WABUSH 3 OPEN PIT MINE PROJECT

Environmental Impact Statement Amendment

Submitted by:

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1 INTRODUCTION

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

IOC is proposing to construct and operate a new open pit mine at its Labrador City Operations mine site (Figure 1). The proposed Wabush 3 Open Pit Mine Project (hereinafter also referred to as the "Project") will be a conventional open pit mine with associated infrastructure. The Project will provide iron ore to IOC's existing concentrator plant and in doing so, will allow flexibility in iron ore feed as well as serve as a new source of iron ore to extend the operating life of IOC's Labrador City Operations.

1.1 Project Overview

The Wabush 3 Project area will be located in Labrador City, and its overall footprint (including the open pit, waste rock disposal and overburden storage areas, haulage roads and other infrastructure) will cover a total area of approximately 570 ha (Figure 2).

Wabush 3 will be a conventional open pit mine with associated components and activities, which are being designed to support flexible ore feed to IOC's existing production facilities. The Project will consist of the following key components:

- An open pit mine which contains an estimated 744 million tonnes of iron ore (measured and indicated resources) and has an estimated operating life of approximately 45 years;
- An overburden storage area to the south of the open pit;
- A waste rock disposal site, adjacent to and northwest of the open pit;
- A haulage road to the northeast of the open pit, linking it with the existing ore conveyor and concentrator facilities;
- A haulage road to the west of the open pit, connecting it to the waste rock storage pile;
- A haulage road to the south of the open pit, connecting it to the overburden storage area;
- Power lines along the haulage road to the northeast of the open pit and around the western and southern sides of the open pit;

Figure 1 The Wabush 3 Open Pit Mine Project and IOC's Existing Labrador City Operations

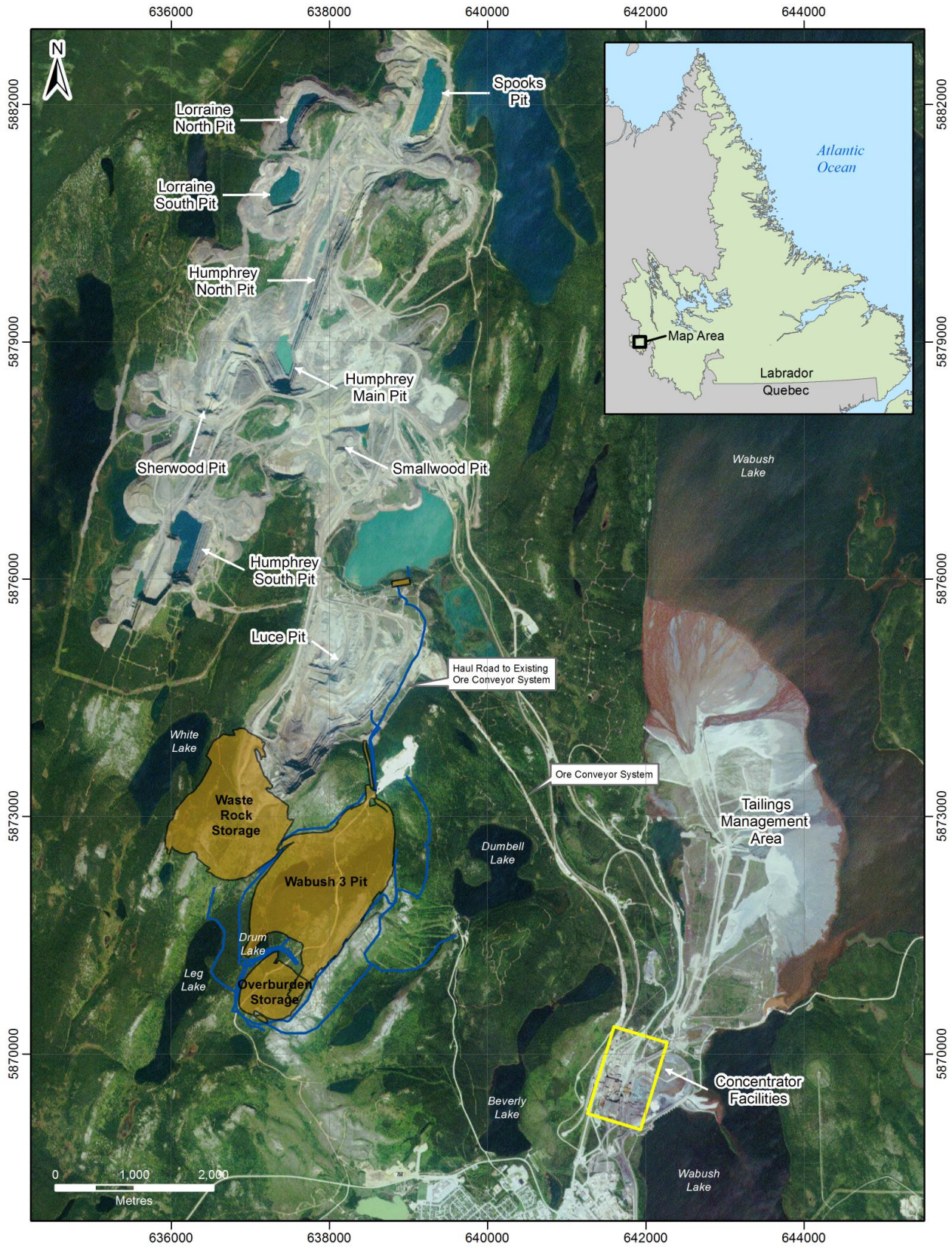
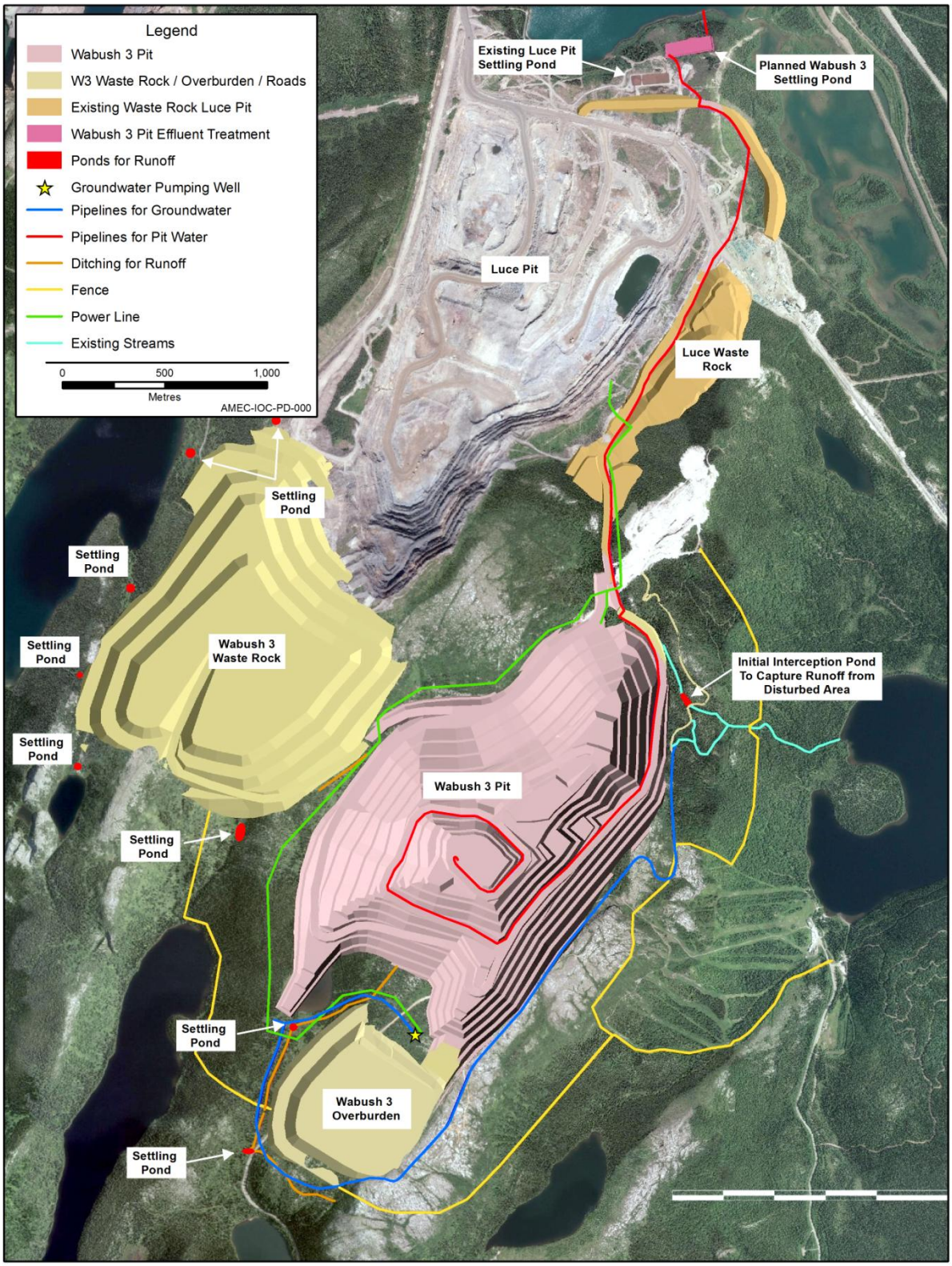


Figure 2 Wabush 3 Project Components and Layout



- A groundwater extraction system and associated pipelines;
- A mine water collection, treatment and disposal system and associated pipelines;
- Drainage ditches and collection ponds downslope of the waste rock disposal and overburden storage areas; and
- Security fencing along the eastern and southern sides of the Project.

Construction activity will be undertaken over various phases, and will include site clearing, removal of overburden (glacial till) and drilling and blasting of the exposed rock, followed by the establishment of infrastructure and utilities. Once operational, the pit will utilize conventional mining techniques for the extraction of iron ore, along with associated ore handling and transport, water management, waste rock disposal and maintenance activities.

The Project will be fully integrated into IOC's overall Labrador City Operations, and will utilize its existing maintenance, ore delivery, processing and tailings management facilities, mining equipment, labour force and other aspects of IOC's current infrastructure and activities in the region.

1.2 Environmental Assessment Process and EIS Amendment

The proposed Project requires environmental assessment (EA) review and approval under the Newfoundland and Labrador *Environmental Protection Act* (*NL EPA*, Part 10) and its associated *Environmental Assessment Regulations*.

Key steps in the EA review process for the Project to date include:

- On May 23, 2013 IOC submitted the Wabush 3 Open Pit Mine EA Registration to the Government of Newfoundland and Labrador to formally initiate the provincial EA review process for the Project;
- Following governmental and public review of that Registration, on July 24, 2013 the Minister of Environment and Conservation announced that an EIS was required for the Project;
- On August 27, 2013 an EA Committee comprised of representatives of various applicable provincial and federal government departments was appointed;
- On October 3, 2013 the provincial government issued Draft EIS Guidelines for public review and comment;
- On April 3, 2014 the Final EIS Guidelines were approved by the Minister and issued to IOC to guide its preparation of this EIS;
- On August 8, 2014 IOC submitted the Wabush 3 Open Pit Mine Environmental Impact Statement (EIS) to the Government of Newfoundland and Labrador, which was then made available for governmental and public review; and

- On December 23, 2014 the Government of Newfoundland and Labrador provided IOC with a series of additional questions and associated information requests (IRs) resulting from that EIS review process.

These IRs pertained to various questions and associated requests for information and clarification that were submitted by government departments and agencies, Aboriginal groups, communities and other organizations during the EIS review, which were reviewed, organized and categorized / numbered by the EA Division of the NL Department of Environment and Conservation (ENVC). These included a total of 68 IRs received from government (provincial and federal) and 27 from Aboriginal groups, as well as a detailed submission from the Town of Labrador City, from which 26 IRs identified and extracted by the NL EA Division (ENVC) and an additional 60 IRs were identified as part of IOC's detailed review of this submission.

The Minister of Environment and Conservation has requested that the Proponent prepare and submit additional information to address these as part of the EA process for the Project, in the form of an EIS Amendment.

This EIS Amendment Report provides detailed responses and additional information from IOC, as Proponent, for each of the IRs received. In order to help optimize utility and readability, and in keeping with other such documents prepared for recent projects and EAs in Newfoundland and Labrador, the EIS Amendment is presented in a "question and answer" format, organized according to the various departments, agencies and organizations that provided the various IRs that are being responded to herein.

As each IR response is intended to be a separate and "stand alone" discussion and analysis of the particular question or issue raised, each is provided in a separate subsection with its own Figure and Table numbering, as applicable. In some cases an individual Figure is included and repeated in multiple sections where relevant to a particular IR, rather than being cross-referenced.

IOC understands that this EIS Amendment will be made available for governmental and public review and comment, and any input received will be considered by Government in making its eventual decisions about whether the Project may proceed, and if so, any associated terms and conditions.

2 GOVERNMENT DEPARTMENTS AND AGENCIES (EA COMMITTEE)

2.1 NL Department of Environment and Conservation: Water Resources Management Division

2.1.1 Information Request NL-WRMD-01

"Water Use Authorization" should read "Water Use Licence" throughout the EIS.

For table 6.6 on page, 171, the following should be added: "Permit to Alter a Body of Water - Water Resources Act – Any work in any body of water (including wetlands)."

For page 325, it should be pointed out that: "Water use licence is required for the use of water from any water source (not only surface water) for any purpose."

Permits to Alter a Body of Water for general works within 15 metre buffer around and adjoining a body of water is not required under the *Water Resources Act*. However, Section 7 of the *Lands Act* contains provisions relating to the administration of the 15 metre reserve around and adjoining a body of water. Therefore, an approval from the Crown Lands Administration Division is required.

IOC Response:

These clarifications are noted and appreciated. The referenced text is updated as noted throughout the EIS to address these items.

This new information will be used and considered by IOC in its eventual environmental permitting activities for the Project.

2.1.2 Information Request NL-WRMD-02

Overall, WRMD is of the opinion that the conditions of the EIS guidelines have been addressed regarding the monitoring of groundwater flow in the vicinity of the proposed pit as well as the evaluation (including a groundwater flow model) of the effect of the pit on groundwater flow to Dumbell Lake.

Based on the model results and given what has been reported of the structure and geology of the site, it is unlikely that groundwater from the pit site is in direct communication with the Dumbell Lake watershed. The groundwater- flow component to Dumbell Lake is most likely limited to groundwater to the lower portions of the Dumbell Lake watershed. As reported in the EIS, the stream appears to have a larger groundwater component in the lower reaches; however, there is no surface water gauging presented to evaluate the percentage of possible groundwater contribution to base flow.

WRMD recommends that base flow analysis be undertaken on the stream to be diverted, in order to quantify the groundwater contribution that may be adversely affected by this diversion.

In order to address the concerns of the town with regard to adverse effects of altering the drainage of the creek into Dumbell Lake, WRMD would recommend that IOC address the following;

1) Incorporate surface flow to Dumbell Lake into the existing model in order to evaluate two additional scenarios, including:

    a) Surface flow (and groundwater baseflow) component to the lake under steady-state conditions (pre-pit) and

    b) The efficacy of the plan to discharge groundwater from pit-perimeter dewatering wells into the Dumbell and Leg Lakes water sheds

The results of these scenarios could then be compared in order to evaluate if the planned groundwater from dewatering wells pumped into the watershed will be adequate to address the anticipated loss of base flow to Dumbell Lake.

IOC Response:

IOC has committed to a flow monitoring program at the inflow and outflow of Dumbell Lake (SW2 and SW3 on Figure 1). Flow monitoring will include installation of staff gauges and a pressure transducer / data logger at each of these flow gauging stations. The pressure transducer / data logger will measure and record water levels at an interval frequent enough to capture the range of water levels at these stations. The pressure transducers and staff gauges will be surveyed to a local temporary benchmark above the high water level to facilitate replacement of this equipment, to the same level, in the event of damage caused by ice, debris or vandalism.

During initial implementation of the flow gauging stations, approximately five detailed cross sections at, upstream and downstream of the staff gauges will be surveyed in order to build a theoretical stage discharge rating curve for the stations. During the initial two years, stream flow and corresponding water levels will be measured approximately once every two months during ice free periods in order to calibrate the station rating curves to site conditions. Following the initial two years of monitoring, the flow measurement frequency will be reduced to approximately two times per year, while automated water level measurements will continue at the same frequency. The water level records and rating curves will be used to create flow hydrographs that can be used to assess baseline and post development flow rates. These data will be compared with flows prorated (by drainage area) from the downstream Water Survey of Canada station (03OA012; on Figure 1). Water level monitoring will begin early in 2015 while flow measurements and surveys will commence when the ice breaks up in May or June, 2015. IOC will use these flow data to monitor baseline flow rates and then to detect changes as result of mining operations. IOC commits to updating the model as data are available, and will include the surface flow and dewatering well scenarios as indicated by WRMD.

In addition, the cross section provided in Figure 2 depicts a conceptualized understanding of the structural geology, showing the surface expression of interpreted folding with the dotted lines representing eroded geology, from northwestern side of Wabush 3 to the southeastern extent of Beverly Lake. he structural folding that occurred in the region indicates that two arms of the Wishart Formation occur as an anticline between Wabush 3 and Beverly Lake. Folding between Wabush 3 and Dumbell Lake is similar to that between Wabush 3 and Beverly Lake, although there are fewer members between the two areas. Dumbell Lake is located mainly in Attigamagen Formation in the core of the anticline. The Wishart Formation had the lowest geometric mean hydraulic conductivity (4×10^{-7} m/s) of all the geological formations tested during hydraulic testing completed

in 2011 and 2013, while the Lower Iron Formation / Middle Iron Formation had the highest (9×10^{-7} m/s). As the mean hydraulic conductivity values are quite similar in all the formations, shear zones are the main indicator of elevated groundwater flow in the area. Figure 3 shows the locations of two known high conductivity faults in IOC's Labrador West mining operations, the Luce fault and the Wabush 3 fault. Other faults have been identified, including transverse faults, but to date, none of these faults have demonstrated high hydraulic conductivity. The Wabush 3 fault is located on the western flank of the syncline structure, suggesting that the Wishart Formation was not subjected to the faulting / shearing processes that cause the high hydraulic conductivity zones.

In modelling conducted by RioTinto (2014) (Appendix 3A of the EIS), Dumbell Lake remains a zone of groundwater discharge in all scenarios, including the worst case scenario that includes a high hydraulic conductivity zone that connects Wabush 3 and Dumbell Lake.

References

Rio Tinto Technology and Innovation (RioTinto) (2014). Technical Memorandum, Groundwater Modeling Predictive Results for IOC Wabush 3 Project.

Figure 1 **Beverly Lake, Dumbell Lake, Leg Lake and Luce Lake Watershed Areas and Surface Water Flow Monitoring Stations**

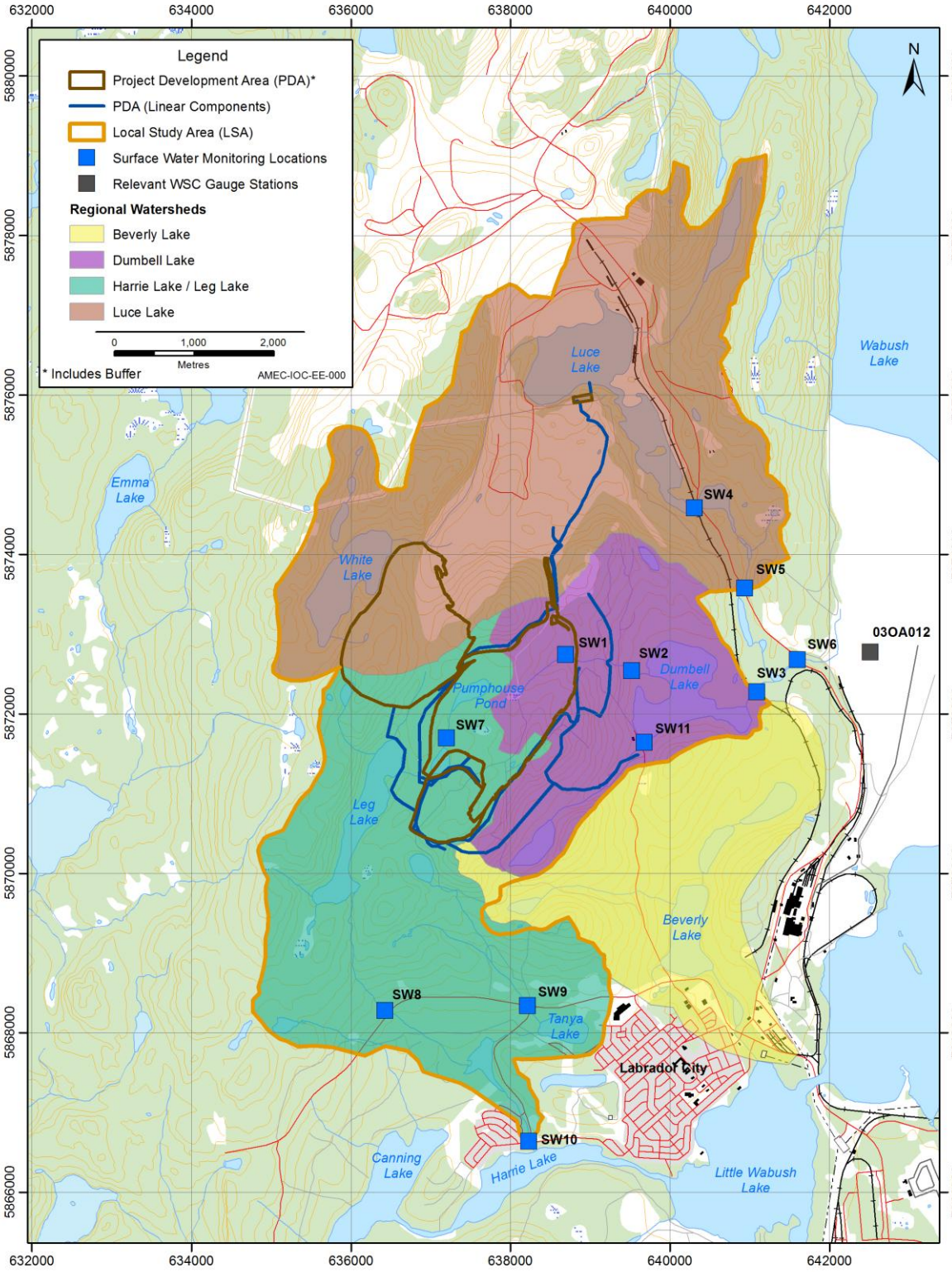


Figure 2 Conceptualized Cross Section from Northwest of Wabush 3 to Southeast of Beverly Lake

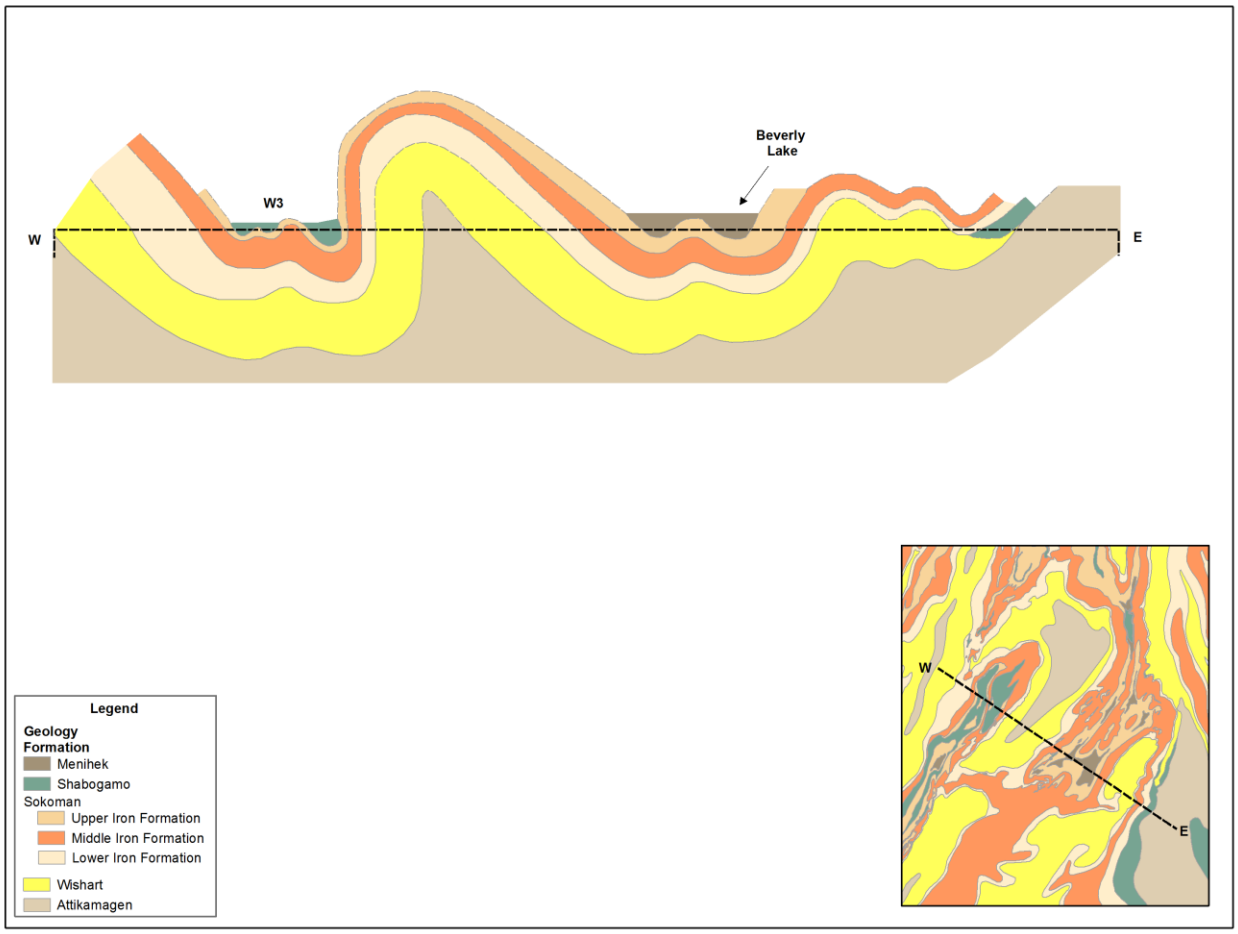
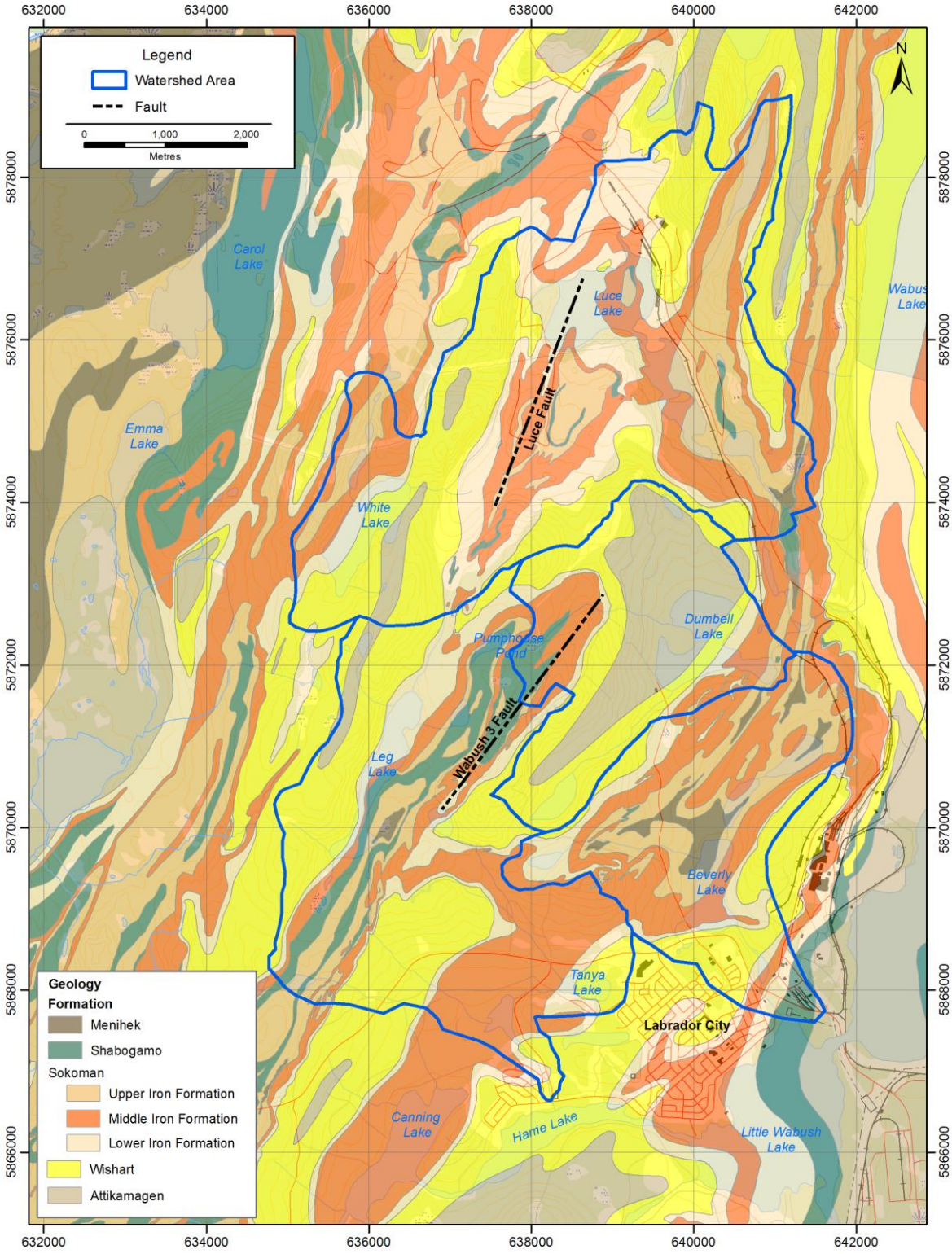


Figure 3 Bedrock Geology of the Wabush 3 Area Including Known Faults



2.1.3 Information Request NL-WRMD-03

Given what is understood regarding the site geology and structure, it is unlikely that there is a significant groundwater contribution from the site of the pit to the Beverly Lake watershed; however, the WRMD appreciates that the data presented does not address the concerns outlined by the Town regarding potential adverse effects of the operation on the lake, which is the town's primary drinking water supply.

WRMD concurs with the recommendations made in the Morrison-Hershfield Wabush 3 EIS review to expand monitoring and evaluation to the Beverly Lake watershed, including:

1) Collecting baseline data (water levels and water quality) from within the upper portion of the Beverly Lake Watershed, including both seasonal lake and groundwater elevations and the collection of seasonal surface water out-flows.

2) Confirm the location of the western edge of the Beverly Lake Watershed. Additionally, WRMD recommends that the proponent install at least one groundwater monitoring site (to include a nested pair of monitoring wells, one shallow and one deep) within the Beverly Lake watershed to evaluate long-term groundwater levels and vertical groundwater flow direction

This work can be on-going as the project progresses, and should not affect current timelines. In the event it appears that mining efforts do have an adverse effect on groundwater levels, and by extension, base flow contribution to Beverly Lake, mitigating measures can be implemented.

IOC Response:

IOC currently has one water quality station in the Beverly Lake watershed (North Pond Beverly) and has committed to three new groundwater monitoring locations, a stream gauge, a lake level monitoring location, and a surface water quality monitoring location in the upper Beverly Lake watershed (Figure 1). Water levels would be measured four times per year at each location, first to determine background water levels, then to monitor potential changes within the upper watershed after dewatering activities commence. Wells and surface water monitoring locations will be installed in 2015.

For the EIS, the watershed boundaries between Beverly Lake, Leg Lake and Dumbbell Lake were delineated using the 1:50,000 government data. Upon closer inspection, using more accurate aerial survey data, the southeast corner of the overburden stockpile is located approximately 45 m from the boundary of the Beverly Lake (Figure 2). Though the overburden stockpile is physically close to the watershed boundary, it remains hydraulically distant, as the planned top of the stockpile is located 10 m below the drainage divide (Figure 3).

IOC accepts and agrees with WRMD that this work can be on-going as the Project progresses, and should not affect current timelines.

Figure 1 Proposed Water Level and Water Quality Monitoring Locations in the Beverly Lake Watershed

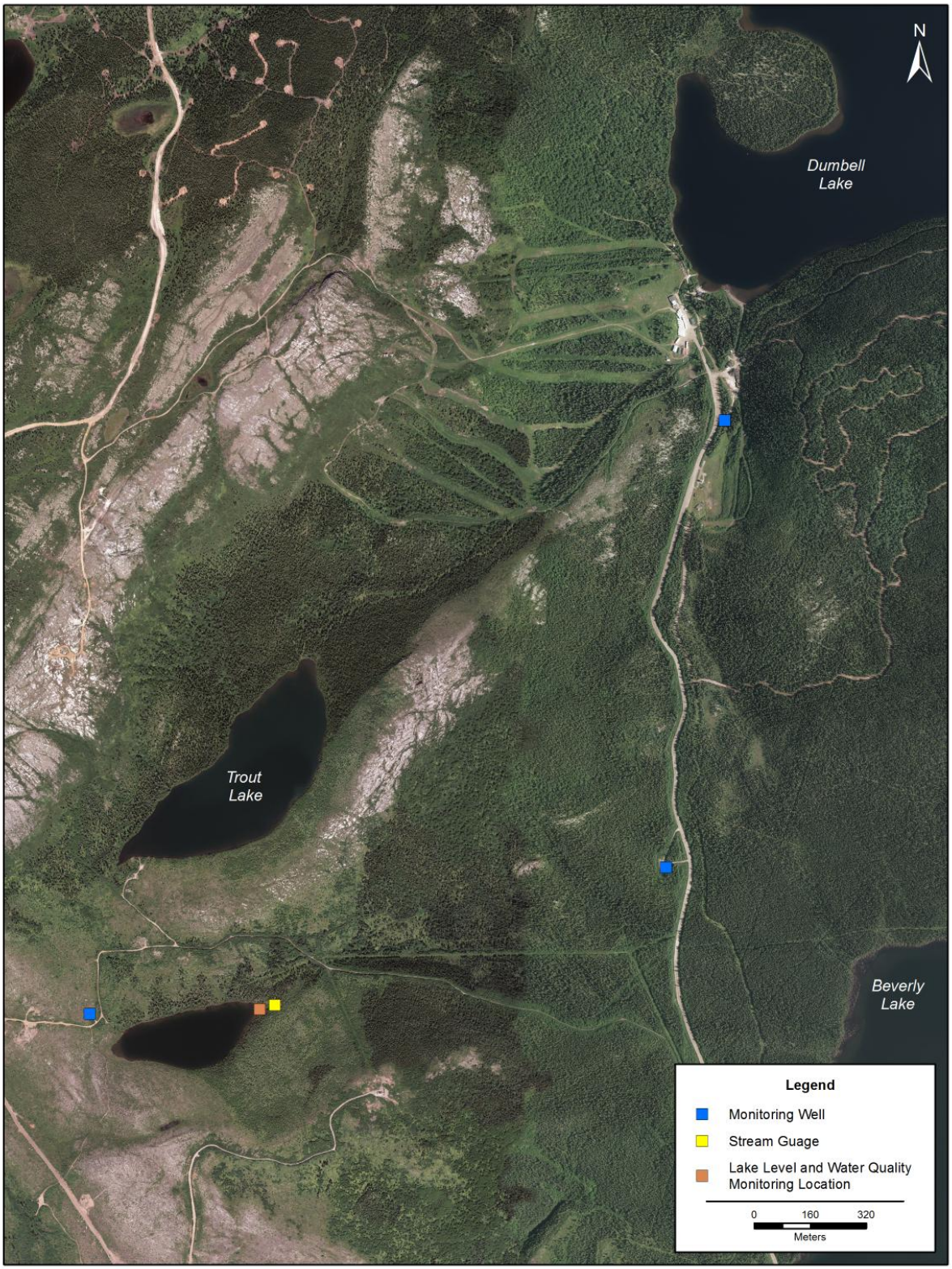


Figure 2 Distances from the Overburden Storage Area to the Dumbell and Beverly Lake Watersheds

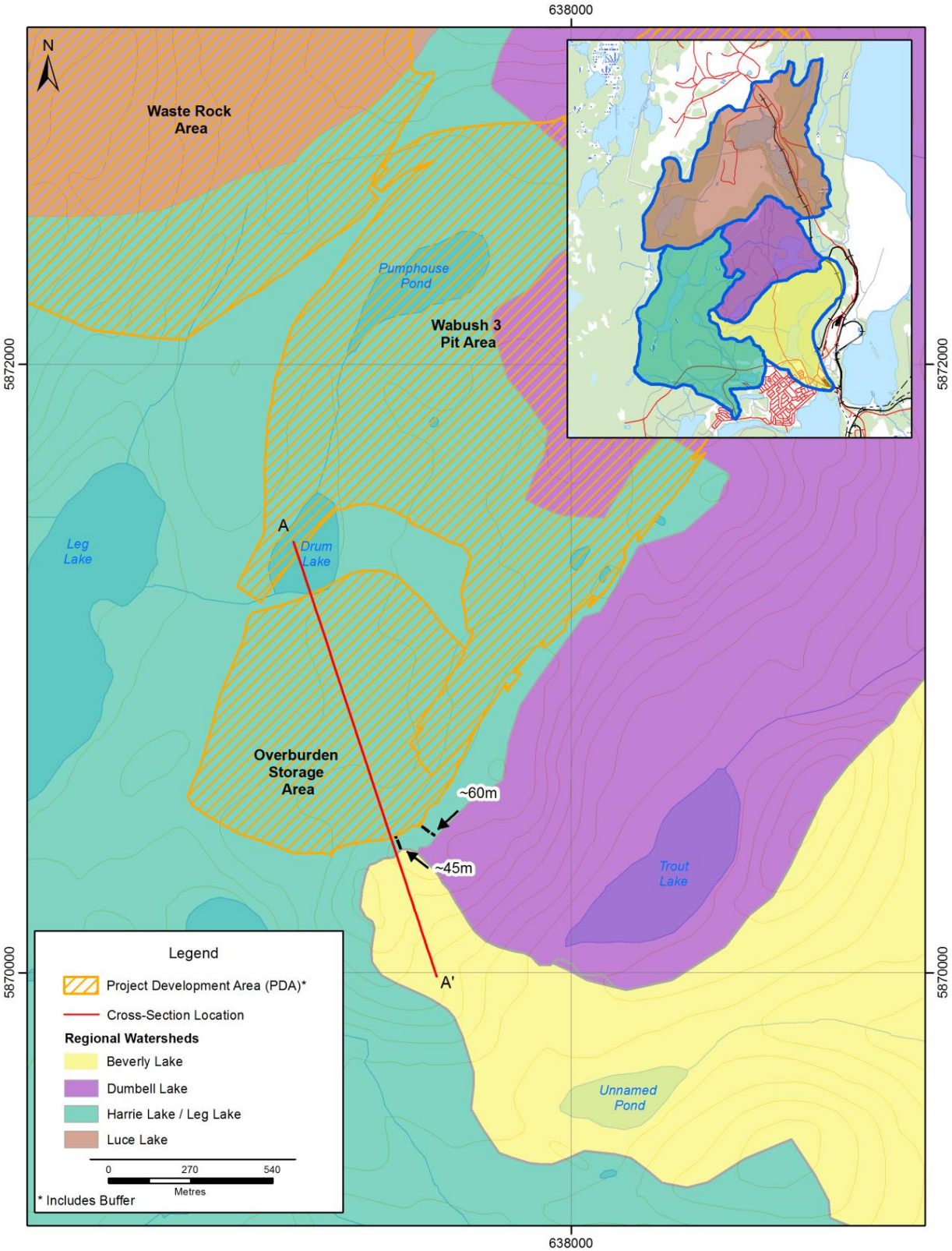
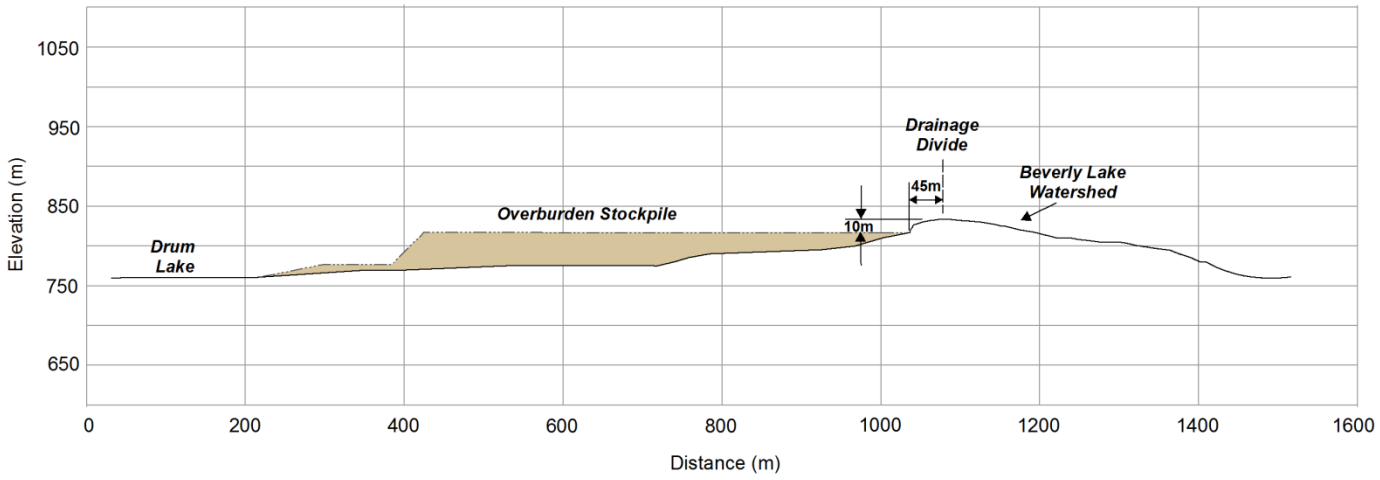


Figure 3 Cross Section Depicting the Vertical and Horizontal Distances from the Overburden Storage Area to the Dumbell and Beverly Lake Watersheds



2.2 NL Department of Environment and Conservation: Pollution Prevention Management Division (Industrial Compliance)

2.2.1 Information Request NL-PPDIC-01

p. 8 (Table 1.1) - The *Waste Management Regulations* deals with the MMSB's mandate and recyclables. *http://www.assembly.nl.ca/Legislation/sr/Regulations/rc030059.htm*

IOC Response:

This information and clarification is acknowledged with thanks.

2.2.2 Information Request NL-PPDIC-02

p. 22 (Table 2.1) The price of iron ore has dropped further since March 2014, will this delay the project? Section 2(b) and 17 of the *Environmental Assessment Regulations* deal with terms of the decision and extensions.

IOC Response:

The proposed Wabush 3 Project has been and remains a key part of IOC's plans to improve the operational efficiency of its on-going Labrador City Operations and to extend its overall lifespan, and in doing so the Project will contribute greatly to the on-going viability and longevity of the province's mining industry.

As noted throughout the EIS, the primary purpose, objective and key benefit of the Wabush 3 Project is that it will provide an additional source of iron ore to IOC's existing concentrator plant, allowing further operational flexibility as well as extending the operating period of IOC's mining activities. Notwithstanding the current uncertainty and volatility in global iron ore prices, IOC remains very interested in proceeding with the development and operation of this Project, within the general timeframes and overall schedule presented in this EIS. If anything, the current situation regarding iron ore prices and associated industry effects and unpredictability have increased IOC's desire to improve the efficiency and effectiveness of its existing operations through the development of Wabush 3. IOC continues to maintain a long-term view of the industry and of global iron ore prices that is measured in decades, which is well reflected in this Project's proposed operational schedule and duration (see EIS Section 2.4).

IOC is also fully aware of the relevant provisions of the provincial EA legislation and regulations, particularly with regard to the duration of associated EA decisions.

2.2.3 Information Request NL-PPDIC-03

Table 18.1, p.741, p.745 – There appears to be waste disposal inconsistencies, Table 18.1 states that "creating waste materials that may require disposal at local landfills"; however, it states on Page 741 that "no waste will be transported to the regional landfill" and on Page 745 that "Construction waste will be disposed at IOC's landfill". Recently, IOC and Cliffs were notified by the Department of Environment that their respective on-site

landfills had to be closed and appropriate wastes diverted to the Regional Landfill, excluding special wastes, such as hazardous wastes and petroleum contaminated soil.

IOC Response:

As described in the EIS, the various phases of the Project will result in the generation and required disposal of waste. IOC currently has procedures and facilities in place for the management of solid and hazardous wastes at its Labrador City Operations, which will apply to the construction and operations phases of the proposed Project.

Waste materials generated through Project-related activities will be removed from the area on a regular basis and disposed of appropriately. Non-hazardous construction refuse will be stored in covered metal receptacles, and will be disposed of on an as-needed basis at an approved site, as per IOC's on-going operations and practices. For clarity, all construction waste will be disposed of at IOC's existing and approved landfill (Certificate of Approval # LB-WMS10-01001E, which expires at the end of 2015), which is located within the existing operations, and thus any waste produced by the Project will not increase demand upon or affect the capacity of the regional waste disposal site in Labrador City. Waste materials will be reused / recycled where possible. Any hazardous wastes will be stored in sealed, labelled containers and disposed of according to applicable regulations and IOC practice. Once operational, the Project will be fully incorporated into IOC's existing operations, and will not result in any change in the types or amounts of waste materials produced and disposed of by IOC.

As recently discussed and clarified with the PPD, no such correspondence directing IOC to close its existing landfill has been sent or received. IOC is involved in regular discussions with the Town, provincial government authorities and others regarding current and future waste management practices and facilities in the region.

2.3 NL Department of Environment and Conservation: Pollution Prevention Management Division (Waste Management)

2.3.1 Information Request NL-PPDWM-01

IOC currently has their own approved waste disposal site. IOC to confirm.

IOC Response:

As referenced in the preceding response, IOC does have its own existing and approved waste disposal site (pursuant to NL Certificate of Approval # LB-WMS10-01001E, which expires on December 31, 2015).

2.3.2 Information Request NL-PPDWM-02

Page 359 "Wabush 3 will not increase waste generation"; that may be true for operations but not for construction waste and debris.

IOC Response:

As described in the EIS, the various phases of the Project will result in the generation and required disposal of waste. IOC currently has procedures and facilities in place for the management of solid and hazardous wastes at its Labrador City Operations, which will apply to the construction and operations phases of the proposed Project.

Waste materials generated through Project-related activities will be removed from the area on a regular basis and disposed of appropriately. Non-hazardous construction refuse will be stored in covered metal receptacles, and will be disposed of on an as-needed basis at an approved site, as per IOC's on-going operations and practices. For clarity, all construction waste will be disposed of at IOC's existing and approved landfill (Certificate of Approval # LB-WMS10-01001E, which expires at the end of 2015), which is located within the existing operations, and thus any waste produced by the Project will not increase demand upon or affect the capacity of the regional waste disposal site in Labrador City. Waste materials will be reused / recycled where possible. Overburden will be stored in the overburden storage site for future use. Waste rock will be disposed of in the waste rock disposal area with plans to revegetate upon closure.

Any hazardous or contaminated wastes will be stored in sealed, labelled containers and disposed of according to applicable regulations and IOC practice, including its current Waste Management Plan. Once operational, the Project will be fully incorporated into IOC's existing operations, and will not result in any change in the types or amounts of waste materials produced and disposed of by IOC.

2.3.3 Information Request NL-PPDWM-03

Reference in Table 6.2 of IOC Policy re PCB-containing equipment but no further mention of management of PCB waste materials; presumably the policy addresses how to manage these materials in the event of a leak or spill.

IOC Response:

IOC has a PCB's Testing and Inventory of In-Use Equipment procedure in place. All PCBs have been removed from service equipment and has been sent off site for proper destruction. It is very unlikely that there will be any PCB contaminated waste associated with the Wabush 3 Project. Any electrical equipment used in the Project will have been constructed with the current requirements for use of non-PCB materials. In the very unlikely event that there is PCB contaminated waste; IOC's Hazardous Waste Management Plan will be followed for its handling and management.

2.4 NL Department of Environment and Conservation: Pollution Prevention Management Division (Environmental Science and Monitoring)

2.4.1 Information Request NL-PPDESM-01

The EIS guidelines (4.18.3) requested that the proponent provide seasonal water quality field and lab analytical results and interpretation at several representative local stream and lake monitoring stations established at the Project site. There was limited water quality presented in the EIS for the project area and it did not satisfy the seasonality requirement. IOC is requested to provide data as indicated.

IOC Response:

Ten surface water sampling locations were chosen to provide background and seasonal (spring, summer, fall) water quality data for the Project Area. Surface water samples were collected at ten (10) locations in the Project Area in June (spring), July (summer), August (late summer) and September (fall), 2014 and analyzed for general chemistry parameters and metals. It is noted that due to the late spring melt, the first sample (i.e., June) was collected later than initially planned. The surface water sampling locations are summarized, as follows:

DS-OBD	Small Lake South of Proposed Overburden Dump
WLS	White Lake Stream
RW-WL	Receiving Water White Lake
RW-PHL	Receiving Water Pumphouse Lake
RW-TL	Receiving Water Trout Lake
RW-DL	Receiving Water Drum Lake
DL-LL	Stream between Drum Lake and Leg Lake
RW-LL	Receiving Water Leg Lake
DB-Inflow	Stream Inflow to Dumbell Lake
DB-Outflow	Stream Outflow to Dumbell Lake
NPB	North Pond Beverly

Surface water samples were also collected from NPB and DB-Outflow in June, July, September and October, 2012, as well as, in June, August, September and October 2013 and analyzed for general chemistry parameters, metals and petroleum hydrocarbons (PHCs) (Tables 4 and 5 of Appendix 5 in this EIS Amendment). These two locations are sampled because of a previous commitment IOC had made with ENVC and are now a part of IOC's Water Quality Monitoring Program under IOC's Certificate of Approval # AA13-04 5575 which expires on April 9, 2018.

The surface water sample locations are shown on Figure 1. The surface water sampling program is summarized in Table 1 of Appendix 5. The analytical data were compared to the Health Canada Guidelines for Canadian Drinking Water Quality (GCDWQ) (Tables 2 to 5). For reference, the guideline of 1.0 NTU was used for turbidity to be consistent with the source water sampling completed by the Water Resources Management Division of the Department of Environment and Conservation. The analytical results are summarized as follows:

General Chemistry Parameters

- Turbidity levels exceeded the GCDWQ in surface water collected from DS-OBD and DB-IINFLOW in June 2014 Table 2).
- Turbidity levels also exceeded the GCDWQ in surface water collected from NPB July 2012 (Table 2).
- Colour levels exceeded the GCDWQ in the following surface water samples (Table 2):
  - RW-DL: June and July 2014
  - DL-LL: June, July and September 2014
  - RW-LL: June 2014

Metals

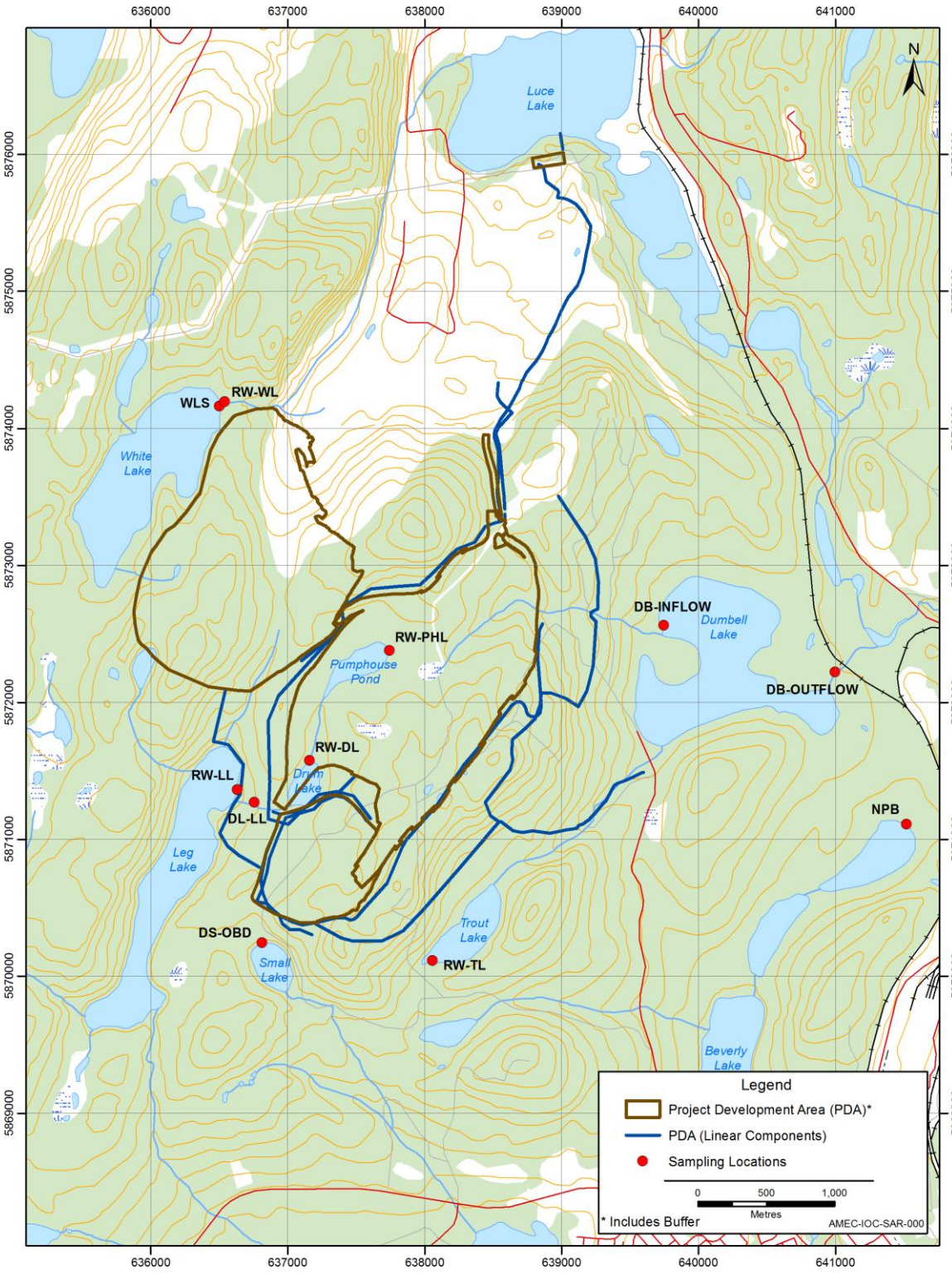
- Iron concentrations exceeded the GCDWQ in the following surface water samples (Table 4):
  - RW-PHL: June 2014
  - RW-DL: June and August 2014
  - DL-LL: June 2014
- Manganese concentrations exceeded the GCDWQ in surface water sample RW-DL collected in August 2014 (Table 4).
- Mercury concentrations exceeded the GCDWQ in surface water sample DB-Outflow collected in August 2013 (Table 4).

PHCs

- PHCs were not detected in surface water collected from NPB or DB Outflow and were therefore below the GCDWQ (Table 5).

The turbidity GCDWQ is for treated water and not for untreated raw water. The source of the iron and manganese is likely naturally occurring erosion and weathering of rocks and minerals, and therefore, will likely remain consistent. Of the ten (10) sampling locations and twelve (12) sampling events, mercury exceeded the GCDWQ only once at DB-Outflow in August 2013. Given the low rate of exceedance, it is not considered a concern; however, as mentioned above, DB-Outflow is monitored under IOC's existing Certificate of Approval (Approval No. AA13-045575).

Figure 1 Surface Water Quality Sampling Locations



2.4.2 Information Request NL-PPDESM-02

Table 10.29, section 10.4.3.1, pages 255 – 256: Data is provided on the results of blasting operations taken at 500 metres from the blast site. Table 19.23, section 19.4.3.5, page 807 extrapolates this data to 1200 metres which is the extent of the buffer zone for blasting. At 1200 metres an exceedance is indicated for NO_2, however an exceedance for H_2S is not as a less stringent standard is being used for comparison purposes. If the comparison standard was the *Air Pollution Control Regulations*, then there would be H_2S exceedances. By contrast, in Appendix 6, pdf page 78, the consultant indicates that the H_2S standard will be exceeded out to 2,700 metres which is well beyond the buffer zone. Clearly the consultants and the authors of the EIS are presenting different results. While the proponent has identified a number of measures to mitigate emissions from blasts, they need to address all pollutants to bring them into compliance.

IOC is requested to address all pollutants to bring them into compliance as indicated by the PPD.

IOC Response:

The assessment of blasting in Appendix 6 of the EIS (RWDI - Wabush 3 - Air Quality Assessment) showed that the monitored concentration extrapolated to 1,200 m (the safety clearance zone), was within the applicable NL limits for NO_2 and H_2S during the average event, but exceeded those limits during the worst-case event among the 32 events that were monitored. Note that blasts are expected to occur only approximately twice per month within the Wabush 3 mining area. Among these, the worst-case blast from among the monitored events will not be the norm. In addition, the wind will not always be directed toward the recreation area and the Town of Labrador City. Also, the measurement data used in the assessment were from locations with a line of site to the blast. As such, they do not account for any shielding effect that occurs when blasts occur on lower lifts within the pit.

Taking all of these factors into consideration, RWDI concludes that the risk of an exceedance is low. Mitigation measures should be commensurate with the level of the risk of non-compliance. Section 7.2.1.2 of the EIS commits that blasting will be carried out in accordance with a Project-specific Blasting Plan designed to reduce air emissions, noise and vibration levels. Additional monitoring for H_2S beyond the 1,200 m blast clearance zone is required to validate the monitoring data collected. Accordingly, IOC will evaluate how best to monitor H_2S emissions associated with blasting to determine compliance with provincial standards. Additional H_2S monitoring will be conducted and tied in with blast monitoring before the development of the Wabush 3 Project. If H_2S exceeds provincial standards, IOC will evaluate the blasting protocols to ensure compliance.

With respect to the H_2S limit selected for the HHRA, the value selected (98 µg/m^3; ATSDR 2013) is a health-based value, rather than a value based on odour. This value is known as a MRL (Minimum Risk Level), which is defined by the Agency for Toxic Substances and Disease Registry (ATSDR) as an estimate of the daily human exposure to a hazardous substance that is likely to be without appreciable risk of adverse health effects over a specified duration of exposure (*http://www.atsdr.cdc.gov/mrls/index.*asp). The ATSDR (2013) derived an acute inhalation MRL for hydrogen sulphide of 98 µg/m^3 (0.07 ppm), based on a LOAEL (Lowest Observed Adverse Effect Level) of 2 ppm for changes in airway resistance and specific airway conductance in excess of 30% in two of 10 individuals examined. The test subjects all had bronchial asthma requiring medication for 1 to 13 years. The subjects were exposed for 30 minutes and their respiratory function in response to a histamine challenge was assessed prior to and following exposure. Although two subjects showed changes in airway resistance

after 2 ppm exposure, no statistically significant alterations in lung function were observed at this concentration. The ATSDR (2006) applied a combined uncertainty factor of 30 to 2 ppm, to yield a MRL of 0.07 ppm (98 µg/m^3). The ENVC has a limit for H2S of 15 µg/m^3 (1 hour). While the specific basis of this limit is not stated in the NL regulations, it is likely based on odour, as opposed to health effects. The Alberta Environment and Sustainable Resource Development Department (ESRD) provides a similar limit (14 µg/m^3), which is based on odour, rather than health-effects. Hence, the difference between the ENVC limit and the limit used in the HHRA is the endpoint being protected, i.e., odour (being able to smell H_2S) versus health effects. Exposures below the MRL, as defined by the ATSDR, are unlikely to be associated with adverse health effects.

References

ATSDR (Agency for Toxic Substances and Disease Registry). (2006). Toxicological Profile for Hydrogen Sulphide. Atlanta, GA. US Department of Health and Human Services, Public Health Service. Atlanta. July 2006.

ATSDR (Agency for Toxic Substances and Disease Registry). (2013). Minimal Risk Levels (MRLs) for Hazardous Substances. US Department of Health and Human Services, Public Health Service. Atlanta, GA. July 2013. Available at: *http://www.atsdr.cdc.gov/mrls/mrllist.asp*

2.4.3 Information Request NL-PPDESM-03

Table 10.28, section 10.4.3.1, page 253: Data indicates that in either the build, or no-build scenario there will be exceedances of several pollutants at sensitive receptors. In figures 10.10 thru 10.15 the indication is that the existing non-mining emissions may be the major contributor to the exceedances. Therefore, the proponent needs to provide the incremental increase in emissions that the build scenario would account for; as well the proponent needs to address how the facility as a whole will become compliant with the air quality standards.

IOC Response:

EIS Table 10.28 provides data which shows modelled maximum predicted concentrations at some receptors to exceed 24 hour NL limits for particulate matter and PM_{10}. The other parameters that were modelled ($PM_{2.5}$, NO_2, SO_2 and CO) were compliant with the respective NL limits for all time frames and all receptors. The modeling was conducted for two scenarios, the IOC operations with (build) and without (no build) the proposed Wabush 3 Project. The modeling determined that the proposed Wabush 3 Project would not have a significant effect on the ambient concentrations of particulate matter, PM_{10}, NO_2, CO or SO_2 in the populated areas of the Town of Labrador City, as the predicted effects were indistinguishable for the two scenarios. Figures 10.10 – 10.15 in Chapter 10 of the EIS and figures throughout the RWDI Air Quality Assessment Report (Appendix 6 of the EIS) support this determination. Modeling for dustfall (all fraction sizes of dust particles) was conducted for the purposes of the HHRA, but the contour drawings were not included in the EIS. This was raised in IR HC-08 and the drawings are included in the response to that IR. The results of the dustfall modeling are consistent with the discussion above, in that there are no distinguishable differences in the populated areas of the Town of Labrador City between the results for the two scenarios.

The PPD requested that IOC provide the incremental increase in emissions that the build scenario would account for, and to address how the facility as a whole will become compliant with air quality standards. Tables 8 and 9 of Appendix 6 of the EIS show the incremental change in emissions associated with the mining

operations, which are summarized in Table 1 below. Anticipated changes in emissions are modest, with some pollutants increasing and others decreasing.

Table 1 Summary of EIS - Appendix 6 Tables 8 and 9

Contaminant	Future Build Mining Emissions (Mg/year)	Future No-Build Mining (Mg/year)	Change (Mg/year)
TSP	7,844	7,029	+815 (+12%)
PM_{10}	2,637	2,178	+459 (+21%)
$PM_{2.5}$	487	476	+11 (+2%)
NO_X	1,947	2,150	-203 (-9%)
CO	373	401	-28 (-7%)
SO_2	2.3	2.6	-0.3 (-12%)

The approximate annual emissions associated with the non-mining sources (IOC concentrator, pellet plant, etc.) that were included in the modeling for the Wabush 3 study are summarized in Table 2. The intent of the Wabush 3 Project is to increase operational flexibility and extend the operating life of IOC's mining activities. It does not entail any increase in capacity of IOC's concentrator or pellet plant. Therefore, the plant emissions are not expected to change between the Future Build and Future No-Build scenario. Relative to all the emissions included in the modeling, the incremental changes in emissions associated with Wabush 3 are very small. For some contaminants, decreases in emissions are expected.

Table 2 Annual Emissions from IOC Non Mining Sources

Contaminant	Future Build Plant Emissions (Mg/year)	Future No-Build Plant Emissions (Mg/year)	Change (Mg/year)
TSP	14,564	14,564	0
PM_{10}	2,185	2,185	0
$PM_{2.5}$	495	495	0
NO_X	6,512	6,512	0
CO	6,498	6,498	0
SO_2	8,129	8,129	0

Non-mining emissions sources at IOC's plant site are the main contributors to the modeling predicted exceedances of the standards for 24-hour TSP and PM_{10}, as shown in EIS Table 10.28. For several years, IOC has had an Air Quality Improvement Program (AQIP) underway to address the plant emissions. The AQIP is a comprehensive, multifaceted program that has included extensive stack testing, dispersion modeling, expansion of the ambient monitoring network, extensive engineering studies to evaluate abatement options and assessments to evaluate potential health implications. IOC plans progressive implementation of abatement measures, which will bring its facility into compliance with existing provincial air quality standards. Such a proposal is being discussed with the ENVC. As the development of abatement measures is still ongoing and the anticipated future emissions associated with those measures are still unknown at the time of the EIS preparation, the dispersion modeling for the Wabush 3 study was based on current plant emissions for both the Future Build and Future No-Build scenarios.

With respect to potential effects on parts of the Menihek Trail and alpine ski facility associated with mining operations in Wabush 3, mitigation measures principally take the form of documented operating procedures

for dust mitigation. IOC has various procedures in place that stem from both environmental and health and safety objectives, and has a history of adapting and improving the procedures when the need to do so is identified.

The dispersion model results for the mining operations carry greater uncertainty than those for the plant site, due to the higher uncertainty in determining emissions from open dust sources. IOC will install an air quality monitoring station in the Smokey/Menihek recreational area that would include TSP as one of the measurement parameters. This information would be used to verify model predictions and to determine when and if significant changes to SOPs are required.

