0001
0.00001
0.000001
Dissolved Cadmium (mg/L)
2010
2012
2014
2016
2018
2020
2022
2024
Sample Date
TL-5
TL-1

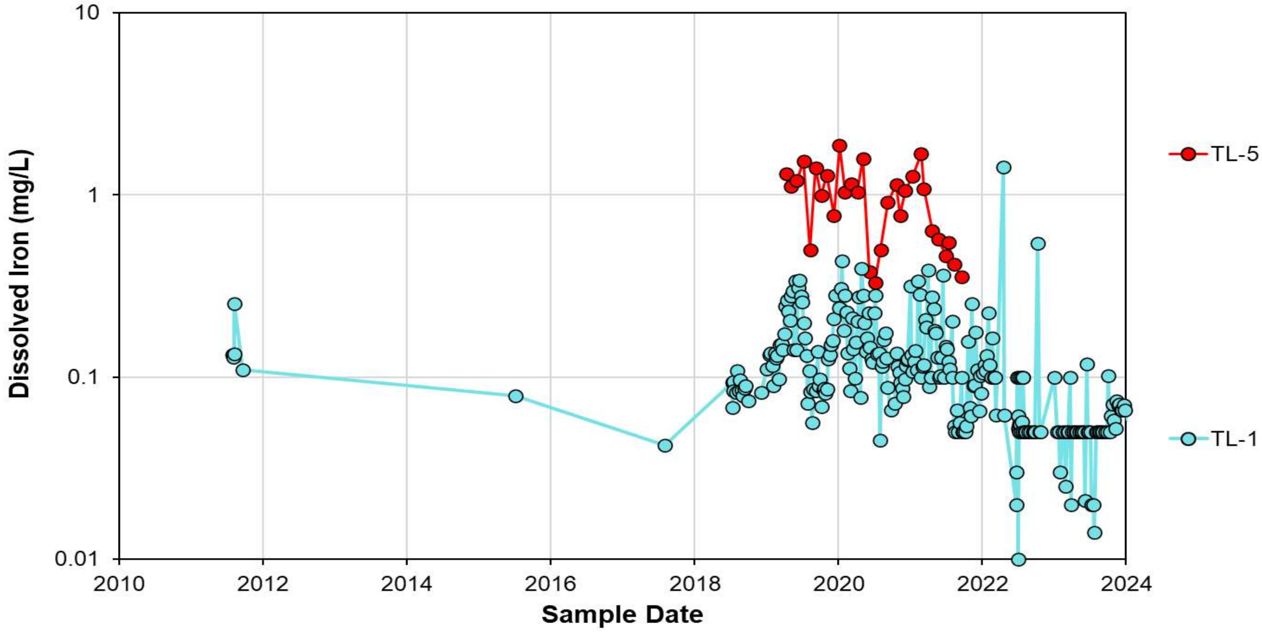

1
0.1
0.01
0.001
0.0001
Dissolved Cobalt (mg/L)
2010
2012
2014
2016
2018
2020
2022
2024
Sample Date
TL-5
TL-1

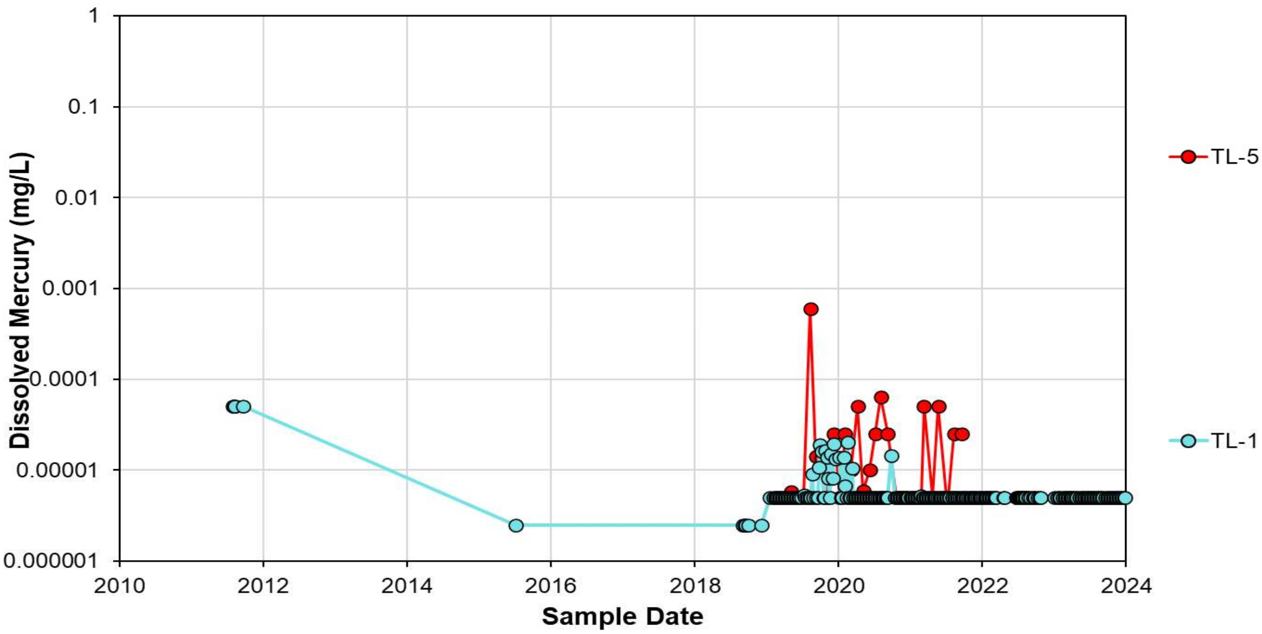


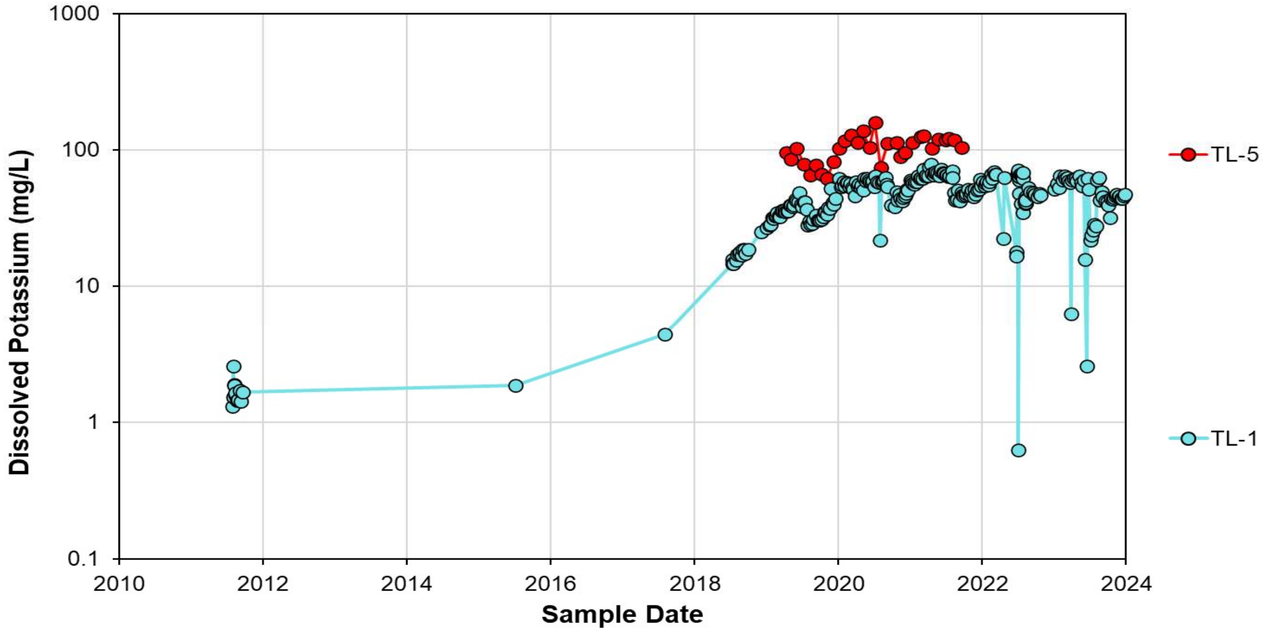
1
0.1
0.01
0.001
0.0001
Dissolved Chromium (mg/L)
2010
2012
2014
2016
2018
2020
2022
2024
Sample Date
TL-5
TL-1

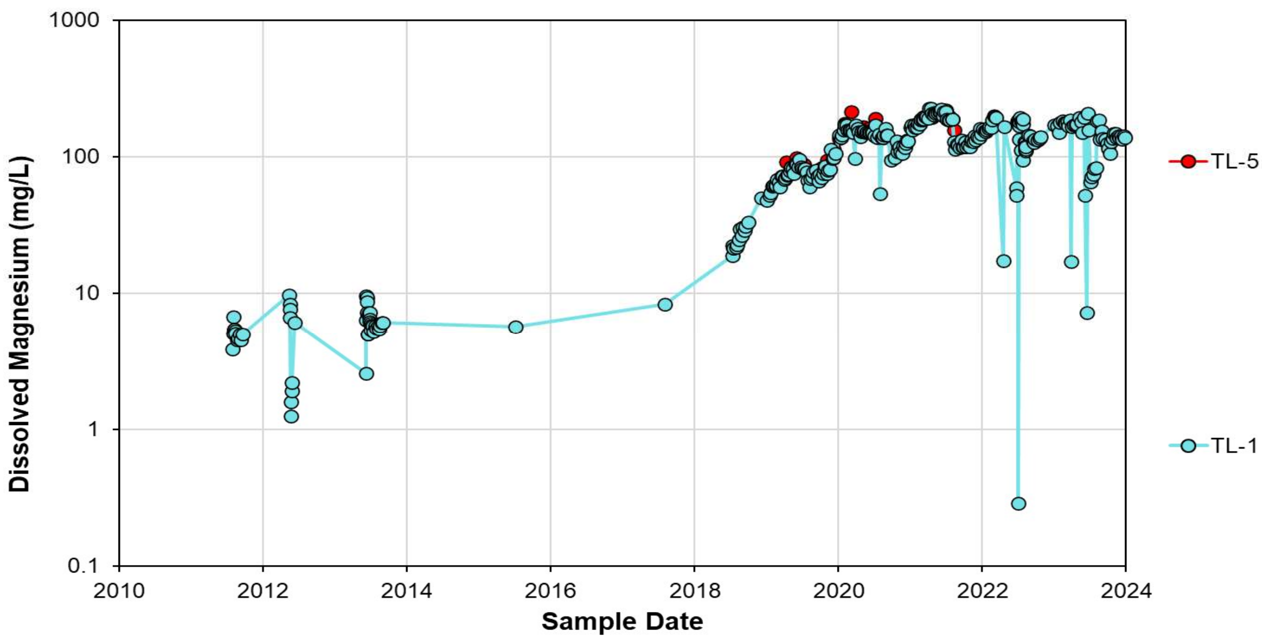


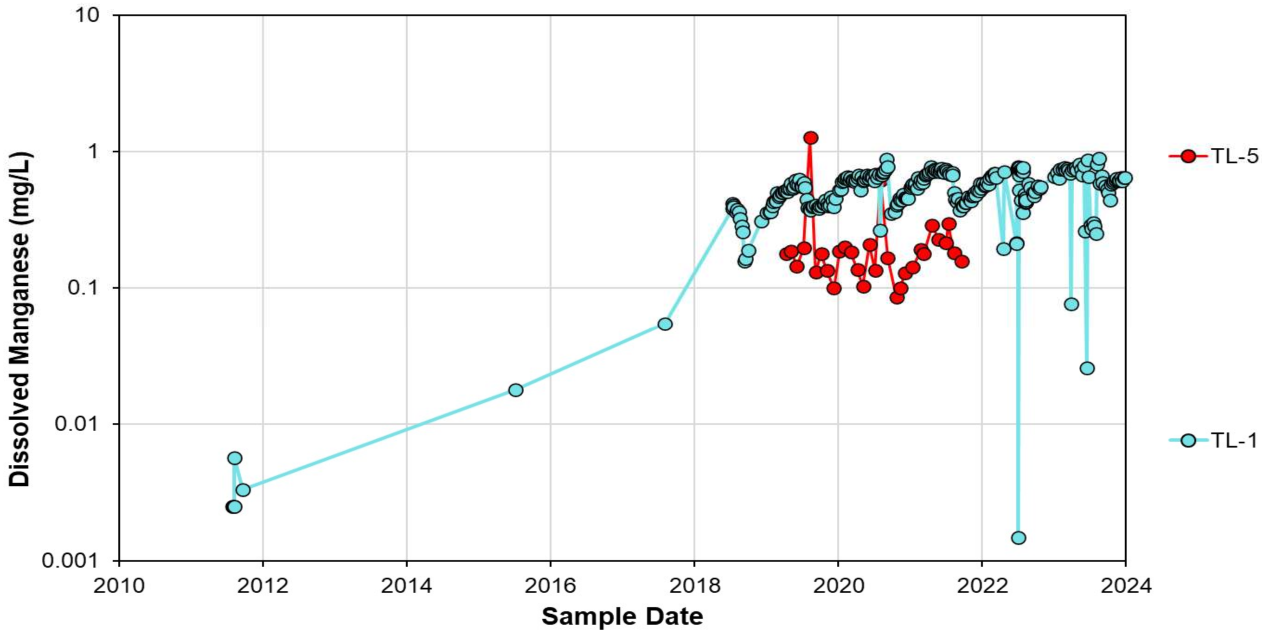
1000
100
10
1
0.1
0.01
0.001
0.0001
Dissolved Copper (mg/L)
2010
2012
2014
2016
2018
2020
2022
2024
Sample Date
TL-5
TL-1


10
1
0.1
0.01
Dissolved Iron (mg/L)
2010
2012
2014
2016
2018
2020
2022
2024
Sample Date
TL-5
TL-1

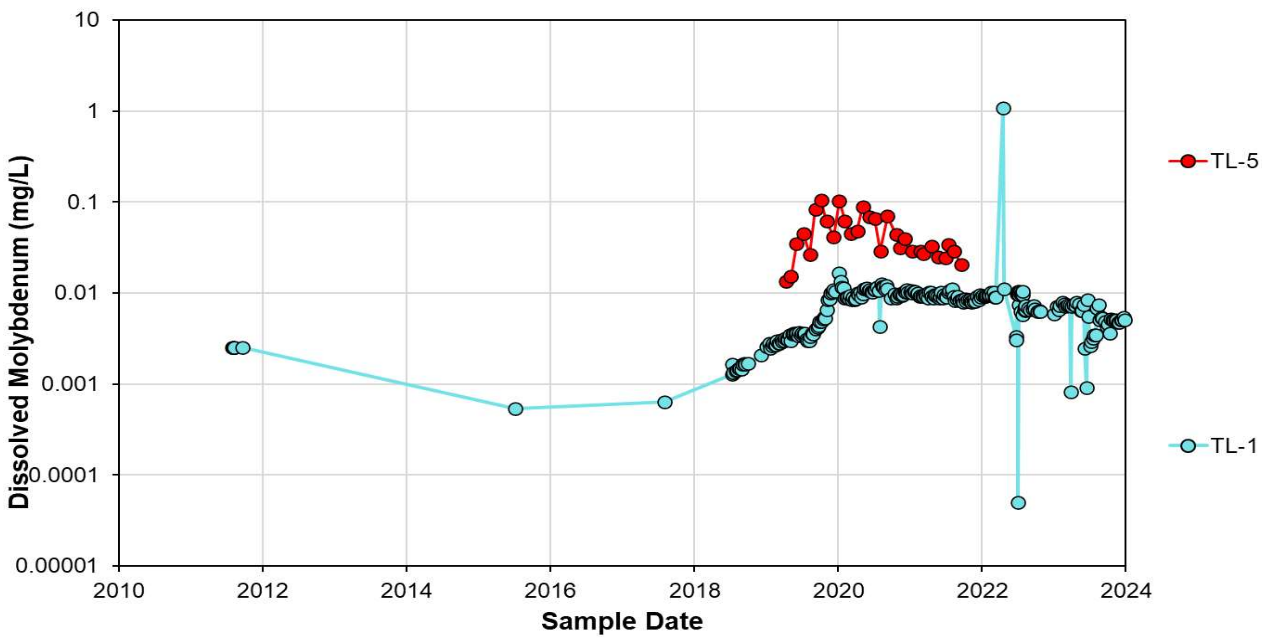

1
0.1
0.01
0.001
0.0001
0.00001
0.000001
Dissolved Mercury (mg/L)
2010
2012
2014
2016
2018
2020
2022
2024
Sample Date
TL-5
TL-1


Dissolved Potassium (mg/L)
1000
100
10
1
0.1
2010
2012
2014
2016
2018
2020
2022
2024
Sample Date
TL-5
TL-1

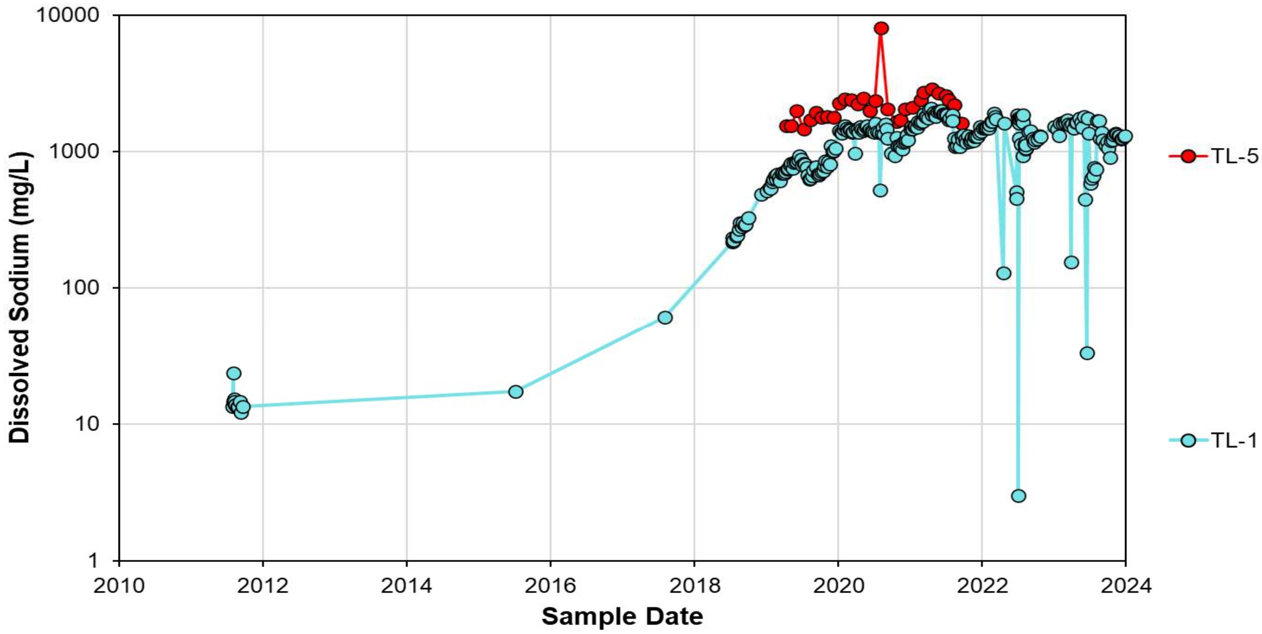

Dissolved Magnesium (mg/L)
1000
100
10
1
0.1
2010
2012
2014
2016
2018
2020
2022
2024
Sample Date
TL-5
TL-1

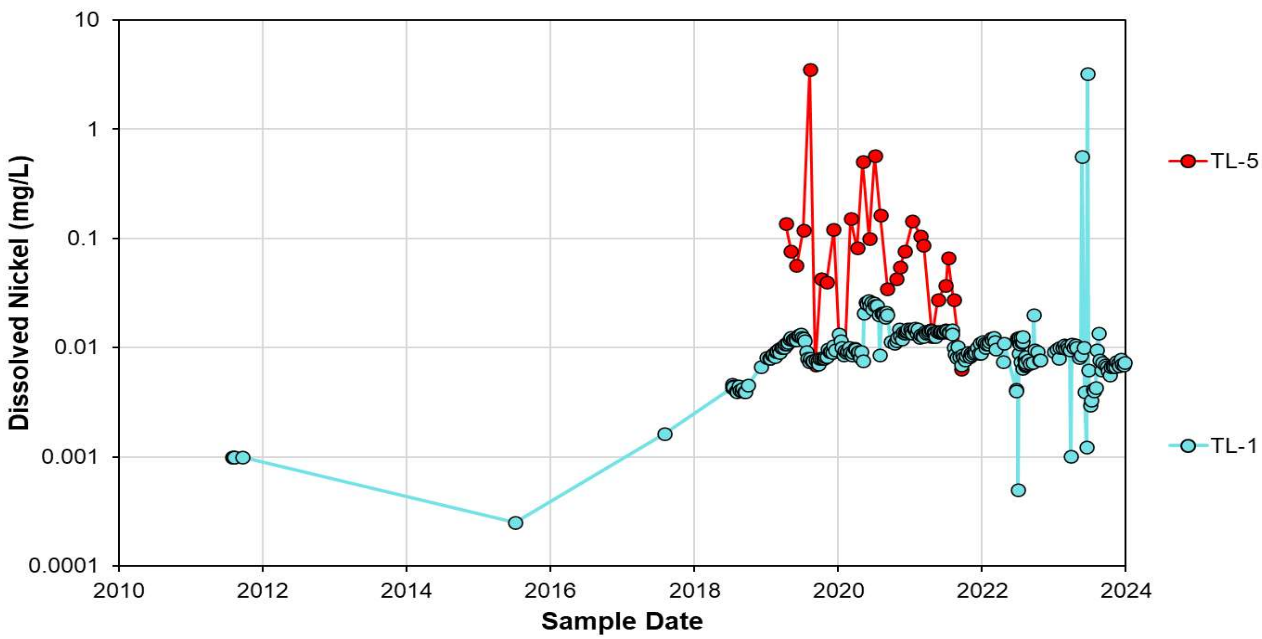


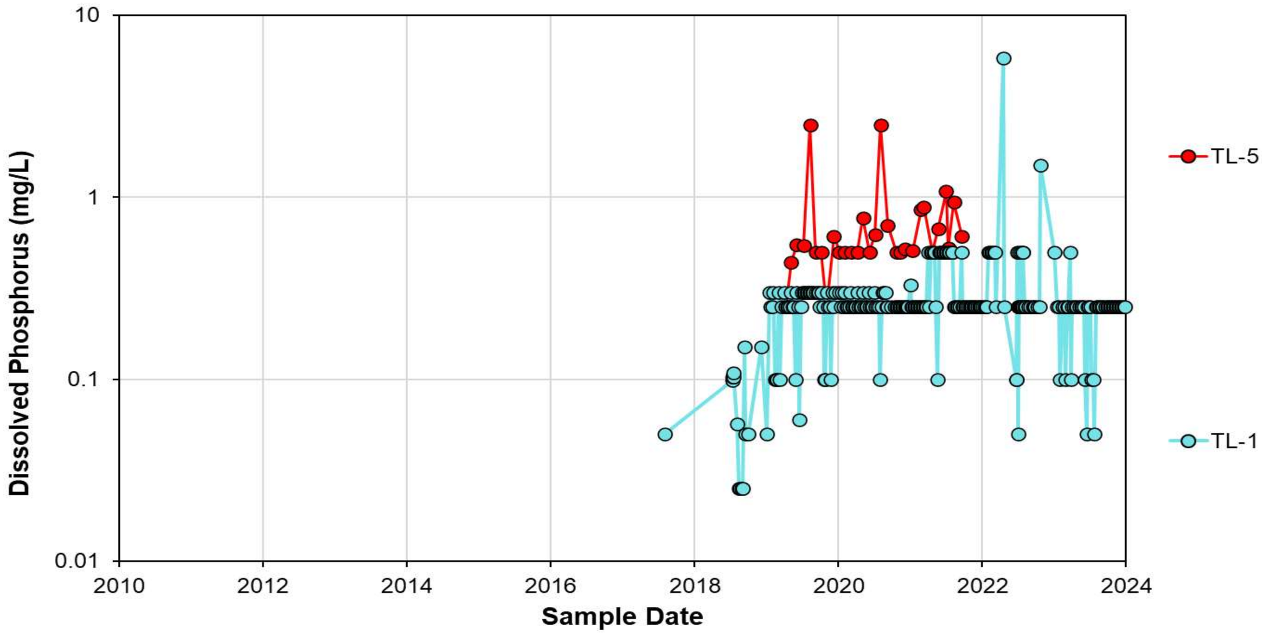
Dissolved Manganese (mg/L)
10
1
0.1
0.01
0.001
2010
2012
2014
2016
2018
2020
2022
2024
Sample Date
TL-5
TL-1

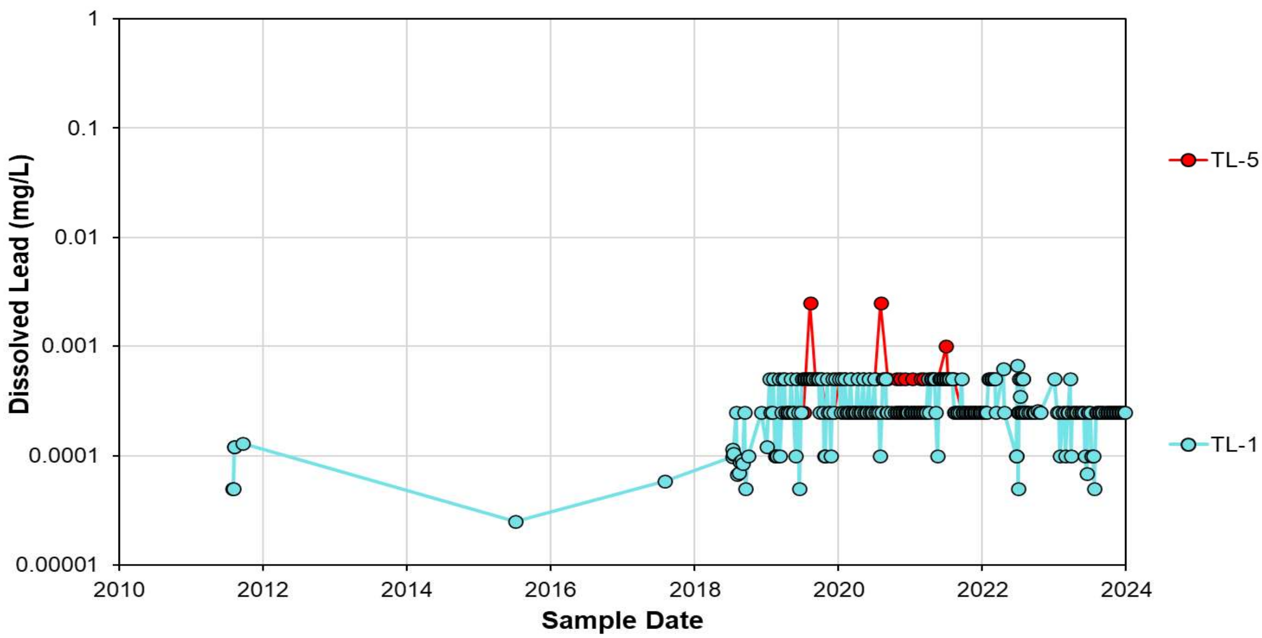


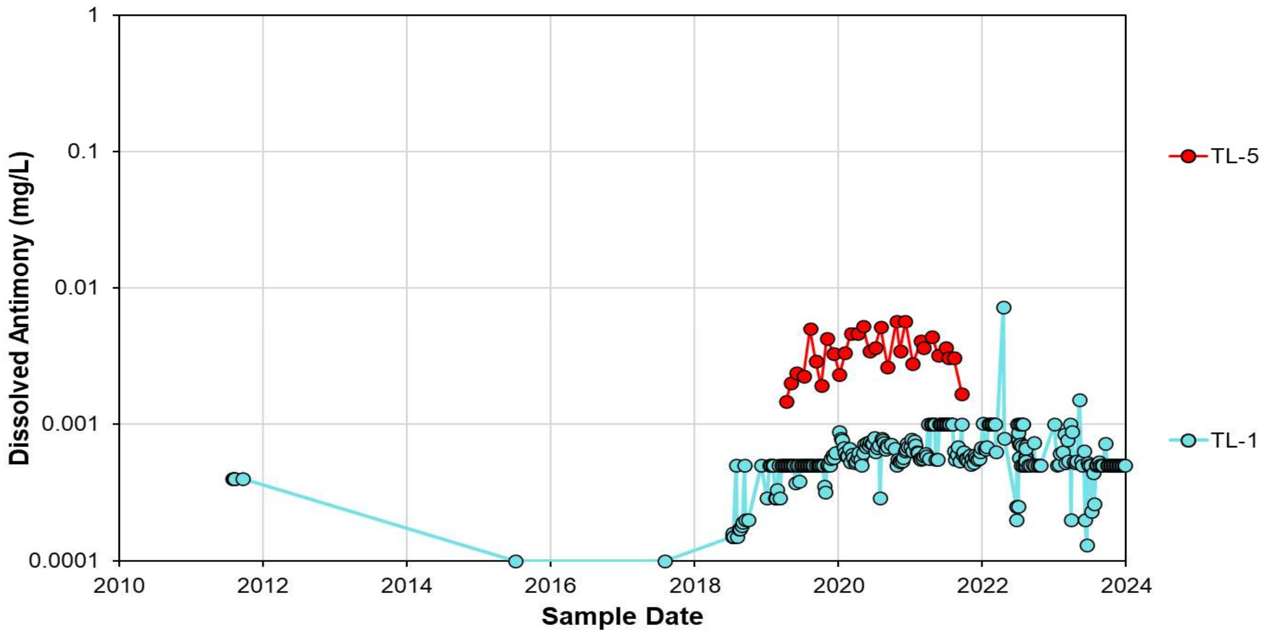
Dissolved Molybdenum (mg/L)
10
1
0.1
0.01
0.001
0.0001
0.00001
2010
2012
2014
2016
2018
2020
2022
2024
Sample Date
TL-5
TL-1


