Howse Property Annual Report

April 2020 - March 2021 Activities

TATA

June 2021

REPORT PREPARED BY:

TATA STEEL MINERALS CANADA

ADAM CALVERT

Environmental Field Technician

DAVID HEAD

Project Lead

PALLAV SINHA

Environmental Coordinator

JEAN-FRANCOIS DION

Senior Environmental Technician

COCO CALDERHEAD

Community Affairs Manager

REPORT REVISED BY:

TATA STEEL MINERALS CANADA

MARIANA TRINDADE

Corporate Environmental Manager

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1 HOWSE PROPERTY PROJECT UPDATE

As of March 31st, 2021, Tata Steel Minerals Canada (TSMC) has not started any work, including any construction activities, on the Howse Property Project and the development of the Howse Property is not in TSMC's 5-year mining plan. 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 for the reporting period of April 1st, 2020 to March 31st, 2021

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 2.5.21, the Wetland Monitoring Plan was modified during the reporting year (see Section 4.2 for details) 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.

No other updates were done on the follow-up programs and there have 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 ending 31 March, 2019, and 2020 were made available during this medium. The present annual report also appears on the TSMC webpage along with TSMC's Dust Management Strategy, Communication Plan and Cultural Heritage Control Plan.

3 FISH AND FISH HABITAT

3.1 Erosion and sediment control

TSMC's Environment team conducted revegetation trials at the Pinette Lake pad in 2020. Willow cutting were planted in exposed areas in an effort to mitigate erosion at this site.

Figure 1. Willow stems planted in 2020

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 20th and September 23rd, 2019 for four quarters (taken at least 1 month apart). 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 in conjunction with the effluent discharge when 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), Pinette Lake (SW5) and 4 points along Goodream Creek (SW1,2,3 and 4) that fall into the watershed and 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

Appendix II presents estimated daily water surface elevations based on hydrometric data recorded at 5 sites (lakes O'Nelly, Triangle, Morley, Pinette, and Burnetta ["sites" and "lakes" are used interchangeably in this report]). The data covers the period from August 14, 2019 to July 26, 2020. Water depths were monitored using Rugged TROLL 200 data loggers. Atmospheric pressure was monitored at O'Nelly, Triangle, Pinette, and Burnetta sites using a Rugged BaroTROLL data logger. No atmospheric pressure data logger was installed at the Morley site.

The report outlines recommendations for monitoring equipment at the site(s). These adjustments will be made by TSMC in 2021.

3.3 Groundwater Levels

See Section 4.2 for Howse Wetland Monitoring.

3.4 Snow Sampling

Snow sampling is to be conducted to assess dustfall amounts during the winter months. TSMC's Follow up program for air quality, which includes provisions for snow sampling, is set to be implemented from the start of construction to the end of decommissioning of the Designated Project.

4 MIGRATORY BIRDS

4.1 Bank Swallow

No Bank Swallows were observed in the designated Howse project area between April 1st, 2020 to March 31st, 2021.

4.2 Howse Wetland Monitoring (avifauna habitat)

Results of measurement of water levels at wetlands are presented in Appendix III Groundwater levels.

For the 2021 campaign, measurements should be carried out on monthly basis during the summer months, by recording the water depth from the top of the well. This will be done in 2021.

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.

Certificates of analysis for air sampling programs for NO2 and dustfall are provided in Appendix IV Air Monitoring.

TSMC continues to limit the traffic from its site into the local community in order to minimize dust effects.

Vehicle traffic from the mine site to Schefferville was reduced further at the onset of the COVID-10 pandemic.

Following multiple consultations with community leadership from the Schefferville area, and in order to minimize an exposure risks for workers and for community members, TSMC took the following measures which also had a positive effect on air quality:

- prevented any workers from leaving site to go to Schefferville unless to take outgoing charter;
- incoming and outgoing flights were limited to once every two weeks; subsequently, rotations were extended to every three weeks to increase the isolation period at the mine site;
- charter passengers bypass the inside of the Schefferville airport deplane/embark directly between the plane to a bus traveling directly to site. shuttle service maintained with a local Indigenous company for travel to the airport on shift-change days.

5.2 Country Foods

Under the Country Food Follow Up Plan, the Proponent 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 Follow Up Program

Bypass road upgrades have not commenced and are not required to commence until the Construction Phase starts on the Howse Project.

Repair works to the bypass road were planned during the reporting period for execution in Summer 2021. The circumstances around the COVID-19 pandemic prevented the carrying-out of repair works in Summer 2020. Indigenous groups have been kept apprised of developments on this matter through the Joint Community Health, Safety & Environment meetings and periodic correspondence (see attached Community Engagement & Consultation log for the current reporting period).

6.2 Caribou

TSMC no longer has a formal arrangement to receive caribou data. This issue is being resolved. No data is available for the reporting year.

6.8.2

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 9 July, 2020 and 28 October, 2020 (see attached Community Engagement & Consultation Log).

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 Howse Project is not yet in the Construction Phase, this requirement is not yet in place.

9 ACCIDENTS AND MALFUNCTIONS

There were no incidents on Howse Property infrastructure 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 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, 2020 to March 31st, 2021. The item number in Table 1 below corresponds to the section number in the text above.

Table 1. Table of Concordance for Conditions

	CEAA Release Condition	2019 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: 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.	▪ TSMC is committed to follow this requirement for all consultation activities.
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: 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.	▪ Existing follow-up programs for TSMC's DSO and Howse sites, include this information.
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	2019 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:	▪ This was complied with
	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, and 2019-2020 activities and the current report covers 2020-2021 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/

	CEAA Release Condition	2019 Activities
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 installed at these locations in fall 2017 ▪ Data collection has been, and

	CEAA Release Condition	2019 Activities
		continues to be taken, continuously since that time
	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 wells 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 at this time
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	▪ No vehicles and/or heavy equipment entered wetlands

	CEAA Release Condition	2019 Activities
	environmental impact statement.	during the reporting year.
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	▪ Not applicable, as the Project has not started.
	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.	▪ This information is provided in the annual report.
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

	CEAA Release Condition	2019 Activities
5.5	The Proponent shall implement measures to mitigate dust emissions at the conveyor transfer and drop points 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 applicable, as the Project has 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);	

	CEAA Release Condition	2019 Activities
	5.10.2 sample species identified in condition 5.10.1 for heavy metals, and other contaminants of concern 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.	▪ The Proponent 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	▪ Follow-up programs for the Howse Project were submitted to the Agency in Spring 2018

	CEAA Release Condition	2019 Activities
	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 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
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	▪ Follow-up programs for the Howse Project were submitted to the Agency in Spring 2018

	CEAA Release Condition	2019 Activities
	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, 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	▪ TSMC's environmental protection plan (EPP) and EPP and ERP lists

	CEAA Release Condition	2019 Activities
	failures, sedimentation pond failures, ditch failures, destabilization of waste rock piles and overburden stockpiles, and rock slides.	measures to prevent accidents and malfunctions ▪ In 2020, TSMC's EPP was updated. ▪ Those documents contain a retroaction process in which TSMC improves measures to prevent accidents and malfunctions.
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.	▪ Follow-up programs and plans for the Howse Project were submitted to the Agency in Spring 2018.
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	

	CEAA Release Condition	2019 Activities
	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 have been received by the Proponent.	▪ Not applicable for this reporting year.
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:	▪ Follow-up programs for the Howse Project were submitted to the Agency in Spring 2018.
	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 1 Surface Water Quality Certificates

Your Project #: Howse Quarterly Surface Water
Site#: 00025
Site Location: NL SURFACE WATER
Your C.O.C. #: 777606-01-01

Attention: Mariana Trindade

TATA Steel Minerals Canada
1000, Rue Sherbrooke Ouest
Montreal, QC
CANADA H3A 3G4

Report Date: 2020/07/13
Report #: R6244262
Version: 2 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: C0G3472
Received: 2020/07/02, 08:02

Sample Matrix: Water
Samples Received: 9

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Carbonate, Bicarbonate and Hydroxide	9	N/A	2020/07/09	N/A	SM 23 4500-CO2 D
Alkalinity	8	N/A	2020/07/09	ATL SOP 00013	EPA 310.2 R1974 m
Alkalinity	1	N/A	2020/07/10	ATL SOP 00013	EPA 310.2 R1974 m
Chloride	9	N/A	2020/07/09	ATL SOP 00014	SM 23 4500-Cl- E m
Colour	9	N/A	2020/07/09	ATL SOP 00020	SM 23 2120C m
Organic carbon - Diss (DOC) (2)	3	N/A	2020/07/07	ATL SOP 00203	SM 23 5310B m
Organic carbon - Diss (DOC) (2)	1	N/A	2020/07/08	ATL SOP 00203	SM 23 5310B m
Organic carbon - Diss (DOC) (2)	5	N/A	2020/07/09	ATL SOP 00203	SM 23 5310B m
Dissolved Oxygen (1)	9	2020/07/03	2020/07/03	CAM SOP-00427	SM 23 4500 O G m
Conductance - water	9	N/A	2020/07/09	ATL SOP 00004	SM 23 2510B m
Hardness (calculated as CaCO3)	4	N/A	2020/07/07	ATL SOP 00048	Auto Calc
Hardness (calculated as CaCO3)	5	N/A	2020/07/08	ATL SOP 00048	Auto Calc
Mercury - Total (CVAA,LL)	9	2020/07/09	2020/07/10	ATL SOP 00026	EPA 245.1 R3 m
Metals Water Total MS	9	2020/07/03	2020/07/07	ATL SOP 00058	EPA 6020B R2 m
Ion Balance (% Difference)	9	N/A	2020/07/10	N/A	Auto Calc.
Anion and Cation Sum	9	N/A	2020/07/09	N/A	Auto Calc.
Nitrogen Ammonia - water	9	N/A	2020/07/08	ATL SOP 00015	EPA 350.1 R2 m
Nitrogen - Nitrate + Nitrite	9	N/A	2020/07/09	ATL SOP 00016	USGS I-2547-11m
Nitrogen - Nitrite	9	N/A	2020/07/09	ATL SOP 00017	SM 23 4500-NO2- B m
Nitrogen - Nitrate (as N)	9	N/A	2020/07/10	ATL SOP 00018	ASTM D3867-16
Phenols (4AAP) (1)	9	N/A	2020/07/07	CAM SOP-00444	OMOE E3179 m
pH (3)	9	N/A	2020/07/09	ATL SOP 00003	SM 23 4500-H+ B m
Phosphorus - ortho	9	N/A	2020/07/10	ATL SOP 00021	SM 23 4500-P E m
Sat. pH and Langelier Index (@ 20C)	9	N/A	2020/07/10	ATL SOP 00049	Auto Calc.
Sat. pH and Langelier Index (@ 4C)	9	N/A	2020/07/10	ATL SOP 00049	Auto Calc.
Reactive Silica	9	N/A	2020/07/09	ATL SOP 00022	EPA 366.0 m
Sulphate	9	N/A	2020/07/09	ATL SOP 00023	ASTM D516-16 m
Sulphide (1)	9	N/A	2020/07/03	CAM SOP-00455	SM 23 4500-S G m
Total Dissolved Solids (Filt. Residue)	9	2020/07/03	2020/07/13	ATL SOP 00009	SM 23 2540C m
Total Dissolved Solids (TDS calc)	9	N/A	2020/07/10	N/A	Auto Calc.
Organic carbon - Total (TOC) (2)	7	N/A	2020/07/10	ATL SOP 00203	SM 23 5310B m
Organic carbon - Total (TOC) (2)	2	N/A	2020/07/11	ATL SOP 00203	SM 23 5310B m

Bureau Veritas Laboratories 200 Bluewater Rd, Suite 105, Bedford, Nova Scotia Canada B4B 1G9 Tel: 902-420-0203 Toll-free: 800-565-7227 Fax: 902-420-8612 www.bvlabs.com

Your Project #: Howse Quarterly Surface Water
Site#: 00025
Site Location: NL SURFACE WATER
Your C.O.C. #: 777606-01-01

Attention: Mariana Trindade

TATA Steel Minerals Canada
1000, Rue Sherbrooke Ouest
Montreal, QC
CANADA H3A 3G4

Report Date: 2020/07/13
Report #: R6244262
Version: 2 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: C0G3472
Received: 2020/07/02, 08:02

Sample Matrix: Water
Samples Received: 9

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Phosphorus Total Colourimetry	9	2020/07/06	2020/07/08	ATL SOP 00057	EPA 365.1 R2 m
Total Suspended Solids	6	2020/07/03	2020/07/06	ATL SOP 00007	SM 23 2540D m
Total Suspended Solids	3	2020/07/03	2020/07/07	ATL SOP 00007	SM 23 2540D m
Turbidity	9	N/A	2020/07/06	ATL SOP 00011	EPA 180.1 R2 m

Remarks:

Bureau Veritas Laboratories are accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by BV Labs 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 BV Labs profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and BV Labs 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.

BV Labs liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. BV Labs 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 BV Labs, unless otherwise agreed in writing. BV Labs 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 BV Labs, results relate to the supplied samples tested.

Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) This test was performed by Bureau Veritas Laboratories Mississauga
(2) TOC / DOC present in the sample should be considered as non-purgeable TOC / DOC.
(3) The APHA Standard Method require pH to be analyzed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the APHA Standard Method holding time.

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Your Project #: Howse Quarterly Surface Water
Site#: 00025
Site Location: NL SURFACE WATER
Your C.O.C. #: 777606-01-01

Attention: Mariana Trindade

TATA Steel Minerals Canada
1000, Rue Sherbrooke Ouest
Montreal, QC
CANADA H3A 3G4

Report Date: 2020/07/13
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CERTIFICATE OF ANALYSIS

BV LABS JOB #: C0G3472
Received: 2020/07/02, 08:02

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Maryann Comeau, Project Manager
Email: Maryann.COMEAU@bvlabs.com
Phone# (902)420-0203 Ext:298

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BV Labs 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 Signature Page.

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BV Labs Job #: C0G3472
Report Date: 2020/07/13

TATA Steel Minerals Canada
Client Project #: Howse Quarterly Surface Water
Site Location: NL SURFACE WATER
Sampler Initials: PS

RESULTS OF ANALYSES OF WATER

BV Labs ID		MZX233		MZX234		MZX235		
Sampling Date		2020/06/26 15:03		2020/06/26 14:14		2020/06/26 14:26		
COC Number		777606-01-01		777606-01-01		777606-01-01		
Sample #		00689		00690		00691		
	UNITS	HOW-SW1-Q1-2020	QC Batch	HOW-SW2-Q1-2020	QC Batch	HOW-SW3-Q1-2020	RDL	QC Batch
Calculated Parameters								
Anion Sum	me/L	0.00	6814973	0.00	6814973	0.00	N/A	6814973
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	ND	6814969	ND	6814969	ND	1.0	6814969
Calculated TDS	mg/L	2.0	6814977	3.0	6814977	3.0	1.0	6814977
Carb. Alkalinity (calc. as CaCO3)	mg/L	ND	6814969	ND	6814969	ND	1.0	6814969
Cation Sum	me/L	0.0400	6814973	0.0400	6814973	0.0400	N/A	6814973
Hardness (CaCO3)	mg/L	ND	6814971	1.1	6814971	1.1	1.0	6814971
Ion Balance (% Difference)	%	100	6814972	100	6814972	100	N/A	6814972
Langelier Index (@ 20C)	N/A	NC	6814975	NC	6814975	NC		6814975
Langelier Index (@ 4C)	N/A	NC	6814976	NC	6814976	NC		6814976
Nitrate (N)	mg/L	ND	6814974	ND	6814974	ND	0.050	6814974
Saturation pH (@ 20C)	N/A	NC	6814975	NC	6814975	NC		6814975
Saturation pH (@ 4C)	N/A	NC	6814976	NC	6814976	NC		6814976
Inorganics								
Total Alkalinity (Total as CaCO3)	mg/L	ND	6825145	ND	6825145	ND	5.0	6825145
Dissolved Chloride (Cl-)	mg/L	ND	6826510	ND	6826510	ND	1.0	6826510
Colour	TCU	46	6826524	28	6826524	28	5.0	6826524
Total Dissolved Solids	mg/L	26	6829481	28	6829481	520	10	6829481
Nitrate + Nitrite (N)	mg/L	ND	6826532	ND	6826532	ND	0.050	6826532
Nitrite (N)	mg/L	ND	6826534	ND	6826534	ND	0.010	6826534
Nitrogen (Ammonia Nitrogen)	mg/L	ND	6824684	ND	6824697	ND	0.050	6824675
Dissolved Organic Carbon (C)	mg/L	4.3	6820214	4.1	6824348	4.1	0.50	6824348
Total Organic Carbon (C)	mg/L	4.4	6828948	4.0	6828949	4.1	0.50	6828949
Orthophosphate (P)	mg/L	ND	6826526	ND	6826526	ND	0.010	6826526
Dissolved Oxygen	mg/L	9.58	6817737	11.1	6817737	10.3		6817737
pH	pH	5.91	6826454	5.80	6826454	5.77		6826454
Phenols-4AAP	mg/L	ND	6820470	ND	6820470	ND	0.0010	6820470
Total Phosphorus	mg/L	ND	6820550	ND	6820550	ND	0.020	6820550
Reactive Silica (SiO2)	mg/L	1.3	6826516	2.2	6826516	2.1	0.50	6826516
Total Suspended Solids	mg/L	ND	6817176	ND	6817176	ND	1.0	6817176
Dissolved Sulphate (SO4)	mg/L	ND	6826513	ND	6826513	ND	2.0	6826513
Sulphide	mg/L	ND	6818395	ND	6818395	ND	0.020	6818395

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

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BV Labs Job #: C0G3472
Report Date: 2020/07/13

TATA Steel Minerals Canada
Client Project #: Howse Quarterly Surface Water
Site Location: NL SURFACE WATER
Sampler Initials: PS

RESULTS OF ANALYSES OF WATER

BV Labs ID		MZX233		MZX234		MZX235		
Sampling Date		2020/06/26 15:03		2020/06/26 14:14		2020/06/26 14:26		
COC Number		777606-01-01		777606-01-01		777606-01-01		
Sample #		00689		00690		00691		
	UNITS	HOW-SW1-Q1-2020	QC Batch	HOW-SW2-Q1-2020	QC Batch	HOW-SW3-Q1-2020	RDL	QC Batch
Turbidity	NTU	0.68	6820039	0.19	6820039	0.21	0.10	6820039
Conductivity	uS/cm	4.1	6826452	4.1	6826452	4.0	1.0	6826452

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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BV Labs Job #: C0G3472
Report Date: 2020/07/13

TATA Steel Minerals Canada
Client Project #: Howse Quarterly Surface Water
Site Location: NL SURFACE WATER
Sampler Initials: PS

RESULTS OF ANALYSES OF WATER

BV Labs ID		MZX236		MZX237		MZX238		
Sampling Date		2020/06/26 13:37		2020/06/26 15:36		2020/06/26 12:02		
COC Number		777606-01-01		777606-01-01		777606-01-01		
Sample #		00692		00693		00475		
	UNITS	HOW-SW4-Q1-2020	QC Batch	HOW-SW5-Q1-2020	QC Batch	HOW-BC-Q1-2020	RDL	QC Batch
Calculated Parameters								
Anion Sum	me/L	0.210	6814973	0.0500	6814973	0.00	N/A	6814973
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	7.4	6814969	ND	6814969	ND	1.0	6814969
Calculated TDS	mg/L	13	6814977	5.0	6814977	4.0	1.0	6814977
Carb. Alkalinity (calc. as CaCO3)	mg/L	ND	6814969	ND	6814969	ND	1.0	6814969
Cation Sum	me/L	0.170	6814973	0.0500	6814973	0.0600	N/A	6814973
Hardness (CaCO3)	mg/L	7.6	6814971	1.6	6814971	2.1	1.0	6814971
Ion Balance (% Difference)	%	10.5	6814972	0.00	6814972	100	N/A	6814972
Langelier Index (@ 20C)	N/A	-3.42	6814975	NC	6814975	NC		6814975
Langelier Index (@ 4C)	N/A	-3.67	6814976	NC	6814976	NC		6814976
Nitrate (N)	mg/L	0.13	6814974	ND	6814974	ND	0.050	6814974
Saturation pH (@ 20C)	N/A	10.3	6814975	NC	6814975	NC		6814975
Saturation pH (@ 4C)	N/A	10.5	6814976	NC	6814976	NC		6814976
Inorganics								
Total Alkalinity (Total as CaCO3)	mg/L	7.4	6825145	ND	6825145	ND	5.0	6825145
Dissolved Chloride (Cl-)	mg/L	ND	6826510	ND	6826510	ND	1.0	6826510
Colour	TCU	19	6826524	8.7	6826524	40	5.0	6826524
Total Dissolved Solids	mg/L	30	6829481	18	6829481	20	10	6829481
Nitrate + Nitrite (N)	mg/L	0.13	6826532	ND	6826532	ND	0.050	6826532
Nitrite (N)	mg/L	ND	6826534	ND	6826534	ND	0.010	6826534
Nitrogen (Ammonia Nitrogen)	mg/L	ND	6824675	ND	6824697	ND	0.050	6824684
Dissolved Organic Carbon (C)	mg/L	1.8	6820214	1.7	6826544	4.9	0.50	6822188
Total Organic Carbon (C)	mg/L	1.9	6828948	1.6	6828949	5.2	0.50	6828949
Orthophosphate (P)	mg/L	ND	6826526	ND	6826526	ND	0.010	6826526
Dissolved Oxygen	mg/L	11.0	6817737	10.4	6817737	9.59		6817737
pH	pH	6.84	6826454	6.49	6826454	5.79		6826454
Phenols-4AAP	mg/L	ND	6820470	ND	6820470	ND	0.0010	6820470
Total Phosphorus	mg/L	ND	6820550	ND	6820550	ND	0.020	6820550
Reactive Silica (SiO2)	mg/L	2.7	6826516	1.3	6826516	2.6	0.50	6826516
Total Suspended Solids	mg/L	ND	6817677	1.4	6817677	ND	1.0	6817677
Dissolved Sulphate (SO4)	mg/L	2.4	6826513	2.3	6826513	ND	2.0	6826513
Sulphide	mg/L	ND	6818395	ND	6818403	ND	0.020	6818395

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

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BV Labs Job #: C0G3472
Report Date: 2020/07/13

TATA Steel Minerals Canada
Client Project #: Howse Quarterly Surface Water
Site Location: NL SURFACE WATER
Sampler Initials: PS

RESULTS OF ANALYSES OF WATER

BV Labs ID		MZX236		MZX237		MZX238		
Sampling Date		2020/06/26 13:37		2020/06/26 15:36		2020/06/26 12:02		
COC Number		777606-01-01		777606-01-01		777606-01-01		
Sample #		00692		00693		00475		
	UNITS	HOW-SW4-Q1-2020	QC Batch	HOW-SW5-Q1-2020	QC Batch	HOW-BC-Q1-2020	RDL	QC Batch
Turbidity	NTU	0.43	6820039	0.69	6820039	1.2	0.10	6820039
Conductivity	uS/cm	18	6826452	4.4	6826452	6.0	1.0	6826452

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Report Date: 2020/07/13

TATA Steel Minerals Canada
Client Project #: Howse Quarterly Surface Water
Site Location: NL SURFACE WATER
Sampler Initials: PS

RESULTS OF ANALYSES OF WATER

BV Labs ID		MZX239			MZX240		
Sampling Date		2020/06/26 14:28			2020/06/26 11:23		
COC Number		777606-01-01			777606-01-01		
Sample #		00476			00477		
	UNITS	HOW-BL-Q1-2020	RDL	QC Batch	HOW-TL-Q1-2020	RDL	QC Batch
Calculated Parameters							
Anion Sum	me/L	0.570	N/A	6814973	0.330	N/A	6814973
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	25	1.0	6814969	13	1.0	6814969
Calculated TDS	mg/L	32	1.0	6814977	20	1.0	6814977
Carb. Alkalinity (calc. as CaCO3)	mg/L	ND	1.0	6814969	ND	1.0	6814969
Cation Sum	me/L	0.490	N/A	6814973	0.310	N/A	6814973
Hardness (CaCO3)	mg/L	23	1.0	6814971	13	1.0	6814971
Ion Balance (% Difference)	%	7.55	N/A	6814972	3.13	N/A	6814972
Langelier Index (@ 20C)	N/A	-1.91		6814975	-2.54		6814975
Langelier Index (@ 4C)	N/A	-2.16		6814976	-2.79		6814976
Nitrate (N)	mg/L	ND	0.050	6814974	0.082	0.050	6814974
Saturation pH (@ 20C)	N/A	9.25		6814975	9.78		6814975
Saturation pH (@ 4C)	N/A	9.50		6814976	10.0		6814976
Inorganics							
Total Alkalinity (Total as CaCO3)	mg/L	25	5.0	6825145	13	5.0	6825145
Dissolved Chloride (Cl-)	mg/L	ND	1.0	6826510	ND	1.0	6826510
Colour	TCU	5.2	5.0	6826524	14	5.0	6826524
Total Dissolved Solids	mg/L	38	10	6829481	27	10	6829481
Nitrate + Nitrite (N)	mg/L	ND	0.050	6826532	0.082	0.050	6826532
Nitrite (N)	mg/L	ND	0.010	6826534	ND	0.010	6826534
Nitrogen (Ammonia Nitrogen)	mg/L	ND	0.050	6824684	ND	0.050	6824697
Dissolved Organic Carbon (C)	mg/L	ND	0.50	6820214	1.4	0.50	6824348
Total Organic Carbon (C)	mg/L	ND	0.50	6828949	ND (1)	5.0	6828949
Orthophosphate (P)	mg/L	ND	0.010	6826526	ND	0.010	6826526
Dissolved Oxygen	mg/L	10.8		6817737	10.6		6817737
pH	pH	7.34		6826454	7.24		6826454
Phenols-4AAP	mg/L	ND	0.0010	6820470	ND	0.0010	6820470
Total Phosphorus	mg/L	ND	0.020	6820550	0.024	0.020	6820550
Reactive Silica (SiO2)	mg/L	5.1	0.50	6826516	3.9	0.50	6826516
Total Suspended Solids	mg/L	ND	1.0	6817677	38	1.0	6817677
Dissolved Sulphate (SO4)	mg/L	3.3	2.0	6826513	2.9	2.0	6826513

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable
ND = Not detected
(1) Elevated reporting limit due to turbidity.

