



GOVERNMENT OF
NEWFOUNDLAND AND LABRADOR
Department of Municipal Affairs and Environment

CERTIFICATE OF APPROVAL

Pursuant to the Environmental Protection Act, SNL 2002 c E-14.2 Section 83

Issue Date: *May 14, 2018*

Approval No. AA18-055650B

Amendment : *July 29, 2020*

Expiration: *July 29, 2025*

File No. 731.135

Proponent: **Tata Steel Minerals Canada Limited**
1000 Sherbrooke West Suite 1120
Montreal, QC H3A 3G4

Attention: **Rajesh Sharma – CEO and Managing Director**

Re: **Direct Shipping Ore Project**

Approval is hereby given for the development of the Direct Shipping Ore Project located in Labrador, approximately 20 km northwest of Schefferville, Quebec.

This Certificate of Approval does not release the proponent from the obligation to obtain appropriate approvals from other concerned provincial, federal and municipal agencies. Nothing in this Certificate of Approval negates any regulatory requirement placed on the proponent. Where there is a conflict between conditions in this Certificate of Approval and a regulation, the requirement in the regulation shall take precedence. Approval from the Department of Municipal Affairs and Environment shall be obtained prior to any significant change in the design, construction, installation, or operation of the Direct Shipping Ore Project, including any future expansion of the Direct Shipping Ore Project. This Certificate of Approval shall not be sold, assigned, transferred, leased, mortgaged, sublet or otherwise alienated by the proponent without obtaining prior approval from the Minister.

This Certificate of Approval is subject to the terms and conditions as contained therein, as may be revised from time to time by the Department. Failure to comply with any of the terms and conditions may render this Certificate of Approval null and void, may require the proponent to cease all activities associated with this Certificate of Approval, may place the proponent and its agent(s) in violation of the *Environmental Protection Act*, and will make the proponent responsible for taking such remedial measures as may be prescribed by the Department. The Department reserves the right to add, delete or modify conditions to correct errors in the Certificate of Approval or to address significant environmental or health concerns.

For 
MINISTER

TERMS AND CONDITIONS FOR APPROVAL No. AA18-055650B

July 29, 2020

General

1. This Certificate of Approval is for the development of the Direct Shipping Ore Project located in Labrador, approximately 20 km northwest of Schefferville, Quebec, as per plans and specifications supplied by Tata Steel Canada Limited for this Certificate of Approval. Specific project components include mining operations at the DSO3 Deposits (Timmins 3N, Timmins 4, Timmins 7, Fleming 7N), DSO4 Deposits (Kivivic 1C, Kivivic 2, Kivivic 3N, Kivivic 4, Kivivic 5) and the Howse Deposits; operation of temporary and permanent ore processing facilities; development of ore, waste rock, and overburden stockpiles; ore transportation; pit dewatering; construction and operation of sedimentation ponds; development of tailings and effluent management infrastructure; development of access roads; operation of a workers' camp, diesel power generation and other associated site infrastructure. Extensive future expansion or change of activities will require a separate Certificate of Approval.
2. Certificate of Approval AA18-055650 is revoked and replaced by this Certificate of Approval.
3. Any inquiries concerning this Approval shall be directed to the Western Regional Office of the Pollution Prevention Division (telephone: (709) 643-6114; or facsimile: (709) 643-8654).
4. In this Certificate of Approval:
 - **accredited** means the formal recognition of the competence of a laboratory to carry out specific functions;
 - **acutely lethal** means that the effluent at 100% concentration kills more than 50% of the rainbow trout subjected to it during a 96-hour period, when tested in accordance with the ALT;
 - **air contaminant** means any discharge, release, or other propagation into the air and includes, but is not limited to, dust, fumes, mist, smoke, particulate matter, vapours, gases, odours, odorous substances, acids, soot, grime or any combination of them;
 - **ALT (acute lethality test)** means a test conducted as per Environment and Climate Change Canada's Environmental Protection Service reference method EPS/1/RM-13 Section 5 or 6;
 - **composite sample** means a quantity of undiluted effluent collected continually at an equal rate or at a rate proportionate to flow over a designated sampling period;
 - **Department** means the Department of Municipal Affairs and Environment and its successors;

- **Director** means the Director of the Pollution Prevention Division of the Department;
- **discharge criteria** means the maximum allowable levels for the parameters listed in *Table 3*;
- **EDMS** means Environmental Data Management System;
- **GAP** means *Storage and Handling of Gasoline and Associated Products Regulations, 2003*;
- **grab sample** means a quantity of undiluted sample collected at any given time;
- **hazardous waste** means a product, substance or organism that is intended for disposal or recycling, including storage prior to disposal or recycling, and that:
 - (a) is listed in Schedule III of the *Export and Import of Hazardous Waste Regulations under the Canadian Environmental Protection Act, 1999*;
 - (b) is included in any of Classes 2 to 6, and 8 and 9 of the *Transportation of Dangerous Goods Regulations* under the *Transportation of Dangerous Goods Act, 1992*; or
 - (c) exhibits a hazard classification of a gas, a flammable liquid, an oxidizer, or a substance that is dangerously reactive, toxic, infectious, corrosive or environmentally hazardous;
- **licensed** means has a Certificate of Approval issued by the Minister to conduct an activity;
- **malfunction** means any sudden, infrequent and not reasonably preventable failure of air pollution control equipment, wastewater treatment equipment, process equipment, or a process to operate in a normal or usual manner. Failures, caused in part by poor maintenance or careless operation, are not malfunctions;
- **MDMER** means the federal Metal and Diamond Mining Effluent Regulations;
- **Minister** means the Minister of the Department;
- **PM_{2.5}** means particulate matter with a diameter of 2.5 µm or less;
- **proficiency testing** means the use of inter-laboratory comparisons to determine the performance of individual laboratories for specific tests or measurements;
- **QA/QC** means Quality Assurance/Quality Control;
- **register(ed)**, in the context of storage tanks, means that information regarding the storage tank system has been submitted to a Service NL office and a registration number has been assigned to the storage tank system. In the context of dispersion modelling, registered means submitted to and approved by the Department in accordance with departmental policy and guidelines;

