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# Table of Contents

ᐃᓴᕈᑦ ᐱᐅᐸᐹᒃ	3
Executive Summary .....	5
Résumé.....	7
Introduction .....	9

<b>Appendix A: Environment and Human Health Technical Review Comments.....</b>	<b>12</b>
GN-TRC-01: EFFLUENT SPILL TO TERRESTRIAL SURFACE WATER .....	12
GN-TRC-02: BIOACCUMULATION POTENTIAL OF TREATED EFFLUENT .....	15
GN-TRC-03: COUNTRY FOOD IN VICINITY OF EFFLUENT .....	18
GN-TRC-04: CONSUMPTION OF MARINE AND AVIAN WILDLIFE .....	21
GN-TRC-05: CARIBOU BEHAVIORAL MONITORING .....	24
GN-TRC-06: CARIBOU MONITORING .....	27
GN-TRC-07: RELIABILITY OF 2014 FEIS.....	33
GN-TRC-08: CARIBOU PROTECTION MEASURES .....	42





## **Executive Summary**

The Nunavut Impact Review Board (NIRB) has the responsibility to assess and monitor the ecosystemic and socio-economic impacts of project proposals in Nunavut, pursuant to Article 12 of the *Nunavut Agreement*, and Part 3 of the *Nunavut Planning and Project Assessment Act* (NuPPAA).

The Government of Nunavut (GN) has a unique intervenor role throughout the lifecycle of resource development projects in the territory. The GN has an interest in the outcome of the NIRB's review processes, particularly to ensure Projects minimize adverse impacts and maximize benefits to Nunavummiut. The GN's mandate, *Turaaqtavut*, outlines a vision to responsibly develop the territory's renewable and non-renewable resources to ensure that Nunavummiut can enjoy a strong relationship with our land for generations to come.

### Proponent Engagement

The GN would like to acknowledge the efforts of Agnico Eagle Mines Ltd. (AEM) in responding to the GN's Information Requests and for participating proactively discuss technical concerns. These efforts reflect the Proponent's intention to actively work with regulators and government bodies to develop projects in a sustainable manner.

### Scope and Intent of Review

This submission, drafted by the GN's Environmental Assessment Review Team (EART), contains the GN's Technical Review Comments for AEM's "Saline Effluent Discharge to Marine Environment" Project Proposal. The purpose of these Technical Review Comments is to detail technical concerns with the project proposal, and to provide recommendations capable of addressing these concerns. Technical Review Comments consider the Proponent's predictions of project-related ecosystemic and socio-economic impacts and benefits, and the adequacy of proposed mitigation, enhancement, and monitoring measures.

The GN's review, comments, and recommendations are based on the following considerations:

- The requirements and principles (including the principles of conservation) in keeping with the spirit and intent of the Nunavut Agreement;
- The requirements of the laws and regulations of Nunavut;
- The priorities of the GN and Nunavummiut; and
- NIRB's guiding principles, including the precautionary principle.

Throughout the review process for the project proposal, the GN will continue to work with the Proponent and other stakeholders to minimize adverse effects on the human and biophysical environment, while maximizing benefits to Nunavummiut. The comments and recommendations proposed in this submission are intended to support meaningful discussion at the NIRB's November 23-26 Technical Meeting, Community Roundtable, and Pre-Hearing Conference in Rankin Inlet.

### Overview of Technical Review Comment Package

#### *The Biophysical Environment*

Within EART, the Environmental and Human Health Assessment Committee (EHHAC) reviewed the FEIS Addendum and provided comments relating to:

- Road and pipelines mounds as barriers to caribou;
- Caribou monitoring and mitigation;
- Potential impacts from effluent spill to terrestrial surface water;
- Bioaccumulative potential of contaminants in treated effluent;

The GN has engaged via teleconference with the Proponent in follow-up to its Information Requests. The Proponent's willingness to engage with the GN early has contributed to our improved understanding of the project proposal. It is critical that the All-Weather Assess Road and covered/buried pipelines potential to act as a barrier to migrating caribou is effectively assessed, monitored, and mitigated. GN has concerns associated with bioaccumulation of contaminants in country foods.

### Résumé

La Commission du Nunavut chargée de l'examen des répercussions (CNER) est chargée d'évaluer et de surveiller les répercussions écosystémiques et socioéconomiques des propositions de projet au Nunavut, conformément à l'article 12 de l'*Accord du Nunavut* et à la partie 3 de la *Loi sur l'aménagement du territoire et l'évaluation des projets au Nunavut* (LATEPN).

Le gouvernement du Nunavut (GN) joue un rôle réglementaire unique pendant toute la durée de vie des projets d'exploitation des ressources dans le territoire. Le GN a un intérêt dans le résultat des processus d'examen de la CNER, particulièrement pour s'assurer que les projets minimisent les répercussions négatives et maximisent les avantages pour les Nunavummiut. Le mandat du GN, *Turaaqtavut*, définit une vision visant à développer de manière responsable les ressources renouvelables et non renouvelables du territoire afin que les Nunavummiut puissent bénéficier d'une relation solide avec notre pays pour les générations à venir.

### Participation du promoteur

Le GN tient à saluer les efforts des Mines Agnico Eagle Limitée (AEM) pour répondre à ses demandes d'information et pour avoir participé afin de discuter de manière proactive de problèmes techniques. Ces efforts traduisent l'intention du promoteur de travailler activement avec les régulateurs et les organismes gouvernementaux afin de développer des projets de manière durable.

### Champ d'application et but de l'examen

Cette soumission, rédigée par l'équipe d'examen de l'évaluation environnementale (EEEE) du GN, contient les commentaires de l'examen technique du GN relatifs à la proposition de projet de rejets d'effluents dans l'environnement marin d'AEM. Le but de ces commentaires de l'examen technique est de détailler les préoccupations techniques dans la proposition de projet et de formuler des recommandations permettant de répondre à ces préoccupations. Les commentaires de l'examen technique tiennent compte des prévisions du promoteur concernant les avantages et les répercussions écosystémiques et socioéconomiques liés au projet, ainsi que de la pertinence des mesures d'atténuation, de mise en valeur et de surveillance proposées.

L'examen, les commentaires et les recommandations du GN sont fondés sur les éléments suivants :

- les exigences et les principes (y compris les principes de conservation) conformes à l'esprit et à l'objectif de l'Accord du Nunavut;
- les exigences des lois et des règlements du Nunavut;
- les priorités du GN et des Nunavummiut;
- les principes directeurs de la CNER, y compris le principe de précaution.

Tout au long du processus d'examen de la proposition de projet, le GN continuera de travailler avec le promoteur et les autres intervenants afin de minimiser les effets négatifs sur l'environnement humain et biophysique, tout en maximisant les avantages pour les Nunavummiut. Les commentaires et les recommandations proposés dans cette soumission ont pour but d'encourager des discussions constructives lors de la réunion technique, la table ronde communautaire et la conférence préalable à l'audience de la CNER à Rankin Inlet, du 23 au 26 novembre.

## Aperçu des commentaires de l'examen technique

### *Environnement biophysique*

Au sein de l'EEEE, le comité de l'évaluation des incidences sur l'environnement et la santé humaine (CEIESH) a examiné l'addenda de l'EIEF et formulé des commentaires concernant :

- les routes et les remblais de pipeline pouvant agir comme obstacles aux déplacements des caribous;
- la surveillance et la mitigation du caribou;
- les répercussions potentielles du déversement d'effluents dans les eaux de surface terrestres;
- le potentiel bioaccumulatif des contaminants dans les effluents traités.

Le GN a tenu une téléconférence avec le promoteur pour donner suite à ses demandes de renseignements. La volonté du promoteur de s'engager rapidement auprès du GN a contribué à améliorer notre compréhension de la proposition de projet. Il est essentiel que le potentiel de la route d'accès praticable en tout temps et des pipelines couverts/enterrés de servir d'obstacle à la migration du caribou soit efficacement évalué, surveillé et atténué. Le GN est préoccupé par la bioaccumulation de contaminants dans les aliments prélevés dans la nature.



## Introduction

Pursuant to Article 12 of the Nunavut Land Claims Agreement (NLCA), the Nunavut Impact Review Board (NIRB) has the responsibility to assess and monitor, on a site-specific and regional basis, the ecosystem and socio-economic impacts of project proposals in Nunavut. The Nunavut Project and Planning Assessment Act (NuPPAA) details a framework for the review of proposed projects, including screenings, reviews and reconsiderations of approved project certificates.