2.5 NL Department of Advanced Education and Skills

2.5.1 Information Request NL-DAES-01

Any references to the provincial Department of Human Resources, Labour and Employment (HRLE) should be changed to the Department of Advanced Education and Skills. Similarly, if the Department of Education is referenced with respect to post-secondary education (including apprenticeship training), then this should be changed to the Department of Advanced Education and Skills. The Department of Advanced Education and Skills comprises the former Department of HRLE and the former post-secondary branch of the Department of Education.

IOC Response:

These clarifications regarding Departmental names, compositions and mandates are noted and appreciated. The referenced text is updated as noted throughout the EIS to address these items.

2.5.2 Information Request NL-DAES-02

Section 2.9.1 – Construction Employment (page 78-79) - A commitment to provide two summary reports (one at the halfway point of construction phase and one at construction end) indicating all of the above. Page 79 indicates that "IOC will develop and submit two Summary Reports (one at the halfway point of construction phase and one at construction end) providing information on Project-related labour during the construction phase of the Project."

While the Proponent acknowledges that it will provide the two Summary Reports requested, details of these reports were not specified. Nor was it specified to whom the Proponent would submit the reports.

IOC to provide further details regarding the contents of these Summary Reports (with respect to the information requested in the EIS Guidelines) as well as details regarding the report submission.

IOC Response:

The commitment, and the specific nature, wording and specificity of same, was made in direct response to the requirement included in Section 4.4.4.3 of the EIS Guidelines issued by the Province in April 2014, which stated:

> "The EIS shall include descriptions of the construction, operations, rehabilitation and closure labour force requirements, including: ... a commitment to provide two summary reports (one at the halfway point of construction phase and one at construction end) indicating all of the above"

IOC has developed a structure for its proposed Construction Employment Summary Reporting which has been presented to and accepted by the Department of Advanced Education and Skills (DAES). The template for the report outlines the information that will be included in such reporting, including specifying the following: project activity, NOC code, NOC occupation name, IOC occupation description, employer (IOC or contractor),

total number of workers, number of apprentices and journey persons per applicable trade, number of females and males and locations of permanent residence.

For apprenticeship trades, IOC will report on the same parameters with additional information on the number of trade workers in each year of apprenticeship. This information will be submitted at the halfway point and end point of the construction period.

To the greatest extent possible, IOC will include information on usage of its existing permanent employees for various Project activities (e.g. powerline construction and piping) with the recognition that workers may be deployed to and from mine operations on an irregular basis.

2.5.3 Information Request NL-DAES-03

IOC to provide additional information regarding apprentices / journeypersons to be employed for this project. These details may be included in the Summary Reports submitted to AES by the Proponent. As such, a response by the Proponent indicating that these details would be included in the aforementioned Summary Reports would be sufficient at this stage.

IOC Response:

IOC commits to submitting two Construction Employment Summary Reports to the Department of Advanced Education and Skills (DAES), as described in the previous response. These will include information about use of apprentices and journey persons for construction of the Wabush 3 Project, and will be prepared and submitted at the halfway point and end point of the construction period. Details on the planned structure and contents of these reports are also provided in the preceding IR response.

2.6 NL Department of Natural Resources: Mineral Development Division

2.6.1 Information Request NL-DNRMDD-01

DNR will require additional details on the ARD testing which has been done on the Wabush 3 deposit. The request for this information will be covered in the submissions required under the *Mining Act*.

IOC Response:

IOC acknowledges that additional detail on ARD testing and results will be necessary, and that these requirements will be addressed in subsequent submissions by IOC as will be required under the *Mining Act*.

2.7 NL Department of Natural Resources: Benefits Division

2.7.1 Information Request NL-DNRBD-01

The EIS Guidelines require that the EIS must include statements by the operator indicating their acknowledgement that a Newfoundland and Labrador Benefits Plan that meets the approval of the Minister of Natural Resources must be finalized prior to the granting of EA release (section 4.26.4).

The EIS that has been submitted by the operator does not include this acknowledgement, or a commitment to develop a Benefits Plan as required. In fact, there is no mention of a Benefits Plan with the Province anywhere in the EIS.

IOC is requested to include in the EIS Amendment the required statements outlined in the EIS Guidelines. The operator must acknowledge the requirement to develop a Newfoundland and Labrador Benefits Plan that meets the approval of the Minister of Natural Resources, which must be finalized prior to the granting of EA release.

IOC Response:

IOC recognizes that the Government of Newfoundland and Labrador wishes to have additional reporting of benefits to the Province. IOC commits to developing a Newfoundland and Labrador Benefits Plan for Wabush 3 that meets the approval of the Minister of Natural Resources.

2.8 NL Department of Environment and Conservation: Wildlife Division

2.8.1 Information Request NL-DECWD-01

Page 399 – 405: Rare Plant Occurrences during wetland classification surveys

Wildlife Division requires the raw data for the rare plants located during these surveys. The required format for this data is attached.

Page 509: Avifauna Surveys

Wildlife Division requires the raw data for the avifauna surveys conducted [Point Count Surveys, Nocturnal Surveys, Ground Searches, Aerial Survey, Baseline Survey Report, Additional Avifauna surveys conducted in 2014]

Page 511: Avifauna SAR – Rusty Blackbird

Location of Rusty Blackbird sighting. Mitigation should include avoidance of habitat clearing. Buffers of 75 m around wetlands will protect the majority of nesting habitat for this species (Powell et al. 2010).

Page 513: Other Wildlife

Wildlife Division requires the raw data for any baseline wildlife surveys conducted.

Page 513: Potentially Occurring SAR Species

EPP should include mitigations for these species

Page 516: Bat Species

Northern myotis (*Myotis septentrionalis*) should be added to Table 15.5

Page 519: Construction Mitigations

Avoid clearing during avifauna breeding (May to mid-July). Mitigation should include avoidance of habitat clearing. Buffers of 75 m around wetlands will protect the majority of nesting habitat for this species (Powell et al. 2010).

Page 535: Environmental Monitoring and Follow-up

Wildlife Division requires the raw data for any amphibian baseline surveys and pre-construction surveys.

Wildlife Division requires baseline avifauna data and outcomes of pre-construction nest searches.

IOC Response:

IOC is providing the required and requested raw data from its previous and recent vegetation and wildlife surveys for the Wabush 3 EIS to the NL Wildlife Division in the format specified, and will similarly provide the data from any future (pre-construction) surveys.

As noted in Section 16.3.2.3 of the EIS, during IOC's 2012 bird surveys a single avifauna Species at Risk (one Rusty Blackbird) was observed outside of breeding season in an area located well outside of the PDA and LSA (see EIS Figure 16.5). Rusty Blackbirds have been commonly observed in the Labrador City area, and appropriate breeding habitat (near water in wet coniferous and mixed forests or fens and bogs or swampy lakeshores) was detected in the PDA. Throughout the EIS, IOC has identified and committed to a number of planning and mitigative measures to avoid potential adverse interactions with wildlife, including avifauna and species at risk, including:

- Minimization of Project footprint and clear delimitation of clearing limits and work areas;
- Avoiding ecologically sensitive areas such as hardwoods and aquatic habitats wherever possible and practical;
- Maintaining natural buffers around wetlands and riparian areas wherever possible and practical;
- Preservation of natural drainage patterns to the extent possible (culverts and trenching, structures of sufficient size);
- Erosion and sediment control procedures and practices;
- Minimizing contaminants (airborne or runoff) through dust and effluent control measures;
- Avoiding / minimizing the use of artificial lighting;
- Establishment of a physical barrier (fence) around portions of the PDA;
- Conduct nest searches during the breeding season in advance of vegetation clearing, and avoiding any identified active nests during that time;
- If identified during construction, IOC will relocate any SAR / SCC as per its EPP;
- Avoiding wildlife-vehicle collisions by ensuring safe driving practices including speed limits;
- Prohibiting the hunting or harassment of wildlife species by on-site Project personnel;
- Appropriately disposing of all waste to avoid attracting wildlife to work areas;
- Implementation of IOC Environmental Protection Plan(s) and Emergency Response Plans and procedures;
- Implementation of IOC fuel use / storage plans and procedures; and
- Implementation of progressive rehabilitation measures and eventual Project rehabilitation and closure

As noted above, although there are wetland areas within the proposed Project footprint that will inevitably be removed during the various phases of construction (see EIS Chapter 13), IOC's planned mitigation will include various measures to minimize and contain any associated effects on this habitat type and any wildlife species that utilize them. This includes mitigation measures and pre-construction avifauna surveys, as referenced above and described in Chapters 15 and 16 of the EIS. Section 15.4.2.1, for example summarizes IOC's mitigation, which will include:

- Minimizing the Project footprint by confining vegetation clearing and other forms of ground disturbance to the extent possible, with clear delimitation of clearing limits and work areas in the field;

- Prior to the start of construction activity during the breeding season (May-August), nest surveys will be conducted in accordance with the Specific Considerations Related to Determining the Presence of Nests (Environment Canada 2014). Should a nest of a migratory bird be found, in accordance with the MBCA, all activities in the nesting area will be halted until nesting is completed (i.e., the young have left the vicinity of the nest). Cutting outside of the breeding season will not require a nest survey.

- In accordance with provincial guidelines, should a nest of a raptor be found, a buffer zone of 800 m will be maintained while the nest is active, and after the young have left their nest a buffer zone of 250 m will be maintained. If construction within the appropriate buffer zone cannot be avoided, the Department of Environment and Conservation will be contacted for advice on how to minimize disturbance to the nest;

- Maintaining natural buffers around wetlands and riparian areas where feasible.

As reiterated in Chapter 16 of the EIS (Section 16.7):

> As also described in Chapter 15, prior to the start of relevant construction activities at specific locations during the breeding season, site-specific (nest) surveys for migratory birds and raptors will be carried out, in accordance with relevant regulatory requirements and guidelines. These surveys and any associated management measures will be developed by IOC upon completion of (and incorporating the findings of) the EA, in consultation with relevant federal and provincial regulatory authorities.
>
> Any observations and/or Project-related interactions with SAR / SCC will be recorded and reported to relevant authorities throughout the life of the Project.

All such mitigation measures will indeed be identified in, and implemented through, IOC's EPP(s) for Project construction and operations, as outlined in EIS Section 6.2.1 and elsewhere, and in an Avifauna Management Plan as described later.

IOC appreciates the reviewer's clarification that Northern myotis (*Myotis septentrionalis*) has been observed in Labrador, and that reference to this species should be added in Chapter 15. The occurrence of this species has specifically been recorded and noted by Broders et al (2013) in Central Labrador.

Table 15.5 of the EIS is therefore revised to include the following additional row:

Species	***Scientific Name***	**Relative Abundance**	**Occurrence**	**Species at Risk Status (Chapter 16)**
Northern myotis	*Myotis septentrionalis*	Undetermined	Confirmed	*SARA* listed

With the addition of this information, there is no consequent change in the environmental effects predictions found in the EIS or in the required mitigation for this or any VEC.

Reference

Broders, H.G., Burns, L.E. and S.C. McCarthy (2013). First records of the Northern Myotis (*Myotis septentrionalis*) from Labrador and summer distribution records and biology of Little Brown Bats (*Myotis lucifugus*) in southern Labrador. The Canadian Field Naturalist, 127(3): 266-269

2.9 NL Women's Policy Office

2.9.1 Information Request NL-WPO-01

Approximately 2,500 persons are employed at IOC's existing mining, processing, rail, and port operations, including nearly 2,000 people in Labrador – making IOC the largest private sector employer in the province. IOC's current operations reflect an employee metric of approximately 19% female and 7% Aboriginal people, all living in Labrador West. Wabush 3 represents an extension of IOC's existing mining operations that will sustain IOC's current overall operations into 2060 and beyond. IOC notes that the company "will engage relevant stakeholder organizations and Provincial departments and agencies to develop and implement a Gender Equity and Diversity Plan" (p. 886).

Due to the scope of this Project, a separate and detailed Gender Equity and Diversity Plan (GEDP) for approval by the Minister Responsible for the Status of Women is required by government prior to project start up. This will bring IOC's operations' planning and reporting in line with other large-scale mining operators in the province. The GEDP will apply to IOC, its contractors and sub-contractors and encompass both direct and indirect effects of the Wabush 3 mine. It will consist of three main components: a women's employment plan, a diversity plan for people with disabilities, Aboriginal people, and visible minorities, and a business access strategy for the target populations.

IOC Response:

As an established mining operation and a Rio Tinto company, IOC is subject to Rio Tinto standards and guidance for all areas of its operations. Thus IOC is subject to the Rio Tinto Diversity and Inclusion Policy, which sets direction for employment of women, Aboriginal persons, visible minorities and persons with disabilities. In addition, Rio Tinto has developed its Rio Tinto Canada Aboriginal Engagement Strategy that establishes a vision with recommendations for Canadian business units in strengthening relationships with Aboriginal groups, and building the capabilities of and creating opportunities for Aboriginal people. IOC's current annual reporting (under the NL *Mining Act* and *Mining Regulations*) includes a summary of direct employment and major capital expenditures at the Labrador City Operations.

IOC has consulted with the Women's Policy Office and the Department of Natural Resources to better understand the expectations of the Gender Equity and Diversity Plan and is in the process of developing a draft plan for submission to government in March 2015.

IOC commits to developing a Gender Equity and Diversity Plan that meets the approval of the NL Minister of Natural Resources and the Minister Responsible for the Status of Women. This Plan will include a women's employment plan, a diversity plan for people with disabilities, Aboriginal people and visible minorities, and a business access strategy for the target populations.

2.10 Transport Canada

2.10.1 Information Request CA-TC-01

Air Transportation -The above referenced section of the EIS states that Wabush Airport is one of the 26 national airports that make up the National Airport System (NAS). Currently, Wabush Airport is a categorized as a Regional Airport by Transport Canada.

The federal government's National Airports Policy (NAP) provides a framework that clearly defines the federal government's role with airports. That role is defined through two main levels of federal involvement in airports with scheduled passenger traffic: nationally-significant airports that form a National Airports System (NAS) and regional/local airports. The NAS comprises 26 airports that link the country from coast to coast and internationally. The NAS includes those airports considered essential to Canada's air transportation system, supporting both domestic prosperity and international as airports with annual traffic of 200,000 passengers or more. Currently, the 26 NAS airports serve 94 per cent of all scheduled passenger and cargo traffic in Canada and are the points of origin and destination for almost all interprovincial and international air service in Canada. Airports maintaining annual passenger levels of 200,000 for three consecutive years are candidates for inclusion in the NAS. Conversely, airports other than those serving national, provincial or territorial capitals, whose traffic falls below 200,000 passengers for three consecutive years, will no longer be considered part of the NAS. Regional/Local airports are defined as those sites:

- whose scheduled passenger traffic is less than 200,000 a year for three consecutive years;
- not the national capital or a provincial or territorial capital;
- not classified as Arctic or remote airports;
- where there is currently some form of ongoing federal financial involvement relating to the ownership or operation of the airport.

IOC Response:

IOC appreciates and acknowledges this clarification from Transport Canada regarding the classification of airports in Canada as either National Airport System (NAS) Airports or Regional Airports. It is recognized that Wabush Airport is considered a Regional Airport.

2.10.2 Information Request CA-TC-02

The dewatering of Pumphouse Pond and Drum Lake will require a review in accordance with Section 24 of the *Navigation Protection Act* (NPA).

The dewatering of a navigable waterway in Canada may require a Governor in Council approval under the NPA. The Proponent is advised to submit a completed 'Request for Work Approval' for the proposed dewatering. Completed requests can be submitted to: Navigation Protection Program Transport Canada 95 Foundry Street, 6th Floor P.O. Box 42 Moncton, New Brunswick E1C 8K6 Phone: 506-851-3113 Fax: 506-851-7542 Email: NPPATL-PPNATL@tc.gc.ca Relevant information is available from the following website: https://www.tc.gc.ca/eng/programs-621.html

IOC Response:

IOC appreciates and acknowledges this information on approval processes and requirements under the *Navigation Protection Act*. This information will be used and considered by IOC in its eventual environmental permitting activities for the Project.

It should be noted that the dewatering of Pumphouse Pond and Drum Lake will occur in Phase 2 of the Project which is currently scheduled to begin in 2031. The submission of the Request for Work Approval will therefore be submitted closer to that date, and prior to the commencement of dewatering activities.

2.11 Environment Canada

2.11.1 Information Request CA-EC-01

Wetland Removal / Alteration: It should be stated as to when wetlands will be removed from the project site. Many species of migratory birds (particularly waterfowl species) are dependent upon wetlands during their breeding cycle. In order to help maintain compliance with the *Migratory Birds Convention Act* and its Regulations, we recommend that removal of wetlands take place outside of the migratory bird breeding season. The bulk of the migratory bird breeding season is April 25th through August 15th in this region. See also EC-03.

IOC Response:

As noted in the EIS, there are wetland areas located directly within the proposed Project footprint, and these will inevitably be removed during the various phases of construction (EIS Chapter 13), although the wetland habitat lost represents less than half of one percent of the total wetland present in the RSA.

Figure 1 provides the locations of the wetland areas within the Wabush 3 footprint and an overlay of the three phases of the Project. The wetland adjacent to the existing road in the Phase 1 area (W3-WL7) will likely be removed in the first year of construction. The wetlands in Phases 2 and 3 will be removed in the early years of the development of these phases. As noted in Figure 1, Phase 2 is forecasted to begin in year 17 of the Project and Phase 3 is forecasted to begin in year 25 of the Project. IOC will take all reasonable measures to try and clear wetland areas outside of the breeding seasons noted above, within scheduling and operational requirements and constraints and in view of the relatively short construction season in this part of Labrador.

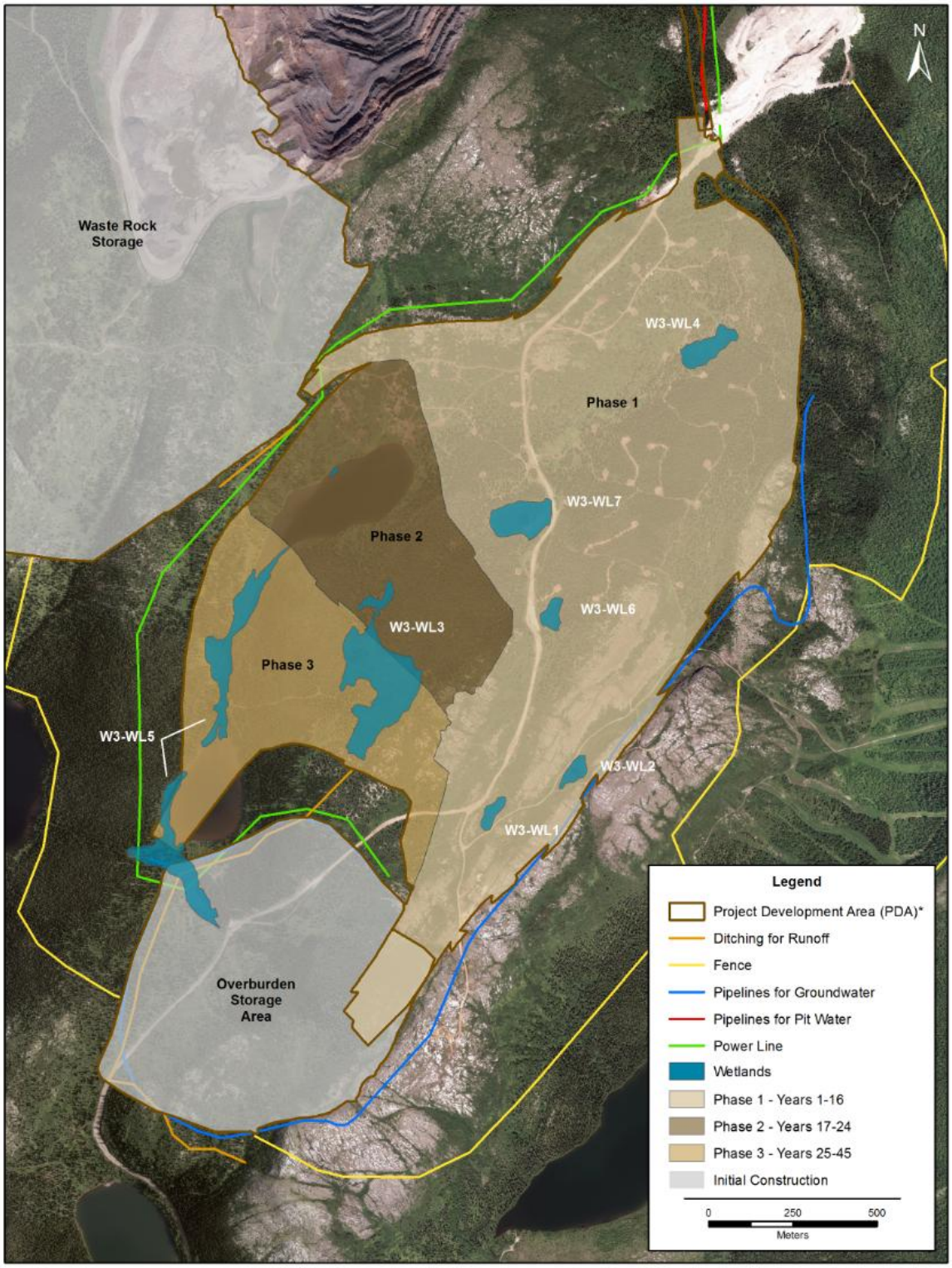
The majority of these wetlands within the PDA are non-uniform herbaceous fens, with some having minor components of tree and shrub swamps along the periphery, although all of the affected wetlands are common types in the region where functions provided by these wetlands are well represented in the LSA and RSA by other wetlands unaffected by the Project, and there will be minimal or no associated habitat fragmentation. Moreover, no species listed under *SARA* or *NL ESA* were identified in any of the wetlands (EIS Chapter 16) during IOC's environmental field surveys for the Project. The Project footprint has, however, been minimized in order to reduce the area that will be affected, and Project construction infrastructure will not be located in or immediately adjacent to wetlands. Vegetation clearing and other ground disturbance activities will be confined to only those areas where it is absolutely necessary, with limits of clearing marked in advance, and only designated areas will be cleared, which will be completed in compliance with relevant permits and regulations. Where possible a vegetated buffer will be left between wetlands and maintained following construction and Project infrastructure and activities. Construction workers will be informed about the location, importance and recognition of wetlands, and will be directed not to enter them, particularly while operating construction or transportation equipment.

IOC's mitigation therefore include various measures to minimize and contain any associated effects on this habitat type and any wildlife species that utilize them. This also includes planned pre-construction avifauna surveys and associated buffers in the event that breeding / nesting activity is found, as referenced above and described in Chapters 15 and 16 of the EIS, including as follows (Section 16.7):

Prior to the start of relevant construction activities at specific locations during the breeding season, site-specific (nest) surveys for migratory birds and raptors will be carried out, in accordance with relevant regulatory requirements and guidelines. These surveys and any associated management measures will be developed by IOC upon completion of (and incorporating the findings of) the EA, in consultation with relevant federal and provincial regulatory authorities.

Additionally, these issues and measures will be included in IOC's EPP.

Figure 1 Wabush 3 Wetlands and Phases of Development



2.11.2 Information Request CA-EC-02

Changes in Vegetative Composition

We recommend that measures to diminish the risk of introducing invasive species be developed and implemented during all project phases. These measures could include:

- cleaning and inspecting construction equipment prior to transport from elsewhere to ensure that no matter is attached to the machinery (e.g., use of pressure water hose to clean vehicles prior to transport); and

- regularly inspecting equipment prior to, during and immediately following construction in areas found to support Purple Loosestrife to ensure that vegetative matter is not transported from one construction area to another.

IOC Response:

The potential for, and possible negative effects of, any Project-related introduction of invasive plant species was described and assessed in the EIS (see for example, Section 13.2.4.3 and elsewhere). It is anticipated that most if not all of the equipment that will be utilized throughout the life of the Project is already based in Western Labrador. As suggested, however, IOC will carry out regular inspections of any equipment which did not originate in this region, and will establish vehicle and equipment cleaning stations at suitable locations as required.

These issues and measures will be included in IOC's EPP.

2.11.3 Information Request CA-EC-03

Potential Environmental Interactions / Effects and Associated Parameters:

Birds, Other Wildlife and their Habitats

Migratory Birds

Migratory birds, their eggs, nests, and young are protected under the *Migratory Birds Convention Act* (MBCA). Migratory birds protected by the *MBCA* generally include all seabirds except cormorants and pelicans, all waterfowl, all shorebirds, and most landbirds (birds with principally terrestrial life cycles). Birds protected under the *Migratory Birds Convention Act* are specifically named in the Environment Canada publication, *Birds Protected in Canada under the Migratory Birds Convention Act, Canadian Wildlife Service Occasional Paper No. 1.*

Under Section 6 of the *Migratory Birds Regulations* (MBR), it is forbidden to disturb, destroy or take a nest or egg of a migratory bird; or to be in possession of a live migratory bird, or its carcass, skin, nest or egg, except under authority of a permit. It is important to note that under the current *MBR*, no permits can be issued for the incidental take of migratory birds caused by development projects or other economic activities.

Furthermore, Section 5.1 of the *MBCA* describes prohibitions related to deposit of substances harmful to migratory birds:

> "5.1 (1) No person or vessel shall deposit a substance that is harmful to migratory birds, or permit such a substance to be deposited, in waters or an area frequented by migratory birds or in a place from which the substance may enter such waters or such an area.
>
> (2) No person or vessel shall deposit a substance or permit a substance to be deposited in any place if the substance, in combination with one or more substances, results in a substance — in waters or an area frequented by migratory birds or in a place from which it may enter such waters or such an area — that is harmful to migratory birds."

It is the responsibility of the proponent to ensure that activities are managed so as to ensure compliance with the *MBCA* and associated regulations.

- Vegetation Clearing
  Clearing vegetation during construction activities may cause disturbance to migratory birds and inadvertently cause the destruction of their nests and eggs (*http://www.ec.gc.ca/paomtmb/default.asp?lang=En&n=FA4AC736-*

  1). Many species use trees, as well as brush, deadfalls and other low-lying vegetation for nesting, feeding, shelter and cover. This would apply to songbirds throughout the region, as well as waterfowl in wetland areas. Disturbance of this nature would be most critical during the breeding period. The breeding season for most birds within the project area occurs between April 25th and August 15th in this region, however some species protected under the MBCA do nest outside of this time period. Please see the webpage "General Nesting Periods of Migratory Birds in Canada" (Website: *http://www.ec.gc.ca/paom- itmb/default.asp?lang=En&n=4F39A78F-1*) for more information concerning the breeding times of migratory birds. This project area falls within zone "D5".

Environment Canada provides the following recommendations:

1. to avoid the risk of nest destruction, the proponent should avoid vegetation clearing during the most critical period of the migratory bird breeding season, which is April 25th through August 15th in this region.

2. to develop and implement a management plan that includes appropriate preventive measures to minimize the risk of impacts on migratory birds (See "Planning ahead to reduce risks to migratory bird nests", PDF: *http://www.ec.gc.ca/Publications/default.asp?lang=En&xml=50C4FE11-801E-4FE3-8019-B2D8537D76CF*).

It is the responsibility of the individual or company undertaking the activities to determine these measures. For guidance on how to avoid the incidental take of migratory birds nests and eggs, please refer to the Avoidance Guidelines (Website: *http://www.ec.gc.ca/paom-itmb/default.asp?lang=En&n=AB36A082-1*). The management plan should include processes to follow should an active nest be found at any time of the year.

IOC Response:

IOC appreciates this overview of the various provisions and requirements of the *Migratory Birds Convention Act* (MBCA), *Migratory Birds Regulations* (MBR), associated federal government guidance documents, as well as this summary of the breeding activities and habitat uses and preferences of such species, including that the typical breeding season is from April 25 through August 15 in this region. The Proponent is fully aware of its various responsibilities and obligations in that regard, and has conducted analysis (as reflected in the EIS) and identified and committed to mitigation measures to ensure compliance with same.

IOC's position and plans with regard to the conduct of clearing activity within the breeding season (April to August) have been described in previous responses to EC IRs (see EC-01, above), including its planned pre-construction avifauna surveys and mitigation measures to avoid effects on migratory birds.

As requested by the reviewer, IOC also commits to the development and submission of an *Avifauna Management Plan* for the Wabush 3 Project to address any potential effects on migratory birds and their nests, eggs and habitats (incidental take), and which is consistent with the *MBCA*, *MBR* and associated guidelines. This Plan will be developed in consultation with, and submitted to, the Canadian Wildlife Service prior to the start of construction, and will incorporate the various issues and measures identified and finalized through the EA process. Although the specific structure and content of the Avifauna Management Plan will be developed and evolve as the EA, Project planning and associated regulatory discussions move forward, it will include the following general contents:

WABUSH 3 PROJECT: AVIFAUNA MANAGEMENT PLAN

1.0 INTRODUCTION
- 1.1 Project Overview and Location
- 1.2 Key Components and Activities
- 1.3 Construction and Operations Schedule
- 1.4 Regulatory Context and Key Requirements
  - 1.4.1 *Migratory Birds Convention Act* (MBCA) and *Migratory Bird Regulations* (MBRs)
  - 1.4.2 Canadian *Species at Risk Act* (SARA)
  - 1.4.3 Newfoundland and Labrador *Endangered Species Act* (NLESA)

2.0 AVIFAUNA SPECIES AND THEIR PRESENCE, DISTRIBUTION AND TIMING
- 2.1 Key Avifauna Species
- 2.2 Activities and Habitat Preferences
- 2.3 Known and Potential Habitat in the Project Area
- 2.4 Habitat Preferences and Associations by Species

3.0 PLANNING AND MITIGATION MEASURES
- 3.1 Project Planning and Avoidance of Interactions
- 3.2 Mitigation Measures During Construction and Operations
- 3.3 Planned Avifauna Surveys (Purpose, Methods, Reporting, Use)

4.0 SUMMARY AND CONCLUSIONS

As also committed to in the EIS, an EPP outlining relevant mitigation measures (including with regard to birds and other wildlife) will be developed and implemented for Project commencement.

2.11.4 Information Request CA-EC-04

Potential Project-VEC Interactions: Birds, Other Wildlife and Their Habitats

We recommend adding checkmarks to the "Change in Habitat Availability and Function", and the "Change in Mortality Risk and Animal Health" boxes for the "Groundwater Extraction" activity. If groundwater extraction reduces the size of or eliminates wetlands during the migratory bird breeding season (see EC-03), the loss of these wetlands may have negative impacts on wetland-dependent migratory birds.

IOC Response:

IOC agrees that this represents a potential (albeit indirect) interaction between the Project and avifauna, particularly as the wetlands immediately within the PDA will be removed as part of Project construction. The relevant row of Table 15.2 in the EIS is therefore revised as follows:

Groundwater extraction	•	•	•

IOC also notes that this issue and potential interaction has been referenced and included in the later environmental effects assessment for the Project's operations phases for this VEC (Section 15.4.3), which states for example that:

> Operational activities will include extraction of ore and waste rock from the open-pit using drill and blast methods, control of surface water and groundwater, transport of the ore by truck for primary crushing, road maintenance (snow-clearing and grading), and transport of waste rock to a designated storage area.

This issue has therefore already been integrally considered as part of the EIS effects analysis for this VEC, and so there is no change in the environmental effects predictions or in the required mitigation for this or any VEC as a result of this addition.

2.11.5 Information Request CA-EC-05

2012 Avifauna Surveys

It should be stated here why one night of surveys was conducted for Common Nighthawk. The lack of detection of Common Nighthawk reported in section 15.3.1.2 may be related to sampling effort.

IOC Response:

IOC and its environmental consultants determined that one night of survey efforts was likely sufficient since these birds can be detected from considerable distance and are highly detectable when present. Furthermore, common nighthawks are vocal early in the day and so – if present - would likely have been encountered during

morning surveys in 2012 and 2014 (Appendix 8). IOC's plans to conduct additional (pre-construction) survey work in the Project Area (should clearing activity be planned within the breeding season) is described in the EIS and summarized in previous responses above.

2.11.6 Information Request CA-EC-06

Change in Habitat Availability and Function

Quote: "Prior to the start of construction activity during the breeding season (May-August), nest surveys will be conducted in accordance with the Specific Considerations Related to Determining the Presence of Nests (Environment Canada 2014). Should a nest of a migratory bird be found, in accordance with the MBCA, all activities in the nesting area will be halted until nesting is completed (i.e., the young have left the vicinity of the nest). Cutting outside of the breeding season will not require a nest survey."

A commitment should be provided in this section to not clear vegetation during the migratory bird breeding season. See EC-03.

It should be noted that the document "Specific Considerations Related to Determining the Presence of Nests" (Environment Canada 2014) explains that the success rate for finding nests in forested habitat such as that found in the project site is exceedingly low, even for trained observers. (see "Specific Considerations Related to Determining the Presence of Nests", website: http://www.ec.gc.ca/paom-itmb/default.asp?lang=En&n=8D910CAC-1#_003)

IOC Response:

IOC's position and plans with regard to the possible conduct of clearing activity within the breeding season (April to August) has been described in previous responses to EC IRs (see above), including its planned survey and mitigation measures to avoid effects on migratory birds. As also noted in a previous response, IOC commits to the development and submission of an Avifauna Management Plan for the Wabush 3 Project to address issues with respect to potential effects on migratory birds and their nests, eggs and habitats (incidental take), and which is consistent with the *MBCA, MBR* and associated guidelines. This Plan – and associated mitigation measures and survey protocols - will be developed in consultation with, and submitted to, the Canadian Wildlife Service prior to the start of construction.

2.11.7 Information Request CA-EC-07

Change in Habitat Availability and Function

The nesting area should be defined, and it should be stated if a buffer will be erected around found nests. It should additionally be stated here that flagged buffers should not have flags directly on or near the found nest, as flags may attract predators.

IOC Response:

In the EIS, IOC has committed that prior to the start of relevant construction activities (such as any planned clearing) during the breeding season, site-specific (nest) surveys for migratory birds and raptors will be carried out, in accordance with relevant regulatory requirements and guidelines, and a clear buffer zone will be established and maintained around any active sites found. The Avifauna Management Plan for the Wabush 3 Project will further outline these associated mitigation measures and survey protocols, to be developed in consultation with the Canadian Wildlife Service prior to the start of construction. As suggested, any such buffers will not involve placing flags directly on or near the found nest in order to avoid attracting predators. All such mitigation measures will also be identified in, and implemented through, IOC's EPP(s) for Project construction and operations, as outlined in EIS Section 6.2.1 and elsewhere.

2.11.8 Information Request CA-EC-08

Change in Habitat Availability and Function

It should be noted that the general migratory bird breeding season as noted in EC-03 is not inclusive for all migratory birds. There are still some species that may breed outside of the migratory bird breeding season. Protocols should be in place for if migratory bird nests are found outside of the bulk of the migratory bird breeding season.

IOC Response:

IOC appreciates and acknowledges this information and clarification on the breeding times of avifauna species that may be found in the area, and recognizes that while the overall and most critical breeding period extends from approximately April 25 through to August 15, there are some species that are later nesters (eg. American goldfinch, purple finch, bank swallow, black-backed woodpecker, dark-eyed junco, pine siskin, boreal chickadee and common redpoll) and that flightless birds would be expected for these species into the late summer period. Furthermore, IOC recognizes that some species may lay a second clutch if their first is lost to predation etc.

As suggested, therefore, IOC and its contractors will maintain a continuous vigilance for breeding avifauna throughout the construction period, especially at any previously identified nest sites, and will implement mitigation and monitoring measures to address any such observations. These will be further defined in the Avifauna Management Plan referenced above, which will be developed in consultation with Environment Canada.

2.11.9 Information Request CA-EC-09

Change in Habitat Availability and Function

It should be explained here or in an accompanying avifauna management plan as to how it will be ascertained that nesting is completed.

IOC Response:

A number of factors and indicators can be used to confirm an active nest site including; 1) nest building, 2) distraction displays, 3) an adult attending a nest structure, 4) food delivery to a nest and/or young, or 5) the presence of recently fledged birds that are incapable of flight. The conclusion of breeding activity at a known nest site can be determined by visually examining the site to assess whether fledglings are now capable of flight and have extended their activity away from the nesting structure. This is typically determined following repeated site visits, at a distance that does not expose the birds to observer disturbance.

As also noted in a previous response, IOC commits to the development and submission of an Avifauna Management Plan for the Wabush 3 Project to address issues with respect to potential effects on migratory birds and their nests, eggs and habitats (incidental take), and which is consistent with the *MBCA, MBR* and associated guidelines. This Plan – and associated mitigation measures and survey procedures - will include protocols around the determination that nesting activity is complete, and will be developed in consultation with, and submitted to, the Canadian Wildlife Service prior to the start of construction.

2.11.10 Information Request CA-EC-10

Change in Habitat Availability and Function

Quote: “Maintaining natural buffers around wetlands and riparian areas where feasible”.

IOC Response:

Reviewer notes and commentary, no specific question or information request provided. See above response to the previous IR CA-EC-01.

2.11.11 Information Request CA-EC-11

Change in Habitat Availability and Function

Quote: “Rehabilitating disturbed areas where possible “

It is likely that Common Nighthawk will be in disturbed areas, depending on the nature of the disturbance. Surveys for Common Nighthawk should be undertaken prior to rehabilitation of areas, if rehabilitation is to take place during the migratory bird breeding season. If Common Nighthawk individuals, nests or eggs are found, rehabilitation should be halted until after the migratory bird breeding season (see EC-03). Protocols for

surveys should be described in an accompanying avifauna management plan, and should be reviewed by EC-CWS.

IOC Response:

IOC's various planned mitigation measures and avifauna surveys for the Project area are described in the EIS. If there has been any evidence of the eventual use of the (disturbed) Project area during the overall operations phase, then similar "pre-rehabilitation" surveys for this species will be undertaken at that distant point in the Project's lifespan. As noted above, IOC commits to the development and submission of an Avifauna Management Plan for the Wabush 3 Project, which will include mitigation measures and survey protocols for all phases of the Project, and which will be developed in consultation with, and submitted to, the Canadian Wildlife Service prior to the implementation of the Project.

2.11.12 Information Request CA-EC-12

Area and Proportion of Various Habitat Types within the Wabush 3 Project Development Area and Regional Study Area

Quote: "Exposed Earth/Anthropogenic"

It should be stated if Bank Swallow and/or Common Nighthawk surveys were undertaken in these areas. It is possible for these species to be found in this land type.

IOC Response:

It is considered very unlikely that Common Nighthawks occur in the area since this species was not detected during morning and evening surveys completed by IOC in 2012 and 2014. These point counts (and travel routes between point count locations) ensured extensive spatial coverage of the proposed Wabush 3 site. Though none of the point counts occurred exclusively in 'exposed or anthropogenic habitats,' most were within 200 m of these disturbed sites. Given that this species is relatively conspicuous, when present, it is unlikely that they occurred in the area. Similarly, bank swallows were also not detected during surveys in 2012 and 2014. It is possible that birds may have occurred in portions of the study area not covered by point count surveys, although appropriate nesting habitat (steep-faced sandy banks near wetlands) was not observed. It is acknowledged that bank swallows have been identified on embankments in other locations in the mine area. Accordingly, IOC will develop plans for Project specific mitigation and future avifauna investigation in the Project area as described in the EIS and referenced in previous responses.

2.11.13 Information Request CA-EC-13

Change in Mortality Risk and Animal Health

Quote: "Many of these species (particularly avifauna) are highly mobile, however, and any individuals within the Project's zone of influence are likely to move out of the area if they are disturbed by the Project – and thus, will not be adversely affected by it."

While adult birds may be able to move out of the project area, young birds and eggs are not mobile. See EC-03.

IOC Response:

IOC appreciates this information and acknowledges that avifauna at some (particularly early) life stages may not be mobile and therefore unable to avoid Project related disturbances and interactions. IOC's planned pre-construction nest surveys during the breeding season, as committed to in the EIS and referenced above, are a key and fundamental proposed mitigation in that regard. These potential issues, and associated mitigation commitments, have been included in the environmental effects assessments provided in the EIS. IOC's previously described commitment to establish protective buffers around active nests will help ensure that birds in early life are able to develop and eventually disperse from the disturbed area.

2.11.14 Information Request CA-EC-14

Change in Mortality Risk and Animal Health

Quote: "Minimizing the Project footprint by confining vegetation clearing and other forms of ground disturbance to the extent possible, with clear delimitation of clearing limits and work areas in the field;" See EC-03

IOC Response:

Reviewer notes and commentary, no new or specific question or information request provided. See above response to the referenced, previous IR.

2.11.15 Information Request CA-EC-15

Section Change in Mortality Risk and Animal Health

Quote: "Conducting nest searches in advance of site clearing during the breeding season (1 May to 15 August) and avoiding active nests during that time;"

Further detail should be added to this section, including specific protocols. See EC-03.

IOC Response:

As noted, IOC has made a specific commitment to designing and implementing pre-construction avifauna surveys in advance of any planned site clearing during the breeding season, and to avoiding any identified active nest sites during that time. It has done so with a level of information and specificity that is appropriate to the EA stage of Project planning, and which is in keeping with that for other projects and their EA reviews.

In making this commitment in the EIS, IOC has also stated that "[t]hese survey and management measures will be developed by IOC upon completion of (and incorporating the findings of) the EA, in consultation with relevant federal and provincial regulatory authorities" as so it would be inappropriate and premature to unilaterally design the surveys and present such a level of detail in the EIS itself. Again, however, the

Proponent has committed to do so in full cooperation with Environment Canada, through the development and implementation of the Avifauna Management Plan referenced and committed to previously.

2.11.16 Information Request CA-EC-16

Change in Mortality Risk and Animal Health

Quote: "Avoiding or minimizing the use of artificial lighting;"

In Atlantic Canada, nocturnal migrants are the migratory birds most at risk of attraction to lights. Attraction to lights at night or in poor visibility conditions during the day may result in collision with lit structures or their support structures, or with other migratory birds. Disoriented migratory birds are prone to circling light sources and may deplete their energy reserves and either die of exhaustion or be forced to land where they are at risk of depredation.

To minimize risk of incidental take of migratory birds due to human-induced light, Environment Canada recommends at minimum the following Beneficial management practices:

- The minimum amount of pilot warning and obstruction avoidance lighting should be used on tall structures.
- The use of only strobe lights at night, at the minimum intensity and minimum number of flashes per minute (longest duration between flashes) allowable by Transport Canada, is recommended.
- Using the minimum number of lights possible is recommended.
- The use of solid-burning or slow pulsing warning lights at night should be avoided.
- Lights should completely turn off between flashes.
- Lighting for the safety of the employees should be shielded to shine down and only to where it is needed, without compromising safety.

IOC Response:

The potential for Project-related artificial lighting to interact with, and represent a potential source of disturbance for, avifauna and other wildlife has been referenced in the EIS and included throughout the effects assessments and mitigation proposals made by IOC. The latter include, for example, a commitment to "avoiding or minimizing the use of artificial lighting" to reduce the potential for adverse effects on wildlife (see EIS Section 15.4.4.2, and elsewhere). Chapter 2 (Project Description) also states that "Consistent with IOC's existing Labrador City Operations, there will be no haulage road lighting" and Chapter 10 notes that "Lighting for the mines operations are restricted to the lights on the active mining equipment, and no additional, artificial on-site lighting is planned as part of Wabush 3 operations". While there are no plans for additional on-site lighting, it is possible that artificial lighting could be required in areas where the lights on equipment do not adequately light the work area. The various lighting related mitigation suggestions provided by the reviewer are acknowledged and appreciated, and will be implemented by IOC wherever relevant and possible with due regard for safety.

2.11.17 Information Request CA-EC-17

Disruption of Animal Behaviour

Quote: "Elevated levels of artificial lighting may also influence the behavioural patterns of wildlife species; particularly for those that are most active during nocturnal and crepuscular time periods that require darkness for concealment from predators (Rich and Longcore 2006). Artificial lighting is also known to influence local migratory patterns of birds that migrate at night (Gauthreaux and Belser 2006) and is a major source of avian mortality through collisions with illuminated structures (Gehring et al 2009)." See EC-16.

IOC Response:

Reviewer notes and commentary, no new or specific question or information request provided. See above response to the referenced, previous IR.

2.11.18 Information Request CA-EC-18

Change in Mortality Risk and Animal Health

Quote: "Artificial lighting may also pose a hazard to nocturnal animals by reducing their concealment and increasing their vulnerability to predators during night time foraging."
See EC-16

IOC Response:

Reviewer notes and commentary, no new or specific question or information request provided. See above response to the referenced, previous IR.

2.11.19 Information Request CA-EC-19

Closure and Decommissioning

We recommend that a variety of species of plants native to the general area be used in revegetation efforts. Plants used in revegetation efforts should not be invasive if seed mixes for herbaceous native species are not available. See also EC-02

IOC Response:

In its eventual site rehabilitation activities, IOC will use native species wherever possible and will ensure that any commercial seed mix that is not native to Labrador will not contain invasive species.

2.11.20 Information Request CA-EC-20

Accidental Events and Malfunctions

The proponent must ensure that all precautions are taken by the contractors to prevent fuel leaks from equipment, and that a contingency plan in case of oil spills is prepared. Furthermore, the proponent should ensure that contractors are aware that under the *Migratory Birds Regulations*, "no person shall deposit or permit to be deposited oil, oil wastes or any other substance harmful to migratory birds in any waters or any area frequented by migratory birds." Biodegradable alternatives to petroleum-based chainsaw bar oil and hydraulic fluid for heavy machinery are commonly available from major manufacturers. Such biodegradable fluids should be considered for use in place of petroleum products whenever possible, as a standard for best practices. Fuelling and servicing of equipment should not take place within 30 meters of environmentally sensitive areas, including shorelines and wetlands.

IOC Response:

These and other spill prevention and contingency / response procedures are implemented by IOC for its existing and on-going Labrador City Operations, and will be similarly applied for the various phases of the Wabush 3 Project through an Environmental Protection Plan and other policies and procedures (EIS Chapter 6).

As also noted in the EIS (Section 2.5.6.4 - Fuel Supply) there will not be any new fuel supply or distribution systems located at the Wabush 3 site, with all diesel powered trucks being fueled at existing, centralized IOC facilities.

2.11.21 Information Request CA-EC-21

Summary and Evaluation of Project Residual Environmental Effects – Construction

Quote: "The construction phase of the Project is therefore not likely to result in any significant, adverse environmental effects on birds, other wildlife or their habitats."

The conclusion of "not likely to result in any significant adverse environmental effects on migratory birds" as stated in the Environmental Impact Statement was obtained prior to the consideration of recommended mitigation actions as given in this document. We recommend that the conclusion be reassessed after commitments to the recommended mitigation actions are confirmed.

IOC Response:

Notwithstanding the additional discussion of potential issues, effects and proposed mitigations that has been provided in this EIS Amendment, no new or increased effects have been identified which require different or additional mitigation. There is therefore is no change in the environmental effects predictions found in the EIS or in the required or proposed mitigation for this or any VEC.

It therefore remains that the Project is not likely to result in significant, adverse environmental effects on this or any VEC, and in any event, it is not clear how any potential addition of further mitigation could result in new or increased effects and thus a need to reassess or change the overall conclusions of the EIS in that regard.

2.11.22 Information Request CA-EC-22

Environmental Effects Assessment Summary: Birds, Other Wildlife and Their Habitats

This table should be updated to reflect any changes in the Environmental Impact Statement made with respect to these comments.

IOC Response:

Please see the previous response (CA-EC-21) which pertains directly to this item as well. No changes to the overall findings or conclusions of the EIS are required.

2.11.23 Information Request CA-EC-23

Cumulative Environmental Effects

It should be noted here that any recent clearing operations for other projects in the area (such as Alderon's Kami Iron Ore project) will reduce overall regional habitat availability, which may increase short-term local density of breeding migratory birds in the project area when spring-migrating birds return for nesting. Increased density of nests and eggs may further increase the chance of the destruction of birds and eggs should clearing be undertaken in the area during the migratory bird breeding season (see EC-03).

IOC Response:

The proposed Kami Iron Ore Project and other projects and activities in the region and their potential effects on wildlife and their habitats were directly, explicitly and integrally considered in the cumulative effects assessment presented in the EIS. Section 15.6, for example, states that:

> The proposed Kami Iron Ore Project is located to the south of the Wabush 3 PDA / LSA. Although both projects will contribute collectively to overall habitat alteration within the RSA, given the distance between them the potential for these two projects and their environmental effects to directly overlap in space and time is very low, given that individual birds and mammals are unlikely to utilize both of these areas. This is also the case for other existing and proposed development projects within the larger RSA (Table 15.8).

2.11.24 Information Request CA-EC-24

Environmental Monitoring and Follow up

We recommend that a follow-up monitoring program should be undertaken for Common Nighthawk. The proponent is recommended to consult s.79(2) of the *Species at Risk Act* regarding monitoring obligations for species at risk.

IOC Response:

Although the environmental baseline studies for avifauna that were completed by IOC in support of the EIS did not observe any presence of this species in or near the Project area, the species will clearly be considered (and recorded, if found) in any and all further avifauna surveys completed by IOC during the implementation phases of the Project as described in the EIS and above. These future studies will be designed and implemented as part of the Avifauna Management Plan referenced above, in full consultation with the Canadian Wildlife Service and in compliance with the applicable requirements of the *SARA*. Please see Appendix 8 for the results of IOC's 2014 avifauna baseline survey.

2.11.25 Information Request CA-EC-25

Ecology, Sensitivities and management of SAR that could Potentially Inhabit the RSA

Likelihood of Occurrence for Common Nighthawk should be rated as higher than "low"; recommend increasing to "low-moderate". A Common Nighthawk nest with eggs was found during the summer of 2013 in the local area. It is thus possible that Common Nighthawk could nest in the project area and were not detected due to sampling effort (see also EC-05).

IOC Response:

The recent observation of a common nighthawk next in Labrador West occurred in the summer of 2014 (not 2013), after the completion of this component of the Wabush 3 EIS. The Proponent is aware of this sighting, however, and will certainly be mindful of this as it proceeds with Project planning and (if approved) implementation, including its associated mitigation and surveys for avifauna.

The probability of a nesting site for this species being found with the Wabush 3 PDA itself remains very low (see comments in EC-12), but this can be modified to "low-moderate" in the Table as requested, with no associated change in the environmental effects predictions or required mitigation as presented in the EIS.

2.11.26 Information Request CA-EC-26

Change in Mortality Risk and Health

Mitigation measures were identified in this section that include: "Avoidance or minimization of vegetation removal activities during the breeding bird season (typically May 1 – August 15)".

We recommend that "or minimization" be removed from this section, to demonstrate a commitment to avoid vegetation clearing during the migratory bird breeding season. These mitigations measures should also be repeated in other relevant sections of the Environmental Impact Statement (see EC-03 and others).

IOC Response:

IOC's position and plans with regard to the potential conduct of clearing activity within the breeding season (April to August) has been described in previous responses to EC IRs (see above), including its planned pre-construction bird surveys and mitigation measures to avoid effects on migratory birds. As also noted in a previous response, IOC commits to the development and submission of an Avifauna Management Plan for the Wabush 3 Project, which will be developed in consultation with, and submitted to, the Canadian Wildlife Service prior to the start of construction.

2.11.27 Information Request CA-EC-27

Change in Mortality Risk and Health See EC-16.

IOC Response:

Reviewer notes and commentary, no new or specific question or information request provided. See above response to the referenced, previous IR.

2.11.28 Information Request CA-EC-28

Summary and Evaluation of Project Residual Environmental Effects – Construction See EC-21.

IOC Response:

Reviewer notes and commentary, no new or specific question or information request provided. See above response to the referenced, previous IR.

2.11.29 Information Request CA-EC-29

Environmental Effects Assessment Summary: Species at Risk and Species of Conservation Concern

The mitigation measures as mentioned in 16.4.2.2 should be described here.

IOC Response:

The mitigation overviews and summary provided in these Tables at the end of each VEC Chapter are just that, and are not intended to repeat the specific details of every mitigation measure identified in the EIS text. These are, however, all equally committed to by IOC, and will be implemented as noted.

2.11.30 Information Request CA-EC-30

Cumulative Environmental Effects. See EC-23.

IOC Response:

Reviewer notes and commentary, no new or specific question or information request provided. See above response to the referenced, previous IR.

2.11.31 Information Request CA-EC-31

Environmental Monitoring and Follow Up

Follow-up monitoring for species at risk should be undertaken to ensure that predictions (i.e. no significant adverse effects) are validated. See also EC-24 and EC-25.

IOC Response:

IOC's plans for further (post-EA, pre-construction) avifauna surveys are as described in the EIS and above. These future studies will be designed and implemented as part of the Avifauna Management Plan referenced above, in full consultation with the Canadian Wildlife Service and in compliance with the applicable requirements of the *SARA*.

2.11.32 Information Request CA-EC-32

Environmental Effects Assessment Summary

Quote: "The Project is not likely to cause a contravention of the relevant provisions of the NL ESA and/or SARA for any SAR, nor will it otherwise cause the direct mortality of individuals and/or the loss or alteration of important habitats (quantity or quality) such that number, distribution, health, ecological function and/or sustainability of a SCC population would be detectably and adversely affected, and thus, the likelihood of its long-term presence, viability or survival in the RSA is reduced."

The destruction of an individual egg and nests of migratory birds that are also species at risk (e.g. Common Nighthawk, Olive sided Flycatcher, etc.) is a contravention of both the *Migratory Birds Convention Act* and the *Species at Risk Act*.

IOC Response:

This is recognized and understood by IOC.

2.12 Fisheries and Oceans Canada

2.12.1 Information Request CA-DFO-01

There is no federal EA associated with this project. Feel that the EIS is a good document. No comment at this time.

It should be noted that for the DFO regulatory process further clarification and documentation was requested from the proponent. DFO has and will continue to engage the proponent to provide this information.

IOC Response:

IOC acknowledges and appreciates DFO's comments regarding the content and quality of the EIS, and recognizes the various "post-EA" regulatory requirements for the Project and associated information needs.

The information provided here will be used and considered by IOC in its eventual environmental permitting activities for the Project.

2.13 Health Canada

2.13.1 Information Request CA-HC-01

Section 10.1 of the EIS indicates that particulate matter (TSP, PM_{10} and $PM_{2.5}$); nitrogen dioxide (NO_2); sulphur dioxide (SO_2), and carbon monoxide (CO) were selected as air quality effects assessment indicators. Section 10.3.3 of the EIS indicates that baseline data included the same parameters (TSP, PM_{10}, $PM_{2.5}$, NO_2, SO_2, and CO). There is no discussion about collecting baseline samples or future sampling for other substances that may be emitted as part of project activities, including metals in dusts, and polycyclic aromatic hydrocarbons (PAHs) and volatile organic compounds (VOCs) from heavy equipment use and burning of fossil fuels. Several key metals, benzene and benzo(a)pyrene were evaluated in the HHRA using predicted baseline and predicted future concentrations (based on a ratio using NOx emissions for benzene and benzo(a)pyrene and the relative contribution in dust to PM_{10} or $PM_{2.5}$ for metals). None of these contaminants were modelled as part of the CALPUFF air modelling conducted by RWDI (2014) (Appendix 6). In addition, there has been no commitment to monitor baseline metals, PAHs and/or VOCs or monitor future concentrations of these substances during project operations.

Health Canada advises conducting actual air monitoring of baseline metals concentrations in dusts, PAHs and VOCs, particularly given the proximity of this proposed Project to other operating mines. In addition, given the public concern about future dust emissions, it would be beneficial to characterize current conditions in order to evaluate future Project-related changes. These baseline contaminant concentrations could be compared to applicable regulatory criteria, including the Newfoundland and Labrador *Air Pollution Control Regulations* and/or the Ontario Ambient Air Quality Criteria.

Health Canada also suggests monitoring metals, PAHs and VOCs in dusts during Project operations, particularly in the event of public complaints. This monitoring could be used to validate the predicted concentrations used in the HHRA and to alleviate public concern about air quality, soil quality, and the possible contamination of country foods. If elevated metals, PAHs and/or VOCs are identified, additional mitigation may be appropriate, including adaptive management, as necessary.

IOC Response:

IOC currently monitors particulate matter and SO_2 at various locations within the Town of Labrador City, and is committed to establishing an air quality monitoring station in the Smokey / Menihek recreational area for TSP, $PM_{2.5}$, NO_X and SO_X. IOC also monitors silica at one location within the Town.

Section 4.4.1.3 of Appendix 25 of the EIS (Wabush 3 HHRA) discusses the assessment of metals, PAHs and VOCs. Several key metal species were assessed. B(a)P and Benzene were used as markers for PAH and VOC, respectively. Table 4.8 shows that predicted annual B(a)P and benzene concentrations are several orders of magnitude lower than the applicable reference values at all receptors, including those in the recreation area. The very low magnitude of these predicted concentrations suggests that monitoring of these species is unwarranted.

The same can be said of the metals species, with two exceptions: manganese and silica, for which exceedance of the applicable reference values for annual average concentration is predicted within the Nordic/alpine

skiing recreational area. It is to be noted, however, that the concern for these two species is long-term exposure and the recreational uses within that area are such that any person is unlikely to be present there for sufficiently long periods of time to receive such an exposure. We conclude that monitoring of these species in the recreational area is unwarranted. IOC intends to continue with its monitoring of silica at locations in the Town of Labrador City where the potential for long-term exposure is greatest.

2.13.2 Information Request CA-HC-02

The EIS indicates that the following sources of particulate matter were included in the emissions inventory and in the prediction of off-site effects by dispersion modelling:

- Material handling in the open pit by shovel and front-end loader;
- Material crushing (ore crushing and aggregate crushing for road maintenance);
- Road dust emissions (re-entrained dust);
- Fugitive dusts from bulldozing and grading; and
- Tailpipe emissions from mining equipment and haul trucks.

According to Appendix 6, in addition to those sources identified in the EIS, the Air Quality Assessment (RWDI, 2014) also evaluated the following:

- Wind erosion of tailings; and
- Baghouse.

An additional source, the overburden storage area, may also generate dust. It does not appear that the overburden storage area was evaluated in the Air Quality Assessment.

Please provide a discussion about the potential for dust generation from the overburden storage area. If dust is expected to be generated, Health Canada advises that it be considered in the air dispersion modelling as an additional emission source.

IOC Response:

The proposed Project includes a storage area for overburden, which will be located at the south end of the Wabush 3 site. Activities and corresponding dust emissions associated with overburden removal were not included in the dispersion modelling because they will not be occurring during the worst-case operational scenario.

The overburden storage area is located farther from the trails within the Smokey Mountain/Menikek recreational area than the Wabush 3 pit. As indicated in Section 2.2.3 of the EIS, the Wabush 3 Project will be developed in sub-phases, each including a mix of site development, mining operations and progressive decommissioning. Overburden removal falls within the site development part of each sub-phase. During later sub-phases, overburden removal could occur while mining and waste rock activity is still occurring within a preceding sub-phase. The overburden removal would then be occurring closer to the Nordic/alpine skiing recreational area than the mining/waste rock activities, which would be occurring at lower levels within the preceding sub-phase. Therefore, this is not considered to be the worst-case scenario.

A worse-case scenario is considered to be the period when mining and waste rock removal is occurring at high elevation in the phase of the pit that is closest to the recreational area. There would be no overburden operations occurring at that time but the mining and waste rock operations, which involved drier materials and higher material handling rates, would be in their worst-case locations relative to the recreation area. This is the scenario that was adopted for modeling.

The overburden is not considered to be a significant source of dust emissions for the following reasons:

- overburden is higher in moisture content than the ore or waste rock;
- material handling rates are lower (e.g., approximately 3 Mtpa for overburden versus 8 Mtpa for waste rock);
- Wabush 3 Project will implement existing IOC dust management practices to minimize fugitive dust emissions;
- a vegetative cover is likely to grow naturally on the overburden due to its organic and soil content; and
- the overburden will be used in other areas during the LOM in progressive rehabilitation projects on waste rock piles throughout the mining area.

2.13.3 Information Request CA-HC-03

The HHRA indicates that sulphur phosphorus, calcium, sodium, potassium and magnesium were not carried forward because they are considered essential nutrients (via ingestion), however, given that they may be in dusts and inhaled, it is unclear whether there may be adverse effects via the inhalation pathway.

Please provide a discussion about the toxicity of these substances via the inhalation pathway.

IOC Response:

These compounds are not volatile and are not expected to be released into the air; however, as indicated in the IR, they may occur in mining dusts. There are no inhalation toxicity reference values (TRVs) established by regulatory agencies available for these compounds; hence, an assessment of inhalation risks cannot be completed.

The HHRA evaluated fine particulate matter. While sulphur, phosphorus, calcium, sodium, potassium and / or magnesium on mining dusts were not explicitly assessed for the reason noted above, they are expected to be far less toxic as they are essential nutrients. The fine particulate guideline is based on epidemiological data for a typical air shed which is based on more toxic compounds such as those associated with fuel combustion.

The US Department of Labour Occupational Safety and Health Administration (OSHA) has established a permissible exposure limit (PEL) of 10 mg/m^3 for occupational exposures to total dusts (particulates not otherwise regulated – e.g., calcium carbonate, magnesium carbonate). While this PEL is not applicable for evaluating residential / recreational exposures, it is 200-fold higher than the fine particulate guideline used in the HHRA (i.e., PM10 24-hour limit of 0.05 mg/m^3).

2.13.4 Information Request CA-HC-04

Benzene was the only volatile organic compound (VOC) that was carried forward in the assessment. Benzo(a)pyrene was the only polycyclic aromatic hydrocarbon (PAH) that was carried forward in the assessment. It appears that benzene and benzo(a)pyrene were only evaluated as carcinogens (using a lifetime composite receptor). They were not evaluated for noncarcinogenic effects nor were any other non-carcinogenic VOCs or PAHs evaluated (using the toddler receptor).

Section 4.4.1.3 states that "given the magnitude of predicted releases and the relative toxicity of benzo(a)pyrene, and benzene within the PAHs and VOCs groups, respectively, other potential emissions are not expected to present an increased health risk." Since carcinogenic and non-carcinogenic substances have different toxic endpoints, it is unclear how this statement could be made without evaluating the non-carcinogenic health risks associated with non-carcinogenic PAHs and VOCs.

Please explain why non-carcinogenic VOCs and PAHs were not evaluated in the HHRA. It is important to also explain how this lack of evaluation may or may not underestimate potential health risks.

IOC Response:

HHRA focuses on the chemicals of greatest toxicological concern and the most sensitive toxicological endpoint. In general, carcinogenicity is the most sensitive endpoint for human receptors. In the case of the current HHRA, benzene and benzo(a)pyrene were selected to represent the carcinogenic VOC and PAH compounds, respectively. Health Canada (2012) only provides carcinogenic TRVs for these compounds and as such only the carcinogenic endpoint was considered. Commonly, the evaluation of air concentration within HHRAs is conducted via a comparison of predicted air concentrations with inhalation exposure limits (TRVs) expressed on a concentration ($\mu g/m^3$) basis. For non-carcinogens, these are typically referred to as a Reference Concentration (RfC) and for carcinogens these are referred to as a Risk Specific Concentration (RSC). RSCs and RfCs are developed to be protective of all age groups; hence, evaluation in this manner inherently accounts for both toddler and adult receptors. Regardless, as can be observed in the following Table [based on Health Canada (2010), a toddler's inhalation rate (when expressed on a body weight basis] is only 2-fold greater than an adult. At worst, inhalation risk estimates for toddlers would be underestimated by 2-fold as compared to adults.

	Toddler	**Adult**
Body Weight (kg)	16.5	70.7
Inhalation Rate (m^3/day)	8.3	16.6
Inhalation Rate /Body Weight Ratio	0.5	0.23

Given the large margin of safety observed in the HHRA (e.g., Baseline + Future Build Hazard Quotient (HQ) for the toddler at the location of highest dust deposition evaluated at 55.2 g/m^2/year) was 1.5E-07 (See Table 4-21 in the HHRA Report, page 65 – Appendix 25 of the EIS), further consideration of the VOC or PAH compounds was not deemed necessary as the evaluation of the carcinogenic endpoints only was felt to be sufficiently conservative for the purposes of the HHRA. To provide context, the following table provides an indication of the margin of safety in the HHRA by comparing benzene and benzo(a)pyrene to other selected non-carcinogenic VOCs and PAHs. Health Canada (2012) non-carcinogenic TRVs were selected where available; US

EPA IRIS values were utilized where Health Canada (2012) does not provide a value (naphthalene). Maximum air concentrations, provided in Table 4.8, were utilized for this comparison.

	Carcinogenic TRV (RSC) (@10^{-5} risk level) (µg/m^3) [1,2]	**Non-carcinogenic TRV (RfC) [1] (µg/m^3)**	**Maximum VOC concentration (µg/m^3)**	**Maximum PAH concentration (µg/m^3) [3]**	**Margin of Safety (TRV/Maximum Concentration)**
VOCs					
Benzene	3		0.0049		600-fold
Ethyl benzene		1,000	0.0049		200,000-fold
Toluene		3,750	0.0049		765,000-fold
Xylene		180	0.0049		37,000-fold
PAHs					
B(a)P	0.32			0.0000014	230,000-fold
Naphthalene		3 [4]		0.0000014	2,000,000-fold

1. TRVs from Health Canada (2010) unless otherwise indicated.
2. Health Canada (2010) Inhalation UR (unit risk) factor for benzene of $3.3x10^{-3}$ $(mg/m^3)^{-1}$ and for benzo(a)pyrene of 0.031 $(mg/m^3)^{-1}$ converted to RSCs by dividing $1x10^{-5}$ (for 1 in 100,000 risk level) by Health Canada inhalation UR.
3. From Table 4-8 of HHRA. Maximum of the annual average predicted at the receptor locations evaluated; maximum annual average concentration occurred at the downhill trails.
4. US EPA, 1998. http://cfpub.epa.gov/ncea/iris/index.cfm?fuseaction=iris.showQuickView&substance_nmbr=0436#refinhal

As indicated, the margin of safety for other VOCs is greater than that for benzene by a factor of 60 to >1,000 times. The margin of safety for naphthalene is an order of magnitude greater than that for benzo(a)pyrene.