- **regulated substance** means a substance subject to discharge limit(s) under the *Environmental Control Water and Sewage Regulations, 2003*;
- **spill or spillage** means a loss of gasoline or associated product in excess of 70 litres from a storage tank system, pipeline, tank vessel or vehicle, or an uncontrolled release of any volume of a regulated substance onto or into soil or a body of water;
- **stack** means a chimney, flue, conduit or duct arranged to conduct an air contaminant into the environment;
- **storage tank system** means a tank and all vent, fill and withdrawal piping associated with it installed in a fixed location and includes a temporary arrangement;
- **TDS** means total dissolved solids;
- **toxic pass** means a fish mortality rate of no more than 50% during the ALT;
- **TPH** means total petroleum hydrocarbons, as measured by the Atlantic PIRI method;
- **TPM** means total particulate matter with diameters less than 100µm;
- **TSMC** means Tata Steel Minerals Canada Limited;
- **TSS** means total suspended solids;
- **used glycol** means glycol that, through use, storage or handling, can no longer be used for its original purpose; and
- **used oil** means oil that, through use, storage or handling, can no longer be used for its original purpose.

5. All necessary measures shall be taken to ensure compliance with all applicable acts, regulations, policies, guidance documents and guidelines, including the following, or their successors:

- *Environmental Protection Act;*
- *Water Resources Act;*
- *Air Pollution Control Regulations, 2004;*
- *Environmental Control Water and Sewage Regulations, 2003;*
- *Halocarbon Regulations;*
- *Storage and Handling of Gasoline and Associated Products Regulations, 2003;*
- *Used Oil and Used Glycol Control Regulations;*
- *Heating Oil Storage Tank System Regulations, 2003;*
- *Ambient Air Monitoring Guidance Document;*
- *Sampling of Water and Wastewater - Industrial Effluent Applications Guidance Document;*
- *Accredited Laboratory Policy;*
- *Compliance Determination Guidance Document;*
- *Stack Emission Testing Guidance Document;*
- *Plume Dispersion Modelling Guidance Document;*

- *Precipitation Drainage of Dyke Areas Guidance Document;*
- *Environmental Guidelines for Controlling Emissions of Volatile Organic Compounds from Above Ground Storage Tanks;* and
- *Guidance Document for the Management of Impacted Sites.*

This Approval provides terms and conditions to satisfy various requirements of the above listed acts, regulations, policies, guidance documents and guidelines. If it appears that any of the pertinent requirements of these acts, regulations, policies and guidelines are not being met, then a further review of the works shall be conducted, and suitable pollution control measures may be required by the Minister.

6. All reasonable efforts shall be taken to minimize the impact of the operation on the environment. Such efforts include:
 - minimizing the area disturbed by the operation,
 - minimizing air or water pollution,
 - finding alternative uses, acceptable to the Director, for waste or rejected materials,
 - removing equipment or structures when they no longer have further use, and considering the requirement for the eventual rehabilitation of disturbed areas when planning the development of any area on the facility property.
7. **TSMC** shall provide to the Department, within a reasonable time, any information, records, reports or access to data requested or specified by the Department.
8. **TSMC** shall keep all records or other documents required by this Approval at the Direct Shipping Ore Project location for a period of not less than three (3) years, beginning the day they were made. These records shall be made available for review by officials of the Department or Service NL when requested.
9. Should **TSMC** wish to deviate in any way from the terms and conditions of this Certificate of Approval, a written request detailing the proposed deviation shall be made to the Minister. **TSMC** shall comply with the most current terms and conditions until the Minister has authorized otherwise. In the case of meeting a deadline requirement, the request shall be made at least 60 days ahead of the applicable date as specified in this Approval or elsewhere by the Department.

Activities Affecting Bodies of Water

10. Any work that must be performed in a body of water below the high water mark shall be carried out during a period of low water levels, unless otherwise permitted in writing by the Department.
11. All construction operations shall be carried out in a manner that minimizes damage to land, vegetation, and watercourses, and which prevents the discharge of substances, to bodies of water, in excess of applicable regulatory limits.
12. The use of heavy equipment shall be confined to dry stable areas and shall not be carried out in streams or bodies of water, unless otherwise permitted in writing by the Department.