10000
1000
100
10
1
Dissolved Sodium (mg/L)
2010
2012
2014
2016
2018
2020
2022
2024
Sample Date
TL-5
TL-1

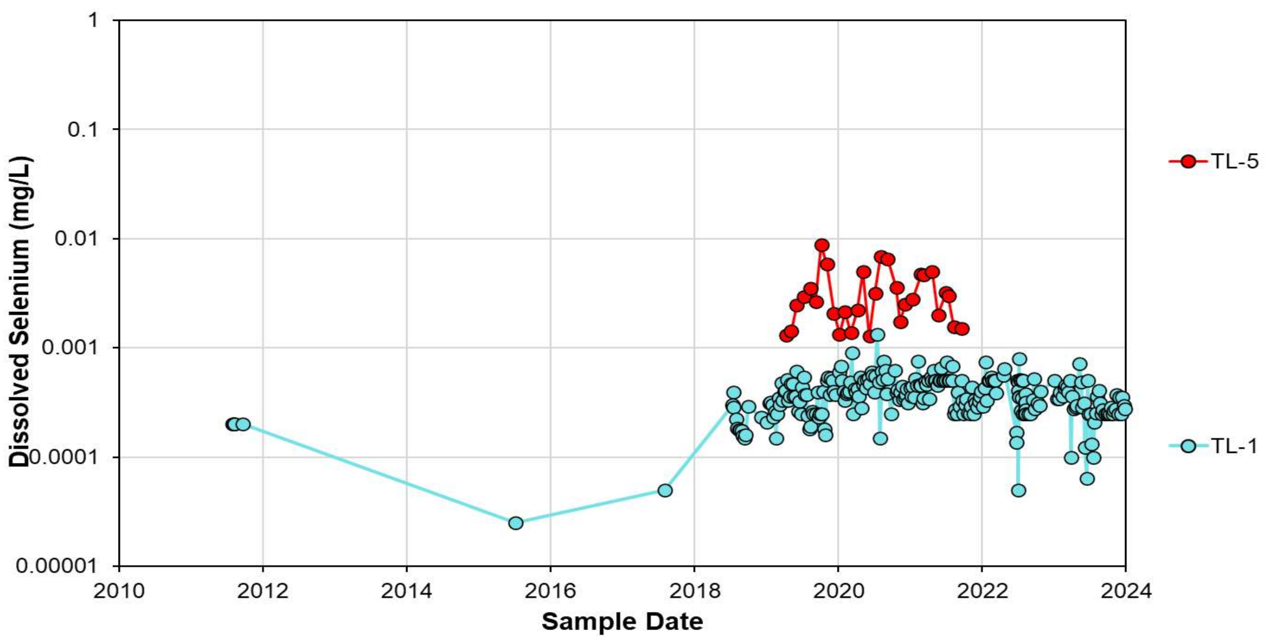

10
1
0.1
0.01
0.001
0.0001
Dissolved Nickel (mg/L)
2010
2012
2014
2016
2018
2020
2022
2024
Sample Date
TL-5
TL-1


10
1
0.1
0.01
Dissolved Phosphorus (mg/L)
2010
2012
2014
2016
2018
2020
2022
2024
Sample Date
TL-5
TL-1

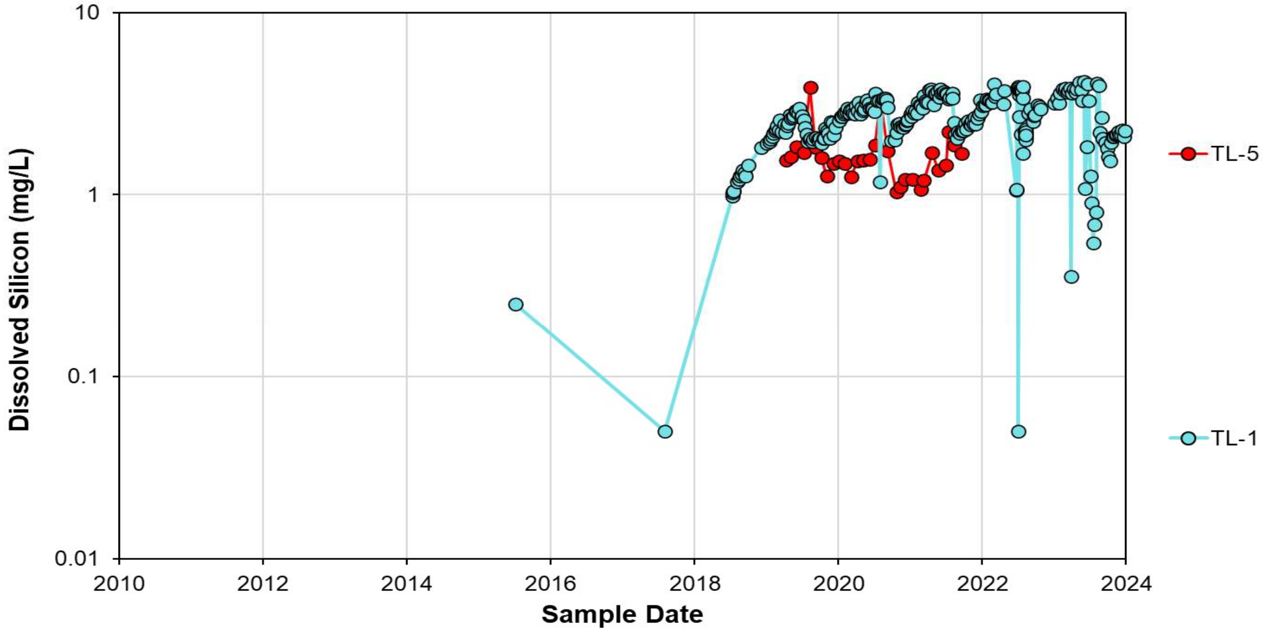

1
0.1
0.01
0.001
0.0001
0.00001
Dissolved Lead (mg/L)
2010
2012
2014
2016
2018
2020
2022
2024
Sample Date
TL-5
TL-1

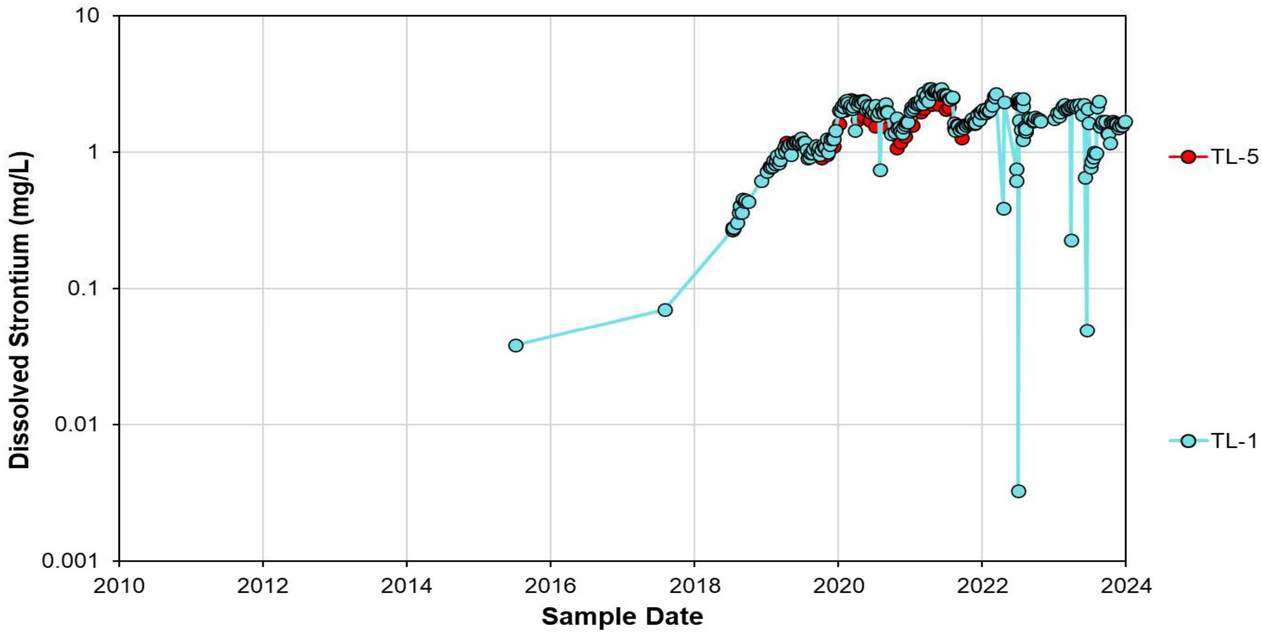


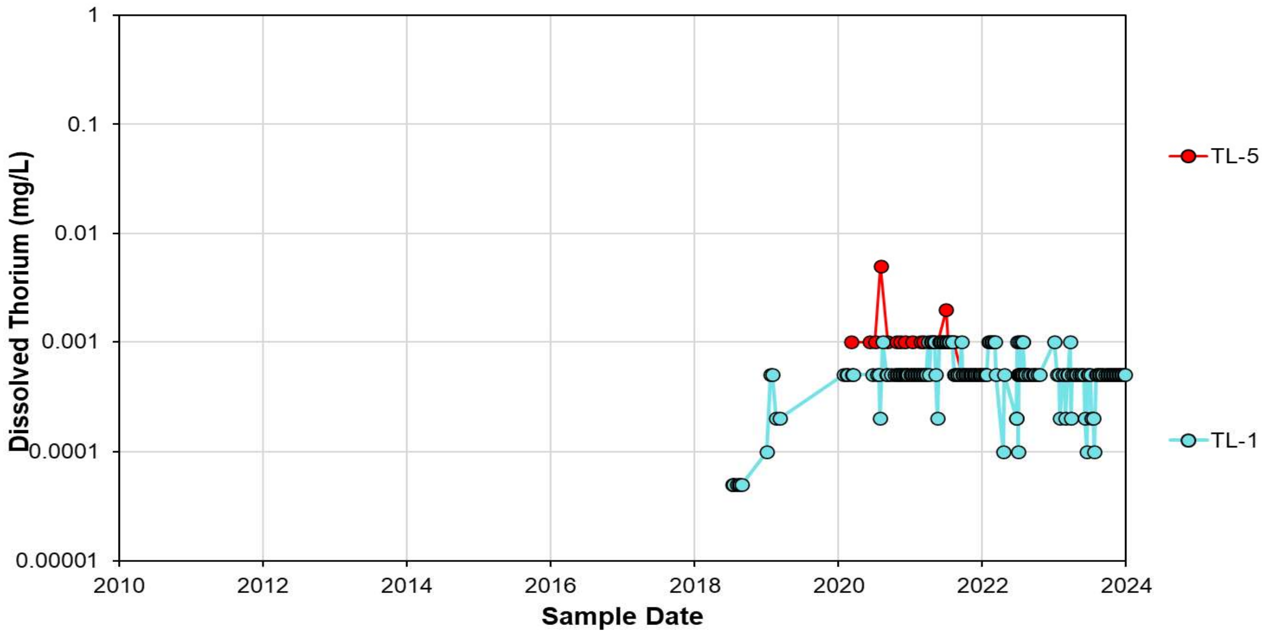
1
0.1
0.01
0.001
0.0001
Dissolved Antimony (mg/L)
2010
2012
2014
2016
2018
2020
2022
2024
Sample Date
TL-5
TL-1



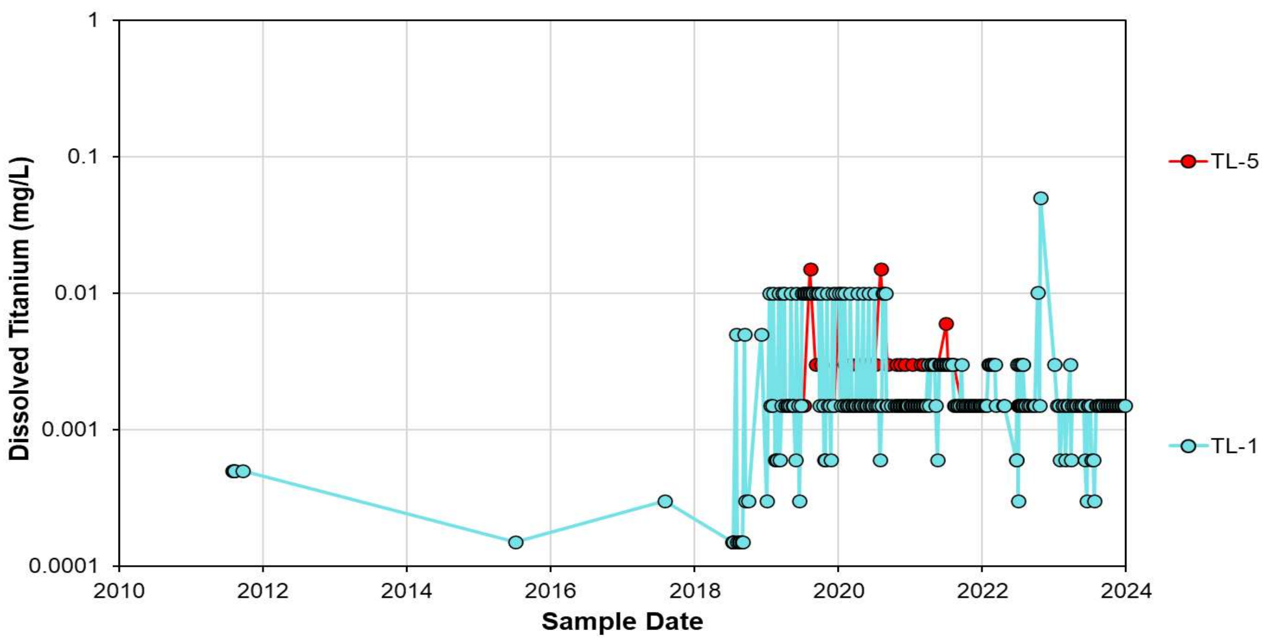
1
0.1
0.01
0.001
0.0001
0.00001
Dissolved Selenium (mg/L)
2010
2012
2014
2016
2018
2020
2022
2024
Sample Date
TL-5
TL-1


10
1
0.1
0.01
Dissolved Silicon (mg/L)
2010
2012
2014
2016
2018
2020
2022
2024
Sample Date
TL-5
TL-1

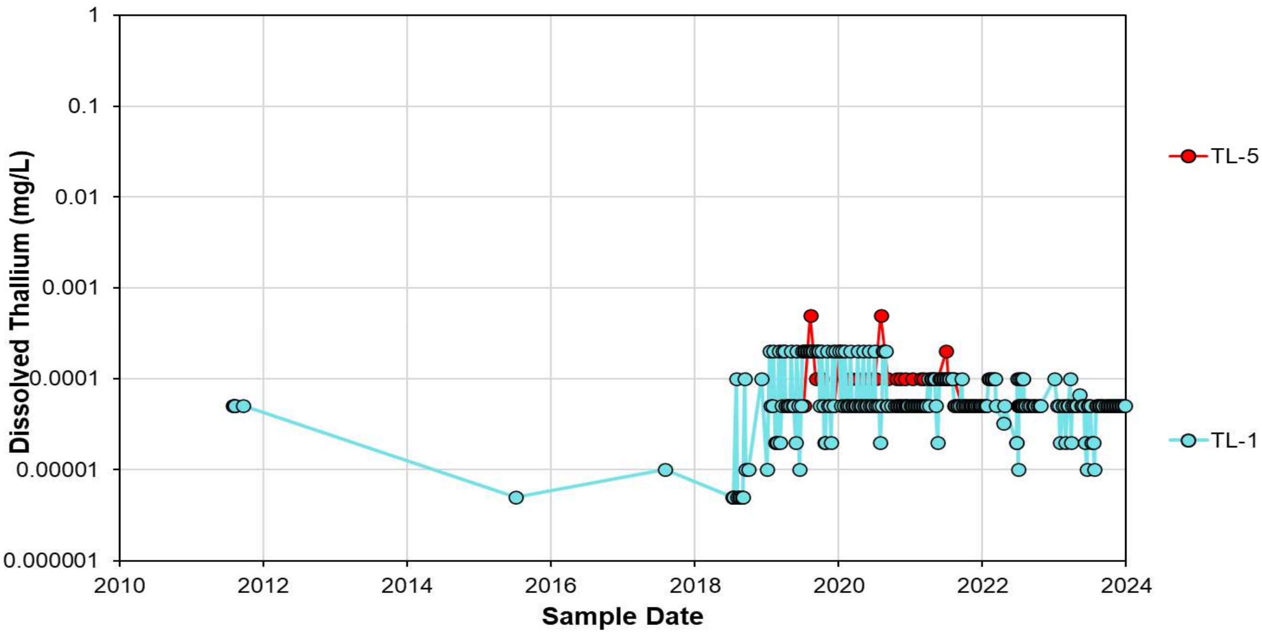

10
1
0.1
0.01
0.001
Dissolved Strontium (mg/L)
2010
2012
2014
2016
2018
2020
2022
2024
Sample Date
TL-5
TL-1

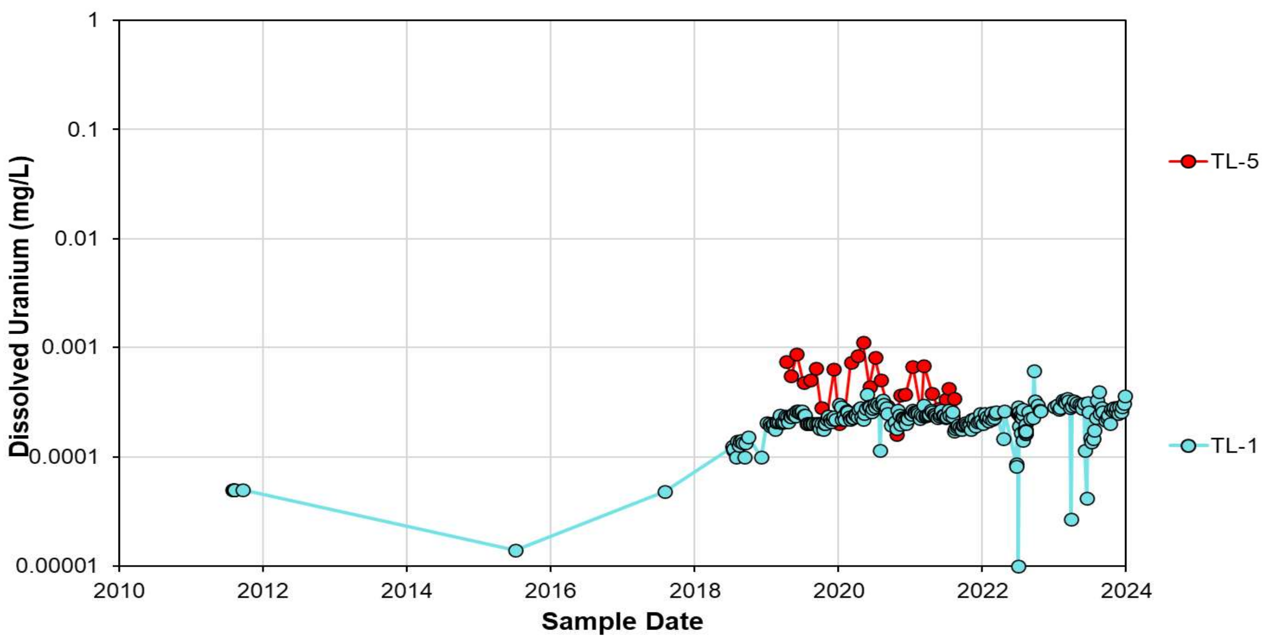


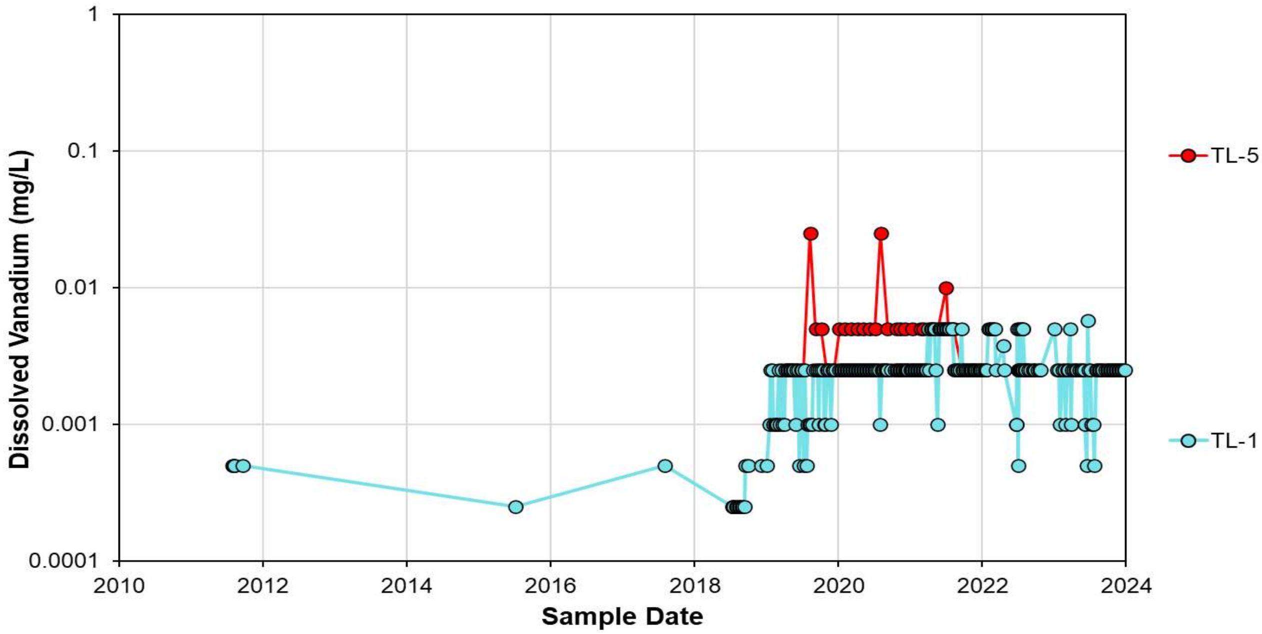
1
0.1
0.01
0.001
0.0001
0.00001
Dissolved Thorium (mg/L)
2010
2012
2014
2016
2018
2020
2022
2024
Sample Date
TL-5
TL-1

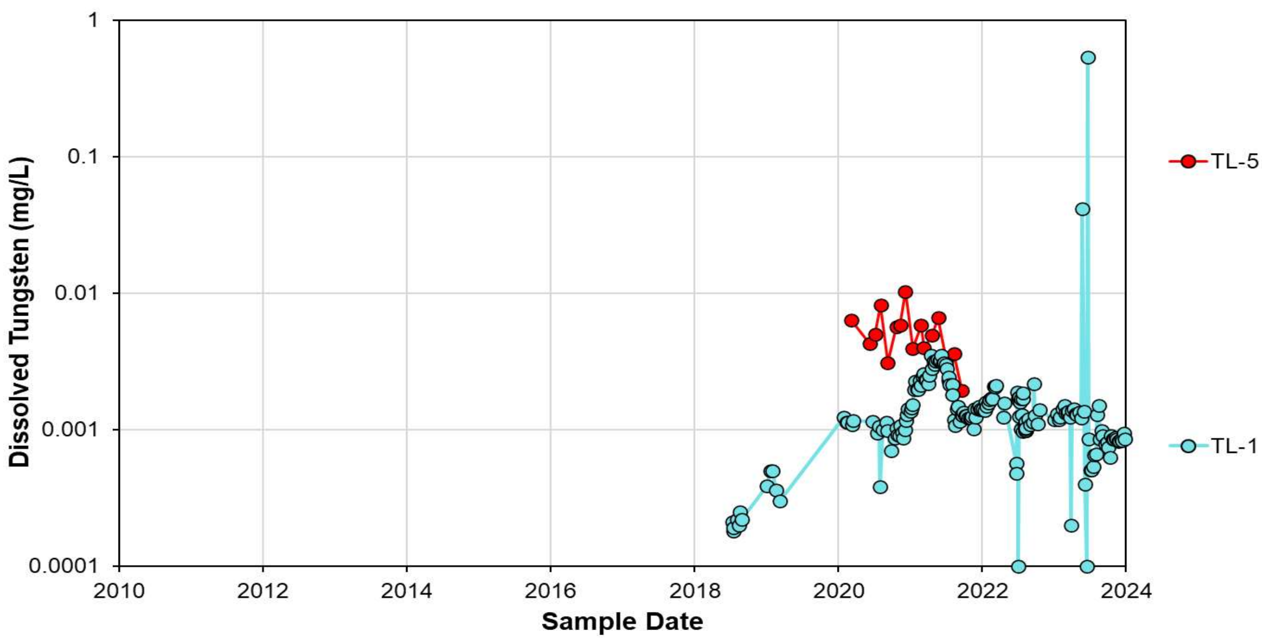


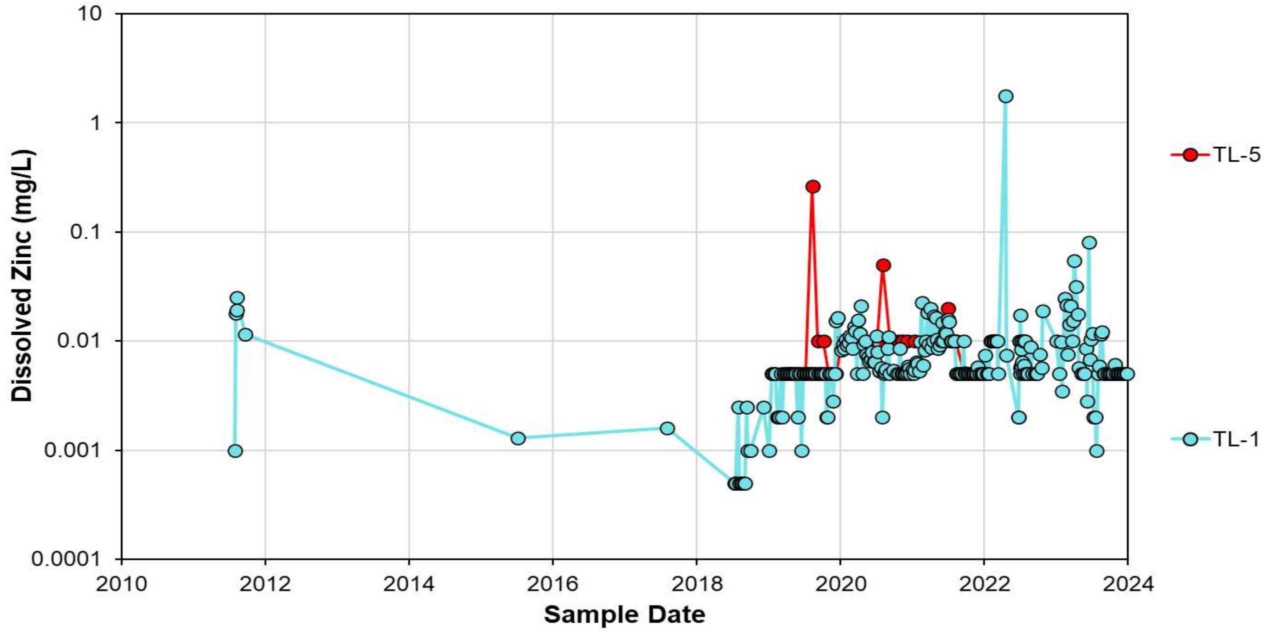
1
0.1
0.01
0.001
0.0001
Dissolved Titanium (mg/L)
2010
2012
2014
2016
2018
2020
2022
2024
Sample Date
TL-5
TL-1


