

Howse Property Project
Proponent Responses to: EIS Technical Review: Part 2
September 21, 2016

IR No	Dept No	Effects Link to CEAA 2012	Link to EIS guidelines	EIS Reference	Context and Rationale	Specific Question/ Request for Information
General						
CEAA 1	CEAA	5(1) and 5(2)	6.5	7, 8	<p>Some criteria for significance were not defined in accordance with the Agency's OPS <i>Determining Whether a Designated Project is Likely to Cause Significant Adverse Environmental Effects under CEAA 2012</i>.</p> <p>Examples include:</p> <ul style="list-style-type: none"> The definition of the <i>frequency</i> criterion refers to timing considerations as opposed to frequency of an effect. The <i>likelihood</i> criterion should be defined in relation to whether or not an <u>effect</u> (not a project) would occur. In relation to subsistence and traditional activities, <i>partially reversible</i> is defined as an effect that would persist after decommissioning, but is expected to largely return to pre-Howse status (p. 8-28). The EIS states that effects on subsistence and traditional pursuits are <i>partially reversible</i> (p. 8-29), although the temporal boundary for the assessment ends in 2024. 	<ul style="list-style-type: none"> Consider criteria for significance throughout the EIS and re-define the significance of the effects where required in accordance with the Agency's OPS <i>Determining Whether a Designated Project is Likely to Cause Significant Adverse Environmental Effects under CEAA 2012</i>. Explain during what timeframe effects must "reverse" in order to be considered fully or <i>partially reversible</i>? Provide rationale on how effects could be considered <i>reversible</i> when effects (e.g. loss of the land) persist past the temporal boundaries of 2024.
<p>HML Answer</p> <ul style="list-style-type: none"> Significance: <ul style="list-style-type: none"> The Reversibility criteria and significance for water quality and aquatic fauna is considered in CEAA 7 (part 1). 						

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<ul style="list-style-type: none"> ○ The Significance criteria for Avifauna (Frequency/timing) and its re-analysis is considered in CEAA 33 (part 1). ■ Reversibility: <ul style="list-style-type: none"> ○ Reversibility assessment criteria is adapted for each VC. Overall, an effect is deemed reversible if it returns to pre-project state/levels within a reasonable time frame (immediately and/or within a seasonal cycle) ■ On pages 8-29 and 8-29 of the EIS, the component is not <u>loss of land</u> (which is irreversible in some cases, as stated in the EIS), but rather the component is <u>subsistence and traditional activities</u>. Subsistence and traditional activities could and do occur on adjacent land, but will be affected by the project, and during the project duration, and so their effects are partially reversible 						
CEAA 2	CEAA	All			Changes to the EIS effects analysis and significance determinations may occur as a result of addressing the information requests. It is important to review the EIS, in its entirety, to ensure that all analyses that was based on the changed information is also revised, including effects assessments for other valued components, cumulative effects, accidents and malfunctions, etc.	<ul style="list-style-type: none"> ● Review the EIS and revise the analysis based on information that has changed through the course of responding to information request.
<p>HML Answer</p> <p>This has been done.</p>						
CEAA 3	CEAA IN-IR-1	5(1)(c) Aboriginal Peoples – Overall comment	6.3.4	Section 4, 7, 8	<p>The EIS (Table 4-7) has a description of the concerns, questions and comments received from the Indigenous groups. However, there is no concordance of these comments with the proponent’s response.</p> <p>Innu Nation noted that the concordance table included in the EIS (just following the table of contents) did not include many of the requirements listed in section 5 of the EIS Guidelines, in particular references to aboriginal engagement and concerns (p. 16-17).</p>	<ul style="list-style-type: none"> ● Describe how concerns from Indigenous groups were considered and potentially addressed, including mitigation measures. ● State where in the EIS of the analysis required in section 5 of the EIS Guidelines (aboriginal engagement and concerns) can be located. Provide missing information related to the requirements, if applicable.
<p>HML Answer</p> <ul style="list-style-type: none"> ■ Table 4.7 contains a column titled THEME which indicates where the information on how the Proponent addressed Indigenous people’s concerns is located, including mitigation measures. The Proponent opted to refer the reader to the full section instead of providing redundant information in multiple sections of the already-voluminous document. 						

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Location in EIS where guidelines requirements from Section 5 are located:						
EIS Guidelines requirement from Section 5						Section(s) in EIS
For the purposes of developing the EIS, the Proponent will engage with Aboriginal groups that may be affected by the project, to obtain their views on:						
<ul style="list-style-type: none"> Effects of changes to the environment on Aboriginal peoples (health and socio-economic issues; physical and cultural heritage, including any structure, site or thing that is of historical, archaeological, paleontological or architectural significance; and current use of lands and resources for traditional purposes), and 						7.5.2 Appendix C
<ul style="list-style-type: none"> Potential adverse impacts of the project on potential or established Aboriginal or Treaty rights. 						7.5.2
The EIS will document:						
<ul style="list-style-type: none"> VCS, alternative means, avoidance measures and mitigation measures suggested by Aboriginal groups for inclusion in the EIS, whether they were included, and the rationale for any exclusions 						2.5.3, 2.5.4, 4.3.2.3, 6.1, 7.2, 7.5.3.4
<ul style="list-style-type: none"> Each group's potential or established rights (including geographical extent, nature, frequency, timing) including maps and datasets (e.g. fish catch numbers) when this information is provided by a group to the Proponent or available through public records; 						2.3.3, 7.5.1.1
<ul style="list-style-type: none"> Based on the Proponent's perspective, the potential adverse impacts of each of the Project component and physical activities, in all phases, on potential or established Aboriginal or Treaty rights. This assessment is to be based on a comparison of the exercise of the identified rights between the predicted future conditions with the project and the predicted future conditions without the project. Include perspectives of Aboriginal groups where these were provided to the proponent by the groups; 						7.5.2, 8.8, 8.9 Perspectives from Aboriginal people were provided, and responded to by the Proponent privately in Spring 2016.
<ul style="list-style-type: none"> Based on the Proponent's perspective, the measures identified to avoid, mitigate or accommodate potential adverse impacts of the project on the potential or established Aboriginal or Treaty rights. These measures will be written as specific commitments that clearly describe how the proponent intends to implement them; 						Appendix VI Appendix XVI (but see Appendix to Answer to CEEA IR 2 Part 1)
<ul style="list-style-type: none"> Based on the Proponent's perspective, the effects of changes to the environment on Aboriginal peoples or potential adverse impacts on potential or established Aboriginal or Treaty rights that have not been fully mitigated or accommodated as part of the environmental assessment and associated engagement with Aboriginal groups, including the potential adverse effects that may result from the residual and cumulative environmental effects. Include the perspectives of Aboriginal groups where these were provided to the Proponent by the groups; 						8.8, 8.9 Perspectives from Aboriginal people were provided, and responded to by the Proponent privately in Spring 2016.
<ul style="list-style-type: none"> Specific suggestions raised by aboriginal groups for mitigating the effects of changes to the environment on Aboriginal peoples or accommodating potential adverse impacts of the project on potential or established Aboriginal and Treaty rights; 						2.5.3, 2.5.4, 4.3.2.3, 6.1, 7.2, 7.5.3.4
<ul style="list-style-type: none"> Views expressed by Aboriginal groups on the effectiveness of the avoidance, mitigation or accommodation measures; 						Perspectives from Aboriginal people were provided, and responded to by the Proponent privately in Spring 2016.

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						<ul style="list-style-type: none"> From the Proponent's perspective, any potential cultural, social, and/or economic impacts or benefit to Aboriginal groups that may arise as a result of the project. Include the perspectives of Aboriginal Groups where these were provided to the Proponent by the groups; 	7.5.2, 8.8, 8.9 Appendix C Perspectives from Aboriginal people were provided, and responded to by the Proponent privately in Spring 2016.
						<ul style="list-style-type: none"> Comments, specific issues and concerns raised by Aboriginal groups and how the key concerns were responded to or addressed; 	4.2, 4.3
						<ul style="list-style-type: none"> Changes made to the project design and implementation directly as a result of discussions with Aboriginal groups; 	2.5.3, 2.5.4
						<ul style="list-style-type: none"> Where and how Aboriginal Traditional knowledge was incorporated into the environmental effects assessment (including baseline conditions and effects analysis for all VCs) and the consideration of potential adverse impacts on potential or established Aboriginal or Treaty rights and related mitigation measures; 	Chapter 7, Chapter 8 Appendix VI Appendix XVI
						<ul style="list-style-type: none"> Any additional issues and concerns raised by Aboriginal groups in relation to the environmental effects assessment and the potential adverse impacts of the project on potential or established Aboriginal and Treaty rights. 	Perspectives from Aboriginal people were provided, and responded to by the Proponent privately in Spring 2016.
With respect to engagement activities, the EIS will document:							
						<ul style="list-style-type: none"> The engagement activities undertaken with aboriginal groups prior to the submission of the EIS, including the date and means of engagement (e.g. meeting, mail, telephone); 	4.2.1
						<ul style="list-style-type: none"> Any future planned engagement activities; 	4.2.2
						<ul style="list-style-type: none"> How engagement activities by the Proponent allowed Aboriginal groups to understand the project and evaluate its effects on their communities, activities, potential or established Aboriginal or Treaty rights and other interests. 	4.2.2
CEAA 4	NNK-1	5(1)(c) Aboriginal Peoples – Overall comment	6.3.4	7-14, 26 9-31	The Howse Mini-Plant is not clearly described in the EIS. Crushing, screening, drying and wet plant capabilities are described in the EIS and are assumed to be taking place in the Mini-Plant. However, it is not clear if all those activities will take place there.	<ul style="list-style-type: none"> Describe the components and activities that would occur at the Howse Mini-Plant. If crushing, screening, drying and wet plant capabilities are not proposed at the Howse Mini-Plant, clearly describe the location where these activities would be taking place and the related potential for environmental effects in the area, and associated mitigation. 	
HML Answer							

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The Howse mini-plant consists of crushing, drying and screening equipment. These activities will occur near the rail loop.						
Air Quality						
CEAA 5	CEAA IN-IR-26a	5(1)(b) Transboundary 5(1)(c)(i) Aboriginal Peoples' Health/socio-economic conditions	6.2.1 6.3.5 6.3.4	7.3.1.1, page 7-13 9.1.1	<p>The EIS states that the proponent expects to produce an action plan to reduce its greenhouse gas (GHG) emissions in spring 2016.</p> <p>The EIS states that the proponent would finalize an action plan for the reduction of GHGs following the acquisition of data on emissions from the Howse Project once the Howse plant is fully operational (dryer and wet plant).</p>	<ul style="list-style-type: none"> Identify and describe what specific measures would be taken as part of the action plan to reduce GHGs, including the use of standard practices for reducing GHGs. Indicate by how much is it anticipated that emissions of GHGs would be lowered as a result of implementing the measures?
<p>HML Answer</p> <p>The Proponent will finalize an action plan for the reduction of GHGs following the acquisition of data on emissions from the Howse Project once the Howse plant is fully operational (dryer and wet plant). Once data is acquired, the Proponent will be able to identify which activities associated with the Howse mining Project will produce more/less GHGs and adapt its GHG plan accordingly. The measures therefore, will be to identify the GHG emitters and standard and specific practices to reduce GHG will be applied by the Proponent.</p> <p>The Proponent will not have more details on it GHG plan until data is collected.</p>						
CEAA 6	NNK-10	All	6.6.2	7-13	The EIS states that climate change is affecting the ice-free period in the northern part of Nunavik but this is not the case around Schefferville, according to the Kawawachikamach Naskapi community (Tremblay 2006). Given that this reference is 10 years old, a more recent analysis should be provided.	<ul style="list-style-type: none"> Provide an analysis of whether climate change is now affecting the ice-free period around Schefferville. Update the effects analysis and determination of significance, as applicable.
<p>HML Answer</p>						

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<p>Following a discussion between the Proponent and CEAA on July 12 2016, it was agreed that the scientific analysis of the effects of climate change on the Schefferville region was accepted without the need for further clarification/information from the Proponent. If the NNK feel that information is lacking about ATK and climate change, the proponents invites the community to submit this information for consideration. Section 6.6 of the EIS provides an in-depth analysis of climate change in the region (with a reference from 2013).</p>						
CEAA 7	NL – PPD - 01 IN-IR 26d	5(1)(b) Transboundary 5(1)(c)(i) Aboriginal Peoples’ Health/socio-economic conditions	6.2.1 6.3.5 6.3.4	Section 7.3.1.1, Table 7-3, Document Page 7-12	For the Howse mini-plant, 2 diesel burners for ore dryer are listed as 3719 L/hr operating 5110 hr/yr. The fuel usage is listed as 9 502 624 L/yr. However 3719 L/hr x 5110 hr/yr is 19 004 090 L/yr.	<ul style="list-style-type: none"> Clarify calculations and how much total fuel would be used per year. Include how the revised calculation would affect the predictions of GHG emissions and potential effects analysis.
<p>HML Answer</p> <p>An omission was made for these two rows on table 7-3: The value of 9,502, 624 L/yr <i>assumes an average burner firing rate of 50% over the operating period.</i> As such, 3719 L/hr * 5110 hr/yr * 0.5 = 9,502,624 L/yr.</p>						
CEAA 8	NL – PPD-02 IN-IR- 26d	5(1)(b) Transboundary 5(1)(c)(i) Aboriginal Peoples’ Health/socio-economic conditions	6.2.1 6.3.5 6.3.4	Section 7.3.1.1, Table 7-4, Document Page 7-13	There are a number of calculation and summation errors in Table 7-4. For example, the total L/yr should not equal 348 million litres; the mini-plant CO ₂ should be greater than 5601 Kt/yr.	<ul style="list-style-type: none"> Review Table 7-4 for calculation and summation errors and correct, as appropriate. Present an updated table, with revised totals. Revise the analysis and conclusions, as appropriate taking into consideration updated calculations.
<p>HML Answer</p>						

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						L/YR	KG CO₂/YR	KG CH₄/YR (KG CO₂ EQ)	KG N₂O/YR (KG CO₂ EQ)	MT CO₂ EQ / YR		
						Mini-plant	21,033,918	5,601,332.36	2734.41 (68,360.25)	8413.57 (2,507,243.86)	0.0081	
						Hauling trucks	3,261,223.65	8,684,638.58	423.96 (10599)	1304.49 (388,738.02)	0.0091	
						Pit mining equipment	1,151,064	402,283.43 3,065,283.43	19.64 149.64 (491)	60.43 460.43 (18,008.14)	0.0004 0.0032	
						Total	348,307,347 25,446,205.65	14,688,254.37 17,351,254.37	3178.01 3,308.01 (79,450.25) (82,700.21)	9778.49 10,178.49 (2,913,990.02) (3,033,188.71)	0.018 0.020	
<p>The EIS text should therefore read as follows:</p> <p>GHG emissions from the Howse Project are estimated to be 0.02 MtCO₂eq/yr. 0.018 MtCO₂eq/yr. Newfoundland and Labrador total GHG emissions for the years 1990, 2005 and 2013 are 9.8, 10.3 and 8.6, respectively (Environment Canada, 2013a https://www.ec.gc.ca/indicateurs-indicators/default.asp?lang=en&n=18F3BB9C-1). The Howse emissions represent roughly 0.2% of Newfoundland and Labrador total emissions (based on a mean GHG emissions value of 9.56 MT CO₂ eq/YR).</p>												
CEAA 9	NL – PPD-04	5(1)(b) Transboundary 5(1)(c)(i) Aboriginal Peoples' Health/socio	6.2.1 6.3.5 6.3.4	Section 7.3.2.2.1, Document Page 7-26	The report states “considering the inputs to the air modelling study were conservative (e.g. worse-case), the noted exceedance for the single parameter NO ₂ (24-hr) is highly unlikely to occur in reality.”						<ul style="list-style-type: none"> • Provide information to justify the statement that exceedances are highly unlikely to occur in reality. • Describe under which circumstances the worse-case scenario used for the modelling could occur. 	

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		-economic conditions				
<p>HML Answer</p> <p><i>Provide information to justify the statement that exceedances are highly unlikely to occur in reality:</i> As explained in the sentence starting at the bottom of page 7-25 and finishing at the top of page 7-26, the statement referred specifically to the exceedance of the NL standard for NO₂ (24-hr) at Receptor R40 (Workers’ Camp), which is calculated as 208.1 µg/m³ vs a standard of 200 µg/m³, as per NL guidelines (eg. 2nd rank result is reported). We know from Table 7-17 that at Receptor R40, seven (7) exceedances of the NO₂ (24-hr) standard are predicted, this is 0.38% of the time. We evaluated that 0.38% of the time is an “highly unlikely” occurrence.</p> <p><i>Describe under which circumstances the worse-case scenario used for the modelling could occur:</i> Worst-case scenario is expected to occur when short-term blasting events are conducted (typically once per week), hence modeling results presented for the “With Blasts” and “No Blasts” scenarios. Note that as per NLDEC requirement and indicated in section 2.4.1.1 of the Appendix E-2 (AECOM Howse NL EPR Air Modelling Report) Volume 2 of the EIS, blasting events are not included as an operating scenario in the effects assessment under EPR guidelines.</p>						
CEAA 10	NL – PPD-06	5(1)(b) Transboundary 5(1)(c)(i) Aboriginal Peoples’ Health/socio-economic conditions	6.2.1 6.3.5 6.3.4	Appendix E1, Section 3.4, Page 3-7	Exceedances of the air quality standards are predicted; however there are no details on how the proponent plans to mitigate the exceedances; merely possibilities suggested.	<ul style="list-style-type: none"> Describe the specific measures that would be implemented to mitigate exceedances of air quality standards, including adaptive management measures (i.e. what, when, change in effect) and air quality monitoring stations that would be located in the communities.
<p>HML Answer</p> <p>At sensitive receptors under the “No Blasts” scenario which is the usual operating scenario at the mine, the model predicts exceedances at the Workers’ Camp only (Appendix E, Table 3-2, page 3-3). As indicated in Appendix XXIV (Ambient Air Quality Monitoring Plan DRAFT), HML will install an ambient air quality monitoring station (including air sampling equipment and a meteorological station) at the Workers’ camp. Actual results will be obtained and if air quality standards exceedances are observed, adaptive management measures such as additional road watering (for dust control) and/or relocation or removal of the diesel generators located at the Workers’ Camp (for NO_x control). At sensitive receptors under the “With Blasts” scenario, there are several limitations and assumptions associated with modeling of blasting events (Appendix E1, Section 2.4.7, Page 2-30). The Ambient Air Quality Monitoring Plan (Appendix XXIV) includes the use mobile monitoring equipment that can be moved at sensitive points (at communities or elsewhere) to measure and document ambient air quality levels. Mobile monitoring equipment provides the flexibility required by HML and the type of operations at the site. Using actual and representative monitoring data, if an air quality</p>						

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<p>degradation is recorded, HML will implement mitigation measures necessary to ensure air quality standards are restored to acceptable levels. Based on modeling results, air quality impacts are predicted to be the greater when blasting events occur, if monitoring data shows unacceptable air quality levels, the Plan for the prevention and management of blast generated NOx (Volume 1 Appendix XIX) will be activated and adapted as per the Plan's methodology. Since air quality impacts of the Howse project are in close proximity to the operations (mine and processing plant), locations of ambient air quality monitoring stations are planned accordingly (Appendix XXIV, Table 3, Page 12).</p>						
CEAA 11	NL – PPD-08	5(1)(b) Transboundary 5(1)(c)(i) Aboriginal Peoples' Health/socio-economic conditions	6.2.1 6.3.5 6.3.4	Appendix E1, Appendix A	<p>Emission rates for the diesel generators were calculated using the engine kW (electrical kilowatt) rating. As emission rates are cited as g/hp-hr (grams per horsepower hour), the proponent applied a kW to hp conversion to obtain the emission rates. kW, however, is based on generator output while hp is based on engine output, the difference being thermal efficiency. For a typical 1000 kW unit for example, it can be shown that the engine would need to produce approximately 2650 kW (3550 hp). The thermal efficiency would be approximately 38%.</p> <p>It appears that the emissions from the generators may have been underestimated as electrical output was used in the calculations as opposed to engine output.</p>	<ul style="list-style-type: none"> • Validate emission calculations and provide updated data. • Update effects assessment, if required.
<p>HML Answer</p> <p>Emissions data for the diesel generators were taken from CAT C175-16 performance data sheet [WYB01014]. Data is offered in different units and the g/hr values at 75% load were used directly and no conversion factors were necessary (see pertinent excerpt from the Caterpillar datasheet below). Therefore, no modifications to the calculations and assessment presented in the study are required.</p>						

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CEAA 12	IN-IR-33	5(1)(c)(i) Aboriginal Peoples' Health/socio-economic conditions	6.1.1	7-53	The proponent indicated that TSMC's plan for the prevention and management of blast generated NOx would be prepared based on DSO project site-specific particularities and the Australian Code guidelines – however, the web link with the reference material provided to the Innu Nation did not work.	<ul style="list-style-type: none"> Provide a PDF copy of a mitigation plan developed under the Code of Good Practice prepared by the Australian Explosive Industry and Safety Group Inc. to the Agency and Innu Nation. 																																																																																																																																																																																						

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HML Answer						
A copy of the Australian Guidelines can be found here: http://www.aeiscg.org.au/wp-content/uploads/aeiscg_cop_nox_edition_02aug2011.pdf						
A hard copy of the Code of Practice – Prevention and Management of Blast Generated NOx gases in Surface Blasting – Edition 2, August 2011 is appended to this document. (Document name: Howse Appendix Answer Part 2 CEAA 12 Code of PPM of Blast Generated NOx)						
CEAA 13	HC-IR-24	5(1)(b) Transboundary 5(1)(c)(i) Aboriginal Peoples' Health/socio-economic conditions	6.2.1 6.3.5 6.3.4	Appendix E-1- Air Dispersion Modelling Report and Appendix F-1 - Noise and Vibration Report	In the noise assessment (Table 1), the Young Naskapi Camp 7 (R9) was evaluated as being 950 m from the Howse Site; the Young Naskapi Camp 3 (R10) site was approximately 1000 m from the Howse mine site; the Naskapi-Uashat People's Camp (R13) was approximately 950 m from the Howse Mine Site; and Kauteitnat (R24) was approximately 2.1 km from the Howse Mine Site. In the air quality assessment, Table 2-14 identifies these same receptor locations as being at different distances than the noise assessment report. For example, R9 was considered to be 1.86 km from the site, R10 was 1.75 km from the site, R13 was 1.68 km from the site and R24 was 1.48 km from the site. Given that mining operations are expected to occur in one central area which would create both dust and noise, it is unclear why these receptor locations varied substantially between the air quality assessment and the noise assessment.	<ul style="list-style-type: none"> • Explain why the location(s) of the various receptor locations varied between the noise and air quality assessments. • Provide the revised distance of receptor locations for air quality and noise assessment as appropriate. • Update air quality and/or noise modelling results for specific receptors, as appropriate.
HML Answer						
The separation distance was measured from the edge of the mine site for the noise assessment, while the air quality assessment measured from the approximate center of the mine site.						
CEAA 14	HC-IR-20	5(1)(b) Transboundary	6.2.1 6.3.5 6.3.4	Appendix E-1- Air Dispersion	Several of the contour plots appear to be cut off before concentrations dissipate to background levels (e.g. Figures 3.3, 3.4, 3.5, 3.9, 3.11, 3.12, and 3.15) and as such, it is unclear what	<ul style="list-style-type: none"> • Provide maps/isopleths that are of an appropriate scale to visualize contaminant concentrations at the relevant human receptor locations.

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		5(1)(c)(i) Aboriginal Peoples' Health/socio-economic conditions		Modelling Report Figures 3.3-3.15	<p>contaminant concentrations are predicted beyond the LSA. Additional information is required to evaluate the potential for elevated contaminant concentrations to be present outside the LSA and in the vicinity of human receptors (e.g. Schefferville and Matimekush).</p> <p>Information is required as the terrain is complex and isolated points do not give a complete visual picture. Additionally, local users of the land are not stationary so users could be more or less affected by emissions depending on the movement of the emissions.</p>	<ul style="list-style-type: none"> If modeling indicates that changes are required to the analysis and significance determination for any valued component, provide updated assessment, including rationale and revised mitigation measures.
<p>HML Answer</p> <p>A discussion was held in April 2016 between HML, Environment Canada and CEAA. At that time, HML complied with EC's request to make modifications to Figures 3.3, 3.4, 3.5, 3.9, 3.11, 3.12, and 3.15 in Appendix E-1 in order to ensure that contaminant concentrations at relevant human receptors (i.e. Schefferville, Kawawachikamak and Matimekush). As such, all of these figures now include labels and values at these receptors. At the time of this meeting, EC and HML agreed that the addition of labels, a change in the aesthetics (color) of the isopleths was sufficient and that additional modelling to extend the contour plots was unnecessary.</p> <p>A discussion was held on July 14 2016 between the Proponent, Health Canada, Environment Canada and CEAA. During this discussion, the Proponent provided tabular data which demonstrated that the Howse Project's contribution to air quality at the communities is consistently below 1%, and background air quality represent nearly 98% of the remainder. Following this, EC and HC and CEAA agree that an extension of the modelling perimeter to include the communities is not required. However, HC requested that a comment and/or commitment from the proponent regarding the presence of Howse trucks at the communities, and their potential effects on air quality, and mitigation measures, be presented. It was also requested that the tabular information be provided to HC and EC and CEAA, along with clearer labels at the communities.</p> <p>The tabular information showing the project's contribution at communities located outside the air quality LSA is provided in an Appendix (Document: Howse Appendix Answer Part 2 CEAA 14 and 18 160810). One table for each of the Appendix E-1 figures 3.2 to 3.15 is provided in Appendix (Document: Howse Appendix Answer Part 2 CEAA 14 and 18 160810). The base data used to prepare these 14 tables can be found in Appendix E-1- Air Dispersion Modelling Report. No changes have been made, the results are just presented differently and supplementary information (eg. % contribution) has been added. Consequently, no change is required to the analysis and significance determination of valued components associated with air quality.</p> <p>Currently, HML gate records indicate that there are between 65 and 80 people leaving and entering site on a daily basis, based on the daily reports from Security. This includes First Nation workers, contractors and TSMC staff. From this, the number of vehicles can be inferred: some people travel alone, some in small groups, and some using the TSMC bus service which does 4 return trips per day for local workers. During the operations phase, the traffic from the Howse mine site going into town will be limited to a few vehicles per day: HML's CEO has issued instructions that all vehicles leaving the DSO project site need an authorization. Under the normal procedures, only environment personnel and store / administration personnel are authorized to circulate outside of DSO project area. Every second Tuesday the number of vehicles travelling into town will increase, especially near the airport. HML is currently working on securing a wash bay for access to all vehicles travelling into town, but this arrangement is not finalized yet.</p>						

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CEAA 15	HC-IR-33 CEAA	5(1)(b) Transboundary 5(1)(c)(i) Aboriginal Peoples' Health/socio-economic conditions	6.2.1 6.3.5 6.3.4	EIS Section 3.2.7 and Appendix XVI – Air Quality	<p>There appears to be an existing wash bay in the wash plant building. No commitment has been made to wash vehicles as they exit the project site to reduce the potential for off-site transport of iron-ore dust and/or soil from the project site. If vehicles may present a source of dust in the nearby communities, washing prior to departure from the mine site may be an appropriate mitigation measure, particularly during times of elevated dust generation at the site (e.g. summer, dry weather conditions, etc.).</p> <p>Alternatively, to minimize the potential for on-site vehicles to transport dust to these communities, specific vehicles could be dedicated to off-site transportation only and could be parked away from the active mine site.</p>	<ul style="list-style-type: none"> State whether the following mitigation measures would be implemented: <ul style="list-style-type: none"> washing vehicles that have been used at the mine site and are covered with iron-ore dust before their departure to the nearby communities in order to reduce dust levels in these communities; using dedicated vehicles that are only driven between the mine site and the communities (i.e. not used for transportation at the mine site). Comment on the need for installing any additional wash bays at the mine site or elsewhere.
<p>HML Answer</p> <p>HML is currently working on securing a wash bay for access to all vehicles travelling into town, but this arrangement is not finalized yet.</p>						
CEAA 16	ECCC-IR-15	5(1)(b) Transboundary 5(1)(c)(i) Aboriginal Peoples' Health/socio-economic conditions	6.1.1, 6.6.3	Air Dispersion Modelling Report, Sec. 2.3.5, P. 2-13; Appendix G, P. 254, Table 1 Sec. 8.3, p 8-1 to 8-4	<p>While the background values provided for particulate matter are not unreasonable in general, communities have raised the fact that they are occasionally adversely affected by dust from current and legacy operations in the area. Based on the information provided by the communities, it is probable that these dust events would result in ambient concentrations above the background levels presented in the EIS.</p>	<ul style="list-style-type: none"> Provide information on the frequency and nature (prevalent times, locations) of dust events (recognizing we are not asking for them to be quantified and modelled). Discuss how those events could be either prevented, limited or mitigated.
<p>HML Answer</p>						

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The Proponent has indicated that peak activities in the DSO3 area ended in 2015. During peak activity periods, the number of workers is higher, there are more activities on site and road travel is high, including travel to the communities: consequently, the dust events were likewise higher. Under current conditions, where the level activity, number of workers and travel are all lower, it is expected that dust event will be comparatively lower. However, when the Howse Construction Phase commences, another peak activity period will occur and so dust events will again increase. During the Howse Project Operation Phase, dust events may increase in frequency once again but it is expected that their effects on the communities will be lower than during peak activity periods because traffic will be concentrated at the mine site (i.e. traffic to communities is expected to be lower than during the Construction Phase). In addition, Finnis (2013) predicts increases in the intensity of precipitation in the area, in particular during the summer months, which will further reduce dust events in the area.