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BV Labs Job #: C0G3472
Report Date: 2020/07/13

TATA Steel Minerals Canada
Client Project #: Howse Quarterly Surface Water
Site Location: NL SURFACE WATER
Sampler Initials: PS

RESULTS OF ANALYSES OF WATER

BV Labs ID		MZX239			MZX240		
Sampling Date		2020/06/26 14:28			2020/06/26 11:23		
COC Number		777606-01-01			777606-01-01		
Sample #		00476			00477		
	UNITS	HOW-BL-Q1-2020	RDL	QC Batch	HOW-TL-Q1-2020	RDL	QC Batch
Sulphide	mg/L	ND	0.020	6818395	ND	0.020	6818395
Turbidity	NTU	0.25	0.10	6820039	3.6	0.10	6820039
Conductivity	uS/cm	50	1.0	6826452	29	1.0	6826452

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
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BV Labs Job #: C0G3472
Report Date: 2020/07/13

TATA Steel Minerals Canada
Client Project #: Howse Quarterly Surface Water
Site Location: NL SURFACE WATER
Sampler Initials: PS

RESULTS OF ANALYSES OF WATER

BV Labs ID		MZX241		
Sampling Date		2020/06/26 12:11		
COC Number		777606-01-01		
Sample #		00708		
	UNITS	HOW-ML-Q1-2020	RDL	QC Batch
Calculated Parameters				
Anion Sum	me/L	0.200	N/A	6814973
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	5.5	1.0	6814969
Calculated TDS	mg/L	11	1.0	6814977
Carb. Alkalinity (calc. as CaCO3)	mg/L	ND	1.0	6814969
Cation Sum	me/L	0.130	N/A	6814973
Hardness (CaCO3)	mg/L	5.9	1.0	6814971
Ion Balance (% Difference)	%	21.2	N/A	6814972
Langelier Index (@ 20C)	N/A	-3.57		6814975
Langelier Index (@ 4C)	N/A	-3.82		6814976
Nitrate (N)	mg/L	ND	0.050	6814974
Saturation pH (@ 20C)	N/A	10.4		6814975
Saturation pH (@ 4C)	N/A	10.7		6814976
Inorganics				
Total Alkalinity (Total as CaCO3)	mg/L	5.5	5.0	6826557
Dissolved Chloride (Cl-)	mg/L	1.1	1.0	6826830
Colour	TCU	16	5.0	6826840
Total Dissolved Solids	mg/L	20	10	6829481
Nitrate + Nitrite (N)	mg/L	ND	0.050	6826861
Nitrite (N)	mg/L	ND	0.010	6826871
Nitrogen (Ammonia Nitrogen)	mg/L	ND	0.050	6824675
Dissolved Organic Carbon (C)	mg/L	2.2	0.50	6824348
Total Organic Carbon (C)	mg/L	2.4	0.50	6828949
Orthophosphate (P)	mg/L	ND	0.010	6826857
Dissolved Oxygen	mg/L	10.5		6817737
pH	pH	6.87		6826454
Phenols-4AAP	mg/L	ND	0.0010	6820470
Total Phosphorus	mg/L	ND	0.020	6820550
Reactive Silica (SiO2)	mg/L	0.96	0.50	6826834
Total Suspended Solids	mg/L	1.6	1.0	6817677
Dissolved Sulphate (SO4)	mg/L	2.9	2.0	6826831
Sulphide	mg/L	ND	0.020	6818395

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

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Report Date: 2020/07/13

TATA Steel Minerals Canada
Client Project #: Howse Quarterly Surface Water
Site Location: NL SURFACE WATER
Sampler Initials: PS

RESULTS OF ANALYSES OF WATER

BV Labs ID		MZX241		
Sampling Date		2020/06/26 12:11		
COC Number		777606-01-01		
Sample #		00708		
	UNITS	**HOW-ML-Q1-2020**	**RDL**	**QC Batch**
Turbidity	NTU	1.3	0.10	6820039
Conductivity	uS/cm	14	1.0	6826452

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Report Date: 2020/07/13

TATA Steel Minerals Canada
Client Project #: Howse Quarterly Surface Water
Site Location: NL SURFACE WATER
Sampler Initials: PS

MERCURY BY COLD VAPOUR AA (WATER)

BV Labs ID		MZX233	MZX234	MZX235	MZX236		
Sampling Date		2020/06/26 15:03	2020/06/26 14:14	2020/06/26 14:26	2020/06/26 13:37		
COC Number		777606-01-01	777606-01-01	777606-01-01	777606-01-01		
Sample #		00689	00690	00691	00692		
	UNITS	HOW-SW1-Q1-2020	HOW-SW2-Q1-2020	HOW-SW3-Q1-2020	HOW-SW4-Q1-2020	RDL	QC Batch
Metals							
Total Mercury (Hg)	ug/L	ND	ND	ND	ND	0.013	6826643

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
ND = Not detected

BV Labs ID		MZX237	MZX238	MZX239	MZX240		
Sampling Date		2020/06/26 15:36	2020/06/26 12:02	2020/06/26 14:28	2020/06/26 11:23		
COC Number		777606-01-01	777606-01-01	777606-01-01	777606-01-01		
Sample #		00693	00475	00476	00477		
	UNITS	HOW-SW5-Q1-2020	HOW-BC-Q1-2020	HOW-BL-Q1-2020	HOW-TL-Q1-2020	RDL	QC Batch
Metals							
Total Mercury (Hg)	ug/L	ND	ND	ND	ND	0.013	6826643

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
ND = Not detected

BV Labs ID		MZX241		
Sampling Date		2020/06/26 12:11		
COC Number		777606-01-01		
Sample #		00708		
	UNITS	HOW-ML-Q1-2020	RDL	QC Batch
Metals				
Total Mercury (Hg)	ug/L	ND	0.013	6826643

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
ND = Not detected

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Report Date: 2020/07/13

TATA Steel Minerals Canada
Client Project #: Howse Quarterly Surface Water
Site Location: NL SURFACE WATER
Sampler Initials: PS

ELEMENTS BY ICP/MS (WATER)

BV Labs ID		MZX233	MZX234	MZX235	MZX236		
Sampling Date		2020/06/26 15:03	2020/06/26 14:14	2020/06/26 14:26	2020/06/26 13:37		
COC Number		777606-01-01	777606-01-01	777606-01-01	777606-01-01		
Sample #		00689	00690	00691	00692		
	UNITS	HOW-SW1-Q1-2020	HOW-SW2-Q1-2020	HOW-SW3-Q1-2020	HOW-SW4-Q1-2020	RDL	QC Batch
Metals							
Total Aluminum (Al)	ug/L	66	54	53	25	5.0	6818014
Total Antimony (Sb)	ug/L	ND	ND	ND	ND	1.0	6818014
Total Arsenic (As)	ug/L	ND	ND	ND	ND	1.0	6818014
Total Barium (Ba)	ug/L	1.6	1.7	1.5	1.5	1.0	6818014
Total Beryllium (Be)	ug/L	ND	ND	ND	ND	1.0	6818014
Total Bismuth (Bi)	ug/L	ND	ND	ND	ND	2.0	6818014
Total Boron (B)	ug/L	ND	ND	ND	ND	50	6818014
Total Cadmium (Cd)	ug/L	ND	ND	ND	ND	0.010	6818014
Total Calcium (Ca)	ug/L	240	240	240	1400	100	6818014
Total Chromium (Cr)	ug/L	ND	ND	ND	ND	1.0	6818014
Total Cobalt (Co)	ug/L	ND	ND	ND	ND	0.40	6818014
Total Copper (Cu)	ug/L	ND	ND	0.88	ND	0.50	6818014
Total Iron (Fe)	ug/L	340	73	70	ND	50	6818014
Total Lead (Pb)	ug/L	ND	ND	ND	ND	0.50	6818014
Total Magnesium (Mg)	ug/L	ND	130	130	1000	100	6818014
Total Manganese (Mn)	ug/L	22	6.4	6.2	ND	2.0	6818014
Total Molybdenum (Mo)	ug/L	ND	ND	ND	ND	2.0	6818014
Total Nickel (Ni)	ug/L	ND	ND	ND	ND	2.0	6818014
Total Phosphorus (P)	ug/L	ND	ND	ND	ND	100	6818014
Total Potassium (K)	ug/L	ND	ND	ND	220	100	6818014
Total Selenium (Se)	ug/L	ND	ND	ND	ND	0.50	6818014
Total Silver (Ag)	ug/L	ND	ND	ND	ND	0.10	6818014
Total Sodium (Na)	ug/L	310	320	320	360	100	6818014
Total Strontium (Sr)	ug/L	ND	ND	ND	3.4	2.0	6818014
Total Thallium (Tl)	ug/L	ND	ND	ND	ND	0.10	6818014
Total Tin (Sn)	ug/L	ND	ND	ND	ND	2.0	6818014
Total Titanium (Ti)	ug/L	ND	ND	ND	ND	2.0	6818014
Total Uranium (U)	ug/L	ND	ND	ND	ND	0.10	6818014
Total Vanadium (V)	ug/L	ND	ND	ND	ND	2.0	6818014
Total Zinc (Zn)	ug/L	ND	ND	ND	ND	5.0	6818014

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Client Project #: Howse Quarterly Surface Water
Site Location: NL SURFACE WATER
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ELEMENTS BY ICP/MS (WATER)

BV Labs ID		MZX237	MZX238	MZX239	MZX240		
Sampling Date		2020/06/26 15:36	2020/06/26 12:02	2020/06/26 14:28	2020/06/26 11:23		
COC Number		777606-01-01	777606-01-01	777606-01-01	777606-01-01		
Sample #		00693	00475	00476	00477		
	UNITS	HOW-SW5-Q1-2020	HOW-BC-Q1-2020	HOW-BL-Q1-2020	HOW-TL-Q1-2020	RDL	QC Batch
Metals							
Total Aluminum (Al)	ug/L	25	140	6.3	93	5.0	6818014
Total Antimony (Sb)	ug/L	ND	ND	ND	ND	1.0	6818014
Total Arsenic (As)	ug/L	ND	ND	ND	ND	1.0	6818014
Total Barium (Ba)	ug/L	1.3	2.0	1.0	3.3	1.0	6818014
Total Beryllium (Be)	ug/L	ND	ND	ND	ND	1.0	6818014
Total Bismuth (Bi)	ug/L	ND	ND	ND	ND	2.0	6818014
Total Boron (B)	ug/L	ND	ND	ND	ND	50	6818014
Total Cadmium (Cd)	ug/L	ND	ND	ND	ND	0.010	6818014
Total Calcium (Ca)	ug/L	340	290	4400	2400	100	6818014
Total Chromium (Cr)	ug/L	ND	ND	ND	ND	1.0	6818014
Total Cobalt (Co)	ug/L	ND	ND	ND	ND	0.40	6818014
Total Copper (Cu)	ug/L	ND	0.57	ND	ND	0.50	6818014
Total Iron (Fe)	ug/L	65	140	ND	330	50	6818014
Total Lead (Pb)	ug/L	ND	ND	ND	ND	0.50	6818014
Total Magnesium (Mg)	ug/L	180	320	2900	1700	100	6818014
Total Manganese (Mn)	ug/L	11	10	2.4	17	2.0	6818014
Total Molybdenum (Mo)	ug/L	ND	ND	ND	ND	2.0	6818014
Total Nickel (Ni)	ug/L	ND	ND	ND	ND	2.0	6818014
Total Phosphorus (P)	ug/L	ND	ND	ND	ND	100	6818014
Total Potassium (K)	ug/L	110	ND	300	290	100	6818014
Total Selenium (Se)	ug/L	ND	ND	ND	ND	0.50	6818014
Total Silver (Ag)	ug/L	ND	ND	ND	ND	0.10	6818014
Total Sodium (Na)	ug/L	360	340	660	500	100	6818014
Total Strontium (Sr)	ug/L	2.1	ND	5.7	4.3	2.0	6818014
Total Thallium (Tl)	ug/L	ND	ND	ND	ND	0.10	6818014
Total Tin (Sn)	ug/L	ND	ND	ND	ND	2.0	6818014
Total Titanium (Ti)	ug/L	ND	ND	ND	2.8	2.0	6818014
Total Uranium (U)	ug/L	ND	ND	ND	ND	0.10	6818014
Total Vanadium (V)	ug/L	ND	ND	ND	ND	2.0	6818014
Total Zinc (Zn)	ug/L	ND	ND	ND	ND	5.0	6818014

RDL = Reportable Detection Limit
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ND = Not detected

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ELEMENTS BY ICP/MS (WATER)

BV Labs ID		MZX241		
Sampling Date		2020/06/26 12:11		
COC Number		777606-01-01		
Sample #		00708		
	UNITS	HOW-ML-Q1-2020	RDL	QC Batch
Metals				
Total Aluminum (Al)	ug/L	40	5.0	6818014
Total Antimony (Sb)	ug/L	ND	1.0	6818014
Total Arsenic (As)	ug/L	ND	1.0	6818014
Total Barium (Ba)	ug/L	1.4	1.0	6818014
Total Beryllium (Be)	ug/L	ND	1.0	6818014
Total Bismuth (Bi)	ug/L	ND	2.0	6818014
Total Boron (B)	ug/L	ND	50	6818014
Total Cadmium (Cd)	ug/L	ND	0.010	6818014
Total Calcium (Ca)	ug/L	1200	100	6818014
Total Chromium (Cr)	ug/L	ND	1.0	6818014
Total Cobalt (Co)	ug/L	ND	0.40	6818014
Total Copper (Cu)	ug/L	ND	0.50	6818014
Total Iron (Fe)	ug/L	60	50	6818014
Total Lead (Pb)	ug/L	ND	0.50	6818014
Total Magnesium (Mg)	ug/L	710	100	6818014
Total Manganese (Mn)	ug/L	4.2	2.0	6818014
Total Molybdenum (Mo)	ug/L	ND	2.0	6818014
Total Nickel (Ni)	ug/L	ND	2.0	6818014
Total Phosphorus (P)	ug/L	ND	100	6818014
Total Potassium (K)	ug/L	170	100	6818014
Total Selenium (Se)	ug/L	ND	0.50	6818014
Total Silver (Ag)	ug/L	ND	0.10	6818014
Total Sodium (Na)	ug/L	210	100	6818014
Total Strontium (Sr)	ug/L	2.8	2.0	6818014
Total Thallium (Tl)	ug/L	ND	0.10	6818014
Total Tin (Sn)	ug/L	ND	2.0	6818014
Total Titanium (Ti)	ug/L	ND	2.0	6818014
Total Uranium (U)	ug/L	ND	0.10	6818014
Total Vanadium (V)	ug/L	ND	2.0	6818014
Total Zinc (Zn)	ug/L	ND	5.0	6818014

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
ND = Not detected

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	2.7°C
Package 2	2.3°C
Package 3	2.3°C
Package 4	2.0°C
Package 5	5.3°C
Package 6	6.3°C
Package 7	4.7°C
Package 8	6.3°C
Package 9	6.0°C
Package 10	6.0°C

Samples received past the recommended holding time for dissolved oxygen testing.

Sample MZX233 [HOW-SW1-Q1-2020] : RCAp Ion Balance acceptable. Anion/cation agreement within 0.2 meq/L.

Sample MZX234 [HOW-SW2-Q1-2020] : RCAp Ion Balance acceptable. Anion/cation agreement within 0.2 meq/L.

Sample MZX235 [HOW-SW3-Q1-2020] : RCAp Ion Balance acceptable. Anion/cation agreement within 0.2 meq/L.

Sample MZX236 [HOW-SW4-Q1-2020] : RCAp Ion Balance acceptable. Anion/cation agreement within 0.2 meq/L.

Sample MZX238 [HOW-BC-Q1-2020] : RCAp Ion Balance acceptable. Anion/cation agreement within 0.2 meq/L.

Sample MZX239 [HOW-BL-Q1-2020] : RCAp Ion Balance acceptable. Anion/cation agreement within 0.2 meq/L.

Sample MZX240 [HOW-TL-Q1-2020] : DOCCOMB-W DIS Organic Carbon (C) > TOCCOMB-W TOT: Both values fall within acceptable RPD limits for duplicates and are likely equivalent.

Sample MZX241 [HOW-ML-Q1-2020] : RCAp Ion Balance acceptable. Anion/cation agreement within 0.2 meq/L.

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	QC Limits
6817176	ZZH	QC Standard	Total Suspended Solids	2020/07/07		99	%	80 - 120
6817176	ZZH	Method Blank	Total Suspended Solids	2020/07/07	ND, RDL=1.0		mg/L	
6817176	ZZH	RPD	Total Suspended Solids	2020/07/07	13		%	20
6817677	DME	QC Standard	Total Suspended Solids	2020/07/06		97	%	80 - 120
6817677	DME	Method Blank	Total Suspended Solids	2020/07/06	ND, RDL=1.0		mg/L	
6817677	DME	RPD	Total Suspended Solids	2020/07/06	0		%	20
6818014	MLB	Matrix Spike	Total Aluminum (Al)	2020/07/07		101	%	80 - 120
			Total Antimony (Sb)	2020/07/07		101	%	80 - 120
			Total Arsenic (As)	2020/07/07		93	%	80 - 120
			Total Barium (Ba)	2020/07/07		98	%	80 - 120
			Total Beryllium (Be)	2020/07/07		99	%	80 - 120
			Total Bismuth (Bi)	2020/07/07		99	%	80 - 120
			Total Boron (B)	2020/07/07		104	%	80 - 120
			Total Cadmium (Cd)	2020/07/07		97	%	80 - 120
			Total Calcium (Ca)	2020/07/07		99	%	80 - 120
			Total Chromium (Cr)	2020/07/07		94	%	80 - 120
			Total Cobalt (Co)	2020/07/07		95	%	80 - 120
			Total Copper (Cu)	2020/07/07		92	%	80 - 120
			Total Iron (Fe)	2020/07/07		99	%	80 - 120
			Total Lead (Pb)	2020/07/07		98	%	80 - 120
			Total Magnesium (Mg)	2020/07/07		100	%	80 - 120
			Total Manganese (Mn)	2020/07/07		96	%	80 - 120
			Total Molybdenum (Mo)	2020/07/07		101	%	80 - 120
			Total Nickel (Ni)	2020/07/07		96	%	80 - 120
			Total Phosphorus (P)	2020/07/07		99	%	80 - 120
			Total Potassium (K)	2020/07/07		102	%	80 - 120
			Total Selenium (Se)	2020/07/07		95	%	80 - 120
			Total Silver (Ag)	2020/07/07		97	%	80 - 120
			Total Sodium (Na)	2020/07/07		96	%	80 - 120
			Total Strontium (Sr)	2020/07/07		96	%	80 - 120
			Total Thallium (Tl)	2020/07/07		100	%	80 - 120
			Total Tin (Sn)	2020/07/07		98	%	80 - 120
			Total Titanium (Ti)	2020/07/07		100	%	80 - 120
			Total Uranium (U)	2020/07/07		102	%	80 - 120
			Total Vanadium (V)	2020/07/07		98	%	80 - 120
			Total Zinc (Zn)	2020/07/07		96	%	80 - 120
6818014	MLB	Spiked Blank	Total Aluminum (Al)	2020/07/07		102	%	80 - 120
			Total Antimony (Sb)	2020/07/07		99	%	80 - 120
			Total Arsenic (As)	2020/07/07		93	%	80 - 120
			Total Barium (Ba)	2020/07/07		98	%	80 - 120
			Total Beryllium (Be)	2020/07/07		99	%	80 - 120
			Total Bismuth (Bi)	2020/07/07		97	%	80 - 120
			Total Boron (B)	2020/07/07		102	%	80 - 120
			Total Cadmium (Cd)	2020/07/07		95	%	80 - 120
			Total Calcium (Ca)	2020/07/07		100	%	80 - 120
			Total Chromium (Cr)	2020/07/07		96	%	80 - 120
			Total Cobalt (Co)	2020/07/07		97	%	80 - 120
			Total Copper (Cu)	2020/07/07		93	%	80 - 120
			Total Iron (Fe)	2020/07/07		99	%	80 - 120
			Total Lead (Pb)	2020/07/07		97	%	80 - 120
			Total Magnesium (Mg)	2020/07/07		100	%	80 - 120

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Total Manganese (Mn)	2020/07/07		97	%	80 - 120
			Total Molybdenum (Mo)	2020/07/07		101	%	80 - 120
			Total Nickel (Ni)	2020/07/07		98	%	80 - 120
			Total Phosphorus (P)	2020/07/07		100	%	80 - 120
			Total Potassium (K)	2020/07/07		101	%	80 - 120
			Total Selenium (Se)	2020/07/07		95	%	80 - 120
			Total Silver (Ag)	2020/07/07		97	%	80 - 120
			Total Sodium (Na)	2020/07/07		96	%	80 - 120
			Total Strontium (Sr)	2020/07/07		96	%	80 - 120
			Total Thallium (Tl)	2020/07/07		98	%	80 - 120
			Total Tin (Sn)	2020/07/07		101	%	80 - 120
			Total Titanium (Ti)	2020/07/07		98	%	80 - 120
			Total Uranium (U)	2020/07/07		102	%	80 - 120
			Total Vanadium (V)	2020/07/07		98	%	80 - 120
			Total Zinc (Zn)	2020/07/07		97	%	80 - 120
6818014	MLB	Method Blank	Total Aluminum (Al)	2020/07/07	ND, RDL=5.0		ug/L	
			Total Antimony (Sb)	2020/07/07	ND, RDL=1.0		ug/L	
			Total Arsenic (As)	2020/07/07	ND, RDL=1.0		ug/L	
			Total Barium (Ba)	2020/07/07	ND, RDL=1.0		ug/L	
			Total Beryllium (Be)	2020/07/07	ND, RDL=1.0		ug/L	
			Total Bismuth (Bi)	2020/07/07	ND, RDL=2.0		ug/L	
			Total Boron (B)	2020/07/07	ND, RDL=50		ug/L	
			Total Cadmium (Cd)	2020/07/07	ND, RDL=0.010		ug/L	
			Total Calcium (Ca)	2020/07/07	ND, RDL=100		ug/L	
			Total Chromium (Cr)	2020/07/07	ND, RDL=1.0		ug/L	
			Total Cobalt (Co)	2020/07/07	ND, RDL=0.40		ug/L	
			Total Copper (Cu)	2020/07/07	ND, RDL=0.50		ug/L	
			Total Iron (Fe)	2020/07/07	ND, RDL=50		ug/L	
			Total Lead (Pb)	2020/07/07	ND, RDL=0.50		ug/L	
			Total Magnesium (Mg)	2020/07/07	ND, RDL=100		ug/L	
			Total Manganese (Mn)	2020/07/07	ND, RDL=2.0		ug/L	
			Total Molybdenum (Mo)	2020/07/07	ND, RDL=2.0		ug/L	
			Total Nickel (Ni)	2020/07/07	ND, RDL=2.0		ug/L	
			Total Phosphorus (P)	2020/07/07	ND, RDL=100		ug/L	

