Howse Property Annual Report

April 2023 - March 2024 Activities

June 2024

REPORT PREPARED BY:

TATA STEEL MINERALS CANADA

JEAN-FRANCOIS DION

Senior Advisor - Environment

REPORT REVISED BY:

TATA STEEL MINERALS CANADA

PALLAV SINHA

Manager - Environment

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1 HOWSE PROPERTY PROJECT UPDATE

As of March 31st, 2024, Tata Steel Minerals Canada (TSMC) has not started any work, including any construction activities, on the Howse Property Project. Pre-construction activities are under planning to ensure all compliance related monitoring activities, infrastructure and programs are in place towards compliance obligations of the Newfoundland and Labrador (NL) provincial environmental release. In particular, TSMC has been working closely with the NL provincial government in formalizing the employment benefits and equality, diversity and inclusion plans and program agreements which are in its final stages of acceptance. Further to the acceptance of these NL provincial plans and program agreements, TSMC will begin its planned construction phases for the project. As per the Annual Report requirement of the Howse Property Iron Mine Project Decision Statement issued in June 2018, the present report covers the pre-construction phase, community updates, and the continued baseline monitoring activities for the reporting period of April 1st, 2023, to March 31st, 2024.

A Table of Concordance for Conditions is provided at the end of the text.

2 GENERAL CONDITIONS

Section 2 covers Conditions 2.1-2.13

As per condition 2.12 the Wetland Monitoring Plan was modified and request for feedback was forwarded via email to members of all five Indigenous groups on September 14th, 2018, with the invitation to submit comments. No feedback was received, from April 2023 to March 2024 regarding modifications to the wetland monitoring plan submitted in 2018.

No other updates were made to the follow-up programs and there has been no changes to the project during the reporting year.

As per Condition 2.10, TSMC's landing webpage went live in February 2021. TSMC's Howse Annual Reports for the years 2019 and 2020 are available through this medium. TSMC plans to go-live with a new organizational website which is currently in the works. The new website will be updated with the Howse Annual Reports from all previous years along with any other documents that are required by the conditions.

3 FISH AND FISH HABITAT

3.1 Erosion and sediment control

TSMC's Environment team conducted revegetation trials at the Pinette Lake well pad in 2020. Willow cuttings were planted in exposed areas in an effort to mitigate erosion at this site. The survival rate of the cuttings exceeded 80% and cuttings have continued to grow over the years, showing that this revegetation approach could be implemented successfully in the Howse Project area. Currently, there is no deposition of deleterious substances in waters frequented by fish in relation to the Howse Property Project, which is not started.

3.2 Follow Up Program

3.2.1 Surface Water Quality

Surface water quality samples were taken between June 8th and October 2nd, 2023 for three quarters (taken at least 1 month apart). It was not possible to complete the fourth quarter due to delays in obtaining sampling containers from the laboratory prior to winter conditions settling in. These samples are collected as a part of the baseline monitoring of surface water quality for the Water Chemistry Analysis Program in the creeks and lakes potentially affected once the Howse project will go into the construction and subsequently into the mining phase. The locations sampled are Triangle Lake (TL), Burnetta Creek (BC), Burnetta Lake (BL), Morley Lake (ML), Pinette Lake (SW5) and 4 points along Goodream Creek and its tributaries (SW1,2,3 and 4) which are located into the watersheds that might be affected by Howse operations.

Sampling results for the baseline surface water quality monitoring are presented in Appendix I.

3.2.2 Lake Water Levels

Lake water levels were measured in 2023 even though no activities that could cause impact on the lakes were performed.

The permanent lake water level monitoring system that was installed in 2017 has proven unreliable and prone to damage during the winter period and from vandalism or bear interactions as was seen in 2022. This system has been replaced by a seasonal system consisting of water depth probes and barometers to be removed prior to winter and re-installed once the lakes become ice-free, to prevent damage from ice build-up and movement. There are also no onshore components to this new system to prevent instances of vandalism or bear interactions.

Once installed, the system was tested and collected measurements until it was removed for the winter period.

The measurements collected during this period as well as a description of the newly installed instruments are presented in the report included in Appendix II.

3.3 Groundwater Levels

Groundwater levels in the wells on the Howse Property were not measured in 2023 since construction was not started and no activities impacting the deep aquifer occurred.

4 MIGRATORY BIRDS

4.1 Bank Swallow

No Bank Swallows were observed in the designated Howse project area or in any of the surrounding areas between April 1st, 2023, to March 31st, 2024.

4.2 Howse Wetland Monitoring (avifauna habitat)

Wetland levels were measured once in 2023 as the piezometers were visited to ensure they remained in place and were undamaged. The results collected during this visit are kept on record and will be used for comparison once the complete monitoring campaign begins at the start of construction.

No activities that could cause impact on the wetlands were performed in 2023.

5 HEALTH AND SOCIO-ECONOMIC CONDITIONS OF INDIGENOUS PEOPLES

5.1 Air Quality

TSMC's Follow up program for air quality is set to be implemented from the start of construction to the end of decommissioning of the Designated Project.

Following multiple consultations with community leadership from the Schefferville-Matimekush-Kawawachikamach area, and in order to minimize any exposure risks for workers and for community members, TSMC took the following measures which also had a positive effect on air quality. These measures remained effective throughout the reporting period:

- Prevented any unauthorized workers from leaving the site to go to Schefferville except to board outgoing charter or to reach in-town accommodations.
- Incoming and outgoing flights were limited to once every two weeks.
- Optional bus service is provided to local workers in order to minimize the number of personal vehicles travelling to site.

5.2 Country Foods

Under the Country Food Follow Up Plan, TSMC is committed to duplicating the Country Foods sampling program 2 years after the commencement of the Howse Operations phase and, subsequently, every five years for the duration of the operations phase.

6 CURRENT USE OF LANDS AND RESOURCES FOR TRADITIONAL PURPOSES

6.1 Bypass roads

Upgrades to the road surface of the existing Direct Shipping Ore Project bypass road, which is a part of the Howse bypass road, were done from the start of the road up to km 16. Additionally, a water crossing at km 3.8 where erosion had occurred was repaired and a larger culvert was installed to prevent future damage.

The construction of the additional section of the bypass road from the crossing at km 13 of the Goodwood Haul Road to the community traditional and recreational areas near the Howse project has not yet started and will be carried out prior to the construction of any project infrastructures.

6.2 Caribou

TSMC no longer has a formal arrangement to receive caribou data. TSMC intends to resume the agreement with Caribou Ungava prior to start of any ground preparation activities. No data is available for the reporting year.

6.3 Communication

TSMC communicated progress and high-level results of its current monitoring programs to Indigenous groups during its Joint Community Health, Safety and Environment Committee meetings, held in this reporting period on April 4th 2023, September 8th 2023 and February 28th 2024.

7 PHYSICAL AND CULTURAL HERITAGE AND STRUCTURES, SITES OR THINGS OF HISTORICAL, ARCHAEOLOGICAL, PALEONTOLOGICAL OR ARCHITECTURAL SIGNIFICANCE

All conditions pertaining to Conditions 7.1-7.6 were respected during the reporting year.

8 CUMULATIVE EFFECTS

As the construction phase of the Howse Project is not yet started, this requirement is not yet in place.

9 ACCIDENTS AND MALFUNCTIONS

There were no incidents on the Howse Property during the reporting year.

9.1 Communication Plan

No changes were made to the Communication Plan during the reporting year.

10 SCHEDULES AND RECORD KEEPING

Conditions 10.1-10.4 of the Howse Property Decision Statement indicate how the Proponent will submit to the Agency schedules associated with the Howse Property Project after the start of construction. Currently, this is not applicable, as the construction phase has not started.

TSMC has maintained all records required to demonstrate compliance with the conditions of the release of the Howse Property Project.

The Annual Report requirements under conditions 2.8 and 2.9 of the Howse Property Iron Mine Project Decision Statement issued in June 2018 are presented below for the reporting period of April 1st, 2023 to March 31st, 2024.

Table of Concordance for Conditions

	CEAA Release Condition	2023-2024 Activities
2. General Conditions		
2.1	The Proponent shall ensure that its actions in meeting the conditions set out in this Decision Statement are considered in a careful and precautionary manner, promote sustainable development, are informed by the best information and knowledge available at the time the Proponent takes action, including community and Indigenous traditional knowledge, are based on methods and models that are recognized by standard-setting bodies, are undertaken by qualified individuals, and have applied the best available economically and technically feasible technologies.	▪ TSMC is committed to follow best practices for all its activities.
2.2	The Proponent shall, where consultation is a requirement of a condition set out in this Decision Statement:	▪ TSMC is committed to follow this requirement for all consultation activities.
	2.2.1 provide a written notice of the opportunity for the party or parties being consulted to present their views and information on the subject of the consultation;	
	2.2.2 provide sufficient information on the scope and the subject matter of the consultation and a reasonable period of time to permit the party or parties being consulted to prepare their views and information;	
	2.2.3 undertake an impartial consideration of all views and information presented by the party or parties being consulted on the subject matter of the consultation; and	
	2.2.4 advise in a timely manner the party or parties being consulted on how the views and information received have been considered by the Proponent.	
2.3	The Proponent shall, where consultation with Indigenous groups is a requirement of a condition set out in this Decision Statement, communicate with each Indigenous group with respect to the manner by which to satisfy the consultation requirements referred to in condition 2.2, including methods of notification, the type of information, the period of time to be provided when seeking input, the process to be used by the Proponent to undertake impartial consideration of all views and information presented on the subject of the consultation, the period of time to advise Indigenous groups of how their views and information were considered by the Proponent and the means by which Indigenous groups will be advised.	▪ TSMC is committed to follow this requirement for all consultation activities.
2.4	The Proponent shall, where a follow-up program is a requirement of a condition set out in this Decision Statement, determine the following information, for each follow-up program:	▪ Existing follow-up programs for TSMC's DSO and Howse sites, include this information.
	2.4.1 the methodology, location, frequency, timing and duration of monitoring associated with the follow-up program;	
	2.4.2 the scope, content and frequency of reporting of the results of the follow-up program;	
	2.4.3 the levels of environmental change relative to baseline conditions that would require the Proponent to implement modified or additional mitigation measure(s), including instances where the Proponent may require Designated Project activities to be stopped; and	
	2.4.4 the technically and economically feasible mitigation measures to be implemented by the Proponent if monitoring conducted as part of the follow-up program shows that the levels of environmental change referred to in condition 2.4.3 have been reached or exceeded.	
2.5	The Proponent shall submit the information referred to in condition 2.4 to the Agency prior to the implementation of each follow-up program. The Proponent shall update that information in consultation with Indigenous groups and relevant authorities during the implementation of each follow-up program, and shall provide the updated	▪ No updates were done on the follow-up program during this reporting year.

	CEAA Release Condition	2023-2024 Activities
	information to the Agency, Indigenous groups and relevant authorities within 30 days of the information being updated.	
2.6	The Proponent shall, where a follow-up program is a requirement of a condition set out in this Decision Statement:	▪ Follow-up programs for the Howse Project were submitted to the Agency and Indigenous groups in Spring 2018. Follow-up programs will be implemented when construction will start.
	2.6.1 conduct the follow-up program according to the information determined pursuant to condition 2.4;	
	2.6.2 undertake monitoring and analysis to verify the accuracy of the environmental assessment as it pertains to the particular condition and/or to determine the effectiveness of any mitigation measure(s);	
	2.6.3 determine whether modified or additional mitigation measures are required based on the monitoring and analysis undertaken pursuant to condition 2.6.2; and	
	2.6.4 if modified or additional mitigation measures are required pursuant to condition 2.6.3, implement these mitigation measures in a timely manner and monitor them pursuant to condition 2.6.2.	
2.7	Where consultation with Indigenous groups is a requirement of a follow-up program, the Proponent shall discuss with each Indigenous group opportunities for the participation of that Indigenous group in the implementation of the follow-up program, including the analysis of the follow-up results and whether modified or additional mitigation measures are required, as set out in condition 2.6.	▪ TSMC is committed to follow this requirement for all consultation activities.
2.8	The Proponent shall, commencing in the reporting year during which the Proponent begins the implementation of the conditions set out in this Decision Statement, prepare an annual report that sets out:	▪ TSMC has produced an annual report for its 2018-2019, 2019-2020, 2020-2021, 2021-2022, 2022-2023 activities; and the current report covers 2023-2024 activities.
	2.8.1 the activities undertaken by the Proponent in the reporting year to comply with each of the conditions set out in this Decision Statement;	
	2.8.2 how the Proponent complied with condition 2.1;	
	2.8.3 for conditions set out in this Decision Statement for which consultation is a requirement, how the Proponent considered any views and information that the Proponent received during or as a result of the consultation;	
	2.8.4 the information referred to in conditions 2.4 and 2.5 for each follow-up program;	
	2.8.5 the results of the follow-up program requirements identified in conditions 3.6, 4.7, 4.8, 5.9, 5.10, 6.6, 6.7, and 7.5; and	
	2.8.6 any modified or additional mitigation measures implemented or proposed to be implemented by the Proponent, as determined under condition 2.6.	
2.9	The Proponent shall submit to the Agency the annual report referred to in condition 2.8, including an executive summary in both official languages, no later than June 30 following the reporting year to which the annual report applies.	▪ TSMC is committed to comply with this condition
2.10	The Proponent shall publish on the Internet, or any medium which is publicly available, the annual reports and the executive summaries referred to in conditions 2.8 and 2.9, the dust management strategy referred to in condition 5.7, the communication plan referred to in condition 6.8, the cultural heritage control plan referred to in condition 7.6, the communication plan referred to in condition 9.5, the schedules referred to in conditions 10.1, and 10.2, and any update(s) or revision(s) to the above documents, upon submission of these documents to the parties referenced in the respective conditions. The Proponent shall keep these documents publicly available for 25 years following the end of operation, or until the end of decommissioning of the Designated Project, whichever comes first. The Proponent shall notify the Agency and Indigenous groups of the availability of these documents within 48 hours of their publication.	▪ Annual reports have been placed on TSMC's website: https://www.tatasteelcanada.com/

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2.11	The Proponent shall notify the Agency and Indigenous groups in writing no later than 60 days after the day on which there is a transfer of ownership, care, control or management of the Designated Project in whole or in part.	▪ TSMC is committed to comply with this condition.
2.12	The Proponent shall consult with Indigenous groups prior to initiating any material change(s) to the Designated Project that may result in adverse environmental effects and shall notify the Agency in writing no later than 60 days prior to initiating the change(s).	▪ There were no changes to the Designated Project in the reporting year.
2.13	In notifying the Agency pursuant to condition 2.12, the Proponent shall provide the Agency with a description of the potential adverse environmental effects of the change(s) to the Designated Project, the proposed mitigation measures and follow-up requirements to be implemented by the Proponent and the results of the consultation with Indigenous groups.	▪ TSMC is committed to comply with this condition.
3. Fish and fish habitat		
3.1	The Proponent shall implement erosion and sedimentation control measures within the Designated Project area during all phases of the Designated Project to avoid the deposit of deleterious substances in waters frequented by fish.	▪ There is no deposition of deleterious substances in waters frequented by fish in relation to the Howse Property Project, which is not started.
3.2	The Proponent shall collect site runoff and pit dewatering water into HowseA and Timmins4 sedimentations ponds. The Proponent shall treat water at the sedimentation ponds prior to its discharge into the environment, if necessary, to meet the requirements of subsection 36(3) of the Fisheries Act.	▪ Not applicable, as the Project has not started.
3.3	The Proponent shall use a time delay blasting technique when blasting.	▪ Not applicable as there is no activity, including blasting, on the Howse Property.
3.4	The Proponent shall not set the blast charge per delay to above 1092 kilograms.	▪ Not applicable as there is no activity, including blasting, on the Howse Property
3.5	The Proponent shall manage waste rock acid generation taking into account the Mine Environment Neutral Drainage program's *Prediction Manual for Drainage Chemistry from Sulphidic Geological Materials*.	▪ TSMC is committed to comply with this condition once the Project starts.
3.6	The Proponent shall develop, prior to construction, a follow-up program to verify the accuracy of the environmental assessment as it pertains to fish and fish habitat and to determine the effectiveness of mitigation measures referred to in conditions 3.1 to 3.5. The Proponent shall provide the follow-up program to the Agency prior to construction. The Proponent shall implement the follow-up program from the start of construction to the end of decommissioning. The Proponent shall review and update the follow-up program in consultation with Indigenous groups and relevant authorities and shall provide this update to the Agency prior to operation or within 120 days of the issuance of this Decision Statement, whichever comes first. As part of the follow-up program, the Proponent shall:	▪ Follow-up programs for the Howse Project were submitted to the Agency and Indigenous groups in Spring 2018.
	3.6.1 monitor water quality and quantity parameters as per the Water Management Plan (October 2015) in the environmental impact statement and at locations outlined in figure 1 of the Proponent's final response to Information Request 106 (July 24, 2017), including:	▪ TSMC is committed to comply with this condition, see below.
	3.6.1.1 water levels in Triangle Lake, Morley Lake, Burnetta Lake and Pinette Lake;	▪ Water gauges were first installed at these locations in fall 2017 and replaced by a new probe system in 2023. ▪ Data collection was done

	CEAA Release Condition	2023-2024 Activities
		in 2023 as the new system was tested.
	3.6.1.2 groundwater levels at monitoring well locations outlined in figure 1 or equivalent locations where groundwater may be impacted by the Designated Project;	▪ Additional monitoring well will be installed at the beginning of the construction phase near Triangle Lake.
	3.6.1.3 iron concentration at the final discharge points of the HowseA and Timmins 4 sedimentation ponds;	▪ Not applicable, as the Project has not started.
	3.6.1.4 effluent quality at the final discharge points of the HowseA and Timmins 4 sedimentation ponds, in accordance with the Metal Mining Effluent Regulations and taking into account the Canadian Council of Ministers of the Environment's Water Quality Guidelines for the Protection of Aquatic Life; and	▪ Not applicable, as the Project has not started.
	3.6.1.5 water quality between the HowseA sedimentation pond final discharge point and Triangle Lake, and in Triangle Lake, Burnetta Lake and Pinette Lake.	▪ Not applicable, as the Project has not started.
	3.6.2 update the hydrogeological groundwater model from the Proponent's final response to Information Request 106 (July 24, 2017) at the end of mining phases I, II and III based on the results from 3.6.1; and	▪ Updates will be done following the mining phases.
	3.6.3 monitor fish and fish habitat in Triangle Lake, Burnetta Lake, Pinette Lake and Goodream Creek.	▪ Not applicable, as the Project has not started.
4. Migratory birds		
4.1	The Proponent shall carry out the Designated Project in a manner that protects migratory birds and avoids harming, killing or disturbing migratory birds or destroying, disturbing or taking their nests or eggs. In this regard, the Proponent shall take into account Environment and Climate Change Canada's Avoidance Guidelines. The Proponent's actions when taking into account the Avoidance Guidelines shall be in compliance with the Migratory Birds Convention Act, 1994 and with the Species at Risk Act.	▪ Not applicable, as the Project has not started.
4.2	The Proponent shall have a qualified individual survey, during operation, the mine pit walls annually during the nesting period to determine if bank swallows (Riparia riparia) are using the open pit as a nesting site. The Proponent shall conduct an additional survey one to two days prior to undertaking any new activity associated with the Designated Project during the nesting period areas where bank swallows (Riparia riparia) may occur. The Proponent shall identify, in consultation with Environment and Climate Change Canada and other relevant authorities, and implement a setback distance in which no Designated Project activity shall take place around any bank swallow (Riparia riparia) nest(s) found and shall maintain the setback distance until the young have permanently left the area of the nest. The Proponent shall implement additional measures to deter bank swallows (Riparia riparia) from nesting in the area prior to the next breeding period.	▪ Not applicable as the operations phase has not begun at Howse.
4.3	The Proponent shall notify Environment and Climate Change Canada if it finds bank swallow (*Riparia riparia*) nests within the Designated Project area.	▪ Bank Swallow were not observed in the Howse Property area during the reporting year.
4.4	The Proponent shall control lighting required for the construction, operation and decommissioning of the Designated Project, including direction, timing and intensity, to avoid adverse effects on migratory birds, while meeting health and safety requirements.	▪ Not applicable as construction activities have not begun at Howse.
4.5	The Proponent shall prohibit vehicles and heavy equipment associated with the Designated Project from entering wetlands except those affected by components of the Designated Project as identified in figure 7-33 of the environmental impact statement.	▪ No vehicles and/or heavy equipment entered wetlands during the reporting year.

	CEAA Release Condition	2023-2024 Activities
4.6	The Proponent shall not undertake vehicle, machinery and equipment cleaning, fueling and maintenance and shall not store substance with the potential to cause harmful effects to the receiving environment, within 20 metres of any wetland.	▪ This was respected in the reporting year.
4.7	The Proponent shall develop, prior to construction and in consultation with relevant authorities, a follow-up program to determine the effectiveness of all mitigation measures to avoid harm to migratory birds, their eggs and nests. The Proponent shall provide the follow-up program to the Agency prior to construction. The Proponent shall implement the follow-up program during all phases of the Designated Project. The Proponent shall review and update the follow-up program in consultation with Indigenous groups and relevant authorities and shall provide this update to the Agency prior to operation or within 120 days of the issuance of this Decision Statement, whichever comes first. As part of the follow-up program, the Proponent shall:	▪ Follow-up programs for the Howse Project were submitted to the Agency in Spring 2018.
	4.7.1 conduct migratory bird surveys in the Triangle Lake, Burnetta Lake and Pinette Lake watersheds every year for the first three years following completion of construction. After three years, the Proponent shall determine, in consultation with Indigenous groups and relevant authorities, the frequency of additional surveys based on the results of the follow-up program.	▪ Not applicable at this time.
4.8	The Proponent shall develop, prior to construction, and implement a follow-up program to verify the predictions of the environmental assessment as it pertains to the adverse environmental effects of the Designated Project on wetland functions that support migratory birds, and to determine the effectiveness of the mitigation measures referred to in conditions 4.5 and 4.6 during all phases of the Designated Project. The Proponent shall provide the follow-up program to the Agency prior to construction. The Proponent shall review and update the follow-up program in consultation with Indigenous groups and Environment and Climate Change Canada and shall provide this update to the Agency prior to operation or within 120 days of the issuance of this Decision Statement, whichever comes first. As part of the follow-up program, the Proponent shall:	▪ This condition was complied with.
	4.8.1 have a qualified individual conduct a wetland disturbance survey every five years, with the first survey conducted at the start of construction, to assess wetland functions that support migratory birds; and	▪ Survey done in 2022.
	4.8.2 monitor groundwater levels associated with the wetlands located north of the open pit to verify the effects of pit dewatering on wetlands. Monitoring wells shall be spaced no more than 50 metres apart and measurements shall be taken every two weeks during operation.	▪ Not conducted in 2023 as no construction activities occurred
5. Health and socio-economic conditions of Indigenous peoples		
5.1	The Proponent shall, in consultation with Indigenous groups, undertake progressive reclamation of the areas disturbed by the Designated Project, including by stabilizing, compacting and revegetating with native plant species overburden stockpiles and waste rock piles.	▪ Not applicable, as the Designated project area has not been disturbed.
5.2	Using a qualified individual, the Proponent shall design overburden stockpiles and waste rock piles, in consultation with Indigenous groups and relevant authorities, and in consideration of reducing effects to viewscapes. The Proponent shall implement the design throughout all phases of the Designated Project.	▪ The design of the overburden stockpiles and waste rock piles was completed during the Howse EIS.
5.3	The Proponent shall apply dust suppressant on the Howse haul road during all phases of the Designated Project to control the release of dust. The Proponent shall select, in consultation with relevant authorities, dust suppressants with the least potential effects on human health and the environment.	▪ Not applicable at this time.
5.4	The Proponent shall control dust, if observed visually, during the unloading of ore from trucks, except if not feasible for safety reasons.	▪ Not applicable at this time.
5.5	The Proponent shall implement measures to mitigate dust emissions at the conveyor transfer and drop points	▪ Not applicable, as the Project has

	CEAA Release Condition	2023-2024 Activities
	when the conveyor is active, in the drum scrubber when ore is mixed and at the crude ore recovery tunnel, the secondary crusher and the dryer during ore processing activities	not started.
5.6	The Proponent shall fill borehole necks with clean crushed rock to reduce dust and gas emissions from blasting during construction and operation.	▪ Not applicable, as the Project has not started.
5.7	The Proponent shall develop, prior to construction, a dust management strategy to control dust generated by vehicles associated with the Designated Project using the road to Schefferville and for vehicles entering Schefferville. The Proponent shall implement the strategy during all phases of the Designated Project. The Proponent shall provide the dust management strategy to the Agency prior to the start of construction. The Proponent shall review and update the dust management strategy in consultation with Indigenous groups, relevant authorities and the Town of Schefferville prior to operation or within 120 days of the issuance of this Decision Statement, whichever comes first.	▪ Follow-up programs for the Howse Project were submitted to the Agency in Spring 2018.
5.8	Throughout all phases of the Designated Project, the Proponent shall implement incentive measures to reduce the number of vehicles from the Designated Project, including by providing shuttle buses to transport workers to and from the Designated Project area.	▪ TSMC is complying with this condition.
5.9	The Proponent shall develop, prior to construction, a follow-up program to verify the accuracy of the environmental assessment as it pertains to air quality and the effects of dust on the health of Indigenous peoples and to determine the effectiveness of the mitigation measures referred to in conditions 5.3 to 5.8. The Proponent shall provide the follow-up program to the Agency prior to the start of construction. The Proponent shall implement the follow-up program from the start of construction to the end of decommissioning of the Designated Project. The Proponent shall review and update the follow-up program in consultation with Indigenous groups and relevant authorities and shall provide the update to the Agency prior to operation or within 120 days of the issuance of this Decision Statement, whichever comes first. As part of the follow-up program, the Proponent shall:	▪ Follow-up programs for the Howse Project were submitted to the Agency in Spring 2018.
	5.9.1 monitor air quality at receptors R3, R9, R10, R16, R18, R24, R36, R38 and R40 identified by the Proponent in Table 7-13 of the environmental impact statement, including for total particulate matter, particulate matter less than 10 microns, particulate matter less than 2.5 microns, dustfall, nitrogen oxides, sulfur oxides, carbon monoxide, and periodic monitoring of nitrogen dioxides after blasting activities;	
	5.9.2 monitor dust generation and deposition from the Designated Project at locations potentially affected by the Designated Project, using a dust tracking system and mobile monitoring equipment;	
	5.9.3 analyse concentrations of contaminants of concern in dust, including a minimum of one sampling of heavy metal content between the months of June and August of every year that analyses are conducted; and	
	5.9.4 if the results of the follow-up program demonstrate that modified or additional mitigation measures are required, as determined in condition 2.6, at the Howse mini-plant, Designated Project roads, waste rock piles or overburden stockpiles, the Proponent shall implement modified or additional mitigation measures.	
5.10	The Proponent shall develop, prior to operation or within 120 days of the issuance of this Decision Statement, whichever comes first, and in consultation with Indigenous groups and relevant authorities, a follow-up program to verify the accuracy of the environmental assessment as it pertains to country foods. Country foods may include game birds, mammals, fish, and plant species. The Proponent shall implement the follow-up program. As part of the follow-up program, the Proponent shall:	▪ Follow-up programs for the Howse Project were submitted to the Agency in Spring 2018.
	5.10.1 sample country food species commonly consumed by Indigenous groups and identified in consultation with Indigenous groups including brook trout (Salvelinus fontinalis) and lake trout (Salvelinus namaycush);	
	5.10.2 sample species identified in condition 5.10.1 for heavy metals, and other contaminants of concern	

	CEAA Release Condition	2023-2024 Activities
	identified in consultation with Indigenous groups and relevant authorities;	
	5.10.3 sample in areas where Indigenous groups harvest country foods and that may be adversely affected by the Designated Project and in a control site that is not affected by activities of the Designated Project. Fish sampling shall include sampling in Goodream Creek, Triangle Lake, and Pinette Lake; and	
	5.10.4 start sampling two years after the start of operation and continue sampling at a frequency and for a duration determined in consultation with Indigenous groups and relevant authorities.	
6. Current use of lands and resources for traditional purposes		
6.1	The Proponent shall upgrade, from the start of construction, a bypass road around the Designated Project in order to provide access for Indigenous groups to Pinette Lake, Kauteitnat and the Howells River Valley. The Proponent shall maintain the bypass road at least twice per calendar year until the end of decommissioning to ensure its usability.	▪ Not applicable, as the Construction Phase of the Project has not started.
6.2	The Proponent shall upgrade, from the start of construction, a bypass road around the Direct Shipping Ore 4 area in order to provide access for Indigenous groups to hunting grounds to the northwest of the Designated Project near the Kivivic and Goodwood deposits. The Proponent shall maintain the bypass road at least twice per calendar year until the end of decommissioning to ensure its usability.	▪ Not applicable at this time.
6.3	The Proponent shall not use the bypass roads, referred to in conditions 6.1 and 6.2, for Designated Project activities, except when undertaking the maintenance of those bypass roads as required by conditions 6.1 and 6.2, or if required for safety or emergency reasons.	▪ TSMC has not used the bypass road for any Project activities during the reporting year (this road is accessed only for the purposes of environmental monitoring, and only when no other access exists).
6.4	The Proponent shall prohibit employees and contractors associated with the Designated Project from fishing and hunting within the designated project area, unless an employee or a contractor is provided access by the Proponent for traditional purposes or for exercising Aboriginal rights, to the extent that such access is safe.	▪ This was respected during the reporting year.
6.5	If the Proponent is made aware of or observes caribou within a 20-kilometre radius of the active pit or of the Howse mini-plant, the Proponent shall consult the Newfoundland and Labrador Department of Fisheries and Land Resources to determine the appropriate course of action.	▪ TSMC is not aware of any caribou within 20km of the active pit or the Howse mini-Plant.
6.6	The Proponent shall develop, prior to construction, and implement during all phases of the Designated Project, a follow-up program to verify the accuracy of the environmental assessment as it pertains to the adverse effects of the Designated Project on the current use of lands and resources for traditional purposes and to determine the effectiveness of the mitigation measures referred to in conditions 6.1 to 6.4, including maintenance of the bypass roads. The Proponent shall provide the follow-up program to the Agency prior to the start of construction. The Proponent shall review and update the follow-up program in consultation with Indigenous groups and shall provide this update to the Agency prior to operation or within 120 days of the issuance of this Decision Statement, whichever comes first.	▪ Follow-up programs for the Howse Project were submitted to the Agency in Spring 2018.
6.7	The Proponent shall develop, prior to construction, and implement during all phases of the Designated Project, a follow-up program to verify the accuracy of the environmental assessment as it pertains to the adverse effects of the Designated Project on the George River herd of Eastern migratory caribou (Rangifer tarandus caribou). The Proponent shall provide the follow-up program to the Agency prior to the start of construction. The Proponent shall review and update the follow-up program in consultation with Indigenous groups and the Government of Newfoundland and Labrador, and shall provide this update to the Agency prior to operation or within 120 days of	▪ Follow-up programs for the Howse Project were submitted to the Agency in Spring 2018.

	CEAA Release Condition	2023-2024 Activities
	the issuance of this Decision Statement, whichever comes first. As part of the follow-up program, the Proponent shall monitor movement of the George River herd of Eastern migratory caribou (*Rangifer tarandus caribou*) and develop and implement modified or additional mitigation measures if the range of the George River herd of Eastern migratory caribou (*Rangifer tarandus caribou*) expands to occupy areas within a 20-kilometre radius of the Designated Project.	
6.8	The Proponent shall develop, prior to construction and in consultation with Indigenous groups, a communication plan to share information related to the Designated Project with Indigenous groups. The Proponent shall implement and maintain the communication plan up to date during all phases of the Designated Project. The communication plan shall include procedures, including timing, for sharing information on the following:	▪ Follow-up programs for the Howse Project were submitted to the Agency in Spring 2018 ▪ TSMC is committed to comply with this condition.
	6.8.1 the Designated Project activities requiring notification to Indigenous groups and the timing of these notifications. For blasting, the Proponent shall advertise blasting schedules via local radio stations and directly to Indigenous groups at a minimum 48 hours prior to each blasting event;	
	6.8.2 follow-up activities and monitoring results referred to in conditions 3.6, 4.7, 4.8, 5.9, 5.10, 6.6, 6.7, and 7.5; and	
	6.8.3 temporary and permanent restrictions on access to traditional territories, including the location and timing of these restrictions, the availability of alternate routes, and the timing of maintenance activities for the bypass roads as per 6.1 and 6.2.	
6.9	The Proponent shall develop, as part of the communication plan referred to in condition in 6.8, procedures for Indigenous groups to provide feedback to the Proponent about adverse environmental effects caused by the Designated Project related to access to and use of traditional territories, traffic, air quality, including dust and dust deposition, and country foods and procedures for the Proponent to document and respond in a timely manner to the feedback received and demonstrate how issues have been addressed. The Proponent shall implement these procedures during all phases of the Designated Project.	▪ These procedures were in place during the reporting year.
6.10	The Proponent shall provide Indigenous groups with the schedules referred to in conditions 10.1 and 10.2 and updates or revisions to the initial schedules pursuant to condition 10.3 and 10.4 at the same time these documents are provided to the Agency.	▪ Not applicable at this time.
7. Physical and cultural heritage and structures, sites or things of historical, archaeological, paleontological or architectural significance		
7.1	If requested by Indigenous groups 48 hours prior to their planned use of Kauteitnat, the Proponent shall refrain from blasting for a period of 24 hours during that time of planned use of Kauteitnat, or less if Indigenous groups are no longer using Kauteitnat.	▪ Not applicable at this time.
7.2	The Proponent shall not conduct any Designated Project activity to the south of proposed water diversion ditch, identified in figure 2 in the environmental assessment report, except for activities required for the construction and maintenance of the diversion ditch. The Proponent shall clearly identify the exclusion zone with signage on the ground, within its lease area, posted at the edge of the exclusion zone.	▪ Not applicable as no project activity has taken place.
7.3	During the months of June, July, August and September, the Proponent shall not blast more than twice in a week and more than five times per month.	▪ Not applicable as no project activity has taken place.
7.4	The Proponent shall develop, prior to construction, and implement during all phases of the Designated Project, a protocol for receiving complaints related to the exposure to noise from the Designated Project. The Proponent shall provide the protocol to the Agency and Indigenous groups prior to the start of construction. The Proponent shall review and update the protocol in consultation with Indigenous groups and shall provide this update to the Agency and Indigenous groups prior to operation or within 120 days of the issuance of this Decision Statement,	▪ Follow-up programs for the Howse Project were submitted to the Agency in Spring 2018.