The proponent is committed to the following standard dust control measures:

CODE	MEASURE	MITIGATION EFFECT
Tree removal and timber management (TM)		
TM10	Ensure that cleared areas that are left bare and exposed to the elements are kept to a strict minimum.	Minimizing bare areas will reduce potential for airborne dust generation by wind erosion during dry periods
Erosion and Sedimentation Control (ES)		
ES15	Avoid storing excavated material on steep slopes and ensure they are properly compacted. To ensure better compaction of fill more than 60 cm thick, it is preferable to deposit several thin layers rather than a single layer. In zones with no transversal slope, the height and depth of the fill must be limited to three metres.	Airborne dust from wind erosion of excavated material piles will be transported on shorter distances if their height is limited
Construction Equipment (CE)		
CE8	Install appropriate road signs and follow speed limits in order to minimize accidents and disturbance to the environment.	Road dust emissions are minimized at lower speed.
CE15	The dust-control liquid used must comply with GNL regulations.	Application of a dust control agent will reduce road dust emissions
Air Quality Control (AQ)		
AQ1	Dust extractors with filter bags will be used to control dust emissions at the Howse Mini-Plant dryers.	Well maintained fabric filter dust emission control reduces dust emissions by >95%

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			AQ2	Dust recovered from the dust extractor must be disposed of in a manner that prevents dust emissions.	Good practices in dust handling minimizes punctual releases in the environment	
			AQ3	Use a water-spraying system at conveyor transfer and drop points.	Water spraying is efficient in reducing dust releases	
			AQ4	Mix the ore with water in the drum scrubber.	Water mixing is efficient in controlling dust from being released at the source	
			AQ5	A dust extractor will be used to limit dust emissions from drills.	The dust extractor limits the area in which wind gusts could blow dust away from the drill	
			AQ6	Roads will be sprayed to reduce dust emissions during dry periods.	Application of a dust control agent will reduce road dust emissions	
			Rehabilitation (R)			
			R1	Follow good practices presented in the rehabilitation plan.	Dust emissions from wind erosion will be minimized by considering it as a specific issue in the rehabilitation plan	
			R2	Draw up a rehabilitation plan		
			R3	Produce post-mining and post-rehabilitation monitoring reports.		
CEAA 17	ECCC-IR-16	5(1)(b) Transboundary 5(1)(c)(i) Aboriginal Peoples' Health/socio-economic conditions	6.2.1	Air Dispersion Modelling Report – Sec. 2.4, pp 2-16 to 2-17 Appendix A, starting on P. 107 CEA 8.3, p 8-1 to 8-4	The air emissions section is generally well-done and well-referenced. However, emission factors related to wind-blown sources and operations, such as loading and conveying, tend to have much higher degrees of uncertainty than the fuel and transportation-based factors. As these sources tend to dominate the overall particulate matter emissions, it is important to understand these uncertainties and how they are addressed to fully understand the modelling results.	<ul style="list-style-type: none"> Comment on the inherent uncertainties of the emission factors for non-fuel and non-transportation based emission sources and the effect they would have on the model output.
HML Answer						

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<p>The project emission profile modelled in this assessment was developed based on the maximum estimated volumes of material mined and processed. In addition, for the CEA, maximum yearly volumes from DSO3 and DSO4 were taken into account, even though these maximum volumes are not planned to be mined on the same year, as shown in Table 2-5 of the Air Dispersion Modelling Report (ADMR). On the other hand, recognized and approved emissions calculations procedures and methodology were used in the study; when assumptions were required in the calculations, erring on the conservative side was favored. The most apparent wind-blown operation (e.g. blasting) was modelled separately, and presented as an alternate scenario. Wind-blown non-fuel and non-transportation sources are fairly low elevation sources and their impact on ambient air quality is within a short distance from the source. Considering the preceding, since the property area is large (Figure 2.2 of the ADMR) and sensitive receptors (other than the Workers' Camp) are located far from these wind-blown sources, we believe the uncertainties of the emission factors do not have a reportable effect on the study and assessment. Finally, implementation of the proposed ambient air quality monitoring Appendix XXIV, including portable monitoring equipment, will enable the proponent to measure and document air quality at points of interest within the impact area of wind-blown sources and operations.</p>						
CEAA 18	ECCC-IR-17	5(1)(b) Transboundary 5(1)(c)(i) Aboriginal Peoples' Health/socio-economic conditions	6.2.1	Air Dispersion Modelling Report – Table 2.4, p 2-15	The dustfall data was taken from the Voisey's Bay Mining site, which, unlike the Howse pit region does not have any unmanaged, legacy pits which would contribute to overall dust deposition. A good estimate of the dust deposition is important to understand any potential cumulative effects.	<ul style="list-style-type: none"> • Comment on the rationale for choosing data from the Voisey's Bay site and provide a discussion on the potential for underestimating the dust deposition due to differences between the two project areas. If applicable, provide an analysis of the adverse effects that may be unique to this Project due to legacy operations, including cumulative effects. • If additional adverse effects are possible, as compared to Voisey's Bay, describe mitigation measures that would be implemented to address these effects, and indicate if additional analysis results in changes in the determination of significance.
<p>HML Answer</p> <p>Similarly to the proponent's answer to question CEAA 14, tables showing the % contribution of background, DSO3-DSO4 and, Howse to the dustfall modeled values have been prepared and are available in Appendix (Document: Howse Appendix Answer Part 2 CEAA 14 and 18 160810). As can be seen, the background dustfall values typically account for 95% or more of the reported dustfall results. At the time of the study, a thorough search for dustfall data from the Schefferville region was conducted and no such data were publicly available. Dustfall data from mining sites in Western Canada and the Northwest Territories are available, but were considered unrepresentative of the Labrador region. Consequently, Voisey's Bay data is the closest available data and it was used for the Howse EIS. Dustfall, or dust deposition, involves the settling of particles from the air due to gravitational force. It is a total amount of dust, inclusive of all particle size categories. Dustfall or dust deposition includes those particles of sufficient weight to settle from the air by gravity. These particles are generally larger than 20 µm in diameter. These particles, depending upon the extent of atmospheric turbulence, are likely to settle within tens to a few hundred metres from roads or pit or piles within the Project property line. As can be seen in the % contribution table, modeled cumulative dustfall results represent roughly 38% of the assessment criteria (1.8 vs 4.6 g/m²/30 days). Therefore, even if the chosen background data was underestimated, it would not be underestimated enough that the assessment criteria would be exceeded. Additionally, in the human health risk assessment, it was assumed that the</p>						

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<p>cumulative modeled dust deposition, including background levels, contained the metal concentrations found in the proponent ore analyses (ref. ADMR Section 2.4.1.3). This calculation methodology is considered conservative (eg. worst-case) since it assumes that all the dust deposited in the environment would be from a mining source; in reality dustfall contain pollen and other organic and inorganic particles that do not contain metals. For these reasons, we believe the assessment significance presented in the EIS is conservative and does not require modifications. Finally, dustfall monitoring (including dust and metal analyses) is included in the proposed ambient air quality monitoring plan (Appendix XXIV of Howse EIS) and actual dustfall data (both background and “in operation” data) will be obtained and compared to the assessment criteria.</p>						
<p>Noise</p>						
<p>CEAA 19</p>	<p>CEAA</p>	<p>5(1)(a)(i) Fish and Fish Habitat 5(1)(a)(iii) Migratory Birds 5(1)(b) Federal Lands /Transboundary 5(1)(c)(i) Aboriginal Peoples Health/ socio-economic conditions</p>	<p>6.3.5 6.3.1 6.3.2</p>	<p>7.3.3.1, 7-57 7.3.3.4, page 7-72 7.4.3.4, Page 7-212</p>	<p>It is unclear whether predicted noise levels reflected noise from blasting, in particular future scenario noise level (dBa) and impact (dBa). For example, a noise impact of 5 dBa was predicted at Receptor R13.</p>	<ul style="list-style-type: none"> State whether or not noise from blasting was considered in each of the significance criteria. If the noise of blasting was not included in the assessment, provide information for each receptor to include blasting and associated analyses relating to the likelihood of significant effects.
<p>HML Answer</p> <p>The effects of noise and vibration <u>from blasting</u> on caribou, avifauna and aquatic fauna were assessed throughout each component’s effects assessment (Sections 7.4.3, 7.4.8 and 7.4.9, respectively) and cumulative effects assessment (Sections 8.6, 8.7 and 8.4, respectively).</p>						

IR No	Dept No	Effects Link to CEEA 2012	Link to EIS guidelines	EIS Reference	Context and Rationale	Specific Question/ Request for Information
CEAA 20	HC-IR-26	5(1)(a)(i) Fish and Fish Habitat 5(1)(a)(iii) Migratory Birds 5(1)(b) Federal Lands /Transboundary 5(1)(c)(i) Aboriginal Peoples Health/ socio-economic conditions	6.3.5 6.3.1 6.3.2	Appendix F-1 - AECOM Noise and Vibration Report Table 1	<p>Table 1 identifies all of the receptor locations evaluated in the noise and vibration assessment.</p> <p>Although it is stated that the noise levels at Kauteitnat would meet regulatory criteria during operation, given that it is a sacred site, there may be a higher expectation of peace and quiet at that location than what is required in the regulatory guidelines. Additional justification is needed to validate the appropriateness of using NL and QC Guidelines and Health Canada's % change in highly annoyed (HA) to evaluate the acceptability of noise levels at ceremonial sites.</p>	<ul style="list-style-type: none"> • Provide additional justification that the acceptable regulatory noise criteria are appropriate for ceremonial/sacred sites where a higher level of peace and quiet may be warranted. • Describe the timing, frequency and duration of visits to Kauteitnat, including the types of activities that are expected to occur at the site (e.g. prayers, other ceremonies where loud noises would be disruptive to traditional practices, etc.). • Determine whether or not additional noise mitigation measures may be required when traditional activities are carried out at these more noise-sensitive locations and justify your response.
<p>HML Answer</p> <p>The Proponent would like to note that Visits to Irony Mountain have decreased to very few since DSO mining activities resumed in this area in 2013; along with expectations for peace and quiet. NML has provided aerial transport (helicopter) for Elders from the local communities over Irony Mountain, in caribou monitoring activities, as requested by. This resulted in high levels of noise in the vicinity of Kauteitnat.</p> <p>Visits to Irony Mountain are infrequent: they are limited to Summer, maximum once or twice per year, for a half-day outing at a time. The Proponent does not feel that additional mitigation measures are needed for this component.</p>						
CEAA 21	HC-IR-27	5(1)(a)(i) Fish and Fish Habitat	6.3.5 6.3.1 6.3.2	Appendix F-1 - AECOM Noise and	<p>The equation presented to calculate day-night sound level (L_{dn}) appears to be incorrect. Instead of 90 in the equation, it should be 9 to represent 9 hours of night-time in the calculation of day-night sound levels.</p>	<ul style="list-style-type: none"> • Confirm that the correct equation and values were used to calculate L_{dn} (e.g. that 9 was used instead of 90 when calculating the actual L_{dn} values). If incorrect values were

IR No	Dept No	Effects Link to CEAA 2012	Link to EIS guidelines	EIS Reference	Context and Rationale	Specific Question/ Request for Information
		5(1)(a)(iii) Migratory Birds 5(1)(b) Federal Lands /Transboundary 5(1)(c)(i) Aboriginal Peoples Health/ socio-economic conditions		Vibration Report, page 4		used, re-calculate L_{dn} and update the analysis and significance predictions, as appropriate.
<p>HML Answer</p> <p>This should read as 9. Calculations were based off of the 9-hour night time. The correct equation was used and no recalculation or revised analysis are needed.</p>						
CEAA 22	HC-IR-28	5(1)(a)(i) Fish and Fish Habitat 5(1)(a)(iii) Migratory Birds 5(1)(b) Federal Lands /Transboundary	6.3.5 6.3.1 6.3.2	Appendix F-1 - AECOM Noise and Vibration Report Section 4.1.4	The report recommends that additional mitigation measures be implemented in the event of public complaints about drill noise.	<ul style="list-style-type: none"> Explain the specific circumstances under which the proponent commits to implementing additional mitigation measures relating to drill noise complaints. <ul style="list-style-type: none"> Would actions depend on the number of complaints or based on receiving any complaint? Would actions implemented as a result of a complaint be permanent or temporary in nature? What actions will be taken so that the public and Indigenous groups will know where and how raise concerns? Will complaints be documented?

IR No	Dept No	Effects Link to CEAA 2012	Link to EIS guidelines	EIS Reference	Context and Rationale	Specific Question/ Request for Information
		5(1)(c)(i) Aboriginal Peoples Health/ socio-economic conditions				<ul style="list-style-type: none"> Describe the additional mitigation measures and the anticipated reduction in environmental effects.
<p>HML Answer</p> <p>Environmental impacts of drilling noise are not very common in the sparsely populated sub-arctic region. The nearest residential community from the Project is the TSMC Camp and there have been no complaints from the residents from such operations in the other nearby TSMC mines. Other residents are located at over 20 km from the site (at Schefferville and Kawawachikamach) activities and the impact of noise due to pneumatic drills at such distances is unlikely. TSMC has formal meetings with the community representatives at regular intervals and should such concern be raised by them, the matter will be investigated. If the investigation reveals that the noise levels exceed the threshold, mitigation measures will be taken so as to contain the noise level exposure below the limits. Measures include reducing the impact frequency when drilling at collar levels, use of mufflers to reduce the sound of exhaust.</p> <p>The reference level used is a conservative reference value which would over predict the noise impact from the rock drill. Actual equipment will likely be quieter. Should complaints be received by the Proponent via its agents and its HSE Committee, directly or via Council members, and will be dealt with on a case-by-case basis and according to what is feasible within a mine operation regime. These will be documented.</p>						
CEAA 23	HC-IR-29	5(1)(a)(i) Fish and Fish Habitat 5(1)(a)(iii) Migratory Birds 5(1)(b) Federal Lands /Transboundary 5(1)(c)(i) Aboriginal	6.3.5 6.3.1 6.3.2	Appendix F-1 - AECOM Noise and Vibration Report	With respect to construction noise, additional construction noise mitigation measures, such as those presented in the Department of Environment & Climate Change, New South Wales. July 2009. Interim Construction Noise Guideline, available at: http://www.epa.nsw.gov.au/resources/noise/09265cng.pdf , may also be appropriate to reduce noise levels to acceptable levels.	<ul style="list-style-type: none"> Review the New South Wales document and state whether any specific measures would be implemented to reduce noise levels and how they would contribute in mitigating noise levels.

IR No	Dept No	Effects Link to CEAA 2012	Link to EIS guidelines	EIS Reference	Context and Rationale	Specific Question/ Request for Information
		Peoples Health/ socio-economic conditions				
<p>HML Answer</p> <p>The construction phase of the project will have lower noise impacts than the assessed operational phase of the project due to the quantity of equipment and activities. The assessed operational phase is projected to have a noise impact below the applicable criteria at all locations except for one, the Naskapi – Uashat People’s camp. This location just exceeds the noise impact criteria due to the rock drill noise (over predicted, see response to comment 22) and the First Nation’s crusher (owned and operated by the local First Nations – Naskapi and Innu, and Uashat). As indicated in the EIS, although a First Nations Quarry was in the initial planning stages under the Howse Project, this activity is currently no longer considered, and that for the foreseeable future. However, the First Nations Quarry was included as a noise source in the Noise and Vibration Modelling Report. We proposed that this scenario is a 'worse-case' scenario and will continue to be evaluated for its effects on the present component. Mitigation measures are not justified at this time.</p> <p>From a community perspective, as mentioned throughout the EIS, all complaints will be received by the Proponent via its agents and its HSE Committee, directly or via Council members, and will be dealt with on a case-by-case basis and according to what is feasible within a mine operation regime. These will be documented.</p>						
Accidents/Effects of the Environment						
CEAA 24	ECCC-IR-11	5(1)(a)(i) Fish and Fish Habitat	6.2.2. 6.3.1	Appendix IV - Technical Note, Water Management Plan- Conceptual Engineering for Howse Water Management Plan. Section 7.	<p>Infrastructure Design Criteria: Water management infrastructure is reported to be sized for a design flood with a return period of 100 years for the conveyance capacity of ditches (Section 7.1.2), but of 25 years for the treatment capacity of sedimentation ponds (Section 7.3.2). The <i>2009 Environmental Code of Practice for Metal Mines</i> (the Code) recommends that surface drainage facilities be designed to handle peak conditions at least equivalent to a 100-year flood event (refer to Code R304).</p> <p>Environment and Climate Change Canada understands that the proposed design would allow for the removal of sediments in mine-drainage water for runoff events with return periods of up to 25</p>	<ul style="list-style-type: none"> Confirm that surface drainage facilities would be designed to handle peak conditions equivalent to at least a 100-year flood event. <ul style="list-style-type: none"> If not, how would the effects from exceeding the capacity of the facilities during peak conditions be mitigated?

IR No	Dept No	Effects Link to CEAA 2012	Link to EIS guidelines	EIS Reference	Context and Rationale	Specific Question/ Request for Information
					years, and that part of the runoff generated by larger events would exit via the spillway without any treatment.	
<p>HML Answer</p> <p>The surface drainage facilities have been designed to handle peak conditions equivalent to a 25-year flood event. This is in compliance with provincial regulations. Section 7.4.9.3 states that:</p> <p>Even though it is not a mitigation measure in the sense that it is considered as part of the project, the WMP developed to minimize the effects of the Project and described in detail in Section Erreur ! Source du renvoi introuvable.5 mitigates many of the effects expected on aquatic fauna through water contamination. Here are the highlights of the mitigation of effects on aquatic fauna derived from this WMP. First, a peripheral ditch network will intercept all runoff before it reaches the water bodies. The runoff will be redirected to sedimentation ponds where most of the TSS will settle before reaching the environment. Moreover, the sedimentation ponds will reduce the frequency of effluent discharge, as suggested by data from DSO3 showing that effluent discharge usually only occurs for a few weeks in May (spring thaw) and that the water either infiltrate or evaporates in the sedimentation pond the rest of the year. This will greatly lower the potential effect of TSS on fish, since only extreme weather events and high dewatering periods will produce enough water for the sedimentation ponds to overflow, lowering the probability of effects on aquatic fauna. Indeed, it has been shown that TSS concentration alone is a relatively poor indicator of TSS effects ($r^2 = 0.14$), while the product of concentration and duration of exposure is a better indicator ($r^2 = 0.64$) (Newcombe and Macdonald, 1991). Also, an effort was made to divide effluent discharges between Burnetta and Goodream Creek in a way that minimizes flow modifications in fish habitats (maximum of 25% increase of the natural flood in Goodream Creek).</p> <p>The Proponent would like to note that this Information Request is very similar to CEAA 6 (Part 1), which ECCC has since withdrawn. Answer to CEAA6 (Part 1): <i>Following a meeting between Brigitte Thomas, Climate Change expert, and the Proponent in Ottawa on June 27 2016, this request was removed from consideration.</i></p>						
CEAA 25	CEAA	5(1)(a)(i) Fish and Fish Habitat 5(1)(a)(iii) Migratory Birds, 5(1)(b) Federal Lands / Transboundary 5(1)(c)(i) Aboriginal	6.2.1 6.6.1	6.5.4.1 and 6.5.4.2	<p>The EIS states that “the worse-case scenario for explosives is considered to be the detonation of a full Operation phase explosives magazine”. Then, in 6.5.4.2, it states that “an unplanned explosion is not expected to emit more elements into the air than a planned explosion. As such, it is expected to have the same adverse environmental effects as for a planned explosion...” On its face, the assertion that the effects of the explosives magazine blowing up would be no different than a planned blast does not seem credible, if that is in fact what is being claimed.</p> <p>6.5.4.2 further states, with regard to possible adverse effects of vibrations on fish and fish egg mortality, that “unplanned explosion</p>	<ul style="list-style-type: none"> Clarify whether or not the explosions discussed in 6.5.4.2 is, in fact, the full magazine as discussed in 6.5.4.1. <ul style="list-style-type: none"> If not, please provide additional information, such as quantities of explosives (planned vs whole magazine) and estimates of the fly-rock radius and emissions, to substantiate the statement that "an unplanned explosion is not expected to emit more elements into the air than a planned explosion." Revise the analysis and effects assessment, as appropriate. Provide information and rationale as whether an explosion of the full magazine would cause more energy to be transmitted

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		Peoples Health / socio-economic conditions			is not expected to cause adverse effects on fish since it is not expected to occur outside of the pit.”	to fish-bearing waters through the ground than a planned explosion. <ul style="list-style-type: none"> • Update the assessment of associated effects, proposed mitigation measures, and determination of significance, as appropriate.
<p>HML Answer</p> <p>The Proponent wishes to clarify that an explosion of the full magazine is impossible, since the materials needed to create the explosion will be stored at different locations. The explosives proposed to be used for blasting at Howse is Bulk Emulsion Explosives which is primarily a mixture of Ammonium Nitrate and Fuel Oil. The ingredients of the Slurry are not explosives in themselves, for e.g., Ammonium Nitrate is not an explosive by itself. It becomes an explosive only when mixed with Fuel Oil which is done when loaded into the blast holes. Magazine will essentially store low-powered explosive accessories and detonators, which cannot cause widespread explosions. As such, an explosion can only occur once the detonator is added to the remaining products, which will only happen inside the pit. Such an explosion, whether it be planned or unplanned, would cause the same amount of energy to be emitted (since a pre-measure amount of explosives would be placed in the pit, which would follow regulations and the Proponent’s commitments) and as such <i>‘an unplanned explosion is not expected to emit more elements into the air than a planned explosion. As such, it is expected to have the same adverse environmental effects as for a planned explosion...’</i></p> <p>The explosive charge in the magazine at any instant is therefore much less than the explosive charge in the holes when undertaking a blasting operation. Therefore, an unplanned explosion is not expected to emit more elements into the air than a planned explosion. At most, it is expected to have the same adverse environmental effects as for a planned explosion. It may be further noted that the entire blasting operation is proposed to be outsourced and even the ingredients of the explosives outside the Howse property and delivered to the site on as-needed basis. The blasting accessories including detonators will also be stored in a magazine outside the Howse property.</p> <p>The amount of explosives transported to the site will always be controlled and will always follow regulations. As such, even in the event of an unplanned explosion, the amount of energy transmitted to fish-bearing waters, as calculated by the amount of explosives, will be similar to that under a controlled blast.</p>						
CEAA 26	CEAA	5(1)(a)(i) Fish and Fish Habitat 5(1)(a)(iii) Migratory Birds, 5(1)(c)(i) Aboriginal Peoples	6.6.1	6.5.7.1.2 and 6.5.7.3.2.	Both sections 6.5.7.1.2 and 6.5.7.3.2 refer to section 6-14 (presumably meaning page 6-14) to see discussion of effects of road accidents on valued components, However, there is almost no discussion of the topic on page 6-14.	<ul style="list-style-type: none"> • Provide an analysis of the effects of road accidents on valued components, including spills, collisions with wildlife, air quality, and collisions with other vehicles. • Propose mitigation measures and predict the significance of road accidents, as appropriate.

IR No	Dept No	Effects Link to CEEA 2012	Link to EIS guidelines	EIS Reference	Context and Rationale	Specific Question/ Request for Information
		Health / socio-economic conditions				
HML Answer						
This should refer to Section 6.5.2 Road Accidents (Section 6.5.2.2.1 Effects on VCs) which begins on page 6-14.						
Alternatives						
CEAA 27	HC-IR-23 IN-IR-4d	5(1)(b) Transboundary 5(1)(c)(i) Aboriginal Peoples' Health/socio-economic conditions	6.2.1 6.3.5 6.3.4	Appendix E-1 - Air Dispersion Modelling Report Section 3.4 and EIS - Section 2.5	<p>The conclusion Appendix E-1 indicates that to reduce air contamination at the worker camp, one solution would be to find an alternative to the presence of diesel generators. No more information was provided about the alternatives that may be considered and the effectiveness of these alternatives in reducing air impacts at the worker camp.</p> <p>Section 2.5 of the EIS states that "<i>there are no technically feasible alternatives to the following Activities... power supply</i>". Thus, it is unclear how an alternative to diesel generators would be identified given that the proponent indicates that there is no alternative to diesel generators for supplying power to the project site.</p> <p>Innu Nation raised that the EIS did not demonstrate why it is necessary or desirable from a technical or economic perspective to operate the proposed Project (and the DSO complex) exclusively with diesel power. Innu Nation noted that supplementing diesel power with lower emitting alternatives (e.g. wind) is not uncommon practice for remote mines in Canada. Examples include the Raglan Mine, and the Diavik Diamond Mine.</p>	<ul style="list-style-type: none"> • Provide information and rationale on whether or not technically and economically feasible alternative power sources are being considered in order to reduce air contaminant emissions. • If there are technically and economically feasible alternative power sources (including supplemental power sources), evaluate the environmental impacts of the alternative on valued components, in particular with respect to air quality and human health and greenhouse gases.

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<p>HML Answer</p> <p>The Proponent has considered using an extension of the existing power grid to power the Howse site. An assessment of the two alternatives is as follows:</p> <p>Power Supply Type</p> <p>The proponent requires a power supply for the operations of its numerous machinery (crusher, dryer, lighting and worker’s camp). The overriding factor in the decision to proceed with Alternative 1 is that Nalcor could not provide the Proponent with sufficient power to meet the energy needs of the Howse Project. Thus, under this scenario, the Proponent would extend the existing power grid and in addition, would need to use a generator to do the work. As such, the Proponent has chosen to proceed with Alternative 1, which also reduces the amount of artificial light generated by the Howse Project, and focuses the light on specific areas, to the benefit of species at risk (namely avifauna and caribou, as discussed in Sections 7.4.3 and 7.4.8).</p> <p>Alternatives Considered</p> <p>Alternative 1: Use of a generator at Howse. Alternative 2: Extension of power grid to Howse.</p> <p>Effects on VCs</p> <p>Alternative 1: May have negative effects on air quality (GHG emissions), avifauna and caribou. Alternative 2: May have a negative effect on air quality, avifauna and caribou.</p> <p>Rationale for Best Alternative Selection</p> <p>The selected Alternative is 1</p> <p><u>Economics</u>: Alternative 2 has higher financial and logistical costs because it will require that the Proponent bring materials to the site, to extend the existing power grid. <u>Environmental</u>: Both Alternatives have similar effects on the biophysical environment, however Alternative 1 will generate local air emissions. Based on modelling scenarios specific for the Howse Project, an estimated ‘worse case’ modelling exercise yields predicted emissions of 19,005,247 litres per year. Light disturbance is expected to be less with Alternative 1, as it is a localized light source. Since light disturbance effects have adverse impacts on caribou and avifauna, Alternative 2 has more effects on those VCs. <u>Logistics</u>: Alternative 2 would not provide the mobile light that is necessary for the project. Moreover, it could not be selected as Nacor Energy could not provide the Howse Project with sufficient power supply to meet the Proponent’s needs. <u>Aboriginal</u>: Since Alternative 2 will have more adverse effects on two biological VCs (caribou and avifauna), both of which are used by Aboriginal people as part of the traditional land use practices, Alternative 2 is therefore considered as having more effects on the Aboriginal communities, relative Alternative 1.</p> <p>The Proponent may eventually look into connecting the Howse plant to the DSO power system to reduce the number of generators.</p>						

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CEAA 28	CEAA	5(1)(a)(i) Fish and Fish Habitat 5(1)(a)(iii) Migratory Birds 5(1)(c)(iii) Current Use of Lands and Resources for traditional purposes	2.2	Section 2.5.7, page 2-18	Additional information is required to support and substantiate statements related to the two possible routes for trucks that would carry explosives to the project site from the DSO3 site.	<ul style="list-style-type: none"> • Comment on whether there are any potential environmental effects in addition to effects on air quality from the transport of explosives, such as those from accidents (e.g. leaks). If so, include these in the assessment of environmental effects from accidents and malfunctions, including identifying how these effects would be mitigated. • Explain the connection of how the rate of accidents along route E1 or E2 could impact Indigenous groups and how the reduction of that rate would reduce effects on Indigenous groups (as noted in the EIS). Clarify if these impacts are connected to effects on indigenous health, current use of the lands for traditional purposes, or other effects under CEAA 2012. If so, include these effects as part of the assessment of accidents and malfunctions and other applicable valued components, including identifying how these effects would be mitigated.
<p>HML Answer</p> <p>Section 6.5.4 of the EIS discussion the environmental effects of accidents and malfunctions from explosives, including leaks.</p> <p>The difference between the two alternatives proposed is minimal (approximately 1 km). Because of this additional length of travel, the Proponent stated in the EIS that accidents are more likely and additional effects on air quality can be inferred, but these are entirely negligible (considering that it is only 1 km and that blasting activities will be minimal compared to over trucking activities in the Project). No additional effects are expected from these 2 alternatives.</p>						
CEAA 29	IN-IR-5d	5(1)(a)(iii) Migratory Birds, 5(1)(a)(i) Fish and Fish Habitat	6.2.3	2.5.2	In the proponent's response to Innu Nation it was stated that an optimized Project design already greatly reduces the Project footprint within wetlands by avoidance, particularly areas at lower elevation, where most wetlands are located. Other potential waste dump locations were not retained by the proponent because of their much greater distance from the Howse pit. Beside obvious economic	<ul style="list-style-type: none"> • Comment on the new information raised by Innu Nation and provide additional analysis of the environmental costs and benefits of alternative waste rock disposal sites.

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		5(1)(c)(iii) Current Use of Lands and Resources for traditional purposes			<p>reasons not to retain waste dump sites located further away also came into consideration environmental reasons such as increase of diesel consumption by heavy machinery (greenhouse gas emission, air quality decrease, noise increase) and increase of dust emission from haul road (air quality decrease). The Timmins 4 open pit would not be considered for waste disposal because it is habitat for the bank swallow.</p> <p>The Innu Nation advised that the Timmins 4 pit is located directly adjacent to the proposed waste rock stockpile in Figure 2-1. The suggestion that this location is “located further away” appears to have little merit, and disposal in the existing pit would also lower long-term maintenance and rehabilitation costs. The wetland overlain by the proposed waste rock stockpile (i.e. wetland 10) would likely provide far more valuable habitat for a wide variety of species than any habitat recently provided to bank swallows by the Timmins 4 pit.</p>	
<p>HML Answer</p> <p>The Proponent would like to clarify that the following statement is not correct: <i>‘Other potential waste dump locations were not retained by the proponent because of their much greater distance from the Howse pit.’</i> Rather the Proponent states in Section 2.5.4 of the EIS: <i>The final Alternative is Alternative 2, because it has fewer adverse effects on the environment.</i></p> <p>The Proponent considered three waste dump locations in the Howse EIS and focused on removing any footprint off of the Pinette Lake Watershed (which it did) and reducing the footprint (which it does, due to the location/configuration of the dump). Further the Proponent’s choice of a Mixed Conventional and In-Pit method of mining also reduces the overall waste dump footprint.</p> <p>The Timmins 4 pits only have a combined volume of 1,328,000 cubic meters, while the planned overburden and waste dumps have a volume of 31,949,000 m³. If the Timmins 4 pits prove not to be a habitat for any protected wildlife they will be filled in as part of the rehabilitation of those deposits. However, this amount of material will have no effect on the footprint of the planned dumps in order to avoid disturbing wetland 10. An option to place one of the dumps over the Timmins 4 pits was considered, however due to the Timmins 4’s close proximity to the Pinette lake water shed putting a waste dump here presented an increased risk that could compromise the protection of Pinette lake. In order to ensure that there will be no negative impact on Pinette lake these designs were abandoned. The Proponent expects that these pits will be filled in at one point as a reclamation measure for those deposits, there is no plan for waste dump in that location due to the proximity to the Pinette lake watershed.</p>						

IR No	Dept No	Effects Link to CEAA 2012	Link to EIS guidelines	EIS Reference	Context and Rationale	Specific Question/ Request for Information
CEAA 30	IN-IR-7	5(1)(c)(iii) Current Use of Lands and Resources for traditional purposes 5(1)(c)(i) Aboriginal Peoples Health/ Alternative means	2.2	2.5.8, 2.5, figure 2.2	Section 2.5.8 of the EIS indicates that the proponent would not blast in winter. Section 2.5 and Figure 2.2 appear to suggest that a dryer is essential to the project for the purpose of drying ore in winter.	<ul style="list-style-type: none"> Clarify whether blasting and shipping would occur in winter, whether a dryer is required, and if there are additional environmental effects associated with winter operations. Describe the mitigation for addressing any additional environmental effects.
<p>HML Answer</p> <p>Blasting at the Howse Property will occur approximately once per week during summer and infrequently during winter (the Proponent will blast infrequently in winter, and only if frozen ground or hard rock are encountered during winter overburden removal). Because of the severe weather conditions in winter, ore cannot be transported by train to Pointe-Noire unless it is dried, since undried ore will freeze in the rail cars and will be impossible to unload.</p>						
CEAA 31	CEAA	5(1)(a)(i) Fish and Fish Habitat 5(1)(c)(iii) Current Use of Lands and Resources for traditional purposes	2.2	2.5.3, page 2-13 Chapter 7	<p>Where the proponent has not made final decisions concerning the placement of project infrastructure, the technologies to be used, or that several options may exist for various project components, it should conduct an environmental effects analysis at the same level of detail for the various options under consideration.</p> <p>Because the proponent has not identified a preferred bypass road alternative, the effects of each road alternative require an assessment. As it stands, the information in the EIS does not meet this requirement. For example, the analysis of effects on wetlands (in the EIS) omits consideration of clearing required for road alternative 2.</p>	<ul style="list-style-type: none"> Describe the environmental effects of the construction, operation and maintenance of each bypass road alternative in relation to valued components. This analysis should include consideration of associated noise, light, and air emissions; extent and type of habitat lost; and associated impacts on species (e.g. migratory birds, species used by Indigenous peoples). In addition, the assessment must consider potential effects on Indigenous peoples (e.g. effects on archeological sites from road clearing). Explain whether assessment of the bypass road alternatives affects the delineation of study areas.

IR No	Dept No	Effects Link to CEEA 2012	Link to EIS guidelines	EIS Reference	Context and Rationale	Specific Question/ Request for Information
		5(1)(a)(iii) Migratory Birds				<ul style="list-style-type: none"> Describe proposed mitigation measures in relation to potential effects of road alternatives. Update determinations of the significance of associated effects, as appropriate.
<p>HML Answer</p> <p>The Proponent has chosen to remove Alternative 2 from consideration. The bypass road will therefore follow the description of Alternative 1.</p>						
CEAA 32	CEAA	5(1)(a)(i) Fish and Fish Habitat	2.2	Section 2.5.6, page 2-18	The EIS is missing an assessment of effects of coagulant.	<ul style="list-style-type: none"> Explain under what conditions the proponent would use chemical treatment for total suspended solids, and under what conditions such treatment would be stopped? Assess the environmental effects of using coagulant.
<p>HML Answer</p> <p>Please refer to Sections 2.5.6 and 3.2.5.3 of the EIS. The Proponent will not, a priori, use coagulant. If necessary, the Proponent may use aluminum sulfate, iron salts or lime. The treatment chemicals will help destabilize the fine particles and help them co-precipitate out with the floc formed by the addition of a coagulant. Alternatively, an organic polyamide cationic flocculant could also be used to destabilize the fine iron oxide particles. An anionic flocculant could be added to enhance the settling rate of the coagulated particles if required.</p> <p>If the Proponent chooses to use coagulant, the type of coagulant will need to be decided and then an effects analysis could be conducted.</p>						
CEAA 33	CEAA	5(1)(b) Federal Lands /Transboundary (GHGs) 5(1)(c)(i) Aboriginal Peoples Health/	2.2	Appendix VI, Standard Mitigation Measures, Table 1.1	TM16 indicates the proponent would determine the most suitable method of disposing of logging and commercial wood waste (e.g. in swaths, chipping, burning, elimination at an authorized disposal site). To understand the effects of each of the wood waste disposal options on the environment, the options need to be evaluated and considered in the Alternatives assessment.	<ul style="list-style-type: none"> Present an analysis of the environmental effects, and any associated mitigation measures, of wood waste disposal alternatives as part of the alternatives assessment. Indicate which alternative is preferred and provide the associated rationale.

