Howse Property EIS Specific Mitigation Measures

VC	SPECIFIC MITIGATION MEASURE IN EIS	REVISED SPECIFIC MITIGATION MEASURE	MEASURABLE	RELEVANT	TIME BOUND	EFFECTS ANALYSIS UPDATE
		HML will observe and record meteorological conditions pre-blast	Measure is successful if no NOX is measured at Camp	eliminates NOX at worker's camprelevant to human health	Every time a blast occurs	No
Air Quality	TSMC will develop a plan for the prevention and management of blast generated NOx (Volume 1 Appendix XXI).	For each blast, the following documents will be reviewed and filed by TSMC onsite environmental team: blast Design by blasting company or responsible pre-Blast Environmental Assessment pre-Blast and Post-Blast Checklist blast Log	Measure is successful if blast meets the manufacturer's specifications on quality control on NOX	prevents and/or eliminate NOX during blasting relevant to human health	Every time a blast occurs	No

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Light	Measures proposed by the International Dark-Sky Association in the document Light Pollution and Wildlife (IDA, 2008): shield outdoor lighting; only use the light when needed; shut off the lights when possible; use only enough light to get the job done; use long wavelength light with a red or yellow tint to minimize effects; staff will be informed to turn off lights on top of trucks at night, when not necessary; the minimum amount of pilot warning and obstruction avoidance lighting should be used on tall structures. Although Howse does not have any 'tall structure', this measures considers the 65m stack located near the dome;	Measures that will reduce the amount of light on site: shield outdoor lighting at night; only use the light when needed at night; shut off the lights when possible at night; use only enough light to get the job done at night; staff will be informed to turn off lights on top of trucks at night, when not necessary at night; use long wavelength light with a red	Measure is successful if staff implement measures Yes, with knowledge of	reduces overall nighttime light on site relevant to Avifauna and caribou red/yellow wavelengths are less visible to	During nighttime conditions	No
	 lighting for the safety of employees should be shielded to shine down and only to where it is needed, without compromising safety; and when possible, LED lights will be used. 	or yellow tint to minimize fauna perception of light;	number of longer wavelength bulbs	species relevant to fauna		
Hydrolo 9y	Creek from the discharge point to 600 m	OK, as per CEAA comments	-	-	-	-
Wat	riprap will be installed on both sides of Burnetta Creek from the discharge point to 600 m downstream;	OK, as per CEAA comments	-	-	-	-

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	Divert sedimentation pond HowseA into the pit.	Divert sedimentation pond HowseA into the pit after decomissioning	Measurable during monitoring and follow up activities	This measure will ensure no more SS (or other contaminants) are discharged into Burnetta Creek. Also, since this stream is not a fish habitat and is mainly fed by resurgences, its water flow should get back to previous levels once the pit is filled with water. Since the effective watershed area of Burnetta Creek will be increased due to interceptions by the peripheral ditches (increase water flow), diverting water from HowseA sedimentation pond into the pit, together with the cessation of dewatering, will restore Burnetta Creek watershed to close to its former size and hence its water flow back to nearly normal values. Also, since the main contaminant is expected to be TSS, diverting flow into the pit will allow a very long settling time as water will probably never exit the pit through surface flow. Therefore, since Burnetta Creek is not a fish habitat and is mainly fed by resurgences, it should be back to its natural water flow once the pit is filled with water.	Decomissioning phase	No
Terrestrial ecosystems (WETLANDS)	stripping the entire area all at once rather than progressively, whenever possible; the top layer of the stripped organic matter (the 40-50 cm layer that includes the roots) should be preserved. To the extent possible, the organic matter will be excavated in blocks, without disturbing the various horizons. It will then be deposited in, for example, a disturbed area. The area selected will be an isolated depression (far from any watercourse, so as to avoid increasing suspended matter), which will promote revegetation and, eventually, the regeneration of a wetland; and if an access road has to be built, it is recommended to do it during the winter season. In the event that no road is built and only a temporary access is necessary, a temporary protection mat will be used where machinery will operate.	the top layer of the stripped organic matter (the 40-50 cm layer that includes the roots) will be preserved. The organic matter will be excavated in blocks, without disturbing the various horizons. It will then be deposited in a disturbed area. The area selected will be an isolated depression (far from any watercourse, so as to avoid increasing suspended matter), which will promote revegetation and, eventually, the regeneration of a wetland Good practice	measure successful if revegetation is observed on disturbed area where stripped organic matter has been deposited (area of revegetation can be calculated)	relevant for rehabilitation by using local resources	Every time a natural area is stripped	No