	CEAA Release Condition	2023-2024 Activities
	whichever comes first. The Proponent shall respond to any noise complaints within 48 hours of the complaint being received and shall implement corrective actions to reduce exposure to noise in a timely manner.	
7.5	The Proponent shall develop prior to construction, and implement during all phases of the Designated Project, a follow-up program to verify the accuracy of the environmental assessment as it pertains to the effects of the Designated Project on the use of cultural and other sites as a result of noise levels. The Proponent shall provide the follow-up program to the Agency prior to the start of construction. The Proponent shall review and update the follow-up program in consultation with Indigenous groups and shall provide this update to the Agency prior to operation or within 120 days of the issuance of this Decision Statement, whichever comes first. As part of the follow-up program, the Proponent shall:	▪ Follow-up programs for the Howse Project were submitted to the Agency in Spring 2018.
	7.5.1 monitor noise levels at receptor sites R9, R10, R11, R13 and R24 identified by the Proponent in figure 7.10 of the environmental impact statement. The Proponent shall implement modified or additional mitigation measures if noise levels at these sites exceed 5 decibels above the baseline noise levels as a result of the Designated Project, except during blasting.	
7.6	The Proponent shall develop, prior to construction, and implement during all phases of the Designated Project a cultural heritage control plan. The Proponent shall provide the cultural heritage control plan to the Agency prior to the start of construction. The Proponent shall review and update the plan in consultation with Indigenous groups and the Government of Newfoundland and Labrador and shall provide this update to the Agency prior to operation or within 120 days of the issuance of this Decision Statement, whichever comes first. If any previously unidentified structures, sites or things of historical, archaeological, paleontological or architectural significance are discovered within the Designated Project area by the Proponent or brought to the attention of the Proponent by an Indigenous group or another party during construction, the Proponent shall:	▪ All required programs for the Howse Project were submitted to the Agency in Spring 2018.
	7.6.2 delineate an area of at least 30 metres around the discovery as a no-work zone. The no-work requirement shall not apply to action(s) required to be undertaken to protect the integrity of the discovery;	
	7.6.3 have a qualified individual conduct an assessment at the location of the discovery;	
	7.6.4 inform Indigenous groups within 24 hours of the discovery, and allow for monitoring by Indigenous groups during work related to the discovery; and	
	7.6.5 comply, in consultation with Indigenous groups and relevant authorities, with all applicable legislative or legal requirements and associated regulations and protocols respecting the discovery, recording, transferring and safekeeping of previously unidentified structures, sites or things of historical, archaeological, paleontological or architectural significance.	
8. Cumulative Effects		
8.1	The Proponent shall participate in regional initiative(s), if requested by a relevant authority or the Town of Schefferville, relating to the monitoring, assessment and management of cumulative environmental effects, including cumulative health effects related to dust likely to result from the Designated Project in combination with other mining activities that have or will be carried out in the region, should there be any such initiative(s) during the construction and operation phases of the Designated Project.	▪ TSMC will continue to participate in regional initiatives if requested by regional Indigenous groups and/or authorities.
9. Accidents and malfunctions		
9.1	The Proponent shall take all reasonable measures to prevent accidents and malfunctions that may result in adverse environmental effects. The measures taken by the Proponent shall include measures to prevent slope failures, sedimentation pond failures, ditch failures, destabilization of waste rock piles and overburden stockpiles, and rock slides.	▪ An accident and malfunction response plan specific for the Howse project is currently drafted.

	CEAA Release Condition	2023-2024 Activities
9.2	The Proponent shall develop, prior to construction, and implement during all phases of the Designated Project, an accident and malfunction response plan. The accident and malfunction plan shall include the types of accidents and malfunctions that may cause adverse environmental effects, and response plans for slope failures, sedimentation pond failures, ditch failures, destabilization of waste rock piles and overburden stockpiles, or rock slides in addition to all emergency response plans identified in the environmental impact statement. The Proponent shall provide the accident and malfunction response plan to the Agency prior to the start of construction.	▪ See above.
9.3	The Proponent shall review and update the measures to be implemented to prevent accidents and malfunctions and the accidents and malfunctions response plan in consultation with Indigenous groups and relevant authorities prior to operation or within 120 days of the issuance of this Decision Statement, whichever comes first.	▪ Not applicable for this reporting year.
9.4	In the event of an accident or malfunction with the potential to cause adverse environmental effects, the Proponent shall implement the accidents and malfunctions response plan referred to in condition 9.2 or any subsequent update(s) referred to in condition 9.3 and shall:	▪ Not applicable for this reporting year.
	9.4.1 notify, as soon as possible, Indigenous groups and relevant authorities of the accident or malfunction, and notify the Agency in writing no later than 24 hours following the accident or malfunction. When notifying Indigenous groups and in the notification to the Agency, the Proponent shall specify;	
	9.4.1.1 the date the accident or malfunction occurred;	
	9.4.1.2 a description of the accident or malfunction;	
	9.4.1.3 a list of all substances potentially released in the environment as a result of the accident or malfunction.	
	9.4.2 implement immediate measures to mitigate any adverse environmental effects caused by the accident or malfunction;	
	9.4.3 submit a written report to the Agency no later than 30 days after the day on which the accident or malfunction took place. The written report shall include:	▪ Not applicable for this reporting year.
	9.4.3.1 a description of the accident or malfunction and of its adverse environmental effects;	
	9.4.3.2 the measures that were taken by the Proponent to mitigate the adverse environmental effects caused by the accident or malfunction;	
	9.4.3.3 any view(s) from Indigenous groups and advice from relevant authorities received with respect to the accident or malfunction, its adverse environmental effects and the measures taken by the Proponent to mitigate these adverse environmental effects;	
	9.4.3.4 a description of any residual adverse environmental effects and any modified or additional measures required by the Proponent to mitigate residual adverse environmental effects; and	
	9.4.3.5 details concerning the implementation of the accident or malfunction response plan referred to in condition 9.2 or any subsequent update(s) referred to in condition 9.3.	
	9.4.4 submit a written report to the Agency no later than 90 days after the day on which the accident or malfunction took place, on the changes made to avoid a subsequent occurrence of the accident or malfunction and on the implementation of any modified or additional measure(s) to mitigate and monitor residual adverse environmental effects and to carry out any required progressive reclamation, taking into account the information submitted in the written report pursuant to condition 9.4.3. The report shall include all additional views from Indigenous groups and advice from relevant authorities since the views and advice referred to in condition 9.4.3.3	▪ Not applicable for this reporting year.

	CEAA Release Condition	2023-2024 Activities
	have been received by the Proponent.	
9.5	The Proponent shall develop a communication plan in consultation with Indigenous groups. The Proponent shall develop the communication plan prior to construction and shall implement and keep it up to date during all phases of the Designated Project. The plan shall include:	▪ Communication plan for the Howse Project was submitted to the Agency in April 2018 and is currently being updated
	9.5.1 the types of accidents and malfunctions requiring the Proponent to notify the respective Indigenous groups;	
	9.5.2 the manner by which Indigenous group shall be notified by the Proponent of an accident or malfunction and of any opportunities for the Indigenous groups to assist in the response to the accident or malfunction; and	
	9.5.3 the contact information of the representatives of the Proponent that the Indigenous groups may contact and of the representatives of the respective Indigenous groups to which the Proponent provides notification.	
10. Schedules		
10.1	The Proponent shall submit to the Agency a schedule for all conditions set out in this Decision Statement no later than 30 days after the start of construction. The schedule shall detail all activities planned to fulfill each condition set out in this Decision Statement and the commencement and estimated completion month(s) and year(s) for each of these activities.	▪ Not applicable, as construction phase has not started.
10.2	The Proponent shall submit to the Agency a schedule outlining all activities required to carry out all phases of the Designated Project no later than 30 days after the start of construction. The schedule shall indicate the commencement and estimated completion month(s) and year(s) and duration of each of these activities.	▪ Not applicable, as construction phase has not started.
10.3	The Proponent shall submit to the Agency in writing an update to schedules referred to in conditions 10.1 and 10.2 every year no later than June 30, until completion of all activities referred to in each schedule.	▪ Not applicable, as construction phase has not started.
10.4	The Proponent shall provide to the Agency revised schedules if any change(s) are made to the initial schedules referred to in condition 10.1 and 10.2 or to any subsequent update(s) referred to in condition 10.3, upon revision of the schedules.	▪ Not applicable, as construction phase has not started.
11. Record Keeping		
11.1	The Proponent shall maintain all records required to demonstrate compliance with the conditions set out in this Decision Statement. The Proponent shall provide the aforementioned records to the Agency upon demand within a timeframe specified by the Agency.	▪ TSMC is committed to comply with this condition.
11.2	The Proponent shall retain all records referred to in condition 11.1 at a facility in Canada. The records shall be retained and made available throughout construction and operation and for 25 years following the end of operation or until the end of decommissioning of the Designated Project, whichever comes first. The Proponent shall notify the Agency at least 30 days prior to any change to the physical location of the facility where the records are retained, and shall provide to the Agency the address of the new location.	▪ TSMC is committed to comply with this condition.

Appendix I Surface Water Quality Certificates

Your P.O. #: 3000000997
Your Project #: NL surface water PIRI 36 kits
Site Location: HOWSE
Your C.O.C. #: 265668-03-01

Attention: Jean-Francois Dion

TATA STEEL MINERALS CANADA
1000, RUE SHERBROOKE OUEST
BUREAU 1120
MONTRÉAL, QC
CANADA H3A 3G4

Report Date: 2023/06/20
Report #: R2854212
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C327388
Received: 2023/06/09, 10:50

Sample Matrix: Surface Water
Samples Received: 9

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Total Alkalinity (end point 4.5)-waters	8	N/A	2023/06/10	STL SOP-00038	SM 23 2320-B m
Total Alkalinity (end point 4.5)-waters	1	N/A	2023/06/12	STL SOP-00038	SM 23 2320-B m
Anions in water	9	N/A	2023/06/10	STL SOP-00014	MA.300–Ions 1.3 R6 m
Real Color	9	N/A	2023/06/10	STL SOP-00046	MA103 - Col. 2.0 R4m
Conductivity in waters	5	N/A	2023/06/10	STL SOP-00038	SM 23 2510-B m
Conductivity in waters	4	N/A	2023/06/12	STL SOP-00038	SM 23 2510-B m
Dissolved Organic Carbon (3)	9	2023/06/15	2023/06/16	STL SOP-00243	SM 23 5310-B m
Total Suspended Solids	9	2023/06/12	2023/06/14	STL SOP-00015	MA.104–S.S. 2.0 m
Total Extractable Metals	9	2023/06/14	2023/06/15	STL SOP-00062	MA.200–Mét. 1.2 R7 m
Ammonia Nitrogen in water	9	N/A	2023/06/15	STL SOP-00040	MA.300–N 2.0 R2 m
Nitrates(NO3-), Nitrites(NO2-)-water	9	N/A	2023/06/10	STL SOP-00014	MA.300–Ions 1.3 R6 m
Dissolved Oxygen	9	N/A	2023/06/09	STL SOP-00008	MA.315–DBO 1.1 R3 m
pH in water	9	N/A	2023/06/10	STL SOP-00038	MA.100–pH 1.1 R3 m
pH Measured @ 15° C	9	N/A	2023/06/09	STL SOP-00016	MA.100–pH 1.1 R3 m
Total Phenols by 4-AAP in water	9	2023/06/19	2023/06/19	STL SOP-00033	MA404–I.Phé 2.2 R2 m
pH (site)- waters	9	N/A	2023/06/09		Test Kit
Ortho Phosphate-water	9	N/A	2023/06/10	STL SOP-00003	MA.303–P 1.1 R2 m
Sulfides (as S2-)-water	9	2023/06/13	2023/06/14	STL SOP-00273	MA.300-S 1.2, R3 m
Total Dissolved Solids	9	2023/06/14	2023/06/15	STL SOP-00050	MA.115–S.D. 1.0 R4 m
Temperature (site)	9	N/A	2023/06/09		Thermometer
Turbidity-water	9	N/A	2023/06/10	STL SOP-00022	MA.103–Tur. 1.0 R5 m
TEH in Water (PIRI) (1)	3	2023/06/15	2023/06/16	ATL SOP 00113	Atl. RBCA v3.1 m
TEH in Water (PIRI) (1)	6	2023/06/19	2023/06/19	ATL SOP 00113	Atl. RBCA v3.1 m
Total Mercury (CVAA) - low level (2)	9	2023/06/15	2023/06/15	CAM SOP-00453	EPA 7470 m
Reactive Silica(SiO2) (1)	9	2023/06/16	2023/06/19	ATL SOP 00022	EPA 366.0 m
VPH in Water (PIRI) (1)	9	2023/06/16	2023/06/16	ATL SOP 00130	Atl. RBCA v3.1 m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

Bureau Veritas Bureau Veritas 889 Montée de Liesse, Ville St-Laurent, Québec, Canada H4T 1P5 Tel: (514) 448-9001 Fax: (514) 448-9199 Ligne sans frais : 1-877-462-9926

Your P.O. #: 3000000997
Your Project #: NL surface water PIRI 36 kits
Site Location: HOWSE
Your C.O.C. #: 265668-03-01

Attention: Jean-Francois Dion

TATA STEEL MINERALS CANADA
1000, RUE SHERBROOKE OUEST
BUREAU 1120
MONTRÉAL, QC
CANADA H3A 3G4

Report Date: 2023/06/20
Report #: R2854212
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C327388
Received: 2023/06/09, 10:50

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
Note: RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) This test was performed by Bureau Veritas Bedford, Suit 105, 200 Bluewater Rd. , Bedford, NS, B4B1G9
(2) This test was performed by Bureau Veritas Mississauga, 6740 Campobello Rd. , Mississauga, ON, L5N 2L8
(3) DOC present in the sample should be considered as non-purgeable DOC

Note: All parameters included in the present certificate are accredited by the MELCC unless stated otherwise.

Encryption Key

Josue Moran
Project Manager
21 Jun 2023 11:06:53

Please direct all questions regarding this Certificate of Analysis to:
Josue Moran, Project Manager
Email: josue.moran@bureauveritas.com
Phone# (514) 448-9001
==========
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For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Aglaia Yannakis, General Manager responsible for Quebec Environmental laboratory operations.

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Bureau Veritas Job #: C327388
Report Date: 2023/06/20

TATA STEEL MINERALS CANADA
Client Project #: NL surface water PIRI 36 kits
Site Location: HOWSE
Your P.O. #: 3000000997
Sampler Initials: JP

RESULTS OF ANALYSES OF SURFACE WATER

Bureau Veritas ID		LU4604	LU4605	LU4606		
Sampling Date		2023/06/08 10:44	2023/06/08 09:24	2023/06/08 10:55		
COC Number		265668-03-01	265668-03-01	265668-03-01		
	Units	HOW-SW2-Q1-2023	HOW-SW4-Q1-2023	HOW-SW3-Q1-2023	RDL	QC Batch
INORGANICS						
Reactive silica (SiO2) †	mg/L	4.0	5.2	2.6	0.50	2412226
PETROLEUM HYDROCARBONS						
>C10-C16 Hydrocarbons †	mg/L	<0.050	<0.050	<0.050	0.050	2412227
>C16-C21 Hydrocarbons †	mg/L	<0.050	<0.050	<0.050	0.050	2412227
>C21-<C32 Hydrocarbons †	mg/L	<0.090	<0.090	<0.090	0.090	2412227
Return to baseline at C32 †	mg/L	NA	NA	NA	N/A	2412227
Hydrocarbon Resemblance †	mg/L	NA	NA	NA	N/A	2412227
Surrogate Recovery (%)						
Isobutylbenzene - Extractable	%	112	108	114	N/A	2412227
n-Dotriacontane - Extractable	%	109	105	110	N/A	2412227

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
† Parameter is not accreditable
N/A = Not Applicable

Bureau Veritas Bureau Veritas 889 Montée de Liesse, Ville St-Laurent, Québec, Canada H4T 1P5 Tel: (514) 448-9001 Fax: (514) 448-9199 Ligne sans frais : 1-877-462-9926

TATA STEEL MINERALS CANADA
Client Project #: NL surface water PIRI 36 kits
Site Location: HOWSE
Your P.O. #: 3000000997
Sampler Initials: JP

RESULTS OF ANALYSES OF SURFACE WATER

Bureau Veritas ID		LU4607		LU4608		LU4609		
Sampling Date		2023/06/08 07:21		2023/06/08 06:32		2023/06/08 07:49		
COC Number		265668-03-01		265668-03-01		265668-03-01		
	Units	HOW-BL-Q1-2023	RDL	HOW-SW5-Q1-2023	RDL	HOW-BC-Q1-2023	RDL	QC Batch
INORGANICS								
Reactive silica (SiO2) †	mg/L	5.5	0.50	1.0	0.50	3.5	0.50	2412226
PETROLEUM HYDROCARBONS								
>C10-C16 Hydrocarbons †	mg/L	<0.054	0.054	<0.055	0.055	<0.055	0.055	2412229
>C16-C21 Hydrocarbons †	mg/L	<0.054	0.054	<0.055	0.055	<0.055	0.055	2412229
>C21-<C32 Hydrocarbons †	mg/L	<0.097	0.097	<0.099	0.099	<0.10	0.10	2412229
Return to baseline at C32 †	mg/L	NA	N/A	NA	N/A	NA	N/A	2412229
Hydrocarbon Resemblance †	mg/L	NA	N/A	NA	N/A	NA	N/A	2412229
Surrogate Recovery (%)								
Isobutylbenzene - Extractable	%	95	N/A	95	N/A	97	N/A	2412229
n-Dotriacontane - Extractable	%	105 (1)	N/A	107 (1)	N/A	104 (1)	N/A	2412229

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
† Parameter is not accreditable
N/A = Not Applicable
(1) Elevated TEH RDL(s) due to limited sample.

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Bureau Veritas Job #: C327388
Report Date: 2023/06/20

TATA STEEL MINERALS CANADA
Client Project #: NL surface water PIRI 36 kits
Site Location: HOWSE
Your P.O. #: 3000000997
Sampler Initials: JP

RESULTS OF ANALYSES OF SURFACE WATER

Bureau Veritas ID		LU4610		LU4611		LU4612		
Sampling Date		2023/06/08 11:32		2023/06/08 08:16		2023/06/08 09:53		
COC Number		265668-03-01		265668-03-01		265668-03-01		
	Units	HOW-ML-Q1-2023	RDL	HOW-TL-Q1-2023	RDL	HOW-SW1-Q1-2023	RDL	QC Batch
INORGANICS								
Reactive silica (SiO2) †	mg/L	0.81	0.50	4.2	0.50	4.7	0.50	2412226
PETROLEUM HYDROCARBONS								
>C10-C16 Hydrocarbons †	mg/L	<0.050	0.050	<0.054	0.054	<0.054	0.054	2412229
>C16-C21 Hydrocarbons †	mg/L	<0.050	0.050	<0.054	0.054	<0.054	0.054	2412229
>C21-<C32 Hydrocarbons †	mg/L	<0.090	0.090	<0.097	0.097	<0.098	0.098	2412229
Return to baseline at C32 †	mg/L	NA	N/A	NA	N/A	NA	N/A	2412229
Hydrocarbon Resemblance †	mg/L	NA	N/A	NA	N/A	NA	N/A	2412229
Surrogate Recovery (%)								
Isobutylbenzene - Extractable	%	95	N/A	89	N/A	90	N/A	2412229
n-Dotriacontane - Extractable	%	108	N/A	105 (1)	N/A	103 (1)	N/A	2412229

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
† Parameter is not accreditable
N/A = Not Applicable
(1) Elevated TEH RDL(s) due to limited sample.

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TOTAL EXTRACTABLE METALS (SURFACE WATER)

Bureau Veritas ID		LU4604	LU4605	LU4606	LU4607		
Sampling Date		2023/06/08 10:44	2023/06/08 09:24	2023/06/08 10:55	2023/06/08 07:21		
COC Number		265668-03-01	265668-03-01	265668-03-01	265668-03-01		
	Units	HOW-SW2-Q1-2023	HOW-SW4-Q1-2023	HOW-SW3-Q1-2023	HOW-BL-Q1-2023	RDL	QC Batch
METALS							
Aluminum (Al)	ug/L	57	<10	46	<10	10	2410118
Antimony (Sb)	ug/L	<1.0	<1.0	<1.0	<1.0	1.0	2410118
Silver (Ag)	ug/L	<1.0	<1.0	<1.0	<1.0	1.0	2410118
Arsenic (As)	ug/L	<1.0	<1.0	<1.0	<1.0	1.0	2410118
Barium (Ba)	ug/L	2.4	<2.0	<2.0	<2.0	2.0	2410118
Beryllium (Be)	ug/L	<2.0	<2.0	<2.0	<2.0	2.0	2410118
Bismuth (Bi) ††	ug/L	<1.0	<1.0	<1.0	<1.0	1.0	2410118
Boron (B) †	ug/L	<50	<50	<50	<50	50	2410118
Cadmium (Cd)	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	2410118
Calcium (Ca) †	ug/L	<500	2100	<500	5200	500	2410118
Chromium (Cr)	ug/L	<5.0	<5.0	<5.0	<5.0	5.0	2410118
Cobalt (Co)	ug/L	<1.0	<1.0	<1.0	<1.0	1.0	2410118
Copper (Cu)	ug/L	<1.0	<1.0	<1.0	<1.0	1.0	2410118
Total Hardness (CaCO3) ††	ug/L	2300	11000	1200	27000	1000	2410118
Tin (Sn)	ug/L	<2.0	<2.0	<2.0	<2.0	2.0	2410118
Iron (Fe)	ug/L	720	<60	<60	<60	60	2410118
Magnesium (Mg) †	ug/L	290	1500	130	3500	100	2410118
Manganese (Mn)	ug/L	74	<1.0	9.8	1.8	1.0	2410118
Mercury (Hg)	ug/L	<0.10	<0.10	<0.10	<0.10	0.10	2410118
Molybdenum (Mo)	ug/L	<1.0	<1.0	<1.0	<1.0	1.0	2410118
Nickel (Ni)	ug/L	<2.0	<2.0	<2.0	<2.0	2.0	2410118
P2O5 ††	ug/L	<25	<25	<25	<25	25	2410118
Total phosphorous	ug/L	10	<10	<10	<10	10	2410118
Lead (Pb)	ug/L	<0.50	<0.50	<0.50	<0.50	0.50	2410118
Potassium (K) †	ug/L	<500	<500	<500	<500	500	2410118
Selenium (Se)	ug/L	<3.0	<3.0	<3.0	<3.0	3.0	2410118
Sodium (Na)	ug/L	640	690	<500	750	500	2410118
Strontium (Sr) †	ug/L	3.6	5.1	<2.0	6.9	2.0	2410118
Thallium (Tl)	ug/L	<2.0	<2.0	<2.0	<2.0	2.0	2410118
Titanium (Ti) ††	ug/L	<10	<10	<10	<10	10	2410118
Uranium (U) ††	ug/L	<1.0	<1.0	<1.0	<1.0	1.0	2410118

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
†† Parameter is not accreditable
† Parameter is not accredited

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TATA STEEL MINERALS CANADA
Client Project #: NL surface water PIRI 36 kits
Site Location: HOWSE
Your P.O. #: 3000000997
Sampler Initials: JP

TOTAL EXTRACTABLE METALS (SURFACE WATER)

Bureau Veritas ID		LU4604	LU4605	LU4606	LU4607		
Sampling Date		2023/06/08 10:44	2023/06/08 09:24	2023/06/08 10:55	2023/06/08 07:21		
COC Number		265668-03-01	265668-03-01	265668-03-01	265668-03-01		
	Units	**HOW-SW2-Q1-2023**	**HOW-SW4-Q1-2023**	**HOW-SW3-Q1-2023**	**HOW-BL-Q1-2023**	**RDL**	**QC Batch**
Vanadium (V)	ug/L	<2.0	<2.0	<2.0	<2.0	2.0	2410118
Zinc (Zn)	ug/L	<7.0	<7.0	8.3	<7.0	7.0	2410118

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas Bureau Veritas 889 Montée de Liesse, Ville St-Laurent, Québec, Canada H4T 1P5 Tel: (514) 448-9001 Fax: (514) 448-9199 Ligne sans frais : 1-877-462-9926

TATA STEEL MINERALS CANADA
Client Project #: NL surface water PIRI 36 kits
Site Location: HOWSE
Your P.O. #: 3000000997
Sampler Initials: JP

TOTAL EXTRACTABLE METALS (SURFACE WATER)

Bureau Veritas ID		LU4608	LU4609	LU4610	LU4611		
Sampling Date		2023/06/08 06:32	2023/06/08 07:49	2023/06/08 11:32	2023/06/08 08:16		
COC Number		265668-03-01	265668-03-01	265668-03-01	265668-03-01		
	Units	HOW-SW5-Q1-2023	HOW-BC-Q1-2023	HOW-ML-Q1-2023	HOW-TL-Q1-2023	RDL	QC Batch
METALS							
Aluminum (Al)	ug/L	17	120	51	12	10	2410118
Antimony (Sb)	ug/L	<1.0	<1.0	<1.0	<1.0	1.0	2410118
Silver (Ag)	ug/L	<1.0	<1.0	<1.0	<1.0	1.0	2410118
Arsenic (As)	ug/L	<1.0	<1.0	<1.0	<1.0	1.0	2410118
Barium (Ba)	ug/L	<2.0	2.1	<2.0	2.7	2.0	2410118
Beryllium (Be)	ug/L	<2.0	<2.0	<2.0	<2.0	2.0	2410118
Bismuth (Bi) ††	ug/L	<1.0	<1.0	<1.0	<1.0	1.0	2410118
Boron (B) †	ug/L	<50	<50	<50	<50	50	2410118
Cadmium (Cd)	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	2410118
Calcium (Ca) †	ug/L	<500	580	1400	3000	500	2410118
Chromium (Cr)	ug/L	<5.0	<5.0	<5.0	<5.0	5.0	2410118
Cobalt (Co)	ug/L	<1.0	<1.0	<1.0	<1.0	1.0	2410118
Copper (Cu)	ug/L	<1.0	<1.0	<1.0	<1.0	1.0	2410118
Total Hardness (CaCO3) ††	ug/L	2000	2900	6700	17000	1000	2410118
Tin (Sn)	ug/L	<2.0	<2.0	<2.0	<2.0	2.0	2410118
Iron (Fe)	ug/L	<60	120	97	<60	60	2410118
Magnesium (Mg) †	ug/L	220	360	780	2200	100	2410118
Manganese (Mn)	ug/L	4.5	14	5.5	5.5	1.0	2410118
Mercury (Hg)	ug/L	<0.10	<0.10	<0.10	<0.10	0.10	2410118
Molybdenum (Mo)	ug/L	<1.0	<1.0	<1.0	<1.0	1.0	2410118
Nickel (Ni)	ug/L	<2.0	<2.0	<2.0	<2.0	2.0	2410118
P2O5 ††	ug/L	<25	<25	<25	<25	25	2410118
Total phosphorous	ug/L	<10	<10	<10	<10	10	2410118
Lead (Pb)	ug/L	<0.50	<0.50	<0.50	<0.50	0.50	2410118
Potassium (K) †	ug/L	<500	<500	<500	<500	500	2410118
Selenium (Se)	ug/L	<3.0	<3.0	<3.0	<3.0	3.0	2410118
Sodium (Na)	ug/L	<500	<500	<500	550	500	2410118
Strontium (Sr) †	ug/L	2.4	2.1	3.1	5.3	2.0	2410118
Thallium (Tl)	ug/L	<2.0	<2.0	<2.0	<2.0	2.0	2410118
Titanium (Ti) ††	ug/L	<10	<10	<10	<10	10	2410118
Uranium (U) ††	ug/L	<1.0	<1.0	<1.0	<1.0	1.0	2410118

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
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† Parameter is not accredited

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TATA STEEL MINERALS CANADA
Client Project #: NL surface water PIRI 36 kits
Site Location: HOWSE
Your P.O. #: 3000000997
Sampler Initials: JP

TOTAL EXTRACTABLE METALS (SURFACE WATER)

Bureau Veritas ID		LU4608	LU4609	LU4610	LU4611		
Sampling Date		2023/06/08 06:32	2023/06/08 07:49	2023/06/08 11:32	2023/06/08 08:16		
COC Number		265668-03-01	265668-03-01	265668-03-01	265668-03-01		
	Units	**HOW-SW5-Q1-2023**	**HOW-BC-Q1-2023**	**HOW-ML-Q1-2023**	**HOW-TL-Q1-2023**	**RDL**	**QC Batch**
Vanadium (V)	ug/L	<2.0	<2.0	<2.0	<2.0	2.0	2410118
Zinc (Zn)	ug/L	<7.0	14	11	20	7.0	2410118

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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TATA STEEL MINERALS CANADA
Client Project #: NL surface water PIRI 36 kits
Site Location: HOWSE
Your P.O. #: 3000000997
Sampler Initials: JP

TOTAL EXTRACTABLE METALS (SURFACE WATER)

Bureau Veritas ID		LU4612		
Sampling Date		2023/06/08 09:53		
COC Number		265668-03-01		
	Units	HOW-SW1-Q1-2023	RDL	QC Batch
METALS				
Aluminum (Al)	ug/L	<10	10	2410118
Antimony (Sb)	ug/L	<1.0	1.0	2410118
Silver (Ag)	ug/L	<1.0	1.0	2410118
Arsenic (As)	ug/L	<1.0	1.0	2410118
Barium (Ba)	ug/L	<2.0	2.0	2410118
Beryllium (Be)	ug/L	<2.0	2.0	2410118
Bismuth (Bi) ††	ug/L	<1.0	1.0	2410118
Boron (B) †	ug/L	<50	50	2410118
Cadmium (Cd)	ug/L	<0.20	0.20	2410118
Calcium (Ca) †	ug/L	3200	500	2410118
Chromium (Cr)	ug/L	<5.0	5.0	2410118
Cobalt (Co)	ug/L	<1.0	1.0	2410118
Copper (Cu)	ug/L	<1.0	1.0	2410118
Total Hardness (CaCO3) ††	ug/L	18000	1000	2410118
Tin (Sn)	ug/L	<2.0	2.0	2410118
Iron (Fe)	ug/L	<60	60	2410118
Magnesium (Mg) †	ug/L	2300	100	2410118
Manganese (Mn)	ug/L	3.3	1.0	2410118
Mercury (Hg)	ug/L	<0.10	0.10	2410118
Molybdenum (Mo)	ug/L	<1.0	1.0	2410118
Nickel (Ni)	ug/L	<2.0	2.0	2410118
P2O5 ††	ug/L	<25	25	2410118
Total phosphorous	ug/L	<10	10	2410118
Lead (Pb)	ug/L	<0.50	0.50	2410118
Potassium (K) †	ug/L	<500	500	2410118
Selenium (Se)	ug/L	<3.0	3.0	2410118
Sodium (Na)	ug/L	710	500	2410118
Strontium (Sr) †	ug/L	6.1	2.0	2410118
Thallium (Tl)	ug/L	<2.0	2.0	2410118
Titanium (Ti) ††	ug/L	<10	10	2410118
Uranium (U) ††	ug/L	<1.0	1.0	2410118

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
†† Parameter is not accreditable
† Parameter is not accredited

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TATA STEEL MINERALS CANADA
Client Project #: NL surface water PIRI 36 kits
Site Location: HOWSE
Your P.O. #: 3000000997
Sampler Initials: JP

TOTAL EXTRACTABLE METALS (SURFACE WATER)

Bureau Veritas ID		LU4612		
Sampling Date		2023/06/08 09:53		
COC Number		265668-03-01		
	Units	**HOW-SW1-Q1-2023**	**RDL**	**QC Batch**
Vanadium (V)	ug/L	<2.0	2.0	2410118
Zinc (Zn)	ug/L	<7.0	7.0	2410118

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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TATA STEEL MINERALS CANADA
Client Project #: NL surface water PIRI 36 kits
Site Location: HOWSE
Your P.O. #: 3000000997
Sampler Initials: JP

CONVENTIONAL PARAMETERS (SURFACE WATER)

Bureau Veritas ID		LU4604		LU4605		
Sampling Date		2023/06/08 10:44		2023/06/08 09:24		
COC Number		265668-03-01		265668-03-01		
	Units	HOW-SW2-Q1-2023	QC Batch	HOW-SW4-Q1-2023	RDL	QC Batch
CONVENTIONALS						
Conductivity	mS/cm	0.0061	2408787	0.027	0.0010	2408763
Dissolved organic carbon †	mg/L	2.0	2410713	0.35	0.20	2410713
Dissolved oxygen †	mg/L	10	2408784	11	1.0	2408784
Nitrate (N) and Nitrite(N)	mg/L	<0.020	2408895	0.46	0.020	2408895
Nitrates (N-NO3-)	mg/L	<0.020	2408895	0.46	0.020	2408895
Nitrites (N-NO2-)	mg/L	<0.020	2408895	<0.020	0.020	2408895
Nitrogen ammonia (N-NH4+ and N-NH3)	mg/L	<0.020	2410393	0.046	0.020	2410393
Orthophosphate (P)	mg/L	<0.050	2408849	<0.050	0.050	2408849
pH	pH	6.61	2408783	6.51	N/A	2408761
pH (15° C) †	pH	6.18	2408786	6.58	N/A	2408786
pH (on-site) †	pH	6.26	ONSITE	7.08	N/A	ONSITE
Phenols-4AAP	mg/L	<0.0020	2411775	<0.0020	0.0020	2411775
Real Color	UCV	29	2408858	<2.0	2.0	2408858
Sulfides (S2-)	mg/L	<0.020	2409442	<0.020	0.020	2409442
Turbidity	NTU	0.74	2408880	0.29	0.10	2408880
Alkalinity Total (as CaCO3) pH 4.5 †	mg/L	2.3	2408785	7.9	1.0	2408762
Bicarbonates (HCO3 as CaCO3) †	mg/L	2.3	2408785	7.9	1.0	2408762
Carbonate (CO3 as CaCO3) †	mg/L	<1.0	2408785	<1.0	1.0	2408762
Chloride (Cl)	mg/L	0.072	2408896	1.4	0.050	2408896
Sulfates (SO4)	mg/L	<0.50	2408896	1.5	0.50	2408896
Total Dissolved Solids	mg/L	19	2409919	17	10	2409919
Total suspended solids (TSS)	mg/L	2.0	2409055	3.0	2.0	2409055
On-site Measurements						
Temperature (°C) †	Celsius	11.40	ONSITE	4.100	N/A	ONSITE

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
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N/A = Not Applicable

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CONVENTIONAL PARAMETERS (SURFACE WATER)