IR No	Dept No	Effects Link to CEEA 2012	Link to EIS guidelines	EIS Reference	Context and Rationale	Specific Question/ Request for Information
		Alternative means				
<p>HML Answer</p> <p>Alternatives considered Of the alternatives proposed under TM16, the Proponent is presently in the preliminary stages of considering three activities:</p> <p><u>Alternative 1:</u> Donating boards to the local Aboriginal communities: Under this Alternative, the Proponent will donate any wood boards that are available to local communities. The Proponent will cut the wood in pieces to facilitate transportation by local peoples, and placed at the gate. Locals will be able to collect the wood as-is, on a first-come first-serve basis</p> <p><u>Alternative 2:</u> Using material for fire drills: Under this Alternative the proponent will use the wood from logging and commercial wood for its fire drills.</p> <p><u>Alternative 3:</u> Used to manage landfills. When an active landfill cell needs to be closed, the Proponent will use the wood by placing it on top of the land fill and compact it as a closing/restoration method.</p> <p>Effects on VCs Neither Alternative will affect the biophysical or socioeconomic VCs.</p> <p>Rationale for best alternative selection</p> <p><u>Economics:</u> Alternatives 1 and 3 are more expensive for the Proponent as they require that the wood be manipulated (e.g. cut) to be used. Further, under Alternative 1, the wood would also have to be transported to the gate for easy and safe access. The least expensive option would be to use it for fire drills.</p> <p><u>Environmental:</u> The most desirable Alternative from an environmental perspective is to use it for Alternative 3. The second best is for Aboriginal peoples use and last, for fire drills.</p> <p><u>Logistics:</u> The easiest Alternative for the Proponent is 2. The wood would simply be burnt on-site (where logistically-reasonable). Alternative 3 is the second-easiest from the Proponent’s perspective, and the most complicated is Alternative 1, since the wood would have to be cut to size and transported to the gate.</p> <p><u>Aboriginal:</u> Alternative 1 may be preferred by Aboriginal communities. However, some locals have expressed to the Proponent that they would like the boards to be treated and ‘cut-to-size’ by the Proponent prior to being donated. The Proponent has no plans to treat the wood prior to donating it. It will therefore be at the local communities’ discretion whether tis donation is acceptable.</p>						
Indigenous - Impacts on Health						

IR No	Dept No	Effects Link to CEAA 2012	Link to EIS guidelines	EIS Reference	Context and Rationale	Specific Question/ Request for Information
CEAA 34	HC-IR-19	5(1)(b) Transboundary 5(1)(c)(i) Aboriginal Peoples' Health/socio-economic conditions	6.2.1 6.3.5 6.3.4	Appendix E-1- Air Dispersion Modelling Report Figure 2.2 and Section 2.4.1.3	According to Figure 2.2 and Section 2.4.1.3, emissions (vehicle engine and road dust) from personnel vehicles were evaluated only at the Project site (which includes the Howse deposit, DSO3, and ore being hauled from DSO4 to the Main Plant). No personnel or other Project-related vehicle emissions were evaluated for commuting on other roads outside of this perimeter. For example, project-related vehicles driving through the nearby communities such as Schefferville and Matimekush-Lac John were not considered in the air quality evaluation. Given the public concern associated with dust generated by mining in communities (e.g. by vehicles transporting iron-ore dust), it is important to assess this potential effect.	<ul style="list-style-type: none"> Conduct an assessment of the effects of Project-related emissions on human receptors, outside of the Project area. This assessment must include consideration of: the transportation of Project iron-ore dust to off-site locations, including Schefferville and Matimekush-Lac John; dust generated from unpaved roads; and vehicle-related emissions. Update the effects assessment, proposed mitigation measures and determination of significance, as appropriate.
<p>HML Answer</p> <p>See answer to CEAA 14.</p> <p>HML is currently working on a number of alternatives to mitigate dust on the communities. First, the air quality monitoring plan will be adaptive to dust mitigation. In addition, during the operations phase, the traffic from the Howse mine site going into town will be limited to a few vehicles per day: HML's CEO has issued instructions that all vehicles leaving the DSO project site need an authorization. Under the normal procedures, only environment personnel and store / administration personnel are authorized to circulate outside of DSO project area. HML is currently working on securing a wash bay for access to all vehicles travelling into town, but this arrangement is not finalized yet.</p>						
CEAA 35	HC-IR-1	5(1)(b) Transboundary 5(1)(c)(i) Aboriginal Peoples' Health/socio-economic conditions	6.2.1 6.3.5 6.3.4	Appendix D-1 – HHRA – Section 2.5.1 and Section 2.5.3	<p>Section 2.5.1 presents the substances that were screened in as potential contaminants of concern (PCOCs). Ten metals were screened in. No criteria air contaminants, such as NO₂, SO₂, or fine particulate matter were identified as having been screened in. However, in Section 2.5.3, for inhalation exposure, PM₁₀ is identified as being evaluated.</p> <p>NO₂ is an acute respiratory irritant and scientific studies have found no evidence for a threshold for population-level health effects</p>	<ul style="list-style-type: none"> Explain why no criteria air contaminants (CACs) other than PM₁₀ (such as NO₂, SO₂ and PM_{2.5}) were screened in and evaluated in the HHRA, given that some of them are acute respiratory irritants, have no threshold (e.g. NO₂ and PM_{2.5}), and were identified as exceeding regulatory criteria in the Air Dispersion Modelling Report (Appendix E-1), and as such, even short-term (acute) exposure can result in adverse health effects. In relation to the selection of air quality standards/objectives, Review <i>Health Canada, 2016</i>, and any other relevant

IR No	Dept No	Effects Link to CEEA 2012	Link to EIS guidelines	EIS Reference	Context and Rationale	Specific Question/ Request for Information
					<p>associated with NO₂ exposure (meaning that health effects may occur at any level of exposure).</p> <p>Fine particulate matter is also considered to have no threshold. The International Agency on Cancer Research (IARC, 2013) has recently classified particulate matter as being carcinogenic to humans (Group 1).</p> <p>Health Canada (2016) has recently released a human health risk assessment (HHRA) for SO₂ which presents a proposed 10 minute reference concentration of 67 parts per billion (or 175 µg/m³) in air which is expected to be protective of human health.</p> <p>References:</p> <p>1. International Agency for Research on Cancer (IARC). 2013. IARC: Outdoor air pollution a leading environmental cause of cancer deaths. Press Release No. 221, dated October 17. http://www.iarc.fr/en/media-centre/pr/2013/pdfs/pr221_E.pdf</p> <p>2. Health Canada. 2016. Human Health Risk Assessment for Sulphur Dioxide (CAS RN: 7446-09-5). Analysis of Ambient Exposure to and Health Effects of Sulphur Dioxide in the Canadian Population. Water and Air Quality Bureau, Safe Environment Directorate, Healthy Environments and Consumer Safety Branch, Health Canada. January.</p>	<p>literature sources, to compare to current and predicted future contaminant concentrations, revise the analysis with respect to air quality standards/ objectives, as applicable.</p> <ul style="list-style-type: none"> • Evaluate potential health effects in the HHRA of any substances exceeding applicable criteria. Present results in association with analysis, mitigation measures and conclusions. • With respect to effects on the health of Indigenous Peoples, describe how the existing health of the population was considered as part of the analysis. For example, if there are increased rates of respiratory problems, or other health issues, than general population they may be more susceptible to effects from the Project or from cumulative effects. How was this vulnerability considered with respect to air quality? If this was not addressed as part of the analysis, indicate what additional effects may be present that were previously unaccounted for, if any, and what is the approach to manage these effects.
<p>HML Answer</p> <p>A discussion between the Proponent and Health Canada was held on July 14 2016 and the following was discussed:</p> <p>With respect items 1-3:</p> <ul style="list-style-type: none"> ▪ Organic air contaminants (acrolein, benzene, formaldehyde, acetaldehyde, and 1,3-butadiene) were initially scrutinized as air quality substances of interest as directed by CEEA during the formative stages of the HHRA. However, the air quality modelling results indicated these substances would not exceed air quality criteria and were therefore not considered further in the risk analysis; 						

IR No	Dept No	Effects Link to CEEA 2012	Link to EIS guidelines	EIS Reference	Context and Rationale	Specific Question/ Request for Information
<ul style="list-style-type: none"> ■ PM10 was considered in the context of a carrier of metals to ascertain the relevance of respirable metals via dust inhalation; ■ No CAC exceedances of long term criteria were predicted (Air Dispersion Modelling report; Appendix E-1); ■ PM2.5, NO2 and SO2 were not considered in the risk analysis of short duration exceedances because of the rarity of such air quality events, as reported in the Air Dispersion Modelling report (Appendix E-1). During the course of the 5-year modelled window, daily (24hr) predicted PM2.5 (during the blasting scenario) marginally exceeded the criterion in QC and NL 0.27% and 0.05% of the time, respectively, and in no cases involved a sensitive receptor location. Similarly, in the case of SO2, exceedance of the 1hr criterion was predicted <1.19% of the time in QC (no involvement of a sensitive receptor), and never in NL (see Appendix E-1, Table 3-3). In the case of NO2, periodic exceedances were predicted at sensitive receptor locations (see Appendix E-1, Table 3-2), however in all cases these occurred <1% of the time and in some case <0.1% of the time. ■ There are two important underlying contexts to these above exceedances which infer that the frequency of exceedance, and the odds of receptor exposure are further diminished: <ul style="list-style-type: none"> ○ In order for the air quality model to sample worse case meteorological conditions from within the 5yr meteorological data set, the model simulated daily blasting (i.e, 365d/year), when in fact, mine operations plans will blast 1/week in the summer and 1/month in the winter. Accordingly, this low rate frequency of exceedances are in fact a substantial over prediction which provided further weight in the risk analysis decision to not assess these rare 1hr exceedances; ○ In the context of receptor considerations and rare occurrences of “off-property” exceedances, it is not clear if a receptor would be present. For a rare exceedance event at a sensitive receptor site, the sites in question are camps with periodic usage. It is possible that a rare 1hr exceedance event and a receptor could co-occur, however this would also require the occurrence of rare and unfavorable meteorological conditions. While this is scenario is plausible, the combination of infrequent short lived air exceedance and infrequent presence of sensitive receptor supported the rationale that the CACs were not warranted for risk analysis. In contrast, PM10 as vehicle for respirable metals and TPM as a deposition vehicle of metals over time, were considered. ■ While the Proponent notes the 2013 guidance document (Human Health Risk Assessment for Short-Term Exposure to Carcinogens at Contaminated Sites) identified by Health Canada, it is believed that this guidance does not address the present situation where short duration (i.e., 1hr exceedances) may briefly occur, followed by a residual background (compliant) exposure the majority of the time. ■ Health Canada indicated during this meeting that new air quality standards were imminent but not yet released, and that monitoring and consideration of these air quality standards would be warranted in the future. <p>With respect item 4, TSMC explained that:</p> <ul style="list-style-type: none"> ■ Requests had been made to procure health status data from various local indigenous groups, but were unsuccessful. In subsequent follow up efforts with Medical Officer of Health (<i>Direction de la Santé Publique (Côte-Nord)</i>), no additional information on this sensitive subject was given to the Proponent. ■ On September 20 2016, the Direction de santé publique de la Côte-Nord confirmed with the Proponent that they do not have these data. 						
CEAA 36	HC-IR-4	5(1)(c)(i) Aboriginal Peoples Health/ socio-	6.3.4	Appendix D-1 – HHRA – Section 2.6.1.1	The report states that “ <i>Incremental Lifetime Cancer Risks (ILCR) were calculated assuming an exposure regime of 16 weeks per year at 90th percentile of blast (1 day per week) and no blast (6 days per week) annual daily maximum values for PM₁₀. The remaining 36 weeks were assumed to be at baseline dose rates. The time-weighted dose rate (16/52 + 36/52) is not amortized over the lifetime and an ILCR is</i>	<ul style="list-style-type: none"> ● Explain whether the assessment conservatively evaluated human health risks to substances with acute effects and for where no threshold exists (i.e. where any elevated exposure may result in adverse health effects). If the assessment is not adequately conservative, the HHRA should be re-evaluated for those specific substances.

IR No	Dept No	Effects Link to CEAA 2012	Link to EIS guidelines	EIS Reference	Context and Rationale	Specific Question/ Request for Information
		economic conditions 5(1)(c)(iii) Current Use of Lands and Resources for traditional purposes			<p><i>calculated (i.e. an individual is conservatively assumed to spend 16 weeks per year at the site for all 80 years of their life)".</i></p> <p>This approach may be applicable for substances that do not have acute health effects at the concentrations predicted. However, for substances that may have acute effects or for which no threshold exists, any elevated exposure may result in adverse health effects. Additional explanation about this approach to evaluating carcinogens is needed to determine whether the approach taken is conservative in the assessment of human health risks.</p> <p>Additional explanation about which substances were evaluated as carcinogens is needed.</p>	<ul style="list-style-type: none"> Provide additional explanation about how short-term exposure to carcinogens which have acute effects were evaluated. <p>Reference: International Agency for Research on Cancer (IARC). 2013. IARC: Outdoor air pollution a leading environmental cause of cancer deaths. Press Release No. 221, dated October 17. http://www.iarc.fr/en/media-centre/pr/2013/pdfs/pr221_E.pdf</p>
<p>HML Answer</p> <p>Elements of the response provided to the query CEAA 35 should also be considered in relation to the present query. The key consideration here is that substances with short term exceedances (1hr/24hr) were scrutinized carefully and the infrequent occurrence combined with the conservatism of these infrequent short term events and the continued background residual but compliant exposure (e.g. Modelled concentrations in air vs assessment criteria) supported the decision to not conduct a full quantitative risk assessment of these substances.</p> <p>In response to the third CEAA comment noted above (re clarification of the substance evaluated as carcinogens), the HHRA which is Appendix D-1 provides Table 2.4 to summarize the toxicity reference values that relate to those substances which were evaluated as carcinogens. In addition, the HHRA directs the reader to Appendix C of the HHRA for a synopsis of toxicological endpoints and toxicity reference values of the substances evaluated.</p>						
CEAA 37	HC-IR-22	5(1)(b) Transboundary 5(1)(c)(i) Aboriginal Peoples' Health/socio	6.2.1 6.3.5 6.3.4	Appendix E-1- Air Dispersion Modelling Report Table 3-1	<p>Table 3-1 presents receptor locations where applicable ambient air quality criteria may be exceeded for total suspended particulate, PM₁₀, NO₂. Below the table, the report states that <i>"at some grid receptors, the following averaging periods and air pollutants could exceed air quality assessment:</i></p> <ul style="list-style-type: none"> <i>"With blasts" scenario: 24-hr (TPM, PM₁₀, PM_{2.5}, NO₂), 1-hr (NO₂, SO₂, CO);</i> 	<ul style="list-style-type: none"> Provide a discussion about the location(s) and numbers of exceedances for PM_{2.5}, SO₂, and CO in order to determine whether adverse health effects may be possible at the predicted concentrations at the various grid receptor locations.

IR No	Dept No	Effects Link to CEEA 2012	Link to EIS guidelines	EIS Reference	Context and Rationale	Specific Question/ Request for Information
		-economic conditions			<ul style="list-style-type: none"> “Without Blasts” Scenario: 24-hr (TPM, PM₁₀, PM_{2.5}, NO₂), 1-hr (NO₂)” <p>Although PM_{2.5}, SO₂ and CO are mentioned in the text, the predicted concentrations were not presented in either Table 3-1 or in Table 3-2 which describes the frequency of exceedances at sensitive receptors.</p>	
<p>HML Answer</p> <p>Table 3-3 of the ADMR shows the Frequency of Exceedances at Maximum “Off-Property” Grid Receptors for the pollutants and averaging periods listed in CEEA’s question. The locations of maximum “Off-Property” Grid Receptors, under the “With Blasts” and “No Blasts” scenarios are shown on Figure 3.16 and Figure 3.17 respectively. The “Off-Property” Grid Receptors selected for the frequency of exceedances analysis are those at which maximum concentrations were predicted for each pollutant. At other grid receptors exceedances also occur, but the predicted concentrations of these exceedances are lower than that of the maximum grid receptors and were not retained for the frequency of exceedances analysis. This “Off-Property” grid receptors selection process was not clearly explained in Section 3.2 of the ADMR.</p> <p>Refer to the response to CEEA 35 for context on the low frequency of short term exceedances and relevance to risk analysis of grid receptors.</p>						
CEEA 38	HC-IR-32	5(1)(b) Transboundary 5(1)(c)(i) Aboriginal Peoples’ Health/socio-economic conditions	6.3.4	Appendix VI – Table 7.1 #CE15	CE15 states that for dust control, “the dust-control liquid used must comply with GNL regulations.” No additional information about the specific products that are being considered or the MSDS sheets associated with these products, including human toxicological information, was presented.	<ul style="list-style-type: none"> Provide chemical information, including specific product names, active ingredients and toxicity information (such as can be found on an MSDS sheet) about the products that are being considered for dust control. Confirm that the type of product to be used will respect relevant regulations. If chemicals were not included in the effects assessment, provide analysis to indicate potential human and environmental effects related to the use of the chemicals.
<p>HML Answer</p> <p>The Proponent is currently investigating several dust-control products: water, calcium, pulp and paper residues, and biological components. All of these are being considered for the cost-effectiveness and environmental effects.</p> <p>A preliminary analysis is provided here:</p>						

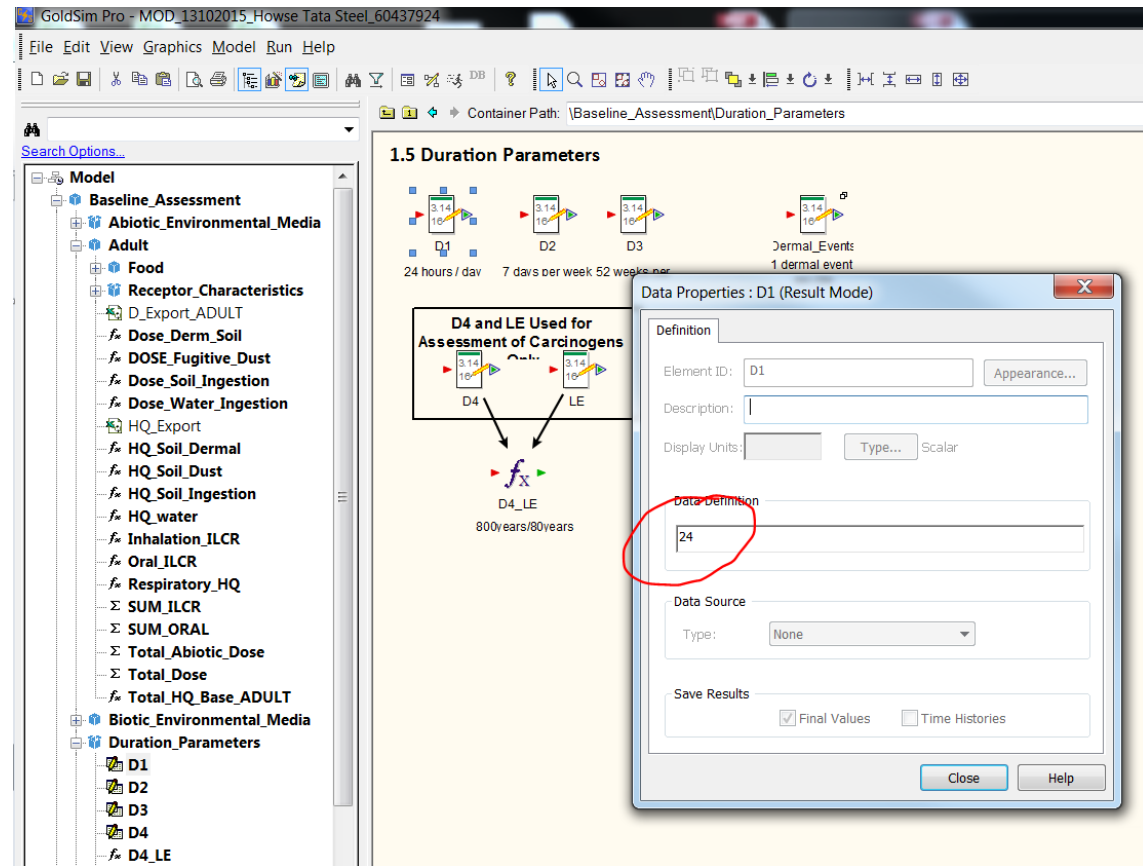
IR No	Dept No	Effects Link to CEAA 2012	Link to EIS guidelines	EIS Reference	Context and Rationale	Specific Question/ Request for Information
<p>Although water is considered a Best Practice for dust-control in the mining industry, it's efficiency is limited. Of course, water is readily available to the Proponent on site, and the Proponent is also investigating using water from pit dewatering but this water will only be available once dewatering commences at the Howse site, and water availability from this activity will be very limited for a number of years (see S3.2.5.2 of the Howse EIS). The main issue with other products are: storage, importation (due to remoteness of the site), logistics, costs of having product made and shipped, length of the area to be controlled for dust: site differences will necessitate different products. Currently, the cost of dust control for the period of 3-4 months is estimated at \$1 million annually.</p> <p>Calcium is a pollutant in itself. The Proponent has been testing the feasibility of applying market-approved microbial technology dust control for the last two years: http://cdn.abrizo.com/clients/7249/public/9c64710b-7012-4dd7-dd0e-8b2ae8211f7e/image/CF-earthalive-600x176p.jpg?1439492632380<">https://app.abrizo.com/click-tracking?ct=ygjJkR_gYWQPFpskK5XoB3kJUGYdjpTjFIXPGjkSqQOgzRFB4TfM-LV9Wwu8WEU_sGxeos20NZQ7akWjDQ2dA~~></p> <p>The Proponent is preparing a full report of these alternatives, and this will be provided to CEAA before the end of the year.</p>						
CEAA 39	HC-IR-2	5(1)(c)(i) Aboriginal Peoples Health/ socio-economic conditions 5(1)(c)(iii) Current Use of Lands and Resources for traditional purposes	6.3.4	Appendix D-1 – HHRA – Table 2.2	<p>Table 2.2 indicates that the selected human receptors would spend 1.5 hours/day outside. This is a value that is intended to represent the arithmetic mean for the general Canadian population (Richardson, 1997) and may not be representative of the amount of time local people spend outside. In particular, if people are hunting or collecting edible vegetation, it is likely they would spend more time outside than 1.5 hours in any given day.</p> <p>Reference: Richardson, M.G. 1997. Compendium of Canadian Human Exposure Factors for Risk Assessment. O'Connor Associates Environmental Inc. and G. Mark Richardson.</p>	<ul style="list-style-type: none"> Re-calculate exposure duration using a value that more accurately reflects actual time spent outside by local people who may be conducting recreational and/or subsistence hunting and gathering in the vicinity of the project. Update the analysis, mitigation measures and significance conclusions, as appropriate.
<p>HML Answer</p> <p>The proponent notes the indication in Table 2.2 that the receptor out-of-doors duration is represented as 1.5hr/day and wishes to clarify that this was, in fact, a typographical error (originating from a default value in the table), and the actual risk calculations conservatively assumed a 24hr exposure to outdoor concentrations of COPCs by human receptors. This is indicated by the following screen captures from AECOM's project-specific exposure model created in GoldSim software. By confirming the conservative nature of the outdoor inhalation exposure as 24hrs, it is assumed no further action is warranted. Further quantitative revisions due to other comments have been made and retained the outdoor duration as 24hrs.</p>						

IR No	Dept No	Effects Link to CEAA 2012	Link to EIS guidelines	EIS Reference	Context and Rationale	Specific Question/ Request for Information
<ul style="list-style-type: none"> ▪ Screen Image #1: Defines the dose from fugitive dust and indicates variable D! as the duration (hrs) per day for exposure; ▪ Screen Image #2: Defines the value of D1 as 24hrs. <p><u>Screen Image #1:</u></p>						

IR No	Dept No	Effects Link to CEEA 2012	Link to EIS guidelines	EIS Reference	Context and Rationale	Specific Question/ Request for Information
<p>The screenshot displays a software interface for defining an expression. The dialog box is titled "Expression Properties : DOSE_Fugitive_Dust (Result Mode)". It includes the following fields:</p> <ul style="list-style-type: none"> Element ID: DOSE_Fugitive_Dust Description: (empty) Display Units: mg/kg/day Type: Vector[PCOC] Equation: $(C_Particulate * IR_air * RAF_inhalation * (D1/24) * (D2/7) * (D3/52)) / BodyWeight$. The term $(D1/24)$ is circled in red. Save Results: <input checked="" type="checkbox"/> Final Values, <input type="checkbox"/> Time Histories <p>The background shows a complex flowchart with various variables and arrows, including labels like "receptor_characteristics", "inhalation_JLCF", and "DOSE_Fugitive_Dust".</p>						

Screen Image #2

IR No	Dept No	Effects Link to CEEA 2012	Link to EIS guidelines	EIS Reference	Context and Rationale	Specific Question/ Request for Information
<p>CEAA 40</p>	<p>HC-IR-3</p>	<p>5(1)(c)(i) Aboriginal Peoples Health/</p>	<p>6.3.4</p>	<p>Appendix D-1 – HHRA – Table 2.2</p>	<p>Table 2.2 presents country food ingestion rates as kg/day based on number of meals per month which were then converted to a daily ingestion rate assuming daily consumption of these species (with the exception of partridge berries which were assumed to be</p>	<ul style="list-style-type: none"> Evaluate consumption of country foods (including fish, trapped and hunted species, and berries) based on 2010 Health Canada guidance (below) to ensure that human health risk from consumption of country foods is not



IR No	Dept No	Effects Link to CEAA 2012	Link to EIS guidelines	EIS Reference	Context and Rationale	Specific Question/ Request for Information
		socio-economic conditions 5(1)(c)(iii) Current Use of Lands and Resources for traditional purposes			<p>consumed for only 4 months per year). The calculations do not take into account the likelihood that these foods may only be consumed a few times per month but that the meal size would be much larger than if equal portions were consumed on a daily basis throughout the month. In addition, the approach does not take into consideration the potential for large volumes of country foods that could be consumed in one sitting such as a weekend fishing trip or berry picking excursion.</p> <p>For example, the daily intake value for berries of 2 g/day for adults equates to approximately 2-3 berries per day assuming each berry weighs approximately 0.7 grams (which is based on the average weight of a blueberry). This consumption rate may not be representative of the amount consumed on any particular day.</p> <p>According to Health Canada (2010), “<i>exposure amortization may not be appropriate for some exposure scenarios, such as repeated acute or sub-chronic exposure....in these circumstances, it would be more conservative to estimate the typical daily dose rate that occurs during the month(s) of greatest exposure each year. This exposure should then be compared to both a TRV based on chronic subchronic toxic effects and a TRAV based on chronic toxic effects</i>”.</p> <p>Section 4.6 of Health Canada’s <i>Part V: Guidance on Human Health Detailed Quantitative Risk Assessment for Chemicals (DQRA_{chem})</i>. <i>Federal Contaminated Site Risk Assessment in Canada</i> provides guidance on dose averaging considerations.</p> <p>Reference: Health Canada. 2010. Part V: Guidance on Human Health Detailed Quantitative Risk Assessment for Chemicals (DQRA_{chem}). Federal Contaminated Site Risk Assessment in Canada. Prepared by the</p>	<p>underestimated. Update the analysis, mitigation measures and determinations of significance, as appropriate.</p> <p>Reference: Health Canada. 2010. Part V: Guidance on Human Health Detailed Quantitative Risk Assessment for Chemicals (DQRA_{chem}). Federal Contaminated Site Risk Assessment in Canada. Prepared by the Contaminated Sites Division, Safe Environments Directorate. September.</p>

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					Contaminated Sites Division, Safe Environments Directorate. September.	
<p>HML Answer</p> <p>The dietary intake of country foods was assessed using a combination of literature derived and population specific information. In the specific case of berries, the highest site specific consumption data was selected as the ingestion rate (13 cups unprepared berries per month). It would appear that query HC-IR-3 is concerned with the assumption that local country food consumers would eat wild berries for only 4 months per year, and AECOM’s decision to spread that consumption over the entire year. We should note at this point that the ingestion rates included in the HHRA Table 2.2 are expressed on a dry weight basis for berry consumption. This is owing to the fact that all analytical data for berries were reported on a dry weight basis.</p> <p>We agree that an annual 4-month period straddles both a chronic or sub-chronic exposure duration, and agree with HC-IR-3’s suggestion that dose rates for the time of greatest consumption should be used. As such, we have altered our numerical modeling to allow country food consumers to ingest a full serving of berries (43 wet weight grams per day for adults, and 1.7 x this amount for toddlers) based on the consumption data obtained from the local community. This ingestion rate has been allowed to persist for 365 days per year. Berry consumption is not a significant risk driver in adult receptors, however it does potentially play an important role in the toddler’s overall risk predictions for threshold effects associated with arsenic exposure. Eliminating the amortization increases the toddler’s predicted dose as result of berry ingestion by 66% for all exposure scenarios. Newly calculated total HQs (i.e., exposure via berry consumption integrated with all other exposure pathways) for the toddler are as follows:</p> <ul style="list-style-type: none"> ▪ Baseline Scenario: total HQ for Toddler increases from 2.24 (i.e., inclusive of original berry consumption for a four-month amortized period) to 2.70 (i.e., inclusive of daily berry ingestion 365 days per year) ▪ Project Scenario: Total HQ for toddler increases from 2.24 to 2.70 (+21%), respectively ▪ Cumulative Scenario: Total HQ for toddler increases from 2.25 to 2.71 (+21%), respectively <p>NOTE: Reviewers should note that the above results address the specific scope of CEEA query 40, and do not include the exposure via dust deposition to the berries which is queried under CEEA 50. Consideration of the addition of dust deposition to unwashed berries, in addition to the revised berry consumption described here, is described in response to CEEA 36.</p> <p>Notwithstanding the changes as a result of eliminating the 4-month amortization (i.e. allowing for daily berry consumption year-round) the magnitude of change from baseline conditions for the project and cumulative scenarios remains below 1% and incremental risks to country food consumers are considered negligible. It is the proponent’s opinion that this de minimis increase would be undetectable by health monitoring programs.</p>						
CEAA 41	HC-IR-5	5(1)(c)(i) Aboriginal Peoples Health/ socio-	6.3.4	Appendix D-1 – HHRA – Table 2.4	In Table 2.4, the toxicity reference value (TRV) presented for chromium is a total chromium value and not representative of the most toxic form of chromium to humans (i.e. hexavalent chromium or [Cr VI] which is a carcinogen via inhalation). The assumption that any increases in chromium are “total Cr” instead of Cr VI may	<ul style="list-style-type: none"> • Discuss whether the contaminants evaluated represent those that would be present on-site. If this is not the case, provide a revised evaluation of potential health risks using the most toxic form of each contaminant that would be present.

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		economic conditions 5(1)(c)(iii) Current Use of Lands and Resources for traditional purposes			<p>underestimate potential health risks associated with exposure to Cr VI (if present).</p> <p>In addition, the mercury value presented is for inorganic mercury and not representative of the most toxic form of mercury to humans (i.e. methyl mercury).</p> <p>If a specific contaminant species is not known, the most conservative approach is to assume that the substance is in its most toxic form and to evaluate the potential health risks associated with the most toxic form.</p>	
<p>HML Answer</p> <p>With respect to chromium, site specific information on the proportion of hexavalent chromium is not available, however the Health Canada TRVs assume a 1/7th of the total chromium is hexavalent chromium, and the TDI is based on hexavalent chromium. Similarly, the inhalation cancer slope factor published by Health Canada (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) is based on hexavalent chromium and assumes 1/7th of total Cr is hexavalent. Use of the total Cr cancer slope factor therefore inherently assess a cancer risk from hexavalent chromium assuming 1/7th of the total chromium is present as the hexavalent form.</p> <p>With respect to methyl mercury, the quantitative assessment of the impact was revised by assuming methylmercury as the dominant form in both fish tissue and caribou meat. Our conservative approach was to simply change the TRV for all mercury exposure from 0.0003 mg/kg/day for elemental mercury, to the HC recommended value of 0.0002 mg/kg/day for children under 12 and women of child bearing age. These represent the most sensitive receptors. While assuming all mercury exposure is in the methylated form introduces some additional uncertainty to the quantitative assessment, the proponent exposure assessment indicated that fish and caribou consumption account for 99.3% of mercury exposure. It is a reasonable expectation that the majority of mercury (>+ 95%) in fish tissue would be the methylated form. In responding to this query, the proponent has not been able to source a definitive assessment of the probable proportion of methylmercury in caribou muscle tissue, and in the absence of this assumed 100% methylmercury.</p> <p>Newly calculated total HQs for the adult and toddler as a result of mercury exposure are as follows:</p> <ul style="list-style-type: none"> ■ Mercury exposure controlled by fish and caribou ingestion remains essentially unchanged across all three exposure scenarios tested (i.e., no change in fish tissue quality is anticipated due to no anticipated change in lake water quality; no change in caribou tissue quality due to minimal time grazing in the Local Study Area relative to the migratory range). <ul style="list-style-type: none"> ○ Total HQ for Adult increases from 2.04 to 3.07 (+50%) (based on adjusted TRV for methylmercury) ○ Total HQ for Toddler increases from by 4.4 to 6.62 (+50%) (based on adjusted TRV for methylmercury) 						

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<p>The magnitude of change from baseline conditions for the project and cumulative scenarios remains below 1%. Whether a baseline risk to country food consumers truly exists is beyond the scope of this quantitative assessment, as mercury content in caribou was inferred from studies of other caribou herds from different regions of Canada.</p>						
<p>CEAA 42</p>	<p>HC-IR-6</p>	<p>5(1)(c)(i) Aboriginal Peoples Health/ socio-economic conditions 5(1)(c)(iii) Current Use of Lands and Resources for traditional purposes</p>	<p>6.3.4</p>	<p>Appendix D-1 – HHRA – Section 3.2.3</p>	<p>For mercury, it appears that total mercury was evaluated for both fish and caribou.</p> <p>The fish species were not identified, and this is important information to have because different fish accumulate mercury differently (e.g. larger, piscivorous, longer-lived fish tend to accumulate more mercury). In addition, the majority of the mercury found in fish is the more toxic methylmercury (Health Canada, 2007). The approach used may underestimate potential risk to human health associated with consumption of fish with elevated levels of methylmercury.</p> <p>The report should confirm the form of mercury anticipated in caribou tissue and whether there are any tissues that are consumed by the local population that may contain elevated levels of contaminants, such as liver and kidney tissue (not just muscle tissue).</p> <p>The report identified hazard quotients of 2.0 for adults and 4.4 for toddlers associated with consumption of mercury in country foods, which suggests a potential for health impacts that should be more closely assessed.</p> <p>Reference: Health Canada. 2007. Human Health Risk Assessment of Mercury in Fish and Health Benefits of Fish Consumption. Available from: http://www.hc-sc.gc.ca/fn-an/alt_formats/hpfb-dgpsa/pdf/nutrition/merc_fish_poisson-eng.pdf</p>	<ul style="list-style-type: none"> • Since hazard quotients exceeded Health Canada’s acceptable values of 1.0 (2.0 for adults and 4.4 for toddlers) <ul style="list-style-type: none"> ○ provide additional discussion about the speciation of mercury in both fish and caribou and ○ identify the species of fish evaluated. • Where mercury concentrations may exceed acceptable risk levels, identify additional measures to reduce human health risk associated with mercury exposure.

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HML Answer						
<p>The proponent has not chemically speciated the form of mercury measured in fish obtained at the Howse Property. In the case of caribou, mercury data content was inferred from various studies available from other regions of Canada, and cannot confirm the mercury speciation. Pursuant to the query CEAA 41, the proponent has adopted the assumption that all mercury in tissue from fish or caribou that is consumed is 100% methyl mercury and the TRV for mercury has been revised to the more stringent TDI. This TDI is specific to children under 12 years of age or women of child bearing age. Since these represent the most sensitive receptor groups potentially using the site, this TRV was adopted universally. The consequence of this adjustment is a 50% increase in the mercury hazard quotient via this pathway and overall, due to the use of the more potent toxicity reference value and the fact that fish and caribou consumption are the main determinant of total mercury intake. The reviewer should also see the tabulated quantitative results presented in the overview document in the attached document: Howse Appendix Answer Part 2 Human Health Big Picture Summary 160912.</p> <p>The species of fish sampled were lake trout (n=5) and brook trout (n=5) which were obtained from Pinette Lake and Triangle Lake. In both case the fish were not aged, but were not considered adults.</p> <p>The elevated risk estimates are associated with the baseline exposure scenario and are not expected to change with the Project or Cumulative scenarios due to no expectation in changes in future water quality or Caribou tissue quality (see (CEAA 41). Monitoring by TSMC for methyl mercury in fish tissue and caribou should be carefully considered for its value because (i) the fish populations are likely small (Triangle Lake and Pinette Lake are small and likely stressed by fishing), and (ii) caribou are wide ranging and their presence in the area is only transitory and likely not significantly influenced by the local study area.</p> <p>As per the Metal Mining Effluent (MMER) Regulations, the Proponent already has a process of monitoring fish tissue for mercury. The Proponent will follow those regulations.</p>						
CEAA 43	HC-IR-7	5(1)(c)(i) Aboriginal Peoples Health/ socio-economic conditions 5(1)(c)(iii) Current Use of Lands and Resources for traditional purposes	6.3.4	Appendix D-1 – HHRA – Section 2.8.1	<p>Section 2.8.1 states that “<i>Health Canada recommends that Incremental Lifetime Cancer Risks only be calculated for adult exposures</i>”.</p> <p>This is incorrect; Health Canada provides guidance on the use of a composite lifetime receptor which includes all life stages and a life expectancy of 80 years, 60 of which are as an adult (Health Canada, 2010 and 2013).</p> <p>References: 1. Health Canada. 2010. Part V: Guidance on Human Health Detailed Quantitative Risk Assessment for Chemicals (DQRAchem). Federal Contaminated Site Risk Assessment in Canada. Prepared by the Contaminated Sites Division, Safe Environments Directorate. September.</p>	<ul style="list-style-type: none"> Confirm whether a composite lifetime receptor was used to evaluate risk from exposure to carcinogens as this takes into consideration all life stages (see Health Canada, 2010; 2013). If it was not used, re-evaluate risk from exposure to carcinogens using a composite lifetime receptor and update the effects analysis, mitigation measures and determinations of significance accordingly.

