Howse Property Project

Environmental Impact Statement Information Requests

Round 2 (Part 1)

October 2016

EIS or IR Reference	Dept Number	Effects Link to CEAA 2012	Link to EIS guidelines	Context and Rationale	Specific Question/ Request for Information
CEAA 1, Round 1, Part 1	CEAA	5(1) current use, migratory birds	3.3.3	In response to the CEAA 1, Part 1, the proponent stated that "it is not possible to know for sure whether an animal would be startled or not by the noise. It depends on the animal's current activity and mood, local environment, etc. We conclude that there is a lack of knowledge on the noise levels as they may be perceived by wildlife at a distance of 15 km from the Howse Project site". Federal avifauna experts have noted that there are relevant studies that can be used to understand and reduce scientific uncertainties regarding effects of noise wildlife outside of the mining sector, such as highway studies conducted in Germany.	Provide literature on noise effects on wildlife to reduce uncertainties regarding adverse effects as a result of noise beyond 15 km. This review should include other sectors such as highway studies, if there is insufficient literature regarding mining noise. Revise the environmental effects analysis if there is evidence there could be effects on wildlife beyond 15 km.

HML Response

CEAA 1, Part 1 also states that:
"*Studies have shown that construction activities, including blasting and operation of heavy equipment, did not adversely affect behavior or productivity of falcons that nested at least 50 m above and at distances 550-1000 m from blasting and operation of heavy equipment (Holthuijzen et al, 1990), perhaps because of their short duration. Falcons and raptors are considered to be more sensitive to human disturbance than songbirds and other smaller birds as their recommended setback distances are longer (1000 m for raptors if level of disturbance is considered high compared to 100 m for smaller birds). We apply these conclusions to all Howse avifauna. The more important setback distance proposed in the literature in Canada for high disturbance is for Greater Sage Grouse in Alberta and is 3.2 km. (Government of Alberta, 2011). For a Bald Eagle nest, the US Fish and Wildlife Service proposed a buffer zone of 1 mile (1.6 km) in open areas from using explosive (U.S. Fish and Wildlife Service, 2007). Therefore, it appears that the actual LSA includes all potential adverse effects on avifauna, including noise pollution*.''

Short-term impacts of blasting on occupancy of raptor nest sites have been documented (Stahlecker and Alldredge 1976). Ellis (1981), based on a 2-year study of simulated sonic boom noise, implied that both adverse short-term and long-term impacts of such activities were probably negligible on nesting raptors within 4.6 km and outside 4.6 km (comparison of reproductive success).

Seabird colonies and raptors show periods of extreme sensitivity during the breeding period, more than other groups of birds. (Knight and Skagen 1988). Environment Canada (2016) propose buffer zones and setback distances of up to 1 km on larger birds to minimize the risk of disturbance caused by industrial operations. This setback distance is for the "highest level of disturbance" and includes blasts.

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The calculated background noise from the natural environment includes presence of birds and wind and reaches 35,5 dBA according Ambiant Background Measurement from Tecsult (2006). There were no predicted noise impact exceedances for any receptors in Quebec except for Innu - Uashat - Mani-Utenam Camp 3 (4,76 km from the Howse deposit with an exceedance of 1,4 dBA.). Background noise levels when the Howse Project is in the Operations phase will not affect avifauna. The literature demonstrates that blast effect will be short lived and rare and will not have adverse effects on avifauna located further then 1 km from the blast site.
Although the Proponent understands CEAA's comment about the light effects reaching 25 km and so should the avifauna LSA be extended to 25 km, this modification is not supported by the scientific literature and so it is suggested that the LSA for avifauna remain at 5 km.