Bureau Veritas ID		LU4606	LU4606		LU4607		
Sampling Date		2023/06/08 10:55	2023/06/08 10:55		2023/06/08 07:21		
COC Number		265668-03-01	265668-03-01		265668-03-01		
	Units	HOW-SW3-Q1-2023	HOW-SW3-Q1-2023 Lab-Dup	QC Batch	HOW-BL-Q1-2023	RDL	QC Batch
CONVENTIONALS							
Conductivity	mS/cm	0.0030	N/A	2408787	0.055	0.0010	2408763
Dissolved organic carbon †	mg/L	2.2	N/A	2410713	0.83	0.20	2410713
Dissolved oxygen †	mg/L	9.0	N/A	2408784	11	1.0	2408784
Nitrate (N) and Nitrite(N)	mg/L	<0.020	N/A	2408895	<0.020	0.020	2408895
Nitrates (N-NO3-)	mg/L	<0.020	N/A	2408895	<0.020	0.020	2408895
Nitrites (N-NO2-)	mg/L	<0.020	N/A	2408895	<0.020	0.020	2408895
Nitrogen ammonia (N-NH4+ and N-NH3)	mg/L	<0.020	N/A	2410393	<0.020	0.020	2410393
Orthophosphate (P)	mg/L	<0.050	N/A	2408849	<0.050	0.050	2408849
pH	pH	5.72	N/A	2408783	6.74	N/A	2408761
pH (15° C) †	pH	5.16	N/A	2408786	7.15	N/A	2408786
pH (on-site) †	pH	5.08	N/A	ONSITE	7.16	N/A	ONSITE
Phenols-4AAP	mg/L	<0.0020	N/A	2411775	<0.0020	0.0020	2411775
Real Color	UCV	9.6	N/A	2408858	6.7	2.0	2408858
Sulfides (S2-)	mg/L	<0.020	<0.020	2409658	<0.020	0.020	2409442
Turbidity	NTU	0.17	N/A	2408880	0.30	0.10	2408880
Alkalinity Total (as CaCO3) pH 4.5 †	mg/L	1.5	N/A	2408785	36	1.0	2408762
Bicarbonates (HCO3 as CaCO3) †	mg/L	1.5	N/A	2408785	36	1.0	2408762
Carbonate (CO3 as CaCO3) †	mg/L	<1.0	N/A	2408785	<1.0	1.0	2408762
Chloride (Cl)	mg/L	0.24	N/A	2408896	0.19	0.050	2408896
Sulfates (SO4)	mg/L	<0.50	N/A	2408896	2.4	0.50	2408896
Total Dissolved Solids	mg/L	16	N/A	2409919	40	10	2409919
Total suspended solids (TSS)	mg/L	4.0	N/A	2409055	<2.0	2.0	2409055
On-site Measurements							
Temperature (°C) †	Celsius	9.700	N/A	ONSITE	7.100	N/A	ONSITE

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable
† Parameter is not accreditable

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TATA STEEL MINERALS CANADA
Client Project #: NL surface water PIRI 36 kits
Site Location: HOWSE
Your P.O. #: 3000000997
Sampler Initials: JP

CONVENTIONAL PARAMETERS (SURFACE WATER)

Bureau Veritas ID		LU4608	LU4609	LU4610	LU4611		
Sampling Date		2023/06/08 06:32	2023/06/08 07:49	2023/06/08 11:32	2023/06/08 08:16		
COC Number		265668-03-01	265668-03-01	265668-03-01	265668-03-01		
	Units	HOW-SW5-Q1-2023	HOW-BC-Q1-2023	HOW-ML-Q1-2023	HOW-TL-Q1-2023	RDL	QC Batch
CONVENTIONALS							
Conductivity	mS/cm	0.0038	0.0045	0.013	0.035	0.0010	2408787
Dissolved organic carbon †	mg/L	1.3	3.5	2.0	1.1	0.20	2410713
Dissolved oxygen †	mg/L	10	10	11	11	1.0	2408784
Nitrate (N) and Nitrite(N)	mg/L	<0.020	<0.020	<0.020	0.068	0.020	2408895
Nitrates (N-NO3-)	mg/L	<0.020	<0.020	<0.020	0.068	0.020	2408895
Nitrites (N-NO2-)	mg/L	<0.020	<0.020	<0.020	<0.020	0.020	2408895
Nitrogen ammonia (N-NH4+ and N-NH3)	mg/L	<0.020	<0.020	<0.020	<0.020	0.020	2410393
Orthophosphate (P)	mg/L	<0.050	<0.050	<0.050	<0.050	0.050	2408849
pH	pH	6.10	5.81	6.23	6.56	N/A	2408783
pH (15° C) †	pH	6.14	5.63	6.73	7.30	N/A	2408786
pH (on-site) †	pH	6.54	5.73	6.40	6.82	N/A	ONSITE
Phenols-4AAP	mg/L	<0.0020	<0.0020	<0.0020	<0.0020	0.0020	2411775
Real Color	UCV	6.3	26	15	7.8	2.0	2408858
Sulfides (S2-)	mg/L	<0.020	<0.020	<0.020	<0.020	0.020	2409442
Turbidity	NTU	0.58	0.78	2.5	0.78	0.10	2408880
Alkalinity Total (as CaCO3) pH 4.5 †	mg/L	2.1	1.9	4.0	15	1.0	2408785
Bicarbonates (HCO3 as CaCO3) †	mg/L	2.1	1.9	4.0	15	1.0	2408785
Carbonate (CO3 as CaCO3) †	mg/L	<1.0	<1.0	<1.0	<1.0	1.0	2408785
Chloride (Cl)	mg/L	0.091	0.087	0.29	0.27	0.050	2408896
Sulfates (SO4)	mg/L	<0.50	0.56	2.0	2.1	0.50	2408896
Total Dissolved Solids	mg/L	12	14	13	16	10	2409919
Total suspended solids (TSS)	mg/L	2.0	<2.0	<2.0	<2.0	2.0	2409055
On-site Measurements							
Temperature (°C) †	Celsius	10.30	5.400	12.70	9.800	N/A	ONSITE

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
† Parameter is not accreditable
N/A = Not Applicable

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CONVENTIONAL PARAMETERS (SURFACE WATER)

Bureau Veritas ID		LU4612	LU4612		
Sampling Date		2023/06/08 09:53	2023/06/08 09:53		
COC Number		265668-03-01	265668-03-01		
	Units	**HOW-SW1-Q1-2023**	**HOW-SW1-Q1-2023 Lab-Dup**	**RDL**	**QC Batch**
CONVENTIONALS					
Conductivity	mS/cm	0.036	N/A	0.0010	2408787
Dissolved organic carbon †	mg/L	0.45	N/A	0.20	2410713
Dissolved oxygen †	mg/L	11	N/A	1.0	2408784
Nitrate (N) and Nitrite(N)	mg/L	0.26	N/A	0.020	2408895
Nitrates (N-NO3-)	mg/L	0.26	N/A	0.020	2408895
Nitrites (N-NO2-)	mg/L	<0.020	N/A	0.020	2408895
Nitrogen ammonia (N-NH4+ and N-NH3)	mg/L	<0.020	<0.020	0.020	2410393
Orthophosphate (P)	mg/L	<0.050	N/A	0.050	2408849
pH	pH	6.63	N/A	N/A	2408783
pH (15° C) †	pH	7.18	N/A	N/A	2408786
pH (on-site) †	pH	6.97	N/A	N/A	ONSITE
Phenols-4AAP	mg/L	<0.0020	N/A	0.0020	2411775
Real Color	UCV	2.2	N/A	2.0	2408858
Sulfides (S2-)	mg/L	<0.020	N/A	0.020	2409442
Turbidity	NTU	0.20	N/A	0.10	2408880
Alkalinity Total (as CaCO3) pH 4.5 †	mg/L	14	N/A	1.0	2408785
Bicarbonates (HCO3 as CaCO3) †	mg/L	14	N/A	1.0	2408785
Carbonate (CO3 as CaCO3) †	mg/L	<1.0	N/A	1.0	2408785
Chloride (Cl)	mg/L	0.43	N/A	0.050	2408896
Sulfates (SO4)	mg/L	2.2	N/A	0.50	2408896
Total Dissolved Solids	mg/L	32	N/A	10	2409919
Total suspended solids (TSS)	mg/L	3.0	N/A	2.0	2409055
On-site Measurements					
Temperature (°C) †	Celsius	6.500	N/A	N/A	ONSITE

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QC Batch = Quality Control Batch
N/A = Not Applicable
† Parameter is not accreditable

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TATA STEEL MINERALS CANADA
Client Project #: NL surface water PIRI 36 kits
Site Location: HOWSE
Your P.O. #: 3000000997
Sampler Initials: JP

SUBCONTRACTED ANALYSIS (SURFACE WATER)

Bureau Veritas ID		LU4604	LU4605	LU4606	LU4607		
Sampling Date		2023/06/08 10:44	2023/06/08 09:24	2023/06/08 10:55	2023/06/08 07:21		
COC Number		265668-03-01	265668-03-01	265668-03-01	265668-03-01		
	Units	HOW-SW2-Q1-2023	HOW-SW4-Q1-2023	HOW-SW3-Q1-2023	HOW-BL-Q1-2023	RDL	QC Batch
METALS							
Mercury (Hg) †	ug/L	<0.01	<0.01	<0.01	<0.01	0.01	2410897
PETROLEUM HYDROCARBONS							
Benzene †	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	0.0010	2412228
Toluene †	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	0.0010	2412228
Ethylbenzene †	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	0.0010	2412228
Total_Xylenes †	mg/L	<0.0020	<0.0020	<0.0020	<0.0020	0.0020	2412228
C6 - C10 (less BTEX) †	mg/L	<0.090	<0.090	<0.090	<0.090	0.090	2412228

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
† Parameter is not accreditable

Bureau Veritas ID		LU4608	LU4608	LU4609	LU4610		
Sampling Date		2023/06/08 06:32	2023/06/08 06:32	2023/06/08 07:49	2023/06/08 11:32		
COC Number		265668-03-01	265668-03-01	265668-03-01	265668-03-01		
	Units	HOW-SW5-Q1-2023	HOW-SW5-Q1-2023 Lab-Dup	HOW-BC-Q1-2023	HOW-ML-Q1-2023	RDL	QC Batch
METALS							
Mercury (Hg) †	ug/L	<0.01	<0.01	<0.01	<0.01	0.01	2410897
PETROLEUM HYDROCARBONS							
Benzene †	mg/L	<0.0010	N/A	<0.0010	<0.0010	0.0010	2412228
Toluene †	mg/L	<0.0010	N/A	<0.0010	<0.0010	0.0010	2412228
Ethylbenzene †	mg/L	<0.0010	N/A	<0.0010	<0.0010	0.0010	2412228
Total_Xylenes †	mg/L	<0.0020	N/A	<0.0020	<0.0020	0.0020	2412228
C6 - C10 (less BTEX) †	mg/L	<0.090	N/A	<0.090	<0.090	0.090	2412228

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
† Parameter is not accreditable
N/A = Not Applicable

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TATA STEEL MINERALS CANADA
Client Project #: NL surface water PIRI 36 kits
Site Location: HOWSE
Your P.O. #: 3000000997
Sampler Initials: JP

SUBCONTRACTED ANALYSIS (SURFACE WATER)

Bureau Veritas ID		LU4611	LU4612		
Sampling Date		2023/06/08 08:16	2023/06/08 09:53		
COC Number		265668-03-01	265668-03-01		
	Units	HOW-TL-Q1-2023	HOW-SW1-Q1-2023	RDL	QC Batch
METALS					
Mercury (Hg) †	ug/L	<0.01	<0.01	0.01	2410897
PETROLEUM HYDROCARBONS					
Benzene †	mg/L	<0.0010	<0.0010	0.0010	2412228
Toluene †	mg/L	<0.0010	<0.0010	0.0010	2412228
Ethylbenzene †	mg/L	<0.0010	<0.0010	0.0010	2412228
Total_Xylenes †	mg/L	<0.0020	<0.0020	0.0020	2412228
C6 - C10 (less BTEX) †	mg/L	<0.090	<0.090	0.090	2412228

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
† Parameter is not accreditable

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GENERAL COMMENTS

Please note that the test pH (site)- waters was performed on site by the client.
Please note that the test Temperature (site) was performed on site by the client.

Results relate only to the items tested.

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QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	Units
2408761	ZLI	Spiked Blank	pH	2023/06/09		100	%
2408762	ZLI	Spiked Blank	Alkalinity Total (as CaCO3) pH 4.5	2023/06/09		94	%
2408762	ZLI	Method Blank	Alkalinity Total (as CaCO3) pH 4.5	2023/06/09	1.1, RDL=1.0		mg/L
2408763	ZLI	Spiked Blank	Conductivity	2023/06/09		98	%
2408763	ZLI	Method Blank	Conductivity	2023/06/09	0.0012, RDL=0.0010		mS/cm
2408783	ZLI	Spiked Blank	pH	2023/06/10		100	%
2408785	ZLI	Spiked Blank	Alkalinity Total (as CaCO3) pH 4.5	2023/06/10		93	%
2408785	ZLI	Method Blank	Alkalinity Total (as CaCO3) pH 4.5	2023/06/10	<1.0		mg/L
			Bicarbonates (HCO3 as CaCO3)	2023/06/10	<1.0		mg/L
			Carbonate (CO3 as CaCO3)	2023/06/10	<1.0		mg/L
2408786	JCE	Spiked Blank	pH (15° C)	2023/06/09		101	%
2408787	ZLI	Spiked Blank	Conductivity	2023/06/10		99	%
2408787	ZLI	Method Blank	Conductivity	2023/06/10	0.0011, RDL=0.0010		mS/cm
2408849	BAG	QC Standard	Orthophosphate (P)	2023/06/10		101	%
2408849	BAG	Spiked Blank	Orthophosphate (P)	2023/06/10		96	%
2408849	BAG	Method Blank	Orthophosphate (P)	2023/06/10	<0.050		mg/L
2408858	MAH	Spiked Blank	Real Color	2023/06/10		97	%
2408858	MAH	Method Blank	Real Color	2023/06/10	<2.0		UCV
2408880	TEX	Spiked Blank	Turbidity	2023/06/10		91	%
2408880	TEX	Method Blank	Turbidity	2023/06/10	<0.10		NTU
2408895	KJS	Spiked Blank	Nitrate (N) and Nitrite(N)	2023/06/10		101	%
			Nitrates (N-NO3-)	2023/06/10		100	%
			Nitrites (N-NO2-)	2023/06/10		102	%
2408895	KJS	Method Blank	Nitrate (N) and Nitrite(N)	2023/06/10	<0.020		mg/L
			Nitrates (N-NO3-)	2023/06/10	<0.020		mg/L
			Nitrites (N-NO2-)	2023/06/10	<0.020		mg/L
2408896	KJS	Spiked Blank	Chloride (Cl)	2023/06/10		100	%
			Sulfates (SO4)	2023/06/10		98	%
2408896	KJS	Method Blank	Chloride (Cl)	2023/06/10	<0.050		mg/L
			Sulfates (SO4)	2023/06/10	<0.50		mg/L
2409055	YLI	Spiked Blank	Total suspended solids (TSS)	2023/06/14		100	%
2409055	YLI	Method Blank	Total suspended solids (TSS)	2023/06/14	<2.0		mg/L
2409442	ABX	Spiked Blank	Sulfides (S2-)	2023/06/14		102	%
2409442	ABX	Method Blank	Sulfides (S2-)	2023/06/14	<0.020		mg/L
2409658	ABX	Spiked Blank	Sulfides (S2-)	2023/06/14		106	%
2409658	ABX	Method Blank	Sulfides (S2-)	2023/06/14	<0.020		mg/L
2409919	VTS	Spiked Blank	Total Dissolved Solids	2023/06/15		99	%
2409919	VTS	Method Blank	Total Dissolved Solids	2023/06/15	<10		mg/L
2410118	NET	Spiked Blank	Aluminum (Al)	2023/06/15		103	%
			Antimony (Sb)	2023/06/15		109	%
			Silver (Ag)	2023/06/15		107	%
			Arsenic (As)	2023/06/15		107	%
			Barium (Ba)	2023/06/15		106	%
			Beryllium (Be)	2023/06/15		109	%
			Bismuth (Bi)	2023/06/15		100	%
			Boron (B)	2023/06/15		117	%
			Cadmium (Cd)	2023/06/15		105	%

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	Units
			Calcium (Ca)	2023/06/15		105	%
			Chromium (Cr)	2023/06/15		104	%
			Cobalt (Co)	2023/06/15		101	%
			Copper (Cu)	2023/06/15		100	%
			Tin (Sn)	2023/06/15		109	%
			Iron (Fe)	2023/06/15		108	%
			Magnesium (Mg)	2023/06/15		105	%
			Manganese (Mn)	2023/06/15		104	%
			Mercury (Hg)	2023/06/15		95	%
			Molybdenum (Mo)	2023/06/15		107	%
			Nickel (Ni)	2023/06/15		104	%
			Total phosphorous	2023/06/15		102	%
			Lead (Pb)	2023/06/15		97	%
			Potassium (K)	2023/06/15		108	%
			Selenium (Se)	2023/06/15		105	%
			Sodium (Na)	2023/06/15		106	%
			Strontium (Sr)	2023/06/15		108	%
			Thallium (Tl)	2023/06/15		98	%
			Titanium (Ti)	2023/06/15		107	%
			Uranium (U)	2023/06/15		98	%
			Vanadium (V)	2023/06/15		105	%
			Zinc (Zn)	2023/06/15		102	%
2410118	NET	Method Blank	Aluminum (Al)	2023/06/15	<10		ug/L
			Antimony (Sb)	2023/06/15	<1.0		ug/L
			Silver (Ag)	2023/06/15	<1.0		ug/L
			Arsenic (As)	2023/06/15	<1.0		ug/L
			Barium (Ba)	2023/06/15	<2.0		ug/L
			Beryllium (Be)	2023/06/15	<2.0		ug/L
			Bismuth (Bi)	2023/06/15	<1.0		ug/L
			Boron (B)	2023/06/15	<50		ug/L
			Cadmium (Cd)	2023/06/15	<0.20		ug/L
			Calcium (Ca)	2023/06/15	<500		ug/L
			Chromium (Cr)	2023/06/15	<5.0		ug/L
			Cobalt (Co)	2023/06/15	<1.0		ug/L
			Copper (Cu)	2023/06/15	<1.0		ug/L
			Total Hardness (CaCO3)	2023/06/15	<1000		ug/L
			Tin (Sn)	2023/06/15	<2.0		ug/L
			Iron (Fe)	2023/06/15	<60		ug/L
			Magnesium (Mg)	2023/06/15	<100		ug/L
			Manganese (Mn)	2023/06/15	<1.0		ug/L
			Mercury (Hg)	2023/06/15	<0.10		ug/L
			Molybdenum (Mo)	2023/06/15	<1.0		ug/L
			Nickel (Ni)	2023/06/15	<2.0		ug/L
			P2O5	2023/06/15	<25		ug/L
			Total phosphorous	2023/06/15	<10		ug/L
			Lead (Pb)	2023/06/15	<0.50		ug/L
			Potassium (K)	2023/06/15	<500		ug/L
			Selenium (Se)	2023/06/15	<3.0		ug/L
			Sodium (Na)	2023/06/15	<500		ug/L
			Strontium (Sr)	2023/06/15	<2.0		ug/L

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	Units
			Thallium (Tl)	2023/06/15	<2.0		ug/L
			Titanium (Ti)	2023/06/15	<10		ug/L
			Uranium (U)	2023/06/15	<1.0		ug/L
			Vanadium (V)	2023/06/15	<2.0		ug/L
			Zinc (Zn)	2023/06/15	<7.0		ug/L
2410393	HGU	QC Standard	Nitrogen ammonia (N-NH4+ and N-NH3)	2023/06/15		108	%
2410393	HGU	Spiked Blank	Nitrogen ammonia (N-NH4+ and N-NH3)	2023/06/15		102	%
2410393	HGU	Method Blank	Nitrogen ammonia (N-NH4+ and N-NH3)	2023/06/15	<0.020		mg/L
2410713	ZZH	Spiked Blank	Dissolved organic carbon	2023/06/16		97	%
2410713	ZZH	Method Blank	Dissolved organic carbon	2023/06/16	<0.20		mg/L
2410897	JGC	Matrix Spike [LU4608-12]	Mercury (Hg)	2023/06/15		106	%
			Mercury (Hg)	2023/06/15		106	%
2410897	JGC	Spiked Blank	Mercury (Hg)	2023/06/15		105	%
			Mercury (Hg)	2023/06/15		105	%
2410897	JGC	Method Blank	Mercury (Hg)	2023/06/15	<0.01		ug/L
			Mercury (Hg)	2023/06/15	<0.01		ug/L
2411775	GXL	Spiked Blank	Phenols-4AAP	2023/06/19		99	%
2411775	GXL	Method Blank	Phenols-4AAP	2023/06/19	<0.0020		mg/L
2412226	TGO	Matrix Spike	Reactive silica (SiO2)	2023/06/19		NC	%
2412226	TGO	Spiked Blank	Reactive silica (SiO2)	2023/06/19		90	%
2412226	TGO	Method Blank	Reactive silica (SiO2)	2023/06/19	<0.50		mg/L
2412227	éE6	Matrix Spike	Isobutylbenzene - Extractable	2023/06/16		110	%
			n-Dotriacontane - Extractable	2023/06/16		119	%
			>C10-C16 Hydrocarbons	2023/06/16		91	%
			>C16-C21 Hydrocarbons	2023/06/16		94	%
			>C21-<C32 Hydrocarbons	2023/06/16		84	%
2412227	éE6	Spiked Blank	Isobutylbenzene - Extractable	2023/06/16		110	%
			n-Dotriacontane - Extractable	2023/06/16		121	%
			>C10-C16 Hydrocarbons	2023/06/16		99	%
			>C16-C21 Hydrocarbons	2023/06/16		105	%
			>C21-<C32 Hydrocarbons	2023/06/16		94	%
2412227	éE6	Method Blank	Isobutylbenzene - Extractable	2023/06/16		109	%
			n-Dotriacontane - Extractable	2023/06/16		106	%
			>C10-C16 Hydrocarbons	2023/06/16	<0.050		mg/L
			>C16-C21 Hydrocarbons	2023/06/16	<0.050		mg/L
			>C21-<C32 Hydrocarbons	2023/06/16	<0.090		mg/L
2412228	THL	Matrix Spike	Benzene	2023/06/16		110	%
			Toluene	2023/06/16		108	%
			Ethylbenzene	2023/06/16		109	%
			Total_Xylenes	2023/06/16		108	%
2412228	THL	Spiked Blank	Benzene	2023/06/16		104	%
			Toluene	2023/06/16		104	%
			Ethylbenzene	2023/06/16		105	%
			Total_Xylenes	2023/06/16		105	%
2412228	THL	Method Blank	Benzene	2023/06/16	<0.0010		mg/L
			Toluene	2023/06/16	<0.0010		mg/L
			Ethylbenzene	2023/06/16	<0.0010		mg/L
			Total_Xylenes	2023/06/16	<0.0020		mg/L
			C6 - C10 (less BTEX)	2023/06/16	<0.090		mg/L
2412229	éFC	Matrix Spike	Isobutylbenzene - Extractable	2023/06/19		87	%

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	Units
			n-Dotriacontane - Extractable	2023/06/19		100	%
			>C10-C16 Hydrocarbons	2023/06/19		65 (1)	%
			>C16-C21 Hydrocarbons	2023/06/19		75	%
			>C21-<C32 Hydrocarbons	2023/06/19		85	%
2412229	éFC	Spiked Blank	Isobutylbenzene - Extractable	2023/06/19		96	%
			n-Dotriacontane - Extractable	2023/06/19		101	%
			>C10-C16 Hydrocarbons	2023/06/19		92	%
			>C16-C21 Hydrocarbons	2023/06/19		98	%
			>C21-<C32 Hydrocarbons	2023/06/19		102	%
2412229	éFC	Method Blank	Isobutylbenzene - Extractable	2023/06/19		95	%
			n-Dotriacontane - Extractable	2023/06/19		102	%
			>C10-C16 Hydrocarbons	2023/06/19	<0.050		mg/L
			>C16-C21 Hydrocarbons	2023/06/19	<0.050		mg/L
			>C21-<C32 Hydrocarbons	2023/06/19	<0.090		mg/L

RDL = Reportable Detection Limit

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

(1) Matrix Spike: results are outside acceptance limit due to probable matrix interference.

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VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Colleen Acker, Scientific Service Specialist

Anastassia Hamanov, Scientific Service Specialist

Faouzi Sarsi, B.Sc. Chemist, Montréal, SR Analyst

Phil Deveau, Scientific Specialist (Organics)

Shu Yang, B.Sc. Chemist, Montreal, Analyst II

Zineb El Ouali
Membre OCQ#2021-051

Zineb El Ouali, M.Sc.,Chemist in training, Analyst II

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Your P.O. #: 3000001390
Your Project #: Howse surface water
Site#: 00025
Site Location: Howse
Your C.O.C. #: 98123

Attention: TSMC Environnement

TATA STEEL MINERALS CANADA
1000, RUE SHERBROOKE OUEST
BUREAU 1120
MONTRÉAL, QC
CANADA H3A 3G4

Report Date: 2023/08/09
Report #: R2867849
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C334222
Received: 2023/07/12, 09:15

Sample Matrix: Surface Water
Samples Received: 4

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Total Alkalinity (end point 4.5)-waters	4	N/A	2023/07/13	STL SOP-00038	SM 23 2320-B m
Anions in water	4	N/A	2023/07/13	STL SOP-00014	MA.300–Ions 1.3 R6 m
Real Color	4	N/A	2023/07/12	STL SOP-00046	MA103 - Col. 2.0 R4m
Conductivity in waters	4	N/A	2023/07/13	STL SOP-00038	SM 23 2510-B m
Dissolved Organic Carbon (2)	4	2023/07/12	2023/07/13	STL SOP-00243	SM 23 5310-B m
Total Extractable Mercury - Cold Vapour	1	2023/07/18	2023/07/19	STL SOP-00276	EPA 1631,rev. E m
Total Extractable Mercury - Cold Vapour	3	2023/07/18	2023/07/20	STL SOP-00276	EPA 1631,rev. E m
Total Suspended Solids	4	2023/07/14	2023/07/18	STL SOP-00015	MA.104–S.S. 2.0 m
Total Extractable Metals	3	2023/07/15	2023/07/21	STL SOP-00062	MA.200–Mét. 1.2 R7 m
Total Extractable Metals	1	2023/07/18	2023/07/25	STL SOP-00062	MA.200–Mét. 1.2 R7 m
Ammonia Nitrogen in water	4	N/A	2023/07/18	STL SOP-00040	MA.300–N 2.0 R2 m
Nitrates(NO3-), Nitrites(NO2-)-water	4	N/A	2023/07/13	STL SOP-00014	MA.300–Ions 1.3 R6 m
Dissolved Oxygen	4	N/A	2023/07/12	STL SOP-00008	MA.315–DBO 1.1 R3 m
pH in water	4	N/A	2023/07/13	STL SOP-00038	MA.100–pH 1.1 R3 m
pH Measured @ 15° C	4	N/A	2023/07/12	STL SOP-00016	MA.100–pH 1.1 R3 m
Total Phenols by 4-AAP in water	4	2023/07/14	2023/07/14	STL SOP-00033	MA404–I.Phé 2.2 R2 m
pH (site)- waters	4	N/A	2023/07/12		Test Kit
Ortho Phosphate-water	4	N/A	2023/07/12	STL SOP-00003	MA.303–P 1.1 R2 m
Sulfides (as S2-)-water	4	2023/07/14	2023/07/14	STL SOP-00273	SM4500-S2 rev.23m.
Total Dissolved Solids	4	2023/07/14	2023/07/17	STL SOP-00050	MA.115–S.D. 1.0 R4 m
Temperature (site)	4	N/A	2023/07/12		Thermometer
Turbidity-water	4	N/A	2023/07/12	STL SOP-00022	MA.103–Tur. 1.0 R5 m
TEH in Water (PIRI) (1)	1	2023/07/19	2023/07/19	ATL SOP 00113	Atl. RBCA v3.1 m
TEH in Water (PIRI) (1)	3	2023/07/19	2023/07/20	ATL SOP 00113	Atl. RBCA v3.1 m
Reactive Silica(SiO2) (1)	3	2023/07/28	2023/07/31	ATL SOP 00022	EPA 366.0 m
Reactive Silica(SiO2) (1)	1	2023/08/08	2023/08/09	ATL SOP 00022	EPA 366.0 m
VPH in Water (PIRI) (1)	4	2023/07/14	2023/07/14	ATL SOP 00130	Atl. RBCA v3.1 m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau

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Your P.O. #: 3000001390
Your Project #: Howse surface water
Site#: 00025
Site Location: Howse
Your C.O.C. #: 98123

Attention: TSMC Environnement

TATA STEEL MINERALS CANADA
1000, RUE SHERBROOKE OUEST
BUREAU 1120
MONTRÉAL, QC
CANADA H3A 3G4

Report Date: 2023/08/09
Report #: R2867849
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C334222

Received: 2023/07/12, 09:15

Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.

Note: RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) This test was performed by Bureau Veritas Bedford, Suit 105, 200 Bluewater Rd. , Bedford, NS, B4B1G9

(2) DOC present in the sample should be considered as non-purgeable DOC

Note: All parameters included in the present certificate are accredited by the MELCC unless stated otherwise.

Encryption Key

Lauriane Bernard
Project Manager
09 Aug 2023 19:08:45

Please direct all questions regarding this Certificate of Analysis to:
Lauriane Bernard, Project Manager
Email: Lauriane.BERNARD@bureauveritas.com
Phone# (514)448-9001 Ext:7066251

==========

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Aglaia Yannakis, General Manager responsible for Quebec Environmental laboratory operations.

Bureau Veritas Job #: C334222
Report Date: 2023/08/09

TATA STEEL MINERALS CANADA
Client Project #: Howse surface water
Site Location: Howse
Your P.O. #: 3000001390

RESULTS OF ANALYSES OF SURFACE WATER

Bureau Veritas ID		LX8427		LX8428		LX8429		
Sampling Date		2023/07/11 09:23		2023/07/11 07:55		2023/07/11 08:05		
COC Number		98123		98123		98123		
	Units	HOW-SW1-Q2-2023	RDL	HOW-SW2-Q2-2023	RDL	HOW-SW3-Q2-2023	RDL	QC Batch
INORGANICS								
Reactive silica (SiO2) †	mg/L	4.6	0.50	3.7	0.50	2.6	0.50	2429693
PETROLEUM HYDROCARBONS								
>C10-C16 Hydrocarbons †	mg/L	<0.056	0.056	<0.058	0.058	<0.056	0.056	2429692
>C16-C21 Hydrocarbons †	mg/L	<0.056	0.056	<0.058	0.058	<0.056	0.056	2429692
>C21-<C32 Hydrocarbons †	mg/L	<0.10	0.10	<0.11	0.11	<0.10	0.10	2429692
Return to baseline at C32 †	mg/L	NA	N/A	NA	N/A	NA	N/A	2429692
Hydrocarbon Resemblance †	mg/L	NA	N/A	NA	N/A	NA	N/A	2429692
Surrogate Recovery (%)								
Isobutylbenzene - Extractable	%	95	N/A	93	N/A	90	N/A	2429692
n-Dotriacontane - Extractable	%	111 (1)	N/A	106 (1)	N/A	103 (1)	N/A	2429692

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
† Parameter is not accreditable
N/A = Not Applicable
(1) Elevated TEH RDL(s) due to limited sample.

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RESULTS OF ANALYSES OF SURFACE WATER

Bureau Veritas ID		LX8430		
Sampling Date		2023/07/11 08:52		
COC Number		98123		
	Units	HOW-SW4-Q2-2023	RDL	QC Batch
INORGANICS				
Reactive silica (SiO2) †	mg/L	4.0	0.50	2429688
PETROLEUM HYDROCARBONS				
>C10-C16 Hydrocarbons †	mg/L	<0.055	0.055	2429692
>C16-C21 Hydrocarbons †	mg/L	<0.055	0.055	2429692
>C21-<C32 Hydrocarbons †	mg/L	<0.10	0.10	2429692
Return to baseline at C32 †	mg/L	NA	N/A	2429692
Hydrocarbon Resemblance †	mg/L	NA	N/A	2429692
Surrogate Recovery (%)				
Isobutylbenzene - Extractable	%	92	N/A	2429692
n-Dotriacontane - Extractable	%	105 (1)	N/A	2429692

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
† Parameter is not accreditable
N/A = Not Applicable
(1) Elevated TEH RDL(s) due to limited sample.