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Total Potassium (K)	2020/07/07	ND, RDL=100		ug/L	
			Total Selenium (Se)	2020/07/07	ND, RDL=0.50		ug/L	
			Total Silver (Ag)	2020/07/07	ND, RDL=0.10		ug/L	
			Total Sodium (Na)	2020/07/07	ND, RDL=100		ug/L	
			Total Strontium (Sr)	2020/07/07	ND, RDL=2.0		ug/L	
			Total Thallium (Tl)	2020/07/07	ND, RDL=0.10		ug/L	
			Total Tin (Sn)	2020/07/07	ND, RDL=2.0		ug/L	
			Total Titanium (Ti)	2020/07/07	ND, RDL=2.0		ug/L	
			Total Uranium (U)	2020/07/07	ND, RDL=0.10		ug/L	
			Total Vanadium (V)	2020/07/07	ND, RDL=2.0		ug/L	
			Total Zinc (Zn)	2020/07/07	ND, RDL=5.0		ug/L	
6818014	MLB	RPD	Total Aluminum (Al)	2020/07/07	3.9		%	20
			Total Antimony (Sb)	2020/07/07	NC		%	20
			Total Arsenic (As)	2020/07/07	NC		%	20
			Total Barium (Ba)	2020/07/07	2.4		%	20
			Total Beryllium (Be)	2020/07/07	NC		%	20
			Total Bismuth (Bi)	2020/07/07	NC		%	20
			Total Boron (B)	2020/07/07	NC		%	20
			Total Cadmium (Cd)	2020/07/07	NC		%	20
			Total Calcium (Ca)	2020/07/07	4.6		%	20
			Total Chromium (Cr)	2020/07/07	NC		%	20
			Total Cobalt (Co)	2020/07/07	NC		%	20
			Total Copper (Cu)	2020/07/07	NC		%	20
			Total Iron (Fe)	2020/07/07	3.9		%	20
			Total Lead (Pb)	2020/07/07	NC		%	20
			Total Magnesium (Mg)	2020/07/07	3.4		%	20
			Total Manganese (Mn)	2020/07/07	4.1		%	20
			Total Molybdenum (Mo)	2020/07/07	NC		%	20
			Total Nickel (Ni)	2020/07/07	NC		%	20
			Total Phosphorus (P)	2020/07/07	NC		%	20
			Total Potassium (K)	2020/07/07	7.1		%	20
			Total Selenium (Se)	2020/07/07	NC		%	20
			Total Silver (Ag)	2020/07/07	NC		%	20
			Total Sodium (Na)	2020/07/07	9.7		%	20
			Total Strontium (Sr)	2020/07/07	1.5		%	20
			Total Thallium (Tl)	2020/07/07	NC		%	20
			Total Tin (Sn)	2020/07/07	NC		%	20
			Total Titanium (Ti)	2020/07/07	NC		%	20
			Total Uranium (U)	2020/07/07	NC		%	20
			Total Vanadium (V)	2020/07/07	NC		%	20
			Total Zinc (Zn)	2020/07/07	NC		%	20
6818395	NYS	Matrix Spike	Sulphide	2020/07/03		93	%	80 - 120

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
6818395	NYS	Spiked Blank	Sulphide	2020/07/03		100	%	80 - 120
6818395	NYS	Method Blank	Sulphide	2020/07/03	ND, RDL=0.020		mg/L	
6818395	NYS	RPD	Sulphide	2020/07/03	NC		%	20
6818403	NYS	Matrix Spike [MZX237-07]	Sulphide	2020/07/03		100	%	80 - 120
6818403	NYS	Spiked Blank	Sulphide	2020/07/03		104	%	80 - 120
6818403	NYS	Method Blank	Sulphide	2020/07/03	ND, RDL=0.020		mg/L	
6818403	NYS	RPD [MZX237-07]	Sulphide	2020/07/03	NC		%	20
6820039	SHW	QC Standard	Turbidity	2020/07/06		96	%	80 - 120
6820039	SHW	Spiked Blank	Turbidity	2020/07/06		99	%	80 - 120
6820039	SHW	Method Blank	Turbidity	2020/07/06	ND, RDL=0.10		NTU	
6820039	SHW	RPD [MZX237-01]	Turbidity	2020/07/06	2.9		%	20
6820214	SSI	Matrix Spike	Dissolved Organic Carbon (C)	2020/07/07		99	%	85 - 115
6820214	SSI	Spiked Blank	Dissolved Organic Carbon (C)	2020/07/07		99	%	80 - 120
6820214	SSI	Method Blank	Dissolved Organic Carbon (C)	2020/07/07	ND, RDL=0.50		mg/L	
6820214	SSI	RPD	Dissolved Organic Carbon (C)	2020/07/07	0.87		%	15
6820470	BMO	Matrix Spike [MZX235-06]	Phenols-4AAP	2020/07/07		99	%	80 - 120
6820470	BMO	Spiked Blank	Phenols-4AAP	2020/07/07		104	%	80 - 120
6820470	BMO	Method Blank	Phenols-4AAP	2020/07/07	ND, RDL=0.0010		mg/L	
6820470	BMO	RPD [MZX235-06]	Phenols-4AAP	2020/07/07	NC		%	20
6820550	EMT	Matrix Spike [MZX238-10]	Total Phosphorus	2020/07/08		98	%	80 - 120
6820550	EMT	Spiked Blank	Total Phosphorus	2020/07/08		93	%	80 - 120
6820550	EMT	Method Blank	Total Phosphorus	2020/07/08	ND, RDL=0.020		mg/L	
6820550	EMT	RPD [MZX238-10]	Total Phosphorus	2020/07/08	NC		%	25
6822188	SSI	Matrix Spike	Dissolved Organic Carbon (C)	2020/07/08		100	%	85 - 115
6822188	SSI	Spiked Blank	Dissolved Organic Carbon (C)	2020/07/08		100	%	80 - 120
6822188	SSI	Method Blank	Dissolved Organic Carbon (C)	2020/07/08	ND, RDL=0.50		mg/L	
6822188	SSI	RPD	Dissolved Organic Carbon (C)	2020/07/08	5.2		%	15
6824348	SSI	Matrix Spike	Dissolved Organic Carbon (C)	2020/07/09		100	%	85 - 115
6824348	SSI	Spiked Blank	Dissolved Organic Carbon (C)	2020/07/09		100	%	80 - 120
6824348	SSI	Method Blank	Dissolved Organic Carbon (C)	2020/07/09	ND, RDL=0.50		mg/L	
6824348	SSI	RPD	Dissolved Organic Carbon (C)	2020/07/09	NC		%	15
6824675	EMT	Matrix Spike	Nitrogen (Ammonia Nitrogen)	2020/07/08		98	%	80 - 120
6824675	EMT	Spiked Blank	Nitrogen (Ammonia Nitrogen)	2020/07/08		98	%	80 - 120
6824675	EMT	Method Blank	Nitrogen (Ammonia Nitrogen)	2020/07/08	ND, RDL=0.050		mg/L	
6824675	EMT	RPD	Nitrogen (Ammonia Nitrogen)	2020/07/08	0.54		%	20
6824684	EMT	Matrix Spike	Nitrogen (Ammonia Nitrogen)	2020/07/08		94	%	80 - 120
6824684	EMT	Spiked Blank	Nitrogen (Ammonia Nitrogen)	2020/07/08		100	%	80 - 120
6824684	EMT	Method Blank	Nitrogen (Ammonia Nitrogen)	2020/07/08	ND, RDL=0.050		mg/L	
6824684	EMT	RPD	Nitrogen (Ammonia Nitrogen)	2020/07/08	NC		%	20
6824697	EMT	Matrix Spike	Nitrogen (Ammonia Nitrogen)	2020/07/08		NC	%	80 - 120

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
6824697	EMT	Spiked Blank	Nitrogen (Ammonia Nitrogen)	2020/07/08		99	%	80 - 120
6824697	EMT	Method Blank	Nitrogen (Ammonia Nitrogen)	2020/07/08	ND, RDL=0.050		mg/L	
6824697	EMT	RPD	Nitrogen (Ammonia Nitrogen)	2020/07/08	0.80		%	20
6825145	EMT	Matrix Spike	Total Alkalinity (Total as CaCO3)	2020/07/09		103	%	80 - 120
6825145	EMT	Spiked Blank	Total Alkalinity (Total as CaCO3)	2020/07/09		106	%	80 - 120
6825145	EMT	Method Blank	Total Alkalinity (Total as CaCO3)	2020/07/09	ND, RDL=5.0		mg/L	
6825145	EMT	RPD	Total Alkalinity (Total as CaCO3)	2020/07/09	0.76		%	20
6826452	SHW	Spiked Blank	Conductivity	2020/07/09		106	%	80 - 120
6826452	SHW	Method Blank	Conductivity	2020/07/09	ND, RDL=1.0		uS/cm	
6826452	SHW	RPD	Conductivity	2020/07/09	2.0		%	10
6826454	SHW	Spiked Blank	pH	2020/07/09		101	%	97 - 103
6826454	SHW	RPD	pH	2020/07/09	0.97		%	N/A
6826510	EMT	Matrix Spike	Dissolved Chloride (Cl-)	2020/07/09		NC	%	80 - 120
6826510	EMT	Spiked Blank	Dissolved Chloride (Cl-)	2020/07/09		102	%	80 - 120
6826510	EMT	Method Blank	Dissolved Chloride (Cl-)	2020/07/09	ND, RDL=1.0		mg/L	
6826510	EMT	RPD	Dissolved Chloride (Cl-)	2020/07/09	1.7		%	20
6826513	EMT	Matrix Spike	Dissolved Sulphate (SO4)	2020/07/09		104	%	80 - 120
6826513	EMT	Spiked Blank	Dissolved Sulphate (SO4)	2020/07/09		109	%	80 - 120
6826513	EMT	Method Blank	Dissolved Sulphate (SO4)	2020/07/09	ND, RDL=2.0		mg/L	
6826513	EMT	RPD	Dissolved Sulphate (SO4)	2020/07/09	NC		%	20
6826516	EMT	Matrix Spike	Reactive Silica (SiO2)	2020/07/09		91	%	80 - 120
6826516	EMT	Spiked Blank	Reactive Silica (SiO2)	2020/07/09		91	%	80 - 120
6826516	EMT	Method Blank	Reactive Silica (SiO2)	2020/07/09	ND, RDL=0.50		mg/L	
6826516	EMT	RPD	Reactive Silica (SiO2)	2020/07/09	0.81		%	20
6826524	EMT	Spiked Blank	Colour	2020/07/09		95	%	80 - 120
6826524	EMT	Method Blank	Colour	2020/07/09	ND, RDL=5.0		TCU	
6826524	EMT	RPD	Colour	2020/07/09	NC		%	20
6826526	EMT	Matrix Spike	Orthophosphate (P)	2020/07/10		95	%	80 - 120
6826526	EMT	Spiked Blank	Orthophosphate (P)	2020/07/10		97	%	80 - 120
6826526	EMT	Method Blank	Orthophosphate (P)	2020/07/10	ND, RDL=0.010		mg/L	
6826526	EMT	RPD	Orthophosphate (P)	2020/07/10	NC		%	20
6826532	EMT	Matrix Spike	Nitrate + Nitrite (N)	2020/07/09		98	%	80 - 120
6826532	EMT	Spiked Blank	Nitrate + Nitrite (N)	2020/07/09		98	%	80 - 120
6826532	EMT	Method Blank	Nitrate + Nitrite (N)	2020/07/09	ND, RDL=0.050		mg/L	
6826532	EMT	RPD	Nitrate + Nitrite (N)	2020/07/09	NC		%	20
6826534	EMT	Matrix Spike	Nitrite (N)	2020/07/09		104	%	80 - 120
6826534	EMT	Spiked Blank	Nitrite (N)	2020/07/09		107	%	80 - 120
6826534	EMT	Method Blank	Nitrite (N)	2020/07/09	ND, RDL=0.010		mg/L	
6826534	EMT	RPD	Nitrite (N)	2020/07/09	NC		%	20
6826544	SSI	Matrix Spike	Dissolved Organic Carbon (C)	2020/07/09		102	%	85 - 115
6826544	SSI	Spiked Blank	Dissolved Organic Carbon (C)	2020/07/09		103	%	80 - 120
6826544	SSI	Method Blank	Dissolved Organic Carbon (C)	2020/07/09	ND, RDL=0.50		mg/L	

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
6826544	SSI	RPD	Dissolved Organic Carbon (C)	2020/07/09	2.2		%	15
6826557	EMT	Matrix Spike	Total Alkalinity (Total as CaCO3)	2020/07/09		95	%	80 - 120
6826557	EMT	Spiked Blank	Total Alkalinity (Total as CaCO3)	2020/07/09		106	%	80 - 120
6826557	EMT	Method Blank	Total Alkalinity (Total as CaCO3)	2020/07/09	ND, RDL=5.0		mg/L	
6826557	EMT	RPD	Total Alkalinity (Total as CaCO3)	2020/07/09	1.3		%	20
6826643	NHU	Matrix Spike	Total Mercury (Hg)	2020/07/10		106	%	80 - 120
6826643	NHU	Spiked Blank	Total Mercury (Hg)	2020/07/10		106	%	80 - 120
6826643	NHU	Method Blank	Total Mercury (Hg)	2020/07/10	ND, RDL=0.013		ug/L	
6826643	NHU	RPD	Total Mercury (Hg)	2020/07/10	NC		%	20
6826830	EMT	Matrix Spike	Dissolved Chloride (Cl-)	2020/07/09		NC	%	80 - 120
6826830	EMT	Spiked Blank	Dissolved Chloride (Cl-)	2020/07/09		101	%	80 - 120
6826830	EMT	Method Blank	Dissolved Chloride (Cl-)	2020/07/09	ND, RDL=1.0		mg/L	
6826830	EMT	RPD	Dissolved Chloride (Cl-)	2020/07/09	0.40		%	20
6826831	EMT	Matrix Spike	Dissolved Sulphate (SO4)	2020/07/09		NC	%	80 - 120
6826831	EMT	Spiked Blank	Dissolved Sulphate (SO4)	2020/07/09		108	%	80 - 120
6826831	EMT	Method Blank	Dissolved Sulphate (SO4)	2020/07/09	ND, RDL=2.0		mg/L	
6826831	EMT	RPD	Dissolved Sulphate (SO4)	2020/07/09	0.39		%	20
6826834	EMT	Matrix Spike	Reactive Silica (SiO2)	2020/07/09		92	%	80 - 120
6826834	EMT	Spiked Blank	Reactive Silica (SiO2)	2020/07/09		93	%	80 - 120
6826834	EMT	Method Blank	Reactive Silica (SiO2)	2020/07/09	ND, RDL=0.50		mg/L	
6826834	EMT	RPD	Reactive Silica (SiO2)	2020/07/09	2.5		%	20
6826840	EMT	Spiked Blank	Colour	2020/07/09		92	%	80 - 120
6826840	EMT	Method Blank	Colour	2020/07/09	ND, RDL=5.0		TCU	
6826840	EMT	RPD	Colour	2020/07/09	NC		%	20
6826857	EMT	Matrix Spike	Orthophosphate (P)	2020/07/10		91	%	80 - 120
6826857	EMT	Spiked Blank	Orthophosphate (P)	2020/07/10		97	%	80 - 120
6826857	EMT	Method Blank	Orthophosphate (P)	2020/07/10	ND, RDL=0.010		mg/L	
6826857	EMT	RPD	Orthophosphate (P)	2020/07/10	NC		%	20
6826861	EMT	Matrix Spike	Nitrate + Nitrite (N)	2020/07/09		92	%	80 - 120
6826861	EMT	Spiked Blank	Nitrate + Nitrite (N)	2020/07/09		101	%	80 - 120
6826861	EMT	Method Blank	Nitrate + Nitrite (N)	2020/07/09	ND, RDL=0.050		mg/L	
6826861	EMT	RPD	Nitrate + Nitrite (N)	2020/07/09	0.54		%	20
6826871	EMT	Matrix Spike	Nitrite (N)	2020/07/09		NC	%	80 - 120
6826871	EMT	Spiked Blank	Nitrite (N)	2020/07/09		101	%	80 - 120
6826871	EMT	Method Blank	Nitrite (N)	2020/07/09	ND, RDL=0.010		mg/L	
6826871	EMT	RPD	Nitrite (N)	2020/07/09	0.51		%	20
6828948	SSI	Matrix Spike	Total Organic Carbon (C)	2020/07/10		99	%	85 - 115
6828948	SSI	Spiked Blank	Total Organic Carbon (C)	2020/07/10		100	%	80 - 120
6828948	SSI	Method Blank	Total Organic Carbon (C)	2020/07/10	ND, RDL=0.50		mg/L	
6828948	SSI	RPD	Total Organic Carbon (C)	2020/07/10	7.3		%	15
6828949	SSI	Matrix Spike	Total Organic Carbon (C)	2020/07/10		100	%	85 - 115
6828949	SSI	Spiked Blank	Total Organic Carbon (C)	2020/07/10		99	%	80 - 120

Bureau Veritas Laboratories 200 Bluewater Rd, Suite 105, Bedford, Nova Scotia Canada B4B 1G9 Tel: 902-420-0203 Toll-free: 800-565-7227 Fax: 902-420-8612 www.bvlabs.com

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
6828949	SSI	Method Blank	Total Organic Carbon (C)	2020/07/10	ND, RDL=0.50		mg/L	
6828949	SSI	RPD	Total Organic Carbon (C)	2020/07/10	NC		%	15
6829481	AM6	QC Standard	Total Dissolved Solids	2020/07/13		98	%	80 - 120
6829481	AM6	Method Blank	Total Dissolved Solids	2020/07/13	ND, RDL=10		mg/L	
6829481	AM6	RPD	Total Dissolved Solids	2020/07/13	7.3		%	25

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

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.

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)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

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VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

<original signed by>

Brad Newman, Scientific Service Specialist

<original signed by>

Mike MacGillivray, Scientific Specialist (Inorganics)

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Appendix 2 Lake Water Level Monitoring Report

AQUASPHERA

March 17, 2021

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

Attention: Ms. Mariana Trindade, PhD, Corporate Environmental Manager

Subject: Monitoring Report – Lakes Water Levels for 2019-2020 and Corrective Measures

---

Dear Ms. Trindade,

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 5 sites (lakes O'Nelly, Triangle, Morley, Pinette, and Burnetta ["sites" and "lakes" are used interchangeably in this report]). The data covers the period from August 14, 2019 to July 26, 2020. Water depths were monitored using Rugged TROLL 200 data loggers. Atmospheric pressure was monitored at O'Nelly, Triangle, Pinette, and Burnetta sites using a Rugged BaroTROLL data logger. No atmospheric pressure data logger was installed at the Morley site.

2. WATER LEVEL MONITORING

2.1. FIELD DATA

As mentioned in the 2017-2018 and 2018-2019 reports, all Rugged TROLL 200 data loggers were installed by Groupe Hémisphères on August 2, 2017 and on September 14, 2017. 2018-2019 data were collected by Aquasphera staff on August 14, 2019. Three new Rugged BaroTROLL loggers were installed and all probes reinitiated during that visit. The 2019-2020 data was collected by a Tata Steel environmental technician and submitted to Groupe Hémisphères and Aquasphera for processing.

All probes were adjusted for atmospheric pressure using the Rugged BaroTROLL data logger during the entire monitoring period. No atmospheric pressure data logger was installed at the

Morley site. Atmospheric pressure data from Triangle Lake, the closest site, was used for calculations at Morley Lake.

Surveys have been performed by TSMC and Aquasphera staff to record marker and water levels at Morley, Triangle, Pinette, and O'Nelly sites in 2019. As for the Burnetta site, it was not possible to record coordinates since no signal is available in this remote area. However, coordinates from a hand-held GPS unit taken in 2018 by Groupe Hémisphères are available. Elevations at Burnetta have also been calculated upon preliminary atmospheric pressure data from August 2019.

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

2.2. RESULTS

Figures 1 to 5 present estimated water levels in the 5 lakes. Their water depths were converted into absolute elevations, using available survey and atmospheric pressure data. This conversion was roughly estimated for the Burnetta site as only coordinates from a hand-held GPS unit and only a few atmospheric pressure data were available.

In order to convert water depths to water elevations, probe elevation must be determined. Typically, as the water elevation is surveyed using a precise GPS device, water depth is simultaneously measured by the probe. The difference between these two values gives probe elevation.

Data on probe elevation was compiled in the 2017-2018 and 2018-2019 reports. In 2018, values from past surveys carried out by TSMC and Groupe Hémisphères staff were used to calculate probe elevations. On September 13 and 14, 2017, probes were removed, put into a sleeve with antifreeze, and replaced. Hence, it was difficult to establish probe elevations with precision. When possible, surveys undertaken on August 14 and 15, 2019 were used to correct probes elevations. Since no new data on probe elevation was available or could be collected for the 2019-2020 period, the elevation estimates from 2019 were used for this report. Probe elevations are presented in Table 1.

Table 1: Probe Elevations (in m.a.s.l.)

Site	2018	2019	2020	Comment
Morley Lake	674.63	674.63	674.63	No baro logger, correction not possible
Triangle Lake	583.40	583.59	583.59	Correction done in 2019
Pinette Lake	635.15	635.29	635.29	Correction done in 2019
Burnetta Lake	525	524	524	No survey available, rough estimate in 2019
O'Nelly Lake	N/A	661.15	661.15	Correction done in 2019

Compiled results including daily water surface elevation and precipitations during the monitoring period are presented in the figures below.

Figure 1: Average Daily Water Surface Elevation and Precipitation at O'Nelly Lake

Data at the O'Nelly site is erratic from February 6 to the end of the measurement period. According to the data, the probe was probably encased in ice for approximately one month, after which the logged water surface elevation is constant and 25 cm higher than before the start of the winter. The pressures and vacuums created by expanding and shifting ice make the data from this period unusable, and the probe likely shifted or became uncalibrated after this event.