Additional information on noise disturbance:

Songbirds show greater nest desertion and abandonment, but reduced predation, within 100 m of off-road vehicle trail in California (Barton and Holmes, 2007). In the boreal forest, chronic anthropogenic noise from energy sector activity such as compressor stations is known to affect songbirds abundance at up to 700 m; densities of birds can be 1,5 time lower within this radius (Bayne et al. 2008). The brant (Branta leucopsis) exhibited flight responses at distances of up to 3 km, from noises caused by helicopters (Ward, 1990). Therefore, the birds were sensitized in some way to the noise or the combination of noise and visual stimulus of the helicopter. Sonic booms are sometimes taught to be unusually dangerous to nesting birds, when in fact exposures to boats, low-flying aircraft, walking humans, and other directed approaches are much more likely to cause reproductive failures in colonial birds for example (Bowles, 1995). Birds familiar with aircraft can be almost completely insensitive to noise; the most intense noise sources (120 dB) repelled birds for short distances (up to 30 m), but not for long. Similar indifference to noisy disturbances is found on airfields elsewhere in a wide range of species (waterfowl, passerines, gulls, terns, and raptors) (Robbins, 1966).

Even more, to limit any potential harm with noise disturbance, blasting at the Howse Property will be limited approximately to 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).

In conclusion, no scientific literature appears to support the idea that noise disturbance from industrial or blasting activities could create potential adverse effects at a 15 km distance radius on avifauna, even on extremely sensitive species.

References:

Website: https://www.ec.gc.ca/paom-itmb/default.asp?lang=En&n=8D910CAC-1
Barton, D.C. and Holmes, A.L. (2007) Off-highway vehicle trail impacts on breeding songbirds in northeastern California. Journal of Wildlife Management. (71) 1617–1620.
Bayne, E.M., Habib, L., and Boutin, S. (2008). Impacts of chronic anthropogenic noise from energy-sector activity on abundance of songbirds in the boreal forest. Conservation Biology, 22(5), 1186-1193
Bowles, A.E. (1995). Responses of wildlife to noise. Wildlife recreationists. Island Press Washington, DC, USA, 109-156.
Ellis, D.H. (1981). Responses of raptorial birds to low level military jets and sonic booms. Unpubl. m.s., Institute for Raptor Studies, Oracle, Arizona. 59 pp.
Government of Alberta (2011) Recommended Land Use Guidelines for Protection of Selected Wildlife Species and Habitat within Grassland and Parkland Natural Regions of Alberta. 5 p.
Holthuijzen, A.M., Eastland, W.G., Ansell, A R., Kochert, M.N., Williams, R.D., and Young, L.S. (1990) Effects of blasting on behavior and productivity of nesting prairie falcons. Wildlife Society Bulletin, 270-281.
Knight, R.L., and S.K. Skagen (1988) Effects of recreational disturbance on birds of prey: a review. Pages 355-359 in Proc. Southwest raptor management symposium and workshop. Institute for Wildlife Research, National Wildlife Federation Scientific and Technical Series. No. 11.
Robbins, C.S. (1966). Birds and aircraft on Midway Islands, 1959-63 investigations (No. 85). US Fish and Wildlife Service.

Commenté [SD1]: Barton, D.C. and Holmes, A.L. (2007) Off-highway vehicle trail impacts on breeding songbirds in northeastern California. J. Wildl. . In Manage. 71, 1617–1620

Commenté [SD2]: Bayne, E. M., Habib, L., & Boutin, S. (2008). Impacts of chronic anthropogenic noise from energy-sector activity on abundance of songbirds in the boreal forest. Conservation Biology, 22(5), 1186-1193.

Commenté [SD3]: Ward, D. H., & Stehn, R. A. (1990). *Response of Brant and other geese to aircraft disturbances at Izembek Lagoon, Alaska* (No. MMS-90/0046).

Commenté [SD4]: Bowles, A. E. (1995). Responses of wildlife to noise. *Wildlife recreationists. Island Press Washington, DC, USA*, 109-156.

Commenté [SD5]: Robbins, C. S. (1966). *Birds and aircraft on Midway Islands, 1959-63 investigations* (No. 85). US Fish and Wildlife Service.