1
0.1
0.01
0.001
0.0001
0.00001
0.000001
Dissolved Thallium (mg/L)
2010
2012
2014
2016
2018
2020
2022
2024
Sample Date
TL-5
TL-1


1
0.1
0.01
0.001
0.0001
0.00001
Dissolved Uranium (mg/L)
2010
2012
2014
2016
2018
2020
2022
2024
Sample Date
TL-5
TL-1


Dissolved Vanadium (mg/L)
1
0.1
0.01
0.001
0.0001
2010
2012
2014
2016
2018
2020
2022
2024
Sample Date
TL-5
TL-1


Dissolved Tungsten (mg/L)
1
0.1
0.01
0.001
0.0001
2010
2012
2014
2016
2018
2020
2022
2024
Sample Date
TL-5
TL-1


10
1
0.1
0.01
0.001
0.0001
Dissolved Zinc (mg/L)
2010
2012
2014
2016
2018
2020
2022
2024
Sample Date
TL-5
TL-1

Appendix E Waste Rock, Ore, and Tailings Weathering Rates Used to Calculate Source Terms

Appendix E: Waste Rock and Ore Weathering Rate Inputs

Material	Grouping	Case	SO4	Alk	F	Cl	NO2	NO3	NH3	Total CN	Free CN	WAD CN	CNO	SCN	Al	Sb	As	Ba	Be	B
	--	Base Case	3.1	10	0.0051	1.1	0.0028	0.088	0.05	0	0	0	0	0	0.0036	0.000026	0.00011	0.00016	4.5E-06	0.023
Doris Ore	--	Upper Case	5.2	11	0.0071	1.3	0.019	0.15	0.083	0	0	0	0	0	0.0054	0.000049	0.00049	0.00025	4.8E-06	0.024
	Group 1	Base Case	25	8.7	0.0045	0.28	0.0023	0.048	0.11	0	0	0	0	0	0.003	0.000061	0.0067	0.00013	4.5E-06	0.023
	Group 2		10	9.3	0.0046	0.23	0.0033	0.0091	0.04	0	0	0	0	0	0.025	0.00039	0.077	0.00011	4.6E-06	0.023
	Overall		23	36	0.0045	0.27	0.0024	0.043	0.1	0	0	0	0	0	0.0058	0.0001	0.016	0.00013	4.5E-06	0.023
	Group 1	Upper Case	25	8.7	0.0045	0.28	0.0023	0.048	0.11	0	0	0	0	0	0.003	0.000061	0.0067	0.00013	4.5E-06	0.023
	Group 2		10	9.3	0.0046	0.23	0.0033	0.0091	0.04	0	0	0	0	0	0.025	0.00039	0.077	0.00011	4.6E-06	0.023
Madrid North Ore	Overall		23	36	0.0045	0.27	0.0024	0.043	0.1	0	0	0	0	0	0.0058	0.0001	0.016	0.00013	4.5E-06	0.023
	Group 1	Base Case	25	8.7	0.0045	0.28	0.0023	0.048	0.11	0	0	0	0	0	0.003	0.000061	0.0067	0.00013	4.5E-06	0.023
	Group 2		10	9.3	0.0046	0.23	0.0033	0.0091	0.04	0	0	0	0	0	0.025	0.00039	0.077	0.00011	4.6E-06	0.023
	Overall		23	36	0.0045	0.27	0.0024	0.043	0.1	0	0	0	0	0	0.0057	0.0001	0.015	0.00013	4.5E-06	0.023
	Group 1	Upper Case	25	8.7	0.0045	0.28	0.0023	0.048	0.11	0	0	0	0	0	0.003	0.000061	0.0067	0.00013	4.5E-06	0.023
	Group 2		10	9.3	0.0046	0.23	0.0033	0.0091	0.04	0	0	0	0	0	0.025	0.00039	0.077	0.00011	4.6E-06	0.023
Patch 7 Ore	Overall		23	36	0.0045	0.27	0.0024	0.043	0.1	0	0	0	0	0	0.0057	0.0001	0.015	0.00013	4.5E-06	0.023
	--	Base Case	10	9.3	0.0046	0.23	0.0033	0.0091	0.04	0	0	0	0	0	0.025	0.00039	0.077	0.00011	4.6E-06	0.023
Madrid South Ore	--	Upper Case	10	9.3	0.0046	0.23	0.0033	0.0091	0.04	0	0	0	0	0	0.025	0.00039	0.077	0.00011	4.6E-06	0.023
	--	Base Case	0.82	12	0.0078	0.6	0.0023	0.014	0.058	0	0	0	0	0	0.026	0.000028	0.0003	0.00017	0.00001	0.022
Doris Waste Rock	--	Upper Case	1.9	15	0.016	2	0.063	0.16	0.1	0	0	0	0	0	0.063	0.000084	0.0015	0.00024	0.000034	0.024
	Group 1	Base Case	5.9	7.7	0.0046	0.36	0.0023	0.0092	0.061	0	0	0	0	0	0.011	0.00075	0.084	0.00026	4.6E-06	0.023
	Group 2		1.2	9	0.0075	0.33	0.0023	0.013	0.068	0	0	0	0	0	0.025	0.0001	0.007	0.00017	7.9E-06	0.022
	Overall		4.3	13	0.0056	0.35	0.0023	0.011	0.064	0	0	0	0	0	0.016	0.00053	0.057	0.00023	5.7E-06	0.023
	Group 1	Upper Case	9.8	8	0.0079	0.54	0.0023	0.0093	0.068	0	0	0	0	0	0.013	0.0012	0.18	0.0007	4.6E-06	0.023
	Group 2		2.3	11	0.014	1.1	0.0097	0.074	0.11	0	0	0	0	0	0.043	0.001	0.18	0.00028	0.00003	0.024
Madrid North Waste Rock	Overall		7.2	17	0.01	0.73	0.0048	0.031	0.082	0	0	0	0	0	0.024	0.0011	0.18	0.00056	0.000013	0.024
	Group 1	Base Case	3.2	7.3	0.0046	0.3	0.0023	0.0092	0.054	0	0	0	0	0	0.012	0.00069	0.053	0.0002	4.6E-06	0.023
	Group 2		1.8	9.4	0.0078	0.46	0.0024	0.022	0.086	0	0	0	0	0	0.02	0.00025	0.027	0.0002	0.000011	0.023
	Overall		2.5	11	0.0062	0.38	0.0024	0.015	0.069	0	0	0	0	0	0.016	0.00048	0.04	0.0002	7.5E-06	0.023
	Group 1	Upper Case	5.7	7.6	0.0082	0.45	0.0023	0.0093	0.06	0	0	0	0	0	0.014	0.0011	0.14	0.00065	4.6E-06	0.023
	Group 2		2.9	11	0.014	1	0.0068	0.065	0.13	0	0	0	0	0	0.03	0.00088	0.13	0.0003	0.000029	0.024
Patch 7 Waste Rock	Overall		4.3	13	0.011	0.73	0.0045	0.036	0.092	0	0	0	0	0	0.022	0.00098	0.13	0.00048	0.000016	0.024
	--	Base Case	1	9.4	0.0056	0.32	0.0023	0.0097	0.078	0	0	0	0	0	0.018	0.00028	0.0025	0.00034	4.5E-06	0.023
Madrid South Waste Rock	--	Upper Case	19	11	0.007	2.1	0.0032	0.015	0.13	0	0	0	0	0	0.03	0.00046	0.089	0.007	4.6E-06	0.025

Appendix E: Waste Rock and Ore Weathering Rate Inputs

Material	Grouping	Case	Cd	Ca	Cr	Co	Cu	Fe	Pb	Li	Mg	Mn	Hg	Mo	Ni	P	K	Se	Ag
	--	Base Case	2.4E-06	3.1	0.000049	0.000022	0.00018	0.00099	0.000014	0.00023	1.4	0.0022	4.1E-06	0.00011	0.000051	0.0025	0.12	0.000027	2.4E-06
Doris Ore	--	Upper Case	2.4E-06	3.7	0.000052	0.0001	0.0002	0.0018	0.000021	0.00024	2	0.0041	5.3E-06	0.00013	0.000094	0.0033	0.12	0.000029	2.4E-06
	Group 1		3.8E-06	8.7	0.000045	0.0003	0.00016	0.0042	0.000054	0.00023	4.6	0.002	9E-07	0.0003	0.0021	0.0032	0.13	0.000071	2.3E-06
	Group 2		2.3E-06	3.4	0.000069	0.00055	0.00024	0.0047	8.3E-06	0.00025	1.8	0.0039	2.6E-06	0.00018	0.00089	0.0026	0.15	0.000065	2.3E-06
	Overall	Base Case	3.6E-06	8.1	0.000048	0.00033	0.00017	0.0042	0.000049	0.00023	4.2	0.0022	1.1E-06	0.00028	0.002	0.0031	0.13	0.00007	2.3E-06
	Group 1		3.8E-06	8.7	0.000045	0.0003	0.00016	0.0042	0.000054	0.00023	4.6	0.002	9E-07	0.0003	0.0021	0.0032	0.13	0.000071	2.3E-06
	Group 2		2.3E-06	3.4	0.000069	0.00055	0.00024	0.0047	8.3E-06	0.00025	1.8	0.0039	2.6E-06	0.00018	0.00089	0.0026	0.15	0.000065	2.3E-06
Madrid North Ore	Overall	Upper Case	3.6E-06	8.1	0.000048	0.00033	0.00017	0.0042	0.000049	0.00023	4.2	0.0022	1.1E-06	0.00028	0.002	0.0031	0.13	0.00007	2.3E-06
	Group 1		3.8E-06	8.7	0.000045	0.0003	0.00016	0.0042	0.000054	0.00023	4.6	0.002	9E-07	0.0003	0.0021	0.0032	0.13	0.000071	2.3E-06
	Group 2		2.3E-06	3.4	0.000069	0.00055	0.00024	0.0047	8.3E-06	0.00025	1.8	0.0039	2.6E-06	0.00018	0.00089	0.0026	0.15	0.000065	2.3E-06
	Overall	Base Case	3.6E-06	8.1	0.000048	0.00033	0.00017	0.0042	0.000049	0.00023	4.2	0.0022	1.1E-06	0.00028	0.002	0.0031	0.13	0.00007	2.3E-06
	Group 1		3.8E-06	8.7	0.000045	0.0003	0.00016	0.0042	0.000054	0.00023	4.6	0.002	9E-07	0.0003	0.0021	0.0032	0.13	0.000071	2.3E-06
	Group 2		2.3E-06	3.4	0.000069	0.00055	0.00024	0.0047	8.3E-06	0.00025	1.8	0.0039	2.6E-06	0.00018	0.00089	0.0026	0.15	0.000065	2.3E-06
Patch 7 Ore	Overall	Upper Case	3.6E-06	8.1	0.000048	0.00033	0.00017	0.0042	0.000049	0.00023	4.2	0.0022	1.1E-06	0.00028	0.002	0.0031	0.13	0.00007	2.3E-06
	--	Base Case	2.3E-06	3.4	0.000069	0.00055	0.00024	0.0047	8.3E-06	0.00025	1.8	0.0039	2.6E-06	0.00018	0.00089	0.0026	0.15	0.000065	2.3E-06
Madrid South Ore	--	Upper Case	2.3E-06	3.4	0.000069	0.00055	0.00024	0.0047	8.3E-06	0.00025	1.8	0.0039	2.6E-06	0.00018	0.00089	0.0026	0.15	0.000065	2.3E-06
	--	Base Case	2.7E-06	2.9	0.000056	0.000017	0.00021	0.0036	0.000018	0.00024	1.4	0.0043	5.9E-06	0.000057	0.000037	0.0033	0.2	0.000033	4.4E-06
Doris Waste Rock	--	Upper Case	6.3E-06	3.5	0.000072	0.000096	0.0003	0.016	0.000049	0.00041	2.1	0.0079	7.9E-06	0.00014	0.00028	0.0054	0.5	0.000057	0.000011
	Group 1		2.4E-06	3.2	0.000063	0.00035	0.0002	0.0045	0.000026	0.00024	1.5	0.0029	3.6E-06	0.00039	0.0023	0.0026	0.16	0.000099	2.3E-06
	Group 2		2.6E-06	2.3	0.000068	0.000073	0.00026	0.005	0.000022	0.00035	0.94	0.0021	4.9E-06	0.00014	0.00011	0.003	0.22	0.000056	3.6E-06
	Overall	Base Case	2.5E-06	2.9	0.000065	0.00025	0.00022	0.0047	0.000025	0.00028	1.3	0.0026	4.1E-06	0.0003	0.0016	0.0028	0.18	0.000084	2.7E-06
	Group 1		2.5E-06	4.3	0.000065	0.00062	0.0004	0.0048	0.000032	0.00034	1.9	0.0043	5.6E-06	0.00062	0.0041	0.0028	0.21	0.00014	2.3E-06
	Group 2		0.000007	3.1	0.00009	0.00054	0.00039	0.0082	0.000043	0.00061	1.5	0.003	7.2E-06	0.00082	0.00069	0.0051	0.51	0.00012	9.7E-06
Madrid North Waste Rock	Overall	Upper Case	4.1E-06	3.9	0.000074	0.00059	0.00039	0.006	0.000036	0.00043	1.7	0.0038	6.1E-06	0.00069	0.0029	0.0036	0.32	0.00013	4.8E-06
	Group 1		2.4E-06	2.3	0.000065	0.00026	0.00019	0.0045	0.000021	0.00024	1.2	0.0029	3.9E-06	0.00037	0.0011	0.0025	0.16	0.00009	2.3E-06
	Group 2		0.000003	2.4	0.000068	0.00024	0.00031	0.0048	0.000023	0.00037	1.2	0.0023	5.5E-06	0.00032	0.00023	0.0035	0.37	0.000068	4.3E-06
	Overall	Base Case	2.7E-06	2.4	0.000067	0.00025	0.00025	0.0047	0.000022	0.0003	1.2	0.0026	4.7E-06	0.00035	0.0007	0.003	0.27	0.000079	3.3E-06
	Group 1		2.4E-06	3	0.000067	0.00051	0.00039	0.0049	0.000026	0.00035	1.4	0.0044	6.1E-06	0.0006	0.0022	0.0027	0.22	0.00013	2.3E-06
	Group 2		6.3E-06	2.9	0.000083	0.00056	0.00044	0.0067	0.000036	0.00059	1.6	0.003	7.2E-06	0.00071	0.0006	0.0049	0.59	0.00011	9.5E-06
Patch 7 Waste Rock	Overall	Upper Case	4.3E-06	3	0.000075	0.00053	0.00042	0.0058	0.000031	0.00046	1.5	0.0037	6.6E-06	0.00065	0.0015	0.0038	0.4	0.00012	5.8E-06
	--	Base Case	2.3E-06	2.4	0.000045	0.000028	0.0003	0.0013	0.000024	0.00025	1.2	0.0023	9.1E-07	0.000081	0.00005	0.0018	0.26	0.000046	2.3E-06
Madrid South Waste Rock	--	Upper Case	2.5E-06	20	0.000046	0.001	0.00043	0.0019	0.000029	0.00042	1.8	0.006	1.1E-06	0.00032	0.00069	0.002	0.55	0.000086	2.5E-06

Appendix E: Waste Rock and Ore Weathering Rate Inputs

Na	Material	Grouping	Case	Tl	U	V	Zn
0.042	Doris Ore	--	Base Case	9.3E-07	1.9E-06	0.000099	0.00047
0.047		--	Upper Case	0.000001	4.5E-06	0.0001	0.00062
0.09	Madrid North Ore	Group 1	Base Case	0.000003	3.7E-06	0.0001	0.00033
0.082		Group 2		9.9E-07	2.2E-06	0.00018	0.0019
0.089		Overall		2.8E-06	3.5E-06	0.00011	0.00052
0.09		Group 1	Upper Case	0.000003	3.7E-06	0.0001	0.00033
0.082		Group 2		9.9E-07	2.2E-06	0.00018	0.0019
0.089		Overall		2.8E-06	3.5E-06	0.00011	0.00052
0.09	Patch 7 Ore	Group 1	Base Case	0.000003	3.7E-06	0.0001	0.00033
0.082		Group 2		9.9E-07	2.2E-06	0.00018	0.0019
0.089		Overall		2.8E-06	3.5E-06	0.00011	0.00052
0.09		Group 1	Upper Case	0.000003	3.7E-06	0.0001	0.00033
0.082		Group 2		9.9E-07	2.2E-06	0.00018	0.0019
0.089		Overall		2.8E-06	3.5E-06	0.00011	0.00052
0.082	Madrid South Ore	--	Base Case	9.9E-07	2.2E-06	0.00018	0.0019
0.082		--	Upper Case	9.9E-07	2.2E-06	0.00018	0.0019
0.15	Doris Waste Rock	--	Base Case	0.000002	4.1E-06	0.000093	0.00027
2.2		--	Upper Case	4.9E-06	0.000017	0.0016	0.00052
0.11	Madrid North Waste Rock	Group 1	Base Case	6.6E-06	7.3E-06	0.00037	0.0016
0.14		Group 2		2.8E-06	9.1E-06	0.00041	0.00094
0.12		Overall		5.3E-06	7.9E-06	0.00039	0.0014
0.48		Group 1	Upper Case	0.000012	0.000011	0.00055	0.0016
0.71		Group 2		5.5E-06	0.000018	0.00091	0.0018
0.56		Overall		9.9E-06	0.000013	0.00067	0.0017
0.12	Patch 7 Waste Rock	Group 1	Base Case	2.5E-06	7.2E-06	0.0004	0.0017
0.14		Group 2		2.6E-06	0.000015	0.00031	0.0014
0.13		Overall		2.5E-06	0.000011	0.00036	0.0016
0.52		Group 1	Upper Case	6.2E-06	0.000011	0.00059	0.0017
0.47		Group 2		4.9E-06	0.000021	0.0006	0.0018
0.5		Overall		5.6E-06	0.000015	0.00059	0.0018
0.12	Madrid South Waste Rock	--	Base Case	9.3E-07	1.7E-06	0.00012	0.00033
0.62		--	Upper Case	1.8E-06	0.000089	0.00024	0.00047

Appendix E: Tailings Weathering Rate Inputs

Material	Case	SO4	Alk	F	Cl	NO2	NO3	NH3	Total CN	Free CN	WAD CN	CNO	SCN	Al	Sb	As	Ba
Doris Flotation Tailings	Base Case	4.8	25	0.0073	0.37	0.0033	0.046	0.081	0	0	0	0	0	0.016	0.00011	0.0027	0.0018
	Upper Case	4.9	34	0.013	0.42	0.0035	0.054	0.12	0	0	0	0	0	0.026	0.00014	0.015	0.0021
Doris Mixed Tailings	Base Case	15	15	0.0052	0.28	0.0023	0.023	0.082	0.0024	0.0026	0.0024	1.2	0.21	0.013	0.000032	0.001	0.00076
	Upper Case	52	40	0.0087	0.43	0.0026	0.027	0.09	0.0083	0.0086	0.0083	1.9	1.4	0.022	0.00076	0.0022	0.037
Doris Detox Tailings	Base Case	300	22	0.011	0.28	0.0023	0.0094	0.07	0.0071	0.007	0.007	0.26	0.27	0.03	0.000037	0.00052	0.0056
	Upper Case	300	29	0.015	0.33	0.0023	0.0095	0.095	0.011	0.011	0.011	0.44	0.46	0.055	0.000054	0.00091	0.0067
Madrid North Mixed / Combined Detoxified Tailings	Base Case	140	52	0.005	1	0.071	0.15	0.077	0.059	0.0099	0.0073	0.29	0.13	0.0067	0.0011	0.037	0.006
	Upper Case	200	59	0.005	1	0.13	0.26	0.078	0.094	0.0099	0.0097	0.5	0.2	0.0084	0.0019	0.065	0.0069
Madrid South Mixed Tailings	Base Case	12	34	0.0052	0.45	0.0026	0.01	0.078	0.01	0.01	0.01	0.052	0.052	0.0022	0.00029	0.0031	0.00032
	Upper Case	12	34	0.0052	0.45	0.0026	0.01	0.078	0.01	0.01	0.01	0.052	0.052	0.0022	0.00029	0.0031	0.00032

Appendix E: Tailings Weathering Rate Inputs

Material	Case	Be	B	Cd	Ca	Co	Cu	Fe	Pb	Li	Mg	Mn	Hg	Mo	Ni	P
Doris Flotation Tailings	Base Case	0.0000062	0.023	0.0000054	6.1	0.000062	0.0009	0.0053	0.000028	0.00048	2.7	0.016	1.9E-06	0.00068	4.1E-07	0.0046
	Upper Case	0.000022	0.03	0.000022	7.8	0.00067	0.0046	0.009	0.00049	0.006	3.9	0.021	0.0022	0.0027	0.0002	0.0091
Doris Mixed Tailings	Base Case	0.0000049	0.025	0.0000042	8.9	0.00012	0.00065	0.015	0.000042	0.00088	6.1	0.016	1.1E-06	0.00038	0.00018	0.0027
	Upper Case	0.00075	0.041	0.00017	16	0.00077	0.0012	0.05	0.00076	0.0048	8	0.039	0.000015	0.00092	0.00079	0.11
Doris Detox Tailings	Base Case	0.000006	0.03	0.00022	80	0.0057	0.0013	0.15	0.00019	0.011	27	0.32	9.5E-07	0.000068	0.0043	0.0069
	Upper Case	0.0000072	0.036	0.00036	96	0.0071	0.0023	0.28	0.00034	0.018	38	0.53	9.6E-07	0.00009	0.0057	0.0078
Madrid North Mixed / Combined Detoxified Tailings	Base Case	0.00001	0.017	0.000016	37	0.006	0.00062	0.067	0.00005	0.0016	30	0.021	0.006	0.0034	0.015	0.0032
	Upper Case	0.000014	0.024	0.000028	60	0.011	0.00089	0.12	0.000089	0.0016	30	0.039	0.011	0.0035	0.027	0.0036
Madrid South Mixed Tailings	Base Case	0.0000045	0.023	0.0000028	8.5	0.0002	0.00034	0.0038	8.1E-06	0.00023	6.8	0.0052	1.3E-06	0.00043	0.00068	0.0033
	Upper Case	0.0000045	0.023	0.0000028	8.5	0.0002	0.00034	0.0038	8.1E-06	0.00023	6.8	0.0052	1.3E-06	0.00043	0.00068	0.0033

Appendix E: Tailings Weathering Rate Inputs

Material	Case	K	Se	Ag	Na	Tl	U	V	Zn
Doris Flotation Tailings	Base Case	0.21	0.00013	3.1E-06	0.16	4.8E-06	0.0000096	0.00048	0.00033
	Upper Case	2.5	0.00029	0.000022	0.66	5.5E-06	0.000017	0.00055	0.00096
Doris Mixed Tailings	Base Case	0.3	0.0001	2.5E-06	0.13	6.7E-06	0.0000072	0.00013	0.001
	Upper Case	0.61	0.0014	0.00019	0.29	0.000077	0.00038	0.00077	0.004
Doris Detox Tailings	Base Case	1.7	0.0062	3.3E-06	2.2	0.000041	0.000027	0.00013	0.015
	Upper Case	3	0.011	4.2E-06	4	0.000066	0.000047	0.00016	0.02
Madrid North Mixed / Combined Detoxified Tailings	Base Case	0.81	0.00037	0.000034	4.2	7.6E-06	0.000033	0.000086	0.0019
	Upper Case	0.82	0.0006	0.000063	7.8	0.000011	0.000056	0.000098	0.0034
Madrid South Mixed Tailings	Base Case	0.13	0.00023	2.3E-06	0.07	3.3E-06	0.0000035	0.000091	0.00093
	Upper Case	0.13	0.00023	2.3E-06	0.07	3.3E-06	0.0000035	0.000091	0.00093

Appendix F Complete Base Case Source Term Results

Term	Source	Phase	Year	Notes	Units	Reporting Detail
1	Doris Pad T Ore Pile	Operations	Max	Apply to whole footprint	mg/L	Single Dissolved
2	Doris Waste Rock Stockpile #1 (West)	Operations	Max	Apply to whole footprint	mg/L	Single Dissolved
3	Doris Waste Rock Stockpile #2 (Pad U)	Operations	Max	Apply to whole footprint	mg/L	Single Dissolved
4	Doris Waste Rock Stockpile #2 (Pad U) - Closure	Closure	2046 onwards	Apply to whole footprint	mg/L	Single Dissolved
5	Doris Overburden Stockpile	Operations	Max	Apply to whole footprint	mg/L	Single Dissolved
6	Doris UG Mine Area	Operations	2024	Apply to yearly inflow values	mg/L	Annual Dissolved
6	Doris UG Mine Area	Operations	2025	Apply to yearly inflow values	mg/L	Annual Dissolved
6	Doris UG Mine Area	Operations	2026	Apply to yearly inflow values	mg/L	Annual Dissolved
6	Doris UG Mine Area	Operations	2027	Apply to yearly inflow values	mg/L	Annual Dissolved
6	Doris UG Mine Area	Operations	2028	Apply to yearly inflow values	mg/L	Annual Dissolved
6	Doris UG Mine Area	Operations	2029	Apply to yearly inflow values	mg/L	Annual Dissolved
6	Doris UG Mine Area	Operations	2030	Apply to yearly inflow values	mg/L	Annual Dissolved
6	Doris UG Mine Area	Operations	2031	Apply to yearly inflow values	mg/L	Annual Dissolved
6	Doris UG Mine Area	Operations	2032	Apply to yearly inflow values	mg/L	Annual Dissolved
6	Doris UG Mine Area	Operations	2036	Apply to yearly inflow values	mg/L	Annual Dissolved
6	Doris UG Mine Area	Operations	2037	Apply to yearly inflow values	mg/L	Annual Dissolved
6	Doris UG Mine Area	Operations	**2038**	Apply to yearly inflow values	mg/L	Annual Dissolved
7	Doris UG Mine Area - Reflooding	Closure	When inundated	Apply to yearly inflow values	mg/L	Single Dissolved
8	Madrid North Waste Rock Stockpile #1 (South, Existing)	Operations	Max	Apply to whole footprint	mg/L	Single Dissolved
9	Madrid North Waste Rock Stockpile #2 (North)	Operations	Max	Apply to whole footprint	mg/L	Single Dissolved
10	Madrid North Ore Pile	Operations	Max	Apply to whole footprint	mg/L	Single Dissolved
11	Patch 7 Waste Rock Stockpile	Operations	Max	Apply to whole footprint	mg/L	Single Dissolved
12	Patch 7 Ore Pile	Operations	Max	Apply to whole footprint	mg/L	Single Dissolved
13	Madrid South Waste Rock Stockpile	Operations	Max	Apply to whole footprint	mg/L	Single Dissolved
14	Madrid South Waste Rock Stockpile - Closure	Closure	2046 onwards	Apply to whole footprint	mg/L	Single Dissolved
15	Madrid South Ore Pile	Operations	Max	Apply to whole footprint	mg/L	Single Dissolved
16	Naartok East CPR Trench	Operations	Max	Apply to outflows	mg/L	Single Dissolved
17	Madrid Overburden Stockpiles - Saline Seepage	Operations	Until reclaimed	Apply to whole footprint	mg/L	Single Dissolved
18	Madrid Overburden Stockpiles - Non-Saline Seepage - Closure	Closure	After reclamation	Apply to whole footprint	mg/L	Single Dissolved
19	Madrid North UG Mine Area	Operations	2024	Apply to yearly inflow values	mg/L	Annual Dissolved
19	Madrid North UG Mine Area	Operations	2025	Apply to yearly inflow values	mg/L	Annual Dissolved
19	Madrid North UG Mine Area	Operations	2026	Apply to yearly inflow values	mg/L	Annual Dissolved
19	Madrid North UG Mine Area	Operations	2027	Apply to yearly inflow values	mg/L	Annual Dissolved
19	Madrid North UG Mine Area	Operations	2028	Apply to yearly inflow values	mg/L	Annual Dissolved
19	Madrid North UG Mine Area	Operations	2029	Apply to yearly inflow values	mg/L	Annual Dissolved
19	Madrid North UG Mine Area	Operations	2030	Apply to yearly inflow values	mg/L	Annual Dissolved
19	Madrid North UG Mine Area	Operations	2031	Apply to yearly inflow values	mg/L	Annual Dissolved
19	Madrid North UG Mine Area	Operations	2032	Apply to yearly inflow values	mg/L	Annual Dissolved
19	Madrid North UG Mine Area	Operations	2033	Apply to yearly inflow values	mg/L	Annual Dissolved
19	Madrid North UG Mine Area	Operations	2034	Apply to yearly inflow values	mg/L	Annual Dissolved
19	Madrid North UG Mine Area	Operations	2035	Apply to yearly inflow values	mg/L	Annual Dissolved
19	Madrid North UG Mine Area	Operations	2036	Apply to yearly inflow values	mg/L	Annual Dissolved
19	Madrid North UG Mine Area	Operations	2037	Apply to yearly inflow values	mg/L	Annual Dissolved
19	Madrid North UG Mine Area	Operations	2038	Apply to yearly inflow values	mg/L	Annual Dissolved
19	Madrid North UG Mine Area	Operations	2039	Apply to yearly inflow values	mg/L	Annual Dissolved
19	Madrid North UG Mine Area	Operations	2040	Apply to yearly inflow values	mg/L	Annual Dissolved
19	Madrid North UG Mine Area	Operations	**2041**	Apply to yearly inflow values	mg/L	Annual Dissolved
20	Madrid North UG Mine Area - Reflooding	Closure	When inundated	Apply to yearly inflow values	mg/L	Single Dissolved
21	Patch 7 UG Mine Area	Operations	2024	Apply to yearly inflow values	mg/L	Annual Dissolved
21	Patch 7 UG Mine Area	Operations	2025	Apply to yearly inflow values	mg/L	Annual Dissolved
21	Patch 7 UG Mine Area	Operations	2026	Apply to yearly inflow values	mg/L	Annual Dissolved