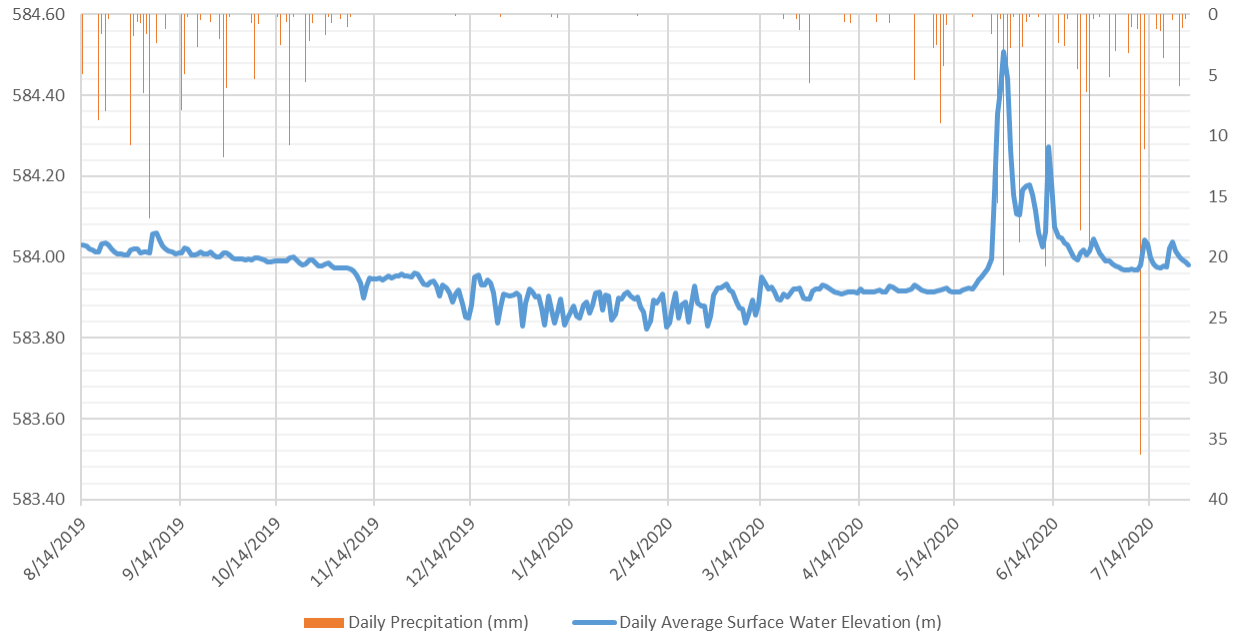


Figure 2: Average Daily Water Surface Elevation and Precipitation at Triangle Lake

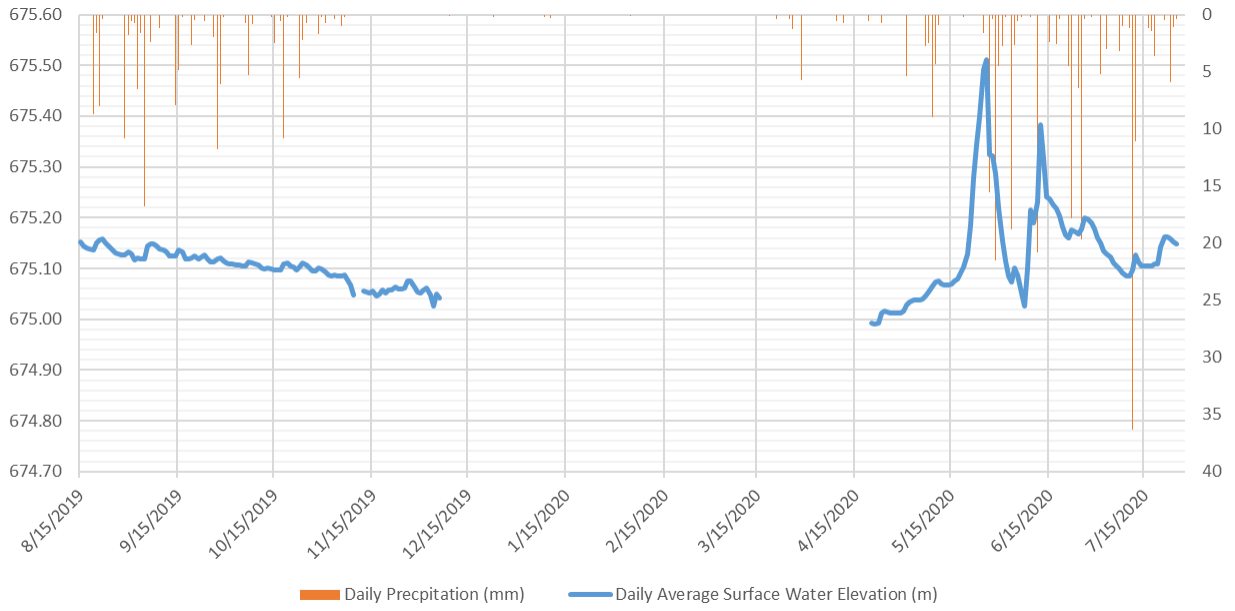


Figure 3: Average Daily Water Surface Elevation and Precipitation at Morley Lake

Data from the Morley site is also erratic on November 10 and 11, 2019, as well between December 7, 2019 to April 19, 2020, and cannot be used. During this period, raw data show rapid variations of water depth that were probably due to ice buildup around the probe.

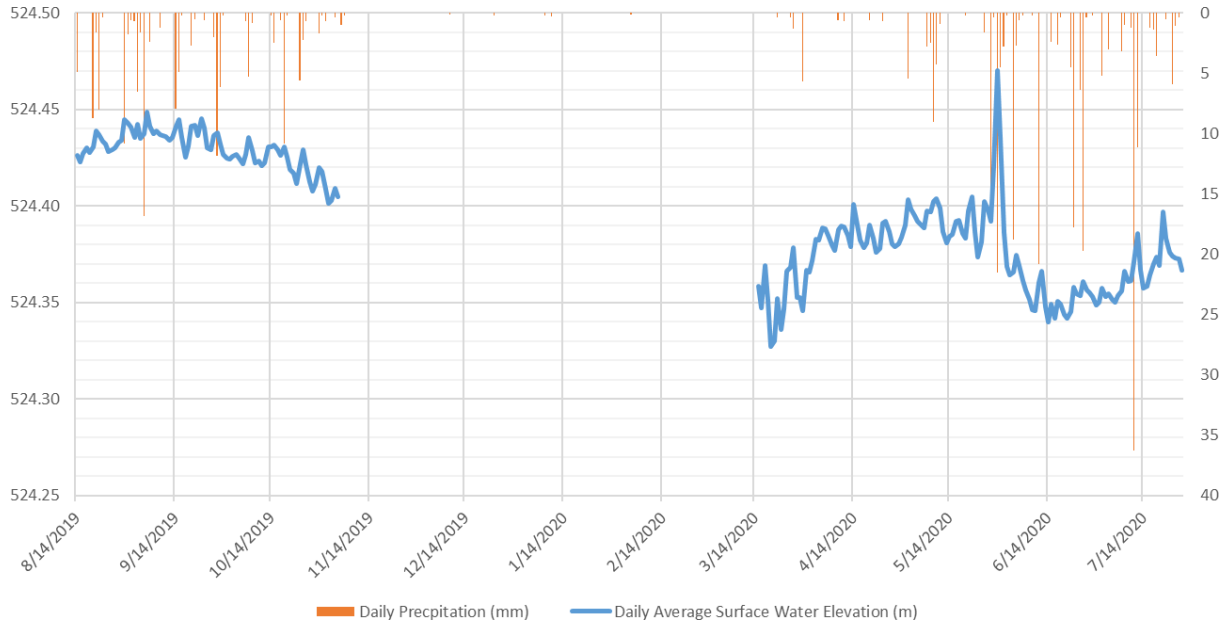


Figure 4: Average Daily Water Surface Elevation and Precipitation at Burnetta Lake

Data at the Burnetta site is also erratic from November 5, 2019 to March 14, 2020, again probably due to ice buildup around the probe. Moreover, water levels in the spring appear to be on average 19 cm lower than last year, which may be due to a probe displacement during the winter.

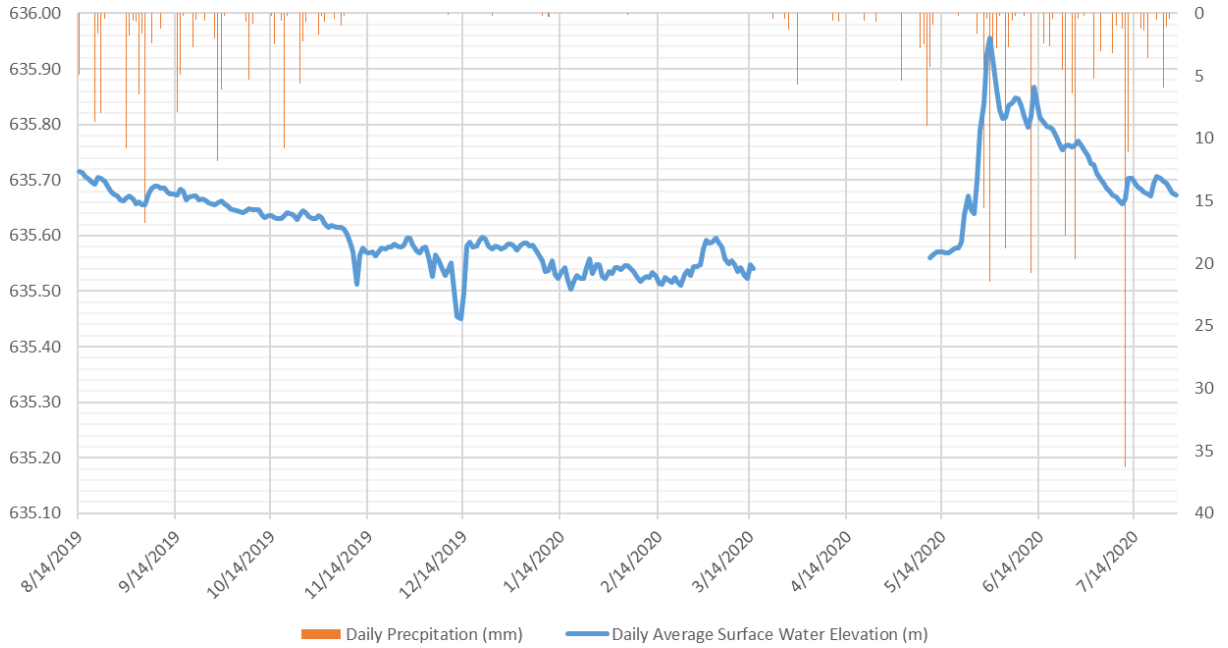


Figure 5: Average Daily Water Surface Elevation and Precipitation at Pinette Lake

Data at the Pinette site is erratic from March 16 to May 10, 2020; this again, may be due to ice buildup around the probe.

3. CONCLUSION AND RECOMMANDATIONS

The following recommendations from the 2018-2019 report are maintained:

1. To ensure proper monitoring of Morley Lake's water level, the installation of an atmospheric pressure probe should be considered. It is recommended to use one Rugged BaroTROLL data logger for each Rugged TROLL 200 data logger unless the monitored sites are less than 2 km apart or when the elevation difference is less than 30 meters. In the case of Morley Lake, only one of the two conditions are met with the closest site (Triangle Lake). When the two conditions are not met, the use of an atmospheric pressure probe from another site to compensate the Rugged TROLL 200 data at Morley Lake may not allow to maintain the accuracy claimed by the probe manufacturer (In-Situ).

2. 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 calculated correctly.

3. A minimum of two surveys per year per site should be conducted, before and after the freezing period.

Moreover, the following recommendations are added for this 2019-2020 report:

4. The Rugged TROLL 200 data logger at the O'Nelly site is considered to be non-functional. After the 2019-2020 winter season, the probe elevation shifted and the data is considered to be unreliable. As a priority, the probe needs to be re-installed and tested, or replaced altogether due to damage sustained from freezing during the 2019-2020 period.

5. As mentioned in previous discussions with Groupe Hémisphères and TSMC, an intervention is required to: assess the situation at each site (including the antifreeze sleeves); test probes; re-install or replace probes as required. Other methods of lake level monitoring should also be investigated, since probe displacement issues and erratic data due to pressure from ice buildup have happened each year since the monitoring started.

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:

<original signed by>

<original signed by>

Maxim Fortin, Eng., M.Sc.
Water Resources Engineer
OIQ 5 019 434

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

Appendix 3 Wetland Water Levels Report

Montréal, March 15, 2021

Mariana Trindade
Corporate Environmental Manager
Tata Steel Minerals Canada Limited
1000 Sherbrooke West, Suite 1120
Montréal (Québec) H3A 3G4

Subject: **Howse wetland wells water levels – 2020 campaign**
Direct Shipping Ore (DSO) Project – Newfoundland and Labrador

N/D: PR185-45-20

Ms. Trindade,

We are pleased to submit the technical report on the above-mentioned project.

Tata Steel Minerals Canada (TSMC) is developing an open-pit iron ore mine in Newfoundland and Labrador. Approximately 46 Mt of iron ore will be extracted over the course of the Howse Property Iron Mine Project's lifespan (Howse Project), or about 15 years.

In 2014, an environmental assessment of the Howse Project was conducted in accordance with the requirements of the *Canadian Environmental Assessment Act, 2012*. As a result, the Howse Project was accepted with several conditions. TSMC, in compliance with the *Migratory Birds Convention Act, 1994* and with the *Species at Risk Act*, must ensure that migratory bird populations and their habitat are in no way negatively impacted by the Howse Project implantation, operation, and decommission.

In this regard and among other requirements, TSMC and Groupe Hémisphères developed a follow-up program to monitor and detect any adverse environmental effects of the Howse Project on wetland functions that support migratory birds, and to determine the effectiveness of the proposed mitigation measures.

This document presents the work mandated to Groupe Hémisphères by TSMC regarding water levels measured in wetlands. It presents the third year of water level monitoring.

1 Methodology

The bottom of water wells, affixed into deep mineral soil, are used to monitor changes in the water levels across wetlands. The surface of the soil in wetlands is not at a constant altitude: it expands and swells as it is waterlogged. Therefore, using the soil level next to the well as a reference altitude would provide

inaccurate data. While the measures using the bottom of the wells cannot be used to compare levels between wells, it is the only way to assure a precise interannual comparison.

Water levels are assessed by measuring the distance from the top of the PVC tube to the surface of the water. It is then subtracted from the total length of the pipe. Water levels were measured once in 2020.

2 Results

Well locations are presented on the figure in Appendix I. No photographs were taken during the 2020 campaign, except for the well WMW25, pictured below.

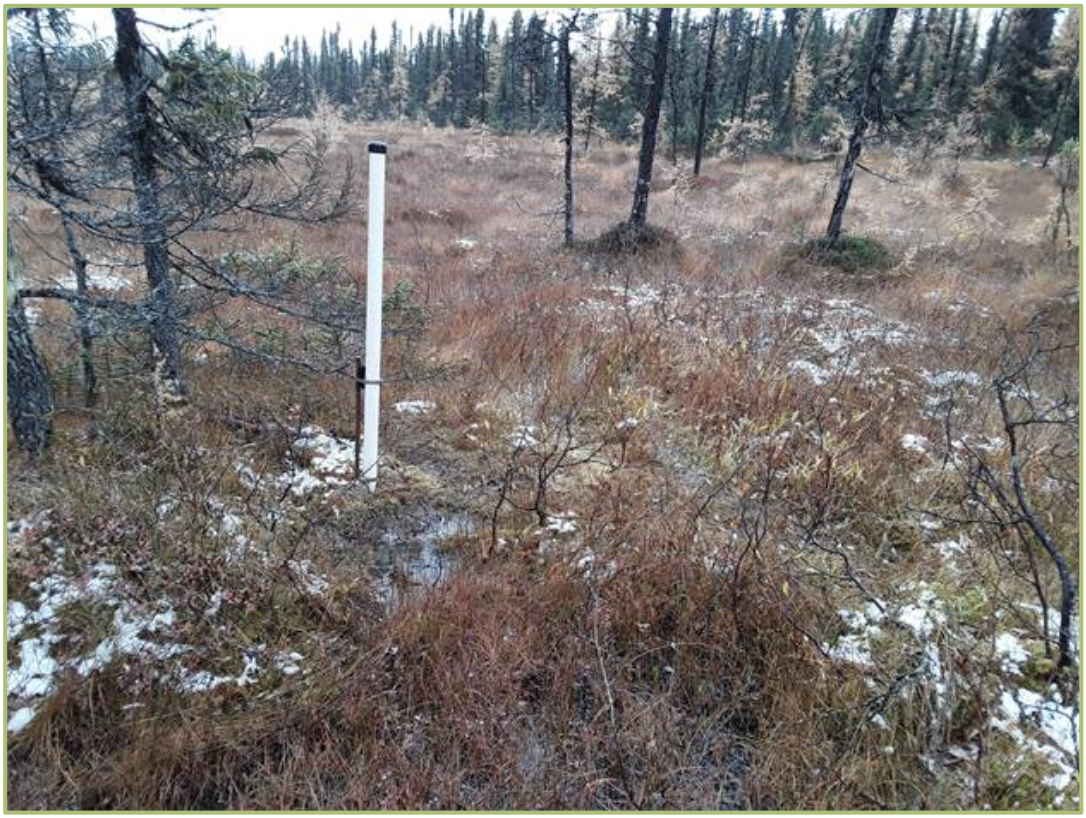


Figure 1. WMW25 during resampling on October 2, 2020

Table 1 presents water levels measured in each well, as well as their specific sampling dates. Mean values obtained in 2018 mean and 2019 values are presented in Table 1 for comparison.

For almost all wells, water levels in 2020 were lower when contrasted to those measured in 2019 and in 2018; in some instances, the variation observed in water levels was large (ex. WMW01, WMW03, WMW18, etc.). Almost all 2020 water level measurements were outside of the ranges (min/max levels) provided in 2018.

Table 1. Water wells level - 2020

Well ID	Date sampled in 2020 (mm-dd)	Water level (m)	Comments	2019 water level (m)	2018 mean value (m)
WMW01	09-06	0.23		0.75	0.73
WMW02	09-06	0.60	Cap off	0.62	0.63

Well ID	Date sampled in 2020 (mm-dd)	Water level (m)	Comments	2019 water level (m)	2018 mean value (m)
WMW03	08-23	0.48		1.17	1.20
WMW04	08-23	0.51		0.67	0.63
WMW05	08-23	0.16		--	1.05
WMW06	09-05	0.87		--	0.74
WMW08	09-07	0.98		--	0.98
WMW11	09-06	0.63		0.72	0.58
WMW12	09-06	1.05		1.14	1.10
WMW13	09-06	1.09		1.02	0.62
WMW16	09-06	0.67		0.7	0.69
WMW18	09-06	0.07		0.94	0.97
WMW19	09-06	0.88	Cap off	0.97	0.62
WMW21	09-06	0.73		0.74	0.77
WMW22	09-06	0.25		0.73	0.71
WMW24	09-06	0.13		--	0.66
WMW25	10-02	0.57*		0.48	0.52
WMW26	09-06	0.24		0.74	0.73
WMW27	08-26	0.99		1.07	1.16
WMW29	09-06	0.77		--	0.90
WMW30	08-26	0.66		1.27	0.75

Notes: --: water levels not sampled; *water level originally measured on September 6 was resampled due to an error with the initial reading

3 Recommendation

For the 2021 campaign, measurements should be carried out on **monthly basis** during the summer months, by recording the water depth from the top of the well. As a reminder, the initial visits at a few of the wells require tools to pry open the caps.

4 Quality assurance

Groupe Hémisphères possesses an internal quality control program based on a review and approval of all concepts and document production by a senior professional. The program considers the management, the control of documentation, the personnel's continuous training, as well as the quality assurance of the deliverables. The system also includes a tight control of the field work and the prevention and safety measures specific to the project.

Prepared by:

<original signed by>

Alicia Suchorski
Environmental specialist, M. Sc., EP®

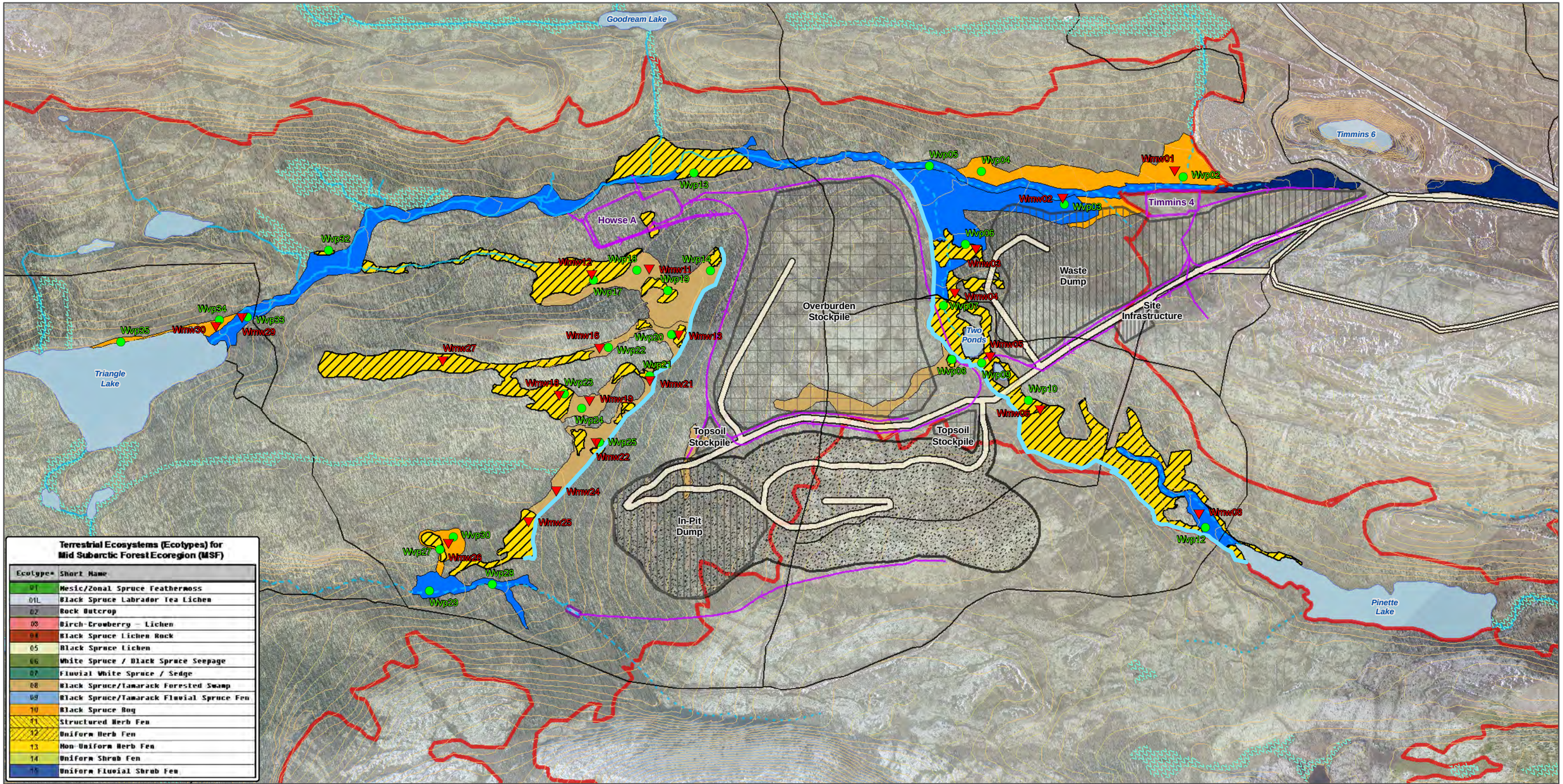
Reviewed by:

<original signed by>

Marie-Ève Dion
Biologist, M. Sc. Env.
ABQ #2951

Appendix I

Well locations



Terrestrial Ecosystems (Ecotypes) for Mid Subarctic Forest Ecoregion (MSF)

Ecotype	Short Name
01	Mesic/Zonal Spruce Feathermoss
01L	Black Spruce Labrador Tea Lichen
02	Rock Outcrop
03	Birch-Crowberry – Lichen
04	Black Spruce Lichen Rock
05	Black Spruce Lichen
06	White Spruce / Black Spruce Seepage
07	Fluvial White Spruce / Sedge
08	Black Spruce/Tamarack Forested Swamp
09	Black Spruce/Tamarack Fluvial Spruce Fen
10	Black Spruce Bog
11	Structured Herb Fen
12	Uniform Herb Fen
13	Non-Uniform Herb Fen
14	Uniform Shrub Fen
15	Uniform Fluvial Shrub Fen

LEGEND

Wetland survey
- Wetland vegetation point
- Active piezometer
- Wetland Delineation

Basemap
- Contour Line (5m)
- Ecoregion Boundary
- Existing Road

Howse Proposed Infrastructures
- Proposed Howse Pit
- Proposed Topsoil/Overburden Stockpile
- Proposed Waste Dump/In-Pit Dump
- Proposed Site Infrastructure
- Proposed Sedimentation Pond
- Proposed Dissipation Pool
- Haul Road
- Proposed Ditch and Outlet

Hydrography
- Permanent Watercourse
- Intermittent Watercourse
- Storm Runoff
- Water Body
- Other Wetland

FILE, PROJECT, DATE, AUTHOR:
GH-0917 , PR185-38-18, 2018-12-20, jfbrisard

N

0 150 300 450 600
Meters

UTM 19N NAD 83 SCALE: 1:15 000

SOURCES:
Basemap
Government of Canada, NTDB, 1:50,000, 1979 Government of NL and government of Quebec, Boundary used for claims
SNC Lavalin, Groupe Hémisphères, Hydrology update, 2013

Infrastructure and Mining Components
New Millennium Capital Corp., Mining sites and roads
Howse Minerals Limited/ MET-CHEM Howse Deposit Design for General Layout, 2015

HOWSE PROPERTY PROJECT

Wetlands monitoring stations

Follow Up Program

Groupe Hemispheres
1001, rue De l'Eglise, Suite 208, Québec (QC) Canada, G1V 3V7
1453, rue Beaubien est, Bureau 301, Montréal (QC) Canada, H2G 3C6

Figure 1

Appendix 4 Air Monitoring Certificates of Analysis

Your P.O. #: 3000000730
Your Project #: PASSIVE NO2 / DS03-4
Site#: 2020/07/04 - 2020/08/09
Site Location: Timmins, Newfoundland

Attention: TARA OAK

Tata Steel Mineral Canada
1000, Sherbrooke St West
Montreal, QC
CANADA H3A 3G4

Report Date: 2020/08/27
Report #: R2921164
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: C059022
Received: 2020/08/20, 08:58

Sample Matrix: Air
Samples Received: 5

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
NO2 Passive Analysis	5	2020/08/20	2020/08/27	PTC SOP-00148	Passive NO2 in ATM

Results relate only to the items tested.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Levi Manchak, Project Manager SR
Email: Levi.MANCHAK@bvlabs.com
Phone# (780)378-8542
==========
BV Labs 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 Signature Page.