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					<p>2. Health Canada. 2013. Interim Guidance on Human Health Risk Assessment for Short-Term Exposure to Carcinogens at Contaminated Sites. Prepared by the Contaminated Sites Division, Safe Environments Directorate. http://www.hc-sc.gc.ca/ewh-semt/contamsite/index-eng.php</p>	
<p>HML Answer</p> <p>The CEAA review panel requested that the proponent assess Incremental Lifetime Cancer Risks (ILCR) using the Composite Total Weighted ILCR method, as described in Section 6.3.2 of Health Canada’s Part V: Guidance on Human Health Detailed Quantitative Risk Assessment for Chemicals (September 2010). The proponent had previously assessed lifetime incremental cancer risks by allowing adult exposure characteristics to persist for 80 years of an 80 year lifetime. The composite weighted incremental cancer risk assesses cancer risks to individual age classes (some more sensitive than others) then provides a weighted total lifetime incremental cancer risk based on the fraction of an 80 year lifespan each age class represents.</p> <p>Note: Calculation of the composite receptor weighted ILCR occurred after all previous revisions and quantitative adjustments described in other CEAA questions pertaining to HHRA had been implemented. Determining the sensitivity of the analysis between the 80/80 adult as previously reported versus the composite receptor is difficult due to the influence of factors other than the ILCR calculation method (i.e., increased berry ingestion, inclusion of dust deposition onto berries)</p> <p>Results of the composite total weighted incremental cancer risk estimates are summarized below. The reader is directed to the attached Appendix <u>Howse Appendix Answer Part 2 Human Health Big Picture Summary 160912</u> for complete quantitative estimates.</p> <ul style="list-style-type: none"> a. The only non-threshold contaminant included in the list of COPCs for which an oral slope factor exists is arsenic. <ul style="list-style-type: none"> o Calculated weighted ILCRs range from 6.19E-04 under baseline conditions, to a maximum of 6.33E-04 under the cumulative exposure scenario. o Calculated weighted ILCRs for oral arsenic exposure increased relative to the November 2015 80/80 adult by 29%, 34% and 36% for the baseline, project and cumulative scenarios respectively. o All ILCRs continue to exceed Health Canada’s de minimis level of 1E-05, but continue to be classified as potentially elevated (i.e., > 1E-04) following AECOMs classifications for interpretative insight with unique appreciation for conservatism inherently applied through various risk assessment assumptions, some of which are elaborated on below: <ul style="list-style-type: none"> ▪ The two greatest sources of arsenic exposure are the ingestion of fish and caribou. <ul style="list-style-type: none"> • All fish tissue was assumed to be equal to the maximum measured concentration in fish tissue samples from either Triangle Lake or Pinette Lake. These are two very small lakes (Pinette is a headwater lake) in close proximity to the Howse deposit. Based on fishing efforts carried out in preparation of the baseline risk assessment these lakes do not support fish populations of sufficient size or abundance for fish tissue ingestion at the rate modelled. Fish tissues collected from larger downstream lakes would be expected to have lower concentrations of COPCs. 						

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<ul style="list-style-type: none"> Caribou tissues were modelled based on literature derived COPC concentrations from various herds in Canada. Site specific or region specific caribou tissue content of arsenic is unknown. Additionally, anecdotal information suggests that caribou have not occurred in the area for a very long time. Oral intake of arsenic through dietary ingestion of country foods was assumed to be 100% bioavailable. This is considered to be highly conservative. Bioaccessibility of arsenic from country foods has been determined at other locations in Canada. Mean bioaccessibility of arsenic in country foods is likely closer to 50-75%. 100% of the arsenic present in tissues was assumed to be the toxic inorganic form. Arsenic speciation of country foods conducted by others has identified substantial portions of less toxic organoarsenic species in animal tissues, including non-toxic arsenobetaine, with inorganic arsenic making up a minor proportion (<10%). The assumption of 100% inorganic arsenic in animal tissue is considered highly conservative and introduces considerable uncertainty into the toxicological impact of dietary ingestion. <p>b. Revised total composite weighted lifetime incremental cancer risks due to inhalation exposures were calculated to increase by 16% in all scenarios, owing to the difference in calculation methods between what was reported in Nov 2015 and today. All ILCRs remain well below the de minimis level of 1E-05.</p> <p>c.</p>						
CEAA 44	HC-IR-8	5(1)(c)(i) Aboriginal Peoples Health/ socio-economic conditions 5(1)(c)(iii) Current Use of Lands and Resources for traditional purposes	6.3.4	Appendix D-1 – HHRA – Section 2.8.3	<p>Section 2.8.3 presents the proposed magnitude (i.e. acceptability) of risk for both non-carcinogens and carcinogens. However, the proposed ‘acceptable’ risks are not consistent with Health Canada guidance. The report identifies that for non-carcinogens, a low and likely to be negligible risk is defined as being a hazard quotient of 1.0 to ≤10 and a potentially elevated risk is defined as a hazard quotient >10.</p> <p>The report identifies that for carcinogens, a low and likely to be negligible risk is defined as an incremental lifetime cancer risk (ILCR) of 1×10^{-5} to $\leq 1 \times 10^{-4}$, and a potentially elevated risk is an ILCR $> 1 \times 10^{-4}$.</p> <p>These values are higher than Health Canada’s acceptable target hazard quotient of <1 and Health Canada’s acceptable ILCR of $< 1 \times 10^{-5}$. No rationale was provided by the consultant to identify how levels above the targets identified by Health Canada would be protective of health.</p>	<ul style="list-style-type: none"> Justify the acceptability of using risks that exceed Health Canada’s proposed acceptable hazard quotient of 1.0 for non-carcinogens (including non-site-related exposure) or 0.2 (for site-specific exposures), and/or an ILCR greater than 1×10^{-5} for carcinogens as per Health Canada, 2012. Update the assessment, proposed mitigation measures and determination of significance, as appropriate. <p>Reference: Health Canada. 2012. Federal Contaminated Site Risk Assessment in Canada, Part I: Guidance on Human Health Preliminary Quantitative Risk Assessment (PQRA), Version 2.0. Ottawa, Ontario: Environmental Health Assessment Services, Safe Environments Program. http://www.hc-sc.gc.ca/ewh-semt/pubs/contamsite/index-eng.php</p>
HML Answer						

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<p>The proponent wishes to clarify that section 2.8.3 is not to be considered a revision of Health Canada policy on acceptable risk. In section 2.8.2, the proponent provides a discussion of Health Canada policy on risk levels that are referenced within federal policy. The proponent also provides in section 2.8.2 federal rationale for the present case that a hazard quotient of 1.0, rather than 0.2, is appropriate (i.e., because of consideration of multiple dietary and non-dietary sources of metals intake). These federal policies are not disputed in section 2.8.2 or in 2.8.3. However, in section 2.8.3, the proponent presents its position on risk interpretation from its perspective as the HHRA author with unique appreciation for conservatism inherently applied through various risk assessment assumptions. We consider this useful insight to the reviewer and stakeholders. To this end, the HHRA consultant has articulated its professional opinion by considering both federal policy (as discussed in section 2.8.2) , and the numerous conservative assumptions applied throughout the risk analysis (e.g., numerous air modelling conservative assumptions, receptor bioavailability assumptions, dust deposition assumptions., etc) to provide meaningful interpretive categories for the ensuing risks and their magnitudes. To reiterate the example of Hazard Quotient categories, AECOM is of the confident opinion that given the considerable conservative assumptions applied for the HHRA:</p> <ul style="list-style-type: none"> ▪ HQ < 1.0 will be negligible ▪ 1.0>HQ≤10 will be low and likely negligible ▪ HQ>10 is a potentially elevated risk 						
CEAA 45	HC-IR-10	5(1)(c)(i) Aboriginal Peoples Health/ socio-economic conditions 5(1)(c)(iii) Current Use of Lands and Resources for traditional purposes	6.3.4	Appendix D-1 – HHRA – Tables 3.10 and 3.11	<p>Based on Tables 3.10 and 3.11, there are several hazard quotients that exceed the target hazard quotient of 1.0 (i.e. mercury for the adult receptor and arsenic, lead and mercury for the toddler). As such, there may be unacceptable health risks from exposure to mercury, arsenic and/or lead.</p> <p>Health Canada recommends that monitoring for these substances in the relevant environmental media during Project operations should be undertaken in order to ensure that existing levels do not increase as a result of Project activities. If the contaminants do increase over baseline, Health Canada has advised that additional monitoring and/or mitigation measures may be necessary.</p>	<ul style="list-style-type: none"> • Present a strategy for monitoring contaminants and explain how resulting information would be used to determine potential effects on health. Include a discussion of the following considerations: <ol style="list-style-type: none"> a. whether contaminants in relevant environmental media would be monitored during project operations to ensure that existing levels do not increase as a result of Project activities; b. whether additional monitoring and/or mitigation measures would be implemented, if contaminants were to increase over baseline; and c. whether a community health monitoring program would be implemented, that would include monitoring the consumption of country foods and any increase in respiratory complaints or conditions.
<p>HML Answer</p>						

IR No	Dept No	Effects Link to CEEA 2012	Link to EIS guidelines	EIS Reference	Context and Rationale	Specific Question/ Request for Information
<p>The proponent wishes to clarify that the noted elevated risks (Tables 3.10 and 3.11, and associated revised Table 1 in Appendix ??) are in the proponent’s opinion low and likely to be negligible, and are established by baseline conditions, based on interpretation provided in section 2.8.3.</p> <p>The Proponent agrees that it is prudent to understand through selective monitoring whether the Project and Cumulative scenario contribute unduly to excessive risk and if so to resolve corrective actions. The current modelling suggest the Project and Cumulative scenarios will not contribute excessive risk for most pathways and substances evaluated. Notwithstanding, it is our opinion selective monitoring of key environmental variables may be valuable in aiding this understanding. However, we are of the opinion that widespread health status monitoring would not be productive because (i) there is a general resistance by stakeholders to share such information with private industry such as HML and (ii) the determinants of local health status are multifaceted and do not provide a sound basis for cause effect analysis or for focused corrective actions. We believe if health status monitoring were to be initiated, it would be better facilitated by governmental bodies, and that specific hypothesis and data quality objectives should clearly relate to relevant cause-effect relationships to best facilitate ongoing site management.</p>						
CEAA 46	HC-IR-11	5(1)(c)(i) Aboriginal Peoples Health/ socio-economic conditions 5(1)(c)(iii) Current Use of Lands and Resources for traditional purposes	6.3.4	Appendix D-1 – HHRA – Table 3.12	<p>Based on Table 3.12, it appears that oral cancer risks from exposure to arsenic exceed the target ILCR of 1×10^{-5} (4.65×10^{-4}). As such, there may be unacceptable health risks from exposure to arsenic.</p> <p>Health Canada recommends that monitoring for arsenic in the relevant environmental media during project operations should be undertaken in order to ensure that existing levels do not increase as a result of project activities. If arsenic levels do increase over baseline, additional monitoring and/or mitigation measures may be necessary.</p>	<ul style="list-style-type: none"> • Discuss whether the proponent intends to monitor for arsenic in relevant environmental media during project operations to ensure that existing levels of arsenic do not increase as a result of the Project. • Discuss whether additional monitoring and/or mitigation measures would be implemented if arsenic increases over baseline.
<p>HML Answer</p> <p>The proponent wishes to clarify that the noted elevated risks (Tables 3.10 and 3.11, and associated revised Table 1 in Appendix ??) are in the proponent’s opinion low and likely to be negligible, and are established by baseline conditions, based on interpretation provided in section 2.8.3.</p> <p>The Proponent agrees that it is prudent to understand through selective monitoring whether the Project and Cumulative scenario contribute unduly to excessive risk and if so to resolve corrective actions. The current modelling suggest the Project and Cumulative scenarios will not contribute excessive risk for most pathways and substances evaluated. Notwithstanding, it is our opinion selective monitoring of key environmental</p>						

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<p>variables may be valuable in aiding this understanding. However, we are of the opinion that widespread health status monitoring would not be productive because (i) there is a general resistance by stakeholders to share such information with private industry such as HML and (ii) the determinants of local health status are multifaceted and do not provide a sound basis for cause effect analysis or for focused corrective actions. We believe if health status monitoring were to be initiated, it would be better facilitated by governmental bodies, and that specific hypothesis and data quality objectives should clearly relate to relevant cause-effect relationships to best facilitate ongoing site management.</p>						
CEAA 47	HC-IR-12	5(1)(c)(i) Aboriginal Peoples Health/ socio-economic conditions 5(1)(c)(iii) Current Use of Lands and Resources for traditional purposes	6.3.4	EIS Section 9.1.3	The EIS has no discussion about monitoring country foods during Project operations. In the event that air quality monitoring identifies exceedances of applicable guideline values and/or people who collect country foods in the vicinity of the site express concerns that the quality and/or taste of these foods has changed, additional sampling of these foods should be undertaken to verify that contaminant concentrations have not increased over baseline conditions. This should take into account that country foods are not necessarily consumed at an even rate over the course of a year, but sometimes in larger quantities over a shorter period of time.	<ul style="list-style-type: none"> Discuss whether country foods would be monitored during project operations in the event that air quality parameters exceed applicable guideline values and/or public concerns are raised about potential changes in the quality and/or taste of country foods collected in the vicinity of the project site.
<p>HML Answer</p> <p>The proponent wishes to clarify that the noted elevated risks (Tables 3.10 and 3.11, and associated revised Table 1 in the document Howse Appendix Answer Part 2 Human Health Big Picture Summary 160912, are in the proponent’s opinion low and likely to be negligible, and are established by baseline conditions, based on interpretation provided in section 2.8.3.</p> <p>The Proponent agrees that it is prudent to understand through selective monitoring whether the Project and Cumulative scenario contribute unduly to excessive risk and if so to resolve corrective actions. The current modelling suggest the Project and Cumulative scenarios will not contribute excessive risk for most pathways and substances evaluated. Notwithstanding, it is our opinion selective monitoring of key environmental variables may be valuable in aiding this understanding. However, we are of the opinion that widespread health status monitoring would not be productive because (i) there is a general resistance by stakeholders to share such information with private industry such as HML and (ii) the determinants of local health status are multifaceted and do not provide a sound basis for cause effect analysis or for focused corrective actions. We believe if health status monitoring were to be initiated, it would be better facilitated by governmental bodies, and that specific hypothesis and data quality objectives should clearly relate to relevant cause-effect relationships to best facilitate ongoing site management.</p>						

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<p>The Proponent will monitor country foods if air quality exceeds standards in a confirmed and consistent manner. In addition to the MMER, fish, waterfowl, berries, mammals (when possible) will be monitored, depending on availability. The Proponent is committed to the same practices if exceedances are found in water quality (for fish).</p> <p>With respect to public concerns and/or taste issues, the Proponent will engage with the community if concerns are expressed about effects of the Project on Country Food quality and/or taste. Discussions will be held between the Health and Safety and Environmental committee to determine the best action on a case-by-case basis.</p>						
CEAA 48	HC-IR-13	5(1)(c)(i) Aboriginal Peoples Health/ socio-economic conditions 5(1)(c)(iii) Current Use of Lands and Resources for traditional purposes	6.3.4	Appendix D-1 – HHRA - Section 3.1.3	The report indicates that for certain metals (such as barium, manganese, and molybdenum), for the baseline case scenario, for toddlers, the dose is primarily influenced by the consumption of Labrador tea. It is unclear whether or not toddlers are likely to consume Labrador tea. If not, this assumption may have an impact on the predicted baseline risk scenario.	<ul style="list-style-type: none"> Provide a discussion about whether toddlers are likely to drink Labrador tea, and if not, what influence this may have on the overall baseline exposure by toddlers to the specific metals identified (i.e. barium, manganese and molybdenum). Update the analysis, as appropriate.
<p>HML Answer</p> <p>It is not customary for toddlers to drink Labrador Tea. Generally, this plant is consumed by people with respiratory difficulties and/or struggling with cancer (personal communication, Armand Mackenzie, long term resident).</p> <p>None the less, a revised risk estimate has been computed with Labrador tea eliminated from the toddler diet. This is illustrated in the tabulation of revised risk estimates provided in the document Howse Appendix Answer Part 2 Human Health Big Picture Summary 160912. This has resulted in a 100% decrease of toddler exposure to COPCs as a result of this route of exposure. The most notable effect is a reduction in total manganese intake which previously was considered marginally elevated primarily due to assumed consumption of the Labrador tea.</p>						

IR No	Dept No	Effects Link to CEEA 2012	Link to EIS guidelines	EIS Reference	Context and Rationale	Specific Question/ Request for Information
CEAA 49	HC-IR-14	5(1)(c)(i) Aboriginal Peoples Health/ socio-economic conditions 5(1)(c)(iii) Current Use of Lands and Resources for traditional purposes	6.3.4	Appendix D-1 – HHRA – Section 3.2.3	For several substances, it is stated that the Project incremental risks are negligible because the marginal change in Project risk relative to baseline is <10%. The use of a change of less than 10% is not appropriate and is arbitrary. This approach is not protective of human health and no rationale was provided in the report as to how this might impact human health. It is recommended that this assumption be clarified and a rationale on a chemical specific basis be provided to identify whether there may be adverse health impacts associated with an increase of <10% relative to baseline.	<ul style="list-style-type: none"> Provide information to justify screening substances based on a predicted change of less than 10% from baseline conditions. Specifically, information about the toxicity of the individual substances is required to ensure that an increase of less than 10% would not result in adverse human health effects based on the human toxicity of the individual substances. Any substances that are predicted to exceed applicable guideline values (irrespective of whether they are predicted to increase by more or less than 10%) should be carried forward in the HHRA for further assessment. Update the effects analysis, proposed mitigation measures and determination of significance, as applicable.
<p>HML answer</p> <p>The Proponent is of the opinion that the reported percent change in risk estimates of <10% relative to baseline are negligible for the following reasons:</p> <ul style="list-style-type: none"> The exposure point concentrations (EPCs) for the Project and Cumulative scenarios are conservatively modelled in contrast to direct measurements used for the baseline case. Conservatively modelled EPCs combined with conservative receptor exposure assumptions for the Project and Cumulative cases are likely to significantly overestimate (e.g., 10-fold) risk for these cases, relative to the base case. As such a difference of <10% from baseline in this case is not considered a large difference. The baseline risk estimate is also considered to be conservatively estimated through various assumptions. For example, for certain metals the 100% bioavailability is on the order of 20-fold greater than site-specific bioaccessibility studies suggest. Baseline hazard quotients that were greater than unity, were typically less than 4, and a 10% increment would not suggest that the Project or cumulative scenario should be interpreted within the next highest category considered “potentially elevated”. Further, it was tabulated in the report, but not described in the results interpretation, that for cases where a positive increment in risk was observed, the increment relative to baseline was actually <1%. Under the conditions and precision of the risk assessment, this difference from baseline is considered indiscernible and negligible. 						

IR No	Dept No	Effects Link to CEEA 2012	Link to EIS guidelines	EIS Reference	Context and Rationale	Specific Question/ Request for Information
CEAA 50	HC-IR-15	5(1)(c)(i) Aboriginal Peoples Health/ socio-economic conditions 5(1)(c)(iii) Current Use of Lands and Resources for traditional purposes	6.3.4	EIS Section 7.5.2.2 (page 7-353) and Appendix D-1 (Human Health Risk Assessment)	The EIS and the HHRA state that for activities potentially affecting country foods quality, the “ <i>accumulation of ore-based chemical constituents in vegetation (e.g. berries, plants) from soil after prolonged particulate air deposition</i> ” was evaluated. There was no evaluation of the actual deposition of dust on vegetation and subsequent human consumption of that vegetation. Not evaluating this exposure pathway may underestimate human health risk from ingestion of contaminated vegetation (surface deposition and root uptake).	<ul style="list-style-type: none"> • Evaluate both root uptake of contaminants in soil and direct deposition on plants in order to provide a more accurate prediction of potential risk to humans from consumption of contaminated vegetation. • Update the assessment, proposed mitigation measures and determination of significance accordingly.
<p>HML Answer</p> <p>The proponent has assessed dietary intake of dusted berries. The quantitative assessment assumed 1 months’ worth of dry deposition onto the top half of a hanging berry, assuming a 1 cm berry diameter, 0.43 cups of berry ingested per day 365 days per year (i.e., assumed frozen stores are consumed daily year-round), and a maximum theoretical packing density of 74% (e.g.. In a cup of berries, the minimum void space achievable would be 26%). Based on the 90th percentile dust deposition rate predicted for the 40 critical receptors and off-property limit maximum, increased exposure to COPCs as a result of dust accumulation on collected berries appears negligible for all COPCs with the exception of iron and arsenic. For all other COPCs under the cumulative exposure scenario, which has the greatest magnitude of dry deposition, the increase in COPC exposure is too small to be detected at the significance level of the calculated HQs.</p> <p>Under the defined conservative assumptions adopted by AECOM for this exposure scenario, allowing for the ingestion of dusted berries increases the predicted HQs to the toddler (most sensitive receptor) for iron and arsenic as follows:</p> <ul style="list-style-type: none"> ▪ Iron: Calculated daily dose of iron as a result of berry ingestion increases by 32% and 197% for the project and cumulative exposure scenarios respectively. Total HQs for the toddler increase by 5% and 31% for the project and cumulative exposure scenarios respectively. Total HQ calculated for the toddler assuming dusted berry consumption is 1.00 and 1.26 for the modelled project and cumulative scenarios, as compared to a baseline calculated HQ of 1.3 based on baseline measured site-specific berry chemistry. <p>For interpretive context of the iron risk estimates, the proponent notes the following significant conservative assumption that are intrinsic to these hazard quotients:</p>						

IR No	Dept No	Effects Link to CEAA 2012	Link to EIS guidelines	EIS Reference	Context and Rationale	Specific Question/ Request for Information
					<ol style="list-style-type: none"> 1. Concentration of iron in dust has been conservatively assumed to be equal to that of the ore body being mined (i.e., targeted at the high iron content, excluding waste rock chemistry). 2. Bioaccessibility of iron has conservatively been assumed to be equal to 100%. AECOM’s experience from risk assessment of other iron mine sites indicates that bioaccessibility of iron is much lower, at approximately 20%. Moreover, preliminary site-specific bioaccessability assays conducted at Royal Roads University indicate bioaccessability for iron is on the order of only 5% (i.e., 20-fold less than the assumed 100% value). This is important when considered in conjunction with the fact that the TRV for iron was developed due to accidental overdose of iron supplements, which are nearly 100% bioavailable. 3. The dry deposition rate applied to all berries is equal to the 90th percentile of the deposition rates modelled at the 40 critical receptor locations and the off-property maximum locations. This dusting rate has been applied to all berries consumed throughout the year. This is considered highly conservative, as the deposition rate at identified berry collection sites is likely much lower than this calculated value. 4. The assumption of a 30d cumulative dust deposition to berries without effect of precipitation is conservative based on 1971 – 2000 climate norms for Schefferville which suggest on average at least 5 precipitation events per month during berry season. <p>While these risk estimates exceed standard threshold risk values associated with Health Canada environmental risk policy, it is the proponent’s opinion that the magnitude of the risk estimate relative to the conservative assumptions suggests the risk is low and likely to be negligible.</p> <ul style="list-style-type: none"> ■ Arsenic: Calculated daily dose of arsenic as a result of berry ingestion increases by 1% and 7% for the project and cumulative exposure scenarios respectively. Total HQs for the toddler increase by 0.4% and 2.2% for the project and cumulative exposure scenarios respectively. Total HQ calculated for the toddler assuming dusted berry consumption is 2.71 and 2.77 for the project and cumulative scenarios, as compared to a baseline calculated HQ of 2.70, representing a worst case increase in total HQ of 2.5%. <p>For interpretive context of the arsenic risk estimates, the proponent notes the following significant conservative assumption that are intrinsic to these hazard quotients:</p> <ol style="list-style-type: none"> 1. Concentration of arsenic in dust has been conservatively assumed to be equal to that of the ore body being mined (i.e., targeted at the high iron content, excluding waste rock chemistry). 2. Bioaccessibility of arsenic has conservatively been assumed to be equal to 100%. Preliminary site-specific bioaccessability assays conducted at Royal Roads University indicate bioaccessability for arsenic is similar to iron (noted above) on the order of only 5% (i.e., 20-fold less than the assumed 100% value). 3. The dry deposition rate applied to all berries is equal to the 90th percentile of the deposition rates modelled at the 40 critical receptor locations and the off-property maximum locations. This dusting rate has been applied to all berries consumed throughout the year. This is considered highly conservative, as the deposition rate at identified berry collection sites is likely much lower than this calculated value. 4. The assumption of a 30d cumulative dust deposition to berries without effect of precipitation is conservative based on 1971 – 2000 climate norms for Schefferville which suggest on average at least 5 precipitation events per month during berry season. <p>While these risk estimates exceed standard threshold risk values associated with Health Canada environmental risk policy, it is the proponent’s opinion that the magnitude of the risk estimate relative to the conservative assumptions suggests the risk is low and likely to be negligible.</p>	

IR No	Dept No	Effects Link to CEAA 2012	Link to EIS guidelines	EIS Reference	Context and Rationale	Specific Question/ Request for Information
CEAA 51	HC-IR-16	5(1)(c)(i) Aboriginal Peoples Health/ socio-economic conditions 5(1)(c)(iii) Current Use of Lands and Resources for traditional purposes	6.3.4	Appendix D-1- HHRA – Section 1.7	<p>Section 1.7 states that “<i>due to the lack of availability of small mammals at the site during the summer of 2015, small mammals were not collected for chemical evaluation of metals content.</i>”</p> <p>If local hunters would be willing to provide samples for analysis (and identify the location where they were harvested) tissue samples could be collected and analyzed for baseline metals concentrations.</p> <p>In addition to mammals, given that game birds are hunted in the vicinity of the Project site, it may also be useful to collaborate with local hunters to supply tissue samples of other bird species that could be analyzed for baseline metals and future metals concentrations.</p>	<ul style="list-style-type: none"> Given the possibility of collaborating with local hunters, discuss whether any other attempts would be made to collect small mammal/game bird tissues for baseline metals analysis. In the event of future public complaints about the change in quality and/or taste of these country foods, discuss whether samples would be collected to evaluate metals concentrations during operations (which could also be done in collaboration with local hunters).
<p>HML answer</p> <p>Following discussions between health Canada and the Proponent in Fall 2015 and again in Summer 2016, the Proponent has chosen to not use samples that were collected without following the stringent sampling methods for chemical evaluation of metals content, as this could affect the results.</p> <p>The Proponent will monitor country foods if air quality exceeds standards in a confirmed and consistent manner. In addition to the MMER, fish, waterfowl, berries, mammals (when possible) will be monitored, depending on availability. The Proponent is committed to the same practices if exceedances are found in water quality (for fish).</p> <p>With respect to public concerns and/or taste issues, the Proponent will engage with the community if concerns are expressed about effects of the Project on Country Food quality and/or taste. Discussions will be held between the Health and Safety and Environmental committee to determine the best action on a case-by-case basis.</p>						
CEAA 52	HC-IR-17	5(1)(c)(i) Aboriginal Peoples Health/ socio-economic conditions	6.3.4	EIS Section 7.5.2.2 (page 7-354)	<p>No carcinogenic risks are presented in the assessment of <i>Human Health</i> in the EIS. Given that potential carcinogens have been evaluated in the risk assessment it is unclear why the results have not been presented in this section of the EIS.</p>	<ul style="list-style-type: none"> Provide analysis of impacts on human health with respect to carcinogens taking into consideration results of the HHRA (Appendix D-1).

IR No	Dept No	Effects Link to CEAA 2012	Link to EIS guidelines	EIS Reference	Context and Rationale	Specific Question/ Request for Information
		5(1)(c)(iii) Current Use of Lands and Resources for traditional purposes				
<p>HML Answer</p> <p>The proponent notes that the numerical results of Incremental Lifetime Cancer Risk (ILCR) were not presented in the EIS document, and this was intentional to reduce complexity in tabulated results. However, the subject matter and the key results that all numerical cancer risk estimates (ILCR) were addressed in section 7.5.2.2.2 on page 7-353 by stating all ILCR values indicated negligible cancer risk and refers the reader to the Supporting Studies Appendix D-1 for numerical values if desired. This is evident as the bullet prior to Table 7-111, which is illustrated below as a screen capture. The actual numerical values of ILCR for both Baseline and Project scenarios are discussed and tabulated in Appendix D-1 in section 3.1.2.3 and 3.2.2.3, respectively.</p>						

- The general effect of the operations to physical environment associated with the above potential interactions is a potential decrease in air quality and associated particulate deposition to soil, which might affect human health. Potential effects from remaining multi-media exposure pathways were assessed for aboriginal adults or toddlers present at the discrete receptor locations modelled in the air dispersion technical support document. The estimated effects to human health are:
 - The predicted non-carcinogenic effects to adults and toddlers are provided below in Table 7-111 and Table 7-112 as hazard quotients (HQs). *The low magnitude of the numerical risk estimates (effects to human health) and the previously defined risk categories indicate the incremental operational risks to human health are negligible.*
 - The predicted carcinogenic effects to adults (not tabulated but available from the HHRA technical support document) *and the previously defined risk categories indicate the incremental lifetime cancer risk (ILCR) from operational interactions to human health are negligible.*

Table 7-111 Predicted incremental hazard quotients for Adult receptors for the Project scenario assessment

	POTENTIAL CONTAMINANT OF CONCERN	ROUTE OF EXPOSURE					TOTAL
		Soil Ingestion	Particulate Inhalation	Soil Dermal Contact	Surface Water Ingestion	Country Food Ingestion	
PROJECT INCREMENT	Arsenic	1.0E-05	6.5E-05	2.7E-06	0.0E+00	3.3E-03	3.4E-03
	Barium	1.2E-08	3.2E-07	1.4E-07	0.0E+00	0.0E+00	4.8E-07
	Beryllium	6.0E-11	6.1E-08	7.3E-08	0.0E+00	7.3E-08	2.1E-07
	Chromium	1.2E-07	3.1E-05	7.8E-06	0.0E+00	1.3E-04	1.6E-04
	Iron	5.1E-05	3.9E-03	4.4E-05	0.0E+00	0.0E+00	4.0E-03

IR No	Dept No	Effects Link to CEEA 2012	Link to EIS guidelines	EIS Reference	Context and Rationale	Specific Question/ Request for Information
CEAA 53	HC-IR-18	5(1)(c)(i) Aboriginal Peoples Health/ socio-economic conditions 5(1)(c)(iii) Current Use of Lands and Resources for traditional purposes	6.3.4	Appendix D-1 – HHRA – Figure 5	Ingestion of surface water was considered to be an operative exposure pathway; however, dermal exposure to surface water was not. No discussion was provided as to why dermal contact with surface water was not considered to be a relevant exposure pathway.	<ul style="list-style-type: none"> Explain why ingestion of surface water was considered an operable exposure pathway whereas dermal contact with surface water was not. If dermal contact with surface water is possible, it should be evaluated as an exposure pathway in the HHRA. Update the effects analysis, proposed mitigation measures and determination of significance, as applicable

HML Answer

The proponent has addressed the above request by assessing the following scenario:

- Assume a single 1hour swim per day, daily for four months in Pinette or Triangle Lake;
- Employ dermal absorption exposure assumptions according to Health Canada guidance; and
- employ water quality defined for Pinette and Triangle Lake.

