

Interested Party:	DFO (Fisheries and Oceans Canada)	Rec No.:	11EN010
Re:	Effects on Marine Mammals		

Reference to Screening Assessment**Information Request / Recommendation Made By Interested Party:**

DFO recommends that watercraft should survey the area for marine mammals to avoid disturbing them. If marine mammals are encountered, and remain in the area, effort should be made to avoid disturbing them by rerouting, slowly navigating around their location at a reduced speed and maintaining their distance. The watercraft should not accelerate within 400m of the marine mammals. The marine mammals should not be approached closer than 100m at any time.

It is recommended that the proponent follow our guidance tools which can be found at the following website (<http://www.dfo-mpo.gc.ca/pnw-ppe/measures-mesures/index-eng.html>).

Agnico Eagle's Response to Information Request / Recommendation:

Thank you for your concern. Figure 1 of Section 1.4 Temporal and Spatial Boundaries in the Screening Level Assessment provides identifies the routes to be traversed by hovercraft. During the one year Pilot Study, hovercrafts will operate on the approved Amaruq Exploration Access Road (AEAR) and approved winter road routes. The alignments of both the AEAR and winter roads do not fall within or near marine waters. As a result, there is no interaction between the Hovercraft Pilot Study and marine mammals.

Interested Party:	Environment and Climate Change Canada (ECCC)	Rec No.:	11EN010
Re:	Disturbance of migratory bird nests		

Reference to Screening Assessment:

In the screening level assessment document, it was noted that there was potential for destruction of nests by hovercraft on portages. ECCC notes there is also potential for disturbing/stressing broods and molting waterfowl using large waterbodies. No local information is provided on bird use or abundance along the proposed routes. It is difficult to assess the impacts without understanding how many nests and birds may be impacted based on existing on-site monitoring.

Paragraph 6(a) of the Migratory Bird Regulations, pursuant to the *Migratory Birds Convention Act*, states that no one shall disturb or destroy the nests or eggs or migratory birds. The inadvertent harming, killing, disturbance or destruction of migratory birds, nests and eggs is known as incidental take. Incidental take, in addition to harming individual birds, nests or eggs, can have long-term consequences for migratory bird populations in Canada, especially through the cumulative effects of many different incidents.

Currently the regulations do not provide for authorizations or permits for the incidental take of migratory birds or their nests or eggs in the course of industrial or other activities. Reasonable care and avoidance are the best approaches to take when contemplating any activity or decision that has the potential to impact migratory birds, nests or eggs. Proponents are responsible for taking appropriate measures and should not conduct potential destructive or disruptive activities at key locations or during key periods to avoid detrimental effects to migratory birds.

Migratory birds may be found nesting from the end of May until mid-August. This general nesting period is provided as guidance to support Agnico Eagle Mines Ltd. (Proponent) in planning their activities. It is important to note that breeding periods may vary from year to year due to climatic conditions and some species may nest outside the dates provided if conditions are favourable.

For further information on how to protect migratory birds and their nests and eggs when planning or carrying out project activities, including further information on the general nesting periods of migratory birds in Canada, the Proponent should consult the Safeguarding guidance on ECCC's web page.

Information Request / Recommendation Made By Interested Party:

If nests containing eggs or young of migratory birds are located or discovered during operations, all disruptive activities in the nesting area should be halted until nesting is completed. Any nest found should be protected with a buffer zone determined by a setback distance appropriate for the species, the intensity of disturbance and the surrounding habitat until the young have naturally and permanently left the vicinity of the nest. Moreover, if there are migratory bird nests where work is planned, options like avoiding, adapting, rescheduling or relocating activities that could disturb or destroy the nests should be considered.

Agnico Eagle's Response to Information Request / Recommendation:

Agnico Eagle recognizes the sensitivity of migratory birds as described in this IR and thanks ECCC for the guidance and recommendations. Hovercraft technology (also referred to as air cushioned vehicles [ACVs]) has been implemented around the world in resource exploration, search and rescue, and leisure activities for several decades. A number of investigations into the environmental impacts of hovercraft operation have been undertaken. Given that they operate atop a cushion of air separating the vehicle from the land, the implication of hovercraft travelling over nests is less deleterious than that of other vehicles. An investigation into the effect of hovercraft used for oil and gas exploration and equipment transport in coastal Louisiana found the following related to disturbance of nests, eggs, and chicks:

"An indication of the relatively low impact of the ACV may be seen from the fact that bird eggs in nests survived one or two passes without damage. Also, lemmings (small tundra rodents) which in a few cases were inadvertently run over by the ACV did not show any visible injury nor were their burrows or trails effected by several passes. A 5-day old red phalarope chick (sandpiper-like shorebird) survived being run over by the ACV without any injury." (Sikora 1989).

While the Screening Assessment (SA) identifies the possible interaction between hovercraft operation and nesting birds along winter road routes, the likelihood of hovercraft resulting in direct disturbance and destruction of ground bird nests at portages is considered to be low. During the one year Pilot Study, hovercraft will make up to 15 trips per day between the Meadowbank Mine and the Amaruq Exploration Site, representing regular daily traffic throughout the year along the winter road alignments. Between May and August, at any given location along routes there will be a period of only several hours between trips where hovercraft are not in active operation. Therefore, it is unlikely that nesting will occur as hovercraft travel will deter water bird activities from the routes adjacent to lake areas. As a result, an indirect effect related to avoidance of portages is likely and was predicted in the SA. Furthermore, based on the available literature, nests are not anticipated to be destroyed by the operation of hovercrafts, should they be encountered.