Bureau Veritas Laboratories Edmonton: 6744 - 50th Street T6B 3M9 Telephone(780) 378-8500 FAX(780) 378-8699

BV Labs Job #: C059022
Report Date: 2020/08/27

Tata Steel Mineral Canada
Client Project #: PASSIVE NO2 / DS03-4
Site Location: Timmins, Newfoundland
Your P.O. #: 3000000730
Sampler Initials: JFD

RESULTS OF CHEMICAL ANALYSES OF AIR

BV Labs ID		YH3190	YH3191	YH3192	YH3193	YH3200		
Sampling Date		2020/07/04 12:51	2020/07/04 10:37	2020/07/05 08:29	2020/07/12 18:30	2020/07/05 07:31		
	UNITS	AQS2-NO2	AQS4-NO2	AQS6-NO2	AQS8-NO2	AQS9-NO2-2	RDL	QC Batch
Passive Monitoring								
Calculated NO2	ppb	0.2	0.1	0.2	0.2	0.5	0.1	9964217
RDL = Reportable Detection Limit								

Bureau Veritas Laboratories Edmonton: 6744 - 50th Street T6B 3M9 Telephone(780) 378-8500 FAX(780) 378-8699

BV Labs Job #: C059022
Report Date: 2020/08/27

Tata Steel Mineral Canada
Client Project #: PASSIVE NO2 / DS03-4
Site Location: Timmins, Newfoundland
Your P.O. #: 3000000730
Sampler Initials: JFD

GENERAL COMMENTS

Results relate only to the items tested.

Bureau Veritas Laboratories Edmonton: 6744 - 50th Street T6B 3M9 Telephone(780) 378-8500 FAX(780) 378-8699

BV Labs Job #: C059022
Report Date: 2020/08/27

Tata Steel Mineral Canada
Client Project #: PASSIVE NO2 / DS03-4
Site Location: Timmins, Newfoundland
Your P.O. #: 3000000730
Sampler Initials: JFD

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
9964217	YL6	Spiked Blank	Calculated NO2			106	%	90 - 110
9964217	YL6	Method Blank	Calculated NO2		<0.1		ppb	

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.

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BV Labs Job #: C059022
Report Date: 2020/08/27

Tata Steel Mineral Canada
Client Project #: PASSIVE NO2 / DS03-4
Site Location: Timmins, Newfoundland
Your P.O. #: 3000000730
Sampler Initials: JFD

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

<original signed by>

Linda Lin, Supervisor, Centre for Passive Sampling Technology

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Your P.O. #: 3000000730
Your Project #: PASSIVE NO2 / DS03-4
Site#: 2020/08/08 - 2020/09/08
Site Location: Timmins, Newfoundland

Attention: TARA OAK

Tata Steel Mineral Canada
1000, Sherbrooke St West
Montreal, QC
CANADA H3A 3G4

Report Date: 2020/09/28
Report #: R2934294
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: C067446
Received: 2020/09/18, 10:03

Sample Matrix: Air
Samples Received: 6

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
NO2 Passive Analysis	6	2020/09/21	2020/09/28	PTC SOP-00148	Passive NO2 in ATM

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Results relate only to the items tested.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Levi Manchak, Project Manager SR
Email: Levi.MANCHAK@bvlabs.com
Phone# (780)378-8542
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BV Labs Job #: C067446
Report Date: 2020/09/28

Tata Steel Mineral Canada
Client Project #: PASSIVE NO2 / DS03-4
Site Location: Timmins, Newfoundland
Your P.O. #: 3000000730
Sampler Initials: JD

RESULTS OF CHEMICAL ANALYSES OF AIR

BV Labs ID		YL7853	YL7854	YL7855	YL7867	YL7856	YL7858		
Sampling Date		2020/08/08 11:22	2020/08/08 09:53	2020/08/09 11:17	2020/08/09 14:29	2020/08/09 12:15	2020/08/08 14:58		
	UNITS	AQS2-NO2	AQS4-NO2	AQS6-NO2	AQS7-NO2	AQS8-NO2	AQS9-NO2	RDL	QC Batch
Passive Monitoring									
Calculated NO2	ppb	0.2	0.1	0.4	0.4	<0.1	0.3	0.1	A007741
RDL = Reportable Detection Limit									

Bureau Veritas Laboratories Edmonton: 6744 - 50th Street T6B 3M9 Telephone(780) 378-8500 FAX(780) 378-8699

BV Labs Job #: C067446
Report Date: 2020/09/28

Tata Steel Mineral Canada
Client Project #: PASSIVE NO2 / DS03-4
Site Location: Timmins, Newfoundland
Your P.O. #: 3000000730
Sampler Initials: JD

GENERAL COMMENTS

Results relate only to the items tested.

Bureau Veritas Laboratories Edmonton: 6744 - 50th Street T6B 3M9 Telephone(780) 378-8500 FAX(780) 378-8699

BV Labs Job #: C067446
Report Date: 2020/09/28

Tata Steel Mineral Canada
Client Project #: PASSIVE NO2 / DS03-4
Site Location: Timmins, Newfoundland
Your P.O. #: 3000000730
Sampler Initials: JD

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
A007741	YL6	Spiked Blank	Calculated NO2			96	%	90 - 110
A007741	YL6	Method Blank	Calculated NO2		<0.1		ppb	

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.

Bureau Veritas Laboratories Edmonton: 6744 - 50th Street T6B 3M9 Telephone(780) 378-8500 FAX(780) 378-8699

BV Labs Job #: C067446
Report Date: 2020/09/28

Tata Steel Mineral Canada
Client Project #: PASSIVE NO2 / DS03-4
Site Location: Timmins, Newfoundland
Your P.O. #: 3000000730
Sampler Initials: JD

VALIDATION SIGNATURE PAGE

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Carmen Toker, CT, Manager Air Laboratory Services

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Your P.O. #: 3000000730
Your Project #: PASSIVE NO2 / DS03-4
Site#: 2020/09/08 - 2020/10/23
Site Location: Timmins, Newfoundland

Attention: MARIANA TRINDADE

Tata Steel Mineral Canada
1000, Sherbrooke St West
Montreal, QC
CANADA H3A 3G4

Report Date: 2020/11/09
Report #: R2953057
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: C080065
Received: 2020/10/30, 10:13

Sample Matrix: Air
Samples Received: 6

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
NO2 Passive Analysis	6	2020/11/03	2020/11/09	PTC SOP-00148	Passive NO2 in ATM

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Encryption Key

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Levi Manchak, Project Manager SR
Email: Levi.MANCHAK@bvlabs.com
Phone# (780)378-8542
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Bureau Veritas Laboratories Edmonton: 6744 - 50th Street T6B 3M9 Telephone (780) 378-8500 Fax (780) 378-8699

BV Labs Job #: C080065
Report Date: 2020/11/09

Tata Steel Mineral Canada
Client Project #: PASSIVE NO2 / DS03-4
Site Location: Timmins, Newfoundland
Your P.O. #: 3000000730
Sampler Initials: AC

RESULTS OF CHEMICAL ANALYSES OF AIR

BV Labs ID		YT5564	YT5565	YT5566	YT5570	YT5567	YT5569		
Sampling Date		2020/09/08 10:27	2020/09/08 12:25	2020/09/08 17:27	2020/09/08 17:53	2020/09/08 16:48	2020/09/08 14:22		
	UNITS	AQS2-NO2	AQS4-NO2	AQS6-NO2	AQS7-NO2	AQS8-NO2	AQS9-NO2	RDL	QC Batch
Passive Monitoring									
Calculated NO2	ppb	0.2	<0.1	0.2	0.3	0.1	0.5	0.1	A075870
RDL = Reportable Detection Limit									

Bureau Veritas Laboratories Edmonton: 6744 - 50th Street T6B 3M9 Telephone (780) 378-8500 Fax (780) 378-8699

BV Labs Job #: C080065
Report Date: 2020/11/09

Tata Steel Mineral Canada
Client Project #: PASSIVE NO2 / DS03-4
Site Location: Timmins, Newfoundland
Your P.O. #: 3000000730
Sampler Initials: AC

GENERAL COMMENTS

Results relate only to the items tested.

Bureau Veritas Laboratories Edmonton: 6744 - 50th Street T6B 3M9 Telephone (780) 378-8500 Fax (780) 378-8699

BV Labs Job #: C080065
Report Date: 2020/11/09

Tata Steel Mineral Canada
Client Project #: PASSIVE NO2 / DS03-4
Site Location: Timmins, Newfoundland
Your P.O. #: 3000000730
Sampler Initials: AC

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
A075870	YL6	Spiked Blank	Calculated NO2			101	%	90 - 110
A075870	YL6	Method Blank	Calculated NO2		<0.1		ppb	

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.

Bureau Veritas Laboratories Edmonton: 6744 - 50th Street T6B 3M9 Telephone (780) 378-8500 Fax (780) 378-8699

BV Labs Job #: C080065
Report Date: 2020/11/09

Tata Steel Mineral Canada
Client Project #: PASSIVE NO2 / DS03-4
Site Location: Timmins, Newfoundland
Your P.O. #: 3000000730
Sampler Initials: AC

VALIDATION SIGNATURE PAGE

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Linda Lin, Supervisor, Centre for Passive Sampling Technology

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Your P.O. #: 3000000730
Your Project #: PASSIVE NO2 / DS03-4
Site#: 2020/10/23 - 2020/11/28
Site Location: Timmins, Newfoundland

Attention: MARIANA TRINDADE

Tata Steel Mineral Canada
1000, Sherbrooke St West
Montreal, QC
CANADA H3A 3G4

Report Date: 2020/12/14
Report #: R2967150
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: C089744
Received: 2020/12/04, 14:53

Sample Matrix: Air
Samples Received: 6

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
NO2 Passive Analysis	6	2020/12/07	2020/12/14	PTC SOP-00148	Passive NO2 in ATM

Results relate only to the items tested.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Levi Manchak, Project Manager SR
Email: Levi.MANCHAK@bvlabs.com
Phone# (780)378-8542
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BV Labs Job #: C089744
Report Date: 2020/12/14

Tata Steel Mineral Canada
Client Project #: PASSIVE NO2 / DS03-4
Site Location: Timmins, Newfoundland
Your P.O. #: 3000000730
Sampler Initials: JD

RESULTS OF CHEMICAL ANALYSES OF AIR

BV Labs ID		YZ2468	YZ2469	YZ2470	YZ2474	YZ2471	YZ2473		
Sampling Date		2020/10/23 14:01	2020/10/23 14:33	2020/10/21 08:30	2020/10/21 08:04	2020/10/22 14:03	2020/10/23 09:27		
	UNITS	AQS2-NO2	AQS4-NO2	AQS6-NO2	AQS7-NO2	AQS8-NO2	AQS9-NO2	RDL	QC Batch
Passive Monitoring									
Calculated NO2	ppb	0.2	<0.1	0.4	0.3	<0.1	0.4	0.1	A106365
RDL = Reportable Detection Limit									

Bureau Veritas Laboratories Edmonton: 6744 - 50th Street T6B 3M9 Telephone (780) 378-8500 Fax (780) 378-8699

BV Labs Job #: C089744
Report Date: 2020/12/14

Tata Steel Mineral Canada
Client Project #: PASSIVE NO2 / DS03-4
Site Location: Timmins, Newfoundland
Your P.O. #: 3000000730
Sampler Initials: JD

GENERAL COMMENTS

Results relate only to the items tested.

Bureau Veritas Laboratories Edmonton: 6744 - 50th Street T6B 3M9 Telephone (780) 378-8500 Fax (780) 378-8699

BV Labs Job #: C089744
Report Date: 2020/12/14

Tata Steel Mineral Canada
Client Project #: PASSIVE NO2 / DS03-4
Site Location: Timmins, Newfoundland
Your P.O. #: 3000000730
Sampler Initials: JD

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
A106365	YL6	Spiked Blank	Calculated NO2			98	%	90 - 110
A106365	YL6	Method Blank	Calculated NO2		<0.1		ppb	

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.

Bureau Veritas Laboratories Edmonton: 6744 - 50th Street T6B 3M9 Telephone (780) 378-8500 Fax (780) 378-8699

BV Labs Job #: C089744
Report Date: 2020/12/14

Tata Steel Mineral Canada
Client Project #: PASSIVE NO2 / DS03-4
Site Location: Timmins, Newfoundland
Your P.O. #: 3000000730
Sampler Initials: JD

VALIDATION SIGNATURE PAGE

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Linda Lin, Supervisor, Centre for Passive Sampling Technology

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Your P.O. #: 3000000730
Your Project #: PASSIVE NO2 / DS03-4
Site#: 2020/11/28 - 2021/01/12
Site Location: Timmins, Newfoundland

Attention: MARIANA TRINDADE

Tata Steel Mineral Canada
1000, Sherbrooke St West
Montreal, QC
CANADA H3A 3G4

Report Date: 2021/02/03
Report #: R2982905
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: C104856
Received: 2021/01/25, 11:48

Sample Matrix: Air
Samples Received: 6

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
NO2 Passive Analysis	6	2021/01/26	2021/02/03	PTC SOP-00148	Passive NO2 in ATM

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Encryption Key

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Levi Manchak, Project Manager SR
Email: Levi.MANCHAK@bureauveritas.com
Phone# (780)378-8542
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BV Labs Job #: C104856
Report Date: 2021/02/03

Tata Steel Mineral Canada
Client Project #: PASSIVE NO2 / DS03-4
Site Location: Timmins, Newfoundland
Your P.O. #: 3000000730
Sampler Initials: DH

RESULTS OF CHEMICAL ANALYSES OF AIR

BV Labs ID		ZF0535	ZF0536	ZF0537	ZF0541	ZF0538	ZF0540		
Sampling Date		2020/11/28 10:37	2020/11/28 11:57	2020/11/29 14:48	2020/11/30 13:47	2020/11/30 13:36	2020/11/30 14:37		
	UNITS	AQS2-NO2	AQS4-NO2	AQS6-NO2	AQS7-NO2	AQS8-NO2	AQS9-NO2	RDL	QC Batch
Passive Monitoring									
Calculated NO2	ppb	<0.1	<0.1	<0.1	<0.1	<0.1	0.2	0.1	A141427
RDL = Reportable Detection Limit									

Bureau Veritas Laboratories Edmonton: 6744 - 50th Street T6B 3M9 Telephone (780) 378-8500 Fax (780) 378-8699

BV Labs Job #: C104856
Report Date: 2021/02/03

Tata Steel Mineral Canada
Client Project #: PASSIVE NO2 / DS03-4
Site Location: Timmins, Newfoundland
Your P.O. #: 3000000730
Sampler Initials: DH

GENERAL COMMENTS

Results relate only to the items tested.

Bureau Veritas Laboratories Edmonton: 6744 - 50th Street T6B 3M9 Telephone (780) 378-8500 Fax (780) 378-8699

BV Labs Job #: C104856
Report Date: 2021/02/03

Tata Steel Mineral Canada
Client Project #: PASSIVE NO2 / DS03-4
Site Location: Timmins, Newfoundland
Your P.O. #: 3000000730
Sampler Initials: DH

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
A141427	YL6	Spiked Blank	Calculated NO2			93	%	90 - 110
A141427	YL6	Method Blank	Calculated NO2		<0.1		ppb	

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.

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BV Labs Job #: C104856
Report Date: 2021/02/03

Tata Steel Mineral Canada
Client Project #: PASSIVE NO2 / DS03-4
Site Location: Timmins, Newfoundland
Your P.O. #: 3000000730
Sampler Initials: DH

VALIDATION SIGNATURE PAGE

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Linda Lin, Supervisor, Centre for Passive Sampling Technology

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Your P.O. #: 3000000730
Your Project #: PASSIVE NO2 / DS03-4
Site#: 2021/01/10 - 2021/02/15
Site Location: Timmins, Newfoundland

Attention: MARIANA TRINDADE

Tata Steel Mineral Canada
1000, Sherbrooke St West
Montreal, QC
CANADA H3A 3G4

Report Date: 2021/03/01
Report #: R2991243
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: C111021
Received: 2021/02/22, 14:47

Sample Matrix: Air
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
NO2 Passive Analysis	2	2021/02/23	2021/03/01	PTC SOP-00148	Passive NO2 in ATM

Results relate only to the items tested.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Encryption Key

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Levi Manchak, Project Manager SR
Email: Levi.MANCHAK@bureauveritas.com
Phone# (780)378-8542
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BV Labs Job #: C111021
Report Date: 2021/03/01

Tata Steel Mineral Canada
Client Project #: PASSIVE NO2 / DS03-4
Site Location: Timmins, Newfoundland
Your P.O. #: 3000000730
Sampler Initials: DH

RESULTS OF CHEMICAL ANALYSES OF AIR

BV Labs ID		ZI7943	ZI7944		
Sampling Date		2021/01/10 13:40	2021/01/04 14:25		
	UNITS	AQS2-NO2	AQS4-NO2	RDL	QC Batch
Passive Monitoring					
Calculated NO2	ppb	<0.1	MISSING	0.1	A162606
RDL = Reportable Detection Limit					

Bureau Veritas Laboratories Edmonton: 6744 - 50th Street T6B 3M9 Telephone (780) 378-8500 Fax (780) 378-8699

BV Labs Job #: C111021
Report Date: 2021/03/01

Tata Steel Mineral Canada
Client Project #: PASSIVE NO2 / DS03-4
Site Location: Timmins, Newfoundland
Your P.O. #: 3000000730
Sampler Initials: DH

GENERAL COMMENTS

Results relate only to the items tested.

Bureau Veritas Laboratories Edmonton: 6744 - 50th Street T6B 3M9 Telephone (780) 378-8500 Fax (780) 378-8699

BV Labs Job #: C111021
Report Date: 2021/03/01

Tata Steel Mineral Canada
Client Project #: PASSIVE NO2 / DS03-4
Site Location: Timmins, Newfoundland
Your P.O. #: 3000000730
Sampler Initials: DH

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
A162606	XSZ	Spiked Blank	Calculated NO2			97	%	90 - 110
A162606	XSZ	Method Blank	Calculated NO2		<0.1		ppb	

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.

Bureau Veritas Laboratories Edmonton: 6744 - 50th Street T6B 3M9 Telephone (780) 378-8500 Fax (780) 378-8699

BV Labs Job #: C111021
Report Date: 2021/03/01

Tata Steel Mineral Canada
Client Project #: PASSIVE NO2 / DS03-4
Site Location: Timmins, Newfoundland
Your P.O. #: 3000000730
Sampler Initials: DH

VALIDATION SIGNATURE PAGE

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Linda Lin, Supervisor, Centre for Passive Sampling Technology

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Bureau Veritas Laboratories Edmonton: 6744 - 50th Street T6B 3M9 Telephone (780) 378-8500 Fax (780) 378-8699

Your P.O. #: 3000000730
Your Project #: PASSIVE NO2 / DS03-4
Site#: 2021/01/03 - 2021/04/16
Site Location: Timmins, Newfoundland

Attention: MARIANA TRINDADE

Tata Steel Mineral Canada
1000, Sherbrooke St West
Montreal, QC
CANADA H3A 3G4

Report Date: 2021/05/03
Report #: R3015303
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: C126928
Received: 2021/04/27, 08:30

Sample Matrix: Air
Samples Received: 6

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
NO2 Passive Analysis	6	2021/04/28	2021/04/30	PTC SOP-00148	Passive NO2 in ATM

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Encryption Key

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Levi Manchak, Project Manager SR
Email: Levi.MANCHAK@bureauveritas.com
Phone# (780)378-8542
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Bureau Veritas Laboratories Edmonton: 6744 - 50th Street T6B 3M9 Telephone (780) 378-8500 Fax (780) 378-8699

BV Labs Job #: C126928
Report Date: 2021/05/03

Tata Steel Mineral Canada
Client Project #: PASSIVE NO2 / DS03-4
Site Location: Timmins, Newfoundland
Your P.O. #: 3000000730
Sampler Initials: DH

RESULTS OF CHEMICAL ANALYSES OF AIR

BV Labs ID		ZR4090	ZR4091	ZR4096	ZR4097	ZR4098	ZR4099		
Sampling Date		2021/02/14 13:30	2021/02/15 14:30	2021/01/12 09:20	2021/01/12 09:48	2021/01/03 15:15	2021/01/12 14:55		
	UNITS	AQS2-NO2	AQS4-NO2	AQS6-NO2	AQS7-NO2	AQS8-NO2	AQS9-NO2	RDL	QC Batch
Passive Monitoring									
Calculated NO2	ppb	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	A209347
RDL = Reportable Detection Limit									

Bureau Veritas Laboratories Edmonton: 6744 - 50th Street T6B 3M9 Telephone (780) 378-8500 Fax (780) 378-8699

BV Labs Job #: C126928
Report Date: 2021/05/03

Tata Steel Mineral Canada
Client Project #: PASSIVE NO2 / DS03-4
Site Location: Timmins, Newfoundland
Your P.O. #: 3000000730
Sampler Initials: DH

GENERAL COMMENTS

Sample ZR4096 [AQS6-NO2] : Sample exceeded hold time.

Sample ZR4097 [AQS7-NO2] : Sample exceeded hold time.

Sample ZR4098 [AQS8-NO2] : Sample exceeded hold time.

Sample ZR4099 [AQS9-NO2] : Sample exceeded hold time.

Results relate only to the items tested.