The Government of Nunavut (GN) is an active participant and a party to the NIRB review process. While the federal government currently has authority over the management of mineral resources in Nunavut, the GN has significant jurisdictional responsibility and permitting authority over matters such as activities that affect wildlife and wildlife habitat, Commissioner's lands, municipalities, education, health, social services, public safety, culture, community development, property rights, and the administration of the laws in Nunavut.

### GN departments and agencies participating in project reviews

The interdepartmental Environmental Assessment Review Team (EART) coordinates and carries out the GN's participation in the NIRB assessment process. EART consists of two technical committees: the Environment and Human Health Assessment Committee (EHHAC), led by Department of Environment, and the Socio-economic Assessment Committee (SEAC), led by the Department of Economic Development and Transportation. EHHAC focuses its review on the assessment of potential biophysical and human health effects, while SEAC focuses its review on the assessment of potential social, cultural, and economic impacts and benefits.

The GN departments and public agencies that contribute to submissions include:

- Environment (DOE)
- Economic Development and Transportation (EDT)
- Executive and Inter-governmental Affairs (EIA)
- Community and Government Services (CGS)
- Culture and Heritage (CH)
- Education (EDU)
- Family Services (DFS)
- Finance (FIN)
- Health (DH)
- Justice (DOJ)
- Nunavut Housing Corporation (NHC)
- Nunavut Research Institute (NRI)

## Mandate & Areas of Jurisdiction

The GN's mandate, *Turaaqtavut*, prioritizes the development and management of our renewable and non-renewable resources for the long-term benefit of Nunavummiut. The GN actively embodies this mandate during the impact assessment process.

The GN also recognizes its areas of jurisdiction, primarily defined by the following laws and regulations:

### **Statutes**

- Income Tax Act, R.S.N.W.T. 1988, c. I-1
- Payroll Tax Act, C.S.N.W.T. 1993, c. 11
- Property Assessment and Taxation Act, R.S.N.W.T. 1988, c. P-10
- Petroleum Products Tax Act, R.S.N.W.T. 1988, c. P-5
- Financial Administration Act, RSNWT (Nu) 1988, c F-4
- Nunavut Housing Corporations Act, R.S.N.W.T. 1988, c.N-1
- Residential Tenancies Act, R.S.N.W.T. 1988, c.R-5
- Land Titles Act, R.S.N.W.T. 1988, c.8 (Supp.)
- Public Health Act, R.S. N.W.T. 1988, c. P-12
- Education Act, S.Nu. 2008, c.15
- Apprenticeship, Trade and Occupations Certification Act R.S.N.W.T. 1988, c. A-4
- Hamlets Act , R.S.N.W.T. 1988, c. H-1
- Scientists Act, R.S.N.W.T. 1988, c. S-4
- Wildlife Act, S.Nu. 2003, c. 26
- Environmental Protection Act, R.S.N.W.T. 1988, c. E-7

### **Regulations**

- Camp Sanitation Regulations, R.R.N.W.T. 1990, c. P-12
- Communicable Diseases Regulations, R.R.N.W.T. 1990, c. P-13
- General Sanitation Regulations, R.R.N.W.T. 1990, c. P-16
- Nunavut Archaeological and Paleontological Sites Regulations, SOR/2001-220
- Public Water Supply Regulations, R.R.N.W.T. 1990, c. P-23
- Public Sewage Systems Regulations, R.R.N.W.T. 1990, c. P-22
- Spill Contingency Planning and Reporting Regulations, R-068-93
- Tax Rebate Regulations, R-012-2006

### **Inuit Societal Values**

The GN is guided by the following Inuit Qaujimajatuqangit (IQ) principles:

- ***Inuuqatigiitsiarniq***: respecting others, relationships and caring for people.
- ***Tunnganarniq***: fostering good spirit by being open, welcoming and inclusive.
- ***Pijitsirniq***: serving and providing for family and/or community.
- ***Aajiiqatigiinni***: decision making through discussion and consensus.

- ***Pilimmaksarniq/Pijariuqsarniq***: development of skills through observation, mentoring, practice, and effort.
- ***Piliriqatigiinniq/Ikajuqtigiinniq***: working together for a common cause.
- ***Qanuqtuurniq***: being innovative and resourceful.
- ***Avatittinnik Kamatsiarniq***: respect and care for the land, animals and the environment.

## Appendix A: Environment and Human Health Technical Review Comments

GN-TRC-01: EFFLUENT SPILL TO TERRESTRIAL SURFACE WATER	
<b>Department</b>	Department of Health
<b>Organization</b>	Government of Nunavut
<b>Subject/Topic</b>	Potential impacts from effluent spill to terrestrial surface water
<b>References</b>	<ul style="list-style-type: none"> <li>• MELIADINE GOLD MINE – FINAL ENVIRONMENTAL IMPACT STATEMENT ADDENDUM Environmental Assessment of Treated Groundwater Effluent Discharge into Marine Environment, Rankin Inlet (FEIS 2020 Addendum) - Sections 3.3 and 5.3; Table 14; Appendix A Section 3.2.2; Appendix C Spill Contingency Plan (SCP)</li> <li>• Meliadine Gold Mine – Final Environmental Impact Statement Addendum Environmental Assessment of Treated Groundwater Effluent Discharged into Marine Environment, Rankin Inlet (FEIS 2018 Addendum) – Section 3.4.7; Table 9.</li> <li>• Canadian Council of Ministers of the Environment, Environmental Quality Guidelines, Summary Tables, online at <a href="http://sts.ccme.ca/en/index.html">http://sts.ccme.ca/en/index.html</a></li> </ul>
IDENTIFICATION OF ISSUE	
<p>In the effects assessment outlined in the FEIS 2020 Addendum, effluent pipeline spills are considered with respect to effects on soil, vegetation and wildlife, but not terrestrial surface water (spills to the marine environment are considered) (FEIS 2020 Addendum, Table 14).</p> <p>The effluent, if spilled/leaked from the pipeline, has significant potential to enter surface water bodies, given the multiple stream/river crossings (including Meliadine River after it exits Iqalugaarjuup Nunanga Territorial Park) and lakeside alignments (see Figure 11 below)</p> <p>Concerns regarding spills were raised during consultation (FEIS 2020 Addendum, Section 5.3). Terrestrial surface water was not included in the list of valued ecosystem components (VECs) – the presence of and sensitivity of terrestrial freshwater aquatic species to a spill is not described in the effects assessment, and as a result, mitigation measures have not been defined for this possibility.</p>	
IMPORTANCE TO REVIEW AND SUPPORTING RATIONALE	

Spills along the AWAR were recognized in the FEIS as an effects pathway, however the effects assessment is incomplete, as terrestrial surface water was not included as a VEC that could be impacted via this pathway. Moreover, spills would mix with fresh surface water such that no collection or mitigation after entry (as is possible with light non-aqueous phase liquid products, for example) would be feasible.

The mitigation measures described for spills to the marine environment include reference to the Spill Contingency Plan (SCP). The SCP does include response to spills from the effluent pipeline along the AWAR (SCP, Appendix H), specifically that:

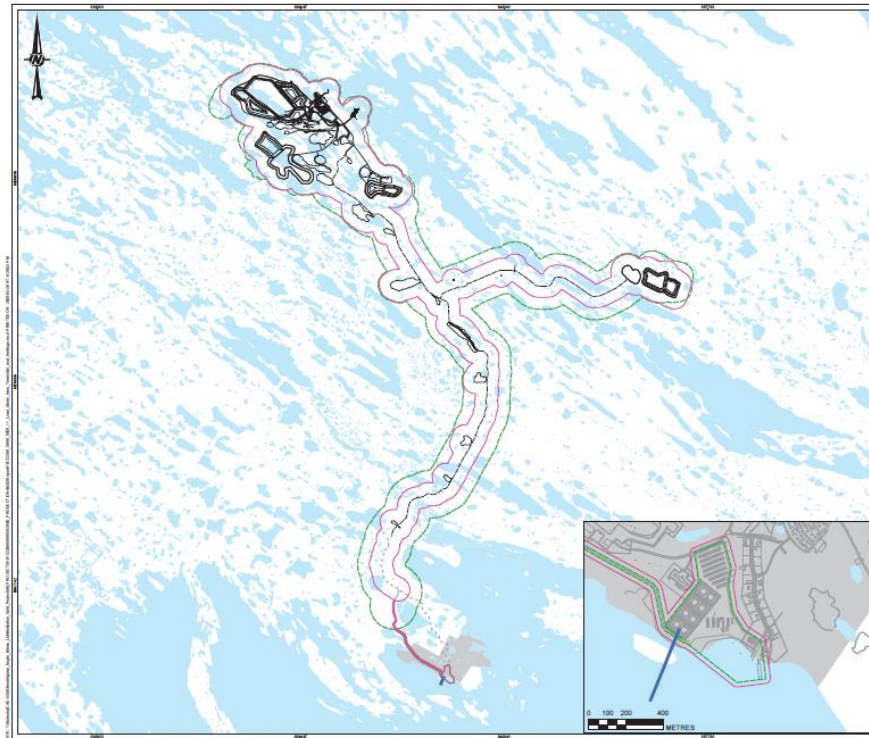
“6) If a saline spill occurs on land which may have a detrimental impact to the land or any nearby water bodies then the spill should be contained using; spill absorbents, spill pads or pillows, dike construction (made of soil or snow), or excavation of trenches/pits to capture spill. If possible, compact soil or snow dikes, and place plastic tarps over the dike and at its foot to allow the product to pool on the plastic for easy recovery. The first priority is to limit saline water entry into ditches, freshwater systems or onto ice (if saline water enters a freshwater system see step 9).”