Resulting adult hazard quotients are as follows:

COPC	DAD (mg/kg/day)	TDI	HQ
Arsenic	1.88E-06	0.0003	6.25E-03
Barium	1.83E-05	0.2	9.15E-05

IR No	Dept No	Effects Link to CEAA 2012	Link to EIS guidelines	EIS Reference	Context and Rationale	Specific Question/ Request for Information
		Beryllium	2.43E-07	0.02	1.21E-05	
		Chromium	1.60E-05	0.001	1.60E-02	
		Iron	3.50E-03	0.7	5.00E-03	
		Lead	2.15E-07	0.001	2.15E-04	
		Manganese	5.19E-04	0.156	3.32E-03	
		Mercury (methyl_	4.54E-07	0.0002	2.27E-03	
		Molybdenum	2.30E-06	2.80E+01	8.20E-08	
		Selenium	7.83E-06	5.70E+00	1.37E-06	

Resulting toddler hazard quotients are as follows:

COC	DAD (mg/kg/day)	TDI	HQ
Arsenic	5.86E-07	0.0003	1.95E-03
Barium	5.72E-06	0.2	2.86E-05
Beryllium	7.58E-08	0.02	3.79E-06
Chromium	4.99E-06	0.001	4.99E-03
Iron	1.09E-03	0.7	1.56E-03

IR No	Dept No	Effects Link to CEEA 2012	Link to EIS guidelines	EIS Reference	Context and Rationale	Specific Question/ Request for Information
Lead		6.71E-08	0.001	6.71E-05		
Manganese		1.62E-04	0.156	1.04E-03		
Mercury (methyl_		1.42E-07	0.0002	7.09E-04		
Molybdenum		7.17E-07	2.80E+01	2.56E-08		
Selenium		2.45E-06	5.70E+00	4.29E-07		
<p>These results indicate a negligible and non-discernable (de minimus) risk associated with this pathway. Consequently, no update the effects analysis presented in the EIS is required.</p>						
Current Use						
CEAA 54	CEAA	5(1)(c)(iii) Current Use of Lands and Resources for traditional purposes	6.3.4	7.5	<p>As an example of analysis text in the current use section, the EIS states that “the activities associated with the Construction phase would cause disturbances (noise, loss of habitat, pollution, light emissions, vibrations) that may disturb wildlife resources. Fish and fish habitat would probably be affected during the Construction phase but fish would remain fit for consumption. Plants and berries may be affected by dust, but would remain fit for consumption if given a thorough wash. The perception of the environmental disturbances by the local population may affect their confidence in the quality of the resources harvested in the vicinity of the Project site. Hence, as it is already the case for a few land-users, the population would likely refrain from harvesting resources near mining sites.</p> <p>Statements such as these are broad and do not provide sufficient detail to assess effects to current use for traditional purposes. For example: regarding plants and berries being affected by dust, is this</p>	<ul style="list-style-type: none"> Provide an analysis of impacts of the Project (real and perceived) on each species or selected indicator species used (i.e. fished, hunted, trapped, gathered) by Indigenous communities and associated effects on current use of these resources by Indigenous peoples. The analysis should describe the specific effects (e.g. of noise, loss of habitat, pollution, light emissions, vibrations) of the Project on key species, then relate potential effects on the species to corresponding effects on current use of that species by Indigenous peoples. The analysis should also take into consideration the potential for avoidance and changes in access as a result of the Project. <p>The following should be considered as part of the analysis:</p> <ul style="list-style-type: none"> What are the effects of the Project on key species used by Indigenous peoples? Are key species that are used by Indigenous people and would be affected by the Project present in the surrounding areas

IR No	Dept No	Effects Link to CEEA 2012	Link to EIS guidelines	EIS Reference	Context and Rationale	Specific Question/ Request for Information
					<p>the only effect that plants and berries may experience or would other effects such as habitat loss also be a factor? Would the mitigation measures for dust result in residual effects on the current gathering of plants and berries?</p> <p>In conducting current use effects analyses, it is important to remember that effects on a small proportion of a population used by Indigenous peoples, could hypothetically have a profound effect on current use for a local community. As an example, if a Project impacts fish or birds in a specific lake currently used by Indigenous peoples, who then need to move to another area further away, impacts on the species may be minimal, while impacts on current use of the species by a specific community could be substantial.</p>	<p>where they would be available for use? If so, how accessible are these alternative areas for Indigenous communities? Are alternate areas already being used for gathering or other activities that may conflict or in a way that resources could not sustain additional use?</p> <ul style="list-style-type: none"> • If gathering occurs around the perimeter of Kauteitnat, would access for gathering be affected?
<p>HML Answer</p> <p>The Howse Project area itself is mostly used to reach other harvesting grounds (See section 7.5.2.1 of the Howse EIS and Volume 2 Supporting Study C and Supporting Study D), rather than being used directly for traditional activities. However, a fair amount of opportunistic harvesting activities are still carried out in the area, especially taking into account that it is easily accessible by road. The Proponent is committed to providing locals with a bypass road to access traditional sites.</p> <p>The human health residual effects significance assessment (Section 7.5.2.2.4) states that: The ecological context for human health impact relates to the association of health impact as a result of human receptor relationships to traditional ecological food quality – such as berries, medicinal plants, game and fish meat. The multimedia exposure and risk assessment indicates the food component under the future conservative project only and cumulative scenarios yields negligible risk to human health. Therefore, the ecological context is that traditional foods are found to be a negligible risk factor to human health risk under future project scenarios. Although sensitive to the local community’s concerns about perceptions of quality of resources, the Proponent can only provide the complete Human Health Risk Assessment as proof/description that no human health risks are expected.</p> <p>In addition, access to sites will change because the road that is currently used will be destroyed by the Project footprint and replaced by a bypass road, to be provided by the Proponent. Further, the Proponent acknowledges that during periods of blasting, local user’s access to the site will be limited, for obvious safety reasons.</p> <p>The Proponent also acknowledges that wetlands are extensively used by the members of First Nations for berry picking, hunting and trapping. Wetland destruction is expected to occur during the construction phase (2.83 ha), and the operations phase (19.21 ha) (see Section 7.4.2.2). Wetland destruction is expected to be limited to common wetland types, and so, if need be, other similar sites can be access by local users.</p>						

IR No	Dept No	Effects Link to CEEA 2012	Link to EIS guidelines	EIS Reference	Context and Rationale	Specific Question/ Request for Information
<p><u>Fishing</u> A complete effects assessment focused on Brook Trout and Lake Trout is provided in the EIS. The residual effects significance assessment agrees with data from other iron ore mines show that trout species still use habitats in which effluents are discharged and that those fish do not show apparent negative effects to their health. As such, the effects of the Howse mining activities on fishing is expected to be small. Indigenous land users will still be able to access the same species of fish in similar quantities, at the same locations, for the duration of the Project.</p> <p><u>Hunting/trapping</u> Not much trapping is carried out in the study area (Section Erreur ! Source du renvoi introuvable.) and resource conflicts are not expected for this resource. Besides the Canada Goose, the Loon, Black Duck and Long-Tailed Duck are also present and harvested in the area. Access to these sites is not expected to change. The number of waterfowl within the study area is very low (see Section 7.4.8.2) and the overall effect of the Howse Project on avifauna in non-significant. For grouses, ptarmigans, and the following species at risk (Bank Swallow, Common Nighthawk and Olive-sided Flycatcher), the overall effect value is expected to be low. The primary threat to avifauna in general following mitigation measures is habitat alteration and anthropogenic disturbance specifically related to the duration and frequency of noise and light disturbance, which can result in behavioral reactions.</p> <p>The disturbance effects of wildlife could therefore cause changes in the accessibility to the species. However, the critical period for disturbances will be mostly between May and August which represents 25% of the year. It is expected that avifauna behavior, if affected, may be altered in summer. The Proponent is committed to keep blasting data for two years, including the following: vibration speed, vibration frequency on the ground, air pressure and blasting patterns, and respect maximum vibration speeds. These data will be available for future uses to evaluate the effects on migrating birds, especially waterfowl</p> <p><u>Gathering</u> Fruits like blueberries, cloudberries and alpine cranberries are the plants most harvested by the locals. They used to be harvested in the Project area but locals already avoid the area because of proximity of mining activities. Activities are now concentrated closer to Rosemary Lake (Figure 4 1). Some resource conflict has therefore already occurred, but it should not intensify as few environmental effects are expected in the Rosemary Lake area (see Table 7-148).</p>						
CEAA 55	CEAA	5(1)(c)(iii) Current Use of Lands and Resources for traditional purposes	6.3.4	Table 4-4	The EIS states that Goodwood Road and the bypass road are to be completed by July 2015.	<ul style="list-style-type: none"> Describe effects on the current use of lands and resources by Indigenous peoples that could occur as a result of the Project, specifically from longer drives to access lands via the bypass road and from species displacement as a result of the Project (i.e. habitat loss, habitat disruption from noise, light, etc). Update the assessment of effects on current use accordingly.
HML Answer						

IR No	Dept No	Effects Link to CEAA 2012	Link to EIS guidelines	EIS Reference	Context and Rationale	Specific Question/ Request for Information
<p>The North Road – Greenbush will require that Indigenous people travel an additional 16 km to reach their current land use areas. This distance represents an additional 15-30 minutes of driving to access the same locations as before the Howse Project. This access will be entirely unhindered, with the exception of when blasting activities occur on site (see Section 3.3.2.3 for details). Blasting announcements will be made on the radio 48 hours in advance of blast periods, and band councils will also be notified. Prior to any blasting, security vehicles will be present on the bypass road to protect the local population. The bypass road provided by the Proponent will allow Indigenous communities to continue to access Pinette Lake and Kauteitnat. The road upgrade that will be provided by the Proponent will allow the local population to more easily access some areas, such as the Howells river valley, because of the improved road conditions.</p> <p>Species displacement will be limited – both because of the environmental context within which the Project lies and because of the Proponent’s proposed mitigation measures. The Howse Project area is already very disturbed due to the adjacent DSO activities historical mining activities and so species that are present in the area are used to disturbance (habitat disruption from noise, light, etc). It is therefore expected that species displacement will be limited to direct habitat loss from the Project footprint. Notably, the loss of wetlands will reduce the amount of habitat for avifauna, but it is not expected to reduce their availability, as avifauna are expected to utilize adjacent undisturbed wetlands for their habitat (see Section 7.4.2 of the Howse EIS). Further, the quality of country foods (fish, waterfowl and plants) is not expected to be affected by the Project (see HHRA report and Section 7.5.2.2). Caribou, which have been absent from the area for several years, and so are not harvested (also due to the Labrador-wide ban on caribou hunting), are not likely to return to the area naturally (e.g. their population is not expected to stabilize in the near future) nor will they return as a result of the habitat disruption from the Project.</p> <p>Please see CEAA 60 (below) for a description of the Proponent’s follow-up program that will be implemented to monitor effects of the Project on lands and resources used by Indigenous communities, including the Howells River area.</p>						
CEAA 56	IN-IR-25b	5(1)(c) Aboriginal Peoples – Overall comment	6.3.4	7-186	In its comments on the EIS, the Innu Nation stated that based on a response by the proponent, the regional study area for terrestrial species may have been delineated based on data availability.	<ul style="list-style-type: none"> Explain how the regional study area for terrestrial species was delineated and justify proposed boundaries based on potential effects. If the regional study area for terrestrial species was determined based on data availability, provide an explanation for how this is appropriate for the effects analysis, addressing specific gaps that may be present as a result and how these gaps are being addressed.
<p>HML Answer</p> <p>The Proponent would like to state that it respected the EIS guidelines as provided by CEAA to prepare all sections of the EIS. The biophysical LSA was determined and defined as the area where the physical extent of the Project activities are felt by the component, whereas the biophysical RSA corresponds to the extent of the cumulative effects (residual effects of past, present and future activities combined) of the Project on the targeted component. The LSAs and RSAs are the same for all the socioeconomic components. A clear description and justification for the LSAs and RSAs for each component is provided in the EIS (Chapter 7).</p>						

IR No	Dept No	Effects Link to CEAA 2012	Link to EIS guidelines	EIS Reference	Context and Rationale	Specific Question/ Request for Information
CEAA 57	IN-IR-25d	5(1)(c) Aboriginal Peoples – Overall comment	6.3.4	7.4.3	The Innu Nation has advised that “ <i>selecting an RSA that is inclusive of the entire range of the George River Caribou Herd, which is larger than the RSA for the current use of lands and resources for traditional purposes (i.e. the proposed socio-economic RSA), suggests that the extirpation of the herd from the traditional hunting territory of the local Aboriginal populations is acceptable so long as the Herd persists somewhere throughout the Quebec-Labrador peninsula.</i> ” It proposed that the regional study area for the use of lands and resources for caribou harvesting be comprised of that portion of the George River Caribou Herd range that overlaps the range of harvesting areas of the affected First Nations.	<ul style="list-style-type: none"> Describe how adjusting the regional study area for the current use of lands for caribou harvesting to the portion of the caribou’s range that overlaps the range of harvesting areas of the affected First Nations would affect impact predictions (e.g. additional mitigation, significance assessment, as applicable)
<p>Answer sent to CEAA August 22</p> <p>HML Answer</p> <p>The RSA for caribou was extended to include the entire GRCH to reflect the fact that the herd is linked across its entire range and the effects of the Howse Project (in addition to other projects considered under the cumulative effects section) on caribou could, in a worse-case scenario, have effects on the entire herd. For example, if it is found that there are calving areas in the vicinity of the Howse Project (currently not the case), the application of a herd-wide RSA would allow to consider that adverse effects on calving and/or calving areas could impact the entire herd. This approach provides, in our view, a much more thorough analysis of the effects of the project on the herd.</p> <p>This approach is also more representative of the strategic assessment on the GRCH, which was a process that was welcome by several local communities, but it is a process that is under federal jurisdiction.</p>						
CEAA 58	IN-IR 10	5(1)(c)(iii) Current Use of Lands and Resources for traditional purposes	6.3.4	7.5.2	The Innu Nation indicated that short of conducting a modern study of Innu Nation land use, which was not undertaken for the environmental assessment, the nature and degree of historic or current Innu Nation land use in the region surrounding the proposed Project cannot be determined with confidence.	<ul style="list-style-type: none"> Comment on the gaps or uncertainties in information, as raised by Innu Nation with respect to their use of lands. Describe how potential gaps/uncertainties were addressed in the assessment, or provide additional analysis, including mitigation measures, to strengthen the assessment of potential effects of the Project on Innu Nation’s land use.
<p>HML Answer</p>						

IR No	Dept No	Effects Link to CEAA 2012	Link to EIS guidelines	EIS Reference	Context and Rationale	Specific Question/ Request for Information
Appendix C of the Howse EIS provides a study on land and resource use by the Innu and the Naskapi in the region surrounding the Project.						
CEAA 59	CEAA	5(1)(c)(i) Aboriginal Peoples Health/ socio-economic conditions 5(1)(c)(iii) Current Use of Lands and Resources for traditional purposes	6.3.4	Section 4.2	The EIS indicates that an IBA negotiated by LIM is being used by the proponent to mitigate or accommodate impacts of the project on potential or asserted Aboriginal or Treaty Rights.	<ul style="list-style-type: none"> Where an IBA is listed as a mitigation measure, describe the impact and the specific actions that would be applied to mitigate (e.g. reduce, avoid) environmental impacts.
<p>HML Answer</p> <p>The Proponent would like to clarify that in actual fact, it will be HML's IBA that will apply. Further, the very idea of an IBA is to counter-balance and compensate impacts for benefits. It is not a mitigation measure to a specific impact as such, but rather accommodation in the legal and community engagement sense. All mentions of IBAs have been removed from the mitigation measures.</p> <p>TSMC acknowledges that the territory in the vicinity of Irony Mountain, including the Howells River Valley and surrounding areas, is of major cultural and spiritual significance to the Aboriginal peoples (the "Sensitive Areas"). The Sensitive Areas are traditionally known as "Kauteitnat" and "Howells River". TSMC agrees to protect, preserve and respect the portions of the Sensitive Areas that may be affected by the Project as well as the Aboriginal peoples use of and relationship to the Sensitive Areas through agreeing to the following: TSMC shall support the full and effective participation of the Aboriginal peoples in the planning and implementation of any development activities by TSMC or its Contractors, including Exploration Work, in the Sensitive Areas and shall take into account the cultural, environmental and social concerns and interests of the Aboriginal peoples with respect to such activities. TSMC and its Contractors shall not undertake any development activities, including Exploration Work, on Irony Mountain.</p>						
CEAA 60	CEAA	5(1)(c)(i) Aboriginal Peoples	6.3.4	Section 4.3	Many concerns about project effects on traditional resources and use were expressed by Indigenous groups, including effects on resources in Howells River area. The EIS predicted minimal effects,	<ul style="list-style-type: none"> Describe the elements of a follow-up program that would be implemented to monitor effects of the Project on lands and resources used by Indigenous communities, including the

IR No	Dept No	Effects Link to CEEA 2012	Link to EIS guidelines	EIS Reference	Context and Rationale	Specific Question/ Request for Information
		Health/ socio-economic conditions 5(1)(c)(iii) Current Use of Lands and Resources for traditional purposes			however it is important that the effect prediction verified given the importance of the area to Indigenous groups.	Howells River area. Describe which elements would be monitored, what would be the established environmental effects limits and proponent's response.
<p>HML Answer</p> <p>The follow up and monitoring programs for all biophysical components are described in Chapter 9 of the Howse Project EIS.</p> <p>In addition, HML is committed to:</p> <p>HML has put in place various communication and socioeconomic monitoring mechanisms collaboratively with affected Aboriginal communities, which will be maintained for the Howse Project. In addition to complying with all regulatory requirements, and to applying its EPP, HML will continue to carry-out the following monitoring, mitigation and communication measures pertaining to community issues:</p> <ul style="list-style-type: none"> • community HSE Committee meetings, held 3-4 times per year, to provide a forum for HML and affected Aboriginal communities to discuss and address as a group health, safety and environmental matters relating to the Howse and DSO Projects, and to assess Project effects and monitoring measures in place. Participation in meetings by experts on matters requiring specific advice, will continue to be possible and encouraged. Information from Committee meetings, including presentations and minutes, is made available electronically to Committee members and environmental information on the Project is made available on the Committee shared drive. HML will work with Committee members to inform the community at-large of the salient points of the matters discussed; • agreement Implementation Committee meetings, held periodically and on an individual basis with each Aboriginal group, to assess: <ul style="list-style-type: none"> ○ aboriginal employment levels and training carried out, in relation to HML's activities, and gender equity; ○ aboriginal contracting levels; ○ financial benefits flowing to the communities, as per its agreements; • regional Steering Committee on Mining Issues to discuss and address issues faced by residents in the region as they relate to mining activities; and • HML Environment, Safety and Community Affairs personnel present on-site, in the Schefferville region and that can be reached 7 days per week, responsible for assessing and responding to community matters and/or concerns. 						

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This manner of monitoring and following up on the effects of the project on lands and resources used by Indigenous communities allows for the local land users to effectively 'control' which regions will be focused on, notably the Howells River area.						
CEAA 61	NL – Arch - 01	5(1)(c)(iv) any Structure, Site or Thing of Historical, Archaeological, Paleontological or Architectural Significance	6.3.4	7.5.1.2	Arkeos recorded a spot archaeological find (i.e. pre-contact artifacts on the surface in different areas, and two ethnographic sites close to the northern terminus of road alternative #2). However, the EIS does not include an assessment of this road alternative on archaeological resources despite potential for effects on Indigenous Peoples (5(1)(c)).	<ul style="list-style-type: none"> Conduct and present an analysis of potential effects on structures, sites, or things that are of archeological significance as a result of the construction and use of road alternative #2. Update the proposed mitigation measures, follow-up program, and determinations of significance with respect to effects on Indigenous Peoples' archeological resources, as applicable.
HML Answer The Proponent has removed Bypass Road Alternative 2 from consideration.						
CEAA 62	CEAA IN-IR-8	All	6.3.4	7, 8	In its response to IN-8, the proponent advised the Innu Nation that it would restore the project site to existing vegetated conditions following mine closure and conduct a study on restoration methods. Given technical challenges of working in northern climates, additional discussion of the potential restoration approach is required to understand its feasibility	<ul style="list-style-type: none"> Provide additional detail and clarity with respect to the contents of a restoration plan taking into account general timelines for restoration goals. Discuss potential challenges of restoring the mine site to existing vegetated conditions following mine closure given the northern climate. Describe proposed measures that would be implemented to address these challenges. State whether the proposed restoration methods study would be conducted in consultation with Indigenous groups.
HML Answer						

IR No	Dept No	Effects Link to CEAA 2012	Link to EIS guidelines	EIS Reference	Context and Rationale	Specific Question/ Request for Information
<p>The Proponent will restore the project site to existing conditions, and so several sites, which are currently disturbed, will remain as-such. For those sites that will need restoration, the proponent is investigating the different methodologies that are available for restoration at such a challenging site. Some of the avenues that the Proponent is investigating/considering:</p> <ul style="list-style-type: none"> - An erosion management plan is being completed. The Plan includes erosion control methods that the Proponent should employ that will facilitate with site restoration - The proponent suggests that removing in a whole swath (instead of in pieces) and placing the material in an appropriate area will help in revegetation - The top layer of stripped organic matter would be deposited in, for example, a disturbed area, far from any watercourse, to promote revegetation of a wetland. - The Mixed Conventional and In-Pit mining technique will help with the revegetation - In 2013, TSMC worked in collaboration with the University of Laval on a research program related to IOC restoration of the waste rock; the project has been rejected by Canada Research and development program and University of Laval decided to stop the program. At the same time TSMC, would like to continue this program and develop a more specific approach on restoration for the DSO project and the Howse Project; in 2015, a new research program started in collaboration with U of Laval, McGill university, T2 environment and Viridis Terra innovation; the research program is focusing on a development of a mycorrhiza and roots nutrient that can help the development of vegetation on a waste rock pile without organic materials, titled: titled: Isolement, identification et sélection des symbiotes végétaux racinaires en vue d'améliorer la réhabilitation des habitats de la toundra arctique et alpine du Québec affectés par l'exploitation minière [<i>Isolation, identification and selection of symbiotic roots in order to improve the rehabilitation of Quebec arctic tundra habitats that have been affected by mining exploration activities</i>] <p>Any study on restoration methods will be conducted in consultation with Indigenous groups.</p>						
CEAA 63	CEAA	5(1)(c)(iii) Current Use of Lands and Resources for traditional purposes	6.3.4	7.5.2.1, 7-329	The map of known harvesting sites does not include activities on Kauteitnat, yet text indicates that alpine cranberry is the main harvest in the fall on Kauteitnat.	<ul style="list-style-type: none"> • Describe the effects on current use of Kauteitnat by Indigenous Peoples and the mitigation measures to address these effects. Update the analysis and determination of significance, as appropriate.
<p>HML Answer</p> <p>Concerns raised during the public consultations (Chapter 4) were:</p> <ul style="list-style-type: none"> - Kauteitnat is a sacred place. There is concern about the proximity of the pit to this site (too close); - Kauteitnat Mountain is an observation point. Caribou could be spotted from the top. Elders are very attached to Kauteitnat; - There is a fear that the final objective is to eventually mine the Kauteitnat Mountain; - Concerns that blasting activities may affect Kauteitnat; 						

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<p>- Kauteitnat has a lot of history, particularly geological history; and - The mountain is considered as a nice area that should become a park but protection has never been discussed.</p> <p>The Proponent is committed to providing the communities to continued and unobstructed access to Kauteitnat via the North Road-Greenbush bypass road. This road leads to the Howells River area, including - Kauteitnat. Section 7.5.2.1 provides a description of how each indigenous group uses Kauteitnat, including harvesting berries. The Proponent will not conduct any activities in/on Kauteitnat and expects to transfer the mining claims to Kauteitnat to the local communities.</p>						
CEAA 64	CEAA	5(1)(c)(iii) Current Use of Lands and Resources for traditional purposes 5(1)(c)(ii) Aboriginal Physical and Cultural Heritage 5(1)(c)(iv) any Structure, Site or Thing of Historical, Archaeological, Paleontological or Architectural Significance	6.3.4	7.5.2.1.4.1, 7-343	Indigenous groups have expressed concerns regarding the visual impacts of the Project on the adjacent and culturally important Kauteitnat. The proponent is proposing to mitigate this impact through a 500 meter buffer between the mountain and the Project. However, it is challenging to visualize the impact and proposed mitigation without some type of modelling/virtual representation.	<ul style="list-style-type: none"> • Provide a model or virtual representation of the Project area (before construction, during operation, abandonment and post reclamation) from and toward Kauteitnat to better understand the visual impact of the Project on Kauteitnat. • Estimate the area of land (i.e. hectares) that would be permanently affected as a result of the Project (e.g. as a result of roads or any other features that would remain post-Project)?

IR No	Dept No	Effects Link to CEAA 2012	Link to EIS guidelines	EIS Reference	Context and Rationale	Specific Question/ Request for Information
HML Answer						
The Proponent is finalizing a visualization product in response to this IR. A video will be released in the next month or so after a final update and review and will be provided shortly.						
CEAA 65	CEAA	5(1)(c) Aboriginal Peoples – Overall Comments	3.2.3. Decommissioning, Reclamation and Abandonment.	4, 10	There is little information on the reclamation plan. Indigenous groups expressed concern regarding the reclamation of the project site. For instance, they would like to see the pit returned to its original state instead of being filled in with water. This is relevant to current use of lands and resources by Indigenous groups and on Aboriginal Physical and Cultural Heritage.	<ul style="list-style-type: none"> Describe the reclamation activities in greater detail to provide a clear understanding of the environmental conditions during and following reclamation, including: what specific steps would occur and how would effects on Indigenous Peoples, including their use of the land and Kauteitnat, during and following reclamation be addressed.
HML Answer						
The mine plan for Howse contemplates concurrent back-filling with overburden. This implies that as the ore from one section of the pit is exhausted, it will be back-filled with the overburden from the adjoining section that is proposed as part of the next sequence of mining. This scheme of mining will back-fill a sizeable part of the pit, except the last sections from where ore is removed at the end of mine life. This void will be filled with natural water.						
As regards reclamation of all the dumps and the back-filled pit, they will be planted with fast growing grasses.						
CEAA 66	CEAA	5(1)(c)(iii) Current Use of Lands and Resources for traditional purposes	6.3.4	7.5.2.1.3	<p>It is unclear whether progressive restoration and revegetation, as proposed by the proponent, are technically feasible given the climate where the Project is proposed.</p> <p>Revegetation must be demonstrated to be achievable in this climate within a reasonable timespan. Otherwise the proponent should take a precautionary approach to the effects assessment and not rely on revegetation in its determination of significance.</p>	<ul style="list-style-type: none"> Provide analysis to demonstrate whether progressive reclamation is technically and economically feasible within a reasonable timespan in the context of the local climate.
HML Answer						
See answer to CEAA 62:						

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<p>- In 2013, TSMC worked in collaboration with the University of Laval on a research program related to IOC restoration of the waste rock; the project has been rejected by Canada Research and development program and University of Laval decided to stop the program. At the same time TSMC, would like to continue this program and develop a more specific approach on restoration for the DSO project and the Howse Project; in 2015, a new research program started in collaboration with U of Laval, McGill university, T2 environment and Viridis Terra innovation; the research program is focusing on a development of a mycorrhiza and roots nutrient that can help the development of vegetation on a waste rock pile without organic materials, titled: Isolement, identification et sélection des symbiotes végétaux racinaires en vue d'améliorer la réhabilitation des habitats de la toundra arctique et alpine du Québec affectés par l'exploitation minière [<i>Isolation, identification and selection of symbiotic roots in order to improve the rehabilitation of Quebec arctic tundra habitats that have been affected by mining exploration activities</i>]</p>						
CEAA 67	CEAA	5(1)(c)(iii) Current Use of Lands and Resources for traditional purposes	Part 2, Section 4 and Section 6.3	Section 4 and Section 7	The analysis of the effects of the Project on fishing and hunting in proximity to Triangle Lake, Pinette Lake, Rosemary Lake and Goodream creek is insufficient. The EIS indicates that some fishing, hunting and gathering activities, as well as use of Kauteitnat take place but would not be impacted by the Project, despite some of these sites being located less than a kilometer from the proposed Project. For example, the EIS notes that fishing may decrease in Pinette and Triangle Lakes, however, the impact is lessened as much of the fishing takes place at Rosemary Lake.	<ul style="list-style-type: none"> • Reconsider and describe potential effects of the Project on land uses (i.e. fishing, hunting, gathering) at Triangle Lake, Pinette Lake, Goodream Creek, and Kauteitnat. • Provide an analysis of whether Rosemary Lake has the capacity to sustain increased fishing activities that could occur if Indigenous fishers are displaced as a result of the Project.
<p>HML Answer</p> <p>Fishing activities may decrease at, for example, Pinette Lake, because of public perception about having a mining project nearby, but the HHRA and the water and aquatic fauna section of the EIS states that there will be no effects at this location. Further, the Proponent will upgrade the bypass road that leads to many of these fishing locations, thereby improving accessibility. During a recent DFO visit to the site, HML recorded the following comments:</p> <p><u>Pinette Lake</u> HML recorded the following about Pinette Lake from a DFO site-visit in August 2016: DFO stressed how great of a fish habitat the lake was. The Howse Property Project will not have any effects on this lake.</p> <p><u>Goodream Creek</u> HML recorded the following from a DFO site-visit in August 2016: Goodream Creek looked good.</p> <p><u>Kauteitnat</u> See answers to CEAA 20, 54, 55, 56, 63, and 65 of the present document.</p>						

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<p><u>Rosemary Lake</u></p> <p>Several studies/statements in the EIS support the fact that local land users already prefer to use Rosemary, and so the increased activities at Rosemary are expected to be minimal. For example: The land-use study conducted for the purpose of the Howse Project (Volume 2 Supporting Study C) concluded that land-users mostly circulate through the Howse Project area to travel to other harvesting zones, towards the Greenbush/Goodwood areas, or towards Rosemary Lake. As such, the possible increased activities at Rosemary Lake will not be substantial (since it is already a prime location for locals). Further, some species, such as ptarmigan, waterfowl, and grouse, are harvested in the area. However, many harvesters now prefer to go elsewhere or farther towards the Rosemary Lake / Goodwood areas to avoid the mining activities. In addition, the location that was most used by Innu families, within the study area, was the surrounding of Rosemary Lake. The Timmins-Kivivik bypass road requires more time to access to some part of the territory (Rosemary Lake for example) which also involves an additional cost in fuel for the land-users and so it is possible that people will avoid this area due to ease of access.</p>						
CEAA 68	IN-IR-14	5(1)(c)(iii) Current Use of Lands and Resources for traditional purposes	6.3.4	7, 8	The proponent indicated in a response to the Innu Nation that it hired Innu experts and collected data/information on wildlife. The Innu Nation has requested that ATK and lands use information be continually updated in consultation with indigenous peoples.	<ul style="list-style-type: none"> Describe whether and how ATK and land use information would inform the follow-up and monitoring programs on an ongoing basis to ensure environmental effects, including effects on Indigenous Peoples, are accurately captured.
<p>HML Answer</p> <p>Section 9.3 of the EIS states:</p> <p>HML has put in place various communication and socioeconomic monitoring mechanisms collaboratively with affected Aboriginal communities, which will be maintained for the Howse Project. In addition to complying with all regulatory requirements, and to applying its EPP, HML will continue to carry-out the following monitoring, mitigation and communication measures pertaining to community issues:</p> <ul style="list-style-type: none"> community HSE Committee meetings, held 3-4 times per year, to provide a forum for HML and affected Aboriginal communities to discuss and address as a group health, safety and environmental matters relating to the Howse and DSO Projects, and to assess Project effects and monitoring measures in place. Participation in meetings by experts on matters requiring specific advice, will continue to be possible and encouraged. Information from Committee meetings, including presentations and minutes, is made available electronically to Committee members and environmental information on the Project is made available on the Committee shared drive. HML will work with Committee members to inform the community at-large of the salient points of the matters discussed; agreement Implementation Committee meetings, held periodically and on an individual basis with each Aboriginal group, to assess: <ul style="list-style-type: none"> aboriginal employment levels and training carried out, in relation to HML's activities, and gender equity; aboriginal contracting levels; financial benefits flowing to the communities, as per its agreements; regional Steering Committee on Mining Issues to discuss and address issues faced by residents in the region as they relate to mining activities; and 						

IR No	Dept No	Effects Link to CEEA 2012	Link to EIS guidelines	EIS Reference	Context and Rationale	Specific Question/ Request for Information
<ul style="list-style-type: none"> HML Environment, Safety and Community Affairs personnel present on-site, in the Schefferville region and that can be reached 7 days per week, responsible for assessing and responding to community matters and/or concerns. 						
CEAA 69	CEAA IN-IR-15	5(1)(c)(iii) Current Use of Lands and Resources for traditional purposes 5(1)(c)(ii) Aboriginal Physical and Cultural Heritage 5(1)(c)(iv) any Structure, Site or Thing of Historical, Archaeological, Paleontological or Architectural Significance	6.3.4	7-185	<p>The Innu Nation noted that there was a lack of ATK reflected in the EIS with respect to anthropogenically- altered landscapes.</p> <p>Under the Aboriginal traditional knowledge section for anthropogenically-altered landscapes, the EIS states that aside from land use patterns (discussed in Section 7.5.2.1), no specific information concerning anthropogenically-altered landscapes is available. The EIS did note in another section that concerns were raised by Indigenous Peoples regarding the visual impacts of the Project with respect to Kauteitnat; and, also with respect to mining in general in the area and the impact it had on the land.</p>	<ul style="list-style-type: none"> Present local Aboriginal knowledge or experience (based on studies and consultations to-date, and information presented elsewhere in the EIS) about how the regional ecology and land use has been changed as a result of the creation of these “anthropogenically-altered landscapes”, and in particular to developments near Kauteitnat. Include this information in a revised effects assessment so that effects in relation Indigenous Peoples (section 5(1)(c)) due to the changing landscape are clear and reflective of traditional knowledge. Revise mitigation measures and effects conclusion as appropriate.
<p>HML Answer</p> <p>Local people have expressed concerns over changes that have occurred over time in the Schefferville area, notably:</p>						

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<ul style="list-style-type: none"> • Avifauna The NIMLJ are concerned that the environmental effects of mining have been driving migratory birds away and have affected their reproduction and the traditional practice of goose hunting, mostly on the Howells River; • Dust Locals avoid picking berries for fear that they are contaminated by the dust. Concerns that resources will be affected by dust and that wildlife will move away. Dust is considered as an important issue and its effects on air quality, water quality and health is a concern; • Caribou People are well aware of the decrease in caribou population, which they partly attribute to climate change, mining activities, and other natural causes. Informants have stated that the caribou does not come into the area of the mining projects anymore (north west of Schefferville), or near the Howse Project proposed site, and that they have not harvested caribou in the area for the past five years; • Access Concerns regarding access to land for subsistence activities. From Volume 2, Appendix C: Mining and community/municipality development factors have changed habits of mobility and land use. Setting up of long-term camps is no longer routine. Accessibility of gravel roads allows people to return home at the end of the day. Permanent camps are not located farther away; and • The IN are concerned about the effects of dewatering on the watersheds and ecosystems, as well as about the effect of the numerous mining projects on water quality in the region. <p>All mitigation measures for the Howse Property EIS were reviewed and re-presented in CEAA 2 (Part 1).</p>						
Caribou / Wildlife						
CEAA 70	IN-IR-56	5(1)(c)(iii) Current Use of Lands and Resources for traditional purposes	6.3.4	7.5.2.1.2, p.7-333	The EIS discusses the potential for the George River Caribou Herd to recover and return to the region. The proponent relies on a single personal communication to support its views that the herd is unlikely to recover during the lifetime of the proposed Project.	<ul style="list-style-type: none"> • Provide additional substantiation, including peer-reviewed reference(s), if available, to support the idea that it is unlikely that the George River Caribou Herd would recover during the life of the proposed Project.
<p>Answer sent to CEAA August 22</p> <p>HML Answer</p> <p>The last population size estimate provide in the EIS is 14,200 animals in 2014. Since then, the wildlife division has indicated to the Proponent that the herd has declined further by 30%, to 10,200 animals in 2015. An information update on the George River Caribou published in May 2015 by the Department of Environment and Conservation of the Government of Newfoundland and Labrador under the Labrador Caribou Initiative provides the most up to date and comprehensive evaluation of the George River Caribou herd. According to the document, in addition to the population size decline, the demographics of the population are so poor that they cannot support population stabilization or recovery. Indeed, survival for individuals of all ages and sexes is much lower than what is needed to sustain a caribou population (let alone promote herd recovery).</p>						

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The predicted population trends in a scenario where no hunting occurs, the projections are for herd stability over the next few years. Although the population demographic results indicate an improvement in the number of calves and males in the population, the document also states that these numbers are still far from supporting population stabilization .						
CEAA 71	CEAA	5(1)(c)(iii) Current Use of Lands and Resources for traditional purposes	6.3.4	7.4.3.3, page 7-221, 7-212	Although the EIS states that there are presently no caribou in the LSA, it also states that seven caribou were observed there in 2009. According to Table 7-81, 71% of LSA is suitable caribou habitat (p.7-212, Table 7-81). The EIS states that the Innu and Naskapi expect the caribou to return to LSA and fear that Project would modify caribou <u>migrating routes</u> . Figure 7-34 shows caribou movement around the Project site in both spring and fall. Page 7-212 states that 1.2 km ² of caribou <u>feeding habitat</u> would be affected by the Project.	<ul style="list-style-type: none"> Provide an additional background analysis on the use of the LSA by the George River Caribou Herd historically and in the recent past, recognizing limitations on existing data. Clarify the type of habitat that the LSA provided for caribou (i.e. was the LSA historically a migratory route? Did it serve as a feeding habitat or did it support the types of vegetation or protection typically preferred by caribou? Based on Aboriginal Knowledge, during what time of the year were caribou likely to be present?).
<p style="background-color: red; color: black; padding: 2px;">Answer sent to CEAA August 22</p> <p>HML Answer</p> <p>Overall, the herd has exhibited little site fidelity across its entire range, with the exception of the calving areas, which are located in the vicinity of Nain, Labrador (Gov NL 2010 consultations report). Historical maps (pre-2000), show that the herd could occupy the Schefferville area throughout the year, with the exception of spring, where calving areas were located further to the northeast (VBNC EIS Chapter 16). As such, the Schefferville area likely served as a combination of feeding and migrating habitat for the herd prior to 2000. A 2010 map produced by the Wildlife Division of the government of Newfoundland and Labrador indicate that the herd's range was much more restricted at that time, at which point it did not intersect with the Schefferville area at any point during the year. It can be assumed that the herd's range shrunk as a result of the population decline.</p>						
CEAA 72	CEAA	5(1)(c)(iii) Current Use of Lands and Resources for	6.3.4	Analysis p. 7-212 to 7-220	<p>The EIS states that migratory tundra caribou can avoid mining infrastructure up to 14 km and that their perception abilities reach 15 km (p. 7-212).</p> <p>Although the LSA is a 15 km radius around the Project, the EIS concludes that only 1.2 km² of caribou feeding habitat would be</p>	<ul style="list-style-type: none"> Provide a rationale for determining that 1.2 km² of caribou feeding habitat would be destroyed or severely disturbed, including a description of pathways of effects included in this calculation. Provide an analysis of the full extent of caribou habitat that would be (1) directly lost and (2) indirectly affected (e.g. by