Bureau Veritas Laboratories Edmonton: 6744 - 50th Street T6B 3M9 Telephone (780) 378-8500 Fax (780) 378-8699

BV Labs Job #: C126928
Report Date: 2021/05/03

Tata Steel Mineral Canada
Client Project #: PASSIVE NO2 / DS03-4
Site Location: Timmins, Newfoundland
Your P.O. #: 3000000730
Sampler Initials: DH

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
A209347	XSZ	Spiked Blank	Calculated NO2			95	%	90 - 110
A209347	XSZ	Method Blank	Calculated NO2		<0.1		ppb	

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.

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BV Labs Job #: C126928
Report Date: 2021/05/03

Tata Steel Mineral Canada
Client Project #: PASSIVE NO2 / DS03-4
Site Location: Timmins, Newfoundland
Your P.O. #: 3000000730
Sampler Initials: DH

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

<original signed by>

Linda Lin, Supervisor, Centre for Passive Sampling Technology

BV Labs 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 Signature Page.

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Votre # du projet: C035854
Votre # Bordereau: C035854-NONT-01-01

Attention: Martine Lepage

Bureau Veritas Laboratories
889 Montée de Liesse
Ville St-Laurent, QC
CANADA H4T 1P5

Date du rapport: 2020/09/30
Rapport: R6351738
Version: 1 - Finale

CERTIFICAT D'ANALYSES

 # DE DOSSIER BV LABS: C0N3495
Reçu: 2020/09/10, 08:56

Matrice: Eau
Nombre d'échantillons reçus: 7

Analyses	Quantité	Date de l' extraction	Date Analysé	Méthode de laboratoire	Méthode d'analyse
MERCURE PAR VAPEUR FROIDE AA	1	2020/09/17	2020/09/24	CAM SOP-00453	
MERCURE PAR VAPEUR FROIDE AA	6	2020/09/24	2020/09/24	CAM SOP-00453	
Total Metals Analysis by ICPMS	7	N/A	2020/09/21	CAM SOP-00447	
Insoluble Part. in Dustfall (D1739mod)	7	2020/09/23	2020/09/23	BRL SOP-00121	ASTM D1739 m
Soluble Part. in Dustfall (D1739mod)	7	2020/09/23	2020/09/23	BRL SOP-00121	ASTM D1739 m
Volume of Sample Received	7	2020/09/23	2020/09/25		

Lorsque la méthode de référence comprend un suffixe « m », cela signifie que la méthode d'analyse du laboratoire contient des modifications validées et appliquées afin d'améliorer la performance de la méthode de référence.

clé de cryptage

Veuillez adresser toute question concernant ce certificat d'analyse à votre chargé(e) de projets
Marinela Sim, Chargée de projets
Courriel: Marinela.Sim@bvlabs.com
Téléphone (905)817-5828

==========

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Dossier BV Labs: C0N3495
Date du rapport: 2020/09/30

Bureau Veritas Laboratories
Votre # du projet: C035854
Initiales du préleveur: JFD

RÉSULTATS D'ANALYSES POUR LES ÉCHANTILLONS D' EAU

Identification BV Labs		NOY023	NOY024	NOY025		
Date d'échantillonnage		2020/08/08 12:35	2020/08/08 11:22	2020/08/08 10:39		
# Bordereau		C035854-NONT-01-01	C035854-NONT-01-01	C035854-NONT-01-01		
	Unités	**ID6694-AQS1**	**ID6695-AQS2**	**ID6696-AQS3**	**LDR**	**Lot CQ**
Particules Totales Insoluble	mg	3.60	6.80	2.40	0.30	6960216
Particules Totales Soluble	mg	16.8	20.0	14.8	4.0	6960218
Charge/Prep Analysis						
Volume de l'échantillon	ml	2900	2500	2000	2	6960214

LDR = limite de détection rapportée
Lot CQ = Lot Contrôle Qualité

Identification BV Labs		NOY026		NOY027	NOY028		
Date d'échantillonnage		2020/08/08 09:53		2020/08/09 14:30	2020/08/09 12:15		
# Bordereau		C035854-NONT-01-01		C035854-NONT-01-01	C035854-NONT-01-01		
	Unités	**ID6697-AQS4**	**LDR**	**ID6698-AQS7**	**ID6699-AQS8**	**LDR**	**Lot CQ**
Particules Totales Insoluble	mg	13.4	0.90	5.40	6.60	0.30	6960216
Particules Totales Soluble	mg	32.8	4.0	16.8	21.6	4.0	6960218
Charge/Prep Analysis							
Volume de l'échantillon	ml	2500	2	2200	1500	2	6960214

LDR = limite de détection rapportée
Lot CQ = Lot Contrôle Qualité

Identification BV Labs		NOY029		
Date d'échantillonnage		2020/08/09 14:47		
# Bordereau		C035854-NONT-01-01		
	Unités	**ID6700-AQS9**	**LDR**	**Lot CQ**
Particules Totales Insoluble	mg	3.00	0.30	6960216
Particules Totales Soluble	mg	15.2	4.0	6960218
Charge/Prep Analysis				
Volume de l'échantillon	ml	2000	2	6960214

LDR = limite de détection rapportée
Lot CQ = Lot Contrôle Qualité

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ELEMENTS BY ATOMIC SPECTROSCOPY (EAU)

Identification BV Labs		NOY023	NOY024	NOY025		
Date d'échantillonnage		2020/08/08 12:35	2020/08/08 11:22	2020/08/08 10:39		
# Bordereau		C035854-NONT-01-01	C035854-NONT-01-01	C035854-NONT-01-01		
	Unités	**ID6694-AQS1**	**ID6695-AQS2**	**ID6696-AQS3**	**LDR**	**Lot CQ**
MÉTAUX						
Mercure (Hg)	mg/L	<0.00010	<0.00010	<0.00010	0.00010	6962134
Arsenic (As) totaux	ug/L	<1.0	<1.0	<1.0	1.0	6955146
Baryum (Ba) totaux	ug/L	2.7	3.8	26	2.0	6955146
Béryllium (Be) totaux	ug/L	<0.40	<0.40	<0.40	0.40	6955146
Cadmium (Cd) totaux	ug/L	<0.090	<0.090	<0.090	0.090	6955146
Chrome (Cr) totaux	ug/L	<5.0	<5.0	<5.0	5.0	6955146
Cuivre (Cu) totaux	ug/L	<0.90	<0.90	<0.90	0.90	6955146
Fer (Fe) totaux	ug/L	<100	<100	<100	100	6955146
Plomb (Pb) totaux	ug/L	0.80	<0.50	1.5	0.50	6955146
Nickel (Ni) totaux	ug/L	<1.0	<1.0	<1.0	1.0	6955146
Argent (Ag) totaux	ug/L	<0.090	<0.090	<0.090	0.090	6955146
Thallium (Tl) totaux	ug/L	<0.050	<0.050	<0.050	0.050	6955146
Vanadium (V) totaux	ug/L	<0.50	<0.50	<0.50	0.50	6955146
Zinc (Zn) totaux	ug/L	<5.0	<5.0	5.5	5.0	6955146

LDR = limite de détection rapportée
Lot CQ = Lot Contrôle Qualité

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ELEMENTS BY ATOMIC SPECTROSCOPY (EAU)

Identification BV Labs		NOY026	NOY027	NOY028		
Date d'échantillonnage		2020/08/08 09:53	2020/08/09 14:30	2020/08/09 12:15		
# Bordereau		C035854-NONT-01-01	C035854-NONT-01-01	C035854-NONT-01-01		
	Unités	**ID6697-AQS4**	**ID6698-AQS7**	**ID6699-AQS8**	**LDR**	**Lot CQ**
MÉTAUX						
Mercure (Hg)	mg/L	<0.00010	<0.00010	<0.00010	0.00010	6962134
Arsenic (As) totaux	ug/L	<1.0	<1.0	<1.0	1.0	6955146
Baryum (Ba) totaux	ug/L	11	4.1	9.7	2.0	6955146
Béryllium (Be) totaux	ug/L	<0.40	<0.40	<0.40	0.40	6955146
Cadmium (Cd) totaux	ug/L	<0.090	<0.090	<0.090	0.090	6955146
Chrome (Cr) totaux	ug/L	<5.0	<5.0	<5.0	5.0	6955146
Cuivre (Cu) totaux	ug/L	<0.90	<0.90	2.5	0.90	6955146
Fer (Fe) totaux	ug/L	<100	<100	<100	100	6955146
Plomb (Pb) totaux	ug/L	1.3	1.0	1.6	0.50	6955146
Nickel (Ni) totaux	ug/L	<1.0	<1.0	<1.0	1.0	6955146
Argent (Ag) totaux	ug/L	<0.090	<0.090	<0.090	0.090	6955146
Thallium (Tl) totaux	ug/L	<0.050	<0.050	<0.050	0.050	6955146
Vanadium (V) totaux	ug/L	<0.50	<0.50	<0.50	0.50	6955146
Zinc (Zn) totaux	ug/L	120	<5.0	<5.0	5.0	6955146

LDR = limite de détection rapportée
Lot CQ = Lot Contrôle Qualité

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ELEMENTS BY ATOMIC SPECTROSCOPY (EAU)

Identification BV Labs		NOY029		
Date d'échantillonnage		2020/08/09 14:47		
# Bordereau		C035854-NONT-01-01		
	Unités	**ID6700-AQS9**	**LDR**	**Lot CQ**
MÉTAUX				
Mercure (Hg)	mg/L	<0.00010	0.00010	6962134
Arsenic (As) totaux	ug/L	<1.0	1.0	6955146
Baryum (Ba) totaux	ug/L	19	2.0	6955146
Béryllium (Be) totaux	ug/L	<0.40	0.40	6955146
Cadmium (Cd) totaux	ug/L	<0.090	0.090	6955146
Chrome (Cr) totaux	ug/L	<5.0	5.0	6955146
Cuivre (Cu) totaux	ug/L	<0.90	0.90	6955146
Fer (Fe) totaux	ug/L	<100	100	6955146
Plomb (Pb) totaux	ug/L	1.0	0.50	6955146
Nickel (Ni) totaux	ug/L	<1.0	1.0	6955146
Argent (Ag) totaux	ug/L	<0.090	0.090	6955146
Thallium (Tl) totaux	ug/L	<0.050	0.050	6955146
Vanadium (V) totaux	ug/L	<0.50	0.50	6955146
Zinc (Zn) totaux	ug/L	<5.0	5.0	6955146

LDR = limite de détection rapportée
Lot CQ = Lot Contrôle Qualité

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REMARQUES GÉNÉRALES

50% of samples volume was processed for dustfall; remaining 50% of samples were sent for further metals and Hg analysis.
Results and DL were multiplied by 2.

Échantillon NOY023 [ID6694-AQS1] : Filtered residues appeared to be algae

Échantillon NOY024 [ID6695-AQS2] : Filtered residues appeared to be algae

Échantillon NOY026 [ID6697-AQS4] : Multiple filters were used, DL was adjusted accordingly

Échantillon NOY028 [ID6699-AQS8] : Filtered residues appeared to be algae

Les résultats s'appliquent seulement pour les paramètres analysés.

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RAPPORT ASSURANCE QUALITÉ

Lot Lot	Init	Type CQ	Groupe	Date Analysé	Valeur	Réc	Unités	Limites CQ
6955146	AFZ	Échantillon fortifié	Arsenic (As) totaux	2020/09/21		97	%	80 - 120
			Baryum (Ba) totaux	2020/09/21		NC	%	80 - 120
			Béryllium (Be) totaux	2020/09/21		100	%	80 - 120
			Cadmium (Cd) totaux	2020/09/21		97	%	80 - 120
			Chrome (Cr) totaux	2020/09/21		98	%	80 - 120
			Cuivre (Cu) totaux	2020/09/21		101	%	80 - 120
			Fer (Fe) totaux	2020/09/21		95	%	80 - 120
			Plomb (Pb) totaux	2020/09/21		90	%	80 - 120
			Nickel (Ni) totaux	2020/09/21		92	%	80 - 120
			Argent (Ag) totaux	2020/09/21		94	%	80 - 120
			Thallium (Tl) totaux	2020/09/21		90	%	80 - 120
			Vanadium (V) totaux	2020/09/21		101	%	80 - 120
			Zinc (Zn) totaux	2020/09/21		92	%	80 - 120
6955146	AFZ	Blanc fortifié	Arsenic (As) totaux	2020/09/21		98	%	80 - 120
			Baryum (Ba) totaux	2020/09/21		98	%	80 - 120
			Béryllium (Be) totaux	2020/09/21		97	%	80 - 120
			Cadmium (Cd) totaux	2020/09/21		99	%	80 - 120
			Chrome (Cr) totaux	2020/09/21		98	%	80 - 120
			Cuivre (Cu) totaux	2020/09/21		98	%	80 - 120
			Fer (Fe) totaux	2020/09/21		97	%	80 - 120
			Plomb (Pb) totaux	2020/09/21		94	%	80 - 120
			Nickel (Ni) totaux	2020/09/21		95	%	80 - 120
			Argent (Ag) totaux	2020/09/21		97	%	80 - 120
			Thallium (Tl) totaux	2020/09/21		93	%	80 - 120
			Vanadium (V) totaux	2020/09/21		98	%	80 - 120
			Zinc (Zn) totaux	2020/09/21		101	%	80 - 120
6955146	AFZ	Blanc de méthode	Arsenic (As) totaux	2020/09/21	<1.0		ug/L	
			Baryum (Ba) totaux	2020/09/21	<2.0		ug/L	
			Béryllium (Be) totaux	2020/09/21	<0.40		ug/L	
			Cadmium (Cd) totaux	2020/09/21	<0.090		ug/L	
			Chrome (Cr) totaux	2020/09/21	<5.0		ug/L	
			Cuivre (Cu) totaux	2020/09/21	<0.90		ug/L	
			Fer (Fe) totaux	2020/09/21	<100		ug/L	
			Plomb (Pb) totaux	2020/09/21	<0.50		ug/L	
			Nickel (Ni) totaux	2020/09/21	<1.0		ug/L	
			Argent (Ag) totaux	2020/09/21	<0.090		ug/L	
			Thallium (Tl) totaux	2020/09/21	<0.050		ug/L	
			Vanadium (V) totaux	2020/09/21	<0.50		ug/L	
			Zinc (Zn) totaux	2020/09/21	<5.0		ug/L	
6955146	AFZ	RPD	Arsenic (As) totaux	2020/09/21	NC		%	20
			Béryllium (Be) totaux	2020/09/21	NC		%	20
			Cadmium (Cd) totaux	2020/09/21	NC		%	20
			Chrome (Cr) totaux	2020/09/21	NC		%	20
			Cuivre (Cu) totaux	2020/09/21	9.0		%	20
			Fer (Fe) totaux	2020/09/21	NC		%	20
			Plomb (Pb) totaux	2020/09/21	NC		%	20
			Nickel (Ni) totaux	2020/09/21	7.4		%	20
			Argent (Ag) totaux	2020/09/21	NC		%	20
			Thallium (Tl) totaux	2020/09/21	7.0		%	20
			Vanadium (V) totaux	2020/09/21	4.0		%	20
			Zinc (Zn) totaux	2020/09/21	2.9		%	20
6960216	FF	Blanc fortifié	Particules Totales Insoluble	2020/09/23		99	%	85 - 115

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RAPPORT ASSURANCE QUALITÉ(CONT'D)

Lot Lot	Init	Type CQ	Groupe	Date Analysé	Valeur	Réc	Unités	Limites CQ
6960216	FF	Blanc de méthode	Particules Totales Insoluble	2020/09/23	<0.30		mg	
6960218	FF	Blanc fortifié	Particules Totales Soluble	2020/09/23		100	%	85 - 115
6960218	FF	Blanc de méthode	Particules Totales Soluble	2020/09/23	<2.0		mg	
6962134	MEN	Échantillon fortifié	Mercure (Hg)	2020/09/24		95	%	75 - 125
6962134	MEN	Blanc fortifié	Mercure (Hg)	2020/09/24		95	%	80 - 120
6962134	MEN	Blanc de méthode	Mercure (Hg)	2020/09/24	<0.00010		mg/L	
6962134	MEN	RPD	Mercure (Hg)	2020/09/24	NC		%	20

Duplicata: Deux parties aliquotes distinctes obtenues à partir d'un même échantillon et soumises en même temps au même processus analytique du prétraitement au dosage. Les duplicatas servent à vérifier la variance de la mesure.

Échantillon fortifié: Échantillon auquel a été ajouté une quantité connue d'un ou de plusieurs composés chimiques d'intérêt. Sert à évaluer les interférences dues à la matrice.

Blanc fortifié: Un blanc, d'une matrice exempte de contaminants, auquel a été ajouté une quantité connue d'analyte provenant généralement d'une deuxième source. Utilisé pour évaluer la précision de la méthode.

Blanc de méthode: Une partie aliquote de matrice pure soumise au même processus analytique que les échantillons, du prétraitement au dosage. Sert à évaluer toutes contaminations du laboratoire.

NC (échantillon fortifié) : La récupération de l'échantillon fortifié n'a pas été calculée. La différence relative entre la concentration de l'échantillon parent et le niveau de fortification est trop faible pour qu'un calcul fiable du pourcentage de récupération soit possible (la concentration dans l'échantillon fortifié était plus faible que l'échantillon d'origine).

NC (RPD du duplicata) : La RPD du duplicata n'a pas été calculée. La concentration de l'échantillon ou du duplicata était trop faible pour permettre le calcul de la RPD (différence absolue <= 2x LDR)

Réc = Récupération

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PAGE DES SIGNATURES DE VALIDATION

Les résultats analytiques ainsi que les données de contrôle-qualité contenus dans ce rapport furent vérifiés et validés par les personnes suivantes:

<original signed by>

Brad Newman, Spécialiste scientifique

<original signed by>

Frank Mo

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Votre # du projet: C043417
Votre # Bordereau: c043417

Attention: Martine Lepage

Bureau Veritas Laboratories
889 Montée de Liesse
Ville St-Laurent, QC
CANADA H4T 1P5

Date du rapport: 2020/10/06
Rapport: R6359354
Version: 1 - Finale

CERTIFICAT D'ANALYSES

 # DE DOSSIER BV LABS: C0O2606
Reçu: 2020/09/18, 08:43

Matrice: Eau
Nombre d'échantillons reçus: 8

Analyses	Quantité	Date de l' extraction	Date Analysé	Méthode de laboratoire	Méthode d'analyse
MERCURE PAR VAPEUR FROIDE AA	6	2020/10/01	2020/10/02	CAM SOP-00453	
MERCURE PAR VAPEUR FROIDE AA	2	2020/09/28	2020/10/02	CAM SOP-00453	
Total Metals Analysis by ICPMS	8	N/A	2020/10/02	CAM SOP-00447	
Insoluble Part. in Dustfall (D1739mod)	8	2020/09/28	2020/09/29	BRL SOP-00121	ASTM D1739 m
Soluble Part. in Dustfall (D1739mod)	8	2020/09/28	2020/09/29	BRL SOP-00121	ASTM D1739 m
Volume of Sample Received	8	2020/09/28	2020/10/05		

Lorsque la méthode de référence comprend un suffixe « m », cela signifie que la méthode d'analyse du laboratoire contient des modifications validées et appliquées afin d'améliorer la performance de la méthode de référence.

clé de cryptage

Veuillez adresser toute question concernant ce certificat d'analyse à votre chargé(e) de projets
Marinela Sim, Chargée de projets
Courriel: Marinela.Sim@bvlabs.com
Téléphone (905)817-5828

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Dossier BV Labs: C0O2606
Date du rapport: 2020/10/06

Bureau Veritas Laboratories
Votre # du projet: C043417
Initiales du préleveur: JED

RÉSULTATS D'ANALYSES POUR LES ÉCHANTILLONS D' EAU

Identification BV Labs		NQU133	NQU134	NQU135	NQU136	NQU137	NQU138		
Date d'échantillonnage		2020/09/08 09:36	2020/09/08 10:27	2020/09/08 11:26	2020/09/08 12:25	2020/09/08 17:27	2020/09/08 17:53		
# Bordereau		c043417	c043417	c043417	c043417	c043417	c043417		
	Unités	**IH6667-AQS1**	**IH6668-AQS2**	**IH6669-AQS3**	**IH6670-AQS4**	**IH6671-AQS6**	**IH6672-AQS7**	**LDR**	**Lot CQ**
Particules Totales Insoluble	mg	8.20	1.00	1.40	3.40	9.00	6.60	0.60	6969309
Particules Totales Soluble	mg	8.8	10.4	10.4	11.2	14.8	10.4	4.0	6969312
Charge/Prep Analysis									
Volume de l'échantillon	ml	3600	3200	2800	2800	2300	2300	2	6969301

LDR = limite de détection rapportée
Lot CQ = Lot Contrôle Qualité

Identification BV Labs		NQU139	NQU140		
Date d'échantillonnage		2020/09/08 16:48	2020/09/08 14:22		
# Bordereau		c043417	c043417		
	Unités	**IH6673-AQS8**	**IH6719-AQS9**	**LDR**	**Lot CQ**
Particules Totales Insoluble	mg	1.60	2.40	0.60	6969309
Particules Totales Soluble	mg	14.0	10.4	4.0	6969312
Charge/Prep Analysis					
Volume de l'échantillon	ml	3000	3400	2	6969301

LDR = limite de détection rapportée
Lot CQ = Lot Contrôle Qualité

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ELEMENTS BY ATOMIC SPECTROSCOPY (EAU)

Identification BV Labs		NQU133	NQU134	NQU135	NQU136	NQU137		
Date d'échantillonnage		2020/09/08 09:36	2020/09/08 10:27	2020/09/08 11:26	2020/09/08 12:25	2020/09/08 17:27		
# Bordereau		c043417	c043417	c043417	c043417	c043417		
	Unités	**IH6667-AQS1**	**IH6668-AQS2**	**IH6669-AQS3**	**IH6670-AQS4**	**IH6671-AQS6**	**LDR**	**Lot CQ**
MÉTAUX								
Mercure (Hg)	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00010	6977117
Arsenic (As) totaux	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	6977081
Baryum (Ba) totaux	ug/L	4.0	<2.0	28	17	50	2.0	6977081
Béryllium (Be) totaux	ug/L	<0.40	<0.40	<0.40	<0.40	<0.40	0.40	6977081
Cadmium (Cd) totaux	ug/L	<0.090	<0.090	<0.090	<0.090	<0.090	0.090	6977081
Chrome (Cr) totaux	ug/L	<5.0	<5.0	<5.0	<5.0	<5.0	5.0	6977081
Cuivre (Cu) totaux	ug/L	<0.90	<0.90	1.5	<0.90	<0.90	0.90	6977081
Fer (Fe) totaux	ug/L	100	<100	280	180	280	100	6977081
Plomb (Pb) totaux	ug/L	1.7	<0.50	4.4	1.1	0.89	0.50	6977081
Nickel (Ni) totaux	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	6977081
Argent (Ag) totaux	ug/L	<0.090	<0.090	<0.090	<0.090	<0.090	0.090	6977081
Thallium (Tl) totaux	ug/L	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	6977081
Vanadium (V) totaux	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	6977081
Zinc (Zn) totaux	ug/L	<5.0	<5.0	<5.0	150	<5.0	5.0	6977081

LDR = limite de détection rapportée
Lot CQ = Lot Contrôle Qualité

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ELEMENTS BY ATOMIC SPECTROSCOPY (EAU)

Identification BV Labs		NQU138	NQU139	NQU140		
Date d'échantillonnage		2020/09/08 17:53	2020/09/08 16:48	2020/09/08 14:22		
# Bordereau		c043417	c043417	c043417		
	Unités	**IH6672-AQS7**	**IH6673-AQS8**	**IH6719-AQS9**	**LDR**	**Lot CQ**
MÉTAUX						
Mercure (Hg)	mg/L	<0.00010	<0.00010	<0.00010	0.00010	6977117
Arsenic (As) totaux	ug/L	<1.0	<1.0	<1.0	1.0	6977081
Baryum (Ba) totaux	ug/L	2.9	4.7	49	2.0	6977081
Béryllium (Be) totaux	ug/L	<0.40	<0.40	<0.40	0.40	6977081
Cadmium (Cd) totaux	ug/L	<0.090	<0.090	<0.090	0.090	6977081
Chrome (Cr) totaux	ug/L	<5.0	<5.0	<5.0	5.0	6977081
Cuivre (Cu) totaux	ug/L	<0.90	<0.90	<0.90	0.90	6977081
Fer (Fe) totaux	ug/L	<100	<100	<100	100	6977081
Plomb (Pb) totaux	ug/L	<0.50	<0.50	<0.50	0.50	6977081
Nickel (Ni) totaux	ug/L	<1.0	<1.0	<1.0	1.0	6977081
Argent (Ag) totaux	ug/L	<0.090	<0.090	<0.090	0.090	6977081
Thallium (Tl) totaux	ug/L	<0.050	<0.050	<0.050	0.050	6977081
Vanadium (V) totaux	ug/L	<0.50	<0.50	<0.50	0.50	6977081
Zinc (Zn) totaux	ug/L	<5.0	<5.0	<5.0	5.0	6977081

LDR = limite de détection rapportée
Lot CQ = Lot Contrôle Qualité

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REMARQUES GÉNÉRALES

Échantillon NQU133 [IH6667-AQS1] : Filtered residues appeared to be algae

Les résultats s'appliquent seulement pour les paramètres analysés.

