

# IRON ORE COMPANY OF CANADA

## NEW EXPLOSIVES FACILITY, LABRADOR CITY

### *Environmental Assessment Registration*

*Pursuant to the Newfoundland & Labrador Environmental Protection Act (Part X)*

Submitted by:

**Iron Ore Company of Canada**

2 Avalon Drive

Labrador City, Newfoundland & Labrador

A2V 2Y6 Canada

Prepared with the assistance of:

**GEMTEC Consulting Engineers and Scientists Limited**

10 Maverick Place

Paradise, NL

A1L 0J1 Canada

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## List of Acronyms

<b>ANE</b>	Ammonium Nitrate Explosive
<b>ANS</b>	Ammonium Nitrate Solution
<b>ANP</b>	Ammonium Nitrate Prill
<b>BHP</b>	Boiler Horsepower
<b>BRRP</b>	Business Resilience and Recovery Program
<b>CAN/CSA</b>	Canadian Standards Association
<b>CAC</b>	Criteria air contaminants
<b>CAP</b>	Community Advisory Panel
<b>CH4</b>	Methane
<b>CO</b>	Carbon Monoxide
<b>CO2</b>	Carbon Dioxide
<b>COSEWIC</b>	Committee on the Status of Endangered Wildlife in Canada
<b>DFLR</b>	Department of Fisheries and Land Resources
<b>DNR</b>	Department of Natural Resources
<b>DTCII</b>	Department of Tourism, Culture, Industry and Innovation
<b>EA</b>	Environmental Assessment
<b>ECCE</b>	Environment and Climate Change Canada
<b>EEP</b>	Environmental Emergency Plan
<b>EMS</b>	Environmental Management System
<b>EPP</b>	Environmental Protection Plan
<b>ERP</b>	Emergency Response Plan
<b>ERRP</b>	Emergency Response and Reporting Plan
<b>ESSB</b>	Explosives Safety and Security Branch
<b>FFB</b>	Fuel Fired Boiler
<b>GIS</b>	Geographical Information System
<b>GHG</b>	Greenhouse gases
<b>GNL</b>	Government of Newfoundland and Labrador
<b>GPS</b>	Global Positioning System
<b>Ha</b>	Hectares
<b>HSEQ MS</b>	Health, Safety and Environmental and Quality Management System
<b>HSE MS</b>	Health, Safety and Environmental Management System (same as above)
<b>IOC</b>	Iron Ore Company of Canada
<b>IN</b>	Innu Nation
<b>ITUM</b>	Innu of Uashat mak Mani-Utenam
<b>kBcm</b>	Thousand Banked cubic metres
<b>kg</b>	Kilogram
<b>km</b>	Kilometre
<b>km/h</b>	Kilometres per Hour
<b>kt</b>	Kilotonne
<b>MAC</b>	Mining Association Canada
<b>MASL</b>	Metres Above Sea Level
<b>MBCA</b>	Migratory Birds Convention Act

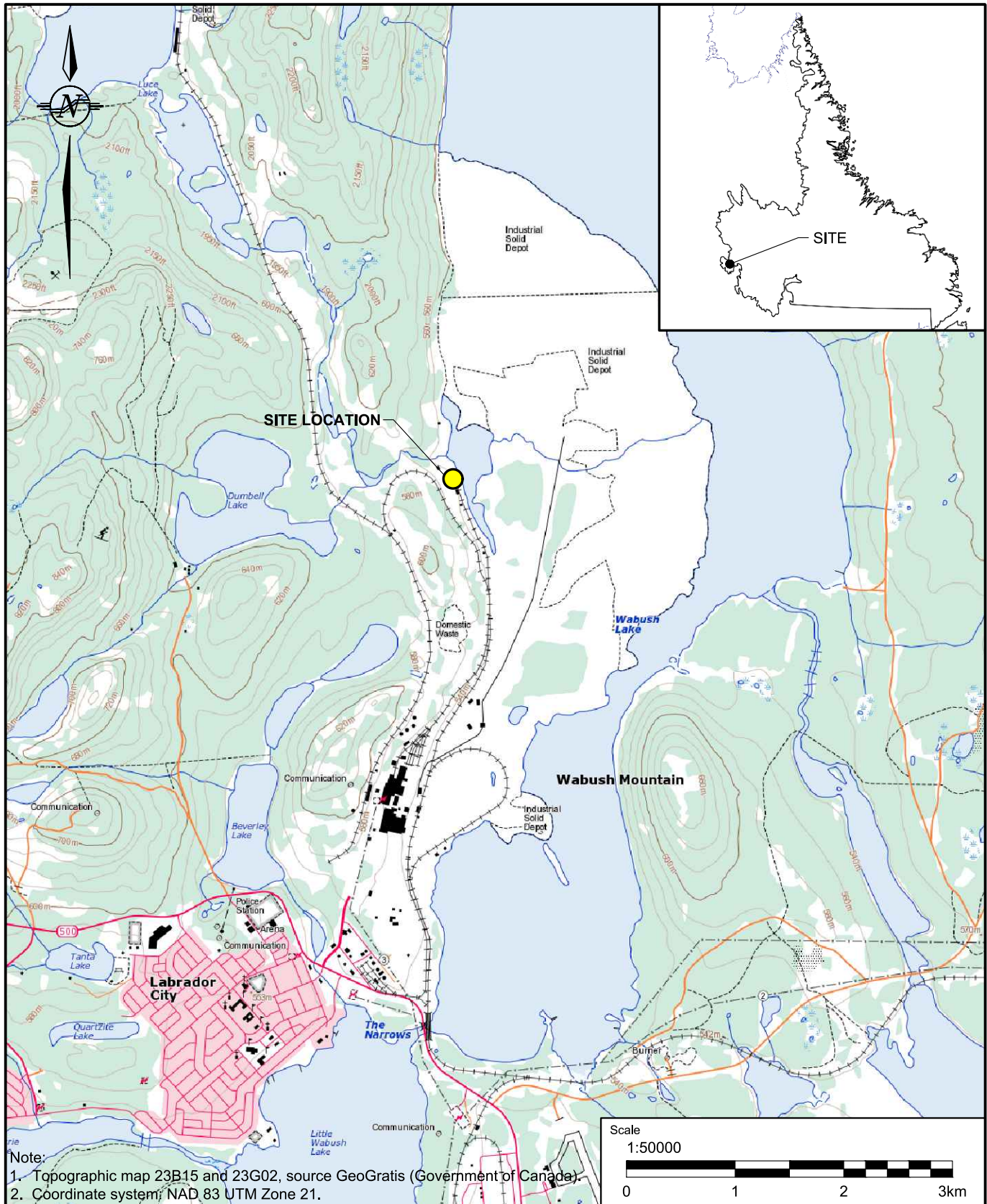
<b>m</b>	Metre
<b>m<sup>2</sup></b>	Square metres
<b>m<sup>3</sup>/d</b>	Cubic metres per day
<b>mbgs</b>	Metres Below Ground Surface
<b>mm</b>	Millimetre
<b>MCC</b>	Main Control Centre
<b>MMER</b>	Metal Mining Effluent Regulations
<b>MMU</b>	Mobile Mixing Unit
<b>Mm3</b>	Million Cubic Metres
<b>mRL</b>	Metres Relative Level
<b>Mtpa</b>	Metric tonnes per annum
<b>Mt</b>	Million tons
<b>MW</b>	Megawatt
<b>N<sub>2</sub>O</b>	Nitrous oxide
<b>NCC</b>	NunatuKavut Community Council
<b>NEQ</b>	Net Explosives Quantity
<b>NLDNR</b>	Newfoundland and Labrador Department of Natural Resources
<b>NLDMAE</b>	Newfoundland and Labrador Department of Municipal Affairs and Environment
<b>NNK</b>	Naskapi Nation of Kawawachikamach
<b>NL EPA</b>	Newfoundland and Labrador Environmental Protection Act
<b>NL ESA</b>	Newfoundland and Labrador Endangered Species Act
<b>NLSA</b>	Newfoundland and Labrador Statistics Agency
<b>NRCan</b>	Natural Resources Canada
<b>NOX</b>	Nitrogen Oxides
<b>PAO</b>	Provincial Archaeology Office
<b>PM</b>	Particulate Matter
<b>PM2.5</b>	Particulate matter less than 2.5 microns
<b>PM10</b>	Particulate matter less than 10 microns
<b>PPD</b>	Pollution Prevention Division
<b>PSI</b>	Pounds per square inch
<b>QNS&amp;L</b>	Quebec North Shore and Labrador
<b>RTF</b>	Regional Task Force
<b>S</b>	Sulphur
<b>SAR</b>	Species at Risk
<b>SARA</b>	Species at Risk Act
<b>SO<sub>2</sub></b>	Sulfur dioxide
<b>TLH</b>	Trans Labrador Highway
<b>TMF</b>	Tailings Management Facilities
<b>TPM</b>	Total Particulate Matter
<b>USGPH</b>	US Gallons per Hour
<b>USGPM</b>	US Gallons per Minute
<b>UV</b>	Ultraviolet
<b>WD</b>	Wildlife Division
<b>WRMD</b>	Water Resources Management Division

## 1.0 INTRODUCTION

**Project Name:** New Explosives Facility, Labrador City

The Iron Ore Company of Canada (IOC) has been operating in Labrador City since the early 1960s. The company's current mining operations consist of open pit mines, mineral processing, e.g., concentrator and pellet plant, and tailings management facilities, as well as transportation infrastructure and other associated components and activities.

IOC is proposing to construct and operate a new explosives facility (the Project) at its Labrador City mine site in order to upgrade working efficiency and employee safety (Figure 1). The Project consists of civil, structural, mechanical and power supply works. This Environmental Assessment (EA) Registration document has been prepared in relation to the proposed Project by IOC, with assistance from GEMTEC Consulting Engineers and Scientists Limited (GEMTEC). The document format follows the guidance for Project Registration under the Newfoundland and Labrador EA process.



Project		
<b>IRON ORE COMPANY EXPLOSIVES FACILITY REGISTRATION</b>		
Drawn By	Date	File No.
CHG	DECEMBER 2018	800090601

Drawing	
<b>SITE LOCATION</b>	
Drawing No.	Revision No.
FIGURE 1	0

**GEMTEC**  
CONSULTING ENGINEERS  
AND SCIENTISTS

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## 1.1 Proponent Information

IOC is a major producer of iron ore in Canada, and a leading global supplier of iron ore pellets and concentrate.

<b>Name of Corporate Body:</b>	Iron Ore Company of Canada
<b>Corporate Address:</b>	1190 des Canadiens-de-Montréal ave., suite 400, Montreal, Quebec H3B 0E3 T: (418) 968-7400
<b>Labrador City Operations Address:</b>	2 Avalon Drive, Labrador City, NL Canada A2V 2Y6
<b>President and Chief Executive Officer:</b>	Mr. Clayton Walker
<b>Principal Contact Person for the Purposes of EA</b>	Mr. Patrick Lauzière Manager, Environment & Sustainable Development 1 Retty Street, Sept-Îles, QC Canada G4R 3C7 Tel. (418) 968-7400 (Ext 7513) Email. Patrick.Lauziere@ironore.ca

IOC currently operates open pit mines, a concentrator and a pellet plant in Labrador City, and transports its products along a 418 kilometre (km) railway to its port facilities in Sept-Îles, Quebec on the St Lawrence Seaway. Approximately 1,707 persons are employed in permanent positions at IOC's Labrador City facilities.

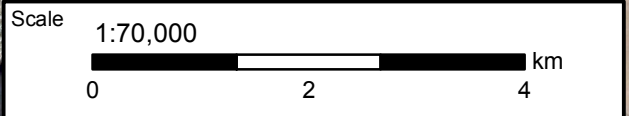
The company's existing mining operations in Labrador City consist of four active open mines (Luce, Moss, Sherwood, and Sherwood North) and three additional mines that are currently idled (Humphrey, Magy and Lorraine) (Figure 2).




RioTinto



Aerial Source: Google Earth 2016



Project <b>IOC NEW EXPLOSIVES FACILITY REGISTRATION</b>		Figure <b>LABRADOR CITY OPERATIONS</b>			 <b>GEMTEC</b> CONSULTING ENGINEERS AND SCIENTISTS
Drawn By MC	Date JAN 2019	File No. 800090601	Drawing No. FIGURE 2	Revision No. 0	



IOC's concentrator has an annual production capacity of approximately 23 million tonnes of iron ore concentrate. Of that amount, approximately 9 to 13 million tonnes are pelletized and the balance is sold directly as iron ore concentrate.

After processing at the Labrador City facilities, the iron ore concentrate and pellets are transported south via the Quebec North Shore and Labrador (QNS&L) railway, a wholly owned subsidiary of IOC, to the company's shipping terminal and deep water port in Sept-Îles, Quebec, which handles ore carriers up to 255,000 tonnes. IOC exports its concentrate and pellet products to major North American, European and Asian steel makers.