“10) For spills to water, a follow up study will be performed if deemed necessary by the Environmental Superintendent or designate. Post spill monitoring will be dependent upon volume of substance spilled, size of freshwater system affected and presence/absence of fish. If the spill is believed to have caused an impact then water samples will be taken upstream and downstream of the incident to confirm any potential impact”

Spill and leak prevention plans are also described in the FEIS 2020 Addendum, however without inclusion of terrestrial surface water in the effects assessment for the spill pathway, other measures that could potentially be employed during the pipeline planning, construction and operation phases to reduce the likelihood of treated effluent entry into terrestrial surface waters and to reduce the impact of spills should one occur have not been identified.

Guideline values for surface water for many of the constituents of concern in treated effluent are different for freshwater than they are for marine: the CCME WQG FAL guideline values for chloride are 640 mg/L (Short Term) and 120 mg/L (Long Term) (CCME Summary Table, online at <http://sts.ccme.ca/en/index.html>). The reported treated effluent concentration for chloride is 11,091 mg/L (FEIS 2018 Addendum, Section 3.4.7.3, Table 9).

**Figure 11: LOCAL STUDY AREAS – TERRESTRIAL AND HERITAGE RESOURCES**



FEIS 2020 Addendum, Section 7.1.2, Figure 11, pg. 64

## RECOMMENDATIONS

The following recommendation(s) regarding this issue are offered:

1. Include terrestrial surface water as a VEC subject to the spills effects pathway in the effects assessment.
2. Outline mitigation measures for the assessed impact additional to those already outlined (such as measures to prevent spills and SCP) as appropriate to the assessed effects.

GN-TRC-02: BIOACCUMULATION POTENTIAL OF TREATED EFFLUENT	
<b>Department</b>	Department of Health
<b>Organization</b>	Government of Nunavut
<b>Subject/Topic</b>	Bioaccumulative potential of contaminants in treated effluent
<b>References</b>	<ul style="list-style-type: none"> <li>• Final Environmental Impact Statement (FEIS) Addendum. 2018. Meliadine Gold Mine – Environmental Assessment of Treated Groundwater Effluent Discharge into Marine Environment, Rankin Inlet.</li> <li>• FEIS Addendum. 2020. Meliadine Gold Mine – Environmental Assessment of Treated Groundwater Effluent Discharge into Marine Environment, Rankin Inlet.</li> <li>• FEIS Addendum. 2020. Appendix A: Meliadine Mine Bay Diffuser Conceptual Design – Effluent Near Field Modeling. Tetra Tech. April 2020.</li> <li>• Bioaccumulation Research Project. 2015. Prepared for the Contaminated Sites Approved Professionals (CSAP) Society by SLR Consulting (Canada) Ltd.</li> <li>• Persistence and Bioaccumulation Regulations within Canadian Protection Act. 1999.</li> </ul>
IDENTIFICATION OF ISSUE	
<p>Agnico Eagles proposes to develop a waterline to convey saline effluent from the Meliadine mine site to an existing facility at Itivia Harbour for discharge to the marine environment. Evaluation of the effluent chemical composition is required to assess discharging the effluent into the marine environment for potential impacts related to bioaccumulative substances in the effluent.</p> <p>The Proponent states the effluent is to comply with discharge criteria at the end of the pipes. However, no information is available pertaining to the potential bioaccumulative substances in the effluent discharge other than the groundwater chemistry within Agnico Eagle FEIS documents listed on the NIRB Registry.</p>	
IMPORTANCE TO REVIEW AND SUPPORTING RATIONALE	
<p>The Project's FEIS Addendums (2018 and 2020) include information on the chemical constituents/ contaminants of potential concern found in the treated saline effluent based on untreated groundwater, treated groundwater, and modeled dilution results.</p> <p>In addition to the groundwater quality, due to mining operations which include drill-and-blast excavation, certain parameters of groundwater quality are expected to be influenced by explosives (particularly ammonia and nitrate due to ammonium nitrate, fuel oil [ANFO] and emulsion explosives).</p>	

The groundwater will be collected in sumps located within the underground workings, as such, the groundwater may encounter blasting materials with residue from equipment spills. Groundwater quality will not be suitable for direct discharge to the receiving environment (FEIS, 2018, Appendix F, Section F.2, p. 1).

Therefore, to minimize effects to the environment, and to comply with the effluent discharge criteria, groundwater will be treated prior to discharge (FEIS, 2018, Appendix E, Section 3.1, p. 5). Several sections throughout the FEIS Addendums and associated appendices state the saline effluent will meet both end of pipe criteria and for those parameters with no associated acute guidelines, be less than the 95% Upper Confidence Limit of the Mean (95UCLM) of diamond drillhole groundwater data (Section 3.4.7.2 Contaminants with Federal or Provincial Guidelines and Section 3.4.7.3 Contaminants without Guidelines).

The Proponent states:

“Final effluent quality included in the model and assessment (Table 1) was based on measured groundwater quality from the borehole samples (see Section 3.4.2, Table 3 of the FEIS Addendum [2018]) and constrained by various regulations and guidelines to achieve non-acutely lethal effluent that will meet chronic guidelines or background concentrations at the edge of the regulatory mixing zone. The regulations and guidelines considered included:

- The proposed Metal and Diamond Mining Effluent Regulations (MDMER; GC 2017).
- Acute water quality guidelines for protection of marine aquatic life (CCME 2003; BC MOE 2017a, b).
- Fisheries and Oceans Canada Measures to Avoid Causing Harm to Fish and Fish Habitat (DFO 2013).” (FEIS Addendum, 2018, Appendix F, p. 5)

“Further, the discharge quality is expected to remain within parameter ranges projected by the 2018 FEIS Addendum (Agnico Eagle 2018) and is therefore not anticipated to present any supplemental risk to the receiving environment than assessed in the 2018 FEIS Addendum.” (FEIS Addendum, 2020, Section 3.3, p. 12).

“The changes in habitat and health and survival of benthic invertebrates, marine fish, marine mammals and birds are anticipated to have a negligible residual effect on marine VECs.” (FEIS Addendum, 2020, Table 3, p. 73)

However, the assessment of supplemental risk does not include an assessment of bioaccumulative potential of the effluent and the consumption of marine VECs as country food.



Assumed effluent water quality was listed in FEIS Addendum 2018 as well as several declarations were made in FEIS Addendum 2018 and 2020 that effluent water quality would meet specified water quality criteria (*Metal and Diamond Mining Effluent Regulations, Canadian Council of Ministers of the Environment Water Quality Guidelines, and Province of British Columbia Ministry of Environment Water Quality Guidelines*). Some of the Water Quality Guidelines used for screening are for acute conditions or short-term conditions, however, the time frame for discharge when considering bioaccumulation is longer term, such that long term or chronic criteria/guidelines are more appropriate for screening.

Therefore, to adequately assess bioaccumulation potential of contaminants in the saline effluent, the effluent water should be assessed for bioaccumulation potential based on chemicals screened with long term or chronic water quality guidelines.