The Amaruq Wildlife Protection and Response plan will be updated and implemented to include efforts to avoid potential adverse effects on migratory birds specific to hovercraft use and consistent with the Meadowbank Gold Project Terrestrial Ecosystem Management Plan (2006). This will ensure hovercraft operation along winter road alignments and the Amaruq Exploration Access Road (AEAR) avoid potential adverse effects on wildlife, including nesting migratory birds. Given that nesting locations can change from year to year, Agnico Eagle will monitor for the presence of bird nests along winter roads (hovercraft routes) and the AEAR, including at portages, through the one year Pilot Study period. Where active nests are identified in close proximity (i.e., within 200 m) of hovercraft route portages, the nest will be marked and the route will be changed to avoid the nest. If deemed necessary, a nest-specific management plan will be developed to ensure that nesting success is not affected. The management plan will address proximity, timing, and scope of activities, and provide a protocol for monitoring the success of the nest. The plan will also include the feasibility of avoidance options, and establish an appropriate buffer zone to avoid disturbances.

References:

Cumberland. 2006. Meadowbank Gold Project Terrestrial Ecosystem Management Report. Cumberland Resources Ltd. Vancouver, British Columbia.

Sikora, W. B. 1989. Air Cushion Vehicles for the Transport of Drilling Rigs, Supplies and Oil Field Exploration Operations in the Coastal Marshes of Louisiana. Final Report. Summit, New Jersey.

Interested Party:	Indigenous and Northern Affairs Canada	Rec No.:	11EN010
Re:	Public Concern and Cumulative Effects		

Reference to Screening Assessment

Information Request / Recommendation Made By Interested Party:

On February 17, 2017 the Nunavut Impact Review Board (NIRB) invited parties to comment on Agnico Eagle Mine Ltd's "Pilot study – Hovercraft Implementation in Nunavut" project proposal. Indigenous and Northern Affairs Canada (INAC) appreciates the opportunity to provide comments and offers the responses below as it pertains to the NIRB's request:

i) Whether the project proposal is likely to arouse significant public concern; and if so, why;

INAC notes that the Kivalliq Inuit Association (KIA) in a letter to Agnico Eagle Mines (AEM) dated October 13, 2016, voiced concern over the potential usage of Hovercraft and emphatically refused support prior to the submission of this proposed pilot project. Furthermore, the KIA has continued its opposition to the usage of Hovercraft in its February 17, 2017 review of this project, noting a lack of baseline information on wildlife, marine mammals, birds, fish and their habitats, heritage resources, traditional land uses, Inuit harvesting activities, community involvement and consultation and local development. The KIA also voiced concern over the cumulative effects of the proposed Hovercraft pilot project, noting that the project site is already in an area under intense activity pressure with the presence of the Amaruq Road and the Whale Tail project.

ii) Any matter of importance to the Party related to the project proposal.

INAC notes that the potential for cumulative eco-systemic and socio-economic impacts has been a concern and continues to be a concern for this most recent proposed pilot project application. Considering the number of projects being proposed and currently conducted by the Proponent in the region, INAC believes that an assessment of potential cumulative impacts is warranted. INAC recommends that the Proponent addresses the potential cumulative impacts of the project as a whole, including the activities of this project amendment and the other past and reasonably foreseeable projects in the area.

INAC appreciates the opportunity to provide comments and looks forward to working with the NIRB and the Proponent throughout any further review phases related to this project. Should you have any questions, please contact Norman M. Scully at (867) 975-4554 or by e-mail at norman.scully@aadnc-aadnc.gc.ca.

Agnico Eagle's Response to Information Request / Recommendation:

- i) Regarding the comment about concern raised by the KIA. Agnico Eagle has responded to the IR from the KIA, identifying where baseline information and supporting sources on these topics can be found in the screening assessment and other documents referenced therein.
- ii) Thank you for your request. A cumulative effects assessment has been included below.



CUMULATIVE EFFECTS ASSESSMENT

1.0 APPROACH

The Nunavut Impact Review Board (NIRB) defines a cumulative effects assessment as the assessment of impacts on the biophysical and socio-economic environment that results from the incremental effects of a development when added to other past, present, and Reasonable Foreseeable Future Developments (RFFDs), regardless of what agency or person undertakes such other developments. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time (NIRB 2007).

Using this definition, the following approach was used to assess cumulative effects:

- 1) Select cumulative effect categories to describe key components of the biophysical and socio-economic environment, and select suitable study areas for each.
- 2) Identify past and present developments, and determine which occur in each study area.
- 3) Select and describe the suitable RFFD.
- 4) Identify possible pathways of effect to each cumulative effects category based on the number and type of developments in each study area.

These steps are detailed in the sections below. Cumulative effects were, with the intent on focussing on effects on particular areas of concern, where valid secondary or primary pathways exist. Pathway validity indicates a possibility for cumulative effects, rather than actual cumulative effects.