IOC has a comprehensive Health, Safety and Environmental and Quality Management System (HSEQ MS) with associated health, safety and environmental standards, work practices and procedures in place for its construction and operational activities. These have been developed and implemented, and are continuously updated, in accordance with Rio Tinto's *Iron Ore Health, Safety, Environment, Communities and Quality Policy* (Appendix A) and applicable legislation and policies. As part of its HSEQ MS, IOC has a comprehensive Environmental Management System (EMS), including plans and procedures designed to reduce the environmental effects of its activities. Associated with its HSEQ MS, IOC has a rigorous internal and external auditing process which annually evaluates the management systems' performance with the objective of continuous improvement.

The Project, as it develops through its various phases from conception to closure, will be evaluated to ensure that it fully conforms to IOC's internal standards and complies with all applicable legislation. Risk evaluation is required through each phase of the Project and mitigative measures will be identified and implemented to minimize or eliminate risks. IOC's major shareholder and operator, Rio Tinto, has developed world class standards in the area of health, safety, and environment and community relations.

## 1.2 Rationale for the Undertaking

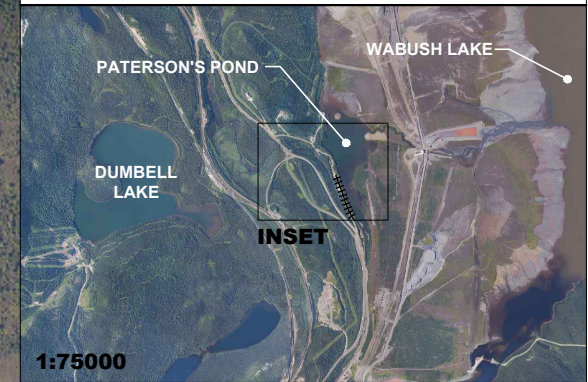
IOC's existing infrastructure in Labrador City includes an explosives manufacturing and storage facility at the mine site, which is owned by IOC but operated by Orica Canada Inc. The current operating license for this facility authorizes the manufacture of 60,000 metric tons per annum (Mtpa) of Ammonium Nitrate Emulsion (ANE), as well as the storage of up to 60,000 kilograms (kg) of explosives at any one time. The existing facility currently supplies explosives to IOC and various local mining companies and contractors.

The current explosives facility (Figure 3) has been in operation since the 1960s and currently has some concerns related to compliance with the guideline requirements of the Explosives Regulatory Division of Natural Resources Canada (NRCan). There are also some general concerns related to electrical code and building requirements that a new facility will address.





Legend



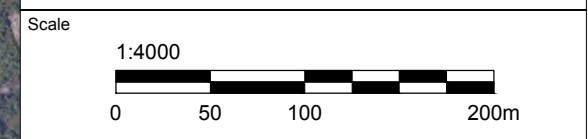
Note  
 1. This drawing is a schematic representation. Sizes, locations and dimensions are approximate.  
 2. Coordinate system: UTM with NAD83 datum, Zone 19, Meter; Central Meridian 69d W.  
 3. Aerial photograph from 2018. Source Google Earth.

Drawn By	CHG	Checked By	IS
Calculations By	---	Checked By	---

Date DECEMBER 2018

Project  
 IRON ORE COMPANY  
 EXPLOSIVES FACILITY REGISTRATION

Drawing  
 EXISTING EXPLOSIVES  
 FACILITY INFRASTRUCTURE



File No. 800090601	Drawing FIGURE 3	Revision No. 0
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Following an in-depth analysis of potential options, IOC decided to pursue the development of a new explosives facility at its Labrador City mine site. The construction and operation of the Project is intended to address the various compliance concerns associated with the existing facility, as outlined above, as well as to provide additional capacity required for the current and potential future mining activity at the Carol Lake Project.

The Project will be located within IOC's existing explosives facility property boundaries, and will be capable of producing 85,000 Mtpa of bulk ANE annually, an increase of 25,000 Mtpa.

The Project will also address a number of operational challenges associated with the current facility such as:

- Provision of appropriate electrical supply and capacity;
- Updating of aging ANE production equipment and facilities;
- Improved employee rest and change rooms;
- Improved office space; and

By constructing, renovating and upgrading within the existing explosives facility footprint, several key existing infrastructures can be re-used. In addition, by keeping to the original facility footprint, there is no risk that potential iron ore resources will become sterilised by any future pit boundaries.

### 1.3 Environmental Assessment Process and Requirements

The Newfoundland and Labrador *Environmental Protection Act* (NL *EPA*) requires anyone who plans a project that could have a significant effect on the natural, social or economic environment (an "Undertaking") to present it for examination through the provincial EA process.

Under the NL *EPA* (definitions), an Undertaking "includes an enterprise, activity, project, structure, work or proposal and a modification, abandonment, demolition, decommissioning, rehabilitation and an extension of them that may, in the opinion of the minister, have a significant environmental effect".

The associated *Environmental Assessment Regulations* (Part 3) list those projects (potentially including proposed modifications and extensions of same) that require registration and review. These include, for example:

*s.41 (1) "An undertaking that will be engaged in manufacturing ... explosive preparations, detonators and explosive devices ... shall be registered".*

Following public, Indigenous and governmental review of this Environmental Assessment (EA) Registration, the Minister of Municipal Affairs and Environment will determine whether the Project may proceed, subject to any terms and conditions and other applicable legislation, or whether further assessment is required.

## 2.0 PROJECT DESCRIPTION

The proposed Project involves the construction and operation of a new explosives facility at IOC's existing mine site in Labrador City that will produce ANE for mining explosives.

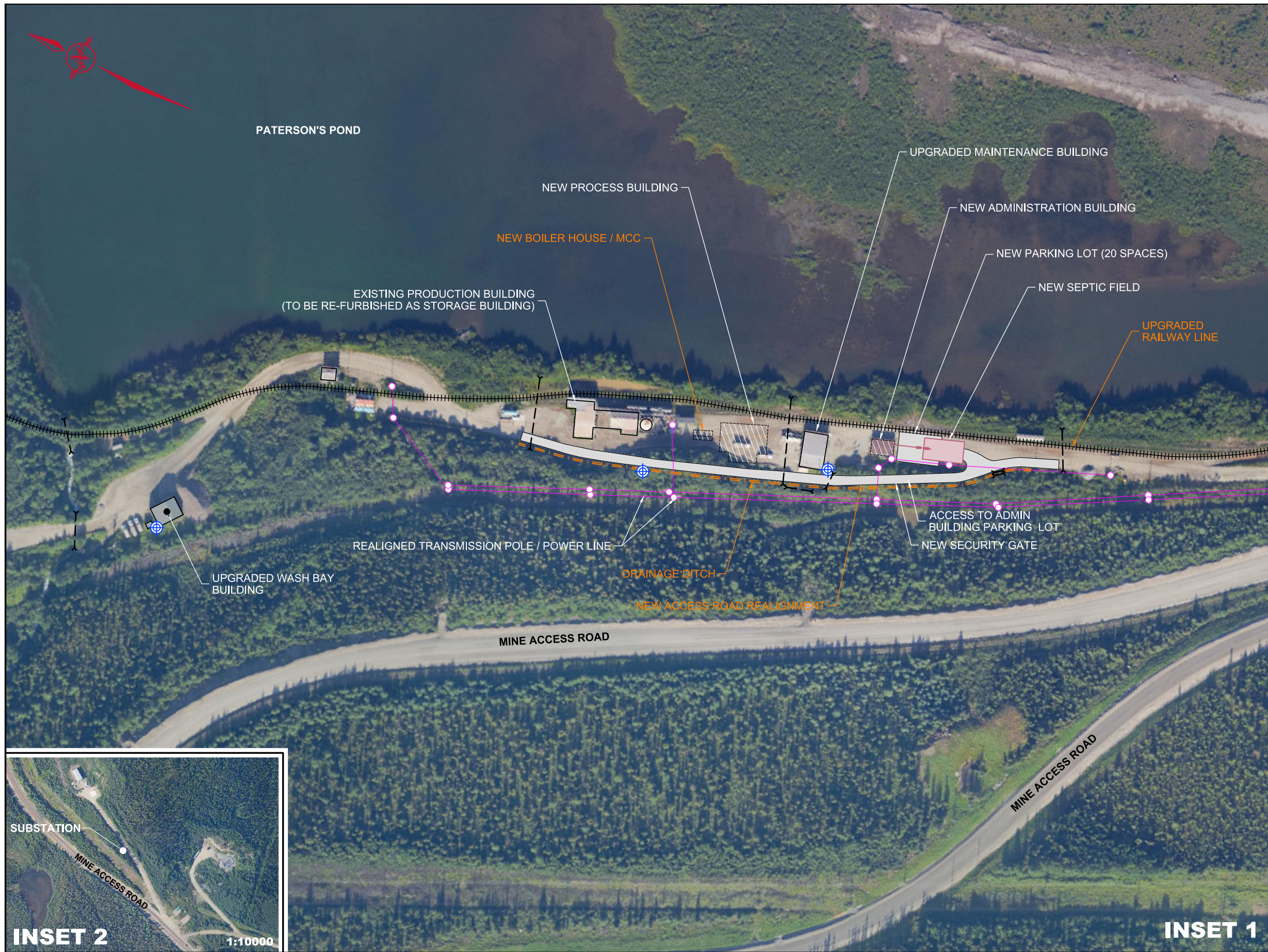
The new explosives facility is being designed to produce 250,000 kg of ANE per 12-hour shift and 85,000 metric tons of explosives annually.

### 2.1 Geographic Location

The proposed new explosives facility is located in Labrador City within IOC's existing mining property boundaries. It will be established in the southeastern portion of IOC's existing mining site, (Figure 2), at approximate coordinates of 52°59'05.59" North and 66°52'59.55" West. The Project site is bound to the southwest by the main mine road and to the east by an approximate 50 metre (m) buffer zone from Paterson's Pond.

The proposed location and design of the Project (Figure 4) have been selected to ensure compliance with requirements of the Explosives Safety and Security Branch (ESSB) of Natural Resources Canada (NRCan).



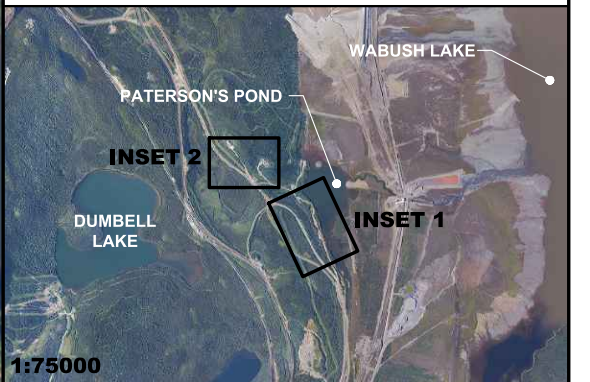


Legend

PROPOSED PROJECT INFRASTRUCTURE	
	POWER POLE
	POWER LINE

NON-PROJECT INFRASTRUCTURE	
	GROUNDWATER EXTRACTION WELL
	CULVERT
	UPGRADED RAILWAY LINE
	DRAINAGE DITCH
	NEW ACCESS ROAD REALIGNMENT
	NEW BOILER HOUSE / MCC



Note

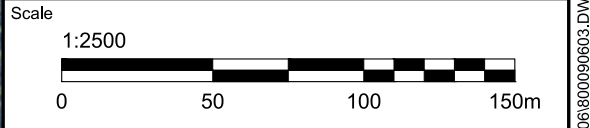
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3. Aerial photograph from 2018. Source Google Earth.

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Calculations By	---	Checked By	---

Date APRIL 2019

Project  
IRON ORE COMPANY  
EXPLOSIVES FACILITY REGISTRATION

Drawing  
PROPOSED EXPLOSIVES  
FACILITY INFRASTRUCTURE



File No. 800090603	Drawing FIGURE 4	Revision No. 0
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## 2.2 Land Tenure

The proposed Project is located entirely within the IOC's Labrador City mining property and is taking place on land that is covered by an existing mining lease (Mining Lease 13, Block 22-3), which was issued in the early 1960s and re-issued for an additional 30 year term in 2012.

## 2.3 Alternatives to the Project

The alternatives to the proposed Project are to continue manufacturing explosives at the existing facility. This course of action is not ideal as IOC has identified previously mentioned concerns with the existing facility and process. In addition, the current maximum production capacity doesn't meet IOC's anticipated requirements for future exploration and operations work in Labrador City.

## 2.4 Project Components

The new facility is being designed to produce 85,000 metric tons of bulk ANE annually and will include the following structural and civil components:

- Demolition and removal of select infrastructure;
- Installation of a new Production Building;
- Installation of a new Office and Administration Building;
- Upgrade the existing Wash Bay;
- Upgrade the existing Maintenance Garage;
- Repurposing of the existing Production Building;
- Realigned Power Lines;
- New Septic System and Leach Field; and
- Improved Site Access and Security.