#### **REVIEWER'S RECOMMENDATIONS**

The following recommendations are offered to fill technical information gaps and with respect to the disposition of this issue:

1. Screening criteria for bioaccumulative substances should be based on long term or chronic water quality guideline/criteria.
2. Treated saline effluent water should be sampled and analyzed for applicable bioaccumulative substances listed in Table 1 of SLR's 2015 "Bioaccumulation Research Project" prepared for the Contaminated Sites Approved Professionals (CSAP) Society, which includes various metals and may include select polycyclic aromatic hydrocarbons (PAHs).
3. Any identified bioaccumulative substances in sampled and/or predicted effluent chemistry should be assessed for potential risk based on federal regulation (1999) or other guidance documents such as CSAP (2015).

GN-TRC-03: COUNTRY FOOD IN VICINITY OF EFFLUENT	
<b>Department</b>	Department of Environment
<b>Organization</b>	Government of Nunavut
<b>Subject/Topic</b>	Identification of marine and avian wildlife receptors in vicinity of treated effluent discharge consumed as country foods
<b>References</b>	<ul style="list-style-type: none"> <li>• Agnico Eagle. 2017. Shipping Management Plan, Appendix B: Revised Marine Environmental Baseline Report. 2016.</li> <li>• Final Environmental Impact Statement (FEIS). 2014. Volume 8.0 Marine Environment and Impact Assessment.</li> <li>• FEIS. 2014. Volume 8.0 Marine Environment and Impact Assessment. Appendix 8.2-A: Nunami Stantec Marine Baseline Report for Itivia Harbour, Rankin Inlet, NU.</li> <li>• FEIS Addendum. 2018. Meliadine Gold Mine – Environmental Assessment of Treated Groundwater Effluent Discharge into Marine Environment, Rankin Inlet.</li> <li>• FEIS Addendum. 2020. Meliadine Gold Mine – Environmental Assessment of Treated Groundwater Effluent Discharge into Marine Environment, Rankin Inlet.</li> </ul>
IDENTIFICATION OF ISSUE	
<p>Agnico Eagle proposes to develop a waterline to convey saline effluent from the Meliadine mine site to an existing facility at Itivia Harbour for discharge to the marine environment. To evaluate the effluent's potential impact on marine and avian wildlife receptors consumed as country foods, an understanding of species present in the area of discharge is required.</p>	
IMPORTANCE TO REVIEW AND SUPPORTING RATIONALE	
<p>In August of 2011, a marine biological field program was conducted by Nunami Stantec in Melvin Bay at Itivia Harvour (proposed effluent discharge location) and two reference sites. The results from this study were first presented in Nunami Stantec (2012) Marine Baseline Report for Itivia Harbour, Rankin Inlet, NU (i.e. FEIS. 2014. Volume 8.0 Appendix 8.2-A) and restated in FEIS Volume 8.0 (2014), Appendix B in Agnico Eagle (2017) and FEIS Addendums (2018 and 2020). Species were identified with cultural, economic or subsistence importance. Below is a summary of these findings pertaining to marine and avian wildlife receptors, which were also supplemented by desktop review in the associated reports.</p> <p>The FEIS Addendum indicates species of marine fish, birds, and mammals that use the area as habitat.</p> <p>Mainly,</p>	

“Six species of marine fish (n=156) were identified during gill net and beach seine sampling in the marine LSA, including Greenland cod (*Gadus ogac*) (52%), slender eelblenny (*Lumpenus fabricii*) (27%), fourhorn sculpin (kanayok in Inuktitut) (*Myoxocephalus quadricornis*) (15%), unidentified sculpin (possibly juvenile; 3%), Arctic staghorn sculpin (*Gymnocanthus tricuspis*) (2%), and Arctic sculpin (*Myoxocephalus scorpioides*) (1%).” (FEIS, 2014, Volume 8.0, Section 8.3.2.1.1, p. 8-27). In this list, slender eelblenny is not of subsistence importance. Also included in the LSA of cultural, economic or subsistence importance were Arctic Char, Polar Cod, Arctic Cod and Greenland Halibut. (Table 8.3-2: Overview of Marine Fish Species Found within the Local and Regional Study Areas (FEIS, 2014, Volume 8, Section 8.3.2.2.1.1, p. 8-30))

and,

“A black guillemot (*Cepphus grylle*) and a pair of sandhill cranes (*Grus canadensis*) were identified in the LSA during the baseline field program.” (FEIS, 2014, Volume 8.0, Section 8.3.2.1.1, p. 8-27) and Table 8.3-3 ‘Overview of Seabird Species Potentially Present within the Local and Regional Study Area’ lists 43 species of seabirds, shorebirds, waterfowl, and marine-associated raptors that frequent offshore, inshore, intertidal, or salt marsh habitats of the Hudson Bay marine ecosystem. (FEIS, 2014, Volume 8.0, Section 8.3.2.2.1.2, p. 8-36 to 8-41)

and:

“There are 11 species of marine mammals potentially present within the RSA for variable periods of time and at different times throughout the year (Table 8.3-4). This includes 4 species of cetaceans (3 toothed whales and one baleen whale), 6 species of pinnipeds (seals and walrus), and the polar bear.” (FEIS, 2014, Volume 8.0, Section 8.3.2.2.1.3, p. 8-44). All of these marine mammal species is consider of cultural, economic or subsistence importance (Table 8.3-4: Overview of Marine Mammal Species Found within the LSA and RSA (FEIS, 2014, Volume 8.0, Section 8.3.2.2.1.3, p. 8-46))

Information acquired by field studies and desktop review on marine and avian wildlife within Itivia Harbour / Melvin Bay was detailed in several reports (see references).

Refined analysis or identification of which species are consumed as country food is required to further assessment of potential human health impacts related to potential bioaccumulation of substances from treated effluent.

## REVIEWER’S RECOMMENDATIONS

The following recommendations are offered with respect to disposition of this issue:

1. Identify the avian and marine species with the potential to be impacted by bioaccumulation of substances in the vicinity of the effluent discharge that are consumed as country foods.

GN-TRC-04: CONSUMPTION OF MARINE AND AVIAN WILDLIFE	
<b>Department</b>	Department of Health
<b>Organization</b>	Government of Nunavut
<b>Subject/Topic</b>	Consumption of marine and avian wildlife and country foods by Nunavummiut communities
<b>References</b>	<ul style="list-style-type: none"> <li>• Final Environmental Impact Statement (FEIS). 2014. Volume 8.0 Marine Environment and Impact Assessment.</li> <li>• FEIS. 2014. Volume 9.0 Socio Economic Environment and Impact Assessment.</li> <li>• FEIS Addendum. 2018. Meliadine Gold Mine – Environmental Assessment of Treated Groundwater Effluent Discharge into Marine Environment, Rankin Inlet.</li> <li>• FEIS Addendum. 2020. Meliadine Gold Mine – Environmental Assessment of Treated Groundwater Effluent Discharge into Marine Environment, Rankin Inlet.</li> <li>• Nanuk Enterprises. 2011. Results of Inuit Qaujimajatuqangit Interviews and Focus groups Held in Rankin Inlet, Chesterfield Inlet, and Whale Cove. Prepared for: Agnico-Eagle Mines Ltd. Meliadine Gold Project. (Appendix 9.3-A of FEIS 2014 Volume 9.0)</li> <li>• Burt, P. 2010. Meliadine Gold Project Agnico-Eagle Mines: Inuit Qaujimajatuqangit Traditional Knowledge of Plant Use. Summary Report, Elders' Workshop in Rankin Inlet. (Appendix 9.3-B of FEIS 2014 Volume 9.0).</li> <li>• Federal Contaminated Site Risk Assessment in Canada - Supplemental Guidance on Human Health Risk Assessment for Country Foods (HHRA<sub>Foods</sub>). 2010. Contaminated Sites Division.</li> </ul>
IDENTIFICATION OF ISSUE	
<p>Agnico Eagle proposes to develop a waterline to convey saline effluent from the Meliadine mine site to an existing facility at Itivia Harbour for discharge to the marine environment. The country foods that may be impacted by the bioaccumulation of metals in the effluent water have not been identified.</p> <p>An understanding of what and how much country foods are being consumed from the effluent discharge area(s) is required to assess potential bioaccumulation and to evaluate the effluent's potential impact on human health.</p>	
IMPORTANCE TO REVIEW AND SUPPORTING RATIONALE	
<p>Nanuk Enterprises undertook Inuit Qaujimajatuqangit (IQ) studies in Rankin Inlet and Chesterfield Inlet in 1997 and 1998, with subsequent studies in Chesterfield Inlet in 2010, and in Rankin Inlet</p>	

and Whale Cove in 2011. A traditional knowledge of plant use study was also conducted for the Project in 2010. These studies were summarized in the FEIS (2014) Volume 9.0 and reiterated in the FEIS Addendums (2018 and 2020).