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Caribou	 where possible, operation activities will avoid areas of wildlife concentration, as traffic would disturb wildlife during critical periods; 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 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; activities will cease if caribou are seen within 5 km of an active pit or the processing complex; whenever activity ceases pursuant to the foregoing, TSMC will contact the NLDEC to discuss any further steps to be taken; work activities will be re-scheduled where necessary to avoid wildlife encounters; equipment and vehicles will yield the right-of-way to wildlife; and firearms are prohibited in the workers' camp, except for two that may be used by security personnel in the case of an emergency. 	 activities will cease if caribou are seen within 5 km of an active pit or the processing complex and TSMC will contact the NLDEC to discuss any further steps to be taken. work activities will be re-scheduled for as long as caribou as within a 5 km radius of the site. 	Measure will be successful if caribou are seen at the Howse site and the activities cease. Measurable by number of caribou.	 this will ensure that caribou suffer less indirect habitat loss relevant to caribou 	Any time during the Howse Project construction, operations and/or decommissioning phases	Since caribou have not been seen near the Howse site lately, no update needed
Avifauna	 Migratory and ground-nesting migratory birds: to avoid destroying nests, vegetation clearing will be avoided during the breeding season (May 1 to August 7); construction activities will take place during the breeding season but only in already cleared areas; 	the Proponent will clear vegetation from the Howse Property site only between August 8 and April 30. construction activities during the breeding season will only take place in cleared areas;	Measure is successful if no nests are destroyed during the Howse Property activities. Measurable by number of nests destroyed.	These measures are relevant to avifauna (habitat and nests)	Any time during the Howse Project construction, operations and/or decommissioni ng phases	

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	 if nests are found outside the breeding season, they will be protected with a buffer zone determined by a setback distance appropriate to the species, the level of the disturbance and the landscape context, until the young have permanently left the vicinity of the nest; for ground-nesting migratory birds, in case a nest is located, a small fence with wooden stakes and galvanized metal T-posts with colored nylon rope along the posts could be installed to identify it and prevent the machinery destroying the eggs. 	 Nest protection if nests are found between August 8 and April 30, they will be protected with a buffer zone determined by a setback distance appropriate to the species, the level of the disturbance and the landscape context, until the young have permanently left the vicinity of the nest; for ground-nesting migratory birds, in case a nest is located, a small fence with wooden stakes and galvanized metal T-posts with colored nylon rope along the posts could be installed to identify it and prevent the machinery destroying the eggs. 				
	Species at risk – Rusty Blackbird: to avoid destroying nests, vegetation clearing will be avoided during the breeding season (May 1 to August 7);	Habitat protection the Proponent will clear vegetation from the Howse Property site only between August 8 and April 30.	Measure is successful if no nests are destroyed during the Howse Property activities.	These measures are relevant to avifauna (habitat and nests)	Any time during the Howse Project construction, operations	
	construction activities will take place during the breeding season but only in already cleared areas; if nests are found outside the breeding season, they	construction activities during the breeding season will only take place in cleared areas;	Measurable by number of nests destroyed.		and/or decommissioni ng phases	
	will be protected with a buffer zone determined by a setback distance appropriate to the species, the level of the disturbance and the landscape context, until the young have permanently left the vicinity of the nest; for ground nesting migratory birds, in case a nest is located, a small fence with wooden stakes and galvanized metal T-posts with colored nylon rope along the posts could be installed to identify it and prevent the machinery destroying the eggs; the proponent is committed to inspect wetlands in this area at least annually to ensure that the loss of wetland habitat does not exceed what was predicted.	Nest protection if nests are found between August 8 and April 30, they will be protected with a buffer zone determined by a setback distance appropriate to the species, the level of the disturbance and the landscape context, until the young have permanently left the vicinity of the nest; for ground-nesting migratory birds, in case a nest is located, a small fence with wooden stakes and galvanized metal T-posts with colored nylon rope along the posts could be installed to identify it and				