IR No	Dept No	Effects Link to CEAA 2012	Link to EIS guidelines	EIS Reference	Context and Rationale	Specific Question/ Request for Information
		traditional purposes			destroyed or severely disturbed (p. 7-219, 7-220). It is not clear on what basis the 1.2 km ² figure was derived from, but it is presumed to be the area of direct habitat loss from the Project footprint.	<p>noise, light, blasting) by the Project, recognizing that caribou can avoid mining infrastructure up to 14 km and that their perception abilities reach 15 km. Include effects of blasting in this discussion.</p> <ul style="list-style-type: none"> Calculate and present (in hectares) the full extent of caribou habitat that would be (1) directly lost and (2) indirectly affected (e.g. by noise, light, blasting) by the Project. Present results of habitat lost/affected by the Project as a percentage of available caribou habitat in the RSA.
<p>Answer sent to CEAA August 22</p> <p>HML Answer</p> <p>The calculation of the direct habitat loss was made using the Project footprint. As a result, the amount of direct caribou habitat loss is 1.2 km². The amount of indirect caribou habitat loss is 707 km², which is the area of the LSA, which is the area where the project is expected to have effects on caribou, which is reflective of their perceptive abilities. Within this area, it is expected that caribou will exhibit avoidance behavior of the site, which is defined as indirect habitat loss in this case.</p> <p>The population range of the GRCH spans 700 000 km² across Québec-Labrador (VBNC EIS Chapter 16). The Howse Project LSA for caribou is 707 km², representing 0.1% of the population's entire range.</p>						
CEAA 73	CEAA	5(1)(c)(iii) Current Use of Lands and Resources for traditional purposes	6.3.4	7.4.3.3, page 7-221, 7-212	The EIS states that activities would cease if caribou were to be spotted within 5 km of an active pit or the processing complex and that this distance is in accordance with the range of disturbance affecting caribou.	<ul style="list-style-type: none"> Provide a rationale for selecting 5 km as the distance from the Project that would initiate the cessation of operations if caribou were to be spotted, recognizing that literature states that effects on caribou could extend up to 15 km. Update proposed mitigation measures, if applicable. Describe the specific "activities" that would be ceased if a caribou is spotted within 5 kilometers. Explain how long activities would remain shut-down if caribou were observed in the area? Explain actions that would occur if caribou were to linger in the area (i.e. would activities remain on hold indefinitely)?
<p>Answer sent to CEAA August 22</p>						

IR No	Dept No	Effects Link to CEEA 2012	Link to EIS guidelines	EIS Reference	Context and Rationale	Specific Question/ Request for Information
<p>HML Answer</p> <p>The selection of 5 km as the distance from the Project was based on general acceptance. This distance (and mitigation measure) was previously proposed under the Elross Lake Area Iron Ore Mine (ELAION) EIS, which was accepted by the provincial government (Newfoundland and Labrador) as well as the DSO4 Project 2a (Quebec & Kativik Commission), which was accepted with conditions. Although caribou perception extends to 15 km, the Proponent would not cease operations if caribou were spotted between 5 and 15 km from the site. Rather, the Proponent is committed to instituting surveys if caribou are detected within a 20 km radius to monitor their movements in greater detail.</p> <p>If caribou is spotted within 5 km of the mining operation there we will be no blasting or hauling activities in the area. Activities will remain halted until we can confirm that the caribou has left the area and all risks have been mitigated, both to the caribou and to the mining team in the area. This situation will be handled very similar to when a bear is in the mining area. Bangers and air horns will be employed to attempt to chase the caribou out of the area.</p>						
CEAA 74	NL- Wildlife Division	5(1)(c)(iii) Current Use of Lands and Resources for traditional purposes	6.3.4	7.4.3.3 page 7-221, Table 7-82	The EIS states that “blasting must be suspended in certain circumstances to avoid excessive disturbance of wildlife.”	<ul style="list-style-type: none"> Provide a rationale and discussion of the proposed mitigation measure (i.e. <i>suspending blasting in certain circumstances to avoid excessive disturbance of wildlife</i>) including providing clarification of what would be defined as “certain circumstances”, “excessive disturbance”, and “wildlife”.
<p>Answer sent to CEEA August 22</p> <p>HML Answer</p> <p>If caribou is spotted within 5 km of the mining operation there we will be no blasting or hauling activities in the area. Activities will remain halted until we can confirm that the caribou has left the area and all risks have been mitigated, both to the caribou and to the mining team in the area. This situation will be handled very similar to when a bear is in the mining area. Bangers and air horns will be employed to attempt to chase the caribou out of the area.</p>						
CEAA 75	NL- Wildlife Division,	5(1)(c)(iii) Current Use of Lands and Resources	6.3.4	7.4.3.3, page 7-222, Table 7-82	The EIS states “where possible, operation activities will avoid areas of wildlife concentration, as traffic would disturb wildlife during critical periods.” There is insufficient information to understand the circumstances where areas would be avoided and when they would	<ul style="list-style-type: none"> Provide a rationale and discussion of the proposed mitigation measure (i.e. <i>having operations activities avoid areas of wildlife concentration where possible during critical periods</i>) including:

IR No	Dept No	Effects Link to CEAA 2012	Link to EIS guidelines	EIS Reference	Context and Rationale	Specific Question/ Request for Information
	CEAA	for traditional purposes			<p>not be avoided. It is not possible to understand the potential for effects without additional information.</p> <p>The Wildlife Division (Newfoundland and Labrador) has also advised that given caribou have not been observed in the area in over 5 years, impacts are not likely to occur. However, if caribou are observed in the area, operations should avoid these areas until caribou have moved away. Activities that may be permitted should be outlined in an EPP approved by the NL Wildlife Division.</p>	<ol style="list-style-type: none"> 1. describe the circumstances where avoiding areas of wildlife concentrations would not be possible and the potential effects that would occur; 2. describe the distance at which Project activities would avoid areas of wildlife concentrations; explain how the distance was established to address effects; 3. describe which Project “activities” are included in the proposed mitigation measure (i.e. how were activities selected in order to mitigate effects on wildlife?); 4. explain how “wildlife concentrations” are defined; and 5. identify which wildlife species are included in the proposed mitigation measure (i.e. caribou only? other species?).
<p>Answer sent to CEAA August 22</p> <p>HML Answer</p> <ol style="list-style-type: none"> 1. The proponent does not envisage any circumstance where avoiding areas of wildlife concentrations would not be possible; 2. If caribou is spotted within 5 km of the mining operation there we will be no blasting or hauling activities in the area. Activities will remain halted until we can confirm that the caribou has left the area and all risks have been mitigated, both to the caribou and to the mining team in the area. This situation will be handled very similar to when a bear is in the mining area. Bangers and air horns will be employed to attempt to chase the caribou out of the area. The Proponent will initiate a discussion with the Government of Newfoundland and Labrador’s Wildlife Division to determine the appropriate action should caribou not move away from project activities. This distance is in accordance with the range of disturbance affecting caribou that is presented for the site Construction phase; 3. Blasting or hauling activities in the area will cease. These activities cause the most noise and so it is expected that their cessation would reduce the most amount of noise from the mine site rapidly; 4. In the case of caribou, a single animal will trigger this mitigation measure; 5. These measures will be applied to Caribou and Bear, as described in the Proponent’s EPP document (Appendix 1a). 						
CEAA 76	NL – Wildlife Division	5(1)(c)(iii) Current Use of Lands and Resources for	6.3.4	7.4.3.3, page 7-222, Table 7-82	The EIS states “Under an agreement with the Ungava project and CARMA, TSMC’s Environmental Specialist / Permit Manager will be notified when migratory tundra caribou, which are monitored via satellite collars, come within 100 km of the Howse Project. Upon receipt of such a notice, operations will continue with caution. If data	<ul style="list-style-type: none"> • Provide a rationale and discussion of proposed mitigation measures related to caribou including: <ol style="list-style-type: none"> a. Explain how many collars would be accessed through the agreement with the Ungava project and CARMA.

IR No	Dept No	Effects Link to CEAA 2012	Link to EIS guidelines	EIS Reference	Context and Rationale	Specific Question/ Request for Information
		traditional purposes			<p><i>from the radio collars indicate that some of the caribou have moved to within 20 km of the Howse Project, TSMC will institute surveys within that radius to monitor their movements in greater detail."</i></p> <p>It is not clear how many collars are accessed through the agreement with the Ungava project and CARMA.</p> <p>In addition, the EIS includes only limited information on the course of action that would be taken should caribou move into the area.</p> <p>The Wildlife Division (Newfoundland and Labrador) has recommended that the proponent provide it with an annual report including caribou locational data provided to the company to demonstrate that caribou have not been within the project footprint.</p> <p>If caribou do move into the area (i.e. within 20 km), the Wildlife Division has advised that it should be contacted to determine next steps and reporting mechanisms.</p> <p>If, through the monitoring of telemetry data, it is found that caribou have moved within 20 km of the Howse Project, the Wildlife Division (Newfoundland and Labrador) has recommended that it be contacted within 24 hours (if caribou move closer to operations, contact the Wildlife division immediately). In addition, if caribou are within 20 km of the Project, the Wildlife Division (Newfoundland and Labrador) recommended that the proponent augment telemetry information by deploying and/or maintaining additional collars to assist monitoring efforts and inform the development of additional mitigation, exact number to be determined by the Wildlife Division.</p>	<ul style="list-style-type: none"> b. State whether- and under what circumstances existing telemetry information would be augmented (e.g. by purchasing, deploying and/or maintaining additional collars). c. Describe plans for reporting on locational caribou data including: what would be reported on, who the information would be provided to, and how often reporting would occur. d. Propose a reporting scheme, in the case that caribou move into the area. e. Provide a description of surveys that would be conducted, if caribou move within 20 km of the Project. Clarify whether surveys would be conducted by TSMC or the proponent. f. Describe the circumstances under which additional mitigation measures (adaptive management) would be implemented. g. Describe specific adaptive management actions (i.e. mitigation measures) that could be taken to minimize disturbance to caribou and current use.

Answer sent to CEAA August 22

IR No	Dept No	Effects Link to CEAA 2012	Link to EIS guidelines	EIS Reference	Context and Rationale	Specific Question/ Request for Information
HML Answer						
<p>a. Caribou are being monitored for HML under an agreement between TSMC and the Ungava project and CARMA. The Proponent does not know exactly how many animals from the GRCH have been collared under the UNGAVA research Program. The Government of Newfoundland and Labrador, itself a partner in the UNGAVA Program, may be aware of these numbers.</p> <p>b. The decision to purchase more collars will be joint between all the partners in the UNGAVA program.</p> <p>c. If monitoring data from the radio collars indicate that some of the caribou have moved to within 20 km of the Howse Project, TSMC will institute surveys within that radius to monitor their movements in greater detail. Survey details will be evaluated during the early years of operation. Initially, preference will be given to fixed-point observations along high ground areas adjacent to the Howse Project activity sites and to snowmobile- and ATV-based searches by members of the local First Nations hired by HML, with instructions to avoid disturbing the animals. It is expected that the inclusion of Aboriginal people's help will benefit from the knowledge about the movements of caribou in the area. If ground-based surveys do not prove to be useful or feasible, HML will initiate aerial surveys. Special care will be taken at all times not to interfere with the activities of First Nation hunters.</p> <p>d. The data collected during the surveys (number, age and sex; location of sightings; topography of sighting location) will be communicated frequently to the authorities concerned, who will be asked for advice with respect to the course of action to be followed, the overall goal being to reduce nuisance. Propose a reporting scheme, in the case that caribou move into the area.</p> <p>e. See answer c) above</p> <p>f. See answer c) above</p> <p>g. See section 7.4.3.3 of EIS document</p>						
CEAA 77	NL – Wildlife Division, CEAA	5(1)(c)(iii) Current Use of Lands and Resources for traditional purposes	6.3.4	9.2.2 Follow-up	<p>The EIS suggests that caribou surveys will include fixed-point observations and ATV-based searches. It states that <i>“if ground-based surveys do not prove to be useful or feasible, HML will initiate aerial surveys.”</i></p> <p>Ground based caribou surveys are generally not useful to inform mitigation measures or monitoring programs. Rather, aerial surveys conducted in winter provide more useful information.</p>	<ul style="list-style-type: none"> Provide information on the caribou monitoring program, including whether aerial surveys would be conducted in winter months and how frequently these surveys would occur.
Answer sent to CEAA August 22						
HML Answer						

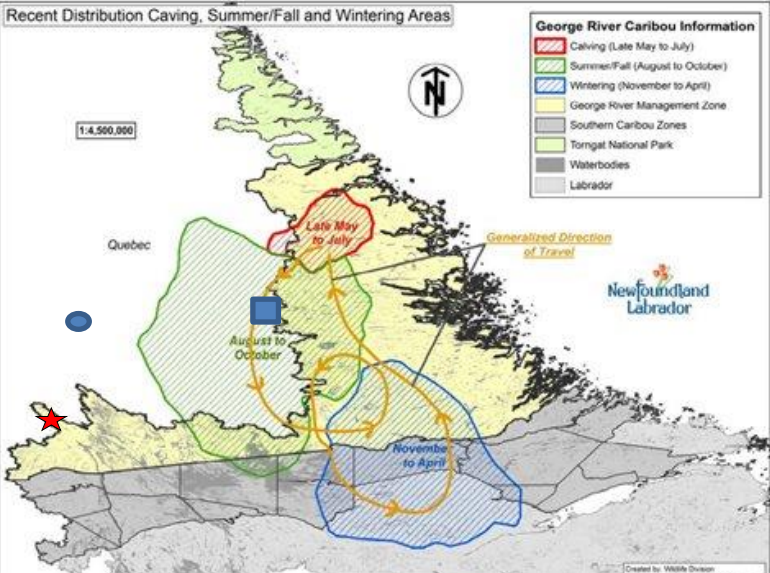
IR No	Dept No	Effects Link to CEAA 2012	Link to EIS guidelines	EIS Reference	Context and Rationale	Specific Question/ Request for Information
<p>Caribou are being monitored for HML under an agreement between TSMC and the Ungava project and CARMA. This monitoring consists of telemetric data currently available from the CARMA program. Under this program, HML's Environmental Specialist / Permit Manager will be notified when migratory tundra caribou venture within 100 km of the Howse Project. Upon receipt of such a notice, operations will continue with caution. If monitoring data from the radio collars indicate that some of the caribou have moved to within 20 km of the Howse Project, TSMC will institute surveys within that radius to monitor their movements in greater detail.</p> <p>The Proponent is amenable to conducting aerial surveys of caribou, as requested. The data collected during the surveys (number, age and sex; location of sightings; topography of sighting location) will be communicated frequently to the authorities concerned, who will be asked for advice with respect to the course of action to be followed, the overall goal being to reduce nuisance.</p>						
CEAA 78	CEAA	5(1)(c)(iii) Current Use of Lands and Resources for traditional purposes	6.3.4	7.4.3.4 p. 7-225	<p>In concluding on the magnitude of effects on caribou, the EIS states that interactions between the Project and caribou could cause behavioral changes and site avoidance, which could in turn lead to delayed effects, such as predator-prey interactions, leading to population-wide effects. It further states that effects are impossible to predict, much less quantify. It concludes that effects of the Howse Project will therefore be at the individual level.</p> <p>This is the first and only time predator-prey interactions are discussed in the caribou section. There is no correlation between the statement that population-wide effects could occur and the final conclusion of effects at the individual level.</p>	<ul style="list-style-type: none"> • Provide an analysis of potential change in predator-prey interactions as a result of the Project, and how this would affect the effects analysis of current use of lands and resources by Indigenous Peoples. • Clarify the conclusions related to the <i>magnitude</i> and significance determination based on the information provided.
<p>Answer sent to CEAA August 22</p> <p>HML Answer</p> <p>The statement about predator-prey interactions was included in the EIS because it is a possible eventual effect of the project on the GRCH. However, much like climate change effects can be inferred but not predicted, alterations in predator-prey interactions are a long-term and indirect effect that cannot be predicted. Rather, changes to predator-prey interactions, if they occur, will be identified via close monitoring, and the Proponent suggest that the Labrador Caribou Initiative is in the best position to identify this effect, if it occurs, in the future. The second phase of the Caribou Ungava program (2015-2020) will focus on the ecology of the caribou's main predators (grey wolf and black bear).</p> <p>The conclusion of the magnitude of the effect of the Project on caribou remains the same, as the effects, nor their likelihood, cannot be predicted.</p>						

IR No	Dept No	Effects Link to CEEA 2012	Link to EIS guidelines	EIS Reference	Context and Rationale	Specific Question/ Request for Information
CEAA 79		Species At Risk Act, s.79	6.3.3	7.4.6	No effects analysis was provided on the Little Brown Bat, yet it is possible the species is present in the region of the Project and could interact with the Project.	<ul style="list-style-type: none"> Describe the potential effects of the Project on the Little Brown Bat (e.g. destruction/modification of hibernacula and roosts, loss of foraging habitat, noise, light, vibration, spread of white-nose syndrome by entering habitat) and associated rationale to support the assertion that general avoidance would be sufficient to mitigate these effects. Explain whether or not there would be residual effects following mitigation measures.
<p>Answer sent to CEEA August 22</p> <p>HML Answer:</p> <p>As stated in the Howse EIS' the species was not confirmed during any of the surveys conducted in the vicinity or the Howse EIS, where an attempt was made to identify roosting and hibernacula. Indeed, the Government of Newfoundland and Labrador indicates that Schefferville is at the northern edge of this species' range.</p> <p>Broders et al. (2013) collected baseline data on the presence of the Little Brown Bat in Labrador and results suggest that occurrences of the little Brown Bat in Labrador are limited by the presence of appropriate habitat, which consists of productive forests with commercial value. The authors conclude therefore that the Little Brown Bat rely on human occupations for habitat in Labrador. Given the lack of commercial forests in the Howse Project area, we therefore also conclude that the Little Brown Bat would occupy human dwellings. Here, it would be susceptible to white-noise syndrome, which is spreading across Canada. However, it is possible that the extreme cold winters in Schefferville prevent white-noise syndrome from spreading. The Howse Project would have no effect on Little Brown Bat habitat as defined by Broders et al. (2013).</p> <p>Source: Broders Hugh G., Burns, L.E and McCarthy S.C. 2013. First records of the Northern Myotis (Myotis spentrionalis) from Labrador and summer distribution records and biology of Little Brown Bats (Myotis lucifugus) in southern Labrador. The Canadian Field Naturalist (127): 266-269</p>						
CEAA 80		Species At Risk Act, s.79 5(1)(c)(iii) Current Use of Lands and Resources for	6.3.3	7.4.6	<p>The EIS provides inconsistent or unclear information with respect to wildlife, fish, and plant species, such that it is challenging to understand which species are being referred to in the assessments of wildlife and current use of lands and resources by Indigenous groups, and understanding the listing status of the species.</p> <p>Furthermore, it appears that indicator species were used at times in the EIS effects analysis but without clear rationale for the selection</p>	<p>Prepare a table that consists of the following information:</p> <ol style="list-style-type: none"> Provide a list of species that are likely present in the local and regional study areas based on observed species, species at risk, current use of lands and resources by Indigenous groups and Aboriginal traditional knowledge, that may interact with effects of the Project (i.e. affected by noise, light, air quality, etc.). If referring to groups of species indicate which individual species are included in groups (e.g. waterfowl, songbirds). In the table, indicate:

IR No	Dept No	Effects Link to CEEA 2012	Link to EIS guidelines	EIS Reference	Context and Rationale	Specific Question/ Request for Information
		traditional purposes 5(1)(a)(iii) Migratory Birds			of the species (i.e. most vulnerable, greatest concern to Indigenous peoples, etc.).	<ul style="list-style-type: none"> • Whether or not each species was observed (indicate if regional study area or local study area) or if ATK indicates presence of the species (much of this is contained in Appendix XXIII). • Provide federal SAR, COSEWIC, and/or MBCA status for each species, as applicable. • Provide provincial listing (QC and NL) for each species, as applicable. • Indicate which specific species are hunted/trapped, fished, gathered by Indigenous communities within the area where project effects could occur. <p>3. Indicate which indicator species, if any, were selected to assess impacts of the Project on migratory birds, species at risk and current use of lands and resources and resources for traditional purposes by Indigenous peoples. Provide rationale for selection.</p>
<p>HML Answer</p> <p>All of the information requested is available in the EIS as such:</p> <p>Appendix XXII provides a complete list of species that have been recorded (e.g. observed) and whether ATK indicates species presence.</p> <p>Species status is available in the EIS as follows:</p> <p>As per EIS guidelines: List of federal species designated by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) for listing in Schedule 1 of the Species at Risk Act is present in each component section</p> <p>Flora (Section 7.4.2): No flora species at risk were observed during the surveys of terrestrial ecosystems (Groupe Hémisphères, 2011a and (Volume 2 Supporting Study K)). An analysis of species designated by the federal government in NFL and Quebec territory (SARA, 2014; COSEWIC, 2014) and the provincial government (NLDEC, 2014a) revealed that no species at risk, plant, lichen or moss, might be found in the vicinity of the Project.</p> <p>Caribou: 7.4.3</p> <p>Other mammals: 7.4.5</p>						

IR No	Dept No	Effects Link to CEAA 2012	Link to EIS guidelines	EIS Reference	Context and Rationale	Specific Question/ Request for Information
<p>Chiroptera: 7.4.6 Avifauna: Table 7-89 and following text Aquatic fauna: Section 7.4.9. The section includes a table listing all fish species in the region and highlights the ones found in the LSA. It is also stated that none of the species regionally present are at risk. Finally, salmonids were used as for the purpose of population and habitat characterization because they are the only species found in most of the stream of the LSA. Also, salmonids are highly valued both socially and economically and are highly sensitive to habitat deterioration, making them great indicator species.</p> <p>Appendix C provides complete details on which species are utilized, and how, by aboriginal people. Appendix D-3 provides additional information on country food consumption, as was informed by an HML-led survey into the country food consumption habits of the local community members.</p> <p>Where indicator species are not specifically mentioned in the text, all species of that group (e.g. avifauna) were used in the effects assessment. In this case, where an indicator species was not chosen, an all-inclusive analysis was performed, which provides a broader assessment of the effects of the project on a component.</p>						
CEAA 81		Species At Risk Act, s.79 5(1)(c)(iii) Current Use of Lands and Resources for traditional purposes 5(1)(a)(iii) Migratory Birds		7-91	<p>The EIS states by “complying with the Forest Act, a buffer strip 20 m wide along the banks of a peat bog with a pond, of a swamp, of a marsh, of a lake or of a permanent watercourse will be preserved ensuring habitat for several migrating birds including species at risk, Rusty Blackbird.”</p> <p>The Newfoundland and Labrador Wildlife Division has advised that the Forestry Act buffer of 20 m is not adequate for the protection of riparian species and habitat. Rather, it generally recommends a minimum 30 m riparian buffer be applied around all waterbodies and wetlands to protect riparian species and habitat. A 50 m buffer is recommended around sensitive areas. Rusty blackbirds prefer to nest within 30 m of wetlands and (Powell <i>et al.</i>, 2010) suggests maintaining a 75 m naturally vegetated buffer around nests to minimize predation pressure.</p>	Describe whether the buffer proposed in the EIS would adequately project migratory birds and federal species at risk from effects of the Project.
<p>HML Answer</p> <p>HML will comply with the Forest Act, which ask for a buffer strip of 20 m along any watercourse and/or waterbody. This is considered a minimal buffer strip and when possible, the buffer strip will be greater. Most of the projected infrastructures are located at more than 100 m from watercourse or waterbody.</p>						

IR No	Dept No	Effects Link to CEAA 2012	Link to EIS guidelines	EIS Reference	Context and Rationale	Specific Question/ Request for Information
TSMC is committed through its Rusty Blackbird mitigation plan to maintain a naturally vegetated buffer of 75 m in wetlands that are considered as an optimal habitat for this species. A Rusty Blackbird survey was carried out in July 2016 to locate nesting habitat.						
Cumulative Effects						
CEAA 82	NNK-IR-11	All	8	Table 8-2	The Naskapi Nation of Kawawachikamach raised that the cumulative effects assessment should include information on Commerce Resources' Eldor Project and Quest Rare Minerals Strange Lake Project. The proponent must consider the large range the George River Caribou Herd occupies and the projects to be covered in this section must take this into account. The Naskapi Nation of Kawawachikamach understands that the proponent excluded the Strange Lake Project since it is not within the Labrador Trough, but it is within the caribou calving zone, therefore rendering it extremely important.	<ul style="list-style-type: none"> Review the current and future projects included in the cumulative effects assessment and amend, as appropriate, if additional projects are expected to affect valued components. Update the cumulative effects assessment including analysis, mitigation measures, and determination of significance, as appropriate. If there are no cumulative effects anticipated from the additional projects identified by the Naskapi, provide a rationale on this conclusion with supportive information.
<p>HML Answer</p> <p>The Proponent acknowledges that the decision to define the RSA as the entire GRCH range implies that all projects that have the potential to adversely affect the GRCH should be included in its analysis, including those proposed by the NNK. In the most recent GRCH distribution map produced by the Government of Newfoundland and Labrador (see below), it appears that the Eldor Property (blue circle) may be near the late-summer (August-October) GRCH distribution whereas the Strange Lake Project (blue square) overlaps with this distribution zone, and is near the caribou calving areas (approximate locations). This map also provides perspective on the distance between the Howse Property Project (red star) and the GRCH distribution.</p> <p>Given the Proponent's acknowledgement that the herd is interconnected, and that adverse effects anywhere to the herd can affect its entire composition, the Proponent is committed to be in communication with the Newfoundland and Labrador Wildlife Division as well as the Ungava Research Program partners to monitor the GRCH should it approach the Howse Property. These commitments will be adhered to despite the distance between the Howse Property Project and the herd's current distribution. It is noteworthy that the scope of the cumulative effects analysis of the Howse Project on the GRCH is limited to the light and noise effects and that these additional activities will not produce additive, i.e. cumulative, effects between the mine projects (as each mine site is located more than 200km from the next). No additional effects are expected from the Projects identified by the Naskapi.</p>						

IR No	Dept No	Effects Link to CEEA 2012	Link to EIS guidelines	EIS Reference	Context and Rationale	Specific Question/ Request for Information
 <p>Source: http://www.rcinet.ca/en/2016/02/08/caribou-continue-to-decline-in-spite-of-efforts/. Accessed August 2016</p>						
CEAA 83	CEAA	5(1)(c)(iii) Current Use of Lands and Resources for traditional purposes	6.3.4 6.6.3	8.3, 8-1	<p>Cumulative Effects – Caribou</p> <p>Context The EIS states that no caribou have been observed in the LSA in the past five years, however, a ‘2006 survey of Naskapi land and resource use in the Howells River Valley showed extensive caribou hunting. The densest concentration of caribou hunting was recorded along the Ridge between the Howells River Valley and the Swampy Bay River basin, between the DSO2 and DSO4 areas, mainly throughout the historic mining road network, which encompasses the Project’s LSA” (p. 7-218).</p>	<p>a. Provide an analysis of cumulative effects on caribou, as it relates to current use of lands and resources by Indigenous peoples, in accordance with the Agency’s Operational Policy Statement (OPS), <i>Assessing Cumulative Effects under CEEA 2012</i>. One potential approach to this assessment would be to compare past, present and future habitat available for the George River Caribou Herd and accessible to Indigenous peoples taking into consideration the cumulative effects of past, present and future physical activities. Ensure that the assessment includes consideration of key stressors/impacts on the population and that methods are clearly described.</p>

IR No	Dept No	Effects Link to CEAA 2012	Link to EIS guidelines	EIS Reference	Context and Rationale	Specific Question/ Request for Information
					<p>Although impacts on caribou are a primary concern for Indigenous communities, the EIS currently has little analysis of cumulative effects.</p> <p>Context and Methods As it stands, the assessment of cumulative effects in the EIS is a qualitative discussion of the effects of light, noise and rail on caribou. In order to be meaningful, the analysis of cumulative effects must consider key effects/stressors on caribou. Consideration of light and noise should be translated into effects to the population (e.g. habitat loss or avoidance or otherwise). In addition, the analysis used to draw conclusions on cumulative effects on caribou is limited. As required by the Agency's Operational Policy Statement (OPS), <i>Assessing Cumulative Effects under CEAA 2012</i>, the "methodologies used to predict cumulative environmental effects must be clearly described. With this information, reviewers of the EIS will be able to examine how the analysis was conducted and what rationale support the conclusions reached. Any assumptions or conclusions based on professional judgement should be clearly identified".</p> <p>Analysis and Significance As it stands, the cumulative effects analysis and significance determination are focused on the contribution of the Howse Project relative to the effects of other past, present or future development in the area. However, the analysis and determination of significance should consider the combined or cumulative effects of past, present and future physical activities.</p> <p>Mitigation and Follow-up - Although the EIS states that the proponent would practice adaptive management of certain environmental components (e.g. caribou), it does not describe</p>	<ul style="list-style-type: none"> b. Based on the above analysis, update proposed measures to mitigate cumulative effects on caribou and on current use of lands and resources, as applicable. c. Conclude on the significance of the cumulative effects of past, present and future activities on caribou and current use of lands and resources (i.e. not on the contribution of the Howse Project in relation to other projects). d. Describe potential commitments in relation to "adaptive management" (i.e. how could operations be modified to reduce future impacts on caribou?). Explain at what point, operations would be adapted (i.e. when, why). e. Where <i>adaptive management</i> is referenced, (1) describe which activities or projects would be adapted and (2) under which circumstances this would occur, and (3) provide specific mitigation measures that could be implemented, and (4) anticipated resulting effect.

IR No	Dept No	Effects Link to CEEA 2012	Link to EIS guidelines	EIS Reference	Context and Rationale	Specific Question/ Request for Information
					<p>which activities or projects (e.g. Howse or other) would be adapted and under which circumstances this would occur (e.g. exceedance of what criteria)?</p> <p>Follow-up The EIS states that the proponent will “practice adaptive management of the caribou in the vicinity of the Howse Project” (p. 8-8). It is not clear how activities could be adapted to mitigate cumulative effects on caribou. It is also not clear under what conditions adaptive management would occur.</p>	
<p>HML Answer</p> <p>a. Provide an analysis of cumulative effects on caribou, as it relates to current use of lands and resources by Indigenous peoples, in accordance with the Agency’s Operational Policy Statement (OPS), Assessing Cumulative Effects under CEEA 2012. One potential approach to this assessment would be to compare past, present and future habitat available for the George River Caribou Herd and accessible to Indigenous peoples taking into consideration the cumulative effects of past, present and future physical activities. Ensure that the assessment includes consideration of key stressors/impacts on the population and that methods are clearly described.</p> <p>In 1982, the IOC terminated its activities in the Schefferville region. At this time (during the 1980s) the GRCH population size was high (over 600 000 animals) and it continued to increase during the 1990s (over 700 000 animals), a time when human activities in the Schefferville area were low. However, as mining activities continued to be minimal in the area, the GRCH population size dropped from over 700 000 animals in the mid-1990s to approximately 300 000 in the mid-2000s and about 100 000 in the early-2010s. At this time, it can be estimated that caribou habitat loss in the area was limited the actual footprint (e.g. habitat destruction) created by past mining activities (i.e. noise and light and thus the 15 km radius of caribou perception did not apply since the mines were not in operation). Despite the impressive decline in the herd’s size, a 2006 survey of Naskapi land and resource use in the Howells River Valley showed extensive caribou hunting. The densest concentration of caribou hunting was recorded along the Ridge between the Howells River Valley and the Swampy Bay River basin, between the DSO2 and DSO4 areas, mainly throughout the historic mining road network. Further, 7 animals were observed in the area in 2009. This seems to indicate that animals could frequent the Schefferville region despite the existence of areas of direct habitat loss.</p> <p>The footprint of habitat destruction incurred by past IOC activities is not available. However, the amount of additional habitat loss due to the Howse Project can: With the addition of the Howse Project, the calculation of the direct habitat loss was made using the Project footprint. As a result, the amount of direct caribou habitat loss is 1.2 km². The amount of indirect caribou habitat loss is 707 km², which is the area where the project is expected to have effects on caribou, which is reflective of their perceptive abilities (and includes light and noise effects). Within this area, it is expected that caribou will exhibit avoidance behavior of the site, which is defined as indirect habitat loss in this case. The population range of the GRCH spans 700 000 km² across Québec-Labrador (VBNC EIS Chapter 16). The potential effects of the Howse Project on caribou is predicted to be 707 km², representing 0.1% of the population’s entire range.</p>						

IR No	Dept No	Effects Link to CEEA 2012	Link to EIS guidelines	EIS Reference	Context and Rationale	Specific Question/ Request for Information
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The cumulative effects of the Howse Project, as well as other projects in the region (see table 8-2 of the Howse EIS) will broaden the effects of indirect habitat loss on caribou as such: the direct footprint loss in addition to a 15 km buffer around these activities. These effects will effectively reduce the amount of available caribou habitat across the GRCH's entire range. However, along with the herd's unprecedented decline, its distribution has also contracted. Although the Proponent acknowledges that it is possible that there exists a causal link between the herd distribution and the indirect habitat loss across its range but: 1. This effect has been shown to be temporary and the animal are expected to re-occupy sites if the habitat is returned to a pre-project state and 2. This link would be very difficult to make without an enormous research effort between numerous groups.

The evidence seems to suggest that caribou will return to a site once the major stressors (light and noise) are removed. Indeed, animals were observed in the Schefferville region in the late-2000s despite the areas of habitat destruction caused by past IOC activities seems to confirm this. It could be inferred that a similar pattern will occur once the Howse site operations cease. However, given that the herd's range is estimated to be far from the Howse site, this point may not apply as animals may no longer frequent the site due to the herd's decline. However, as animals from the GRCH seem to exhibit low site fidelity (i.e. they have shown themselves to be adaptable to stressors), their eventual return to the Schefferville area is not unlikely.