The following is a summary of country foods listed in the reports to be consumed by Nunavummiut communities in Rankin Inlet and the surrounding areas.

Subsistence species noted in FEIS (2014) Volume 9.0 Section 9.3 are as follows: Ringed and bearded seals, walrus, eider ducks, ducks, snow and Canadian geese, duck eggs, belugas, caribou, polar bears, Arctic hare, ptarmigans, fish (e.g. Arctic char, whitefish, lake trout), and muskoxen;

“... Elders indicated that snow geese, Canada geese, occasionally white-fronted geese, tundra swans, and sandhill cranes forage throughout this section of the road in spring and fall. Tundra swans, sandhill cranes, and geese also nest in the area. Geese are hunted in the spring and fall. Sandhill cranes and swans are also hunted, although these do not form a major part of the diet today. Elders also noted that polar bears are sometimes hunted on Section 2 of the [AWAR] road.” (FEIS, 2014, Volume 9.0, Section 9.3.1.3.2, p. 9-65); and

“Table 9.3-15 presents harvest (catch) levels in Arviat, Baker Lake, Chesterfield Inlet, Rankin Inlet, and Whale Cove over the 5-year period between 1996 and 2001 as presented by NWMB. This data indicates that the more traditional and/or smaller communities of Arviat, Chesterfield Inlet, and Whale Cove consume more country foods per capita than the larger and more cosmopolitan communities of Baker Lake and Rankin Inlet.” (FEIS, 2014, Volume 9.0, Section 9.3.1.4.3, p. 9-94)

Within the FEIS (2014, Volume 8, Section 8.3.3, p. 8-89 to 8-90), the following information was gleaned pertaining to IQ the consumption of marine wildlife:

- Arctic char represents an important food species for the local community and are mainly harvested during August in the Rankin Inlet region.
- Other fish species locally harvested in the Project area (in marine waters) include sculpin, cod, capelin, whitefish, and trout.
- Marine mammal species harvested in the Rankin Inlet region include Beluga whales, walruses (uncommon), polar bears, four species of seal (ringed, bearded, harp, and harbour).
- Narwhales and bowhead whales are not important subsistence species for the Rankin Inlet community and are uncommon in the area.
- Egg harvesting occurs in spring for goose, eider duck, tern, guillemot, and gull.
- Locally harvested shellfish species include blue mussels and clams. Historically, shellfish harvesting occurred along the north shore of Melvin Bay. Today, the harvest mainly occurs outside the harbour due to related health advisories from the Department of Health and Social Services. Scallops collected from the stomachs of hunted walruses are highly regarded by elders;
- Seaweeds (marine vegetation) are not locally harvested in the Project area in Melvin Bay.

Country foods consumed by Nunavummiut in Rankin Inlet, Chesterfield Inlet and Whale Cove were discussed in several FEIS documents. However, the link between the effluent discharge and its potential bioaccumulative effect on country foods (i.e. marine wildlife and terrestrial berries) has not been made. Therefore, it is not possible to assess the potential health risks to consumers of country foods from the effluent discharge location and surrounding areas, as well as potential effluent spill locations.

Moreover, there has been no community diet study quantifying the proportion of traditional foods in the diet of community members in the effluent affected area or the concentration of contaminants that may be present in traditional foods due to the effluent. This information is required for an assessment of the effluent's effect on human health, if necessary.

Lastly, biota uptake chemical constituents in the environment at different rates, with some species more apt to bioaccumulate certain substances than others. Currently, there is a knowledge gap of which country foods would be most susceptible to bioaccumulative substances potentially found in the effluent and the concentration of these bioaccumulative substances in country food tissues.

## **REVIEWER'S RECOMMENDATIONS**

The following recommendations are offered with respect to disposition of this issue:

1. Determine the concentration of bioaccumulative contaminants within the effluent to be discharged to the marine environment (see GN-02);
2. Assess if there is an operable exposure pathway between the effluent and country foods (i.e. do country foods come into contact with the effluent and have potential to uptake bioaccumulative substances potentially contained within the effluent) [see GN -03];
3. If there is an operable exposure pathway between the effluent and country foods, conduct a human health risk assessment for ingestion of country foods impacted by bioaccumulation of substances from the effluent discharged to assess the level of health risk the bioaccumulative substances effluent pose to consumers of country foods in the affected area using FCSAP Supplemental Guidance on Human Health Risk Assessment for Country Foods (2010) or any other relevant guidance related to consumption of country foods; and
4. Consider a country food diet survey focusing in on the country foods consumed from the location of the effluent discharge to provide realistic consumption rates of country foods to assess potential impacts on human health.

GN-TRC-05: CARIBOU BEHAVIORAL MONITORING	
Department	Environment
Organization	Government of Nunavut
Subject/Topic	Caribou Behavioral Monitoring
References	<ul style="list-style-type: none"> <li>• Meliadine Gold Mine Final Environmental Impact Assessment Addendum – Environmental Assessment of Treated Groundwater Effluent Discharge into Marine Environment, Rankin Inlet. (AEM 2020a)</li> <li>• Letter from Agnico Eagle to NIRB (September 16, 2020) RE: NIRB Clarification on scope of Agnico Eagle's "Saline Effluent Discharge to Marine Environment" Project Proposal related to the Meliadine Gold Mine Project. (AEM 2020b)</li> <li>• Waterline FEIS Addendum – Meliadine Mine <i>Information Request Responses</i>. (AEM 2020c)</li> <li>• Letter from Agnico Eagle to NIRB (August 7, 2020) RE: NIRB 124106 / 11MN034: Opportunity to Address Comments Received for Agnico Eagle's Meliadine Gold Mine Project 2019 Annual Report. (AEM 2020d)</li> </ul>
IDENTIFICATION OF ISSUE	
<p>In addition to relying upon the Final Environmental Impact Statement (FEIS) for the approved Project (AEM 2014), the Proponent discusses the results of recent behavior monitoring conducted at the Meliadine site as evidence that neither the approved Project nor the proposed pipeline amendment has or, will have adverse effects on caribou movements.</p> <p>The FEIS addendum (AEM 2020a) does not provide details of this behavior monitoring. This evidence relied upon by the Proponent should be presented in sufficient detail to allow a full technical evaluation. In absence of this information the validity of the Proponent's conclusions regarding caribou cannot be assessed.</p>	
REVIEWER'S COMMENTS AND SUPPORTING RATIONALE	
<p>Noting the Proponent's recent decision to cover or bury most of the proposed saline effluent pipelines (Commitment #9, NIRB Public Registry ID 331287), it is our understanding that the proposed Project will include the following features:</p> <ul style="list-style-type: none"> <li>• Two effluent pipelines, 80-90% of which will be covered or buried; the remainder to place on-ground.</li> </ul>	

- Burial or covering of the pipelines will result in the addition of one of two possible structural features at each point along the Project's existing all-weather-access-road (AWAR):
  - 1) Widening of the road embankment by addition of a bench on the east side of the road consisting of esker material, or
  - 2) Creation of a berm covering the pipelines up to maximum height of 80cm and separated from the AWAR by a variable distance (AEM 2020c, Appendix 7).

Based on this proposal, caribou attempting to cross the Project's AWAR are expected to encounter a widened AWAR, an additional man-made berm, and/or two exposed pipes. These features will present additional anthropogenic stimuli to caribou over and above those of the existing AWAR. The potential for these features to delay or deflect caribou was considered in the FEIS addendum.

As evidence that the effects will be insignificant, the Proponent states that:

"Based on recent caribou behavioural monitoring (July 2020) and experience with above-ground pipelines in Alberta, it is anticipated that when the waterlines are first constructed there may be a familiarity phase for caribou interacting with the waterline. Caribou may exhibit some initial minor delays in crossing until they find appropriate crossing opportunities, even though they are physically capable of crossing. (AEM 2020a, section 8.1.2)

The GN notes results of the recent behavior monitoring at Meliadine (July 2020) are evidence relied upon by the Proponent in reaching this conclusion. However, this evidence is not presented in the FEIS Addendum. During the information request phase of the review, the GN requested that the Proponent provide more details of the behavioral monitoring including details of methodology, data analyses and a summary of the results (GN-IR 04).