Complete Base Case Source Term Results

Term	Source	SO4	Alk	Hardnes	F	Cl	NO2	NO3	NH3	Total CN	Free CN	WAD CN	CNO	SCN	Al	Sb	As
1	Doris Pad T Ore Pile	1800	430	0	1.4	180	0	0	0	0	0	0	0	0	0.064	0.024	3.3
2	Doris Waste Rock Stockpile #1 (West)	480	430	0	1.4	350	0	0	0	0	0	0	0	0	0.064	0.016	0.17
3	Doris Waste Rock Stockpile #2 (Pad U)	590	430	0	1.4	440	0	0	0	0	0	0	0	0	0.064	0.021	0.22
4	Doris Waste Rock Stockpile #2 (Pad U) - Closure	320	430	0	1.4	230	0	0	0	0	0	0	0	0	0.064	0.011	0.12
5	Doris Overburden Stockpile	13	65	0	0.034	26	0	0	0	0	0	0	0	0	0.048	0.0001	0.0018
6	Doris UG Mine Area	150	21	190	0.012	0.65	0	0	0	0.0036	0.0035	0.0035	0.13	0.14	0.037	4E-05	0.0005
6	Doris UG Mine Area	150	21	190	0.012	0.64	0	0	0	0.0036	0.0035	0.0035	0.13	0.13	0.036	4E-05	0.0005
6	Doris UG Mine Area	140	20	180	0.011	0.6	0	0	0	0.0033	0.0033	0.0033	0.12	0.13	0.034	4E-05	0.0005
6	Doris UG Mine Area	130	18	170	0.011	0.56	0	0	0	0.0031	0.003	0.003	0.11	0.12	0.032	4E-05	0.0005
6	Doris UG Mine Area	130	18	160	0.011	0.55	0	0	0	0.003	0.003	0.003	0.11	0.11	0.032	4E-05	0.0005
6	Doris UG Mine Area	120	18	150	0.011	0.58	0	0	0	0.0029	0.0028	0.0028	0.11	0.11	0.032	4E-05	0.0005
6	Doris UG Mine Area	110	18	140	0.011	0.6	0	0	0	0.0026	0.0026	0.0026	0.097	0.099	0.032	4E-05	0.0005
6	Doris UG Mine Area	110	19	140	0.011	0.65	0	0	0	0.0026	0.0025	0.0025	0.095	0.098	0.035	4E-05	0.0005
6	Doris UG Mine Area	110	20	140	0.012	0.71	0	0	0	0.0026	0.0025	0.0025	0.095	0.098	0.037	4E-05	0.0005
6	Doris UG Mine Area	110	22	150	0.014	0.83	0	0	0	0.0026	0.0025	0.0025	0.095	0.098	0.043	5E-05	0.0006
6	Doris UG Mine Area	110	22	150	0.014	0.84	0	0	0	0.0026	0.0025	0.0025	0.095	0.098	0.043	5E-05	0.0006
6	Doris UG Mine Area	110	23	150	0.014	0.84	0	0	0	0.0026	0.0025	0.0025	0.095	0.098	0.043	5E-05	0.0006
7	Doris UG Mine Area - Reflooding	6900	800	6100	0.48	27	0	0	0	0.11	0.11	0.11	4.1	4.2	1.5	0.0017	0.021
8	Madrid North Waste Rock Stockpile #1 (South, Existing)	1800	430	2300	1.4	180	0	0	0	0	0	0	0	0	0.064	0.024	3.3
9	Madrid North Waste Rock Stockpile #2 (North)	1800	430	2300	1.4	460	0	0	0	0	0	0	0	0	0.064	0.024	3.3
10	Madrid North Ore Pile	1800	430	2300	1.4	210	0	0	0	0	0	0	0	0	0.064	0.024	3.3
11	Patch 7 Waste Rock Stockpile	1800	430	2300	1.4	320	0	0	0	0	0	0	0	0	0.064	0.024	3.3
12	Patch 7 Ore Pile	1800	430	2300	1.4	180	0	0	0	0	0	0	0	0	0.064	0.024	3.3
13	Madrid South Waste Rock Stockpile	590	430	2300	1.4	240	0	0	0	0	0	0	0	0	0.064	0.024	1.9
14	Madrid South Waste Rock Stockpile - Closure	570	430	2300	1.4	230	0	0	0	0	0	0	0	0	0.064	0.024	1.8
15	Madrid South Ore Pile	1800	430	2300	1.4	140	0	0	0	0	0	0	0	0	0.064	0.024	3.3
16	Naartok East CPR Trench	84	83	780	0	220	0	0	0	0.005	0.005	0.005	1	0.5	0.017	0.0036	0.25
17	Madrid Overburden Stockpiles - Saline Seepage	910	170	0	0.4	3200	0	0	0	0	0	0	0	0	0.02	0.0006	0.0022
18	Madrid Overburden Stockpiles - Non-Saline Seepage - Closure	5.4	74	0	0.037	13	0	0	0	0	0	0	0	0	0.023	0.0001	0.002
19	Madrid North UG Mine Area	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	Madrid North UG Mine Area	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	Madrid North UG Mine Area	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	Madrid North UG Mine Area	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	Madrid North UG Mine Area	3.9	7.3	12	0.005	0.32	0	0	0	0	0	0	0	0	0.014	0.0005	0.053
19	Madrid North UG Mine Area	6.7	13	20	0.0087	0.55	0	0	0	0	0	0	0	0	0.025	0.0008	0.091
19	Madrid North UG Mine Area	11	20	32	0.014	0.88	0	0	0	0	0	0	0	0	0.04	0.0013	0.15
19	Madrid North UG Mine Area	12	23	37	0.016	1	0	0	0	0	0	0	0	0	0.045	0.0015	0.17
19	Madrid North UG Mine Area	13	26	41	0.018	1.1	0	0	0	0	0	0	0	0	0.05	0.0017	0.18
19	Madrid North UG Mine Area	16	30	47	0.02	1.3	0	0	0	0	0	0	0	0	0.058	0.0019	0.21
19	Madrid North UG Mine Area	17	33	52	0.022	1.4	0	0	0	0	0	0	0	0	0.064	0.0021	0.23
19	Madrid North UG Mine Area	19	37	59	0.025	1.6	0	0	0	0	0	0	0	0	0.072	0.0024	0.27
19	Madrid North UG Mine Area	21	41	65	0.028	1.8	0	0	0	0	0	0	0	0	0.079	0.0026	0.29
19	Madrid North UG Mine Area	23	43	69	0.03	1.9	0	0	0	0	0	0	0	0	0.084	0.0028	0.31
19	Madrid North UG Mine Area	24	46	74	0.032	2	0	0	0	0	0	0	0	0	0.09	0.003	0.33
19	Madrid North UG Mine Area	25	48	77	0.033	2.1	0	0	0	0	0	0	0	0	0.094	0.0031	0.35
19	Madrid North UG Mine Area	27	51	81	0.035	2.2	0	0	0	0	0	0	0	0	0.098	0.0033	0.36
19	Madrid North UG Mine Area	27	52	82	0.035	2.2	0	0	0	0	0	0	0	0	0.098	0.0033	0.37
20	Madrid North UG Mine Area - Reflooding	740	1400	2200	0.96	61	0	0	0	0	0	0	0	0	2.7	0.091	10
21	Patch 7 UG Mine Area	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	Patch 7 UG Mine Area	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	Patch 7 UG Mine Area	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Complete Base Case Source Term Results

Term	Source	Ba	Be	B	Cd	Ca	Cr	Co	Cu	Fe	Pb	Li	Mg	Mn	Hg	Mo
1	Doris Pad T Ore Pile	0.067	0.001	1.5	0.0003	510	0.0069	0.043	0.021	2.2	0.0014	0.048	130	0.93	0.0001	0.023
2	Doris Waste Rock Stockpile #1 (West)	0.067	0.001	1.5	0.0003	510	0.0069	0.0098	0.021	2.1	0.0014	0.048	130	0.93	0.0001	0.023
3	Doris Waste Rock Stockpile #2 (Pad U)	0.067	0.001	1.5	0.0003	510	0.0069	0.012	0.021	2.2	0.0014	0.048	130	0.93	0.0001	0.023
4	Doris Waste Rock Stockpile #2 (Pad U) - Closure	0.064	0.001	1.5	0.0003	510	0.0069	0.0065	0.021	1.4	0.0014	0.048	130	0.93	0.0001	0.022
5	Doris Overburden Stockpile	0	0.0001	0.047	1E-05	16	0.0001	0.0001	0.015	0.023	5E-05	0	5.2	0.0061	1E-05	0.0004
6	Doris UG Mine Area	0.012	1E-05	0.17	0.0003	43	0.0002	0.0041	0.002	0.077	0.0001	0.0055	15	0.53	5E-06	9E-05
6	Doris UG Mine Area	0.012	1E-05	0.16	0.0003	43	0.0002	0.004	0.002	0.076	0.0001	0.0055	15	0.53	5E-06	9E-05
6	Doris UG Mine Area	0.011	1E-05	0.15	0.0003	40	0.0002	0.0038	0.0019	0.072	0.0001	0.0051	14	0.49	5E-06	8E-05
6	Doris UG Mine Area	0.01	1E-05	0.14	0.0003	37	0.0002	0.0035	0.0017	0.067	1E-04	0.0048	13	0.46	5E-06	8E-05
6	Doris UG Mine Area	0.01	1E-05	0.14	0.0003	36	0.0002	0.0034	0.0017	0.065	9E-05	0.0046	13	0.45	5E-06	7E-05
6	Doris UG Mine Area	0.01	1E-05	0.13	0.0003	35	0.0002	0.0033	0.0016	0.062	9E-05	0.0044	12	0.43	5E-06	8E-05
6	Doris UG Mine Area	0.0097	1E-05	0.13	0.0003	32	0.0002	0.0031	0.0015	0.057	8E-05	0.0041	11	0.4	5E-06	8E-05
6	Doris UG Mine Area	0.01	1E-05	0.13	0.0003	32	0.0002	0.0032	0.0015	0.057	8E-05	0.0041	11	0.4	6E-06	8E-05
6	Doris UG Mine Area	0.01	1E-05	0.13	0.0003	32	0.0002	0.0032	0.0015	0.057	9E-05	0.0041	11	0.41	6E-06	9E-05
6	Doris UG Mine Area	0.011	1E-05	0.13	0.0003	33	0.0002	0.0034	0.0016	0.058	9E-05	0.0041	12	0.42	7E-06	1E-04
6	Doris UG Mine Area	0.012	1E-05	0.13	0.0003	33	0.0002	0.0034	0.0016	0.058	9E-05	0.0041	12	0.42	8E-06	1E-04
6	Doris UG Mine Area	0.012	1E-05	0.13	0.0003	33	0.0002	0.0034	0.0016	0.058	9E-05	0.0041	12	0.42	8E-06	1E-04
7	Doris UG Mine Area - Reflooding	0.43	0.0005	5.4	0.12	1400	0.008	0.14	0.065	2.4	0.0036	0.17	490	17	0.0002	0.0034
8	Madrid North Waste Rock Stockpile #1 (South, Existing)	0.067	0.001	1.5	0.0003	510	0.0069	0.043	0.021	2.2	0.0014	0.048	130	0.93	0.0001	0.023
9	Madrid North Waste Rock Stockpile #2 (North)	0.067	0.001	1.5	0.0003	510	0.0069	0.043	0.021	2.2	0.0014	0.048	130	0.93	0.0001	0.023
10	Madrid North Ore Pile	0.067	0.001	1.5	0.0003	510	0.0069	0.043	0.021	2.2	0.0014	0.048	130	0.93	0.0001	0.023
11	Patch 7 Waste Rock Stockpile	0.067	0.001	1.5	0.0003	510	0.0069	0.043	0.021	2.2	0.0014	0.048	130	0.93	0.0001	0.023
12	Patch 7 Ore Pile	0.067	0.001	1.5	0.0003	510	0.0069	0.043	0.021	2.2	0.0014	0.048	130	0.93	0.0001	0.023
13	Madrid South Waste Rock Stockpile	0.067	0.001	1.5	0.0003	510	0.0069	0.021	0.021	0.97	0.0014	0.048	130	0.93	0.0001	0.023
14	Madrid South Waste Rock Stockpile - Closure	0.067	0.001	1.5	0.0003	510	0.0069	0.02	0.021	0.93	0.0014	0.048	130	0.93	0.0001	0.023
15	Madrid South Ore Pile	0.067	0.001	1.5	0.0003	510	0.0069	0.043	0.021	2.2	0.0014	0.048	130	0.93	0.0001	0.023
16	Naartok East CPR Trench	0	0.0001	0.47	4E-05	160	0.0005	0.017	0.0054	0.035	0.0002	0	86	0.19	5E-06	0.02
17	Madrid Overburden Stockpiles - Saline Seepage	0	0.0002	0.65	9E-05	250	0.0008	0.0041	0.0053	0.17	0.0004	0	280	1.3	5E-06	0.0054
18	Madrid Overburden Stockpiles - Non-Saline Seepage - Closure	0	0.0001	0.018	5E-06	24	0.0005	0.0003	0.0055	0.034	5E-05	0	3.7	0.036	1E-05	0.0004
19	Madrid North UG Mine Area	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	Madrid North UG Mine Area	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	Madrid North UG Mine Area	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	Madrid North UG Mine Area	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	Madrid North UG Mine Area	0.0006	5E-06	0.02	2E-06	2.6	6E-05	0.0013	0.0002	0.0042	2E-05	0.0003	1.2	0.0057	4E-06	0.0003
19	Madrid North UG Mine Area	0.001	9E-06	0.036	4E-06	4.5	0.0001	0.0022	0.0003	0.0073	4E-05	0.0004	2.1	0.0098	6E-06	0.0005
19	Madrid North UG Mine Area	0.0015	1E-05	0.057	6E-06	7.2	0.0002	0.0036	0.0005	0.012	6E-05	0.0007	3.3	0.016	1E-05	0.0008
19	Madrid North UG Mine Area	0.0017	2E-05	0.064	7E-06	8.2	0.0002	0.0041	0.0006	0.013	7E-05	0.0008	3.8	0.018	1E-05	0.0009
19	Madrid North UG Mine Area	0.0019	2E-05	0.071	8E-06	9.1	0.0002	0.0045	0.0007	0.015	8E-05	0.0009	4.2	0.02	1E-05	0.001
19	Madrid North UG Mine Area	0.0022	2E-05	0.083	9E-06	11	0.0002	0.0052	0.0008	0.017	9E-05	0.001	4.8	0.023	2E-05	0.0011
19	Madrid North UG Mine Area	0.0025	2E-05	0.091	1E-05	12	0.0003	0.0058	0.0009	0.019	1E-04	0.0011	5.3	0.025	2E-05	0.0012
19	Madrid North UG Mine Area	0.0028	3E-05	0.1	1E-05	13	0.0003	0.0065	0.001	0.021	0.0001	0.0013	6	0.029	2E-05	0.0014
19	Madrid North UG Mine Area	0.0031	3E-05	0.11	1E-05	15	0.0003	0.0072	0.0011	0.023	0.0001	0.0014	6.6	0.031	2E-05	0.0015
19	Madrid North UG Mine Area	0.0033	3E-05	0.12	1E-05	15	0.0003	0.0076	0.0012	0.025	0.0001	0.0015	7	0.033	2E-05	0.0016
19	Madrid North UG Mine Area	0.0035	3E-05	0.13	1E-05	16	0.0004	0.0082	0.0012	0.026	0.0001	0.0016	7.5	0.036	2E-05	0.0017
19	Madrid North UG Mine Area	0.0036	3E-05	0.14	2E-05	17	0.0004	0.0086	0.0013	0.028	0.0002	0.0016	7.9	0.037	2E-05	0.0018
19	Madrid North UG Mine Area	0.0038	4E-05	0.14	2E-05	18	0.0004	0.009	0.0014	0.029	0.0002	0.0017	8.2	0.039	3E-05	0.0019
19	Madrid North UG Mine Area	0.0039	4E-05	0.14	2E-05	18	0.0004	0.0091	0.0014	0.029	0.0002	0.0018	8.4	0.04	3E-05	0.0019
20	Madrid North UG Mine Area - Reflooding	0.11	0.001	3.9	0.0004	500	0.011	0.25	0.037	0.8	0.0043	0.048	230	1.1	0.0007	0.052
21	Patch 7 UG Mine Area	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	Patch 7 UG Mine Area	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	Patch 7 UG Mine Area	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Complete Base Case Source Term Results

Term	Source	Ni	P	K	Se	Ag	Na	S	Tl	U	V	Zn
1	Doris Pad T Ore Pile	0.18	0.3	36	0.039	0.0003	49	-	0.0003	0.0019	0.005	0.058
2	Doris Waste Rock Stockpile #1 (West)	0.021	0.3	36	0.019	0.0003	85	-	0.0003	0.0024	0.005	0.058
3	Doris Waste Rock Stockpile #2 (Pad U)	0.027	0.3	36	0.024	0.0003	110	-	0.0003	0.0029	0.005	0.058
4	Doris Waste Rock Stockpile #2 (Pad U) - Closure	0.014	0.3	36	0.013	0.0003	56	-	0.0003	0.0016	0.005	0.058
5	Doris Overburden Stockpile	0.001	0.05	2.4	0.0003	1E-05	19	-	1E-05	0.0002	0.0015	0.011
6	Doris UG Mine Area	0.0056	0.0062	1	0.0033	8E-06	1.2	-	2E-05	2E-05	0.0002	0.008
6	Doris UG Mine Area	0.0055	0.0062	1	0.0033	8E-06	1.2	-	2E-05	2E-05	0.0002	0.0079
6	Doris UG Mine Area	0.0052	0.0058	0.95	0.0031	7E-06	1.1	-	2E-05	2E-05	0.0002	0.0074
6	Doris UG Mine Area	0.0048	0.0054	0.89	0.0029	7E-06	1.1	-	2E-05	2E-05	0.0002	0.0069
6	Doris UG Mine Area	0.0047	0.0053	0.86	0.0028	7E-06	1	-	2E-05	2E-05	0.0002	0.0067
6	Doris UG Mine Area	0.0045	0.0053	0.84	0.0026	7E-06	1	-	2E-05	2E-05	0.0002	0.0064
6	Doris UG Mine Area	0.0041	0.0052	0.79	0.0024	7E-06	0.93	-	2E-05	2E-05	0.0002	0.0059
6	Doris UG Mine Area	0.004	0.0055	0.8	0.0024	7E-06	0.93	-	2E-05	2E-05	0.0002	0.0058
6	Doris UG Mine Area	0.004	0.0058	0.82	0.0024	7E-06	0.95	-	2E-05	2E-05	0.0002	0.0058
6	Doris UG Mine Area	0.004	0.0065	0.86	0.0024	8E-06	0.97	-	2E-05	2E-05	0.0002	0.0059
6	Doris UG Mine Area	0.004	0.0066	0.86	0.0024	8E-06	0.98	-	2E-05	2E-05	0.0002	0.0059
6	Doris UG Mine Area	0.004	0.0066	0.86	0.0024	8E-06	0.98	-	2E-05	2E-05	0.0002	0.0059
7	Doris UG Mine Area - Reflooding	0.17	0.23	34	0.1	0.0003	40	-	0.0007	0.0007	0.007	0.25
8	Madrid North Waste Rock Stockpile #1 (South, Existing)	0.18	0.3	36	0.044	0.0003	64	-	0.0003	0.0041	0.005	0.058
9	Madrid North Waste Rock Stockpile #2 (North)	0.18	0.3	36	0.11	0.0003	160	-	0.0003	0.01	0.005	0.058
10	Madrid North Ore Pile	0.18	0.3	36	0.055	0.0003	69	-	0.0003	0.0027	0.005	0.058
11	Patch 7 Waste Rock Stockpile	0.18	0.3	36	0.067	0.0003	110	-	0.0003	0.0094	0.005	0.058
12	Patch 7 Ore Pile	0.18	0.3	36	0.046	0.0003	58	-	0.0003	0.0023	0.005	0.058
13	Madrid South Waste Rock Stockpile	0.038	0.3	36	0.034	0.0003	90	-	0.0003	0.0013	0.005	0.058
14	Madrid South Waste Rock Stockpile - Closure	0.036	0.3	36	0.033	0.0003	87	-	0.0003	0.0012	0.005	0.058
15	Madrid South Ore Pile	0.18	0.3	36	0.041	0.0003	52	-	0.0003	0.0014	0.005	0.058
16	Naartok East CPR Trench	0.19	0.18	38	0.0051	4E-05	590	-	4E-05	0.0056	0.0019	0.033
17	Madrid Overburden Stockpiles - Saline Seepage	0.0099	0.28	71	0.0009	6E-05	1800	-	6E-05	0.01	0.003	0.0068
18	Madrid Overburden Stockpiles - Non-Saline Seepage - Closure	0.0017	0.05	1.6	0.0001	1E-05	9	-	1E-05	0.0001	0.0005	0.0022
19	Madrid North UG Mine Area	0	0	0	0	0	0	-	0	0	0	0
19	Madrid North UG Mine Area	0	0	0	0	0	0	-	0	0	0	0
19	Madrid North UG Mine Area	0	0	0	0	0	0	-	0	0	0	0
19	Madrid North UG Mine Area	0	0	0	0	0	0	-	0	0	0	0
19	Madrid North UG Mine Area	0.0014	0.0025	0.16	8E-05	3E-06	0.11	-	5E-06	7E-06	0.0004	0.0012
19	Madrid North UG Mine Area	0.0025	0.0043	0.28	0.0001	4E-06	0.19	-	8E-06	1E-05	0.0006	0.0021
19	Madrid North UG Mine Area	0.0039	0.0069	0.45	0.0002	7E-06	0.31	-	1E-05	2E-05	0.001	0.0034
19	Madrid North UG Mine Area	0.0045	0.0078	0.51	0.0003	8E-06	0.35	-	2E-05	2E-05	0.0011	0.0038
19	Madrid North UG Mine Area	0.0049	0.0086	0.57	0.0003	9E-06	0.39	-	2E-05	3E-05	0.0012	0.0043
19	Madrid North UG Mine Area	0.0057	0.01	0.66	0.0003	1E-05	0.45	-	2E-05	3E-05	0.0014	0.0049
19	Madrid North UG Mine Area	0.0063	0.011	0.73	0.0004	1E-05	0.49	-	2E-05	3E-05	0.0016	0.0054
19	Madrid North UG Mine Area	0.0072	0.013	0.83	0.0004	1E-05	0.56	-	2E-05	4E-05	0.0018	0.0062
19	Madrid North UG Mine Area	0.0079	0.014	0.91	0.0005	1E-05	0.61	-	3E-05	4E-05	0.002	0.0068
19	Madrid North UG Mine Area	0.0084	0.015	0.96	0.0005	2E-05	0.65	-	3E-05	4E-05	0.0021	0.0072
19	Madrid North UG Mine Area	0.0089	0.016	1	0.0005	2E-05	0.7	-	3E-05	5E-05	0.0023	0.0077
19	Madrid North UG Mine Area	0.0094	0.016	1.1	0.0005	2E-05	0.73	-	3E-05	5E-05	0.0024	0.0081
19	Madrid North UG Mine Area	0.0098	0.017	1.1	0.0006	2E-05	0.77	-	3E-05	5E-05	0.0025	0.0084
19	Madrid North UG Mine Area	0.01	0.017	1.1	0.0006	2E-05	0.78	-	3E-05	5E-05	0.0025	0.0086
20	Madrid North UG Mine Area - Reflooding	0.27	0.47	31	0.016	0.0005	21	-	0.0009	0.0014	0.068	0.23
21	Patch 7 UG Mine Area	0	0	0	0	0	0	-	0	0	0	0
21	Patch 7 UG Mine Area	0	0	0	0	0	0	-	0	0	0	0
21	Patch 7 UG Mine Area	0	0	0	0	0	0	-	0	0	0	0

Term	Source	Phase	Year	Notes	Units	Reporting Detail
21	Patch 7 UG Mine Area	Operations	2027	Apply to yearly inflow values	mg/L	Annual Dissolved
21	Patch 7 UG Mine Area	Operations	2028	Apply to yearly inflow values	mg/L	Annual Dissolved
21	Patch 7 UG Mine Area	Operations	2029	Apply to yearly inflow values	mg/L	Annual Dissolved
21	Patch 7 UG Mine Area	Operations	2030	Apply to yearly inflow values	mg/L	Annual Dissolved
21	Patch 7 UG Mine Area	Operations	2031	Apply to yearly inflow values	mg/L	Annual Dissolved
21	Patch 7 UG Mine Area	Operations	2032	Apply to yearly inflow values	mg/L	Annual Dissolved
21	Patch 7 UG Mine Area	Operations	2033	Apply to yearly inflow values	mg/L	Annual Dissolved
21	Patch 7 UG Mine Area	Operations	2034	Apply to yearly inflow values	mg/L	Annual Dissolved
21	Patch 7 UG Mine Area	Operations	2035	Apply to yearly inflow values	mg/L	Annual Dissolved
21	Patch 7 UG Mine Area	Operations	2036	Apply to yearly inflow values	mg/L	Annual Dissolved
21	Patch 7 UG Mine Area	Operations	2037	Apply to yearly inflow values	mg/L	Annual Dissolved
21	Patch 7 UG Mine Area	Operations	2038	Apply to yearly inflow values	mg/L	Annual Dissolved
21	Patch 7 UG Mine Area	Operations	2039	Apply to yearly inflow values	mg/L	Annual Dissolved
21	Patch 7 UG Mine Area	Operations	2040	Apply to yearly inflow values	mg/L	Annual Dissolved
21	Patch 7 UG Mine Area	Operations	**2041**	Apply to yearly inflow values	mg/L	Annual Dissolved
22	Patch 7 UG Mine Area - Reflooding	Closure	When inundated	Apply to yearly inflow values	mg/L	Single Dissolved
23	Madrid South UG Mine Area	Operations	2024	Apply to yearly inflow values	mg/L	Annual Dissolved
23	Madrid South UG Mine Area	Operations	2025	Apply to yearly inflow values	mg/L	Annual Dissolved
23	Madrid South UG Mine Area	Operations	2026	Apply to yearly inflow values	mg/L	Annual Dissolved
23	Madrid South UG Mine Area	Operations	2027	Apply to yearly inflow values	mg/L	Annual Dissolved
23	Madrid South UG Mine Area	Operations	2028	Apply to yearly inflow values	mg/L	Annual Dissolved
23	Madrid South UG Mine Area	Operations	2029	Apply to yearly inflow values	mg/L	Annual Dissolved
23	Madrid South UG Mine Area	Operations	2030	Apply to yearly inflow values	mg/L	Annual Dissolved
23	Madrid South UG Mine Area	Operations	2031	Apply to yearly inflow values	mg/L	Annual Dissolved
23	Madrid South UG Mine Area	Operations	2032	Apply to yearly inflow values	mg/L	Annual Dissolved
23	Madrid South UG Mine Area	Operations	2033	Apply to yearly inflow values	mg/L	Annual Dissolved
23	Madrid South UG Mine Area	Operations	2034	Apply to yearly inflow values	mg/L	Annual Dissolved
23	Madrid South UG Mine Area	Operations	2035	Apply to yearly inflow values	mg/L	Annual Dissolved
23	Madrid South UG Mine Area	Operations	2036	Apply to yearly inflow values	mg/L	Annual Dissolved
23	Madrid South UG Mine Area	Operations	2037	Apply to yearly inflow values	mg/L	Annual Dissolved
23	Madrid South UG Mine Area	Operations	2038	Apply to yearly inflow values	mg/L	Annual Dissolved
23	Madrid South UG Mine Area	Operations	2039	Apply to yearly inflow values	mg/L	Annual Dissolved
23	Madrid South UG Mine Area	Operations	2040	Apply to yearly inflow values	mg/L	Annual Dissolved
23	Madrid South UG Mine Area	Operations	**2041**	Apply to yearly inflow values	mg/L	Annual Dissolved
24	Madrid South UG Mine Area - Reflooding	Closure	When inundated	Apply to yearly inflow values	mg/L	Single Dissolved
25	General Developed Areas and TIA Dams	Operations	Max	Apply to yearly runoff values	mg/L	Single Dissolved
26	Doris TIA Exposed Tailings Beaches (Operations, Pre Dry Stack)	Operations	Until 2033	Apply to whole footprint	mg/L	Single Dissolved
27	Doris TIA Exposed Tailings Beaches (Operations, Post Dry Stack)	Operations	From 2033	Apply to whole footprint	mg/L	Single Dissolved
28	Doris TIA Exposed Tailings Beaches (Closure, Cover Case: Runoff)	Closure	2046 onwards	Apply to whole footprint	mg/L	Single Dissolved
29	Doris TIA Exposed Tailings Beaches (Closure, Cover Case: Infiltration)	Closure	2046 onwards	Apply to whole footprint	mg/L	Single Dissolved
30	Doris TIA Exposed Tailings Beaches (Closure, Uncovered Case)	Closure	2046 onwards	Apply to whole footprint	mg/L	Single Dissolved
31	Tailings Dry Stack (Operations)	Operations	From 2033	Concentration per unit area, apply to whole footprint	mg/L	Single Dissolved
32	Tailings Dry Stack (Closure, Cover Case: Runoff)	Closure	2046 onwards	Concentration per unit area, apply to whole footprint	mg/L	Single Dissolved
33	Tailings Dry Stack (Closure, Cover Case: Infiltration)	Closure	2046 onwards	Concentration per unit area, apply to whole footprint	mg/L	Single Dissolved
34	Tailings Dry Stack (Closure, Uncovered Case)	Closure	2046 onwards	Concentration per unit area, apply to whole footprint	mg/L	Single Dissolved
35	Total Metals Content in TSS - Construction Rock	Operations	Max	TSS assumed to be regulatory limit, calculation method same as SRK (2017)	mg/kg	Solid phase element concentration
36a	Total Metals Content in TSS - Combined Detoxified Doris Tailings	Operations	Max	TSS assumed to be regulatory limit, calculation method same as SRK (2017)	mg/kg	Solid phase element concentration
36b	Total Metals Content in TSS - Combined Detoxified Madrid North Tailings	Operations	Max	TSS assumed to be regulatory limit, calculation method same as SRK (2017)	mg/kg	Solid phase element concentration
36c	Total Metals Content in TSS - Combined Detoxified Patch 7 Tailings	Operations	Max	TSS assumed to be regulatory limit, calculation method same as SRK (2017)	mg/kg	Solid phase element concentration
36d	Total Metals Content in TSS - Combined Detoxified Madrid South Tailings	Operations	Max	TSS assumed to be regulatory limit, calculation method same as SRK (2017)	mg/kg	Solid phase element concentration
37	Total Metals Content in TSS - Doris Waste Rock	Operations	Max	TSS assumed to be regulatory limit, calculation method same as SRK (2017)	mg/kg	Solid phase element concentration