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Stahlecker, D.W., and Alldredge A.W. (1976) The impact of an underground nuclear fracturing experiment on cliff-nesting raptors. Wilson Bull. 88:151- 154. U.S. Fish and Wildlife Service (2007) National Bald Eagle Guidelines. 23 p" Ward, D.H., and Stehn, R.A. (1990) Response of Brant and other geese to aircraft disturbances at Izembek Lagoon, Alaska (No. MMS-90/0046).					
CEAA 2, Round 1, Part 1	CEAA	5(1) and 5(2)	All	The proponent's response to CEAA 2, Part 1 is inadequate. Rather than describing proposed mitigation measures as requested, the proponent has removed all measures that did not, in the view of the proponent, fit the specified criteria. This does not address the intent of the request and leaves environmental effects unmitigated. For example, if the EIS proposed a plan to mitigate effects of NOx, and this measure was removed without providing replacement mitigation for NOx the environmental effect remains unmitigated. A more clear description of the criteria for mitigation measures is as follows: • Mitigation measures should be specific, measurable, attainable, relevant, and time-bound; • Mitigation measures should be worded in explicit, precise, unambiguous, and mandatory terms. Ambiguous terms, such as: "when/whenever possible", "when not necessary", "where necessary", "when needed", and "could be installed/implemented/used", should not be used. Mitigation measures should be expressed in quantitative terms and be reportable. They should be realistic and achievable. • The measures proposed should directly address the adverse environmental effects, and the timeframe for the implementation of the measure must be clear - whether it is during all phases of the designated project, or for a specific duration during a phase of the designated project. Many of the mitigation measures included in the EIS did not conform to these requirements, so that their effectiveness in mitigating potential environmental effects	• Review proposed mitigation measures in relation to all valued components and provide updated lists (either revised measures or new additional measures) of mitigation measures that are specific, measurable, attainable, relevant, time-bound for each valued component. • Update analysis and determinations of significance, as appropriate, based on revised mitigation measures.

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				is unknown and the resulting residual effects could not be accurately predicted. The followings are examples of mitigation measures that follow the desired criteria: • 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. • Riprap will be installed on both sides of the Creek from the discharge point to 600 m downstream - within Burnetta Creek littoral and lower shore up to where water flow increase is expected to stay below 20% - thereby nearly eliminating erosion risks in that stream.	
HML Response The Proponent provides 2 appendices in support of their answer: A revised list of specific mitigation measures and a revised list of standard mitigation measures. The standard mitigation measures for the Howse Property EIS were assembled from previous EA documents pertaining to iron ore mining activities in the Schefferville region. A list of measures was populated and narrowed down by a proponent to include only the financially and economically-feasible measures as well as those that were relevant to iron ore mining in the Schefferville region. These measures have served several mining projects in the Labrador Trough area over the years. In their review in the context of CEAA's request that measures be measurable, attainable, relevant, and time-bound and target a specific environmental impact, the Proponents suggest that the list of standard mitigation measures, as presented in the Howse EIS, is a combination of Best Practices and mitigation measures, as defined by CEAA. The measures are meant to apply to several of the Proponent's activities simultaneously (i.e. Do not dump plant cutting or soil stripping waste in watercourses or lakes) and on several components (water quality, fish habitat, land use resources). None the less, a review of the measures is provided and a new list that fits CEAA's criteria is presented. It is argued that the assessment of the adverse environmental effects of the project on valued components (VCs) was completed with the mindset that all of the mitigation measures (standard, specific and best practices) would be applied to the VC. The designation/definition of what is standard VS specific VS best practice has no bearing on the effect assessment, and so it remains unchanged.					
CEAA 22, Round 1, Part 1	CEAA	5(1)(a)(iii) Migratory birds	6.3.2	The proponent's response to CEAA 22, Part 1, indicates that "The proponent is currently preparing a wetland management plan (final version to be ready in the Fall	Provide the wetland management plan and update the effects assessment based on the additional information (i.e. delineation of