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	During breeding season, traffic including heavy equipment shall not be permitted to enter wetlands or any area that is not designated for traffic; the proponent is committed to apply the TSMC/NML Plan for the Protection of the Rusty Blackbird (Groupe Hémisphères, 2011c); and the protection of a riparian strip adjacent to riparian and non-riparian wetlands for the protection of the Rusty blackbird and, to a lesser extent, the Gray-cheeked Thrush.	prevent the machinery destroying the eggs. Good practice				
	 Species at risk - Grey-cheeked Thrush: to avoid destroying nests, vegetation clearing will be avoided during the breeding season (May 1 to August 7); construction activities will take place during the breeding season but only in already cleared areas; if nests are found outside the breeding season, they will be protected with a buffer zone determined by a setback distance appropriate to the species, the level of the disturbance and the landscape context, until the young have permanently left the vicinity of the nest; and the protection of a riparian strip adjacent to riparian and non-riparian wetlands for the protection of the Rusty blackbird and, to a lesser extent, the Gray-cheeked Thrush. 	 the Proponent will clear vegetation from the Howse Property site only between August 8 and April 30. construction activities during the breeding season will only take place in cleared areas. Nest protection if nests are found between August 8 and April 30, they will be protected with a buffer zone determined by a setback distance appropriate to the species, the level of the disturbance and the landscape context, until the young have permanently left the vicinity of the nest; for ground-nesting migratory birds, in case a nest is located, a small fence with wooden stakes and galvanized metal T-posts with colored nylon rope along the posts could be installed to identify it and prevent the machinery destroying the eggs. 	Measure is successful if no nests are destroyed during the Howse Property activities. Measurable by number of nests destroyed.	These measures are relevant to avifauna (Greycheeked thrush habitat and nests)	Any time during the Howse Project construction, operations and/or decommissioni ng phases	

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	 the proponent is committed to surveying the Howse Pit area in early and mid-summer every year that the mine is in the operations phase (where vertical walls exist). Should the swallow be detected, then deterrence methods or measures will be taken to render the site inhospitable (noise, plastic covering of pit walls, etc) for nesting; any nest found will be protected with a buffer zone determined by a setback distance appropriate to the species, the level of the disturbance and the landscape context, until the young have permanently left the vicinity of the nest. Setback distance suggested by Environment Canada (Environment Canada, 2015) is up to 50 m or more for swallow colonies; and regular blasting should naturally deter the swallow to use the pit as a breeding site. If not, additional measures will be taken to deter the birds from using the large piles of unattended/unvegetated soil or the vertical banks in the mining pits if none of the previous mitigation measures can be provided. In this case, additional measures will be taken to cover the banks during the breeding season. Swallows can be excluded from potential nest sites with barriers made from plastic sheeting, or fine-mesh wire. Nets or other barriers must be installed before swallows arrive on their breeding ground. 	 surveys of Bank Swallow presence on vertical walls will be conducted in early and mid-summer every year that the mine is in the operations phase Should the swallow be detected, then deterrence methods or measures will be taken to render the site inhospitable for nesting: any nest found will be protected with a buffer zone determined by a setback distance as suggested by Environment Canada (Environment Canada, 2015): up to 50 m or more for swallow colonies; The Proponent will install barriers made from plastic sheeting, or fine-mesh wire before swallows arrive on their breeding ground. 	Deterrence measure is successful if no swallows are found to nest on vertical walls at Howse site	These measures are relevant to avifauna (Bank Swallow nests)	Early and mid- summer every year that the mine is in the operations phase	No, since regular blasting should naturally deter the swallow to use the pit as a breeding site.
	For all species: lighting of the mine will be reduced by half when weather forecasts are extreme (thick fog and snowstorms). This measure will be considered during the migration period (in May and from August to October) where migrating birds are more vulnerable to being entrapped by artificial lighting during harsh weather conditions.	Good practice				