Complete Base Case Source Term Results

Term	Source	SO4	Alk	Hardnes	F	Cl	NO2	NO3	NH3	Total CN	Free CN	WAD CN	CNO	SCN	Al	Sb	As
21	Patch 7 UG Mine Area	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	Patch 7 UG Mine Area	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	Patch 7 UG Mine Area	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	Patch 7 UG Mine Area	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	Patch 7 UG Mine Area	0.66	2.2	2.8	0.0016	0.098	0	0	0	0	0	0	0	0	0.0041	0.0001	0.011
21	Patch 7 UG Mine Area	2.5	8.3	11	0.0062	0.38	0	0	0	0	0	0	0	0	0.016	0.0005	0.041
21	Patch 7 UG Mine Area	4.9	16	21	0.012	0.73	0	0	0	0	0	0	0	0	0.031	0.0009	0.079
21	Patch 7 UG Mine Area	7.7	25	33	0.019	1.1	0	0	0	0	0	0	0	0	0.048	0.0015	0.12
21	Patch 7 UG Mine Area	8.7	29	38	0.021	1.3	0	0	0	0	0	0	0	0	0.055	0.0017	0.14
21	Patch 7 UG Mine Area	10	33	44	0.025	1.5	0	0	0	0	0	0	0	0	0.063	0.0019	0.16
21	Patch 7 UG Mine Area	11	37	49	0.027	1.7	0	0	0	0	0	0	0	0	0.07	0.0021	0.18
21	Patch 7 UG Mine Area	14	45	60	0.034	2.1	0	0	0	0	0	0	0	0	0.086	0.0026	0.22
21	Patch 7 UG Mine Area	16	53	70	0.039	2.4	0	0	0	0	0	0	0	0	0.098	0.0031	0.26
21	Patch 7 UG Mine Area	19	61	81	0.046	2.8	0	0	0	0	0	0	0	0	0.098	0.0035	0.3
21	Patch 7 UG Mine Area	21	69	91	0.051	3.1	0	0	0	0	0	0	0	0	0.098	0.004	0.34
22	Patch 7 UG Mine Area - Reflooding	550	1600	2200	1.2	72	0	0	0	0	0	0	0	0	3	0.11	9
23	Madrid South UG Mine Area	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	Madrid South UG Mine Area	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	Madrid South UG Mine Area	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	Madrid South UG Mine Area	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	Madrid South UG Mine Area	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	Madrid South UG Mine Area	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	Madrid South UG Mine Area	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	Madrid South UG Mine Area	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	Madrid South UG Mine Area	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	Madrid South UG Mine Area	0.034	0.4	0.43	0.0002	0.014	0	0	0	0	0	0	0	0	0.0008	1E-05	0.0001
23	Madrid South UG Mine Area	0.18	2.2	2.4	0.0013	0.075	0	0	0	0	0	0	0	0	0.0042	7E-05	0.0006
23	Madrid South UG Mine Area	0.63	7.5	8	0.0045	0.25	0	0	0	0	0	0	0	0	0.014	0.0002	0.002
23	Madrid South UG Mine Area	1.4	16	18	0.0098	0.56	0	0	0	0	0	0	0	0	0.031	0.0005	0.0045
23	Madrid South UG Mine Area	2.2	27	29	0.016	0.9	0	0	0	0	0	0	0	0	0.051	0.0008	0.0072
23	Madrid South UG Mine Area	3.5	42	45	0.025	1.4	0	0	0	0	0	0	0	0	0.08	0.0012	0.011
23	Madrid South UG Mine Area	4.6	55	59	0.033	1.9	0	0	0	0	0	0	0	0	0.098	0.0016	0.015
23	Madrid South UG Mine Area	5.9	71	76	0.043	2.4	0	0	0	0	0	0	0	0	0.098	0.0021	0.019
23	Madrid South UG Mine Area	6.5	78	83	0.046	2.6	0	0	0	0	0	0	0	0	0.098	0.0023	0.021
24	Madrid South UG Mine Area - Reflooding	120	1400	1500	0.85	48	0	0	0	0	0	0	0	0	2.7	0.042	0.39
25	General Developed Areas and TIA Dams	16	110	120	0.038	25	0	0	0	0.005	0.005	0.005	0.2	0.5	0.025	0.0001	0.0006
26	Doris TIA Exposed Tailings Beaches (Operations, Pre Dry Stack)	1800	430	5100	0.18	28	0	0	0	1.5	0.27	0.2	18	5.1	0.098	0.02	0.9
27	Doris TIA Exposed Tailings Beaches (Operations, Post Dry Stack)	1800	430	5400	0.17	32	0	0	0	1.8	0.33	0.25	10	4.3	0.098	0.02	1.1
28	Doris TIA Exposed Tailings Beaches (Closure, Cover Case: Runoff)	16	110	120	0.038	25	0	0	0	0.005	0.005	0.005	0.2	0.5	0.025	0.0001	0.0006
29	Doris TIA Exposed Tailings Beaches (Closure, Cover Case: Infiltration)	1800	430	5400	2.8	970	0	0	0	2.5	9.8	7.4	310	130	0.098	0.02	3.2
30	Doris TIA Exposed Tailings Beaches (Closure, Uncovered Case)	1800	430	3200	0.16	68	0	0	0	0.9	0.17	0.13	5.6	3.2	0.098	0.017	0.56
31	Tailings Dry Stack (Operations)	1800	430	5400	2.8	1100	0	0	0	2.5	11	8.6	360	150	0.098	0.02	3.2
32	Tailings Dry Stack (Closure, Cover Case: Runoff)	16	110	120	0.038	25	0	0	0	0.005	0.005	0.005	0.2	0.5	0.025	0.0001	0.0006
33	Tailings Dry Stack (Closure, Cover Case: Infiltration)	1800	430	5400	2.8	62000	0	0	0	2.5	770	640	18000	8100	0.098	0.02	3.2
34	Tailings Dry Stack (Closure, Uncovered Case)	1800	430	5400	2.8	890	0	0	0	2.5	8.9	6.7	280	120	0.098	0.02	3.2
35	Total Metals Content in TSS - Construction Rock	0	0	0	0	0	0	0	0	0	0	0	0	0	33000	0.1	3.3
36a	Total Metals Content in TSS - Combined Detoxified Doris Tailings	0	0	0	0	0	0	0	0	0	0	0	0	0	9000	0.24	70
36b	Total Metals Content in TSS - Combined Detoxified Madrid North Tailings	0	0	0	0	0	0	0	0	0	0	0	0	0	8200	0.83	520
36c	Total Metals Content in TSS - Combined Detoxified Patch 7 Tailings	0	0	0	0	0	0	0	0	0	0	0	0	0	8200	0.83	520
36d	Total Metals Content in TSS - Combined Detoxified Madrid South Tailings	0	0	0	0	0	0	0	0	0	0	0	0	0	1300	0.26	400
37	Total Metals Content in TSS - Doris Waste Rock	0	0	0	0	0	0	0	0	0	0	0	0	0	24000	0.1	5.3

Complete Base Case Source Term Results

Term	Source	Ba	Be	B	Cd	Ca	Cr	Co	Cu	Fe	Pb	Li	Mg	Mn	Hg	Mo
21	Patch 7 UG Mine Area	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	Patch 7 UG Mine Area	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	Patch 7 UG Mine Area	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	Patch 7 UG Mine Area	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	Patch 7 UG Mine Area	0.0002	2E-06	0.006	7E-07	0.61	2E-05	0.0006	6E-05	0.0012	6E-06	8E-05	0.31	0.0024	1E-06	9E-05
21	Patch 7 UG Mine Area	0.0009	8E-06	0.023	3E-06	2.4	7E-05	0.0025	0.0003	0.0047	2E-05	0.0003	1.2	0.0094	5E-06	0.0004
21	Patch 7 UG Mine Area	0.0018	2E-05	0.044	5E-06	4.6	0.0001	0.0047	0.0005	0.009	4E-05	0.0006	2.3	0.018	9E-06	0.0007
21	Patch 7 UG Mine Area	0.0029	2E-05	0.07	8E-06	7.2	0.0002	0.0074	0.0008	0.014	7E-05	0.0009	3.6	0.029	1E-05	0.001
21	Patch 7 UG Mine Area	0.0032	3E-05	0.079	9E-06	8.1	0.0002	0.0084	0.0009	0.016	8E-05	0.001	4.1	0.032	2E-05	0.0012
21	Patch 7 UG Mine Area	0.0037	3E-05	0.091	1E-05	9.4	0.0003	0.0097	0.001	0.018	9E-05	0.0012	4.8	0.037	2E-05	0.0014
21	Patch 7 UG Mine Area	0.0042	3E-05	0.1	1E-05	10	0.0003	0.011	0.0011	0.021	1E-04	0.0014	5.4	0.042	2E-05	0.0015
21	Patch 7 UG Mine Area	0.0051	4E-05	0.12	2E-05	13	0.0004	0.013	0.0013	0.025	0.0001	0.0017	6.5	0.051	3E-05	0.0019
21	Patch 7 UG Mine Area	0.006	5E-05	0.15	2E-05	15	0.0004	0.016	0.0016	0.03	0.0001	0.0019	7.7	0.06	3E-05	0.0022
21	Patch 7 UG Mine Area	0.007	6E-05	0.17	2E-05	17	0.0005	0.018	0.0018	0.034	0.0002	0.0023	8.9	0.07	4E-05	0.0026
21	Patch 7 UG Mine Area	0.0078	6E-05	0.19	2E-05	20	0.0006	0.02	0.002	0.039	0.0002	0.0025	10	0.078	4E-05	0.0029
22	Patch 7 UG Mine Area - Reflooding	0.19	0.0013	4.6	0.0005	470	0.013	0.5	0.046	0.92	0.0044	0.058	240	2	0.0009	0.071
23	Madrid South UG Mine Area	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	Madrid South UG Mine Area	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	Madrid South UG Mine Area	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	Madrid South UG Mine Area	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	Madrid South UG Mine Area	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	Madrid South UG Mine Area	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	Madrid South UG Mine Area	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	Madrid South UG Mine Area	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	Madrid South UG Mine Area	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	Madrid South UG Mine Area	0.0002	2E-07	0.001	1E-07	0.1	2E-06	2E-05	1E-05	6E-05	1E-06	1E-05	0.05	0.0005	4E-08	4E-06
23	Madrid South UG Mine Area	0.0008	1E-06	0.0053	6E-07	0.55	1E-05	1E-04	7E-05	0.0003	6E-06	6E-05	0.27	0.003	2E-07	2E-05
23	Madrid South UG Mine Area	0.0029	4E-06	0.018	2E-06	1.9	4E-05	0.0003	0.0002	0.001	2E-05	0.0002	0.92	0.01	7E-07	7E-05
23	Madrid South UG Mine Area	0.0063	8E-06	0.04	4E-06	4.1	8E-05	0.0007	0.0005	0.0023	4E-05	0.0004	2	0.022	2E-06	0.0001
23	Madrid South UG Mine Area	0.01	1E-05	0.065	7E-06	6.7	0.0001	0.0012	0.0008	0.0037	7E-05	0.0007	3.3	0.036	3E-06	0.0002
23	Madrid South UG Mine Area	0.016	2E-05	0.1	1E-05	10	0.0002	0.0018	0.0013	0.0058	0.0001	0.0011	5.1	0.056	4E-06	0.0004
23	Madrid South UG Mine Area	0.021	3E-05	0.13	1E-05	14	0.0003	0.0024	0.0017	0.0076	0.0001	0.0015	6.8	0.074	5E-06	0.0005
23	Madrid South UG Mine Area	0.027	3E-05	0.17	2E-05	18	0.0003	0.0031	0.0023	0.0098	0.0002	0.0019	8.8	0.096	7E-06	0.0006
23	Madrid South UG Mine Area	0.03	4E-05	0.19	2E-05	19	0.0004	0.0034	0.0025	0.011	0.0002	0.0021	9.5	0.1	8E-06	0.0007
24	Madrid South UG Mine Area - Reflooding	0.54	0.0007	3.5	0.0004	360	0.0068	0.063	0.045	0.2	0.0036	0.038	180	1.9	0.0001	0.012
25	General Developed Areas and TIA Dams	0	0.0001	0.034	8E-06	37	0.0005	0.0002	0.0063	0.07	5E-05	0	7.4	0.008	5E-06	0.0005
26	Doris TIA Exposed Tailings Beaches (Operations, Pre Dry Stack)	0.066	0.0003	0.64	0.0003	700	0.014	0.034	0.022	1.7	0.0014	0.047	580	0.66	0.0001	0.02
27	Doris TIA Exposed Tailings Beaches (Operations, Post Dry Stack)	0.066	0.0003	0.6	0.0003	700	0.014	0.034	0.021	2	0.0014	0.049	580	0.66	0.0001	0.02
28	Doris TIA Exposed Tailings Beaches (Closure, Cover Case: Runoff)	0	0.0001	0.034	8E-06	37	0.0005	0.0002	0.0063	0.07	5E-05	0	7.4	0.008	5E-06	0.0005
29	Doris TIA Exposed Tailings Beaches (Closure, Cover Case: Infiltration)	0.066	0.002	2.2	0.0003	700	0.014	0.034	0.022	2.1	0.0014	0.11	580	1.4	0.0001	0.02
30	Doris TIA Exposed Tailings Beaches (Closure, Uncovered Case)	0.066	0.0004	0.37	0.0003	660	0.014	0.034	0.022	1.2	0.0009	0.025	470	0.35	0.0001	0.02
31	Tailings Dry Stack (Operations)	0.066	0.002	2.2	0.0003	700	0.014	0.034	0.022	2.1	0.0014	0.11	580	1.4	0.0001	0.02
32	Tailings Dry Stack (Closure, Cover Case: Runoff)	0	0.0001	0.034	8E-06	37	0.0005	0.0002	0.0063	0.07	5E-05	0	7.4	0.008	5E-06	0.0005
33	Tailings Dry Stack (Closure, Cover Case: Infiltration)	0.066	0.002	2.2	0.0003	700	0.014	0.034	0.022	2.1	0.0014	0.11	580	1.4	0.0001	0.02
34	Tailings Dry Stack (Closure, Uncovered Case)	0.066	0.002	2.2	0.0003	700	0.014	0.034	0.022	2.1	0.0014	0.11	580	1.4	0.0001	0.02
35	Total Metals Content in TSS - Construction Rock	6	0	20	0.1	51000	150	39	140	61000	2.2	0	25000	1300	0.01	0.3
36a	Total Metals Content in TSS - Combined Detoxified Doris Tailings	13	0	20	0.53	29000	44	43	710	53000	53	0	13000	950	0.017	0.58
36b	Total Metals Content in TSS - Combined Detoxified Madrid North Tailings	24	0	20	0.25	72000	220	51	170	62000	6.6	0	34000	1400	0.04	4.3
36c	Total Metals Content in TSS - Combined Detoxified Patch 7 Tailings	24	0	20	0.25	72000	220	51	170	62000	6.6	0	34000	1400	0.04	4.3
36d	Total Metals Content in TSS - Combined Detoxified Madrid South Tailings	5.8	0	20	0.21	43000	88	35	120	46000	7	0	15000	690	0	5.1
37	Total Metals Content in TSS - Doris Waste Rock	10	2	20	0.1	50000	26	31	38	93000	1.7	0	17000	1800	10	1.1

Complete Base Case Source Term Results

Term	Source	Ni	P	K	Se	Ag	Na	S	Tl	U	V	Zn
21	Patch 7 UG Mine Area	0	0	0	0	0	0	-	0	0	0	0
21	Patch 7 UG Mine Area	0	0	0	0	0	0	-	0	0	0	0
21	Patch 7 UG Mine Area	0	0	0	0	0	0	-	0	0	0	0
21	Patch 7 UG Mine Area	0	0	0	0	0	0	-	0	0	0	0
21	Patch 7 UG Mine Area	0.0002	0.0008	0.069	2E-05	8E-07	0.033	-	7E-07	3E-06	1E-04	0.0004
21	Patch 7 UG Mine Area	0.0007	0.003	0.27	9E-05	3E-06	0.13	-	3E-06	1E-05	0.0004	0.0016
21	Patch 7 UG Mine Area	0.0014	0.0057	0.51	0.0002	6E-06	0.25	-	5E-06	2E-05	0.0007	0.0031
21	Patch 7 UG Mine Area	0.0021	0.009	0.8	0.0003	1E-05	0.39	-	8E-06	3E-05	0.0011	0.0048
21	Patch 7 UG Mine Area	0.0024	0.01	0.91	0.0003	1E-05	0.44	-	9E-06	4E-05	0.0013	0.0055
21	Patch 7 UG Mine Area	0.0028	0.012	1.1	0.0004	1E-05	0.51	-	1E-05	4E-05	0.0015	0.0063
21	Patch 7 UG Mine Area	0.0031	0.013	1.2	0.0004	1E-05	0.57	-	1E-05	5E-05	0.0016	0.007
21	Patch 7 UG Mine Area	0.0038	0.016	1.4	0.0005	2E-05	0.7	-	1E-05	6E-05	0.002	0.0086
21	Patch 7 UG Mine Area	0.0045	0.019	1.7	0.0006	2E-05	0.82	-	2E-05	7E-05	0.0023	0.01
21	Patch 7 UG Mine Area	0.0052	0.022	2	0.0007	2E-05	0.95	-	2E-05	8E-05	0.0027	0.012
21	Patch 7 UG Mine Area	0.0058	0.025	2.2	0.0007	3E-05	1.1	-	2E-05	9E-05	0.003	0.013
22	Patch 7 UG Mine Area - Reflooding	0.17	0.57	47	0.018	0.0006	25	-	0.0005	0.002	0.076	0.32
23	Madrid South UG Mine Area	0	0	0	0	0	0	-	0	0	0	0
23	Madrid South UG Mine Area	0	0	0	0	0	0	-	0	0	0	0
23	Madrid South UG Mine Area	0	0	0	0	0	0	-	0	0	0	0
23	Madrid South UG Mine Area	0	0	0	0	0	0	-	0	0	0	0
23	Madrid South UG Mine Area	0	0	0	0	0	0	-	0	0	0	0
23	Madrid South UG Mine Area	0	0	0	0	0	0	-	0	0	0	0
23	Madrid South UG Mine Area	0	0	0	0	0	0	-	0	0	0	0
23	Madrid South UG Mine Area	0	0	0	0	0	0	-	0	0	0	0
23	Madrid South UG Mine Area	0	0	0	0	0	0	-	0	0	0	0
23	Madrid South UG Mine Area	2E-06	8E-05	0.011	3E-06	1E-07	0.0052	-	4E-08	7E-08	6E-06	1E-05
23	Madrid South UG Mine Area	1E-05	0.0004	0.06	1E-05	6E-07	0.028	-	2E-07	4E-07	3E-05	8E-05
23	Madrid South UG Mine Area	4E-05	0.0014	0.21	5E-05	2E-06	0.096	-	7E-07	1E-06	0.0001	0.0003
23	Madrid South UG Mine Area	9E-05	0.0031	0.45	0.0001	4E-06	0.21	-	2E-06	3E-06	0.0002	0.0006
23	Madrid South UG Mine Area	0.0001	0.005	0.73	0.0002	7E-06	0.34	-	3E-06	5E-06	0.0004	0.0009
23	Madrid South UG Mine Area	0.0002	0.0079	1.1	0.0003	1E-05	0.54	-	4E-06	8E-06	0.0006	0.0015
23	Madrid South UG Mine Area	0.0003	0.01	1.5	0.0004	1E-05	0.71	-	6E-06	1E-05	0.0008	0.0019
23	Madrid South UG Mine Area	0.0004	0.013	2	0.0005	2E-05	0.91	-	7E-06	1E-05	0.001	0.0025
23	Madrid South UG Mine Area	0.0004	0.015	2.1	0.0005	2E-05	0.99	-	8E-06	1E-05	0.0011	0.0027
24	Madrid South UG Mine Area - Reflooding	0.0076	0.27	39	0.009	0.0004	18	-	0.0001	0.0003	0.021	0.05
25	General Developed Areas and TIA Dams	0.0009	0.05	2	0.0002	1E-05	19	-	1E-05	0.0002	0.0005	0.0016
26	Doris TIA Exposed Tailings Beaches (Operations, Pre Dry Stack)	0.13	0.12	22	0.01	0.0003	100	-	0.0002	0.0009	0.0035	0.053
27	Doris TIA Exposed Tailings Beaches (Operations, Post Dry Stack)	0.13	0.11	25	0.012	0.0003	130	-	0.0003	0.001	0.003	0.06
28	Doris TIA Exposed Tailings Beaches (Closure, Cover Case: Runoff)	0.0009	0.05	2	0.0002	1E-05	19	-	1E-05	0.0002	0.0005	0.0016
29	Doris TIA Exposed Tailings Beaches (Closure, Cover Case: Infiltration)	0.13	1	150	0.35	0.0003	3800	-	0.0003	0.0097	0.01	0.089
30	Doris TIA Exposed Tailings Beaches (Closure, Uncovered Case)	0.13	0.16	17	0.0062	0.0003	100	-	0.0001	0.0009	0.0025	0.033
31	Tailings Dry Stack (Operations)	0.13	1	150	0.4	0.0003	4400	-	0.0003	0.0097	0.01	0.089
32	Tailings Dry Stack (Closure, Cover Case: Runoff)	0.0009	0.05	2	0.0002	1E-05	19	-	1E-05	0.0002	0.0005	0.0016
33	Tailings Dry Stack (Closure, Cover Case: Infiltration)	0.13	1	150	24	0.0003	5000	-	0.0003	0.0097	0.01	0.089
34	Tailings Dry Stack (Closure, Uncovered Case)	0.13	1	150	0.32	0.0003	3400	-	0.0003	0.0097	0.01	0.089
35	Total Metals Content in TSS - Construction Rock	61	310	300	0.5	0.1	190	1400	0.1	0.1	150	81
36a	Total Metals Content in TSS - Combined Detoxified Doris Tailings	45	310	790	1.6	2.4	910	13000	0.2	0.1	40	250
36b	Total Metals Content in TSS - Combined Detoxified Madrid North Tailings	350	440	850	0.6	0.13	500	13000	0.075	0.095	47	98
36c	Total Metals Content in TSS - Combined Detoxified Patch 7 Tailings	350	440	850	0.6	0.13	500	13000	0.075	0.095	47	98
36d	Total Metals Content in TSS - Combined Detoxified Madrid South Tailings	82	99	220	1.7	0.28	230	12000	0.1	0.11	12	34
37	Total Metals Content in TSS - Doris Waste Rock	4	860	700	0.5	0.1	560	1400	0.1	0.1	74	110

Term	Source	Phase	Year	Notes	Units	Reporting Detail
38	Total Metals Content in TSS - Madrid North Waste Rock	Operations	Max	TSS assumed to be regulatory limit, calculation method same as SRK (2017)	mg/kg	Solid phase element concentration
39	Total Metals Content in TSS - Patch 7 Waste Rock	Operations	Max	TSS assumed to be regulatory limit, calculation method same as SRK (2017)	mg/kg	Solid phase element concentration
40	Total Metals Content in TSS - Madrid South Waste Rock	Operations	Max	TSS assumed to be regulatory limit, calculation method same as SRK (2017)	mg/kg	Solid phase element concentration
41	Total Metals Content in TSS - Doris UG	Operations	Max	TSS assumed to be regulatory limit, calculation method same as SRK (2017)	mg/kg	Solid phase element concentration
42	Total Metals Content in TSS - Madrid North UG	Operations	Max	TSS assumed to be regulatory limit, calculation method same as SRK (2017)	mg/kg	Solid phase element concentration
43	Total Metals Content in TSS - Patch 7 UG	Operations	Max	TSS assumed to be regulatory limit, calculation method same as SRK (2017)	mg/kg	Solid phase element concentration
44	Total Metals Content in TSS - Madrid South UG	Operations	Max	TSS assumed to be regulatory limit, calculation method same as SRK (2017)	mg/kg	Solid phase element concentration
45	Loading Added to Process Water by Ore Processing	Operations	2024	Apply to process rate	mg/L	Annual Dissolved
45	Loading Added to Process Water by Ore Processing	Operations	2025	Apply to process rate	mg/L	Annual Dissolved
45	Loading Added to Process Water by Ore Processing	Operations	2026	Apply to process rate	mg/L	Annual Dissolved
45	Loading Added to Process Water by Ore Processing	Operations	2027	Apply to process rate	mg/L	Annual Dissolved
45	Loading Added to Process Water by Ore Processing	Operations	2028	Apply to process rate	mg/L	Annual Dissolved
45	Loading Added to Process Water by Ore Processing	Operations	2029	Apply to process rate	mg/L	Annual Dissolved
45	Loading Added to Process Water by Ore Processing	Operations	2030	Apply to process rate	mg/L	Annual Dissolved
45	Loading Added to Process Water by Ore Processing	Operations	2031	Apply to process rate	mg/L	Annual Dissolved
45	Loading Added to Process Water by Ore Processing	Operations	2032	Apply to process rate	mg/L	Annual Dissolved
45	Loading Added to Process Water by Ore Processing	Operations	2033	Apply to process rate	mg/L	Annual Dissolved
45	Loading Added to Process Water by Ore Processing	Operations	2034	Apply to process rate	mg/L	Annual Dissolved
45	Loading Added to Process Water by Ore Processing	Operations	2035	Apply to process rate	mg/L	Annual Dissolved
45	Loading Added to Process Water by Ore Processing	Operations	2036	Apply to process rate	mg/L	Annual Dissolved
45	Loading Added to Process Water by Ore Processing	Operations	2037	Apply to process rate	mg/L	Annual Dissolved
45	Loading Added to Process Water by Ore Processing	Operations	2038	Apply to process rate	mg/L	Annual Dissolved
45	Loading Added to Process Water by Ore Processing	Operations	2039	Apply to process rate	mg/L	Annual Dissolved
45	Loading Added to Process Water by Ore Processing	Operations	2040	Apply to process rate	mg/L	Annual Dissolved
45	Loading Added to Process Water by Ore Processing	Operations	**2041**	Apply to process rate	mg/L	Annual Dissolved