Similarly non-inhalation pathways risks expressed in Tables 4.15 and 4.21 of the HHRA can be re-evaluated for the non-carcinogenic PAHs as indicated in the following Table (VOCs were not considered for the non-inhalation pathways due to the volatile nature of these compounds).

	Maximum exposure estimate for toddlers (µg/kg/day)	**ILCR**	**HQ [2]**
B(a)P	**$1.14E^{-10}$**	**$1.5E^{-7}$**	
Naphthalene[1]	$1.14E^{-10}$		$5.7E^{-12}$

Notes:
ILCR = incremental lifetime cancer risk level (as presented in Table 4-21 of the HHRA); HQ = hazard quotient
1. Oral RFD of 20 µg/kg/d from Health Canada (2012)
2. HQ calculated by dividing the maximum toddler exposure by the oral RfD of 20 µg/kg/day

.

As can be seen from the above table, consideration of toddlers, using naphthalene as a representative non-carcinogenic PAH, indicates a considerable margin of safety in the HHRA.

2.13.5 Information Request CA-HC-05

The final bullet in Section 3.2.2 states that "both PHCs and metals related to vehicle exhaust emissions were considered to [be] insignificant compared with the metals on mine dusts (which are already being considered)" It is unclear how PHCs were considered to be insignificant compared to metals on mine dusts since PHCs are not a component of mine dust.

Please provide additional explanation as to why PHCs related to vehicle exhaust were considered to be insignificant.

IOC Response:

Text is provided on page 12 of the HHRA Report (Appendix 25 of the EIS), related to identification of Chemicals of Potential Concern (COPCs) in soils, associated with mining activities. This text states:

> "Other potential future soil COPCs as a result of mining activities will include those chemicals released by the mine fleet via fuel combustion that, although only emitted into air, could be expected to deposit nearby and possibly persist or accumulate in the environment in sufficient quantities for people to be exposed via soil, food and water pathways. To identify these substances, the follow was considered:
>
> - Gaseous chemicals (e.g., CO, NO_2, SO_2, volatile organic compounds (VOCs) such as benzene), which are unlikely to contribute to human exposure via secondary pathways as they will remain airborne for extended periods and over extended distances. In addition, the health effects of these gaseous chemicals are strictly related to inhalation (i.e., these act at the point of contact). Accordingly, the gaseous chemicals were removed from further consideration in the multiple pathway assessment and only evaluated in the inhalation assessment.
>
> - "Nongaseous chemicals associated with fuel combustion (e.g., metals, polycyclic aromatic hydrocarbons (PAHs), petroleum hydrocarbon (PHC) fractions), which may deposit in the vicinity of the mine as a result of fuel combustion and persist or accumulate in the environment in sufficient quantities for residents and recreational users of the area to be exposed via secondary pathways. The potential occurrence of these chemicals in the secondary pathways of exposure required further consideration. Given the nature of the emissions from the mine fleet, only PAHs were assessed for the secondary soil pathway, due to their long half life in soils. Benzo(a)pyrene was used to represent PAH emissions from mine fleet exhaust. Both PHCs and metals related to vehicle exhaust emissions were considered to insignificant compared with the metals on mine dusts (which are already being considered)."

Within the HHRA, two petroleum hydrocarbon compounds (i.e., benzene, and benzo(a)pyrene), were assessed. These compounds were used as surrogates to represent VOCs (benzene) and PAHs (benzo(a)pyrene), which are associated with PHCs. For VOCs, only the inhalation pathway was assessed, as secondary pathways are not relevant. For PAHs, both the inhalation pathway and secondary pathways were considered, since PAHs have the potential to accumulate in soils and dietary items.

The approaches taken to assess the inhalation exposures to PHCs involved predicted ground level air concentrations (GLACs) at the four receptor locations. For benzene, the annual average concentrations at four receptor locations were estimated by scaling from predicted annual average NO_2 concentrations, using a ratio of benzene / VOC emissions from the US EPA (2012) applied to the annual average NO_2 concentrations to predict annual average benzene concentrations (RWDI, pers comm) (page 25 of the HHRA). For B(a)P, the annual average concentrations at the four receptor locations were estimated by scaling from predicted annual average NO_2 concentrations, using data on PM, NO_x and B(a)P emissions for diesel vehicles from US EPA (2010a, 2012)(see Page 25 of the HHRA). The predicted GLACs for these two surrogates were between 900 and 340,000 times below the relevant air quality guidelines for these substances.

Since PAHs require assessment via secondary pathways, predicted incremental soil concentrations associated with B(a)P were calculated in the HHRA model, and were predicted to be approximately nine orders of magnitude below existing soil quality guidelines, and hence, were not considered to represent a health concern.

Therefore, PHCs were considered in the assessment and were not considered to represent a health concern.

2.13.6 Information Request CA-HC-06

The reference to Health Canada Part 1 is incorrect. Part one is the Preliminary Quantitative Risk Assessment (PQRA) Guidance Document, not the Detailed Quantitative Risk Assessment (DQRA).

Please ensure that the references presented are correct.

IOC Response:

Acknowledged. While the title of the Health Canada Part I document guidance was incorrect on page 16 Section 3.3 of the HHRA Report (Appendix 25 of the EIS), the correct title for the Health Canada Part 1 guidance was provided in the HHRA Report reference list (page 75).

The correct title is:

Health Canada. (2012a). Federal Contaminated Site Risk Assessment in Canada (FCSAP). Part I: Guidance on Human Health Preliminary Quantitative Risk Assessment (PQRA). Contaminated Sites Program. Version 2.0. September 2010, Revised in 2012.

2.13.7 Information Request CA-HC-07

With respect to country foods, baseline game bird, small mammal and fish concentrations were predicted using standardized approaches in the HHRA. Given that baseline tissue samples are being collected for this project, it is unclear how any actual results will be incorporated in to the HHRA.

Please provide a discussion about whether the measured baseline tissue data will be used to validate the modelled values used in the HHRA or whether the HHRA will be updated using the measured values where they differ from the modelled values.

IOC Response:

As part of the submission of the EIS for the Wabush 3 pit, IOC is required to establish baseline conditions in the area potentially affected by this development. Since the Wabush 3 area is currently used for hunting, fishing and harvesting activities, a baseline Country Foods Study was conducted to assess baseline concentrations of metals in berries, game birds, small mammals and fish. In the fall of 2013, blueberries, partridgeberries and squashberries were collected for analysis in the vicinity of the proposed Wabush 3 mine. In the fall of 2014, fish (i.e., brook trout) and small game (i.e., snowshoe hare and ruffed grouse) samples also were collected for analysis. Not all of the analytical results for the country food tissue samples had been received at the time the HHRA was completed. As such, modeled rather than measured country food tissue data were used in the HHRA to estimate baseline exposures in some cases.

The modeled tissue concentrations presented in the HHRA have now been validated using results of the baseline country food tissue sampling. The results have been incorporated in the final Baseline Country Foods Study in the Vicinity of the Wabush 3 Mine (and attached to this EIS Amendment Report as Appendix 9). The baseline country food tissue concentrations have been re-modeled using the new measured data rather than the modeled data used in the HHRA. Table 1 below presents a comparison of the baseline HQs (for the toddler and adult, respectively) using the modeled and measured data. The results of this comparison indicate that there is little difference between the HQs using measured or modeled country food data. While there were differences between measured and modeled data, the country food pathway was not generally a driver in the HQ values, and hence, HQs do not substantially change when measured data were used. The changes to the HQs would not change the conclusions of the HHRA.

Table 1 Comparison of Baseline Modeled to Baseline Measured HQs

	Toddler		Adult	
	Baseline Modelled	**Baseline Measured**	**Baseline Modelled**	**Baseline Measured**
Aluminum	0.54	0.55	0.083	0.090
Benzo(a)pyrene	0	0	0	0
Chromium	0.00022	0.00027	0.000032	0.000057
Iron	0.72	0.85	0.11	0.18
Manganese	0.19	0.12	0.069	0.035
Silica	NC	NC	NC	NC
Titanium	NC	NC	NC	NC
Notes: NC = not calculated				

In Tables 4.15 (page 56) and 4. 21 (page 65) of the HHRA Report (Appendix 25 of the EIS), HQs were presented for the toddler for the (i) Baseline and Incremental Project; and (ii) Baseline and Future Build scenarios. Tables 2 and 3 provide the recalculated toddler HQs for the (i) Baseline and Incremental Project; and (ii) Baseline and Future Build scenarios using the measured rather than modeled baseline data. Results are shown in Table 2 for the X-Country Trails and Table 3 for the predicted future site dust deposition of 55.2 g/m^2/year as these were the scenarios with the greatest exposures. As is shown in Tables 2 and 3, HQs were less than or equal to 1.0 for all chemicals and scenarios.

Table 2 Toddler Hazard Quotients (HQs) for Measured Baseline, Predicted Incremental Project and Predicted Future (Baseline + Project)

Predicted Future Site Dust Deposition (g/m^2/year)	Chemical	TRV	Toddler HQ		
			Baseline	Incremental Project	Baseline + Incremental Project
X-Country Trails	Aluminum	RfD	0.55	0.0067	0.56
	Benzo(a)pyrene	SF	0	3.41E-08	3.41E-08
	Chromium	RfD	0.00027	0.000012	0.00028
	Iron	RfD	0.85	0.043	0.89
	Manganese	RfD	0.12	0.0054	0.13
	Silica	NA	NC	NC	NC
	Titanium	NA	NC	NC	NC

Notes:
NA = Not available; NC = Not calculated; TRV = toxicity reference value; HQ = hazard quotient, RfD = reference dose; SF = slope factor
HQs are rounded to 2 significant figures

Table 3 Toddler Hazard Quotients (HQs) for Measured Baseline, Predicted Future Build and Predicted Future (Baseline + Future Build)

Predicted Future Site Dust Deposition (g/m^2/year)	Chemical	TRV	Toddler HQ		
			Baseline	Future Build	Baseline + Future Build
55.2	Aluminum	RfD	0.55	0.029	0.58
55.2	Benzo(a)pyrene	SF	0	1.5E-07	1.5E-07
55.2	Chromium	RfD	0.00027	0.000052	0.00032
55.2	Iron	RfD	0.85	0.19	1.0
55.2	Manganese	RfD	0.12	0.024	0.14
55.2	Silica	NA	NC	NC	NC
55.2	Titanium	NA	NC	NC	NC

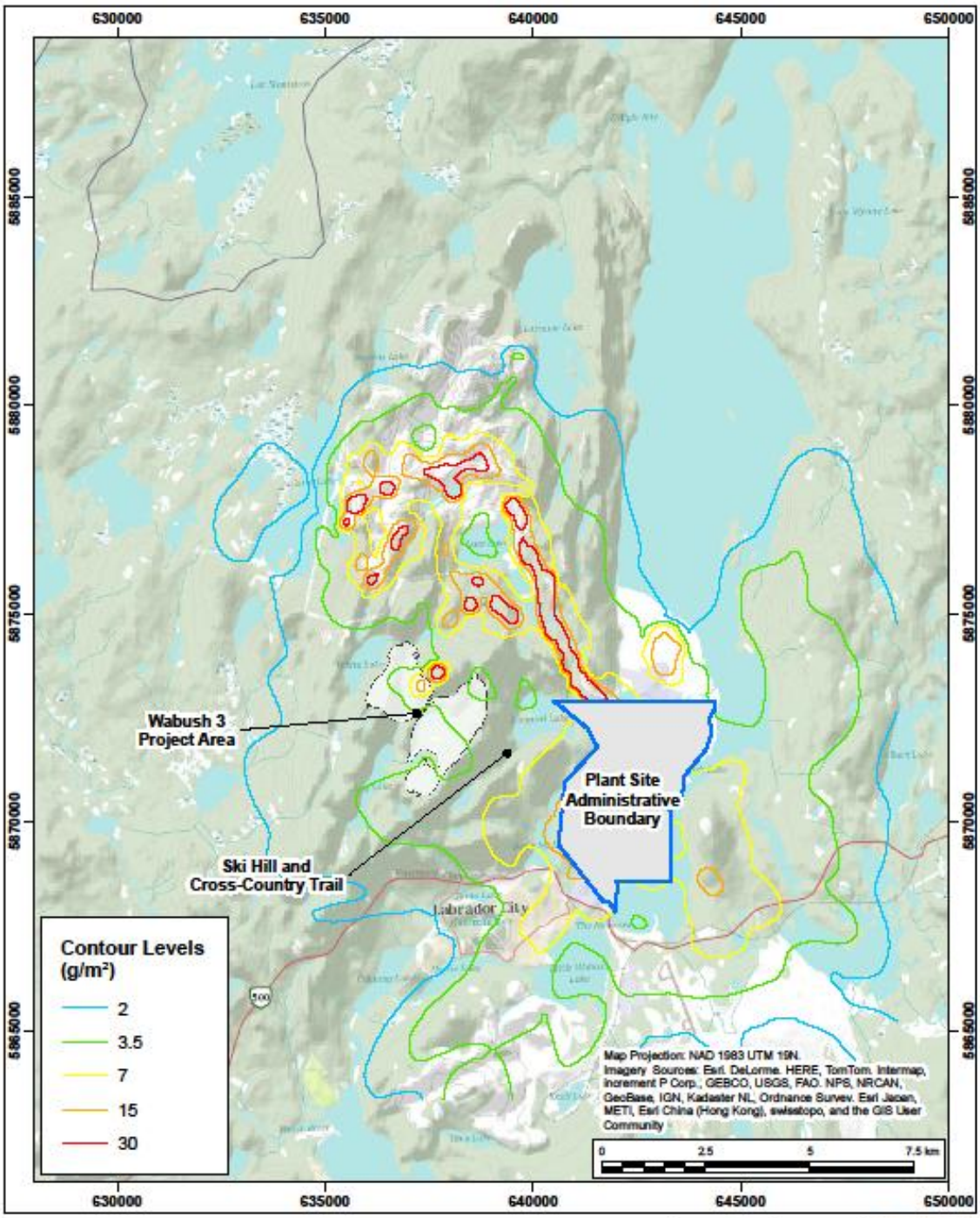
Notes:
NA = Not available; NC = Not calculated; TRV = toxicity reference value; HQ = hazard quotient, RfD = reference dose; SF = slope factor
HQs are rounded to 2 significant figures

2.13.8 Information Request CA-HC-08

Various sections of the HHRA refer to dustfall isopleths that are to be on Figure 4.1. Figure 4.1 identifies the receptor locations but does not show the dustfall isopleths. Dustfall isopleths are presented in Chapter 10 of the EIS, and should be either referenced or recreated in the HHRA for ease of review. Please ensure that all figures contain the information described in the text of the report.

IOC Response:

Dustfall isopleths were not included in Figure 4.1 of Appendix 25 and this was an oversight. The figures in EIS Chapter 10 considered TSP, PM_{10} and $PM_{2.5}$, but did not consider dustfall. Four figures showing Dustfall (30 day and Annual averaging periods) for the Future No Build and Future Build scenarios have been prepared by RWDI and are provided below.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Wabush 3
Project Area
Plant Site
Administrative
Boundary
Ski Hill and
Cross-Country Trail
Labrador City
Contour Levels
(g/m²)
2
3.5
7
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Map Projection: NAD 1983 UTM 19N.
Imagery Sources: Esri, DeLorme, HERE, TomTom, Intermap,
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GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan,
METI, Esri China (Hong Kong), swisstopo, and the GIS User
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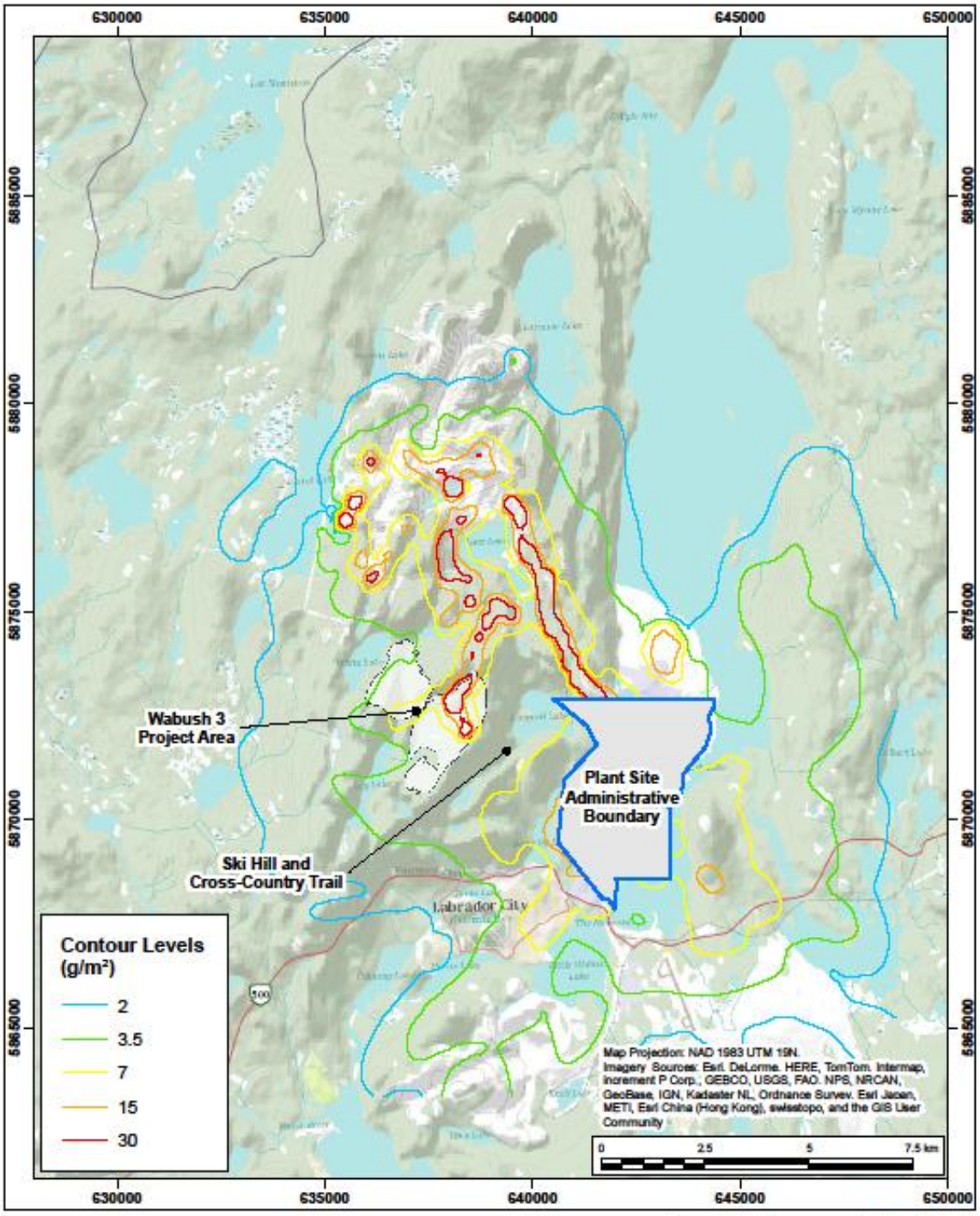
Dustfall - 30 Day Averaging Period
Future No Build Scenario
POI Limit = 7 g/m²/30 Days
Iron Ore Company of Canada - Labrador City, Newfoundland and Labrador
True North
Project #1400675
Drawn by: NBN
Figure: 4.1 (a)
Approx. Scale: 1:125,000
Date Revised: Apr. 28, 2014
RWDI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Wabush 3
Project Area
Plant Site
Administrative
Boundary
Ski Hill and
Cross-Country Trail
Labrador City
Contour Levels
(g/m²)
2
3.5
7
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Map Projection: NAD 1983 UTM 19N.
Imagery Sources: Esri, DeLorme, HERE, TomTom, Intermap,
increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN,
GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan,
METI, Esri China (Hong Kong), swisstopo, and the GIS User
Community
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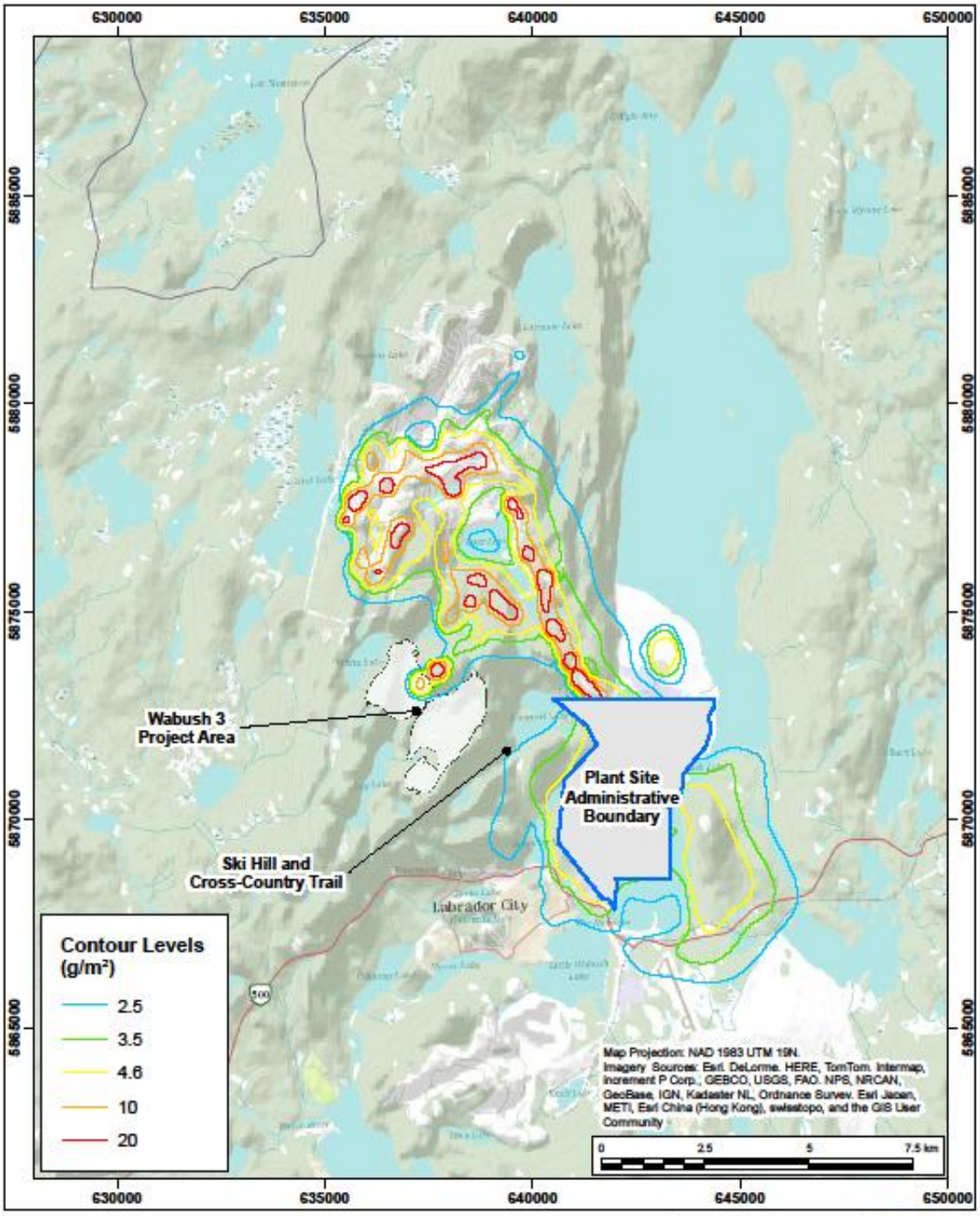
7.5 km
Dustfall - 30 Day Averaging Period
Future Build Scenario
POI Limit = 7 g/m²/30 Days
Iron Ore Company of Canada - Labrador City, Newfoundland and Labrador
Project #1400575
True North
Drawn by: NBN
Figure: 4.1 (b)
Approx. Scale: 1:125,000
Date Revised: Apr. 28, 2014
RWDI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Wabush 3
Project Area
Plant Site
Administrative
Boundary
Ski Hill and
Cross-Country Trail
Labrador City
Contour Levels
(g/m²)
2.5
3.5
4.6
10
20
Map Projection: NAD 1983 UTM 19N.
Imagery Sources: Esri, DeLorme, HERE, TomTom, Intermap,
increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN,
GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan,
METI, Esri China (Hong Kong), swisstopo, and the GIS User
Community
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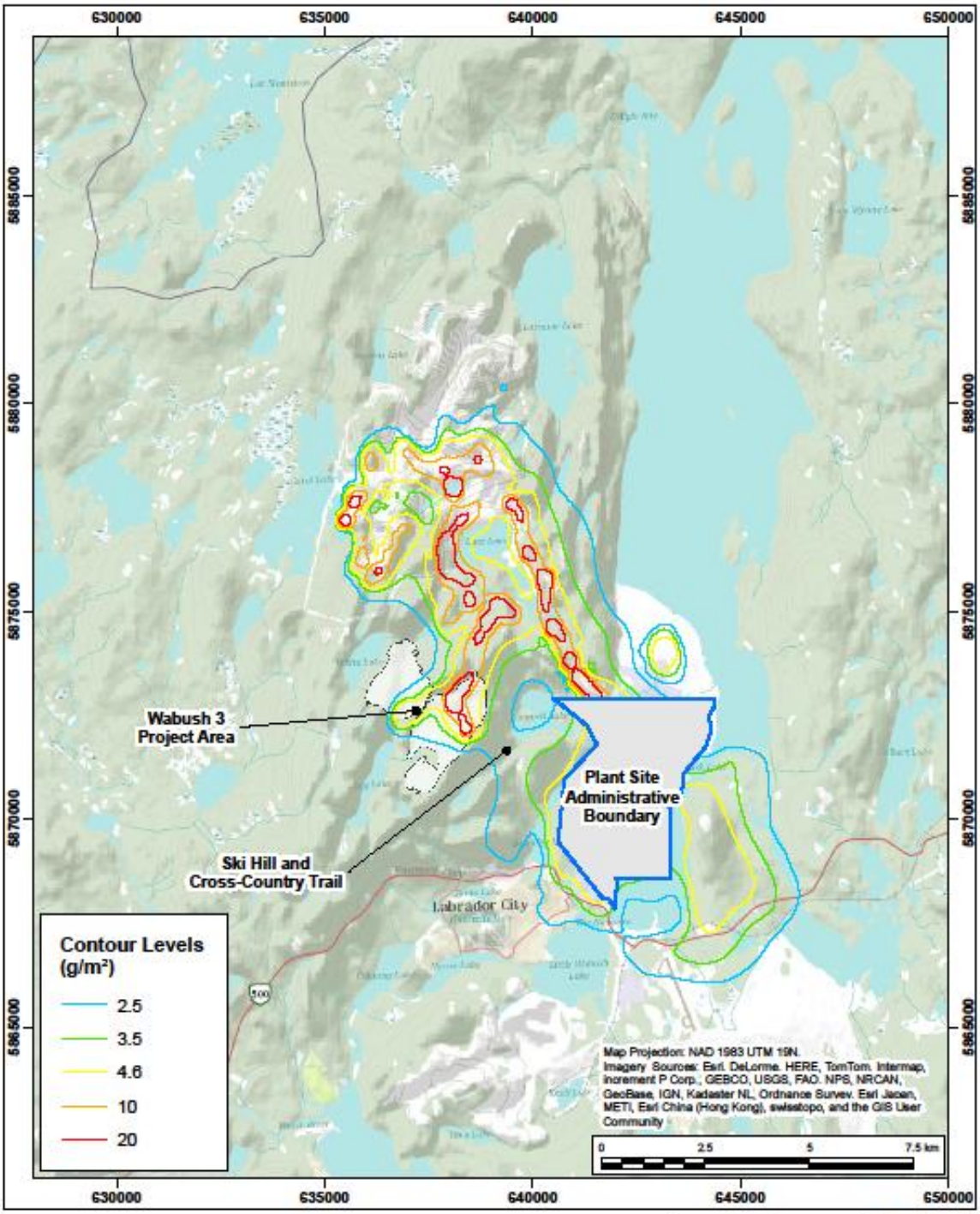
7.5 km
Dustfall - Annual Averaging Period
Future No Build Scenario
POI Limit = 4.6 g/m²/30 Days for an Averaging Period of 1 Year
Iron Ore Company of Canada - Labrador City, Newfoundland and Labrador
Project #1400575
True North
Drawn by: NBN
Figure: 4.1 (c)
Approx. Scale: 1:125,000
Date Revised: Apr. 28, 2014
RWDI



Dustfall - Annual Averaging Period
Future Build Scenario
POI Limit = 4.6 g/m²/30 Days for an Averaging Period of 1 Year
Iron Ore Company of Canada - Labrador City, Newfoundland and Labrador
Project #1400675

True North

Drawn by:	NBN	Figure:	4.1 (d)
Approx. Scale:	1:125,000		
Date Revised:	Apr. 28, 2014		

RWDI

2.13.9 Information Request CA-HC-09

In the definition of significant adverse residual environmental effect on physical health was defined as "a Project-related effect that adversely affects the quality of ambient air, water, or soil….". There is no mention of contamination of country foods in this definition.

Please include the contamination of country foods as a result of project-related activities in the determination of the significance of an adverse residual environmental effect on physical health.

IOC Response:

The EIS's Health and Community Health VEC (Chapter 19), states that:

> A significant adverse residual environmental effect on physical health is defined as a Project-related effect that reduces the quality of ambient air, water, or soil such that the Project-related concentration being assessed is predicted to result in unacceptable human health risks with an associated and measurable change (increase) in the incidence of human (physical) health issues.

IOC agrees that the potential contamination of country foods as a result of Project-related activities and their emissions would be a key potential cause of any possible effects on human health, and that country foods represent an important possible pathway for environmental containments in air, soil or water to possibly eventually reach human receptors. This has received considerable attention in the EIS, and therefore is considered to already be an integral part of the effects assessment and the associated evaluations of effect significance. As noted, however, this could be more directly reflected in wording of the effects significance definition, as follows:

> A significant adverse residual environmental effect on physical health is defined as a Project-related effect that reduces the quality of ambient air, water, soil and/or country foods such that the Project-related concentration being assessed is predicted to result in unacceptable human health risks with an associated and measurable change (increase) in the incidence of human (physical) health issues.

As this issue has already been integrally considered as part of the EIS effects analysis for this VEC, there is no resulting change in the environmental effects predictions, required mitigation or effects significance for this or any VEC.

2.13.10 Information Request CA-HC-10

Section 1 (Introduction) states that "this assessment focuses solely on the proposed Wabush 3 pit operations and does not include an assessment of existing IOC operations". However, in Section 6.1 (Operational Noise) it appears that all sound sources, including from existing operations, were included in deriving the baseline percentage highly annoyed (%HA) and the change in %HA due to project activities. It is unclear from these two sections whether or not all existing and potential future sources were included in the noise modelling.

Please clarify if all noise sources (including existing and future) were included in the overall noise assessment.

IOC Response:

The baseline percentage of % highly annoyed was determined from the monitored sound level data which includes contributions from the existing mine operations and other background sounds (road traffic, natural sounds, etc). The noise modeling and sound level predictions presented in Tables 7 and 8, only include the proposed operations at Wabush 3 pit.

If the predicted sound levels of the Wabush 3 pit are considered cumulatively with the monitored sound level data of the existing background sound (road traffic, natural sounds, existing mine operations), the predictions indicate that in terms of the Health Canada guidelines the Wabush 3 project will increase the percentage of highly annoyed by at most 4.2% at R8, a point of interest, and by at most 2.2% at the noise sensitive receptors (R7).

2.13.11 Information Request CA-HC-11

This report concludes that "when dealing with very sensitive land uses such as hospitals and special laboratories involving delicate operations and sensitive equipment, it is important that safety factors and fail safe mechanisms are also given due consideration"

Health Canada advises that in addition to the proposed "public notification" in advance of blasting that the proponent has committed to in their Blast Clearance Procedures, extra effort be made to inform hospital staff of blasting events prior to their occurrence so that situations do not arise where blasting may adversely impact hospital activities, such as surgeries or other delicate operations.

IOC Response:

IOC acknowledges Health Canada's concern for public notification to the hospital in advance of blasting. IOC will be preparing the Blast Clearance Procedures, including the public notification procedures, with consultation with key stakeholders, which will include hospital administration. IOC will make every effort to establish a notification system which satisfies the needs of the hospital.

2.13.12 Information Request CA-HC-12

During closure and decommissioning, the EIS indicates that once the Wabush Pit is filled, the overflow will be to Dumbell Lake which will result in an increase to the watershed of approximately 250 ha. It is unclear whether this overflow will result in the flooding of land that is currently not submerged. If dry land will be flooded, there is the potential for mercury to be mobilized from the inundated area which may result in downstream effects such as increased methylmercury in aquatic species.

In the event that the increase in the Dumbell watershed will result in the flooding of currently dry land, mercury may become mobilized which then can become methylated and result in increased levels of methylmercury in down-stream aquatic species. As such, in addition to the closure and decommissioning monitoring proposed, additional monitoring for mercury in water and methylmercury in downstream aquatic species (that would be consumed by people) would be recommended.

IOC Response:

The estimated increase in flow as a result of increasing the post-operation drainage basin of Dumbell Lake is not anticipated to generate increases in methylmercury in aquatic species.

The increased flows through the Dumbell Lake system would be directly influenced by an increase in drainage basin. Upon decommissioning, the Dumbell drainage basin would increase by an estimated 170 ha (120 ha of the Wabush 3 mine site is included in the existing Dumbell drainage). This increases Dumbell's drainage basin to 9.98 km^2 from its existing 8.28 km^2, an overall increase of approximately 17%. The resultant flow duration curve (FDC) and monthly hydrographs (mean and maximum) are provided in Figures 1 and 2 below. As shown, the estimated maximum pro-rated flow (maximum shown on the FDC) increases from 0.66 m^3/s to 0.79 m^3/s. Under the decommissioning scenario, the existing maximum flow of 0.66 m^3/s would be exceeded an estimated 1.2% of the time. This would approximate the amount of time when additional water flows would be experienced above those currently expected based on pro-rated estimates (i.e., the potential for new flooding). The transient lake level increase that would result from this increased flow (for 1.2% of the time) has not been quantified.

The response of mercury concentrations following flooding is affected by several "reservoir" specific features including the type of terrain flooded, hydraulic residence time, water level fluctuations, and erosion (TetraTech 2008). Given the estimated change in the monthly hydrographs (see below), the timing of potential new flooding beyond that currently anticipated would generally be encountered during spring freshet (late April-early June). With no modifications to Dumbell Lake outflow (i.e., no dam or water control) or its outflow stream to Luce Brook, overall additional residence time would be minimal and additional flooding would not be maintained. It is also unlikely that increased erosion would occur within Dumbell Lake.

Based on experiments in the Experimental Lakes Area, methylmercury production is greatest from flooded wetlands particularly when compared to flooded uplands (Hall et al 2005, St. Louis et al 2004, Bodaly et al 2004). Wetlands also provide longer term supply of carbon for decomposition and increased MeHg production. The Ecological Land Classification of the Dumbell Lake area has been determined to be a combination of conifer forest, conifer scrub/open conifer forest, and hardwood/mixedwood forests (see Figure 16.3 in the EIS).

As a result of the above, it is unlikely that conditions for detectable methylmercury production in any flooded areas would be established.

References

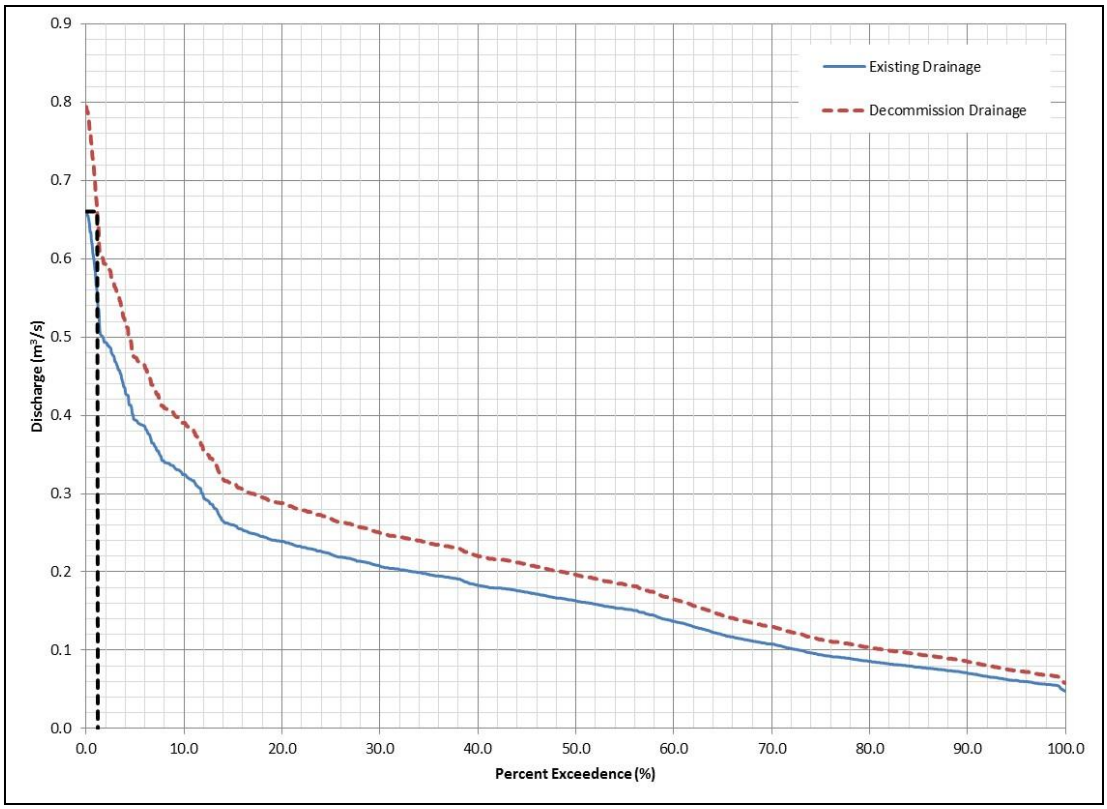
Bodaly, R.A., K.G., Beaty, L.H. Hendzel, A.R. Majewski, M.J. Paterson, K.R. Rolfhus, A.F. Penn, B.D. Hall, C.J. Mathews, K.A. Cherewyk, M. Mailman, J.P. Hurley, S.L. Schuff and J.J. Venkiteswaran. (2004). Experimenting with Hydroelectric Reservoirs. Environ. Sci. Technol. 38(18):346A-352A.

Hall, B.D., V.L. St. Louis, K.R. Rolfhus, R.A. Bodaly, K.G. Beaty, M.J. Paterson and K.A. Peech Cherewyk. (2005). Impacts of Reservoir Creation on the Biogeochemical Cycling of Methyl Mercury and Total Mercury in Boreal Upland forests Ecosystems 8:248-266.

St. Louis, V.L., J.W.M. Rudd, C.A. Kelly, R.A. Bodaly, M.J. Paterson, K.G. Beaty, R.H. Hesslein, A. Heyes and A. Majewski. (2004). The Rise and Fall of Mercury Methylation in an Experimental Reservoir. Environ. Sci. Technol. 38:1348-1358.

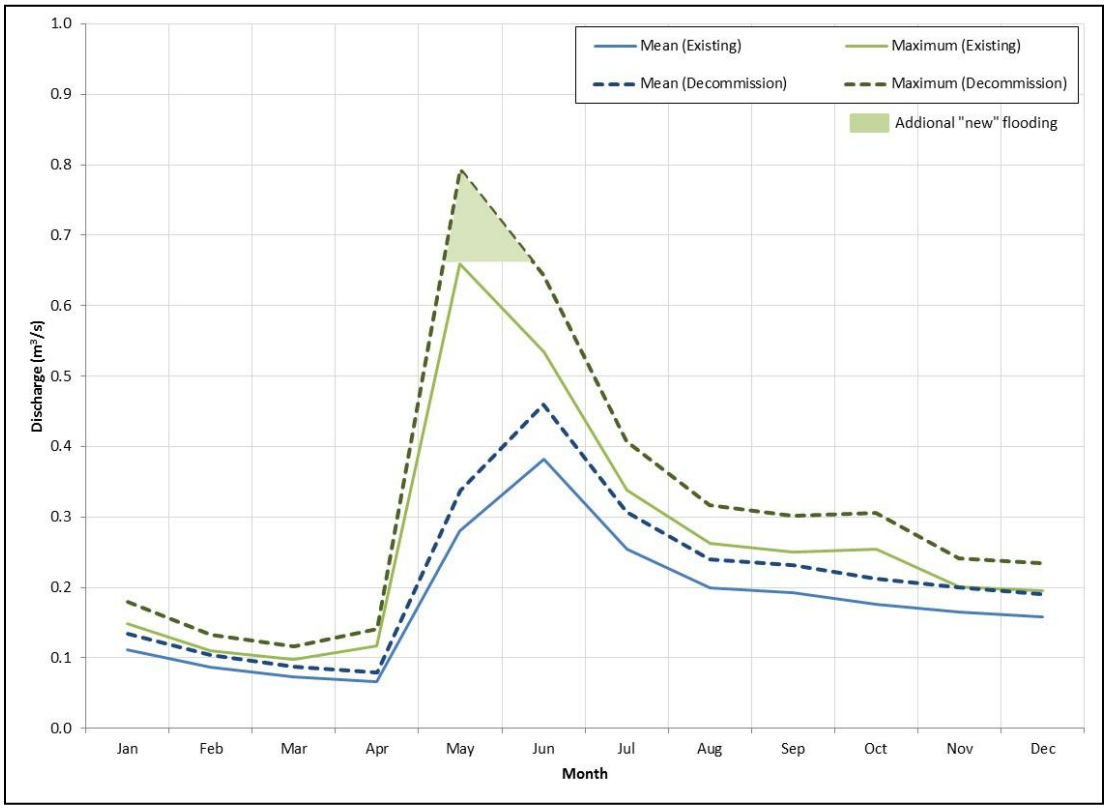
TetraTech. (2008). Lower Churchill Hydroelectric Generation Project Environmental Baseline Report: Assessment of the Potential for Increased Mercury Concentrations. Prepared for Newfoundland and Labrador Hydro, St. John's, NL.

Figure 1 Flow Duration Curves (FDC) of Dumbell Lake Drainage (Existing and Decommissioned Drainages)



Note: Black line shows exceedance of existing maximum estimated flow.

Figure 2 Mean and Maximum Monthly Hydrograph (Existing and Decommissioned)



3 ABORIGINAL GROUPS

3.1 NunatuKavut Community Council (NCC)

The NCC's review and input to the Government of Newfoundland and Labrador on the Wabush 3 EIS took the form of a letter to the EA Division of the NL Department of Environment and Conservation dated October 29, 2014.

This correspondence provided information on and made reference to a number of items, as summarized below:

1) The historic use of the region by various Aboriginal groups, particularly as a travel corridor, and the subsequent changes to the nature and distribution of such traditional land and resources in recent times;

2) The 2014 Land Use Study prepared by the NCC in cooperation with IOC, which was utilized (and included in its entirety) in the Wabush 3 EIS (Appendix 27);

3) An overall lack of serious concern about the Project and its potential for significant adverse environmental effects, due to its location and its well contained and controlled nature, but with an associated interest in seeing the Project site eventually and appropriately decommissioned and rehabilitated following the completion of its operations phase;

4) NCC's views regarding Aboriginal rights and title in Labrador, as well as associated consultation requirements on the part of Government as well as concerns regarding the adequacy of current consultation processes and practices; and

5) An overall view by the NCC that "in assessing the proposed Wabush #3 mining project, the NCC continues to engage with IOC in an honourable way to address and mitigate its concerns" and that it is "satisfied that the project's proponent has engaged in proper consultation and has endeavoured to engage in appropriate accommodation".

IOC Response:

IOC very much appreciates NCC's review of and comments on the Wabush 3 Project and its EIS, and values the very positive and productive relationship that we have established and enjoyed with NCC in relation to this Project and its EA. This includes our associated discussions and information sharing prior and pursuant to our 2014 Consultation Agreement and the resulting NCC Land Use Study, all of which provided key information that contributed greatly to the focus and content of the EIS. IOC looks forward to its on-going and future discussions with the NCC and its members, and to maintaining our respectful, consultative and collaborative relationship.

NCC's perspectives and comments on the Government of Newfoundland and Labrador's consultation obligations and practices are assumed and understood to be directed to the Province, and cannot be addressed or responded to by IOC.

3.2 Innu of Uashat mak Mani-Utenam (ITUM)

3.2.1 Information Request ITUM-01

This is in reference to the Iron Ore Company of Canada's ("IOC") Environmental Impact Statement ("EIS") submitted to the Government of Newfoundland and Labrador on August 8, 2014 with respect to the construction and operation of its proposed new Wabush 3 open pit mine at its Labrador West mine site (the "Project").

We are forwarding this letter of behalf of our client, the Innu of Uashat mak Mani-Utenam, including the Vollant family, regarding the EIS, our client's continued opposition to the Project and the issue of the constitutional duty to consult and accommodate owed by the Government of Newfoundland and Labrador in connection with the Project.

The present letter follows and is in line with previous comments made by the Innu of Uashat mak Mani-Utenam, including the Vollant family, to the Department of Environment and Conservation of Newfoundland and Labrador on July 2, 2013, calling for an environmental assessment of the Project, and on November 12, 2013, commenting on the draft guidelines for preparation of the EIS. Given that since the dates of such comments, nothing has changed in the position of the Innu of Uashat mak Mani-Utenam, including the Vollant family, regarding the Project, the ongoing environmental assessment or the need for deep consultation and accommodation on the part of the Government of Newfoundland and Labrador, the comments in question retain all of their relevance in this matter. We do not feel the need therefore, for reasons of brevity, to repeat them here, trusting that the Government of Newfoundland and Labrador will give them all their due consideration and weight.

IOC Response:

IOC appreciates ITUM's review of and comments on the Wabush 3 Project and its EIS, each of which are responded to and addressed in the sections that follow.

The above references to ITUM's previous input to the Government of Newfoundland and Labrador on the EA requirements for the Project, the content of the EIS Guidelines, and Government's Aboriginal consultation obligations and practices are assumed and understood to be directed to the Province, and cannot be addressed or responded to by IOC.

IOC's key role and primary objective has been to fully address the EA requirements for the Project through the development and submission of a comprehensive and quality EIS, in compliance with the applicable EA legislation and the Final EIS Guidelines which were issued to IOC by the Government of Newfoundland and Labrador on April 3, 2014.

3.2.2 Information Request ITUM-02

EXTENSIVE, SERIOUS AND IRREVERSIBLE IMPACTS OF WABUSH 3

True portrait of our client's use of the area

IOC comes to the conclusion in its EIS that the Project will not have any impact on the current or future use of the area by the Innu of Uashat mak Mani-utenam, including the Vollant family, because, according to IOC, there is no such current or planned use to speak of.

Putting aside the issue of the impacts of the Project on our client's rights, an impact that is completely absent from the EIS, it is not surprising that IOC reaches the above conclusion given their seeming complete lack of effort in documenting our client's actual current and planned use of the area. One is left to wonder after reading the EIS whether the IOC employees who put together the EIS have even read the legal proceedings our client has filed against them and the important amount of information contained therein regarding past, current and future use, as well as the important and tragic consequences on such use by IOC's past, current and expanding occupation and industrialization of the area.

IOC has not even bothered to meet with the members of the Vollant family, who were pushed off the land and scattered (mostly by way of violence or threats of violence), and who still suffer the impacts of such forced removal today. Had IOC made such minimal efforts, it would know that the Innu of Uashat mak Mani-utenam, including the Vollant family, one day plan on (to the extent possible after the damage that has been caused) reclaiming the area where IOC's projects now sit. And IOC would also have found out that this area, although scarred beyond recognition, retains its cultural and spiritual significance for the Vollant family and other members of the Innu of Uashat mak Mani-utenam, who continue to make the journey up to the region to reconnect with this sacred ground. The Innu of Uashat mak Mani-utenam, including the Vollant family, still carry out spiritual activities in the areas around IOC's destructive megaproject but certainly cannot practice any number of other traditional activities that once defined their connection to these lands and composed their cultural identity, the whole before IOC's arrival.

IOC's lack of any serious effort at understanding the connection of the Innu of Uashat mak Mani-utenam, including the Vollant family, to the lands IOC seeks to develop in the course of the Project is also revealed by the fact that in an EIS document of just about 1,000 pages, IOC only spends a single paragraph on the matter. Even worse, in assembling the few lines on the subject, all IOC took the effort to do was to copy-paste bits from the environmental impact statements for other projects. In so doing, IOC has also copied their same mistakes. Did IOC even bother to check the original source-material on which the company bases the following claim regarding the Innu of Uashat mak Mani-utenam's use of their traditional territory?

> […] current activities are mainly practiced along the coast of the St. Lawrence River, at the mouth of rivers and along the existing highway (Route 138) (UCITUMU 2010).

IOC Response:

In completing the EIS for the Wabush 3 Project, IOC has sought to identify the activities and interests of Aboriginal groups as they may relate to the Project and its potential effects, and to seek to appropriately address these through the EA process and in on-going Project planning.

The scope of the Project for EA purposes is clearly defined as the construction and operation of the Wabush 3 Project, which is in keeping with the associated requirements of the EIS Guidelines issued by the Government of Newfoundland and Labrador (see Section 3.1 and elsewhere), and the EIS assesses and evaluated the potential effects of this Project on the existing (baseline) environment, including current and future land and

resource use activities in and near the Project area (Section 4.23). This is in keeping with the NL *Environmental Protection Act* (*NL EPA*, Part X), which defines an "environmental effect" as "a change in the pr*esent or future environment* that would result from an undertaking" (emphasis added).

The EIS notes that a number of Labrador and Québec based Aboriginal groups, including ITUM, claim Aboriginal rights and/or title to portions of the Labrador West region, and as required by the EIS Guidelines, it generally considers claimed Aboriginal rights by relevant groups in Labrador and Québec. In doing so, the EIS assesses the possible effects of the Project on same, as reflected in the current land and resource use activities by Aboriginal persons. It is not, however, within the ability or responsibility of IOC or any Project proponent to determine whether such claimed rights exist, nor the nature or extent of same, as that responsibility rests with governments and Aboriginal groups and/or must be defined by the courts. Nor is the EA process the appropriate forum for responding to legal proceedings brought by ITUM, particularly in respect to alleged past impacts on claimed Aboriginal rights.

IOC's planning and preparation of the EIS has addressed the current land and resource use activities of relevant Aboriginal communities and organizations in Labrador and Québec and includes a detailed (and separate) treatment of "Aboriginal Traditional Land and Resource Use Activities" as part of the "Current and Future Use of Lands and Resources" VEC (Chapter 17), where the potential interactions and effects of the Project upon these activities and associated mitigation measures are analysed and described. The treatment of these issues in general, and ITUM's activities and interests in particular, comprises far more than a "single paragraph" in the EIS documentation (see, for example, Sections 1.4.1.3, 3.2, 17.3.16, 17.4.2.4, 17.4.3.4 and others), and in fact goes considerably beyond that which is specified and required in the EIS Guidelines.

IOC has made significant and good faith efforts to engage directly with each of these Aboriginal groups in Labrador and Québec, including ITUM. As described in detail in Chapter 4 of the EIS, this has included the provision of Project information, as well as offers of Consultation Agreements and associated processes and resources to gather and provide information on current land and resource use, Aboriginal knowledge, and community issues and concerns regarding the Project and its potential environmental effects, for consideration and incorporation into the EIS. Unfortunately, ITUM did not accept such offers, however, nor has it provided information or facilitated the collection and provision of data from community members on current land use or any associated questions or concerns regarding the Project and its potential effects. As a result, the EA was completed on the basis of other, publicly available information.

As reflected in the EIS, nothing indicates that any Aboriginal people, including ITUM members, currently undertake land and resource use activities within or immediately adjacent to the proposed Project site. Moreover, in IOC's various communications with ITUM related to this Project and its EA to date (EIS, Chapter 4), the group has not identified and specifically described any current land and resource use in or near the proposed Project area which may be in some way negatively affected by the proposed construction and operation of Wabush 3.

IOC has, however, committed to continue to consult with relevant Aboriginal groups (including ITUM) and others to provide Project information and updates on on-going and planned activities, as well as discussion of any questions or issues that may arise and potential means of addressing them.

The planned, future decommissioning and rehabilitation of the proposed Project area is addressed in various places in the EIS (such as Sections 2.6.3, 6.3.5, and elsewhere) and the area's potential future use for land and resource use activities is discussed in Section 17.4.4.

3.2.3 Information Request ITUM-03

The original material (UCITUMU 2010), attached to the present letter, is in fact the Innu of Uashat mak Mani-utenam's own 2010 brief filed in the course of the public hearings being conducted by the "BAPE" with respect to the La Romaine hydroelectric project. The Innu of Uashat mak Mani-utenam's 2010 brief says no such thing, as I invite the Department of Environment and Conservation to verify. The Innu of Uashat mak Mani-utenam still use and occupy all of their traditional territory, just as their ancestors have done since time immemorial, barring obstacles of the sort IOC's megaproject constitutes. The only reason that the Innu of Uashat mak Mani-utenam's traditional use and occupation of Western Labrador is not what it was in the 1950s, a fact which the Innu of Uashat mak Mani-utenam have no interest in hiding, is a result, as our client has repeatedly stated, of the displacement caused by IOC's works and activities.

Even IOC does not deny that its activities have had such an effect:

> These findings are consistent with the fact that this overall area has been the site of ongoing mining activity since the 1960s. As a result of this significant and long-standing industrial activity within and surrounding the proposed Project area, and the associated public site access restrictions that have been in place on areas of IOC's property since that time, traditional land and resource use activities generally do not occur in this area. IOC is likewise not aware of any additional, future Aboriginal traditional land and resource uses that are planned to occur within or near the Project area and which may therefore be affected.

IOC Response:

The EIS notes that ITUM members have indicated that they engage in contemporary land and resource use activities. IOC appreciates this clarification of the nature and content of the cited reference material, which ITUM itself developed and submitted as part of a previous Québec-based project and its EA review.

Although it is recognized in the EIS that ITUM members have indicated that they engage in contemporary land and resource use activities such as hunting, trapping, and fishing within parts of Québec and/or Labrador, a number of other available sources also indicate that these current activities are practiced mainly near the community and along the coast, at the mouth of rivers and along existing linear developments that provide access to the interior (Tanner and Armitage 1986; Castonguay, Dandenault et Associes Inc 1999, 2006; Armitage and Stopp 2003). Therefore, and as referenced in IOC's previous response and illustrated in the EIS, none of the existing and available information identified for use in the EA indicates that ITUM members currently undertake any activities within or immediately adjacent to the proposed Project site itself. Indeed, in IOC's communications with ITUM related to this Project and its EA to date (EIS, Chapter 4), the group has not identified or provided specific information on any current land and resource use in or near the proposed Project area which may be in some way negatively affected by the Project. As described above and discussed in further detail later, the EIS assesses and evaluates the potential effects (changes) of this Project on the existing

(baseline) and future environment, including current and future land and resource use activities in and near the Project area.

References

Armitage, P. and Stopp, M. (2003). Labrador Innu Land Use in Relation to the Proposed Trans Labrador Highway, Cartwright Junction, to Happy Valley – Goose Bay, and Assessment of Highway Effects on Innu Land Use. Submitted by Innu Environmental Limited Partnership to Department of Works, Services and Transportation.

Castonguay, Dandenault et Associes Inc. (1999). Les Innus de Uashat Mak Mani-Utenam et la peche au saumon dans la riviere Moisie. Etude historique et ethnographique. Submitted to Uashat mak Matni-Utenam band council and Hydro Québec. June 1999.59 pp. with annexes.

Castonguay, Dandenault et Associes Inc. (2006). Projet de raccordemont de complexe de la Romaine au reseau de transport. Etude de milieu Innu, communaute de Uashat mal Mani-Utenam. Submitted to Hydro-Québec. November 2006. 80pp. with annexes.

Tanner, A. and P Armitage (1986). Environmental Impact Assessment: Ross Bay Junction – Churchill Falls Tote Road: Native Resource Use Study. Prepared for the Department of Transportation, Government of Newfoundland and Labrador.

3.2.4 Information Request ITUM-04

IOC's twisted and self-serving logic

Such is IOC's crude calculation as to why, in their estimation, the Project will not impact the Innu of Uashat mak Mani-utenam: because IOC's Carol Lake activities have previously displaced the Innu of Uashat mak Mani-utenam, including the Vollant family, from the region, the Project will not have any impact on their use of the area. It is not surprising either, therefore, that IOC continues to maintain that there are no "known sites of historical, cultural or spiritual importance" for the Innu of Uashat mak Mani-utenam within the area of the Project that "may be adversely affected by the Project".

While it is very true that IOC's megaproject at Carol Lake has made it impossible for the Innu of Uashat mak Mani-utenam, including the Vollant family, to practice their traditional activities and exercise their inherent rights in the area as they have always done, where IOC errs is in assuming (again, without making any effort to verify) that the sacred bond of the Innu of Uashat mak Mani-utenam, including the Vollant family, to their traditional lands in the region has been completely broken. When in fact, the Project site does indeed remain a "site of historical, cultural or spiritual importance" for the Innu of Uashat mak Mani-utenam, including the Vollant family. The site of the Project remains the ancestral home of the Vollant family and the family's ancestors. They were born on that site, they lived on that site, their ancestors died on that site and, throughout, they used that site in carrying out their culturally and spiritually rich traditional way of life. The one thing, therefore, that IOC's displacement of the Vollant family has not resulted in, is severing the cultural and spiritual attachment of the Vollant family to Labrador West. And as previously described, members of the Vollant family and other Innu of Uashat mak Mani-utenam continue to go back to such sites to reconnect as

much as possible with what has not yet been lost, including the remaining unspoiled parts of the lands, such as the potential Project site.

Similarly, IOC further dismissively adds that it is not aware of any intentions on the part of the Innu of Uashat mak Mani-utenam to use the area in the future. The Innu of Uashat mak Mani-utenam, including the Vollant family, take great issue with such ignorance as it is the stated position of the Innu of Uashat mak Mani-utenam, often repeated to IOC, including in their proceedings against IOC, that they seek to reclaim such portion of their traditional territory that IOC has deprived them of, to the extent possible, after IOC's departure.

IOC Response:

The statement in the EIS that "in no cases are there known sites of historical, cultural or spiritual importance to either group" within the Project Area or Local Study Area refers to the lack of known historic or heritage resources in the area. This was reflected in and verified through the recent archaeological analysis and field study undertaken by IOC (Amec and Arkeos 2012), the results of which were provided in the EA Registration for the Project, as well as by the fact that historic and heritage resources were not identified as an issue or VEC that required assessment in the EIS Guidelines. That notwithstanding, however, IOC has committed in the EIS to the application and implementation of IOC Environmental Protection Plan(s) during Project construction and operation (EIS Chapter 6), including standard precautionary and reporting procedures in the event of an accidental find of archaeological sites during any phase of the Project.

None of the information identified for use in the EA indicates the presence of particular sites of historical, cultural or spiritual importance to ITUM in or near the Project area, and in IOC's communications with ITUM related to this Project and its EA to date (EIS, Chapter 4), the group has not identified or provided specific information on any such sites which may be in some way negatively affected by the Project.

In terms of potential future use of the Project area by ITUM members for the purposes of undertaking land and resource use activities, although these perspectives were not provided previously due to ITUM's unwillingness to engage in direct consultation with IOC pursuant to the company's previous offers, IOC appreciates this current information on ITUM's plans in that regard. Again, the planned, future decommissioning and rehabilitation of the Project area is addressed in various sections of the EIS (such as Sections 2.6.3, 6.3.5, and elsewhere) and the area's potential future use for land and resource use activities is discussed in Section 17.4.4.

Reference

Amec and Arkeos Inc. (2012). Rio Tinto Iron Ore Company of Canada Wabush 3 Project near Labrador City, Newfoundland and Labrador, Archeological Study.

3.2.5 Information Request ITUM-05

Full impacts of the Project on our client

At this point, it is not clear what the Innu of Uashat mak Mani-utenam would have to do in order to have IOC simply faithfully describe (let alone fairly address) the Innu of Uashat mak Mani-utenam's concerns respecting the impacts of the Project on their rights and interests, including current and future use of the Project area. For instance, at the meeting of February 4th, 2014 listed in IOC's "consultation" logs, it was made very clear to IOC representatives, including by a member of the Vollant family present, Raoul Vollant, that the Project will have many negative impacts on the rights, as well as current and future use for traditional pursuits, of the Innu of Uashat mak Mani-utenam. Given both IOC's clear unwillingness to understand and even take note of the impacts of the Project on the Innu of Uashat mak Mani- utenam, including the Vollant family, our client has no faith that any collaborative effort with IOC regarding the assessment of such impacts would result in an honest and fair accounting thereof. Our client's lack of trust in IOC stems also of course from the complete lack of good faith that IOC has thus far demonstrated in the years of negotiations with our client, dating back four years now, during which time our client sought an honourable end to IOC's illegal occupation of their lands starting in the 1950s.

Therefore, our client could not reasonably be expected to sign on to IOC's compact described in the EIS as the March 13, 2014 letter to ITUM with an offer of capacity funding. And this is again why it is so important, and why our client has repeatedly insisted, that the Government of Newfoundland and Labrador start playing a more prominent role in respect of the Project and in particular its impact on our client's rights and interests.

IOC Response:

As referenced in IOC's previous responses and illustrated in the EIS, none of the existing and available information identified for use in the EA indicates that ITUM members currently undertake land and resource use activities within or immediately adjacent to the proposed Project site itself, and in IOC's communications with ITUM related to this Project and its EA to date (EIS, Chapter 4), the group has not identified or provided specific information on any current land and resource use in or near the proposed Project area which may be in some way negatively affected by the Project. Also, while the EIS has noted that a number of Labrador and Québec based Aboriginal groups, including ITUM, claim (as yet unproven) Aboriginal rights in portions of the Labrador West region, it is not within the ability or responsibility of IOC to determine or comment on whether such claimed rights exist nor the nature or extent of same.

IOC has been and remains committed to ensuring that Aboriginal groups are appropriately and meaningfully engaged in relation to the Wabush 3 Project and its EA, and has made significant and good faith efforts to consult with each of the relevant groups, including ITUM. This has included the provision of Project information, as well as offers of Consultation Agreements and associated processes and resources to gather and provide information on land and resource use, Aboriginal knowledge, and community issues and concerns regarding the Project and its potential environmental effects, for consideration and incorporation into the EIS. ITUM chose not to accept these offers to engage in consultation with IOC, however, nor has ITUM provided any additional or specific information or facilitated the collection of data on land use or any associated questions or concerns regarding the Project and its potential effects. While unfortunate and disappointing, IOC respects the views and wishes of the ITUM leadership in this regard, and therefore completed the EIS based on existing and available information. IOC has also continued to be open to discussions and on-going engagement with the community.

IOC is not able to respond to or comment on ITUM's references to, or perspectives on, the Government of Newfoundland and Labrador's Aboriginal consultation policies, practices or responsibilities.

3.2.6 Information Request ITUM-06

As our client has repeatedly made clear, the Innu of Uashat mak Mani- utenam, including the Vollant family, still use the Project area and surroundings for cultural and spiritual practices and look forward to reclaiming the whole region once IOC is gone. And while current use of the Project area is of course incredibly diminished by IOC's destruction of their lands, and while traditional activities in the region, even after IOC's departure, will never be what they once were, it remains absolutely false for IOC to claim that there is no current or planned future use of the Project site and surroundings.

Moreover, the further destruction of the area which IOC intends to carry out in the course of developing the Project will greatly impact both current and future uses by the Innu of Uashat mak Mani-utenam, including the Vollant family. In fact, the Project would carve up one of the remaining culturally valuable zones in the area that has not being ruined by IOC's vast megaproject.

The Project may be linked to some extent with the rest of IOC's ongoing activities at Labrador City but it remains a "greenfield" project in every manner that counts: the Project would dig up, disturb and irreparably damage 570 hectares of unspoiled land which the Innu of Uashat mak Mani-utenam, including the Vollant family, continue to make use of, to the extent IOC's activities make possible, for culturally and spiritually significant activities.

Therefore, by barring them from visiting and making use of one of the last untouched areas in the region, the Project would further rupture the spiritual connection of the Innu of Uashat mak Mani-utenam, including the Vollant family, to this central part of their traditional territory. In addition, such damage and loss would in large part be irreparable. The Project site and surroundings will never be the same again, a fact even IOC does not try to deny in its EIS: "it will not be practical or feasible to completely return the site to its pre-mining condition."

IOC Response:

As reflected in the EIS the existing and available information does not indicate that any Aboriginal people, including ITUM members, currently undertake land and resource use activities within or immediately adjacent to the proposed Project site itself. Moreover, in IOC's various communications with ITUM related to this Project and its EA to date, the group has not identified or provided specific information on any current land and resource use in or near the proposed Project area which may be in some way negatively affected by the Project. In addition, the Project site itself is relatively small in size and is located immediately adjacent to existing and long-standing mining activity, and it represents only a very small portion of the areas used for and/or available to any land and resource users in Labrador West and beyond. Project related site access restrictions and other disturbances are therefore not anticipated to adversely affect the overall nature, intensity or timing of the current use of land and resources by Aboriginal persons, nor overall participation in such activities. No further or specific information has been provided by ITUM or has otherwise become available to IOC which would change this finding and conclusion of the EIS.