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Aquatic Fauna	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.	OK, as per CEAA comment	•	•	•	•
Infrastructu re and	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. These methods mirror those currently in place for DSO project;	Access to the Local Transportation Network, Access to Land HML has completed a new bypass road 2015, which provides access to lands to the northwest of the DSO and Howse sites as well as Rosemary Lake and Pinette Lake.	Measure will be successful if no complaints are made about road access	This measure directly targets the locations and activities that local land users wish to have access to	Any time during the Howse Project construction, operations and/or decommissionin g phases	No

- access to the mine road network will continue to be controlled for safety reasons. The mine roads should not be used by the land users since a bypass road is available. If a land user needs to use the mine road network to access a specific area not accessible with the bypass road, HML will provide a safety escort to the land users;
- speed limit will be maintained at 70 km/hour on the main mining road north of the Schefferville landfill, and at 50 km/hour between the Schefferville landfill and the town of Schefferville. The speed limit will apply to all road users. Respect of applicable speed limits will be monitored by HML and by the Sûreté du Québec;
- HML will raise awareness among workers on the importance of safe driving. Measures are taken for detractors who are caught disobeying traffic laws and witnesses of road safety violations are asked to report details of observations;
- additional road safety signs will be installed in the Spring of 2016. HML and the Town of Schefferville will install speed limit and safe driving road signs between Schefferville and Timmins work site to reinforce driving laws. The signs will clearly indicate the speed limits, and will remind users of the necessity to drive carefully, to turn off safety lights when in town;
- a new bypass road for land-users was completed by HML in 2015, which provides access to lands to the northwest of the DSO and Howse sites. While more time is required, using the bypass road, to access certain areas of the territory (Rosemary Lake and Pinette Lake, for example). HML is assessing a way to improve access to this part of the land; and
- collaborate with responsible authorities for local road infrastructure within the Government of Québec (Secrétariat au Plan Nord, Ministère des Affaires municipales et Occupation du territoire, Ministère des Transports) and the Town of Schefferville regarding paving of streets, including chemin de la Gare.

Road Safety

- 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;
- HML will provide a safety escort to the land users on site;
- speed limit will be enforced at 70 km/hr on the mining road north of the Schefferville landfill, and at 50 km/hour between the Schefferville landfill and the town. Speed limits will be monitored by HML and the Sûreté du Québec;
- HML and the Town of Schefferville will install speed limit and safe driving road signs between Schefferville and Timmins work site. The signs will clearly indicate the speed limits, and will remind users of the necessity to drive carefully, to turn off safety lights when in town;

Measure	will		be
successful	if	no	road
accidents	occ	ur	during
the Howse	act	iviti	es

All of these measures target road safety at the Howse site and/or surrounding roads.

Anytime a blast event occurs

t No

Any time during the Howse Project construction, operations and/or decommissionin g phases

	 continue to support the essential skills training and other technical training according to job needs, via on-the-job training and institutional training, as per IBA and government funding available; 					
ristics	 provide mechanisms through which Aboriginal workers may access qualified positions and obtain promotions (in progress); 					
ment, Businesses and Labour Force Characteristics	 work with communities to support the delivery of early training in areas that will be required. When the construction and operation phases begin, these workers will be fully prepared and trained; 					
	 offer an alternate schedule to local workers when operational schedules can allow it; 					
	continue to provide on-the-job training equitably for both male and female staff;					
	 continue to address issues relating to project construction and operation, including employment, training and contracting, via each individual community IBA Implementation Committee; 					
	 continue to provide Cultural Awareness and Respectful Workplace training program for workers; 	None, as mining activities represent positive economic changes for the communities	-	-	-	-
	 HML will ensure that all new employees have their beginner's handbook and appropriate health and safety training; 					
	 deliver a custom-designed training in Process Plant Operations to three Québec First Nations in Spring 2015, which included English classes for Innu students. Many graduates have since been hired to work on the DSO Site; 					
Employment,	 continue to employ women at a rate of over 10% of its Project Workforce and continue to favour women who have the required skills and qualifications; 					
Economy: I	 continue to employ Aboriginal women in non- traditional roles including heavy equipment operators, plant operators, security officers; 					
Ecor	 continue to support Innu staff in improving their English skills on-the-job, given that the worksite is in Labrador and primarily English-speaking. English language courses will be offered on-site (to come); 					
	 continue to prioritize Aboriginal and local contractors as much as possible; 					