The facility will be able to accommodate a maximum workforce of approximately 32 people (as required), and will have a new security gate with cameras installed to restrict access to authorized personnel only. The overall Project site, including buildings, parking lot, roads and other components, will cover a total area of approximately 23,350 square metres (m<sup>2</sup>) or 2.3 hectares (ha).

### 2.4.1 Demolition and Removal of Old Infrastructure

After new building construction, some dismantling and removal of select structures and equipment will occur. The existing administration (Figure 5) building will be dismantled and removed and additional dismantling and removal may occur concurrently with certain construction components.



**Figure 5 Existing Administrative Building**

#### **2.4.2 New Production Building**

The new Production Building is the core element and operations building of the facility. It will consist of a pre-engineered steel building approximately 18 m by 30 m with an area of approximately 557 m<sup>2</sup> (Figure 4). The construction sequence will first see the footprint excavated, and then a 150 millimetre (mm) thick layer of fine sand and gravel will be laid and compacted to 95%, to ensure stability. A 152 mm thick insulated pad will then be placed between the fine sand and gravel layer and a 150-300 mm steel reinforced concrete slab. When the desired compression resistance for the slab is reached, the Production Building structure will be constructed on a concrete wall attached to footings buried approximately 1.8 m and protected from frost. The building wall will extend approximately 450 mm above the internal concrete slab.

The new Production Building will include a 6 m x 18 m loading bay and weigh scale and all of the production equipment, storage tanks and areas for the raw materials used in the explosive mixing process, including the Ammonium Nitrate Solution (ANS) receiving tanks - 320 metric tonnes in the main tank and 80 metric tonnes in facility. All electrical, instrumentation, ventilation, and heating systems will be designed and installed in accordance with relevant standards and operational requirements.

All floors will be sealed and hardened, and sloped towards collection pits. The concrete portion of the indoor walls and the door sills of the will be high enough to serve as secondary spill containments and garage door sills will also be designed to confine any spilled liquids within the buildings. Any spilled material collected within the collection pits or the building will be removed and processed through the evaporator.

It is proposed that the ANSUL fire protection system, similar to the system currently in place in the existing Production building, will be used for fire suppression (<https://www.ansul.com>).

The existing unloading facilities, with some upgrades, will be used for the ANS and Ammonium Nitrate Prill (ANP) railcars.

Replacement fuel storage tanks will be required in the new Production Building for diesel storage, and fuel phase mixing and storage. The fuel phase is typically 75% diesel and 25% emulsifier, *i.e.*, complex mineral oil. These tanks will have a storage capacity of approximately 60,000 litres (L).

Also to be located near the new Production Building is the Main Control Center (MCC) which will be equipped with a chemical fire suppression system, as per applicable regulatory requirements.

The water supply to feed the production process will be located in the old Production building and will have a capacity of between 20,000-30,000 L. A water supply with a capacity of 90 minutes is required as the building is provided with a monitored fire alarm system.

No new magazines are proposed for this new facility however existing explosives and detonators magazines at the existing facility will be used (Figure 4). The proposed reorientation of the new facility and its various components has been selected to ensure compliance with the permit requirements of NRCan.

### **2.4.3 New Office and Administration Building**

The new Office and Administration Building (Figure 4) will have an area of approximately 325 m<sup>2</sup>, will be constructed on the existing Administration Building foundation and will be on two levels. This modular building will be constructed from wood, drywall and will have metal exterior wall cladding.

It will house the administration offices and the employees' quarters including a lunchroom, locker-room, laundry room, and washrooms with showers. The building will have a capacity for approximately 30 people with the following breakdown in floor space:

- Four offices;
- Conference room;
- Washrooms and showers;
- Locker rooms;
- Rest/break room; and
- Mechanical/Electrical room.

A fire alarm system will protect the office space and will be designed to light hazard occupancy.

### **2.4.4 Upgraded Facilities**

#### **2.4.4.1 Wash Bay**

The Wash Bay (Figure 6) is used to clean the process vehicles. There will be an oil/water separator installed in the Wash Bay building and all impacted water will be collected and processed through an onsite evaporator system; vapours will be vented as required. Wastewater

from the mixing process and the wash bay will be evaporated through the system and the remaining residues will be disposed of appropriately and in accordance with all applicable regulations. The evaporator will have a capacity of 7,000 L and be capable of evaporating 80% of its capacity of waste solution within 48 hours. Once treated, discharge from the Wash Bay will be tied into existing discharge pipes.

A number of upgrades are required to the Wash Bay, including the replacement of the three large garage doors, extensive concrete finishing work and major improvements to the air circulation and lighting systems.



**Figure 6 Existing Wash Bay**

#### **2.4.4.2. Maintenance Garage**

The existing Maintenance Garage (Figure 7) has an area of approximately 302 m<sup>2</sup> and will see a number of improvements as part of this undertaking. The entire Maintenance Garage will be re-cladded, the three large loading doors will be replaced, a new ventilation system and lighting systems will be installed, and a new oil/wastewater separator will be installed. As above, any wastewater from the maintenance garage will be evaporated through the system and the remaining residues will be disposed of appropriately and in accordance with all applicable regulations. In addition, improvements to the concrete wall will be made as well. All applicable guidelines will be followed in the installation and operation of new equipment.



**Figure 7 Existing Maintenance Garage**



### 2.4.4.3. Repurposing of the Existing Production Building

Work to this structure will include the decontamination and removal of old production equipment in order to allow for its conversion to a storage area (Figure 8). In addition, modifications will be made to the existing ANP Hopper Feed Conveyor.



**Figure 8 Existing Production Building**

### 2.4.5 Power Line Realignment

The proposed Project will include the realignment of a power line extending from the existing mine road to the new facility (Figure 4).

Electrical power will be supplied to the new explosives facility through an existing distribution system. The power consumption requirement for the new facility operation is estimated to be a maximum of 3 Megawatts (MW) and some new infrastructure will be incorporated, as detailed below. A new electrical substation will be established just south of the proposed Project site, and this will connect to the existing power distribution lines that run along the existing mine site road (Figure 4). A slightly realigned overhead wood pole electrical distribution line (4160 Volts (V), 3-phase) will follow the realigned access road, and about 50 m of underground line will extend into the new facility. An outside oil cooled step-down transformer will reduce the voltage to 600 V at the site.

Communication systems at the new facility will be established through a fibre optic cable connection to IOC's existing fibre optic network. New cable (24 strands, mono-mode) will be installed for a distance of approximately 6 km on existing posts. A copper telephone line will also

be installed on existing posts. A backup hardwired line is included in case of emergencies in the event that the fibre optic communication link is interrupted.

Surface water management at the site will be improved upon following all recently completed and proposed works. When the access road realignment occurs (not a Project component) a new 200 m x one (1) m deep ditch at the base of the embankment (Figure 4) will also be constructed. This minor work is not associated with this Project but will significantly improve surface drainage at the existing site. The base of the ditch will have a width of 0.75 m and side slopes of 1V:3H. Drainage from the top of the embankment and half of the site will be collected in the ditch where it will be transported via three existing culverts to a vegetated discharge location.

At their Labrador City operations, and as one of a number of best management practices, IOC endeavors to maintain a 100 m naturally vegetated buffer between surface drainage discharge locations and nearby water bodies. In cases where a 100 m buffer is not possible, IOC uses other best management practices to ensure appropriate discharge locations are selected and that appropriate mitigations are in place prior to discharge. Existing discharge locations for surface water management will continue to be used at the proposed Project site and appropriate mitigations will be employed to ensure no decrease in water quality at nearby water bodies is experienced.

Mitigations are designed to ensure that appropriate sediment control measures and suitable buffers are in place to allow discharged water to follow natural surface drainage patterns to minimize erosion. IOC will fully comply with all permit requirements relative to site water drainage and discharge at the proposed Project location.

#### **2.4.6 New Septic System and Leach Field**

A new septic system and leach field (Figure 4) will also be established for non-process wastewater and will be located south of the parking area. The leach field will be designed such that occasional light vehicle traffic will not impair its functioning.

#### **2.4.7 Site Access and Security**

Access to the site will be restricted by a security gate at the main entrance (Figure 4) with magnetic card readers. A lockable sliding gate with a winter shelter will secure the entrance when there are no personnel on site.

## **2.5 Construction**

Subsequent to release from the EA process, and once all required regulatory approvals and permits are obtained, construction activity will commence. Construction activities will not disrupt ongoing mining operations in any way.

Standard construction methods will be used for the civil works, which will be carried out in accordance with environmental regulations, permits and applicable standards. Clearing and site

preparation activities would begin in summer 2019 and powerline realignment would be completed soon after.

The new Production Building construction will occur in early 2020. The new Office and Administration Building will be constructed in 2020-2021 and upgrades to both the Wash Bay and Maintenance Bay carried out during the same time frame. All obsolete equipment will be removed in years two and three of the Project and IOC anticipates commissioning the new plant facility in late 2020.

## 2.6 Operations

The proposed new explosives facility has been designed to produce 250 tonnes per 12-hour shift (85,000 metric tons annually) of ANE. A maximum workforce of 18 people will be at the facility at any time.

The following provides a summary of the various key operational criteria which have been applied in the planning of the new explosives facility, based on the current stage of planning:

- 85,000 metric tonnes per year;
- 250 metric tonnes per 12-hour shift;
- Storage capacity for raw material for seven days production at a rate of 250 tonnes/day;
- 18 people maximum on site;
- 5 Mobile Mixing Unit (MMU) truck operation; and
- License limit of 50,000 kg, Net Explosives Quantity (NEQ).

The explosives mixing process and associated delivery cycle are outlined briefly below:

1. ANS is delivered to the facility in railcars and, while in the unloading area, is heated using steam to ensure that any solution that crystallized during transport is converted back to liquid form. The liquid chemical is pumped from the railcar into the ANS storage tanks. The ANS storage tanks and railcars onsite should cover a seven day production capacity.
2. Sulfamic acid, sodium nitrite and other required additives are brought to the site in trucks and are stored in 25 kg bags if they are in a crystalline state.
3. Surfactants, *i.e.*, compounds that lower the tensions between substances and act as emulsifiers, are brought to site in tanker trucks. The products are offloaded in storage tanks located inside the production building.
4. Diesel fuel is also trucked to the site and off-loaded to the diesel fuel and surfactants storage tank located immediately outside the building.
5. ANP are delivered by railcar and spotted when needed (individually) over the prill off-loading hopper which contains an inclined screw that brings this material into a small indoor hopper. The product is loaded as required into a delivery truck.
6. Any other required materials are delivered by truck and stored in the warehouse area for use, as required.

7. During the mixing process, ANS is pumped into the mix tank, where the temperature is adjusted to the required range. Other additives are also added, if needed. Diesel fuel and surfactants are pre-mixed in a heated batch tank.
8. The ANS mixture and diesel fuel and surfactant mixture are brought into the specialized in-line mixer in the correct proportion. This solution is then fed into the screw conveyor which is conveying ANP from the indoor hoppers. The speed of this screw sets the correct amount of prill to blend with the ANS/fuel oil product from the in-line mixer.
9. The mixed product is fed directly into a truck and driven to the mine pit. From there, the explosives are charged down the hole and mixed with the gassing agent that is blended at the blast site.
10. The truck then returns to the plant, reloads and the cycle continues until the mix tank is emptied. The cycle of blending another batch of explosives is undertaken, as required.

A generalized schematic illustrating the process for materials receipt, mixing and product delivery is provided in Figure 9. The estimated turnaround time for a MMU truck is approximately 140 minutes. A total of 15 to 16 truckloads per day are required to address current demand and use.

There are no anticipated discharges to the environment associated with the operation of the proposed facility as it functions as a closed system. From the delivery of the raw materials and chemicals used in the explosives mixing process, to the trucking of explosives product from the facility to the mine site, there are no process related discharges to the environment. Once operational, the new facility will be subject to regular inspection and maintenance, which will mitigate the potential for any leakages, spills or other unplanned discharges to the environment.

IOC procedures for the storage, transport and use of fuel and hazardous material and contingency plans which are currently in place will also apply to the operations phase of the proposed facility.



## 2.7 Possible Accidents and Malfunctions

During the construction, operation and maintenance of the explosives facility, an accidental or other unplanned event is a possible outcome. Some of the potential accidental events or malfunctions that may be associated with the Project include:

- The unplanned detonation of explosives materials during their production, transportation or storage;
- A fire at the facility, potentially extending into adjacent areas;
- An accidental spill of chemicals, fuels or other deleterious substances into the terrestrial and/or aquatic environments; and
- Traffic mishaps involving MMU trucks, railcars, mine equipment and light duty vehicles.