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RAPPORT ASSURANCE QUALITÉ

Lot Lot	Init	Type CQ	Groupe	Date Analysé	Valeur	Réc	Unités	Limites CQ
6969309	FF	Blanc fortifié	Particules Totales Insoluble	2020/09/29		93	%	85 - 115
6969309	FF	Blanc de méthode	Particules Totales Insoluble	2020/09/29	<0.30		mg	
6969312	FF	Blanc fortifié	Particules Totales Soluble	2020/09/29		103	%	85 - 115
6969312	FF	Blanc de méthode	Particules Totales Soluble	2020/09/29	<2.0		mg	
6977081	N_R	Échantillon fortifié	Arsenic (As) totaux	2020/10/02		100	%	80 - 120
			Baryum (Ba) totaux	2020/10/02		98	%	80 - 120
			Béryllium (Be) totaux	2020/10/02		110	%	80 - 120
			Cadmium (Cd) totaux	2020/10/02		99	%	80 - 120
			Chrome (Cr) totaux	2020/10/02		97	%	80 - 120
			Cuivre (Cu) totaux	2020/10/02		99	%	80 - 120
			Fer (Fe) totaux	2020/10/02		93	%	80 - 120
			Plomb (Pb) totaux	2020/10/02		98	%	80 - 120
			Nickel (Ni) totaux	2020/10/02		94	%	80 - 120
			Argent (Ag) totaux	2020/10/02		95	%	80 - 120
			Thallium (Tl) totaux	2020/10/02		99	%	80 - 120
			Vanadium (V) totaux	2020/10/02		99	%	80 - 120
			Zinc (Zn) totaux	2020/10/02		101	%	80 - 120
6977081	N_R	Blanc fortifié	Arsenic (As) totaux	2020/10/02		102	%	80 - 120
			Baryum (Ba) totaux	2020/10/02		98	%	80 - 120
			Béryllium (Be) totaux	2020/10/02		105	%	80 - 120
			Cadmium (Cd) totaux	2020/10/02		100	%	80 - 120
			Chrome (Cr) totaux	2020/10/02		99	%	80 - 120
			Cuivre (Cu) totaux	2020/10/02		101	%	80 - 120
			Fer (Fe) totaux	2020/10/02		97	%	80 - 120
			Plomb (Pb) totaux	2020/10/02		98	%	80 - 120
			Nickel (Ni) totaux	2020/10/02		97	%	80 - 120
			Argent (Ag) totaux	2020/10/02		96	%	80 - 120
			Thallium (Tl) totaux	2020/10/02		99	%	80 - 120
			Vanadium (V) totaux	2020/10/02		100	%	80 - 120
			Zinc (Zn) totaux	2020/10/02		104	%	80 - 120
6977081	N_R	Blanc de méthode	Arsenic (As) totaux	2020/10/02	<1.0		ug/L	
			Baryum (Ba) totaux	2020/10/02	<2.0		ug/L	
			Béryllium (Be) totaux	2020/10/02	<0.40		ug/L	
			Cadmium (Cd) totaux	2020/10/02	<0.090		ug/L	
			Chrome (Cr) totaux	2020/10/02	<5.0		ug/L	
			Cuivre (Cu) totaux	2020/10/02	<0.90		ug/L	
			Fer (Fe) totaux	2020/10/02	<100		ug/L	
			Plomb (Pb) totaux	2020/10/02	<0.50		ug/L	
			Nickel (Ni) totaux	2020/10/02	<1.0		ug/L	
			Argent (Ag) totaux	2020/10/02	<0.090		ug/L	
			Thallium (Tl) totaux	2020/10/02	<0.050		ug/L	
			Vanadium (V) totaux	2020/10/02	<0.50		ug/L	
			Zinc (Zn) totaux	2020/10/02	<5.0		ug/L	
6977081	N_R	RPD	Cadmium (Cd) totaux	2020/10/02	7.9		%	20
			Chrome (Cr) totaux	2020/10/02	0.92		%	20
			Cuivre (Cu) totaux	2020/10/02	4.0		%	20
			Fer (Fe) totaux	2020/10/02	0.46		%	20
			Plomb (Pb) totaux	2020/10/02	5.3		%	20
			Nickel (Ni) totaux	2020/10/02	0.42		%	20
			Zinc (Zn) totaux	2020/10/02	0.12		%	20
6977117	MPD	Échantillon fortifié	Mercure (Hg)	2020/10/02		94	%	75 - 125
6977117	MPD	Blanc fortifié	Mercure (Hg)	2020/10/02		96	%	80 - 120

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RAPPORT ASSURANCE QUALITÉ(CONT'D)

Lot Lot	Init	Type CQ	Groupe	Date Analysé	Valeur	Réc	Unités	Limites CQ
6977117	MPD	Blanc de méthode	Mercure (Hg)	2020/10/02	<0.00010		mg/L	
6977117	MPD	RPD	Mercure (Hg)	2020/10/02	NC		%	20

Duplicata: Deux parties aliquotes distinctes obtenues à partir d'un même échantillon et soumises en même temps au même processus analytique du prétraitement au dosage. Les duplicatas servent à vérifier la variance de la mesure.

Échantillon fortifié: Échantillon auquel a été ajouté une quantité connue d'un ou de plusieurs composés chimiques d'intérêt. Sert à évaluer les interférences dues à la matrice.

Blanc fortifié: Un blanc, d'une matrice exempte de contaminants, auquel a été ajouté une quantité connue d'analyte provenant généralement d'une deuxième source. Utilisé pour évaluer la précision de la méthode.

Blanc de méthode: Une partie aliquote de matrice pure soumise au même processus analytique que les échantillons, du prétraitement au dosage. Sert à évaluer toutes contaminations du laboratoire.

NC (RPD du duplicata) : La RPD du duplicata n'a pas été calculée. La concentration de l'échantillon ou du duplicata était trop faible pour permettre le calcul de la RPD (différence absolue <= 2x LDR)

Réc = Récupération

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PAGE DES SIGNATURES DE VALIDATION

Les résultats analytiques ainsi que les données de contrôle-qualité contenus dans ce rapport furent vérifiés et validés par les personnes suivantes:

<original signed by>

Brad Newman, Spécialiste scientifique

<original signed by>

Frank Mo

Lab BV a mis en place des procédures qui protègent contre l'utilisation non autorisée de la signature électronique et emploie les <<signataires>> requis, conformément à l'ISO/CEI 17025. Veuillez vous référer à la page des signatures de validation pour obtenir les détails des validations pour chaque division.

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Votre # de commande: 3000000730
Votre # du projet: DS03-4
Site#: C050284
Adresse du site: DUSTFALL
Votre # Bordereau: C050284-NONT-01-01

Attention: Martine Lepage

Bureau Veritas Laboratories
889 Montée de Liesse
Ville St-Laurent, QC
CANADA H4T 1P5

Date du rapport: 2020/11/03
Rapport: R6395871
Version: 1 - Finale

CERTIFICAT D'ANALYSES

 # DE DOSSIER BV LABS: C0R5256
Reçu: 2020/10/20, 09:40

Matrice: Eau
Nombre d'échantillons reçus: 8

Analyses	Quantité	Date de l' extraction	Date Analysé	Méthode de laboratoire	Méthode d'analyse
MERCURE PAR VAPEUR FROIDE AA	8	2020/11/02	2020/11/02	CAM SOP-00453	
Total Metals Analysis by ICPMS	8	N/A	2020/11/02	CAM SOP-00447	
Insoluble Part. in Dustfall (D1739mod)	8	2020/10/27	2020/10/23	BRL SOP-00121	ASTM D1739 m
Soluble Part. in Dustfall (D1739mod)	8	2020/10/27	2020/10/23	BRL SOP-00121	ASTM D1739 m
Volume of Sample Received	8	2020/10/27	2020/11/02		

Lorsque la méthode de référence comprend un suffixe « m », cela signifie que la méthode d'analyse du laboratoire contient des modifications validées et appliquées afin d'améliorer la performance de la méthode de référence.

clé de cryptage

Veuillez adresser toute question concernant ce certificat d'analyse à votre chargé(e) de projets
Marinela Sim, Chargée de projets
Courriel: Marinela.Sim@bvlabs.com
Téléphone (905)817-5828

==========

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Dossier BV Labs: C0R5256
Date du rapport: 2020/11/03

Bureau Veritas Laboratories
Votre # du projet: DS03-4
Adresse du site: DUSTFALL
Votre # de commande: 3000000730

RÉSULTATS D'ANALYSES POUR LES ÉCHANTILLONS D' EAU

Identification BV Labs		NXY433		NXY434	NXY435		
Date d'échantillonnage		2020/10/07		2020/10/07	2020/10/07		
# Bordereau		C050284-NONT-01-01		C050284-NONT-01-01	C050284-NONT-01-01		
	Unités	**IL2199-AQS1**	**LDR**	**IL2200-AQS2**	**IL2201-AQS3**	**LDR**	**Lot CQ**
Particules Totales Insoluble	mg	12.8	0.60	6.40	5.20	0.30	7021753
Particules Totales Soluble	mg	26.4	2.0	6.0	10.4	2.0	7021754
Charge/Prep Analysis							
Volume de l'échantillon	ml	3900	1	3700	2600	1	7021751

LDR = limite de détection rapportée
Lot CQ = Lot Contrôle Qualité

Identification BV Labs		NXY436	NXY437	NXY438	NXY439		
Date d'échantillonnage		2020/10/07	2020/10/08	2020/10/08	2020/10/07		
# Bordereau		C050284-NONT-01-01	C050284-NONT-01-01	C050284-NONT-01-01	C050284-NONT-01-01		
	Unités	**IL2202-AQS4**	**IL2203-AQS6**	**IL2204-AQS7**	**IL2205-AQS8**	**LDR**	**Lot CQ**
Particules Totales Insoluble	mg	5.80	4.20	2.60	3.00	0.30	7021753
Particules Totales Soluble	mg	12.8	6.4	8.4	8.4	2.0	7021754
Charge/Prep Analysis							
Volume de l'échantillon	ml	2800	2000	2700	1400	1	7021751

LDR = limite de détection rapportée
Lot CQ = Lot Contrôle Qualité

Identification BV Labs		NXY440		
Date d'échantillonnage		2020/10/07		
# Bordereau		C050284-NONT-01-01		
	Unités	**IL2206-AQS9**	**LDR**	**Lot CQ**
Particules Totales Insoluble	mg	2.80	0.30	7021753
Particules Totales Soluble	mg	7.2	2.0	7021754
Charge/Prep Analysis				
Volume de l'échantillon	ml	3400	1	7021751

LDR = limite de détection rapportée
Lot CQ = Lot Contrôle Qualité

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Dossier BV Labs: C0R5256
Date du rapport: 2020/11/03

Bureau Veritas Laboratories
Votre # du projet: DS03-4
Adresse du site: DUSTFALL
Votre # de commande: 3000000730

ELEMENTS BY ATOMIC SPECTROSCOPY (EAU)

Identification BV Labs		NXY433	NXY434	NXY435		
Date d'échantillonnage		2020/10/07	2020/10/07	2020/10/07		
# Bordereau		C050284-NONT-01-01	C050284-NONT-01-01	C050284-NONT-01-01		
	Unités	**IL2199-AQS1**	**IL2200-AQS2**	**IL2201-AQS3**	**LDR**	**Lot CQ**
MÉTAUX						
Mercure (Hg)	mg/L	<0.00010	<0.00010	<0.00010	0.00010	7032928
Antimoine (Sb) totaux	ug/L	<0.50	<0.50	<0.50	0.50	7032885
Baryum (Ba) totaux	ug/L	<2.0	3.7	14	2.0	7032885
Béryllium (Be) totaux	ug/L	<0.40	<0.40	<0.40	0.40	7032885
Cadmium (Cd) totaux	ug/L	<0.090	<0.090	<0.090	0.090	7032885
Chrome (Cr) totaux	ug/L	<5.0	<5.0	<5.0	5.0	7032885
Cuivre (Cu) totaux	ug/L	<0.90	1.5	2.2	0.90	7032885
Fer (Fe) totaux	ug/L	<100	<100	160	100	7032885
Plomb (Pb) totaux	ug/L	0.51	<0.50	1.7	0.50	7032885
Nickel (Ni) totaux	ug/L	<1.0	<1.0	<1.0	1.0	7032885
Argent (Ag) totaux	ug/L	<0.090	<0.090	<0.090	0.090	7032885
Thallium (Tl) totaux	ug/L	<0.050	<0.050	<0.050	0.050	7032885
Vanadium (V) totaux	ug/L	<0.50	<0.50	<0.50	0.50	7032885
Zinc (Zn) totaux	ug/L	<5.0	<5.0	<5.0	5.0	7032885

LDR = limite de détection rapportée
Lot CQ = Lot Contrôle Qualité

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Dossier BV Labs: C0R5256
Date du rapport: 2020/11/03

Bureau Veritas Laboratories
Votre # du projet: DS03-4
Adresse du site: DUSTFALL
Votre # de commande: 3000000730

ELEMENTS BY ATOMIC SPECTROSCOPY (EAU)

Identification BV Labs		NXY436	NXY437	NXY438		
Date d'échantillonnage		2020/10/07	2020/10/08	2020/10/08		
# Bordereau		C050284-NONT-01-01	C050284-NONT-01-01	C050284-NONT-01-01		
	Unités	**IL2202-AQS4**	**IL2203-AQS6**	**IL2204-AQS7**	**LDR**	**Lot CQ**
MÉTAUX						
Mercure (Hg)	mg/L	<0.00010	<0.00010	<0.00010	0.00010	7032928
Antimoine (Sb) totaux	ug/L	<0.50	<0.50	<0.50	0.50	7032885
Baryum (Ba) totaux	ug/L	6.8	16	<2.0	2.0	7032885
Béryllium (Be) totaux	ug/L	<0.40	<0.40	<0.40	0.40	7032885
Cadmium (Cd) totaux	ug/L	<0.090	<0.090	<0.090	0.090	7032885
Chrome (Cr) totaux	ug/L	<5.0	<5.0	<5.0	5.0	7032885
Cuivre (Cu) totaux	ug/L	1.9	3.0	1.5	0.90	7032885
Fer (Fe) totaux	ug/L	<100	230	340	100	7032885
Plomb (Pb) totaux	ug/L	0.72	0.51	1.0	0.50	7032885
Nickel (Ni) totaux	ug/L	<1.0	<1.0	<1.0	1.0	7032885
Argent (Ag) totaux	ug/L	<0.090	<0.090	<0.090	0.090	7032885
Thallium (Tl) totaux	ug/L	<0.050	<0.050	<0.050	0.050	7032885
Vanadium (V) totaux	ug/L	<0.50	<0.50	<0.50	0.50	7032885
Zinc (Zn) totaux	ug/L	12	<5.0	<5.0	5.0	7032885

LDR = limite de détection rapportée
Lot CQ = Lot Contrôle Qualité

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ELEMENTS BY ATOMIC SPECTROSCOPY (EAU)

Identification BV Labs		NXY439	NXY440		
Date d'échantillonnage		2020/10/07	2020/10/07		
# Bordereau		C050284-NONT-01-01	C050284-NONT-01-01		
	Unités	**IL2205-AQS8**	**IL2206-AQS9**	**LDR**	**Lot CQ**
MÉTAUX					
Mercure (Hg)	mg/L	<0.00010	<0.00010	0.00010	7032928
Antimoine (Sb) totaux	ug/L	<0.50	<0.50	0.50	7032885
Baryum (Ba) totaux	ug/L	6.4	27	2.0	7032885
Béryllium (Be) totaux	ug/L	<0.40	<0.40	0.40	7032885
Cadmium (Cd) totaux	ug/L	<0.090	<0.090	0.090	7032885
Chrome (Cr) totaux	ug/L	<5.0	<5.0	5.0	7032885
Cuivre (Cu) totaux	ug/L	4.0	1.7	0.90	7032885
Fer (Fe) totaux	ug/L	130	<100	100	7032885
Plomb (Pb) totaux	ug/L	5.4	0.63	0.50	7032885
Nickel (Ni) totaux	ug/L	<1.0	<1.0	1.0	7032885
Argent (Ag) totaux	ug/L	<0.090	<0.090	0.090	7032885
Thallium (Tl) totaux	ug/L	<0.050	<0.050	0.050	7032885
Vanadium (V) totaux	ug/L	<0.50	<0.50	0.50	7032885
Zinc (Zn) totaux	ug/L	5.3	<5.0	5.0	7032885

LDR = limite de détection rapportée
Lot CQ = Lot Contrôle Qualité

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REMARQUES GÉNÉRALES

Refer to the BLD form

50% of sample volume was processed for dustfall; remaining 50% of sample was sent to Inorganic Processing for further metals and Hg analysis. Results and DL were multiplied by 2.

Échantillon NXY433 [IL2199-AQS1] : Filtered residues appeared to be algae
Multiple filters were used, results and DL is adjusted accordingly.

Échantillon NXY434 [IL2200-AQS2] : Filtered residues appeared to be algae

Les résultats s'appliquent seulement pour les paramètres analysés.

RAPPORT ASSURANCE QUALITÉ

Lot Lot	Init	Type CQ	Groupe	Date Analysé	Valeur	Réc	Unités	Limites CQ
7021753	FF	Blanc fortifié	Particules Totales Insoluble	2020/10/23		95	%	85 - 115
7021753	FF	Blanc de méthode	Particules Totales Insoluble	2020/10/23	<0.30		mg	
7021754	FF	Blanc fortifié	Particules Totales Soluble	2020/10/23		101	%	85 - 115
7021754	FF	Blanc de méthode	Particules Totales Soluble	2020/10/23	<2.0		mg	
7032885	PBA	Échantillon fortifié	Antimoine (Sb) totaux	2020/11/02		100	%	80 - 120
			Baryum (Ba) totaux	2020/11/02		95	%	80 - 120
			Béryllium (Be) totaux	2020/11/02		92	%	80 - 120
			Cadmium (Cd) totaux	2020/11/02		97	%	80 - 120
			Chrome (Cr) totaux	2020/11/02		91	%	80 - 120
			Cuivre (Cu) totaux	2020/11/02		93	%	80 - 120
			Fer (Fe) totaux	2020/11/02		97	%	80 - 120
			Plomb (Pb) totaux	2020/11/02		94	%	80 - 120
			Nickel (Ni) totaux	2020/11/02		88	%	80 - 120
			Argent (Ag) totaux	2020/11/02		96	%	80 - 120
			Thallium (Tl) totaux	2020/11/02		96	%	80 - 120
			Vanadium (V) totaux	2020/11/02		92	%	80 - 120
			Zinc (Zn) totaux	2020/11/02		91	%	80 - 120
7032885	PBA	Blanc fortifié	Antimoine (Sb) totaux	2020/11/02		97	%	80 - 120
			Baryum (Ba) totaux	2020/11/02		93	%	80 - 120
			Béryllium (Be) totaux	2020/11/02		96	%	80 - 120
			Cadmium (Cd) totaux	2020/11/02		98	%	80 - 120
			Chrome (Cr) totaux	2020/11/02		91	%	80 - 120
			Cuivre (Cu) totaux	2020/11/02		94	%	80 - 120
			Fer (Fe) totaux	2020/11/02		95	%	80 - 120
			Plomb (Pb) totaux	2020/11/02		97	%	80 - 120
			Nickel (Ni) totaux	2020/11/02		91	%	80 - 120
			Argent (Ag) totaux	2020/11/02		96	%	80 - 120
			Thallium (Tl) totaux	2020/11/02		98	%	80 - 120
			Vanadium (V) totaux	2020/11/02		91	%	80 - 120
			Zinc (Zn) totaux	2020/11/02		94	%	80 - 120
7032885	PBA	Blanc de méthode	Antimoine (Sb) totaux	2020/11/02	<0.50		ug/L	
			Baryum (Ba) totaux	2020/11/02	<2.0		ug/L	
			Béryllium (Be) totaux	2020/11/02	<0.40		ug/L	
			Cadmium (Cd) totaux	2020/11/02	<0.090		ug/L	
			Chrome (Cr) totaux	2020/11/02	<5.0		ug/L	
			Cuivre (Cu) totaux	2020/11/02	<0.90		ug/L	
			Fer (Fe) totaux	2020/11/02	<100		ug/L	
			Plomb (Pb) totaux	2020/11/02	<0.50		ug/L	
			Nickel (Ni) totaux	2020/11/02	<1.0		ug/L	
			Argent (Ag) totaux	2020/11/02	<0.090		ug/L	
			Thallium (Tl) totaux	2020/11/02	<0.050		ug/L	
			Vanadium (V) totaux	2020/11/02	<0.50		ug/L	
			Zinc (Zn) totaux	2020/11/02	<5.0		ug/L	
7032885	PBA	RPD	Antimoine (Sb) totaux	2020/11/02	NC		%	20
			Cadmium (Cd) totaux	2020/11/02	NC		%	20
			Chrome (Cr) totaux	2020/11/02	4.7		%	20
			Cuivre (Cu) totaux	2020/11/02	2.1		%	20
			Plomb (Pb) totaux	2020/11/02	2.5		%	20
			Nickel (Ni) totaux	2020/11/02	1.8		%	20
			Argent (Ag) totaux	2020/11/02	9.0		%	20
			Vanadium (V) totaux	2020/11/02	2.5		%	20

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RAPPORT ASSURANCE QUALITÉ(CONT'D)

Lot Lot	Init	Type CQ	Groupe	Date Analysé	Valeur	Réc	Unités	Limites CQ
			Zinc (Zn) totaux	2020/11/02	5.2		%	20
7032928	MEN	Échantillon fortifié	Mercure (Hg)	2020/11/02		97	%	75 - 125
7032928	MEN	Blanc fortifié	Mercure (Hg)	2020/11/02		96	%	80 - 120
7032928	MEN	Blanc de méthode	Mercure (Hg)	2020/11/02	<0.00010		mg/L	
7032928	MEN	RPD	Mercure (Hg)	2020/11/02	NC		%	20

Duplicata: Deux parties aliquotes distinctes obtenues à partir d'un même échantillon et soumises en même temps au même processus analytique du prétraitement au dosage. Les duplicatas servent à vérifier la variance de la mesure.

Échantillon fortifié: Échantillon auquel a été ajouté une quantité connue d'un ou de plusieurs composés chimiques d'intérêt. Sert à évaluer les interférences dues à la matrice.

Blanc fortifié: Un blanc, d'une matrice exempte de contaminants, auquel a été ajouté une quantité connue d'analyte provenant généralement d'une deuxième source. Utilisé pour évaluer la précision de la méthode.

Blanc de méthode: Une partie aliquote de matrice pure soumise au même processus analytique que les échantillons, du prétraitement au dosage. Sert à évaluer toutes contaminations du laboratoire.