13. All vehicles and equipment shall be in good repair, and shall be free of leaks of oil or other harmful substances that could impair water quality.
14. During the construction of concrete components, formwork shall be properly constructed to prevent any fresh concrete from entering a body of water. Dumping of concrete or washing of tools and equipment in any body of water is prohibited.
15. Waste hardened concrete shall not be disposed as unsuitable material at the project site. Waste hardened concrete shall be put to beneficial use on site as fill material, or it shall be sent to an approved waste disposal site.
16. All areas affected by this project shall be restored to a state that resembles local natural conditions. Further remedial measures to mitigate environmental impacts on water resources can and will be specified, if necessary in the opinion of this Department.
17. Prior written permission is required from the Department for all work that takes place in a body of water, including but not limited to bridges, culverts, fording, stream modifications, infilling and dredging.

Environmental Protection Plan

18. **TSMC** shall implement the most recent version of the Direct Shipping Ore Project Environmental Protection Plan. This plan shall be reviewed annually and revised as necessary, accounting for expanding or alteration of activities. All proposed revisions shall be submitted to the Director for review. The Department will acknowledge receipt of the Plan and/or revisions, and shall provide any review comments within a reasonable time frame.

Open Burning

19. Materials listed in **Table 1** shall not be burned in open fires.
20. The Department shall be notified prior to the burning of any materials not listed in **Table 1**.

Table 1 - Material Not Approved for Open Burning	
tires	Manure
plastics	Rubber
treated lumber	tar paper
asphalt and asphalt products	railway ties
drywall	paint and paint products
demolition waste	fuel and lubricant containers
hazardous waste	used oil
biomedical waste	animal cadavers
domestic waste	hazardous substances
trash, garbage, or other waste from commercial, industrial or municipal operations	materials disposed of as part of the removal or decontamination of equipment, buildings or other structures

Waste Management

21. The management of waste generated at the facility is subject to compliance with the ***Environmental Protection Act***. All non-industrial waste shall be stored in a manner acceptable to the Department and, on at least a weekly basis, be disposed of:
- at an authorized waste disposal site, with the permission of the owner/operator of the site; or
 - by some other means acceptable to the Department.

If required, industrial waste shall be disposed of by a licensed operator.

22. **TSMC** shall continue to implement the *Waste Management Plan (January 2014)*, including all revisions, for the Direct Shipping Ore Project. Every year the Plan shall be reviewed and revised as necessary, accounting for expanding or alteration of activities. All proposed revisions shall be submitted to the Director for review. The Department will acknowledge receipt of the Plan and/or revisions, and shall provide any review comments within a reasonable time frame.

Noise

23. **TSMC** shall continue to implement the *Noise Control Plan*, as contained in the *Tata Steel Minerals Environmental Protection Plan* for the Direct Shipping Ore Project. Every year the Plan shall be reviewed and revised as necessary. All proposed revisions shall be submitted to the Director for review. The Department will acknowledge receipt of the Plan and/or revisions, and shall provide any review comments within a reasonable time frame.

Dust Suppression

24. TSMC shall control dusting resulting from construction and operational activities at the site. Use of dust suppressants other than water, calcium chloride or pitch emulsion product shall require approval of the Director. TSMC are encouraged to use best management practices when applying calcium chloride or any other approved dust suppressant.

Spill Prevention and Containment

25. Areas in which chemicals are used or stored shall have spill containment systems constructed with impermeable floors, walls, dykes or curbs as applicable and be configured, maintained, inspected and repaired as follows:
- they shall not discharge to the environment;
 - they shall have an effective secondary containment capacity of at least 110% of the chemical storage tank capacity, in the case of a single storage container;
 - if there is more than one storage container, they shall have an effective secondary containment capacity of at least 110% of the capacity of the largest container, or 100 % of the capacity of the largest container plus 10% of the aggregate capacity of all additional containers, whichever is greater;
 - they shall be kept clear of material that may compromise the containment capacity;
 - they may include a floor drain system provided that the floor drains, and the place or device to which they drain, are configured in such a manner that the required effective secondary containment capacity is maintained;
 - every year they shall be visually inspected for their liquid containing integrity, and repairs shall be made when required; and
 - once every ten years, spill containment systems shall be inspected, by a means other than visual inspection, for their liquid containing integrity, and repairs shall be made when required.
26. All on site storage of petroleum shall comply with the *Storage and Handling of Gasoline and Associated Products Regulations, 2003*, or its successor. Storage tank systems shall be registered with Service NL. All aboveground storage tanks shall be clearly and visibly labelled with their GAP registration numbers.
27. Where applicable, all tanks and fuel delivery systems shall be inspected to appropriate American Petroleum Institute or Underwriters' Laboratories of Canada standards, or any other standards acceptable to this Department. The required frequency of inspections may be changed at the discretion of the Director.
28. TSMC shall maintain an inventory of all petroleum and chemical storage tanks. This inventory shall include the following:
- site plan showing tank location,
 - registration number (where applicable),
 - identification number,
 - material stored,
 - capacity,
 - annual throughput,
 - tank material,
 - tank type,

- tank diameter,
- tank height,
- tank colour,
- roof type,
- year of manufacture,
- date of installation,
- date of last inspection,
- failure history,
- maintenance history,
- effective secondary containment capacity, and
- date of next planned inspection.

An update of the complete storage tank inventory including any changes to it shall be submitted to the Director within three (3) months of the change having occurred.

29. Refuelling and maintenance of vehicles and equipment shall be conducted in accordance with procedures as outlined in the Environmental Protection Plan developed for the Direct shipping Ore Project.