Where the Pilot Study is not expected to result in a residual effect on a VC or indicator, the potential for cumulative effects associated with past, present and future developments is removed and the interaction is considered invalid. In this regard, only residual Pilot Study effects are carried forward for cumulative effects assessment. Valued Components and indicators have been carried forward as follows:

No Residual Effect Predicted - Not Carried Forward for Cumulative Effects Assessment

- ground vibration;
- hydrology;
- water and sediment quality;
- aquatic biota;
- soil and vegetation;
- small and predatory mammals;
- Traditional Land Use (TLU); and
- socio-economics.

Residual Effect Predicted - Carried Forward for Cumulative Effects Assessment

- air quality;
- noise;
- caribou;
- muskox;
- upland and water birds; and
- public safety.



1.1 Cumulative Effects Categories and Study Areas

The Pilot Study will occur on the approved Amaruq Exploration Access Road (AEAR) and on approved winter roads between the Amaruq Exploration Property, and the Meadowbank Mine. Broad cumulative effects categories have been identified, grouping effects that operate through similar pathways and at similar spatial scales. As the pathways and spatial scales may differ for each of the cumulative effects categories, several unique cumulative effect study areas were established (Table 1).

Table 1: Cumulative Effects Categories and Cumulative Effects Study Areas

Cumulative Effects Category	Cumulative Effect Study Areas
Effects to Atmospheric Environment	5 km buffer along approved winter roads and the AEAR
Effects to Terrestrial Environment	Terrestrial Study Area and Ranges of the Lorrillard, Wager Bay, and Ahiak caribou herds for caribou
Effects to Public Safety	Approved winter roads and the AEAR

2.0 PAST AND PRESENT DEVELOPMENT

2.1 Methods

To quantify past and present development, a geospatial database containing the type and location of past and present development was compiled as part of the Final Environmental Impact Statement And Type A Water Licence Amendment for the Whale Tail Pit Project (Agnico Eagle 2016). This database was used to identify past and present developments. Detailed methods were provided in Appendix 3-D of the Whale Tail Pit Project FEIS.

The developments included were current to 31 December 2015, but also included known Agnico Eagle activities as follows:

- Meliadine Gold Project, located near Rankin Inlet because it is entering a construction phase;
- Construction activities for the Whale Tail Pit Project; and
- On-going exploration activities on the Amaruq Exploration Property, including the AEAR.

2.2 Results

Previous and existing developments in the various cumulative effect study areas include roads, communities (including airports), hunting or fishing camps, mines, mineral exploration camps, exploration and mine development activities, contaminated sites, fuel storage areas, and quarries.

Atmospheric Environment and Public Safety

The residual effects of the Pilot Study on the atmospheric environment and public safety are expected to be localized to the vicinity of approved winter roads and the AEAR. As a result, the past and present developments potentially interacting with the Pilot Study to induce a cumulative effect on these elements are the Meadowbank Mine and access road, exploration activities on the Amaruq property and the existing exploration road to Amaruq.



Wildlife (Caribou, Muskox and Upland Birds)

The residual effects of the Pilot Study on caribou, muskox and upland birds are anticipated to be regional in extent, potentially interacting with a greater volume of past and present developments than those predicted for the atmospheric environment and public safety. Active and inactive development was identified in each of the 3 caribou ranges that overlap the area in which the Pilot Study will take place (Table 2). Mineral exploration was the most common type of development, followed by camps and miscellaneous activities. The existing Meadowbank Mine, Meadowbank All-Weather Access Road (AWAR) and the Amaruq Exploration Property overlap with the caribou ranges of all 3 herds. It was also assumed that camps in the terrestrial study area were active throughout the year, while in fact they are more often seasonal. Communities likely have the largest effect on caribou (as a source of harvesters), followed by roads providing access from communities. There are 3 communities within the Lorillard caribou range, and 1 each within the Ahiak and Wager Bay herd ranges. While there is caribou sport hunting occurring in the Kivalliq region, it primarily originates from communities. One hunting lodge was identified.

Table 2: Past and Present Development in the Caribou Ranges

Development Type	Ahiak Caribou Range		Lorillard Caribou Range		Wager Bay Caribou Range	
	Active	Inactive	Active	Inactive	Active	Inactive
Camp		5		3		4
Community	2		3 ^a		2	
Contaminated Site		1				1
Fuel Storage		1		1		1
Mine	1		2		1	
Mineral Exploration	2	47	3	14	1	23
Miscellaneous		2		3		2
Quarrying				1		
Research Projects	1					
Tourism/Caribou Hunting & Fishing	2		1		1	
Tourism/Fishing	1	2				

Note: There is overlap between the 3 caribou ranges, the number of developments within each range is not independent.

^a The community of Rankin Inlet includes an inactive mine, considered here to be part of the community footprint.



3.0 REASONABLY FORESEEABLE FUTURE DEVELOPMENTS

3.1 Methods

Reasonably foreseeable future developments are defined by the NIRB as projects or activities that are currently under regulatory review or that will be submitted for regulatory review in the near future, as determined by the existence of a proposed project description, letter of intent, or any regulatory application filed with an authorizing agency (NIRB 2007).

Further to the NIRB definition the following were also considered in the selection of RFFD:

- The RFFD should have a reasonable likelihood of initiating during the life of the Project.
- The RFFD should have the potential to change the Project impact predictions.