In response, the Proponent stated that:

"During 2020, Agnico Eagle updated the methods used for behaviour monitoring to follow the scan sampling guidelines produced by the Government of Northwest Territories, Department of Environment and Natural Resources (GNWT ENR). Behaviour monitoring occurred along Project roads and at the mine site. The results of this monitoring is scheduled to be included in the Meliadine 2020 TEMMP Report to the NIRB in March 2021." (AEM 2020c)

Release of results as part of the Meliadine 2020 TEMMP Report in March 2021 prevents technical review of this study as part of NIRB's review of the proposed Project. In addition, the Proponent cites scan sampling guidelines produced by the Government of the Northwest Territories that, as recently indicated by the Proponent, have been adapted for use at the Meliadine Project. Neither the guidelines themselves nor the adapted guidelines have been made available to reviewers.



The GN wishes to fully understand the effects of the existing AWAR on the behavior of caribou in-order to properly evaluate the Project proposal.

#### **REVIEWER'S RECOMMENDATIONS**

The following recommendations are offered with respect to disposition of this issue:

1. That the Proponent provide a copy of the scan sampling guidelines produced by the Government of Northwest Territories, Department of Environment and Natural Resources (GNWT ENR) and details of how these guidelines have been adapted for application at the Meliadine Project.
2. The GN re-iterates its request for the Proponent to provide more details of the caribou behavioral monitoring program cited in the FEIS Addendum including study design(s), sampling effort, a quantitative analysis of existing data and a summary of results including statistical analyses that support the conclusion presented in the FEIS Addendum.

GN-TRC-06: Caribou Monitoring	
Department	Environment
Organization	Government of Nunavut
Subject/Topic	Caribou Monitoring
References	<ul style="list-style-type: none"> <li>• Agnico Eagle Mines (AEM), Meliadine Division. (2020a). Waterline FEIS Addendum – Meliadine Mine, Information Request Responses.</li> <li>• Agnico Eagle Mines (AEM), Meliadine Division. (2020b). Meliadine Gold Mine Final Environmental Impact Assessment Addendum – Environmental Assessment of Treated Groundwater Effluent Discharge into Marine Environment, Rankin Inlet.</li> <li>• Agnico Eagle Mines (AEM), Meliadine Division. (2020c). Terrestrial Environment Management and Monitoring Plan (TEMMP), version 3.</li> <li>• Final Environmental Impact Statement - Meliadine Gold Project, Nunavut. Vol. 6 Terrestrial Environment and Impact Assessment, Section 6.6.4.1.1 Methods (AEM 2014)</li> <li>• Agnico Eagle Mines (AEM), Meliadine Division. (2020c). 2019 Terrestrial Effects Monitoring and Mitigation Program Annual Report (Appendix H-7 of the Meliadine Gold Project 2019 Annual Report).</li> <li>• Government of Nunavut (GN). (2020). Comments on the Meliadine Gold Project 2019 Annual Report.</li> </ul>
IDENTIFICATION OF ISSUE	
<p>As noted by the GN, the FEIS Addendum:</p> <ul style="list-style-type: none"> <li>(a) lacks quantitative evidence regarding the approved Project's observed effects on caribou relative to those predicted in the 2014 FEIS;</li> <li>(b) does not account for changes in baseline conditions for caribou that have occurred since 2014; and</li> <li>(c) lacks evidence that the Project's Caribou Protection Measures (CPM) are being fully implemented and are effective in avoiding adverse effects on caribou.</li> </ul> <p>Without this information, reviewers are unable to technically evaluate the approved Project's effects on caribou adequately and the Proponent's ability to mitigate these effects, and the risks of adverse impacts. By extension, reviewers are similarly unable to evaluate the proposed Project amendment. Thus, the proposed Project may present an unknown risk to caribou.</p>	

If the proposed Project proceeds, the associated risks must be mitigated via adequate monitoring programs. Within the FEIS addendum, the Proponent's plan for future monitoring of Project effects on caribou lists several programs. However, technical details of these programs are lacking thereby limiting a reviewer's ability to evaluate them.

During the information request phase of the review, the GN sought details on some of these monitoring programs. Therefore, the GN is reiterating its request for additional information during the technical review phase.

Without these details, the GN is unable to provide technical advice to the NIRB regarding the value of these monitoring programs in mitigating Project risks to caribou.

## **REVIEWER'S COMMENTS AND SUPPORTING RATIONALE**

In responding to an information request from the Kivalliq Inuit Association (KivIA), the Proponent notes states that

“[T]he TEMMP contains several programs designed to measure whether caribou cross the road [AWAR]” (AEM 2020)

These programs include a caribou collaring program, AWAR road surveys and caribou behavior monitoring. The Proponent also states that:

“Agnico Eagle has also committed to additional monitoring that will inform adaptive management (Commitment #4; NIRB Public Registry ID 331287). This monitoring includes: Inuit Elders visit site to evaluate if caribou are crossing the road. Tracking caribou road crossing using GPS collars, a camera study, and road surveys by KHTO Wildlife Monitor.”

and

“These monitoring programs examine: a) when and where caribou interact with the road, b) the rate of deflections (caribou turning away from the road) and c) caribou behaviour near the road and in response to stimuli.” (AEM 2020a, response to KivIA IR 8)

The GN notes the following with respect to the monitoring programs in the TEMMP 2020 and the additional programs recently committed to by the Proponent.

### AWAR Wildlife Surveys

#### a) Frequency of surveys

The stated frequency with which these surveys will be conducted is inconsistent within the FEIS Addendum, TEMMP and Proponent's responses to information requests.

For example, the following is stated:

- “Per TEMMP, AWAR wildlife surveys are to be completed twice per week, or more frequently when necessary, and site surveillance monitoring weekly or more frequently when necessary. Higher frequency monitoring is critical around the migration period and is to be completed in collaboration with the KivIA and KHTO. (AEM 2020b, Table 14);
- “AWAR Wildlife Surveys - completed weekly, or more frequently when necessary (e.g., large herds of caribou in the immediate vicinity of the Project).” (AEM 2020c, section 4.1.1);
- “During caribou migration daily AWAR surveys are completed” (AEM 2020b, section 10.1);
- “Operationally, during the approximately month-long period when caribou are approaching or near site, driving and height of land surveys are conducted three times per day (6 am, noon and 6 pm).” (AEM 2020a, response to GN IR 06, part 1); and
- “Surveys would be conducted daily as they are currently, and often multiple times per day, to primarily understand the distribution, herd size and direction of travel while caribou are on site.” (AEM 2020a, response to GN IR 06, part 2).

b) Program design details

During the information request phase of the review, the GN noted a lack of information regarding these surveys and requested the following information:

“[A] technical memo explaining how AWAR road surveys will be used to monitor AWAR and pipeline effects on caribou. This should specify the data being collected, program sampling design, sampling effort (based on a power analysis), spatial extent of sampling, sampling schedule and analytical approach to be employed; and this should also include a schedule for data analyses and presentation of results that demonstrates how this monitoring program will provide the necessary quality and quantity of data to facilitate adaptive management in a timely manner...”

(GN 2020, IR 06, part 3)

The Proponent’s response to this specific information request was:

“The current TEMMP programs designed to monitor caribou interacting with the road, will still hold the same value when the covered waterlines are approved and built.”  
(AEM 2020a, response to GN IR 06, part 3)

The GN notes that most of these technical details are not contained in the TEMMP or other documents associated with the Project. Without this technical information, the GN cannot evaluate whether the AWAR road surveys will provide an effective means to monitor project effects on caribou.

Caribou Collar Program

The Proponent plans to use caribou collar data to monitor effects of the All-Weather Access-Road (AWAR) and pipelines on migrating caribou. The FEIS Addendum states that there will be:

“...a long-term monitoring study that will inform adaptive management (e.g., site visits for Elders, tracking caribou with GPS collars, camera study, road monitoring site + HTO program). (AEM 2020b, Table 14)

and

“With the approval and addition of the original Meliadine Project and subsequent developments, increased monitoring programs have been implemented including financial contribution and collaboration with the GN to collar and monitor caribou. This increased monitoring data will lead to greater certainty regarding the effects assessment for caribou.” (AEM 2020b, Section 8.1.6)

The Addendum does not elaborate on the design of the collaring program that the Proponent intends to rely on to “inform adaptive management” and achieve “greater certainty regarding the effects assessment for caribou.” No technical details of the program are provided such as the number of collars needed by the Proponent on the Qammanirjuaq herd in-order for this program to meet these stated objectives. Therefore, reviewers cannot evaluate whether this program will be a reliable means of monitoring the Project. Without this information, the risk associated with the proposed Project amendment is uncertain.