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	 continue to adapt the bidding process to the size of some of the local businesses, where possible divide big contracts into smaller ones; 					
	continue to provide support the creation of local businesses;					

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	HML will continue to contribute to a fund as specified in certain IBAs for traditional activities. The Aboriginal leadership determines how the funds are allocated and used. First Nation leadership determines how the funds are allocated and used. This fund contributes to alleviating the financial burden for families who count on subsistence harvesting for its economic and nutritive value, in an area where store-bought food is expensive, such as for a fuel allocation for all members;	The mitigation measures for the biophysical components will also mitigate the effects on Land Use and Aboriginal Traditional Knowledge	See biophysical VCs above	Relevant to the following components: Subsistence and traditional caribou hunting; Subsistence and traditional activities (hunting, fishing, trapping and berry/medicinal plant harvesting); Preservation of and access to Kauteitnat; Outfitting businesses; Access to land.	Any time during the Howse Project construction, operations and/or decommissioni ng phases	No
Aboriginal Traditional Knowledge	HML/TSMC will pursue its financial participation in Caribou Ungava to advance research on caribou and on the effects of mining activities on the George River herd decline, and on other factors that may play a role in this decline or in the change of migratory paths, for example. Within the framework of the program, researchers will involve the concerned Aboriginal communities in its research initiatives by considering their views, their traditional indigenous knowledge in the studies and by involving them in the research activities held on their traditional territories;					
	 caribou sightings will be reported to the HSE Committee. Blasting activities are announced on the radio two days ahead of time. Measures to be taken when there are caribou sightings are explained in Caribou Section; 					
Land Use and Ab	the Proponent recognizes that the GRCH can, one day, return to its original grounds and includes, in its mitigation measures, a commitment to be aware of any caribou seen within a 100 km radius of Howse activities, conduct surveys if collared caribou are found within 20 km of Howse and cease all activities if caribou are known to be within 5 km of the active pit or the processing complex;					
7	the mandate of the HSE Committee, which acts as an environmental monitoring committee and collaborates with TSMC to oversee and assess the effectiveness of the relevant mitigation measures (dust control, vegetation, for example), will include the Howse Project once the construction begins (already planned by HML). For instance, in collaboration with the HSE Committee, and in some cases with local authorities, mining activities will be adapted if needed to minimize the effects on traditional activities;					

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	continue to contribute to a compensation fund as specified in each IBAs that would help harvesters go elsewhere for subsistence and traditional activities, in accordance with local land use and inter-family agreements. The Aboriginal leadership determines how the funds are allocated. This fund contributes to alleviating the financial burden for families who count on subsistence harvesting for its economic and nutritive value, in an area where store-bought food is expensive;					
	 wildlife sightings (Wolverine, Caribou or Lynx, etc.) will be reported to the HSE Committee. Furthermore, monthly TSMC Environmental reports are made available to the HSE Committee members on the shared drive; 					
	 even during the decommissioning and reclamation phase, HML will maintain ongoing communication on activities with the local population through radio programs and bulletins, and via the HSE Committee, including environmental updates and reports; 					
	 with respect to vegetation stripping, any usable wood will be made accessible to the local communities in a secure location near the site; and 					
	maximize the presence of Aboriginal personnel for all security shifts to facilitate communication in Innu with local lands users. Work with the local communities to hold a Security course for its members, so that there are additional Innu personnel at the security post.					