Each of the RFFDs was considered for overlap with the Pilot Study from the perspective of the cumulative effects categories (air quality, noise, caribou, muskox, upland and breeding birds, and public safety). The pathway was determined to be either valid or invalid depending on whether the RFFDs occurred within the relevant study area.

From the definition and considerations above, the following proposed projects were selected as a suite of major developments that may occur in the cumulative effects study areas in the foreseeable future:

- Manitoba to Nunavut Road;
- Greyhound Lake Project;
- Kiggavik Uranium Project;
- Hope Bay Project;
- Hackett River Project;
- Back River Project;
- Bathurst Inlet Port and Road; and
- Whale Tail Pit Project and the AEAR.

Note that not all of the above projects meet the NIRB (2007) definition of having been proposed and scoped to a reasonable level of detail, or being under regulatory review. However, they are included to provide a range of development types and to avoid under-estimating cumulative effects from RFFDs. The Meliadine Gold Project was not included as a RFFD for this analysis because it was considered a present development; however the Whale Tail Pit Project is considered an RFFD. Less than 1% of exploration projects monitored in Canada between 1971 and 2009 advanced to production, and the proportion is thought to be less in the north (INAC 2010). A summary of each of these projects is provided in Appendix 3-D of the Final Environmental Impact Statement and Type A Water Licence Amendments and the Whale Tail Project is described in Volume 1 (Agnico Eagle 2016).



PILOT STUDY - HOVERCRAFT IMPLEMENTATION IN NUNAVUT – CUMULATIVE EFFECTS

3.2 Results

Pathway validity was determined for each of the RFFDs by confirming which were within a cumulative effects category (Table 3). The threshold for validity was simply whether the RFFD was within the relevant study area.

Table 3: Pathway Validity to Cumulative Effects Categories from Reasonably Foreseeable Future Developments

Project	Effects to Terrestrial Environment	Effects to Atmospheric Environment	Effects to Public Safety
Study Area	Terrestrial Study area, Lorrillard, Wager Bay, and Ahiak caribou ranges	5 km buffer around approved winter roads and the AEAR	Approved winter roads and the AEAR
Pathway Threshold	Valid if also located in the study area, Valid if located within the same caribou herd range as the project	Valid, if also located in the study area.	Valid if there may be effects in the Kivalliq Region relative to those predicted for the Pilot Study for Hovercraft Implementation
Effects from the Pilot Study for Hovercraft Implementation	The Pilot Study could lead to sensory disturbance and associated altered behaviour, and could lead to the disturbance of nests	The Pilot Study will affect dust deposition, air quality and noise levels locally	The Pilot Study introduces a new type of traffic to the AEAR, potentially impacting driver safety, but also will serve as a useful tool in emergency response
Whale Tail Pit Project and the AEAR	Valid Pathway The Project will affect wildlife, vegetation, terrain, soils, and air quality in the study area and is located within the Lorrillard, Wager Bay, and Ahiak caribou ranges	Valid Pathway Located within the study area	Valid Pathway The Project will generate traffic potentially interacting with hovercraft on the AEAR and winter roads
Manitoba to Nunavut Road	Valid Pathway Located within the Lorrillard range, but not within the study area	Invalid pathway Outside the study area	Invalid pathway The road would not result in traffic on roads traversed by Pilot Study hovercraft, and would not source hovercraft for emergency response
Greyhound Project	Valid pathway Located within the Lorrillard, Wager Bay and Ahiak caribou ranges and also located in the study area		
Kiggavik Uranium Project			
Hope Bay Project	Invalid pathway Not within the range of relevant caribou herds or study area		
Hackett River Project	Valid pathway Located within the range of the Ahiak herd, but not located in the study area		
Back River Project			
Bathurst Inlet Port and Road			



4.0 CUMULATIVE EFFECTS ASSESSMENT

A cumulative effects assessment is the assessment of impacts on the biophysical and socio-economic environment that results from the incremental residual effects of a development when added to other past, present, and RFFDs. Cumulative effects can result from individually minor but collectively significant actions taking place over a given area over a period of time NIRB (2007). The screening of potential cumulative effects is based on the summary of past, present, and RFFDs provided above.

4.1 Past and Present Developments

The Pilot Study has the potential to interact with the Meadowbank Mine and access road, exploration activities on the Amaruq property and the existing exploration road to Amaruq to create a cumulative effect on air quality and noise levels. Hovercrafts would be used in exploration activities on the Amaruq Property, potentially offsetting some level of helicopter traffic and vehicle traffic on the AEAR. Emissions from hovercrafts are less than those created by helicopters, creating a lower impact to air quality. This offset is not expected to be substantial given the small scale and short duration of the Pilot Study relative to operations activity at the Meadowbank Mine, and exploration activity at the Amaruq site. Hovercraft would still generate air emission and noise, resulting in a cumulative effect.