During the information request phase of the review, the GN noted a lack of information regarding the Proponent’s intended reliance on a collaring program and requested the following information:

“[A] technical memo explaining how the caribou collaring program will be used to monitor AWAR and pipeline effects on caribou. This should specify the data being collected, program sampling design, the number of collars needed by AEM on Qammanirjuaq caribou to detect adverse effects of the Project (based on a power analysis), and a sampling schedule. This should also include a schedule for data analyses and presentation of results that demonstrates how this monitoring program will provide the necessary quality and quantity of data to facilitate adaptive management in the timely manner. Please note, the GN acknowledges that caribou collaring is a GN-led activity in the Kivalliq region, however the GN is seeking specific information on the study design needs and level of collaring effort that the Proponent will need in-order to monitor the effects of the proposed, amended Meliadine Project on caribou. This information is needed in-order for the GN and other intervenors to assess the likelihood that the collaring program will provide a reliable means of Project monitoring.” (GN 2020, IR 06, part 4)

The Proponent’s response to this specific information request was:

“The topic of the GN’s caribou collaring program is currently being addressed through separate discussions to develop an Agreement between Agnico Eagle and the GN. This information will be regularly used to its full value as part of annual or 3-year monitoring reports.”

At the present time, the GN has no understanding of the Proponent's needs for collar data, the amount and type of data required, its schedule for acquisition, intended methods of analysis to inform adaptive management or the financial resources being made available by the Proponent towards this program.

The GN notes that most of these technical details are not contained in the FEIS Addendum, the TEMMP, Annual Reports or other documents associated with the Project. Without this technical information, the GN cannot evaluate whether the reliance on a collaring program of unspecified design, effort or schedule will provide an effective means to monitor project effects on caribou. The GN acknowledges the receipt of the proponent's request for Data Sharing Agreement (DSA) as of October 27, 2020.

#### Caribou Behaviour Monitoring

See GN-TRC-05.

#### Cameras

The Proponent's plan to use motion triggered cameras to study caribou interactions with the Project is mentioned briefly in the FEIS Addendum but not mentioned in the TEMMP 2020. Neither document provides any details of study design including objectives, methods, sampling effort, schedule, proposed analytical methods or how results will be used to inform adaptive management. This program cannot therefore be evaluated from a technical perspective and its value in monitoring and mitigating Project effects on caribou is unknown.

#### Road Surveys by a KHTO Wildlife Monitor

The Proponent's plan to use a KHTO Wildlife Monitor to conduct road surveys is mentioned briefly in the FEIS Addendum but not mentioned in the TEMMP 2020. Neither document provides any details of study design including objectives, methods, sampling effort, schedule, proposed analytical methods or how results will be used to inform adaptive management. Therefore, this program cannot be evaluated from a technical perspective and its value in monitoring and mitigating Project effects on caribou is unknown.

Overall, the Proponent's primary programs for monitoring Project effects on caribou, as presented in the FEIS Addendum and TEMMP, are vague and lack technical details. The effectiveness of these programs determines the likelihood that potential adverse effects are detected and mitigated. Without technical details of these programs, reviewers cannot assess this likelihood and cannot fully assess the risks of the Project itself.

### **REVIEWER'S RECOMMENDATIONS**

The following recommendations are offered with respect to disposition of this issue:

1. The GN reiterates its previous request for details of the road survey and caribou collaring monitoring programs as specified in GN information request 06 (parts 3 and 4) and add similar requests for details of the camera and KHTO road survey program as follows:
  - 1.1. That the Proponent provide a technical memo explaining how AWAR road surveys will be used to monitor AWAR and pipeline effects on caribou:
    - 1.1.1. This should specify the data being collected, program sampling design, sampling effort (based on a power analysis), spatial extent of sampling, sampling schedule and analytical approach to be employed; and
    - 1.1.2. This should also include a schedule for data analyses and presentation of results that demonstrates how this monitoring program will provide the necessary quality and quantity of data to facilitate adaptive management in a timely manner.
  - 1.2. That the Proponent provide a technical memo explaining how the caribou collaring program will be used to monitor AWAR and pipeline effects on caribou:
    - 1.2.1. This should specify the data being collected, program sampling design, the number of collars needed by AEM on Qammanirjuaq caribou to detect adverse effects of the Project (based on a power analysis), and a sampling schedule; and
    - 1.2.2. This should also include a schedule for data analyses and presentation of results that demonstrates how this monitoring program will provide the necessary quality and quantity of data to facilitate adaptive management in the timely manner. Please note, the GN acknowledges that caribou collaring is a GN-led activity in the Kivalliq region. However, the GN is seeking specific information on the study design and level of collaring effort that the Proponent will need in-order to monitor the effects of the proposed, amended Meliadine Project on caribou. This information is needed in-order for the GN and other intervenors to assess the likelihood that the collaring program will provide a reliable means of Project monitoring.
  - 1.3. That the Proponent provide a technical memo explaining how the camera program and the KHTO Wildlife Monitor road survey program will be used to monitor AWAR and pipeline effects on caribou. For each program this should include details of study design including objectives, methods, sampling effort, schedule, proposed analytical methods or how results will be used to inform adaptive management.
2. That the Proponent revise the TEMMP to include the technical details provided in the above noted memos.
3. That the Proponent clarify the frequency of AWAR surveys that will be conducted during the seasons when caribou are interacting with the Project. This should clarify the minimum frequency of survey to be conducted during each of May, June and July regardless of caribou presence being detected near Project (i.e. within the 5 km or 1 km thresholds specified in the TEMMP and Road Management Plan). It should also state the frequency

of survey that will occur when caribou presence is detected within these distance thresholds.

4. That the Proponent revise the TEMMP to include the above noted AWAR survey frequencies in the TEMMP. This should specify the frequency of AWAR survey that will occur in May, June, and July when caribou are >5km, <5km and <1km from the Project. This should demonstrate a progressive increase in survey effort as caribou approach the Project.



GN-TRC-07: Reliability of 2014 FEIS	
<b>Department</b>	Environment
<b>Organization</b>	Government of Nunavut
<b>Subject/Topic</b>	Reliability of the 2014 FEIS as a basis for assessing the Project amendment
<b>References</b>	<ul style="list-style-type: none"> <li>• Agnico Eagle Mines (AEM), Meliadine Division. (2014). Final Environmental Impact Statement - Meliadine Gold Project, Nunavut.</li> <li>• Agnico Eagle Mines (AEM), Meliadine Division. (2018). Meliadine Gold Project 2017 Annual Report.</li> <li>• Agnico Eagle Mines (AEM), Meliadine Division. (2019). Meliadine Gold Project 2018 Annual Report.</li> <li>• Agnico Eagle Mines (AEM), Meliadine Division. (2019). Roads Management Plan.</li> <li>• Agnico Eagle Mines (AEM), Meliadine Division. (2020a). Waterline FEIS Addendum – Meliadine Mine Information Request Responses.</li> <li>• Agnico Eagle Mines (AEM), Meliadine Division. (2020b). Meliadine Gold Mine Final Environmental Impact Assessment Addendum – Environmental Assessment of Treated Groundwater Effluent.</li> <li>• Agnico Eagle Mines (AEM), Meliadine Division. (2020c). Meliadine Gold Project 2019 Annual Report.</li> <li>• Plante et al. (2018). Human disturbance effects and cumulative habitat loss in endangered migratory caribou. Biological Conservation 224: 129-123.</li> <li>• Boulanger et al. (2020). Analysis of Caribou Movements Relative to the Meadowbank Mine and Roads During Spring Migration. Government of Nunavut, Department of Environment, Technical Report Series – No:01-2020</li> <li>• ERM (2020). Memo from ERM to AEM (October 9, 2020) entitled “Literature review of caribou, waterlines, and roads Revision 2” (Ref # 0530275-0010)</li> </ul>
IDENTIFICATION OF ISSUE	
<p>Based on the Project description and recent updates to this description, caribou attempting to cross the Project’s AWAR are expected to encounter one of three new structures if the proposed Project proceeds (AEM 2020a, appendix 7):</p> <p>(1) a widened AWAR;</p>	

- (2) an additional man-made berm (separate from the road but running parallel to it); and/or
- (3) two exposed pipes.

These structures will present additional anthropogenic stimuli to caribou over and above those of the existing AWAR.