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TOTAL EXTRACTABLE METALS (SURFACE WATER)

Bureau Veritas ID		LX8427		LX8428	LX8429		
Sampling Date		2023/07/11 09:23		2023/07/11 07:55	2023/07/11 08:05		
COC Number		98123		98123	98123		
	Units	HOW-SW1-Q2-2023	QC Batch	HOW-SW2-Q2-2023	HOW-SW3-Q2-2023	RDL	QC Batch
METALS							
Mercury (Hg) ††	mg/L	<0.000010	2420126	<0.000010	<0.000010	0.000010	2420126
Aluminum (Al)	ug/L	30	2421857	170	96	10	2421047
Antimony (Sb)	ug/L	<1.0	2421857	<1.0	<1.0	1.0	2421047
Silver (Ag)	ug/L	<1.0	2421857	<1.0	<1.0	1.0	2421047
Arsenic (As)	ug/L	<1.0	2421857	<1.0	<1.0	1.0	2421047
Barium (Ba)	ug/L	<2.0	2421857	6.0	3.5	2.0	2421047
Beryllium (Be)	ug/L	<2.0	2421857	<2.0	<2.0	2.0	2421047
Bismuth (Bi) ††	ug/L	<1.0	2421857	<1.0	<1.0	1.0	2421047
Boron (B) †	ug/L	<50	2421857	<50	<50	50	2421047
Cadmium (Cd)	ug/L	<0.20	2421857	<0.20	<0.20	0.20	2421047
Calcium (Ca) †	ug/L	2500	2421857	550	<500	500	2421047
Chromium (Cr)	ug/L	<5.0	2421857	<5.0	<5.0	5.0	2421047
Cobalt (Co)	ug/L	<1.0	2421857	<1.0	<1.0	1.0	2421047
Copper (Cu)	ug/L	<1.0	2421857	<1.0	<1.0	1.0	2421047
Total Hardness (CaCO3) ††	ug/L	13000	2421857	2600	2000	1000	2421047
Tin (Sn)	ug/L	<2.0	2421857	<2.0	<2.0	2.0	2421047
Iron (Fe)	ug/L	110	2421857	520	320	60	2421047
Magnesium (Mg) †	ug/L	1700	2421857	280	220	100	2421047
Manganese (Mn)	ug/L	5.6	2421857	57	27	1.0	2421047
Mercury (Hg)	ug/L	<0.10	2421857	<0.10	<0.10	0.10	2421047
Molybdenum (Mo)	ug/L	<1.0	2421857	<1.0	<1.0	1.0	2421047
Nickel (Ni)	ug/L	<2.0	2424529	<2.0	<2.0	2.0	2421047
P2O5 ††	ug/L	<25	2421857	<25	<25	25	2421047
Total phosphorous	ug/L	<10	2421857	<10	<10	10	2421047
Lead (Pb)	ug/L	<0.50	2421857	<0.50	<0.50	0.50	2421047
Potassium (K) †	ug/L	<500	2421857	<500	<500	500	2421047
Selenium (Se)	ug/L	<3.0	2421857	<3.0	<3.0	3.0	2421047
Sodium (Na)	ug/L	700	2421857	<500	<500	500	2421047
Strontium (Sr) †	ug/L	5.6	2421857	4.9	3.2	2.0	2421047
Thallium (Tl)	ug/L	<2.0	2421857	<2.0	<2.0	2.0	2421047
Titanium (Ti) ††	ug/L	<10	2421857	<10	<10	10	2421047
Uranium (U) ††	ug/L	<1.0	2421857	<1.0	<1.0	1.0	2421047

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
†† Parameter is not accreditable
† Parameter is not accredited

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TOTAL EXTRACTABLE METALS (SURFACE WATER)

Bureau Veritas ID		LX8427		LX8428	LX8429		
Sampling Date		2023/07/11 09:23		2023/07/11 07:55	2023/07/11 08:05		
COC Number		98123		98123	98123		
	Units	**HOW-SW1-Q2-2023**	**QC Batch**	**HOW-SW2-Q2-2023**	**HOW-SW3-Q2-2023**	**RDL**	**QC Batch**
Vanadium (V)	ug/L	<2.0	2421857	<2.0	<2.0	2.0	2421047
Zinc (Zn)	ug/L	8.2	2421857	<7.0	9.8	7.0	2421047

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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TOTAL EXTRACTABLE METALS (SURFACE WATER)

Bureau Veritas ID		LX8430		
Sampling Date		2023/07/11 08:52		
COC Number		98123		
	Units	HOW-SW4-Q2-2023	RDL	QC Batch
METALS				
Mercury (Hg) ††	mg/L	<0.000010	0.000010	2420126
Aluminum (Al)	ug/L	<10	10	2421047
Antimony (Sb)	ug/L	<1.0	1.0	2421047
Silver (Ag)	ug/L	<1.0	1.0	2421047
Arsenic (As)	ug/L	<1.0	1.0	2421047
Barium (Ba)	ug/L	<2.0	2.0	2421047
Beryllium (Be)	ug/L	<2.0	2.0	2421047
Bismuth (Bi) ††	ug/L	<1.0	1.0	2421047
Boron (B) †	ug/L	<50	50	2421047
Cadmium (Cd)	ug/L	<0.20	0.20	2421047
Calcium (Ca) †	ug/L	2500	500	2421047
Chromium (Cr)	ug/L	<5.0	5.0	2421047
Cobalt (Co)	ug/L	<1.0	1.0	2421047
Copper (Cu)	ug/L	<1.0	1.0	2421047
Total Hardness (CaCO3) ††	ug/L	15000	1000	2421047
Tin (Sn)	ug/L	<2.0	2.0	2421047
Iron (Fe)	ug/L	<60	60	2421047
Magnesium (Mg) †	ug/L	2100	100	2421047
Manganese (Mn)	ug/L	1.8	1.0	2421047
Mercury (Hg)	ug/L	<0.10	0.10	2421047
Molybdenum (Mo)	ug/L	<1.0	1.0	2421047
Nickel (Ni)	ug/L	<2.0	2.0	2421047
P2O5 ††	ug/L	<25	25	2421047
Total phosphorous	ug/L	<10	10	2421047
Lead (Pb)	ug/L	<0.50	0.50	2421047
Potassium (K) †	ug/L	<500	500	2421047
Selenium (Se)	ug/L	<3.0	3.0	2421047
Sodium (Na)	ug/L	500	500	2421047
Strontium (Sr) †	ug/L	6.3	2.0	2421047
Thallium (Tl)	ug/L	<2.0	2.0	2421047
Titanium (Ti) ††	ug/L	<10	10	2421047
Uranium (U) ††	ug/L	<1.0	1.0	2421047

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
†† Parameter is not accreditable
† Parameter is not accredited

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TATA STEEL MINERALS CANADA
Client Project #: Howse surface water
Site Location: Howse
Your P.O. #: 3000001390

TOTAL EXTRACTABLE METALS (SURFACE WATER)

Bureau Veritas ID		LX8430		
Sampling Date		2023/07/11 08:52		
COC Number		98123		
	Units	**HOW-SW4-Q2-2023**	**RDL**	**QC Batch**
Vanadium (V)	ug/L	<2.0	2.0	2421047
Zinc (Zn)	ug/L	<7.0	7.0	2421047

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas Bureau Veritas 889 Montée de Liesse, Ville St-Laurent, Québec, Canada H4T 1P5 Tel: (514) 448-9001 Fax: (514) 448-9199 Ligne sans frais : 1-877-462-9926

CONVENTIONAL PARAMETERS (SURFACE WATER)

Bureau Veritas ID		LX8427	LX8427	LX8428		
Sampling Date		2023/07/11 09:23	2023/07/11 09:23	2023/07/11 07:55		
COC Number		98123	98123	98123		
	Units	HOW-SW1-Q2-2023	HOW-SW1-Q2-2023 Lab-Dup	HOW-SW2-Q2-2023	RDL	QC Batch
CONVENTIONALS						
Conductivity	mS/cm	0.026	N/A	0.0042	0.0010	2419906
Dissolved organic carbon †	mg/L	2.3	N/A	7.7	0.20	2419861
Dissolved oxygen †	mg/L	11	N/A	8.9	1.0	2419723
Nitrate (N) and Nitrite(N)	mg/L	0.12	N/A	<0.020	0.020	2420038
Nitrates (N-NO3-)	mg/L	0.12	N/A	<0.020	0.020	2420038
Nitrites (N-NO2-)	mg/L	<0.020	N/A	<0.020	0.020	2420038
Nitrogen ammonia (N-NH4+ and N-NH3)	mg/L	<0.020	N/A	<0.020	0.020	2421854
Orthophosphate (P)	mg/L	<0.050	N/A	<0.050	0.050	2419701
pH	pH	7.05	N/A	5.77	N/A	2419850
pH (15° C) †	pH	7.50	N/A	5.46	N/A	2419904
pH (on-site) †	pH	6.47	N/A	4.59	N/A	ONSITE
Phenols-4AAP	mg/L	<0.0020	N/A	<0.0020	0.0020	2420731
Real Color	UCV	16	N/A	56	2.0	2419738
Sulfides (S2-)	mg/L	<0.020	N/A	<0.020	0.020	2420678
Turbidity	NTU	0.50	N/A	1.6	0.10	2419632
Alkalinity Total (as CaCO3) pH 4.5 †	mg/L	11	N/A	<1.0	1.0	2419905
Bicarbonates (HCO3 as CaCO3) †	mg/L	11	N/A	<1.0	1.0	2419905
Carbonate (CO3 as CaCO3) †	mg/L	<1.0	N/A	<1.0	1.0	2419905
Chloride (Cl)	mg/L	0.25	N/A	0.076	0.050	2420041
Sulfates (SO4)	mg/L	1.8	N/A	<0.50	0.50	2420041
Total Dissolved Solids	mg/L	12	N/A	21	10	2421035
Total suspended solids (TSS)	mg/L	<2.0	2.0	3.0	2.0	2420797
On-site Measurements						
Temperature (°C) †	Celsius	12.20	N/A	14.30	N/A	ONSITE

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable
† Parameter is not accreditable

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CONVENTIONAL PARAMETERS (SURFACE WATER)

Bureau Veritas ID		LX8428			LX8429		
Sampling Date		2023/07/11 07:55			2023/07/11 08:05		
COC Number		98123			98123		
	Units	HOW-SW2-Q2-2023 Lab-Dup	RDL	QC Batch	HOW-SW3-Q2-2023	RDL	QC Batch
CONVENTIONALS							
Conductivity	mS/cm	N/A	0.0010	2419906	0.0024	0.0010	2419906
Dissolved organic carbon †	mg/L	N/A	0.20	2419861	5.9	0.20	2419861
Dissolved oxygen †	mg/L	N/A	1.0	2419723	8.5	1.0	2419723
Nitrate (N) and Nitrite(N)	mg/L	N/A	0.020	2420038	<0.020	0.020	2420038
Nitrates (N-NO3-)	mg/L	N/A	0.020	2420038	<0.020	0.020	2420038
Nitrites (N-NO2-)	mg/L	N/A	0.020	2420038	<0.020	0.020	2420038
Nitrogen ammonia (N-NH4+ and N-NH3)	mg/L	N/A	0.020	2421854	<0.020	0.020	2421935
Orthophosphate (P)	mg/L	N/A	0.050	2419701	<0.050	0.050	2419701
pH	pH	N/A	N/A	2419850	5.65	N/A	2419850
pH (15° C) †	pH	N/A	N/A	2419904	5.37	N/A	2419904
pH (on-site) †	pH	N/A	N/A	ONSITE	4.80	N/A	ONSITE
Phenols-4AAP	mg/L	N/A	0.0020	2420731	<0.0020	0.0020	2420731
Real Color	UCV	N/A	2.0	2419738	41	2.0	2419738
Sulfides (S2-)	mg/L	N/A	0.020	2420678	<0.020	0.020	2420678
Turbidity	NTU	N/A	0.10	2419632	0.69	0.10	2419632
Alkalinity Total (as CaCO3) pH 4.5 †	mg/L	N/A	1.0	2419905	<1.0	1.0	2419905
Bicarbonates (HCO3 as CaCO3) †	mg/L	N/A	1.0	2419905	<1.0	1.0	2419905
Carbonate (CO3 as CaCO3) †	mg/L	N/A	1.0	2419905	<1.0	1.0	2419905
Chloride (Cl)	mg/L	N/A	0.050	2420041	<0.050	0.050	2420041
Sulfates (SO4)	mg/L	N/A	0.50	2420041	<0.50	0.50	2420041
Total Dissolved Solids	mg/L	16	11	2421035	14	10	2421035
Total suspended solids (TSS)	mg/L	N/A	N/A	2420797	<2.0	2.0	2420797
On-site Measurements							
Temperature (°C) †	Celsius	N/A	N/A	ONSITE	16.40	N/A	ONSITE

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable
† Parameter is not accreditable

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TATA STEEL MINERALS CANADA
Client Project #: Howse surface water
Site Location: Howse
Your P.O. #: 3000001390

CONVENTIONAL PARAMETERS (SURFACE WATER)

Bureau Veritas ID		LX8430		
Sampling Date		2023/07/11 08:52		
COC Number		98123		
	Units	**HOW-SW4-Q2-2023**	**RDL**	**QC Batch**
CONVENTIONALS				
Conductivity	mS/cm	0.029	0.0010	2419906
Dissolved organic carbon †	mg/L	1.3	0.20	2419861
Dissolved oxygen †	mg/L	10	1.0	2419723
Nitrate (N) and Nitrite(N)	mg/L	0.23	0.020	2420038
Nitrates (N-NO3-)	mg/L	0.23	0.020	2420038
Nitrites (N-NO2-)	mg/L	<0.020	0.020	2420038
Nitrogen ammonia (N-NH4+ and N-NH3)	mg/L	<0.020	0.020	2421935
Orthophosphate (P)	mg/L	<0.050	0.050	2419701
pH	pH	6.64	N/A	2419850
pH (15° C) †	pH	6.81	N/A	2419904
pH (on-site) †	pH	6.23	N/A	ONSITE
Phenols-4AAP	mg/L	<0.0020	0.0020	2420731
Real Color	UCV	6.0	2.0	2419738
Sulfides (S2-)	mg/L	<0.020	0.020	2420678
Turbidity	NTU	0.28	0.10	2419632
Alkalinity Total (as CaCO3) pH 4.5 †	mg/L	11	1.0	2419905
Bicarbonates (HCO3 as CaCO3) †	mg/L	11	1.0	2419905
Carbonate (CO3 as CaCO3) †	mg/L	<1.0	1.0	2419905
Chloride (Cl)	mg/L	0.34	0.050	2420041
Sulfates (SO4)	mg/L	2.4	0.50	2420041
Total Dissolved Solids	mg/L	12	10	2421035
Total suspended solids (TSS)	mg/L	2.0	2.0	2420797
On-site Measurements				
Temperature (°C) †	Celsius	12.70	N/A	ONSITE

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
† Parameter is not accreditable
N/A = Not Applicable

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SUBCONTRACTED ANALYSIS (SURFACE WATER)

Bureau Veritas ID		LX8427	LX8428	LX8429	LX8430		
Sampling Date		2023/07/11 09:23	2023/07/11 07:55	2023/07/11 08:05	2023/07/11 08:52		
COC Number		98123	98123	98123	98123		
	Units	HOW-SW1-Q2-2023	HOW-SW2-Q2-2023	HOW-SW3-Q2-2023	HOW-SW4-Q2-2023	RDL	QC Batch
PETROLEUM HYDROCARBONS							
Benzene †	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	0.0010	2429684
Toluene †	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	0.0010	2429684
Ethylbenzene †	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	0.0010	2429684
Total_Xylenes †	mg/L	<0.0020	<0.0020	<0.0020	<0.0020	0.0020	2429684
C6 - C10 (less BTEX) †	mg/L	<0.090	<0.090	<0.090	<0.090	0.090	2429684

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
† Parameter is not accreditable

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GENERAL COMMENTS

Please note that the test pH (site)- waters was performed on site by the client.
Please note that the test Temperature (site) was performed on site by the client.

Sample LX8427, Total Extractable Metals: Test repeated.

Results relate only to the items tested.

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QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	Units
2419632	WTE	Spiked Blank	Turbidity	2023/07/12		102	%
2419632	WTE	Method Blank	Turbidity	2023/07/12	<0.10		NTU
2419701	HGU	QC Standard	Orthophosphate (P)	2023/07/12		102	%
2419701	HGU	Spiked Blank	Orthophosphate (P)	2023/07/12		103	%
2419701	HGU	Method Blank	Orthophosphate (P)	2023/07/12	<0.050		mg/L
2419738	WTE	Spiked Blank	Real Color	2023/07/12		101	%
2419738	WTE	Method Blank	Real Color	2023/07/12	<2.0		UCV
2419850	ZLI	Spiked Blank	pH	2023/07/13		101	%
2419861	ZZH	Spiked Blank	Dissolved organic carbon	2023/07/12		106	%
2419861	ZZH	Method Blank	Dissolved organic carbon	2023/07/12	<0.20		mg/L
2419904	JCE	Spiked Blank	pH (15° C)	2023/07/12		101	%
2419905	ZLI	Spiked Blank	Alkalinity Total (as CaCO3) pH 4.5	2023/07/13		108	%
2419905	ZLI	Method Blank	Alkalinity Total (as CaCO3) pH 4.5	2023/07/13	<1.0		mg/L
2419906	ZLI	Spiked Blank	Conductivity	2023/07/13		102	%
2419906	ZLI	Method Blank	Conductivity	2023/07/13	<0.0010		mS/cm
2420038	ESW	Spiked Blank	Nitrate (N) and Nitrite(N)	2023/07/13		100	%
			Nitrates (N-NO3-)	2023/07/13		99	%
			Nitrites (N-NO2-)	2023/07/13		101	%
2420038	ESW	Method Blank	Nitrate (N) and Nitrite(N)	2023/07/13	<0.020		mg/L
			Nitrates (N-NO3-)	2023/07/13	<0.020		mg/L
			Nitrites (N-NO2-)	2023/07/13	<0.020		mg/L
2420041	ESW	Spiked Blank	Chloride (Cl)	2023/07/13		101	%
			Sulfates (SO4)	2023/07/13		98	%
2420041	ESW	Method Blank	Chloride (Cl)	2023/07/13	<0.050		mg/L
			Sulfates (SO4)	2023/07/13	<0.50		mg/L
2420126	NET	Spiked Blank	Mercury (Hg)	2023/07/19		90	%
2420126	NET	Method Blank	Mercury (Hg)	2023/07/19	<0.000010		mg/L
2420678	ABX	Spiked Blank	Sulfides (S2-)	2023/07/14		102	%
2420678	ABX	Method Blank	Sulfides (S2-)	2023/07/14	<0.020		mg/L
2420731	GXL	QC Standard	Phenols-4AAP	2023/07/14		95	%
2420731	GXL	Spiked Blank	Phenols-4AAP	2023/07/14		103	%
2420731	GXL	Method Blank	Phenols-4AAP	2023/07/14	<0.0020		mg/L
2420797	WPR	Spiked Blank	Total suspended solids (TSS)	2023/07/18		103	%
2420797	WPR	Method Blank	Total suspended solids (TSS)	2023/07/18	<2.0		mg/L
2421035	WPR	Spiked Blank	Total Dissolved Solids	2023/07/17		93	%
2421035	WPR	Method Blank	Total Dissolved Solids	2023/07/17	<10		mg/L
2421047	NET	Spiked Blank	Aluminum (Al)	2023/07/21		110	%
			Antimony (Sb)	2023/07/21		124 (1)	%
			Silver (Ag)	2023/07/21		115	%
			Arsenic (As)	2023/07/21		112	%
			Barium (Ba)	2023/07/21		123 (1)	%
			Beryllium (Be)	2023/07/21		116	%
			Bismuth (Bi)	2023/07/21		117	%
			Boron (B)	2023/07/21		118	%
			Cadmium (Cd)	2023/07/21		114	%
			Calcium (Ca)	2023/07/21		107	%
			Chromium (Cr)	2023/07/21		112	%
			Cobalt (Co)	2023/07/21		110	%
			Copper (Cu)	2023/07/21		105	%
			Tin (Sn)	2023/07/21		127 (1)	%
			Iron (Fe)	2023/07/21		110	%

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	Units
			Magnesium (Mg)	2023/07/21		106	%
			Manganese (Mn)	2023/07/21		112	%
			Mercury (Hg)	2023/07/21		113	%
			Molybdenum (Mo)	2023/07/21		122 (1)	%
			Nickel (Ni)	2023/07/21		109	%
			Total phosphorous	2023/07/21		108	%
			Lead (Pb)	2023/07/21		113	%
			Potassium (K)	2023/07/21		109	%
			Selenium (Se)	2023/07/21		116	%
			Sodium (Na)	2023/07/21		102	%
			Strontium (Sr)	2023/07/21		115	%
			Thallium (Tl)	2023/07/21		113	%
			Titanium (Ti)	2023/07/21		112	%
			Uranium (U)	2023/07/21		114	%
			Vanadium (V)	2023/07/21		113	%
			Zinc (Zn)	2023/07/21		106	%
2421047	NET	Method Blank	Aluminum (Al)	2023/07/21	<10		ug/L
			Antimony (Sb)	2023/07/21	<1.0		ug/L
			Silver (Ag)	2023/07/21	<1.0		ug/L
			Arsenic (As)	2023/07/21	<1.0		ug/L
			Barium (Ba)	2023/07/21	<2.0		ug/L
			Beryllium (Be)	2023/07/21	<2.0		ug/L
			Bismuth (Bi)	2023/07/21	<1.0		ug/L
			Boron (B)	2023/07/21	<50		ug/L
			Cadmium (Cd)	2023/07/21	<0.20		ug/L
			Calcium (Ca)	2023/07/21	<500		ug/L
			Chromium (Cr)	2023/07/21	<5.0		ug/L
			Cobalt (Co)	2023/07/21	<1.0		ug/L
			Copper (Cu)	2023/07/21	<1.0		ug/L
			Total Hardness (CaCO3)	2023/07/21	<1000		ug/L
			Tin (Sn)	2023/07/21	<2.0		ug/L
			Iron (Fe)	2023/07/21	<60		ug/L
			Magnesium (Mg)	2023/07/21	<100		ug/L
			Manganese (Mn)	2023/07/21	<1.0		ug/L
			Mercury (Hg)	2023/07/21	<0.10		ug/L
			Molybdenum (Mo)	2023/07/21	<1.0		ug/L
			Nickel (Ni)	2023/07/21	<2.0		ug/L
			P2O5	2023/07/21	<25		ug/L
			Total phosphorous	2023/07/21	<10		ug/L
			Lead (Pb)	2023/07/21	<0.50		ug/L
			Potassium (K)	2023/07/21	<500		ug/L
			Selenium (Se)	2023/07/21	<3.0		ug/L
			Sodium (Na)	2023/07/21	<500		ug/L
			Strontium (Sr)	2023/07/21	<2.0		ug/L
			Thallium (Tl)	2023/07/21	<2.0		ug/L
			Titanium (Ti)	2023/07/21	<10		ug/L
			Uranium (U)	2023/07/21	<1.0		ug/L
			Vanadium (V)	2023/07/21	<2.0		ug/L
			Zinc (Zn)	2023/07/21	<7.0		ug/L
2421854	BAG	Spiked Blank	Nitrogen ammonia (N-NH4+ and N-NH3)	2023/07/18		110	%
2421854	BAG	Method Blank	Nitrogen ammonia (N-NH4+ and N-NH3)	2023/07/18	<0.020		mg/L

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	Units
2421857	CBO	Spiked Blank	Aluminum (Al)	2023/07/22		100	%
			Antimony (Sb)	2023/07/22		112	%
			Silver (Ag)	2023/07/22		105	%
			Arsenic (As)	2023/07/22		101	%
			Barium (Ba)	2023/07/22		99	%
			Beryllium (Be)	2023/07/22		101	%
			Bismuth (Bi)	2023/07/22		105	%
			Boron (B)	2023/07/22		104	%
			Cadmium (Cd)	2023/07/22		106	%
			Calcium (Ca)	2023/07/22		99	%
			Chromium (Cr)	2023/07/22		99	%
			Cobalt (Co)	2023/07/22		99	%
			Copper (Cu)	2023/07/22		97	%
			Tin (Sn)	2023/07/22		113	%
			Iron (Fe)	2023/07/22		106	%
			Magnesium (Mg)	2023/07/22		106	%
			Manganese (Mn)	2023/07/22		102	%
			Mercury (Hg)	2023/07/22		96	%
			Molybdenum (Mo)	2023/07/22		108	%
			Total phosphorous	2023/07/22		97	%
			Lead (Pb)	2023/07/22		102	%
			Potassium (K)	2023/07/22		98	%
			Selenium (Se)	2023/07/22		110	%
			Sodium (Na)	2023/07/22		104	%
			Strontium (Sr)	2023/07/22		108	%
			Thallium (Tl)	2023/07/22		102	%
			Titanium (Ti)	2023/07/22		99	%
			Uranium (U)	2023/07/22		100	%
			Vanadium (V)	2023/07/22		101	%
			Zinc (Zn)	2023/07/22		100	%
2421857	CBO	Method Blank	Aluminum (Al)	2023/07/22	<10		ug/L
			Antimony (Sb)	2023/07/22	<1.0		ug/L
			Silver (Ag)	2023/07/22	<1.0		ug/L
			Arsenic (As)	2023/07/22	<1.0		ug/L
			Barium (Ba)	2023/07/22	<2.0		ug/L
			Beryllium (Be)	2023/07/22	<2.0		ug/L
			Bismuth (Bi)	2023/07/22	<1.0		ug/L
			Boron (B)	2023/07/22	<50		ug/L
			Cadmium (Cd)	2023/07/22	<0.20		ug/L
			Calcium (Ca)	2023/07/22	<500		ug/L
			Chromium (Cr)	2023/07/22	<5.0		ug/L
			Cobalt (Co)	2023/07/22	<1.0		ug/L
			Copper (Cu)	2023/07/22	<1.0		ug/L
			Total Hardness (CaCO3)	2023/07/22	<1000		ug/L
			Tin (Sn)	2023/07/22	<2.0		ug/L
			Iron (Fe)	2023/07/22	<60		ug/L
			Magnesium (Mg)	2023/07/22	<100		ug/L
			Manganese (Mn)	2023/07/22	<1.0		ug/L
			Mercury (Hg)	2023/07/22	<0.10		ug/L
			Molybdenum (Mo)	2023/07/22	<1.0		ug/L
			P2O5	2023/07/22	<25		ug/L

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	Units
			Total phosphorous	2023/07/22	<10		ug/L
			Lead (Pb)	2023/07/22	<0.50		ug/L
			Potassium (K)	2023/07/22	<500		ug/L
			Selenium (Se)	2023/07/22	<3.0		ug/L
			Sodium (Na)	2023/07/22	<500		ug/L
			Strontium (Sr)	2023/07/22	<2.0		ug/L
			Thallium (Tl)	2023/07/22	<2.0		ug/L
			Titanium (Ti)	2023/07/22	<10		ug/L
			Uranium (U)	2023/07/22	<1.0		ug/L
			Vanadium (V)	2023/07/22	<2.0		ug/L
			Zinc (Zn)	2023/07/22	<7.0		ug/L
2421935	SKL	Spiked Blank	Nitrogen ammonia (N-NH4+ and N-NH3)	2023/07/18		107	%
2421935	SKL	Method Blank	Nitrogen ammonia (N-NH4+ and N-NH3)	2023/07/18	<0.020		mg/L
2424529	NET	Spiked Blank	Nickel (Ni)	2023/07/26		100	%
2424529	NET	Method Blank	Nickel (Ni)	2023/07/26	<2.0		ug/L
2429684	THL	Matrix Spike	Benzene	2023/07/14		103	%
			Toluene	2023/07/14		95	%
			Ethylbenzene	2023/07/14		99	%
			Total_Xylenes	2023/07/14		99	%
2429684	THL	Spiked Blank	Benzene	2023/07/14		97	%
			Toluene	2023/07/14		93	%
			Ethylbenzene	2023/07/14		98	%
			Total_Xylenes	2023/07/14		97	%
2429684	THL	Method Blank	Benzene	2023/07/14	<0.0010		mg/L
			Toluene	2023/07/14	<0.0010		mg/L
			Ethylbenzene	2023/07/14	<0.0010		mg/L
			Total_Xylenes	2023/07/14	<0.0020		mg/L
			C6 - C10 (less BTEX)	2023/07/14	<0.090		mg/L
2429688	TGO	Matrix Spike	Reactive silica (SiO2)	2023/08/09		NC	%
2429688	TGO	Spiked Blank	Reactive silica (SiO2)	2023/08/09		94	%
2429688	TGO	Method Blank	Reactive silica (SiO2)	2023/08/09	<0.50		mg/L
2429692	éFC	Matrix Spike	Isobutylbenzene - Extractable	2023/07/19		91	%
			n-Dotriacontane - Extractable	2023/07/19		108	%
			>C10-C16 Hydrocarbons	2023/07/19		78	%
			>C16-C21 Hydrocarbons	2023/07/19		83	%
			>C21-<C32 Hydrocarbons	2023/07/19		80	%
2429692	éFC	Spiked Blank	Isobutylbenzene - Extractable	2023/07/19		100	%
			n-Dotriacontane - Extractable	2023/07/19		117	%
			>C10-C16 Hydrocarbons	2023/07/19		83	%
			>C16-C21 Hydrocarbons	2023/07/19		90	%
			>C21-<C32 Hydrocarbons	2023/07/19		88	%
2429692	éFC	Method Blank	Isobutylbenzene - Extractable	2023/07/19		101	%
			n-Dotriacontane - Extractable	2023/07/19		110	%
			>C10-C16 Hydrocarbons	2023/07/19	<0.050		mg/L
			>C16-C21 Hydrocarbons	2023/07/19	<0.050		mg/L
			>C21-<C32 Hydrocarbons	2023/07/19	<0.090		mg/L
2429693	éC7	Matrix Spike	Reactive silica (SiO2)	2023/07/31		NC	%
2429693	éC7	Spiked Blank	Reactive silica (SiO2)	2023/07/31		94	%

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	Units
2429693	éC7	Method Blank	Reactive silica (SiO2)	2023/07/31	<0.50		mg/L

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

(1) Recovery or relative percent difference (RPD) for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria

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VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Frédéric Arnau, B.Sc., Chemist, Montreal, Scientific Service Specialist

Jonathan Fauvel, B.Sc., Chemist, Montreal, Scientific Specialist

Miryam Assayag, B.Sc. Chemist, Montréal, Team Leader

Michelina Cinquino, Analyst II

Nicholas Ethier, B.Sc. Chemist, Montreal, Scientific Specialist

Phil Deveau, Scientific Specialist (Organics)

Shu Yang, B.Sc. Chemist, Montreal, Analyst II

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VALIDATION SIGNATURE PAGE(CONT'D)

The analytical data and all QC contained in this report were reviewed and validated by:

Zineb El Ouali
Membre OCQ#2021-051

Zineb El Ouali, M.Sc.,Chemist in training, Analyst II

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Your P.O. #: 3000001390
Your Project #: Howse surface water
Site#: 00025
Site Location: Howse
Your C.O.C. #: 98019

Attention: TSMC Environnement

TATA STEEL MINERALS CANADA
1000, RUE SHERBROOKE OUEST
BUREAU 1120
MONTRÉAL, QC
CANADA H3A 3G4

Report Date: 2023/08/09
Report #: R2867848
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C334116
Received: 2023/07/11, 15:40

Sample Matrix: Surface Water
Samples Received: 5

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Total Alkalinity (end point 4.5)-waters	4	N/A	2023/07/12	STL SOP-00038	SM 23 2320-B m
Total Alkalinity (end point 4.5)-waters	1	N/A	2023/07/13	STL SOP-00038	SM 23 2320-B m
Anions in water	5	N/A	2023/07/13	STL SOP-00014	MA.300–Ions 1.3 R6 m
Real Color	5	N/A	2023/07/12	STL SOP-00046	MA103 - Col. 2.0 R4m
Conductivity in waters	5	N/A	2023/07/12	STL SOP-00038	SM 23 2510-B m
Dissolved Organic Carbon (2)	5	2023/07/12	2023/07/13	STL SOP-00243	SM 23 5310-B m
Total Extractable Mercury - Cold Vapour	5	2023/07/12	2023/07/14	STL SOP-00276	EPA 1631,rev. E m
Total Suspended Solids	5	2023/07/15	2023/07/17	STL SOP-00015	MA.104–S.S. 2.0 m
Total Extractable Metals	1	2023/07/13	2023/07/21	STL SOP-00062	MA.200–Mét. 1.2 R7 m
Total Extractable Metals	4	2023/07/13	2023/07/22	STL SOP-00062	MA.200–Mét. 1.2 R7 m
Ammonia Nitrogen in water	5	N/A	2023/07/19	STL SOP-00040	MA.300–N 2.0 R2 m
Nitrates(NO3-), Nitrites(NO2-)-water	5	N/A	2023/07/13	STL SOP-00014	MA.300–Ions 1.3 R6 m
Dissolved Oxygen	5	N/A	2023/07/11	STL SOP-00008	MA.315–DBO 1.1 R3 m
pH in water	5	N/A	2023/07/12	STL SOP-00038	MA.100–pH 1.1 R3 m
pH Measured @ 15° C	5	N/A	2023/07/11	STL SOP-00016	MA.100–pH 1.1 R3 m
Total Phenols by 4-AAP in water	5	2023/07/14	2023/07/14	STL SOP-00033	MA404–I.Phé 2.2 R2 m
pH (site)- waters	5	N/A	2023/07/11		Test Kit
Ortho Phosphate-water	5	N/A	2023/07/12	STL SOP-00003	MA.303–P 1.1 R2 m
Sulfides (as S2-)-water	5	2023/07/14	2023/07/14	STL SOP-00273	SM4500-S2 rev.23m.
Total Dissolved Solids	5	2023/07/14	2023/07/17	STL SOP-00050	MA.115–S.D. 1.0 R4 m
Temperature (site)	5	N/A	2023/07/11		Thermometer
Turbidity-water	5	N/A	2023/07/12	STL SOP-00022	MA.103–Tur. 1.0 R5 m
TEH in Water (PIRI) (1)	5	2023/07/19	2023/07/19	ATL SOP 00113	Atl. RBCA v3.1 m
Reactive Silica(SiO2) (1)	4	2023/08/04	2023/08/08	ATL SOP 00022	EPA 366.0 m
Reactive Silica(SiO2) (1)	1	2023/08/08	2023/08/09	ATL SOP 00022	EPA 366.0 m
VPH in Water (PIRI) (1)	5	2023/07/14	2023/07/14	ATL SOP 00130	Atl. RBCA v3.1 m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

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Your P.O. #: 3000001390
Your Project #: Howse surface water
Site#: 00025
Site Location: Howse
Your C.O.C. #: 98019

Attention: TSMC Environnement

TATA STEEL MINERALS CANADA
1000, RUE SHERBROOKE OUEST
BUREAU 1120
MONTRÉAL, QC
CANADA H3A 3G4

Report Date: 2023/08/09
Report #: R2867848
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C334116
Received: 2023/07/11, 15:40

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
Note: RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) This test was performed by Bureau Veritas Bedford, Suit 105, 200 Bluewater Rd. , Bedford, NS, B4B1G9
(2) DOC present in the sample should be considered as non-purgeable DOC

Note: All parameters included in the present certificate are accredited by the MELCC unless stated otherwise.

Encryption Key

Lauriane Bernard
Project Manager
09 Aug 2023 19:08:40

Please direct all questions regarding this Certificate of Analysis to:
Lauriane Bernard, Project Manager
Email: Lauriane.BERNARD@bureauveritas.com
Phone# (514)448-9001 Ext:7066251

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Bureau Veritas Job #: C334116
Report Date: 2023/08/09

TATA STEEL MINERALS CANADA
Client Project #: Howse surface water
Site Location: Howse
Your P.O. #: 3000001390

RESULTS OF ANALYSES OF SURFACE WATER

Bureau Veritas ID		LX7983		LX7984			LX7985		
Sampling Date		2023/07/10 09:21		2023/07/10 08:46			2023/07/10 11:18		
COC Number		98019		98019			98019		
	Units	HOW-BC-Q2-2023	RDL	HOW-BL-Q2-2023	RDL	QC Batch	HOW-ML-Q2-2023	RDL	QC Batch
INORGANICS									
Reactive silica (SiO2) †	mg/L	7.6	0.50	5.8	0.50	2429686	<0.50	0.50	2429687
PETROLEUM HYDROCARBONS									
>C10-C16 Hydrocarbons †	mg/L	<0.055	0.055	<0.057	0.057	2429685	<0.056	0.056	2429685
>C16-C21 Hydrocarbons †	mg/L	<0.055	0.055	<0.057	0.057	2429685	<0.056	0.056	2429685
>C21-<C32 Hydrocarbons †	mg/L	<0.10	0.10	<0.10	0.10	2429685	<0.10	0.10	2429685
Return to baseline at C32 †	mg/L	NA	N/A	NA	N/A	2429685	NA	N/A	2429685
Hydrocarbon Resemblance †	mg/L	NA	N/A	NA	N/A	2429685	NA	N/A	2429685
Surrogate Recovery (%)									
Isobutylbenzene - Extractable	%	96	N/A	98	N/A	2429685	98	N/A	2429685
n-Dotriacontane - Extractable	%	90 (1)	N/A	92 (1)	N/A	2429685	92 (1)	N/A	2429685

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
† Parameter is not accreditable
N/A = Not Applicable
(1) Elevated TEH RDL(s) due to limited sample.