Contingency Plan

30. **TSMC** shall continue to implement the *Contingency Plan (July 2013)*, including all revisions, for the Direct Shipping Ore Project. This Plan describes the actions to be taken in the event of a spill of a toxic or hazardous material. Copies of the Plan shall be placed in convenient areas throughout the facility so that employees can easily refer to it when needed. **TSMC** shall ensure that all employees are aware of the Plan and understand the procedures and the reporting protocol to be followed in the event of an emergency. An annual response exercise is recommended for response personnel. Every year, as a minimum, the Plan shall be reviewed and revised as necessary. Any proposed significant revisions shall be submitted to the Director for review. Changes which are not considered significant include minor variations in equipment or personnel characteristics which do not affect implementation of the Plan.

31. Every time **TSMC** implements the *Contingency Plan*, information shall be recorded for future reference. This will assist in reviewing and updating the Plan. The record is to consist of all incidents with environmental implications, and include such details as:

- date;
- time of day;
- type of incident (i.e. liquid spill, gas leak, granular chemical spill, equipment malfunction, etc.);
- actions taken;
- problems encountered; and
- other relevant information that would aid in later review of the Plan performance.

Each incident report shall be submitted to the Department as per the **Reporting** section.

Rehabilitation and Closure

32. Rehabilitation and Closure Plans for various components of the Direct Shipping Ore Project have been submitted to the Department, including: *Camp & Site Leveling (Abridged) – April 2011; The Dome (Abridged) – April 2012; Timmins 4 Deposit (Abridged) – July 2012; Fleming 7N, Process Plant & Rail Loop (Global Plan) – March 2013; Goodwood MDP (2014), Timmins 3N and Timmins 7 Deposits Addendum – December 2014; Mine Development and Closure Plan Addendum – Kivivic 1C, Kivivic 2, Kivivic 3, Kivivic 4, Kivivic 5 Deposits – February 2015; and Howse Deposit – February 2017*. These plans, detailing the actions to be taken to restore areas disturbed by the operation shall be implemented progressively as required and completed upon site closure.
33. As part of the site decommissioning and restoration process, TSMC shall employ a registered Site Professional to complete a site-wide environmental site assessment, as defined in the ***Guidance Document for the Management of Impacted Sites***. Should impacts be identified, NARL shall proceed through the process outlined in the Guidance Document to achieve regulatory site closure.

Used Oil and Used Glycol

34. Used oil and used glycol shall be retained in separate approved or registered tanks or closed containers, and disposed of by a company licensed for handling and disposal of used oil and/or used glycol products.
35. Information on used oil that is generated by the diesel generating units shall be submitted to the Director for review within 30 days of the beginning of each calendar year. This shall include a description of:
- the type(s) of oil used;
 - the method of disposal for the used oil; and
 - the approximate total volume of used oil generated during the previous year.
36. In the event that off-site used oil is stored in the on-site storage tank(s), the information listed above shall also be required for the off-site systems.

Effluent Monitoring and Discharge

37. TSMC shall perform an Effluent Monitoring Program as per **Table 2**. The applicable limits for the effluent discharge are listed in **Table 3**. Analytical results shall be submitted as per the Reporting section. Water Chemistry Analysis parameters are listed in **Table 4**.

Table 2 - Effluent Monitoring Program				
Ref.	Location	EDM S Code	Parameters	Frequency
COA-SW11	Culvert B discharge to Timmins 1	00457	ALT and TPH	Monthly (at least 15 days apart)
COA-SW12	North of Timmins 4 Sedimentation Pond	00458	EDC (except ALT)	Weekly (at least 24 hours apart)
HOW-SP1	HOWSEA Sedimentation Pond Discharge 1	TBD		
HOW-SP2	HOWSEA Sedimentation Pond Discharge 2	TBD		
DSO4-Sed Pond #1	Discharge from Sedimentation Pond #1	00466		
DSO4-Sed Pond #2	Discharge from Sedimentation Pond #2	00743		

38. Refer to **Table 3** for the Effluent Discharge Criteria (EDC).

Table 3 – Effluent Discharge Criteria (EDC)			
Parameter	Maximum Authorized Monthly Mean Concentration	Maximum Authorized Concentration in a Composite Sample	Maximum Authorized Concentration in a Grab Sample
Arsenic	0.50 mg/L	0.75 mg/L	1.00 mg/L
Copper	0.30 mg/L	0.45 mg/L	0.60 mg/L
Lead	0.20 mg/L	0.30 mg/L	0.40 mg/L
Nickel	0.50 mg/L	0.75 mg/L	1.00 mg/L
Zinc	0.50 mg/L	0.75 mg/L	1.00 mg/L
TSS	15.00 mg/L	22.50 mg/L	30.00 mg/L
Radium 226	0.37 Bq/L	0.74 Bq/L	1.11 Bq/L
Acute Lethality	Toxic Pass		
pH	5.5 to 9		

39. **TSMC** may reduce the frequency of testing for a parameter that is set out in the EDC with the exception of pH, TSS, ALT and Radium 226 to not less than once in each calendar quarter if that parameter's monthly mean concentration in the effluent is less than 10 percent of the maximum authorized monthly mean concentration for the 12 months immediately preceding the most recent test. **TSMC** shall notify the Director in writing, at least 30 days in advance of a reduction in the frequency of testing.