Cumulative effects from past and present development on caribou were considered within the Ahiak, Lorrillard, and Wager Bay herd ranges. Communities and hunting camps are the largest sources of direct mortality to caribou, while the other developments likely lead to negligible caribou mortality. Considering habitat loss (direct and indirect), communities, and mineral exploration camps are likely the largest sources of anthropogenic disturbance to caribou. However, the level of disturbance within the range of the 3 herds considered remains very low. While there may be local effects to abundance and distribution of caribou near communities, the single operating mine, and exploration activities, anthropogenic disturbance is unlikely to be affecting the abundance and distribution of caribou at the population level. Furthermore, unlike permanent trails and roads the use of hovercrafts will not create additional hunting pressure on caribou, thus reducing the predicted cumulative impacts on caribou. The Pilot Study is expected to result in short-term sensory disturbances potentially affecting wildlife movement, migration and behaviour, including caribou, muskox and upland birds.

The Screening Assessment determined that the Pilot Study could also have residual effects on nesting birds along winter road routes during the summer months. These routes are not expected to be used by non-hovercraft vehicle traffic during the nesting season, and so are not expected to experience direct disturbance due to other operations in the area. However, indirect and sensory disturbances from other operations could lend to a cumulative effect on nesting birds during the single season of Pilot Study operation. The Meadowbank Mine and access road, exploration activities on the Amaruq property and the AEAR are developments identified within the terrestrial study area. Environmental monitoring and mitigation at the Meadowbank Mine and the Amaruq Exploration Property (Agnico Eagle 2016) will help to reduce impacts on nesting birds from these developments, reducing the cumulative effect of the Meadowbank Mine, Amaruq exploration activities and the Pilot Study.

The Pilot Study has the potential to interact cumulatively with past and present developments as related to public safety. Existing traffic associated with the Meadowbank Mine operations and the Amaruq



Exploration activities would interact with that of the Pilot Study, introducing risk associated with traffic accidents. Search and rescue, and emergency response activities at both the Meadowbank Mine and the Amaruq Exploration Property would be augmented by and benefit from the Pilot Study.

4.2 Future Developments

There is potential for cumulative effects from RFFD, as valid pathways were identified for each. However, the likelihood of significant cumulative effects from RFFD remains low, for several reasons. Less than 1% of exploration projects in Canada advanced to production, so it is unlikely that many of the exploration camps identified will proceed to full development, or that there will be any temporal overlap in those that do (INAC 2010). Further, many of the RFFD identified are far from the Pilot Study area, and have limited potential for overlap (i.e., the Hope Bay Project, the Hackett River Project, the Back River Project, and the Bathurst Inlet Port and Road). The exceptions to this area the Meadowbank Mine and Whale Tail Pit Project. It is expected that each of the RFFD will undergo environmental assessment, and will implement mitigation and monitoring (subject to regulatory requirements and societal expectations) to reduce their potential effects. Finally, valid pathways do not necessarily mean that cumulative effects will occur. Thus, cumulative effects from the RFFD may occur if most or all future projects proceed simultaneously. However, the likelihood of this occurring is low.

4.3 Summary

The Screening Assessment for the Pilot Study was conducted conservatively to capture effects of the Pilot Study. In this regard, the assessment of adverse residual effects does not consider that the 2 proposed hovercraft would, to an extent, substitute for other planned and approved modes of transportation. In reality, hovercraft may be used in place of other forms of transport (e.g., wheel- and track-based vehicles, helicopters) that generate more pronounced environmental effects. Hovercraft technology has been assessed as having a lower level of environmental impact relative to other modes of transport, creating ground pressure of lower pounds per square inch (psi) and ground vibration than other modes of ground transport such as trucks, ATVs and track-based vehicles. Furthermore, unlike permanent trails and roads the use of hovercrafts will not create additional hunting pressure on caribou, thus reducing the predicted cumulative impacts on caribou. This results in a lower level of impact on the terrestrial environment from the use of hovercraft, relative to other modes of transportation. Similarly, when on water, hovercraft create considerably less noise than convention propeller vessels (e.g., boats). When in use in exploration activities where air transportation would otherwise be required, hovercraft create fewer emissions relative to helicopters. These offsets have the potential to limit cumulative effects of the Pilot Study and past, present and future developments.

Table 6 provides a summary of primary pathways (i.e., great than negligible effects) identified for the Pilot Study, and cumulative effects classifications including the RFFDs. With the implementation of mitigation identified for each effect pathway identified in the Screening Assessment, and for past, present, and future developments, cumulative effects are not assessed as significant.



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Table 6: Summary of Cumulative Effects for Primary Pathways Associated with the Pilot Study

VC	Primary Pathway	Direction	Magnitude	Geographic Extent	Duration	Frequency	Reversibility	Likelihood	Significance
Air quality	Operation could result in increased dust deposition onto immediately adjacent land and into nearby water-bodies	Negative	Low	Local	Short-Term	Continuous	Reversible	Certain	Not Significant
	Increased combustion emissions during operations could lead to changes in local air quality	Negative	Low	Local	Short-Term	Continuous	Reversible	Certain	Not Significant
Noise	Noise emissions from operation of hovercraft can increase atmospheric noise levels	Negative	Moderate	Local	Short-Term	Continuous	Reversible	Certain	Not Significant
Wildlife (caribou, muskox, upland birds)	Operations leading to sensory disturbance can change the amount of different quality habitats, and alter wildlife movement, migration and behaviour	Negative	Moderate	Regional	Short-Term	Continuous	Reversible	Highly Likely	Not significant
Wildlife (water birds and upland birds)	Operations on portages of approved winter road alignments in summer months leading to the disturbance of destruction of bird nests	Negative	Low	Local	Short-Term	Isolated	Reversible	Likely	Not significant
Community wellness	Operations activities could pose risk to worker and public safety for users of the AEAR and winter roads	Negative	Attempting to assess the magnitude of a risk of accidents is problematic. Should neither occur, there will be no associated effect. However, it can also not be assumed that either or both will occur definitely, or to what extent. For these reasons, residual effects criteria have not been assessed for accidents and emergencies. As with accidents, this assessment does not attempt to determine with reasonable certainty the probability of emergencies occurring or the requirement for hovercraft to be deployed in response. This is, however, a potential benefit of the Pilot Study. As a benefit, no mitigation measures have been identified						
	The Pilot Study could improve emergency response near the exploration site, in areas adjacent to winter roads and the AEAR during periods of inclement weather	Positive							