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TATA STEEL MINERALS CANADA
Client Project #: Howse surface water
Site Location: Howse
Your P.O. #: 3000001390

RESULTS OF ANALYSES OF SURFACE WATER

Bureau Veritas ID		LX7986			LX7987		
Sampling Date		2023/07/10 09:51			2023/07/10 10:37		
COC Number		98019			98019		
	Units	HOW-TL-Q2-2023	RDL	QC Batch	HOW-SW5-Q2-2023	RDL	QC Batch
INORGANICS							
Reactive silica (SiO2) †	mg/L	7.2	0.50	2429687	0.96	0.50	2429688
PETROLEUM HYDROCARBONS							
>C10-C16 Hydrocarbons †	mg/L	<0.056	0.056	2429685	<0.054	0.054	2429685
>C16-C21 Hydrocarbons †	mg/L	<0.056	0.056	2429685	<0.054	0.054	2429685
>C21-<C32 Hydrocarbons †	mg/L	<0.10	0.10	2429685	<0.097	0.097	2429685
Return to baseline at C32 †	mg/L	NA	N/A	2429685	NA	N/A	2429685
Hydrocarbon Resemblance †	mg/L	NA	N/A	2429685	NA	N/A	2429685
Surrogate Recovery (%)							
Isobutylbenzene - Extractable	%	94	N/A	2429685	93	N/A	2429685
n-Dotriacontane - Extractable	%	90 (1)	N/A	2429685	90 (1)	N/A	2429685

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
† Parameter is not accreditable
N/A = Not Applicable
(1) Elevated TEH RDL(s) due to limited sample.

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TOTAL EXTRACTABLE METALS (SURFACE WATER)

Bureau Veritas ID		LX7983	LX7984	LX7985	LX7986		
Sampling Date		2023/07/10 09:21	2023/07/10 08:46	2023/07/10 11:18	2023/07/10 09:51		
COC Number		98019	98019	98019	98019		
	Units	HOW-BC-Q2-2023	HOW-BL-Q2-2023	HOW-ML-Q2-2023	HOW-TL-Q2-2023	RDL	QC Batch
METALS							
Mercury (Hg) ††	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	0.000010	2419554
Aluminum (Al)	ug/L	160	<10	44	16	10	2419964
Antimony (Sb)	ug/L	<1.0	<1.0	<1.0	<1.0	1.0	2419964
Silver (Ag)	ug/L	<1.0	<1.0	<1.0	<1.0	1.0	2419964
Arsenic (As)	ug/L	<1.0	<1.0	<1.0	<1.0	1.0	2419964
Barium (Ba)	ug/L	3.0	<2.0	<2.0	3.0	2.0	2419964
Beryllium (Be)	ug/L	<2.0	<2.0	<2.0	<2.0	2.0	2419964
Bismuth (Bi) ††	ug/L	<1.0	<1.0	<1.0	<1.0	1.0	2419964
Boron (B) †	ug/L	<50	<50	<50	<50	50	2419964
Cadmium (Cd)	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	2419964
Calcium (Ca) †	ug/L	<500	5800	1700	3800	500	2419964
Chromium (Cr)	ug/L	<5.0	<5.0	<5.0	<5.0	5.0	2419964
Cobalt (Co)	ug/L	<1.0	<1.0	<1.0	<1.0	1.0	2419964
Copper (Cu)	ug/L	<1.0	<1.0	<1.0	<1.0	1.0	2419964
Total Hardness (CaCO3) ††	ug/L	3000	31000	9200	21000	1000	2419964
Tin (Sn)	ug/L	<2.0	<2.0	<2.0	<2.0	2.0	2419964
Iron (Fe)	ug/L	230	<60	76	<60	60	2419964
Magnesium (Mg) †	ug/L	420	4000	1200	2900	100	2419964
Manganese (Mn)	ug/L	28	3.8	6.2	7.5	1.0	2419964
Mercury (Hg)	ug/L	<0.10	<0.10	<0.10	<0.10	0.10	2419964
Molybdenum (Mo)	ug/L	<1.0	<1.0	<1.0	<1.0	1.0	2419964
Nickel (Ni)	ug/L	<2.0	<2.0	<2.0	<2.0	2.0	2419964
P2O5 ††	ug/L	<25	<25	<25	<25	25	2419964
Total phosphorous	ug/L	<10	<10	<10	<10	10	2419964
Lead (Pb)	ug/L	<0.50	<0.50	<0.50	<0.50	0.50	2419964
Potassium (K) †	ug/L	<500	<500	<500	<500	500	2419964
Selenium (Se)	ug/L	<3.0	<3.0	<3.0	<3.0	3.0	2419964
Sodium (Na)	ug/L	570	840	<500	700	500	2419964
Strontium (Sr) †	ug/L	3.0	7.5	4.1	7.1	2.0	2419964
Thallium (Tl)	ug/L	<2.0	<2.0	<2.0	<2.0	2.0	2419964
Titanium (Ti) ††	ug/L	<10	<10	<10	<10	10	2419964
Uranium (U) ††	ug/L	<1.0	<1.0	<1.0	<1.0	1.0	2419964

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
†† Parameter is not accreditable
† Parameter is not accredited

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TATA STEEL MINERALS CANADA
Client Project #: Howse surface water
Site Location: Howse
Your P.O. #: 3000001390

TOTAL EXTRACTABLE METALS (SURFACE WATER)

Bureau Veritas ID		LX7983	LX7984	LX7985	LX7986		
Sampling Date		2023/07/10 09:21	2023/07/10 08:46	2023/07/10 11:18	2023/07/10 09:51		
COC Number		98019	98019	98019	98019		
	Units	**HOW-BC-Q2-2023**	**HOW-BL-Q2-2023**	**HOW-ML-Q2-2023**	**HOW-TL-Q2-2023**	**RDL**	**QC Batch**
Vanadium (V)	ug/L	<2.0	<2.0	<2.0	<2.0	2.0	2419964
Zinc (Zn)	ug/L	<7.0	<7.0	<7.0	<7.0	7.0	2419964

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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TOTAL EXTRACTABLE METALS (SURFACE WATER)

Bureau Veritas ID		LX7987		
Sampling Date		2023/07/10 10:37		
COC Number		98019		
	Units	HOW-SW5-Q2-2023	RDL	QC Batch
METALS				
Mercury (Hg) ††	mg/L	<0.000010	0.000010	2419554
Aluminum (Al)	ug/L	16	10	2419964
Antimony (Sb)	ug/L	<1.0	1.0	2419964
Silver (Ag)	ug/L	<1.0	1.0	2419964
Arsenic (As)	ug/L	<1.0	1.0	2419964
Barium (Ba)	ug/L	<2.0	2.0	2419964
Beryllium (Be)	ug/L	<2.0	2.0	2419964
Bismuth (Bi) ††	ug/L	<1.0	1.0	2419964
Boron (B) †	ug/L	<50	50	2419964
Cadmium (Cd)	ug/L	<0.20	0.20	2419964
Calcium (Ca) †	ug/L	<500	500	2419964
Chromium (Cr)	ug/L	<5.0	5.0	2419964
Cobalt (Co)	ug/L	<1.0	1.0	2419964
Copper (Cu)	ug/L	<1.0	1.0	2419964
Total Hardness (CaCO3) ††	ug/L	1700	1000	2419964
Tin (Sn)	ug/L	<2.0	2.0	2419964
Iron (Fe)	ug/L	72	60	2419964
Magnesium (Mg) †	ug/L	220	100	2419964
Manganese (Mn)	ug/L	10	1.0	2419964
Mercury (Hg)	ug/L	<0.10	0.10	2419964
Molybdenum (Mo)	ug/L	<1.0	1.0	2419964
Nickel (Ni)	ug/L	<2.0	2.0	2419964
P2O5 ††	ug/L	<25	25	2419964
Total phosphorous	ug/L	<10	10	2419964
Lead (Pb)	ug/L	<0.50	0.50	2419964
Potassium (K) †	ug/L	<500	500	2419964
Selenium (Se)	ug/L	<3.0	3.0	2419964
Sodium (Na)	ug/L	520	500	2419964
Strontium (Sr) †	ug/L	2.0	2.0	2419964
Thallium (Tl)	ug/L	<2.0	2.0	2419964
Titanium (Ti) ††	ug/L	<10	10	2419964
Uranium (U) ††	ug/L	<1.0	1.0	2419964

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
†† Parameter is not accreditable
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TATA STEEL MINERALS CANADA
Client Project #: Howse surface water
Site Location: Howse
Your P.O. #: 3000001390

TOTAL EXTRACTABLE METALS (SURFACE WATER)

Bureau Veritas ID		LX7987		
Sampling Date		2023/07/10 10:37		
COC Number		98019		
	Units	**HOW-SW5-Q2-2023**	**RDL**	**QC Batch**
Vanadium (V)	ug/L	<2.0	2.0	2419964
Zinc (Zn)	ug/L	<7.0	7.0	2419964

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas Bureau Veritas 889 Montée de Liesse, Ville St-Laurent, Québec, Canada H4T 1P5 Tel: (514) 448-9001 Fax: (514) 448-9199 Ligne sans frais : 1-877-462-9926

CONVENTIONAL PARAMETERS (SURFACE WATER)

Bureau Veritas ID		LX7983	LX7984	LX7984	LX7985		
Sampling Date		2023/07/10 09:21	2023/07/10 08:46	2023/07/10 08:46	2023/07/10 11:18		
COC Number		98019	98019	98019	98019		
	Units	HOW-BC-Q2-2023	HOW-BL-Q2-2023	HOW-BL-Q2-2023 Lab-Dup	HOW-ML-Q2-2023	RDL	QC Batch
CONVENTIONALS							
Conductivity	mS/cm	0.0052	0.057	N/A	0.016	0.0010	2419397
Dissolved organic carbon †	mg/L	4.5	0.49	N/A	1.9	0.20	2419861
Dissolved oxygen †	mg/L	9.0	10	N/A	9.6	1.0	2419374
Nitrate (N) and Nitrite(N)	mg/L	<0.020	0.022	N/A	<0.020	0.020	2419813
Nitrates (N-NO3-)	mg/L	<0.020	0.022	N/A	<0.020	0.020	2419813
Nitrites (N-NO2-)	mg/L	<0.020	<0.020	N/A	<0.020	0.020	2419813
Nitrogen ammonia (N-NH4+ and N-NH3)	mg/L	<0.020	<0.020	N/A	<0.020	0.020	2421943
Orthophosphate (P)	mg/L	<0.050	<0.050	N/A	<0.050	0.050	2419484
pH	pH	6.85	7.14	N/A	6.90	N/A	2419392
pH (15° C) †	pH	5.48	6.95	N/A	6.71	N/A	2419400
pH (on-site) †	pH	5.21	6.74	N/A	6.88	N/A	ONSITE
Phenols-4AAP	mg/L	<0.0020	<0.0020	N/A	<0.0020	0.0020	2420731
Real Color	UCV	35	<2.0	N/A	8.2	2.0	2419487
Sulfides (S2-)	mg/L	<0.020	<0.020	<0.020	<0.020	0.020	2420678
Turbidity	NTU	0.83	0.20	N/A	0.67	0.10	2419632
Alkalinity Total (as CaCO3) pH 4.5 †	mg/L	2.8	30	N/A	5.7	1.0	2419396
Bicarbonates (HCO3 as CaCO3) †	mg/L	2.8	30	N/A	5.7	1.0	2419396
Carbonate (CO3 as CaCO3) †	mg/L	<1.0	<1.0	N/A	<1.0	1.0	2419396
Chloride (Cl)	mg/L	0.069	0.15	N/A	0.060	0.050	2419829
Sulfates (SO4)	mg/L	<0.50	1.9	N/A	2.3	0.50	2419829
Total Dissolved Solids	mg/L	35	38	N/A	15	10	2420721
Total suspended solids (TSS)	mg/L	<2.0	<2.0	N/A	3.0	2.0	2421065
On-site Measurements							
Temperature (°C) †	Celsius	12.90	9.200	N/A	22.60	N/A	ONSITE

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable
† Parameter is not accreditable

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CONVENTIONAL PARAMETERS (SURFACE WATER)

Bureau Veritas ID		LX7986	LX7986	LX7987		
Sampling Date		2023/07/10 09:51	2023/07/10 09:51	2023/07/10 10:37		
COC Number		98019	98019	98019		
	Units	HOW-TL-Q2-2023	HOW-TL-Q2-2023 Lab-Dup	HOW-SW5-Q2-2023	RDL	QC Batch
CONVENTIONALS						
Conductivity	mS/cm	0.040	0.040	0.0018	0.0010	2419397
Dissolved organic carbon †	mg/L	0.92	N/A	1.6	0.20	2419861
Dissolved oxygen †	mg/L	10	N/A	9.8	1.0	2419374
Nitrate (N) and Nitrite(N)	mg/L	0.24	N/A	<0.020	0.020	2419813
Nitrates (N-NO3-)	mg/L	0.24	N/A	<0.020	0.020	2419813
Nitrites (N-NO2-)	mg/L	<0.020	N/A	<0.020	0.020	2419813
Nitrogen ammonia (N-NH4+ and N-NH3)	mg/L	<0.020	N/A	<0.020	0.020	2421943
Orthophosphate (P)	mg/L	<0.050	N/A	<0.050	0.050	2419484
pH	pH	6.94	7.05	6.63	N/A	2419392
pH (15° C) †	pH	7.16	N/A	6.47	N/A	2419400
pH (on-site) †	pH	6.72	N/A	6.34	N/A	ONSITE
Phenols-4AAP	mg/L	<0.0020	N/A	<0.0020	0.0020	2420731
Real Color	UCV	4.0	N/A	8.2	2.0	2419487
Sulfides (S2-)	mg/L	<0.020	N/A	<0.020	0.020	2420678
Turbidity	NTU	0.32	N/A	0.49	0.10	2419632
Alkalinity Total (as CaCO3) pH 4.5 †	mg/L	18	18	2.1	1.0	2419396
Bicarbonates (HCO3 as CaCO3) †	mg/L	18	18	2.1	1.0	2419396
Carbonate (CO3 as CaCO3) †	mg/L	<1.0	<1.0	<1.0	1.0	2419396
Chloride (Cl)	mg/L	0.23	N/A	0.063	0.050	2419829
Sulfates (SO4)	mg/L	2.2	N/A	<0.50	0.50	2419829
Total Dissolved Solids	mg/L	37	N/A	18	10	2420721
Total suspended solids (TSS)	mg/L	<2.0	N/A	<2.0	2.0	2421065
On-site Measurements						
Temperature (°C) †	Celsius	18.10	N/A	21.80	N/A	ONSITE

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
† Parameter is not accreditable
N/A = Not Applicable

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TATA STEEL MINERALS CANADA
Client Project #: Howse surface water
Site Location: Howse
Your P.O. #: 3000001390

SUBCONTRACTED ANALYSIS (SURFACE WATER)

Bureau Veritas ID		LX7983	LX7984	LX7985	LX7986		
Sampling Date		2023/07/10 09:21	2023/07/10 08:46	2023/07/10 11:18	2023/07/10 09:51		
COC Number		98019	98019	98019	98019		
	Units	HOW-BC-Q2-2023	HOW-BL-Q2-2023	HOW-ML-Q2-2023	HOW-TL-Q2-2023	RDL	QC Batch
PETROLEUM HYDROCARBONS							
Benzene †	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	0.0010	2429684
Toluene †	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	0.0010	2429684
Ethylbenzene †	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	0.0010	2429684
Total_Xylenes †	mg/L	<0.0020	<0.0020	<0.0020	<0.0020	0.0020	2429684
C6 - C10 (less BTEX) †	mg/L	<0.090	<0.090	<0.090	<0.090	0.090	2429684

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
† Parameter is not accreditable

Bureau Veritas ID		LX7987		
Sampling Date		2023/07/10 10:37		
COC Number		98019		
	Units	HOW-SW5-Q2-2023	RDL	QC Batch
PETROLEUM HYDROCARBONS				
Benzene †	mg/L	<0.0010	0.0010	2429684
Toluene †	mg/L	<0.0010	0.0010	2429684
Ethylbenzene †	mg/L	<0.0010	0.0010	2429684
Total_Xylenes †	mg/L	<0.0020	0.0020	2429684
C6 - C10 (less BTEX) †	mg/L	<0.090	0.090	2429684

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
† Parameter is not accreditable

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GENERAL COMMENTS

Please note that the test pH (site)- waters was performed on site by the client.
Please note that the test Temperature (site) was performed on site by the client.

Samples temperature is above 10°C.: LX7983, LX7983, LX7983, LX7983, LX7983, LX7983, LX7983, LX7983, LX7983, LX7983, LX7983, LX7983, LX7984, LX7984, LX7984, LX7984, LX7984, LX7984, LX7984, LX7984, LX7984, LX7984, LX7984, LX7984, LX7985, LX7985, LX7985, LX7985, LX7985, LX7985, LX7985, LX7985, LX7985, LX7985, LX7985, LX7985, LX7986, LX7986, LX7986, LX7986, LX7986, LX7986, LX7986, LX7986, LX7986, LX7986, LX7986, LX7987, LX7987, LX7987, LX7987, LX7987, LX7987, LX7987, LX7987, LX7987, LX7987, LX7987, LX7987

CONVENTIONAL PARAMETERS (SURFACE WATER)

pH: Délai d'analyse non respecté.

Results relate only to the items tested.

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QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	Units
2419392	ZLI	Spiked Blank	pH	2023/07/12		101	%
2419396	ZLI	Spiked Blank	Alkalinity Total (as CaCO3) pH 4.5	2023/07/12		98	%
2419396	ZLI	Method Blank	Alkalinity Total (as CaCO3) pH 4.5	2023/07/12	<1.0		mg/L
2419397	ZLI	Spiked Blank	Conductivity	2023/07/12		101	%
2419397	ZLI	Method Blank	Conductivity	2023/07/12	<0.0010		mS/cm
2419400	JCE	Spiked Blank	pH (15° C)	2023/07/11		101	%
2419484	HGU	QC Standard	Orthophosphate (P)	2023/07/12		103	%
2419484	HGU	Spiked Blank	Orthophosphate (P)	2023/07/12		104	%
2419484	HGU	Method Blank	Orthophosphate (P)	2023/07/12	<0.050		mg/L
2419487	MAH	Spiked Blank	Real Color	2023/07/12		101	%
2419487	MAH	Method Blank	Real Color	2023/07/12	<2.0		UCV
2419554	ST5	Spiked Blank	Mercury (Hg)	2023/07/14		85	%
2419554	ST5	Method Blank	Mercury (Hg)	2023/07/14	<0.000010		mg/L
2419632	WTE	Spiked Blank	Turbidity	2023/07/12		102	%
2419632	WTE	Method Blank	Turbidity	2023/07/12	<0.10		NTU
2419813	ZZH	Spiked Blank	Nitrate (N) and Nitrite(N)	2023/07/13		102	%
			Nitrates (N-NO3-)	2023/07/13		101	%
			Nitrites (N-NO2-)	2023/07/13		102	%
2419813	ZZH	Method Blank	Nitrate (N) and Nitrite(N)	2023/07/13	<0.020		mg/L
			Nitrates (N-NO3-)	2023/07/13	<0.020		mg/L
			Nitrites (N-NO2-)	2023/07/13	<0.020		mg/L
2419829	ZZH	Spiked Blank	Chloride (Cl)	2023/07/13		100	%
			Sulfates (SO4)	2023/07/13		98	%
2419829	ZZH	Method Blank	Chloride (Cl)	2023/07/13	<0.050		mg/L
			Sulfates (SO4)	2023/07/13	<0.50		mg/L
2419861	ZZH	Spiked Blank	Dissolved organic carbon	2023/07/12		106	%
2419861	ZZH	Method Blank	Dissolved organic carbon	2023/07/12	<0.20		mg/L
2419964	CBO	Spiked Blank	Aluminum (Al)	2023/07/24		100	%
			Antimony (Sb)	2023/07/24		106	%
			Silver (Ag)	2023/07/24		107	%
			Arsenic (As)	2023/07/24		104	%
			Barium (Ba)	2023/07/24		103	%
			Beryllium (Be)	2023/07/24		102	%
			Bismuth (Bi)	2023/07/24		101	%
			Boron (B)	2023/07/24		105	%
			Cadmium (Cd)	2023/07/24		103	%
			Calcium (Ca)	2023/07/24		100	%
			Chromium (Cr)	2023/07/24		105	%
			Cobalt (Co)	2023/07/24		101	%
			Copper (Cu)	2023/07/24		100	%
			Tin (Sn)	2023/07/24		107	%
			Iron (Fe)	2023/07/24		102	%
			Magnesium (Mg)	2023/07/24		105	%
			Manganese (Mn)	2023/07/24		107	%
			Mercury (Hg)	2023/07/24		101	%
			Molybdenum (Mo)	2023/07/24		108	%
			Nickel (Ni)	2023/07/24		100	%
			Total phosphorous	2023/07/24		100	%
			Lead (Pb)	2023/07/24		100	%
			Potassium (K)	2023/07/24		103	%
			Selenium (Se)	2023/07/24		110	%

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	Units
			Sodium (Na)	2023/07/24		110	%
			Strontium (Sr)	2023/07/24		105	%
			Thallium (Tl)	2023/07/24		98	%
			Titanium (Ti)	2023/07/24		110	%
			Uranium (U)	2023/07/24		98	%
			Vanadium (V)	2023/07/24		105	%
			Zinc (Zn)	2023/07/24		100	%
2419964	CBO	Method Blank	Aluminum (Al)	2023/07/22	<10		ug/L
			Antimony (Sb)	2023/07/22	<1.0		ug/L
			Silver (Ag)	2023/07/22	<1.0		ug/L
			Arsenic (As)	2023/07/22	<1.0		ug/L
			Barium (Ba)	2023/07/22	<2.0		ug/L
			Beryllium (Be)	2023/07/22	<2.0		ug/L
			Bismuth (Bi)	2023/07/22	<1.0		ug/L
			Boron (B)	2023/07/22	<50		ug/L
			Cadmium (Cd)	2023/07/22	<0.20		ug/L
			Calcium (Ca)	2023/07/22	<500		ug/L
			Chromium (Cr)	2023/07/22	<5.0		ug/L
			Cobalt (Co)	2023/07/22	<1.0		ug/L
			Copper (Cu)	2023/07/22	<1.0		ug/L
			Total Hardness (CaCO3)	2023/07/22	<1000		ug/L
			Tin (Sn)	2023/07/22	<2.0		ug/L
			Iron (Fe)	2023/07/22	<60		ug/L
			Magnesium (Mg)	2023/07/22	<100		ug/L
			Manganese (Mn)	2023/07/22	<1.0		ug/L
			Mercury (Hg)	2023/07/22	<0.10		ug/L
			Molybdenum (Mo)	2023/07/22	<1.0		ug/L
			Nickel (Ni)	2023/07/22	<2.0		ug/L
			P2O5	2023/07/22	<25		ug/L
			Total phosphorous	2023/07/22	<10		ug/L
			Lead (Pb)	2023/07/22	<0.50		ug/L
			Potassium (K)	2023/07/22	<500		ug/L
			Selenium (Se)	2023/07/22	<3.0		ug/L
			Sodium (Na)	2023/07/22	<500		ug/L
			Strontium (Sr)	2023/07/22	<2.0		ug/L
			Thallium (Tl)	2023/07/22	<2.0		ug/L
			Titanium (Ti)	2023/07/22	<10		ug/L
			Uranium (U)	2023/07/22	<1.0		ug/L
			Vanadium (V)	2023/07/22	<2.0		ug/L
			Zinc (Zn)	2023/07/22	<7.0		ug/L
2420678	ABX	Spiked Blank	Sulfides (S2-)	2023/07/14		102	%
2420678	ABX	Method Blank	Sulfides (S2-)	2023/07/14	<0.020		mg/L
2420721	SXU	Spiked Blank	Total Dissolved Solids	2023/07/17		100	%
2420721	SXU	Method Blank	Total Dissolved Solids	2023/07/17	<10		mg/L
2420731	GXL	QC Standard	Phenols-4AAP	2023/07/14		95	%
2420731	GXL	Spiked Blank	Phenols-4AAP	2023/07/14		103	%
2420731	GXL	Method Blank	Phenols-4AAP	2023/07/14	<0.0020		mg/L
2421065	SXU	Spiked Blank	Total suspended solids (TSS)	2023/07/17		100	%
2421065	SXU	Method Blank	Total suspended solids (TSS)	2023/07/17	<2.0		mg/L
2421943	BAG	QC Standard	Nitrogen ammonia (N-NH4+ and N-NH3)	2023/07/18		108	%
2421943	BAG	Spiked Blank	Nitrogen ammonia (N-NH4+ and N-NH3)	2023/07/18		106	%

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	Units
2421943	BAG	Method Blank	Nitrogen ammonia (N-NH4+ and N-NH3)	2023/07/18	<0.020		mg/L
2429684	THL	Matrix Spike	Benzene	2023/07/14		103	%
			Toluene	2023/07/14		95	%
			Ethylbenzene	2023/07/14		99	%
			Total_Xylenes	2023/07/14		99	%
2429684	THL	Spiked Blank	Benzene	2023/07/14		97	%
			Toluene	2023/07/14		93	%
			Ethylbenzene	2023/07/14		98	%
			Total_Xylenes	2023/07/14		97	%
2429684	THL	Method Blank	Benzene	2023/07/14	<0.0010		mg/L
			Toluene	2023/07/14	<0.0010		mg/L
			Ethylbenzene	2023/07/14	<0.0010		mg/L
			Total_Xylenes	2023/07/14	<0.0020		mg/L
			C6 - C10 (less BTEX)	2023/07/14	<0.090		mg/L
2429685	éFA	Matrix Spike	Isobutylbenzene - Extractable	2023/07/19		91	%
			n-Dotriacontane - Extractable	2023/07/19		87	%
			>C10-C16 Hydrocarbons	2023/07/19		70	%
			>C16-C21 Hydrocarbons	2023/07/19		75	%
			>C21-<C32 Hydrocarbons	2023/07/19		73	%
2429685	éFA	Spiked Blank	Isobutylbenzene - Extractable	2023/07/19		100	%
			n-Dotriacontane - Extractable	2023/07/19		92	%
			>C10-C16 Hydrocarbons	2023/07/19		78	%
			>C16-C21 Hydrocarbons	2023/07/19		83	%
			>C21-<C32 Hydrocarbons	2023/07/19		79	%
2429685	éFA	Method Blank	Isobutylbenzene - Extractable	2023/07/19		98	%
			n-Dotriacontane - Extractable	2023/07/19		89	%
			>C10-C16 Hydrocarbons	2023/07/19	<0.050		mg/L
			>C16-C21 Hydrocarbons	2023/07/19	<0.050		mg/L
			>C21-<C32 Hydrocarbons	2023/07/19	<0.090		mg/L
2429686	TGO	Matrix Spike	Reactive silica (SiO2)	2023/08/08		95	%
2429686	TGO	Spiked Blank	Reactive silica (SiO2)	2023/08/08		96	%
2429686	TGO	Method Blank	Reactive silica (SiO2)	2023/08/08	<0.50		mg/L
2429687	TGO	Matrix Spike	Reactive silica (SiO2)	2023/08/08		NC	%
2429687	TGO	Spiked Blank	Reactive silica (SiO2)	2023/08/08		94	%
2429687	TGO	Method Blank	Reactive silica (SiO2)	2023/08/08	<0.50		mg/L
2429688	TGO	Matrix Spike	Reactive silica (SiO2)	2023/08/09		NC	%
2429688	TGO	Spiked Blank	Reactive silica (SiO2)	2023/08/09		94	%
2429688	TGO	Method Blank	Reactive silica (SiO2)	2023/08/09	<0.50		mg/L

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

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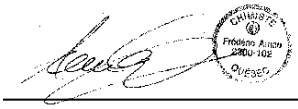
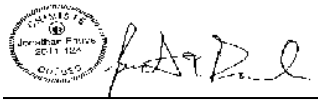
VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

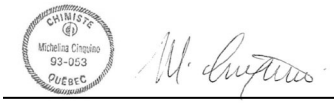


Frédéric Arnau, B.Sc., Chemist, Montreal, Scientific Service Specialist

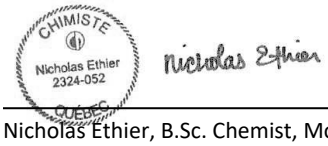


Jonathan Fauvel, B.Sc., Chemist, Montreal, Scientific Specialist

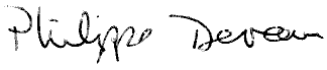
Miryam Assayag, B.Sc. Chemist, Montréal, Team Leader



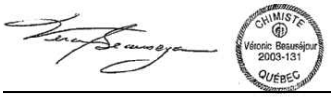
Michelina Cinquino, Analyst II



Nicholas Ethier, B.Sc. Chemist, Montreal, Scientific Specialist



Phil Deveau, Scientific Specialist (Organics)



Veronic Beausejour, B.Sc., Chemist, Supervisor

VALIDATION SIGNATURE PAGE(CONT'D)

The analytical data and all QC contained in this report were reviewed and validated by:

Shu Yang, B.Sc. Chemist, Montreal, Analyst II

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Your P.O. #: 3000001617
Your Project #: Howse surface water
Site Location: Howse
Your C.O.C. #: 105808

Attention: TSMC Environnement

TATA STEEL MINERALS CANADA
1000, RUE SHERBROOKE OUEST
BUREAU 1120
MONTRÉAL, QC
CANADA H3A 3G4

Report Date: 2023/10/20
Report #: R2888404
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C351827
Received: 2023/09/27, 09:30

Sample Matrix: Surface Water
Samples Received: 5

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Total Alkalinity (end point 4.5)-waters	5	N/A	2023/09/27	STL SOP-00038	SM 24 2320-B m
Anions in water	5	N/A	2023/09/29	STL SOP-00014	MA.300–Ions 1.3 R6 m
Real Color	5	N/A	2023/09/28	STL SOP-00046	MA103 - Col. 2.0 R4m
Conductivity in waters	5	N/A	2023/09/27	STL SOP-00038	SM 24 2510-B m
Dissolved Organic Carbon (2)	5	2023/09/29	2023/09/29	STL SOP-00243	SM 23 5310-B m
Total Extractable Hg Cold Vapour AF	5	2023/10/08	2023/10/13	STL SOP-00276	EPA 1631,rev. E m
Total Suspended Solids	5	2023/10/02	2023/10/02	STL SOP-00015	MA.104–S.S. 2.0 m
Total Extractable Metals	5	2023/09/30	2023/10/05	STL SOP-00062	MA.200–Mét. 1.2 R7 m
Ammonia Nitrogen in water	5	N/A	2023/09/29	STL SOP-00040	MA.300–N 2.0 R2 m
Nitrates(NO3-), Nitrites(NO2-)-water	5	N/A	2023/09/29	STL SOP-00014	MA.300–Ions 1.3 R6 m
Dissolved Oxygen	5	N/A	2023/09/27	STL SOP-00008	MA.315–DBO 1.1 R3 m
pH in water	5	N/A	2023/09/27	STL SOP-00038	MA.100–pH 1.1 R3 m
pH Measured @ 15° C	5	N/A	2023/09/27	STL SOP-00016	MA.100–pH 1.1 R3 m
Total Phenols by 4-AAP in water	1	2023/10/03	2023/10/03	STL SOP-00033	MA404–I.Phé 2.2 R2 m
Total Phenols by 4-AAP in water	4	2023/10/03	2023/10/04	STL SOP-00033	MA404–I.Phé 2.2 R2 m
pH (site)- waters	5	N/A	2023/09/27		Test Kit
Ortho Phosphate-water	5	N/A	2023/09/28	STL SOP-00003	MA.303–P 1.1 R2 m
Sulfides (as S2-)-water	5	2023/10/03	2023/10/03	STL SOP-00273	SM4500-S2 rev.23m.
Total Dissolved Solids	5	2023/10/02	2023/10/02	STL SOP-00050	MA.115–S.D. 1.0 R4 m
Temperature (site)	5	N/A	2023/09/27		Thermometer
Turbidity-water	5	N/A	2023/09/30	STL SOP-00022	MA.103–Tur. 1.0 R5 m
TEH in Water (PIRI) (1)	5	2023/10/05	2023/10/05	ATL SOP 00113	Atl. RBCA v3.1 m
Reactive Silica(SiO2) (1)	5	2023/10/16	2023/10/18	ATL SOP 00022	EPA 366.0 m
VPH in Water (PIRI) (1)	5	2023/10/04	2023/10/05	ATL SOP 00130	Atl. RBCA v3.1 m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in

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Your P.O. #: 3000001617
Your Project #: Howse surface water
Site Location: Howse
Your C.O.C. #: 105808

Attention: TSMC Environnement

TATA STEEL MINERALS CANADA
1000, RUE SHERBROOKE OUEST
BUREAU 1120
MONTRÉAL, QC
CANADA H3A 3G4

Report Date: 2023/10/20
Report #: R2888404
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C351827

Received: 2023/09/27, 09:30

writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
Note: RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) This test was performed by Bureau Veritas Bedford, Suit 105, 200 Bluewater Rd. , Bedford, NS, B4B1G9
(2) DOC present in the sample should be considered as non-purgeable DOC

Note: All parameters included in the present certificate are accredited by the MELCC unless stated otherwise.