In terms of potential future use of the Project area by ITUM members for undertaking land and resource use activities, IOC again appreciates the current information on ITUM's plans in that regard. Again, the planned, future decommissioning and rehabilitation of the proposed Project area is addressed in various sections of the EIS (such as Sections 2.6.3, 6.3.5, and elsewhere) and the area's potential future use for land and resource use activities is discussed in Section 17.4.4.

3.2.7 Information Request ITUM-07

An important example of the irreversible damage that the Project would cause to the lands and thereby to the use of such lands by the Innu of Uashat mak Mani-utenam, including the Vollant family, is illustrated by the potential impact that the Project could have on caribou populations, a sacred animal at the core of Innu culture.

It is well known that the George River Caribou Herd (GRCH), the herd most associated with the Innu of Uashat mak Mani-utenam's traditional way of life and use of its territory, is in the midst of a steep decline. The point here is that, as evidenced in the caribou study conducted by IOC for the purposes of the EIS, while the Project location and surrounding areas were indeed frequented by GRCH as part of its range not long ago (mainly prior to 2004), its potential return could very well be compromised because caribou have been known to avoid areas disturbed by mining activities. The above impact is just one of the ways that the Project could irreversibly impact the traditional activities of the Innu of Uashat mak Mani-utenam, including the Vollant family.

IOC Response:

Caribou (*Rangifer tarandus caribou*) are native to Labrador and are part of the boreal population, which is subdivided into several ecotypes, including: 1) Migratory Woodland Caribou, including the George River Herd which migrates between forest and tundra in Québec and Labrador, and 2) Sedentary Woodland Caribou, which include the Lac Joseph Herd found in Western Labrador and Québec (currently listed as threatened under the provincial *Endangered Species Act* and the federal *Species at Risk Act*.).

Although local ecological knowledge gathered by IOC during EIS preparation confirmed that caribou were observed in the general region in the past (EIS Section 3.3.2), based on current information the Project is not anticipated to overlap or interact with the current ranges of either of these herds (EIS Section 15.3.2.2), and therefore will not likely result in any adverse effects upon caribou or their habitats. In particular, the current information indicates that the migratory George River Herd is known to occur considerably to the north of the Project area, whereas the range of the sedentary Lac Joseph herd occupies an area to the south and east. This was further confirmed by the fact that the aerial and ground survey work undertaken for the Project to date (as described and cited in the EIS) did not observe caribou in the area, which is also consistent with the results of recent wildlife surveys by government as well as local observations and knowledge shared by local residents and other resource users during IOC consultations for the Project (EIS Chapter 4).

The Project area is located within the existing industrial area of Labrador West, and given the current and on-going developments in the area it is unlikely that this area would support caribou in the foreseeable future, with or without the development of the Wabush 3 Project. Although the loss of approximately 570 ha of habitat may cause some degree of displacement of existing flora and fauna within the Project area itself (EIS Chapter 15) there is no anticipated interaction between the Project and caribou given their current absence

from the area, and the development of Wabush 3 itself is not likely to influence or otherwise change the potential future return of this species to the region or the overall health or sustainability of these herds.

3.2.8 Information Request ITUM-08

All of the above impacts on our client's current and future use of the Project area is of course in addition to the impacts that the Project would have on our client's Aboriginal rights, including title, and treaty rights. We have described above how the Project would severely and irreparably harm the exercise of our client's Aboriginal rights, but the Project would also clearly constitute a wholly unjustifiable infringement of our client's Aboriginal title.

IOC Response:

The EIS has noted the fact that a number of Labrador and Québec Aboriginal groups, including ITUM, claim Aboriginal rights and/or title to portions of the Labrador West region, and as required by the EIS Guidelines, the EA generally considers claimed Aboriginal rights by relevant groups in Labrador and Québec. In doing so, it assesses the potential effects of the Project on same, as reflected in the current land and resource use activities by Aboriginal persons. It is not, however, within the ability or the responsibility of IOC or any Project proponent to determine whether such claimed rights exist, nor the nature or extent of same, and the EIS therefore states that:

> "The following sections provide an overview of these relevant Aboriginal groups and their known land and resource use activities. It is not the purpose or intent of this document to evaluate or comment on the overall question of whether or not one or all of these groups possess Aboriginal rights or title in or near the Project area and/or the nature or degree of any such rights, or indeed, whether any such current land and resource activities are being undertaken as the assertion of an Aboriginal right." (Section 17.3.16).

IOC's focus and efforts in planning and developing the EIS have therefore involved a detailed review of existing and available information on relevant Aboriginal communities and organizations in Labrador and Québec and their current land and resource use activities, as well as a detailed (and separate) treatment of "Aboriginal Traditional Land and Resource Use Activities" as part of the "Current and Future Use of Lands and Resources" VEC (Chapter 17), where the potential interactions and effects of the Project upon these activities and associated mitigation measures are analysed and described.

3.2.9 Information Request ITUM-09

FAILURE TO ADDRESS THE TRUE CUMULATIVE IMPACTS OF THE PROJECT

The meagre efforts made by IOC in the EIS to understand and describe the impacts of the Project on the Innu of Uashat mak Mani-utenam is only rivaled by the very short shrift given to the cumulative environmental impacts of the Project, in particular in conjunction with IOC's megaproject at Carol Lake. Only a few combined pages are set aside to describe all such cumulative effects, including on our client's traditional way of life and on the key other valued environmental components making such way of life possible, such as air and water

quality, the preservation of wetlands, fish and fish habitat, birds and other wildlife and species at risk, such as the threatened sedentary caribou.

The EIS guidelines prepared by the Government of Newfoundland and Labrador require IOC to describe the impacts of the cumulative effects of the Project when coupled with the megaproject at Carol Lake, including with respect to the loss of current and future use by the Innu of Uashat mak Mani- utenam of the area affected by the Project. The superficial treatment given to all of the cumulative impacts of the Project, in particular in conjunction with IOC's megaproject, in no way meets the guidelines' requirements.

It is not just the lack of much of any attention being paid to the cumulative effects of the Project in the EIS that is so problematic, but also the conceptual sleight of hand at work that informs the entire analysis. Instead of trying to determine the effects that the Project would have on the environment, including our client, in combination with the devastating effects that the megaproject at Carol Lake has already had and continues to have, IOC instead integrates all such severe impacts of Carol Lake into the baseline data. IOC, therefore, completely whitewashes the impacts that its Carol Lake activities have had on both the local ecosystem as well as the reliance of the Innu of Uashat mak Mani-Utenam, including the Vollant family, on such an intact ecosystem to carry out their traditional pursuits.

IOC Response:

The EIS provides a detailed and comprehensive assessment of the potential (project-specific) environmental effects of the proposed Wabush 3 Project itself, as well as its likely cumulative environmental effects in combination with other relevant projects and activities that have been or will be carried out.

The approach and methods used in, and the focus of, the cumulative effects assessments for each VEC were as described in Chapter 5 of the EIS, are based on and in keeping with recent and accepted EA practice. These methods and the associated conduct of the cumulative effects assessment in this EIS are also in full compliance with the EIS Guidelines (including Section 4.8 of same).

As described in some detail in EIS (Section 5.4.7), the cumulative effects assessment for each VEC considers the overall (total) effect on the VEC as a result of the Project's likely residual environmental effects (as summarized above) and those of other relevant projects and activities, using the approach summarized below:

1) Past and on-going projects and activities and their effects are reflected in the existing (baseline) environmental conditions for each VEC, the current condition of which influences its overall sensitivity or resiliency to further disturbance or change. This existing condition is considered integrally in the assessment of the Project's likely environmental effects.

2) The cumulative effects assessment then considers whether and how this existing condition could be changed by the introduction of the Project and its residual environmental effects.

3) Other likely future projects and activities whose effects on the VEC would likely interact in space and time with those of the Project (and/or its zone of influence), and/or would affect the same populations, communities, etc as the Project are identified and considered. As also specified in the EIS Guidelines (Section 4.8), this includes the following:

- IOC (Labrador Operations)
- Joyce Lake Direct Shipping Iron Ore Project
- Kami Iron Ore Project: Alderon
- Wabush Mines: Cliffs Resources
- Mount Wright Mine: ArcelorMittal
- Bloom Lake Mine: Cliffs Resources
- Schefferville Area Iron Ore Mines (James, Redmond, Houston Properties): Labrador Iron Mines
- DSO Iron Ore Project: Tata Steel Minerals Canada
- Upper Churchill Project
- Lower Churchill Generation Project, and the
- Labrador-Island Transmission Link Project

, either as a current and on-going activity (which has affected the existing environment and whose effects are therefore reflected in same), and/or as a planned or potential future activity whose effects may overlap in space and time with those of the Wabush 3 Project to result in further (cumulative) effects.

The above described approach of considering the effects of past and on-going projects and activities as part of the existing (baseline) environment is well established in current EA practice (see for example, Alderon's recent EIS for the Kami Project, Nalcor Energy's Lower Churchill Project / Labrador – Island Transmission Link EIS, and others), as well as in applicable regulatory guidance material on cumulative effects assessment. This includes the Canadian Environmental Assessment Agency's Cumulative Effects Assessment Practitioners Guide (1999) which states, for example, that "In practice, past actions often become part of the existing baseline conditions, [although] it is important ... to ensure that the effects of these actions are recognized." (p. 18), as well as stating that consideration of "the past" environment in assessing and evaluating cumulative effects often focuses on current (pre-Project) environmental conditions.

As noted above and throughout the EIS, the Proponent has clearly recognized that past and on-going development projects and other human activities in the region have influenced and shaped its existing environment. Moreover, these influences and past effects are not simply considered individually and "statically" as part of the existing (baseline) environment and then disregarded in the environmental effects assessment. Rather, as reiterated throughout the EIS, "the current condition of the pre-Project environment as a result of other anthropogenic and/or natural factors - *and thus, its likely sensitivity or resiliency to further disturbance or change - has also been integrally considered in the Project-specific and cumulative environmental effects* analyses presented in this EIS" (see EIS Section 3.3.3, emphasis added).

3.2.10 Information Request ITUM-10

Once again, let us look at the impacts that IOC has had on the caribou to illustrate the point. As IOC's own study once again makes clear, this time with respect to the sedentary woodland caribou, the area where IOC built and continues to operate its megaproject at Carol Lake was once part of the sedentary caribou range but such caribou no longer frequent the area because of the disturbances caused by IOC. IOC's megaproject has therefore chased away the threatened sedentary caribou which, as discussed, plays a predominant role in Innu culture.

Instead of shedding light on the impacts already caused by IOC's megaproject and conducting an appropriate analysis of the Project's potential contribution to such ongoing impacts, the EIS buries the extent of the ongoing current impacts by hiding them in the baseline picture. And conveniently of course for IOC, once your baseline picture indicates that there does not seem to be any caribou in proximity to the Project area, it is very easy for IOC to conclude in the EIS, as it does, that the Project will not impact caribou populations:

The construction and operation of the Wabush 3 Project is therefore not anticipated to interact with or adversely affect either of these caribou populations, and they are therefore not considered further in this Chapter.

Such absurd conclusions on IOC's part with respect to caribou are of course of the same order as IOC's conclusions described above respecting the impacts of the Project on the our client's current and future use of the lands: since the megaproject at Carol Lake forced the Innu of Uashat mak Mani- utenam, including the Vollant family, off their lands, there is no concern over the Project's impacts on traditional use of the area.

IOC Response:

As described elsewhere, the EIS assesses and evaluates the potential effects (changes) to the current (baseline) environment that may result from the Project, either in and of itself or through cumulative effects in combination with other projects and activities in the region. Again, this is in keeping with the NL *Environmental Protection Act* (*NL EPA*, Part X), which defines an "environmental effect" as "a change in the *present or future environment* that would result from an undertaking" (emphasis added).

Please see IOC's earlier response to Information Request ITUM-07 which addresses the above noted comments and questions regarding caribou, and to Information Request ITUM-09 which deals with the cumulative effects assessment approach and methodology.

It should be clarified that, notwithstanding the above assertion of same by ITUM, in no place in the EIS or elsewhere has IOC stated or shown that its previous and on-going activities were responsible for the currently observed decrease in caribou herd numbers and their overall distribution / ranges in Labrador and Québec.

Again, there is no anticipated interaction expected between the Project and caribou given their current absence from the area, and the development of Wabush 3 itself is not likely to influence or otherwise change the potential future return of this species to the region or the overall health or sustainability of these herds.

3.2.11 Information Request ITUM-11

IOC's boldness in making such admissions is perhaps the most revelatory of all as it clearly shows that IOC believes that it has nothing to fear from our client, the government or anyone else. It does not just believe that it is beyond reproach – it believes that it beyond the law:

As indicated above, IOC's current mining operations have been on-going for over 50 years, and have restricted or otherwise influenced the nature and distribution of land and resource use in this area, particularly within IOC's property boundaries. IOC has also planned, proposed and undertaken other development activities in recent years, such as expansion projects and the development of new infrastructure, which have had similar

implications. The development of the Wabush 3 Project will result in an increase in the overall footprint of IOC's activities, extending these further to the south and having similar limitations for other land and resource uses to the immediate north of Labrador City.

This total and complete lack of consideration for the impacts, suffering and assertion that the Wabush 3 mine is "being proposed and planned in accordance with the principles of sustainable development" all the more galling. In what sane frame of reference is it acceptable and even merit- worthy, to have driven off a practicing indigenous culture and the natural foundations on which it rests, such as the caribou, and then to not only claim that there will be no impacts from further development, but that such lack of impacts proves the sustainability of the endeavor?

In reality, the Project will greatly contribute to the overall damage caused by IOC's megaproject at Carol Lake by not only obliterating one of the last green, usable and recoverable oases in the area, but also, according to IOC, prolonging the ongoing damage by almost another generation. Such an extension will only have the effect of prolonging the misery of the Innu of Uashat mak Mani-utenam, including the Vollant family, and delaying further the moment when they can rightfully take hold again of the lands that were stolen from them.

IOC Response:

The direct excerpts from IOC's Wabush 3 EIS cited above by ITUM are general statements of fact, which place the proposed Project in the overall environmental and socioeconomic setting and context within which it will (if approved) be constructed and operated.

This includes the previously mentioned recognition that the long-standing presence of mining and other industrial activities in Western Labrador, including IOC's existing Labrador City Operations as well as Wabush Mines, community development and other activities, have influenced the existing environment in the region. The EIS also recognizes that the development of the Project will increase and extend the footprint of IOC's overall Labrador City Operations, and in doing so, will affect the landscape and any human activities which currently occur within the immediate Project area. At the same time, and as also reflected in the EIS, its planned location immediately adjacent to on-going and long-standing mining activity in the area means that the Project will have a minimal new environmental footprint and thus, the proximity of the Wabush 3 Project to previously altered habitats and areas (existing IOC operations and others) is also considered preferable for environmental reasons.

Again, the existing and available information does not indicate that any Aboriginal people, including ITUM members, currently undertake land and resource use activities within or immediately adjacent to the proposed Project site itself, nor has any further or specific information been provided which would change this finding and conclusion of the EIS. In terms of potential future use of the Project area by ITUM members following decommissioning, IOC again appreciates this information and clarification, and the planned, future decommissioning and rehabilitation of the proposed Project area is addressed in various sections of the EIS (such as Sections 2.6.3, 6.3.5, and elsewhere) and the area's potential future use for land and resource use activities is discussed in Section 17.4.4.

As also demonstrated throughout this EIS, IOC's Project planning and design work to date, coupled with the identification and proposal of specific measures to avoid or reduce potential adverse environmental and

socioeconomic effects and to optimize economic benefits over the near and long-term means that the Project is indeed considered to be in keeping with the principles and practices of sustainable development.

3.2.12 Information Request ITUM-12

III) NEED FOR DEEP CONSULTATION BY GOVERNMENT

Lack of any benefits for our client from the Project

Despite the above serious impacts on their rights and their current and future traditional activities, nowhere does IOC make mention of any possible compensatory or accommodative measures. The Innu of Uashat mak Mani- utenam cannot help but notice, however, the many benefits that the Project will have, according to IOC, for all kinds of stakeholders, including various levels of governments:

In addition to providing revenue and profits for IOC and its shareholders, the proposed Project will therefore result in significant socioeconomic benefits at the local, regional, provincial and national levels throughout its various phases. Project–related construction and operation activities and associated labour / contracting requirements are described in further detail later in this Chapter. In addition, these direct economic benefits will be supplemented by indirect and induced employment and business opportunities and taxation revenues through, for example, spending by Project employees and contractors.

It is worth remembering at this point that the Innu of Uashat mak Mani- utenam have never received one single benefit or penny of compensation from IOC's megaproject at Carol Lake, and this, despite the incredible losses they have suffered. And while IOC boasts in its EIS that it is the number one private sector employer in the province of Newfoundland and Labrador, it omits to mention the shameful fact that just one single Innu of Uashat mak Mani-utenam is employed, anywhere, by IOC.

IOC Response:

Throughout the EIS, IOC has identified a variety of environmental planning, management and mitigation approaches and measures that have been and/or will be applied to Project planning and eventual implementation to help avoid or otherwise address adverse environmental effects and/or to optimize the Project's likely benefits. These include relevant IOC environmental and social policies, plans and other procedures and initiatives that are relevant to the Project, general environmental protection measures which have been proactively "built in" as part of overall Project planning and design, and various specific environmental mitigation measures which are relevant to one or more of the identified VECs and their environmental effects assessments. IOC's first priority has been in avoiding environmental effects through Project planning and design wherever possible (see for example EIS Section 6.3), and then in ensuring that appropriate environmental protection measures have been identified and commitment to for implementation during Project construction and/or operation. Where appropriate and as required (by legislation or otherwise), environmental compensatory measures have also been outlined, including IOC's proposed fish habitat offset plan (Chapter 15).

Again, the existing and available information does not indicate that any Aboriginal people, including ITUM members, currently undertake land and resource use activities within or immediately adjacent to the proposed

Project site itself, and therefore adverse effects on Aboriginal people and their activities are not expected as a result of the Wabush 3 Project. IOC has, however, committed to future and on-going consultations with relevant Aboriginal groups (including ITUM) as required and requested to continue to identify and seek to address any issues that may arise throughout the life of the Project.

The implementation of the proposed Project will, however, provide significant socioeconomic benefits at the local, regional, provincial and national scales. This includes the employment and business activity that the Project will generate and/or sustain during its construction and operations phases, along with the associated income and taxation benefits. In the EIS, IOC has also identified a variety of existing and proposed policies and procedures that are intended to help create and optimize these benefits.

As also outlined in Section 20.3.3.5 of the EIS, IOC is committed to diversity in the workplace and currently employs 126 Aboriginal people at its Newfoundland and Labrador operations, which is considerably higher than the Canadian mining industry average, and with an estimated 155 Aboriginal people in total in Newfoundland and Labrador and Québec. An overview of IOC's associated employment, diversity and community related policies and procedures are provided in various sections of the EIS (including Chapters 6 and 20), and IOC continues to provide employment to, and opportunities for, qualified, interested and available Aboriginal persons throughout its operations - and the Company and its contractors will continue to do so for Wabush 3.

3.2.13 Information Request ITUM-13

The Innu of Uashat mak Mani-utenam were very critical of Alderon's EIS for its Kami project, but at the very least, Alderon stated officially in its EIS its intention to share in the benefits of the project with the Innu of Uashat mak Mani-utenam by way of the conclusion of an Impact and Benefit Agreement. Nowhere is there any mention of IOC's interest in such regard. It goes without saying that our client is not satisfied with IOC's vague, minimal reference to some form of consideration being given to the impacts of the Project, including its cumulative impacts in conjunction with its vast megaproject at Carol Lake, on our client's rights and current and future use of the area:

IOC will, however, continue to consult with relevant Aboriginal groups in Labrador and Québec through established and/or informal engagement processes, which will include the provision of Project information and updates on on-going and planned activities, as well as discussion of any issues that may arise and potential means of addressing them, including both potential Project-related environmental effects and socioeconomic benefits.

IOC Response:

IOC's commitment to continue to engage with relevant Aboriginal groups and other communities and organizations, including the provision of Project information and updates on activities as well as discussion of any issues and potential means of addressing them, is a key aspect of its approach to, and commitment for, on-going communication and cooperation with key groups throughout the life of the Project.

This was initially reflected in IOC's earlier discussion with, and offers of Consultation Agreements and associated procedures and resources to, ITUM to facilitate the sharing of information for the EIS.

Unfortunately, as ITUM did not accept or respond to such offers, these could not be implemented, and as a result IOC is clearly unable to be specific and prescriptive in the EIS on whether ITUM will desire and participate in any such future engagement with IOC, and especially, to dictate when and how any such future engagement will take place. IOC remains open to future consultations with ITUM on the Wabush 3 Project.

3.2.14 Information Request ITUM-14

Importance of the Government's involvement

In the course of our correspondence on behalf of our client with your government in this file, the Innu of Uashat mak Mani-utenam have repeatedly communicated their request for a high level meeting with your Government regarding the critical issues raised by the Project, including in regard to the issue of consultation and accommodation.

It is important that the Government of Newfoundland and Labrador understand that this file is not like any other. In this particular file, it is simply impossible for the Government of Newfoundland and Labrador to satisfy its constitutional duty to consult and accommodate the Innu of Uashat mak Mani-utenam in connection with this Project by delegating to IOC the procedural aspects of consultation as well as relying on its official policy of having proponents such as IOC pay for necessary accommodation measures. As the Government of Newfoundland and Labrador has been made aware of, and as already described herein, the Innu of Uashat mak Mani-utenam have absolutely no faith at this point that it will be possible to work constructively with IOC – a lack of trust stemming from having their rights violated for over 65 years and from suffering through 4 years of unproductive talks with IOC in the hopes of putting an end to such violations.

IOC Response:

As described in detail in the EIS (Chapter 4) and summarized earlier, IOC has made significant and good faith efforts to engage directly with ITUM and each of the other relevant Aboriginal groups in Labrador and Québec during the EA process for this Project, and remains open to future discussions and consultations with ITUM on Wabush 3.

Although any legal duty of consultation with Aboriginal groups ultimately rests with the Crown, its procedural aspects are often delegated to Proponents through the EA process. IOC believes that its Aboriginal engagement initiatives and efforts have been appropriate and meaningful, and in keeping with the requirements and spirit of the Government of Newfoundland and Labrador's Aboriginal Consultation Policy on Land and Resource Development Decisions and the relevant aspects of the EIS Guidelines (particularly, Section 2.3.1).

The various perspectives provided here by ITUM on the Government of Newfoundland and Labrador's consultation policies, practices and responsibilities are understood to be directed to the Province and cannot be addressed or responded to by IOC

3.2.15 Information Request ITUM-15

The necessary components to be included in such consultation

In carrying out its consultation and accommodation duties, the Government of Newfoundland and Labrador must take into account the special nature of this Project. The Project is, after all, far from the last of IOC's planned developments in the area: the areas around IOC's mines are surrounded by a large number of its exploration and planned future mining projects (including D'Aigle Bay, Wabush 6, Wabush 8, Wabush 4, Knight, Poly Lake and Duley). Current market conditions notwithstanding, we know that IOC has vaunted its capacity to expand concentrate production to 50 and even 100 million tonnes per year.

It is clear that IOC's logic in the future in seeking to justify the construction of such new mines will borrow heavily from the tactics used in the Wabush 3 EIS, that is, to claim that there will be absolutely no impact on the current or future use, or even rights, of the Innu of Uashat mak Mani-utenam. According to IOC's logic therefore, IOC can not only get away with building the original mining megaproject (now totaling 9 mines), in clear violation of the Innu of Uashat mak Mani-utenam's constitutionally protected Aboriginal rights, including Aboriginal title, as well as treaty rights, but now, in addition, IOC can continue to build new mines nearby for the reason that the additional projects share some connection (such as shared infrastructure) with the original megaproject. According to this logic, where does IOC's potential impunity end?

The Innu of Uashat mak Mani-utenam of course take great exception to IOC's attempt to frame the issue in such a manner, and in addition, argue that it should in fact be the contrary: not only do the Project's inherent impacts on their rights and traditional activities, both current and planned, require justification, but IOC should have to also account for and address the extra burden that the Project will have on the Innu of Uashat mak Mani-utenam as a result of the Project's connection with, and thus complicity in and exacerbation of, the illegality of IOC's original, and extremely harmful, megaproject.

IOC Response:

Again, the various perspectives provided here by ITUM on the Government of Newfoundland and Labrador's Aboriginal consultation policies, practices or responsibilities are directed to the Province and cannot be addressed or responded to by IOC. It is also not the responsibility or intent of IOC to evaluate or comment on the overall question of whether or not ITUM or any group possess Aboriginal rights or title in or near the Project area, and/or the nature or degree of any such claimed rights.

Notwithstanding ITUM's reference to various other past, potential and hypothetical projects and activities in the above IR, IOC would like to clarify and reiterate that the scope of the Project that is the subject of the EIS, and for which EA approval is being sought, is the construction and operations of the Wabush 3 Project, as defined in the EIS Guidelines and the EIS. No other such projects or activities are currently being proposed by IOC, and the EIS (and any associated EA approval) does not pertain to or include IOC's on-going Labrador City Operations nor any separate, future developments in the region.

3.2.16 Information Request ITUM-16

While counting on the fact that the Government of Newfoundland and Labrador does not condone IOC's warped logic in such matters, the Innu of Uashat mak Mani-utenam were concerned to read in your government's October 2, 2013 responses to their comments on the EIS guidelines for the Project that the:

Components of IOC's Carol Project mining operation including, processing, tailings management and transportation have previously been assessed and mitigations developed.

First of all, our client requests that you please send us such assessments because the ones available on the Department of Environment and Conservation website do not at all concern any such matters. And secondly, our client's position is that, regardless of the extent and thoroughness of such assessments, it is clear that the Innu of Uashat mak Mani-utenam were not in any way consulted or accommodated (or even received any information) in connection with such assessments.

The Innu of Uashat mak Mani-utenam therefore call on the Government of Newfoundland and Labrador to begin to concretely and intensively engage with them regarding the impacts of the Project, including the cumulative impacts associated with IOC's megaproject at Carol Lake.

IOC Response:

The references above to ITUM's previous input to the Government of Newfoundland and Labrador on the EA requirements for the Project and the content of the EIS Guidelines are assumed and understood to be directed to the Province, and cannot be addressed by IOC.

The Proponent would, however, like to point out that while its overall Labrador City Operations commenced in the 1960s - and therefore were not subject to provincial EA legislation, having predated its existence by nearly two decades – all IOC development projects that have been proposed since the enactment of the provincial EA process in 1980 that have been subject to same have been registered by IOC for regulatory review and approval.

The NL Department of Environment and Conservation's website lists and provides information on all such project registrations since 2000, which is available at:
http://www.env.gov.nl.ca/env/env_assessment/projects/projects_list.html

Some examples of relevant IOC projects since that time that have been subject to EA review include:

a) IOC Explosives Facility (2012)
b) Labrador West Mineral Exploration Roads Project (2012)
c) Labrador City Carol Project Revised Tailings Management Plan (2006)
d) Plateau Dolomite Quarry, East of Wabush Lake (2005)
e) Labrador City Carol Mining Project - Luce Pit Development (2001)

Again, the views provided here by ITUM on the Government of Newfoundland and Labrador's Aboriginal consultation policies, practices or responsibilities and its past and future engagement activities are understood to be directed to the Province and cannot be addressed or responded to by IOC.

3.2.17 Information Request ITUM-17

IV) CONCLUSION

In conclusion, our client wishes to make clear that IOC has misrepresented both our client's use of the Project site and its surroundings as well as the Project's impacts on our client. The Project would indeed have severe and irreparable impacts on our client's Aboriginal rights, including Aboriginal title, and treaty rights, as well as on current and future use of the Project site and the surrounding areas. In addition, our client calls for a proper accounting of the cumulative environmental impacts of the Project, including on our client. Finally, our client is also calling on the Government of Newfoundland and Labrador to fulfil its constitutional duty to consult and accommodate them with respect to the Project.

In addition, the Innu of Uashat mak Mani-Utenam, including the Vollant family, take the position that the Project must be rejected by the Government of Newfoundland and Labrador both due to the damage that the Project would cause to what little usable and recoverable land is left in this culturally significant region as well as due to the devastating effect that IOC's megaproject at Carol Lake has already had on the traditional way of life of the Innu of Uashat mak Mani-Utenam, including the Vollant family, in the region.

If the Government of Newfoundland and Labrador does not reject the Project, at the very least, the Government of Newfoundland and Labrador is required to ensure that appropriate accommodation measures are worked out with the Innu of Uashat mak Mani-Utenam concerning the impacts on their rights and interests described herein.

IOC Response:

IOC again recognizes and respects ITUM's views on this subject, and we very much appreciate ITUM's review of and comments on the Wabush 3 Project EIS. Each of these have been responded to preceding sections, the primary points of which are summarized below:

- IOC maintains that it has appropriately and accurately described known, current land and resource use activities in the Project area and beyond for use in the EIS, including that of ITUM members, based on the existing sources of information that were available to it. IOC has also made repeated efforts to engage directly with ITUM to provide and obtain additional information and views on the Project, its existing biophysical and socioeconomic environments and the potential implications of the Project on same. This included offers of consultation processes and resources for this purpose, which were not accepted by the ITUM leadership. On the basis of the existing and available information, there is no anticipated interaction between the Project and current Aboriginal land and resource use activities, and no specific, additional information has been obtained or provided by ITUM which would indicate that these findings are incorrect or need to be revised or revisited.

- The EIS provides a detailed and comprehensive assessment and evaluation of the likely environmental effects of the Project, which is in compliance with the provincial EA legislation and the Final EIS Guidelines which were issued by the Province on April 3, 2014, and which is based on approaches and methods that are in keeping with recent and accepted EA practice.

- IOC has made significant, good faith efforts to engage directly with ITUM and other relevant Aboriginal groups in Labrador and Québec during the EA process for this Project. The company believes that its Aboriginal engagement initiatives and attempts have been appropriate and meaningful, and IOC remains open to future discussions and consultations with ITUM on the Wabush 3 Project. The various

perspectives provided by ITUM on the Government of Newfoundland and Labrador's Aboriginal consultation policies, practices and responsibilities are understood to be directed to the Province and cannot be addressed or responded to by IOC.

- IOC reiterates that the EIS, and the associated EA decisions by Government, related specifically and exclusively to the proposed Wabush 3 Project, which - with the planned implementation of the various mitigations outlined in the EIS - is not likely to result in significant adverse effects to any aspect of the biophysical or socioeconomic environment, during either of its phases. The Project's planned location immediately adjacent to on-going and long-standing mining activity in the area means that the Project will have a minimal new environmental footprint and thus, the proximity of the Wabush 3 Project to previously altered habitats and areas (existing IOC operations and others) is considered preferable and beneficial for environmental reasons.

3.3 Naskapi Nation of Kawawachikamach (NNK)

3.3.1 Information Request NNK-01

The Naskapi Nation of Kawawachikamach (the "Nation") received a consultation request on 8 August, 2014, pertaining to the project designated in the heading (the "Project"). The following information and documentation (the "Documentation") was supplied by the proponent, the Iron Ore Company of Canada (the "IOCC"):

- Wabush 3 Open Pit Mine Project – Environmental Impact Statement –Plain Language Summary;
- Letter dated 8 August, 2014, entitled Invitation to comment on the environmental assessment of the Wabush 3 Open Pit Mine Project;
- Website link to the full EIS and all the Appendices.

Consequently, we understand that:

1) All the Documentation enabling the Nation to make an informed decision has effectively been communicated within a reasonable time frame;
2) The final project shall be substantially as described in the Documentation;
3) An analysis of potential impacts was carried out by IOCC and no potential adverse impacts on the aboriginal and treaty rights of the Nation have been identified by IOCC;
4) No other First Nation has expressed concerns pertaining to the Project.

Subject to the foregoing, please be informed that the Nation does not intend to object to this Project. Such position is however subject to the following terms and conditions:

1) No substantial modifications shall be brought to the Project, as described in the Documentation, without undertaking additional consultation with the Nation;
2) Any modification that affects our aboriginal and treaty rights in Québec and Labrador, shall be submitted to a new and distinct consultation process;
3) The position adopted by the Nation is entirely based upon the Documentation and may be modified where any other relevant issues are brought to the attention of our representatives;
4) The position adopted by the Nation is based upon current needs of our members, which are subject to change in the future;
5) The undertakings of the IOCC shall be respected, especially pertaining to mitigation and accommodation of impacts on our aboriginal and treaty rights in Québec and Labrador;

6) Amendments and accommodation measures shall be integrated within the EIS with respect to the following issues of concern to the Nation, as explained in greater detail in Appendix A, attached hereto:

    a) subdivision of the Valued Ecosystem Components respecting wildlife species and habitat;
    b) development of mitigation measures to compensate for environmental damage;
    c) include greater details on conservation measures for migratory caribou;
    d) implementation of structured monitoring plans at each stage of the project; and
    e) detailed assessment of the cumulative impacts.

Please note, such position does not amount to consent to any future activities, and shall not affect the aboriginal and treaty rights of the Nation.

The Nation looks forward to continue to develop, with the Government of Newfoundland and Labrador and the IOCC, a mutually beneficial relationship based on trust, transparency and open communication.

IOC Response:

IOC appreciates NNK's review of and comments on the Wabush 3 Project EIS and associated materials, which were provided to it for review and comment by the Government of Newfoundland and Labrador, in keeping with the provincial EA legislation and its associated procedures.

The EIS (Chapter 2) provides an overview description of the Project as it is being designed and proposed, including its overall purpose, location and layout, key facilities and components, associated construction, operations and eventual closure and decommissioning activities, labour force and schedule, as well as an assessment and evaluation of various alternatives. As stated in the EIS (Section 2.5):

> As is typical at the EA stage, Project planning and design are currently at a somewhat conceptual stage and, during the course of future detailed engineering these may be subject to some refinements based on technical, economic, environmental and social considerations. This may include, for example, the findings and outcomes of the EA process and on-going consultation activities by IOC. Any such modifications would likely be of a nature that would not materially change the nature and scope of the Project from how it is described in this document, or specifically, that would result in any new or increased adverse environmental outcomes.

IOC expects, however, that a key condition of any eventual EA approval of the Project will be that it will advise the Minister of Environment and Conservation of any future, significant changes to the Project over that described and assessed in the EIS. IOC will comply fully with any such requirement, as well as with its various mitigation commitments made in the EIS itself. Government may provide any such further information to and/or otherwise consult with other parties on any such changes, and IOC has stated that it remains open to future discussions and consultations with Aboriginal groups on the Wabush 3 Project as it progresses.

The various questions and concerns raised by other Aboriginal groups during IOC's consultation activities for the EA were documented in Chapter 4 of the EIS, and any comments from these groups to Government on the nature and content of the EIS are provided elsewhere in this EIS Amendment.

IOC's responses to each of the specific review comments provided by NNK on the Wabush 3 Project and its EIS are provided in the sections that follow.

3.3.2 Information Request NNK-02

CONTEXT

The Iron Ore Company of Canada ("IOCC"), the proponent, proposes to develop an iron ore mine located in Western Labrador, within its existing property boundaries. The entire project footprint is located within the Town of Labrador City's planning boundary and will cover a total area estimated at 507 hectares.

IOCC currently operates five open pit mines in Labrador West as well as a concentrator plant and a pellet plant and transports its products by rail to its existing infrastructure at the Port of Sept-Îles, Québec.

The IOCC, proposes to develop Wabush 3, an open pit mine containing approximately 744 million tonnes of iron ore for a duration of 45 years. It will also consist of an overburden storage area, a waste rock disposal pile, haulage roads, a pole line, a groundwater extraction system and a mine water collection treatment and disposal system (the "Project").

The main objective of this review is to check the quality of the Environmental Impact Statement ("EIS"), to determine whether their conclusions are realistic and objective and to suggest any corrective methods that may be necessary.

IOC Response:

Background information and reviewer commentary, no response required.

3.3.3 Information Request NNK-03

REVIEW AND COMMENTS

The Naskapi Nation of Kawawachikamach (the "Nation") believes that, in theory, the IOCC has respected the EIS Guidelines produced by the Newfoundland and Labrador Department of Environment and Conservation (October, 2013). However, application of the EIS by the IOCC in certain instances reflects minimal effort and a narrow interpretation, which does not, in practice, meet objectives sought by the EIS.

IOC Response:

IOC appreciates and agrees with NNK's observation that the Wabush 3 EIS addresses and is compliant with the EIS Guidelines issued by the Government of Newfoundland and Labrador, and the company is of the view that it has developed and submitted a comprehensive and quality EIS that assesses and evaluates the likely environmental effects of the Project.

3.3.4 Information Request NNK-04

Valued Ecosystem Components ("VECs")

The Nation is particularly concerned about the VECs, which lumped birds, other wildlife and their habitats, into one category. According to good practice, some combinations may be permitted to regroup animals of similar species, for example, fur-bearing animals can be combined in order to assess impacts on the group as a whole; but this is not the case for this EIS, whereby a single class has been created that consists of birds (including passerine birds, birds of prey, migratory birds and waterfowl), other terrestrial wildlife (including rabbits, voles, caribou, moose, amphibians, etc.) and their habitats. In its letter dated 13 November, 2013, to the Newfoundland and Labrador Department of Environment and Conservation, regarding the EIS Draft Guidelines, the Nation had recommended "… the [VECs] should be more specifically defined, in order to avoid improper interpretation by the proponent. VECs should be selected on the basis of similar biological characteristics, such as size of home range and habitat used. The use of a VEC that contains several species creates a strong risk that the project's EIS will be diluted."

It is unrealistic to assess impacts affecting a single group that includes species with home ranges as different as those of the shrew, the bald eagle and the weasel, that vary from 100 m2 to 200 km2 (Feldhamer et al., 2003; Gauthier and Aubry, 1995). Their habitats are simply not comparable. Small mammals will see their entire habitat destroyed, whereas others, such as moose, may only lose a small portion of their home range, yet impacts will be felt by numerous species within their larger migratory range. How is it possible to assess impacts for a group of species that are not biologically homogeneous?

It is unusual and inadequate to combine VECs in this way. Nalcor Energy (2009), for example, broke down VECs on the basis of individual species, such as moose, Canada goose, American marten, black bear, migratory caribou, woodland caribou, beaver, porcupine, etc., when it assessed the impacts of its project on the Churchill River, Labrador. Other mining projects, similar in scope to Wabush 3, such as the Stornoway Diamonds' Renard Project and the New Millennium/Tata Steel Timmins Project, divided VECs into smaller classes.

Additionally the evaluation of the interrelation between VECs was not completed. For example, the fact that the fish will be affected by pollution should also affect the Bald Eagle who prey on them. Page 517 of the EIS states that "Given the number and variety of bird and mammal species that are known or likely to occur in the Project area, interactions were selected that focus on broader scale habitat conditions…and interactions with their life history…rather than interactions that potentially affect individual species".

As previously mentioned in the Nation's comments of the EIS Draft Guidelines, the Nation would like to reiterate its stance that the structure of the EIS is too broad, and by lumping various wildlife species and their habitats into one VEC does not allow for a complete and realistic evaluation of the potential impacts of the Project. The EIS Guidelines allow for a large degree of interpretation, which must not be regarded as restrictive or exhaustive. Environmental Assessment is a planning tool used to ensure that projects are considered in a careful, precautionary manner to avoid or mitigate any possible adverse effects on the environment.

IOC Response:

In keeping with what has become standard EA practice, and as specified in the EIS Guidelines, the EA is organized by and focused on a series of identified Valued Environmental Components (VECs). VECs are aspects of the biophysical and socioeconomic environments that are of particular ecological and/or social importance, and which have the potential to be materially affected (adversely or positively) by the proposed project under assessment. VECs reflect identified scientific and community concerns regarding a project and its potential effects, and are typically identified early in an EA as a result of questions and issues raised through consultations with government departments and agencies, Aboriginal and stakeholder groups and the interested public. The VEC approach is therefore a useful, effective and widely accepted way of helping to ensure that an EA focuses on important and relevant environmental components and issues.

The individual VECs and overall VEC structure used in the EIS are in keeping with those which were specified in the Final EIS Guidelines issued to IOC by the Province in April 2014 (following Aboriginal and public review and input), which, for example, specifically identified "Birds, Other Wildlife and Their Habitats" as one of the VECs upon which the EIS should focus. This is also in keeping with recent EA practice in Newfoundland and Labrador, where for example, Alderon's recent EIS for the Kami Project included a similar VEC.

Despite the VEC structure and the individual treatment of each component's environmental effects assessment as a separate Chapter of the EIS, the analysis for each VEC clearly recognizes and considers the "clear interactions and inter-relationships between it and other components of the natural and socioeconomic environments, including several of the other VECs considered elsewhere in this EIS" and that particular components of the environment "can therefore represents a potential pathway for Project-related environmental effects to interact with and affect" other components of the biophysical and/or socioeconomic environments (see for example, the introductory sections of several biophysical and socioeconomic VECs).

Within the "Birds, Other Wildlife and Their Habitats" VEC itself, the grouping of these multiple and somewhat diverse environmental components and parameters into a single VEC was in fact intended to facilitate an ecosystem approach and more holistic perspective to the environmental effects assessment than would be the case if they were each assessed separately. As stated in the EIS:

> "This VEC includes relevant bird, mammal and other wildlife species, as well as relevant aspects of their habitats given the clear inter-relationships between these environmental components. This approach is in keeping with current and standard practice in EA, and provides for a more comprehensive, holistic approach while at the same time reducing repetition and optimizing brevity" (Section 15.0).

Notwithstanding the consideration of each of these components as part of a single VEC, the associated description of the existing environment (Section 15.3) provides baseline information by species and species groups as available and relevant, and the eventual environmental effects assessment recognizes and includes species-specific interactions, effects and mitigation requirements where applicable.

To continue and complete the EIS citation provided above by NNK (EIS page 517-518, emphasis added):

"Given the number and variety of bird and mammal species that are known or likely to occur in the Project area, interactions were selected that focus on broader scale habitat conditions (i.e., habitat availability and function), and interactions with their life history (i.e., mortality risk and behaviour) rather than interactions that potentially affect individual species. *Any relevant differences in the nature or degree of potential interactions and resulting effects between species or components of the VEC and/or in associated mitigation requirements are identified and described where applicable*."

3.3.5 Information Request NNK-05

Mitigation Measures

The proposed environmental mitigation measures are not well enough defined. Some of the proposed actions should simply be considered common practice and/or mandatory for safety reasons. For example the mitigation measures outlined for the birds, other wildlife and their habitats included respecting speed limits, installing a fence, leaving natural buffer zones when clearing the land or clearing only where absolutely necessary. All of these actions should be common, or even mandatory, practice and implemented for safety reasons for humans as well as for wildlife.

Although the Nation does agree that an extension of existing mines is preferable to fragmenting pristine land elsewhere, the mitigation measures should be somewhat equal to the environmental destruction and it doesn't seem that this is the case.

In addition to the application of sufficient mitigation measures, a detailed compensation plan should be implemented to offset the planned environmental destruction of this Project. For example, several wetlands will be completely destroyed and it is not sufficient that the proponent simply states that the Project footprint was reduced to avoid more destruction. If the proponent does not know how to compensate for the loss, perhaps the proponent could donate financially to research, or to the protection of wetlands elsewhere in the province or nearby.

According to *Canadian Environmental Assessment Act*, 2012, "mitigation measures means measures for the elimination, reduction or control of the adverse environmental effects of a designated project, and includes restitution for any damage to the environment caused by those effects through replacement, restoration, compensation or any other means."

The Nation believes that the above definition was not respected, and too many of the proposed mitigation measures should be considered standard procedures. The proponent should develop sound actions and plans to compensate for the proposed environmental damage, as defined in the Act.

IOC Response:

As described in Section 1.5 of the EIS, the proposed Project is not subject to the *Canadian Environmental Assessment Act* (2012), but rather the EIS has been prepared and submitted in accordance and compliance with the NL *Environmental Protection Act* (NL EPA, Part X) and its associated *EA Regulations*. With regard to the definition and identification of mitigation measures, the *NL EPA* states for example that:

> 57) An environmental impact statement shall be prepared in accordance with the guidelines, and shall include (e) a description of .. (ii) the actions necessary, or that may reasonably be expected to be necessary, to prevent, change, mitigate or remedy the effects upon or the effects that might reasonably be expected upon the environment by the undertaking;

Throughout the EIS, IOC has identified a variety of environmental planning, management and mitigation approaches and measures that have been and/or will be applied to Project planning and eventual implementation to help avoid or otherwise address potential adverse environmental effects and/or to optimize the Project's likely benefits. These include relevant IOC environmental and social policies, plans and other procedures and initiatives that are relevant to the Project, general environmental protection measures which have been proactively "built in" as part of overall Project planning and design, and various specific environmental mitigation measures which are relevant to one or more of the identified VECs and their environmental effects assessments.

IOC is of the view that the nature and level of specificity of these mitigation is detailed and appropriate, and in keeping with the EA stage of Project planning and decision-making, and with standard EA practice and recent EISs in Newfoundland and Labrador and elsewhere. It is also noteworthy, however, that for some of the mitigation examples highlighted by NNK in the above review comments, quite specific details have been provided and committed to in the EIS (eg, the location, length and height of the proposed security fence).

NNK is correct in its view "some of the proposed actions should simply be considered common practice and/or mandatory for safety reasons", and as noted in the EIS:

> "...the proposed Project will not require or result in the use of new or different technologies during any of its planned phases. Rather, it uses standard and proven mining components and methods, for which any potential environmental issues are therefore well understood and fully manageable" (EIS Section 6.3).

And that:

> "Each of the various, potential environmental interactions that may be associated with this proposed Project can be avoided or otherwise mitigated through the use of good planning and sound construction and operational practices and procedures, supported by standard and proven mitigations that are also well established and outlined in relevant regulatory procedures and guidelines. Most, if not all, of these measures are routinely and successfully applied to similar mining projects or other development projects in the province. These planning and mitigation measures, in combination with IOC's existing environmental policies, plans and procedures will help to ensure that the Project will not result in significant adverse environmental effects (Chapters 10 to 21)." (EIS Section 9.5)

In identifying and proposing mitigation, IOC's first priority has been to attempt to avoid environmental effects through Project planning and design wherever possible (see for example EIS Section 6.3), and then ensuring that appropriate environmental protection measures have been identified and commitment to for implementation during Project construction and/or operation. Where appropriate and as required (by legislation or otherwise), environmental compensatory measures have also been outlined, including IOC's proposed fish habitat offset plan (Chapter 15).

IOC has also participated in and supported various environmental research and resource management initiatives in Western Labrador and elsewhere, and has contributed to an increased understanding of the natural and socioeconomic environments in the region in the context of the Wabush 3 Project through, for example, its various environmental field surveys and other studies for the EIS and in its provision of the datasets gathered through these studies to the provincial Wildlife Division for its use and to help build and enhance government's overall information and databases.

3.3.6 Information Request NNK-06

Migratory Caribou

In the recent past, migratory caribou, in this case the George River Herd, intensively used the Project's study area during the winter, (D'Astous et al., 2004). The IOCC has chosen to completely disregard this fact in the assessment of the Project's impacts, since the caribou are currently absent from the study area. The population has recently decreased dramatically, but that does not mean that over the long term, the herd will not return to the territory during the winter.

Given that the estimated operating life of the mine is 45 years, there is strong possibility (and it is hoped) that the population may increase again. In the 1980s, the herd numbered 700,000-800,000, therefore it is not an outrageous or unrealistic claim that the population may rebound during the life of the mine and return to and occupy the territory. Migratory caribou should have been given special consideration in the EIS, especially with respect to the cumulative impacts of the Project, and therefore the Nation believes that the EIS is incomplete.

Similar to the above-mentioned compensation plan to offset the proposed environmental destruction of this Project and given that the caribou population is dwindling, the Nation believes that the IOCC, and proponents of all development projects in the migratory caribou's distribution area, should contribute to the conservation of this species. There are conservation efforts in progress, such as the Ungava Peninsula Caribou Aboriginal Round Table (UPCART) or a working group of professionals could be created to assess the cumulative impacts of all the projects, current and future in the Québec- Labrador region. This working group could also be responsible for developing adequate and effective mitigation measures for caribou. At present, very few mitigation measures are recognized as effective for caribou, and this is a serious issue that desperately needs to be addressed. The Nation recognizes that proponents have very little time to produce an EIS and have few resources to develop adequate, innovative mitigation measures. An independent working group would be extremely beneficial.

The Nation believes that the George River Herd's population could increase within the lifetime of this mine and could once again winter in this area. In light of the foregoing, the complete disregard for this species in the EIS simply because it currently does not frequent the area, is unacceptable. The Nation requests that the IOCC pay special attention to, and contribute to, research and conservation of this species.

IOC Response:

Caribou (*Rangifer tarandus caribou*) are native to Labrador and are part of the boreal population, which is subdivided into several ecotypes, including: 1) Migratory Woodland Caribou, including the George River Herd which migrates between forest and tundra in Québec and Labrador, and 2) Sedentary Woodland Caribou,

which include the Lac Joseph Herd found in Western Labrador and Québec (currently listed as threatened under the provincial *Endangered Species Act* and the federal *Species at Risk Act*).

Although local ecological knowledge gathered by IOC during EIS preparation confirmed that caribou were observed in the general region in the past (EIS Section 3.3.2), based on current information the Project is not anticipated to overlap or interact with the current ranges of either of these herds (EIS Section 15.3.2.2), and therefore will not likely result in any adverse effects upon caribou or their habitats. In particular, the current information indicates that the migratory George River Herd is known to occur considerably to the north of the Project area, whereas the range of the sedentary Lac Joseph herd occupies an area to the south. This was further confirmed by the aerial and ground survey work undertaken for the Project to date (as described and cited in the EIS), which did not observe caribou in the area, and is also consistent with the results of recent wildlife surveys by government as well as local observations and knowledge shared by local residents and other resource users during IOC consultations for the Project (EIS Chapter 4). The Project will therefore not likely result in any interactions with or adverse effects upon caribou or their habitats, and as a result, will not and cannot contribute to any cumulative effects on this species resulting from other projects and activities within their current ranges.

The Project area is located within the existing industrial area of Labrador West, and given the current and on-going developments in the area it is unlikely that this area would support caribou in the foreseeable future, with or without the development of the Wabush 3 Project. Mining and other industrial activity in Labrador West and beyond have been ongoing for decades, and the flora and fauna that are present in (or absent from) the region have to a degree been influenced to this previous and continuing industrial activity. Although the loss of approximately 570 ha of habitat may cause some degree of displacement of existing flora and fauna within the Project area itself (EIS Chapter 15) there is no anticipated interaction between the Project and caribou given their current absence from the area, and the development of Wabush 3 itself is not likely to influence or otherwise change the potential future return of this species to the region or the overall health or sustainability of these herds.

IOC has supported and contributed to overall caribou research and resource management initiatives in Western Labrador, through, for example, its conduct of caribou surveys for the Wabush 3 Project (as reported in the EIS) and other studies such as along its railway. IOC has shared information from these studies with provincial government authorities in Newfoundland and Labrador and Québec.

3.3.7 Information Request NNK-07

Monitoring and Follow Up

Monitoring and follow up plans were ambiguous and require more depth and detail. Table 12.1 of the Plain Language Summary shows that, with regard to the Terrestrial Environment, the follow up program for the construction phase is limited to amphibians and breeding birds and nesting surveys. The proponent should further specify what monitoring plans will be implemented for wildlife.

Additionally the quality monitoring of country foods should include a follow up plan during the closure and decommissioning phase in order to provide up to date and precise information to the individuals who consume these foods. The Naskapis have recently noticed that areas where they used to pick berries, significantly far

from the mines in the region, are no longer suitable to pick berries because they contain dust residue. They are forced to go out further into the bush to pick quality berries.

Finally, monitoring should include maintaining records of all wildlife mortalities. Knowing details of mortalities and their causes could potentially help avoid similar situations for future development activities.

The Nation believes that monitoring and follow up are of utmost importance for the present and future. Structured and detailed plans should be implemented for all stages of the Project.

IOC Response:

As noted in the EIS (Section 5.4.8), "environmental monitoring and follow-up are defined as follows:

> *Monitoring programs* are those that are implemented to meet standard regulatory requirements (such as may be required as a result of eventual Project permits), and/or to demonstrate compliance to environmental commitments made in the EIS.
>
> *Follow-up programs* are those that may be required and implemented to address any EA-related issues of uncertainty, such as to verify the environmental effects predictions and/or the effectiveness of implemented environmental effects management measures."

Each VEC Chapter concludes with an overview discussion of environmental monitoring and/or follow-up programs that may be required or are being proposed, with the IOC's overall monitoring and follow-up program being summarized in Sections 6.4 and 21.2 of the EIS.

IOC is of the view that the nature and level of specificity of its monitoring and/or follow-up program in the EIS is adequate and appropriate, and in keeping with the EA stage of Project planning and decision-making, and with standard EA practice and recent EISs in Newfoundland and Labrador and elsewhere.

The final design of follow-up and monitoring programs will, as appropriate, be dependent on the final outcomes and conclusions of the EA – including any final uncertainty about effects and/or mitigation requirements – and may require discussions with relevant government agencies, communities and stakeholders as well as requiring compliance with the terms and conditions of relevant Project permits and approvals. As a result, it would be premature to develop and put forward a detailed and perspective environmental and monitoring program, including detailed study designs, in the EIS itself.

The EIS states, however, that:

> "IOC is committed to designing, implementing and reporting on an appropriate, effective and timely environmental monitoring and follow-up program during the construction and operation phases of the Project, as outlined and committed to in the relevant sections of this EIS (Chapter 10 to 21), and will design and implement this program and the individual components of same in consultation with applicable regulatory agencies and in accordance with relevant environmental standards and permits." (Section 6.4).

To address the specific environmental monitoring and follow-up requirements raised and suggested by the NNK in its review comments:

- IOC has committed in the EIS to conducting a country foods quality monitoring study during Project operations, and completed some of the required baseline sampling for same in the summer of 2014 (see Appendix 9); and

- IOC and/or its contractors will maintain records of any and all observed wildlife mortalities throughout the various phases of the Project.

3.3.8 Information Request NNK-08

Cumulative Effects

There is always a significant degree of risk when the proponent assesses cumulative impacts, particularly when it concerns wildlife species with large home ranges, such as woodland and migratory caribou. Given the current enthusiasm for industrial development in the north and given that the George River Herd has experienced a significant population decline in the recent past, the Nation maintains that there will be substantial impacts on migratory and woodland caribou herds, and believes that the proponent should have, and did not, pay special attention to the treatment of this species in its EIS.

The proponent maintained that since other development projects (Kami, for example) developed their own mitigation measures that it will not add significantly or overlap with the impacts of this Project. Perhaps this conclusion would be valid if strong mitigation measures or compensation plans were implemented, but this was not the case.

The Nation believes that the cumulative impacts assessment was much too vague and excluded too many factors, the caribou being the major one. Therefore, the Nation considers that the EIS is providing inadequate information.

IOC Response:

Please see IOC's response to Information Request NNK-06 which addresses the above noted comments and questions regarding caribou, including the potential for Project-specific and cumulative environmental effects to this species, as well as its response to Information Request NNK-05 which deals with the various types of mitigation that were identified and proposed in the EIS and the nature and specificity of same.

3.3.9 Information Request NNK-09

CONCLUSION

The Nation's intentions are not to oppose this expansion Project, since it is clearly less environmentally destructive than fragmenting new pristine land. However, there is significant and crucial room for improvement in the IOCC's EIS concerning the following:

- further subdivision of the VECs, particularly respecting wildlife species and habitat;
- development of stronger and relevant mitigation measures to compensate for environmental damage;
- ensuring special consideration be given to the caribou and concrete efforts be implemented to target research and conservation of migratory caribou;
- establishment and implementation of structured and effective monitoring and follow up plans;
- detailed assessment of all the possible cumulative impacts.

The IOCC evidently put forth the minimum effort for this EIS and the Nation believes that this should not be considered acceptable.

IOC Response:

IOC appreciates NNK's review of and comments on the Wabush 3 Project and its EIS, each of which is responded to and addressed in the preceding sections. This includes each of the above summarized comments regarding the VEC structure used, the identification and degree of specificity of mitigation, the current or future presence of caribou and potential effects on this species, the development of environmental monitoring and follow-up plans, and the assessment of cumulative environmental effects.

As noted and demonstrated through the above, IOC is strongly of the view that it has developed and submitted a quality EIS that provides a detailed and comprehensive assessment and evaluation of the likely environmental effects of the Project.

4 PUBLIC COMMENTS

4.1 Town of Labrador City (NL EA Division Summary)

4.1.1 Information Request NL-TLC-01

Primary issue that the Town's primary water supply was not included within the Local Study Area (LSA). (See also EAC Comment Table)

WRMD concurs with the recommendations made in the Morrison Hershfield Wabush 3 EIS review to expand monitoring and evaluation to the Beverly Lake watershed, including:

1) Collecting baseline data (water levels and water quality) from within the upper portion of the Beverly Lake Watershed, including both seasonal lake and groundwater elevations and the collection of seasonal surface water out-flows.

2) Confirm the location of the western edge of the Beverly Lake Watershed. Additionally, WRMD recommends that the proponent install at least one groundwater monitoring site (to include a nested pair of monitoring wells, one shallow and one deep) within the Beverly Lake watershed to evaluate long-term groundwater levels and vertical groundwater flow direction.

This work can be on-going as the project progresses, and should not affect current timelines. In the event it appears that mining efforts do have an adverse effect on groundwater levels, and by extension, base flow contribution to Beverly Lake, mitigating measures can be implemented.

IOC Response:

IOC currently has one water quality station in the Beverly Lake watershed (North Pond Beverly) and has committed to three new groundwater monitoring locations, a stream gauge, a lake level monitoring location, and a surface water quality monitoring location in the upper Beverly Lake watershed (Figure 1). Water levels would be measured four times per year at each location, first to determine background water levels, then to monitor potential changes within the upper watershed after dewatering activities commence. Wells and surface water monitoring locations will be installed in 2015.

For the EIS, the watershed boundaries between Beverly Lake, Leg Lake and Dumbbell Lake were delineated using the 1:50,000 government data. Upon closer inspection, using more accurate aerial survey data, the southeast corner of the overburden stockpile is located approximately 45 m from the boundary of the Beverly Lake (Figure 2). Though the overburden stockpile is physically close to the watershed boundary, it remains hydraulically distant, as the planned top of the stockpile is located 10 m below the drainage divide (Figure 3).

IOC accepts and agrees with WRMD that this work can be on-going as the Project progresses, and should not affect current timelines.

Figure 1 Proposed Water Level and Water Quality Monitoring Locations in the Beverly Lake Watershed

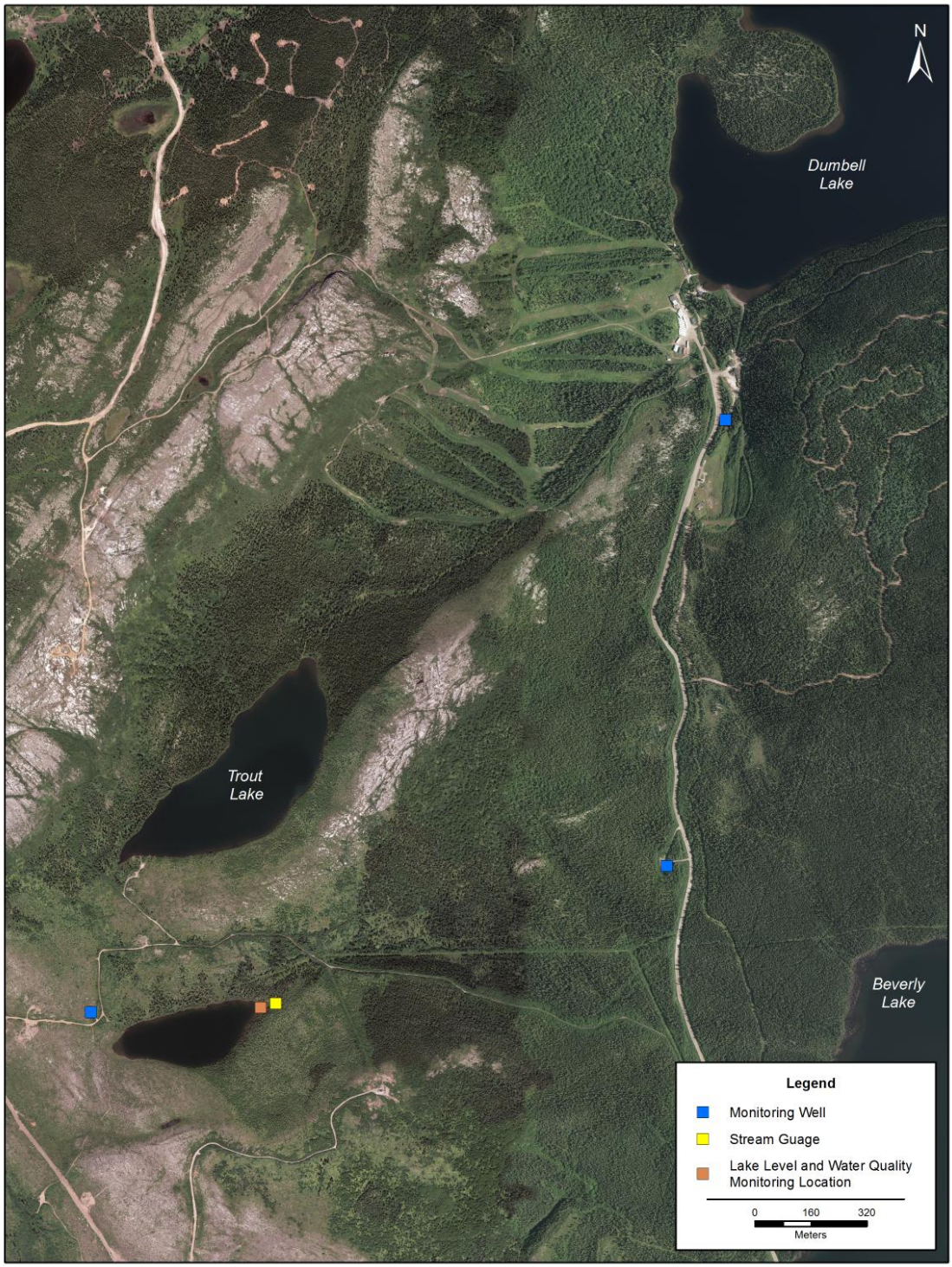


Figure 2 Distances from the Overburden Storage Area to the Dumbell and Beverly Lake Watersheds

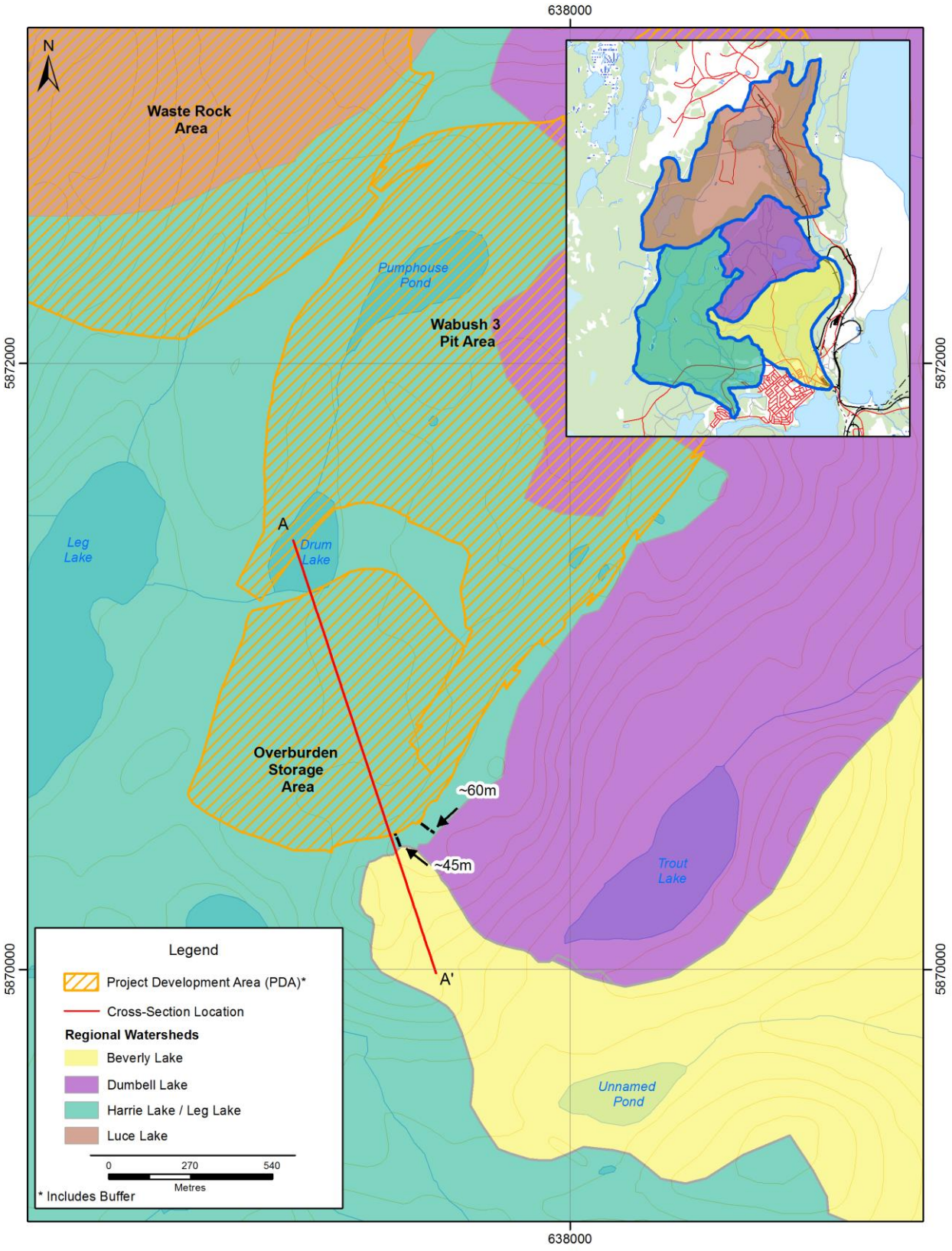
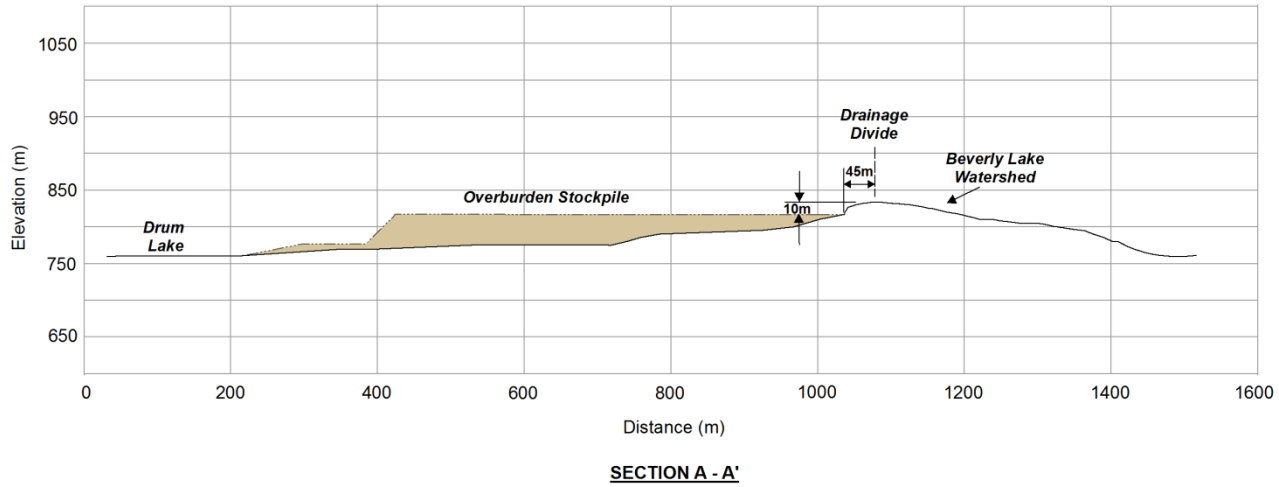


Figure 3 Cross Section Depicting the Vertical and Horizontal Distances from the Overburden Storage Area to the Dumbell and Beverly Lake Watersheds



4.1.2 Information Request NL-TLC-02

Assessing effects to Dumbell Lake of the Project. (See also EAC Comment Table)

WRMD recommends that base flow analysis be undertaken on the stream to be diverted, in order to quantify the groundwater contribution that may be adversely affected by this diversion.