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				2016), which includes a submetric delineation of the wetlands that are in the vicinity of the proposed Howse Project infrastructures. The plan will include specific mitigation measures to minimize the effects of the Project on wetlands, such as limit their encroachment. " In order to fully understand the potential effects, and residual effects following mitigation, the proponent must provide sufficient information on the proposed mitigation measures, including those that will be part of a plan, as outlined in CEAA 2, Part 1.	wetlands in the vicinity of the Project), including changes to mitigation measures. In lieu of the detailed plan being available, provide sufficient information on wetlands potentially affected by the Project, predicted effects on wetlands, and proposed mitigation measures, so as to enable a full understanding of the significance of residual environmental effects on wetlands, as well as effects on the current uses of wetlands for traditional purposes by Aboriginal peoples.
HML Response The Proponent has attached a copy of HML's wetland management report. The report states: *Overall, the Howse Property Project infrastructure directly impacts almost 9 ha of the wetlands in the DSO3 area, which represents 6.8% of the wetlands identified in the area (Table 2). In the Environmental impact statement for the Howse Project, the loss of wetlands was evaluated at 19 ha.* Further, *The wetlands complex located north of the pit is significantly smaller than what was expected (MH17/MH19). It was incorporated in a polygon that extended from halfway up the hill to the bottom of the slope. However, wetlands were only located at the bottom of the slope. The forest in this area was dry open black spruce-lichen forest. Another wetland was almost completely redefined north of the waste dump (MH25). The topography in the area was mostly flat, which is favorable for wetlands, but it was characterized by spruce-feathermoss forest. One wetland was significantly increased (MH14/MH15). It is located in the Two Ponds area and there were no wetlands previously identified between the ponds.* *One new wetland was identified (MH11). It is a small herbaceous fen located at the future site of the HOWSEB sedimentation pond.* We suggest therefore that the current EIS represents the worse case scenario for wetlands with the exception of wetlands MH14/MH15 and MH11. Further to the report: *As stated in Howse EIS, dewatering might also potentially affect wetlands by modifying the hydrography and hydrology of the area. Based on wetland's characteristics and the information provided by the hydrogeology survey, it was stated that only wetlands close to the pit might be affected by dewatering.* Since wetlands MH14, MH15 and MH11 are located far from the pit, they are not expected to be affected by the project.					
CEAA 23, Round 1, Part 1	ECCC-IR-01	5(1)(a)(iii) Migratory Birds	6.3.2	The proponent's response to Information Request CEAA 23, Part 1, is inadequate.	Explain whether an avifauna management plan would be prepared in accordance with the following document: *"Planning ahead to reduce the risk of detrimental effects to migratory birds and their*