5.0 REFERENCES

Agnico Eagle (Agnico Eagle Mines Limited). 2016. Whale Tail Pit Final Environmental Impact Statement.

INAC (Indian and Northern Affairs Canada). 2010. Citizen's Guide to Mining in the NWT. Public Works and Government Services Canada. Ottawa, ON.

NIRB (Nunavut Impact Review Board). 2007. Guide 2 - Guide to Terminology and Definitions. Available at: <http://www.nirb.ca/NIRBGuides.html>.

Interested Party:	Kivalliq Inuit Association	Rec No.:	11EN010
Re:	Presentation of Baseline Data and Cumulative Effects		

Reference to Screening Assessment: Baseline and assessment

Information Request / Recommendation Made By Interested Party:

Kivalliq Inuit Association sent a letter last year to the proponent opposing the Hovercraft Pilot Project. After reviewing the documentation AEM had sent the KIA, the project has no baseline information [*wildlife and their habitat, birds and their habitat, fish and their habitat, heritage resources in area, traditional uses of land, Inuit harvesting activities, community involvement and consultation, and local development in the area*] in any of the above items and at the same time if you added the Amaruq Road with the propose traffic in the whale tile project this project will add more disturbances to actual intense activity area, Kivalliq Inuit Association continue in disagreement to use Hovercraft in the Kivalliq Region. See Letter send to AEM.

Agnico Eagle’s Response to Information Request / Recommendation:

- i. Agnico Eagle is committed to continuing to work with the KIA, and coming to an agreement on the use of hovercrafts in the Kivalliq Region.

Agnico Eagle has been collecting baseline data on the Amaruq Exploration Property since 2014. Additional supporting sources describe baseline conditions in the area, and around the Meadowbank Mine. The study area presented in Figure 1 Section 1.4 Temporal and Spatial Boundaries in the Screening Level Assessment identifies the routes to be traversed by hovercraft, which are within the same study area boundaries in which baseline data was collected for the Whale Tail Pit Project. Baseline data collected for the Whale Tail Project is considered relevant and appropriate to use for the assessment of the Hovercraft Pilot Study. A summary of baseline data and supporting sources on the aforementioned topics has been presented in Section 2.0 Existing Environment of the Screening Level Assessment of the Pilot Study – Hovercraft Implementation in Nunavut. A log of baseline data presented in this section has been provided in Table 1, below. Data sources listed have been provided to the KIA through submission of annual reports and submission of the Whale Tail Pit and Amaruq Exploration Access Road Final Environmental Impact Statement (Agnico Eagle 2016). Supporting sources are publicly available documents.

Table 1 Baseline Information Presented in the Screening Level Assessment, and Identified as an Area of Concern by the KIA

VC	Area of Concern	Assessment Indicator / Section	Baseline Information Presented	Baseline Data Reference and Supporting Sources
Wildlife / Soil and Vegetation	wildlife and their habitat	Soil / Section 2.3.1	Soil types	Agnico Eagle 2016, Volume 5, Section 5.4.2.2 and Appendices 5-A and 5-C
			Permafrost	Tarnocai and Bockheim 2011; SCWG 1998; Agnico Eagle 2016, Volume 5, Appendices 5-A and 5-C
		Vegetation / Section 2.3.1	Vegetation type	Agnico Eagle 2016, Volume 5, Section 5.4.2.2 and Appendices 5-A and 5-C
			Ecological Land Classification	Agnico Eagle 2016, Volume 5, Section 5.4.2.2 and Appendices 5-A and 5-C
			Vegetation distribution	Agnico Eagle 2016, Volume 5, Section 5.4.2.2 and Appendices 5-A, 5-C
			IQ regarding ungulate consumption of vegetation and vegetation regeneration in closure	Cumberland 2005a
		Caribou / Section 2.3.2	Barren-ground caribou herds identified in the Kivalliq	Gebauer and Boulanger 2007; Gebauer et al. 2008 to 2015; Agnico eagle 2016, Volume 5, Appendix 5-C
			Caribou calving grounds near the study area	Nagy et al. 2011; Agnico Eagle 2016, Volume 7, Appendix 7-A
			Number and causes of caribou mortality (2007 to 2015)	Gebauer et al. 2008 to 2015; Agnico Eagle 2016, Volume 5, Appendix 5-C
			Caribou population, distribution, movements, and harvesting	Cumberland 2005b; Gebauer et al. 2008 to 2015; Agnico Eagle 2016, Volume 5, Appendix 5-C
		Muskox / Section 2.3.2	Current muskox populations near the study area	Ferguson and Gauthier 1992; Cumberland 2005a; Agnico Eagle 2016, Volume 5, Appendix 5-C
			IQ regarding muskox populations in the area	Agnico Eagle 2014
		Predatory Mammals / Section 2.3.2	Occurrences of predatory mammals in the study area	COSEWIC 2017; McLoughlin et al. 2004; Cumberland 2005a; Naughton 2012
		Small Mammals / Section 2.3.2.4	Types of small mammals observed during 2014 studies	COSEWIC 2017