- b. Based on the above analysis, update proposed measures to mitigate cumulative effects on caribou and on current use of lands and resources, as applicable

The GRCH herd size itself is exceedingly low and the Howse Project is not expected to have direct effects on the herd. HMLs strategy to avoid disturbing animals if they come near the site (100 km or less) is sufficient to reduce its effects on individual animals (and, by extension, the entire herd).

HML cannot control the use of lands on the caribou resource while the current hunting ban remains in place.

- c. Conclude on the significance of the cumulative effects of past, present and future activities on caribou and current use of lands and resources (i.e. not on the contribution of the Howse Project in relation to other projects).

TIMING		
Inconsequential timing	Moderate timing	Unfavorable timing
Timing of predicted Howse activities are not expected to affect any sensitive activities in the caribou life cycle.	Timing of predicted Howse activities may affect some caribou activities, i.e.: winter forage availability migration routes.	Timing of predicted Howse activities may affect some key caribou activities, i.e.: the calving period.
SPATIAL EXTENT		
Site specific	Local	Regional

IR No	Dept No	Effects Link to CEAA 2012	Link to EIS guidelines	EIS Reference	Context and Rationale	Specific Question/ Request for Information
		The Howse Project and surrounding projects activates will effect a small portion of the RSA	The Howse Project and surrounding projects activities will effect at least half of the RSA		The Howse Project and surrounding projects activates will effect nearly all of the RSA	
DURATION						
Short		Medium		Long		
The effect of the Howse Project and surrounding projects on caribou will last less than 12 months and will not likely cause changes to the caribou herds.		The effect of the Howse Project and surrounding projects on the caribou will last between 12 or 24 months corresponding to one (maximum of two) caribou annual migration. Extends beyond the preparation/construction phase, but shorter than the lifespan of the Project.		Longer than 24 months, possibly as long as the project duration. The Howse Project and surrounding projects will likely cause long-term demographic changes to the caribou.		
REVERSIBILITY						
Reversible		Partially reversible		Not reversible		
The caribou are expected to return to their pre-Howse population status and distribution.		Effect on caribou will persists after the decommissioning and reclamation phase but caribou are expected to largely return to their pre-Howse status.		Caribou will be permanently altered by the Howse Project and surrounding projects.		
MAGNITUDE						
Low		Moderate		High		
Effect will be at the individual level.		Effect will be felt on a subsection of the nearby caribou herds.		Effect will be at the herd-level.		
FREQUENCY						
Once		Intermittent		Continual		
The disturbance will occur once.		The disturbance will be occasional, such as only at night.		The disturbance will be year round.		

IR No	Dept No	Effects Link to CEEA 2012	Link to EIS guidelines	EIS Reference	Context and Rationale	Specific Question/ Request for Information
<p>Aboriginal's use of the land to hunt caribou: The current use of lands and the caribou resource by aboriginal groups is currently banned across Labrador for an indeterminate period. If/when, the ban is lifted, light and sounds effects will cause caribou to avoid all active mining sites in the region. Although not currently problematic because: 1, the ban is restricting hunting practices and 2. the constricted GRCH range does not overlap with as many projects, these effects may change in the future, if the herd's range expands.</p> <p>Timing: Timing of predicted Howse activities are not expected to affect any sensitive activities in the caribou life cycle. This is especially true since the Government of Newfoundland and Labrador's document (George River Caribou Management, 2010) indicates that the closest part of the herd's range to the Howse Project site is between August and October. Value of 1</p> <p>Spatial extent: The Howse Project and surrounding projects activates will affect a small portion of the RSA. Value of 1</p> <p>Duration: Longer than 24 months, possibly as long as the project duration. The Howse Project and surrounding projects will likely cause long-term demographic changes to the caribou. Value of 3</p> <p>Reversibility: Effect on caribou will persist after the decommissioning and reclamation phase but caribou are expected to largely return to their pre-Howse status. Value of 2</p> <p>Magnitude: Effect will be at the individual level. Value of 1</p> <p>Frequency: The disturbance will be year round. Value of 3</p> <p>Total value of 11, or non-significant. The frequency and the duration of the disturbance (e.g. effects of light and sound) will have the strongest effects on caribou.</p> <p>d. Describe potential commitments in relation to "adaptive management" (i.e. how could operations be modified to reduce future impacts on caribou?). Explain at what point, operations would be adapted (i.e. when, why).</p> <p>The Proponent will adapt its management of the caribou resource via the location of animals relative to the Howse Project site. Caribou are being monitored for HML under an agreement between TSMC and the Ungava project and CARMA. This monitoring consists of telemetric data currently available from the CARMA program. Under this program, HML's Environmental Specialist / Permit Manager will be notified when migratory tundra caribou venture within 100 km of the Howse Project. Upon receipt of such a notice, operations will continue with caution. If monitoring data from the radio collars indicate that some of the caribou have moved to within 20 km of the Howse Project, TSMC will institute surveys within that radius to monitor their movements in greater detail.</p> <p>The Proponent is amenable to conducting aerial surveys of caribou. The data collected during the surveys (number, age and sex; location of sightings; topography of sighting location) will be communicated frequently to the authorities concerned, who will be asked for advice with respect to the course of action to be followed, the overall goal being to reduce nuisance.</p> <p>e. Where adaptive management is referenced, (1) describe which activities or projects would be adapted and (2) under which circumstances this would occur, and (3) provide specific mitigation measures that could be implemented, and (4) anticipated resulting effect.</p> <p>See answer to d)</p>						
CEAA 84	CEAA	5(1)(b)(i) federal lands,	6.6.3	8.3	Cumulative Effects – Air	<ul style="list-style-type: none"> • Scoping – Future Projects – • Provide a rationale for the inclusion (or exclusion) of past, present, and future projects in the cumulative effects

IR No	Dept No	Effects Link to CEEA 2012	Link to EIS guidelines	EIS Reference	Context and Rationale	Specific Question/ Request for Information
		5(1)(b)(ii) another province 5(1)(c)(i) health and socio-economic conditions 5(1)(c)(iii) current Use of Lands and Resources for traditional purposes			<p>Scoping – Future Projects - The cumulative effects assessment considers the effects of DSO3 and DSO4. It is not clear why future projects have not been considered in the assessment.</p> <p>Scoping - Air Pollutants – It is not clear which air pollutants have been included in the cumulative effects assessment. For example, although a series of bullets describing predicted concentrations and exceedances (p. 8-1) are provided, it is not always clear which air pollutants are being referred to in the text. While there is no need to re-print tables from Section 7, the cumulative effects assessment should clearly identify (1) which air pollutants were considered in the CEA and (2) which exceedances are predicted.</p> <p>Dust Events – Periodic dust event have been raised as a concern by Indigenous communities and should be included in the assessment of cumulative effects</p> <p>Adaptive Management - The EIS states that the proponent would practice adaptive management of the air quality in the vicinity of the Howse Project and in DSO areas as a whole (p. 8-2). It is not specified how the management of air pollutants could be adapted.</p>	<p>assessment, recognizing that local communities have articulated concerns about dust in the area and that projects within a 50 to 100 km radius of the Howse Project would be of primary interest. Update the analysis of cumulative effects on air quality, as applicable.</p> <ul style="list-style-type: none"> • Scoping - Air Pollutants –Provide a clear explanation and associated rationale for the specific air pollutants that are included in (and excluded from) the cumulative effects assessment, taking into consideration the potential for exceedances and concerns of local communities (e.g. related to dust, health). Clarify which air pollutants are being referred to throughout the five steps of the cumulative effects assessment, as applicable (e.g. scoping, analysis, mitigation, determination of significance, follow-up). • Dust Events - Provide information on the frequency and nature (prevalent times, locations) of dust events in the past, present and future (recognizing these do not need to be quantified and modelled). Include the information on dust events in the analysis of cumulative effects. • Adaptive management – Describe what is meant by <i>adaptive management</i> of air quality, including: <ul style="list-style-type: none"> • What measures would be implemented and under what circumstances? (i.e. exceedances, complaint) • What is the anticipated change in environmental effect as a result of additional measures?
<p>HML Answer</p> <p>Scoping – Future Projects: Table 2-1, p. 9 of the ADMR shows each of the five contributors taken into account for the Air Quality CEA. The Contributor (4) line in the table explains the reason for including DSO3 and DSO4 in the assessment and not other future potential regional projects and the Contributor (1) line in the table (and Appendix G of the ADMR) explains the rationale for the selected background (pre-DSO3) concentrations for all air pollutants covered in the study. Although the proponent appreciates the concerns articulated by local communities for projects located within a 50 to 100 km radius of the Howse Project, it has to be noted that, as discussed in CEEA17, low elevation wind-blown sources tend to dominate the overall particulate matter emissions and modelled air quality impacts and the impact is within a fairly short</p>						

IR No	Dept No	Effects Link to CEAA 2012	Link to EIS guidelines	EIS Reference	Context and Rationale	Specific Question/ Request for Information
<p>distance to emission sources (we would estimate that distance to < 5 km). Data supporting this statement can be reviewed in the appendix to answer on CEAA 14: the contribution table to Figure 3.2 - TPM (24-hr) – With Blasts shows that at distant receptors such as Schefferville, the impact of the Howse mine represent less than 2% of the reported particulate concentrations and this result follows the conservative (worst-case) modeling approach used in the study (see answer to CEAA 17). Consequently, including projects located 50 to 100 km from local communities in the air model would be a tremendous and futile effort as it would not change the conclusions of the Howse EIS. The proponent has committed to implement an expansive and flexible air quality monitoring plan, including particulate and dustfall monitoring (ref: Appendix XXIV (Ambient Air Quality Monitoring Plan DRAFT). Monitoring results will be used to continuously evaluate air quality in the project’s surroundings and address local communities’ concerns, as necessary.</p> <p>Scoping - Air Pollutants: Table 3-1 of the ADMR is copied below and, we believe, helps clarify and summarize which specific air pollutants are included in the CEA. As shown in the table, under the With Blasts scenario, exceedances of assessment criteria are predicted for TPM, PM10 and NO2. The frequency of exceedances has been calculated and is presented in table 3-2 of the ADMR (not copied here) and is less than 1% of the time for all exceeding parameters. The five steps of the CEA were evaluated for these three pollutants, taking the frequency of exceedances into consideration.</p>						

IR No	Dept No	Effects Link to CEAA 2012	Link to EIS guidelines	EIS Reference	Context and Rationale	Specific Question/ Request for Information
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3.2 Frequency of Exceedances of Air Quality Assessment Criteria

The air model predicts that air quality assessment criteria could be exceeded for the averaging periods and air pollutants shown in Table 3-1.

Table 3-1 Sensitive Receptors with predicted exceedances of assessment criteria (With Blast and No Blasts scenarios)

Pollutant	Averaging Period	Assessment Criteria ($\mu\text{g}/\text{m}^3$)	Receptors with predicted exceedance		Predicted Exceedance?	
			ID	Name	WITH BLASTS	NO BLASTS
TPM	24-hr	120	R40	TSMC Workers' Camp	Yes	No
PM ₁₀	24-hr	50	R13	Naskapi - Uashat people's camp	Yes	No
			R40	TSMC Workers' Camp	Yes	No
NO ₂	24-hr	200	R40	TSMC Workers' Camp	Yes	Yes
NO ₂	1-hr	400	R9	Young Naskapi Camp 7 (Pinette Lake)	Yes	No
			R10	Young Naskapi Camp 3	Yes	No
			R11	Young Naskapi Trailer tent (Triangle Lake)	Yes	No
			R13	Naskapi - Uashat people's camp	Yes	No
			R16	Innu - Uashat - Mani-Utenam Camp 1	Yes	No
			R17	Innu - Uashat - Mani-Utenam Camp 2	Yes	No
			R18	Innu - Uashat - Mani-Utenam Camp 3 (Inukshuk Lake)	Yes	No
			R24	Irony Mountain	Yes	No
R40	TSMC Workers' Camp	Yes	Yes			

Dust Events: See answer to CEAA 16.

Adaptive management: There are three main channels through which adaptive management measures would be implemented: a) if air quality data frequently measured as per the Ambient Air Quality Monitoring Plan DRAFT (Appendix XXIV, Volume 2) exceed an assessment criteria, b) Complaints and c) TSMC staff observations. In each case, the first step after an event will be to **investigate and conduct targeted follow-up monitoring or evaluation to understand the cause and effect of the event. Based on results of this first step, corrective actions will be implemented and documented. Standard and specific mitigation measures are listed in section 7.3.2.3 of the EIS. Additionally, further information on the specific dust control measure implemented by TSMC is provided under CEAA 38.**

IR No	Dept No	Effects Link to CEAA 2012	Link to EIS guidelines	EIS Reference	Context and Rationale	Specific Question/ Request for Information
<p>The most significant anticipated change in environmental effect as a result of additional measures will be a reduction of nuisance caused by dust in the area surrounding the project. The level of reduction cannot be evaluated at this point, but ambient air quality monitoring plan DRAFT was designed to provide the necessary data to evaluate levels of reduction of mitigation measures, should they be needed.</p>						
CEAA 85	CEAA	5(1)(c)(i) health and socio-economic conditions	6.6.3	Section 8.8	<p>The scope of the cumulative effects assessment in relation to human health is not clear. <i>Subsection 8.8.1: Scoping</i> refers to cumulative effects from air pollutants on human health – Indigenous groups (s.5(1c)); however, the subsection omits other effects pathways (e.g. country foods, drinking water). <i>Subsection 8.8.2 Analysis</i> refers to a multi-media exposure and risk assessment and includes consideration of various contaminants.</p>	<ul style="list-style-type: none"> Clarify the scope of the cumulative effects analysis as it pertains to human health – Indigenous groups (s.5(1c)) in accordance with the Agency’s Operational Policy Statement, <i>Assessing Cumulative Effects under CEAA 2012</i>. Present an associated rationale for the scope of the assessment, including consideration or omission of relevant pathways (air, drinking water, country foods). Once the scope of the cumulative effects assessment has been determined, apply the same scope in conducting the remainder of the cumulative effects assessment (analysis, mitigation measures, determination of significance, follow-up program).
<p>HML Answer</p> <p>To clarify, the scope of the HHRA conducted by AECOM addressed risk estimates for substances of interest (inclusive of both carcinogenic and non-carcinogenic health endpoints) to human receptors (indigenous people/adults and toddlers) under Baseline Scenario (i.e., existing conditions), Project Scenario (projected conditions attributable to the Project, including blasting, added to the baseline conditions) and a Cumulative Scenario (i.e., the Project scenario inclusive of other emissions not yet in operation but expected to be in operation prior to the Howse expansion, such as DSO3 and DSO4 and other background sources). In each case, a multi-media exposure assessment was conducted that considered pathways involving traditional foods, water, air and soil. The multi-media components of each case, including the Cumulative effects case, were summarized in Table 2.3 of the Human Health Risk Assessment technical support document (Appendix D to the EIS) and is extracted and presented below. Total risk and the risk contribution from each pathway were presented according to each case and were tabulated in Table 8-7 within section 8.8.2 of the EIS. These results were updated in response to other CEAA queries discussed in this table and are presented in tabular format in Howse Appendix Answer Part 2 Human Health Big Picture Summary 160912. It is important to note, that in addition to the multi-media deterministic risk assessment conducted and described above, for added insight a probabilistic assessment of health risk from air inhalation only was also conducted for only the Cumulative Air Emissions case, and is reported in section 3.3.4 of the Human Health Risk Assessment technical support document (Appendix D to the EIS).</p>						

Table 2.3 Fundamental Exposure Scenarios and Associated Assumptions

Parameter	Baseline Scenario	Project Scenario	Cumulative Scenario
Abiotic Site Media			
Soil	Site specific 95% Upper Confidence Limit of the Mean (UCLM95) soil samples collected within the LSA during 2015. Summary statistics of soil data are presented in Appendix E1.	Calculated as sum of baseline soil concentration and Project Incremental Soil Concentration (ISC) as a result of particulate deposition. See Appendix D1 for calculation of ISC.	Calculated as sum of baseline soil concentration and Cumulative Incremental Soil Concentration (ISC) as a result of particulate deposition. See Appendix D1 for calculation of ISC.
Surface Water	Site specific maximum measured concentration from Pinette or Triangle Lake.	No change from baseline	No change from baseline
Particulate	Calculated assuming baseline PM ₁₀ concentration of 4 µg/m ³ and chemical composition of baseline soils.	Calculated as 10.1 (µg/m ³) using 90th percentile predicted maximum PM ₁₀ concentrations for the project activities. Chemical composition of particulates assumed to be equal to the 95%UCLM of the ore dataset.	Calculated as 31.5 (µg/m ³) using 90th percentile predicted maximum PM ₁₀ concentrations for the cumulative activities. Chemical composition of particulates assumed to be equal to the 95%UCLM of the rock dataset. Note: In addition inhalation risks were assessed following probabilistic risk assessment principals. Details of the probabilistic risk assessment are presented in Section 3.3.4.
Biological Tissues			
Berries	The 90th percentile for unwashed partridge berry samples collected from the LSA. Barium, Iron and Manganese were the only elements that exceeded analytical detection limits. Elements not detected in berry samples were modelled from soil concentrations using literature derived transfer factors.	Modeled based on predicted soil chemistry and literature derived soil to berry transfer factors (See Appendix D1)	Modeled based on predicted soil chemistry and literature derived soil to berry transfer factors (See Appendix D1)
Labrador Tea	The 90th percentile for unwashed Labrador tea samples collected from the LSA. Barium, Iron and Manganese were the only elements that exceeded analytical detection limits. Elements not detected in berry samples were modelled from soil concentrations using literature derived transfer factors.	Modeled based on predicted soil chemistry and literature derived soil to vegetation transfer factors (See Appendix D1)	Modeled based on predicted soil chemistry and literature derived soil to vegetation transfer factors (See Appendix D1)
Fish	Maximum measured concentrations in fish collected from Triangle Lake or Pinette Lake. Beryllium, chromium and molybdenum modelled from surface water using literature derived transfer factors.	No change from baseline	No change from baseline
Game Bird	Site specific maximum measured concentrations from game bird (Spruce Grouse) collected from the LSA.	Modeled based on receptor characteristics, predicted chemistry and literature derived transfer factors. (See Appendix D1)	Modeled based on receptor characteristics, predicted chemistry and literature derived transfer factors. (See Appendix D1)
Caribou	Literature derived maximum concentrations measured in muscle tissue. (See Appendix B2)	No change from baseline	No change from baseline
Hare	Modeled based on receptor characteristics, abiotic chemistry and literature derived transfer factors. (See Appendix D1)	Modeled based on receptor characteristics, predicted chemistry and literature derived transfer factors. (See Appendix D1)	Modeled based on receptor characteristics, predicted chemistry and literature derived transfer factors. (See Appendix D1)

IR No	Dept No	Effects Link to CEEA 2012	Link to EIS guidelines	EIS Reference	Context and Rationale	Specific Question/ Request for Information
CEAA 86	CEAA	5(1)(c)(iii) current Use of Lands and Resources for traditional purposes 5(1)(c)(ii) Aboriginal Physical and Cultural Heritage 5(1)(c)(iv) any Structure, Site or Thing of Historical, Archaeological, Paleontological or Architectural Significance	6.6.3	7, 8	<p>The EIS describes four tenants of subsistence and traditional activities:</p> <ul style="list-style-type: none"> • access • caribou hunting • subsistence and traditional activities (e.g. hunting, fishing, gathering) • preservation of and access to Kauteitnat <p>However, there is little to no analysis to substantiate broad conclusions that residual cumulative effects are unlikely to be significant on Indigenous Peoples per s. 5(1)(c).</p> <p>In addition, the cumulative effects assessment concludes that the contribution of the Howse Project is minimal compared to the effects of other past, present or future development in the area. This is important context; however, the analysis misses the point of a cumulative effects assessment, which is to understand the overall combined (i.e. cumulative) effects on the health or state of an environmental component. Even with a comparatively minimal contribution from the Howse Project, effects must be considered in a cumulative or holistic sense.</p>	<ul style="list-style-type: none"> • As required by the Agency’s Operational Policy Statement, <i>Assessing Cumulative Effects under CEEA 2012</i>, provide an analysis to assess cumulative effects on current use for traditional activities, including effects on country foods. In addition, clearly describe the methodologies used to predict cumulative environmental effects so that reviewers can examine how the analysis was conducted and what rationale supports the conclusions reached. For example, the assessment could consider how wildlife or plant species used by Indigenous peoples are affected by cumulative effects, and how in turn, use of these resources could be affected. Consideration of indicator species to support the analysis is one approach that may be useful. • Revise the cumulative effects assessment for Kauteitnat to include effects of past, present and future projects. In addition to access to lands, the assessment should also include effects on resources, how use of the site has/will change as a result of past, present, and future projects, including effects of noise/vibration, light, and air quality. • Determine the significance of cumulative effects on current use of lands and resources used by Indigenous effects, taking into consideration the impacts of the Howse Project in combination with past, present and future physical activities.
<p>HML Answer:</p> <p><u>Access and subsistence and traditional activities (e.g. hunting, fishing, gathering):</u></p> <p>Land access is prevented by indirect effects (fear of contamination of food and noise from mining activities) and direct effects (loss of land due to project footprint and safety issues). In the past, this (reduced access) effect occurred within the context of the highly-disturbed land as a result of past IOC activities (and, more recently, DSO activities). However, the roads left behind by IOC were used by locals to circumvent the disturbed site and access other areas, notably the Howells River Valley. As such, today, harvesters either travel through the Howse Project area for the most part, to reach other locations (for the Innu, Rosemary Lake area in</p>						

IR No	Dept No	Effects Link to CEEA 2012	Link to EIS guidelines	EIS Reference	Context and Rationale	Specific Question/ Request for Information
					<p>particular), or choose to go elsewhere to avoid disturbance by the mining activities. Local land-users currently have the opportunity to go elsewhere in the vicinity of Schefferville, as other similar harvesting sites can be found nearby.</p> <p>Within this context, one bypass road will be lost to the location of the waste dump as a result of the Howse Property Project. Further, the Project will deepen fears of contamination of food by local land users. In addition, the Project will remove 200.4 ha of land from the area. As such the most important effects of the Howse Project on Land Access are loss of a direct route to desirable lands and fear of contamination. As mitigation, the Proponent will upgrade a bypass road, which will provide access to the land for local land users through HML’s commitment to upgrading existing bypass roads (to the Howells River Valley and Pinette Lake simultaneously) for them. This route will require that land users travel an additional 16 km (approximate) to reach traditional site (e.g. sites used prior to the Howse Project).</p> <p>These effects may have several implications, including:</p> <ul style="list-style-type: none"> • Financial costs for families: <ul style="list-style-type: none"> ○ Increase in expenses related to equipment (fuel, camps, vehicles, etc.) and time spent reaching locations as a result of a longer bypass route; ○ Increase in expenses on store-bought food as a result of reduced accessibility of traditional food; • “Cultural costs”: <ul style="list-style-type: none"> ○ ATK is location-specific as well as species-specific. Going farther afield means frequenting areas about which knowledge is partial, and that knowledge may be not shared or only partially shared. ○ It may be harder to involve youths in harvesting activities that require longer trips (e.g., school outings on the land may be more difficult to organize). <p>In the future, the road network will likely expand with each new project. Although road safety may be an issue when mining vehicles and land-users share the same roads. As such, the cumulative effects of mining projects could pose a limitation in terms of easy access to some harvesting zones (work sites being made off-limits for safety reasons, escorts through work zones). Bypass roads play an important role in diminishing risks in terms of road safety. Future issues will largely depend on the specific location of mining projects in the region., will also be used for traditional pursuits in the area because they are, in general, fast, safe, no need to establish camps, etc. When mining activities cease, roads will be left for the use of the local population. As such, in the far-future (30+ years) it is expected that new roads will be left behind for local users.</p> <p>These alternatives may be reduced as projects develop in the future, requiring further travel, or may be constrained in other ways (other sources of contamination, other family trapline holders, etc.).</p> <p><u>Caribou hunting:</u></p> <p>Local hunters in the Schefferville area have limited access to caribou hunting because of 1. No animals in the Schefferville area and 2. There is a Labrador-wide ban on hunting caribou in effect.</p> <p>The Effects Assessment on Caribou Hunting is based on the former and the residual effects significance assessment (Section 7.5.2.1.4 of the Howse EIS) concludes that the Howse Project’s effects on subsistence and traditional caribou hunting will be non-significant for all three phases of the Project due to the lack of animals. Further, the section states that the likelihood of the Howse Project having an effect on caribou hunting is low, considering that the caribou is already absent from the study area at the moment. The effect of the Howse Project on caribou hunting will be long-term (for the duration of the Project), and intermittent. The effect of the Project will be to limit caribou hunting in the Schefferville area via caribou avoidance of the area. Past projects have caused disturbance of the area and (likely) resulted in caribou avoidance of the area. The addition of multiple projects in the region will extend the duration of the effect (i.e. limit caribou hunting) both spatially and temporally.</p>	

IR No	Dept No	Effects Link to CEAA 2012	Link to EIS guidelines	EIS Reference	Context and Rationale	Specific Question/ Request for Information						
<p>With respect to access to caribou hunting, the Proponent can only mitigate direct harm done to individual animals, in the goal of preserving the GRCH and thus reducing the need for a caribou ban. Rather than, since the ban is directly linked to population size and presence in the Schefferville area, the Proponent argues the cumulative effects assessment on caribou hunting is the same as the cumulative effects assessment for caribou (Section 8.6 of the Howse EIS).</p> <p>It is noteworthy that the Government of Newfoundland and Labrador does not cite development as a cause for the unprecedented decline of the population, and subsequent ban, on the GRCH (George River Caribou Information Update May 2015). Rather, noncompliance to the current ban is cited as a cause for the continued decline of the herd, and, by extension, the hunting ban.</p> <p>The current ban on caribou hunting in Labrador will not be lifted until 2018 (in fact, it has now become indefinite as the herd continues to decline). Ultimately, the legal right to hunt will be decided by government and so HML can only propose mitigation measures that provide decision makers with information on the GRCH. Cooperation with local caribou monitoring programs allow HML to stay informed on the local herds and take a proactive approach if caribou are seen within certain buffer zones around the Howse Project and its neighboring projects. HML/TSMC also suggest to put in place a Caribou joint comity if other companies (NML, Champion, Adriana) start their operations. This comity will be responsible to jointly plan their mitigation measures if caribou are seen in the region.</p> <p>A revised cumulative effects assessment on caribou is provided in the answer to CEAA 83 above.</p> <p><u>Preservation of and access to Kauteitnat</u></p> <p>Visits to Irony Mountain have decreased to very few since DSO mining activities resumed in this area in 2013; along with expectations for peace and quiet. Visits to Irony Mountain are infrequent: they are limited to Summer, maximum once or twice per year, for a half-day outing at a time. TSMC has three claims, 021314M, 021315M, and 019954M bordering the Irony mountain claim (016581M). All infrastructure for the Howse project will be contained within these claims and there will be a buffer zone of 500 meters from the base of Irony mountain that will remain untouched.</p> <p>The EIS statement, “the claims covering the Irony Mountain (which are under the possession of New Millennium Iron Corp) will be transferred to the local community” was based on the information known to TSMC at the time of preparing the EIS. In their subsequent deliberations, New Millennium Iron Corp is of the opinion that it may be more pertinent to divest their claims back to the Government of Newfoundland and Labrador after ensuring that these claims will be protected and their sanctity maintained. To this extent, New Millennium has sought opinion from the Government of Newfoundland and Labrador. The final decision to divest the claims to the Government of Newfoundland and Labrador or any alternate action that serves most appropriate for ensuring protection of the Irony Mountain claims can be taken by New Millennium after it receives a response from the government. Future effects on Irony Mountain are therefore out of the hands of the Proponent.</p>												
<table border="1" style="width: 100%; text-align: center;"> <tr> <td colspan="3" data-bbox="172 1279 1507 1328">TIMING</td> </tr> <tr> <td data-bbox="172 1328 626 1372">Inconsequential</td> <td data-bbox="626 1328 1069 1372">Moderate</td> <td data-bbox="1069 1328 1507 1372">Considerable</td> </tr> </table>							TIMING			Inconsequential	Moderate	Considerable
TIMING												
Inconsequential	Moderate	Considerable										

IR No	Dept No	Effects Link to CEEA 2012	Link to EIS guidelines	EIS Reference	Context and Rationale	Specific Question/ Request for Information
		Will not have an effect	Will have a moderate effect at times		Will have an effect at all times during all phases of the Project	
SPATIAL EXTENT						
		Site specific	Local	Regional		
		The Howse Project and surrounding projects activities will impact a small portion of the RSA	The Howse Project and surrounding projects activities will impact at least half of the RSA	The Howse Project and surrounding projects activities will impact nearly all of the RSA		
DURATION						
		Short	Medium	Long		
		The effect of the Howse Project and surrounding projects on subsistence and traditional activities will last less than 12 months and will not likely cause changes to the subsistence and traditional activities.	Extends beyond the preparation/construction phase, but shorter than the lifespan of the Project.	The Howse Project and surrounding projects will likely cause long-term changes to the subsistence and traditional activities.		
REVERSIBILITY						
		Reversible	Partially reversible	Not reversible		
		Full restoration of pre-development situation likely.	Effect on subsistence and traditional activities will persist after the decommissioning and abandonment phase but subsistence and traditional activities are expected to largely return to their pre-Howse status.	Subsistence and traditional activities will be permanently altered by the Howse Project and surrounding projects.		
MAGNITUDE						
		Low	Moderate	High		
		Affects a small proportion (<5%) of the population in the RSA.	Affects a limited proportion (5%-15%) of the population in the RSA.	Affects a significant proportion (>15%) of the population in the RSA.		
FREQUENCY						
		Once	Intermittent	Continual		

IR No	Dept No	Effects Link to CEAA 2012	Link to EIS guidelines	EIS Reference	Context and Rationale	Specific Question/ Request for Information
		~once per year	Occasional/intermittent	Year-round (continual)		
<p>Timing: The timing of the cumulative effects of the past, present and future projects on subsistence and traditional activities will have an effect at all times during all phases of the Project. This is largely due to noise and pollution (air emissions) effects being year-round, as well as the subsidence and traditional activities. Value of 3.</p> <p>Spatial extent: The spatial extent of the cumulative effects of the past, present and future projects on subsistence and traditional activities will impact a small portion of the RSA. This assessment is based in the fact that key locations (e.g. Irony Mountain) will remain untouched and unperturbed. Value of 1.</p> <p>Duration: The Howse Project and surrounding projects will likely cause long-term changes to the subsistence and traditional activities, primarily due to land access, via changes to routes to access lands. Value of 3</p> <p>Reversibility: Effect on subsistence and traditional activities will persists after the decommissioning and abandonment phase but subsistence and traditional activities are expected to largely return to their pre-Howse status. Value of 2.</p> <p>Magnitude: The Howse Project and surrounding projects will likely affect a small proportion (<5%) of the population in the RSA. Value of 1.</p> <p>Frequency: The frequency of the effect will be continual. Value of 3.</p> <p>The cumulative effects assessment for subsistence and traditional activities therefore results in a total value of 13 (Moderate, e.g. non-significant)). The cumulative effects will be long-term and continuous for as long as projects are ongoing within the RSA. However, the spatial extent of the project will only have a small impact on the overall RSA and the effects are expected to be reversible.</p>						
Water/Wetlands						
CEAA 87	ECCC	5(1)(a)(i) Fish and Fish Habitat 5(1)(a)(iii) Migratory Birds 5(1)(c)(iii) current Use of Lands and Resources for	6.1.4 6.1.5 6.1.8	7.3, 7.4	<p>The Federal Government strives for the goal of No Net Loss of wetland function on federal lands or when federal funding is provided. Environment and Climate Change Canada recommends that the goals of <i>The Federal Policy on Wetland Conservation</i> be considered in wetland areas as a beneficial management practice. A copy of the policy can be found at: http://publications.gc.ca/pub?id=9.686114&sl=0.</p> <p>Best practices include:</p> <ul style="list-style-type: none"> • Developments on wetlands should be avoided. • Where development does occur in the vicinity of wetlands, a minimum vegetation buffer zone of 30 meters should be maintained around existing wetland areas. 	<ul style="list-style-type: none"> • Provide information on how the proponent intends to manage land around impacted wetlands in order to abide by the Federal Policy on Wetland Conservation? If the current assessment's mitigation approach did not reflect recommended actions contained in the Federal Policy, indicate if additional mitigation measures would be implemented in order to abide by the Policy. If so, provide a revised effects analysis.

IR No	Dept No	Effects Link to CEAA 2012	Link to EIS guidelines	EIS Reference	Context and Rationale	Specific Question/ Request for Information
		traditional purposes			<ul style="list-style-type: none"> Hydrologic function of the wetland should be maintained. Runoff from development should be directed away from wetlands. <p>For further information concerning buffer zones see: https://www.ec.gc.ca/paom-itmb/default.asp?lang=En&n=8D910CAC-1#_03_1_1.</p> <ul style="list-style-type: none"> A 30-meter buffer from the high water mark of any water body (1:100 year flood zone) is recommended in order to maintain movement corridors for migratory birds. 	
<p>HML Answer</p> <p>A priori, the Proponent expect to manage wetlands by avoiding them.</p> <p><u>Buffer zone</u> When possible, a buffer zone of 30 m will be maintained around wetlands. The Proponent notes that it is not possible to estimate the high water mark for 1:100-year flood zone for such an episode. Rather, the 1:2 year that can be identified based on plants and soil. The Proponent's commitment to respecting the 30 m buffer between wetlands and infrastructures covers the zone that is anticipated from these events.</p> <p>A detailed wetland survey was carried out in the vicinity of the Howse Project in July 2016. During this survey, all wetlands that could be directly affected by the Howse Project were delineated using submetric techniques and characterized. A wetland management plan for the Howse area will be produced. If necessary, specific mitigation measures will be proposed in order to maintain wetland's functions. These measures will be provided in this updated Plan and will be based on the 2016 field surveys, which were completed using submetric delineation of the wetlands.</p>						
CEAA 88		5(1)(c)(iii) current Use of Lands and Resources for traditional purposes	6.1.8	9.2.1	The EIS states that if a rare plant is discovered, the area would be isolated and specific measures to protect the species would be implemented. In addition to mitigating potential effects on any found rare plants, the appropriate government agencies should be notified.	<ul style="list-style-type: none"> What are the specific measures that would be taken to mitigate potential environmental effects if a rare plant were to be discovered?