In order to address the concerns of the town with regard to adverse effects of altering the drainage of the creek into Dumbell Lake, WRMD would recommend that IOC address the following;

1) Incorporate surface flow to Dumbell Lake into the existing model in order to evaluate two additional scenarios, including:

a) Surface flow (and groundwater baseflow) component to the lake under steady-state conditions (pre-pit) and

b) The efficacy of the plan to discharge groundwater from pit-perimeter dewatering wells into the Dumbell and Leg Lakes water sheds

The results of these scenarios could then be compared in order to evaluate if the planned groundwater from dewatering wells pumped into the watershed will be adequate to address the anticipated loss of base flow to Dumbell Lake.

IOC Response:

IOC has committed to a flow monitoring program at the inflow and outflow of Dumbell Lake (SW2 and SW3 on Figure 1). Flow monitoring will include installation of staff gauges and a pressure transducer / data logger at each of these flow gauging stations. The pressure transducer / data logger will measure and record water levels at an interval frequent enough to capture the range of water levels at these stations. The pressure transducers and staff gauges will be surveyed to a local temporary benchmark above the high water level to facilitate replacement of this equipment, to the same level, in the event of damage caused by ice, debris or vandalism.

During initial implementation of the flow gauging stations, approximately five detailed cross sections at, upstream and downstream of the staff gauges will be surveyed in order to build a theoretical stage discharge rating curve for the stations. During the initial two years, stream flow and corresponding water levels will be measured approximately once every two months during ice free periods in order to calibrate the station rating curves to site conditions. Following the initial two years of monitoring, the flow measurement frequency will be reduced to approximately two times per year, while automated water level measurements will continue at the same frequency. The water level records and rating curves will be used to create flow hydrographs that can be used to assess baseline and post development flow rates. These data will be compared with flows prorated (by drainage area) from the downstream Water Survey of Canada station (03OA012; on Figure 1). Water level monitoring will begin early in 2015 while flow measurements and surveys will commence when the ice breaks up in May or June, 2015. IOC will use these flow data to monitor baseline flow rates and then to detect

changes as result of mining operations. IOC commits to updating the model as data are available, and will include the surface flow and dewatering scenarios as indicated by WRMD.

In addition, the cross section provided in Figure 2 depicts a conceptualized understanding of the structural geology, showing the surface expression of interpreted folding with the dotted lines representing eroded geology, from northwestern side of Wabush 3 to the southeastern extent of Beverly Lake. The structural folding that occurred in the region indicates that two arms of the Wishart Formation occur as an anticline between Wabush 3 and Beverly Lake. Folding between Wabush 3 and Dumbell Lake is similar to that between Wabush 3 and Beverly Lake, although there are fewer members between the two areas. Dumbell Lake is located mainly in Attigamagen formation in the core of the anticline. The Wishart Formation had the lowest geometric mean hydraulic conductivity (4×10^{-7} m/s) of all the geological formations tested during hydraulic testing completed in 2011 and 2013, while the Lower Iron Formation / Middle Iron Formation had the highest (9×10^{-7} m/s). As the mean hydraulic conductivity values are quite similar in all the formations, shear zones are the main indicator of elevated groundwater flow in the area. Figure 3 shows the locations of two known high conductivity faults in IOC's Labrador West mining operations, the Luce fault and the Wabush 3 fault. Other faults have been identified, including transverse faults, but to date, none of these faults have demonstrated high hydraulic conductivity. The Wabush 3 fault is located on the western flank of the syncline structure, suggesting that the Wishart Formation was not subjected to the faulting / shearing processes that cause the high hydraulic conductivity zones.

In modelling conducted by RioTinto (2014) (Appendix 3A of the EIS), Dumbell Lake remains a zone of groundwater discharge in all scenarios, including the worst case scenario that includes a high hydraulic conductivity zone that connects Wabush 3 and Dumbell Lake.

References

Rio Tinto Technology and Innovation (RioTinto) (2014). Technical Memorandum, Groundwater Modeling Predictive Results for IOC Wabush 3 Project.

Figure 1 **Beverly Lake, Dumbell Lake, Leg Lake and Luce Lake Watershed Areas and Surface Water Flow Monitoring Stations**

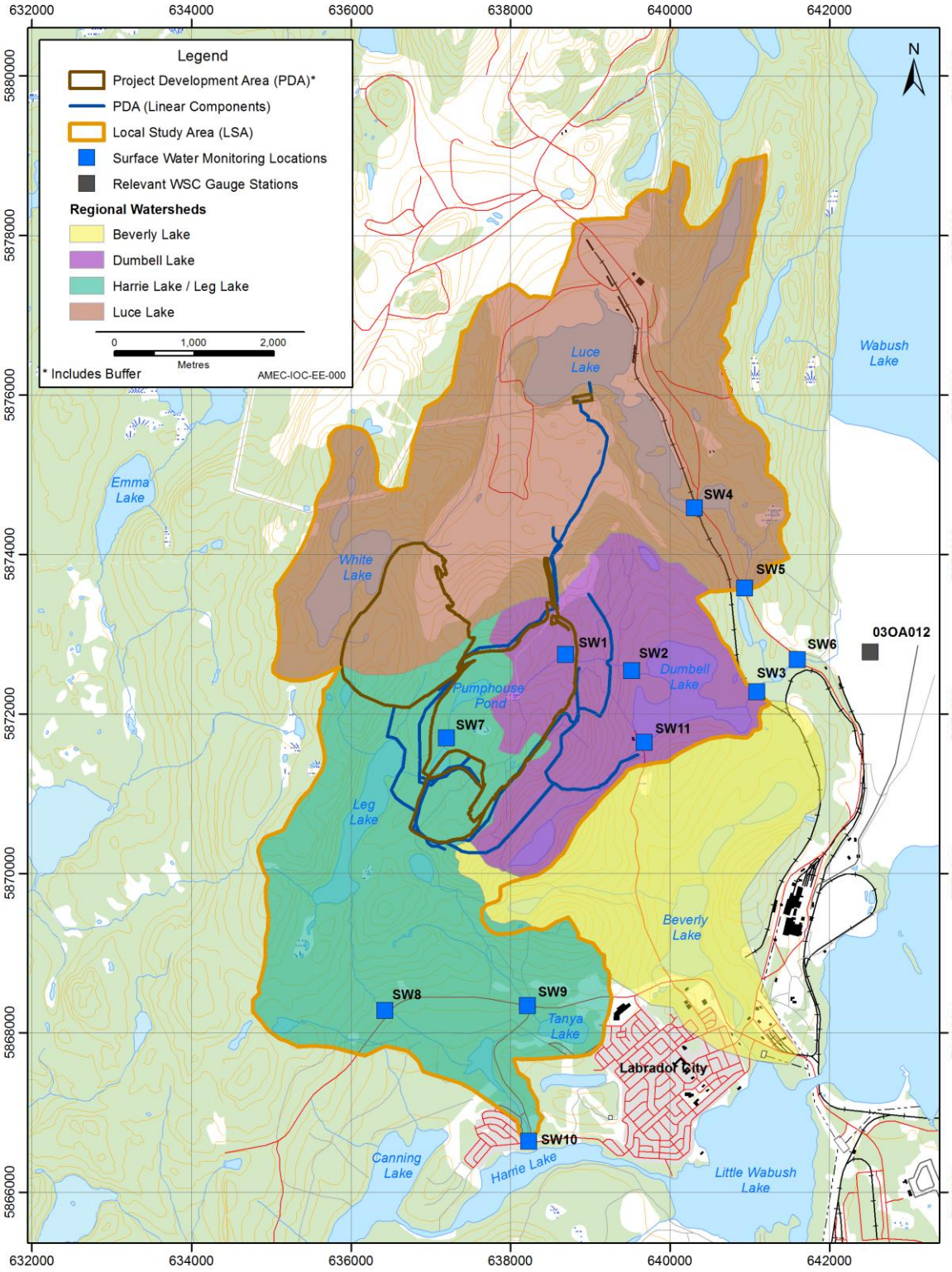


Figure 2 Conceptualized Cross Section from Northwest of Wabush 3 to Southeast of Beverly Lake

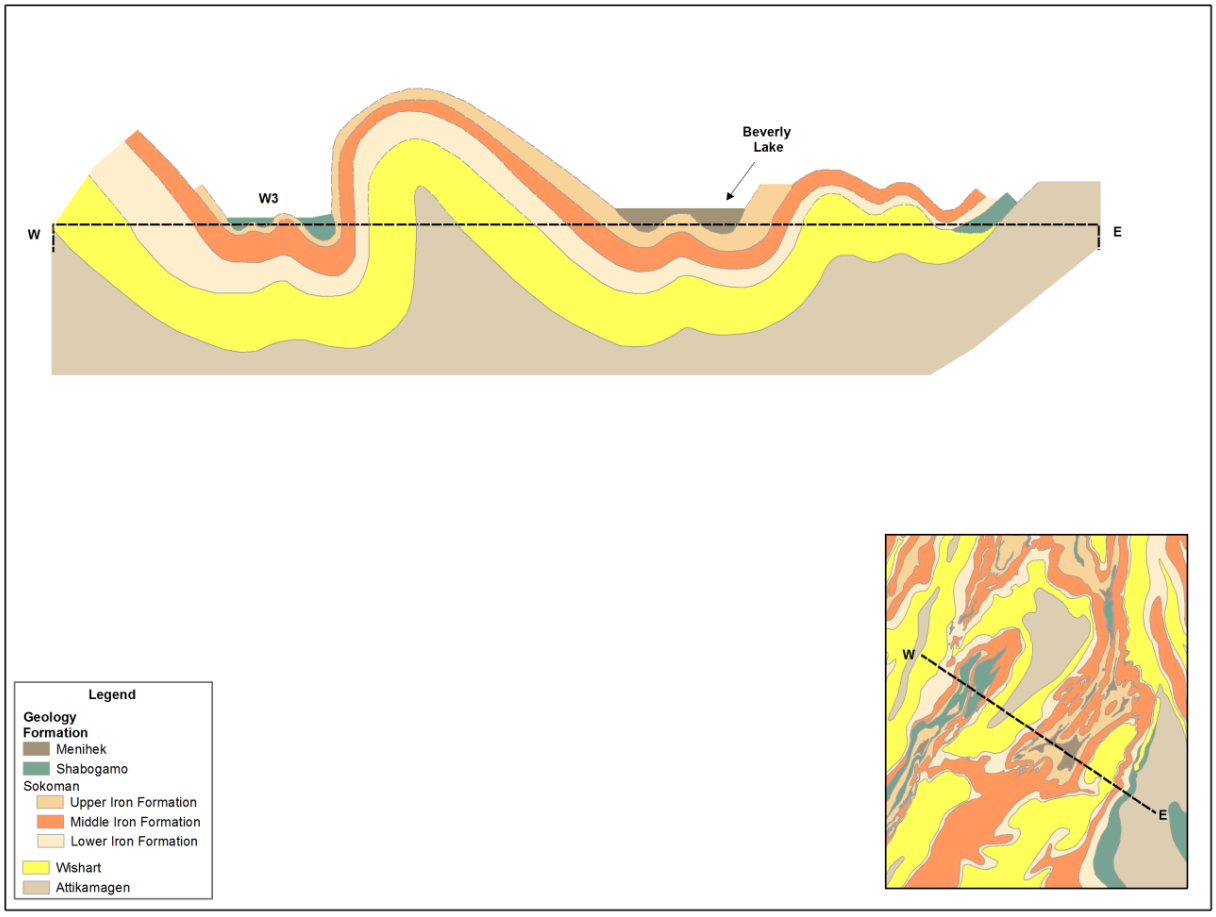
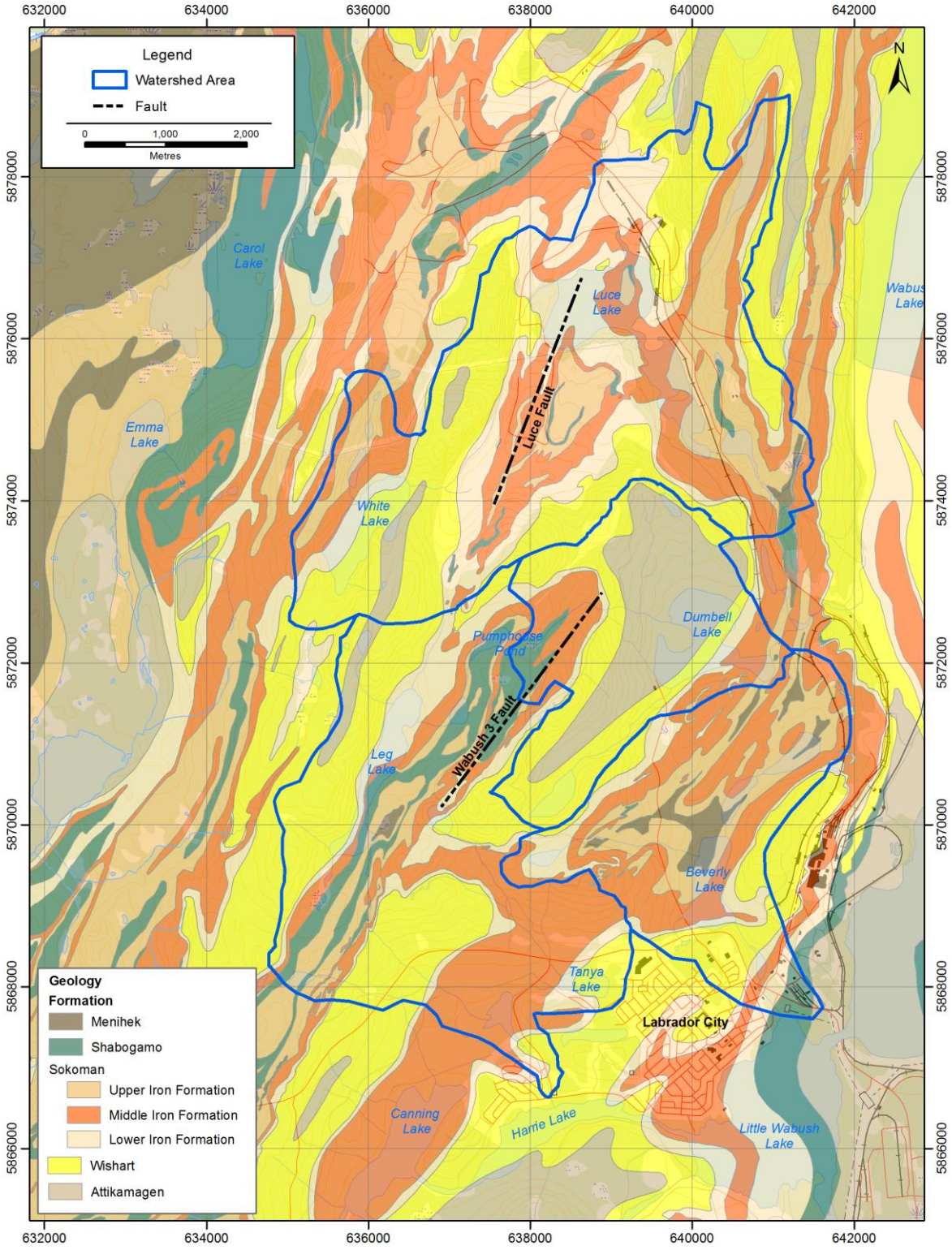


Figure 3 Bedrock Geology of the Wabush 3 Area Including Known Faults



4.1.3 Information Request NL-TLC-03

Noted that as the project is in immediate proximity to the community, the Town has significant concerns with respect to impacts associated with noise, dust, waste water and blasting.

Mitigations proposed by IOC and any potential conditions of release are meant to minimize potentially negative environmental effects of this Project on the people and environment in close proximity to this Project.

IOC Response:

IOC acknowledges the Town of Labrador City's concerns and is planning the Wabush 3 Project and the mitigations described throughout the EIS and this EIS Amendment. These are intended to avoid or reduce any potential negative environmental effects from this Project on the people and environment in close proximity to this Project.

4.1.4 Information Request NL-TLC-04

Noted that MH indicated that further analysis is needed to confirm findings that the project will not cause significant adverse effects to human health as a result of impaired air quality.

IOC is to review the information requests from Health Canada and ensure that all applicable parameters are assessed that could negatively affect human health in the general vicinity of the Project.

IOC Response:

IOC has reviewed the Health Canada IRs and has responded to all of them. A portion of the response to IR CA-HC-01 which deals with this issue is repeated below.

Section 4.4.1.3 of Appendix 25 of the EIS (Wabush 3 HHRA) discusses the assessment of metals, PAH's and VOC's. Several key metal species were assessed. B(a)P and Benzene were used as markers for PAH and VOC, respectively. Table 4-8 shows that predicted annual B(a)P and benzene concentrations are several orders of magnitude lower than the applicable reference values at all receptors, including those in the recreation area. The very low magnitude of these predicted concentrations suggests that monitoring of these species is unwarranted.

The same can be said of the metals species, with two exceptions: manganese and silica, for which exceedance of the applicable reference values for annual average concentration is predicted within the Nordic/alpine skiing recreational area. It is to be noted, however, that the concern for these two species is long-term exposure and the recreational uses within that area are such that any person is unlikely to be present there for sufficiently long periods of time to receive such an exposure. We conclude that monitoring of these species in the recreational area is unwarranted. IOC intends to continue with its monitoring of silica at locations in the Town of Labrador City where the potential for long-term exposure is greatest.

4.1.5 Information Request NL-TLC-05

IOC made a commitment to air quality monitoring some months ago. This commitment has not been acted upon. The Town reiterated that there is a need for 24 hour monitoring and data collection with respect to air quality, including silica, in order to monitor and mitigate for particulate lift off.

IOC Response:

IOC's commitment has been acted upon. IOC is currently monitoring ambient silica concentrations at the Town Depot Air Quality Monitoring (AQM) station.

IOC has been monitoring air quality at five AQM stations in the Town of Labrador City for quite a long time. IOC's ongoing AQM program is described in Chapter 10 of the EIS (page 220).

4.1.6 Information Request NL-TLC-06

Indicated that further information is needed on the revised blasting protocols.

IOC is requested to provide additional information on revised blasting protocols. ENVC is also in agreement with MH report that recommends, "Where feasible the blasting scheduling will consider meteorological conditions, with preference given to times where winds are not from the north and atmospheric inversion do not exist."

IOC Response:

The definition of blasting protocols for Wabush 3 is dependent on information from additional monitoring of blasting.

HGC conducted additional monitoring on Luce Pit blasts since the preparation of the EIS (see Appendix 1 of this EIS Amendment) which has improved the knowledge base for determining the effects of blasting vibrations and over-pressure. The HGC monitoring program also allowed IOC to confirm the accuracy of its blast monitors. Data collected from a number of blasts in 2014 will be added to the analysis dataset, thereby increasing accuracy in over-pressure and vibration predictions. This will allow options for reducing vibration and over-pressure at the key noise and vibration receptor sites to be evaluated.

IOC will continue to monitor blasts at Luce Pit to expand the data base and increase the certainty of predictions of blast noise and vibration from the proposed Wabush 3 pit. IOC will undertake test blasts in the Wabush 3 area, as per HGC recommendations, after security fencing and a Blast Clearance Plan are established. IOC will also be considering weather factors in its blast scheduling and is evaluating the possibilities of obtaining dedicated weather forecasts for winds and inversions for periods close to the planning of blasting dates.

The details for the blasting protocol will be better defined and understood as additional testing is completed. The blasting protocols will be completed before the proposed project is commissioned, but unlikely before the conclusion of the EIS. The blasting protocols will use a range of blast design variables (e.g., blast location, hole

diameter, initiation timing, stemming length and stemming material) and blast execution variables (e.g., wind direction, inversion conditions) to ensure that ground vibrations and over-pressure remain within allowable levels at targeted receptor sites (hospital, ski lodge, ski lift, residences, etc.). A formal process will be developed for determining the combination of design and execution variable required to achieve acceptable results at the monitored receptors.

Blasting operations are very technical in nature and extensive knowledge and experience are required to develop blasting protocols that ensure considerations for the location of blasting and desired outcomes. Due to the technical nature of blasting protocol development, IOC will inform the Town of Labrador City of its decisions with regard to the changes to the blasting protocol and anticipated improved outcomes for the Wabush 3 pit, as well as continue to monitor and track blasting data and maintain IOC's process for receiving public feedback.

4.1.7 Information Request NL-TLC-07

Indicate that current air quality monitoring provided inadequate coverage to monitor air quality in recreational areas expected to be affected by the project.

There is a strong potential that concerns and/or complaints from recreational users will be a significant issue and that data from the current Smokey Mountain station will be considered too far away (about 3 km) to convince people that this data is representative. ENVC is therefore recommending that IOC install an air quality monitoring station at the Smokey Mountain ski area. At a minimum, this would have a PR value.

IOC Response:

IOC is committed to establishing an air quality monitoring (AQM) station in the skiing recreational area. Its actual location will be determined using site selection criteria for the Canada-Wide Standards (CWS) and in consultation with the air quality scientists at ENVC. The parameters to be monitored will include TSP, $PM_{2.5}$, SO_2 and NO_x. IOC has discussed this with the ENVC air quality specialists and there is agreement on the parameters chosen.

4.1.8 Information Request NL-TLC-08

Indicated that there are no mechanisms in place to share air quality monitoring results with the Town.

The current Smokey Mountain station is a NAPS station and its data should be available to the general public. The data from this, if not all, AAM stations should be available online. IOC will ensure that air quality monitoring data is available to the Town.

IOC Response:

The results of the air quality monitoring (AQM) conducted by IOC in Labrador City are submitted to ENVC. ENVC issues annual summaries of the air quality monitoring conducted throughout the province which includes five IOC stations. The annual reports can be found on the following website:
http://www.env.gov.nl.ca/env/publications/env_protection/index.html

ENVC also has a website which presents the IOC air quality monitoring data from the Smokey Mountain station on a "near-real time basis". The parameters which are reported are nitrogen oxides (NO, NO_2 and NO_x), ozone (O_3), sulfur dioxide (SO_2), particulate matter ($PM_{2.5}$) and total suspended particulates (TSP). Although the Smokey Mountain station is currently the only station posted on this website the other AQM stations will also be available once ENVC has them commissioned. The website is at:
http://www.env.gov.nl.ca/env/env_protection/science/airmon/labradorcity.html

IOC is the first Industrial partner to contribute to the data for the Air Quality Health Index (AQHI) which is found on the Environment Canada's Weather Network. The AQHI utilizes data (Ozone, $PM_{2.5}$ and NO_2) from the Smokey Mountain station to calculate the AQHI for Labrador City. The website is at:
http://weather.gc.ca/airquality/pages/nlaq-005_e.html

There are existing mechanisms to review ambient air quality monitoring data with the Town of Labrador City and regional stakeholders. IOC and the Town of Labrador City review the results of air quality monitoring results and air quality management at its regular meetings or as requested by IOC or the Town of Labrador City. IOC has also provided the web links to the real-time data and historic air quality reports to be posted on the Town's website. In addition, IOC is willing to present air quality monitoring information at public sessions of Town Council meetings if desired.

4.1.9 Information Request NL-TLC-09

Noted that no mitigation was identified to address hospital equipment which may be sensitive to vibration.

IOC will identify additional measures to address hospital equipment which may be sensitive to vibration.

IOC Response:

When the hospital site was selected in 2008, the province retained Jacques Whitford (JW), an environmental consulting company, to provide information to the Government of Newfoundland and Labrador on the potential impacts of blasting at the IOC mines on the proposed hospital/college site in Labrador West, with knowledge of the next proposed mine, Wabush 3, and its location. JW communicated with several of the hospital equipment suppliers of that time, using a questionnaire, to determine if the predicted level of vibration (the results of studies performed by IOC and appended in the EIS – Noise and Ground Borne Vibrations – ATCO 2007 (EIS Appendix 7) and Prediction of Blasting Noise/Vibration Levels at the Existing and Proposed Hospital and College Sites in Labrador City, NL – SS Wilson 2008 (EIS Appendix 8)) would pose problems. The JW report states: "The responses to the sensitive equipment questionnaire were widely varying from no effect to possibly some effect during operation of the equipment. Some of the suppliers recommended use of isolation kits to protect the equipment from vibration." The JW report, entitled "Proposed Labrador City Hospital Blasting Vibration and Noise Consultation Labrador West Hospital" is appended to this EIS Amendment (Appendix 7).

Early and recent consultations with the administrator of the Labrador West Health Centre, as part of the EIS consultation process, confirmed that considerable due diligence was taken by the hospital and Provincial Government prior to making the final decision on the location of the new hospital. Hospital administration

had no concerns regarding vibration sensitive equipment at the hospital. As part of the Blast Notification Plan for Wabush 3, the hospital as well as other regional stakeholders will be consulted in its development.

4.1.10 Information Request NL-TLC-10

Noted that a fence will affect how the general population will use the area. Previously unfenced and ungated.

Noted. Given the proximity of the pit to the Town, the construction of a fence is deemed a good mitigation measure by NL to minimize interaction between Project activities and local residents.

IOC Response:

IOC will install a fence around the Wabush 3 Project area, adjacent to a popular recreational area, to address public safety concerns. IOC recognizes that, while restrictions are necessary to ensure public safety in the area surrounding the Wabush 3 mine pit, the fence will result in changes to how the public view and use this area. Through consultation with key stakeholder groups (including the Town of Labrador City, Smokey Mountain Alpine Ski Club, Menihek Nordic Ski Club and White Wolf Snowmobile Club) and the general public, IOC has obtained information about how groups and individuals use the Smokey Mountain area and other locations for a number of outdoor recreational and subsistence pursuits that are important to quality of life in Labrador West. This information has informed Project planning and design decisions.

IOC has determined that the blasting safety zone around the Project will be 1,200 m from the perimeter of the Wabush 3 mine pit and had initially planned to erect the fence at this boundary. Based on further research and consultation with stakeholders and the general public, IOC has redesigned the fence to be located at 450 m from the perimeter of the mine pit with procedural blast clearance to 1,200 m so that the area between 450 m and 1,200 m will be available at all times except during blast periods which have been determined to be generally twice per month.

Recreational groups most affected by the Wabush 3 Project (Smokey Mountain Alpine Ski Club, Menihek Nordic Ski Club and White Wolf Snowmobile Club) are supportive of the Project and were instrumental in designing the mitigation measures that IOC will employ for the Project. The decision to erect a gated fence and to restrict usage of Smokey Mountain Alpine Ski Club and the Lodge during periods when blasting may be scheduled was made in consultation with the group itself and is the preferred option of the Ski Club as it allows it to coexist with the mine in this area.

4.1.11 Information Request NL-TLC-11

Concerned that the loss of area on the west side of Smokey Mountain will affect the general population's sense of community. Noted that the value of this space was not addressed in the EIS, nor had mitigation measures been proposed to offset the community's loss of this landscape.

IOC Response:

IOC acknowledges that residents of Labrador West have used the local and regional landscapes for organised and general recreational purposes for several generations. The company anticipates that the region's

economic prosperity and expansive landscape will continue to support the local recreational lifestyle (and its large range of activities) for future generations of residents, many of whom will be IOC employees and their families. IOC makes every effort to enable use of lands (for which it holds rights) unless they are needed for active mining, at which time public safety would be considered to be a paramount concern.

IOC has sought to gain a comprehensive understanding of land and resource use in Labrador West as part of the EA process. In January and February 2014, the company held workshops and interviews with Labrador West residents who participated in land, water and resource use activities for recreation and subsistence purposes. The results of this information gathering indicated that residents and visitors participate in a variety of recreational and subsistence land and resource use activities, many of which take place in and around the Smokey Mountain area but also generally occur in and around the communities and throughout the surrounding landscapes (See Chapter 17 and Appendix 24 of the EIS). Thus, while the Wabush 3 Project will result in some limitations to use of the Project area, restricted access is necessary to ensure safety.

Stakeholder consultations have yielded positive feedback regarding the increased life of IOC's mining operations and associated economic benefits that will result from the Wabush 3 Project. These consultations also helped guide a rigorous mitigations plan developed by IOC to address the potential effects of the Project on land and resource use and the wellbeing of those who participate in these activities. As part of Wabush 3 Project development, IOC will also implement habitat compensation improvements in the recently burnt over area at Blueberry Hill and also provide the public with timber (from Project land clearing) for use as firewood.

4.1.12 Information Request NL-TLC-12

The Town is requesting a copy of the "Fugitive Dust Management Operations Plan" (FDMOP) referenced in the EIS submission.

IOC is asked to provide this to the Town of Labrador City.

IOC Response:

The "Fugitive Dust Management Operations Plan" (FDMOP) is included in this EIS Amendment Report as Appendix 2. The dust mitigation practices detailed in this Plan have been used in the ongoing IOC operations and will be applied to all sources and activities associated with the proposed Wabush 3 Project. The Plan will cover both the construction and operations and maintenance phases, and will address dust mitigation measures for point and fugitive sources of dust.

4.1.13 Information Request NL-TLC-13

Requesting that IOC assess the potential impact the Project may have on the water levels of Harrie Lake and Little Wabush Lake, and any subsequent impact on municipal infrastructure.

IOC Response:

With respect to the Projects' potential effect on Little Wabush Lake and Harrie Lake, both lakes are part of the Little Wabush Lake watershed (Figure 1), which is approximately 1,130 km^2. Of the watersheds that are directly

affected by the Wabush 3 mining operations (i.e., Leg Lake, Dumbell Lake and Luce Lake watersheds), only the Leg Lake watershed is located within the Little Wabush Lake watershed, which discharges to Harrie Lake. Changes in water levels are addressed with respect to potential decreases and increases in the following paragraphs.

At ultimate mine development, approximately 1.29 km^2 (129 ha) of the Leg Lake watershed will be removed by pit development, resulting in an estimated loss of runoff volume to Leg Lake of approximately 3 to 10 percent (hydraulic modeling by Golder 2014). The Leg Lake watershed is approximately 0.1 percent of the overall Little Wabush Lake watershed, and the loss of the 129 ha results in a decreased runoff volume to the Little Wabush Lake watershed of approximately 0.003 to 0.010 percent. No effect to municipal infrastructure is anticipated with respect to water levels in Harrie or Little Wabush Lakes for the above mentioned reasons.

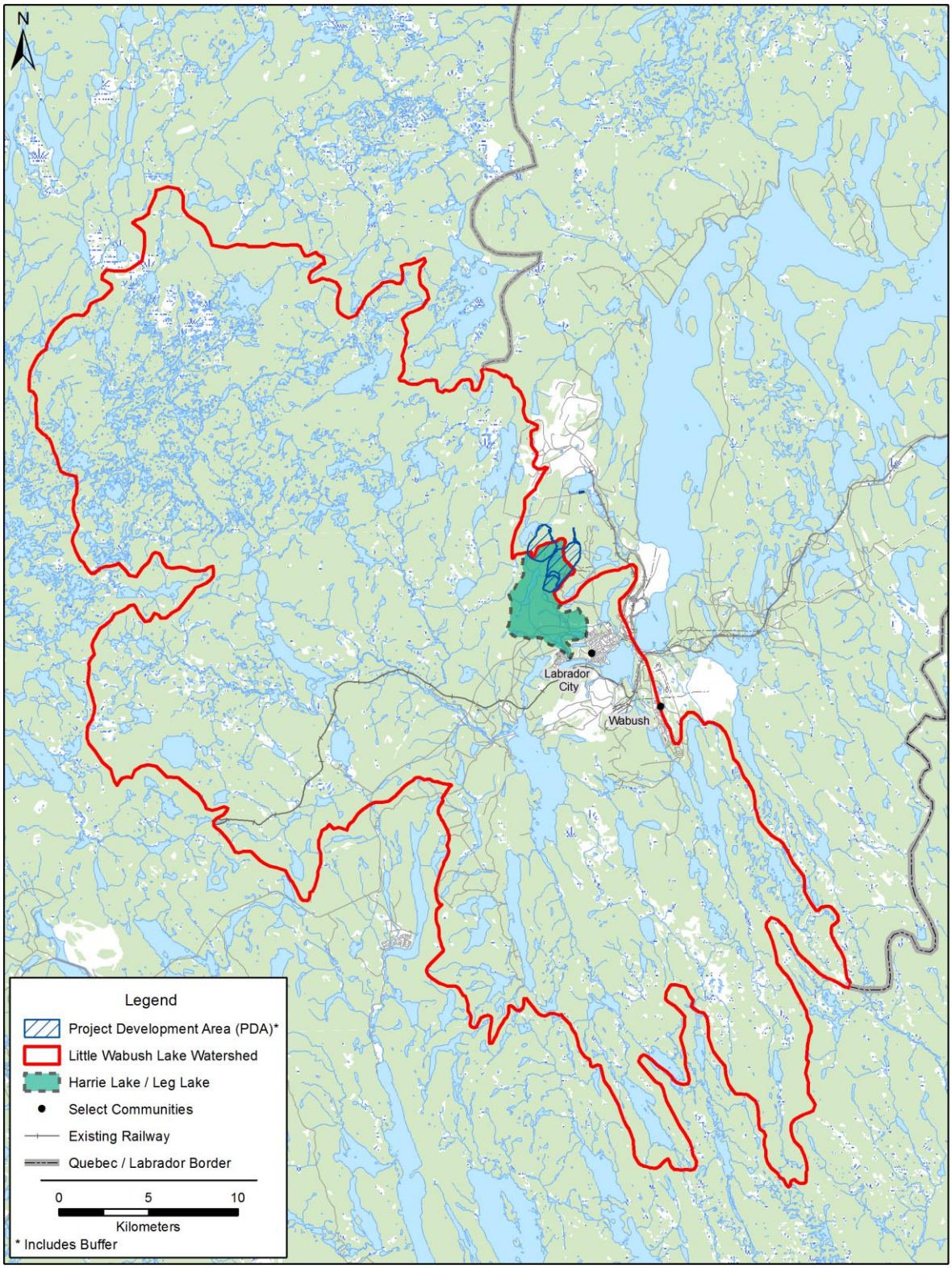
Groundwater extraction rates were estimated in the EIS to be approximately 2,700 m^3/day. Results of the water budget indicate that the net surplus (i.e., runoff plus infiltration) for the Leg Lake watershed, at its discharge into Harrie Lake, peaks at 107,000 m^3/day in the month of May in an average year for existing conditions (Golder 2014, see EIS Appendix 13). The total groundwater extraction rate is approximately 5% of the Leg Lake infiltration rate and 2.5% of the total surplus, where approximately half of the surplus is attributed to runoff in May (Golder, 2014). If all the groundwater were discharged into the Leg Lake watershed, the flow rate from that watershed into Harrie Lake, during the spring freshet (i.e., the highest water level conditions) would increase by approximately 2.5%. As indicated above, the Leg Lake watershed is approximately 0.1% of the Little Wabush watershed. Consequently, flood levels will not measurably increase and municipal infrastructure will not be adversely affected.

In addition, the Wabush 3 Project will utilize IOC's existing operational workforce, and will therefore not result in an increased population in Labrador west that could result in increased infrastructure needs or municipal water uses.

References

Golder Associates (2014). Wabush 3 Hydrology Technical Report. Project No. 13-1151-0293.

Figure 1 The Leg / Harrie Lake Watershed Located Within the Little Wabush Lake Watershed Area



4.1.14 Information Request NL-TLC-14

Requesting an explicit emergency response plan and procedures with the potential to impact either Beverly Lake or Dumbell Lake or their watersheds.

IOC Response:

There is an existing Emergency Response Plan (ERP) for Beverly Lake which includes and addresses current operations at IOC. The operations at Wabush 3 will be outside the Beverly Lake catchment and will not have any direct effects on it. The current ERP should continue to apply.

IOC has an ERP for the Labrador City Operations, which will be amended to reflect the proximity of Wabush 3 to Dumbell Lake.

4.1.15 Information Request NL-TLC-15

Requesting that IOC compensate the Town for all consulting costs incurred in response to this undertaking.

This is not something that the province requires under legislation to be done.

IOC Response:

IOC agrees with the Province's comment that there is no requirement to provide such funding based in legislation, or in precedent, as far as IOC is aware. IOC would also note that, as described in Section 8.1.4 of the EIS, it already provides considerable, direct financial contribution to the Town through a 10 year grant in lieu of taxes agreement which resulted in more than $6.6 million being paid in 2014, representing approximately 30 percent of the Town's annual budget.

4.1.16 Information Request NL-TLC-16

Requesting that IOC be responsible for all mitigation costs that directly or indirectly impact the operations of the Town.

IOC to clarify what mitigations costs they are prepared to cover that affect the operations of the Town. IOC to also provide a rationale for this.

IOC Response:

IOC has committed, in cooperation with key stakeholder groups, to mitigate the costs of changes to, and potential effects upon, recreational facilities and other community infrastructure directly affected by the Wabush 3 Project. At an estimated total cost of approximately $10-15 million, these include:

- Installation of a perimeter fence for public safety;
- Procedural blast clearances to ensure the area around the mine pit is vacated prior to blasting;

- Post-blast monitoring of facilities and infrastructure (with appropriate follow-up as required and cost to be determined);
- Redesign of components of Menihek Nordic Ski Club;
- Redesign of components of White Wolf Snowmobile Club;
- Redesign and redevelopment of Smokey Mountain Alpine Ski Club including a new chair lift, two surface lifts as well as design and project management services for implementation of these improvements; and
- Compensation to Smokey Mountain Alpine Ski Club for closure of the lodge on weekdays when blasting may occur.

IOC has consulted with the Town of Labrador City about potential options for management of effects on Dumbell Lake, the identified backup water supply. As stated several times in the EIS, IOC will support the Town of Labrador City with the incremental cost difference between establishing Dumbell Lake as the municipal back-up water supply as compared to the establishment of an alternative supply solution, provided there is a demonstrated need for replacement or supplement of the existing Beverly Lake water supply. At the time of demonstrated need, detailed engineering cost analysis will be done to determine costs and establish funding.

As an engaged corporate citizen of Labrador West, IOC is a financial contributor to the community especially to the Town of Labrador City from which it accesses various services and infrastructure. IOC has currently negotiated a 10 year grant in lieu of taxes agreement with the Town. In 2014, this grant-in-lieu was more than $6.6 million, which represented approximately 30 percent of the Town's annual operating budget. In addition, the Town receives indirect tax revenue from property owners and business activities, much of which indirectly results from IOC's operations.

IOC's operations (of which Wabush 3 will become integral) is an important contributor to provincial coffers from which monies are derived to support infrastructure development and maintenance in Newfoundland and Labrador municipalities. The Wabush 3 Project alone is estimated to generate an incremental increase of $4.9 billion in total Newfoundland and Labrador taxes, comprised of $4.5 billion in direct taxes, $130 million in indirect taxes and $240 million in induced taxes in the lifetime of the mine pit.

The Wabush 3 Project will have limited and short-term effects on services and infrastructure in Labrador West. For instance, Project construction will result in a small temporary workforce and limited transport of materials and equipment. Once goods are delivered to Labrador City, all Project construction activities will occur within the mine gate and should not affect the Town or its infrastructure. Unlike new mining initiatives, once operational the Wabush 3 Project will utilize IOC's existing worker population and equipment and thus not place strain on Town infrastructure and services.

4.1.17 Information Request NL-TLC-17

Requesting that the province impose a condition of release that the monitoring, protection, mitigation or any damage or impacts resulting from this undertaking on municipal infrastructure, interests and/or resources including but not limited to water resources.

This is not something that can be developed before additional information (requested above) has been obtained and evaluated.

IOC Response:

The EA process as outlined in the Wabush 3 EIS Guidelines forms the basis of the decision by the Minister of Environment and Conservation with regard to release of the Project, with or without conditions. To release the Project from the EA process, the Minister must be satisfied that the Proponent has identified potential effects of the Project and developed measures to appropriately and adequately avoid or mitigate these effects. IOC has signed, and has other forthcoming, agreements with stakeholders that are directly affected by the Project. IOC is also working with the Town of Labrador City to address Project effects on Dumbell Lake as the identified back-up water supply. In addition, IOC is committed to identifying and obtaining all applicable regulatory approvals including municipal permits for Wabush 3 Project activities.

4.1.18 Information Request NL-TLC-18

Town Council also asking for an opportunity to present directly to the EA Committee to further clarify results of the consultants' reports.

During the 50 day review period for the Amendment to the EIS that IOC will submit, members of the EAC may travel to Labrador City for a presentation by the Town.

IOC Response:

IOC is not able to respond to this request, which is being made directly to the Province.

4.1.19 Information Request NL-TLC-19

The Town asks "how close is too close?" Asking for the province to undertake research necessary to develop clear guidelines prescribing limitations with respect to proximity of communities to open-pit mining operations.

The EA review process will address potential negative environmental effects and will propose mitigations to minimize and/or eliminate those effects on the people and environment in proximity to the Town.

IOC Response:

IOC is not able to respond to this request, which is being made directly to the Province. IOC concurs that the matter raised in this IR it is outside the scope of the EIS.

4.1.20 Information Request NL-TLC-20

Morrison-Hershfield Report, Wabush 3 Mine EIS (Iron Ore Company of Canada), Technical Review of Selected Issues. IOC will be required to address all of the concerns expressed in this report.

IOC Response:

IOC has reviewed the Morrison Hershfield Report and extracted a list of IRs which comprised a combination of questions raised, recommendations made and statements/assumptions made to support the recommendations which require some clarification. IOC has responded in this EIS Amendment Report to all of the Morrison-Hershfield IRs.

4.1.21 Information Request NL-TLC-21

Review of the Human Health Risk Assessment (HHRA). The PPD supports the MH recommendation of further analysis of 'worst case scenarios', etc.

IOC Response:

As presented on page 40 of the HHRA Report (Appendix 25 of the EIS), the worst case maximum predicted air concentrations as well as the average air concentrations for the blasting scenario for the 1 hour time duration were assessed in the HHRA. To illustrate this, Table 4-6 from the HHRA Report is repeated below. The estimated one-hour concentrations assessed in this table are at a distance of 1,200 m, since this is the closest a transient recreational receptor would come to the blast zone. Transient receptors (such as hikers, or cross country skiers) will not be allowed to access the areas less than 1,200 m from a blasting event for safety reasons (as explained in Section 4.4.1.1; page 39 of the HHRA report). For this reason, an assessment for recreational receptors at 500 m is not required.

Although ski hill receptor locations could theoretically be within 1,200 m of a blast zone, this safety limit will not be infringed and these areas will be cleared before blasting occurs. Therefore, 1,200 m represents the worst case scenario and other locations do not need to be modeled. IOC will be preparing a Blast Clearance Plan which will address this issue.

Table 4-6 Summary of Estimated One Hour Concentrations of CO, NO2, SO2, H2S and C4H8 at 1200 m from Blasting and Comparisons to Acute Air Quality Guidelines

Exposure Limits	CO^a		$NO_2{}^b$		$SO_2{}^c$		H_2S^d		$C_4H_8{}^e$	
	ppm	µg/m³	ppm	µg/m³	ppm	µg/m³	ppm	µg/m³	ppm	µg/m³
Average	0.215	246	0.045	84.6	0.012	31.9	0.006	7.5	0.030	68
Maximum	0.764	875	0.23	432	0.045	120	0.056	70	0.19	431
Acute Air Quality Guideline	25	30,000	0.101; 0.5	190[f] 940[g]	0.075	200[f]	0.0784	98[h]	15 (health); 0.36 (odour)	34,000 (health); 820 (odour)

a Conversion of CO from ppm to µg/m³ was done using a factor of 1 ppm = 1145 µg/m³; acute air quality guideline (WHO, 2000)
b. Conversion of NO_2 from ppm to µg/m³ was done using a factor of 1 ppm = 1880 µg/m³ (WHO, 2006)
c. Conversion of SO_2 from ppm to µg/m³ was done using the a factor of 1 ppm = 2660 µg/m³ (WHO, 2006)
d. Conversion of H_2S from ppm to µg/m³ was done using the factor of 10 µg/m³ = 0.008 ppm (http://www.oehha.org/air/chronic_rels/pdf/7783064.pdf)
e. Assumed to be the more toxic and more odorous of 1-butene or 2-butene (TCEQ, 2014a). Conversion factors for 2-Butene are 15 ppm = 34,000 µg/m³ (TCEQ, 2014b). The health based value is for 2-butene, whereas the odour value is for 1-butene.
f. U.S. EPA (2010c,d). These limits are intended to be applied to the 3 year average of the annual 98th percentile (in the case of NO_2) or 99th percentile (in the case of SO_2) of the daily 1 hour maxima, as opposed to a single 1 hour maxima.
g. NRC, 2012. This value is the AEGL-1 value for 1 hour time limit; possible health effects at this level include slight burning of the eyes, slight headache, chest tightness or labored breathing with exercise.

Exposure Limits	CO[a]		NO_2[b]		SO_2[c]		H_2S[d]		C_4H_8[e]	
	ppm	µg/m³	ppm	µg/m³	ppm	µg/m³	ppm	µg/m³	ppm	µg/m³
h. ATSDR, 2006; 2013 (1 hour exposures).										

4.1.22 Information Request NL-TLC-22

Blasting Schedule See No. 6 above under Town of Labrador City.

IOC Response:

The definition of blasting protocols for Wabush 3 is dependent on information from additional monitoring of blasting.

HGC conducted additional monitoring on Luce Pit blasts since the preparation of the EIS (see Appendix 1) which has improved the knowledge base for determining the effects of blasting vibrations and over-pressure. The HGC monitoring program also allowed IOC to confirm the accuracy of its blast monitors. Data collected from a number of blasts in 2014 will be added to the analysis dataset, thereby increasing accuracy in over-pressure and vibration predictions. This will allow options for reducing vibration and over-pressure at the key noise and vibration receptor sites to be evaluated.

IOC will continue to monitor blasts at Luce Pit to expand the data base and increase the certainty of predictions of blast noise and vibration from the proposed Wabush 3 pit. IOC will undertake test blasts in the Wabush 3 area, as per HGC recommendations, after security fencing and a Blast Clearance Plan are established. IOC will also be considering weather factors in its blast scheduling and is evaluating the possibilities of obtaining dedicated weather forecasts for winds and inversions for periods close to the planning of blasting dates.

The details for the blasting protocol will be better defined and understood as additional testing is completed. The blasting protocols will be completed before the proposed project is commissioned, but unlikely before the conclusion of the EIS. The blasting protocols will use a range of blast design variables (eg blast location, hole diameter, initiation timing, stemming length and stemming material) and blast execution variable (eg wind direction, inversion conditions) to ensure that ground vibrations and over-pressure remain within allowable levels at targeted receptor sites (hospital, ski lodge, ski lift, residences, etc). A formal process will be developed for determining the combination of design and execution variable required to achieve acceptable results at the monitored receptors.

Blasting operations are very technical in nature and extensive knowledge and experience are required to develop blasting protocols that ensure considerations for the location of blasting and desired outcomes. Due to the technical nature of blasting protocol development, IOC will inform the Town of Labrador City of its decisions with regard to the changes to the blasting protocol and anticipated improved outcomes for the Wabush 3 pit, as well as continue to monitor and track blasting data and maintain IOC's process for receiving public feedback.

4.1.23 Information Request NL-TLC-23

"However, the Town has indicated uncertainty regarding their ability to access existing monitoring data."

IOC Response:

The results of the air quality monitoring (AQM) conducted by IOC in Labrador City are submitted to ENVC. ENVC issues annual summaries of the air quality monitoring conducted throughout the province which includes five IOCAQM stations. The annual reports can be found on the following website:
http://www.env.gov.nl.ca/env/publications/env_protection/index.html

ENVC also has a website which presents the IOC air quality monitoring data from the Smokey Mountain station on a "near-real time basis". The parameters which are reported are nitrogen oxides (NO, NO_2 and NO_x), ozone (O_3), sulfur dioxide (SO_2), particulate matter ($PM_{2.5}$) and total suspended particulates (TSP). Although the Smokey Mountain station is currently the only station posted on this website the other AQM stations will also be available once ENVC has them commissioned. The website is at:
http://www.env.gov.nl.ca/env/env_protection/science/airmon/labradorcity.html

IOC is the first Industrial partner to contribute to the data for the Air Quality Health Index (AQHI) which is found on the Environment Canada's Weather Network. The AQHI utilizes data (Ozone, $PM_{2.5}$ and NO_2) from the Smokey Mountain station to calculate the AQHI for Labrador City. The website is at:
http://weather.gc.ca/airquality/pages/nlaq-005_e.html

There are existing mechanisms to review ambient air quality monitoring data with the Town of Labrador City and regional stakeholders. IOC and the Town of Labrador City review the results of air quality monitoring results and air quality management at its regular meetings or as requested by IOC or the Town of Labrador City. IOC has also provided the web links to the real-time data and historic air quality reports to be posted on the Town's website. In addition, IOC is willing to present air quality monitoring information at public sessions of Town Council meetings if desired.

4.1.24 Information Request NL-TLC-24

"The EIS indicates potential for periodic exceedences of air quality guidelines in recreational areas (e.g., Alpine and Nordic skiing areas) near the proposed Wabush 3 site. The Wabush 3 project is predicted to be a significant contributor to the following predicted periodic air quality exceedences: PM10, silica, manganese, hydrogen sulphide. The current monitoring network provides inadequate coverage to assess ambient air quality in this area."

IOC Response:

IOC is committed to establishing an air quality monitoring station in the skiing recreational area. Its actual location will be determined using site selection criteria for the Canada-Wide Standards (CWS) and in consultation with the air quality scientists at ENVC. The parameters to be monitored will include TSP, $PM_{2.5}$, SO_2 and NO_x. IOC has discussed this with the ENVC air quality specialists and there is agreement on the parameters chosen.

IOC is currently monitoring ambient silica concentrations at the Town Depot AQM station. Should a second silica monitor be installed it would be preferable to locate it at one of the stations in or near Labrador City and not the recreational facility. The primary concern for silica would be chronic exposure to area residents and monitoring in the populated areas makes sense. IOC will be discussing the need for a second silica monitor with ENVC.

H_2S has not been a concern with the plant operations in the past nor has it caused any complaints associated with mine blasting to date. IOC collected fume data for a period of two years from blasts in various operational pits and it was discussed in the EIS and determined to potentially be in excess of the Provincial 1 hr standard based on a peak reading of a few seconds during a blast. The concern for H_2S at the levels measured at 500 m downwind of the blasting and the calculated concentrations over an hour and greater distances from the blast is associated with malodours. Additional monitoring for H_2S beyond the 1,200 m blast clearance zone is needed to validate the monitoring data collected. Accordingly, IOC will evaluate how best to monitor H_2S emissions associated with blasting to determine compliance with provincial standards. Additional H_2S monitoring will be conducted and tied in with blast monitoring before the development of the Wabush 3 Project. If H_2S exceeds provincial standards, IOC will evaluate the blasting protocols to ensure compliance.

4.1.25 Information Request NL-TLC-25

Technical Memorandum: Comments on Water Issues addressed in the EIS document

IOC will be required to address all of the concerns expressed in this report

IOC Response:

IOC has reviewed the FracFlow comments and extracted a list of IRs which comprised a combination of questions raised, recommendations made and statements/assumptions made to support the recommendations which require some clarification. IOC has responded in this EIS Amendment to all of the FracFlow IRs.

4.1.26 Information Request NL-TLC-26

Recommendations for further work have been addressed under the section concerning recommendations from the Town of Labrador City. See No. 1& 2 above under Town of Labrador City.

IOC Response:

The No. 1 and 2 above under Town of Labrador City have IR responses. Please refer to them.

4.2 Town of Labrador City

The Town of Labrador City submitted a detailed response to the EIS which included a series of comments and recommendations under six main headings: 1) health effects associated with air quality, 2) effects on the Town's water supply, 3) effects of vibrations associated with blasting, 4) recreational effects and opportunities in the region, 5) effects on other municipal infrastructure and 6) Provincial action. These are supported by technical reviews of the EIS conducted by consultants retained by the Town, namely: Morrison-Hershfield Ltd (MH), Fracflow Consultants Ltd (FF) and SLR Consulting (Canada) Ltd (a sub-consultant retained by MH). The recommendations prepared by SLR Consulting are contained within those presented by MH under the "Health effects associated with air quality" heading.

4.2.1 Information Request TLC-01

Further information is required in order to confirm the findings that the project will not cause significant adverse impacts to human health as a result of impaired air quality.

IOC Response:

Detailed information and analysis regarding potential effects to air quality and human health is contained in the EIS and in the additional information included in this EIS Amendment Report.

4.2.2 Information Request TLC-02

Further information on the revised blasting protocols is required and should be included within the EIS review to finalize mitigation measures during blasting periods.

IOC Response:

The approach to the planning for blasting has been discussed in Section 10.4.3.3 of the EIS (pages 267-269). The types of mitigation associated with the control of parameters in the blast is summarized, as is the plans for site security (fencing and blast clearance procedures to maintain a 1,200 m clearance zone for blasting), post blast monitoring of alpine and Nordic ski trails and the alpine ski lifts before ski activities recommence and the installation of noise and vibration monitors at three permanent monitoring stations – Smokey Mountain lodge and top of the ski hill and at or near the new hospital. Blasting will only occur during daylight hours and the weekends will be excluded. The Smokey Mountain ski hill will be restricted on blasting days, as will the sections of the Nordic ski trail and the Menihek snow mobile trail within the 1,200 m clearance zone. The Smokey Mountain ski hill is normally closed on weekdays.

The details of the blasting protocols related to limitations to quantities of explosives per delay, delay timing, total explosive quantities, atmospheric conditions and the other parameters listed in the EIS (page 267) will be developed over the period of time before construction of the Wabush 3 mine. As stated in the EIS (Section 10.3.4, page 231), further monitoring is needed to supplement the dataset used in the HGC Engineering assessment of noise and vibration associated with blasting. The additional monitoring data would be used to calibrate published empirical relationships to fit blasting practices.

The first of the additional monitoring programs was conducted, again by HGC Engineering, in September 2014 in which the program attempted to capture data from a blast in the Luce Pit at distances similar to the future distances from key receptors to the proposed Wabush 3 Pit. The monitoring report, issued in December 2014 and entitled "Report on Vibration and Overpressure Measured during a Luce Pit Blast on September 23, 2014, Labrador City, Labrador", is included in this EIS Amendment as Appendix 1. The study confirmed the results of the June 2014 HGC study, which indicated that IOC blast over-pressure is higher than the industry average and its blast ground vibration is significantly lower than the industry average. These results reflect IOC's rock characteristics which require blasting practices which result in more venting of blast gases to the atmosphere.

The preliminary assessment from the noise and vibration study indicated that current blasting practices meet Ontario standards (128 db over-pressure and 10 mm/s peak particle velocity [ppv]) at the key receptor locations, except the top of the ski lift for ground vibration and the Smokey Mountain base area (ski lodges and cabin) for over-pressure. The new ski lifts will be designed for the anticipated ground vibrations, so exceeding criteria based on cosmetic damage to buildings will not be a problem for the ski lifts. IOC will continue to assess options for reducing over-pressure at the Smokey Mountain base area.

It should be noted that blasting practices in IOC's existing operations are constantly evolving to adapt to changing rock conditions and to optimise cost and performance. There is considerable flexibility available to adapt blasting practices to achieve a range of outcomes (e.g., fragmentation, cost, vibration, over-pressure, flyrock). Blasting practices used in the current operations will only be used in Wabush 3 if they yield acceptable noise and vibration levels at the target receptors. If current practices do not achieve acceptable vibration and over-pressure outcomes, they will not be used in Wabush 3.

The HGC study confirmed that ground vibrations at the new hospital exceed ISO standards for a vibration sensitive facility. Early and recent communications with the administrator of the Labrador West Health Centre, as part of the EIS consultation process, clearly indicated that considerable due diligence was taken by the hospital and Provincial Government prior to making the final decision on the location of the new hospital. Consultation clearly indicated that the hospital had no concerns related to vibration sensitive equipment at the hospital. As part of the Blast Notification Plan for Wabush 3, the hospital as well as other regional stakeholders will be consulted in its development. Consequently, the new hospital is not considered to be a vibration sensitive site and this stringent ISO standard will not be applicable. Anticipated over-pressure and vibration levels at the new hospital will meet the Ontario standards.

The HGC monitoring program also allowed IOC to confirm the accuracy of its blast monitors. Data collected from a number of blasts in 2014 will be added to the analysis dataset, thereby increasing accuracy in over-pressure and vibration predictions. This will allow options for reducing vibration and over-pressure at the key noise and vibration receptor sites to be evaluated.

IOC will continue to monitor blasts to expand the data base and increase the certainty of predictions of blast noise and vibration from the proposed Wabush 3 pit. The IOC will undertake test blasts in the Wabush 3 area, as per HGC recommendations, after security fencing and a Blast Clearance Plan are established. IOC will also be considering weather factors in its blast scheduling and is evaluating the possibilities of obtaining dedicated weather forecasts for winds and inversions for periods close to the planning of blasting dates.

The details for the blasting protocol will be better defined and understood as additional testing is completed. The blasting protocols will be completed before the proposed Project is commissioned, but unlikely before the conclusion of the EIS. The blasting protocols will use a range of blast design variables (e.g., blast location, hole diameter, initiation timing, stemming length and stemming material) and blast execution variable (e.g., wind direction, inversion conditions) to ensure that ground vibrations and over-pressure remain within allowable levels at targeted receptor sites (hospital, ski lodge, ski lift, residences, etc). A formal process will be developed for determining the combination of design and execution variable required to achieve acceptable results at the monitored receptors.

Blasting operations are very technical in nature and extensive knowledge and experience are required to develop blasting protocols that ensure considerations for the location of blasting and desired outcomes. Due to the technical nature of blasting protocol development, IOC will inform the Town of Labrador City of its decisions with regard to the changes to the blasting protocol and anticipated improved outcomes for the Wabush 3 pit, as well as continue to monitor and track blasting data and maintain IOC's process for receiving public feedback.

4.2.3 Information Request TLC-03

Current monitoring provides inadequate coverage to monitor air quality in recreational areas expected to be affected by the project.

IOC Response:

IOC is committed to establishing an air quality monitoring station in the skiing recreational area. Its actual location will be determined using site selection criteria for the Canada-Wide Standards (CWS) and in consultation with the air quality scientists at ENVC. The parameters to be monitored will include TSP, $PM_{2.5}$, SO_2 and NO_x. IOC has discussed this with the ENVC air quality specialists and there is agreement on the parameters chosen.

4.2.4 Information Request TLC-04

There are no mechanisms in place for sharing the monitoring results with the TLC.

IOC Response:

The results of the air quality monitoring (AQM) conducted by IOC in Labrador City are submitted to ENVC. ENVC issues annual summaries of the air quality monitoring conducted throughout the province which includes five IOC AQM stations. The annual reports can be found on the following website:
http://www.env.gov.nl.ca/env/publications/env_protection/index.html

ENVC also has a website which presents the IOC air quality monitoring data from the Smokey Mountain station on a "near-real time basis". The parameters which are reported are nitrogen oxides (NO, NO_2 and NO_x), ozone (O_3), sulfur dioxide (SO_2), particulate matter ($PM_{2.5}$) and total suspended particulates (TSP). Although the Smokey Mountain station is currently the only station posted on this website the other AQM stations will also be available once ENVC has them commissioned. The website is at:

http://www.env.gov.nl.ca/env/env_protection/science/airmon/labradorcity.html

IOC is the first Industrial partner to contribute to the data for the Air Quality Health Index (AQHI) which is found on the Environment Canada's Weather Network. The AQHI utilizes data (Ozone, $PM_{2.5}$ and NO_2) from the Smokey Mountain station to calculate the AQHI for Labrador City. The website is at:
http://weather.gc.ca/airquality/pages/nlaq-005_e.html

There are existing mechanisms to review ambient air quality monitoring data with the Town of Labrador City and regional stakeholders. IOC and the Town of Labrador City review the results of air quality monitoring results and air quality management at its regular meetings or as requested by IOC or the Town of Labrador City. IOC has also provided the web links to the real-time data and historic air quality reports to be posted on the Town's website. In addition, IOC is willing to present air quality monitoring information at public sessions of Town Council meetings if desired.

4.2.5 Information Request TLC-05

In the TLC submission were photos that indicate conditions that the TLC region faces with respect to nuisance dust. While the cause of these conditions was not attributed to the IOC operations, TLC states that residents have raised the "legitimate" concern that this alarming volume of airborne particulate matter will increase as a result of this undertaking. Council is of the expressed opinion; the impacts of nuisance dust have not been thoroughly assessed by the Proponent.

IOC Response:

The potential effects of dust from the Wabush 3 Project have been evaluated throughout Chapter 10 of the EIS. There is considerable discussion on particulate matter (TSP), which for the Project consists primarily of the finer fractions of fugitive dusts which are generated from a variety of material handling activities at the mine site as well as from mine roads dust. The TSP emission rates for the various dust sources associated with the IOC operations, with the exception of blasting, were estimated using conventional methods for estimations. As noted in one IR, the overburden storage for Wabush 3 was not included as a source of dust as the worst case scenario for dust was modelled. The overburden storage area is considered to be a minor source of dust and would not have changed the results of the assessment in any significant way (see the answer to CA-HC-02). The dispersion of the TSP and its finer fractions, $PM_{2.5}$ and PM_{10}, and also NO_2, CO and SO_2, has been modeled for the IOC operations, using the ENVC accepted CALPUFF air dispersion model. Dust related to blasting was evaluated separately as the air dispersion models do not predict such short duration episodes in a precise manner. The modeling compared the results of two scenarios, the IOC operations with and without the proposed Wabush 3 Project. The modeling determined that the proposed Wabush 3 Project would not have a significant effect on the ambient concentrations of particulate matter, NO_2, CO or SO_2 in the populated areas of the Town of Labrador City, as the predicted effects were indistinguishable for the two scenarios. Figures 10.10 – 10.15 in Chapter 10 of the EIS and figures throughout the RWDI Air Quality Assessment Report (EIS Appendix 6) support this determination. Modeling for dustfall (all fraction sizes of dust particles) was conducted for the purposes of the HHRA, but the contour drawings were not included in the EIS. This was raised previously in IR CA-HC-08 and the drawings are included in the answer to that IR. The results of the dustfall modeling are consistent with the discussion above, in that there are no distinguishable differences in the populated areas of the Town of Labrador City between the results for the two scenarios.