Encryption Key

Lauriane Bernard
Project Manager
20 Oct 2023 12:06:21

Please direct all questions regarding this Certificate of Analysis to:
Lauriane Bernard, Project Manager
Email: Lauriane.BERNARD@bureauveritas.com
Phone# (514)448-9001 Ext:7066251

==========

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Bureau Veritas Job #: C351827
Report Date: 2023/10/20

TATA STEEL MINERALS CANADA
Client Project #: Howse surface water
Site Location: Howse
Your P.O. #: 3000001617
Sampler Initials: NS

RESULTS OF ANALYSES OF SURFACE WATER

Bureau Veritas ID		MG0244	MG0245		MG0246		MG0247		
Sampling Date		2023/09/26 10:45	2023/09/26 09:40		2023/09/26 09:05		2023/09/26 08:34		
COC Number		105808	105808		105808		105808		
	Units	HOW-ML-Q3-2023	HOW-TL-Q3-2023	RDL	HOW-BC-Q3-2023	RDL	HOW-BL-Q3-2023	RDL	QC Batch
INORGANICS									
Reactive silica (SiO2) †	mg/L	0.88	4.8	0.50	5.7	0.50	6.0	0.50	2455504
PETROLEUM HYDROCARBONS									
>C10-C16 Hydrocarbons †	mg/L	<0.054	<0.054	0.054	<0.050	0.050	<0.055	0.055	2455503
>C16-C21 Hydrocarbons †	mg/L	<0.054	<0.054	0.054	<0.050	0.050	<0.055	0.055	2455503
>C21-<C32 Hydrocarbons †	mg/L	<0.097	<0.097	0.097	<0.090	0.090	<0.10	0.10	2455503
Return to baseline at C32 †	mg/L	NA	NA	N/A	NA	N/A	NA	N/A	2455503
Hydrocarbon Resemblance †	mg/L	NA	NA	N/A	NA	N/A	NA	N/A	2455503
Surrogate Recovery (%)									
Isobutylbenzene - Extractable	%	82	81	N/A	88	N/A	76	N/A	2455503
n-Dotriacontane - Extractable	%	86 (1)	86 (1)	N/A	90	N/A	92 (1)	N/A	2455503

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
† Parameter is not accreditable
N/A = Not Applicable
(1) Elevated TEH RDL(s) due to limited sample.

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Bureau Veritas Job #: C351827
Report Date: 2023/10/20

TATA STEEL MINERALS CANADA
Client Project #: Howse surface water
Site Location: Howse
Your P.O. #: 3000001617
Sampler Initials: NS

RESULTS OF ANALYSES OF SURFACE WATER

Bureau Veritas ID		MG0248		
Sampling Date		2023/09/26 07:41		
COC Number		105808		
	Units	HOW-SW5-Q3-2023	RDL	QC Batch
INORGANICS				
Reactive silica (SiO2) †	mg/L	1.3	0.50	2455504
PETROLEUM HYDROCARBONS				
>C10-C16 Hydrocarbons †	mg/L	<0.050	0.050	2455503
>C16-C21 Hydrocarbons †	mg/L	<0.050	0.050	2455503
>C21-<C32 Hydrocarbons †	mg/L	<0.090	0.090	2455503
Return to baseline at C32 †	mg/L	NA	N/A	2455503
Hydrocarbon Resemblance †	mg/L	NA	N/A	2455503
Surrogate Recovery (%)				
Isobutylbenzene - Extractable	%	82	N/A	2455503
n-Dotriacontane - Extractable	%	77	N/A	2455503

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
† Parameter is not accreditable
N/A = Not Applicable

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TOTAL EXTRACTABLE METALS (SURFACE WATER)

Bureau Veritas ID		MG0244	MG0244	MG0245	MG0246		
Sampling Date		2023/09/26 10:45	2023/09/26 10:45	2023/09/26 09:40	2023/09/26 09:05		
COC Number		105808	105808	105808	105808		
	Units	HOW-ML-Q3-2023	HOW-ML-Q3-2023 Lab-Dup	HOW-TL-Q3-2023	HOW-BC-Q3-2023	RDL	QC Batch
METALS							
Mercury (Hg) ††	mg/L	<0.000010	N/A	<0.000010	<0.000010	0.000010	2451443
Aluminum (Al)	ug/L	26	22	<10	170	10	2448499
Antimony (Sb)	ug/L	<1.0	<1.0	<1.0	<1.0	1.0	2448499
Silver (Ag)	ug/L	<1.0	<1.0	<1.0	<1.0	1.0	2448499
Arsenic (As)	ug/L	<1.0	<1.0	<1.0	9.6	1.0	2448499
Barium (Ba)	ug/L	<2.0	<2.0	3.0	2.9	2.0	2448499
Beryllium (Be)	ug/L	<2.0	<2.0	<2.0	<2.0	2.0	2448499
Bismuth (Bi) ††	ug/L	<1.0	<1.0	<1.0	<1.0	1.0	2448499
Boron (B) †	ug/L	<50	<50	<50	<50	50	2448499
Cadmium (Cd)	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	2448499
Calcium (Ca) †	ug/L	2200	2200	4200	<500	500	2448499
Chromium (Cr)	ug/L	<5.0	<5.0	<5.0	<5.0	5.0	2448499
Cobalt (Co)	ug/L	<1.0	<1.0	<1.0	<1.0	1.0	2448499
Copper (Cu)	ug/L	<1.0	<1.0	<1.0	<1.0	1.0	2448499
Total Hardness (CaCO3) ††	ug/L	12000	12000	24000	3000	1000	2448499
Tin (Sn)	ug/L	<2.0	<2.0	<2.0	<2.0	2.0	2448499
Iron (Fe)	ug/L	90	78	79	340	60	2448499
Magnesium (Mg) †	ug/L	1600	1500	3200	440	100	2448499
Manganese (Mn)	ug/L	3.9	3.4	7.5	30	1.0	2448499
Molybdenum (Mo)	ug/L	<1.0	<1.0	<1.0	<1.0	1.0	2448499
Nickel (Ni)	ug/L	<2.0	<2.0	<2.0	<2.0	2.0	2448499
P2O5 ††	ug/L	<25	32	<25	<25	25	2448499
Total phosphorous	ug/L	<10	14	<10	<10	10	2448499
Lead (Pb)	ug/L	<0.50	<0.50	<0.50	<0.50	0.50	2448499
Potassium (K) †	ug/L	<500	<500	<500	<500	500	2448499
Selenium (Se)	ug/L	<3.0	<3.0	<3.0	<3.0	3.0	2448499
Sodium (Na)	ug/L	<500	<500	720	660	500	2448499
Strontium (Sr) †	ug/L	5.4	4.8	7.4	3.0	2.0	2448499
Thallium (Tl)	ug/L	<2.0	<2.0	<2.0	<2.0	2.0	2448499
Titanium (Ti) ††	ug/L	<10	<10	10	<10	10	2448499

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
†† Parameter is not accreditable
N/A = Not Applicable
† Parameter is not accredited

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TOTAL EXTRACTABLE METALS (SURFACE WATER)

Bureau Veritas ID		MG0244	MG0244	MG0245	MG0246		
Sampling Date		2023/09/26 10:45	2023/09/26 10:45	2023/09/26 09:40	2023/09/26 09:05		
COC Number		105808	105808	105808	105808		
	Units	**HOW-ML-Q3-2023**	**HOW-ML-Q3-2023 Lab-Dup**	**HOW-TL-Q3-2023**	**HOW-BC-Q3-2023**	**RDL**	**QC Batch**
Uranium (U) ††	ug/L	<1.0	<1.0	<1.0	<1.0	1.0	2448499
Vanadium (V)	ug/L	<2.0	<2.0	<2.0	<2.0	2.0	2448499
Zinc (Zn)	ug/L	<7.0	<7.0	<7.0	<7.0	7.0	2448499

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
†† Parameter is not accreditable

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TATA STEEL MINERALS CANADA
Client Project #: Howse surface water
Site Location: Howse
Your P.O. #: 3000001617
Sampler Initials: NS

TOTAL EXTRACTABLE METALS (SURFACE WATER)

Bureau Veritas ID		MG0247	MG0248		
Sampling Date		2023/09/26 08:34	2023/09/26 07:41		
COC Number		105808	105808		
	Units	HOW-BL-Q3-2023	HOW-SW5-Q3-2023	RDL	QC Batch
METALS					
Mercury (Hg) ††	mg/L	<0.000010	<0.000010	0.000010	2451443
Aluminum (Al)	ug/L	11	<10	10	2448499
Antimony (Sb)	ug/L	<1.0	<1.0	1.0	2448499
Silver (Ag)	ug/L	<1.0	<1.0	1.0	2448499
Arsenic (As)	ug/L	<1.0	<1.0	1.0	2448499
Barium (Ba)	ug/L	<2.0	<2.0	2.0	2448499
Beryllium (Be)	ug/L	<2.0	<2.0	2.0	2448499
Bismuth (Bi) ††	ug/L	<1.0	<1.0	1.0	2448499
Boron (B) †	ug/L	<50	<50	50	2448499
Cadmium (Cd)	ug/L	<0.20	<0.20	0.20	2448499
Calcium (Ca) †	ug/L	4500	<500	500	2448499
Chromium (Cr)	ug/L	<5.0	<5.0	5.0	2448499
Cobalt (Co)	ug/L	<1.0	<1.0	1.0	2448499
Copper (Cu)	ug/L	<1.0	<1.0	1.0	2448499
Total Hardness (CaCO3) ††	ug/L	25000	2100	1000	2448499
Tin (Sn)	ug/L	<2.0	<2.0	2.0	2448499
Iron (Fe)	ug/L	<60	60	60	2448499
Magnesium (Mg) †	ug/L	3300	250	100	2448499
Manganese (Mn)	ug/L	1.7	4.0	1.0	2448499
Molybdenum (Mo)	ug/L	<1.0	<1.0	1.0	2448499
Nickel (Ni)	ug/L	<2.0	<2.0	2.0	2448499
P2O5 ††	ug/L	<25	<25	25	2448499
Total phosphorous	ug/L	<10	<10	10	2448499
Lead (Pb)	ug/L	<0.50	<0.50	0.50	2448499
Potassium (K) †	ug/L	<500	<500	500	2448499
Selenium (Se)	ug/L	<3.0	<3.0	3.0	2448499
Sodium (Na)	ug/L	810	580	500	2448499
Strontium (Sr) †	ug/L	6.3	2.2	2.0	2448499
Thallium (Tl)	ug/L	<2.0	<2.0	2.0	2448499
Titanium (Ti) ††	ug/L	<10	<10	10	2448499
Uranium (U) ††	ug/L	<1.0	<1.0	1.0	2448499

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
†† Parameter is not accreditable
† Parameter is not accredited

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TATA STEEL MINERALS CANADA
Client Project #: Howse surface water
Site Location: Howse
Your P.O. #: 3000001617
Sampler Initials: NS

TOTAL EXTRACTABLE METALS (SURFACE WATER)

Bureau Veritas ID		MG0247	MG0248		
Sampling Date		2023/09/26 08:34	2023/09/26 07:41		
COC Number		105808	105808		
	Units	**HOW-BL-Q3-2023**	**HOW-SW5-Q3-2023**	**RDL**	**QC Batch**
Vanadium (V)	ug/L	<2.0	<2.0	2.0	2448499
Zinc (Zn)	ug/L	<7.0	<7.0	7.0	2448499

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas Bureau Veritas 889 Montée de Liesse, Ville St-Laurent, Québec, Canada H4T 1P5 Tel: (514) 448-9001 Fax: (514) 448-9199 Ligne sans frais : 1-877-462-9926

CONVENTIONAL PARAMETERS (SURFACE WATER)

Bureau Veritas ID		MG0244		MG0245	MG0245		
Sampling Date		2023/09/26 10:45		2023/09/26 09:40	2023/09/26 09:40		
COC Number		105808		105808	105808		
	Units	HOW-ML-Q3-2023	QC Batch	HOW-TL-Q3-2023	HOW-TL-Q3-2023 Lab-Dup	RDL	QC Batch
CONVENTIONALS							
Conductivity	mS/cm	0.021	2447217	0.044	N/A	0.0010	2447217
Dissolved organic carbon †	mg/L	2.2	2448218	0.81	N/A	0.20	2448218
Dissolved oxygen †	mg/L	11	2447292	11	N/A	1.0	2447292
Nitrate (N) and Nitrite(N)	mg/L	<0.020	2447846	0.071	N/A	0.020	2447846
Nitrates (N-NO3-)	mg/L	<0.020	2447846	0.071	N/A	0.020	2447846
Nitrites (N-NO2-)	mg/L	<0.020	2447846	<0.020	N/A	0.020	2447846
Nitrogen ammonia (N-NH4+ and N-NH3)	mg/L	<0.020	2448294	<0.020	N/A	0.020	2448294
Orthophosphate (P)	mg/L	<0.050	2447854	<0.050	<0.050	0.050	2447792
pH	pH	7.18	2447213	7.38	N/A	N/A	2447213
pH (15° C) †	pH	6.83	2447342	7.08	N/A	N/A	2447342
pH (on-site) †	pH	7.44	ONSITE	6.72	N/A	N/A	ONSITE
Phenols-4AAP	mg/L	<0.0020	2449493	<0.0020	N/A	0.0020	2449489
Real Color	UCV	7.9	2447907	4.5	N/A	2.0	2447907
Sulfides (S2-)	mg/L	<0.020	2449279	<0.020	N/A	0.020	2449279
Turbidity	NTU	0.80	2447941	0.62	N/A	0.10	2447941
Alkalinity Total (as CaCO3) pH 4.5 †	mg/L	7.2	2447211	21	N/A	1.0	2447211
Bicarbonates (HCO3 as CaCO3) †	mg/L	7.2	2447211	21	N/A	1.0	2447211
Carbonate (CO3 as CaCO3) †	mg/L	<1.0	2447211	<1.0	N/A	1.0	2447211
Chloride (Cl)	mg/L	0.061	2447847	0.33	N/A	0.050	2447847
Sulfates (SO4)	mg/L	2.5	2447847	2.3	N/A	0.50	2447847
Total Dissolved Solids	mg/L	33	2448857	43	N/A	10	2448857
Total suspended solids (TSS)	mg/L	3.0	2448809	<2.0	N/A	2.0	2448809
On-site Measurements							
Temperature (°C) †	Celsius	8.900	ONSITE	8.900	N/A	N/A	ONSITE

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable
† Parameter is not accreditable

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TATA STEEL MINERALS CANADA
Client Project #: Howse surface water
Site Location: Howse
Your P.O. #: 3000001617
Sampler Initials: NS

CONVENTIONAL PARAMETERS (SURFACE WATER)

Bureau Veritas ID		MG0246	MG0247	MG0248		
Sampling Date		2023/09/26 09:05	2023/09/26 08:34	2023/09/26 07:41		
COC Number		105808	105808	105808		
	Units	HOW-BC-Q3-2023	HOW-BL-Q3-2023	HOW-SW5-Q3-2023	RDL	QC Batch
CONVENTIONALS						
Conductivity	mS/cm	0.0076	0.046	0.0018	0.0010	2447217
Dissolved organic carbon †	mg/L	4.2	0.26	1.4	0.20	2448218
Dissolved oxygen †	mg/L	10	11	11	1.0	2447292
Nitrate (N) and Nitrite(N)	mg/L	<0.020	0.037	<0.020	0.020	2447846
Nitrates (N-NO3-)	mg/L	<0.020	0.037	<0.020	0.020	2447846
Nitrites (N-NO2-)	mg/L	<0.020	<0.020	<0.020	0.020	2447846
Nitrogen ammonia (N-NH4+ and N-NH3)	mg/L	<0.020	<0.020	<0.020	0.020	2448294
Orthophosphate (P)	mg/L	<0.050	<0.050	<0.050	0.050	2447792
pH	pH	5.94	7.02	6.57	N/A	2447213
pH (15° C) †	pH	5.85	7.16	6.69	N/A	2447342
pH (on-site) †	pH	7.00	6.76	7.71	N/A	ONSITE
Phenols-4AAP	mg/L	<0.0020	<0.0020	<0.0020	0.0020	2449493
Real Color	UCV	33	<2.0	4.6	2.0	2447907
Sulfides (S2-)	mg/L	<0.020	<0.020	<0.020	0.020	2449279
Turbidity	NTU	0.45	0.25	0.46	0.10	2447941
Alkalinity Total (as CaCO3) pH 4.5 †	mg/L	2.1	24	2.3	1.0	2447211
Bicarbonates (HCO3 as CaCO3) †	mg/L	2.1	24	2.3	1.0	2447211
Carbonate (CO3 as CaCO3) †	mg/L	<1.0	<1.0	<1.0	1.0	2447211
Chloride (Cl)	mg/L	0.35	0.11	0.056	0.050	2447847
Sulfates (SO4)	mg/L	<0.50	1.6	<0.50	0.50	2447847
Total Dissolved Solids	mg/L	29	27	18	10	2448857
Total suspended solids (TSS)	mg/L	<2.0	<2.0	<2.0	2.0	2448809
On-site Measurements						
Temperature (°C) †	Celsius	7.400	4.500	8.100	N/A	ONSITE

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
† Parameter is not accreditable
N/A = Not Applicable

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TATA STEEL MINERALS CANADA
Client Project #: Howse surface water
Site Location: Howse
Your P.O. #: 3000001617
Sampler Initials: NS

SUBCONTRACTED ANALYSIS (SURFACE WATER)

Bureau Veritas ID		MG0244	MG0245	MG0246	MG0247		
Sampling Date		2023/09/26 10:45	2023/09/26 09:40	2023/09/26 09:05	2023/09/26 08:34		
COC Number		105808	105808	105808	105808		
	Units	HOW-ML-Q3-2023	HOW-TL-Q3-2023	HOW-BC-Q3-2023	HOW-BL-Q3-2023	RDL	QC Batch
PETROLEUM HYDROCARBONS							
Benzene †	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	0.0010	2455502
Toluene †	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	0.0010	2455502
Ethylbenzene †	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	0.0010	2455502
Total_Xylenes †	mg/L	<0.0020	<0.0020	<0.0020	<0.0020	0.0020	2455502
C6 - C10 (less BTEX) †	mg/L	<0.090	<0.090	<0.090	<0.090	0.090	2455502

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
† Parameter is not accreditable

Bureau Veritas ID		MG0248		
Sampling Date		2023/09/26 07:41		
COC Number		105808		
	Units	HOW-SW5-Q3-2023	RDL	QC Batch
PETROLEUM HYDROCARBONS				
Benzene †	mg/L	<0.0010	0.0010	2455502
Toluene †	mg/L	<0.0010	0.0010	2455502
Ethylbenzene †	mg/L	<0.0010	0.0010	2455502
Total_Xylenes †	mg/L	<0.0020	0.0020	2455502
C6 - C10 (less BTEX) †	mg/L	<0.090	0.090	2455502

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
† Parameter is not accreditable

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GENERAL COMMENTS

Please note that the test pH (site)- waters was performed on site by the client.
Please note that the test Temperature (site) was performed on site by the client.

Results relate only to the items tested.

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QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	Units
2447211	ZZH	Spiked Blank	Alkalinity Total (as CaCO3) pH 4.5	2023/09/27		98	%
			Bicarbonates (HCO3 as CaCO3)	2023/09/27		98	%
			Carbonate (CO3 as CaCO3)	2023/09/27		98	%
2447211	ZZH	Method Blank	Alkalinity Total (as CaCO3) pH 4.5	2023/09/27	<1.0		mg/L
			Bicarbonates (HCO3 as CaCO3)	2023/09/27	<1.0		mg/L
			Carbonate (CO3 as CaCO3)	2023/09/27	<1.0		mg/L
2447213	ZZH	Spiked Blank	pH	2023/09/27		102	%
2447217	ZZH	Spiked Blank	Conductivity	2023/09/27		105	%
2447217	ZZH	Method Blank	Conductivity	2023/09/27	<0.0010		mS/cm
2447342	DPA	Spiked Blank	pH (15° C)	2023/09/27		102	%
2447792	HGU	QC Standard	Orthophosphate (P)	2023/09/28		100	%
2447792	HGU	Spiked Blank	Orthophosphate (P)	2023/09/28		100	%
2447792	HGU	Method Blank	Orthophosphate (P)	2023/09/28	<0.050		mg/L
2447846	ZZH	Spiked Blank	Nitrate (N) and Nitrite(N)	2023/09/28		99	%
			Nitrates (N-NO3-)	2023/09/28		99	%
			Nitrites (N-NO2-)	2023/09/28		99	%
2447846	ZZH	Method Blank	Nitrate (N) and Nitrite(N)	2023/09/28	<0.020		mg/L
			Nitrates (N-NO3-)	2023/09/28	<0.020		mg/L
			Nitrites (N-NO2-)	2023/09/28	<0.020		mg/L
2447847	CYU	Spiked Blank	Chloride (Cl)	2023/09/28		98	%
			Sulfates (SO4)	2023/09/28		97	%
2447847	CYU	Method Blank	Chloride (Cl)	2023/09/28	<0.050		mg/L
			Sulfates (SO4)	2023/09/28	<0.50		mg/L
2447854	HGU	Spiked Blank	Orthophosphate (P)	2023/09/28		101	%
2447854	HGU	Method Blank	Orthophosphate (P)	2023/09/28	<0.050		mg/L
2447907	DPA	Spiked Blank	Real Color	2023/09/28		102	%
2447907	DPA	Method Blank	Real Color	2023/09/28	<2.0		UCV
2447941	TEX	Spiked Blank	Turbidity	2023/09/30		99	%
2447941	TEX	Method Blank	Turbidity	2023/09/30	<0.10		NTU
2448218	SD2	Spiked Blank	Dissolved organic carbon	2023/09/29		101	%
2448218	SD2	Method Blank	Dissolved organic carbon	2023/09/29	<0.20		mg/L
2448294	HGU	Spiked Blank	Nitrogen ammonia (N-NH4+ and N-NH3)	2023/09/29		105	%
2448294	HGU	Method Blank	Nitrogen ammonia (N-NH4+ and N-NH3)	2023/09/29	<0.020		mg/L
2448499	WWO	Spiked Blank	Aluminum (Al)	2023/10/05		111	%
			Antimony (Sb)	2023/10/05		117	%
			Silver (Ag)	2023/10/05		113	%
			Arsenic (As)	2023/10/05		113	%
			Barium (Ba)	2023/10/05		114	%
			Beryllium (Be)	2023/10/05		113	%
			Bismuth (Bi)	2023/10/05		113	%
			Boron (B)	2023/10/05		115	%
			Cadmium (Cd)	2023/10/05		112	%
			Calcium (Ca)	2023/10/05		111	%
			Chromium (Cr)	2023/10/05		111	%
			Cobalt (Co)	2023/10/05		111	%
			Copper (Cu)	2023/10/05		110	%
			Tin (Sn)	2023/10/05		117	%
			Iron (Fe)	2023/10/05		113	%
			Magnesium (Mg)	2023/10/05		112	%
			Manganese (Mn)	2023/10/05		112	%

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	Units
			Molybdenum (Mo)	2023/10/05		116	%
			Nickel (Ni)	2023/10/05		110	%
			Total phosphorous	2023/10/05		111	%
			Lead (Pb)	2023/10/05		112	%
			Potassium (K)	2023/10/05		112	%
			Selenium (Se)	2023/10/05		117	%
			Sodium (Na)	2023/10/05		109	%
			Strontium (Sr)	2023/10/05		114	%
			Thallium (Tl)	2023/10/05		112	%
			Titanium (Ti)	2023/10/05		116	%
			Uranium (U)	2023/10/05		115	%
			Vanadium (V)	2023/10/05		111	%
			Zinc (Zn)	2023/10/05		102	%
2448499	WWO	Method Blank	Aluminum (Al)	2023/10/05	<10		ug/L
			Antimony (Sb)	2023/10/05	<1.0		ug/L
			Silver (Ag)	2023/10/05	<1.0		ug/L
			Arsenic (As)	2023/10/05	<1.0		ug/L
			Barium (Ba)	2023/10/05	<2.0		ug/L
			Beryllium (Be)	2023/10/05	<2.0		ug/L
			Bismuth (Bi)	2023/10/05	<1.0		ug/L
			Boron (B)	2023/10/05	<50		ug/L
			Cadmium (Cd)	2023/10/05	<0.20		ug/L
			Calcium (Ca)	2023/10/05	<500		ug/L
			Chromium (Cr)	2023/10/05	<5.0		ug/L
			Cobalt (Co)	2023/10/05	<1.0		ug/L
			Copper (Cu)	2023/10/05	<1.0		ug/L
			Total Hardness (CaCO3)	2023/10/05	<1000		ug/L
			Tin (Sn)	2023/10/05	<2.0		ug/L
			Iron (Fe)	2023/10/05	<60		ug/L
			Magnesium (Mg)	2023/10/05	<100		ug/L
			Manganese (Mn)	2023/10/05	<1.0		ug/L
			Molybdenum (Mo)	2023/10/05	<1.0		ug/L
			Nickel (Ni)	2023/10/05	<2.0		ug/L
			P2O5	2023/10/05	<25		ug/L
			Total phosphorous	2023/10/05	<10		ug/L
			Lead (Pb)	2023/10/05	<0.50		ug/L
			Potassium (K)	2023/10/05	<500		ug/L
			Selenium (Se)	2023/10/05	<3.0		ug/L
			Sodium (Na)	2023/10/05	<500		ug/L
			Strontium (Sr)	2023/10/05	<2.0		ug/L
			Thallium (Tl)	2023/10/05	<2.0		ug/L
			Titanium (Ti)	2023/10/05	<10		ug/L
			Uranium (U)	2023/10/05	<1.0		ug/L
			Vanadium (V)	2023/10/05	<2.0		ug/L
			Zinc (Zn)	2023/10/05	<7.0		ug/L
2448809	NSH	Spiked Blank	Total suspended solids (TSS)	2023/10/02		93	%
2448809	NSH	Method Blank	Total suspended solids (TSS)	2023/10/02	<2.0		mg/L
2448857	WPR	Spiked Blank	Total Dissolved Solids	2023/10/02		107	%
2448857	WPR	Method Blank	Total Dissolved Solids	2023/10/02	<10		mg/L
2449279	LI	Spiked Blank	Sulfides (S2-)	2023/10/03		98	%

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	Units
2449279	LI	Method Blank	Sulfides (S2-)	2023/10/03	<0.020		mg/L
2449489	CYU	QC Standard	Phenols-4AAP	2023/10/03		110	%
2449489	CYU	Spiked Blank	Phenols-4AAP	2023/10/03		105	%
2449489	CYU	Method Blank	Phenols-4AAP	2023/10/03	<0.0020		mg/L
2449493	CYU	Spiked Blank	Phenols-4AAP	2023/10/04		107	%
2449493	CYU	Method Blank	Phenols-4AAP	2023/10/04	<0.0020		mg/L
2451443	ST5	Spiked Blank	Mercury (Hg)	2023/10/13		106	%
2451443	ST5	Method Blank	Mercury (Hg)	2023/10/13	<0.000010		mg/L
2455502	éE7	Matrix Spike	Benzene	2023/10/05		99	%
			Toluene	2023/10/05		97	%
			Ethylbenzene	2023/10/05		104	%
			Total_Xylenes	2023/10/05		105	%
2455502	éE7	Spiked Blank	Benzene	2023/10/05		100	%
			Toluene	2023/10/05		99	%
			Ethylbenzene	2023/10/05		105	%
			Total_Xylenes	2023/10/05		106	%
2455502	éE7	Method Blank	Benzene	2023/10/05	<0.0010		mg/L
			Toluene	2023/10/05	<0.0010		mg/L
			Ethylbenzene	2023/10/05	<0.0010		mg/L
			Total_Xylenes	2023/10/05	<0.0020		mg/L
			C6 - C10 (less BTEX)	2023/10/05	<0.090		mg/L
2455503	éE9	Matrix Spike	Isobutylbenzene - Extractable	2023/10/05		84	%
			n-Dotriacontane - Extractable	2023/10/05		88	%
			>C10-C16 Hydrocarbons	2023/10/05		88	%
			>C16-C21 Hydrocarbons	2023/10/05		89	%
			>C21-<C32 Hydrocarbons	2023/10/05		76	%
2455503	éE9	Spiked Blank	Isobutylbenzene - Extractable	2023/10/05		92	%
			n-Dotriacontane - Extractable	2023/10/05		104	%
			>C10-C16 Hydrocarbons	2023/10/05		98	%
			>C16-C21 Hydrocarbons	2023/10/05		100	%
			>C21-<C32 Hydrocarbons	2023/10/05		89	%
2455503	éE9	Method Blank	Isobutylbenzene - Extractable	2023/10/05		92	%
			n-Dotriacontane - Extractable	2023/10/05		99	%
			>C10-C16 Hydrocarbons	2023/10/05	<0.050		mg/L
			>C16-C21 Hydrocarbons	2023/10/05	<0.050		mg/L
			>C21-<C32 Hydrocarbons	2023/10/05	<0.090		mg/L
2455504	éC7	Matrix Spike	Reactive silica (SiO2)	2023/10/18		NC	%
2455504	éC7	Spiked Blank	Reactive silica (SiO2)	2023/10/18		93	%
2455504	éC7	Method Blank	Reactive silica (SiO2)	2023/10/18	<0.50		mg/L

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

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VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Mike MacGillivray, Scientific Specialist (Inorganics)

Faouzi Sarsi, B.Sc. Chemist, Montréal, SR Analyst

Jonathan Fauvel, B.Sc., Chemist, Montreal, Scientific Specialist

Michelina Cinquino, Analyst II

Mira El Masri, M.Sc. Chemist, Montréal, Analyst II

Phil Deveau, Scientific Specialist (Organics)

Simran Kaur LNU, B.Sc. Biochemist, Montreal, Analyst 2

VALIDATION SIGNATURE PAGE(CONT'D)

The analytical data and all QC contained in this report were reviewed and validated by:

Shu Yang, B.Sc. Chemist, Montreal, Analyst II

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Aglaia Yannakis, General Manager responsible for Quebec Environmental laboratory operations.

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Your P.O. #: 3000001617
Site#: 00025
Site Location: Howse
Your C.O.C. #: 106365

Attention: TSMC Environnement

TATA STEEL MINERALS CANADA
1000, RUE SHERBROOKE OUEST
BUREAU 1120
MONTRÉAL, QC
CANADA H3A 3G4

Report Date: 2023/10/24
Report #: R2889489
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C352985
Received: 2023/10/03, 09:30

Sample Matrix: Surface Water
Samples Received: 4

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Total Alkalinity (end point 4.5)-waters	4	N/A	2023/10/03	STL SOP-00038	SM 24 2320-B m
Anions in water	4	N/A	2023/10/04	STL SOP-00014	MA.300–Ions 1.3 R6 m
Real Color	4	N/A	2023/10/04	STL SOP-00046	MA103 - Col. 2.0
Conductivity in waters	3	N/A	2023/10/03	STL SOP-00038	SM 24 2510-B m
Conductivity in waters	1	N/A	2023/10/04	STL SOP-00038	SM 24 2510-B m
Dissolved Organic Carbon (2)	4	2023/10/04	2023/10/04	STL SOP-00243	SM 23 5310-B m
Total Extractable Hg Cold Vapour AF	4	2023/10/10	2023/10/20	STL SOP-00276	EPA 1631,rev. E m
Total Suspended Solids	4	2023/10/08	2023/10/08	STL SOP-00015	MA.104–S.S. 2.0 m
Total Extractable Metals	3	2023/10/09	2023/10/10	STL SOP-00062	MA.200–Mét. 1.2 R7 m
Total Extractable Metals	1	2023/10/09	2023/10/17	STL SOP-00062	MA.200–Mét. 1.2 R7 m
Ammonia Nitrogen in water	4	N/A	2023/10/10	STL SOP-00040	MA.300–N 2.0 R2 m
Nitrates(NO3-), Nitrites(NO2-)-water	4	N/A	2023/10/04	STL SOP-00014	MA.300–Ions 1.3 R6 m
Dissolved Oxygen	4	N/A	2023/10/03	STL SOP-00008	MA.315–DBO 1.1 R3 m
pH in water	4	N/A	2023/10/03	STL SOP-00038	MA.100–pH 1.1 R3 m
pH Measured @ 15° C	4	N/A	2023/10/03	STL SOP-00016	MA.100–pH 1.1 R3 m
Total Phenols by 4-AAP in water	4	2023/10/10	2023/10/10	STL SOP-00033	MA404–I.Phé 2.2 R2 m
pH (site)- waters	4	N/A	2023/10/03		Test Kit
Ortho Phosphate-water	1	N/A	2023/10/13	STL SOP-00003	MA.303–P 1.1 R2 m
Ortho Phosphate-water	3	N/A	2023/10/04	STL SOP-00003	MA.303–P 1.1 R2 m
Sulfides (as S2-)-water	4	2023/10/04	2023/10/04	STL SOP-00273	SM4500-S2 rev.23m.
Total Dissolved Solids	4	2023/10/09	2023/10/12	STL SOP-00050	MA.115–S.D. 1.0 R4 m
Temperature (site)	4	N/A	2023/10/03		Thermometer
Turbidity-water	4	N/A	2023/10/04	STL SOP-00022	MA.103–Tur. 1.0 R5 m
TEH in Water (PIRI) (1)	4	2023/10/12	2023/10/12	ATL SOP 00113	Atl. RBCA v3.1 m
Reactive Silica(SiO2) (1)	2	2023/10/20	2023/10/22	ATL SOP 00022	EPA 366.0 m
Reactive Silica(SiO2) (1)	2	2023/10/23	2023/10/23	ATL SOP 00022	EPA 366.0 m
VPH in Water (PIRI) (1)	4	2023/10/11	2023/10/11	ATL SOP 00130	Atl. RBCA v3.1 m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau

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Your P.O. #: 3000001617
Site#: 00025
Site Location: Howse
Your C.O.C. #: 106365

Attention: TSMC Environnement

TATA STEEL MINERALS CANADA
1000, RUE SHERBROOKE OUEST
BUREAU 1120
MONTRÉAL, QC
CANADA H3A 3G4

Report Date: 2023/10/24
Report #: R2889489
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C352985
Received: 2023/10/03, 09:30

Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

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Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
Note: RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) This test was performed by Bureau Veritas Bedford, Suit 105, 200 Bluewater Rd. , Bedford, NS, B4B1G9
(2) DOC present in the sample should be considered as non-purgeable DOC

Note: All parameters included in the present certificate are accredited by the MELCC unless stated otherwise.

Encryption Key

Cloe Christine
Project Manager
24 Oct 2023 17:23:41

Please direct all questions regarding this Certificate of Analysis to:
Lauriane Bernard, Project Manager
Email: Lauriane.BERNARD@bureauveritas.com
Phone# (514)448-9001 Ext:7066251
==========
This report has been generated and distributed using a secure automated process.
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For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Aglaia Yannakis, General Manager responsible for Quebec Environmental laboratory operations.

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RESULTS OF ANALYSES OF SURFACE WATER

Bureau Veritas ID		MG6111		MG6112			MG6113		
Sampling Date		2023/10/02 09:00		2023/10/02 10:00			2023/10/02 10:12		
COC Number		106365		106365			106365		
	Units	HOW-SW1-Q3-2023	RDL	HOW-SW2-Q3-2023	RDL	QC Batch	HOW-SW3-Q3-2023	RDL	QC Batch
INORGANICS									
Reactive silica (SiO2) †	mg/L	5.1	0.50	6.9	0.50	2457201	2.8	0.50	2457202
PETROLEUM HYDROCARBONS									
>C10-C16 Hydrocarbons †	mg/L	<0.050	0.050	<0.054	0.054	2457200	<0.055	0.055	2457200
>C16-C21 Hydrocarbons †	mg/L	<0.050	0.050	<0.054	0.054	2457200	<0.055	0.055	2457200
>C21-<C32 Hydrocarbons †	mg/L	<0.090	0.090	<0.097	0.097	2457200	<0.099	0.099	2457200
Return to baseline at C32 †	mg/L	NA	N/A	NA	N/A	2457200	NA	N/A	2457200
Hydrocarbon Resemblance †	mg/L	NA	N/A	NA	N/A	2457200	NA	N/A	2457200
Surrogate Recovery (%)									
Isobutylbenzene - Extractable	%	100	N/A	96	N/A	2457200	96	N/A	2457200
n-Dotriacontane - Extractable	%	104	N/A	105 (1)	N/A	2457200	103 (1)	N/A	2457200

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
† Parameter is not accreditable
N/A = Not Applicable
(1) Elevated TEH RDL(s) due to limited sample.