40. **TSMC** may reduce the frequency of testing for Radium 226 to not less than once in each calendar quarter if that substance's concentration in the effluent is less than 0.037Bq/L in 10 consecutive tests. **TSMC** shall notify the Director in writing, at least 30 days in advance of a reduction in the frequency of testing.
41. **TSMC** shall increase the frequency of testing to the originally prescribed frequency for a parameter that is set out in the EDC with the exception of pH, TSS and ALT, if the parameter's monthly mean concentration is equal to or greater than 10 percent of the maximum authorized monthly mean concentration.
42. **TSMC** may reduce the frequency of conducting ALT's to once in each calendar quarter if the effluent is determined not to be acutely lethal over a period of 12 consecutive months. **TSMC** shall notify the Director in writing, at least 30 days in advance of a reduction in the frequency of testing.
43. If a sample is determined to be acutely lethal, an aliquot of the failing sample shall be analyzed for the parameters outlined in **Table 4** without delay.
44. If a sample is determined to be acutely lethal, **TSMC** shall collect a grab sample from the final discharge point of the failing site and conduct an ALT in accordance with Section 6 of the Reference Method. Samples shall be collected twice per month, not less than 7 days apart, and an ALT shall be conducted on each sample, until it is determined that the effluent is not acutely lethal for three consecutive tests. Following the third consecutive non-acutely lethal test, **TSMC** shall conduct ALT's as per the original prescribed frequency outlined in **Table 2**.
45. If effluent is determined to be acutely lethal for three consecutive ALTs, **TSMC** shall implement a Toxicity Identification Evaluation to identify the toxin, and from this develop measures to prevent or reduce the toxin. The report, written as a result of these identification activities, shall be submitted to the Director for review, within 60 days of the third consecutive failed acutely ALT result. After review of the report, the Director may place additional requirements upon the proponent for treatment of effluent prior to discharge.
46. Reports submitted under section 31 of MDMER as a result of a deposit out of the normal course of events shall be provided to the Department.

Water Chemistry Analysis

47. Four times per calendar year and not less than thirty (30) days apart, **TSMC** shall perform Water Quality Analysis as per **Table 4** and **Table 5**. As the monitoring program progresses, it may be appropriate to relocate, add or remove monitoring locations as needed. Analytical results shall be submitted as per the Reporting section.

Table 4 - Water Chemistry Analysis Program (Surface Water)

Ref.	EDMS Code	Description	Parameters
COA-SW2	00449	Outflow from culvert draining the camp area	General Parameters: temperature, dissolved oxygen (DO), nitrate + nitrite, nitrate, nitrite, pH, TSS, colour, sodium, potassium, calcium, sulphide, magnesium, ammonia, alkalinity, sulphate, chloride, turbidity, reactive silica, orthophosphate, phosphorous, DOC, conductance, TDS (calculated), phenolics, carbonate (CaCO ₃), hardness (CaCO ₃), bicarbonate (CaCO ₃), TPH Metals Scan: aluminium, antimony, arsenic, barium, beryllium, bismuth, boron, cadmium, chromium, cobalt, copper, iron, lead, manganese, molybdenum, mercury, nickel, selenium, silver, strontium, thallium, tin, titanium, uranium, vanadium, zinc
COA-SW3	00450	Timmins 1	
COA-SW4	00451	Timmins 2	
COA-SW7	00453	Elross Creek at Road Access	
COA-SW8	00454	Goodream Creek downstream of Sedimentation Pond 3	
COA-SW9	00455	Unnamed Pond 500 m south of camp	
COA-SW10	00456	Sedimentation Pond 1	
COA-SW11	00457	Culvert B discharge to Timmins 1	
COA-SW12	00458	Outlet of DSO3 Sedimentation Pond 3	
COA-SW13	00459	Pinette Lake	
EEM-W001	00473	Exposure area at Timmins 1	
EEM-W002	00474	Exposure area at Elross Creek	
EEM-W003	00639	Reference area at Green Bush Stream	
HOW-BC	00475	Burnetta Creek	
HOW-BL	00476	Burnetta Lake	
HOW-TL	00477	Triangle Lake	
HOW-ML	00708	Morley Lake	
HOW-SP1	TBD	Sedimentation Pond HOWSEA discharge 1 into Goodream Creek	
HOW-SP2	TBD	Sedimentation Pond HOWSEA discharge 2 into Goodream Creek	
HOW-SW1	00689	Burnetta Creek, downstream from Sedimentation Pond HOWSEA	
HOW-SW2	00690	Burnetta Creek, upstream from Sedimentation Pond HOWSEA	
HOW-SW3	00691	Goodream Creek, downstream from Sedimentation Pond HOWSEB	
HOW-SW4	00692	Goodream Creek, northeast of Waste Rock Dump 2	
HOW-SW5	00693	GDR3 stream between the Overburden Stockpile and Waste Rock Dump 2	
DSO4-Sed Pond #1	00466	Sedimentation Pond #1 Kivivic Mining Area	
DSO4-Sed Pond #2	00743	Sedimentation Pond #2 Kivivic Mining Area	
Joan Lake	00467	Outflow of Joan Lake Kivivic Mining Area	
Joan Brook	00468	Joan Brook below discharge of Sedimentation Pond #1 Kivivic Mining Area	