Complete Base Case Source Term Results

Term	Source	SO4	Alk	Hardnes	F	Cl	NO2	NO3	NH3	Total CN	Free CN	WAD CN	CNO	SCN	Al	Sb	As
38	Total Metals Content in TSS - Madrid North Waste Rock	0	0	0	0	0	0	0	0	0	0	0	0	0	25000	0.2	62
39	Total Metals Content in TSS - Patch 7 Waste Rock	0	0	0	0	0	0	0	0	0	0	0	0	0	12000	0.25	89
40	Total Metals Content in TSS - Madrid South Waste Rock	0	0	0	0	0	0	0	0	0	0	0	0	0	14000	0.1	6
41	Total Metals Content in TSS - Doris UG	0	0	0	0	0	0	0	0	0	0	0	0	0	17000	0.1	21
42	Total Metals Content in TSS - Madrid North UG	0	0	0	0	0	0	0	0	0	0	0	0	0	11000	0.086	27
43	Total Metals Content in TSS - Patch 7 UG	0	0	0	0	0	0	0	0	0	0	0	0	0	5400	0.11	40
44	Total Metals Content in TSS - Madrid South UG	0	0	0	0	0	0	0	0	0	0	0	0	0	6700	0.047	2.8
45	Loading Added to Process Water by Ore Processing	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
45	Loading Added to Process Water by Ore Processing	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
45	Loading Added to Process Water by Ore Processing	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
45	Loading Added to Process Water by Ore Processing	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
45	Loading Added to Process Water by Ore Processing	1000	140	0	0.089	63	0	0	0	1.2	0.93	1	4.3	11	0.032	0.0099	0.3
45	Loading Added to Process Water by Ore Processing	960	140	0	0.091	63	0	0	0	1.3	1	1.1	4.2	11	0.033	0.011	0.32
45	Loading Added to Process Water by Ore Processing	710	170	0	0.1	59	0	0	0	1.8	1.4	1.5	3.7	10	0.04	0.014	0.44
45	Loading Added to Process Water by Ore Processing	550	180	0	0.11	56	0	0	0	2.1	1.6	1.7	3.5	10	0.043	0.017	0.52
45	Loading Added to Process Water by Ore Processing	570	180	0	0.11	56	0	0	0	2	1.5	1.7	3.7	10	0.043	0.017	0.5
45	Loading Added to Process Water by Ore Processing	550	180	0	0.11	56	0	0	0	2.1	1.6	1.7	3.7	10	0.043	0.017	0.51
45	Loading Added to Process Water by Ore Processing	390	200	0	0.12	53	0	0	0	2.3	1.8	2	3.5	10	0.047	0.019	0.58
45	Loading Added to Process Water by Ore Processing	340	210	0	0.12	52	0	0	0	2.3	1.8	2	3.8	9.9	0.047	0.02	0.59
45	Loading Added to Process Water by Ore Processing	350	210	0	0.12	51	0	0	0	2.3	1.8	1.9	4.2	9.9	0.046	0.02	0.58
45	Loading Added to Process Water by Ore Processing	340	210	0	0.12	50	0	0	0	2.3	1.8	1.9	4.3	9.9	0.046	0.02	0.58
45	Loading Added to Process Water by Ore Processing	340	210	0	0.12	47	0	0	0	2.1	1.6	1.8	6	9.8	0.043	0.019	0.53
45	Loading Added to Process Water by Ore Processing	330	210	0	0.12	48	0	0	0	2.1	1.7	1.8	5.5	9.8	0.044	0.019	0.54
45	Loading Added to Process Water by Ore Processing	330	210	0	0.12	48	0	0	0	2.2	1.7	1.9	5.1	9.8	0.045	0.019	0.56
45	Loading Added to Process Water by Ore Processing	310	210	0	0.12	52	0	0	0	2.5	1.9	2.1	3.2	9.8	0.049	0.021	0.63

Term	Source	Ba	Be	B	Cd	Ca	Cr	Co	Cu	Fe	Pb	Li	Mg	Mn	Hg	Mo
38	Total Metals Content in TSS - Madrid North Waste Rock	15	0.2	0	0.1	70000	170	47	120	69000	1.3	0	35000	1500	0.01	0.5
39	Total Metals Content in TSS - Patch 7 Waste Rock	12	0.3	0	0.09	73000	220	63	150	80000	0.7	0	40000	1500	0.01	0.61
40	Total Metals Content in TSS - Madrid South Waste Rock	14	0	20	0.1	37000	130	32	83	46000	1.1	0	24000	910	10	0.3
41	Total Metals Content in TSS - Doris UG	7.2	1.4	15	0.24	37000	24	29	51	75000	4.5	0	12000	1300	7	1.3
42	Total Metals Content in TSS - Madrid North UG	6.5	0.086	0	0.043	30000	72	20	53	30000	0.56	0	15000	630	0.0043	0.22
43	Total Metals Content in TSS - Patch 7 UG	5.4	0.13	0	0.04	32000	100	28	65	36000	0.31	0	18000	680	0.0045	0.27
44	Total Metals Content in TSS - Madrid South UG	6.6	0	9.4	0.047	18000	63	15	39	22000	0.52	0	11000	430	4.7	0.14
45	Loading Added to Process Water by Ore Processing	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
45	Loading Added to Process Water by Ore Processing	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
45	Loading Added to Process Water by Ore Processing	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
45	Loading Added to Process Water by Ore Processing	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
45	Loading Added to Process Water by Ore Processing	0	0.0013	0.017	1E-04	33	0.001	0.0004	0.89	0.051	0.0005	0	30	0.036	5E-05	0.067
45	Loading Added to Process Water by Ore Processing	0	0.0014	0.016	0.0001	33	0.0011	0.0003	0.96	0.051	0.0005	0	32	0.035	5E-05	0.071
45	Loading Added to Process Water by Ore Processing	0	0.0018	0.0098	0.0001	35	0.0014	0.0002	1.3	0.054	0.0007	0	40	0.028	7E-05	0.097
45	Loading Added to Process Water by Ore Processing	0	0.0021	0.0059	0.0002	37	0.0017	0.0001	1.5	0.058	0.0008	0	46	0.023	0.0002	0.11
45	Loading Added to Process Water by Ore Processing	0	0.0021	0.0063	0.0002	37	0.0017	0.0001	1.5	0.059	0.0008	0	46	0.024	0.0002	0.11
45	Loading Added to Process Water by Ore Processing	0	0.0021	0.0057	0.0002	38	0.0017	0.0001	1.5	0.06	0.0008	0	47	0.023	0.0002	0.11
45	Loading Added to Process Water by Ore Processing	0	0.0024	0.002	0.0002	40	0.002	4E-05	1.7	0.064	0.0009	0	53	0.019	0.0003	0.13
45	Loading Added to Process Water by Ore Processing	0	0.0025	0.0007	0.0002	43	0.0022	2E-05	1.7	0.069	0.001	0	57	0.019	0.0005	0.13
45	Loading Added to Process Water by Ore Processing	0	0.0025	0.0007	0.0002	46	0.0022	2E-05	1.7	0.073	0.0009	0	58	0.02	0.0006	0.13
45	Loading Added to Process Water by Ore Processing	0	0.0025	0.0005	0.0002	47	0.0023	1E-05	1.7	0.075	0.0009	0	59	0.02	0.0007	0.13
45	Loading Added to Process Water by Ore Processing	0	0.0025	0	0.0002	58	0.0027	0	1.5	0.094	0.0009	0	66	0.023	0.0014	0.13
45	Loading Added to Process Water by Ore Processing	0	0.0025	0	0.0002	55	0.0026	0	1.6	0.089	0.0009	0	65	0.022	0.0013	0.13
45	Loading Added to Process Water by Ore Processing	0	0.0025	0	0.0002	52	0.0025	0	1.6	0.085	0.0009	0	63	0.021	0.0011	0.13
45	Loading Added to Process Water by Ore Processing	0	0.0026	0	0.0002	40	0.0021	0	1.8	0.064	0.001	0	56	0.017	0.0003	0.14

Complete Base Case Source Term Results

Term	Source	Ni	P	K	Se	Ag	Na	S	Tl	U	V	Zn
38	Total Metals Content in TSS - Madrid North Waste Rock	140	360	900	0.8	0.1	450	2000	0.1	0.1	120	60
39	Total Metals Content in TSS - Patch 7 Waste Rock	350	500	600	1	0.06	400	2600	0.02	0.05	86	51
40	Total Metals Content in TSS - Madrid South Waste Rock	75	210	600	0.5	0.1	660	600	0.1	0.1	48	54
41	Total Metals Content in TSS - Doris UG	7.6	630	520	1	0.16	420	11000	0.075	0.075	52	100
42	Total Metals Content in TSS - Madrid North UG	60	160	390	0.35	0.043	190	860	0.043	0.043	51	26
43	Total Metals Content in TSS - Patch 7 UG	160	220	270	0.45	0.027	180	1200	0.009	0.022	38	23
44	Total Metals Content in TSS - Madrid South UG	35	99	280	0.24	0.047	310	280	0.047	0.047	23	25
45	Loading Added to Process Water by Ore Processing	0	0	0	0	0	0	-	0	0	0	0
45	Loading Added to Process Water by Ore Processing	0	0	0	0	0	0	-	0	0	0	0
45	Loading Added to Process Water by Ore Processing	0	0	0	0	0	0	-	0	0	0	0
45	Loading Added to Process Water by Ore Processing	0	0	0	0	0	0	-	0	0	0	0
45	Loading Added to Process Water by Ore Processing	0.14	0.12	25	0.0026	0.0002	80	-	0.0002	0.0005	0.0003	0.01
45	Loading Added to Process Water by Ore Processing	0.15	0.13	27	0.0028	0.0003	82	-	0.0002	0.0005	0.0003	0.011
45	Loading Added to Process Water by Ore Processing	0.2	0.15	35	0.0038	0.0004	89	-	0.0002	0.0007	0.0002	0.014
45	Loading Added to Process Water by Ore Processing	0.23	0.17	40	0.0045	0.0004	96	-	0.0003	0.0008	9E-05	0.017
45	Loading Added to Process Water by Ore Processing	0.23	0.17	40	0.0044	0.0004	96	-	0.0002	0.0008	1E-04	0.017
45	Loading Added to Process Water by Ore Processing	0.23	0.17	41	0.0045	0.0004	97	-	0.0003	0.0008	9E-05	0.017
45	Loading Added to Process Water by Ore Processing	0.27	0.19	46	0.0052	0.0005	100	-	0.0003	0.0009	3E-05	0.019
45	Loading Added to Process Water by Ore Processing	0.27	0.19	47	0.0055	0.0005	110	-	0.0003	0.0009	1E-05	0.02
45	Loading Added to Process Water by Ore Processing	0.27	0.19	47	0.0056	0.0005	110	-	0.0003	0.0009	1E-05	0.021
45	Loading Added to Process Water by Ore Processing	0.26	0.19	47	0.0057	0.0005	110	-	0.0003	0.0009	7E-06	0.021
45	Loading Added to Process Water by Ore Processing	0.24	0.18	47	0.0062	0.0005	130	-	0.0003	0.0008	0	0.022
45	Loading Added to Process Water by Ore Processing	0.25	0.18	47	0.0061	0.0005	120	-	0.0003	0.0009	0	0.022
45	Loading Added to Process Water by Ore Processing	0.26	0.19	47	0.006	0.0005	120	-	0.0003	0.0009	0	0.022
45	Loading Added to Process Water by Ore Processing	0.28	0.2	48	0.0055	0.0005	110	-	0.0003	0.001	0	0.02

Appendix G Complete Upper Case Source Term Results

Complete Upper Case Source Term Results

Term	Source	Phase	Year	Notes	Units	Reporting Detail
1	Doris Pad T Ore Pile	Operations	Max	Apply to whole footprint	mg/L	Single Dissolved
2	Doris Waste Rock Stockpile #1 (West)	Operations	Max	Apply to whole footprint	mg/L	Single Dissolved
3	Doris Waste Rock Stockpile #2 (Pad U)	Operations	Max	Apply to whole footprint	mg/L	Single Dissolved
4	Doris Waste Rock Stockpile #2 (Pad U) - Closure	Closure	2046 onwards	Apply to whole footprint	mg/L	Single Dissolved
5	Doris Overburden Stockpile	Operations	Max	Apply to whole footprint	mg/L	Single Dissolved
6	Doris UG Mine Area	Operations	2024	Apply to yearly inflow values	mg/L	Annual Dissolved
6	Doris UG Mine Area	Operations	2025	Apply to yearly inflow values	mg/L	Annual Dissolved
6	Doris UG Mine Area	Operations	2026	Apply to yearly inflow values	mg/L	Annual Dissolved
6	Doris UG Mine Area	Operations	2027	Apply to yearly inflow values	mg/L	Annual Dissolved
6	Doris UG Mine Area	Operations	2028	Apply to yearly inflow values	mg/L	Annual Dissolved
6	Doris UG Mine Area	Operations	2029	Apply to yearly inflow values	mg/L	Annual Dissolved
6	Doris UG Mine Area	Operations	2030	Apply to yearly inflow values	mg/L	Annual Dissolved
6	Doris UG Mine Area	Operations	2031	Apply to yearly inflow values	mg/L	Annual Dissolved
6	Doris UG Mine Area	Operations	2032	Apply to yearly inflow values	mg/L	Annual Dissolved
6	Doris UG Mine Area	Operations	2036	Apply to yearly inflow values	mg/L	Annual Dissolved
6	Doris UG Mine Area	Operations	2037	Apply to yearly inflow values	mg/L	Annual Dissolved
6	Doris UG Mine Area	Operations	**2038**	Apply to yearly inflow values	mg/L	Annual Dissolved
7	Doris UG Mine Area - Reflooding	Closure	When inundated	Apply to yearly inflow values	mg/L	Single Dissolved
8	Madrid North Waste Rock Stockpile #1 (South, Existing)	Operations	Max	Apply to whole footprint	mg/L	Single Dissolved
9	Madrid North Waste Rock Stockpile #2 (North)	Operations	Max	Apply to whole footprint	mg/L	Single Dissolved
10	Madrid North Ore Pile	Operations	Max	Apply to whole footprint	mg/L	Single Dissolved
11	Patch 7 Waste Rock Stockpile	Operations	Max	Apply to whole footprint	mg/L	Single Dissolved
12	Patch 7 Ore Pile	Operations	Max	Apply to whole footprint	mg/L	Single Dissolved
13	Madrid South Waste Rock Stockpile	Operations	Max	Apply to whole footprint	mg/L	Single Dissolved
14	Madrid South Waste Rock Stockpile - Closure	Closure	2046 onwards	Apply to whole footprint	mg/L	Single Dissolved
15	Madrid South Ore Pile	Operations	Max	Apply to whole footprint	mg/L	Single Dissolved
16	Naartok East CPR Trench	Operations	Max	Apply to outflows	mg/L	Single Dissolved
17	Madrid Overburden Stockpiles - Saline Seepage	Operations	Until reclaimed	Apply to whole footprint	mg/L	Single Dissolved
18	Madrid Overburden Stockpiles - Non-Saline Seepage - Closure	Closure	After reclamation	Apply to whole footprint	mg/L	Single Dissolved
19	Madrid North UG Mine Area	Operations	2024	Apply to yearly inflow values	mg/L	Annual Dissolved
19	Madrid North UG Mine Area	Operations	2025	Apply to yearly inflow values	mg/L	Annual Dissolved
19	Madrid North UG Mine Area	Operations	2026	Apply to yearly inflow values	mg/L	Annual Dissolved
19	Madrid North UG Mine Area	Operations	2027	Apply to yearly inflow values	mg/L	Annual Dissolved
19	Madrid North UG Mine Area	Operations	2028	Apply to yearly inflow values	mg/L	Annual Dissolved
19	Madrid North UG Mine Area	Operations	2029	Apply to yearly inflow values	mg/L	Annual Dissolved
19	Madrid North UG Mine Area	Operations	2030	Apply to yearly inflow values	mg/L	Annual Dissolved
19	Madrid North UG Mine Area	Operations	2031	Apply to yearly inflow values	mg/L	Annual Dissolved
19	Madrid North UG Mine Area	Operations	2032	Apply to yearly inflow values	mg/L	Annual Dissolved
19	Madrid North UG Mine Area	Operations	2033	Apply to yearly inflow values	mg/L	Annual Dissolved
19	Madrid North UG Mine Area	Operations	2034	Apply to yearly inflow values	mg/L	Annual Dissolved
19	Madrid North UG Mine Area	Operations	2035	Apply to yearly inflow values	mg/L	Annual Dissolved
19	Madrid North UG Mine Area	Operations	2036	Apply to yearly inflow values	mg/L	Annual Dissolved
19	Madrid North UG Mine Area	Operations	2037	Apply to yearly inflow values	mg/L	Annual Dissolved
19	Madrid North UG Mine Area	Operations	2038	Apply to yearly inflow values	mg/L	Annual Dissolved
19	Madrid North UG Mine Area	Operations	2039	Apply to yearly inflow values	mg/L	Annual Dissolved
19	Madrid North UG Mine Area	Operations	2040	Apply to yearly inflow values	mg/L	Annual Dissolved
19	Madrid North UG Mine Area	Operations	**2041**	Apply to yearly inflow values	mg/L	Annual Dissolved
20	Madrid North UG Mine Area - Reflooding	Closure	When inundated	Apply to yearly inflow values	mg/L	Single Dissolved
21	Patch 7 UG Mine Area	Operations	2024	Apply to yearly inflow values	mg/L	Annual Dissolved
21	Patch 7 UG Mine Area	Operations	2025	Apply to yearly inflow values	mg/L	Annual Dissolved
21	Patch 7 UG Mine Area	Operations	2026	Apply to yearly inflow values	mg/L	Annual Dissolved

Term	Source	SO4	Alk	Hardnes	F	Cl	NO2	NO3	NH3	Total CN	Free CN	WAD CN	CNO	SCN	Al	Sb	As
1	Doris Pad T Ore Pile	2400	580	0	1.9	190	0	0	0	0	0	0	0	0	0.064	0.032	4.5
2	Doris Waste Rock Stockpile #1 (West)	1100	580	0	1.9	1200	0	0	0	0	0	0	0	0	0.064	0.032	0.89
3	Doris Waste Rock Stockpile #2 (Pad U)	1400	580	0	1.9	1400	0	0	0	0	0	0	0	0	0.064	0.032	1.1
4	Doris Waste Rock Stockpile #2 (Pad U) - Closure	730	580	0	1.9	760	0	0	0	0	0	0	0	0	0.064	0.032	0.59
5	Doris Overburden Stockpile	13	65	0	0.034	26	0	0	0	0	0	0	0	0	0.048	0.0001	0.0018
6	Doris UG Mine Area	150	27	200	0.021	1.8	0	0	0	0.0056	0.0056	0.0056	0.23	0.23	0.08	1E-04	0.0019
6	Doris UG Mine Area	150	27	200	0.021	1.8	0	0	0	0.0056	0.0056	0.0056	0.22	0.23	0.079	1E-04	0.0018
6	Doris UG Mine Area	140	25	190	0.019	1.7	0	0	0	0.0052	0.0052	0.0052	0.21	0.21	0.074	9E-05	0.0017
6	Doris UG Mine Area	130	24	170	0.018	1.6	0	0	0	0.0049	0.0049	0.0049	0.19	0.2	0.069	8E-05	0.0016
6	Doris UG Mine Area	130	23	170	0.018	1.6	0	0	0	0.0047	0.0047	0.0047	0.19	0.19	0.068	8E-05	0.0016
6	Doris UG Mine Area	120	23	160	0.018	1.7	0	0	0	0.0045	0.0045	0.0045	0.18	0.18	0.071	9E-05	0.0017
6	Doris UG Mine Area	110	23	150	0.018	1.7	0	0	0	0.0041	0.0041	0.0041	0.16	0.17	0.072	9E-05	0.0017
6	Doris UG Mine Area	110	25	150	0.02	1.9	0	0	0	0.0041	0.0041	0.0041	0.16	0.17	0.078	1E-04	0.0019
6	Doris UG Mine Area	110	26	150	0.021	2.1	0	0	0	0.0041	0.004	0.004	0.16	0.17	0.084	0.0001	0.002
6	Doris UG Mine Area	110	29	160	0.025	2.6	0	0	0	0.0041	0.004	0.004	0.16	0.17	0.097	0.0001	0.0024
6	Doris UG Mine Area	110	29	160	0.025	2.6	0	0	0	0.0041	0.004	0.004	0.16	0.17	0.098	0.0001	0.0024
6	Doris UG Mine Area	110	30	160	0.025	2.6	0	0	0	0.0041	0.004	0.004	0.16	0.17	0.098	0.0001	0.0024
7	Doris UG Mine Area - Reflooding	7100	1100	6500	0.85	82	0	0	0	0.17	0.17	0.17	7	7.2	3.3	0.0041	0.08
8	Madrid North Waste Rock Stockpile #1 (South, Existing)	2400	580	3000	1.9	380	0	0	0	0	0	0	0	0	0.064	0.032	4.5
9	Madrid North Waste Rock Stockpile #2 (North)	2400	580	3000	1.9	940	0	0	0	0	0	0	0	0	0.064	0.032	4.5
10	Madrid North Ore Pile	2400	580	3000	1.9	210	0	0	0	0	0	0	0	0	0.064	0.032	4.5
11	Patch 7 Waste Rock Stockpile	2400	580	3000	1.9	620	0	0	0	0	0	0	0	0	0.064	0.032	4.5
12	Patch 7 Ore Pile	2400	580	3000	1.9	180	0	0	0	0	0	0	0	0	0.064	0.032	4.5
13	Madrid South Waste Rock Stockpile	780	580	3000	1.9	1500	0	0	0	0	0	0	0	0	0.064	0.032	4.5
14	Madrid South Waste Rock Stockpile - Closure	760	580	3000	1.9	1500	0	0	0	0	0	0	0	0	0.064	0.032	4.5
15	Madrid South Ore Pile	2400	580	3000	1.9	140	0	0	0	0	0	0	0	0	0.064	0.032	4.5
16	Naartok East CPR Trench	130	150	2900	0	430	0	0	0	0.007	0.005	0.005	1	0.5	0.02	0.014	0.98
17	Madrid Overburden Stockpiles - Saline Seepage	3300	300	0	2	26000	0	0	0	0	0	0	0	0	0.062	0.005	0.0059
18	Madrid Overburden Stockpiles - Non-Saline Seepage - Closure	5.4	74	0	0.037	13	0	0	0	0	0	0	0	0	0.023	0.0001	0.002
19	Madrid North UG Mine Area	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	Madrid North UG Mine Area	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	Madrid North UG Mine Area	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	Madrid North UG Mine Area	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	Madrid North UG Mine Area	7	8.8	16	0.0098	0.71	0	0	0	0	0	0	0	0	0.023	0.0011	0.18
19	Madrid North UG Mine Area	12	15	28	0.017	1.2	0	0	0	0	0	0	0	0	0.04	0.0019	0.31
19	Madrid North UG Mine Area	19	24	44	0.027	2	0	0	0	0	0	0	0	0	0.063	0.003	0.49
19	Madrid North UG Mine Area	22	27	50	0.031	2.2	0	0	0	0	0	0	0	0	0.072	0.0034	0.56
19	Madrid North UG Mine Area	24	30	55	0.034	2.4	0	0	0	0	0	0	0	0	0.079	0.0038	0.62
19	Madrid North UG Mine Area	28	35	64	0.039	2.8	0	0	0	0	0	0	0	0	0.092	0.0043	0.71
19	Madrid North UG Mine Area	31	39	71	0.043	3.1	0	0	0	0	0	0	0	0	0.098	0.0048	0.79
19	Madrid North UG Mine Area	35	44	80	0.049	3.5	0	0	0	0	0	0	0	0	0.098	0.0054	0.89
19	Madrid North UG Mine Area	38	48	88	0.054	3.9	0	0	0	0	0	0	0	0	0.098	0.006	0.98
19	Madrid North UG Mine Area	41	51	93	0.057	4.1	0	0	0	0	0	0	0	0	0.098	0.0063	1
19	Madrid North UG Mine Area	43	55	99	0.061	4.4	0	0	0	0	0	0	0	0	0.098	0.0067	1.1
19	Madrid North UG Mine Area	45	57	100	0.064	4.6	0	0	0	0	0	0	0	0	0.098	0.0071	1.2
19	Madrid North UG Mine Area	48	60	110	0.067	4.8	0	0	0	0	0	0	0	0	0.098	0.0074	1.2
19	Madrid North UG Mine Area	48	61	110	0.068	4.9	0	0	0	0	0	0	0	0	0.098	0.0075	1.2
20	Madrid North UG Mine Area - Reflooding	1300	1700	3100	1.9	140	0	0	0	0	0	0	0	0	4.4	0.21	34
21	Patch 7 UG Mine Area	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	Patch 7 UG Mine Area	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	Patch 7 UG Mine Area	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Term	Source	Ba	Be	B	Cd	Ca	Cr	Co	Cu	Fe	Pb	Li	Mg	Mn	Hg	Mo
1	Doris Pad T Ore Pile	0.067	0.001	1.5	0.0004	680	0.0093	0.057	0.028	2.4	0.0019	0.064	170	1.2	0.0001	0.031
2	Doris Waste Rock Stockpile #1 (West)	0.067	0.001	1.5	0.0004	680	0.0093	0.056	0.028	3	0.0019	0.064	170	1.2	0.0001	0.031
3	Doris Waste Rock Stockpile #2 (Pad U)	0.067	0.001	1.5	0.0004	680	0.0093	0.057	0.028	3	0.0019	0.064	170	1.2	0.0001	0.031
4	Doris Waste Rock Stockpile #2 (Pad U) - Closure	0.067	0.001	1.5	0.0004	680	0.0093	0.037	0.028	3	0.0019	0.064	170	1.2	0.0001	0.031
5	Doris Overburden Stockpile	0	0.0001	0.047	1E-05	16	0.0001	0.0001	0.015	0.023	5E-05	0	5.2	0.0061	1E-05	0.0004
6	Doris UG Mine Area	0.015	3E-05	0.2	0.0004	52	0.0004	0.0077	0.0035	0.15	0.0002	0.0097	21	0.88	7E-06	0.0002
6	Doris UG Mine Area	0.015	3E-05	0.2	0.0004	51	0.0004	0.0076	0.0034	0.15	0.0002	0.0096	21	0.87	7E-06	0.0002
6	Doris UG Mine Area	0.014	3E-05	0.18	0.0004	48	0.0004	0.0071	0.0032	0.14	0.0002	0.009	19	0.82	7E-06	0.0002
6	Doris UG Mine Area	0.013	3E-05	0.17	0.0004	45	0.0003	0.0066	0.003	0.13	0.0002	0.0084	18	0.76	6E-06	0.0001
6	Doris UG Mine Area	0.013	3E-05	0.17	0.0004	43	0.0003	0.0065	0.0029	0.13	0.0002	0.0081	18	0.74	6E-06	0.0001
6	Doris UG Mine Area	0.013	3E-05	0.16	0.0004	41	0.0003	0.0066	0.0028	0.12	0.0002	0.0078	17	0.71	6E-06	0.0002
6	Doris UG Mine Area	0.013	3E-05	0.15	0.0004	38	0.0003	0.0065	0.0026	0.11	0.0002	0.0072	16	0.67	7E-06	0.0002
6	Doris UG Mine Area	0.013	3E-05	0.15	0.0004	38	0.0003	0.0068	0.0026	0.12	0.0002	0.0071	16	0.67	8E-06	0.0002
6	Doris UG Mine Area	0.014	4E-05	0.15	0.0004	39	0.0003	0.0072	0.0026	0.12	0.0002	0.0071	16	0.68	8E-06	0.0002
6	Doris UG Mine Area	0.015	5E-05	0.16	0.0004	39	0.0003	0.0081	0.0027	0.12	0.0002	0.0072	16	0.71	1E-05	0.0002
6	Doris UG Mine Area	0.015	5E-05	0.16	0.0004	39	0.0003	0.0081	0.0027	0.12	0.0002	0.0072	16	0.71	1E-05	0.0002
6	Doris UG Mine Area	0.015	5E-05	0.16	0.0004	39	0.0003	0.0081	0.0027	0.12	0.0002	0.0072	16	0.71	1E-05	0.0002
7	Doris UG Mine Area - Reflooding	0.56	0.0014	6.5	0.2	1600	0.013	0.29	0.11	4.9	0.0072	0.31	680	29	0.0003	0.007
8	Madrid North Waste Rock Stockpile #1 (South, Existing)	0.067	0.001	1.5	0.0004	680	0.0093	0.057	0.028	3	0.0019	0.064	170	1.2	0.0001	0.031
9	Madrid North Waste Rock Stockpile #2 (North)	0.067	0.001	1.5	0.0004	680	0.0093	0.057	0.028	3	0.0019	0.064	170	1.2	0.0001	0.031
10	Madrid North Ore Pile	0.067	0.001	1.5	0.0004	680	0.0093	0.057	0.028	3	0.0019	0.064	170	1.2	0.0001	0.031
11	Patch 7 Waste Rock Stockpile	0.067	0.001	1.5	0.0004	680	0.0093	0.057	0.028	3	0.0019	0.064	170	1.2	0.0001	0.031
12	Patch 7 Ore Pile	0.067	0.001	1.5	0.0004	680	0.0093	0.057	0.028	2.7	0.0019	0.064	170	1.2	0.0001	0.031
13	Madrid South Waste Rock Stockpile	0.067	0.001	1.5	0.0004	680	0.0093	0.057	0.028	1.4	0.0019	0.064	170	1.2	0.0001	0.031
14	Madrid South Waste Rock Stockpile - Closure	0.067	0.001	1.5	0.0004	680	0.0093	0.057	0.028	1.4	0.0019	0.064	170	1.2	0.0001	0.031
15	Madrid South Ore Pile	0.067	0.001	1.5	0.0004	680	0.0093	0.057	0.028	2.9	0.0019	0.064	170	1.2	0.0001	0.031
16	Naartok East CPR Trench	0	0.0004	1.7	0.0001	270	0.002	0.067	0.0075	0.2	0.001	0	540	0.56	5E-06	0.031
17	Madrid Overburden Stockpiles - Saline Seepage	0	0.0024	1.9	0.0025	1200	0.005	0.089	0.014	11	0.0025	0	2300	7.9	1E-05	0.022
18	Madrid Overburden Stockpiles - Non-Saline Seepage - Closure	0	0.0001	0.018	5E-06	24	0.0005	0.0003	0.0055	0.034	5E-05	0	3.7	0.036	1E-05	0.0004
19	Madrid North UG Mine Area	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	Madrid North UG Mine Area	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	Madrid North UG Mine Area	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	Madrid North UG Mine Area	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	Madrid North UG Mine Area	0.0014	1E-05	0.023	4E-06	3.8	7E-05	0.0033	0.0004	0.0058	4E-05	0.0004	1.7	0.009	6E-06	0.0007
19	Madrid North UG Mine Area	0.0025	2E-05	0.04	7E-06	6.6	0.0001	0.0057	0.0007	0.01	6E-05	0.0007	2.9	0.016	1E-05	0.0012
19	Madrid North UG Mine Area	0.0039	4E-05	0.063	1E-05	11	0.0002	0.0091	0.0011	0.016	1E-04	0.0012	4.6	0.025	2E-05	0.0018
19	Madrid North UG Mine Area	0.0044	4E-05	0.071	1E-05	12	0.0002	0.01	0.0012	0.018	0.0001	0.0013	5.3	0.028	2E-05	0.0021
19	Madrid North UG Mine Area	0.0049	5E-05	0.079	1E-05	13	0.0003	0.011	0.0013	0.02	0.0001	0.0014	5.8	0.031	2E-05	0.0023
19	Madrid North UG Mine Area	0.0057	5E-05	0.091	2E-05	15	0.0003	0.013	0.0015	0.023	0.0001	0.0017	6.7	0.036	2E-05	0.0027
19	Madrid North UG Mine Area	0.0063	6E-05	0.1	2E-05	17	0.0003	0.015	0.0017	0.026	0.0002	0.0018	7.4	0.04	3E-05	0.0029
19	Madrid North UG Mine Area	0.0071	6E-05	0.11	2E-05	19	0.0004	0.016	0.0019	0.029	0.0002	0.0021	8.4	0.045	3E-05	0.0033
19	Madrid North UG Mine Area	0.0078	7E-05	0.13	2E-05	21	0.0004	0.018	0.0021	0.032	0.0002	0.0023	9.2	0.049	3E-05	0.0036
19	Madrid North UG Mine Area	0.0082	8E-05	0.13	2E-05	22	0.0004	0.019	0.0022	0.034	0.0002	0.0024	9.8	0.052	3E-05	0.0039
19	Madrid North UG Mine Area	0.0088	8E-05	0.14	2E-05	24	0.0004	0.02	0.0024	0.036	0.0002	0.0026	10	0.056	4E-05	0.0041
19	Madrid North UG Mine Area	0.0092	8E-05	0.15	3E-05	25	0.0005	0.021	0.0025	0.038	0.0002	0.0027	11	0.058	4E-05	0.0043
19	Madrid North UG Mine Area	0.0097	9E-05	0.16	3E-05	26	0.0005	0.022	0.0026	0.04	0.0002	0.0028	11	0.061	4E-05	0.0045
19	Madrid North UG Mine Area	0.0098	9E-05	0.16	3E-05	26	0.0005	0.023	0.0026	0.04	0.0002	0.0029	12	0.062	4E-05	0.0046
20	Madrid North UG Mine Area - Reflooding	0.27	0.0025	4.4	0.0008	730	0.014	0.63	0.073	1.1	0.0066	0.08	320	1.7	0.0011	0.13
21	Patch 7 UG Mine Area	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	Patch 7 UG Mine Area	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	Patch 7 UG Mine Area	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Complete Upper Case Source Term Results