Human health and safety and environmental protection have been paramount considerations by IOC in the planning and design of the new explosives facility, and these will continue to be the main priorities during the construction, operation and maintenance of the Project.

A key rationale for the Project is to address various compliance issues related to the existing explosives plant, in operation since the 1960s. Specifically, IOC must ensure they meet guideline requirements of the Explosives Regulatory Division of NRCan relative to the required distance from existing mine site roadways. The new facility has been designed to comply with these specifications. The existing facility is also an ageing one, with a number of general issues related to electrical code and other building requirements that IOC will address.

Replacement of the aging explosives facility may therefore be viewed as an environmental mitigation action, intended to address current environmental and safety considerations, and to help ensure that the supply of explosives required for mining activity in Labrador West can continue in a manner that is safe and environmentally acceptable.

IOC and the operator of its current explosives plant (Orica) have significant and long-term experience in the manufacture, transportation and use of explosives and associated activities and materials, and have been carrying out these activities – without an accidental detonation of explosives materials - since the early 1960s. There is a comprehensive Health, Safety and Environmental Management System (HSE MS) and associated plans and procedures in place for IOC's overall Labrador City mining operations in general, as well as facility and activity specific plans and processes related to the existing explosives plant. For example, as a requirement of the federal licence for the existing explosives plant, the operator maintains a site specific Emergency Response Plan (ERP), and has completed the review and was last updated November 2018 for all site emergency response procedures. The TOC for this document is included in Appendix B.

These site emergency response procedures will be adopted and updated as required for the new explosives facility, which will be designed, constructed and operated in compliance with relevant legislation, regulations, standards and guidelines.



## 2.8 Decommissioning

The existing explosives facility was established in the 1960s, and consists of several buildings that will become redundant once the new facility becomes operational.

The existing Administration Building will be deconstructed and removed from the site. Any decommissioning or site rehabilitation activities occurring pre-construction will be carried out in compliance with applicable regulatory requirements, and in consultation with relevant authorities. IOC will ensure the safe removal and appropriate disposal of chemicals and any hazardous materials from within all structures of the existing explosives facility that are to be decommissioned and all decontamination activities will be carried out by qualified personnel. All tanks and associated infrastructure, *e.g.*, lines, *etc.* will be decommissioned according to relevant federal and provincial guidelines.

The new explosives facility will be subject to maintenance, as required, and it is assumed that it will be operated on a permanent basis. As such, formal and separate plans for decommissioning have not been developed. The future decommissioning of the Project will be incorporated into IOC's overall Closure Plan for its Labrador City mining operations and based on estimated closure costs, appropriate financial assurances are in place. Should decommissioning be required for all, or a part of the facility in advance of any larger closure initiative, a detailed decommissioning plan will be developed and implemented in accordance with acceptable standards of the day, and in consultation with relevant regulatory agencies.

## 2.9 Effects of the Environment on the Project

The proposed Project has been planned and designed, and will be implemented, with due consideration of the local environmental conditions in and around the Project site. Topographic features, waterbodies, existing infrastructure, and other environmental factors have, to varying degrees, influenced the placement and design of the Project and its associated components. Weather conditions will also likely influence the timing of some construction activities.

No additional or specific mitigation measures are required or proposed in relation to the possible effects of the environment on the Project.

## 2.10 Labor Force and Occupations

The proposed Project, through its construction and operations phases, will result in positive economic effects. The Project will create modest temporary employment opportunities in a variety of occupations and the requirement for goods and services during Project construction and operation will provide opportunities for local businesses. These direct economic benefits will be supplemented by indirect benefits through spending by Project employees and contractors.

Over its anticipated three year construction phase, the Project will require an estimated 24 workers. Once operational, the existing complement of workers will be maintained at 30-32 personnel, no new employees are anticipated to be hired for operations.

## 2.11 Project Schedule

IOC is anticipating a Q3 2019 start of construction activities, assuming release from EA, and the receipt of all required environmental approvals and permits. Table 1 provides a draft outline of the proposed development schedule for the Project.

**Table 1 Draft Development Schedule, May 2019**

Activity Name	2019				2020				2021			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Registration to NLDMAE												
EA Release												
Tree Clearing/Mulching												
Powerline Realignment												
New Production Building												
Admin Bldg. & Wash Bay												
Dismantle Obsolete Equip.												
Maintenance Garage Upgrades												
Plant Commissioning												

## 2.12 Project Funding

This Project will be privately funded and no government financial assistance is required or being requested.

## 2.13 Environmental Management and Protection

The proposed Project would be constructed and operated as part of IOC's on-going Labrador City operations. The company has a comprehensive HSE MS and associated environmental plans and procedures for its development and operational activities in place. These plans have been developed, implemented and periodically updated in accordance with Rio Tinto's corporate *Health, Safety, Environment, Communities and Quality Policy* (Appendix A), other relevant corporate requirements and guidelines, and with a view to meeting and exceeding the requirements of applicable legislation and regulations.

IOC has a comprehensive HSEQ MS in place with various associated plans and procedures that are designed to avoid or reduce the environmental effects of its activities. The proposed Project will be constructed and operated in accordance with applicable legislation and regulations, including the environmental protection and planning measures defined through this EA review, and in compliance with IOC policies, procedures and standards.



Table 2 provides a select list of IOC's existing environmental plans for its Labrador City development activities and operations. A review and updating of these and other existing procedures will be carried out as Project planning and implementation progress, including the incorporation of Project activities into IOC's overall integrated management system.

**Table 2 Existing Environmental Management Plans**

Title of Plan
Water: Effluent and Surface Water Plans/Procedures
Hazardous materials and non-mineral waste control Plans/Procedures
Chemically Reactive Mineral Waste Control Plans/Procedures
Environmental Protection Plan (EPP)
Hazardous Materials and Non-Mineral Waste Control and Minimization Plan/Procedures
Water Quality Protection and Water Management Plans/Procedures
Land/Watercourse Disturbance and Rehabilitation Plans/Procedures
Construction and Development Water Resources Plan
Business Resilience and Recovery Plan (BRRP)

### 2.13.1 Environmental Protection Plan

Environmental protection planning is an integral part of IOC's construction, operations and maintenance programs. As a company with significant experience in constructing, operating and maintaining mining related infrastructure and activities in Labrador City, IOC has proven policies and procedures related to environmental protection and management which will be implemented during the construction and operation of this proposed Project.

An EPP is an important tool for consolidating environmental protection information and procedures in a document that provides sufficient detail for the implementation of environmental protection measures in the field. An EPP provides concise instructions to personnel regarding environmental protection procedures and descriptions of techniques to reduce the environmental effects associated with construction or operations activity.

IOC has developed and implemented a site wide EPP for its Labrador City mining activities. This EPP was last updated in September 2018 and incorporates components and activities associated with construction and operations at the proposed new explosives facility.

The EPP includes procedures and measures relative to activities such as vegetation clearing, grubbing, storage and handling of fuel, blasting, quarrying, dust control, waste and sewage disposal, work in or near water, as well as contingency plans for unplanned events such as spills, rehabilitation and compliance monitoring. A table of contents of the existing EPP is included in Appendix C.

### 2.13.2 Emergency Response and Reporting Plan

There are comprehensive incident prevention, response and reporting plans and procedures in place for IOC's overall Labrador City mining operations, and in particular relative to specific plans and processes related to the existing explosives plant. These plans and procedures will be

adopted and updated as required for the new explosives facility, which will be designed, constructed and operated in compliance with relevant legislation, regulations, standards and guidelines.

IOC has established a Business Resilience and Recovery Program (BRRP) that has identified high emergency risks, with detailed mitigation associated. The BRRP is to ensure that appropriate resources and incident response plans are prepared, practiced and available. The plans provide an effective response for the mitigation, control and recovery from incidents which can affect business at IOC. Activities associated with the Project will be evaluated under the BRRP. The BRRP is routinely tested and audited to ensure it meets IOC's needs.

The manufacture of explosives is regulated under the federal *Explosives Act*, which states that no person shall make or manufacture explosives either wholly or in part except in a licensed factory (s. 6. (a)). The associated *Explosives Regulations* specify that when making an application for an explosives factory license, the applicant must submit for review an ERP (s. 7. b(iii)) prior to a license being issued. In accordance with these regulations, the operator of IOC's existing explosives facility, Orica Canada, maintains a site specific ERP that includes the identification of, and preferred response to potential accidental events and environmental issues. The specific response to spills, leaks and loss of containment are included in the ERP and are reviewed by NRCan prior to the issuance of a license. This ensures that proper procedures, equipment and training are in place to be able to rapidly respond to any incidents, should they occur. A revised ERP will be prepared in relation to the proposed Project, in accordance with the federal licensing requirements outlined above. This will be prepared, approved and in place prior to the commissioning of this proposed new facility.

Ammonium nitrate is listed in Schedule 1 of the *Environmental Emergency Regulations, 2003* under the *Canadian Environmental Protection Act, 1999*, administered by Environment and Climate Change Canada (ECCC). Based on the quantities of ammonium nitrate that are likely to be used and stored at the proposed facility, these *Regulations* will apply, and one of their requirements is that IOC prepare and implement an acceptable Environmental Emergency Plan (EEP) relative to this substance.

## 2.14 Other Required Environmental Approvals

In addition to approval under the provincial EA process, the proposed Project may require a number of other permits, approvals and authorizations. IOC will obtain all required permits, approvals and/or authorizations prior to commencing the Project.

### 3.0 EXISTING ENVIRONMENT

The proposed new explosives facility is to be built primarily in the footprint of the existing facility. The sections below provide an overview of the existing biophysical and human environments of the proposed Project.

#### 3.1 Natural Environment

The proposed new explosives facility is located in Labrador City, in the southeastern portion of IOC's existing mining property site. The Project is planned to be constructed primarily in the footprint of the existing explosives facility and is in an area that has been used by IOC's large scale mining operations for the past five decades.

For purposes of this proposed undertaking, the components of the natural environment that may be impacted by this proposed Project are:

- Atmospheric Environment, including noise, air quality and climate;
- Terrestrial Environment, including vegetation and soils, wildlife, avifauna and species at risk (SAR); and
- Freshwater Environment.

##### 3.1.1 Atmospheric Environment

Iron ore mining forms the industrial base for the Towns of Labrador City and Wabush and is the main industry affecting the quality of the local atmospheric environment. Releases of air contaminants are generally classified into criteria air contaminants (CACs) and greenhouse gases (GHGs). CACs are a set of criteria pollutants that cause smog, acid rain and other health hazards, and include particulate matter (PM), sulfur dioxide (SO<sub>2</sub>), nitrogen oxides (NOX), and carbon monoxide (CO). The principal GHG emissions generated from diesel fuel combustion are CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O.

IOC maintains three air quality monitoring stations (Figure 10) at their Labrador City operations that are in close proximity to the local community and to recreational facilities. Data from these monitoring stations is collected by the Newfoundland and Labrador Department of Municipal Affairs and Environment (NLDMAE) and the results compiled and published in annual Air Quality Reports.

There are no additional CAC or GHG emissions anticipated as a result of this new explosives facility and therefore negative effects to the air quality data during construction or operation of the Project are not anticipated. Existing air quality monitoring will however continue, and the data analyzed in order to verify these predictions.



RioTinto

IOC



Explosives Facility

AQM Station Smokey Mountain

MET Station




AQM Station Fire Hall

MET Station

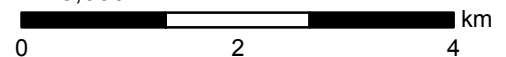
LABRADOR CITY

AQM Station Indian Point

Aerial Source: Google Earth 2016

-  Explosives Facility
-  MET Station
-  AQM Station

Scale 1:70,000



Project  
IOC NEW EXPLOSIVES FACILITY  
REGISTRATION

Figure  
AIR QUALITY MONITORING  
LOCATIONS

Drawn By  
MC

Date  
JAN 2019

File No.  
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Drawing No.  
FIGURE 10

Revision No.  
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GEMTEC

CONSULTING ENGINEERS  
AND SCIENTISTS



### 3.1.1.1. Regional Climate

The site is located within the extensive *Mid Subarctic Forest* ecoregion (Meades 1989; 1990), which encompasses the upland plateaus of central and western Labrador. This area has a continental, subarctic climate with cool, short summers and long, severe, cold winters.

Climate information for the Project area presented in Table 3 is based on data recorded from 1981-2010 at the Wabush Lake Airport climate station (Environment and Climate Change Canada, 2016). The Project area, at an elevation of 820-840 metres above sea level (MASL), is located approximately 8 km northwest of the Wabush Airport, which is located at an elevation of 551 MASL.