VC	Area of Concern	Assessment Indicator / Section	Baseline Information Presented	Baseline Data Reference and Supporting Sources
Wildlife	birds and their habitat	Raptors / Section 2.3.2.1	Raptor species expected to occur within the study area	COSEWIC 2017
			IQ regarding raptor observations of in the area	Agnico Eagle 2015
			Cliff nesting raptors and their locations	Agnico Eagle 2016, Volume 5, Appendix 5-C
		Water Birds / Section 2.3.2.2	Types of water birds in the study area	Cumberland 2005a; Gebauer et al. 2013; COSEWIC 2017; Agnico Eagle 2016, Volume 5, Appendix 5-C
		Upland Breeding Birds / Section 2.3.2.3	Types of upland breeding birds within the area	COSEWIC 2017
			IQ regarding upland breeding birds	Agnico Eagle 2014
Aquatic Biota	fish and their habitat	Fish and Fish Habitat / Section 2.2.3	Number of high quality habitat for fishery species	Agnico Eagle 2016, Volume 6, Appendix 6-J and Appendix 6-K
			Types of species captured during ground surveys	Agnico Eagle 2016, Volume 6, Appendix 6-J and Appendix 6-K
			Potential for fish in waterbodies and at crossings	Agnico Eagle 2016, Volume 6, Appendix 6-J and Appendix 6-K
			Watercourses and waterbodies with fish habitat	Agnico Eagle 2016, Volume 6, Appendix 6-J and Appendix 6-K
Traditional Land Use	traditional uses of land	Travel Corridors / Section 2.4.1.1	Past use of area as a travel corridor to TLU sites	Agnico Eagle 2016, Volume 7, Appendix 7-A
			Current opportunistic hunting and fishing activities	Agnico Eagle 2016, Volume 7, Appendix 7-A
			Overview of hunting and fishing activities at harvesting sites	Agnico Eagle 2016, Volume 7, Appendix 7-A
	Inuit harvesting activities	Hunting, Trapping and Bird Harvesting / Section 2.4.1.3	Most frequently used caribou hunting area	IDS 1978
			Description of variable caribou harvesting areas	AREVA 2011; Kendrick and Manseau 2008; Cumberland 2005c; Agnico Eagle 2014, 2015
			Harvesting frequency and relative locations of harvested species	Cumberland 2005c; Mannik 1998; Freeman 1976; IDS 1978; Agnico Eagle 2014

VC	Area of Concern	Assessment Indicator / Section	Baseline Information Presented	Baseline Data Reference and Supporting Sources
		Fishing / Section 2.4.1.3	Historical fishing sites in the 1970s and 1980s	IDS 1978; NIRB 2015; RIEWE 1992; Agnico Eagle 2014
			IQ regarding fishing locations near Baker Lake	LIFA, 2015a, b (pers. comm.)
			Fishing sites near the study area used in the past	Agnico Eagle 2014, 2015
			Fishing sites in waterbodies in the area	Cumberland 2005c; Agnico Eagle 2014
		Plant Harvesting / Section 2.4.1.4	Uses of traditional plants	Mannik 1998; Cumberland 2005c; Bennet and Rowley 2004
			Proportion of Inuit adults in Baker Lake who gathered wild plants in the previous 12 months	Statistics Canada 2011
Archaeology	heritage resources in area	The Pilot Study is not expected to interact with heritage resources, as no new ground disturbance is required, and hovercraft are not expected to create ground disturbance in operations. No assessment was conducted on this VC given this lack of potential for interaction, and no baseline data was presented in the Screening Level Assessment. Baseline data for the area was collected in support of the Whale Tail Pit FEIS; however, in the interest of protecting regional archaeological sites, the archaeological baseline report is considered confidential. A non-confidential summary of existing baseline conditions regarding heritage resources has been presented in Section 7.2.2 of the Whale Tail Pit FEIS.		
Consultation (not a VC)	community involvement and consultation	Section 1.3 Consultation Summary of the Screening Level Assessment for the Pilot Study – Hovercraft Implementation in Nunavut, provides an overview of Pilot Study-specific consultation and community involvement activities to date. Community meetings were held in Baker Lake (November 2016; June 7, 2016) and Ranking Inlet (June 6, 2016) to introduce and discuss the Pilot Study. On September 9, 2016, Agnico Eagle submitted letters to KIA, NWB, INAC, DFO, ECCC, NRCAN, TC to explain briefly the proposed project and request advice on regulatory requirement. Of these parties, NWB, DFO, ECCC, NRCAN and TC provided responses. ECCC identified no specific regulatory requirements for Hovercraft. NRCAN noted that they have no specific regulatory requirements for hovercraft, but requested information regarding the use of hovercraft for the transportation of explosives. Agnico Eagle advised there were no plans to use hovercraft to transport explosives. TC noted that hovercraft need to be inspected, certified and registered by TC. NWB identified no specific regulatory requirements for Hovercraft, but suggested that Agnico Eagle may need to update some of its environmental management plans to incorporate the use of the hovercraft, such as emergency response, spill prevention and clean up. No response was received from the KIA or INAC. Agnico Eagle intends to continue ongoing consultation with communities regarding the Pilot Study.		