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				As previously indicated, Environment and Climate Change Canada has advised that all migratory bird mitigation measures should be codified in an avifauna management plan. Prior to preparing a plan, the proponent should consult the following document: *"Planning ahead to reduce the risk of detrimental effects to migratory birds and their nests and eggs"* https://www.ec.gc.ca/paom-itmb/default.asp?lang=En&n=1B16EAFB-1#_001	*nests and eggs"* https://www.ec.gc.ca/paom-itmb/default.asp?lang=En&n=1B16EAFB-1#_001 . If so, describe the proposed review and approval process for an avifauna management plan. If not, provide information on how mitigation measures for avifauna will be reviewed and approved by relevant experts. Further to CEAA 2, Part 1, provide information on mitigation measures that the proponent would implement as part of the plan. If new or modified measures are selected, revise the effects analysis for avifauna, and other impacted valued components, including current use and cumulative effects where applicable.
HML Response In order to determine the likelihood of the presence of migratory birds, their nests or eggs when planning activities, the Proponent should use a scientifically sound approach that considers the available bird habitats, what migratory bird species are likely to be encountered in such habitats, and the likely time periods when they would be present. In order to so, a calendar of nesting chronology of every species breeding in the Howse Property Project LSA was presented with the help of the Nesting Calendar Query tool from Bird Studies Canada, in order to help the Proponent to schedule construction activities. Vegetation removal will be prohibited during the breeding period determined by this calendar unless a complete nest survey is conducted by a bird expert. Any nest found during stripping activities will be protected by a buffer zone and a setback distance. Considering the possibility that a nest could go undetected, this solution would be limited to small areas. Otherwise, an avifauna management plan was prepared for species at risk Rusty Blackbird and Bank Swallow (attached) in order to develop an appropriate preventive and mitigation measures to minimize the risks on this species. As part of the mitigation measures for noise disturbance, blasting at the Howse Property will be limited approximately to once per week during summer and infrequently during winter. The proponent is well aware of and understands the relevant provisions of the Migratory Birds Convention Act, 1994 and the Migratory Birds Regulations and, the Species at Risk Act and provincial, laws and regulations. The proponent will avoid nesting period as much as possible during the construction phase and do all vegetation stripping for areas where activities are planned in a specific year before the month of May of that year so that birds will not breed in those area. Light intensity will be reduced when weather forecasts are extreme during migration periods to minimize light attraction. According to light modelling results, the cumulative effects of Howse and surrounding projects will be highest in winter, due to snow reflectance. Under this nighttime scenario, the artificial sky brightness due to Howse and surrounding projects is negligible (for example, at Irony Mountain, the artificial sky radiance level is 8.9% of the natural radiance in winter but 7.5% of that amount is coming from Schefferville (Volume 2 Supporting Study G).					
CEAA 30, Round 1, Part 1	CEAA	5(1)(a)(iii) Migratory Birds 5(1)(c)	6.3.2 6.3.4	The proponent's response to CEAA 30, Part 1, states that "the proponent will not conduct any activities on Irony Mountain and the area will remain wild and undisturbed.	Given the proximity of Irony Mountain (Kauteitnat) is 500 m to the Project, provide rationale to substantiate the proponent's predictions that the Project, including effects of noise, light, and air

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				As such, there are no anticipated adverse environmental effects of the project on avifauna at Irony Mountain."	emissions, would not have any adverse effects on species, such as migratory birds or species used by Indigenous groups, potentially occurring on Irony Mountain, as well as adverse environmental effects that would discourage the use or enjoyment of lands and resources.

HML Response

Avifauna (and general fauna) (noise, light):

In the boreal forest, chronic anthropogenic noise from energy sector activity such as compressor stations is known to affect songbirds abundance at a distance of up to 700 m; densities of birds can be 1.5 times lower within this radius (Bayne et al. 2008). As Irony Mountain is located at 500 m from the Project, noise disturbance could potentially affect songbirds densities. However, acute songbird disturbance like blasting will be limited to once a week during the breeding period and adverse effects should therefore be limited. However, chronic noise is a more critical factor influencing habitat quality for birds. Drilling and heavy machinery will produce chronic noise and as Irony Mountain is located 500 m from the pit, slight decreases in songbirds densities could be expected with the following species known to breed on Irony Mountain: American Pipit, Horned Lark, White-crowned Sparrow, American Tree Sparrow and Common Redpoll. Chronic noise may create difficulties in territorial defense by reducing the ability of male birds to acoustically estimate the location of known conspecifics (Mazerolle and Hobson, 2002) but is not known to cause complete avoidance of a certain area.

As the habitat on Irony Mountain will remain undisturbed and considering the fact that ptarmigan hunting is mostly practiced during winter where the species is more abundant, no harmful effects are expected to occur to his important practice for indigenous people.

Human Health (air emissions):

Willow Ptarmigans are game birds known to occur regularly on Irony Mountain and concerns exist for accumulation of ore-based chemical constituents in small local game (e.g., game birds, hare) from soil after prolonged particulate air deposition. However, the likelihood of the Howse project having an effect on human health via country food ingestion is considered very low, because the multimedia exposure assessment has employed numerous conservative assumptions, with consideration of the traditional foods consumed by aboriginal people, Aboriginal traditional activities, and a comprehensive evaluation of the interaction of mine activities, air emissions and meteorological conditions that will influence air quality. Notwithstanding the conservative assumptions, the magnitude of health risk was found to be negligible for all exposure pathways, both individually and additively.