**Table 3 Wabush Airport Climate Normals (1981-2010)**

Parameter	Unit	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Rainfall	mm	0.6	1.6	2.6	12.1	40.4	80.6	113.9	103.4	92.3	42	10.9	2.5	502.9
Snow	cm	63.8	50.9	65.9	44.3	14.4	2.1	0.0	0.1	4.4	39	77.5	66.2	428.7
Precipitation	mm	49.2	40.3	54.1	48.8	53.5	82.7	113.9	103.5	96.5	75.7	70.9	50.4	839.5
Average Temp.	°C	-2.2	-0.6	-3.3	-4.3	4.0	10.3	13.8	12.5	7.6	0.5	-8.2	-7.5	-3.1

Source: Environment and Climate Change Canada [http://climate.weather.gc.ca/climate\\_normals/results\\_1981\\_2010](http://climate.weather.gc.ca/climate_normals/results_1981_2010)

The average monthly temperature in the area is -3.1°C. The average monthly temperature range from October to April is 0.5 to -27°C and 4.0 to 7.6°C from May to September. (Environment Canada 2012a).

Monthly precipitation from May to September ranges from 53.5 to 96.5 mm and monthly average snowfall ranges from 42 to 75 cm in the winter months. Almost half of the annual precipitation falls in the June to September period.

## 3.1.2 Terrestrial Environment

### 3.1.2.1. Vegetation and Soils

The proposed Project site is characterized by patches of mixed wood forest interspersed with areas of moss, lichen cover and exposed rock and earth, with roads, trails and other developed areas throughout the larger region.

### 3.1.2.2. Wildlife and Avifauna, Including Species at Risk

Wildlife species that are known or likely to occur in the general region include red fox, marten, voles, porcupine, lynx, wolf, moose and black bear, as well as various resident and migratory species of birds, including raptors, waterfowl, passerines, and upland game birds. The presence of large-scale mining activity in and around the Project area for the past five decades has, however, limited the use of the site by most wildlife and any wildlife using the area, including avifauna, have likely habituated to on-going human activity.

Current information indicates that the migratory George River caribou herd occurs to the north and northeast of the Project area. A February 2012 aerial survey did not indicate any caribou presence within a 40 x 40 km (1,600 square kilometre (km<sup>2</sup>)) regional study area that encompassed IOC's Labrador City operations (SNC, 2012).

Similarly, the Woodland boreal caribou (*Rangifer tarandus*), currently listed as Threatened under the provincial *Endangered Species Act* (NL ESA) and under the federal Canadian *Species at Risk Act* (SARA), would be unlikely to occur in such close proximity to ongoing industrial activity. A study by Weir et al. (2007) determined that caribou avoid mine areas by as much as 4 km, and group sizes were impacted up to 6 km from mine sites. The proposed Project is not anticipated to overlap or interact with the current ranges of the Woodland boreal caribou in western Labrador, specifically the Lac Joseph Herd which is known to occur to the south and east of the Project area.

No other species that are listed under the Newfoundland and Labrador ESA or the federal SARA are likely to occur within or near the proposed Project area.

### 3.1.3 Freshwater Environment

The Freshwater Environment includes surface and groundwater (quantity and quality) that may interact with the Project.

#### 3.1.3.1. Surface Water

The infrastructure associated with the new explosives facility will be located approximately 50 m from the closest waterbody, Paterson's Pond (Figure 4), a previously licensed tailings disposal area owned and operated by IOC. Wabush Lake is located to the east of the proposed facility, and is an existing, approved tailings disposal area. There are no permanent waterbodies or watercourses within the footprint of the proposed facility (Figure 4).

IOC has been obtaining process water for the existing facility from the Luce Creek outflow, located northwest of the proposed new facility (Figure 3). Since this is an unreliable source during the winter months, IOC will obtain process water for the new facility from new groundwater wells.

Recent work to realign an existing access road near the Project site did not involve the installation of any new culverts. Three existing culverts were used; of which two were extended on the west side of the site to pick up drainage from a recently constructed drainage ditch. Previous work to extend culverts was carried out according to standard permit requirements.

#### 3.1.3.2. Groundwater

Currently, there are no existing groundwater wells in the vicinity of the existing or proposed new facility, but three new wells are proposed to be installed by fall 2019. The installation of the three groundwater wells is not included here as a part of this Project. Water quality and quantity sampling will be carried out at the three proposed wells to be installed prior to the start of operations activities. Testing will confirm groundwater volumes available, recharge rates and general water chemistry prior to the commencement of regular operations at the new facility.

Quantity and quality testing will be ongoing during all operations and during final decommissioning. Analytical results will be compiled for analyses and all applicable regulatory requirements and guidance will be obtained and followed.

## **3.2 Human Environment**

### **3.2.1 Historic and Heritage Resources**

Historic and heritage resources include sites, objects or other materials of historic and archaeological, paleontological, architectural, cultural and/or spiritual importance. In Newfoundland and Labrador, such resources are protected under provincial legislation. Construction activities and associated ground disturbance have the potential to disturb or destroy archaeological sites and other historic and heritage resources.

Based on previous studies in the general area, there are no known historic and heritage resources within the proposed Project area. Since the proposed Project footprint is relatively small and infrastructure will be built on already disturbed areas, it is unlikely that the area contains, or that the proposed Project will result in the disturbance or destruction of, historic and heritage resources.

During project construction, standard precautionary and reporting procedures will, however, be implemented. Should an accidental discovery of historic resources occur, all work will cease in the immediate area of the discovery until authorization is given for the resumption of the work. Any archaeological materials encountered will be reported to the Provincial Archaeology Office, including information on the nature of the material discovered and the location and date of the find.

### **3.2.2 Socioeconomic Considerations**

The Labrador West region includes the communities of Labrador City (38.83 km<sup>2</sup>) and Wabush (46.25 km<sup>2</sup>), with populations of 10,528 residents and 4,195 residences in 2016, respectively (Statistics Canada 2016). Mining and mineral processing, together with related support industries, are the main economic focus of the region (Labrador West, 2012). In 2010 the region had a total labour force of 4,590 workers, of which 1,670 (36 %) worked in “mining and quarrying” (Statistics Canada, 2016). In that year, the region had a labour force participation rate of 73.6 %, an unemployment rate of 5.2 % (Statistics Canada, 2016). The average family income in these communities in 2015 was approximately \$145,900.

Construction of the new explosives facility will require modest and short term temporary employment (approximately 24 positions) through the hiring of contractors for site clearing and construction. No new employment will result from the operation of the new explosives facility as employees from the existing facility will simply be redeployed to the new facility.

### **3.2.3 Indigenous Groups and Traditional Activities**

Several Indigenous groups have overlapping claims and/or assert Indigenous rights and/or other interests in the region where IOC operates. These groups are the:

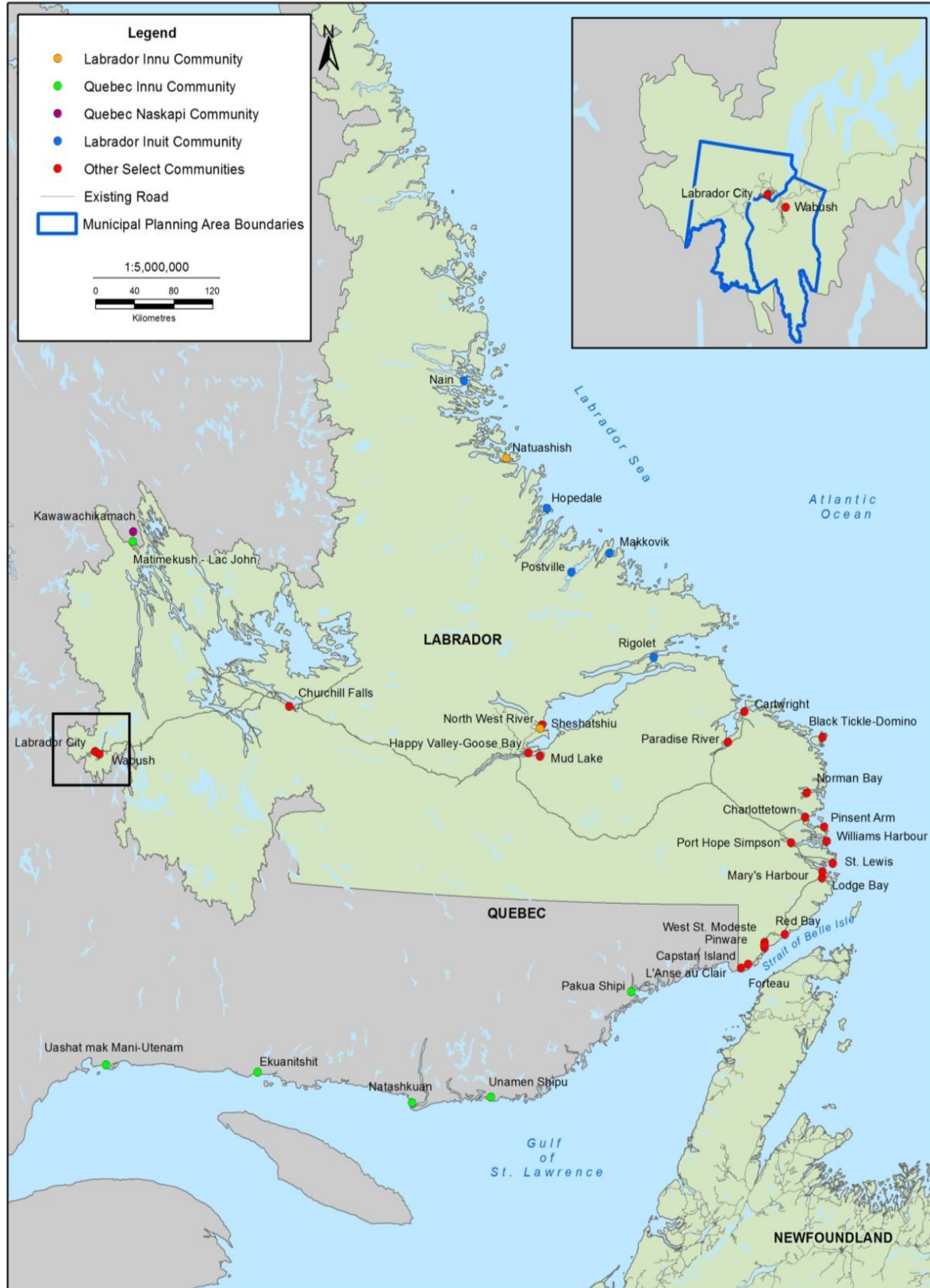
- Labrador Innu, represented by Innu Nation (IN) - Sheshatshiu and Natuashish, Labrador;
- NunatuKavut Community Council (NCC) - Labrador;
- Innu of Uashat mak Mani-Utenam (ITUM) - Québec;
- Innu of Matimekush-Lac John - Québec; and
- Naskapi Nation of Kawawachikamach (NNK) - Québec.

The claims and/or asserted Indigenous rights and/or other interests of these groups are at varying stages, however IOC engages in a variety of ways with the five identified Indigenous groups in Labrador and Québec. Figure 11 shows locations of the Indigenous communities in Labrador and Québec.

Indigenous traditional uses typically refers to the practices, traditions and customs that distinguish the distinctive culture of an Indigenous organization, and which were practiced prior to European contact. These uses can include hunting and fishing for either food or ceremonial purposes. Section 35 of the *Canadian Constitution Act (1982)* recognizes and affirms the existing Indigenous and treaty rights of the First Nations, Inuit, and Métis peoples of Canada, the nature, scope and existence of which have been further defined through various legal decisions as well as through Land Claims and other agreements (treaties) between governments and particular Indigenous organizations in specific areas. The following sections provide an overview of these Indigenous organizations.



Figure 11 Indigenous Communities in Labrador and Quebec



### 3.2.3.1. Labrador Innu

The Labrador Innu are Indigenous inhabitants of an area they refer to as Nitassinan, an area which comprises much of the Québec-Labrador Peninsula. The Labrador Innu were traditionally a nomadic people, whose movements reflected the seasons and the migrations of the animals they relied upon.

The Labrador Innu currently number about 2,200 and reside primarily in two communities - Sheshatshiu in Central Labrador and Natuashish on the Labrador North Coast. Small numbers of Labrador Innu also reside in other parts of Labrador and on the island portion of the province. Both communities are represented by IN in land claims negotiations and on other matters of common interest.

### 3.2.3.2. NunatuKavut

The NCC reports a membership of over 6,000 persons who reside primarily in southeastern and central Labrador and who are descendants of Inuit and Europeans who traveled to Labrador in the 1700-1800s (NCC, 2012). The NCC's membership live throughout Labrador, particularly in the communities along the southeast coast from Hamilton Inlet south to the Labrador Straits, including the towns of Cartwright, Charlottetown Port Hope Simpson, St. Lewis, and Mary's Harbour, and the communities of Paradise River, Black Tickle-Domino, Norman Bay, Pinsent's Arm, Williams Harbour, and Lodge Bay, as well as in central and western Labrador.