For blasting, the assessment of TSP and the finer PM_{10} was through air monitoring results associated with field measurements taken during blasting events between August 2013 and March 2014. PM_{10} was measured and TSP was calculated from the PM_{10} results using a US EPA correlation. The monitoring and correlation results demonstrate that the TSP and PM_{10} concentrations were well within the provincial regulations at the monitoring locations of approximately 500 m downwind of the blasting events. The coarser fractions of the dust associated with blasting will settle out at even shorter distances from the twice monthly blasts.

IOC concurs with the statement in the IR that the cause of these visible dust conditions are not associated with the IOC operations. The conclusion of the discussion of dustfall in Chapter 10 of the EIS and summarized above is that the operation of Wabush 3, using the mitigation methods described in the EIS, will not result in an increase in the volume of airborne particulate matter within the populated areas of the Town of Labrador City or the neighbouring Town of Wabush.

4.2.6 Information Request TLC-06

The Proponent provide a copy of the "Fugitive Dust Management Operations Plan" (FDMOP), referenced page 242 of the EIS submission. This detailed plan for addressing dust mitigation was not included as an appendix in the EIS.

IOC Response:

The "Fugitive Dust Management Operations Plan" (FDMOP) is included in this EIS Amendment as Appendix 2. The dust mitigation practices detailed in this Plan have been used in the ongoing IOC operations and will be applied to all sources and activities associated with the proposed Wabush 3 Project. The Plan will cover both the construction and operations and maintenance phases, and will comprehensively address dust mitigation measures for point and fugitive sources of dust.

4.2.7 Information Request TLC-07

The future hospital and current college should be included in the risk characterization (for the HHRA).

IOC Response:

The “future” hospital (which is now open) and current college locations have now been modeled by RWDI to obtain Ground Level Air Concentration (GLAC) predictions for $PM_{2.5}$, PM_{10}, NO_2, and SO_2. These new predictions are presented in Table 1 below, where they can be compared to the predictions made in the HHRA for the Old Hospital (predictions were presented in Table 4-7 of the HHRA, Appendix 25 of the EIS). In all cases, the GLACs for the new college and “future” hospital locations are lower than those previously predicted for the old Hospital location. Hence, potential risks would also be lower. Metals GLACs are a function of the particulate matter concentration and benzo(a)pyrene and benzene concentrations are based on NO2 emissions. Since the $PM_{2.5}$, PM_{10}, and NO_2 concentrations are lower than previous predictions at the Old Hospital location, metals, benzo(a)pyrene, and benzene GLACs associated with the “future” hospital and current college locations also would be lower than those previously predicted for the previous hospital location. As such, predictions of air concentrations of benzo(a)pyrene, benzene, and metals at the “future” hospital or current college locations are not required as potential risks would be lower than those predicted at the Old Hospital location.

Table 1 Comparison of Predicted Baseline, Incremental Project and Future (Project + Baseline) Air Concentrations at the College, the New Hospital and the Old Hospital Receptor Locations to Ambient Air Quality Guidelines (µg/m3)

COPC (Guideline)	College			New Hospital			Old Hospital		
	Baseline	Project	Project + Baseline	Baseline	Project	Project + Baseline	Baseline	Project	Project + Baseline
$PM_{2.5}$									
24 hour (25 µg/m^3)[a]	4.7	0.3	5.0	4.1	0.3	4.5	11.8	-	11.8
24 hour (27 µg/m^3)[b]	3.1	0.3	3.4	2.8	0.3	3.1	5.5	0.2	5.7
Annual (8.8 µg/m^3)[c]	0.4	-	0.4	0.4	-	0.4	0.9	-	0.9
PM_{10}									
24 hour (50 µg/m^3)[d]	20.7	1.1	21.8	17.7	2.2	19.9	80.4	1.9	82.3
Annual (20 µg/m^3)[e]	1.8	0.2	2.0	1.6	0.3	1.9	4.1	0.2	4.3
NO_2									
1-hour (190 µg/m^3)[f]	139.6	-	139.6	129.4	-	129.4	149.2	-	149.2
Annual (100 µg/m^3)[g]	2.9	0.1	3.0	2.6	0.1	2.7	4.9	0.2	5.1
SO_2									
1- hour (200 µg/m^3)[h]	211.5	-	211.5	193.5	-	193.5	234.9	3.6	238.5

Notes:

Project + Baseline (Future Build Scenario) – Baseline (Future No build scenario) = Project Increment

a. ENVC, 2014. 24 hour averaging time. The value reported is the highest of the 2nd maxima from each year, identified from each receptor location over four years of meteorological data.

b. CAAQS, 2013. 24 hour averaging time; will come into effect in 2020. This value is calculated as the 3 year average of the annual 98th percentile of daily 24 hour data. The 3 year average was calculated 2 ways - (i) using the 2007, 2008 and 2009 meteorological data and (ii) using the 2008, 2009 and 2010 meteorological data. The higher of these 3-year averages is provided in this table.

c. ENVC, 2014; CAAQS, 2013. Annual average. This value is calculated as the 3 year average of the annual average concentrations. The 3 year average was calculated 2 ways - (i) using the 2007, 2008 and 2009 meteorological data and (ii) using the 2008, 2009 and 2010 meteorological data. The higher of these 3-year averages is provided in this table.

d. ENVC, 2004. 24 hour averaging time. The value reported is the highest of the 2nd maxima from each year, identified from each receptor location over four years of meteorological data.

e. WHO (2006). Annual average. Calculated as the annual average of each of 4 years of predicted data. The highest annual average of the 4 years is presented for each receptor location.

f. U.S. EPA (2010c); Standard converted from 100 ppb (1-hour) to 188 µg/m^3 (rounded to190 µg/m^3) by using a conversion factor of 1 ppb =1.88 µg/m^3 (WHO, 2006b). This standard was compared against the 3 year average of the 98th percentile of the yearly distribution of the 1-hour daily maximum (U.S. EPA, 2010c). The 3 year average was calculated 2 ways - (i) using the 2007, 2008 and 2009 meteorological data and (ii) using the 2008, 2009 and 2010 meteorological data. The higher of these 3-year averages is provided in this table.

g. U.S. EPA (2010d); Standard converted from 53 ppb (annual) to 99.64 µg/m^3 (rounded to100 µg/m^3).

4.2.8 Information Request TLC-08

Estimates of TSP [Total suspended particulate] emissions from the project should have been included in the HHRA and qualitatively evaluated.

IOC Response:

TSP was excluded from the HHRA, as exposure to particles of this size is not linked to health effects. It was assessed in Chapter 10 (Atmospheric Environment) of the EIS.

Page 33 of the HHRA (Appendix 25 of the EIS) states:

> "TSP (Total Suspended Particulate matter, also known as Total Particulate Matter, or TPM, which includes particulate matter) was not included in the HHRA, as this fraction of particulate matter, which typically ranges from < 44 µm to < 100 µm, are well beyond inhalable (<10 µm) or respirable (<2.5 µm) particle fraction ranges. As such, existing ambient air quality benchmarks for TPM are not human health-based but rather, are aesthetic standards related to soiling, visibility or nuisance dust issues (e.g., ENVC 2013)."

There are no Health Canada or US EPA health-based air quality guidelines for total suspended particulate. Previous TSP air quality guidelines were rescinded as science advanced and it was determined that the size of the particle is directly linked with the potential for causing health effects. The particles of greatest health concern are those equal to or less than 10 micrometers in diameter as these can pass through the throat and nose and enter the lungs. Once inhaled, these smaller particles can affect the heart and lungs (US EPA 2013). PM2.5 and PM10 were both included in the HHRA.

Reference

USEPA (Environmental Protection Agency). 2013. Particulate Matter. URL: *http://www.epa.gov/airquality/particlepollution/.* Site Accessed January, 2015.

4.2.9 Information Request TLC-09

Further discussion and analysis of the blasting scenario:

- The HHRA should consider the emissions from the worst case scenario and potential health impacts at receptor locations.

IOC Response:

As presented on page 40 of the HHRA Report (Appendix 25 of the EIS), the worst case maximum predicted air concentrations as well as the average air concentrations for the blasting scenario for the 1 hour time duration were assessed in the HHRA. To illustrate this, Table 4.6 from the HHRA Report is repeated below. The estimated one-hour concentrations assessed in this table are at a distance of 1,200 m, since this is the closest a transient recreational receptor would come to the blast zone. Transient receptors (such as hikers, or cross

country skiers) are not allowed access to areas less than 1,200 m from a blasting event for safety reasons (as explained in Section 4.4.1.1; page 39 of the HHRA report). For this reason, an assessment for recreational receptors at 500 m is not required.

Although ski hill receptor locations could theoretically be within 1,200 m of a blast zone, this safety limit will not be infringed and these areas will be cleared before blasting occurs. Therefore, 1,200 m represents the worst case scenario and other locations do not need to be modeled. IOC will be preparing a Blast Clearance Plan which will address this issue.

Table 4.6 Summary of Estimated One Hour Concentrations of CO, NO_2, SO_2, H_2S and C_4H_8 at 1200 m from Blasting and Comparisons to Acute Air Quality Guidelines

Exposure Limits	CO[a]		NO_2[b]		SO_2[c]		H_2S[d]		C_4H_8[e]	
	ppm	µg/m³	ppm	µg/m³	ppm	µg/m³	ppm	µg/m³	ppm	µg/m³
Average	0.215	246	0.045	84.6	0.012	31.9	0.006	7.5	0.030	68
Maximum	0.764	875	0.23	432	0.045	120	0.056	70	0.19	431
Acute Air Quality Guideline	25	30,000	0.101; 0.5	190[f] 940[g]	0.075	200[f]	0.0784	98[h]	15 (health); 0.36 (odour)	34,000 (health); 820 (odour)

a Conversion of CO from ppm to µg/m³ was done using a factor of 1 ppm = 1145 µg/m³; acute air quality guideline (WHO, 2000)
b. Conversion of NO_2 from ppm to µg/m³ was done using a factor of 1 ppm = 1880 µg/m³ (WHO, 2006)
c. Conversion of SO_2 from ppm to µg/m³ was done using the a factor of 1 ppm = 2660 µg/m³ (WHO, 2006)
d. Conversion of H_2S from ppm to µg/m³ was done using the factor of 10 µg/m³ = 0.008 ppm (http://www.oehha.org/air/chronic_rels/pdf/7783064.pdf)
e. Assumed to be the more toxic and more odorous of 1-butene or 2-butene (TCEQ, 2014a). Conversion factors for 2-Butene are 15 ppm = 34,000 µg/m³ (TCEQ, 2014b). The health based value is for 2-butene, whereas the odour value is for 1-butene.
f. U.S. EPA (2010c,d). These limits are intended to be applied to the 3 year average of the annual 98th percentile (in the case of NO_2) or 99th percentile (in the case of SO_2) of the daily 1 hour maxima, as opposed to a single 1 hour maxima.
g. NRC, 2012. This value is the AEGL-1 value for 1 hour time limit; possible health effects at this level include slight burning of the eyes, slight headache, chest tightness or labored breathing with exercise.
h. ATSDR, 2006; 2013 (1 hour exposures).

- TRV [toxicological reference values] selection and missing COPCs in the blasting scenario should be discussed in the risk characterization section

IOC Response:

All COPCs estimated in the blasting scenario were assessed in the HHRA acute blasting assessment, with the exception of NO and PM_{10}. The toxicologically relevant form of NO is NO_2, which was assessed in the blasting scenario. For PM_{10}, health effects related to particular matter are a function of chronic, as opposed to acute exposures; hence, no ambient air quality guidelines for this exposure time frame are available. Toxicity Reference Value (TRV) selection for the acute blasting scenario was presented in Section 4.3.1.1 of the HHRA, and Table 4.4 (repeated below) summarizes the selected TRVs.

Table 4.4 Toxicity Reference Values (µg/m³) Used in Assessment of Ambient Air for Both the Acute Blasting Scenario and for Criteria Air Contaminants

Scenario and COPC	Toxicity Reference Values (µg/m³)
Acute Blasting Scenario	
COPCs	**1 hour Averaging Period**
CO	30,000 (WHO)

NO_2	190 (U.S. EPA)
SO_2	200 (U.S. EPA)
H_2S	98 (MRL; ATSDR)
C_4H_8	34,000 (TCEQ)

Criteria Air Contaminants			
COPCs	***Toxicity Reference Values (µg/m^3)***		
	1 hour	**24 hour**	**Annual Average**
CO[a]	30,000 (WHO)	NA	NA
$PM_{2.5}$[b]	NA	25 (ENVC); 27 (CCME)	8.8 (ENVC; CAAQS)
PM_{10}[c]	NA	50 (ENVC)	20 (WHO)
NO_2[d]	190 (U.S. EPA)	NA	100 (ENVC; U.S. EPA)
SO_2[e]	200 (U.S. EPA)	NA	NA

Notes:

NA = not applicable

[a] The 1 hour CO limit from WHO (2000) is 30 mg/m^3 or 25 ppm. This value is set to protect human health. Since CO is a short term response, no longer averaging period guidelines are available.

[b] There is no 1 hour ambient air quality guideline for $PM_{2.5}$. The daily standard from ENVC (25 µg/m^3), and the most recent CAAQS (2013) standard (27 µg/m^3; to be met in 2020) were used in this assessment. These two standards are both 24 hour averaging time standards, but are calculated in different fashions, and hence, both will be used. The basis of the CAAQS was not available, but it is stated as being health-based, and is therefore assumed to reflect the most recent scientific literature related to health effects of $PM_{2.5}$. The basis of the ENVC limit is unknown, but since the value is the same as the WHO (2006) value, which is currently still in effect and health-based, comparisons to this standard will be conducted. The CAAQS comparisons will carry more weight in conclusions related to health impacts associated with exposures measured in the community, as the metric used in comparing ambient data is a 3 year time frame (i.e., 3-year average of the annual 98th percentile of the daily 24-hour average concentrations). For annual average, ENVC has implemented the 8.8 µg/m^3 standard that was developed as a CAAQS (to be met in 2020 under the CCME Air Quality Management System), and therefore, this value will be used.

[c] There is no 1 hour ambient air quality guideline for PM_{10}. The ENVC standard of 50 µg/m^3 will be used in this assessment. The basis of this value is not known, but this value is identical to the WHO (2006) value, which is health-based and was re-affirmed in 2013 (WHO, 2013). The annual average value of 20 µg/m^3 from WHO (2006) was selected, as no value is available from Canadian jurisdictions related to this averaging period.

[d] NO_2 - standard selected is from U.S. EPA (2010c), wherein a comprehensive health effects assessment was conducted. This value is to be compared against the 3 year average of the 98th percentile of the yearly distribution of the 1-hour daily maximum (U.S. EPA, 2010c). Annual average standard from the U.S. EPA was reaffirmed in 2010 (U.S. EPA, 2010c). This value is identical to the annual average value used for compliance purposes in Newfoundland and Labrador, although the basis for the value in Newfoundland and Labrador is not cited. The U.S. EPA did not derive a 24-hour benchmark for NO_2 as the 1-hour benchmark can be considered to be effective at protecting against 24-hour exposures to NO_2 (U.S. EPA, 2010c). Other values available from ENVC and CCME were not selected for this assessment, as they are not as current with respect to the health effects literature as those from the U.S. EPA.

[e] SO_2 - standard was selected is from U.S. EPA (2010d), wherein a comprehensive health effects assessment was conducted. This value is to be compared against the 99th percentile of 1-hour daily maximum concentrations averaged over 3 years (U.S. EPA, 2010d). The U.S. EPA revoked its existing 24-hour and annual standards, citing that these standards would not add any additional protection to public health over the new 1-hour standard of 75 ppb (200 µg/m^3). In addition, the U.S. EPA indicated that there was little evidence based on health outcomes to health effects with long-term exposures to SO_2. Therefore, other metrics (3-hour, 24-hour and annual average) are not considered in this health evaluation.

- Include rationale for using a less conservative H_2S [hydrogen sulphide] guideline than the Newfoundland and Labrador guideline.

IOC Response:

With respect to the H_2S limit selected for the HHRA, the value selected (98 µg/m^3; ATSDR, 2013) is a health-based value, rather than a value based on odour. This value is known as a MRL (Minimum Risk Level), which is defined by the Agency for Toxic Substances and Disease Registry (ATSDR) as an estimate of the daily human exposure to a hazardous substance that is likely to be without appreciable risk of adverse health effects over a specified duration of exposure (*http://www.atsdr.cdc.gov/mrls/index.asp*). The ATSDR (2013) derived an acute inhalation MRL for hydrogen sulphide of 98 µg/m^3 (0.07 ppm), based on a LOAEL (Lowest Observed Adverse Effect Level) of 2 ppm for changes in airway resistance and specific airway conductance in excess of 30% in two of 10 individuals examined. The test subjects all had bronchial asthma requiring medication for 1 to 13 years. The subjects were exposed for 30 minutes and their respiratory function in response to a histamine challenge was assessed prior to and following exposure. Although two subjects showed changes in airway resistance after 2 ppm exposure, no statistically significant alterations in lung function were observed at this concentration. The ATSDR (2006) applied a combined uncertainty factor of 30 to 2 ppm, to yield a MRL of 0.07 ppm (98 µg/m^3). The ENVC has a limit for H_2S of 15 µg/m^3 (1 hour). While the specific basis of this limit is not stated in the NL regulations, it is likely based on odour, as opposed to health effects. The Alberta Environment and Sustainable Resource Development Department (ESRD) provides a similar limit (14 µg/m^3), which is based on odour, rather than health-effects. Hence, the difference between the ENVC limit and the limit used in the HHRA is the endpoint being protected, i.e., odour (being able to smell H_2S) versus health effects. Exposures below the MRL, as defined by the ATSDR, are unlikely to be associated with adverse health effects.

References

ATSDR (Agency for Toxic Substances and Disease Registry). (2006). Toxicological Profile for Hydrogen Sulphide. Atlanta, GA. US Department of Health and Human Services, Public Health Service. Atlanta. July 2006.

ATSDR (Agency for Toxic Substances and Disease Registry). (2013). Minimal Risk Levels (MRLs) for Hazardous Substances. US Department of Health and Human Services, Public Health Service. Atlanta, GA. July 2013. Available at: *http://www.atsdr.cdc.gov/mrls/mrllist.asp*

ESRD (Environment and Sustainable Resource Development). (2013). Alberta Ambient Air Quality Objectives and Guidelines. Air Policy Branch. ISBN 978-1-4601-0758-4. Issued August 2013.

- A discussion of the absence of silica monitoring data from blasting and the inability to predict air metal concentrations from blasting events.

IOC Response:

Neither silica nor metals predictions were undertaken in the blasting scenario, as potential health effects arising from exposure to these substances are linked to chronic, as opposed to acute, exposure scenarios. The

blasting scenario is an acute scenario, and hence predictions of chronic exposures to these substances was not considered relevant.

4.2.10 Information Request TLC-10

Additional information/justification to support data used in HHRA:

- Inclusion of worked calculations in the HHRA to confirm/verify results of the HHRA.

IOC Response:

A worked calculation was provided in Appendix D of the HHRA Report (Appendix 25 of the EIS), using aluminum as an example (in the baseline + future build scenario). Appendix D presents the methods, equations and input values that were used to predict environmental concentrations and the hazard quotient for aluminum in the Baseline + Future Build scenario. Similar methods were applied for other chemicals and scenarios evaluated. Appendix D also provides modeling inputs and outputs, with references, for all chemicals evaluated in all scenarios. In addition, Appendix C of the HHRA Report describes the environmental sample data used to estimate baseline exposures to chemicals of potential concern (COPC) in the HHRA.

The equations used to determine exposures in the HHRA are derived from, or endorsed by, regulatory agencies such as Health Canada and the U.S. Environmental Protection Agency (EPA) (e.g., Health Canada, 2012; U.S. EPA OSW, 2005). Human receptor parameters used in the exposure modeling were obtained from Health Canada (2012; 2007, 1994) and Richardson and O'Connor (1997). Ecological exposures variables were generally obtained from U.S. EPA (1993) and Suter et al (2000).

A full reference list of exposure parameters and equations used in the exposure modelling is provided in that Appendix D with additional references being provided in the main report.

References

Health Canada. (1994). Human Health Risk Assessment for Priority Substances. Canadian Environmental Protection Act: Priority Substances List Assessment Report No. 41. Ottawa, ON: Health Canada. PSL-41E EN40-215/41E.

Health Canada. (2007). Human Health Risk Assessment of Mercury in Fish and Health Benefits of Fish Consumption. Bureau of Chemical Safety Food Directorate Health Products and Food Branch. http://hc-sc.gc.ca/fn-an/pubs/mercur/merc_fish_poisson_e.html

Health Canada. (2012). Federal Contaminated Site Risk Assessment in Canada, Part I: Guidance on Human Health Preliminary Quantitative Risk Assessment (PQRA), Version 2.0. Prepared by; Contaminated Sites Division, Safe Environments Directorate, Ottawa, ON. September 2010, revised 2012.

Richardson and O'Connor, (1997). Compendium of Canadian Human Exposure Factors for Risk Assessment. O'Connor Associates Environmental Inc.

Suter, G.W., Efroymson, R.A., Sample, B.E., and Jones, D.S. (2000). Ecological Risk Assessment for Contaminated Sites. Lewis Publishers, CRC Press LLC.

US EPA OSW. (2005). Human Health Risk Assessment Protocol for Hazardous Waste Combustion Facilities, Final. US EPA Region VI. Multimedia Planning and Permitting Division. Center for Combustion Science and Engineering. Office of Solid Waste.

US EPA (United States Environmental Protection Agency). 1993. Wildlife Exposure Factors Handbook. Washington, DC: Office of Health and Environmental Assessment, Office of Research and Development. EPA/600/R-93/187. December 1993.

- Discuss how air concentrations were derived in the HHRA.

IOC Response:

A discussion of how air concentrations were derived in the HHRA was provided in Section 4.2.1.1, page 22 of the HHRA Report (Appendix 25 of the EIS). A summary was also provided in Table 4.1, page 20 of the HHRA Report. A portion of Table 4.1 which summarizes how air concentrations were derived is provided below:

Media	**Exposure Assessment**	
	Baseline	**Baseline + Project**
Air	Criteria Air Contaminants (CACs) were predicted using air dispersion modelling (including existing pelletizing plant emissions, as well as potential future emissions associated with an already approved expansion of the Luce Pit). For non-CACs, current ground level air concentrations were predicted using a ratio based on NOx emissions (for B(a)P and benzene), or based on the relative contribution of ore dust to PM_{10} or $PM_{2.5}$ emissions (for metals).	CACs predicted using air dispersion modelling (including existing pelletizing plant, as well as existing Luce Pit and other pit emissions, and the proposed Wabush 3 Project emissions). For non-CACs, future ground level air concentrations were predicted using a ratio based on NOx emissions (for B(a)P and benzene), or based on the relative contribution of ore dust to PM_{10} or $PM_{2.5}$ emissions (for metals). For acute blasting scenario, measured ambient air concentrations from blasting events at Luce Pit were assessed and used to predict potential concentrations associated with Wabush 3 Project blast events.

Briefly, from information provided in the HHRA Report (page 22), the following was undertaken to predict ground level air concentrations:

- Air dispersion isopleths were examined to identify specific receptor locations which could experience more heavily influenced air quality, due to their proximity to the Project. The selection of these receptor locations considered land use information provided by AMEC (2014a,b);

- Ground level air concentrations (GLACs) for all CACs with the exception of CO (which was well below ambient air quality guidelines) were predicted at all four receptor locations for the averaging times of interest.

- To calculate possible ambient air concentrations of metals at specific receptor locations, RWDI (Pers Comm) provided an adjustment factor, based on the relative contribution of ore dust (as fugitive dust) to the predicted PM_{10} and $PM_{2.5}$ GLACs. The emission inventory for the mine indicates that the fugitive dust portion makes up 95% of the total PM10 emissions in the baseline (i.e., Future No-Build) scenario, and it makes up 80% of the total $PM_{2.5}$ emissions in the baseline (i.e., Future No-Build) scenario, on an annual basis (RWDI, pers comm). Therefore, to estimate metal GLACs, PM_{10} concentrations at the four receptor locations were multiplied by 0.95 and then ore geochemistry fractions were applied to generate metal-specific GLACs (Section 3.2.1).

- Predictions of B(a)P and benzene from the mine fleet emissions in baseline air were provided by RWDI (pers comm). The annual average B(a)P concentrations at the four receptor locations were estimated by scaling from predicted annual average NO_2 concentrations, using data on PM, NO_x and B(a)P emissions for diesel vehicles from the US EPA (2010a, 2012).

4.2.11 Information Request TLC-11

Enhanced assessment of HHRA uncertainties:

- More detailed discussion of the assumptions used in air dispersion modeling as they pertain to the risk assessment, such as the use of monitoring data for air dispersion modeling and for the acute blasting scenario in the uncertainty section

IOC Response:

Morrison Hershfield Ltd. (MH) dealt with uncertainties on p. 11 of their report. The first bullet there was a request for more detailed discussion of air dispersion modelling assumptions and model inputs (particularly for the acute blasting scenario).

The U.S. Environmental Protection Agency reviewed various studies of dispersion model accuracy and the overall findings are consistent with RWDI's experience with comparison between models and field measurements. The models are more reliable at predicting longer time-averaged concentrations (e.g., annual averages) than short-term concentrations (e.g., 1-hour and 24-hour periods) at specific locations. With respect to the short-term concentrations, however, the models are reasonably reliable in estimating the magnitude of highest concentrations occurring sometime, somewhere within an area. Typical accuracy in highest estimated concentrations is in the range of ±10% to ±40% (US EPA 2003). The uncertainty is greater when modelling open sources of dust at a mining operation. Dust emissions depend on numerous factors such as moisture and other bulk material properties, equipment types and operating conditions, pit sheltering effects, etc. These factors vary from day to day and place to place, and the published emission factors used to estimate the emissions are not capable of accurately representing the variability. The emission factors are representative averages based on previous field measurement campaigns at other sites.

In view of the uncertainties associated with this type of dispersion modelling, the general regulatory practice in various jurisdictions is to apply an upper bound (worst-case) approach, which reduces the risk of underestimating pollutant levels that are likely to occur. This approach consists of running a worst-case operating scenario through several years of hourly meteorological conditions. For each contaminant and

averaging time, the highest result (i.e., the one that occurred under worst-case weather conditions) is extracted from the model output at each model grid point. This represents a rare or at least very infrequent scenario in which worst-case operating conditions coincide with worst-case meteorological conditions. With this approach, the model is unlikely to underestimate and more likely to overestimate the air contaminant levels that could generally be expected. This upper bound approach was adopted in the present case.

Central to the approach was the worst-case operating scenario. Section 2.2 of Appendix 6 of the EIS (Wabush 3 - Air Quality Assessment) stated that the modeled locations of mining activities are representative locations as the actual locations are subject to change as mining progresses. This statement is true for the "No-Build" scenario, but for Wabush 3 operations in the "Future Build" scenario, the locations adopted were worst-case, meeting the following criteria:

- Mining activities operating in closest proximity to sensitive impact areas (i.e., the skiing recreational areas and the Town of Labrador City);

- Mining activities occurring on the first lift, at highest anticipated elevation, as opposed to being on a lower lift within the pit;

- Maximal equipment activity levels.

For most of the life of Wabush 3, operations will occur at a lower level within the pit where the potential for dust emissions to migrate out of the pit is reduced.

With respect to blasting, it was assessed using field measurement data rather than dispersion modelling. This is discussed at length within Appendix 6 of the EIS. The measurements were conducted at an approximate distance of 500 m from each blast, at downwind locations that had a direct line of sight. A distance-squared extrapolation was applied to estimate what the concentrations would be at a distance of 1,200 m away, which is the extent of the safety clearance zone during blasts. The measurements themselves have inherent uncertainty and the extrapolation method also has significant uncertainty. To address these uncertainties, an upper bound approach was taken when assessing the data.

Air pollutant measurement data were examined for 32 blasts conducted in 2013 and 2014. 1-hour average concentrations were examined for each event. Values varied widely from one event to another. The highest value from among the 32 events was compared to the applicable NL standard. For all pollutants, the average value across all 32 events was at least a factor of 2.5 lower than the maximum value. This means that during a typical blast the measured concentration was substantially lower than that measured under the worst-case event.

Blasts are expected to occur only approximately twice per month within the Wabush 3 mining area. Among these, the worst-case blast from among the monitored events will not be the norm. In addition, the wind will not always be directed toward the recreation area and the Town of Labrador City. Also, the measurement data used in the assessment were from locations with a line of site to the blast. As such, they do not account for any shielding effect that occurs when blasts occur on lower lifts within the pit.

Taken all these factors into consideration, it is clear that the results of this assessment represent a low-probability, upper bound condition, which reduces the risk of underestimating potential health risks due to any uncertainties in the assessment methodology.

- Sensitivity assessment of all models used in the HHRA.

IOC Response:

Sensitivity analysis for a risk assessment examines the variation in the output of a model with respect to changes in the model's input values (US EPA 2001). Sensitivity analysis is generally conducted for probabilistic risk assessment wherein a range of values are used for a selected input parameter (e.g., body weight, food ingestion rate, soil ingestion rate, etc.). The modelling for the Wabush 3 HHRA was deterministic, and as such a single value was selected for each input parameter in the model (e.g., one toddler body weight rather than a range of toddler body weights; one toddler soil ingestion rate rather than a range of soil ingestion rates). Sensitivity analysis for deterministic assessments primarily examines which pathways and variables most strongly influence risk estimates. Tables 1 and 2 show what pathways are contributing the greatest to chemical exposures for the adult and toddler HQs in both the baseline and project scenarios.

Table 1. Percent Contribution of Each Exposure Pathway to Total Exposure for Adult in HHRA for Baseline and Project Scenario

Adult	Percent Contribution of Exposure Pathway				
	Soil	**Drinking Water**	**Dust**	**Food Consumption**	**Dermal (soil + other)**
Baseline Scenario					
Aluminum	31	0	0	3	66
Benzo(a)pyrene	0	0	0	0	0
Chromium	31	0	0	42	27
Iron	30	0	0	6	64
Manganese	6	0	0	82	12
Project Scenario					
Aluminum	31	0	0	4	65
Benzo(a)pyrene	19	0	0	56	25
Chromium	47	0	0	13	40
Iron	31	0	0	4	65
Manganese	22	0	0	30	48

Note:
Values rounded to the nearest percent.
Data not provided for silica and titanium as HQs were not derived for these compounds.
B(a)P exposures in baseline were assumed to be zero.

Table 2. Percent Contribution of Each Exposure Pathway to Total Exposure for Toddler in HHRA for Baseline and Project Scenario

Toddler	Percent Contribution of Exposure Pathway				
	Soil	Drinking Water	Dust	Food Consumption	Dermal (soil + other)
Baseline Scenario					
Aluminum	82	0	0	1	17
Benzo(a)pyrene	0	0	0	0	0
Chromium	81	0	0	12	7
Iron	81	0	0	2	17
Manganese	34	0	0	58	8
Project Scenario					
Aluminum	81	0	0	1	18
Benzo(a)pyrene	69	0	0	22	9
Chromium	90	0	0	2	8
Iron	81	0	0	1	18
Manganese	73	0	0	11	16

Note:
Values rounded to the nearest percent.
Data not provided for silica and titanium as HQs were not derived for these compounds.
B(a)P exposures in baseline were assumed to be zero.

For the toddler and to some degree for the adult, soil exposures are driving (or contributing to a large degree) the total exposure estimates. Variables in calculating soil exposures include the soil ingestion rate and the soil concentration. Any changes to the soil ingestion rate would affect soil exposures. Soil ingestion rates used in the model were obtained from Health Canada (2012; Table 3) HHRA guidance. The Health Canada (2012) soil ingestion rates for the toddler (0.08 g/day) are greater than the adult (0.02 g/day) (which accounts for toddler behaviours such as putting things in their mouths), leading to higher soil exposures for the toddler. Soil exposure point concentrations for the baseline scenario were obtained from baseline soil concentrations measured in the vicinity of where the mine will be and in areas where people hunt and pick berries. For soil ingestion, bioaccessibility of the COPC (chemical of potential concern) in soil was assumed to be 100%.

Exposures via the dermal route are driven mainly by soil concentrations and RAFdermal (dermal relative absorption factors). RAFs dermal are provided in Health Canada (2010; Table 3), but of the COPC evaluated in the HHRA, RAFdermal were only available for chromium and benzo(a)pyrene. For all other COPC, a RAFdermal of 25% was conservatively assumed (a value of 25% was assumed to be a reasonable value given that most metal RAFdermal are less than 20% and the value is higher than the RAFdermal for many organics).

Food ingestion was often a major contributor to total exposures for benzo(a)pyrene, chromium and manganese. Exposure via food ingestion is driven mainly by food ingestion equations and models used to estimate food concentrations. Food ingestion rates were obtained from various Health Canada sources. For the HHRA, tissue data for country foods were not available and were estimated in the HHRA. Tissue data for country foods were subsequently collected and concentrations compared to modelled tissue concentrations. The differences in modeled to measured tissue concentrations did not affect the results of the HHRA; see IR response to CA-HC #7). Bioaccessibility of food was assumed to be 100%.

For the pathways contributing the most to total exposures (e.g., soil ingestion, food consumption and dermal exposure), there are a number of conservative assumptions incorporated into the modeling. These

conservative assumptions would tend to overestimate (rather than underestimate) potential exposures and hence overestimate potential risks (e.g., assuming 100% bioaccessibility in soil and food; assuming a high RAFdermal when a specific RAF did not exist; using a 95th upper confidence limit on the mean (95 UCLM) soil or tissue concentration where sufficient data were available, or using a maximum detected value or maximum detection limit where a UCLM was not used).

References

Health Canada. (2010). Federal Contaminated Site Risk Assessment in Canada. Part II: Health Canada Toxicological Reference Values (TRVs) and Chemical-Specific Factors. Version 2.0 September, 2010). Contaminated Sites Division, Safe Environments Directorate, Health Canada. Ottawa, ON.

Health Canada. (2012). Federal Contaminated Site Risk Assessment in Canada, Part I: Guidance on Human Health Preliminary Quantitative Risk Assessment (PQRA), Version 2.0. September 2010. Contaminated Sites Division, Safe Environments Directorate, Health Canada. Ottawa, ON.

4.2.12 Information Request TLC-12

- A discussion of each TRV [Toxicological Reference Value] as it relates to sensitive receptors.

IOC Response:

Inhalation and oral TRVs for chronic exposures were selected from regulatory agencies such as Health Canada, the US Environmental Protection Agency (EPA) and the World Health Organization (WHO). Potentially sensitive populations and life-stages are inherently considered in TRVs published by regulatory agencies (HC 2010; US EPA 2014). Regulatory based TRVs incorporate uncertainty factors to account for several factors, including:

- inter-species variability (uncertainty in extrapolating animal data to humans);
- intra-species differences (to account for variation in susceptibility among the members of the human population);
- uncertainty in extrapolating from data obtained in a study with less-than-lifetime exposure (i.e., extrapolating from subchronic to chronic exposure);
- uncertainty in extrapolating from a lowest observed adverse effect level (LOAEL) rather than from a no observed adverse effect level (NOAEL); and
- uncertainty associated with extrapolation when the database is incomplete.

With respect to the protection afforded to sensitive receptors, related to the TRVs selected for Criteria Air Contaminants (CACs), these ambient air guidelines or standards are based on epidemiology studies which include sensitive receptors such as asthmatics, the elderly and children. For each of the CACs, extensive reviews of the scientific literature were conducted by leading regulatory agencies, and the recommended values underwent additional external review prior to promulgation, in most cases. These limits are established to provide protection for most receptors under most exposure conditions, but the regulatory agencies do not guarantee that exposures below these limits will not result in health effects in some sensitive individuals. For PM2.5, any exposure is associated with some degree of risk, and the limits established are risk management limits, such that exposures below these levels would be associated with a low degree of risk.

References

Health Canada. (2010). Federal Contaminated Site Risk Assessment in Canada (FCSAP). Part V: Guidance on Human Health Detailed Quantitative Risk Assessment for Chemicals (DQRACHEM). Contaminated Sites Program.

US EPA. (2014). Integrated Risk Information System (IRIS). IRIS 101. What is an RfD and RfC? US Environmental Protection Agency. *http://www.epa.gov/iris/help_ques.htm#whatiris*

4.2.13 Information Request TLC-13

Additional analysis/discussion to support risk characterization conclusions:

- A discussion of the 24 hour value risk for CACs [criteria air contaminants] is necessary for evaluation of the assessment of chronic risk for each scenario and receptor location.

IOC Response:

A detailed discussion of the risks predicted for CACs is presented on page 42 and 43 of the HHRA (Appendix 25 of the EIS). As discussed on page 42 of the HHRA, no exceedances over guidelines were predicted for 24 hour time frames for $PM_{2.5}$; however, some receptor locations were predicted to exceed the PM_{10} 24 hour guideline. The text from page 42 of the HHRA outlining the interpretation of these exceedances is provided below:

> Predicted PM_{10} exposures are within annual average ambient air quality guidelines, and 24-hr ambient guidelines, at all receptor locations with the exception of Project + Baseline at the cross country ski trails and downhill trails, and Baseline, and Project + Baseline at the hospital. The Project contributes to 24 hr PM_{10} concentrations at both ski trails. Predicted frequency of exceedance for Project + Baseline at each of these locations is low (for cross country ski trails, a total of 4 days over 4 years are predicted to exceed the ambient air quality guidelines [0.3%], whereas for downhill ski trails, a total of 14 days over 4 years are predicted to exceed the guideline [1 %]). Since these two areas are not full time residential locations, and since the frequency of exceedance is low, the likelihood of any health risks is considered to be low. The Dumbell Lake area receptor location, where a full-time resident may be present, is not predicted to exceed the guideline. For the hospital, the Project does not add appreciably to Baseline, and exceedances are related to pelletizing plant emissions. Frequency of exceedance at this receptor location is similarly low (9 days over 4 years; 0.6%). (While the plant emissions are not within the scope of the Wabush 3 project EIS, IOC has had an Air Quality Improvement Program (AQIP) underway to address the plant emissions. This is discussed in the answer to IR PPD #9.)

With respect to SO_2 and NO_2, neither of these CACs has a health-based 24 hour ambient air quality limit, based on the most recent and comprehensive health-effects reviews undertaken by the US EPA. While ENVC still cites 24 hour limits for both of these compounds, these limits were not considered to be health-protective and, hence, were not applied in the HHRA. Rather, the US EPA states the 1 hour limits provide adequate protection for longer durations, such as 24 hours, because the guideline is stringent enough to protect against longer time

frames. The justification of the use of the US EPA limits, rather than the ENVC limits, was provided in footnotes of Table 4.4 of the HHRA (Appendix 25), and is repeated here:

> NO_2 – The standard selected is from US EPA (2010c), wherein a comprehensive health effects assessment was conducted. This value is to be compared against the 3 year average of the 98th percentile of the yearly distribution of the 1-hour daily maximum (US EPA, 2010c). The annual average standard from the U.S. EPA was reaffirmed in 2010 (US EPA, 2010c). This value is identical to the annual average value used for compliance purposes in Newfoundland and Labrador, although the basis for the value in Newfoundland and Labrador is not cited. The U.S. EPA did not derive a 24-hour benchmark for NO_2 as the 1-hour benchmark can be considered to be effective at protecting against 24-hour exposures to NO_2 (US EPA, 2010c). Other values available from ENVC and CCME were not selected for this assessment, as they are not as current with respect to the health effects literature as those from the U.S. EPA.
>
> SO_2 – The standard selected is from US EPA (2010d), wherein a comprehensive health effects assessment was conducted. This value is to be compared against the 99th percentile of 1-hour daily maximum concentrations averaged over 3 years (US EPA, 2010d). The US EPA revoked its existing 24-hour and annual standards, citing that these standards would not add any additional protection to public health over the new 1-hour standard of 75 ppb (200 $\mu g/m^3$). In addition, the US EPA indicated that there was little evidence based on health outcomes to suggest an association of health effects with long-term exposures to SO_2. Therefore, other metrics (3-hour, 24-hour and annual average) are not considered in this health evaluation.

- Discussion of selected TRVs to confirm that the TRVs are protective of sensitive receptors.

IOC Response:

With respect to the protection afforded to sensitive receptors, related to the TRVs selected, the TRVs for CACs are based on epidemiology studies which include sensitive receptors such as asthmatics, the elderly and children. For each of the CACs, extensive reviews of the scientific literature were conducted by leading regulatory agencies, and the recommended values underwent additional external review prior to promulgation, in most cases. These limits are established to provide protection for most receptors under most exposure conditions, but the regulatory agencies do not guarantee that exposures below these limits will not result in health effects in some sensitive individuals. For $PM_{2.5}$, any exposure is associated with some degree of risk, and the limits established are risk management limits, such that exposures below these levels would be associated with a low degree of risk.

- Cumulative HQs (hazard quotients) should be calculated for the three remaining locations; include $N0_2$ and $S0_2$ in cumulative HQs.

IOC Response:

With respect to cumulative Hazard Quotients (HQs), calculations were undertaken for the Dumbell Lake receptor location, since there is at least one cottage present at this lake in which residents could live full time. No residents live full time at either the downhill or cross country ski hill receptor locations, and hence,

cumulative HQs were not calculated for these locations, nor is it considered appropriate to do this, due to the lack of chronic exposure potential at these locations. Cumulative HQs were not calculated for the hospital receptor location, as they would be lower than those presented for the Dumbell Lake receptor location, and hence, risks would be lower. Cumulative exposures related to SO_2 and NO_2 were discussed in the HHRA (page 67), and this discussion is repeated here:

> For the CACs, NO_2 and SO_2 would be considered to have a similar endpoint (respiratory irritation). It is improbable that these two concentrations would occur at the same location at the same time, and hence, additive CRs were not evaluated. In addition, the Project is an extremely small contributor to the overall predicted concentrations within the area (Table 4.7; see Project increment) (Page 67 of HHRA, Appendix 25 of the EIS).

4.2.14 Information Request TLC-14

Revised blasting protocols should be well defined prior to approval including a thorough assessment of potential health impacts to off-site receptors. Given the potential impacts to Town residents and possible activity curtailment, the Town should be actively consulted during the development of revised blasting protocols. It is expected that these protocols will be reviewed and approved by appropriate regulatory authorities. The blasting protocols should clearly discuss how climatic conditions (including wind direction and wind speed) will be taken into account to minimize potential health and nuisance (i.e., dust) impacts to residents and recreational users.

IOC Response:

The definition of blasting protocols for Wabush 3 is dependent on information from additional monitoring of blasting.

As demonstrated in an earlier monitoring program with results reported in the RWDI report (Appendix 6 of the EIS), dust associated with blasting settles rapidly and close to the blast site. The finer fractions of the dust (TSP and PM_{10}) were monitored to be within the provincial air pollution standards before 500 meters from the blast site, well within the planned 1,200 m safety clearance zone for recreational users. The issues for the development of the blasting protocols are control of vibrations and over-pressure.

With respect to the assessment of potential effects to off-site receptors, the EIS included an evaluation of potential health implications associated with blast emissions on page 40 of the HHRA Report (Appendix 25 of the EIS). Conclusions of this assessment were that both the average and maximum predicted blast concentrations at 1,200 m from the blast site were within regulatory health-based air quality standards for all chemicals assessed, with the exception of maximum predicted concentrations of NO_2. Based on these comparisons, if the maximum concentration of NO_2 was to occur, it is possible that, if people were in the area near the blast, they could incur elevated exposures to NO_2. The likelihood of this occurring is low, due to the infrequent nature of the blasting, the topography within the area near the mine, and the remoteness of some of the locations within 1,200 m of the Wabush 3 pit.

The Smokey Mountain ski hill could be located within 1,200 m, depending on the location of a specific blasting activity. If concentrations similar to the maximum estimated concentrations for NO_2 were to occur within the

vicinity of the ski hill, some transient health effects are possible, but are considered unlikely. As discussed previously, IOC is also committing to establishing an ambient air monitoring station in the vicinity of the recreational area.

IOC will also be considering weather factors in its blast scheduling and is evaluating the possibilities of obtaining dedicated weather forecasts for winds and inversions for periods close to the planning of blasting dates.

4.2.15 Information Request TLC-15

Given the potential impacts to Town residents from blast clearance procedures, the Town should be actively consulted during the development of these procedures.

IOC Response:

IOC will be drafting the blast clearance procedures based on the discussion of these procedures in the EIS (Section 10.4.3.3, page 268). IOC will provide a draft of the blast clearance procedures to key stakeholders (such as the Town of Labrador City and recreational groups operating in the Smokey Mountain area) for their consideration and feedback which will be considered in the final plan.

4.2.16 Information Request TLC-16

Expand the air quality standards referenced in the EIS (associated with mitigations) to include PM_{l0} [particulate matter less than 10 um], and H_2S [hydrogen sulphide].

IOC Response:

EIS Table 10.1 (pages 209-210) lists the Federal and NL Provincial Air Quality Standards. The Table includes PM_{10}, but not H_2S. It has been revised to include H_2S and is provided below.

Table 10.1 (*Revised*) Air Quality Standards and Objectives for Effects Assessment Indicators

Parameter	Averaging Time	Newfoundland and Labrador Ambient Air Quality Standards (Regulation 39/04)	Canadian Ambient Air Quality Standards (CAAQs)	National Ambient Air Quality Objectives		
				Maximum Desirable	Maximum Acceptable	Maximum Tolerable
Total Particulate Matter ($\mu g/m^3$)	24 hour	120	-	-	120	400
	Annual	60	-	60	70	-
PM_{10} ($\mu g/m^3$)	24 hour	50	-	-	-	-
$PM_{2.5}$ ($\mu g/m^3$)	24 hour	25	28	-	-	-
	Annual	8.8	10	-	-	-
Nitrogen Dioxide ($\mu g/m^3$)	1 hour	400	-	-	400	1000
	24 hour	200	-	-	200	300
	Annual	100	-	60	100	-
Sulphur Dioxide ($\mu g/m^3$)	1 hour	900	-	450	900	-
	3 hour	600	-	-	-	-
	24 hour	300	-	150	300	800
	Annual	60	-	30	60	-
Hydrogen Sulphide ($\mu g/m^3$)	1 hour	15	-	-	-	-
	24 hour	5	-	-	-	-
Carbon Monoxide ($\mu g/m^3$)	1 hour	35,000	-	15,000	35,000	-
	8 hour	15,000	-	6,000	15,000	20,000

A paragraph discussing H_2S, is also added, to follow the discussion on carbon monoxide (EIS - page 209). It is provided below:

Hydrogen sulphide is a colorless, flammable, hazardous gas with a distinctive rotten egg" smell (OSHA, 2005). It is both an irritant and a chemical asphyxiant, with effects on both oxygen utilization and the central nervous system. Its health effects can vary depending on the level and duration of exposure. Hydrogen sulfide has a very low odour threshold, with its smell being easily sensed by the human nose at concentrations below 1 part per million (ppm) in air. H_2S may be released during blasting of sulphide-containing ore. While the IOC ore is not a sulphide-containing ore, sulfur associated with the fuel in the explosive mixture could result in the formation of H_2S.

EIS Table 10.36 (pages 270 – 272) provides a summary of identified and proposed mitigation measures for the Atmospheric Environment. The row in Table 10.36 which discusses air quality, noise and vibration associated with open pit blasting is revised to include H_2S and PM_{10}, and is provided below. The mitigation measures do not change, as the measures that are listed will be adaptively managed to meet the standards that are described.

Table 10.36 (*4th row revised*) Summary of Identified and Proposed Mitigation Measures: Atmospheric Environment

Env Component	Project Phase(s)	Potential Issue / Interaction	Mitigation Measures	Description / Commitment	Standard
Air Quality Noise Vibration	Construction/ Operations and Maintenance	Particulate emissions, NOx and H_2S, airblast and ground borne vibration from open pit blasting	Blasting to be carried out in accordance with the blasting plan Blasting to be avoided where feasible during unfavorable climatic conditions Follow manufacturer's recommended guidelines regarding water infiltration and time of explosives usage Ensure site safety clearance of staff and public prior to blasting	A review of the blasting protocols will be carried out, and blasting practices will be revised where practical to reduce airblast levels. Decisions on changes to the blasting plan will be made after extensive technical evaluation and field trials. The typical factors in a blasting plan that may affect airblast, vibration, air emissions and fly-rock include: • mass of explosives per delay; • delay timing; • detonator precision (accuracy, crowding, overlaps); • Velocity of Detonations (VOD) scatter between holes; • explosive product quality control; • product sleep time; • confinement (burden, spacing, subgrade, buffers, relief); • top stemming (amount and type); • charge length and diameter; • direction of initiation; • powder factor (ratio of explosive mass to rock mass); • total explosive quantity (ie size of shot); and • atmospheric conditions (wind direction and speed and vertical temperature gradient). • Where feasible the blasting scheduling will consider	Compliance with NLDEC air quality standards for NO_x, H_2S, TSP, PM_{10} and metals Compliance with the Ontario Ministry of the Environment (MOE) publication NPC-119 regarding airblast levels (128 dB when routine monitoring is conducted) and ground borne vibration (12.5 mm/s when routine monitoring is conducted) For ground borne vibration, the former US Bureau of Mines (USBM) has a criteria of 19 mm/s for protection against cosmetic structural damage. For airblast, the USBM criteria

Env Component	Project Phase(s)	Potential Issue / Interaction	Mitigation Measures	Description / Commitment	Standard
				meteorological conditions, with preference given to times where winds are not from the north and atmospheric inversions do not exist. • Develop and implement Blast Clearance Procedures.	varies from 129 – 134 dB depending on the frequency of the sound

4.2.17 Information Request TLC-17

Expand the existing ambient air quality monitoring network to include a station in the Nordic/alpine skiing recreation area. Monitored parameters should include routine parameters (TSP,$PM_{2.5}$, $S0_2$, NO_x) in addition to contaminants of potential concern identified in the human health risk assessment (silica, manganese and other metals, hydrogen sulphide).

IOC Response:

IOC is committed to establishing an ambient air quality monitoring station in the skiing recreational area. Its actual location will be determined using site selection criteria for the Canada-Wide Standards (CWS) and in consultation with the air quality scientists at ENVC. The parameters to be monitored will include TSP, $PM_{2.5}$, SO_2 and NO_x. ENVC has indicated that it agrees with a unit and the parameters chosen.

With respect to silica and metals, we note that the concern for these two species is long-term exposure, and the uses within the recreational area are such that any person is unlikely to be present for sufficiently long to receive such an exposure. We conclude that monitoring of these species in the recreational area is unwarranted. IOC is currently monitoring ambient silica concentrations at the Town Depot AQM station. IOC intends to continue with its monitoring of silica at locations in the Town of Labrador City where the potential for long-term exposure is greatest.

H_2S has not been a concern with the plant operations in the past nor has it caused any complaints associated with mine blasting to date. IOC collected fume data for a period of two years from blasts in various operational pits and it was discussed in the EIS and determined to potentially be in excess of the Provincial 1 hr standard based on a peak reading of a few seconds during a blast. The concern for H_2S at the levels measured at 500 m downwind of the blasting and the calculated concentrations over an hour and greater distances from the blast is associated with malodours. Additional monitoring for H_2S beyond the 1,200 m blast clearance zone is needed to validate the monitoring data collected. Accordingly, IOC will evaluate how best to monitor H_2S emissions associated with blasting to determine compliance with provincial standards. Additional H_2S monitoring will be conducted and tied in with blast monitoring before the development of the Wabush 3 Project. If H_2S exceeds provincial standards, IOC will evaluate the blasting protocols to ensure compliance.

4.2.18 Information Request TLC-18

Establish an air quality monitoring review committee with representation from the Town of Labrador City for the purpose of reviewing ambient air quality monitoring data (on a routine basis) and developing an adaptive management framework (as required).

IOC Response:

There are existing mechanisms to review ambient air quality monitoring data with the Town of Labrador City and regional stakeholders. IOC and the Town of Labrador City review the results of air quality monitoring results and air quality management at regular meetings or as requested by IOC or the Town of Labrador City. In addition, IOC is willing to present air quality monitoring information at public sessions of Town Council meetings if desired.

IOC's air quality monitoring (AQM) information is also available to the public as annual summaries and in near-real time on the NL Department of Environment and Conservation (ENVC) website. The results of the air quality monitoring conducted by IOC in Labrador City are submitted to ENVC. ENVC issues annual summaries of the air quality monitoring conducted throughout the province which includes five IOC AQM stations. The annual reports can be found on the following website:
http://www.env.gov.nl.ca/env/publications/env_protection/index.html

ENVC also has a website which presents the IOC air quality monitoring data from the Smokey Mountain station on a "near-real time basis". The parameters which are reported are nitrogen oxides (NO, NO_2 and NO_x), ozone (O_3), sulfur dioxide (SO_2), particulate matter ($PM_{2.5}$) and total suspended particulates (TSP). Although the Smokey Mountain station is currently the only station posted on this website the other AQM stations will also be available once ENVC has them commissioned. The website is at:
http://www.env.gov.nl.ca/env/env_protection/science/airmon/labradorcity.html

IOC is the first Industrial partner to contribute to the data for the Air Quality Health Index (AQHI) which is found on the Environment Canada's Weather Network. The AQHI utilizes data (Ozone, $PM_{2.5}$ and NO_2) from the Smokey Mountain station to calculate the AQHI for Labrador City. The website is at:
http://weather.gc.ca/airquality/pages/nlaq-005_e.html

4.2.19 Information Request TLC-19

Effects on the TLC water supply

The primary issue for TLC is that the Town's primary water supply, Beverly Lake, is not included in the Local Study Area.

IOC Response:

Beverly Lake was not included in the local study area because it is located outside of the watershed areas that flow towards or away from Wabush 3. The Luce Lake, Dumbell Lake and Leg Lake watersheds were included because they will be directly affected by the construction, operations and maintenance, and the closure and decommissioning phases of the Project (Figure 1). In addition, Beverly Lake was not identified in the Guidelines, only the zone of influence of the Project was identified. For all intents and purposes, Beverly Lake is not within the zone of influence of the Project. Beverly Lake was, however, included in the Regional Study Area. No Project related or cumulative effects were anticipated on Beverly Lake.

RioTinto (2014) (Appendix 3A of the EIS) investigated the potential effects to Beverly Lake as a result of dewatering Wabush 3 by updating and extending the groundwater model (RioTinto, 2015) (included in this EIS Amendment as Appendix 3). Modeling followed the same format as was used in the EIS for modeling interactions between Wabush 3 and Dumbell and Leg Lake. A base case was developed using measured hydraulic conductivity values of the various stratigraphic units and identified fractured rock zones. Sensitivity analyses were run using worst case (i.e., maximum measured) hydraulic conductivities and assumed (i.e., not measured) structural connections between the areas.

The key findings from this work include:

- Dewatering of the Wabush 3 pit is not predicted to have any effects on Beverly Lake in terms of changes in groundwater flux to the lake. Furthermore, the Wabush 3 pit is not predicted to have any effect on groundwater levels adjacent to Beverly Lake.

- Due to uncertainty regarding the hydrogeology in the area between the proposed Wabush 3 pit and Beverly Lake, a sensitivity run assuming a high hydraulic conductivity zone (e.g. a high hydraulic conductivity fault) connecting the pit area to the lake was simulated and indicates that Wabush 3 dewatering could lead to a minor reduction in groundwater inflow to Beverly Lake (4 gpm decrease over the life of mine (LOM), which is approximately 0.2% of the total Beverly Lake inflow (Kendall, 1999), predicted for this sensitivity simulation).

- Surface water flows to Beverly Lake are not expected to be affected by Wabush 3 pit dewatering because no part of the Wabush 3 pit is in the Beverly Lake watershed (surface water catchment).

RioTinto (2015) offered the following recommendations to decrease the uncertainty of the model

- Characterize the hydrogeology of the area between Wabush 3 and Beverly Lake and collect data to establish baseline conditions prior to construction and operation of Wabush 3.

- Collect surface water stream gauging data on tributaries to Beverly Lake to establish baseline conditions prior to construction and operation of Wabush 3.

- Revise the hydrogeological conceptual site model with data collected during the hydrogeological characterization effort as described above.

- Revise and recalibrate the IOC South Area numerical groundwater model to incorporate the hydrogeological data collected and reflect any changes to hydrogeological conceptual site model. Perform predictive simulations with the recalibrated model.

IOC currently has one water quality monitoring station in the Beverly Lake watershed (North Pond Beverly) and has committed to three new groundwater monitoring locations, a stream gauge, a lake level monitoring location, and a surface water quality monitoring location in the upper Beverly Lake watershed (Figure 2). Water levels would be measured four times per year at each location, first to determine background water levels, then to monitor potential changes within the upper watershed. Wells and surface water monitoring locations will be installed in 2015.

References

H.T. Kendall & Associates Limited (Kendall) (1999). Evaluation of Beverly Lake Water System, Town of Labrador City.

Rio Tinto Technology and Innovation (RioTinto) (2014). Technical Memorandum, Groundwater Modeling Predictive Results for IOC Wabush 3 Project.

Rio Tinto Technology and Innovation (RioTinto) (2015). Technical Memorandum, Evaluation of Potential Impacts to Beverly Lake, IOC Wabush 3 Project.

Figure 1 Beverly Lake, Dumbell Lake, Leg Lake and Luce Lake Watershed Areas

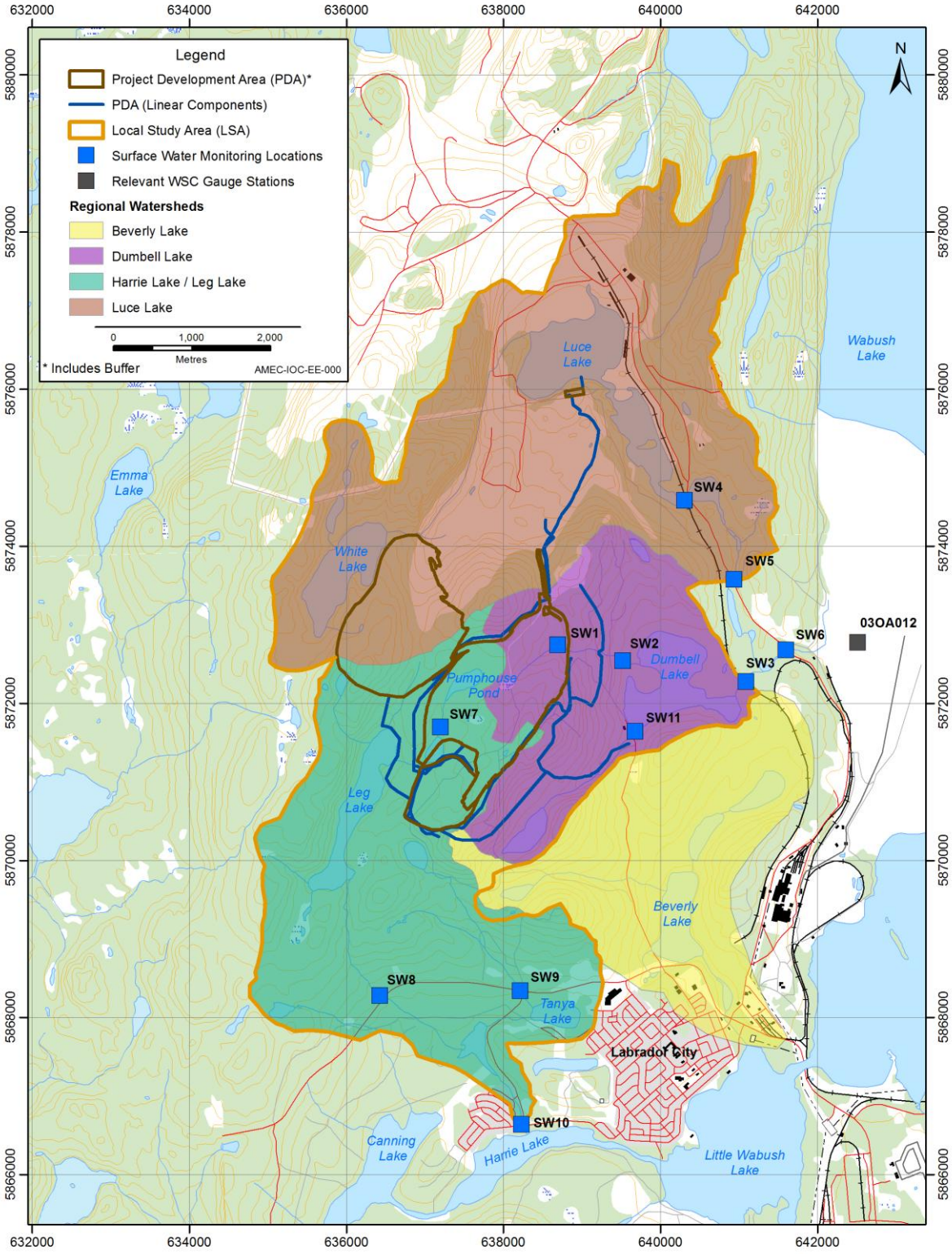
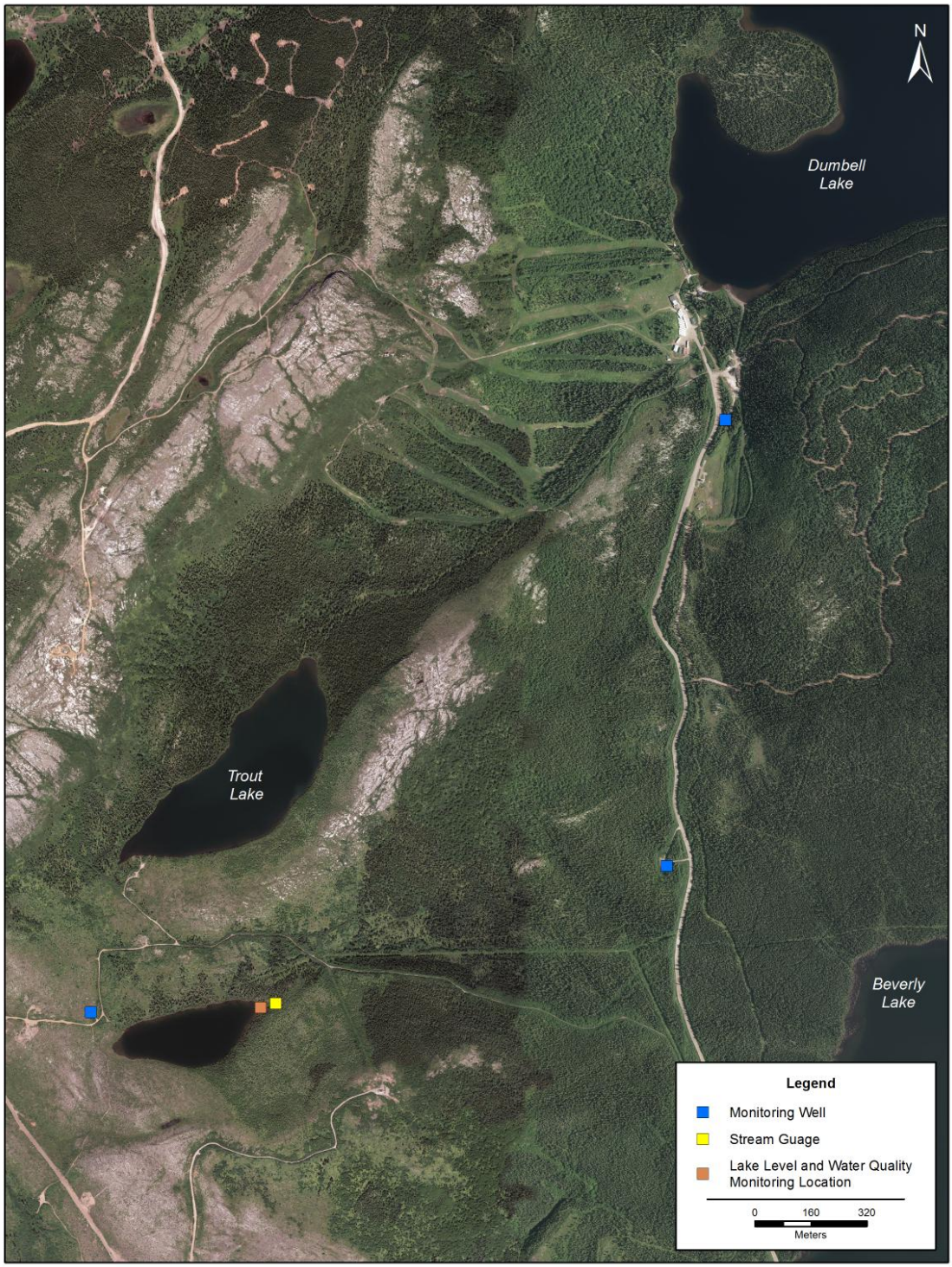


Figure 2 Proposed Water Level and Water Quality Monitoring Locations in the Beverly Lake Watershed



4.2.20 Information Request TLC-20

In the EIS it is indicated that there is considerable uncertainty associated with predicting the groundwater "zone of influence" from the new expansion.

IOC Response:

Studies have been conducted to determine the zone of influence associated with dewatering the Wabush 3 pit, including groundwater modeling that was calibrated with current water level data (RioTinto 2014) (Appendix 3A of the EIS). The uncertainty ultimately exists as a result of the geological system. Groundwater flows primarily through fractures in the bedrock formations and known high hydraulic conductivity zones that are coincident with shear zones. Since it is not possible to delineate all fracture and shear zone locations, there is uncertainty associated with predicting the zone of influence. In addition, the zone of influence is difficult to determine since pumping does not typically produce a uniform cone of depression, as would occur in a porous media aquifer system.