NC (RPD du duplicata) : La RPD du duplicata n'a pas été calculée. La concentration de l'échantillon ou du duplicata était trop faible pour permettre le calcul de la RPD (différence absolue <= 2x LDR)

Réc = Récupération

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Bureau Veritas Laboratories
Votre # du projet: DS03-4
Adresse du site: DUSTFALL
Votre # de commande: 3000000730

PAGE DES SIGNATURES DE VALIDATION

Les résultats analytiques ainsi que les données de contrôle-qualité contenus dans ce rapport furent vérifiés et validés par les personnes suivantes:

<original signed by>

Ewa Pranjic, M.Sc., Expert-Chimiste, Scientific Specialist

<original signed by>

Frank Mo

Lab BV a mis en place des procédures qui protègent contre l'utilisation non autorisée de la signature électronique et emploie les <<signataires>> requis, conformément à l'ISO/CEI 17025. Veuillez vous référer à la page des signatures de validation pour obtenir les détails des validations pour chaque division.

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Appendix 5 Consultation and Engagement Log

Tata Steel Minerals Canada
Community Engagement and Consultation Log (2020)

Date	Communication Type	Subject(s)	Question(s) / Matter(s) raised	Response(s)
4/1/2020	Email to Town of Schefferville leadership & TSMC	Coronavirus Concerns & Measures	TSMC shared presentation prepared for workers on current TSMC measures being taken to protect workers and communities	
4/1/2020	Letter fr. ITUM Chief to TSMC leadership	Coronavirus Concerns & Measures	ITUM requested information on Mitigation Measures taken by TSMC	TSMC provided information in letter of response (April 3)
4/2/2020	Telephone call btwn TSMC & NIMLJ (Chief)	Coronavirus Concerns & Measures	TSMC shared latest personnel change plan for April 7 charter. TSMC will review Care & Maintenance personnel plan again and revert back.	Chief unhappy w/ fact that more workers entering than departing; asked TSMC to revise that there are not more ppl arriving than departing.
4/6/2020	SMS btwn NNK leadership & TSMC	Coronavirus Concerns & Measures	TSMC confirmed upcoming charter w/ minimal crew and zero interaction with community, no entry into Schefferville airport	NNK satisfied w/ measures taken
4/10/2020	Letter to NIMLJ leadership fr. TSMC	Coronavirus Concerns & Measures	TSMC provided update on most recent measures taken to prevent spread of COVID-19, including Care & Maintenance mode, 0 interaction with local communities, charter flight from NL only every two weeks whereby personnel deboard plane and board bus directly on tarmac; no workers from communities working at site; no interactions between essential service personnel from communities and site personnel; site entrance/exit closed; 4-wk rotations	NIMLJ satisfied w/ measures taken
4/10/2020	Letter to NNK leadership fr. TSMC	Coronavirus Concerns & Measures	TSMC provided update on most recent measures taken to prevent spread of COVID-19, including Care & Maintenance mode, 0 interaction with local communities, charter flight from NL only every two weeks whereby personnel deboard plane and board bus directly on tarmac; no workers from communities working at site; no interactions between essential service personnel from communities and site personnel; site entrance/exit closed; 4-wk rotations	NNK satisfied w/ measures taken
4/10/2020	Letter to Innu Nation leadership fr. TSMC	Coronavirus Concerns & Measures	TSMC provided update on most recent measures taken to prevent spread of COVID-19, including Care & Maintenance mode, 0 interaction with local communities, charter flight from NL only every two weeks whereby personnel deboard plane and board bus directly on tarmac; no workers from communities working at site; no interactions between essential service personnel from communities and site personnel; site entrance/exit closed; 4-wk rotations	None received
4/10/2020	Letter to NunatuKavut Community Council leadership fr. TSMC	Coronavirus Concerns & Measures	TSMC provided update on most recent measures taken to prevent spread of COVID-19, including Care & Maintenance mode, 0 interaction with local communities, charter flight from NL only every two weeks whereby personnel deboard plane and board bus directly on tarmac; no workers from communities working at site; no interactions between essential service personnel from communities and site personnel; site entrance/exit closed; 4-wk rotations	None received

Tata Steel Minerals Canada
Community Engagement and Consultation Log (2020)

Date	Communication Type	Subject(s)	Question(s) / Matter(s) raised	Response(s)
4/13/2020	Letter to Town of Schefferville leadership fr. TSMC	Coronavirus Concerns & Measures	TSMC provided update on most recent measures taken to prevent spread of COVID-19, including Care & Maintenance mode, 0 interaction with local communities, charter flight from NL only every two weeks whereby personnel deboard plane and board bus directly on tarmac; no workers from communities working at site; no interactions between essential service personnel from communities and site personnel; site entrance/exit closed; 4-wk rotations	Town satisfied w/ measures taken
4/16/2020	Phone conversation btwn NIMLJ (Chief) & TSMC	Coronavirus Concerns & Measures	Update on upcoming charter, number of workers, strict procedures being followed	NIMLJ OK with plan
4/16/2020	SMS btwn NNK (Chief) & TSMC	Coronavirus Concerns & Measures	Update on upcoming charter, number of workers, strict procedures being followed	NNK OK with plan
4/21/2020	Email & Phone conversation btwn Town of Schefferville Administrator & TSMC	Coronavirus Concerns & Measures, TSMC Operations	Update on upcoming charter, number of workers, strict procedures being followed	Town satisfied w/ measures taken
4/22/2020	Videoconference btwn NNK, KRG, Makivik & TSMC	Project 2A (Goodwood) - Meeting of the Environmental & Social Monitoring Committee	Makivik provided update on their position vis-àvis Qc gov't decision to resume mining operations. TSMC provided updates on: Precautionary measures being taken to protect communities & workers; Plans for Spring melt mitigation measures; Plans for Goodwood Water Treatment Unit. NNK expressed interest in seeing First Nation workers involved in the operation of the Goodwood Water Treatment Unit; Current situation and plans for Goodwood Water Basin repairs; Environmental monitoring, including air quality monitoring and presence of caribou; Results (mixed) of application of haul road capping product in areas that had created water issues in the past; Planned water management infrastructure improvements; Waste management; Rehabilitation & Closure plan to be shared for comment in 2021	TSMC undertook to seek involvement of First Nations in operation of Water Treatment Unit. Members expressed satisfaction w/ information received
4/22/2020	Phone conversation btwn NIMLJ (Chief) & TSMC	IBA/Commercial Payments; Coronavirus Concerns & Measures, TSMC Operations	NIMLJ unhappy with level of payment, uneasy w/ increase in numbers on every incoming charter; TSMC provided update on crew change of April 22 & presented notion of gradually resuming operations in coming weeks	Some payments made by TSMC; NIMLJ indicated too early to discuss increase in workers at mine site but can revisit on 4 May and review TSMC Plans/Scenarios;
4/23/2020	SMS, Phone Conversation btwn NNK (Chief) & TSMC	IBA/Commercial Payments; Coronavirus Concerns & Measures, TSMC Operations	NNK satisfied w/ payment; TSMC provided update on crew change of April 22 & presented notion of gradually resuming operations in coming weeks	Some payments made dy TSMC; NNK indicated too early to discuss increase in workers at mine site but can revisit on 4 May and review TSMC Plans/Scenarios;
4/28/2020	SMS, Video Call btwn NNK (Chief) & TSMC	TSMC Operations - Next Steps	TSMC requested mtg to discuss gradually resuming operations	NNK proposed May 1

Tata Steel Minerals Canada
Community Engagement and Consultation Log (2020)

Date	Communication Type	Subject(s)	Question(s) / Matter(s) raised	Response(s)
4/28/2020	Email to NIMLJ, NNK leadership & Environmental Committee representatives, Matimekush-Lac John and Kawawachikamach Facebook pages fr. TSMC	Environmental Update	TSMC has put in place various measures to manage water on its site, including: - improved sedimentation pond design (berms and ditching); - increased snow removal before Spring melt; - haul road engineering; - haul road additive to control dust, red water; - use of flocculants, sediment fencing; - increased site-wide surveillance at onset of Spring melt (on-the-ground personnel, aerial monitoring).	No comments received
5/7/2020	Email to NIMLJ, NNK, Town of Schefferville leadership fr. TSMC	Operations Update	TSMC provided update	NNK asked whether same precautionary measures will be maintained and will there be charter from Montreal? TSMC responded that measures would be maintained but that there was no Montreal charter planned in immediate future
5/25/2020	Email to NIMLJ, NNK, Town of Schefferville leadership fr. TSMC	Operations Update	TSMC provided update	Town of Schefferville can collaborate w/ TSMC, on plan to accommodate workers in Town w/ guidance fr. Directeur régional de la santé publique; TSMC said will consider
5/27/2020	Letter to TSMC fr. NNK leadership	TSMC Operations and Payments	NNK requesting updates on operational ramp-up and timetable for outstanding IBA and commercial payments	TSMC, by letter dated 1 June 2020, explained that it provides regular updates; balance due payment timing provided.
5/28/2020	Phone conversation btwn ITUM Council rep & TSMC	Operations Update	ITUM had questions on IBA committments & next Implementation Committee meeting	TSMC will provide information on Project Operations update & IBA related matters in writing
5/28/2020	Email fr. TSMC to ITUM leadership & Environmental reps	Environmental Update	TSMC has put in place various measures to manage water on its site, including: - improved sedimentation pond design (berms and ditching); - increased snow removal before Spring melt; - haul road engineering; - haul road additive to control dust, red water; - use of flocculants, sediment fencing; - increased site-wide surveillance at onset of Spring melt (on-the-ground personnel, aerial monitoring).	No comments received
5/31/2020	Email fr. TSMC to NIMLJ, Town of Schefferville leadership	Equipment mobilization from Town industrial area	TSMC provided details on mining equipment to be transported directly from Hollinger Yards to Mine Site, timeline, safety precautions being taken including zero interaction with local residents and a safety escort during operation.	Town of Schefferville confirmed that there were no issues as long as safety precautions followed, including minding overhead electrical wires.
6/3/2020	Letter fr. ITUM Chief to TSMC	TSMC Operations and IBA Payments	ITUM requesting that outstanding IBA payments be resolved	TSMC, by letter dated, 10 June 2020, provided update on operational rampup, COVID-19 precautionary measures, IBA deliverables including financial contribution timeline.
6/5/2020	Phone conversations btwn NIMLJ leadership & TSMC	IBA, Commercial payments	NIMLJ expressed concerns w/ lack of payment	TSMC explained tight financial situation and timeline for settling outstanding balances.

Tata Steel Minerals Canada
Community Engagement and Consultation Log (2020)

Date	Communication Type	Subject(s)	Question(s) / Matter(s) raised	Response(s)
7/9/2020	VideoConference btwn NIMLJ, NNK, Innu Nation, NCC	Community HSE Committee Meeting	Health & Safety, COVID 19 Update; Operations Update; Environmental Update; 2020 Spring Thaw; Waste Management; Summer 2020; Silver Yard; Restoration; Howse Project. NNK explained that local citizens using haul road with personal vehicles to access area => questions re: condition of Bypass Rd; Joan Lake Compensation Program - NNK has comments, awaiting Council approval	Participants agreed that meeting should be organized between local community representatives & TSMC on Safety issues re: Haul Road TSMC requests comments re: Joan Lake as soon as possible
7/16/2020	Letter to DFO fr. NNK	Joan Lake Compensation Program	NNK expressed concerns w/ TSMC environmental track record and ability to implement compensation plan measures; requests further consultation	N/A
7/24/2020	Complaint fr. NIMLJ Community member @ TSMC Security Gate	Landfill Management	Suspected TSMC Site garbage dumping by NIMLJ supplier @ Schefferville Landfill	TSMC took steps to prevent supplier from leaving site with garbage in pick-up; reminder provided of TSMC landfill opening hours
8/18/2020	Email fr. Town of Schefferville Administrator to TSMC	Dust	Town of Schefferville asked about dust suppression in Town by TSMC	TSMC explained that NIMLJ has road maintenance contract fr. Municipal Landfill to Mine Site. Water spraying on road 2-3 times/day as was done in 2018 considered not particularly effective;
8/20/2020	Email, Phone fr. TSMC to NIMLJ, NNK leadership	Planned increase in workers housed in Town	NIMLJ concerned w/ increased risk of COVID, demand for Innu Security patrolling (names of candidates to be provided to TSMC), strict application of self-isolation when not at work	TSMC agreed to implement requested measures
8/28/2020	Email to NIMLJ, NNK, Town of Schefferville leadership fr. TSMC	Update on Operations, Employment, Dust Control	TSMC provided update on Operations, Employment, Dust Controls Matters	None received
9/8/2020	Email to NIMLJ, NNK, Town of Schefferville leadership fr. TSMC	Update on Operations, Workers Housed in Town	TSMC provided update on Operations, Workers Housed in Town	None received
9/9/2020	SMS btwn NNK Councillor & TSMC	Bypass Road	NNK Councillor asking when maintenance/upgrade will be done as rough spots on Bypass Rd making use difficult	TSMC explained that it had issued a Purchase Order to have work done by Naskapi Heavy Machinery in 2019, however, due to restructuring of NHM, work was not carried out. A new PO will be required, bringing likely timeline to Spring/Summer 2021
9/29/2020	Email to NIMLJ, NNK, Town of Schefferville leadership fr. TSMC	COVID-19 Preventive Measures	TSMC provided update on most recent measures taken to prevent spread of COVID-19, including new testing protocol for workers originating from Quebec City & west, in addition to pre-screening questionnaire, prohibition of workers to enter town establishments, local workers must self-isolate after their shift, physical distancing and mandatory wearing of mask when not in dorm room	None received
10/7/2020	Emails & Phone conversations btwn NNK environmental reps & TSMC	Bypass Road	TSMC informed communities of a number of events involving unauthorized presence of civilian vehicles on haul road, representing major safety risk	NNK question about condition of haul rd. TSMC responded that it had issued a Purchase Order to have work done by Naskapi Heavy Machinery in 2019, however, due to restructuring of NHM, work was not carried out. A new PO will be required, bringing likely timeline to Spring/Summer 2021. In meantime, road is passable.

Tata Steel Minerals Canada
Community Engagement and Consultation Log (2020)

Date	Communication Type	Subject(s)	Question(s) / Matter(s) raised	Response(s)
10/7/2020	VideoConference btwn NNK, NIMLJ leadership & TSMC & Follow-up email fr. TSMC	COVID-19 Preventive Measures	Communities requesting: 1- TSMC to implement testing of all workers; 2- Additional surveillance in Town by Innu & Naskapi security guards of worker residences	TSMC confirmed most recent measures taken to prevent spread of COVID-19, including new testing protocol for workers originating from Quebec City & west. Testing of workers from Atlantic bubble and local workers, would be done subsequently, once logistics have been worked out. Additional measures include: pre-screening questionnaire, prohibition of workers to enter town establishments, local workers must self-isolate after their shift, physical distancing and mandatory wearing of mask when not in dorm room, and evacuation plan in event of presumed COVID case
10/16/2020	Phone conv. btwn TSMC & NIMLJ Chief	1- Perceptions Study; 2- 2019 Red water incidents; 3- Town Surveillance (COVID)	1- NIMLJ Chief not interested in supporting another study on land use. Already done in the past (Raphaël Picard) and no desire to justifiy or respond to questions prompted by government. 2- NIMLJ Council wants to see Fed. Gov't Report on Red Water runoff incidents of 2019 as referred to in mtgs w/ Gov't representatives 3- Have a name of candidate for Security patrol in Town; will provide coordinates on 19 Oct. '20	1- TSMC Agrees w/ multiple consultations in communities; TSMC/consultant will determine interest of community members to participate 2- TSMC will follow-up w/ fed. Gov't re: report 3- TSMC will follow-up on 19 Oct.
10/21/2020	SMS btwn NNK leadership & TSMC	COVID-19	NNK Chief seeking clarification after report by community priest that there was possible COVID case @ mine site	TSMC confirmed that there were 3 recent cases of head colds, for which workers were asked to isolate for 24-48 hrs. No presumed COVID case
10/23/2020	SMS btwn NNK leadership & TSMC	COVID-19	NNK Chief & Councillor seeking clarification on possible COVID case @ mine site	TSMC confirmed that there were 3 recent cases of head colds, for which workers were asked to isolate for 24-48 hrs. No presumed COVID case. Confirmed that TSMC would inform local communities if there is a presumed case
10/28/2020	VideoConference btwn NIMLJ, NNK, ITUM, Innu Nation	Community HSE Committee Meeting	Health, Safety, Security & Training Update; Bypass Road; Operations Update; Environmental Update; Summer 2020; Waste Management Silver Yard; Site Restoration; Fish Habitat Compensation; Howse Project monitoring programs; Winter 2020 Water Management. NNK & NIMLJ Councillors raised concern of decrease in fish presence near the haul road at Greenbush crossing; decrease in stream level	TSMC Environment had not observed a decease in water level upstream and downstream from crossing; TSMC will include Greenbush crossing as area of interest in Haul Road water management improvements.
10/28/2020	Email fr. NNK environmental rep to TSMC	Streams levels near Haul Rd @ Greenbush crossing	Concerns that creek has dried up since haul road built, something never seen before. Request that TSMC investigate & incorporate improvements into future water management planning	TSMC confirmed at meeting of 4 February 2021 that Greenbush crossing will be considered as an area of interest in Haul Road water management improvements.
11/12/2020	Email fr. TSMC to NIMLJ, NNK, ITUM, Innu Nation, NCC environmental reps	Fish Habitat Compensation Program - Potential Lakes for Fish Relocation from Joan Lake	TSMC provided "Technical Draft - Potential Lakes for the Relocation of Joan Lake's Fish" for comment/feedback	NNK responded by letter dated 15 December 2020 (see below)
11/19/2020	Email fr. NNK environmental rep to TSMC	Lichen Study on Air Quality	Request for results/report	TSMC confirmed report uploaded to Community HSE Committee Google Drive
11/25/2020	Email fr. NNK environmental rep to TSMC	Fish Habitat Compensation Program - Potential Lakes for Fish Relocation from Joan Lake	NNK indicated that there were few details in Technical Draft and asked if it was a preliminary consultation	TSMC, by email dated 25 November, 2020, explained that purpose of consultation is to seek feedback on preferred lakes from community perspective; subsequent consultation will occur w/ add'l details on relocation plan

Tata Steel Minerals Canada
Community Engagement and Consultation Log (2020)

Date	Communication Type	Subject(s)	Question(s) / Matter(s) raised	Response(s)
12/8/2020	Letter fr. NNK Chief to TSMC	Payments & IBA Commitments	NNK raised amounts due & payment delays; employment & contracting opportunity dissatisfaction	By letter dated 14 January, 2021, TSMC provided an update on operations and its efforts to recruit, hire & train Naskapi, including current statistics, upcoming business opportunities & payment schedule.
12/15/2020	Letter fr. NNK leadership to TSMC	Fish Habitat Compensation Program - Potential Lakes for Fish Relocation from Joan Lake	NNK requests more information regarding conditions of each potential lake, and presence of Brook Trout and other species	By letter dated 28 January, 2021, TSMC explained that it was seeking preliminary feedback from land-user perspective. TSMC undertook to provide lake details as request by March 2021
12/18/2020	Email fr. NIMLJ DG to TSMC	Amounts Owing & Payments	Concerns with IBA & Commercial payments for services rendered.	By emails dated 21 December 2020 and 14 January 2021, TSMC provided acknowledgment, project update & payment schedule.

Tata Steel Minerals Canada
Community Engagement Consultation Log (2021)

Date	Communication Type	Subject(s)	Question(s) / Matter(s) raised	Response(s)
1/20/2021	Phone call fr. TSMC to ITUM (Chief)	General Update	Discussion w/ Chief on COVID-19 measures; Financial; Employment & Training	
1/22/2021	Phone call fr. TSMC to NIMLJ Chief	General Update	Discussion w/ Chief on COVID-19 measures; Financial	NIMLJ asked prioritization of FN/IBA payments
2/4/2021	Videoconference: NNK, KRG, Makivik, TSMC	Project 2A Env. & Social Monitoring Committee meeting	Operations Update; Goodwood Water Management; Environmental Monitoring; Perceptions Study; Upcoming Business Opportunities @ Goodwood 1) Naskapi interested in opportunities tied to operation of Water Treatment Unit; 2) NNK Request to see air & water quality testing results & copy of Perceptions Study 3) Suggestion to make Committee presentations available on TSMC Website including highlights, updates 4) Request to have info on contracts issued to Aboriginal businesses in future presentations	1) TSMC has taken note and will share opportunities 2) Lab results and Perceptions Study are included in Annual Report to GoQ. Will inform communities once available on GoQ webiste 3) TSMC has taken note and will look into putting in place 4) TSMC will do so
2/11/2021	Phone Call: TSMC to Innu Nation	Update	Operations, latest Coronavirus prevention measures (3x3 rotation, testing in St. John's and all pick-up points outside NL), next IBA Implementation Committee Mtg	Meeting scheduled for 10 March 2021
2/18/2021	Email: TSMC to NIMLJ, NNK Leadership	Update on Additional COVID measures	Pre-flight testing for St. John's passengers New Rotation Schedule (3 weeks on, 3 weeks off vs 2x2, increasing isolation period @ site) Schefferville airport continues to be bypassed for TSMC's arriving and departing charter flights	No comments received
2/18/2021	Video chat: TSMC to NNK (Chief)	General Update	Discussion w/ Chief on ongoing & most recent COVID-19 measures (testing in St. John's) to protect communities and workers; IBA & Commercial payments update; Employment & Training (recruitment, training opportunities)	NNK suggested TSMC maintain in long-term the bypassing of inside of Schefferville airport of charter flight passengers/workers. NNK provided contact information for training programs
2/18/2021	Email: TSMC to NIMLJ, NNK Leadership	COVID-19	Update on new COVID measures (testing in St. John's) to protect communities and workers	
2/20/2021	Phone call: TSMC to NIMLJ	Road Maintenance contract	Financial matters; Contract managements matters	NIMLJ working on resolving management issues
2/26/2021	Phone call & emails: TSMC to NIMLJ managers	Road Maintenance contract	Financial matters; Contract managements matters	NIMLJ working on resolving management issues
3/3/2021	Phone call: TSMC to ITUM administrator	IBA Implementation	Scheduling of next Committee meeting	

Tata Steel Minerals Canada
Community Engagement Consultation Log (2021)

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3/4/2021	Email: NNK Councillor to TSMC	Snow storm	Requesting assistance in snow-clearing to access ski-doos near Irony Mtn	TSMC has its equipment immobilized due to extreme blizzard conditions. Once essential site areas are cleared they will assist community member.
3/15/2021	Videoconference: Innu Nation, TSMC	TSMC Operations Update Employment & Training Procurement Financial Reporting Update Nalcor Transmission Line Update	1) Innu Nation questioned implementation by TSMC of Definition of Innu Business 2) Power line project: Innu Nation asked that TSMC IBA commitments be upheld for this project and would like open-book contract negotation	1) TSMC will need to follow-up internally 2) TSMC will do so; Innu Nation will be informed by Nalcor as project advances
3/17/2021	Email: TSMC to NIMLJ, NNK, ITUM, Innu Nation, NCC Environmental Representatives	Joan Lake Offsetting Project, Fish Relocation Methodology, Technical Draft		
3/29/2021	Videoconference: NIMLJ, NNK, ITUM, Innu Nation, NCC, TSMC	Joan Lake Offsetting Project, Fish Relocation Methodology, Technical Draft - Workshop	Presentation shared (English, French) and reviewed with TSMC Consultant (Biologist from Groupe Hémisphères). NIMLJ raised fact that there are cabins used by members in the area of Redmond mine. They will communicate this information to cabin owners/land users; ITUM indicated that they supported the Habitat Offsetting approach NIMLJ asked if Innu helpers would be used.	TSMC/Groupe Hémisphères :First Nation helpers will be sought during field work, as there will be lots to do. Fish relocation itself will last 1-2 days, in Summer 2021