### 3.2.3.3. Québec Innu and Naskapi Groups

A number of Québec Indigenous organizations, including Innu and Naskapi communities in the Schefferville area and along the Québec North Shore, claim Indigenous rights and/or title to parts of Labrador, including several groups that claim lands and/or assert such rights in or near the areas of western Labrador.

The land claims asserted by Québec First Nations for territory in Labrador have not been accepted for negotiation by the Government of Newfoundland and Labrador.

### 3.2.3.4. Matimekush - Lac John First Nation

The Innu of Matimekush Lac-John currently reside in two communities on Lac Pearce near Schefferville, Quebec and number approximately 850 persons, most of whom live in the two reserve settlements, Matimekush and Lac-John. Their traditional language is Innu-aimun and they also speak French.

### 3.2.3.5. Innu of Uashat Mak Mani-Utenam (ITUM)

The ITUM are First Nations peoples with approximately 3,900 members, most of whom live in the communities of Uashat and Maliotenam. Uashat is located on the western outskirts of Sept-Îles and Maliotenam is located 16 km east of Sept-Îles. The traditional language spoken by members of the ITUM is Innu-aimun and they also speak French.

The ITUM are the descendants of an Indigenous population that has occupied parts of the Québec-Labrador peninsula for centuries. The traditional territory of this First Nation encompasses much of eastern Québec and western Labrador, and extends along the rivers from the coast of the Québec North Shore into the Québec-Labrador interior (Hydro-Québec, 2007). Traditionally, this group was involved in nomadic hunting and fishing.

### **3.2.3.6. Naskapi Nation of Kawawachikamach (NNK)**

The NNK is a small community approximately 12 km northeast of the Town of Schefferville on the Québec-Labrador border which is only accessible by plane, or by train from Sept-Îles. The Naskapi population represents approximately 1,356 registered members. The population is increasing rapidly and over 55% of the total population is less than 30 years of age.

The vast majority of Kawawachikamach residents are Naskapi. Naskapi is their principal language, and English is their second language, although many younger persons also speak French.

The NNK traditionally followed the migration patterns of the George River Caribou Herd across the Québec-Labrador Peninsula (Weiler, 1992). Land and resource use activities such as hunting, trapping and fishing remain important to the culture and economy of the NNK, whose members continue to pursue these activities near Kawawachikamach, along the Trans Labrador Highway (TLH) and Quebec North Shore and Labrador (QNS&L) Railway, and occasionally at outpost camps (Weiler 1992; 2009).

### **3.2.4 Summary**

The site of the proposed Project is currently in use as an industrial explosives production facility. As a result of this long-standing industrial activity at the proposed Project area, and the public site access restrictions that have been in place on IOC's mining property for decades, traditional land and resource use activities do not occur in this area.



## 4.0 CONSULTATION

Consultation is a legislated component of the EA process and a key aspect of IOC's approach to its planning and development activities. During the EA process, this Registration document will be available for public, Indigenous and regulatory review and comments are encouraged from all potentially affected parties. At the end of the review period, the Minister will make a determination on whether the Project will be subject to further assessment or released. IOC has endeavored to provide as much detail as possible in the Registration document to ensure all stakeholders can understand and provide relevant commentary on the proposed Project. IOC and its representatives will be available throughout the review period to address any additional questions that may arise.

### 4.1 Regulatory Consultation

IOC has provided Project information to regulators on various occasions. On August 9, 2018, IOC and their representatives met with provincial officials from the EA Division, the Pollution Prevention Division (PPD), Water Resources Management Division (WRMD) of the NLDMAE and Natural Resources (DNR) relative to this proposed Project. IOC met again with provincial officials from NLDMAE on April 3, 2019 to discuss several minor works they were proposing to remove from the original Project description. Those minor works were further described in a letter provided to the EA Division on April 11, 2019. IOC indicated their preference to complete those minor works as soon as possible as their completion would correct several outstanding safety and production deficiencies at the existing facility.

IOC has also had ongoing consultation with Natural Resources Canada (NRCan) relevant to permits required for this proposed Project. In addition, relevant provincial and federal departments and agencies will participate in the review of this EA Registration and associated regulatory decisions.

IOC understands that this Project will require permitting in the post-EA phase and this process will allow for additional consultation between IOC and relevant regulatory departments and agencies. IOC will apply for and adhere to all required permits and other authorizations for Project construction and operations.

### 4.2 Indigenous Consultation

IOC recognizes that Indigenous consultation is an integral part of the EA process. As such, during the provincial EA process, this registration document will be made available by the EA Division to all relevant Indigenous organizations for their information, review and comment. IOC will endeavor to support the efforts of the EA Division as they communicate with relevant Indigenous organizations regarding the registration document and to address any comments or concerns specific to the Project that may arise. During the post-EA permitting process, major permit applications may also be subject to Indigenous consultation.

### 4.3 Public Consultation

Public consultation is an integral part of the regulatory and EA process. IOC has been operating in Labrador City since the early 1960s, maintaining a long-standing presence and contributing to the local communities and overall region. IOC has a number of established consultative forums in place through which it regularly communicates and discusses ongoing business objectives and project changes and developments with stakeholders.

In 2006, IOC formed a Community Advisory Panel (CAP), consisting of representatives of the Town Councils of Labrador City and Wabush as well as local community stakeholders. The CAP meets quarterly to discuss issues of common interest in the region. IOC also established the Labrador West Regional Task Force (RTF) in 2011. The RTF's mandate is to bring regional mining companies together with provincial and local government representatives to discuss and address socioeconomic challenges associated with ongoing and future mining operations. In addition, IOC meets quarterly with the Town of Labrador City as a Joint Planning Committee to provide updates on relevant topics impacting both the business and the community.

IOC will continue to consult with local communities and stakeholders on its operations, including the proposed Project, through these and other forums.

## 5.0 ENVIRONMENTAL EFFECTS AND ANALYSIS

### 5.1 Natural Environment

The Natural Environment is comprised of relevant components of the biophysical environment that may interact with the Project, including vegetation, soils, avifauna, wildlife, air quality, and water resources.

#### 5.1.1 Construction

Project construction will involve limited site clearing activities (0.3 hectares (ha)) in the area where the powerline will be realigned. This undisturbed area is characterized by patches of mixed wood forest interspersed with areas of moss, lichen cover and exposed rock and earth. Based on past work carried out throughout IOC's mining property, there are no listed or rare plant species that are known to occur within or near the proposed Project area. Building construction and building upgrades will take place in areas that are currently considered brownfield, i.e., within the footprint of the existing explosives facility.

##### 5.1.1.1. Atmospheric Environment

The environmental effects analysis for the Atmospheric Environment includes a consideration of any likely implications of the Project on air quality and noise levels within and around the Project area and nearby communities.

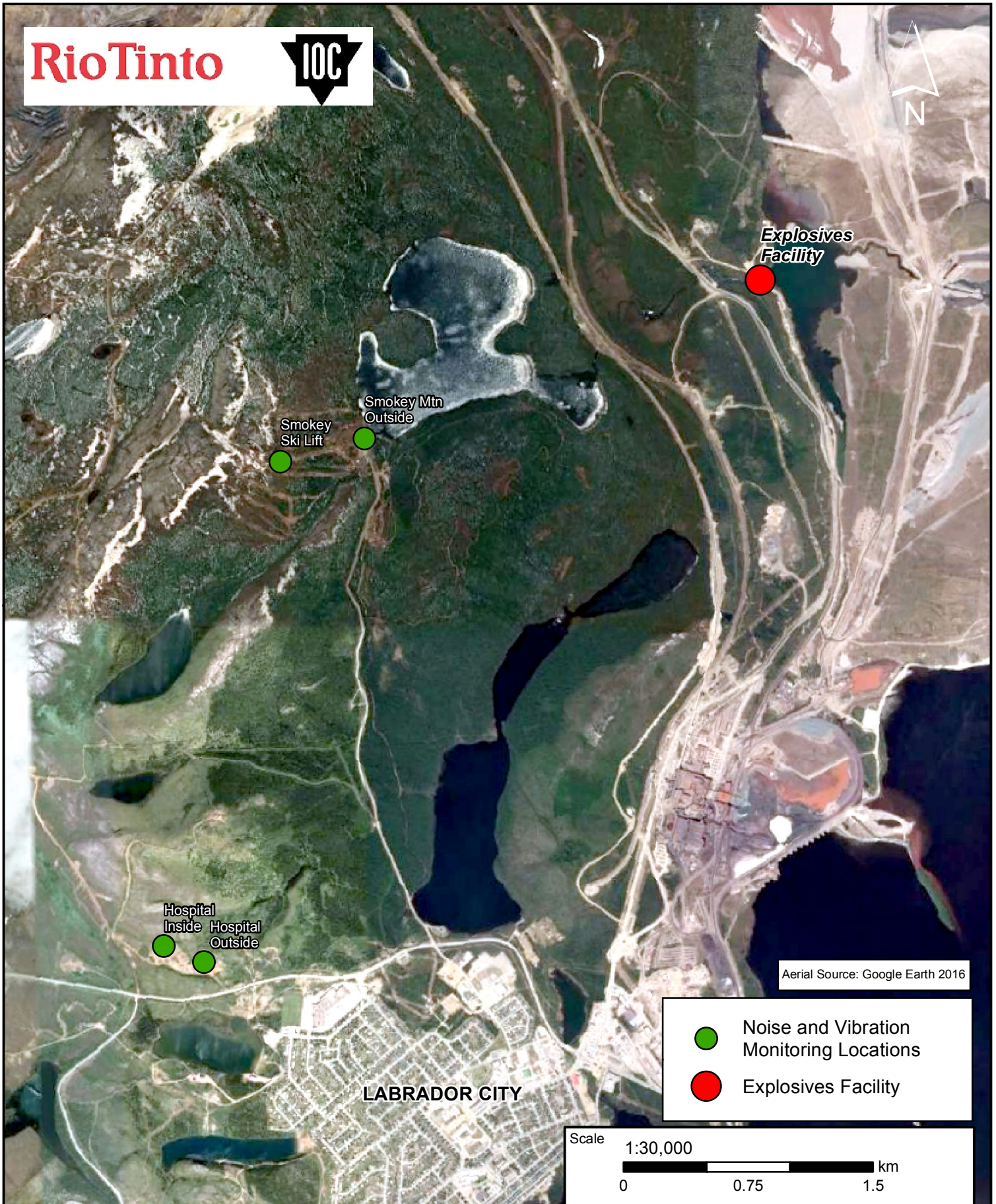
IOC has been carrying out extensive ambient air monitoring (Figure 10 and 12) in Labrador City for a number of years and maintains three air quality monitoring stations at their Labrador City operations that are in close proximity to the local community and to recreational facilities. Data from these monitoring stations is compiled by the NLDMAE and the results published in annual Air Quality Reports.

During construction, the potential interactions between the Project and the Atmospheric Environment relate to noise from equipment use as well as dust and engine emissions associated with construction activities. Construction activity will include minor site preparation, possible blasting during site preparation, demolition and removal of some existing buildings, the construction of several new buildings and other site infrastructure, and the movement and installation of materials and equipment. These activities will result in some minor, temporary and localized air emissions.



Project construction will be characterized by fairly standard and routine activities and practices and will occur within a localized area over a relatively short period. It will take place within an area that has been previously developed and is within IOC's property. In addition, the proposed new facility is located more than 5 km from the closest community (Figure 13). Project-related vehicles and equipment will be maintained in good repair and inspected regularly, and any associated air emissions from equipment and vehicles will conform to applicable regulations and guidelines. Fugitive dust from construction activities will be controlled, as necessary, using dust control agents such as water.

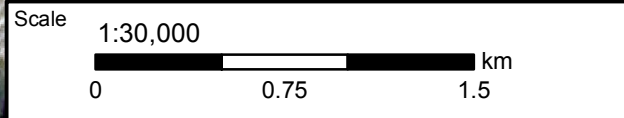
Any potential emissions or interactions with the Atmospheric Environment during Project construction are therefore likely to be negligible, i.e., within existing regulations or standards, localized and short-term.





Aerial Source: Google Earth 2016

-  Noise and Vibration Monitoring Locations
-  Explosives Facility



Project  
**IOC NEW EXPLOSIVES FACILITY  
 REGISTRATION**

Figure  
**NOISE AND VIBRATION  
 MONITOR LOCATIONS**



**GEMTEC**  
 CONSULTING ENGINEERS  
 AND SCIENTISTS

Drawn By MC	Date JAN 2019	File No. 800090601	Drawing No. FIGURE 12	Revision No. 0
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**RioTinto**

**IOC**



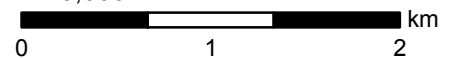
*Explosives Facility*



**LABRADOR CITY**

Aerial Source: Google Earth 2016

Scale 1:40,000



Project  
**IOC NEW EXPLOSIVES FACILITY  
REGISTRATION**

Figure  
**SITE RELATIVE TO  
LABRADOR CITY**

Drawn By  
**MC**

Date  
**JAN 2019**

File No.  
**800090601**

Drawing No.  
**FIGURE 13**

Revision No.  
**0**



**GEMTEC**

CONSULTING ENGINEERS  
AND SCIENTISTS



### 5.1.1.2. Terrestrial Environment

The terrestrial environment is composed of relevant components of the biophysical environment that may interact with the Project, including vegetation and soils, wildlife and avifauna.