Table 5 – Water Chemistry Analysis Program (Groundwater)

Ref.	EDMS Code	Description	Parameters
COA-GW1	00460	Northwest of Timmins 2 near the batch plant	General Parameters: temperature, dissolved oxygen (DO), nitrate + nitrite, nitrate, nitrite, pH, colour, sodium, potassium, calcium, sulphide, magnesium, ammonia, alkalinity, sulphate, chloride, turbidity, reactive silica, orthophosphate, phosphorous, DOC, conductance, TDS (calculated), phenolics, carbonate (CaCO ₃), hardness (CaCO ₃), bicarbonate (CaCO ₃) Metals Scan: aluminium, antimony, arsenic, barium, beryllium, bismuth, boron, cadmium, chromium, cobalt, copper, iron, lead, manganese, molybdenum, mercury, nickel, selenium, silver, strontium, thallium, tin, titanium, uranium, vanadium, zinc
COA-GW4	00463	Southwest of rail loop towards Timmins 3N	
COA-GW5	00464	West of Timmins 6 and North of Timmins 4N	
COA-GW8	00465	Southwest of Landfill	
HW-RC12-WE05R	TBD		
HW-RC12-WE06R	TBD		
HW-RC12-WE07R	TBD		
HW-RC12-WE08R	TBD		
HW-RC12-WE09R	TBD		
HOW-GW7	TBD		
DSO4-P15-K5-PO3	00472	Kivivic 5 Area	

Environmental Effects Monitoring

48. MDMER requires that **TSMC** conduct Environmental Effects Monitoring (EEM) as part of the mine's authority to deposit effluent under the Fisheries Act. Copies of all EEM study designs and reports shall be submitted to the Department.

Fuel Assay and Consumption

49. **TSMC** shall, on a monthly basis, submit fuel assay and consumption reports as per the **Reporting** section. Reports shall include; date of fuel deliveries; quantity of fuel received; assays for received fuel, daily fuel consumption by processing plant dryer and generators.

Annual Air Emissions Reporting

50. **TSMC** shall submit an annual Air Emission Report to the Director by **February 28** of the subsequent year. This report shall include:
- the estimated annual emissions of the following flue gas constituents: SO₂, NO_x, CO, TPM, and PM_{2.5}; and
 - the actual calculations including factors, formulae and/or assumptions used.

Diesel Generators

51. TSMC shall use diesel generators for the supply of continuous power for its Direct Shipping Ore Project. A list of approved generators and associated locations are provided in **Table 6**.

Table 6 – Summary of Diesel Generators for Direct Shipping Ore Project				
Location	Number of Units	Power Rating	Manufacturer	Model Number(s)
Concrete Batch Plant	1	157.5 ekW	Caterpillar	157.5 ekW
Main Plant	5	2825 ekW	Caterpillar	C175-16
Plant 2	1	1935 ekW	MTU	DP1935D6SRW
Mixer at Plant 2	1	182 ekW	FPT	N67-TE2X
Mirror Plant	1	1935 ekW	MTU	DP1935D6SRW
Temporary Dry Circuit	1	800 ekW	Drummond	800REOZDD
Worker Camp (Back up Only)	3	275 ekW	Caterpillar	275 ekW
	1	1020 ekW	Kohler	1000REOZMB

Ambient Air

52. TSMC shall operate an ambient air monitoring program as per the conditions in this Approval and its amendments. Approval shall be obtained from the Director prior to purchase or installation of any monitoring equipment.
53. Parameters to be monitored are outlined in **Table 7**.

Table 7 - Ambient Air Monitoring Program	
Number of Monitors	Parameter
1	PM _{2.5}
1	NO _x

54. Ambient air monitoring shall be done in accordance with the ***Ambient Air Monitoring Guidance Document (GD-PPD-065)***, or its successors.
55. TSMC shall operate and maintain a meteorological station at the site in accordance with the guidelines specified in the United States EPA document “Quality Assurance Handbook for Air Pollution Measurement Systems - Volume IV: Meteorological Measurements Version 2.0 (Final),” EPA- 454/B-08-002, March 2008, or its successors. Parameters to be measured and recorded shall include: wind speed, wind direction, ambient air temperature, relative humidity, barometric pressure and precipitation.
56. Information regarding calibrations, site visits and maintenance for all continuous ambient air monitors shall be recorded into the DR DAS electronic logbook.

57. The ambient air quality standards specified in Schedule A of the Air Pollution Control Regulations, 2004 shall apply to all points outside of TSMC's administrative boundaries. The administrative boundaries are defined as the areas encompassed by the coordinates contained in Appendix 'A'. All coordinates are referenced to NAD83 UTM Zone 19.

Pollution Control Equipment

58. All pollution control equipment shall be maintained and operated per the manufacturer's specifications for best performance.