VC	Area of Concern	Assessment Indicator / Section	Baseline Information Presented	Baseline Data Reference and Supporting Sources
Project Description (not a VC)	local development in the area	Section 1.5 Temporal and Spatial Boundaries, Figure 1, provides a visual representation of known local development in the vicinity of the Pilot Study, namely, the commercial lease area and drilling areas associated with the Amaruq Exploration Site, and Meadowbank Mine infrastructure. The Project will operate between the Amaruq Exploration Site and the Meadowbank Mine on lands approved for winter roads, and the AEAR. The majority of this land is within Agnico Eagle's property. Development in this area is limited to Agnico Eagle's mining and exploration activities. Section 1.1 Pilot Study Description of the Screening Level Assessment for the Pilot Study identifies the components of the Pilot Study. No other local development is known to exist in the vicinity of the approved AEAR and winter roads.		

- ii. There are concerns that the addition of the proposed hovercraft to other activities will add more disturbance to the area: The screening assessment identifies where and when this additional disturbance will occur, and to what extent. The incremental (residual) impact of the Pilot Study is confined to a one year period (short-term), and results in an overall low-level of change relative to current activities.

The Screening Assessment has been conducted conservatively to capture the worst-case effects of the Pilot Study. In this regard, the assessment of adverse effects does not consider that the two proposed hovercraft would, to an extent, substitute for other planned and approved modes of transportation. Hovercraft would be used on the AEAR to transport personnel, supplies, and equipment between the Meadowbank Mine and the Amaruq Exploration site. This could offset the need for some volume of other vehicle traffic, such as transport busses or trucks. Further, the use of hovercraft in exploration activities could reduce the number of helicopter trips required for the transport of workers and equipment.

Hovercraft technology has been assessed as having a lower level of environmental impact relative to constructing permanent trails or roads, and other modes of transport on the tundra, creating ground pressure of lower pounds per square inch (psi) and ground vibration than other modes of ground transport such as trucks, ATVs and track-based vehicles. This results in a lower level of impact on vegetation and soil from the use of hovercraft, relative to other modes of transportation. Similarly, when on water, hovercraft create considerably less noise than convention propeller vessels (e.g., boats). When in use in exploration activities where air transportation would otherwise be required, hovercraft create fewer emissions relative to helicopters. Furthermore, unlike permanent trails and roads the use of hovercrafts will not create additional access to or hunting pressure on caribou, thus reducing the predicted cumulative impacts on caribou. The Pilot Study aims to confirm these operational benefits, relative to other modes of transportation, as well as the economic feasibility of hovercraft as a substitute for other modes of transportation.

Despite the potential for hovercraft to offset the need for other vehicles, Agnico Eagle recognizes that there is concern regarding potential cumulative effects. While the incremental environmental effect of the Pilot Study is expected to be small, a cumulative effects assessment has been provided in response to the IRs received from the KIA and Indigenous and Northern Affairs Canada (INAC). Please refer to the response to the INAC IR for additional information on the cumulative effect of the Pilot Study in conjunction with other activities at the Meadowbank Mine, the Amaruq Exploration Site and on the AEAR and approved winter roads.

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Personal Communications

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Interested Party:	Transport Canada	Rec No.:	11EN010
Re:	Inspection, certification and registration of hovercraft		

Reference to Screening Assessment**Information Request / Recommendation Made By Interested Party:**

Transport Canada indicated that they had no concerns with the project proposal.

Transport Canada requires all small commercial marine vessels between 15 and 160 gross tonnage to be inspected and certified by Transport Canada. Any smaller vessel that carries more than 12 passengers must also be inspected and certified. After an initial inspection, regular inspections are required. The frequency depends upon the vessel's commercial use.

Transport Canada requires all commercial vessels to be registered. There are two options, the Canadian Register of Vessels and the Small Vessel Register.

Transport Canada recommends that AEM contact the Marine Safety and Security Services for more information regarding these requirements. Any questions regarding the Marine Safety and Security Services should be directed to the Marine Safety Transport Canada Centre:

Please contact the Marine Safety Transport Canada Centre for more information:

Winnipeg Office
Prairie and Northern Region
344 Edmonton Street
Winnipeg, Manitoba R3C 0P6
1-888-463-0521

Edmonton Office: Canada Place
Prairie and Northern Region
1100, 9700 Jasper Avenue
Edmonton, Alberta T5J 4E6
1-888-463-0521

Agnico Eagle's Response to Information Request / Recommendation:

Thank you for your recommendation. Agnico Eagle will follow all applicable Transport Canada regulations, including those regarding the inspection, certification and registry of hovercraft vessels.