Bureau Veritas ID		MG6114		
Sampling Date		2023/10/02 08:32		
COC Number		106365		
	Units	HOW-SW4-Q3-2023	RDL	QC Batch
INORGANICS				
Reactive silica (SiO2) †	mg/L	4.7	0.50	2457202
PETROLEUM HYDROCARBONS				
>C10-C16 Hydrocarbons †	mg/L	<0.054	0.054	2457200
>C16-C21 Hydrocarbons †	mg/L	<0.054	0.054	2457200
>C21-<C32 Hydrocarbons †	mg/L	<0.098	0.098	2457200
Return to baseline at C32 †	mg/L	NA	N/A	2457200
Hydrocarbon Resemblance †	mg/L	NA	N/A	2457200
Surrogate Recovery (%)				
Isobutylbenzene - Extractable	%	94	N/A	2457200
n-Dotriacontane - Extractable	%	103 (1)	N/A	2457200

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
† Parameter is not accreditable
N/A = Not Applicable
(1) Elevated TEH RDL(s) due to limited sample.

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TATA STEEL MINERALS CANADA
Site Location: Howse
Your P.O. #: 3000001617

TOTAL EXTRACTABLE METALS (SURFACE WATER)

Bureau Veritas ID		MG6111		MG6112	MG6113		
Sampling Date		2023/10/02 09:00		2023/10/02 10:00	2023/10/02 10:12		
COC Number		106365		106365	106365		
	Units	HOW-SW1-Q3-2023	QC Batch	HOW-SW2-Q3-2023	HOW-SW3-Q3-2023	RDL	QC Batch
METALS							
Mercury (Hg) ††	mg/L	<0.000010	2451873	<0.000010	<0.000010	0.000010	2451873
Aluminum (Al)	ug/L	<10	2451532	59	73	10	2451488
Antimony (Sb)	ug/L	<1.0	2451532	<1.0	1.0	1.0	2451488
Silver (Ag)	ug/L	<1.0	2451532	<1.0	<1.0	1.0	2451488
Arsenic (As)	ug/L	<1.0	2451532	<1.0	<1.0	1.0	2451488
Barium (Ba)	ug/L	2.2	2455130	3.6	<2.0	2.0	2451488
Beryllium (Be)	ug/L	<2.0	2451532	<2.0	<2.0	2.0	2451488
Bismuth (Bi) ††	ug/L	<1.0	2451532	<1.0	<1.0	1.0	2451488
Boron (B) †	ug/L	<50	2451532	<50	<50	50	2451488
Cadmium (Cd)	ug/L	<0.20	2451532	<0.20	<0.20	0.20	2451488
Calcium (Ca) †	ug/L	3400	2451532	730	<500	500	2451488
Chromium (Cr)	ug/L	<5.0	2451532	<5.0	<5.0	5.0	2451488
Cobalt (Co)	ug/L	<1.0	2451532	<1.0	<1.0	1.0	2451488
Copper (Cu)	ug/L	<1.0	2451532	<1.0	3.8	1.0	2451488
Total Hardness (CaCO3) ††	ug/L	19000	2451532	3400	1600	1000	2451488
Tin (Sn)	ug/L	<2.0	2451532	<2.0	<2.0	2.0	2451488
Iron (Fe)	ug/L	76	2451532	1900	1200	60	2451488
Magnesium (Mg) †	ug/L	2600	2451532	390	210	100	2451488
Manganese (Mn)	ug/L	4.6	2451532	290	93	1.0	2451488
Molybdenum (Mo)	ug/L	<1.0	2451532	<1.0	<1.0	1.0	2451488
Nickel (Ni)	ug/L	<2.0	2451532	3.7	<2.0	2.0	2451488
P2O5 ††	ug/L	<25	2451532	<25	<25	25	2451488
Total phosphorous	ug/L	<10	2451532	<10	<10	10	2451488
Lead (Pb)	ug/L	<0.50	2451532	<0.50	<0.50	0.50	2451488
Potassium (K) †	ug/L	<500	2451532	<500	<500	500	2451488
Selenium (Se)	ug/L	<3.0	2451532	<3.0	<3.0	3.0	2451488
Sodium (Na)	ug/L	600	2451532	600	<500	500	2451488
Strontium (Sr) †	ug/L	6.1	2451532	5.4	2.5	2.0	2451488
Thallium (Tl)	ug/L	<2.0	2451532	<2.0	<2.0	2.0	2451488
Titanium (Ti) ††	ug/L	<10	2451532	<10	<10	10	2451488
Uranium (U) ††	ug/L	<1.0	2451532	<1.0	<1.0	1.0	2451488
Vanadium (V)	ug/L	<2.0	2451532	<2.0	<2.0	2.0	2451488
Zinc (Zn)	ug/L	<7.0	2451532	7.1	7.0	7.0	2451488

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
†† Parameter is not accreditable
† Parameter is not accredited

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TATA STEEL MINERALS CANADA
Site Location: Howse
Your P.O. #: 3000001617

TOTAL EXTRACTABLE METALS (SURFACE WATER)

Bureau Veritas ID		MG6114		
Sampling Date		2023/10/02 08:32		
COC Number		106365		
	Units	HOW-SW4-Q3-2023	RDL	QC Batch
METALS				
Mercury (Hg) ††	mg/L	<0.000010	0.000010	2451873
Aluminum (Al)	ug/L	<10	10	2451488
Antimony (Sb)	ug/L	<1.0	1.0	2451488
Silver (Ag)	ug/L	<1.0	1.0	2451488
Arsenic (As)	ug/L	<1.0	1.0	2451488
Barium (Ba)	ug/L	<2.0	2.0	2451488
Beryllium (Be)	ug/L	<2.0	2.0	2451488
Bismuth (Bi) ††	ug/L	<1.0	1.0	2451488
Boron (B) †	ug/L	<50	50	2451488
Cadmium (Cd)	ug/L	<0.20	0.20	2451488
Calcium (Ca) †	ug/L	2100	500	2451488
Chromium (Cr)	ug/L	<5.0	5.0	2451488
Cobalt (Co)	ug/L	<1.0	1.0	2451488
Copper (Cu)	ug/L	<1.0	1.0	2451488
Total Hardness (CaCO3) ††	ug/L	12000	1000	2451488
Tin (Sn)	ug/L	<2.0	2.0	2451488
Iron (Fe)	ug/L	<60	60	2451488
Magnesium (Mg) †	ug/L	1700	100	2451488
Manganese (Mn)	ug/L	<1.0	1.0	2451488
Molybdenum (Mo)	ug/L	<1.0	1.0	2451488
Nickel (Ni)	ug/L	<2.0	2.0	2451488
P2O5 ††	ug/L	<25	25	2451488
Total phosphorous	ug/L	<10	10	2451488
Lead (Pb)	ug/L	<0.50	0.50	2451488
Potassium (K) †	ug/L	<500	500	2451488
Selenium (Se)	ug/L	<3.0	3.0	2451488
Sodium (Na)	ug/L	500	500	2451488
Strontium (Sr) †	ug/L	5.3	2.0	2451488
Thallium (Tl)	ug/L	<2.0	2.0	2451488
Titanium (Ti) ††	ug/L	<10	10	2451488
Uranium (U) ††	ug/L	<1.0	1.0	2451488
Vanadium (V)	ug/L	<2.0	2.0	2451488
Zinc (Zn)	ug/L	<7.0	7.0	2451488

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
†† Parameter is not accreditable
† Parameter is not accredited

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CONVENTIONAL PARAMETERS (SURFACE WATER)

Bureau Veritas ID		MG6111		MG6112		
Sampling Date		2023/10/02 09:00		2023/10/02 10:00		
COC Number		106365		106365		
	Units	HOW-SW1-Q3-2023	QC Batch	HOW-SW2-Q3-2023	RDL	QC Batch
CONVENTIONALS						
Conductivity	mS/cm	0.037	2449622	0.010	0.0010	2449622
Dissolved organic carbon †	mg/L	0.52	2449882	3.1	0.20	2449882
Dissolved oxygen †	mg/L	11	2449511	10	1.0	2449511
Nitrate (N) and Nitrite(N)	mg/L	0.25	2449780	<0.020	0.020	2449780
Nitrates (N-NO3-)	mg/L	0.25	2449780	<0.020	0.020	2449780
Nitrites (N-NO2-)	mg/L	<0.020	2449780	<0.020	0.020	2449780
Nitrogen ammonia (N-NH4+ and N-NH3)	mg/L	<0.020	2451662	<0.020	0.020	2451662
Orthophosphate (P)	mg/L	<0.050	2450126	<0.050	0.050	2453622
pH	pH	7.07	2449618	6.43	N/A	2449618
pH (15° C) †	pH	7.19	2449659	6.59	N/A	2449659
pH (on-site) †	pH	6.95	ONSITE	7.04	N/A	ONSITE
Phenols-4AAP	mg/L	<0.0020	2451755	<0.0020	0.0020	2451755
Real Color	UCV	5.3	2450139	74	2.0	2450139
Sulfides (S2-)	mg/L	<0.020	2449805	<0.020	0.020	2449805
Turbidity	NTU	0.19	2450213	2.3	0.10	2450213
Alkalinity Total (as CaCO3) pH 4.5 †	mg/L	14	2449623	4.0	1.0	2449623
Bicarbonates (HCO3 as CaCO3) †	mg/L	14	2449623	4.0	1.0	2449623
Carbonate (CO3 as CaCO3) †	mg/L	<1.0	2449623	<1.0	1.0	2449623
Chloride (Cl)	mg/L	0.44	2451785	0.17	0.050	2451785
Sulfates (SO4)	mg/L	2.2	2451785	<0.50	0.50	2451785
Total Dissolved Solids	mg/L	26	2451479	38	10	2451479
Total suspended solids (TSS)	mg/L	2.0	2451431	4.0	2.0	2451431
On-site Measurements						
Temperature (°C) †	Celsius	3.700	ONSITE	6.300	N/A	ONSITE

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
† Parameter is not accreditable
N/A = Not Applicable

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CONVENTIONAL PARAMETERS (SURFACE WATER)

Bureau Veritas ID		MG6113	MG6114		
Sampling Date		2023/10/02 10:12	2023/10/02 08:32		
COC Number		106365	106365		
	Units	HOW-SW3-Q3-2023	HOW-SW4-Q3-2023	RDL	QC Batch
CONVENTIONALS					
Conductivity	mS/cm	0.0030	0.031	0.0010	2449622
Dissolved organic carbon †	mg/L	4.0	0.62	0.20	2449882
Dissolved oxygen †	mg/L	9.5	11	1.0	2449511
Nitrate (N) and Nitrite(N)	mg/L	<0.020	0.34	0.020	2449780
Nitrates (N-NO3-)	mg/L	<0.020	0.34	0.020	2449780
Nitrites (N-NO2-)	mg/L	<0.020	<0.020	0.020	2449780
Nitrogen ammonia (N-NH4+ and N-NH3)	mg/L	<0.020	<0.020	0.020	2451662
Orthophosphate (P)	mg/L	<0.050	<0.050	0.050	2450126
pH	pH	5.84	6.78	N/A	2449618
pH (15° C) †	pH	5.79	6.90	N/A	2449659
pH (on-site) †	pH	6.56	6.40	N/A	ONSITE
Phenols-4AAP	mg/L	<0.0020	<0.0020	0.0020	2451755
Real Color	UCV	61	<2.0	2.0	2450139
Sulfides (S2-)	mg/L	<0.020	<0.020	0.020	2449805
Turbidity	NTU	1.2	0.18	0.10	2450213
Alkalinity Total (as CaCO3) pH 4.5 †	mg/L	1.7	9.9	1.0	2449623
Bicarbonates (HCO3 as CaCO3) †	mg/L	1.7	9.9	1.0	2449623
Carbonate (CO3 as CaCO3) †	mg/L	<1.0	<1.0	1.0	2449623
Chloride (Cl)	mg/L	0.14	0.53	0.050	2451785
Sulfates (SO4)	mg/L	<0.50	2.1	0.50	2451785
Total Dissolved Solids	mg/L	22	<10	10	2451479
Total suspended solids (TSS)	mg/L	3.0	2.0	2.0	2451431
On-site Measurements					
Temperature (°C) †	Celsius	7.600	4.300	N/A	ONSITE

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
† Parameter is not accreditable
N/A = Not Applicable

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TATA STEEL MINERALS CANADA
Site Location: Howse
Your P.O. #: 3000001617

SUBCONTRACTED ANALYSIS (SURFACE WATER)

Bureau Veritas ID		MG6111	MG6112	MG6113	MG6114		
Sampling Date		2023/10/02 09:00	2023/10/02 10:00	2023/10/02 10:12	2023/10/02 08:32		
COC Number		106365	106365	106365	106365		
	Units	HOW-SW1-Q3-2023	HOW-SW2-Q3-2023	HOW-SW3-Q3-2023	HOW-SW4-Q3-2023	RDL	QC Batch
PETROLEUM HYDROCARBONS							
Benzene †	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	0.0010	2457199
Toluene †	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	0.0010	2457199
Ethylbenzene †	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	0.0010	2457199
Total_Xylenes †	mg/L	<0.0020	<0.0020	<0.0020	<0.0020	0.0020	2457199
C6 - C10 (less BTEX) †	mg/L	<0.090	<0.090	<0.090	<0.090	0.090	2457199

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
† Parameter is not accreditable

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GENERAL COMMENTS

Please note that the test pH (site)- waters was performed on site by the client.
Please note that the test Temperature (site) was performed on site by the client.

CONVENTIONAL PARAMETERS (SURFACE WATER)

pH: Holding time not respected.(mg6111)
Otho-phosphate4: Rework analyses requested past holding time: MG6112
Sample MG6111, Total Extractable Metals: Test repeated.

Results relate only to the items tested.

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QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	Units
2449618	ZLI	Spiked Blank	pH	2023/10/03		102	%
2449622	ZLI	Spiked Blank	Conductivity	2023/10/03		101	%
2449622	ZLI	Method Blank	Conductivity	2023/10/03	<0.0010		mS/cm
2449623	ZLI	Spiked Blank	Alkalinity Total (as CaCO3) pH 4.5	2023/10/03		88	%
2449623	ZLI	Method Blank	Alkalinity Total (as CaCO3) pH 4.5	2023/10/03	<1.0		mg/L
			Bicarbonates (HCO3 as CaCO3)	2023/10/03	<1.0		mg/L
			Carbonate (CO3 as CaCO3)	2023/10/03	<1.0		mg/L
2449659	DPA	Spiked Blank	pH (15° C)	2023/10/03		102	%
2449780	ZZH	Spiked Blank	Nitrate (N) and Nitrite(N)	2023/10/04		98	%
			Nitrates (N-NO3-)	2023/10/04		98	%
			Nitrites (N-NO2-)	2023/10/04		98	%
2449780	ZZH	Method Blank	Nitrate (N) and Nitrite(N)	2023/10/04	<0.020		mg/L
			Nitrates (N-NO3-)	2023/10/04	<0.020		mg/L
			Nitrites (N-NO2-)	2023/10/04	<0.020		mg/L
2449805	VPL	Spiked Blank	Sulfides (S2-)	2023/10/04		94	%
2449805	VPL	Method Blank	Sulfides (S2-)	2023/10/04	<0.020		mg/L
2449882	SD2	Spiked Blank	Dissolved organic carbon	2023/10/04		100	%
2449882	SD2	Method Blank	Dissolved organic carbon	2023/10/04	<0.20		mg/L
2450126	HGU	QC Standard	Orthophosphate (P)	2023/10/04		101	%
2450126	HGU	Spiked Blank	Orthophosphate (P)	2023/10/04		97	%
2450126	HGU	Method Blank	Orthophosphate (P)	2023/10/04	<0.050		mg/L
2450139	DY3	Spiked Blank	Real Color	2023/10/04		100	%
2450139	DY3	Method Blank	Real Color	2023/10/04	<2.0		UCV
2450213	LTA	Spiked Blank	Turbidity	2023/10/04		109	%
2450213	LTA	Method Blank	Turbidity	2023/10/04	<0.10		NTU
2451431	KME	Spiked Blank	Total suspended solids (TSS)	2023/10/08		100	%
2451431	KME	Method Blank	Total suspended solids (TSS)	2023/10/08	<2.0		mg/L
2451479	NSH	Spiked Blank	Total Dissolved Solids	2023/10/12		104	%
2451479	NSH	Method Blank	Total Dissolved Solids	2023/10/12	<10		mg/L
2451488	CBO	Spiked Blank	Aluminum (Al)	2023/10/10		91	%
			Antimony (Sb)	2023/10/10		109	%
			Silver (Ag)	2023/10/10		98	%
			Arsenic (As)	2023/10/10		109	%
			Barium (Ba)	2023/10/10		99	%
			Beryllium (Be)	2023/10/10		108	%
			Bismuth (Bi)	2023/10/10		96	%
			Boron (B)	2023/10/10		110	%
			Cadmium (Cd)	2023/10/10		97	%
			Calcium (Ca)	2023/10/10		91	%
			Chromium (Cr)	2023/10/10		98	%
			Cobalt (Co)	2023/10/10		95	%
			Copper (Cu)	2023/10/10		95	%
			Tin (Sn)	2023/10/10		101	%
			Iron (Fe)	2023/10/10		106	%
			Magnesium (Mg)	2023/10/10		96	%
			Manganese (Mn)	2023/10/10		100	%
			Molybdenum (Mo)	2023/10/10		101	%
			Nickel (Ni)	2023/10/10		95	%
			Total phosphorous	2023/10/10		100	%
			Lead (Pb)	2023/10/10		95	%
			Potassium (K)	2023/10/10		99	%
			Selenium (Se)	2023/10/10		108	%

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	Units
			Sodium (Na)	2023/10/10		91	%
			Strontium (Sr)	2023/10/10		101	%
			Thallium (Tl)	2023/10/10		94	%
			Titanium (Ti)	2023/10/10		100	%
			Uranium (U)	2023/10/10		95	%
			Vanadium (V)	2023/10/10		96	%
			Zinc (Zn)	2023/10/10		105	%
2451488	CBO	Method Blank	Aluminum (Al)	2023/10/10	<10		ug/L
			Antimony (Sb)	2023/10/10	<1.0		ug/L
			Silver (Ag)	2023/10/10	<1.0		ug/L
			Arsenic (As)	2023/10/10	<1.0		ug/L
			Barium (Ba)	2023/10/10	<2.0		ug/L
			Beryllium (Be)	2023/10/10	<2.0		ug/L
			Bismuth (Bi)	2023/10/10	<1.0		ug/L
			Boron (B)	2023/10/10	<50		ug/L
			Cadmium (Cd)	2023/10/10	<0.20		ug/L
			Calcium (Ca)	2023/10/10	<500		ug/L
			Chromium (Cr)	2023/10/10	<5.0		ug/L
			Cobalt (Co)	2023/10/10	<1.0		ug/L
			Copper (Cu)	2023/10/10	<1.0		ug/L
			Total Hardness (CaCO3)	2023/10/10	<1000		ug/L
			Tin (Sn)	2023/10/10	<2.0		ug/L
			Iron (Fe)	2023/10/10	<60		ug/L
			Magnesium (Mg)	2023/10/10	<100		ug/L
			Manganese (Mn)	2023/10/10	<1.0		ug/L
			Molybdenum (Mo)	2023/10/10	<1.0		ug/L
			Nickel (Ni)	2023/10/10	<2.0		ug/L
			P2O5	2023/10/10	<25		ug/L
			Total phosphorous	2023/10/10	<10		ug/L
			Lead (Pb)	2023/10/10	<0.50		ug/L
			Potassium (K)	2023/10/10	<500		ug/L
			Selenium (Se)	2023/10/10	<3.0		ug/L
			Sodium (Na)	2023/10/10	<500		ug/L
			Strontium (Sr)	2023/10/10	<2.0		ug/L
			Thallium (Tl)	2023/10/10	<2.0		ug/L
			Titanium (Ti)	2023/10/10	<10		ug/L
			Uranium (U)	2023/10/10	<1.0		ug/L
			Vanadium (V)	2023/10/10	<2.0		ug/L
			Zinc (Zn)	2023/10/10	<7.0		ug/L
2451532	ST5	Spiked Blank	Aluminum (Al)	2023/10/17		104	%
			Antimony (Sb)	2023/10/17		103	%
			Silver (Ag)	2023/10/17		99	%
			Arsenic (As)	2023/10/17		98	%
			Beryllium (Be)	2023/10/17		103	%
			Bismuth (Bi)	2023/10/17		104	%
			Boron (B)	2023/10/17		108	%
			Cadmium (Cd)	2023/10/17		101	%
			Calcium (Ca)	2023/10/17		107	%
			Chromium (Cr)	2023/10/17		95	%
			Cobalt (Co)	2023/10/17		97	%
			Copper (Cu)	2023/10/17		95	%
			Tin (Sn)	2023/10/17		102	%

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	Units
			Iron (Fe)	2023/10/17		111	%
			Magnesium (Mg)	2023/10/17		108	%
			Manganese (Mn)	2023/10/17		98	%
			Molybdenum (Mo)	2023/10/17		100	%
			Nickel (Ni)	2023/10/17		94	%
			Total phosphorous	2023/10/17		107	%
			Lead (Pb)	2023/10/17		101	%
			Potassium (K)	2023/10/17		107	%
			Selenium (Se)	2023/10/17		98	%
			Sodium (Na)	2023/10/17		100	%
			Strontium (Sr)	2023/10/17		102	%
			Thallium (Tl)	2023/10/17		83	%
			Titanium (Ti)	2023/10/17		96	%
			Uranium (U)	2023/10/17		104	%
			Vanadium (V)	2023/10/17		98	%
			Zinc (Zn)	2023/10/17		96	%
2451532	ST5	Method Blank	Aluminum (Al)	2023/10/17	<10		ug/L
			Antimony (Sb)	2023/10/17	<1.0		ug/L
			Silver (Ag)	2023/10/17	<1.0		ug/L
			Arsenic (As)	2023/10/17	<1.0		ug/L
			Beryllium (Be)	2023/10/17	<2.0		ug/L
			Bismuth (Bi)	2023/10/17	<1.0		ug/L
			Boron (B)	2023/10/17	<50		ug/L
			Cadmium (Cd)	2023/10/17	<0.20		ug/L
			Calcium (Ca)	2023/10/17	<500		ug/L
			Chromium (Cr)	2023/10/17	<5.0		ug/L
			Cobalt (Co)	2023/10/17	<1.0		ug/L
			Copper (Cu)	2023/10/17	<1.0		ug/L
			Total Hardness (CaCO3)	2023/10/17	<1000		ug/L
			Tin (Sn)	2023/10/17	<2.0		ug/L
			Iron (Fe)	2023/10/17	<60		ug/L
			Magnesium (Mg)	2023/10/17	<100		ug/L
			Manganese (Mn)	2023/10/17	<1.0		ug/L
			Molybdenum (Mo)	2023/10/17	<1.0		ug/L
			Nickel (Ni)	2023/10/17	<2.0		ug/L
			P2O5	2023/10/17	<25		ug/L
			Total phosphorous	2023/10/17	<10		ug/L
			Lead (Pb)	2023/10/17	<0.50		ug/L
			Potassium (K)	2023/10/17	<500		ug/L
			Selenium (Se)	2023/10/17	<3.0		ug/L
			Sodium (Na)	2023/10/17	<500		ug/L
			Strontium (Sr)	2023/10/17	<2.0		ug/L
			Thallium (Tl)	2023/10/17	<2.0		ug/L
			Titanium (Ti)	2023/10/17	<10		ug/L
			Uranium (U)	2023/10/17	<1.0		ug/L
			Vanadium (V)	2023/10/17	<2.0		ug/L
			Zinc (Zn)	2023/10/17	<7.0		ug/L
2451662	HGU	Spiked Blank	Nitrogen ammonia (N-NH4+ and N-NH3)	2023/10/10		108	%
2451662	HGU	Method Blank	Nitrogen ammonia (N-NH4+ and N-NH3)	2023/10/10	<0.020		mg/L
2451755	CYU	Spiked Blank	Phenols-4AAP	2023/10/10		98	%
2451755	CYU	Method Blank	Phenols-4AAP	2023/10/10	<0.0020		mg/L
2451785	ZZH	Spiked Blank	Chloride (Cl)	2023/10/04		97	%

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	Units
			Sulfates (SO4)	2023/10/04		96	%
2451785	ZZH	Method Blank	Chloride (Cl)	2023/10/04	<0.050		mg/L
			Sulfates (SO4)	2023/10/04	<0.50		mg/L
2451873	STP	Spiked Blank	Mercury (Hg)	2023/10/20		113	%
2451873	STP	Method Blank	Mercury (Hg)	2023/10/20	<0.000010		mg/L
2453622	HGU	Spiked Blank	Orthophosphate (P)	2023/10/13		96	%
2453622	HGU	Method Blank	Orthophosphate (P)	2023/10/13	<0.050		mg/L
2455130	ST5	Spiked Blank	Barium (Ba)	2023/10/19		100	%
2455130	ST5	Method Blank	Barium (Ba)	2023/10/19	<2.0		ug/L
2457199	THL	Matrix Spike	Benzene	2023/10/11		96	%
			Toluene	2023/10/11		95	%
			Ethylbenzene	2023/10/11		100	%
			Total_Xylenes	2023/10/11		101	%
2457199	THL	Spiked Blank	Benzene	2023/10/11		102	%
			Toluene	2023/10/11		101	%
			Ethylbenzene	2023/10/11		107	%
			Total_Xylenes	2023/10/11		108	%
2457199	THL	Method Blank	Benzene	2023/10/11	<0.0010		mg/L
			Toluene	2023/10/11	<0.0010		mg/L
			Ethylbenzene	2023/10/11	<0.0010		mg/L
			Total_Xylenes	2023/10/11	<0.0020		mg/L
			C6 - C10 (less BTEX)	2023/10/11	<0.090		mg/L
2457200	éE6	Matrix Spike	Isobutylbenzene - Extractable	2023/10/12		99	%
			n-Dotriacontane - Extractable	2023/10/12		110 (1)	%
			>C10-C16 Hydrocarbons	2023/10/12		96	%
			>C16-C21 Hydrocarbons	2023/10/12		88	%
			>C21-<C32 Hydrocarbons	2023/10/12		79	%
2457200	éE6	Spiked Blank	Isobutylbenzene - Extractable	2023/10/12		103	%
			n-Dotriacontane - Extractable	2023/10/12		116	%
			>C10-C16 Hydrocarbons	2023/10/12		101	%
			>C16-C21 Hydrocarbons	2023/10/12		101	%
			>C21-<C32 Hydrocarbons	2023/10/12		88	%
2457200	éE6	Method Blank	Isobutylbenzene - Extractable	2023/10/12		104	%
			n-Dotriacontane - Extractable	2023/10/12		105	%
			>C10-C16 Hydrocarbons	2023/10/12	<0.050		mg/L
			>C16-C21 Hydrocarbons	2023/10/12	<0.050		mg/L
			>C21-<C32 Hydrocarbons	2023/10/12	<0.090		mg/L
2457201	éC7	Matrix Spike	Reactive silica (SiO2)	2023/10/22		NC	%
2457201	éC7	Spiked Blank	Reactive silica (SiO2)	2023/10/22		97	%
2457201	éC7	Method Blank	Reactive silica (SiO2)	2023/10/22	<0.50		mg/L
2457202	éC7	Matrix Spike	Reactive silica (SiO2)	2023/10/23		93	%
2457202	éC7	Spiked Blank	Reactive silica (SiO2)	2023/10/23		96	%

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	Units
2457202	éC7	Method Blank	Reactive silica (SiO2)	2023/10/23	<0.50		mg/L

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

(1) TEH sample contained sediment.

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VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Frédéric Arnau, B.Sc., Chemist, Montreal, Scientific Service Specialist

Faouzi Sarsi, B.Sc. Chemist, Montréal, SR Analyst

Jonathan Fauvel, B.Sc., Chemist, Montreal, Scientific Specialist

Michelina Cinquino, Analyst II

Mira El Masri, M.Sc. Chemist, Montréal, Analyst II

Phil Deveau, Scientific Specialist (Organics)

Shu Yang, B.Sc. Chemist, Montreal, Analyst II

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VALIDATION SIGNATURE PAGE(CONT'D)

The analytical data and all QC contained in this report were reviewed and validated by:

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Appendix II Lake Water Levels Monitoring Report

AQUASPHERA

January 12, 2024

Tata Steel Minerals Canada Ltd
1000, rue Sherbrooke West, bureau 1120
Montreal (Québec) H3A 3G4

Attention: Mr. Pallav Sinha, Environmental Manager

Subject: Monitoring Report – Lakes Water Levels for 2023 and Corrective Measures

---

Dear Mr. Sinha,

We are pleased to submit the monitoring report carried out by our firm for the above-mentioned project. Please do not hesitate to contact our office if you have any questions or comments.

1 INTRODUCTION

This monitoring report presents estimated daily water surface elevations based on hydrometric data recorded at five sites (Morley, Triangle, Pinette, Burnetta, and O'Nelly lakes). The data covers the period from January 1, 2023, to September 30, 2023.

Unfortunately, water level estimation for two sites (Morley and O'Nelly lakes) was not possible due to damaged equipment and missing data for the period covering from January 01, 2023 to June 12, 2023 (the "January to June" period). For this period, water depths were monitored using *Rugged TROLL 200* data loggers.

Atmospheric pressure was monitored at Triangle, Pinette and Burnetta sites using a *Rugged BaroTROLL* data logger. No atmospheric pressure data logger was installed at the Morley Lake site.

For the period from August 27, 2023 to September 30, 2023 (the "September" period), water depths were monitored using newly installed *Levelogger 5* data loggers (manufactured by Solinst). Atmospheric pressure was monitored at all sites using *Barologger 5* data loggers (manufactured by Solinst). Details on the installation of the new loggers is presented in section 2.1.1.

2 WATER LEVEL MONITORING

2.1 FIELD DATA

2.1.1 EQUIPMENT

All *Rugged TROLL-200* were installed by Groupe Hémisphères in 2017. In 2019, three new *Rugged BaroTROLL* loggers were installed and all probes were reinitiated and adjusted for atmospheric pressure using the *Rugged BaroTROLL* data for the entire monitoring period. However, no atmospheric pressure data logger was installed at the Morley Lake site. Atmospheric pressure data from Triangle Lake, the closest site, was used for calculations at Morley Lake.

All new *Levelogger 5* and *Barologger 5* loggers were installed by Groupe Hémisphères and Aquasphera between August 23 and 29, 2023 at the 5 sites (Burnetta, Morley, O'Nelly, Pinette, and Triangle lakes) to replace *Rugged TROLL 200* and *BaroTROLL* loggers. All sites are equipped with both types of probes. The probes at three sites (Burnetta, Morley, and Triangle) were installed in the same locations as the old probes (*Rugged TROLL-200*). The probes at two sites (O'Nelly and Pinette lakes) were installed in new locations to reduce visibility and the risk of vandalism.

2.1.2 COORDINATES AND ELEVATIONS

For the January to June 2023 period, probe coordinates and elevations are based on the survey data collected in 2019. Surveys were performed by Tata Steel Minerals Canada (TSMC) and Aquasphera staff to record marker and water levels at Morley, Triangle, Pinette, and O'Nelly lakes sites. For the Burnetta Lake site, it was not possible to record coordinates since no signal is available in this remote area. However, coordinates from a handheld GPS taken in 2018 by Groupe Hémisphères are available. Elevations at Burnetta Lake have also been calculated based on preliminary atmospheric pressure data recorded in August 2019.

For the September 2023 period, probe coordinates and elevations are based on the survey conducted in August 2023. Surveys have been performed by TSMC staff to record marker, probes, and water levels at Morley, Triangle, Pinette and O'Nelly lakes sites. For the Burnetta Lake site, it was again not possible to record coordinates since no signal is available in this remote area. The coordinates from handheld GPS taken in 2018 by Groupe Hémisphères are considered for now.

2.1.3 DATA

Data used for this report was collected by a TSMC environmental technician and submitted to Aquasphera and Groupe Hémisphères for processing.

Meteorological data from the Schefferville Airport station were compiled by Aquasphera.

2.2 RESULTS

The results are divided into two sections: one for the January to June period and one for the September 2023 period. These periods correspond to the equipment replacement in August 2023.

2.2.1 JANUARY TO JUNE PERIOD

Figures 1 to 3 present estimated water levels for Triangle, Burnetta, and Pinette lakes. The water depths were converted into absolute elevations, using available survey and atmospheric pressure data. This conversion was roughly estimated for the Burnetta Lake site as only coordinates from a handheld GPS are available.

In order to convert water depths to water elevations, probe elevation must be determined. Typically, the water elevation is surveyed using a precise GPS and water depth given by the probe at the same moment is noted. The difference between these two values gives probe elevation.

The data logging period is limited to January to June 2023, due to equipment replacement scheduled for the summer.

Data on probe elevation was compiled in past reports. In 2018, values from past surveys done by TSMC and Groupe Hémisphères staff were used to calculate probe elevations. In 2019, surveys were carried out to correct the probes elevations. Since no new data on probe elevations was available or could be collected in 2020, 2021, 2022 or in early 2023, the elevation estimates from 2019 was used for this report. Probe elevations are presented in Table 1.

Table 1: Probe Elevations

Site	2018	2019	2022	2023	Comment
Burnetta	525	524	524	524	No survey available, rough estimate in 2019
Morley	674.63	674.63	674.63	674.63	No baro logger, correction not possible
O'Nelly	N/A	661.15	661.15	661.15	Correction done in 2019
Pinette	635.15	635.29	635.29	635.29	Correction done in 2019
Triangle	583.40	583.59	583.59	583.59	Correction done in 2019

Annual statistics on water surface elevation (WSE) variations were calculated by combining recent results with the ones used in the 2019-2022 reports. Table 2 shows the extremes and the average value of the daily WSE at each site for January to June 2023. It is observed that the water

level from this period of 2023 has not experienced a significant change since the previous reports in 2019-2022.