IR No	Dept No	Effects Link to CEAA 2012	Link to EIS guidelines	EIS Reference	Context and Rationale	Specific Question/ Request for Information
		Species At Risk Act, s.79				
<p>HML Answer</p> <p>As stated in the EIS (p. 7-201), no plant species at risk has a potential of being found in the vicinity of the project. However, if a species at risk is found, several measures could be taken. Depending on the species, the specimen could be displaced in a similar habitat. If the location can be avoided, it will.</p> <p>The only at-risk plant species that had a potential to be found in the Howse project area is a plant that is only designated by the Quebec’s provincial government, the Large-leaved Avens (<i>Geum macrophyllum</i> var. <i>perincisum</i>). During the wetland’s survey carried out in July 2016, no specimen of this species was found in the Howse area.</p>						
CEAA 89	NL - Wildlife division	5(1)(a)(i) Fish and Fish Habitat 5(1)(a)(iii) Migratory Birds 5(1)(c)(iii) current Use of Lands and Resources for traditional purposes	6.1, 6.3	Table 7-78	In the EIS, the proponent commits to not “clearing in the riparian strip along watercourses or in wetlands without authorization.” In order to assess the effectiveness of this mitigation measure, additional technical detail is needed.	<ul style="list-style-type: none"> • What was the width of riparian buffer the proponent commits to protecting and that the effects analysis was based upon? • Explain under what circumstances the proponent would seek authorization (i.e. anticipated activities) to clear in a riparian strip along watercourses and from who this authorization would be sought. • Describe anticipated environmental effects that could result from clearing riparian areas and the significance of those effects on valued components.
<p>HML Answer</p> <p>The Proponent is committed to protecting the riparian buffer zone with a minimum width of 20 m in order to comply with the Forest Act, and when possible the buffer strip will be greater (See answer to CEAA 81). However, the construction of the different infrastructures, including the mine haul road, might need to be carried out within the riparian buffer. Should this occur, the Proponent will acquire the requisite certificate of approval and permits that are needed. A list of permits and authorization required for the Howse Project was presented in the EIS, in Volume 1, Appendix III. Certificate of Approval under the Water Resource Act and under the Environment Act might be necessary.</p>						

IR No	Dept No	Effects Link to CEEA 2012	Link to EIS guidelines	EIS Reference	Context and Rationale	Specific Question/ Request for Information
<p>Several measures were presented in the EIS, in Volume 1, Appendix VI. The areas will be clearly marked so that no unnecessary clearing will be carried out. Measures for preserving shrub and herb stratum, as well as tree's root system were presented. These measures will help in maintaining the bank's stability and limit the erosion.</p> <p>The clearing of riparian areas is limited to water crossings. The anticipated environmental effects of VCs are presented in Section 7.4.8 Avifauna and 7.4.9 Aquatic Fauna.</p>						
CEAA 90	CEAA	5(1)(a)(i) Fish and Fish Habitat 5(1)(a)(iii) Migratory Birds 5(1)(c)(iii) current Use of Lands and Resources for traditional purposes	6.1, 6.3	Table 7-78	In the EIS, the proponent commits to being "particularly careful in wetlands and protected areas". There is insufficient information to understand what is meant by "particularly careful" and what impact this measure might have.	<ul style="list-style-type: none"> Review proposed mitigation measures associated with wetlands and provide revised measures that are specific, measurable, attainable, relevant, and time-bound along with associated analysis on its effectiveness at reducing environmental effects.
<p>HML Answer</p> <p>This question is already posed in Part 1 of CEEA's IRs (CEAA 2). Answer is provided there.</p>						
CEAA 91	CEAA	5(1)(a)(i) Fish and Fish Habitat 5(1)(a)(iii) Migratory Birds 5(1)(c)(iii) current Use	6.1, 6.3		In the EIS the proponent commits that "no explosive must be used in or near water."	<ul style="list-style-type: none"> What is the distance, criteria, or threshold the proponent is measuring to ensure explosives are not used in or near water? Provide a rationale for how this criterion effectively mitigates environmental effects.

IR No	Dept No	Effects Link to CEEA 2012	Link to EIS guidelines	EIS Reference	Context and Rationale	Specific Question/ Request for Information
		of Lands and Resources for traditional purposes				
<p>HML Answer</p> <p>The Proponent's scientific criteria for choosing the limits to explosives are specified in Section 7.4.9.3. (tables 7-100 and 7-101). As explained in the EIS, the criteria used for the closest human point of reception in terms of maximum explosive charge is lower than the thresholds to protect fish and fish eggs, therefore, no impact is expected on fish and fish habitat from this activity.</p>						
CEAA 92	CEAA	5(1)(a)(i) Fish and Fish Habitat 5(1)(a)(iii) Migratory Birds 5(1)(c)(iii) current Use of Lands and Resources for traditional purposes	6.1, 6.3	7-201	The EIS identified loss of wetlands and localized drying-out as potential effects on wetlands.	<ul style="list-style-type: none"> • In addition to loss of wetland habitat, explain what other effects on wetlands could occur as a result of the Project (e.g. impacts of road use, air emissions), including a description of key wetland functions that could be lost (e.g. bird habitat, flood control)? • Predict how much wetland could be lost as a result of drawdown (i.e. in hectares) and provide an associated analysis to support the predictions (e.g. modelling or otherwise). • Describe and map the geographic extent of potential draw-down. • Explain if any measures are proposed to mitigate the effects of water draw-down (e.g. on fish and fish habitat).
<p>HML Answer</p> <p>The only effect to wetlands identified in the Howse EIS is net loss. As such, the EIS concludes that road use and air emissions will have no direct effect on wetlands. Effects on other component such as birds, water regime or fish and fish habitat have been addressed in their respective section in the EIS. An analysis of the potential wetlands that might be affected by drawdown was presented in the EIS, and Figure 7-21 shows the variation of the phreatic level during the period of observation, as based on the results of the modelling carried out in the Hydrogeology study. Based on those results, three wetlands were identified as being potentially impacted by the dewatering. The potentially impacted wetland areas will be described and revised in the wetland management plan (currently in preparation by the Proponent).</p>						

IR No	Dept No	Effects Link to CEAA 2012	Link to EIS guidelines	EIS Reference	Context and Rationale	Specific Question/ Request for Information
No mitigation measures are presented for the drawdown. As mentioned in the EIS, no effects are expected on fish and fish habitat due to dewatering.						
CEAA 93	CEAA	5(1)(a)(i) Fish and Fish Habitat 5(1)(a)(iii) Migratory Birds 5(1)(c)(iii) current Use of Lands and Resources for traditional purposes	6.1, 6.3	Table 7-74	The EIS states that the value of certain wetlands is high or very high.	<ul style="list-style-type: none"> Explain why certain wetlands were determined to have a high or very high value.
<p>HML Answer</p> <p>A specific methodology to evaluate the wetland's ecological value was developed for the Howse Property Project EIS. It is presented in detail in Volume 1, Appendix XXI.</p>						
CEAA 94	CEAA	5(1)(a)(i) Fish and Fish Habitat	6.1, 6.3	7-204	The EIS states that during the first years of mining operation, dewatering would be limited to water from direct precipitations and infiltration through the unsaturated geological unit and that dewatering would be more important when the operation reaches the pit's maximum depth (p.7-204).	<ul style="list-style-type: none"> Provide additional information to explain and clarify the meaning of this phrase. <ul style="list-style-type: none"> Are the anticipated environmental effects expected to be consistent throughout the pit development or would one phase have greater potential for environmental effects? Provide analysis. If the effects are not consistent throughout the lifetime of the Project, what is the proponent's approach to mitigating the various phases of the dewatering?
<p>HML Answer</p>						

IR No	Dept No	Effects Link to CEAA 2012	Link to EIS guidelines	EIS Reference	Context and Rationale	Specific Question/ Request for Information
<p>This information was provided by the Hydrogeology study and was presented in the EIS in the effects assessment of water budget (see Section 7.3.9.4.1):</p> <p>Site Construction Phase</p> <p><u>Timing</u> There are two scales to consider for timing. First, there is the annual timing. Discharge will mainly take place in the spring, at snow melt. Therefore, most of the flow increase will occur when the river banks are still frozen, which will considerably reduce erosion stress. Secondly, there is the long time scale in which the dewatering of the pit will occur only throughout the last years of the project as the groundwater table will not be reached before a few years. Since, significant effect on water regime are not expected in the first years, timing is considered inconsequential for this phase (Value of 1).</p> <p>Operation Phase</p> <p><u>Timing</u> Significant effect on water regime are expected as the pit gets deeper. Although ice cover in the spring will lower erosion impact on steam banks, lowering importance of the effects. Also, higher effects are expected in Burnetta Creek, but it is of lower ecological value as it does not shelter fish. Therefore, it is expected that there will be low but significant effect over the course of the project or moderate timing (Value of 2).</p> <p>Decommissioning and Reclamation Phase</p> <p><u>Timing</u> Throughout decommissioning, only natural water inputs will flow through the mine site and impact of the modified watersheds is expected only at freshet, but will be negligible. Timing is considered to be inconsequential for this phase (value of 1). Further, Section 7.3.9.2 states: Dewatering has an effect on water budget because groundwater is discharged at the surface of the site, adding an important quantity of water to the natural watercourses (Section 3.1). The dewatering water will be discharged at a single point, adding a great amount of water at Burnetta Creek and Goodream Creek. The water budget downstream from this point will be modified through increased flows. On the other hand, deepening and dewatering the pit will cause drying of the periphery of the pit; the source of creeks or wetlands can be altered by this interaction. The magnitude of this effect can be visualized in the hydrogeological component description (Section 7.3.9). The result is a change of the hydrography, by a reduction in the density of the watercourses. The only potential risk to level changes could have been on Pinette Lake, but a water regime analysis reveals a non-significant change over the years of operation, as, based on surface flow changes, the drawdown does not exceed 2 mm. The complete study is available in Volume 2 Supporting Study I). The addition of dewatering water may regulate the water regime of the receiving creek by reducing the magnitude of high and low flows during the year.</p>						
CEAA 95	CEAA	5(1)(a)(i) Fish and Fish Habitat 5(1)(a)(iii) Migratory Birds 5(1)(c)(iii) current Use of Lands and	6.1, 6.3	Table 7-79	The EIS proposes to strip “the entire area all at once rather than progressively whenever possible” so as to limit stress on wetlands. It is not clear how this measure would reduce environmental effects.	<ul style="list-style-type: none"> Provide substantiating information as to how the proponent quantified that all-at-once clearing poses less stress on wetlands.

IR No	Dept No	Effects Link to CEAA 2012	Link to EIS guidelines	EIS Reference	Context and Rationale	Specific Question/ Request for Information
		Resources for traditional purposes				
<p>HML Answer</p> <p>This measure essentially proposes that every time machinery has to work IN, ON or NEAR a wetland, the machinery's footprint disturbs the site. This logic simply follows that the more the site is left undisturbed (i.e. the less activity there is on site), the better the chances for rehabilitation are. As such, by reducing the number of visits to strip the wetland by machinery that circulate, even in its periphery, it reduces environmental damage to the wetland. Further, this measure proposes that if the Proponent were to strip progressively, the encroachment would be smaller as it would be easier strip more than was agreed on, as the limits might be harder to identify (i.e. markings gone) as time goes on.</p> <p>As CEAA suggests, the Proponent cannot quantify the effect of this measure, but the Proponent feel that it is a good measure that will, in the Proponent's opinion, obviously reduce the impact of the Project on wetlands.</p>						
CEAA 96	CEAA	5(1)(a)(i) Fish and Fish Habitat 5(1)(a)(iii) Migratory Birds 5(1)(c)(iii) current Use of Lands and Resources for traditional purposes	6.1, 6.3	Table 7 – 78	The EIS commits to maintaining a transition zone around the work site in which trees are removed, but stumps are left intact to preserve the shrub stratum.	<ul style="list-style-type: none"> Provide information as to the specific environmental effects that are being mitigated by implementing a transition zone (i.e. leaving stumps). Describe the proposed size of the transition zone, and provide an associated rationale.
<p>HML Answer</p>						

IR No	Dept No	Effects Link to CEAA 2012	Link to EIS guidelines	EIS Reference	Context and Rationale	Specific Question/ Request for Information
<p>The root system helps to maintain the soil in place and will help manage the surface run-off (limiting speed of water, promoting infiltration). Also, since the soil is not stripped down, it will promote revegetation by other stratum. As for the size, it depends on the activities that are carried out and the sensitivity of the habitat nearby.</p>						
CEAA 97	CEAA	5(1)(a)(i) Fish and Fish Habitat	6.1, 6.3	Table 7 – 78	The EIS commits to “respect(ing) the area’s natural drainage and tak(ing) all appropriate measures to permit the normal flow of water”. This general mitigation does not provide sufficient information to understand e proposed changes on the environmental effects.	<ul style="list-style-type: none"> Provide specific examples of mitigation measures that are considered “appropriate measures” that would respect the areas natural drainage and that would permit normal water flow. Provide information to clearly indicate how these measures reduce the environmental effects.
<p>HML Answer</p> <p>Intercepted water will be redirected in the same watershed as much as possible. In this case, it is done by having multiple discharge points respecting natural watersheds instead of on discharge redirecting all intercepted waters to one watershed. This will ensure that water flow is as close as possible to natural flow, preserving the hydrology of the water bodies, which in turn controls the hydromorphology and habitat quality.</p>						
CEAA 98	CEAA	5(1)(a)(i) Fish and Fish Habitat 5(1)(a)(iii) Migratory Birds	6.1, 6.3	7-208	The EIS states that the top layer of stripped organic matter would be deposited in, for example, a disturbed area, far from any watercourse, to promote revegetation of a wetland.	<ul style="list-style-type: none"> Provide analysis demonstrating how the deposit of organic matter would promote revegetation of a wetland.
<p>HML Answer</p> <p>There is no way of knowing if this measure would be successful since it has not been done in this particular environment. The majority of fieldwork in bogs or peatland aims to restore these habitats once they have been exploited for peat moss. To our knowledge, re-establishing a wetland in another area was not tried in this specific environment (northern boreal forest or tundra).</p> <p>However, there are several assumptions that leads us to conclude that it is possible. Most of the small wetlands in the area have developed on a deposit that restricts the water from percolating in the lower soil’s layer (clay or silt dominated layer). These wetlands are isolated from the local aquifer and depend on rainfall and surface water runoff for their water supply. By depositing the organic matter in a similar environment, i.e. a site that is slightly depressed in order to recreate similar water supply would create a favorable environment fir a wetland. A restricted layer of soil could be added if necessary.</p>						

IR No	Dept No	Effects Link to CEEA 2012	Link to EIS guidelines	EIS Reference	Context and Rationale	Specific Question/ Request for Information
<p>Based on fieldwork carried out in regionally since 2008, root depth (minimum, maximum and average) has been compiled for every type of ecosystems that are present in the Howse area. This information, as well as soil type for each ecosystem, is provided in Howse's Terrestrial ecosystem mapping report (Volume 2, Appendix K). In wetlands dominated by shrubs and herbs, root depth is generally around 30 cm. So by removing more than 30 cm of the surficial organic matter of a wetland (40-50 cm of organic matter, as per the mitigation measure), the whole plant's root system will be displaced. This will greatly help to promote the re-establishment of wetlands.</p>						
CEAA 99	ECCC	5(1)(a)(i) Fish and Fish Habitat	6.1, 6.3	7.3	<p>According to ECCC, the water effluent may also be subject to the <i>Metal Mining Effluent Regulations</i>, in addition to the provincial certificate of approval. ECCC is of the view that there is a possibility of seepage with an unlined pond, which is proposed in the EIS.</p> <p>The list of required federal approvals should include the <i>Metal Mining Effluent Regulations</i> and other mandatory permit and licenses, if appropriate.</p>	<ul style="list-style-type: none"> • Provide a rationale on why the sedimentation pond would not be lined. • Based on current designs, explain how seepage from the sedimentation pond would be monitored (i.e. detected) and describe the potential environmental effects, as well as, the mitigation measures that would be implemented if detected. • Review the list of federal authorizations to include the <i>Metal Mining Effluent Regulations</i> and other mandatory permit and licenses, if appropriate. If any other permits or licenses must be added, outside of the <i>Metal Mining Effluent Regulations</i>, inform the Agency.
<p>HML Answer</p> <p>Section 3.3 of the WMP (Appendix IV of the Howse EIS) provides a rationale for not using a liner on the sedimentation ponds.</p> <p>Since the main contaminant expected from Howse operations is suspended solids, infiltration is believed to be the best possible treatment. Indeed, the residence time calculated for the sedimentation ponds will allow proper sedimentation of larger particles, but infiltration will intercept pretty much all suspended solids before the water seeps out downstream, making it the best treatment possible. Therefore, in lower flow periods, instead of overflowing, the water will infiltrate and seep out downstream cleaned of its suspended solids. Periodic monitoring of water quality downstream from the final discharge points will be used to document any contamination from seepage in periods when there is no overflowing in the sedimentation ponds.</p>						
CEAA 100	DFO-IR-08	5(1)(a)(i) Fish and Fish Habitat	6.1, 6.3	Page 7-263 and 267	<p>The Burnetta Lake has an area of about 5 hectares. It has not yet been surveyed and no other information is known about its aquatic fauna.</p> <p>The EIS states that the risk of an effect on aquatic fauna in Burnetta Lake is unlikely given the distance to the mine site but nonetheless</p>	<ul style="list-style-type: none"> • Provide the characterization of fish and fish habitat (including water quality) in Burnetta Lake to the Agency. • Revise the analysis and impact predictions, as applicable, based on new information.

IR No	Dept No	Effects Link to CEAA 2012	Link to EIS guidelines	EIS Reference	Context and Rationale	Specific Question/ Request for Information
					possible and an aquatic survey should be conducted in that lake in the summer of 2016 to complete the portrait.	

HML Answer

Below is a table summarizing water quality data to date in Burnatta Creek, close to the future Howse Pit and at the outlet of Burnetta Lake. Samples were taken between June 2015 and July 2016.

Sample ID →		Mean Burnetta Creek	Mean Burnetta Lake
Date →		June 2015 to July 2016	
Parameters	Units		
METALS ICP-MS			
Aluminum (Al)	ug/L	182	6,4
Antimony (Sb)	ug/L	<1,0	<1,0
Silver (Ag)	ug/L	<1,0	<1,0
Arsenic (As)	ug/L	<1,0	<1,0
Barium (Ba)	ug/L	2,08	<2,0
Beryllium (Be)	ug/L	<2,0	<2,0
Bismuth (Bi)	ug/L	<1,0	<1,0
Boron (B)	ug/L	<50	<50
Cadmium (Cd)	ug/L	<0,20	<0,20
Calcium (Ca)	ug/L	<500	4640
Chromium (Cr)	ug/L	<5,0	<5,0
Cobalt (Co)	ug/L	<1,0	<1,0
Copper (Cu)	ug/L	2,14	<1,0
Total Hardness (CaCO3)	ug/L	2160	25200
Tin (Sn)	ug/L	<2,0	<2,0
Iron (Fe)	ug/L	164,8	<60
Magnesium (Mg)	ug/L	328	3380
Manganese (Mn)	ug/L	16,58	2,7
Molybdenum (Mo)	ug/L	<1,0	<1,0

IR No	Dept No	Effects Link to CEEA 2012	Link to EIS guidelines	EIS Reference	Context and Rationale	Specific Question/ Request for Information
		Mercury (Hg)	ug/L	<0,10	<0,10	
		Nickel (Ni)	ug/L	<2,0	<2,0	
		Lead (Pb)	ug/L	<0,50	<0,50	
		Potassium (K)	ug/L	<500	<500	
		Selenium (Se)	ug/L	<3,0	<3,0	
		Strontium (Sr)	ug/L	1,66	6,18	
		Sodium (Na)	ug/L	364	756	
		Thallium (Tl)	ug/L	<2,0	<2,0	
		Uranium (U)	ug/L	<1,0	<1,0	
		Titanium (Ti)	ug/L	<10	<10	
		Vanadium (V)	ug/L	<2,0	<2,0	
		Zinc (Zn)	ug/L	4,4	5,26	
		Total phosphorous	ug/L	18,8	15,4	
		CONVENTIONALS				
		Conductivity	mS/cm	0,008	0,05275	
		Dissolved organic carbon	mg/L	5,175	1,75	
		Nitrate (N) and Nitrite(N)	mg/L	<0,02	0,0125	
		Nitrates (N-NO3-)	mg/L	<0,02	0,015	
		Nitrites (N-NO2-)	mg/L	<0,02	<0,02	
		Nitrogen ammonia (N-NH3)	mg/L	0,0125	0,015	
		Orthophosphate (P)	mg/L	0,01625	<0,01	
		pH	pH	5,73	7,26	
		Phenols-4AAP	mg/L	0,00175	<0,002	
		Reactive silica (SiO2)	mg/L	3,95	5,2	
		Real Color	UCV	29,5	2,25	

IR No	Dept No	Effects Link to CEEA 2012	Link to EIS guidelines	EIS Reference	Context and Rationale	Specific Question/ Request for Information	
			Sulfides (S2-)	mg/L	<0,02	<0,02	<p>All parameters show low concentrations and are often below detection limits. No exceedance of guidelines was measured. The water quality of Burnetta system is therefore believed to be very good and no particular information needs to be highlighted.</p> <p>Fish habitat was not surveyed. On the other hand, dozens of lakes have been surveyed in the region and they all show the same species assemblages (AMEC, 2009; Groupe Hémisphères and Groupe Synergis, 2010 and 2011; Groupe Hémisphères, 2009b; 2013c; 2014band 2014c; SNC-Lavalin, 2012b). Based on that extensive knowledge, it can be extrapolated with confidence that Burnetta Lake fish community is dominated by Lake Trout and accompanied by Lake Whitefish, Round Withefish, Lake Chub and Burbot. Some Brook Trout may be present but is usually of low importance in larger lakes of the sector. It is mainly found in shallow lakes associated with Lake Chub and in streams where it is often the only species found.</p> <p>Moreover, areal passes have allowed to locate many upwelling zones on the northwestern littoral zone, areas known to be highly valued by Lake Trout for spawning.</p> <p>Therefore, since Burnetta Lake is pristine, its entire area is considered as good fish habitat.</p> <p>As for the reevaluation of the impact, since the effect is unlikely to reach Burnetta Lake because of its distance from the mine site and because of the dilution effect at this point, and since impact on a fish sheltering lake (Triangle) is already included in the analysis, the result of the residual effects significance assessment stays unchanged.</p>
			Turbidity	NTU	0,375	0,1875	
			Alkalinity Total (as CaCO3) pH 4,5	mg/L	65,875	94,5	
			Bicarbonates (HCO3 as CaCO3)	mg/L	65,875	94,5	
			Carbonate (CO3 as CaCO3)	mg/L	<1	<1	
			Chloride (Cl)	mg/L	0,13	0,1325	
			Sulfates (SO4)	mg/L	0,3625	2,1	
			Total Dissolved Solids	mg/L	16,5	32,25	
			Total suspended solids (TSS)	mg/L	1,5	<2	
			Dissolved oxygen	mg/L	8,475	10	
CEAA 101	IN-IR-58	5(1)(a)(i) Fish and Fish Habitat 5(1)(a)(iii) Migratory Birds	6.1, 6.3	7.3	The EIS states that a monitoring program during the dewatering of the pit should be carried out to establish that the wetlands closer to the pit are indeed not affected.	<ul style="list-style-type: none"> Evaluate benefits of wetland monitoring using control or reference wetland monitoring compared to monitoring wells, as proposed, as potential mitigation measures. 	

IR No	Dept No	Effects Link to CEAA 2012	Link to EIS guidelines	EIS Reference	Context and Rationale	Specific Question/ Request for Information
		5(1)(c)(iii) Current Use of Lands and Resources for traditional purposes				
<p>HML Answer</p> <p>Water table monitoring wells, consisting of perforated pipe, should be installed before the beginning of the construction phase in order to obtain some measures before pit dewatering begins. Measurement should be taken once a month, but once every two weeks from the beginning of operation phase until dewatering ends. Details on the construction of the water table monitoring wells is described in USACE (2005). Transects of wells should be positioned in CMH-04, CMH-05 and CMH-06 (see Figure 7-30 for the location of these wetlands). The wells should be spaced 50 m apart.</p> <p>Modification of the water regime in wetlands is the first effect that can be detected. It is also measurable, replicable and can be measured throughout the proposed quinquennial monitoring. It is difficult to compare two wetlands (one in a control area and one in the vicinity of the pit). They need to have both the same or similar physical characteristics (location, elevation, surficial deposit, water regime) as well as a similar plant community (plants present ad cover). Changes in the plant community can happen over a long time and might not be detected during the proposed quinquennial monitoring.</p> <p>Source: U.S Army Corps of Engineers [USACE] (2005) Technical standard for water-table monitoring of potential wetland sites. WRAP Technical Notes Collection, ERDC TN-WRAP-05-2. U. S. Army Engineer Research and Development Center, Vicksburg, MS</p>						
CEAA 102	NNK-2	5(1)(a)(i) Fish and Fish Habitat 5(1)(c)(i) Aboriginal Peoples Health/ socio-economic conditions	6.1.8	3-14, 15	<p>With respect to operations, the EIS states that the concentration of total iron, which is not currently regulated by the <i>Metal Mining Effluent Regulations</i>, was tested once and the result was high. This parameter would be closely monitored in the future, but it is assumed that iron is present in the suspended solid form and should settle out in the sedimentation ponds thus lowering the concentration to acceptable levels.</p> <p>With respect to closure, the EIS indicates that iron could be a source of contamination and that, as a treatment strategy, the</p>	<ul style="list-style-type: none"> With respect to operations, provide a rationale for assuming that iron is present as a suspended solid and that it would settle out in the sedimentation ponds at a rate that would permit acceptable concentrations of iron in water. What measures would be taking to monitor iron levels and what mitigation would occur if exceedances are observed? What are the levels of detectable iron that is acceptable? With respect to closure, covering ponds typically reduces evaporation as opposed to leaching, describe in more detail the process and components involved in covering

IR No	Dept No	Effects Link to CEAA 2012	Link to EIS guidelines	EIS Reference	Context and Rationale	Specific Question/ Request for Information
					sedimentation ponds would be covered to avoid any leaching of iron.	sedimentation ponds and how it would reduce environmental effects from high concentrations of iron.
<p>Sent to CEAA August 23</p> <p>HML Answer</p> <p>All the water will flow to the sedimentation ponds in ditches with various slopes, allowing for the water to get well mixed and aerated. Consequently, it is assumed that iron could be present as a suspended solid because the water should be well oxygenated, and iron should be more present in its ferric form than ferrous, and therefore easier to precipitate.</p> <p>The sedimentations ponds of Howse project are designed in order to settle all particle with a size bigger than 0.01 mm during the project design flood. The overburden in the Howse project area being mainly composed of sand and gravel, with a small percentage of silt, it is assumed that the settlement of all particle bigger than 0.01 mm will ensure that a highly significant proportion of the suspended solid will settle in the sedimentation pond before being released in the environment, thus allowing to settle the iron particles. As soon as there is water discharge, sedimentation tests will be conducted with available water from existing site to confirm the design.</p> <p>The Water Management monitoring program includes weekly effluent monitoring of every sedimentation pond, and surface water monitoring upstream and downstream of the sedimentation ponds effluent, 4 times per year. The WMP includes a monitoring plan for regulated parameters only (which exclude iron) directly at the effluent. However, if iron is a parameter of concern for the Agency, the Proponent can add it to the "Effluent Discharge Criteria to monitor ", data would then be available weekly. The Proponent could perform these tests at the sedimentation pond discharge point. Note that the Proponent already plans to monitor iron 4 times a year in the surface water upstream and downstream of the sedimentation ponds.</p> <p>If iron levels at the effluent becomes a recurrent issue, treatment chemicals, such as coagulant, could be added as a contingency measure at the entrance of sedimentation pond with manual dosing pumps, and mixed naturally by the turbulence action of the incoming flow. Alternatively, an organic polyamide cationic flocculant could also be used to destabilize the fine iron oxide particles. An anionic flocculant could be added to enhance the settling rate of the coagulated particles if required.</p> <p>For the effluent hosting a fish habitat (Goodream Creek – Sedimentation pond HowseB and Timmins 4 Sedimentation pond 3), the acceptable limit would be 0.3 mg/l.</p> <p>With respect to pond covering, HML will study the different options, including pond covering or not, of reducing the environmental effects of iron. The Proponent will use available data from discharge quality and will base its methods on approved methodologies.</p>						
CEAA 103	NNK-7	5(1)(c)(i) Aboriginal Peoples Health/ socio-	6.1.8	2-19 7-278 7-276 7-334, 7-335	The EIS states the following: <ul style="list-style-type: none"> Blasting would occur weekly for seven months per year. Trout species...spawn in late summer/fall. 	<ul style="list-style-type: none"> Describe the effects that spawning and fish eggs may experience from blasting. What mitigation measures would be implemented to address these effects? Clarify if the maximum charges are to be limited year-round or only at specific times of the year.

IR No	Dept No	Effects Link to CEEA 2012	Link to EIS guidelines	EIS Reference	Context and Rationale	Specific Question/ Request for Information
		economic conditions 5(1)(a)(i) Fish and Fish Habitat			<ul style="list-style-type: none"> Specific mitigation measures for aquatic fauna – limit the maximum charges...to protect fish eggs and fish from vibration and fish from overpressure. During the construction and the operation phase, the fish and fish habitat of the Goodream Creek would be affected, but the fish would stay fit for consumption. 	<ul style="list-style-type: none"> Explain how fish would be monitored at nearby fishing locations to verify they remain safe for consumption. What action would the proponent take to mitigate potential effects to human health?

HML Answer

In order to minimize the effect of noise and ground vibration during blasting, a technique using inter-hole or inter-delay between blasts is commonly employed. In this method, a single hole (or a series of holes) having a total explosive charge below the maximum designated charge is fired at one shot and the successive shots are fired with some milli-second delays. The effect minimizes the ground vibration. **The maximum charge will be limited at all times.**

Section 7.4.8.3 of the Howse EIS states: Concerning the use of explosives, based on the guidelines prepared by Wright and Hopky (1998), the maximum charges to be used in order to protect adult fish and fish eggs in nearby water bodies have been calculated and are shown in Table 7-101. Maximum charge for adult fish is calculated in order to keep blast over pressure under 100 kPa and, for fish egg, to keep blast vibration under 13 mm/s.

Table Erreur ! Il n'y a pas de texte répondant à ce style dans ce document.-1 Maximum Charges of Explosives to Be Used to Prevent Fish Mortality

POTENTIALLY AFFECTED WATER BODY	DISTANCE FROM DEPOSIT* (M)	MAX. CHARGES (KG)	
		Adult Fish	Fish Egg
Pinette Lake	862	29,368	3,261
Triangle Lake	1,661	109,044	12,106
Goodream Creek	1,045	43,162	4,792

*Distances from deposits are the shortest distances between two points respectively in the proposed pit and the water bodies

IR No	Dept No	Effects Link to CEAA 2012	Link to EIS guidelines	EIS Reference	Context and Rationale	Specific Question/ Request for Information						
					<p>Since the criteria used to calculate the generic maximum allowable charge per delay for the closest human point of reception located at 900 m from the site are lower than the ones for fish (Volume 3 Hemis Study f), respecting those limits will ensure no fish or fish egg mortality. Lethal effect of blasting will therefore not be further considered for the evaluation of the significance of the residual effects.</p> <p>Further, the EIS states (Table 7-100):</p> <table border="1" data-bbox="701 505 2024 769"> <thead> <tr> <th colspan="2">SPECIFIC MITIGATION MEASURES FOR AQUATIC FAUNA</th> </tr> <tr> <th>Measure</th> <th>Mitigation Effect</th> </tr> </thead> <tbody> <tr> <td>Limit the maximum charges of explosives to be used so that the blast vibration and overpressure limits respect the NPC-119 guidelines (MOE, 1985). The smallest distance between the pit and a water body (Pinette Lake) is 900 m, which limits the charges to 3,128 kg per delay to protect fish eggs from vibration and to 1,092 kg to protect the fish from overpressure (Volume 2 Supporting Study F).</td> <td>Respect of those limits will ensure not fish and fish egg mortality in the adjacent water bodies.</td> </tr> </tbody> </table>	SPECIFIC MITIGATION MEASURES FOR AQUATIC FAUNA		Measure	Mitigation Effect	Limit the maximum charges of explosives to be used so that the blast vibration and overpressure limits respect the NPC-119 guidelines (MOE, 1985). The smallest distance between the pit and a water body (Pinette Lake) is 900 m, which limits the charges to 3,128 kg per delay to protect fish eggs from vibration and to 1,092 kg to protect the fish from overpressure (Volume 2 Supporting Study F).	Respect of those limits will ensure not fish and fish egg mortality in the adjacent water bodies.	
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Departmental number (e.g. HC-01)	Reference to EIS	Context and Rationale	Advice to the Proponent
TC			<p><u>Navigation Protection Act</u></p> <p>There are no waterways within the project area that are listed in the Schedule 2 of the <i>Navigation Protection Act</i>. However, the proponent may choose to opt-in and have the Act made applicable to its work under Section 4 of the <i>Navigation Protection Act</i> for any work constructed, placed, altered, repaired, rebuilt, removed or decommissioned in, on, over, under, through or across any navigable water not listed in the Schedule.</p> <p>Please be advised that throwing or depositing (section 21 and 22) as well as dewatering (section 23) apply to all navigable waterways and therefore, should the proponent propose this type of activity it shall make Notice under section 5 to the Navigation Protection Program and have the work assessed. For further information please consult the NPA website at: http://www.tc.gc.ca/eng/programs-621.html.</p>

			<p><u>Transportation of Dangerous Goods Act (TDGA)</u></p> <p>The project description indicates the use of explosives that would be supplied and delivered by a third party contractor. Compliance with the TDGA is mandatory when handling and/or transporting any regulated dangerous goods. Additional information on the TDGA is available from: http://www.tc.gc.ca/eng/tdg/safety-menu.htm.</p> <p>Transport Canada would like to advise the proponent of CANUTEC. CANUTEC is the Canadian Transport Emergency Centre, operated by Transport Canada, that assists emergency response personnel in handling dangerous goods emergencies. This national bilingual advisory centre is specialized in interpreting technical information, providing advice, and emergency response. CANUTEC offers 24-hour emergency telephone service at 1-613-996-6666 or *666 on a cellular phone.</p>
ECCC-PI-02	Chapter 2, 2.5.6 .1, page 2-17	Not a technically accurate statement.	Alternative 1. The EIS states that the use of a sedimentation pond is not for water treatment. This is not accurate; settling of solids is a form of physical treatment for wastewater.
NL Wildlife Division	Section 7.4.3 – Caribou Migratory Tundra Page 7-211	The EIS states that “the most recent census of this (caribou) population was carried out in 2014, at which time the herd was estimated at 14,200 animals (GNL, 2014b),...”.	The most recent population is estimated at 10,200 caribou after fall 2015 surveys.
NL Wildlife Division	Section 7.4.3 – Caribou Migratory Tundra	The EIS states that “Special care will be taken at all times not to interfere with the activities of First Nation hunters.”	To clarify, all hunting of caribou is currently banned within Labrador.