Project construction will involve minor vegetation clearing and grubbing, building demolition and removal and site preparation and excavation activities over an approximate area of 0.3 ha.

The proposed Project will occupy a relatively small footprint, and the majority of the site has been subject to previous development and disturbance. Vegetation clearing and ground disturbance activities will be limited to those areas where it is required, e.g., powerline realignment. Limits of clearing will be marked in advance, and any required buffers will be maintained.

Given the presence and long history of mining activity around the Project area, the Project site likely provides limited or no wildlife habitat at present. Previous studies have confirmed that the area is not within the current range of the migratory and sedentary caribou populations which occur in Western and Central Labrador (SNC 2012). Any wildlife using the area, including avifauna, have likely habituated to on-going human activity. IOC therefore anticipates the potential for interactions between the Project and wildlife to be limited. There are no listed wildlife species that are known to occur within or near the proposed Project area.

The following measures will be implemented during the construction phase of the Project to further reduce the potential for interactions between construction activities and any wildlife that may occur in the area:

- construction areas will be kept clear of garbage;
- construction personnel will not feed, hunt or harass wildlife while on site;
- pets will not be permitted on the construction site;
- equipment and vehicles will yield the right-of-way to wildlife; and
- any nuisance animals will be dealt with in consultation with the Wildlife Division (WD) of the Department of Fisheries and Land Resources (DFLR).

IOC currently has procedures in place for the management of solid and hazardous wastes at its Labrador City operations, and these procedures apply to the construction and operations phases of the proposed Project. Waste materials generated through construction activities will be removed from the area and disposed of at an approved site. Non-hazardous construction waste will be stored in covered metal receptacles, and will be disposed of as required at an approved landfill site, as per IOC's on-going operations and practices. Waste materials will be reused or recycled where possible.

Any hazardous wastes will be stored in sealed and labelled containers, and disposed of according to applicable regulations and IOC standard operating procedures relative to the handling of hazardous wastes. These procedures include the characterization, identification, storage, inspection, labelling and transportation of hazardous wastes produced at the facility and describe the emergency preparedness, prevention and training processes in place. IOC does not, therefore, anticipate any adverse interaction between construction waste materials and the terrestrial environment.



### 5.1.1.3. Freshwater Environment

The Freshwater Environment includes surface and groundwater, both quantity and quality, and any fish and fish habitat that may interact with the Project.

There are no permanent waterbodies or watercourses within the footprint of the proposed Project. The existing facility, and proposed upgrades, are located approximately 50 m from nearby Paterson's Pond, a previously licensed tailings disposal area (Figure 4). Wabush Lake is located to the east of the proposed facility, and a portion of this lake is an existing, approved tailings disposal area. There are no recreational, Indigenous, or commercial fisheries occurring at Paterson's Pond.

Surface water management for the Project will improve upon the water management plan that was previously in place at the site. The proposed powerline realignment associated with the proposed Project will not involve the installation of any new drainage culverts. There are existing culverts at the Project site that were extended on the west side of the site during earlier minor works to realign the existing access road. The extended culverts tie-in to a recently installed drainage ditch constructed to convey surface water away from the site. All surface water will be managed to prevent water containing sediment and/or other substances from entering any waterbody. Site drainage will be discharged to vegetated areas with buffers between discharge locations and any waterbody.

Construction activities will be carried out in a manner that ensures no deleterious substances, e.g., sediment, fuel, oil etc., enter any waterbodies. Tools and equipment will not be washed in any waterbody, and wash water will not be discharged directly into any waterbody. A designated cleaning area for tools will be established.

## 5.1.2 Operations

During Project operations, on-site activity will be considerably less than that during the construction phase. Operations activities will be characterized primarily by the movement of materials to and from the facility, associated activities and processes within the Production and other buildings, as well as by periodic maintenance of the facility. Operations activities at the new facility will be very similar to existing operations.

The surface water management plan will be fully implemented during the operations phase and monitored to ensure mitigations in place are functioning as anticipated. It is anticipated that process water and water recovered from the oil/water separator will be processed through the proposed on-site evaporator.

### 5.1.2.1. Atmospheric Environment

The explosives preparation activities that will be undertaken within the facility are not particularly noisy, nor are they characterized by significant air emissions or other planned environmental discharges. They will be very similar in nature and magnitude to those which have been taking place at the existing explosives facility in Labrador City since the 1960s. IOC has established noise and air quality monitoring stations in various locations at their Labrador City operations and monitoring at these locations is ongoing.

No adverse effects on the Atmospheric Environment are therefore anticipated during this phase of the Project.

### 5.1.2.2. Terrestrial Environment

During the operations phase of the Project, there will be no soil or vegetation disturbance, and therefore no potential for further impacts to these components of the Terrestrial Environment. Operations activities will be characterized primarily by the movement of materials to and from the facility, associated activities and processes within the Production Building, as well as periodic maintenance of the facility, none of which are expected to be particularly noisy or disruptive.

Given the long-term operation of the existing explosives facility, and the long history of mining activity around the Project area, it is unlikely that the Project Site currently provides suitable wildlife habitat. As during the construction phase, specific measures will be implemented during the operations phase of the Project to further reduce the potential for interactions between operations activities and any wildlife that may occur in the area:

- operations areas will be kept clear of garbage;
- facility personnel will not feed, hunt or harass wildlife while on site;
- pets will not be permitted at the facility;
- equipment and vehicles will yield the right-of-way to wildlife; and
- any nuisance animals will be dealt with in consultation with the WD.

Any hazardous wastes will be stored in sealed and labelled containers, and disposed of according to applicable regulations and IOC standard operating procedures relative to the handling of hazardous wastes. These procedures include the characterization, identification, storage, inspection, labelling and transportation of hazardous wastes produced at the facility and describe the emergency preparedness, prevention and training processes in place. IOC does not, therefore, anticipate any adverse interaction between operations waste materials and the Terrestrial Environment.

No adverse effects on the Terrestrial Environment are therefore anticipated during this phase of the Project.

### 5.1.2.3. Freshwater Environment

During planned operation activities there will be no additional, direct interactions with the freshwater environment. Groundwater wells to be established at the site, but not considered Project components, will continue to be used and maintained as required, and site drainage will be controlled as necessary. These activities will occur in compliance with relevant regulations and permits.

Other than ongoing site drainage, there are currently no discharges to the environment. There are no planned discharges to the freshwater environment associated with the operation of the proposed facility. The facility is intended to function as a closed system whereby the raw materials and chemicals used in the mixing process are received, processed and eventually transported from the facility as explosives product.

Once operational, the facility will be subject to regular inspection and maintenance, which will help to prevent any leakage, spills or other unplanned discharges to the freshwater environment.

No additional interactions or adverse effects to the Freshwater Environment are therefore anticipated during this phase of the proposed Project.

### 5.1.3 Potential Accidents and Malfunctions

A number of potential accidental events or malfunctions could occur during Project construction and/or operations that could affect the Atmospheric, Terrestrial or Freshwater Environments.

Events such as a fire or a fuel or chemical spill, could affect vegetation, soils and/or other aspects of the Terrestrial Environment in or around the Project area. The environmental impacts of an accidental event on the Terrestrial Environment would depend upon the nature and magnitude of the event. A fire at the facility could result in adverse environmental effects to Terrestrial and Atmospheric Environments, and the significance of such would depend on the nature and magnitude of the event.

A spill of chemicals or fuel or other accidental events during Project construction or operations may affect water resources and/or fish and fish habitat in or around the Project area. The resulting significance of environmental effects of such an incident would depend upon the nature and magnitude of the event.

IOC has various measures, plans and procedures in place to prevent fire, explosions or other accidental events at its existing explosives facility, and overall Labrador City operations. IOC also has appropriate response procedures should such accidental events occur. These measures will be applied and refined as required, to the new explosives facility. These measures will be further reinforced through the various federal and provincial government permits, authorizations, regulations and compliance standards that will be relevant during the construction and operation phases of the Project.

### 5.1.4 Cumulative Environmental Effects

The proposed Project will occur on IOC's mining property in Labrador City, on the existing explosives facility site. With respect to the Atmospheric Environment, air quality monitoring and mitigation have been key considerations and priorities for IOC relative to their ongoing mining activity in Labrador City. IOC has an extensive air quality monitoring program in place for its Labrador City operations and it is unlikely that the construction and operation of the proposed new explosives facility will contribute measurably to a change in overall air quality or noise levels in the area.

IOC does not anticipate any effects to the Freshwater Environment as a result of this Project. Freshwater resources and fish and fish habitat may be affected by other development projects and activities in the region but these regional development projects are subject to applicable legislation, regulations and guidelines designed to help protect components of the Freshwater Environment. The construction and operation of the proposed new explosives facility is not likely to contribute measurably to any overall, cumulative environmental effects to the Freshwater Environment in the region.

The Project will have some effect on vegetation and soils in the Project site where the powerline realignment will occur. This disturbance is spatially limited and will be of short duration, and will not overlap or interact cumulatively with other projects or activities in the region. Based on past work IOC's mining property, it is unlikely the Project will have any effect on overall biodiversity in the region. Nor will the construction and operation of the new explosives facility affect caribou populations or other wildlife, including avifauna, in the region. This Project is not likely to contribute



measurably to any adverse, cumulative environmental effects to the Terrestrial Environment in the region.

#### **5.1.5 Environmental Effects Summary and Evaluation**

A summary of potential environmental interactions, identified mitigation measures, and any residual environmental effects of the Project on the Atmospheric, Terrestrial and Freshwater Environments is provided in Table 4.

The proposed Project is not likely to result in significant adverse environmental effects on the Atmospheric, Terrestrial or Freshwater Environments.

**Table 4 Environmental Effects Analyses – Natural Environment**

Environmental Component	Project Phase/Potential Interaction			Key Considerations and Environmental Mitigation	Residual Effects
	Construction	Operations	Potential Interactions		
<b>Terrestrial Environment</b>					
Vegetation and Soils	X		<ul style="list-style-type: none"> <li>Minor clearing and grubbing (&lt;0.3 ha) required for powerline realignment.</li> </ul>	<ul style="list-style-type: none"> <li>Compliance with regulations and permits;</li> <li>Accidental event prevention and response;</li> <li>Only necessary clearing will be carried out;</li> <li>Follow EPP;</li> <li>Progressive rehabilitation will be carried out wherever possible; and</li> <li>Spatially limited and short duration.</li> </ul>	NS
Wildlife	X	X	<ul style="list-style-type: none"> <li>Potential interactions with construction personnel and equipment during powerline realignment; and</li> <li>Potential interactions with operations personnel and equipment.</li> </ul>	<ul style="list-style-type: none"> <li>Follow EPP;</li> <li>Construction and operations areas will be kept clear of garbage;</li> <li>Facility personnel will not feed, hunt or harass wildlife while on site;</li> <li>Pets will not be permitted at the facility;</li> <li>Equipment and vehicles will yield the right-of-way to wildlife; and</li> <li>Any nuisance animals will be dealt with in consultation with the WD.</li> </ul>	NS
Avifauna	X	X	<ul style="list-style-type: none"> <li>Only if site preparation occurs during bird breeding season.</li> </ul>	<ul style="list-style-type: none"> <li>Carry out work outside bird breeding season;</li> <li>Surveys to be completed if work is to be done during bird breeding season; and</li> <li>Follow EPP.</li> </ul>	NS
<b>Atmospheric Environment</b>					
Noise	X		<ul style="list-style-type: none"> <li>Site has been producing explosives since the 1960's so no increase to</li> </ul>	<ul style="list-style-type: none"> <li>Significant distance from residential areas and no increased levels of noise predicted; and</li> </ul>	NS