Stack Emissions Testing and Dispersion Modelling

59. TSMC is required to perform stack emissions testing for its main plant stack which receives emissions from the plant dryer stack and the main plant diesel generators. Upon startup of the main plant, scheduling of the testing will be established following consultation between TSMC and the Department.
60. Stack emissions testing shall be done in accordance with the *Stack Emission Testing Guidance Document (GD-PPD-016.1)*. Dispersion Modelling shall be done in accordance with the *Plume Dispersion Modelling Guidance Document (GD-PPD-019.2)*. Determination of frequency of stack emissions testing and dispersion modelling shall be done in accordance with the *Compliance Determination Guidance Document (GD-PPD-009.4)*.
61. TSMC shall be required to complete stack emissions testing once every four years if it has been shown, via a registered dispersion model, that the operation is in compliance with section 3(2) and Schedule A of the *Air Pollution Control Regulations, 2004*. If it has been shown, via a registered dispersion model, that the operation is not in compliance with section 3(2) and Schedule A of the *Air Pollution Control Regulations, 2004*, then the facility shall complete stack emissions testing every two years.
62. Stack emissions testing results shall be submitted to the Department within *75 days* of completion of the sampling.
63. Plume dispersion modelling results shall be submitted to the Department within *120 days* of acceptance of the stack emissions testing results by the Department.
64. If the results from the plume dispersion modelling indicate that TSMC is not in compliance with section 3(2) and Schedule A of the *Air Pollution Control Regulations, 2004*, then TSMC shall submit to the Director, *within 6 months* from the date of submission of plume dispersion modelling results, an Action Plan to bring emissions of the parameters of concern into compliance. In addition to this, the Plan shall include information detailing the improvements to be implemented to the main plant equipment and instruments, and a time frame for the improvements. By *December 31* of each year, a report shall be submitted to the Director outlining the progress made to date towards accomplishing the goals of the Plan.

Analysis and QA/QC

65. Unless otherwise stated herein, all solids and liquids analysis performed pursuant to this Approval shall be done by either a contracted commercial laboratory or an in-house laboratory. Contracted commercial laboratories shall have a recognized form of accreditation. In-house laboratories have the option of either obtaining accreditation or submitting to an annual inspection by a representative of the Department, for which **TSMC** shall be billed for each laboratory inspection in accordance with Schedule 1 of the *Accredited Laboratory Policy (PD:PP2001-01.02)*. Recommendations of the Director stemming from the annual inspections shall be addressed within 6 months, otherwise further analytical results shall not be accepted by the Director.
66. If **TSMC** wishes to perform in-house laboratory testing and submit to an annual inspection by the Department then a recognized form of proficiency testing recognition shall be obtained for compliance parameters for which this recognition exists. The compliance parameters are listed in the *Effluent Monitoring and Discharge* section. If using a commercial laboratory, **TSMC** shall contact that commercial laboratory to determine and to implement the sampling and transportation QA/QC requirements for those activities.
67. The exact location of each sampling point shall remain consistent over the life of the monitoring programs, unless otherwise approved by the Director. Using a GPS or similar device, the northing and easting of each sampling location shall be recorded and submitted to the Department. An updated site map depicting all sample points shall be submitted to the Department by *December 31, 2020*.
68. **TSMC** shall bear all expenses incurred in carrying out the environmental monitoring and analysis required under conditions of this Approval.

Monitoring Alteration

69. The Director has the authority to alter monitoring programs or require additional testing at any time when:
- pollutants might be released to the surrounding environment without being detected;
 - an adverse environmental effect may occur; or
 - it is no longer necessary to maintain the current frequency of sampling and/or the monitoring of parameters.
70. **TSMC** may, at any time, request that monitoring program or requirements of this Approval be altered by:
- requesting the change in writing to the Director; and
 - providing sufficient justification, as determined by the Director.

The requirements of this Approval shall remain in effect until altered, in writing, by the Director.

Reporting

71. Monthly reports containing the environmental compliance monitoring and sampling information required in this Approval shall be received by the Director in digital format within 30 calendar days of the reporting month. All related laboratory reports shall be submitted with the monthly report in XML format and Adobe Portable Document Format (PDF). Digital report submissions shall be uploaded through the EDMS web portal. The Pollution Prevention Division shall provide details of the portal web address and submission requirements.
72. Each monthly report shall include a summary of all environmental monitoring components and shall include an explanation for the omission of any requisite data. The monthly summary reports shall be in Microsoft Word or Adobe PDF and shall be uploaded through the EDMS web portal with the data submissions.
73. All incidents of:
- *Contingency Plan* implementation; or
 - non-conformance of any condition within this Approval; or
 - spillage or leakage of a regulated substance; or
 - discharge criteria being, or suspected of being, exceeded; or
 - verbal or written complaints of an environmental nature received from the public by **TSMC** and related to the Direct Shipping Ore Project, including complaints submitted anonymously;

shall be immediately reported, within one working day, to the Department.

A written report including a detailed description of the incident, summary of contributing factors, and an Action Plan to prevent future incidents of a similar nature, shall be submitted to the Department. The Action Plan shall include a description of actions already taken and future actions to be implemented, and shall be submitted within thirty days of the date of the initial incident.

74. Any spillage or leakage of gasoline or associated product shall be reported immediately through the Canadian Coast Guard at 1-(709)-772-2083.

Expiration

75. This Certificate of Approval expires **July 29, 2025**.
76. Should **TSMC** wish to continue to operate the Direct Shipping Ore Project beyond this expiry date, a written request shall be submitted to the Director for the renewal of this Approval. Such request shall be made prior to **January 29, 2025**.