Term	Source	Ni	P	K	Se	Ag	Na	S	Tl	U	V	Zn
1	Doris Pad T Ore Pile	0.24	0.3	48	0.039	0.0003	49	-	0.0004	0.002	0.005	0.077
2	Doris Waste Rock Stockpile #1 (West)	0.16	0.3	48	0.033	0.0003	410	-	0.0004	0.0099	0.005	0.077
3	Doris Waste Rock Stockpile #2 (Pad U)	0.2	0.3	48	0.041	0.0003	410	-	0.0004	0.012	0.005	0.077
4	Doris Waste Rock Stockpile #2 (Pad U) - Closure	0.11	0.3	48	0.022	0.0003	410	-	0.0004	0.0066	0.005	0.077
5	Doris Overburden Stockpile	0.001	0.05	2.4	0.0003	1E-05	19	-	1E-05	0.0002	0.0015	0.011
6	Doris UG Mine Area	0.0076	0.0084	1.9	0.0059	2E-05	3.9	-	4E-05	4E-05	0.002	0.011
6	Doris UG Mine Area	0.0075	0.0083	1.9	0.0058	1E-05	3.8	-	4E-05	4E-05	0.0019	0.011
6	Doris UG Mine Area	0.007	0.0078	1.8	0.0055	1E-05	3.6	-	4E-05	4E-05	0.0018	0.01
6	Doris UG Mine Area	0.0066	0.0073	1.7	0.0051	1E-05	3.4	-	3E-05	4E-05	0.0017	0.0093
6	Doris UG Mine Area	0.0064	0.0072	1.6	0.0049	1E-05	3.3	-	3E-05	4E-05	0.0017	0.009
6	Doris UG Mine Area	0.0061	0.0073	1.6	0.0047	1E-05	3.3	-	3E-05	4E-05	0.0018	0.0086
6	Doris UG Mine Area	0.0056	0.0073	1.5	0.0043	1E-05	3.3	-	3E-05	3E-05	0.0019	0.008
6	Doris UG Mine Area	0.0056	0.0078	1.6	0.0043	1E-05	3.5	-	3E-05	4E-05	0.0021	0.0079
6	Doris UG Mine Area	0.0056	0.0083	1.6	0.0043	2E-05	3.7	-	3E-05	4E-05	0.0024	0.0079
6	Doris UG Mine Area	0.0056	0.0094	1.7	0.0043	2E-05	4.2	-	3E-05	4E-05	0.0028	0.008
6	Doris UG Mine Area	0.0056	0.0095	1.7	0.0043	2E-05	4.2	-	3E-05	4E-05	0.0029	0.008
6	Doris UG Mine Area	0.0056	0.0095	1.7	0.0043	2E-05	4.2	-	3E-05	4E-05	0.0029	0.008
7	Doris UG Mine Area - Reflooding	0.24	0.33	67	0.18	0.0006	150	-	0.0012	0.0015	0.091	0.34
8	Madrid North Waste Rock Stockpile #1 (South, Existing)	0.24	0.3	48	0.07	0.0003	290	-	0.0004	0.0069	0.005	0.077
9	Madrid North Waste Rock Stockpile #2 (North)	0.24	0.3	48	0.17	0.0003	410	-	0.0004	0.014	0.005	0.077
10	Madrid North Ore Pile	0.24	0.3	48	0.055	0.0003	69	-	0.0004	0.0027	0.005	0.077
11	Patch 7 Waste Rock Stockpile	0.24	0.3	48	0.1	0.0003	410	-	0.0004	0.013	0.005	0.077
12	Patch 7 Ore Pile	0.24	0.3	48	0.046	0.0003	58	-	0.0004	0.0023	0.005	0.077
13	Madrid South Waste Rock Stockpile	0.24	0.3	48	0.064	0.0003	410	-	0.0004	0.014	0.005	0.077
14	Madrid South Waste Rock Stockpile - Closure	0.24	0.3	48	0.062	0.0003	410	-	0.0004	0.014	0.005	0.077
15	Madrid South Ore Pile	0.24	0.3	48	0.041	0.0003	52	-	0.0004	0.0014	0.005	0.077
16	Naartok East CPR Trench	0.86	1	170	0.012	0.0002	4200	-	0.0002	0.019	0.01	0.15
17	Madrid Overburden Stockpiles - Saline Seepage	0.067	2.5	500	0.0031	0.0005	15000	-	0.0005	0.038	0.025	0.05
18	Madrid Overburden Stockpiles - Non-Saline Seepage - Closure	0.0017	0.05	1.6	0.0001	1E-05	9	-	1E-05	0.0001	0.0005	0.0022
19	Madrid North UG Mine Area	0	0	0	0	0	0	-	0	0	0	0
19	Madrid North UG Mine Area	0	0	0	0	0	0	-	0	0	0	0
19	Madrid North UG Mine Area	0	0	0	0	0	0	-	0	0	0	0
19	Madrid North UG Mine Area	0	0	0	0	0	0	-	0	0	0	0
19	Madrid North UG Mine Area	0.0028	0.0035	0.31	0.0001	5E-06	0.55	-	1E-05	1E-05	0.0007	0.0016
19	Madrid North UG Mine Area	0.0049	0.006	0.53	0.0002	8E-06	0.95	-	2E-05	2E-05	0.0012	0.0028
19	Madrid North UG Mine Area	0.0078	0.0095	0.85	0.0004	1E-05	1.5	-	3E-05	4E-05	0.0019	0.0045
19	Madrid North UG Mine Area	0.0088	0.011	0.96	0.0004	2E-05	1.7	-	3E-05	4E-05	0.0021	0.0051
19	Madrid North UG Mine Area	0.0098	0.012	1.1	0.0005	2E-05	1.9	-	3E-05	5E-05	0.0023	0.0056
19	Madrid North UG Mine Area	0.011	0.014	1.2	0.0006	2E-05	2.2	-	4E-05	5E-05	0.0027	0.0065
19	Madrid North UG Mine Area	0.012	0.015	1.3	0.0006	2E-05	2.4	-	4E-05	6E-05	0.003	0.0071
19	Madrid North UG Mine Area	0.014	0.017	1.5	0.0007	2E-05	2.7	-	5E-05	7E-05	0.0034	0.0081
19	Madrid North UG Mine Area	0.015	0.019	1.7	0.0008	3E-05	3	-	5E-05	7E-05	0.0037	0.0089
19	Madrid North UG Mine Area	0.016	0.02	1.8	0.0008	3E-05	3.2	-	6E-05	8E-05	0.0039	0.0094
19	Madrid North UG Mine Area	0.018	0.021	1.9	0.0009	3E-05	3.4	-	6E-05	8E-05	0.0042	0.01
19	Madrid North UG Mine Area	0.018	0.022	2	0.0009	3E-05	3.5	-	6E-05	8E-05	0.0044	0.011
19	Madrid North UG Mine Area	0.019	0.023	2.1	0.001	3E-05	3.7	-	7E-05	9E-05	0.0046	0.011
19	Madrid North UG Mine Area	0.019	0.024	2.1	0.001	3E-05	3.8	-	7E-05	9E-05	0.0047	0.011
20	Madrid North UG Mine Area - Reflooding	0.54	0.66	59	0.027	0.0009	100	-	0.0018	0.0025	0.13	0.31
21	Patch 7 UG Mine Area	0	0	0	0	0	0	-	0	0	0	0
21	Patch 7 UG Mine Area	0	0	0	0	0	0	-	0	0	0	0
21	Patch 7 UG Mine Area	0	0	0	0	0	0	-	0	0	0	0

Complete Upper Case Source Term Results

Term	Source	Phase	Year	Notes	Units	Reporting Detail
21	Patch 7 UG Mine Area	Operations	2027	Apply to yearly inflow values	mg/L	Annual Dissolved
21	Patch 7 UG Mine Area	Operations	2028	Apply to yearly inflow values	mg/L	Annual Dissolved
21	Patch 7 UG Mine Area	Operations	2029	Apply to yearly inflow values	mg/L	Annual Dissolved
21	Patch 7 UG Mine Area	Operations	2030	Apply to yearly inflow values	mg/L	Annual Dissolved
21	Patch 7 UG Mine Area	Operations	2031	Apply to yearly inflow values	mg/L	Annual Dissolved
21	Patch 7 UG Mine Area	Operations	2032	Apply to yearly inflow values	mg/L	Annual Dissolved
21	Patch 7 UG Mine Area	Operations	2033	Apply to yearly inflow values	mg/L	Annual Dissolved
21	Patch 7 UG Mine Area	Operations	2034	Apply to yearly inflow values	mg/L	Annual Dissolved
21	Patch 7 UG Mine Area	Operations	2035	Apply to yearly inflow values	mg/L	Annual Dissolved
21	Patch 7 UG Mine Area	Operations	2036	Apply to yearly inflow values	mg/L	Annual Dissolved
21	Patch 7 UG Mine Area	Operations	2037	Apply to yearly inflow values	mg/L	Annual Dissolved
21	Patch 7 UG Mine Area	Operations	2038	Apply to yearly inflow values	mg/L	Annual Dissolved
21	Patch 7 UG Mine Area	Operations	2039	Apply to yearly inflow values	mg/L	Annual Dissolved
21	Patch 7 UG Mine Area	Operations	2040	Apply to yearly inflow values	mg/L	Annual Dissolved
21	Patch 7 UG Mine Area	Operations	**2041**	Apply to yearly inflow values	mg/L	Annual Dissolved
22	Patch 7 UG Mine Area - Reflooding	Closure	When inundated	Apply to yearly inflow values	mg/L	Single Dissolved
23	Madrid South UG Mine Area	Operations	2024	Apply to yearly inflow values	mg/L	Annual Dissolved
23	Madrid South UG Mine Area	Operations	2025	Apply to yearly inflow values	mg/L	Annual Dissolved
23	Madrid South UG Mine Area	Operations	2026	Apply to yearly inflow values	mg/L	Annual Dissolved
23	Madrid South UG Mine Area	Operations	2027	Apply to yearly inflow values	mg/L	Annual Dissolved
23	Madrid South UG Mine Area	Operations	2028	Apply to yearly inflow values	mg/L	Annual Dissolved
23	Madrid South UG Mine Area	Operations	2029	Apply to yearly inflow values	mg/L	Annual Dissolved
23	Madrid South UG Mine Area	Operations	2030	Apply to yearly inflow values	mg/L	Annual Dissolved
23	Madrid South UG Mine Area	Operations	2031	Apply to yearly inflow values	mg/L	Annual Dissolved
23	Madrid South UG Mine Area	Operations	2032	Apply to yearly inflow values	mg/L	Annual Dissolved
23	Madrid South UG Mine Area	Operations	2033	Apply to yearly inflow values	mg/L	Annual Dissolved
23	Madrid South UG Mine Area	Operations	2034	Apply to yearly inflow values	mg/L	Annual Dissolved
23	Madrid South UG Mine Area	Operations	2035	Apply to yearly inflow values	mg/L	Annual Dissolved
23	Madrid South UG Mine Area	Operations	2036	Apply to yearly inflow values	mg/L	Annual Dissolved
23	Madrid South UG Mine Area	Operations	2037	Apply to yearly inflow values	mg/L	Annual Dissolved
23	Madrid South UG Mine Area	Operations	2038	Apply to yearly inflow values	mg/L	Annual Dissolved
23	Madrid South UG Mine Area	Operations	2039	Apply to yearly inflow values	mg/L	Annual Dissolved
23	Madrid South UG Mine Area	Operations	2040	Apply to yearly inflow values	mg/L	Annual Dissolved
23	Madrid South UG Mine Area	Operations	**2041**	Apply to yearly inflow values	mg/L	Annual Dissolved
24	Madrid South UG Mine Area - Reflooding	Closure	When inundated	Apply to yearly inflow values	mg/L	Single Dissolved
25	General Developed Areas and TIA Dams	Operations	Max	Apply to yearly runoff values	mg/L	Single Dissolved
26	Doris TIA Exposed Tailings Beaches (Operations, Pre Dry Stack)	Operations	Until 2033	Apply to whole footprint	mg/L	Single Dissolved
27	Doris TIA Exposed Tailings Beaches (Operations, Post Dry Stack)	Operations	From 2033	Apply to whole footprint	mg/L	Single Dissolved
28	Doris TIA Exposed Tailings Beaches (Closure, Cover Case: Runoff)	Closure	2046 onwards	Apply to whole footprint	mg/L	Single Dissolved
29	Doris TIA Exposed Tailings Beaches (Closure, Cover Case: Infiltration)	Closure	2046 onwards	Apply to whole footprint	mg/L	Single Dissolved
30	Doris TIA Exposed Tailings Beaches (Closure, Uncovered Case)	Closure	2046 onwards	Apply to whole footprint	mg/L	Single Dissolved
31	Tailings Dry Stack (Operations)	Operations	From 2033	Concentration per unit area, apply to whole footprint	mg/L	Single Dissolved
32	Tailings Dry Stack (Closure, Cover Case: Runoff)	Closure	2046 onwards	Concentration per unit area, apply to whole footprint	mg/L	Single Dissolved
33	Tailings Dry Stack (Closure, Cover Case: Infiltration)	Closure	2046 onwards	Concentration per unit area, apply to whole footprint	mg/L	Single Dissolved
34	Tailings Dry Stack (Closure, Uncovered Case)	Closure	2046 onwards	Concentration per unit area, apply to whole footprint	mg/L	Single Dissolved
35	Total Metals Content in TSS - Construction Rock	Operations	Max	TSS assumed to be regulatory limit, calculation method same as SRK (2017)	mg/kg	Solid phase element concentration
36a	Total Metals Content in TSS - Combined Detoxified Doris Tailings	Operations	Max	TSS assumed to be regulatory limit, calculation method same as SRK (2017)	mg/kg	Solid phase element concentration
36b	Total Metals Content in TSS - Combined Detoxified Madrid North Tailings	Operations	Max	TSS assumed to be regulatory limit, calculation method same as SRK (2017)	mg/kg	Solid phase element concentration
36c	Total Metals Content in TSS - Combined Detoxified Patch 7 Tailings	Operations	Max	TSS assumed to be regulatory limit, calculation method same as SRK (2017)	mg/kg	Solid phase element concentration
36d	Total Metals Content in TSS - Combined Detoxified Madrid South Tailings	Operations	Max	TSS assumed to be regulatory limit, calculation method same as SRK (2017)	mg/kg	Solid phase element concentration
37	Total Metals Content in TSS - Doris Waste Rock	Operations	Max	TSS assumed to be regulatory limit, calculation method same as SRK (2017)	mg/kg	Solid phase element concentration

Complete Upper Case Source Term Results

Term	Source	SO4	Alk	Hardnes	F	Cl	NO2	NO3	NH3	Total CN	Free CN	WAD CN	CNO	SCN	Al	Sb	As
21	Patch 7 UG Mine Area	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	Patch 7 UG Mine Area	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	Patch 7 UG Mine Area	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	Patch 7 UG Mine Area	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	Patch 7 UG Mine Area	1.2	2.6	3.7	0.0031	0.21	0	0	0	0	0	0	0	0	0.0062	0.0003	0.039
21	Patch 7 UG Mine Area	4.7	9.9	14	0.012	0.79	0	0	0	0	0	0	0	0	0.024	0.0011	0.15
21	Patch 7 UG Mine Area	9	19	27	0.023	1.5	0	0	0	0	0	0	0	0	0.046	0.002	0.28
21	Patch 7 UG Mine Area	14	29	43	0.036	2.3	0	0	0	0	0	0	0	0	0.071	0.0032	0.44
21	Patch 7 UG Mine Area	16	33	48	0.04	2.7	0	0	0	0	0	0	0	0	0.081	0.0036	0.5
21	Patch 7 UG Mine Area	18	38	56	0.046	3.1	0	0	0	0	0	0	0	0	0.093	0.0041	0.58
21	Patch 7 UG Mine Area	20	43	62	0.052	3.4	0	0	0	0	0	0	0	0	0.098	0.0046	0.64
21	Patch 7 UG Mine Area	25	52	76	0.063	4.2	0	0	0	0	0	0	0	0	0.098	0.0056	0.78
21	Patch 7 UG Mine Area	29	62	89	0.074	4.9	0	0	0	0	0	0	0	0	0.098	0.0066	0.92
21	Patch 7 UG Mine Area	34	71	100	0.086	5.7	0	0	0	0	0	0	0	0	0.098	0.0077	1.1
21	Patch 7 UG Mine Area	38	80	120	0.096	6.4	0	0	0	0	0	0	0	0	0.098	0.0086	1.2
22	Patch 7 UG Mine Area - Reflooding	1000	1900	2900	2.2	140	0	0	0	0	0	0	0	0	4.3	0.22	30
23	Madrid South UG Mine Area	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	Madrid South UG Mine Area	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	Madrid South UG Mine Area	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	Madrid South UG Mine Area	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	Madrid South UG Mine Area	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	Madrid South UG Mine Area	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	Madrid South UG Mine Area	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	Madrid South UG Mine Area	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	Madrid South UG Mine Area	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	Madrid South UG Mine Area	0.049	0.52	2.3	0.0003	0.097	0	0	0	0	0	0	0	0	0.0014	2E-05	0.0043
23	Madrid South UG Mine Area	0.27	2.8	13	0.0018	0.52	0	0	0	0	0	0	0	0	0.0077	0.0001	0.023
23	Madrid South UG Mine Area	0.9	9.5	43	0.0061	1.8	0	0	0	0	0	0	0	0	0.026	0.0004	0.079
23	Madrid South UG Mine Area	2	21	93	0.013	3.8	0	0	0	0	0	0	0	0	0.056	0.0009	0.17
23	Madrid South UG Mine Area	3.2	33	150	0.021	6.2	0	0	0	0	0	0	0	0	0.091	0.0014	0.28
23	Madrid South UG Mine Area	5	52	240	0.033	9.7	0	0	0	0	0	0	0	0	0.098	0.0022	0.43
23	Madrid South UG Mine Area	6.5	69	310	0.044	13	0	0	0	0	0	0	0	0	0.098	0.0029	0.57
23	Madrid South UG Mine Area	8.4	88	400	0.056	16	0	0	0	0	0	0	0	0	0.098	0.0037	0.73
23	Madrid South UG Mine Area	9.1	96	430	0.061	18	0	0	0	0	0	0	0	0	0.098	0.004	0.8
24	Madrid South UG Mine Area - Reflooding	170	1800	8100	1.1	330	0	0	0	0	0	0	0	0	4.9	0.075	15
25	General Developed Areas and TIA Dams	76	140	190	0.093	93	0	0	0	0.005	0.005	0.005	2	0.72	0.1	0.0005	0.0018
26	Doris TIA Exposed Tailings Beaches (Operations, Pre Dry Stack)	2400	570	6200	0.24	29	0	0	0	2.4	0.33	0.32	30	18	0.098	0.026	1.7
27	Doris TIA Exposed Tailings Beaches (Operations, Post Dry Stack)	2400	570	6900	0.17	32	0	0	0	2.5	0.34	0.33	18	8.1	0.098	0.026	2
28	Doris TIA Exposed Tailings Beaches (Closure, Cover Case: Runoff)	76	140	190	0.093	93	0	0	0	0.005	0.005	0.005	2	0.72	0.1	0.0005	0.0018
29	Doris TIA Exposed Tailings Beaches (Closure, Cover Case: Infiltration)	2400	570	7200	3.7	970	0	0	0	2.5	10	9.8	530	240	0.098	0.026	4.3
30	Doris TIA Exposed Tailings Beaches (Closure, Uncovered Case)	2400	570	3800	0.28	210	0	0	0	1.4	0.18	0.17	13	5.5	0.098	0.026	0.98
31	Tailings Dry Stack (Operations)	2400	570	7200	3.7	1100	0	0	0	2.5	12	11	620	280	0.098	0.026	4.3
32	Tailings Dry Stack (Closure, Cover Case: Runoff)	76	140	190	0.093	93	0	0	0	0.005	0.005	0.005	2	0.72	0.1	0.0005	0.0018
33	Tailings Dry Stack (Closure, Cover Case: Infiltration)	2400	570	7200	3.7	71000	0	0	0	2.5	890	870	34000	16000	0.098	0.026	4.3
34	Tailings Dry Stack (Closure, Uncovered Case)	2400	570	7200	3.7	1100	0	0	0	2.5	10	10	540	250	0.098	0.026	4.3
35	Total Metals Content in TSS - Construction Rock	0	0	0	0	0	0	0	0	0	0	0	0	0	41000	0.1	31
36a	Total Metals Content in TSS - Combined Detoxified Doris Tailings	0	0	0	0	0	0	0	0	0	0	0	0	0	13000	0.56	160
36b	Total Metals Content in TSS - Combined Detoxified Madrid North Tailings	0	0	0	0	0	0	0	0	0	0	0	0	0	10000	0.85	520
36c	Total Metals Content in TSS - Combined Detoxified Patch 7 Tailings	0	0	0	0	0	0	0	0	0	0	0	0	0	10000	0.85	520
36d	Total Metals Content in TSS - Combined Detoxified Madrid South Tailings	0	0	0	0	0	0	0	0	0	0	0	0	0	3500	1.4	420
37	Total Metals Content in TSS - Doris Waste Rock	0	0	0	0	0	0	0	0	0	0	0	0	0	64000	63	71