Environmental Component	Project Phase/Potential Interaction			Key Considerations and Environmental Mitigation	Residual Effects
	Construction	Operations	Potential Interactions		
			ambient noise is anticipated.	<ul style="list-style-type: none"> <li>Noise monitors are currently in place.</li> </ul>	
Air Quality	X		<ul style="list-style-type: none"> <li>No additional emissions predicted from either construction or operations activities; and</li> <li>Additional mitigations can be implemented should data indicate a reduction in air quality.</li> </ul>	<ul style="list-style-type: none"> <li>Significant distance from residential areas and no increased levels of site wide emissions are predicted;</li> <li>Ongoing mitigations for fugitive dust control will be implemented;</li> <li>Follow EPP;</li> <li>Existing mitigations for construction and operations activities will continue; and</li> <li>Emission monitors are currently in place to determine any changes in air quality.</li> </ul>	NS
<b>Freshwater Environment</b>					
Surface Water Quantity and Quality	X	X	<ul style="list-style-type: none"> <li>Potential accidental spills; and</li> <li>Potential sedimentation from surface water discharge.</li> </ul>	<ul style="list-style-type: none"> <li>Compliance with regulations and permits;</li> <li>Design mitigation (erosion and sediment control plan, spill containment, etc.);</li> <li>Accidental event prevention and response plans;</li> <li>Discharge water via existing culverts to a vegetated area.</li> <li>Water quality monitoring prior to discharging, if applicable; and</li> <li>Follow EPP.</li> </ul>	NS



Environmental Component	Project Phase/Potential Interaction			Key Considerations and Environmental Mitigation	Residual Effects
	Construction	Operations	Potential Interactions		
Groundwater Quantity and Quality		X	<ul style="list-style-type: none"> <li>Potential accidental spills; and</li> <li>Pumping rate will be adequate for ANE production.</li> </ul>	<ul style="list-style-type: none"> <li>Accidental event prevention and response plans;</li> <li>Compliance with regulations and permits;</li> <li>Controlled pumping rate and monitoring; and</li> <li>No anticipated or planned discharges to the environment.</li> </ul>	NS
Fish and Fish Habitat	X	X	<ul style="list-style-type: none"> <li>Potential accidental spills; and</li> <li>Potential sedimentation from surface water discharge in proximity to nearby waterbodies</li> </ul>	<ul style="list-style-type: none"> <li>Follow EPP;</li> <li>Compliance with regulations and permits; and</li> <li>Any water discharges will be via existing culverts to a vegetated area located an adequate distance from waterbodies.</li> </ul>	NS
<b>Key:</b> X Potential Project Interaction (by Phase) N No likely adverse residual environmental effect NS No significant adverse residual environmental effect S Significant adverse residual environmental effect P Positive residual environmental effect					

## 5.2 Human Environment

The Human Environment includes relevant components of the human and cultural environments, including historic and heritage resources, land and resource use (e.g., commercial, municipal, traditional, recreational), human health and well-being, and communities and economy.

### 5.2.1 Construction

Historic and heritage resources include sites, objects or other materials of historic and archaeological, paleontological, architectural, cultural and/or spiritual importance. In Newfoundland and Labrador, such resources are protected under provincial legislation. Construction activities and associated ground disturbance have the potential to disturb or destroy archaeological sites and other historic and heritage resources.

Based on past work carried out throughout IOC's mining property, there are no known historic and heritage resources within the proposed Project area and IOC intends to construct within the existing

explosives facility footprint. As such, the site is mostly brownfield and is located in an area that has been subject to on-going mining activity for the past five decades. It is unlikely that the Project will result in the disturbance or destruction of historic and heritage resources.

During Project construction, standard precautionary and reporting procedures will be implemented. Should an accidental discovery of historic resources occur, all work will cease in the immediate area of the discovery until authorization is given for the resumption of work. Any archaeological materials encountered will be reported to the Provincial Archaeology Office, including information on the nature of the material discovered and the location and date of the find.

The proposed Project area is located in the southeastern portion of IOC's existing mining property in Labrador City and public access to the site is restricted. No land and resource use is known to occur at the site, nor do traditional or cultural activities occur at the site. IOC does not anticipate any adverse interactions between the construction activities and commercial, municipal, traditional or recreational activities.

In addition, Project construction activities will be characterized by standard and routine activities, and will occur within a localized area over a relatively short period of time. All construction activities will take place in an area that has been previously developed, is within IOC's mining property and is located several kilometres from local communities. The Project is not expected to have any adverse effects on human health and well-being.

If any issues are identified through ongoing consultations with the local communities and other stakeholders, efforts will be made to address these in Project design and in the scheduling and coordination of construction and operation activities.

The Project will create temporary employment opportunities during its construction phase (approximately 24) and will see significant capital expenditures during construction followed by on-going operations and maintenance related activities. The requirement for goods and services during Project construction and operation will provide opportunities for local businesses. These direct economic benefits will be supplemented by indirect and induced effects through, for example, spending by Project employees and contractors.

### **5.2.2 Operation**

During the operations phase of the Project there will be no additional ground disturbance, and therefore, little or no potential for adverse effects to historic and heritage resources. The precautionary and reporting procedures implemented for construction will remain in place throughout the life of the Project.

Given the nature, location and the standard operating activities at the facility, IOC does not anticipate any adverse interactions between facility operations and commercial, municipal, traditional or recreational land and resource use activities in the area. Interactions between the new facility's operations and human health and wellbeing will improve once improved health and safety standards are implemented in the new facility.

IOC anticipates an operations workforce of approximately 30-32 persons. No additional demands on community infrastructure or services will be made during the Project's operations phase. The

existence and operation of the new explosives facility will have a positive effect on the economy of Labrador West and on the province of Newfoundland and Labrador as a whole.

The Project will also provide infrastructure to help facilitate IOC's future development and growth in Labrador West's mining sector and overall economy.

### **5.2.3 Potential Accidents and Malfunctions**

An accidental event or malfunction, such as a fire or spill, could occur during any phase of the Project. Such events could affect the Human Environment through effects on human health and well-being and an increased demand for local safety and health services. The probability of such events occurring is low, and any potential effects would depend upon the specific nature and magnitude of the event.

IOC has various measures, plans and procedures in place to prevent fires, explosions or other related events at its existing explosives facility and overall Labrador City operations. IOC also has measures in place to successfully respond to such events should they occur. These measures, plans and procedures will be applied and refined as required for the new explosives facility, and will be further reinforced through the various federal and provincial government permits that will be required for the construction and operation of the Project.

### **5.2.4 Cumulative Environmental Effects**

The proposed Project is scheduled for construction and operation during a period of relative optimism in the iron ore mining industry. There are a number of proposed mining developments, expansions and other projects in Labrador West that may affect the existing Human Environment of the region.

However, given the nature, scale and timing of this Project, it is unlikely that the construction and operation of the new explosives facility will significantly affect the socioeconomic environment of the region. IOC predicts that any effects of the Project on the socioeconomic environment will be primarily positive as it is likely to contribute to improved economic benefits and opportunities. The Project is unlikely to contribute measurably to adverse cumulative effects of past, on-going or future projects and activities in the region.

### **5.2.5 Environmental Effects Summary and Evaluation**

A summary of potential environmental interactions, identified mitigation measures, and any residual environmental effects of the Project on the Human Environment is provided in the Table 5.

The proposed Project is not likely to result in significant adverse environmental effects on the Human Environment.



**Table 5 Environmental Effects Analysis – Human Environment**

Environmental Component	Project Phase/Potential Interaction			Key Considerations and Environmental Mitigation	Residual Effects
	Construction	Operations	Potential Interactions		
Historic and Heritage Resources	X		<ul style="list-style-type: none"> <li>• Ground disturbance</li> </ul>	<ul style="list-style-type: none"> <li>• Localized and short-term construction activity;</li> <li>• Low potential for historic and heritage resources; and</li> <li>• Standard precautionary and reporting procedures.</li> </ul>	N
Land and Resource Use			<ul style="list-style-type: none"> <li>• None identified</li> </ul>	<ul style="list-style-type: none"> <li>• Currently a restricted area on IOC mining property; and</li> <li>• No public use of the site.</li> </ul>	N
Human Health and Well-Being	X	X	<ul style="list-style-type: none"> <li>• Possible accidents affecting human health</li> </ul>	<ul style="list-style-type: none"> <li>• Distance from, and minimal interaction with communities; and</li> <li>• Accidental event prevention and response plans.</li> </ul>	N
			<ul style="list-style-type: none"> <li>• Improved health and safety conditions at facility.</li> </ul>	<ul style="list-style-type: none"> <li>• Positive effects due to improved health and safety conditions and regulatory compliance of new facility.</li> </ul>	P
Communities and Economy	X	X	<ul style="list-style-type: none"> <li>• Employment and business opportunities.</li> </ul>	<ul style="list-style-type: none"> <li>• Positive effects (direct and indirect).</li> </ul>	P
<b>Key:</b> X Potential Project Interaction (by Phase) N No likely adverse residual environmental effect NS Not significant adverse residual environmental effect S Significant adverse residual environmental effect P Positive residual environmental effect					

## 6.0 ENVIRONMENTAL MONITORING AND FOLLOW-UP

Any potential adverse environmental impacts that may be associated with the proposed Project can be addressed and mitigated through responsible and proven construction and operational practices and procedures. These practices will be supported by IOC's existing environmental and HSE MS and associated plans and procedures. Any potential adverse environmental impacts will be further addressed through specific environmental permitting requirements and compliance standards and guidelines that will apply to the proposed facility.

Once operational, the facility will be subject to regular inspections and maintenance as required. IOC will obtain all required authorizations for the proposed Project, and will comply with all applicable federal, provincial and municipal regulations.

## 7.0 SUMMARY AND CONCLUSIONS

IOC is a leading North American producer and exporter of premium iron ore pellets and high-grade concentrate and has been operating in Labrador City since the early 1960s. To support its on-going operations in the region, IOC is proposing to construct and operate a new explosives facility on its mining property in Labrador City. The Project is intended to address various regulatory and structural issues associated with the existing explosives facility, as well as provide additional capacity for the current level of, and potential expansion of, mining activity in the region.

The Project will be planned and implemented in order to avoid or reduce potential adverse environmental effects and to optimize socioeconomic benefits in the region. It will be undertaken in accordance with IOC's environmental and health and safety policies, plans and practices that are designed to avoid or reduce any adverse environmental effects of its activities.

The proposed Project will be constructed and operated in accordance with applicable legislation and regulations, including the environmental protection and planning measures described throughout this Registration document, and in compliance with IOC policies, procedures and standards. IOC is committed to complying with all relevant legislation and regulations, and the conditions of all required approvals.

In addition to EA review, the Project will require additional permits and authorizations from federal and provincial government departments and agencies. IOC and/or its contractors will identify, apply for and adhere to all required permits and other authorizations that are required for Project construction and operations.

The Project will make a modest contribution to local and provincial economies as a result of the employment and business activity that it will create during its construction phase, as well as by providing infrastructure to help facilitate future development and growth in Labrador West's mining sector and overall economy.

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**Appendix A**  
**Iron Ore Health, Safety, Environment, Communities and Quality**  
**Policy**

## Iron Ore Health, Safety, Environment, Communities and Quality Policy

The global Iron Ore group is comprised of mining and processing operations in Australia and Canada with dedicated sales offices in Asia, Canada and Europe and a global marine freight management network.

- The business is diverse and covers:
- Operations and expansion projects in the Pilbara, Western Australia and at the Iron Ore Company of Canada
  - Rio Tinto Marine
  - Service and Support functions in our central offices globally
  - Major development opportunity at Orissa



Andrew Harding,  
Chief executive Iron Ore  
20 June 2013

We are an organization that cares about our people's needs both at work and at home, supporting our business's overall goal of achieving zero harm.

We aim to be industry leaders in health, safety, environmental and community performance. Our belief is that quality engagement with contractors, suppliers, customers, communities and government regarding our strategies and plans is essential to building robust relationships and is fundamental to our long term success.

Through effective leadership we continuously strive to improve our HSECQ performance and our success requires shared dedication and active participation by each of us.

We will endeavour to meet our commitments by:

- Making sure no one is harmed or hurt while they are at work
- Living and working by the standards of conduct defined in "The Way We Work"
- Communicating the vision of our business, linked to our annual plan priorities
- Contributing to the health and well-being of local communities
- Being open and transparent with local stakeholders, respecting their culture and diversity and considering their interests in the company's management decisions
- Recognizing our customers' needs with product and pricing options
- Ensuring the service and technical support we are providing to our suppliers and customers is responsive, fair, courteous and timely
- Identifying climate change improvement solutions through dedicated optimization work programmes
- Prioritizing research and implementation programmes through technology to reduce impacts to land, enhancing our contribution to biodiversity and improving our efficiency in water and energy use
- Identifying and managing business risk and fully implementing business resilience capability
- Ensuring leadership encourages effective employee, contractor, supplier and community participation in achieving our goals
- Implementing and improving systems to identify, control and monitor HSECQ risks across the business
- Providing and developing adequate resources and expertise to manage HSECQ performance
- Reporting regularly to all stakeholders on our performance and seek their feedback to further improve HSECQ

*This policy shall be communicated to all Iron Ore group employees, service providers and internal and external stakeholders and made available to the public.*



**Appendix B**  
**Emergency Response Plan TOC, Orica Canada**



# Emergency Response Plan

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**Appendix C**  
**Construction and Operation Environmental Protection Plan TOC**

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