The groundwater modeling (RioTinto 2014) was conducted using a base case to model the hydrogeologic system as understood at the time of modeling, and then various sensitivity runs were completed to understand the worst case scenario(s) that could occur if high hydraulic conductivity shear zones were encountered as mining progressed. These worst case scenarios are described in the EIS (and RioTinto 2014) to show the effects of high hydraulic conductivity zones that extend between the pit and Leg, Dumbell, and Beverly Lakes (RioTinto 2015) (included in this EIS Amendment Report as Appendix 3).

IOC has committed to groundwater and surface water level monitoring that will be used to update the model as mining progresses. Using these data, uncertainty will decrease over time.

References

Rio Tinto Technology and Innovation (RioTinto) (2014). Technical Memorandum, Groundwater Modeling Predictive Results for IOC Wabush 3 Project.

Rio Tinto Technology and Innovation (RioTinto) (2015). Technical Memorandum, Evaluation of Potential Impacts to Beverly Lake, IOC Wabush 3 Project.

4.2.21 Information Request TLC-21

Any mitigation proposal that does not sufficiently guarantee the Town's continued delivery of pristine potable water will not be acceptable to Council or to the community of Labrador City.

IOC Response:

Water quality results for the Beverly Lake water supply were downloaded from the Water Resources Management Division (WRMD) Water Resources Portal and are included in this EIS Amendment as Appendix 4. In addition, IOC has initiated surface water sampling in the Dumbell Lake and Beverly Lake watersheds and results are included in Tables 1.5 of Appendix 5 of this EIS Amendment. WRMD source water sampling

indicates that water quality is within the Guidelines for Canadian Drinking Water Quality (Health Canada 2012) (GCDWQ). The water generally has very low mineralization, with sporadic exceedances of the aesthetic objective for manganese and the contaminant objective of turbidity. Elevated turbidity and manganese results are also common in the samples collected by IOC in the upper watershed areas.

RioTinto (2014) (Appendix 3A of the EIS) investigated the potential effects to Beverly Lake as a result of dewatering Wabush 3 by updating and extending the groundwater model (RioTinto 2015) (included in this EIS Amendment as Appendix 3). Modeling followed the same format as was used in the EIS for modeling interactions between Wabush 3 and Dumbell and Leg Lake. A base case was developed using measured hydraulic conductivity values of the various stratigraphic units and identified fractured rock zones. Sensitivity analyses were run using worst case (i.e., maximum measured) hydraulic conductivities and assumed (i.e., not measured) structural connections between the areas.

The key findings from this work include:

- Dewatering of the Wabush 3 pit is not predicted to have any effects on Beverly Lake in terms of changes in groundwater flux to the lake. Furthermore, the Wabush 3 pit is not predicted to have any effect on groundwater levels adjacent to Beverly Lake.

- Due to uncertainty regarding the hydrogeology in the area between the proposed Wabush 3 pit and Beverly Lake, a sensitivity run assuming a high hydraulic conductivity zone (e.g. a high hydraulic conductivity fault) connecting the pit area to the lake was simulated and indicates that Wabush 3 dewatering could lead to a minor reduction in groundwater inflow to Beverly Lake (4 gpm decrease over the life of mine (LOM), which is approximately 0.2% of the total Beverly Lake inflow (Kendall, 1999) predicted for this sensitivity simulation).

- Surface water flows to Beverly Lake are not expected to be affected by Wabush 3 pit dewatering because no part of the Wabush 3 pit is in the Beverly Lake watershed (surface water catchment).

RioTinto (2015) offered the following recommendations to decrease the uncertainty of the model:

- Characterize the hydrogeology of the area between Wabush 3 and Beverly Lake and collect data to establish baseline conditions prior to construction and operation of Wabush 3.

- Collect surface water stream gauging data on tributaries to Beverly Lake to establish baseline conditions prior to construction and operation of Wabush 3.

- Revise the hydrogeological conceptual site model with data collected during the hydrogeological characterization effort as described above.

- Revise and recalibrate the IOC South Area numerical groundwater model to incorporate the hydrogeological data collected and reflect any changes to hydrogeological conceptual site model. Perform predictive simulations with the recalibrated model.

IOC currently has one surface water quality monitoring station in the Beverly Lake watershed (North Pond Beverly) and has committed to three new groundwater monitoring locations, a stream gauge, a lake level monitoring location, and a surface water quality monitoring station in the upper Beverly Lake watershed (Figure 1). Water levels would be measured four times per year at each location, first to determine background water levels, then to monitor potential changes within the upper watershed. Wells and surface water monitoring locations will be installed in 2015.

In addition, the air quality effects assessment of Wabush 3 in Chapter 10 and Appendix 6 of the EIS demonstrates that air quality over the Beverly Lake watershed will not be influenced by Wabush 3. Therefore, water quality will not be adversely affected by dustfall or other air quality parameters associated with Wabush 3.

No significant change in water quality and/or quantity is anticipated in Beverly Lake. However, IOC is committed to supporting the Town of Labrador City with any incremental cost difference (including engineering) between establishing the Dumbell Lake water body and the least costly of identified replacement options, provided there is a demonstrated need for replacement of the Beverly Lake water supply (EIS page 360 and elsewhere).

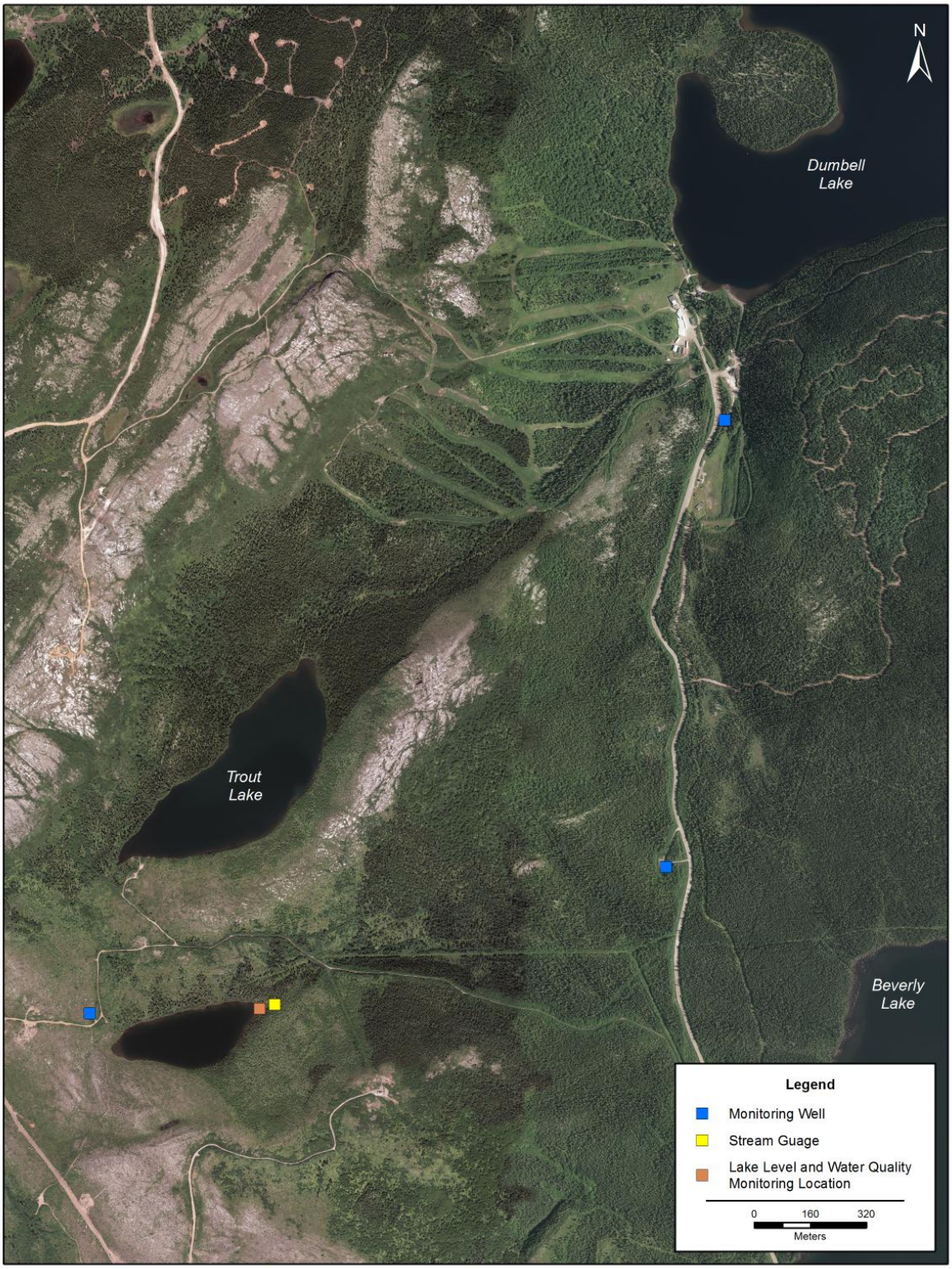
References

H.T. Kendall & Associates Limited (Kendall) (1999). Evaluation of Beverly Lake Water System, Town of Labrador City.

Rio Tinto Technology and Innovation (RioTinto) 2014. Technical Memorandum, Groundwater Modeling Predictive Results for IOC Wabush 3 Project.

Rio Tinto Technology and Innovation (RioTinto) 2015. Technical Memorandum, Evaluation of Potential Impacts to Beverly Lake, IOC Wabush 3 Project.

Figure 1 **Proposed Water Level and Water Quality Monitoring Locations in the Beverly Lake Watershed**



4.2.22 Information Request TLC-22

The Proponent provide an explicit emergency response plans and procedures, acceptable to the Town, in relation to any project activities including accidents and malfunctions) with the potential to impact either Beverly Lake or Dumbell Lake or their respective watersheds (addendum to MH pages 20 and 37).

IOC Response:

There is an existing Emergency Response Plan (ERP) for Beverly Lake which includes and addresses current operations at IOC. The operations at Wabush 3 will be outside the Beverly Lake catchment and will not have any direct effects on it. The current ERP should continue to apply.

IOC has an ERP for the Labrador City Operations, which will be amended to reflect the proximity of Wabush 3 to Dumbell Lake.

4.2.23 Information Request TLC-23

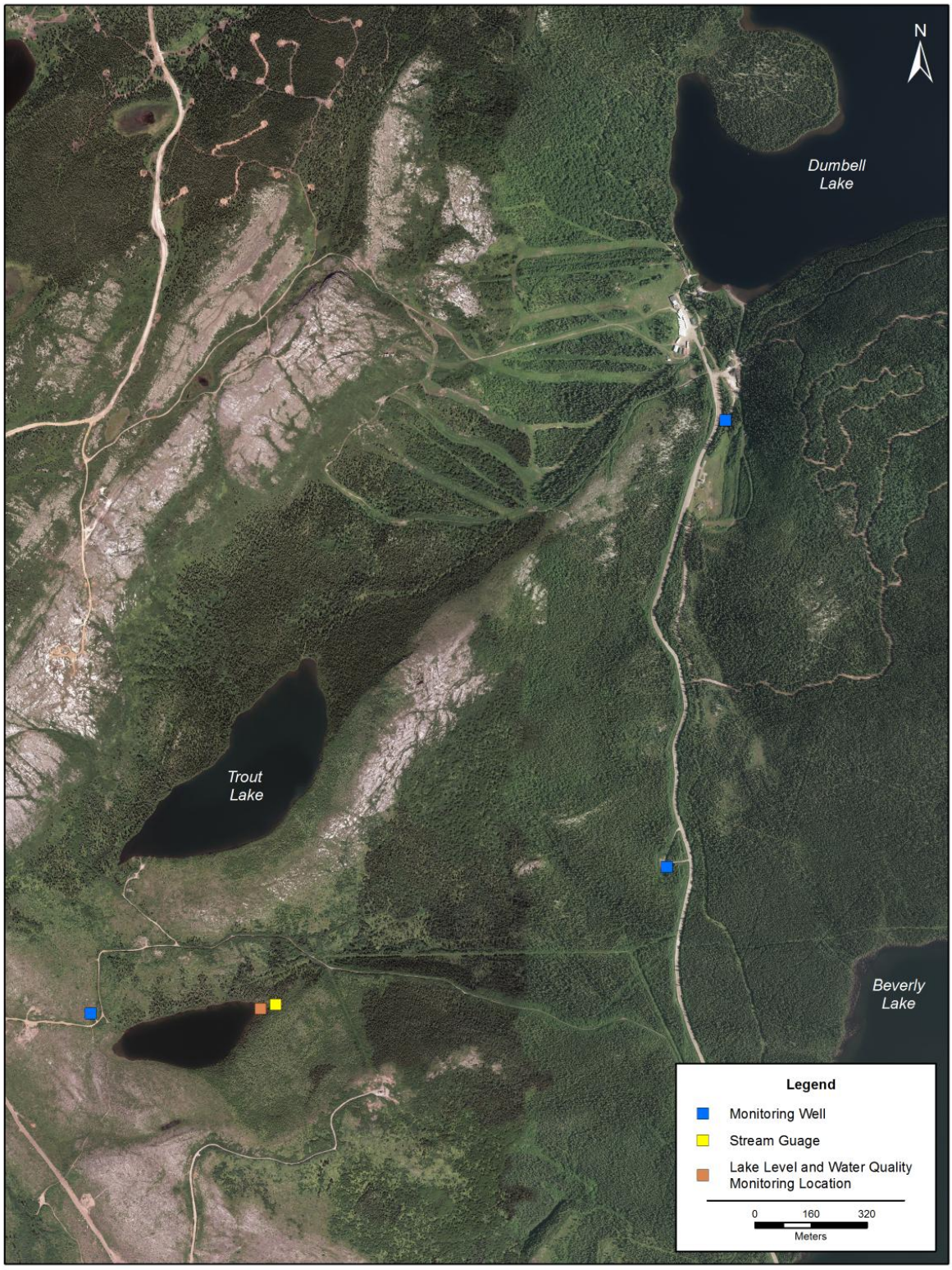
It would be prudent to collect baseline data (water levels and water quality) from within the upper portion of the Beverly Lake Watershed, an area of the watershed with the greatest potential for project related impacts due to its proximity to the PDA and its higher elevation. It is recommended that the baseline data consist of seasonal lake and groundwater elevations, surface water quality, and the collection of seasonal surface water out-flows. To date, there does not appear to be any EIS baseline data (water quality, hydrological, or hydrogeological data) collected from within the Beverly Lake Watershed. This recommendation is in recognition of the uncertainty outlined in the EIS regarding current understanding of groundwater flow through fractured media and is consistent with utilizing the "Precautionary Principle", which is incorporated within the project EIS guidelines.

IOC Response:

IOC has committed to three new groundwater monitoring locations, a stream gauge, a lake level monitoring location and a surface water quality monitoring station in the upper Beverly Lake watershed (Figure 1). Wells and surface water monitoring locations will be installed in 2015. Water levels and water quality samples would be collected four times per year at each location, first to determine background levels, then to monitor potential changes within the upper watershed that could affect Beverly Lake.

IOC collected surface water samples in North Pond Beverly (also known as Third Pond) four times per year in 2012 and 2013. Results are included in Table 3 of Appendix 5 to this EIS Amendment. Results generally meet the Guidelines for Canadian Drinking Water Quality (GCDWQ), with the exception of turbidity in one sample. IOC will continue to collect and analyze samples at this location throughout the lifetime of the Project.

Figure 1 Proposed Water Level and Water Quality Monitoring Locations in the Beverly Lake Watershed



4.2.24 Information Request TLC-24

Confirm that the western edge of the Beverly Lake Watershed does not in fact extend northward to the edge of the PDA (i.e. the southeast corner of the Overburden Stockpile).

IOC Response:

For the EIS, the watershed boundaries between Beverly Lake, Leg Lake and Dumbbell Lake were delineated using the 1:50,000 government data. Upon closer inspection, using more accurate aerial survey data, the southeast corner of the overburden stockpile is located approximately 45 m from the boundary of the Beverly Lake (Figure 1). Though the overburden stockpile is physically close to the watershed boundary, it remains hydraulically distant, as the planned top of the stockpile is located 10 m below the drainage divide (Figure 2).

Figure 1 Distances from the Overburden Storage Area to the Dumbell and Beverly Lake Watersheds

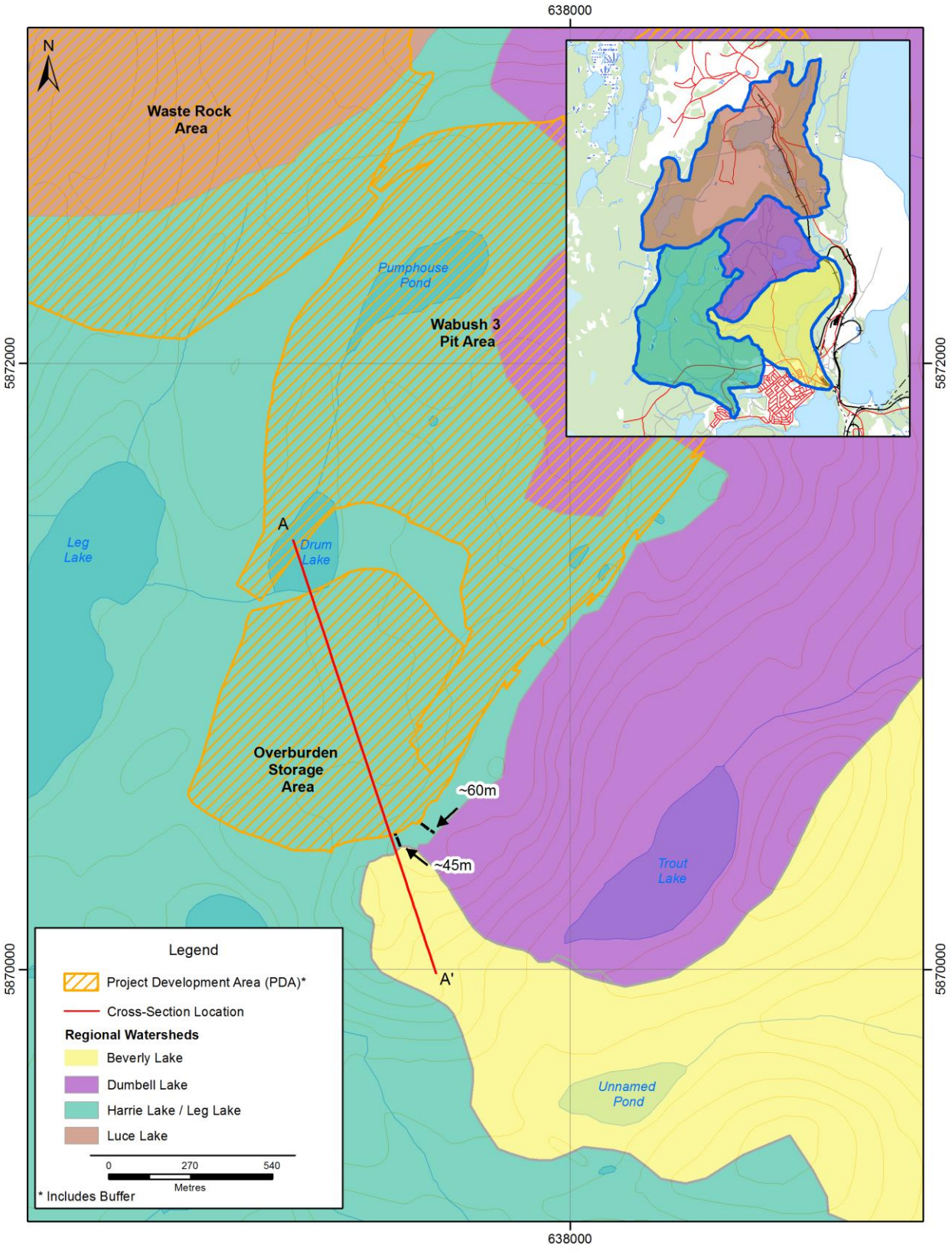
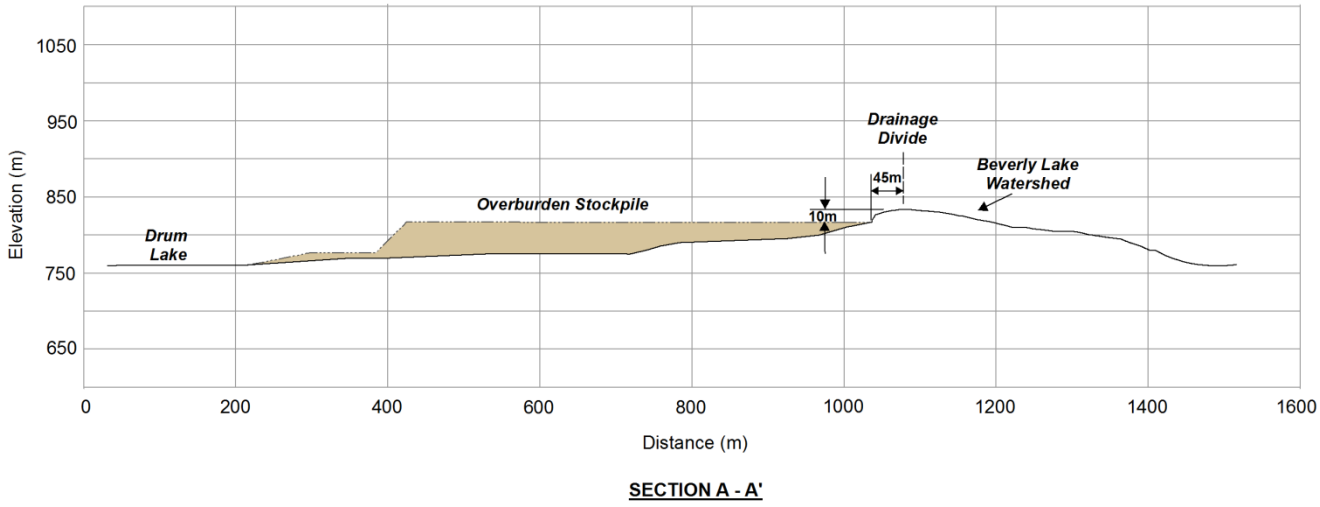


Figure 2 Cross Section Depicting the Vertical and Horizontal Distances from the Overburden Storage Area to the Dumbell and Beverly Lake Watersheds

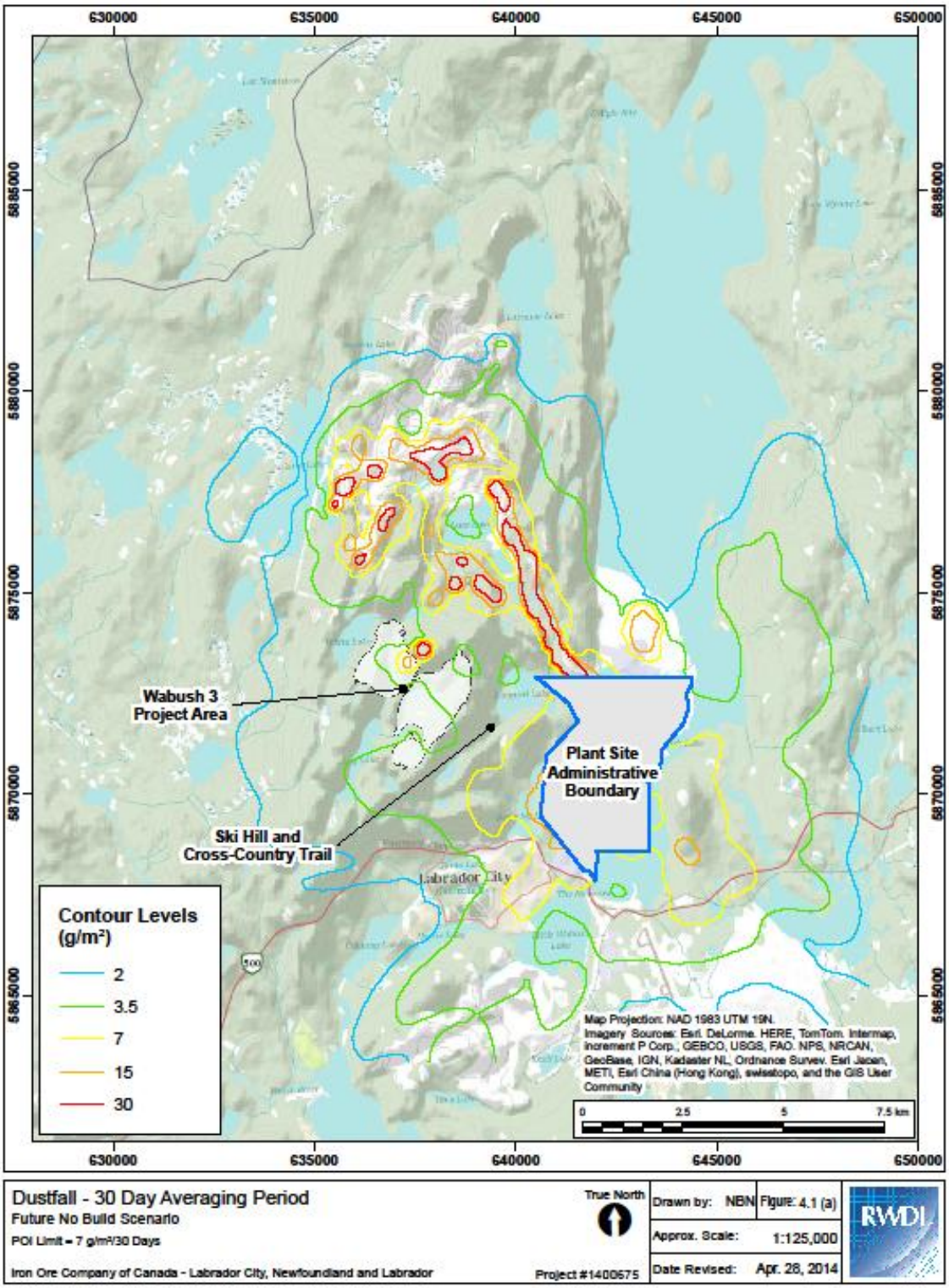


4.2.25 Information Request TLC-25

Confirm that the Beverly Lake Watershed is outside the deposition area of the Wabush 3 project.

IOC Response:

The Air Dispersion Modeling performed by RWDI (EIS – Appendix 6 and Chapter 10) describes the deposition area for Wabush 3 and compares the two scenarios for Wabush 3 - in operation (Future Build) and not in operation (Future No Build). Figures 11 – 38 in Appendix 6 provide isopleths of concentrations for various timeframes for Total Suspended Particulates (TSP), PM_{10}, $PM_{2.5}$, SO_2, CO and NO_2. Subsequent to the EIS preparation, figures were prepared for dustfall levels and are included in this response (RWDI Figures 4.1a – d). Predicted air contaminant levels near Beverly Lake are virtually unchanged between the Future Build and Future No-Build scenarios. These results reflect that the Wabush 3 Project is not a major source of air emissions and that air quality in the Beverly Lake area would be more influenced by the adjacent IOC plant operations. Given that water quality is currently very good, no changes in water quality due to particulate deposition or other air contaminants from the Wabush 3 Project are anticipated.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Wabush 3
Project Area
Plant Site
Administrative
Boundary
Ski Hill and
Cross-Country Trail
Labrador City
500
Contour Levels
(g/m²)
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3.5
7
15
30
Map Projection: NAD 1983 UTM 19N.
Imagery Sources: Esri, DeLorme, HERE, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, and the GIS User Community
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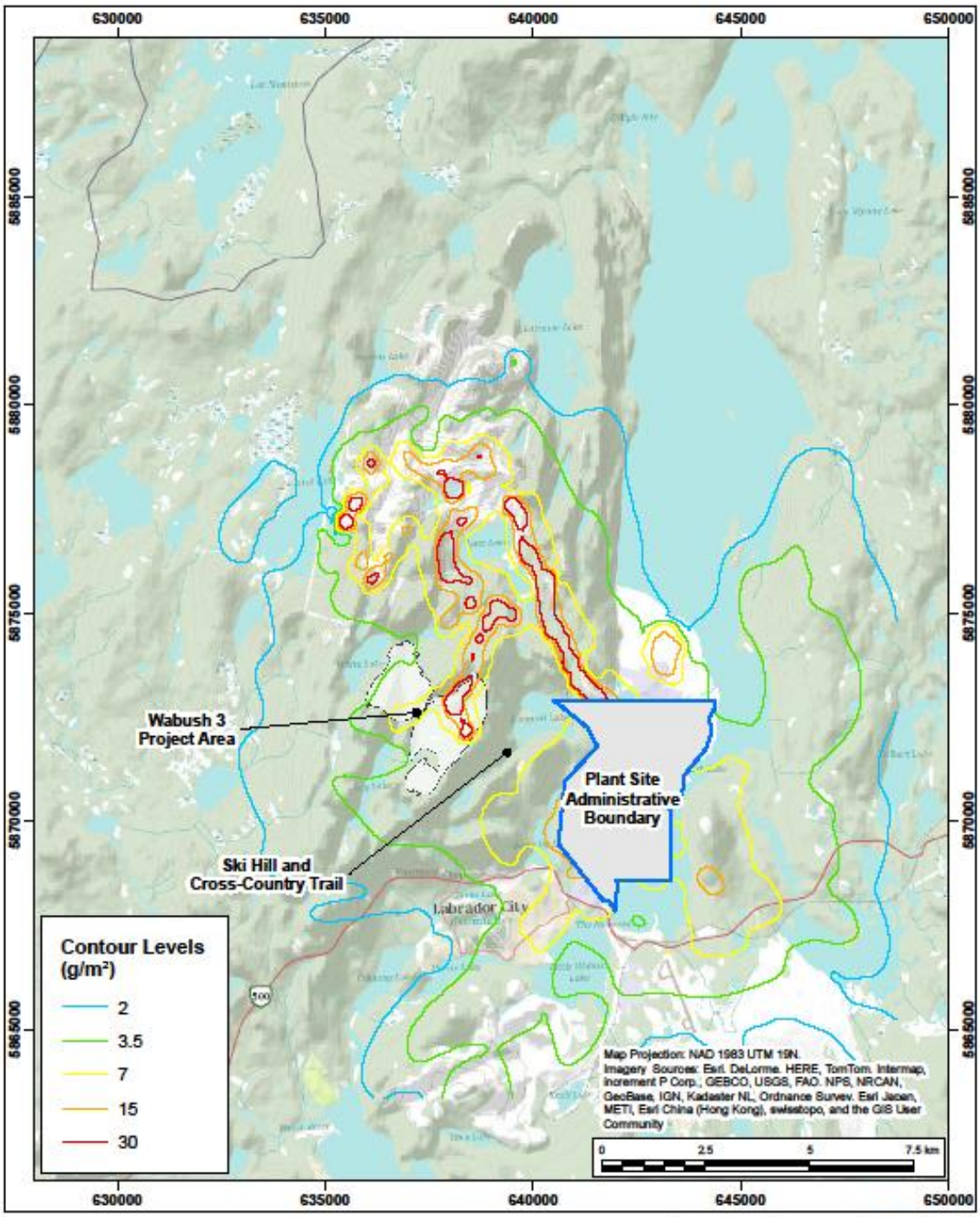
7.5 km
Dustfall - 30 Day Averaging Period
Future No Build Scenario
POI Limit = 7 g/m²/30 Days
Iron Ore Company of Canada - Labrador City, Newfoundland and Labrador
True North
Project #1400575
Drawn by: NBN
Figure: 4.1 (a)
Approx. Scale: 1:125,000
Date Revised: Apr. 28, 2014
RWDI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Wabush 3
Project Area
Plant Site
Administrative
Boundary
Ski Hill and
Cross-Country Trail
Labrador City
Contour Levels
(g/m²)
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Map Projection: NAD 1983 UTM 19N.
Imagery Sources: Esri, DeLorme, HERE, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, and the GIS User Community
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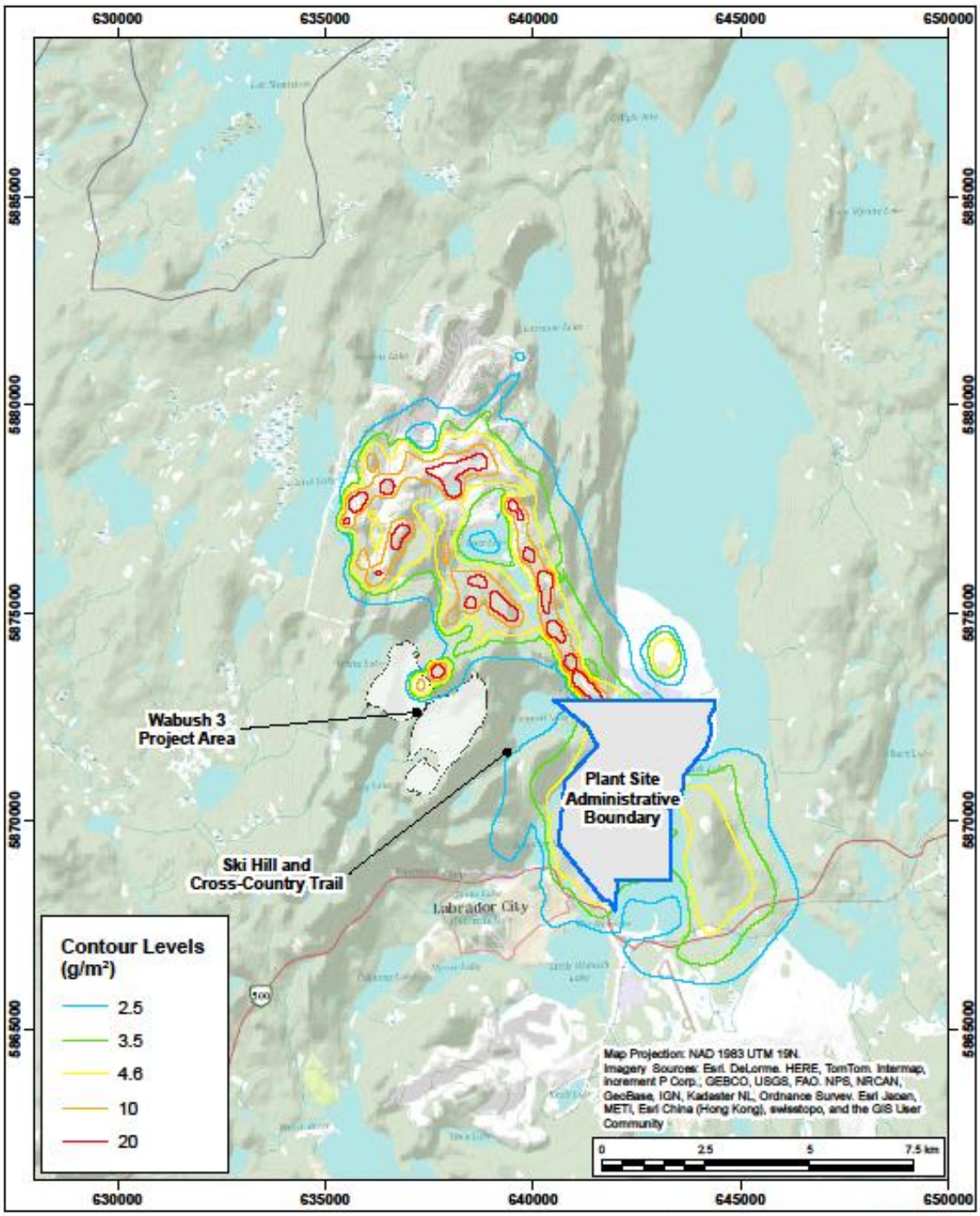
Dustfall - 30 Day Averaging Period
Future Build Scenario
POI Limit = 7 g/m²/30 Days
Iron Ore Company of Canada - Labrador City, Newfoundland and Labrador
Project #1400675
True North
Drawn by: NBN
Figure: 4.1 (b)
Approx. Scale: 1:125,000
Date Revised: Apr. 28, 2014
RWDI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Wabush 3
Project Area
Plant Site
Administrative
Boundary
Ski Hill and
Cross-Country Trail
Labrador City
Contour Levels
(g/m²)
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Map Projection: NAD 1983 UTM 19N.
Imagery Sources: Esri, DeLorme, HERE, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, and the GIS User Community
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2.5
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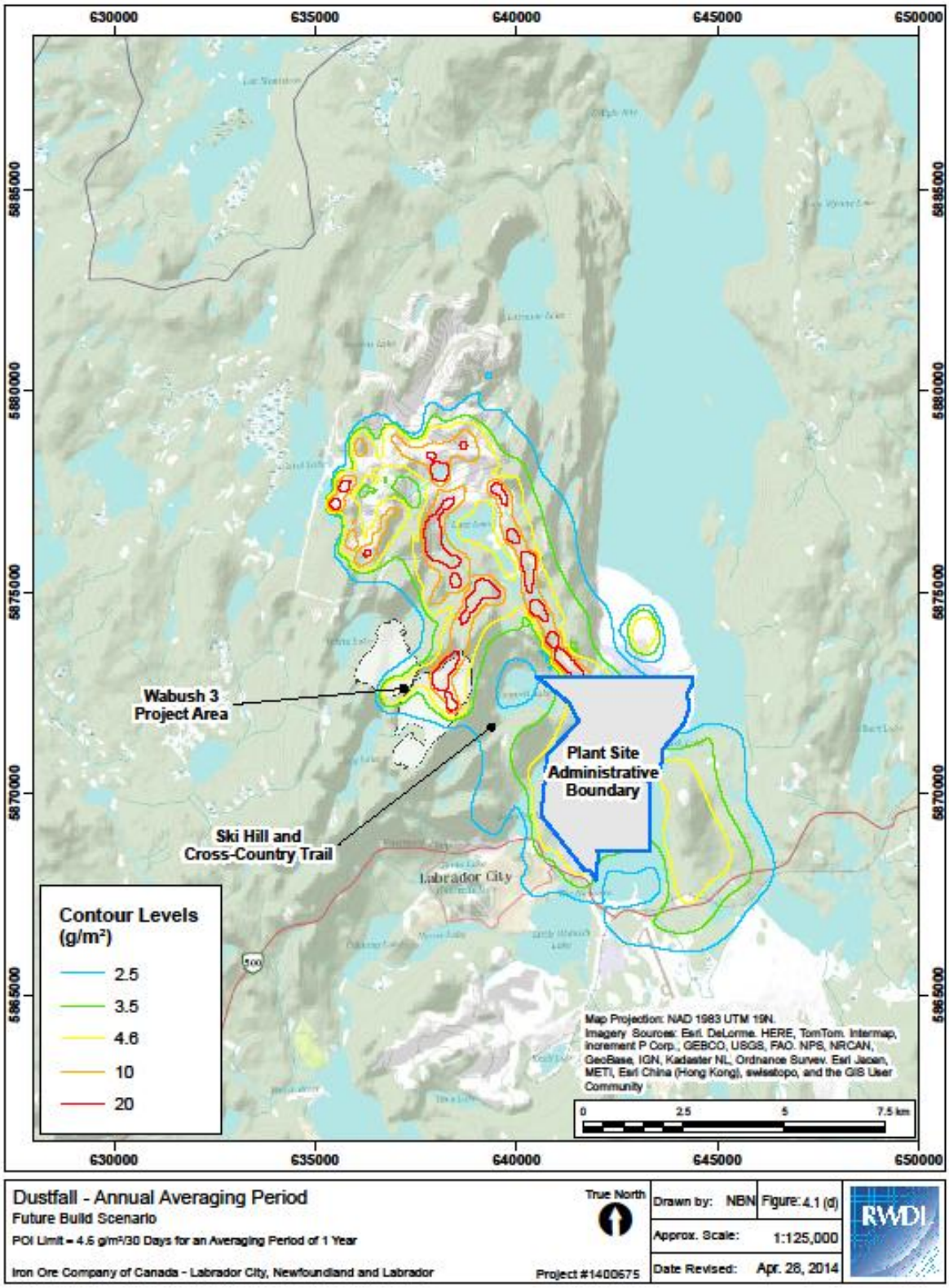
7.5 km
Dustfall - Annual Averaging Period
Future No Build Scenario
POI Limit = 4.6 g/m²/30 Days for an Averaging Period of 1 Year
Iron Ore Company of Canada - Labrador City, Newfoundland and Labrador
Project #1400675
True North
Drawn by: NBN
Figure: 4.1 (c)
Approx. Scale: 1:125,000
Date Revised: Apr. 28, 2014
RWDI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Wabush 3
Project Area
Plant Site
Administrative
Boundary
Ski Hill and
Cross-Country Trail
Labrador City
500
Contour Levels
(g/m²)
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3.5
4.6
10
20
Map Projection: NAD 1983 UTM 19N.
Imagery Sources: Esri, DeLorme, HERE, TomTom, Intermap,
increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN,
GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan,
METI, Esri China (Hong Kong), swisstopo, and the GIS User
Community
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7.5 km
Dustfall - Annual Averaging Period
Future Build Scenario
POI Limit = 4.6 g/m²/30 Days for an Averaging Period of 1 Year
Iron Ore Company of Canada - Labrador City, Newfoundland and Labrador
Project #1400675
True North
Drawn by: NBN
Figure: 4.1 (d)
Approx. Scale: 1:125,000
Date Revised: Apr. 28, 2014
RWDI

4.2.26 Information Request TLC-26

The EIS (Section 12.4.2.3, page 360) states that:

> "IOC will support the Town of Labrador City with any incremental cost difference (including engineering) between establishing the Dumbell Lake waterbody (currently identified municipal back-up water supply) and the least costly of the two identified replacement options, provided there is a demonstrated need for replacement of the existing Beverly Lake water supply."

The statement above, extracted from the EIS, creates some ambiguity regarding the potential need to replace the Beverly Lake water supply as a result of the Wabush 3 project. The onus should be on the proponent (IOC), through the adoption of the Precautionary Principle, to demonstrate that the Wabush 3 project will not impact Beverly Lake.

IOC Response:

The Town of Labrador City has identified Dumbell Lake as a back-up water supply to protect against any unforeseen effect on Beverly Lake and to provide options for increased demand. The need for a back-up water supply is not directly related to the potential for effects to Beverly Lake from Wabush 3.

In addition, the entire Wabush 3 Project is outside the surface catchment of Beverly Lake and hydrogeological studies indicate negligible risk of impact on Beverly Lake from Wabush 3 dewatering. (See previous responses for more detail on the lack of geological connections between Wabush 3 and Beverly Lake).

4.2.27 Information Request TLC-27

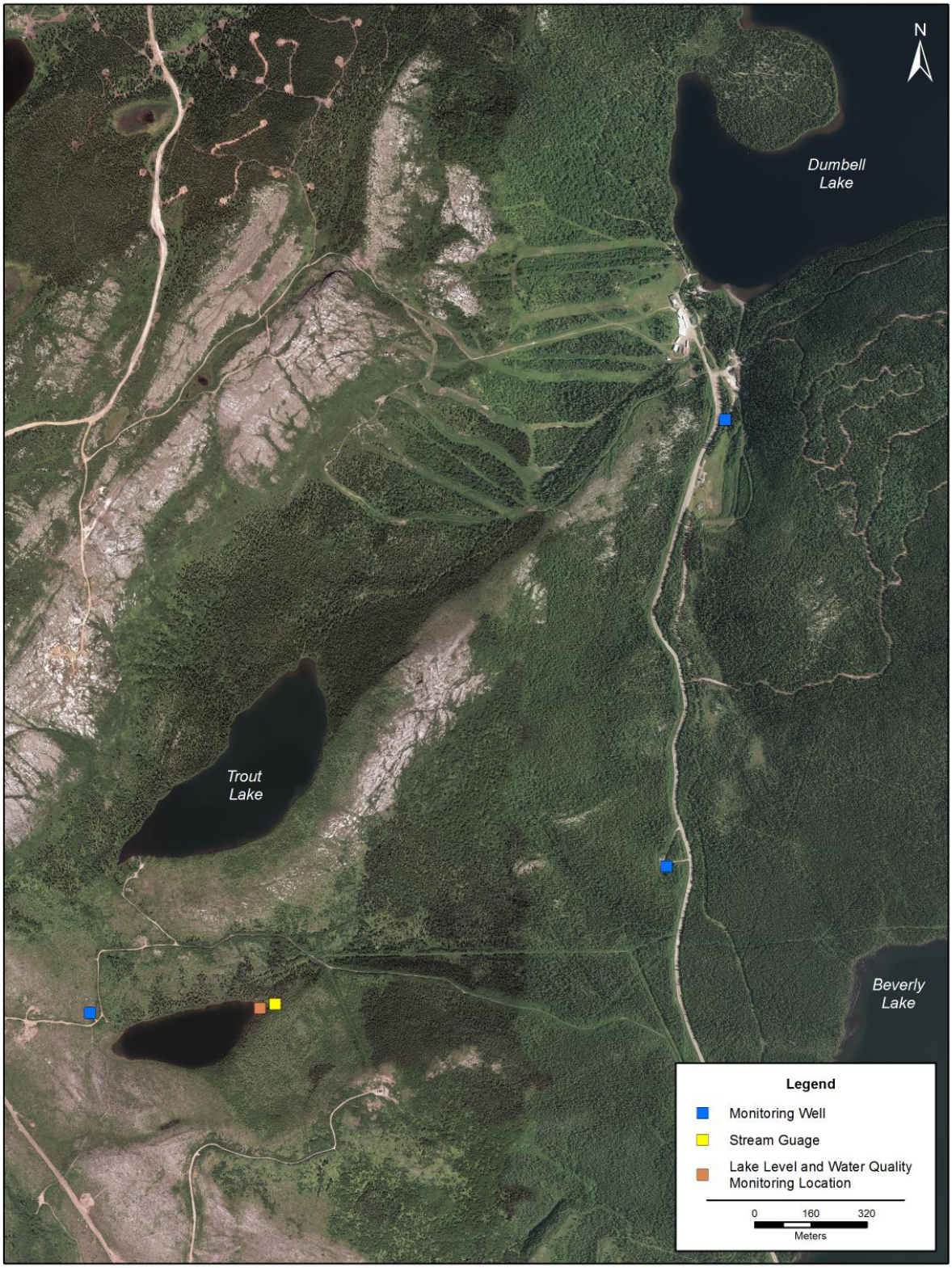
Collect seasonal data (water levels and water quality) from within the upper portion of the Beverly Lake Watershed throughout the life of the project utilizing the same baseline data locations (per earlier recommendation). Share data with the Town of Labrador City and regularly consult with the Town regarding the need for management actions arising from results of the monitoring program.

IOC Response:

IOC currently has one surface water quality station in the Beverly Lake watershed (North Pond Beverly) and has committed to three new groundwater monitoring locations, a stream gauge, a lake level monitoring location, and a surface water quality monitoring location in the upper Beverly Lake watershed (Figure 1). Wells and surface water monitoring locations will be installed in 2015. Water levels and water quality samples would be collected four times per year at each location, first to determine background levels, then to monitor potential changes within the upper watershed that could affect Beverly Lake.

IOC is willing to share with the Town the results of water quality and quantity monitoring in the Beverly Lake watershed and discuss IOC management actions arising from the results at its ongoing meetings.

Figure 1 Proposed Water Level and Water Quality Monitoring Locations in the Beverly Lake Watershed



4.2.28 Information Request TLC-28

Support the Town of Labrador City in developing and implementing a Watershed Management Plan for the Beverly Lake water supply in accordance with the DOEC guide ("A Municipal Guide to the Development of a Watershed Management Plan, Based on the experience of the Town of Steady Brook, Newfoundland and Labrador, (D. Hearn April 2007, Version 1.1)"). The purpose of such a plan would be to minimize and manage the risks to the water supply, integrate existing initiatives (like the Beverly Lake Emergency Response Plan), outline monitoring programs, and identify routine and non-routine management actions that may be required to ensure the long- term protection and sustainability of the drinking water resource. IOC should provide explicit emergency response plans and procedures, subject to approval by the Town of Labrador City, related to any project activities (including accidents and malfunctions) with the potential to impact the Beverly Lake water supply.

IOC Response:

The entire Wabush 3 Project is outside the surface catchment of Beverly Lake and hydrogeological studies indicate negligible risk of any effects on Beverly Lake from Wabush 3 dewatering. Consequently, the development of a Watershed Management Plan for Beverly Lake is unrelated to the Wabush 3 Project.

There is an existing Emergency Response Plan (ERP) for Beverly Lake which includes and addresses current operations at IOC. The operations at Wabush 3 will be too far away from Beverly Lake to have any direct effects on it. The current ERP should continue to apply.

4.2.29 Information Request TLC-29

The hydrogeological investigations that were conducted to determine pit inflows or dewatering requirements as well as to determine the impact of pit dewatering and water management on inflow to both Dumbell Lake and the Beverly Lake system, did not include any detailed groundwater studies of the rock mass between the final Wabush 3 pit perimeter and Dumbell Lake. The issue of regional groundwater flow from the area of Dumbell Lake to the Beverly Lake system and its contribution to recharge to Beverly Lake was not investigated.

IOC Response:

The geological cross section provided in Figure 1 depicts a conceptualized understanding of the structural geology, showing the surface expression of interpreted folding with the dotted lines representing eroded geology, from northwestern side of Wabush 3 to the southeastern extent of Beverly Lake. The structural folding that occurred in the region indicates that two arms of the Wishart Formation occur as an anticline between Wabush 3 and Beverly Lake (and Dumbell Lake). The Wishart Formation had the lowest geometric mean hydraulic conductivity (4×10^{-7} m/s) of all the geological formations tested during hydraulic testing completed in 2011 and 2013, while the Lower Iron Formation / Middle Iron Formation had the highest (9×10^{-7} m/s). As the mean hydraulic conductivity values are quite similar in all the formations, shear zones are the main indicator of elevated groundwater flow in the area. Figure 2 shows the locations of two known high conductivity faults in IOC's Labrador West mining operations, the Luce fault and the Wabush 3 fault. Other faults have been identified, including transverse faults, but to date, none of these other faults have demonstrated high hydraulic conductivity. The Wabush 3 fault is located on the western flank of the syncline

structure, suggesting that the Wishart Formation was not subjected to the faulting/shearing processes that cause the high hydraulic conductivity zones.

In modeling conducted by RioTinto (2014) (Appendix 3A of the EIS), Dumbell Lake remains a zone of groundwater discharge in all scenarios, including the worst case scenario that includes a high hydraulic conductivity zone that connects Wabush 3 and Dumbell Lake. Recent modeling that includes Beverly Lake (RioTinto, 2015) (included in this EIS Amendment as Appendix 3) indicates that effects on Beverly Lake are not anticipated as a result of dewatering Wabush 3. Thus, the hydraulic gradient between Dumbell Lake and Beverly Lake will not change, and neither will groundwater flows between the two watersheds. Additional modeling by RioTinto (2015b) (included in this EIS Amendment as Appendix 6) that uses drain cells instead of passive groundwater inflows also concluded that effects to the Dumbell Lake and Beverly Lake are expected to be minimal, unless these lakes are connected directly to the pit via high hydraulic conductivity pathways that have not been identified.

IOC has committed to three new groundwater monitoring locations, a stream gauge, a lake level monitoring location and a surface water quality monitoring location in the upper Beverly Lake watershed (Figure 3). Wells and surface water monitoring locations will be installed in 2015. Water levels and water quality samples would be collected four times per year at each location, first to determine background levels, then to monitor potential changes within the upper watershed that could affect Beverly Lake.

IOC has committed to a flow monitoring program at the inflow and outflow of Dumbell Lake (SW2 and SW3 on Figure 4). Flow monitoring will include installation of staff gauges and a pressure transducer / data logger at each of these flow gauging stations. The pressure transducer / data logger will measure and record water levels at an interval frequent enough to capture the range of water levels at these stations. The pressure transducers and staff gauges will be surveyed to a local temporary benchmark above the high water level to facilitate replacement of this equipment, to the same level, in the event of damage caused by ice, debris or vandalism.

During initial implementation of the flow gauging stations, approximately five detailed cross sections at, upstream and downstream of the staff gauges will be surveyed in order to build a theoretical stage discharge rating curve for the stations. During the initial two years, stream flow and corresponding water levels will be measured approximately once every two months during ice free periods in order to calibrate the station rating curves to site conditions. Following the initial two years of monitoring, the flow measurement frequency will be reduced to approximately two times per year, while automated water level measurements will continue at the same frequency. The water level records and rating curves will be used to create flow hydrographs that can be used to assess baseline and post development flow rates. These data will be compared with flows prorated (by drainage area) from the downstream Water Survey of Canada station (03OA012; on Figure 4). Water level monitoring will begin early in 2015 while flow measurements and surveys will commence when the ice breaks up in May or June 2015.

References

Rio Tinto Technology and Innovation (RioTinto) (2014). Technical Memorandum, Groundwater Modeling Predictive Results for IOC Wabush 3 Project.

Rio Tinto Technology and Innovation (RioTinto) (2015). Technical Memorandum, Evaluation of Potential Impacts to Beverly Lake, IOC Wabush 3 Project.

Rio Tinto Technology and Innovation (RioTinto) (2015b). Draft Technical Memorandum, Groundwater Model Predicted Dewatering Rates, IOC Wabush 3 Project.

Figure 1 Conceptualized Cross Section from Northwest of Wabush 3 to Southeast of Beverly Lake

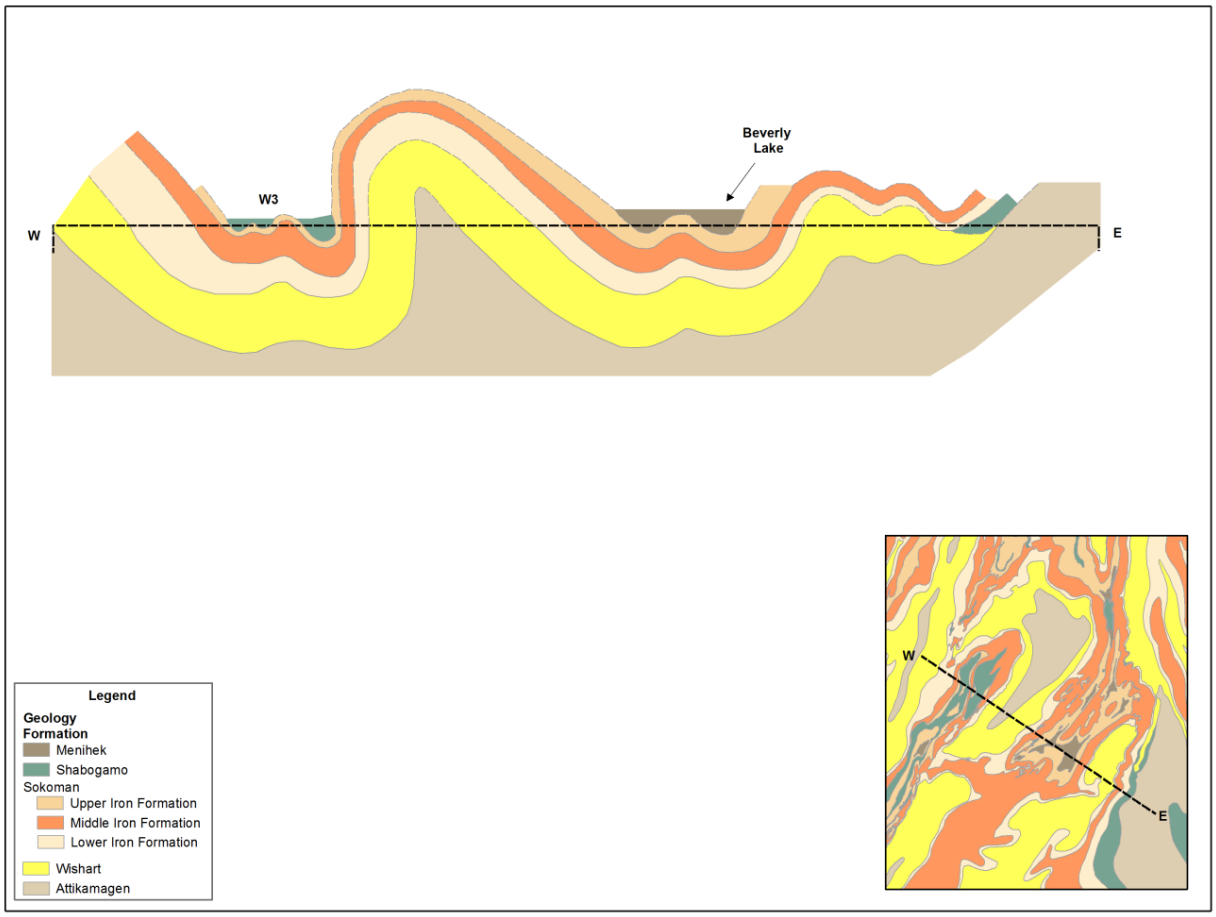


Figure 2 Bedrock Geology of the Wabush 3 Area Including Known Faults

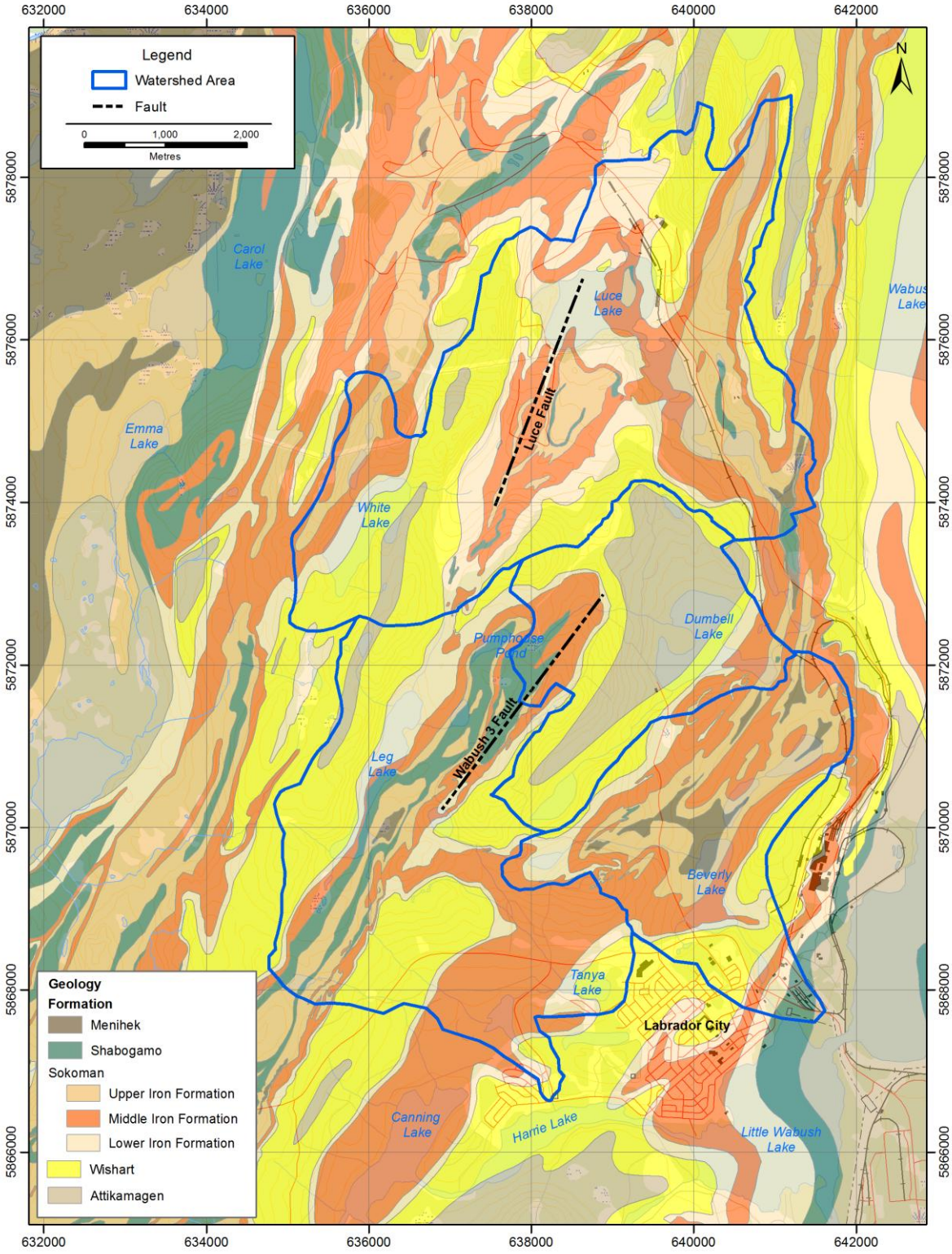


Figure 3 **Proposed Water Level and Water Quality Monitoring Locations in the Beverly Lake Watershed**

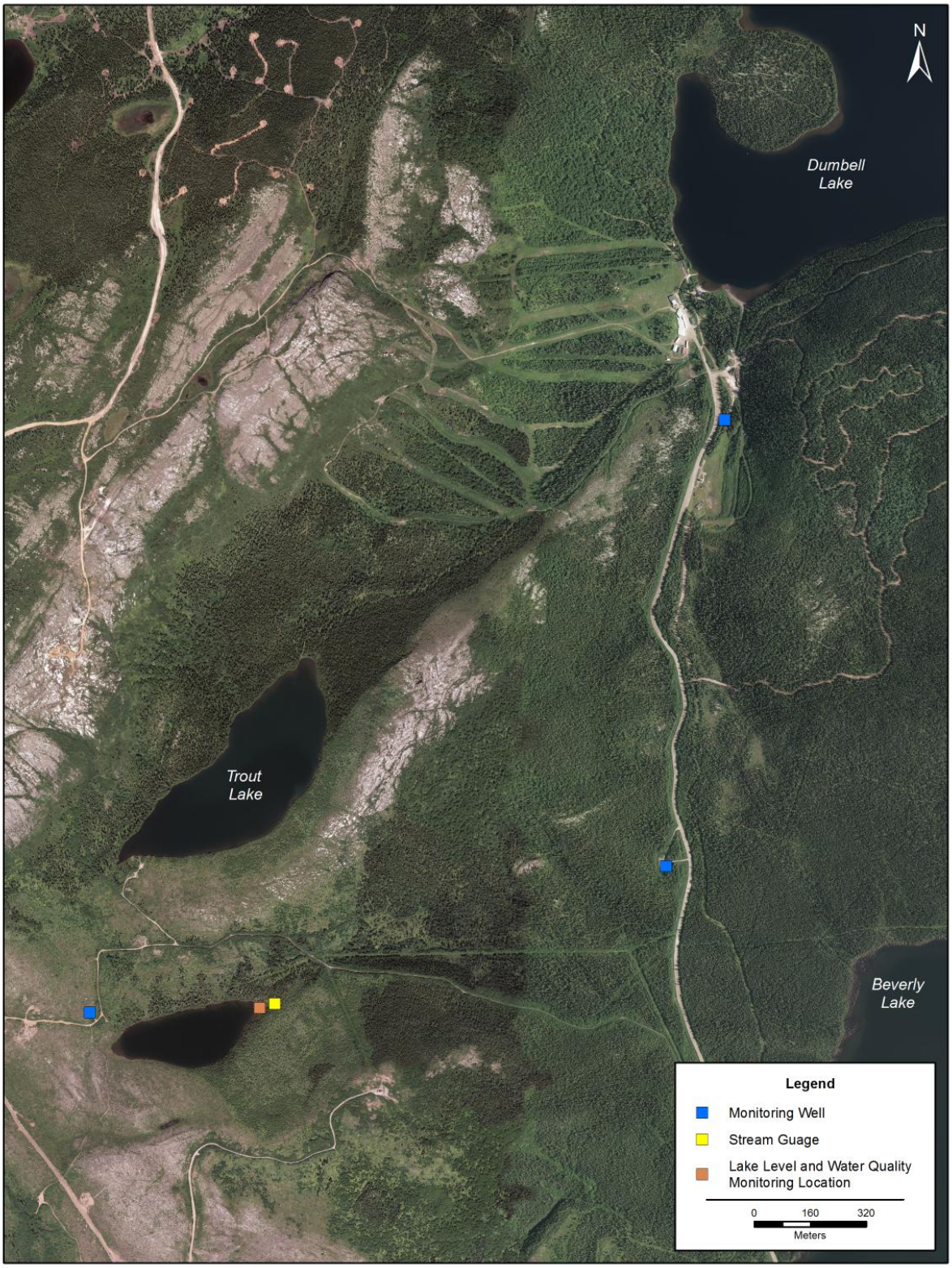
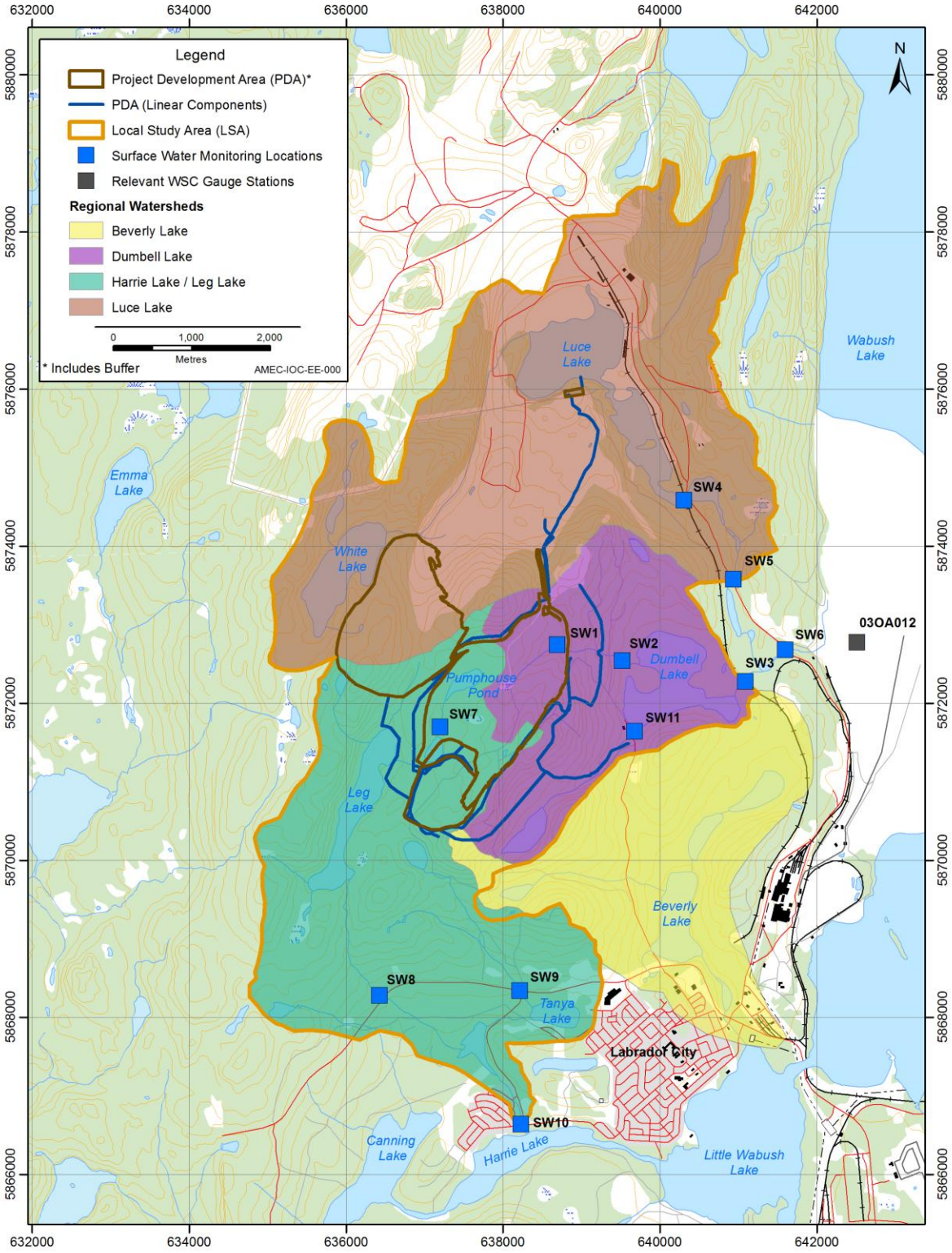


Figure 4 Beverly Lake, Dumbell Lake, Leg Lake and Luce Lake Watershed Areas and Surface Water Flow Monitoring Stations.