Complete Upper Case Source Term Results

Term	Source	Ba	Be	B	Cd	Ca	Cr	Co	Cu	Fe	Pb	Li	Mg	Mn	Hg	Mo
21	Patch 7 UG Mine Area	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	Patch 7 UG Mine Area	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	Patch 7 UG Mine Area	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	Patch 7 UG Mine Area	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	Patch 7 UG Mine Area	0.0006	5E-06	0.0067	1E-06	0.84	2E-05	0.0015	0.0001	0.0016	9E-06	0.0001	0.44	0.0038	2E-06	0.0002
21	Patch 7 UG Mine Area	0.0025	2E-05	0.026	5E-06	3.2	8E-05	0.0057	0.0005	0.0063	3E-05	0.0005	1.7	0.015	7E-06	0.0007
21	Patch 7 UG Mine Area	0.0047	3E-05	0.049	9E-06	6.1	0.0002	0.011	0.0009	0.012	6E-05	0.001	3.2	0.028	1E-05	0.0014
21	Patch 7 UG Mine Area	0.0073	5E-05	0.077	1E-05	9.6	0.0002	0.017	0.0013	0.019	1E-04	0.0015	5	0.043	2E-05	0.0021
21	Patch 7 UG Mine Area	0.0083	6E-05	0.087	2E-05	11	0.0003	0.019	0.0015	0.021	0.0001	0.0017	5.6	0.049	2E-05	0.0024
21	Patch 7 UG Mine Area	0.0096	7E-05	0.1	2E-05	13	0.0003	0.022	0.0018	0.024	0.0001	0.002	6.5	0.057	3E-05	0.0028
21	Patch 7 UG Mine Area	0.011	8E-05	0.11	2E-05	14	0.0004	0.025	0.002	0.027	0.0002	0.0022	7.2	0.063	3E-05	0.0031
21	Patch 7 UG Mine Area	0.013	9E-05	0.14	3E-05	17	0.0004	0.03	0.0024	0.033	0.0002	0.0027	8.8	0.077	4E-05	0.0038
21	Patch 7 UG Mine Area	0.015	0.0001	0.16	3E-05	20	0.0005	0.035	0.0028	0.039	0.0002	0.0031	10	0.091	5E-05	0.0044
21	Patch 7 UG Mine Area	0.018	0.0001	0.19	3E-05	23	0.0006	0.041	0.0033	0.045	0.0002	0.0036	12	0.11	5E-05	0.0051
21	Patch 7 UG Mine Area	0.02	0.0001	0.21	4E-05	26	0.0007	0.045	0.0037	0.05	0.0003	0.0041	13	0.12	6E-05	0.0057
22	Patch 7 UG Mine Area - Reflooding	0.54	0.0028	5.1	0.0008	640	0.016	1.1	0.089	1.2	0.0063	0.093	330	3.1	0.0014	0.14
23	Madrid South UG Mine Area	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	Madrid South UG Mine Area	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	Madrid South UG Mine Area	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	Madrid South UG Mine Area	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	Madrid South UG Mine Area	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	Madrid South UG Mine Area	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	Madrid South UG Mine Area	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	Madrid South UG Mine Area	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	Madrid South UG Mine Area	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	Madrid South UG Mine Area	0.0034	2E-07	0.0012	1E-07	0.94	2E-06	0.0007	2E-05	9E-05	1E-06	2E-05	0.085	0.0016	5E-08	2E-05
23	Madrid South UG Mine Area	0.018	1E-06	0.0063	6E-07	5.1	1E-05	0.0039	0.0001	0.0005	8E-06	0.0001	0.46	0.0085	3E-07	8E-05
23	Madrid South UG Mine Area	0.063	4E-06	0.021	2E-06	17	4E-05	0.013	0.0004	0.0016	3E-05	0.0004	1.5	0.029	1E-06	0.0003
23	Madrid South UG Mine Area	0.066	9E-06	0.046	5E-06	37	9E-05	0.028	0.0008	0.0036	6E-05	0.0008	3.3	0.063	2E-06	0.0006
23	Madrid South UG Mine Area	0.066	1E-05	0.074	8E-06	60	0.0001	0.045	0.0013	0.0057	9E-05	0.0013	5.4	0.1	3E-06	0.001
23	Madrid South UG Mine Area	0.066	2E-05	0.12	1E-05	94	0.0002	0.045	0.002	0.009	0.0001	0.002	8.5	0.16	5E-06	0.0015
23	Madrid South UG Mine Area	0.066	3E-05	0.15	2E-05	120	0.0003	0.045	0.0026	0.012	0.0002	0.0026	11	0.21	7E-06	0.002
23	Madrid South UG Mine Area	0.066	4E-05	0.2	2E-05	160	0.0004	0.045	0.0034	0.015	0.0002	0.0033	14	0.27	9E-06	0.0025
23	Madrid South UG Mine Area	0.066	4E-05	0.21	2E-05	170	0.0004	0.045	0.0037	0.017	0.0003	0.0036	16	0.29	1E-05	0.0028
24	Madrid South UG Mine Area - Reflooding	12	0.0008	4	0.0004	3200	0.0075	2.5	0.069	0.31	0.0048	0.068	290	5.4	0.0002	0.051
25	General Developed Areas and TIA Dams	0	0.0005	0.1	5E-05	55	0.001	0.0005	0.011	0.19	0.0005	0	15	0.14	1E-05	0.0017
26	Doris TIA Exposed Tailings Beaches (Operations, Pre Dry Stack)	0.066	0.002	0.97	0.0004	940	0.019	0.045	0.029	2.8	0.0019	0.098	780	1.3	0.0001	0.027
27	Doris TIA Exposed Tailings Beaches (Operations, Post Dry Stack)	0.066	0.0016	0.84	0.0004	940	0.019	0.045	0.029	2.8	0.0019	0.056	780	1.2	0.0001	0.027
28	Doris TIA Exposed Tailings Beaches (Closure, Cover Case: Runoff)	0	0.0005	0.1	5E-05	55	0.001	0.0005	0.011	0.19	0.0005	0	15	0.14	1E-05	0.0017
29	Doris TIA Exposed Tailings Beaches (Closure, Cover Case: Infiltration)	0.066	0.002	2.2	0.0004	940	0.019	0.045	0.029	2.8	0.0019	0.15	780	1.9	0.0001	0.027
30	Doris TIA Exposed Tailings Beaches (Closure, Uncovered Case)	0.066	0.0018	0.63	0.0004	940	0.019	0.045	0.029	2.2	0.0019	0.028	490	0.91	0.0001	0.027
31	Tailings Dry Stack (Operations)	0.066	0.002	2.2	0.0004	940	0.019	0.045	0.029	2.8	0.0019	0.15	780	1.9	0.0001	0.027
32	Tailings Dry Stack (Closure, Cover Case: Runoff)	0	0.0005	0.1	5E-05	55	0.001	0.0005	0.011	0.19	0.0005	0	15	0.14	1E-05	0.0017
33	Tailings Dry Stack (Closure, Cover Case: Infiltration)	0.066	0.002	2.2	0.0004	940	0.019	0.045	0.029	2.8	0.0019	0.15	780	1.9	0.0001	0.027
34	Tailings Dry Stack (Closure, Uncovered Case)	0.066	0.002	2.2	0.0004	940	0.019	0.045	0.029	2.8	0.0019	0.15	780	1.9	0.0001	0.027
35	Total Metals Content in TSS - Construction Rock	48	0	47	0.3	82000	1000	68	190	86000	7.9	0	38000	1900	0.01	0.9
36a	Total Metals Content in TSS - Combined Detoxified Doris Tailings	56	0	36	1.3	39000	74	75	1500	71000	130	0	16000	1200	0.039	1.1
36b	Total Metals Content in TSS - Combined Detoxified Madrid North Tailings	27	0	20	0.39	75000	240	56	220	64000	9.5	0	35000	1600	0.04	6.7
36c	Total Metals Content in TSS - Combined Detoxified Patch 7 Tailings	27	0	20	0.39	75000	240	56	220	64000	9.5	0	35000	1600	0.04	6.7
36d	Total Metals Content in TSS - Combined Detoxified Madrid South Tailings	17	0	20	0.55	57000	98	41	130	58000	57	0	21000	1000	0	6.8
37	Total Metals Content in TSS - Doris Waste Rock	140	2	28	6	82000	130	52	440	110000	10	0	34000	2500	10	2.4

Complete Upper Case Source Term Results

Term	Source	Ni	P	K	Se	Ag	Na	S	Tl	U	V	Zn
21	Patch 7 UG Mine Area	0	0	0	0	0	0	-	0	0	0	0
21	Patch 7 UG Mine Area	0	0	0	0	0	0	-	0	0	0	0
21	Patch 7 UG Mine Area	0	0	0	0	0	0	-	0	0	0	0
21	Patch 7 UG Mine Area	0	0	0	0	0	0	-	0	0	0	0
21	Patch 7 UG Mine Area	0.0004	0.0011	0.11	4E-05	2E-06	0.14	-	2E-06	4E-06	0.0002	0.0005
21	Patch 7 UG Mine Area	0.0016	0.0041	0.43	0.0001	6E-06	0.54	-	6E-06	2E-05	0.0007	0.0019
21	Patch 7 UG Mine Area	0.003	0.0078	0.82	0.0003	1E-05	1	-	1E-05	3E-05	0.0013	0.0037
21	Patch 7 UG Mine Area	0.0047	0.012	1.3	0.0004	2E-05	1.6	-	2E-05	5E-05	0.002	0.0057
21	Patch 7 UG Mine Area	0.0053	0.014	1.5	0.0005	2E-05	1.8	-	2E-05	6E-05	0.0022	0.0065
21	Patch 7 UG Mine Area	0.0061	0.016	1.7	0.0006	2E-05	2.1	-	2E-05	7E-05	0.0026	0.0075
21	Patch 7 UG Mine Area	0.0069	0.018	1.9	0.0006	3E-05	2.4	-	3E-05	7E-05	0.0029	0.0084
21	Patch 7 UG Mine Area	0.0084	0.022	2.3	0.0008	3E-05	2.9	-	3E-05	9E-05	0.0035	0.01
21	Patch 7 UG Mine Area	0.0098	0.025	2.7	0.0009	4E-05	3.4	-	4E-05	0.0001	0.0041	0.012
21	Patch 7 UG Mine Area	0.011	0.029	3.1	0.001	5E-05	3.9	-	4E-05	0.0001	0.0048	0.014
21	Patch 7 UG Mine Area	0.013	0.033	3.5	0.0012	5E-05	4.4	-	5E-05	0.0001	0.0054	0.016
22	Patch 7 UG Mine Area - Reflooding	0.36	0.75	75	0.029	0.001	110	-	0.0012	0.003	0.13	0.38
23	Madrid South UG Mine Area	0	0	0	0	0	0	-	0	0	0	0
23	Madrid South UG Mine Area	0	0	0	0	0	0	-	0	0	0	0
23	Madrid South UG Mine Area	0	0	0	0	0	0	-	0	0	0	0
23	Madrid South UG Mine Area	0	0	0	0	0	0	-	0	0	0	0
23	Madrid South UG Mine Area	0	0	0	0	0	0	-	0	0	0	0
23	Madrid South UG Mine Area	0	0	0	0	0	0	-	0	0	0	0
23	Madrid South UG Mine Area	0	0	0	0	0	0	-	0	0	0	0
23	Madrid South UG Mine Area	0	0	0	0	0	0	-	0	0	0	0
23	Madrid South UG Mine Area	0	0	0	0	0	0	-	0	0	0	0
23	Madrid South UG Mine Area	3E-05	9E-05	0.026	5E-06	1E-07	0.029	-	9E-08	4E-06	1E-05	2E-05
23	Madrid South UG Mine Area	0.0002	0.0005	0.14	3E-05	6E-07	0.16	-	5E-07	2E-05	7E-05	0.0001
23	Madrid South UG Mine Area	0.0006	0.0017	0.48	1E-04	2E-06	0.54	-	2E-06	8E-05	0.0002	0.0004
23	Madrid South UG Mine Area	0.0013	0.0037	1	0.0002	5E-06	1.2	-	3E-06	0.0002	0.0005	0.0009
23	Madrid South UG Mine Area	0.0021	0.0059	1.7	0.0003	7E-06	1.9	-	6E-06	0.0003	0.0008	0.0014
23	Madrid South UG Mine Area	0.0033	0.0093	2.6	0.0005	1E-05	2.9	-	9E-06	0.0004	0.0013	0.0022
23	Madrid South UG Mine Area	0.0043	0.012	3.4	0.0007	2E-05	3.9	-	1E-05	0.0006	0.0017	0.0029
23	Madrid South UG Mine Area	0.0055	0.016	4.4	0.0009	2E-05	5	-	1E-05	0.0007	0.0022	0.0038
23	Madrid South UG Mine Area	0.006	0.017	4.8	0.001	2E-05	5.4	-	2E-05	0.0008	0.0024	0.0041
24	Madrid South UG Mine Area - Reflooding	0.11	0.32	90	0.018	0.0004	100	-	0.0003	0.014	0.045	0.077
25	General Developed Areas and TIA Dams	0.0032	0.3	3.6	0.001	2E-05	52	-	0.0002	0.0003	0.001	0.005
26	Doris TIA Exposed Tailings Beaches (Operations, Pre Dry Stack)	0.17	0.98	40	0.026	0.0003	200	-	0.0004	0.0043	0.0098	0.12
27	Doris TIA Exposed Tailings Beaches (Operations, Post Dry Stack)	0.17	0.28	26	0.021	0.0003	230	-	0.0004	0.0023	0.0043	0.11
28	Doris TIA Exposed Tailings Beaches (Closure, Cover Case: Runoff)	0.0032	0.3	3.6	0.001	2E-05	52	-	0.0002	0.0003	0.001	0.005
29	Doris TIA Exposed Tailings Beaches (Closure, Cover Case: Infiltration)	0.17	1	200	0.62	0.0003	6800	-	0.0004	0.013	0.01	0.12
30	Doris TIA Exposed Tailings Beaches (Closure, Uncovered Case)	0.17	0.76	20	0.012	0.0003	220	-	0.0004	0.0018	0.0042	0.065
31	Tailings Dry Stack (Operations)	0.17	1	200	0.72	0.0003	6800	-	0.0004	0.013	0.01	0.12
32	Tailings Dry Stack (Closure, Cover Case: Runoff)	0.0032	0.3	3.6	0.001	2E-05	52	-	0.0002	0.0003	0.001	0.005
33	Tailings Dry Stack (Closure, Cover Case: Infiltration)	0.17	1	200	44	0.0003	6800	-	0.0004	0.013	0.01	0.12
34	Tailings Dry Stack (Closure, Uncovered Case)	0.17	1	200	0.63	0.0003	6800	-	0.0004	0.013	0.01	0.12
35	Total Metals Content in TSS - Construction Rock	550	550	1400	0.81	54	790	3700	0.1	0.2	220	120
36a	Total Metals Content in TSS - Combined Detoxified Doris Tailings	74	390	1500	2.7	7.4	1400	24000	0.31	0.11	65	590
36b	Total Metals Content in TSS - Combined Detoxified Madrid North Tailings	350	470	990	0.6	0.15	770	16000	0.098	0.1	55	150
36c	Total Metals Content in TSS - Combined Detoxified Patch 7 Tailings	350	470	990	0.6	0.15	770	16000	0.098	0.1	55	150
36d	Total Metals Content in TSS - Combined Detoxified Madrid South Tailings	110	220	700	2.1	1.1	710	12000	0.1	0.11	21	65
37	Total Metals Content in TSS - Doris Waste Rock	100	1100	8600	30	85	14000	20000	20	0.18	370	160

Term	Source	Phase	Year	Notes	Units	Reporting Detail
38	Total Metals Content in TSS - Madrid North Waste Rock	Operations	Max	TSS assumed to be regulatory limit, calculation method same as SRK (2017)	mg/kg	Solid phase element concentration
39	Total Metals Content in TSS - Patch 7 Waste Rock	Operations	Max	TSS assumed to be regulatory limit, calculation method same as SRK (2017)	mg/kg	Solid phase element concentration
40	Total Metals Content in TSS - Madrid South Waste Rock	Operations	Max	TSS assumed to be regulatory limit, calculation method same as SRK (2017)	mg/kg	Solid phase element concentration
41	Total Metals Content in TSS - Doris UG	Operations	Max	TSS assumed to be regulatory limit, calculation method same as SRK (2017)	mg/kg	Solid phase element concentration
42	Total Metals Content in TSS - Madrid North UG	Operations	Max	TSS assumed to be regulatory limit, calculation method same as SRK (2017)	mg/kg	Solid phase element concentration
43	Total Metals Content in TSS - Patch 7 UG	Operations	Max	TSS assumed to be regulatory limit, calculation method same as SRK (2017)	mg/kg	Solid phase element concentration
44	Total Metals Content in TSS - Madrid South UG	Operations	Max	TSS assumed to be regulatory limit, calculation method same as SRK (2017)	mg/kg	Solid phase element concentration
45	Loading Added to Process Water by Ore Processing	Operations	2024	Apply to process rate	mg/L	Annual Dissolved
45	Loading Added to Process Water by Ore Processing	Operations	2025	Apply to process rate	mg/L	Annual Dissolved
45	Loading Added to Process Water by Ore Processing	Operations	2026	Apply to process rate	mg/L	Annual Dissolved
45	Loading Added to Process Water by Ore Processing	Operations	2027	Apply to process rate	mg/L	Annual Dissolved
45	Loading Added to Process Water by Ore Processing	Operations	2028	Apply to process rate	mg/L	Annual Dissolved
45	Loading Added to Process Water by Ore Processing	Operations	2029	Apply to process rate	mg/L	Annual Dissolved
45	Loading Added to Process Water by Ore Processing	Operations	2030	Apply to process rate	mg/L	Annual Dissolved
45	Loading Added to Process Water by Ore Processing	Operations	2031	Apply to process rate	mg/L	Annual Dissolved
45	Loading Added to Process Water by Ore Processing	Operations	2032	Apply to process rate	mg/L	Annual Dissolved
45	Loading Added to Process Water by Ore Processing	Operations	2033	Apply to process rate	mg/L	Annual Dissolved
45	Loading Added to Process Water by Ore Processing	Operations	2034	Apply to process rate	mg/L	Annual Dissolved
45	Loading Added to Process Water by Ore Processing	Operations	2035	Apply to process rate	mg/L	Annual Dissolved
45	Loading Added to Process Water by Ore Processing	Operations	2036	Apply to process rate	mg/L	Annual Dissolved
45	Loading Added to Process Water by Ore Processing	Operations	2037	Apply to process rate	mg/L	Annual Dissolved
45	Loading Added to Process Water by Ore Processing	Operations	2038	Apply to process rate	mg/L	Annual Dissolved
45	Loading Added to Process Water by Ore Processing	Operations	2039	Apply to process rate	mg/L	Annual Dissolved
45	Loading Added to Process Water by Ore Processing	Operations	2040	Apply to process rate	mg/L	Annual Dissolved
45	Loading Added to Process Water by Ore Processing	Operations	**2041**	Apply to process rate	mg/L	Annual Dissolved

Complete Upper Case Source Term Results

Term	Source	SO4	Alk	Hardnes	F	Cl	NO2	NO3	NH3	Total CN	Free CN	WAD CN	CNO	SCN	Al	Sb	As
38	Total Metals Content in TSS - Madrid North Waste Rock	0	0	0	0	0	0	0	0	0	0	0	0	0	55000	35	810
39	Total Metals Content in TSS - Patch 7 Waste Rock	0	0	0	0	0	0	0	0	0	0	0	0	0	42000	2.7	850
40	Total Metals Content in TSS - Madrid South Waste Rock	0	0	0	0	0	0	0	0	0	0	0	0	0	45000	0.4	140
41	Total Metals Content in TSS - Doris UG	0	0	0	0	0	0	0	0	0	0	0	0	0	46000	45	68
42	Total Metals Content in TSS - Madrid North UG	0	0	0	0	0	0	0	0	0	0	0	0	0	26000	16	380
43	Total Metals Content in TSS - Patch 7 UG	0	0	0	0	0	0	0	0	0	0	0	0	0	20000	1.3	410
44	Total Metals Content in TSS - Madrid South UG	0	0	0	0	0	0	0	0	0	0	0	0	0	23000	0.2	73
45	Loading Added to Process Water by Ore Processing	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
45	Loading Added to Process Water by Ore Processing	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
45	Loading Added to Process Water by Ore Processing	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
45	Loading Added to Process Water by Ore Processing	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
45	Loading Added to Process Water by Ore Processing	3400	110	0	0.13	51	0	0	0	1.1	0.15	0.19	59	35	0.024	0.015	1.2
45	Loading Added to Process Water by Ore Processing	3500	110	0	0.13	48	0	0	0	1.1	0.14	0.18	61	35	0.025	0.016	1.2
45	Loading Added to Process Water by Ore Processing	3900	120	0	0.16	31	0	0	0	0.69	0.092	0.12	69	36	0.028	0.021	1.7
45	Loading Added to Process Water by Ore Processing	4100	130	0	0.17	19	0	0	0	0.48	0.057	0.073	74	36	0.03	0.025	2
45	Loading Added to Process Water by Ore Processing	4000	130	0	0.17	21	0	0	0	0.51	0.061	0.078	73	36	0.03	0.024	1.9
45	Loading Added to Process Water by Ore Processing	4100	130	0	0.17	19	0	0	0	0.48	0.056	0.071	73	36	0.03	0.025	2
45	Loading Added to Process Water by Ore Processing	4300	140	0	0.19	8.2	0	0	0	0.27	0.023	0.031	78	36	0.032	0.028	2.2
45	Loading Added to Process Water by Ore Processing	4300	150	0	0.19	5	0	0	0	0.25	0.012	0.018	78	36	0.032	0.029	2.3
45	Loading Added to Process Water by Ore Processing	4200	150	0	0.19	5.3	0	0	0	0.29	0.012	0.018	77	36	0.032	0.029	2.2
45	Loading Added to Process Water by Ore Processing	4200	160	0	0.19	4.8	0	0	0	0.3	0.01	0.015	77	35	0.032	0.029	2.2
45	Loading Added to Process Water by Ore Processing	3800	180	0	0.19	5.1	0	0	0	0.46	0.0077	0.01	72	34	0.031	0.028	2
45	Loading Added to Process Water by Ore Processing	3900	170	0	0.19	4.7	0	0	0	0.41	0.0073	0.01	73	34	0.032	0.028	2.1
45	Loading Added to Process Water by Ore Processing	4000	170	0	0.19	4.3	0	0	0	0.36	0.0069	0.01	75	34	0.032	0.029	2.1
45	Loading Added to Process Water by Ore Processing	4400	150	0	0.2	2.4	0	0	0	0.14	0.0053	0.01	81	37	0.033	0.03	2.4

Term	Source	Ba	Be	B	Cd	Ca	Cr	Co	Cu	Fe	Pb	Li	Mg	Mn	Hg	Mo
38	Total Metals Content in TSS - Madrid North Waste Rock	150	2	0	3	110000	780	93	240	99000	10	0	63000	2300	0.02	2
39	Total Metals Content in TSS - Patch 7 Waste Rock	150	0.7	0	0.18	120000	910	96	270	100000	3.1	0	94000	2300	0.01	1.4
40	Total Metals Content in TSS - Madrid South Waste Rock	80	0	20	0.11	86000	240	45	130	69000	3.5	0	40000	1500	10	0.9
41	Total Metals Content in TSS - Doris UG	100	1.4	21	4.4	60000	96	45	340	92000	10	0	25000	1800	7.1	2.3
42	Total Metals Content in TSS - Madrid North UG	70	0.93	0	1.4	49000	360	43	110	46000	4.6	0	29000	1000	0.0093	0.93
43	Total Metals Content in TSS - Patch 7 UG	70	0.34	0	0.087	60000	440	46	130	49000	1.5	0	45000	1100	0.0048	0.65
44	Total Metals Content in TSS - Madrid South UG	40	0	10	0.055	43000	120	22	65	35000	1.8	0	20000	730	5	0.45
45	Loading Added to Process Water by Ore Processing	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
45	Loading Added to Process Water by Ore Processing	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
45	Loading Added to Process Water by Ore Processing	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
45	Loading Added to Process Water by Ore Processing	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
45	Loading Added to Process Water by Ore Processing	0	6E-05	0.058	1E-06	49	0.0001	0.23	0.065	0.026	1E-04	0	14	0.037	5E-06	0.016
45	Loading Added to Process Water by Ore Processing	0	5E-05	0.06	2E-06	50	0.0001	0.24	0.069	0.025	0.0001	0	14	0.036	5E-06	0.017
45	Loading Added to Process Water by Ore Processing	0	4E-05	0.07	2E-06	59	0.0001	0.33	0.092	0.018	0.0001	0	16	0.029	7E-06	0.024
45	Loading Added to Process Water by Ore Processing	0	0.0002	0.076	3E-06	65	0.0002	0.38	0.11	0.017	0.0001	0	19	0.025	1E-04	0.028
45	Loading Added to Process Water by Ore Processing	0	0.0003	0.075	3E-06	65	0.0003	0.38	0.1	0.019	0.0002	0	19	0.026	0.0001	0.028
45	Loading Added to Process Water by Ore Processing	0	0.0003	0.076	3E-06	66	0.0003	0.38	0.11	0.019	0.0002	0	19	0.025	0.0002	0.028
45	Loading Added to Process Water by Ore Processing	0	0.0005	0.081	3E-06	72	0.0003	0.43	0.12	0.018	0.0002	0	22	0.022	0.0003	0.032
45	Loading Added to Process Water by Ore Processing	0	0.0009	0.081	4E-06	76	0.0005	0.44	0.12	0.024	0.0002	0	25	0.022	0.0005	0.035
45	Loading Added to Process Water by Ore Processing	0	0.0012	0.08	4E-06	77	0.0007	0.43	0.12	0.029	0.0003	0	27	0.023	0.0007	0.035
45	Loading Added to Process Water by Ore Processing	0	0.0014	0.079	4E-06	79	0.0008	0.43	0.12	0.033	0.0003	0	28	0.023	0.0008	0.036
45	Loading Added to Process Water by Ore Processing	0	0.0029	0.072	6E-06	88	0.0015	0.39	0.11	0.06	0.0005	0	39	0.027	0.0017	0.039
45	Loading Added to Process Water by Ore Processing	0	0.0025	0.074	6E-06	86	0.0013	0.4	0.11	0.053	0.0004	0	36	0.026	0.0014	0.039
45	Loading Added to Process Water by Ore Processing	0	0.0021	0.076	5E-06	84	0.0011	0.41	0.12	0.046	0.0004	0	33	0.025	0.0012	0.038
45	Loading Added to Process Water by Ore Processing	0	0.0004	0.085	3E-06	74	0.0003	0.47	0.13	0.014	0.0002	0	22	0.019	0.0002	0.034

Complete Upper Case Source Term Results

Term	Source	Ni	P	K	Se	Ag	Na	S	Tl	U	V	Zn
38	Total Metals Content in TSS - Madrid North Waste Rock	740	930	7600	10	1.9	9300	19000	20	0.37	270	120
39	Total Metals Content in TSS - Patch 7 Waste Rock	890	910	1900	1	0.3	1100	14000	0.091	0.17	310	100
40	Total Metals Content in TSS - Madrid South Waste Rock	120	310	1600	0.7	0.2	1400	4400	0.1	0.2	180	81
41	Total Metals Content in TSS - Doris UG	79	780	6100	22	61	10000	24000	14	0.14	260	150
42	Total Metals Content in TSS - Madrid North UG	340	430	3500	4.6	0.9	4300	8700	9.3	0.17	130	55
43	Total Metals Content in TSS - Patch 7 UG	430	440	920	0.48	0.14	530	6500	0.044	0.082	150	49
44	Total Metals Content in TSS - Madrid South UG	60	160	800	0.35	0.1	680	2200	0.05	0.1	92	41
45	Loading Added to Process Water by Ore Processing	0	0	0	0	0	0	-	0	0	0	0
45	Loading Added to Process Water by Ore Processing	0	0	0	0	0	0	-	0	0	0	0
45	Loading Added to Process Water by Ore Processing	0	0	0	0	0	0	-	0	0	0	0
45	Loading Added to Process Water by Ore Processing	0	0	0	0	0	0	-	0	0	0	0
45	Loading Added to Process Water by Ore Processing	0.0099	0.029	19	0.0022	3E-05	850	-	2E-05	0.0007	0.0014	0.0042
45	Loading Added to Process Water by Ore Processing	0.01	0.027	20	0.0024	3E-05	900	-	2E-05	0.0007	0.0014	0.0043
45	Loading Added to Process Water by Ore Processing	0.014	0.019	26	0.0032	4E-05	1200	-	2E-05	0.001	0.0018	0.0053
45	Loading Added to Process Water by Ore Processing	0.016	0.014	30	0.0039	5E-05	1400	-	4E-05	0.0011	0.002	0.0064
45	Loading Added to Process Water by Ore Processing	0.016	0.015	30	0.0039	6E-05	1400	-	5E-05	0.0011	0.0019	0.0066
45	Loading Added to Process Water by Ore Processing	0.016	0.015	30	0.004	6E-05	1400	-	6E-05	0.0011	0.002	0.0069
45	Loading Added to Process Water by Ore Processing	0.019	0.01	34	0.0047	7E-05	1600	-	7E-05	0.0013	0.0022	0.0079
45	Loading Added to Process Water by Ore Processing	0.02	0.011	35	0.0052	1E-04	1600	-	0.0001	0.0014	0.0022	0.0093
45	Loading Added to Process Water by Ore Processing	0.02	0.013	35	0.0055	0.0001	1600	-	0.0002	0.0014	0.0021	0.01
45	Loading Added to Process Water by Ore Processing	0.021	0.013	36	0.0056	0.0001	1600	-	0.0002	0.0014	0.0021	0.011
45	Loading Added to Process Water by Ore Processing	0.023	0.022	37	0.007	0.0002	1500	-	0.0003	0.0015	0.0019	0.015
45	Loading Added to Process Water by Ore Processing	0.022	0.02	36	0.0067	0.0002	1500	-	0.0003	0.0014	0.002	0.014
45	Loading Added to Process Water by Ore Processing	0.022	0.017	36	0.0063	0.0002	1500	-	0.0003	0.0014	0.002	0.013
45	Loading Added to Process Water by Ore Processing	0.019	0.007	36	0.0049	7E-05	1700	-	7E-05	0.0014	0.0023	0.008