References:

Bayne, E.M., Habib, L., and Boutin, S. (2008) Impacts of chronic anthropogenic noise from energy-sector activity on abundance of songbirds in the boreal forest. Conservation Biology, 22(5), 1186-1193.

Mazerolle, D.F., and Hobson, K.A. (2002) Physiological ramifications of habitat selection in territorial male ovenbirds: consequences of landscape fragmentation. Oecologia, 130(3), 356-363.

Commenté [SD6]: Bayne, E. M., Habib, L., & Boutin, S. (2008). Impacts of chronic anthropogenic noise from energy-sector activity on abundance of songbirds in the boreal forest. Conservation Biology, 22(5), 1186-1193.

Commenté [SD7]: Mazerolle, D. F., & Hobson, K. A. (2002). Physiological ramifications of habitat selection in territorial male ovenbirds: consequences of landscape fragmentation. Oecologia, 130(3), 356-363.

CEAA 31, Round 1, Part 1	ECCC-IR-07	5(1)(a)(iii) Migratory Birds 5(1)(c)(iii) Current Use of Lands and Resources for Traditional Purposes	6.3.2, 8.1.	CEAA 31, Part 1 was not adequately addressed. The EIS states "the Proponent will engage in breeding birds and species at risk monitoring surveys every five	State whether the following would be committed to by the proponent:

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				years. Surveys with point count methods will allow HML to stay informed on avifauna in the area. In order to keep track of possible changes in bird populations, these surveys will be conducted in every habitat present in the Howse area, after the end of the construction phase." One of the main purposes of post-construction surveys is to verify the prediction of adverse environmental effects on avifauna. However, the frequency of proposed surveys is too low to obtain adequate data to assess the population trends for migratory birds and to assess the success of project mitigations. If surveys at the current frequency show that the prediction of 'no significant adverse effects' is incorrect, there may be insufficient time to undertake adaptive management to mitigate adverse effects. Following the initial three year post-construction period, monitoring as proposed by the proponent should be implemented to assess long-term effects. The proponent's response as to how Indigenous Traditional Knowledge would be considered in follow-up avifauna surveys, states that "… in Section 9.3: HML has put in place various communication and socioeconomic monitoring mechanisms collaboratively with affected Aboriginal communities." However, Indigenous Traditional Knowledge and its incorporation in follow-up surveys for avifauna is not mentioned in the various communication and socioeconomic monitoring mechanisms identified in Section 9.3.	• Post-construction monitoring every year for the first three years following completion of construction in order to assess initial effects of construction and operation. As requested, provide information on if and how Indigenous Traditional Knowledge would be considered in follow-up surveys for avifauna, and how local communities would be involved in the surveys.

HML Response

The proponent is committed to conducting post-construction monitoring every year for the first three years following completion of construction in order to assess initial effects of construction and operation. Further, in order to identify any adverse effects of project activities on avifauna, the Proponent's avifauna surveys methodology will be replicated pre- and post- construction.

The Proponent expects to incorporate ATK in its avifauna surveys by:

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- Continuing to conduct meetings with local aboriginal groups under the Health, Safety and Environment (HSE) committee, which is held 4 times per year. The Community HSE was established in spring 2013, and represented by mandated officials of the NIMLJ, the NNK, ITUM, the Labrador Innu, the NCC and TSMC/HML. During these meetings, documents are shared with the community, including environmental results and upcoming activities. (see section 4.2.2 of Howse Property EIS main document for more information). In addition to the traditional knowledge that is already established, HSE meetings are a good platform to augment this knowledge in support of any VCs for the Howse Property Project. - Indigenous traditional knowledge will be used to identify important area for game birds and waterfowls and the help of locals will be solicited to complete avifauna surveys.					