Table 2: Water surface elevation statistics

Year	Min (m)	Max (m)	Average (m)
Burnetta			
2019, 2020, and 2022	524.21	524.59	524.45
Early 2023*	524.16	524.46	524.35
Pinette			
2019, 2020, and 2022	635.33	636.33	635.62
Early 2023*	635.41	635.92	635.60
Triangle			
2019, 2020, and 2022	583.80	584.51	583.98
Early 2023*	583.92	584.29	583.97

*January to June 2023

Burnetta Lake

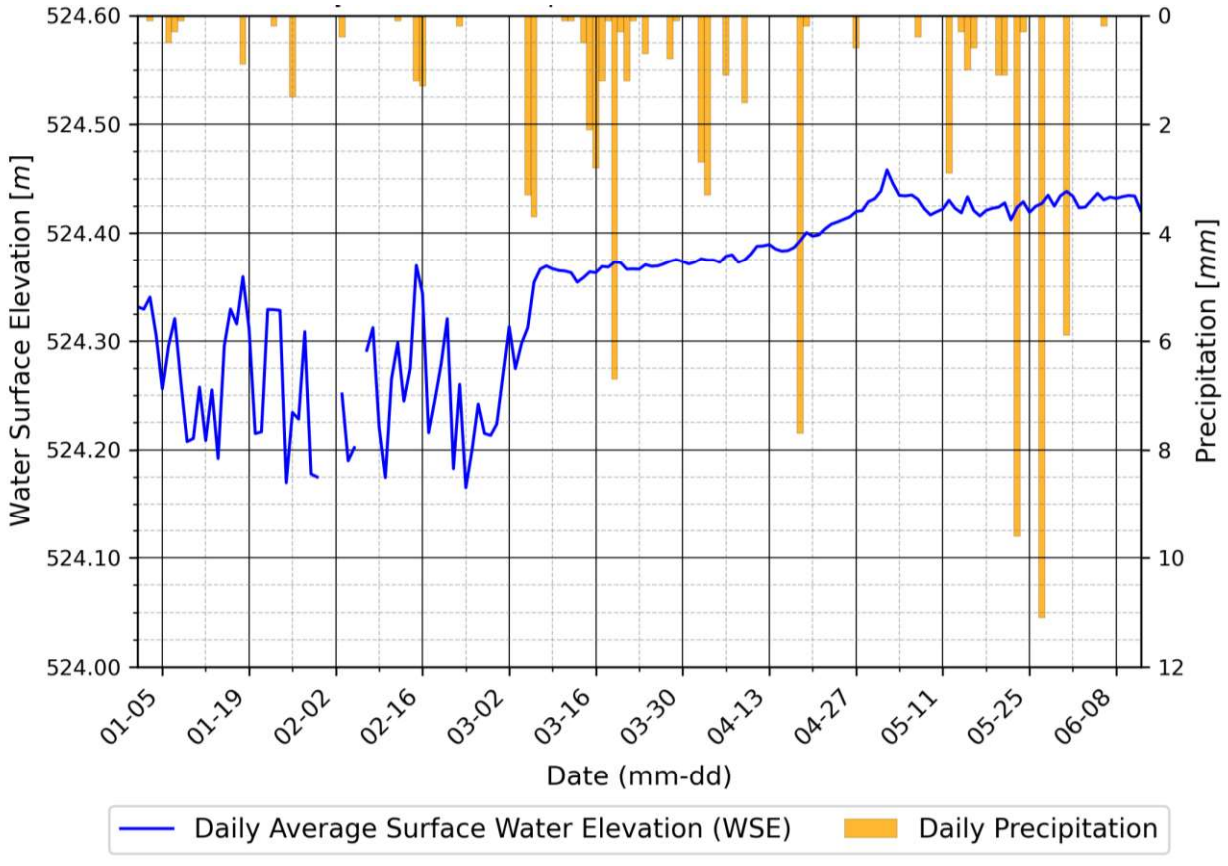

Figure 1: Daily Average Water Surface Elevation and Precipitation at Burnetta Lake site (January to June 2023)

Data at the Burnetta Lake site displays an erratic pattern from January 1 to March 3, 2023. During this period, some data points are missing or display inconsistencies. These irregularities are most likely due to the ice buildup around the probe. After March 3, the water surface elevation gradually increases. This is certainly due to snowmelt and spring run-off. The highest elevation is on May 2, 2023.

Morley Lake

An estimate of the water levels for Morley Lake is not possible as there wasn't any data for this period of 2023.

O'Nelly Lake

An analysis of O'Nelly Lake is not possible, as the probe and barometer were damaged and vandalized for this period of 2023.

Pinette Lake

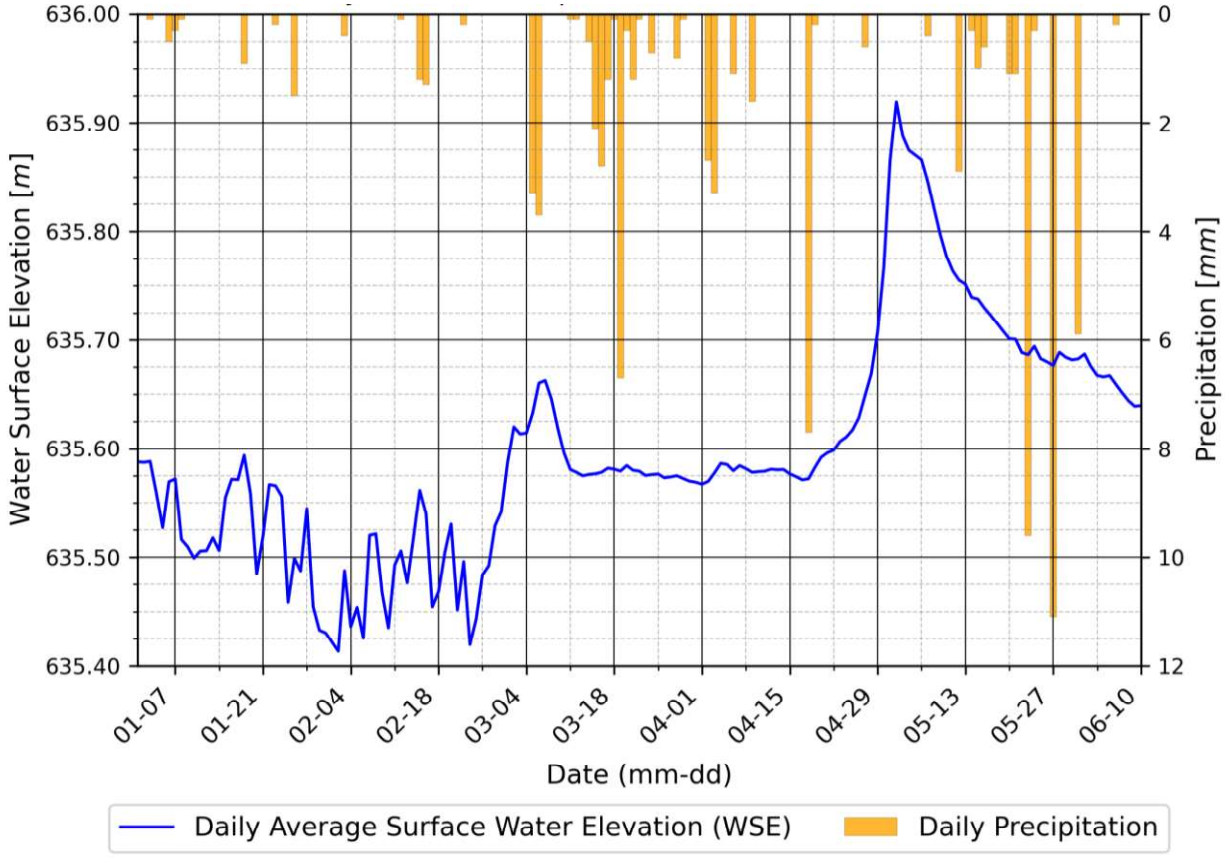

Figure 2: Daily Average Water Surface Elevation and Precipitation at Pinette Lake site (January to June 2023)

Data at the Pinette Lake site displays an erratic pattern from January 1 to February 23. These irregularities are most likely due to the ice buildup around the probe. After February 23, 2023, the water surface elevation increased by 24 cm in 10 days. This increase is certainly due to snowmelt and spring run-off. The highest elevation is on May 2, 2023, the same date as at the Burnetta Lake site.

Triangle Lake

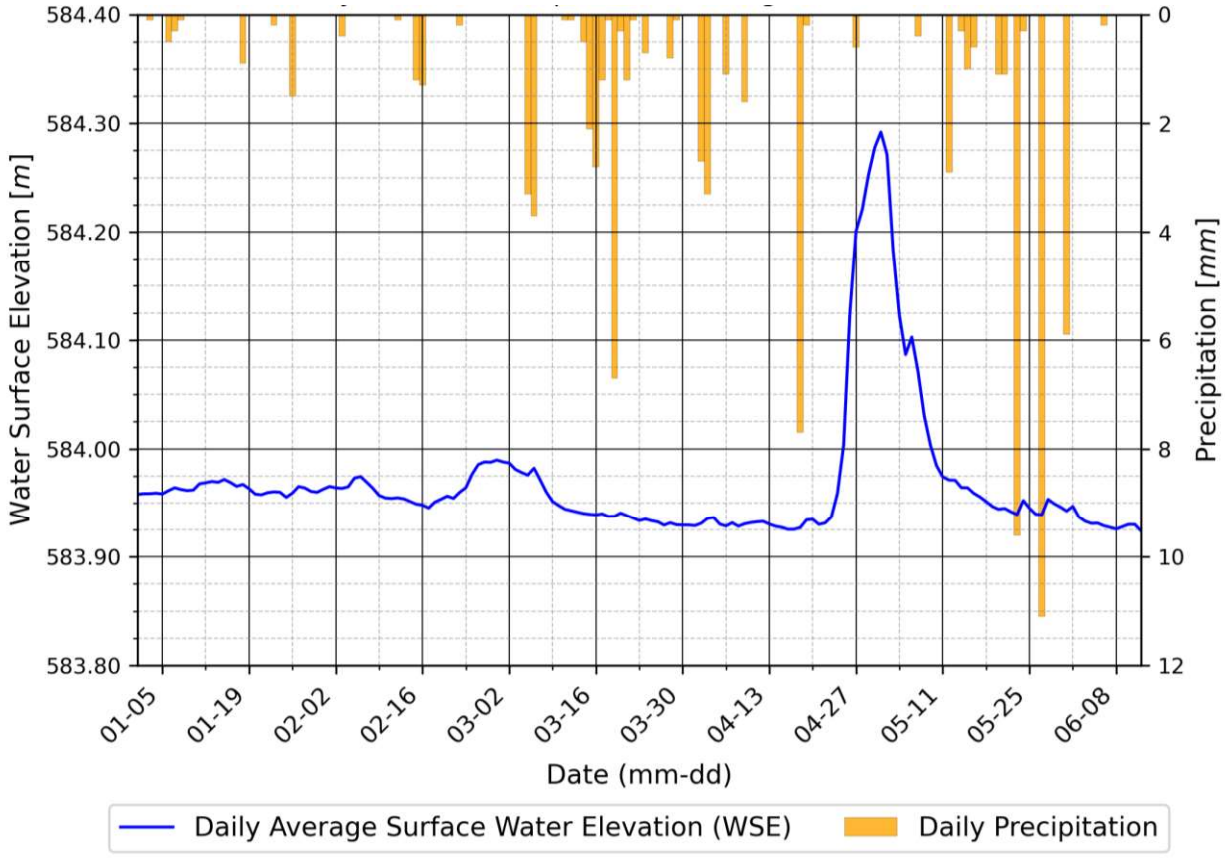

Figure 3: Daily Average Water Surface Elevation and Precipitation at Triangle Lake site (January to June 2023)

Data at the Triangle Lake site is a consistent pattern. Between February 28 and March 1, 2023, the water surface elevation increased slightly. This increase is certainly due to snowmelt and spring run-off. The highest elevation is on May 1, 2023, one day before the Burnetta and Pinette lakes sites.

2.2.2 SEPTEMBER PERIOD

Figures 4 to 8 present estimated water levels for Burnetta, Morley, O'Nelly, Pinette, and Triangle lakes. The water depths were converted into absolute elevations, using available survey and atmospheric pressure data. This conversion was roughly estimated for the Burnetta Lake site as only coordinates from a handheld GPS are available.

In order to convert water depths to water elevations, probe elevation must be determined. Typically, the water elevation is surveyed using a precise GPS and water depth given by the probe at the same moment is noted. The difference between these two values gives probe elevation.

The data logging period is limited to September 2023. The new equipment was installed at the end of August and must be removed before the freezing of the lakes.

Probe elevations are presented in Table 3. These values come from the survey carried out in August 2023 by TSMC during the installation of the new probes.

Table 3: Probe Elevation

Site	2023	Comment
Burnetta	524	No survey available, rough estimate in 2019
Morley	674.81	Survey done in August 2023
O'Nelly	661.30	Survey done in August 2023
Pinette	635.10	Survey done in August 2023
Triangle	583.43	Survey done in August 2023

Annual statistics on WSE variations were calculated by combining recent results with the ones used in the 2019-2022 reports. Table 4 shows the extremes and the average value of the daily WSE at each site for September 2023. It is observed that the water level from 2023 has not experienced a significant change since the previous reports in 2019-2022. The only notable difference is that the averages for the O'Nelly and Morley lakes sites are a little higher than before.

Table 4: Water surface elevation statistics

Year	Min (m)	Max (m)	Average (m)
Burnetta			
2019, 2020, and 2022	524.21	524.59	524.45
September 2023	524.40	524.41	524.40
Morley			
2019, 2020, and 2022	674.99	675.52	675.16
September 2023	675.34	675.40	675.38
O'Nelly			
2019, 2020, and 2022	661.27	661.81	661.59
September ,2023	661.74	661.76	661.75
Pinette			
2019, 2020 and 2022	635.33	636.33	635.62
September 2023	635.68	635.73	635.71
Triangle			
2019, 2020 and 2022	583.80	584.51	583.98
September 2023	583.96	583.99	583.97

Burnetta Lake

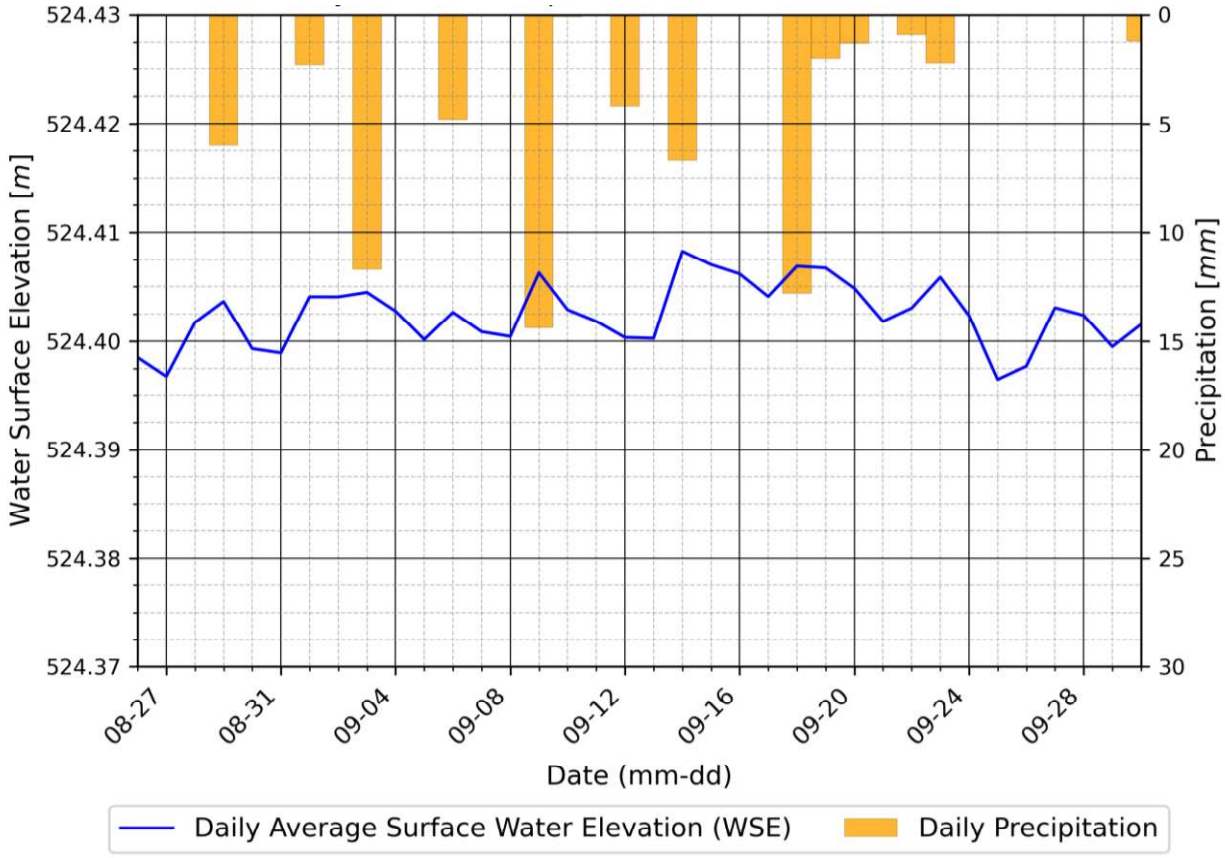

Figure 4: Daily Average Water Surface Elevation and Precipitation at Burnetta Lake site (September 2023)

The water surface elevation is relatively consistent over the month of September. The data from the new probes are coherent with those from the old ones.

Morley Lake

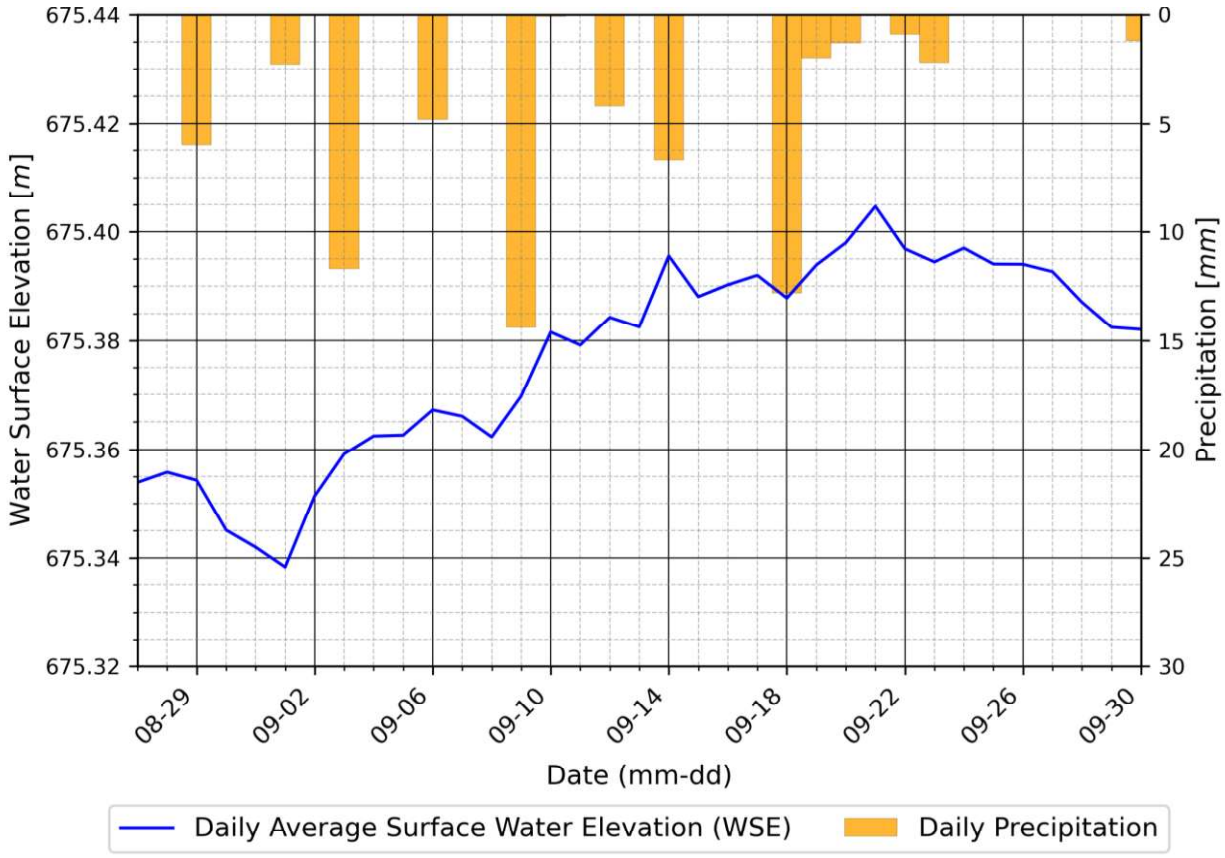

Figure 5: Daily Average Water Surface Elevation and Precipitation at Morley Lake site (September 2023)

The water surface elevation rose by around 6 cm during September. This increase is consistent with the amount of precipitation in the area. The weather station recorded 7.3 cm of precipitation.

O'Nelly Lake

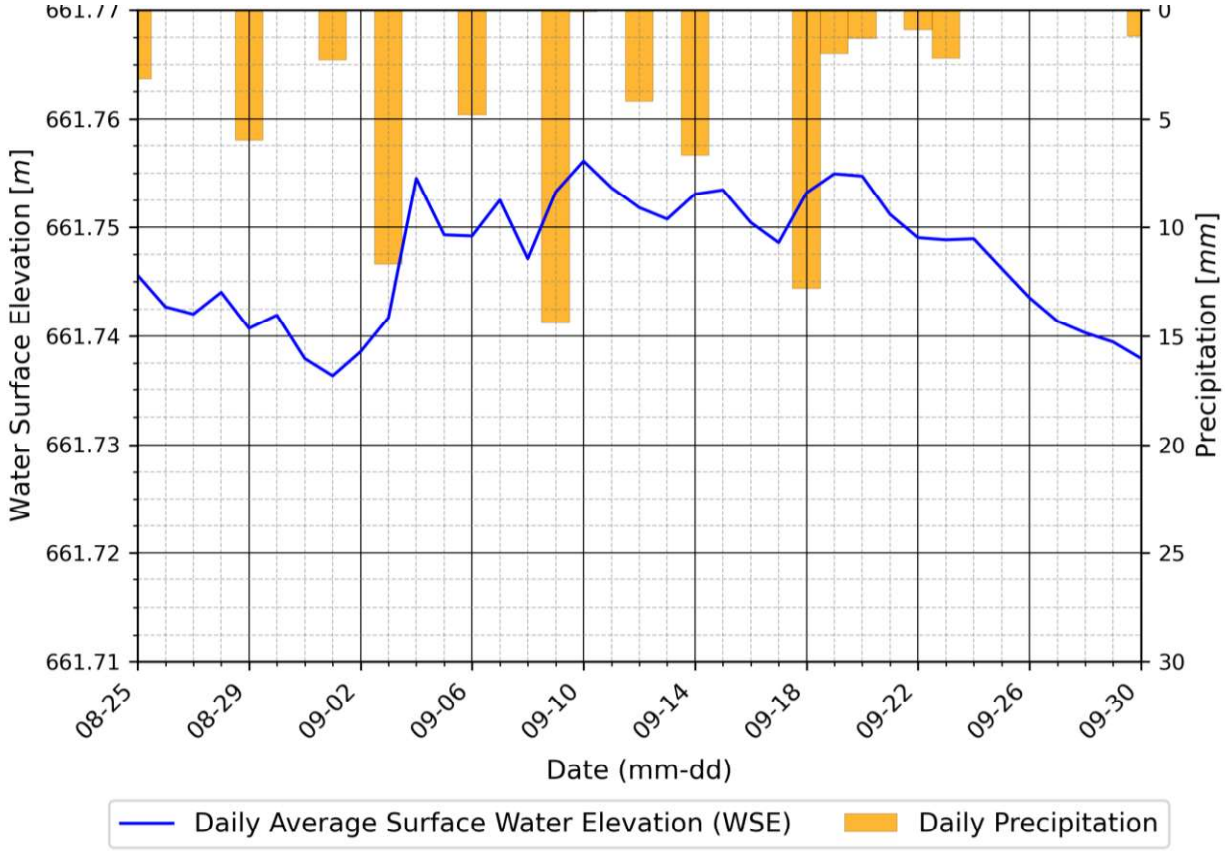

Figure 6: Daily Average Water Surface Elevation and Precipitation at O'Nelly Lake site (September 2023)

The water surface elevation is relatively consistent during September. The data from the new probes are coherent with those from the old ones.

Pinette Lake

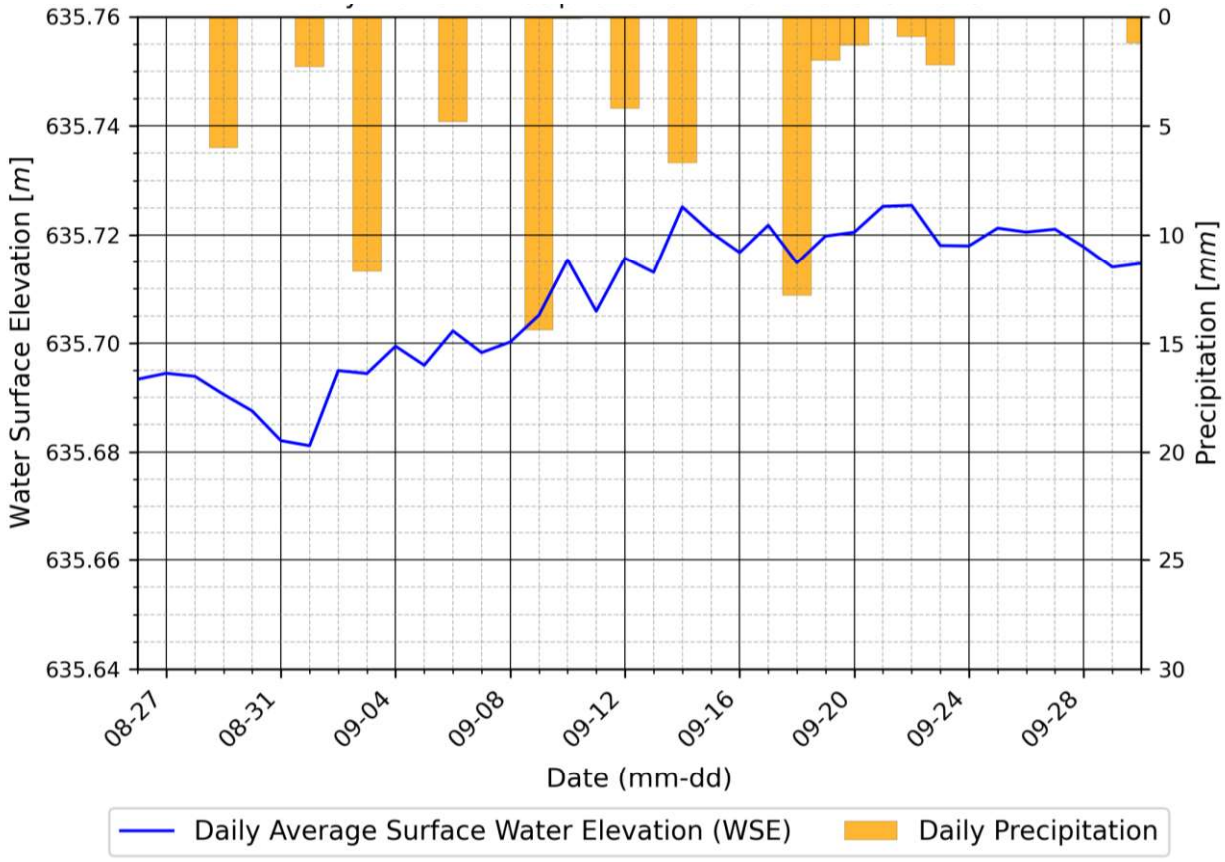

Figure 7: Daily Average Water Surface Elevation and Precipitation at Pinette Lake site (September 2023)

The water surface elevation rose by around 4 cm during September. This increase is consistent with the amount of precipitation in the area. The weather station recorded 7.3 cm of precipitation.

Triangle Lake

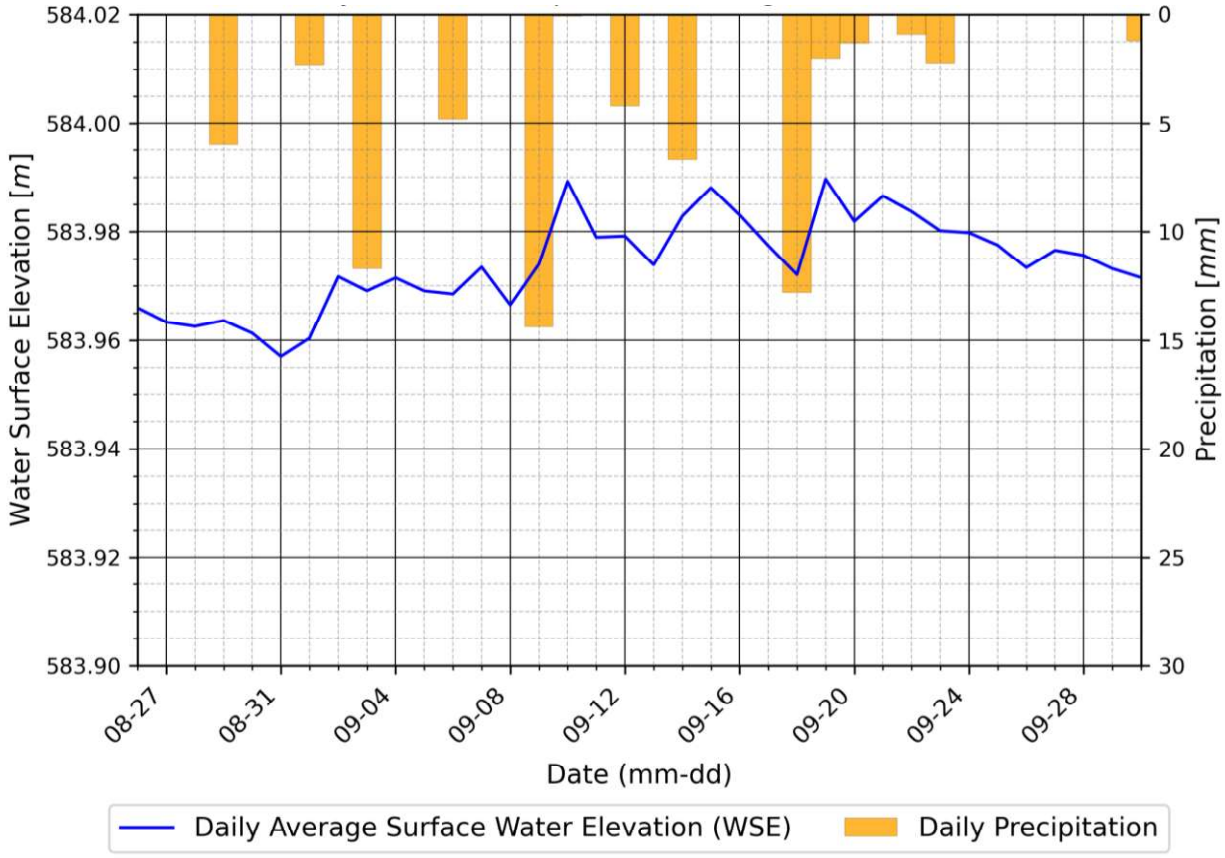

Figure 8: Daily Average Water Surface Elevation and Precipitation at Triangle Lake site (September 2023)

The water surface elevation is relatively consistent over the month of September. The data from the new probes are coherent with those from the old ones.

2.2.3 ANNUAL WATER SURFACE ELEVATION STATISTICS FOR 2023

Annual statistics on WSE variations were calculated by combining recent results with the ones used in the 2019-2022 reports. Table 5 shows the extremes and the average annual values of daily WSE at each site. It is observed that water levels from 2023 have not experienced a significant change since the previous reports in 2019-2022. The only notable difference is that the averages for the O'Nelly and Morley lakes sites are a little higher than before.

Table 5: Annual water surface elevation statistics

Year	Min (m)	Max (m)	Average (m)
Burnetta			
2019, 2020, and 2022	524.21	524.59	524.45
2023	524.16	524.46	524.36
Morley			
2019, 2020, and 2022	674.99	675.52	675.16
2023	675.34	675.40	675.38
O'Nelly			
2019, 2020, and 2022	661.27	661.81	661.59
2023	661.74	661.76	661.75
Pinette			
2019, 2020, and 2022	635.33	636.33	635.62
2023	635.41	635.92	635.62
Triangle			
2019, 2020, and 2022	583.80	584.51	583.98
2023	583.92	584.29	583.97

3 CONCLUSIONS AND RECOMMENDATIONS

Water level data was compiled for three lakes sites (Triangle, Pinette and Burnetta lakes) in the January to June 2023 period using existing loggers. Data indicated that the WSE from this period of 2023 has not experienced a significant change since the previous reports in 2019-2022.

New level loggers were installed at the five lake sites (Morley, Triangle, Pinette, Burnetta, and O'Nelly lakes) from August 23 to August 29, 2023. The compiled data indicated that the WSE have not experienced a significant change since the previous reports in 2019-2022. The only notable difference is that the averages for the O'Nelly and Morley lakes sites are a little higher than before.

The following recommendations from the 2023 report are:

1. The air temperature must be constantly monitored to ensure that probes are removed before the lakes freeze over. Probes should not be removed too early to ensure that as much data as possible is collected.
2. A minimum of three site visits should be scheduled per year: one to install the probes after freezing periods, one to maintain the equipment (floating plants, etc.), and one to collect the data and remove the probes prior to the freezing period.
3. There is still no good survey data available for Burnetta Lake and a proper field survey should be completed to collect probe elevation, marker, and water levels. This information is needed to ensure that loggers operate properly and that water levels are appropriately calculated.
4. Rain gauges should be installed at each lake site, or at least at TSMC environmental team's building, to ensure that more precise precipitation data from the area is collected.
5. Probe elevation should be verified with the survey nail after the freeze period when the equipment is reinstalled.

4 SCOPE AND LIMITATIONS

This document is published in accordance with and subject to an agreement between Aquasphera, Groupe Hémisphères and the Client (TSMC) for whom it has been prepared. It is limited to issues raised by the Client in its commitment and prepared using the standard skill and care commonly exercised by Engineering Scientists in the preparation of such documents. It has been prepared using data collected by TSMC, Groupe Hémisphères and Aquasphera. This document is meant to be read as a whole, and sections or parts thereof should not be read or interpreted out of context. This document is confidential and the property of the Client.

Prepared by:

Thomas Brady
Hydraulic and Hydrology Specialist

François-Julien Delisle, Eng., M. Sc.
Water Resources Engineer
Technical Manager
OIQ 144 155