4.2.30 Information Request TLC-30

The Town needs firm confirmation that groundwater management/control during initial pit development will ensure that the groundwater gradients are controlled such that there is no movement of affected groundwater due to blasting residues from the pit development activities that will reduce the water quality in Dumbell Lake and Beverly Lake.

IOC Response:

Dewatering at Wabush 3 will start with pumping the groundwater extraction wells located on the perimeter of the Wabush 3 footprint to decrease the water levels in advance of mining operations. Discharge from the groundwater extraction wells is expected to be good quality water that has been untouched by mining operations, since the wells effectively intercept groundwater prior to reaching the pit. Nevertheless, the quality of this water will be monitored to ensure that water quality is comparable to the receiving water body (i.e., Dumbell or Leg Lake). Additionally, continuous pumping of the groundwater extraction wells will ensure that gradients do not allow groundwater to flow from the pit towards either Dumbell or Beverly Lakes as pumping will induce a gradient towards the Wabush 3 pit.

With respect to the in-pit sumps, the following text is from the EIS (page 365):

> Water accumulated in the pit will be pumped to a pit water treatment system that will be located approximately four km north of the Wabush 3 Pit and near the Luce Pit mine water treatment system. Treated effluent will be discharged, through an approved Final Discharge Point (FDP) into Luce Lake.

4.2.31 Information Request TLC-31

The Town needs firm commitments from IOC that none of the runoff from the Wabush 3 development waste soil and rock stockpiles will be diverted into the Dumbell Lake watershed, including any water that is diverted as part of the Wabush 3 water management and dewatering activities.

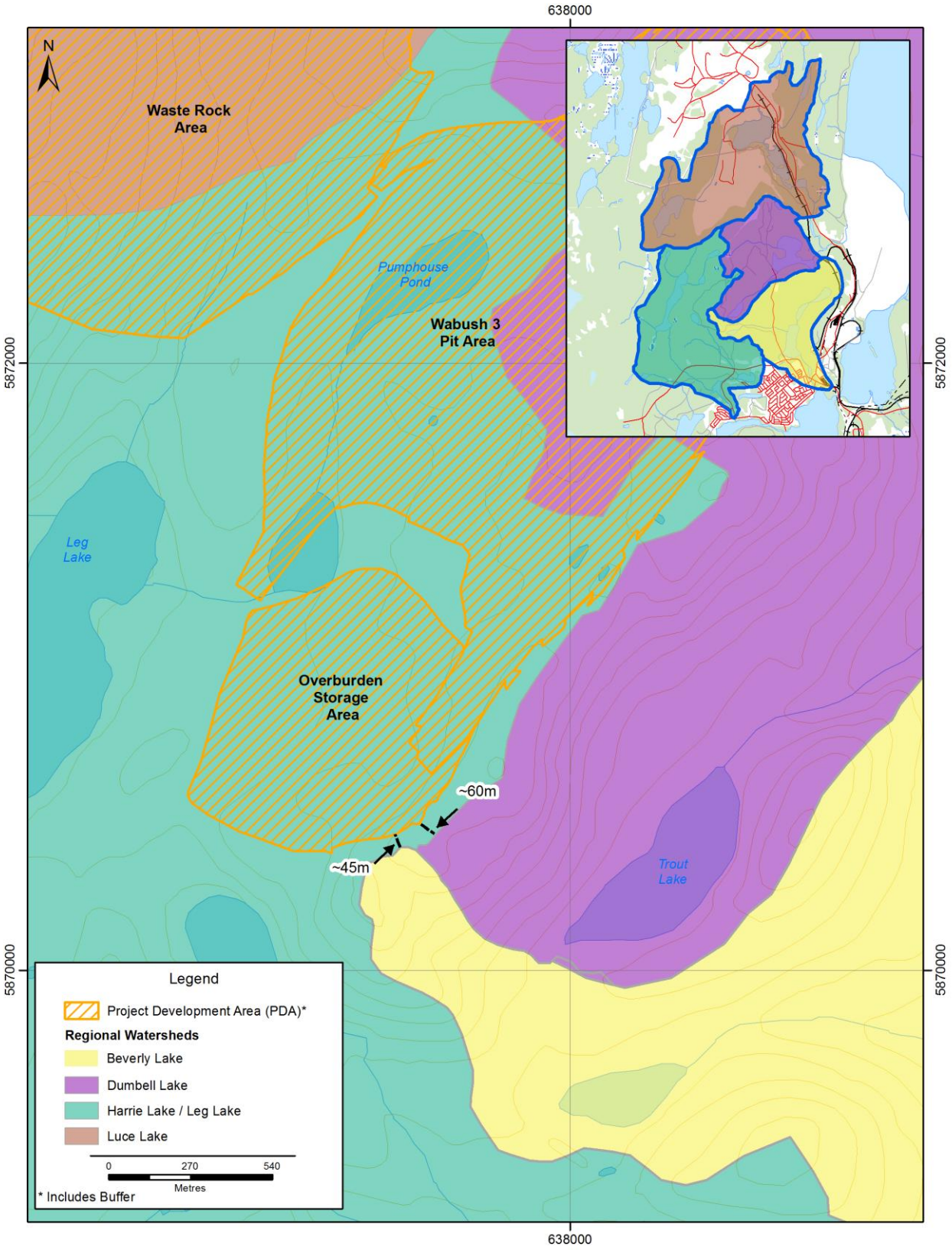
IOC Response:

The EIS states that all surface water will be diverted away from the Dumbell Lake catchment. Only clean groundwater from wells located outside the pit will be discharged into the Dumbell Lake catchment. Please also see the above cited except from the EIS (page 365).

In addition, the locations of the waste rock and overburden stock piles were specifically chosen to be outside of the Dumbell Lake watershed. The runoff from the waste rock will flow mainly towards the White Lake sub-watershed within the Luce Lake watershed, with some runoff towards the Leg Lake watershed. The runoff from the overburden stock piles will occur entirely within the Leg Lake watershed.

Figure 1 shows the location of the waste rock and overburden stockpiles with respect to the watershed areas in the Wabush 3 Project.

Figure 1 Distances from the Overburden Storage Area to the Dumbell and Beverly Lake Watersheds



4.2.32 Information Request TLC-32

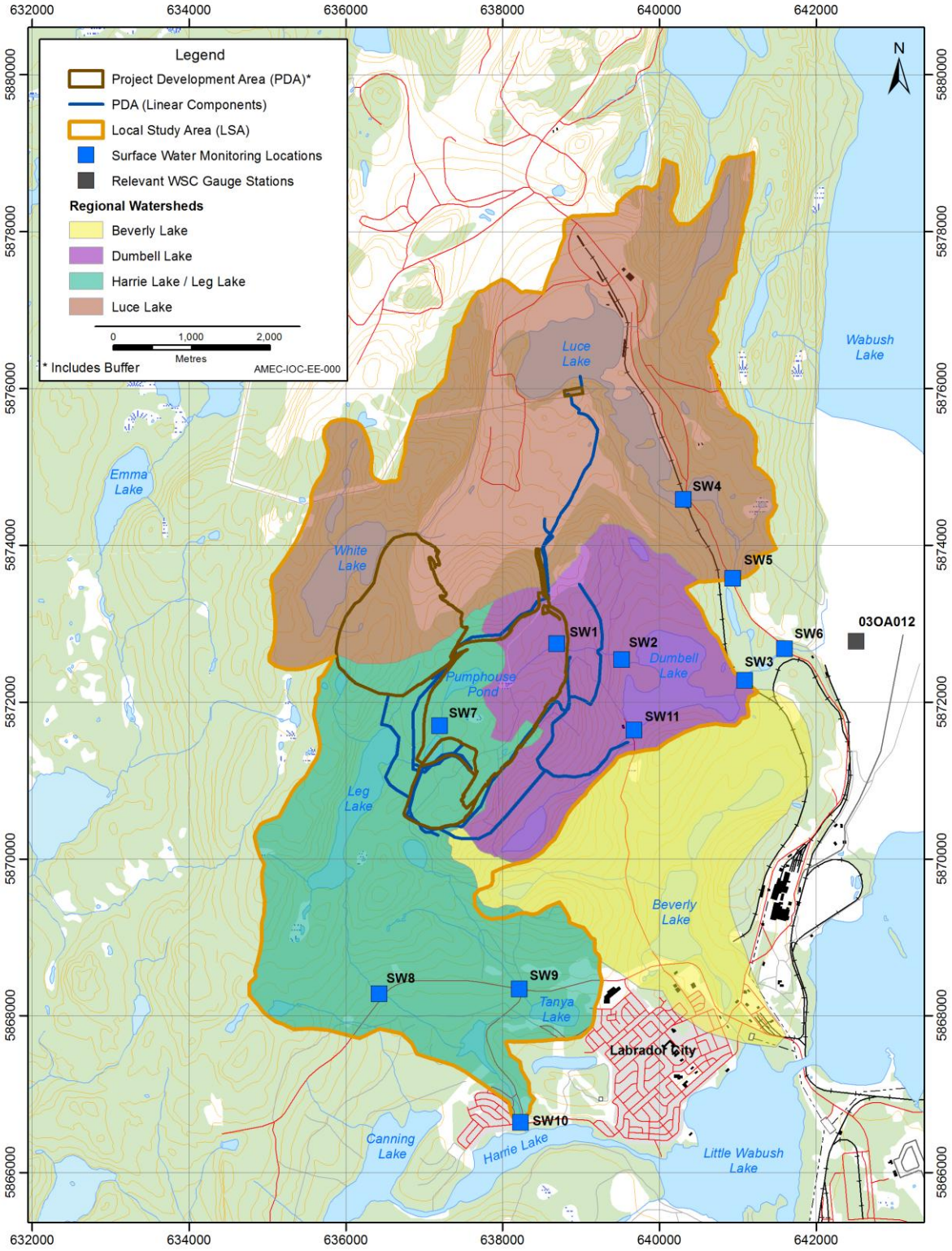
The Town requires that IOC immediately initiate a multi-year continuous monitoring program (flume, weir, or other measurements) of the outflow from Dumbell Lake such that reductions in inflow to Dumbell Lake, the Town's source of back-up and supplementary water supply, that will result from the development of the Wabush 3 pit can be identified and quantified.

IOC Response:

IOC has committed to a flow monitoring program at the inflow and outflow of Dumbell Lake (SW2 and SW3 on Figure 1). Flow monitoring will include installation of staff gauges and a pressure transducer / data logger at each of these flow gauging stations. The pressure transducer / data logger will measure and record water levels at an interval frequent enough to capture the range of water levels at these stations. The pressure transducers and staff gauges will be surveyed to a local temporary benchmark above the high water level to facilitate replacement of this equipment, to the same level, in the event of damage caused by ice, debris or vandalism.

During initial implementation of the flow gauging stations, approximately five detailed cross sections at, upstream and downstream of the staff gauges will be surveyed in order to build a theoretical stage discharge rating curve for the stations. During the initial two years, stream flow and corresponding water levels will be measured approximately once every two months during ice free periods in order to calibrate the station rating curves to site conditions. Following the initial two years of monitoring, the flow measurement frequency will be reduced to approximately two times per year, while automated water level measurements will continue at the same frequency. The water level records and rating curves will be used to create flow hydrographs that can be used to assess baseline and post development flow rates. These data will be compared with flows prorated (by drainage area) from the downstream Water Survey of Canada station (03OA012 on Figure 1). Water level monitoring will begin early in 2015 while flow measurements and surveys will commence when the ice breaks up in May or June 2015. IOC conducts surface water quality monitoring at the Dumbell Lake discharge four times per year. IOC will use these flow data to monitor baseline flow rates, and then to detect any changes as a result of mining operations.

Figure 1 **Beverly Lake, Dumbell Lake, Leg Lake and Luce Lake Watershed Areas and Surface Water Sampling Stations**



4.2.33 Information Request TLC-33

The Town should require IOC to add dewatering wells to the existing 3D groundwater flow model and to demonstrate 1) that the predicted pit inflows are consistent with the IOC 5 day aquifer test data, 2) that the proposal in the EIS for two dewatering wells is sufficient to maintain groundwater control for a pit of the size that is planned and for the fractured rock mass at this site and 3) that the proposed dewatering wells can maintain a reversal of the groundwater gradients between the pit perimeter and Dumbell Lake.

IOC Response:

RioTinto (2015b) conducted a groundwater modelling study that built upon previous modeling (RioTinto 2014) to simulate dewatering ahead of mining through the use of dewatering wells and quantify the necessary extraction rates and their potential effects on the surrounding lakes. The previous modeling simulated the Wabush 3 pit with seepage face cells that simulated passive flow to the pit (RioTinto 2014). For the updated model, 20 drain cells where used to represent dewatering wells. The water levels in the drain cells were adjusted using an iterative approach so that simulated water levels remained approximately one bench below the ground surface of the pit. The flows from the drain cells were then summed to determine the total necessary dewatering rate.

The results of RioTinto (2015b) are shown in Figure 1 and the key findings from this work include:

- Necessary dewatering rates, defined as extraction rates that keep groundwater levels more than one bench below the pit surface elevations are, as expected, somewhat higher than those predicted for passive seepage to the pit. The predicted dewatering rates range from 300 to 900 gpm over the life of the mine (LOM), peaking in approximately 2,035 (assuming dewatering begins coincident with mining). This is approximately 100 to 400 gpm more than was predicted using passive seepage to the pit.

- Effects to the Dumbell Lake and Beverley lakes are expected to be minimal with the currently identified geology. In the case of high hydraulic conductivity pathways connecting these lakes with the Wabush 3 area (not currently identified) impacts on Beverley Lake would remain negligible (RioTinto 2015). Effects on Dumbell Lake, however, would become appreciable.

With respect to the questions posed by the Town, the following responses are offered:

1) The predicted inflow rates approach the rate of the five day constant rate pumping test (~1000 gpm) in test well TW-13-01 (Figure 12.7 in the EIS) towards 20 years of mining. All model domains used to model dewatering rates at IOC use the known and expected hydraulic conductivity values for each layer of the model. Test well TW13-01 was deliberately located within a high hydraulic conductivity shear zone within the statistically higher hydraulic conductivity Middle Iron Formation on the eastern boundary of Wabush 3 (Figure 2). All other test wells that have been drilled within the Wabush 3 footprint and within close proximity of the pit do not exhibit the elevated hydraulic conductivity values or geological features that are indicative of the shear zones found in other areas of the mine site (e.g. northwest of Luce Pit). The domain, therefore, includes various geological layers with appropriate and conservative hydraulic characteristics. In addition, the model was calibrated using data from the five day pumping test, along with all the other available wells, and water levels of the surface water

features within the domain. Given the geology of Wabush 3, its elevated location relative to the regional topography and the lack of known shear zones (other than the localised shear containing the test well TW13-01), predicted flow rates for the mine are not anticipated to reach the pumping rate used for the five day pumping test completed on test well TW13-01.

2) The number of wells that will be used for dewatering is dependent on the geology and hydraulic characteristics of the fractured rock system that is encountered during well drilling and mining operations. As noted in the EIS, the current plan is install one or two groundwater extraction systems, which should be sufficient to achieve the extraction rates modeled to be necessary to dewater the pit. More wells will be installed, as required, if required dewatering rates prove to be higher than currently predicted, or if well yields prove to be lower than anticipated. Water level monitoring will be carried out within and around the pit and between the pit and major waterbodies, to monitor effects on the groundwater system and the surrounding lakes. In particular, two piezometers will be installed between Wabush 3 and Beverley Lake and a third will be installed in the upper reaches of the Beverley Lake surface catchment, to assess any impacts on groundwater feed to surface streams.

3) Dewatering of Wabush 3 will produce a localized reversal of groundwater gradients that will intercept groundwater prior to reaching the pit. Since the dewatering wells will be designed such that the groundwater will be intercepted without being affected by activities in the pit, only good quality groundwater will be discharged back to the Dumbell Lake watershed. IOC will monitor groundwater draw down surrounding the pit and will adjust dewatering rates, as necessary, to ensure that a localized reversal of groundwater gradients is maintained. Surface water level and flow monitoring has been initiated in the Dumbell Lake to detect any reversals of groundwater gradients that occur further afield and thus, could affect Dumbell Lake.

References

Rio Tinto Technology and Innovation (RioTinto) (2014). Technical Memorandum, Groundwater Modeling Predictive Results for IOC Wabush 3 Project.

Rio Tinto Technology and Innovation (RioTinto) (2015). Technical Memorandum, Evaluation of Potential Impacts to Beverly Lake, IOC Wabush 3 Project.

Rio Tinto Technology and Innovation (RioTinto) (2015b). Draft Technical Memorandum, Groundwater Model Predicted Dewatering Rates, IOC Wabush 3 Project.

Figure 1 **Predicted Dewatering Flow Rates using the Drain Cells and Passive Seepage (Run 1) to Wabush 3 Pit over the Life of Mine**

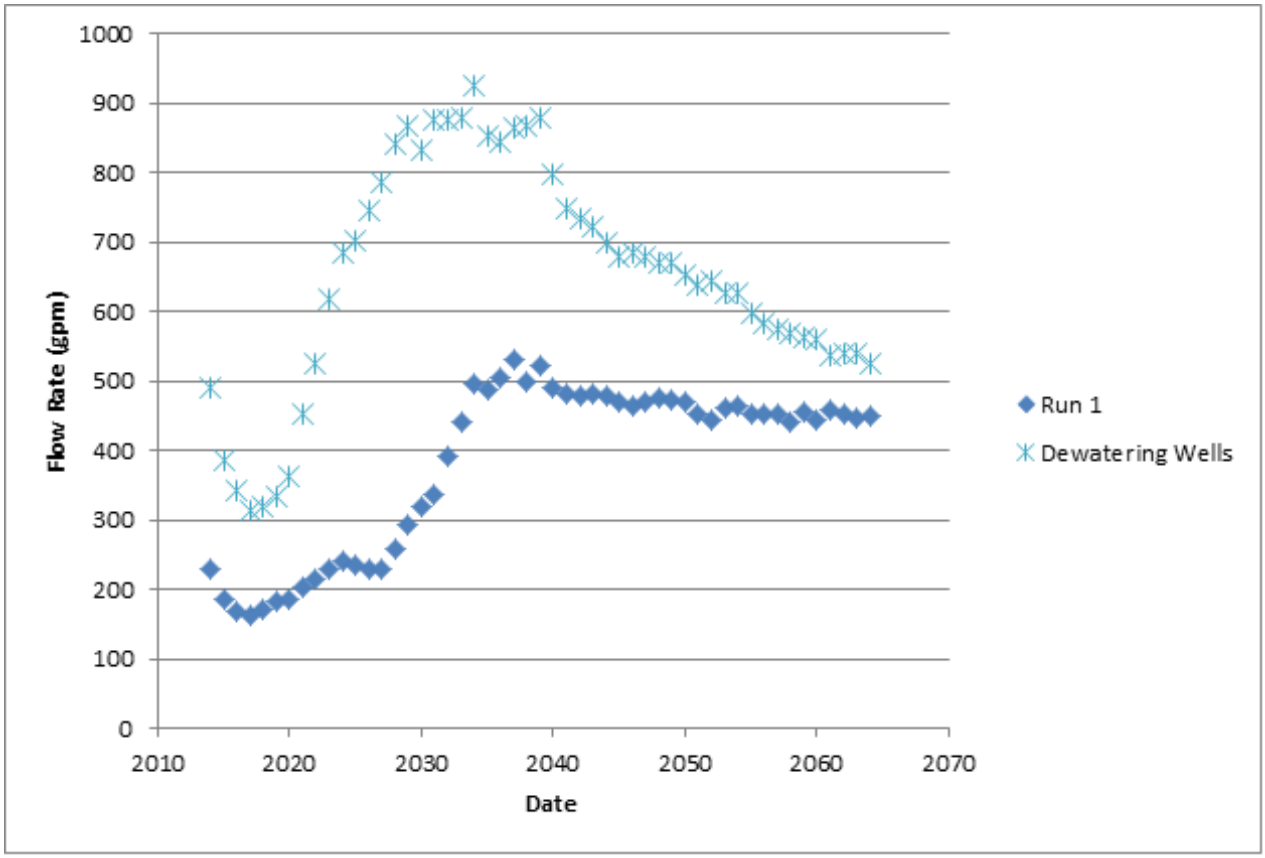
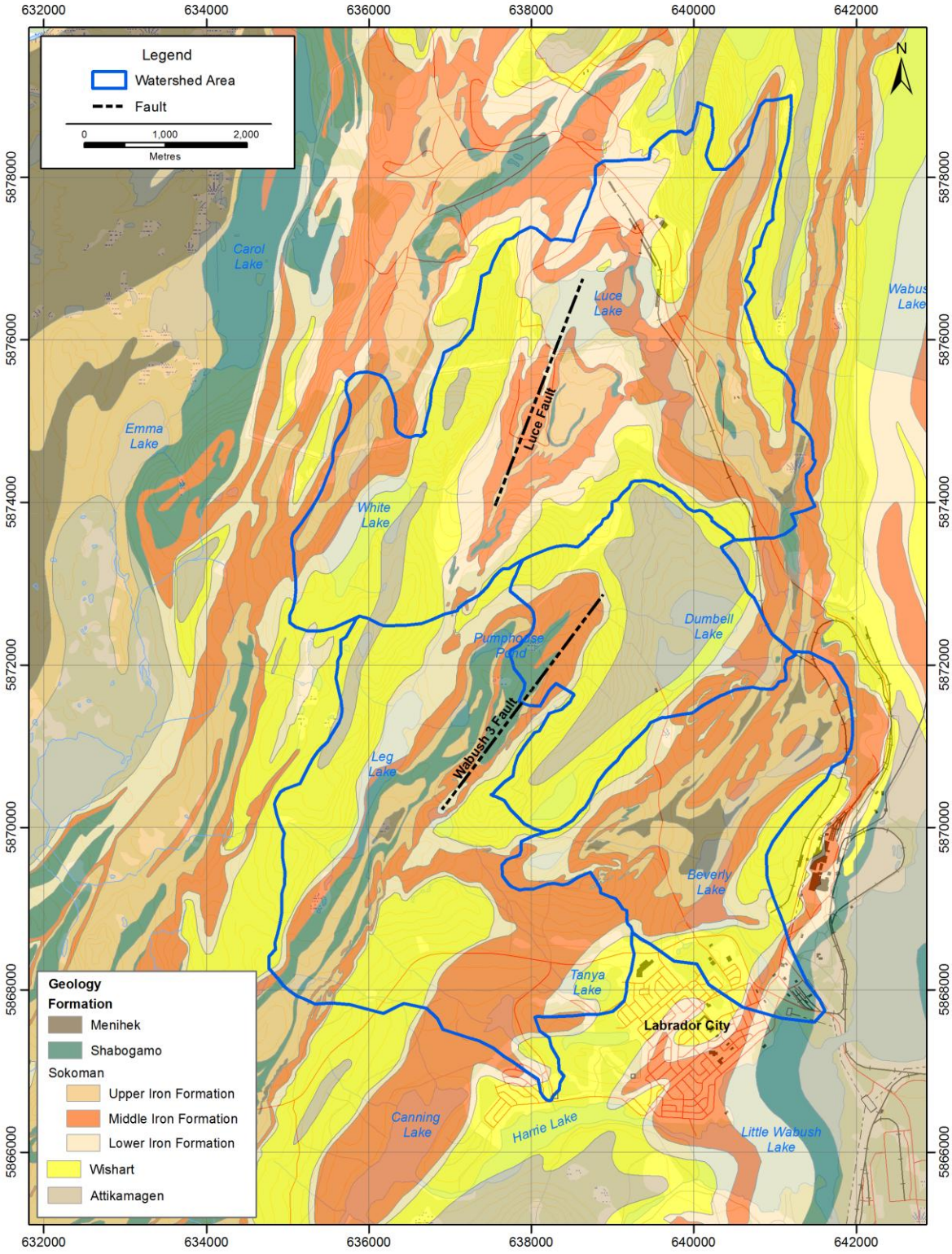


Figure 2 Bedrock Geology of the Wabush 3 Area Including Known Faults



4.2.34 Information Request TLC-34

Since IOC has made a commitment to the Town to fund any costs that are over and above the incremental costs that the Town would normally incur for supplementary and or emergency water supplies, the Town should establish what those supplementary costs will be. This will require the Town to measure the volume of water that is overflowing the Beverly Lake control structure. The Town should also determine the minimum costs that it would have to incur to deliver any identified or foreseeable water demand to supplement the Town's current water supply or to provide an emergency supply of water for a given period of time. The cost of these studies are incremental to the Town's current water supply costs and are needed to determine what incremental costs would be incurred if the Town's current water supply (Beverly Lake) and its current Back-Up (Dumbell Lake) water supply were compromised.

IOC Response:

This recommendation is appropriately issued to the Town. IOC would be prepared to work with the Town in determining the incremental costs of establishing an alternate backup water supply to Dumbell Lake when the time is appropriate to establish such. The rationale for another water supply, either to augment or replace Beverly Lake, would need to be determined and this would be an important factor in choosing the size and location of the alternate supply.

4.2.35 Information Request TLC-35

The Town should insist on playing an active role in evaluating the proposed Back-Up water supply options with those incremental costs being funded by IOC.

IOC Response:

IOC agrees that the evaluation of proposed back-up water supply options should be conducted with consultation between the Town and IOC. To date, IOC has consulted with the Town about potential options for the backup water supply. IOC will support the Town of Labrador City with incremental cost difference between establishing Dumbell Lake as the municipal back-up water supply as compared to the establishment of an alternative supply solution, provided there is a demonstrated need for replacement or supplement of the existing Beverly Lake water supply. At the time of demonstrated need detailed engineering cost analysis will be done to determine the funded option.

4.2.36 Information Request TLC-36

No mitigation has been identified in the EIS to address hospital equipment which may be sensitive to vibrations.

IOC Response:

When the hospital site was selected in 2008, the province retained Jacques Whitford (JW), an environmental consultant company, to provide consultation to the Government of Newfoundland and Labrador on the potential impacts of blasting at the IOC mines on the proposed hospital/college site in Labrador West, with

knowledge of the proposed mine, Wabush 3, and its location. JW communicated with several of the hospital equipment suppliers of that time, using a questionnaire, to determine if the predicted level of vibration (the results of studies performed by IOC and appended in the EIS – Noise and Ground Borne Vibrations – ATCO 2007 (Appendix 7) and Prediction of Blasting Noise/Vibration Levels at the Existing and Proposed Hospital and College Sites in Labrador City, NL – SS Wilson 2008 (Appendix 8)). The JW report states: "The responses to the sensitive equipment questionnaire were widely varying from no effect to possibly some effect during operation of the equipment. Some of the suppliers recommended use of isolation kits to protect the equipment from vibration." The JW report, entitled "Proposed Labrador City Hospital Blasting Vibration and Noise Consultation Labrador West Hospital" is included in this EIS Amendment Report as Appendix 7.

Early and recent communications with the administrator of the Labrador West Health Centre, as part of the EIS consultation process, clearly indicated that considerable due diligence was taken by the hospital and Provincial Government prior to making the final decision on the location of the new hospital. Consultation clearly indicated that the hospital had no concerns related to vibration sensitive equipment at the hospital. As part of the Blast Notification Plan for Wabush 3, the hospital as well as other regional stakeholders will be consulted in its development.

4.2.37 Information Request TLC-37

The Town is developing a 27 hectare business park adjacent to the hospital site. No mitigation has been identified to address vibration levels with respect to this development.

IOC Response:

HGC Engineering was commissioned by IOC to undertake follow-up monitoring and its December 2014 study "Report on Vibration and Overpressure Measured during a Luce Pit Blast on September 23, 2014, Labrador City, Labrador" concludes the following: "At distances similar to that from Wabush 3 to the new hospital and college, the data indicates that vibration and overpressure would not pose a problem for structures ...". The HGC report is included in this EIS Amendment Report as Appendix 1.

The planned development of the Wabush 3 Project was known at the time that the Town asked for IOC to release land for a Light Industrial Park; therefore, the Town had presumably determined that this would be acceptable. In addition, the Light Industrial Park will be next to the new hospital, so it is unlikely that business activities will be more sensitive to vibration activities than the hospital. Applicants for business park tenancy will need to be advised of the proximity of the mine, to allow them to assess the suitability of the site. IOC will be able to provide guidance on anticipated vibration and over-pressure levels in the Light Industrial Park, based on achieving Ontario standards at the hospital. It should be noted that the Ontario standards were developed to avoid cosmetic damage (dry wall and plaster cracking). It is doubtful whether buildings in the Light Industrial Park would be susceptible to this type of cosmetic damage.

4.2.38 Information Request TLC-38

MH understands that IOC intends to employ Blast Design 2.1 at Wabush; however, the HGC Engineering's report offers predictions derived from a reduced blast energy, being 2/3's that of the aforementioned design.

IOC Response:

This is not correct. Blast Design 2.1 represented the worst case blast in 2007, when the SS Wilson study (EIS - Appendix 8) was carried out. The HGC report makes predictions using the current worst case blast (over the past twelve months – early 2013 to early 2014). The actual blast design will be selected to achieve the required blast vibrations and over-pressures. There are numerous potential options for achieving the required vibrations and over-pressures (hole diameter, holes initiated per delay, stemming length, stemming material, use of stemming charges, initiation system, etc) and IOC will use the combination of factors which best suits each individual blast. Most blasts will be at greater distances from all modeled receptors than the worst case predictions listed in the EIS. For example, the blast design required at surface at the pit edge, closest to the hospital (approx 2,400 m from the hospital) will not be required for a blast deep in the pit on the far side of the pit (approx 4,400 m from the hospital). Ongoing blast monitoring during the Wabush 3 pit operations will greatly assist in the fine tuning of the blasting protocols.

4.2.39 Information Request TLC-39

HGC Engineering's report acknowledges that their predictions were based on IOC's historic data, which they feel was not significant for prediction of vibration levels at the receptor locations.

IOC Response:

IOC is continuing to collect blast vibration and over-pressure data over a range of distances from the blasts. Since the EIS was prepared, HGC conducted another study ("Report on Vibration and Overpressure Measured during a Luce Pit Blast on September 23, 2014, Labrador City, Labrador", included in this EIS Amendment Report as Appendix 1) which helps to improve the data base. The HGC monitoring program also allowed IOC to confirm the accuracy of its blast monitors. Data collected from a number of blasts in 2014 and planned monitoring of blasts in 2015 and 2016 will be added to the analysis dataset (including the three new monitoring locations), thereby increasing accuracy in over-pressure and vibration predictions. By the time that blasting is expected to commence in the Wabush 3 pit, IOC should have sufficient data to reliably predict vibration and over-pressure. Ongoing blast monitoring during the Wabush 3 pit operations will also assist in the fine tuning of the blasting protocols.

4.2.40 Information Request TLC-40

IOC should include results from the vibration study by Jacques Whitford - 2008 (as directed in the EIS Guidelines), to reference potential vibration effects on the hospital.

IOC Response:

When the hospital site was selected in 2008, the NL Government retained Jacques Whitford (JW), an environmental consultant company, to provide consultation to the NL Government on the potential impacts of blasting at the IOC mines on the proposed hospital/college site in Labrador West, with knowledge of the next proposed mine, Wabush 3, and its location. The JW report, entitled "Proposed Labrador City Hospital Blasting Vibration and Noise Consultation Labrador West Hospital" was recently provided to IOC by the NL Government and it is included in this EIS Amendment Report as Appendix 7.

JW did not perform any monitoring activities, but evaluated the results of the ATCO and SS Wilson projects, the reports of which are appended in the EIS – Noise and Ground Borne Vibrations – ATCO 2007 (Appendix 7) and Prediction of Blasting Noise/Vibration Levels at the Existing and Proposed Hospital and College Sites in Labrador City, NL – SS Wilson 2008 (Appendix 8). These studies were conducted for IOC. JW basically concurred with the approach to these studies and the information in their reports.

JW communicated with several of the hospital equipment suppliers of that time, using a questionnaire, to determine if the predicted level of vibration (ATCO and SS Wilson) would pose problems. The JW report states: "The responses to the sensitive equipment questionnaire were widely varying from no effect to possibly some effect during operation of the equipment. Some of the suppliers recommended use of isolation kits to protect the equipment from vibration."

The conclusions and recommendations from the JW report are primarily focused on the design and operations of the hospital for the noise and vibration levels that were determined in the 2007 and 2008 studies by ATCO and SS Wilson. JW's closing statement is: "Provided that the hospital be designed and built with appropriate levels of input to the noise and vibration protective systems, it is considered likely that the site constraints will be overcome."

4.2.41 Information Request TLC-41

IOC should include a map illustrating estimated vibration levels at key receptors (as directed in the EIS Guidelines).

IOC Response:

The EIS included a map (Chapter 10, Figure 10.6) which shows the key receptors (R1 – R9). The Figure was labeled as 10.6 – Receptor and Baseline Sound Level Monitoring Locations. R1 – R9 are also the vibration receptor locations. Chapter 10 - Tables 10.22 and 10.23 provide the predicted vibrations at those locations, using worst case blasts. While there was not a drawing showing vibration isopleths, the information required by the EIS Guidelines is provided in the figure and tables.

4.2.42 Information Request TLC-42

IOC should engage HGC Engineering to produce new measurement data, wherein data are collected by measurement devices placed at the subject buildings (new hospital/college, etc.,), which record vibration levels occurring during blast activities (initially originating from the Luce Pit). HGC Engineering could use this new data to generate reliable predictions of the vibration level at the subject buildings.

IOC Response:

HGC Engineering was commissioned by IOC to undertake follow-up monitoring and its December 2014 study "Report on Vibration and Overpressure Measured during a Luce Pit Blast on September 23, 2014, Labrador City, Labrador" is included in this EIS Amendment Report as Appendix 1. The new college and the Smokey Mountain lodge were two sites where measurement devices (seismographs and overpressure monitors) were

installed and three other monitoring locations were established at distances similar to distances to key receptors from the Wabush 3 pit.

Data collected from HGC study and planned monitoring of blasts in 2015 and 2016 will be added to the analysis dataset, thereby increasing accuracy in over-pressure and vibration predictions. As indicated above, these predictive tools will be used to design blasts to achieve acceptable vibration and overpressure levels, rather than to determine the vibration and over-pressure levels of a predetermined blast design.

4.2.43 Information Request TLC-43

IOC should have HGC Engineering present supplementary results which are interpolations (from the reference 65,000 kg blast load) to represent predictions corresponding to the blast load of I0C's intended Blast Design 2.1 (96,000 kg blast load).

IOC Response:

The Blast Design 2.1 is not IOC's intended blast design. Blast Design 2.1 represented the worst case blast in 2007, when the SS Wilson Study (EIS Appendix 8) was carried out. The HGC June 2014 report (EIS Appendix 9) makes predictions using the current worst case blast (over the past twelve months – early 2013 to early 2014). The actual blast design will be selected to achieve the required blast vibrations and over-pressures. There are numerous potential options for achieving the required vibrations and over-pressures (hole diameter, holes initiated per delay, stemming length, stemming material, use of stemming charges, initiation system, etc) and IOC will use the combination of factors which best suits each individual blast.

4.2.44 Information Request TLC-44

Should the Wabush 3 Pit become operational, then future data should be collected for blasts originating from that pit. That data could be analyzed again by HGC Engineering, to provide more accurate predictions of vibration levels under a range of conditions.

IOC Response:

The monitoring of blasts will continue through 2015 and 2016 and the results will be added to the analysis dataset, thereby increasing accuracy in over-pressure and vibration predictions. It is the intention of IOC to monitor blasting in the proposed Wabush 3 pit to verify that the blasting protocols are adequate to ensure compliance with the accepted vibration and overpressure criteria and to fine tune the protocols as needed to maintain compliance. Qualified consultants will be involved as needed.

4.2.45 Information Request TLC-45

IOC should request both hospitals to investigate where they might have special needs for stricter limits on vibration (e.g., operating theatres and laboratories). Where such areas are identified, costs for retrofitting those areas for vibration isolation should be estimated.

IOC Response:

There is one hospital in operation in the Town of Labrador City. The old hospital was closed when the new one became operational.

Early and recent communications with the administrator of the Labrador West Health Centre, as part of the EIS consultation process, clearly indicated that considerable due diligence was taken by the hospital and Provincial Government prior to making the final decision on the location of the new hospital. Consultation clearly indicated that the hospital had no concerns related to vibration sensitive equipment at the hospital. As part of the Blast Notification Plan for Wabush 3, the hospital as well as other regional stakeholders will be consulted in its development.

Studies conducted by IOC provided information on overpressure and vibration levels were shared with the NL Government and its consultant – Jacques Whitford (JW). These reports are appended to the EIS – Noise and Ground Borne Vibrations – ATCO 2007 (Appendix 7) and Prediction of Blasting Noise/Vibration Levels at the Existing and Proposed Hospital and College Sites in Labrador City, NL – SS Wilson 2008 (Appendix 8). JW prepared a report for the NL Government which considered the overpressure and vibration levels and offered recommendations for the hospital design. The JW report, entitled "Proposed Labrador City Hospital Blasting Vibration and Noise Consultation Labrador West Hospital" is included in this EIS Amendment Report as Appendix 7.

4.2.46 Information Request TLC-46

It may be warranted for the proposed Business Park to feature construction details that provide higher level of vibration mitigation than otherwise associated with minimum standards of the Building Code. Such features could include three-panes for windows instead of two-panes, and more massive wall material (e.g., concrete panels) over lighter material (e.g., metal cladding). If the vibration levels for the Business Park are predicted to exceed OME criteria limits, then IOC should commission a study to determine the building cost impacts (this could amount to 5 % to 10 % of the regular building's construction cost.)

IOC Response:

HGC Engineering was commissioned by IOC to undertake follow-up monitoring and its December 2014 study "Report on Vibration and Overpressure Measured during a Luce Pit Blast on September 23, 2014, Labrador City, Labrador" concludes the following: "At distances similar to that from Wabush 3 to the new hospital and college, the data indicates that vibration and overpressure would not pose a problem for structures, ..." The HGC report is included in this EIS Amendment Report as Appendix 7.

The Light Industrial Park will be next to the new hospital, its closest corner will be approximately 500 m closer to the Wabush 3 pit than the hospital. It is unlikely that business activities will be more sensitive to vibration activities than the hospital. Blasts will be designed to ensure that vibrations and over-pressures at the hospital meet Ontario standards, which were developed to prevent cosmetic damage to dry wall and plaster. It is unlikely that buildings in the Light Industrial Park will be susceptible to this type of damage.

Applicants for the park tenancy will need to be advised of the proximity of the mine, to allow them to assess the suitability of the site. IOC is collecting additional blast vibration data which will allow vibrations and airblast to be better predicted at the park. This information will be available before Wabush 3 goes into production and will allow businesses to better assess the vibration and airblast implications of building there. IOC will make this information available.

4.2.47 Information Request TLC-47

IOC should engage HGC Engineering to visit the town and make their own vibration measurements which occur when blast activity happens at the Luce Pit mine. This would allow HGC Engineering to make accurate estimation of the predicted vibration levels at the subject buildings.

IOC Response:

HGC Engineering was commissioned by IOC to undertake follow-up monitoring and its December 2014 study "Report on Vibration and Overpressure Measured during a Luce Pit Blast on September 23, 2014, Labrador City, Labrador" is included in this EIS Amendment Report as Appendix 1. The new college and the Smokey Mountain lodge were two sites where measurement devices (seismographs and overpressure monitors) were installed and three other monitoring locations were established at distances similar to distances to key receptors from the Wabush 3 pit.

Data collected from the HGC study and planned monitoring of blasts in 2015 and 2016 will be added to the analysis dataset, thereby increasing accuracy in over-pressure and vibration predictions.

4.2.48 Information Request TLC-48

IOC should maintain a fourth seismograph monitoring station, which would be located at the existing hospital. This could aid in addressing any special vibration needs of the existing hospital and aid in their planning.

IOC Response:

There is one hospital in operation in the Town of Labrador City. The old hospital was closed when the new one became operational.

IOC is currently planning to install three monitoring stations with seismographs and overpressure monitors. These stations will be located near the new hospital, near the top of Smokey Mountain and near the ski lodges. IOC feels that this coverage is adequate at this time.

4.2.49 Information Request TLC-49

IOC should disseminate the results of blast related monitoring records on a regular basis (perhaps annually or quarterly) to key stakeholders including the Town of Labrador City.

IOC Response:

IOC is willing to share the results of blast monitoring on a regular basis at its established and on-going meetings with the Town. IOC is also willing to present this information at public sessions of Council meetings, to other relevant stakeholders such as recreational groups operating in the Smokey Mountain area and as requested by others.

4.2.50 Information Request TLC-50

IOC should actively engage and consult with key stakeholders (including the Town of Labrador City) during the development of the Blasting Plan.

IOC Response:

Blasting operations are very technical in nature and extensive knowledge and experience are required to develop appropriate blasting protocols that address considerations related to blasting location and desired outcomes. Due to the technical nature of blasting protocol development, IOC will inform the Town of its decisions with regard to the changes to the blasting protocol and anticipated improved outcomes for the Wabush 3 pit, as well as continue to monitor and track blasting data and maintain IOC's process for receiving public feedback.

The development of Blast Clearance Procedures, however, will include consultation with all stakeholders, including the Town and recreational users of the Smokey Mountain area. IOC will engage stakeholders for the development of these procedures later this year.

4.2.51 Information Request TLC-51

Recreational effects and opportunities in the region

TLC states that the installation of a three meter high chain link fence, though it will remain open during non-blast events, will alter the general populous' social interaction to the area. There needs to be recognition that this installation will affect the general population; how they perceive the space, functional limitations of the lodge as community space and loss of an area utilized by the general public for decades will be transformed into a gated site.

IOC Response:

IOC recognizes that, while restrictions are necessary to ensure public safety in the area surrounding the Wabush 3 mine pit, the fence will result in changes to how the public view and use this area. Through consultation with key stakeholder groups (including the Town of Labrador City, Smokey Mountain Alpine Ski Club, Menihek Nordic Ski Club and White Wolf Snowmobile Club) and the general public, IOC has obtained information about how groups and individuals use the Smokey Mountain area, and other areas, for a number of outdoor recreational and subsistence pursuits that are important to quality of life in Labrador West. This information has informed Project design decisions.

IOC has determined that the blasting safety zone around the mine pit is 1,200 m from the perimeter of the Wabush 3 mine pit and had initially planned to erect the fence at this boundary. Based on further research and consultation with stakeholders and the general public, IOC has redesigned the fence to be located at 450 m from the perimeter of the mine pit with procedural blast clearance to 1,200 m so that the area between 450 m and 1,200 m will be available at all times except blast periods which have been determined to be generally twice per month.

Recreational groups most affected by the Wabush 3 Project (Smokey Mountain Alpine Ski Club, Menihek Nordic Ski Club and White Wolf Snowmobile Club) are supportive of the Project and were instrumental in designing mitigation measures that IOC will employ for the Project. The decision to erect a gated fence and to restrict usage of Smokey Mountain Alpine Ski Club and the Lodge during periods when blasting may be scheduled was made in consultation with these groups and is the preferred option of the Ski Club, thus allowing it to coexist with the mine in this area.

4.2.52 Information Request TLC-52

The value of the visible landscape and unstructured recreational amenities of the Smokey Mountain area to the general populous has not been addressed in the Proponent's EIS submission, nor have any mitigation measures been proposed to offset the community's loss of these.

IOC Response:

IOC acknowledges that viewscapes can be important to the quality of life of human populations, perceptions of their communities and local and regional economies. In 2012, IOC prepared a visual environmental baseline study, a 3-D model of the Wabush 3 Project, photo-realistic viewscapes of the Project from vantage points and a viewshed analysis (see Chapter 2 and Appendix 26 of the EIS). From this modelling, it was determined that the Wabush 3 Project will be not be visible from the community and nearby recreational areas and only minimally visible within the region. In addition, to further reduce visibility of the Project, IOC has designed the new mine pit and its related infrastructure to be located on the less visible and less accessible side of Smokey Mountain. Also, the Wabush 3 waste rock disposal pile has been redesigned to minimize its height and thus visibility from the community and recreational areas.

In January and February 2014, IOC held workshops and interviews with Labrador West residents who participate in land, water and resource use activities for recreation and subsistence purposes. The results of this information gathering indicated that residents and visitors participate in a variety of recreational and subsistence land and resource use activities, many of which take place in and around the Smokey Mountain area but also generally occur in and around the communities and throughout the surrounding landscapes (See Chapter 17 and Appendix 24 of the EIS).

IOC recognizes that residents of Labrador West have used the local and regional landscapes for recreational purposes for several generations, and many of these residents are IOC employees and their families. Though IOC (and Labrador Iron Ore Royalty Corporation) holds mining rights to various properties throughout Labrador West (see Chapter 17 of the EIS), the company does not restrict access to these areas unless they are needed for active mining, at which time public safety would be considered to be a paramount concern.

IOC understands that with its many economic benefits, the Wabush 3 Project may present some compromises with regard to the quality of the landscape of Labrador West. IOC also acknowledges that as the Wabush 3 Project evolves, its presence will likely become regarded as an integral component of the local and regional landscape (as are other current prominent landscape features such as IOC's existing tailings management area and Wabush Mines' waste rock piles), and land and resource use patterns in the area will have adjusted in response to the Project's phased development.

4.2.53 Information Request TLC-53

It is recommended that the Town carefully consider the opportunities that exist for further offsetting the adverse effects on recreational use in the Smokey Mountain area, in a way that enhances co-existence with expanded mining operations. The Town, along with recreational user groups, are likely able to identify specific opportunities that would enhance the recreational experience for users of the Smokey Mountain area over decades to come.

Requesting support from IOC to plan and implement enhancement measures, in our view would do more to mitigate the effects on casual recreational use in the Smokey Mountain area than simply relying on alternative areas that may be available further afield in the region.

IOC Response:

In cooperation with recreational stakeholders that are directly affected by the Wabush 3 Project, IOC has committed to providing support that not only mitigates the effects of the Project but in some cases enhances these facilities which are used by the community in general. Portions of Menihek Nordic and White Wolf Snowmobile trails will be redesigned to eliminate risk of interactions with mine blasting activities. The lifts at Smokey Mountain Alpine Ski Club (SMASC) will be redeveloped with new stronger structures and repositioned to mitigate risks related to vibration and fly rock from mine blasting. SMASC has negotiated this agreement with IOC as it is the Club's desire to co-exist with the Wabush 3 mine pit, and the Club is anxious to implement this facility upgrade that would not have been possible without IOC's assistance.

To reduce the risk of interactions between users of SMASC facilities and the area, IOC will erect a gated fence around the facility and this area will be closed with restricted access during week days when blasting will be scheduled. IOC has agreed to compensate the Club for weekday closures by providing a mutually agreed upon rental fee. This arrangement is also preferable to SMASC as the funds generated can be used for other facility improvements. These measures will result in a revitalized ski club that may attract increased membership and revenue.

IOC has engaged in discussions with stakeholders and the general public with regard to casual recreational use of the Smokey Mountain area and has endeavoured to keep as much land as possible available to the public within the limits of public safety concerns. IOC has determined that the blasting safety zone around the mine pit is 1,200 m from the perimeter of the Wabush 3 mine pit and had initially planned to erect the fence at this boundary. Based on further research and consultation with stakeholders and the general public, IOC has redesigned the fence to be located at 450 m from the perimeter of the mine pit with procedural blast clearance to 1,200 m so that the area between 450 m and 1,200 m will be available at all times except blast periods which have been determined to be generally twice per month.

As a corporate citizen of Labrador West, IOC is a contributor to local projects and initiatives that improve recreational and other opportunities. IOC's community investment program, Together We Care, makes regular contributions to support community health, social and cultural initiatives. In 2013, Together We Care contributed $2,087,000 to support community interests and the amount was more than usual in light of strategic long-term initiatives to address community needs in Labrador West. The Together We Care program will continue to be available for community funding requests that may be used to support recreational facilities, infrastructure improvements and sporting events in Labrador West.

4.2.54 Information Request TLC-54

It is recommended that IOC develop an adaptive management framework that clearly outlines:

- Monitoring objectives
- System learning objectives
- Monitoring plans
- Mechanism for Town and Town residents to report observations and perceived impacts
- Communication and interpretation of monitoring results
- Management system that can quickly adapt project operations in response to
- monitoring data
- A collaborative and inclusive approach that involves all key stakeholders (including the Town of Labrador City) in the adaptive management process.

IOC Response:

Chapter 6 of the EIS describes how the Wabush 3 Project is being planned, and will be implemented, in a manner that avoids or reduces adverse environmental effects and optimizes socioeconomic benefits. This sustainable development approach includes Rio Tinto / IOC environmental and social policies, plans and other procedures and initiatives that are relevant to the Wabush 3 Project and IOC operations in general. Rio Tinto's global code of business conduct (The Way We Work) and direction provided in various guidance documents ensure consistent application of sustainability goals, monitoring of objectives, reporting and revision of practices to meet the company's international standards of operations which often exceed local regulatory requirements. IOC's Management of Change process is applied to assess situations and implement changes to reduce risks to health, safety and the environment.

The Wabush 3 Project will become an integral part of IOC operations and subject to the company's current (and future) environmental management plans. These are listed in Chapter 6 of the EIS and include plans and procedures for various aspects of environmental management such as site clearing, air and noise emissions, water management, waste management, mine closure and rehabilitation, environmental monitoring and follow-up as well as emergency response. IOC's current Environmental Protection Plan (as outlined in Table 6.3 of the EIS) is updated on an ongoing basis and will apply to the Wabush 3 Project. IOC operates within a series of permitting and reporting requirements to the Municipal, Provincial and Federal governments as described in Table 6.6 of the EIS and changes are made to operations to adapt practices in response to issues if and when they arise.

Proposed environmental monitoring and follow-up activities for the Wabush 3 Project are described in Table 6.5 of the EIS. Issues are discussed with various stakeholders on a regular basis through IOC's ongoing meetings with the Town of Labrador City, the Air Quality Monitoring Committee and the Joint Land Use Committee, as well as through quarterly meetings with the Community Advisory Panel and the Labrador West Regional Task Force. IOC is willing to share the results of monitoring (e.g., for air quality, water quality and blasting effects) activities through these established and ongoing fora (and other methods such as posting air quality data on the NL Department of Environment and Conservation's website) with stakeholders and the general public. In addition, IOC is prepared to receive comments and suggestions from the public via the existing IOC Feedback Line: at 944-8400 or e-mail at *IOCFeedback@ironore.ca.*

4.2.55 Information Request TLC-55

The Proponent assess the potential impact the project may have on the water levels of Harrie Lake & Little Wabush Lake, and any subsequent impact on municipal infrastructure (ie sewage treatment plants). This assessment needs to take into consideration the combined impact of the proposed Wabush 3 expansion and Alderon's Kami project on these water bodies.

IOC Response:

Potential cumulative effects of the Wabush 3 development and Alderon's Kami Iron Ore Project were considered in Section 12.6 of the EIS. With respect to the Projects' potential effect on Little Wabush Lake and Harrie Lake, both waterbodies are part of the Little Wabush Lake watershed (Figure 1), which is approximately 1,130 km^2 in size. Of the watersheds that are directly affected by the Wabush 3 mining operations (i.e., Leg Lake, Dumbell Lake and Luce Lake watersheds), only the Leg Lake watershed is located within the Little Wabush Lake watershed, which discharges to Harrie Lake. Changes in water levels are addressed with respect to potential decreases and increases in the following paragraphs.

At ultimate mine development, 1.29 km^2 (129 ha) of the Leg Lake watershed will be removed by pit development, resulting in an estimated loss of runoff volume to Leg Lake of approximately 3 to 10 percent (hydraulic modeling by Golder 2014). The Leg Lake watershed is approximately 0.1 percent of the overall Little Wabush Lake watershed, and the loss of the 129 ha results in a decreased runoff volume to the Little Wabush Lake watershed of approximately 0.003 to 0.010 percent. The Kami Project is located wholly within the Little Wabush Lake watershed with a pit footprint of approximately 2.80 km^2 (280 ha; Alderon 2012), resulting in a 0.2 percent loss of watershed. Furthermore, the net reduction of flow to Long Lake from the Kami Project is less than one percent, resulting in an overall loss to the Little Wabush Lake watershed of 0.002 percent. Between the two mining operations, the overall loss of water is not significant and changes in water levels are not expected as a result of either project. No effects on municipal infrastructure are anticipated with respect to water levels in Harrie or Little Wabush Lakes for the above mentioned reasons. In addition, the Wabush 3 Project will not result in an increased population that could result in increased water use or infrastructure needs.

Groundwater extraction rates were estimated in the EIS to be approximately 2,700 m^3/day. Results of the water budget indicate that the net surplus (i.e., runoff plus infiltration) for the Leg Lake watershed, at its discharge into Harrie Lake, peaks at 107,000 m^3/day in the month of May in an average year for existing conditions (Golder, 2014). The total groundwater extraction rate is approximately 5% of the Leg Lake

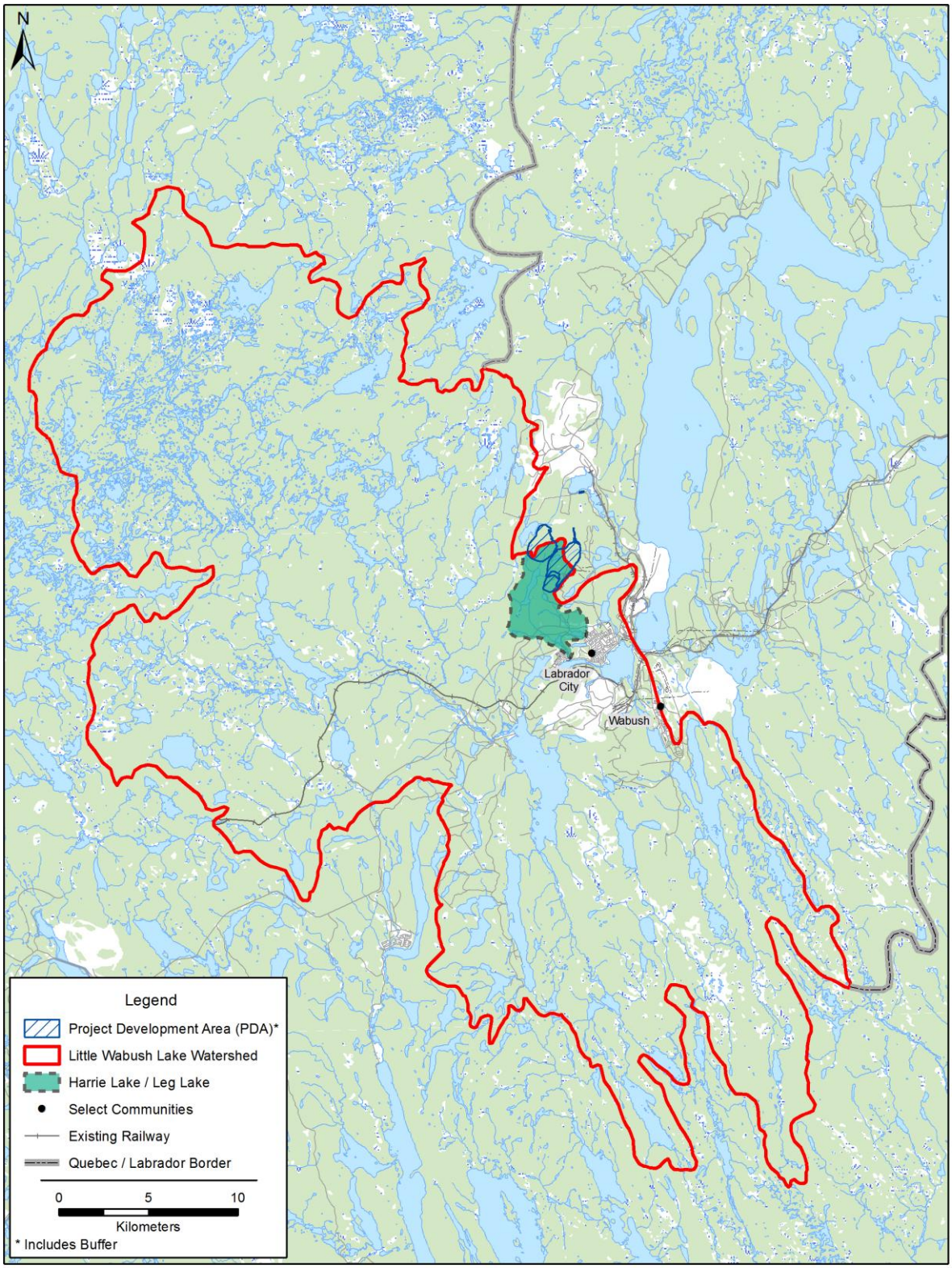
infiltration rate and 2.5% of the total surplus, where approximately half of the surplus is attributed to runoff in May (Golder, 2014). If all the groundwater were discharged into the Leg Lake watershed, the flow rate from that watershed into Harrie Lake, during the spring freshet (i.e., the highest water level conditions) would increase by approximately 2.5%. As indicated above, the Leg Lake watershed is approximately 0.1% of the Little Wabush watershed. Consequently, flood levels will not measurably increase and municipal infrastructure will not be adversely affected.

References

Alderon Iron Ore Corp. (Alderon). (2012). Environmental Impact Statement Kami Iron Ore Mine and Rail Infrastructure, Labrador.

Golder Associates (Golder) (2014). Wabush 3 Hydrology Technical Report. Project No. 13-1151-0293.

Figure 1 The Leg / Harrie Lake Watershed Located Within the Little Wabush Lake Watershed Area



4.2.56 Information Request TLC-56

The Proponent provide compensation to the Town of Labrador City for all consulting costs incurred in response to this undertaking.

IOC Response:

There is no requirement to provide such funding based in legislation, or in precedent, as far as we are aware.

IOC would note that, as described in Section 8.1.4 of the EIS, it already provides considerable, direct financial contribution to the Town through a 10 year grant in lieu of taxes agreement. This resulted in more than $6.6 million being paid to the Town in 2014, representing approximately 30 percent of the Town's annual budget.

4.2.57 Information Request TLC-57

The Proponent shall be responsible for all mitigation costs that directly or indirectly impact the operations or interests of the Town of Labrador City.

IOC Response:

IOC has committed, in cooperation with key stakeholder groups, to address the costs associated with Project-related effects upon existing recreational facilities and other community infrastructure that will be directly affected by the Wabush 3 Project. At an estimated total cost of approximately $10-15 million, these include:

- Installation of a perimeter fence for public safety;
- Procedural blast clearances to ensure the area around the mine pit is vacated prior to blasting;
- Post-blast monitoring of facilities and infrastructure (with appropriate follow-up as required and cost to be determined);
- Redesign of components of Menihek Nordic Ski Club;
- Redesign of components of White Wolf Snowmobile Club;
- Redesign and redevelopment of Smokey Mountain Alpine Ski Club including a new chair lift, two surface lifts as well as design and project management services for implementation of these improvements; and
- Compensation to Smokey Mountain Alpine Ski Club for closure of the lodge on weekdays when blasting may occur

IOC has also consulted with the Town of Labrador City about potential options for management of effects on Dumbell Lake, the identified backup water supply. IOC will support the Town with the incremental cost difference between establishing Dumbell Lake as the municipal back-up water supply and the establishment of an alternative supply solution, provided there is a demonstrated need for replacement or supplement of the existing Beverly Lake water supply. At the time of demonstrated need, detailed engineering cost analysis will be done to determine costs and establish funding.

As an engaged corporate citizen of Labrador West, IOC is a financial contributor to the community especially to the Town of Labrador City from which it accesses various services and infrastructure. IOC has currently

negotiated a 10 year grant in lieu of taxes agreement with the Town. In 2014, this grant-in-lieu was more than $6.6 million, which represented approximately 30 percent of the Town's annual operating budget. In addition, the Town receives indirect tax revenue from property owners and business activities much of which indirectly results from IOC's operations.

IOC's operations (of which Wabush 3 will become integral) is an important contributor to provincial coffers from which monies are derived to support infrastructure development and maintenance in Newfoundland and Labrador municipalities. The Wabush 3 Project alone is estimated to generate an incremental increase of $4.9 billion in total Newfoundland and Labrador taxes, comprised of $4.5 billion in direct taxes, $130 million in indirect taxes and $240 million in induced taxes in the lifetime of the mine pit.

The Wabush 3 Project will have limited and short-term effects on services and infrastructure in Labrador West. For instance, Project construction will result in a small temporary workforce and limited transport of materials and equipment. Once goods are delivered to Labrador City, all Project construction activities will occur within the mine gate and should not affect the Town or its infrastructure. Unlike new mining initiatives, once operational the Wabush 3 Project will utilize IOC's existing worker population and equipment and thus not place strain on Town or regional infrastructure and services.

4.2.58 Information Request TLC-58

The Province acknowledge as a condition of release of the Wabush 3 project from EIS review, formal agreements between the Proponent and the Town be in place respecting the monitoring, protection, replacement and mitigation of any damage or impacts resulting from this undertaking on municipal infrastructure, interests, and/or resources including but not limited to water resources. Release of a municipal permit(s) relating to this undertaking and occurring within the municipal or planning area boundaries, shall be contingent upon the parties having executed a formal agreement with respect to these matters.

IOC Response:

The EA process as outlined in the Wabush 3 EIS Guidelines forms the basis of the decision by the Minister of Environment and Conservation with regard to release of the Project, with or without conditions. To release the Project from the EA process, the Minister must be satisfied that the Proponent has identified potential effects of the Project and developed measures to appropriately and adequately avoid or mitigate these effects. IOC has signed, and has other forthcoming, agreements with stakeholders that are directly affected by the Project. IOC is also working with the Town of Labrador City to address Project effects on Dumbell Lake as the identified back-up water supply. In addition, IOC is committed to identifying and obtaining all applicable regulatory approvals including municipal permits for Wabush 3 Project activities.

4.2.59 Information Request TLC-59

In recognition of the importance of this undertaking to the community, Council would welcome the opportunity to present directly to the Committee providing opportunity to further clarify the review findings and recommendations presented both in this cover letter and in the enclosed appendices.

IOC Response:

IOC is not able to respond to this request, which is being made directly to the Province.

4.2.60 Information Request TLC-60

"How close is too close?" is a question that continues to resonate with residents, and more particularly, given the increasing proximity of Wabush 3 to community. While outside the immediate scope of the EIS, we respectfully request the Committee's support in our lobby that for future reference, the Province undertakes the research necessary in the development of clear guidelines prescribing the limitations with respect to proximity of communities to open-pit mining operations.

IOC Response:

IOC agrees that this matter is outside the scope of this EIS.