APPENDIX A

Direct Shipping Ore Project - Administrative Boundary Coordinates

Surface Lease

621543.1	6085727.6
622543.1	6085727.6
622543.1	6085227.5
623782.6	6085227.6
623862.9	6085158.5
623902.0	6085091.7
623957.9	6085046.8
624114.3	6084873.7
624147.8	6084823.4
624209.3	6084778.5
624242.7	6084739.7
624332.1	6084622.0
624422.4	6084521.9
624482.9	6084471.5
624489.3	6084442.9
624494.1	6084421.3
624522.0	6084348.4
624605.8	6084236.7
624689.6	6084147.1
624792.1	6084011.6
624980.1	6083750.7
625066.1	6083623.8
625071.3	6083616.3
625075.4	6083610.3
625108.5	6083555.1
625136.5	6083471.2
625170.0	6083420.9
625225.8	6083354.0
625309.7	6083320.1
625304.1	6083281.0
625332.0	6083219.7
625387.9	6083130.2
625466.0	6083035.6
625497.6	6082977.6
625468.6	6082919.4
625396.1	6082861.5
625323.5	6082818.2
625127.7	6082549.6
625265.5	6082404.4

625222.0	6082346.5
625200.2	6082295.5
625214.7	6082237.5
625227.5	6082227.5
625227.5	6082227.5
623543.1	6082227.5
623543.1	6082727.5
622543.1	6082727.5
622543.1	6083227.5
621965.0	6083227.5
621543.1	6083827.5
621543.1	6084727.5
620543.0	6084727.5
619541.1	6084728.6
619041.1	6084728.6
619041.1	6085228.6
619041.0	6085714.5
618541.0	6086143.3
618541.0	6086391.3
618541.0	6086728.7
618541.0	6087256.4
618038.3	6088732.4
619536.9	6088767.7
619541.3	6087734.7
619541.3	6087734.7
620033.4	6087756.8
620051.2	6087233.7
620525.6	6087273.5
620556.6	6086754.8
621053.2	6086745.8
621053.2	6086227.6
621543.1	6086227.6
621543.1	6085727.6

Joan Lake Mining Area - Administrative Boundary Coordinates

607736.84	6105216.84
607841.64	6105136.49
607934.19	6105060.27
608010.41	6105043.94
608070.30	6105005.83
608184.63	6104967.72
608369.74	6104940.50

608587.51	6104869.72
608707.28	6104842.50
608805.28	6104809.83
608870.61	6104777.17
608963.17	6104695.50
609012.17	6104624.73
609077.50	6104586.62
609153.72	6104586.62
609219.05	6104646.50
609251.72	6104695.50
609327.94	6104744.50
609420.49	6104760.83
609540.26	6104728.17
609600.15	6104700.95
609698.15	6104635.61
609812.48	6104543.06
609981.25	6104434.17
610095.58	6104347.06
610160.92	6104336.18
610231.69	6104303.51
610264.36	6104243.62
610297.02	6104156.51
610384.13	6104085.74
610444.02	6104058.52
610493.02	6103998.63
610531.13	6103922.41
610563.80	6103851.63
610618.24	6103780.86
610678.13	6103726.41
610830.57	6103633.86
610966.68	6103508.64
611113.67	6103383.42
611233.45	6103198.31
611353.22	6103062.21
611424.00	6102969.65
611500.22	6102893.43
611570.99	6102838.99
611641.77	6102789.99
611685.33	6102730.10
611685.33	6102615.77
611674.44	6102501.44
611674.44	6102381.67
611581.88	6102289.11
611500.22	6102207.45
611391.33	6102153.00

611315.11	6102114.89
611260.67	6102076.78
611206.23	6102071.34
611184.45	6101978.79
611211.67	6101831.79
611260.67	6101722.90
611336.89	6101657.57
611369.55	6101581.35
611413.11	6101488.80
611402.22	6101407.13
611298.78	6101418.02
611233.45	6101461.58
611146.34	6101537.80
611075.56	6101586.80
610944.90	6101788.24
610836.01	6101929.79
610748.90	6101946.12
610667.24	6101946.12
610585.57	6101897.12
610536.57	6101826.35
610503.91	6101761.01
610509.35	6101663.02
610509.35	6101521.46
610514.80	6101390.80
610536.57	6101336.36
610558.35	6101243.80
610574.68	6101167.58
610536.57	6101064.14
610618.24	6100938.92
610650.90	6100851.81
610618.24	6100797.37
610558.35	6100732.04
610558.35	6100639.48
610607.35	6100585.04
610683.57	6100546.93
610738.01	6100470.71
610743.46	6100389.05
610743.46	6100280.16
610738.01	6100133.16
610738.01	6100051.50
610781.57	6099969.83
610819.68	6099866.39
610814.23	6099779.28
610759.79	6099719.40
610705.35	6099703.06

610612.79	6099741.17
610558.35	6099779.28
610498.46	6099806.50
610471.24	6099822.84
610384.13	6099768.39
610297.02	6099784.73
610226.25	6099855.50
610177.25	6099839.17
610090.14	6099795.62
609883.26	6099659.51
609752.59	6099539.73
609714.48	6099490.73
609621.93	6099452.62
609513.04	6099425.40
609447.71	6099381.85
609431.38	6099300.18
609588.03	6099216.47
609050.64	6099217.47
609050.39	6099717.64
608050.86	6099716.66
608050.23	6100216.82
607050.33	6100216.88
607050.30	6105216.95
607736.84	610521

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