The potential for these structures to delay or deflect caribou was considered in the FEIS addendum. The Proponent concludes that the current effects of the approved Project on caribou and the added effects of the waterline structures will have no significant impacts on caribou. In reaching this conclusion, the Proponent relies on the assumption that the conclusions of the 2014 FEIS, developed for the approved Project, are valid and that effects of the current project on caribou are not significant.

However, the FEIS Addendum lacks quantitative data, collected via monitoring of the approved project, to support this claim. For example, results of caribou behavioral monitoring conducted by the Proponent in the vicinity of the Project are cited as evidence but are not presented for review by intervenors (see GN TRC 5 – Caribou Behavioral Monitoring).

The GN is concerned that the accuracy of the 2014 FEIS (AEM 2014) has not been adequately tested via monitoring and that its conclusions may no longer be valid. As such, reliance on its conclusions regarding caribou may not be an appropriate basis for review of the proposed Project. In addition to a lack of Project-specific monitoring data being presented in the FEIS Addendum, the GN notes that baseline conditions for caribou within the Project's regional and local study areas have changed in 2 key respects since the original FEIS was submitted in 2014.

Overlap between the Project and the range of the Qammanirjuaq herd has increased 3 to 4 fold in comparison to data used in the 2014 assessment (Figure 2). Thus, a greater proportion of the herd is exposed to project effects during its post-calving period. At the same time, traffic levels on the Project's All-Weather-Access-Road (AWAR), have substantially exceeded those predicted and used in the 2014 FEIS in each year since the Project began.

For example, in 2019, mine-related traffic on the AWAR during July was between 46 to 200% greater than predicted, dependent on method of calculation. Public traffic will also affect caribou but it is unclear to the GN whether public use of the AWAR has exceeded predictions. In 2017 and 2019, public traffic levels have not been reported, methods of data collection have not been described and/or the accuracy of the data has not been assessed.

In response to a GN information request, submitted as part of the FEIS Addendum review, the Proponent stated that:

“Agnico Eagle does not believe it is necessary to conduct additional assessments of effects of traffic on caribou. The potential effects of traffic have already been assessed in the Meliadine FEIS (Agnico Eagle 2014) and the 2018 FEIS Addendum (Agnico Eagle 2018).”

The GN disagrees with the Proponent's position and maintains that additional assessment is required, taking into account the greater overlap between the Qammanirjuaq herd (Nunavut's largest herd) and the Project, combined with traffic levels that are substantially higher than previously predicted. As part of this assessment, clarification of available traffic data, and scrutiny of those data is required. In addition, greater use of recent Project-specific data and relevant literature on barren-ground caribou interactions with roads is required.

Since traffic levels are known to be a major determinant of the barrier effect of roads, examining the observed levels of traffic associated with the approved Project to date in the context of the significant increase in the Qammanirjuaqs herd's overlap with the Project since the 2014 is necessary in-order to accurately assess the baseline conditions under which the proposed Project is occurring.

## REVIEWER'S COMMENTS AND SUPPORTING RATIONALE

In the FEIS Addendum (AEM 2020b), the proponent has relied on the 2014 FEIS (AEM 2014) developed for the approved Project as evidence that effects of the proposed, amended Project will be non-significant. The Proponent has not conducted a revised assessment taking into account the observed (measured) effects of the approved Project. Indeed, the FEIS Addendum provides no quantitative evidence regarding the approved Project's current effects on caribou; in other words the new baseline for the proposed Project (See for example, GN TRC 6 – Caribou Behavioral Monitoring). Furthermore, two factors that could increase the potential for adverse effects on caribou have changed significantly since the 2014 FEIS. These are further discussed in the proceeding sections.

### Caribou Interaction with Project

Collar data suggest that caribou interact with the Project mostly in July and to some degree in May and June (Figure 1). The original 2014 FEIS states that:

“According to Caribou Protection Measures defined by BQCMB (2004), operations within areas occupied by cows and/or calves should be suspended between May 15 and July 15. Low flying aircraft should avoid caribou at all times, particularly during migration. Operations should not block migration pathways, and blasting and/or construction of camps should not occur within 10 km of a designated water crossing between May 15 and September 1 (Gunn et al. 2007). Given the proportion of the caribou herd predicted to be impacted by the Project, AEM is not committed to following these practices. However, AEM has developed a TEMMP (SD 6-4) that outlines specific caribou mitigation in consultation with Government of Nunavut, Department of Environment. [Emphasis added by reviewer]

(AEM 2014, SD 6, section 6.6.4.2.2)

In the 2014 FEIS, the assessment for caribou, amongst other things, was based on the following:

- That overlap between the Qammanirjuaq herd and the Project was minimal. For example, only 3 collared caribou (representing less than 15% of collared individuals

in the Qammanirjuaq herd) were present in the Regional Study Area in July and less than 1% of collar locations were in the RSA. (AEM 2014, SD 06, Table 6.6-23)

- Amongst collared caribou “Of the detections inside the RSA, the majority occurred within the 14 km ZOI identified for mine developments; however, very few of these (3 locations over the entire program) occurred within the LSA (AEM 2014, SD 6, section 6.6.4.2.2)
- An assumption that the Zone-of-Influence (ZOI) around the AWAR (the range over which caribou may be impacted by the road), would be 5 km on either side of the road. (AEM 2014, SD 06, Table 6.6-23)

In comparison, current information indicates the following:

- The percentage of collars entering the RSA has increased to over 90% since the 2014 FEIS (Figure 2).
- The percentage of collars interacting with the AWAR and its Local Study Area (LSA) has increased to over 72% in some years since the 2014 FEIS (Table 1).
- Recent studies of caribou suggest that ZOIs around mine roads on the tundra, in particular those also used by the public for hunting access can be greater than 5km. For example, Plante et al. (2018) found that migratory caribou in northern Quebec exhibited a ZOI of up to 8 km around a mine haul/supply road and strongly avoided crossing this road to utilize segments of their summer range. In a study of the spring migratory movements of caribou in response to Agnico Eagle’s Meadowbank Mine, Boulanger et al. (2020) detected a ZOI of between 16-17km around roads. These recent studies emphasize the fact that the Project’s effects on caribou may extend well beyond the 5 km ZOI used in the project’s 2014 FEIS.

Table 1. Overlap between collar caribou and Meliadine Gold Mine Project. (GN unpublished data)

Yearly breakdown of collars within the RSA and overlap with each of the disturbance groups

Year	Total Collars	AWAR		Lease		Rankin Inlet	
		# Overlap	% Total	# Overlap	% Total	# Overlap	% Total
2012	7	1	14%		0%	1	14%
2013	32	4	13%	1	3%	1	3%
2014	17	4	24%	2	12%		0%
2015	36	26	72%	9	25%	18	50%
2016	46	20	43%	4	9%	5	11%
2017	75	38	51%	10	13%	26	35%
2018	50	36	72%	7	14%	14	28%
2019	75	21	28%	1	1%	4	5%

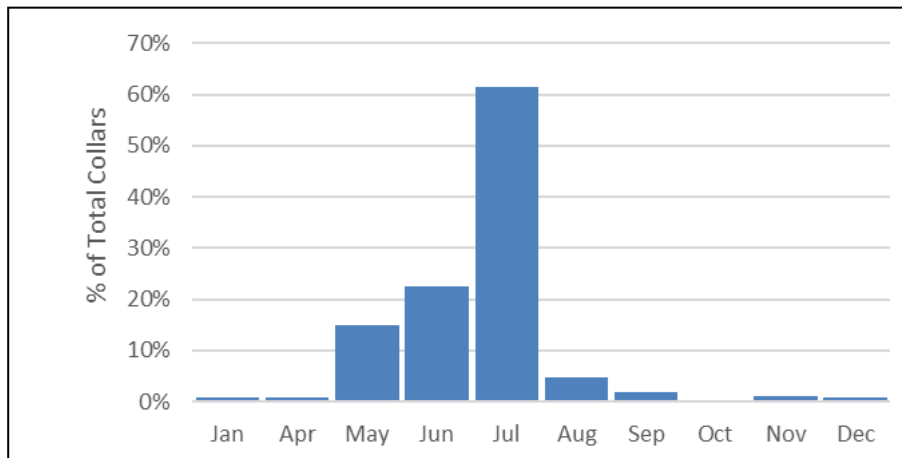


Figure 1. Percentage of collared Qammanirjuaq caribou found within the Meliadine mine project's Regional Study Area (RSA) by month. (GN unpublished data, 1993-2019)

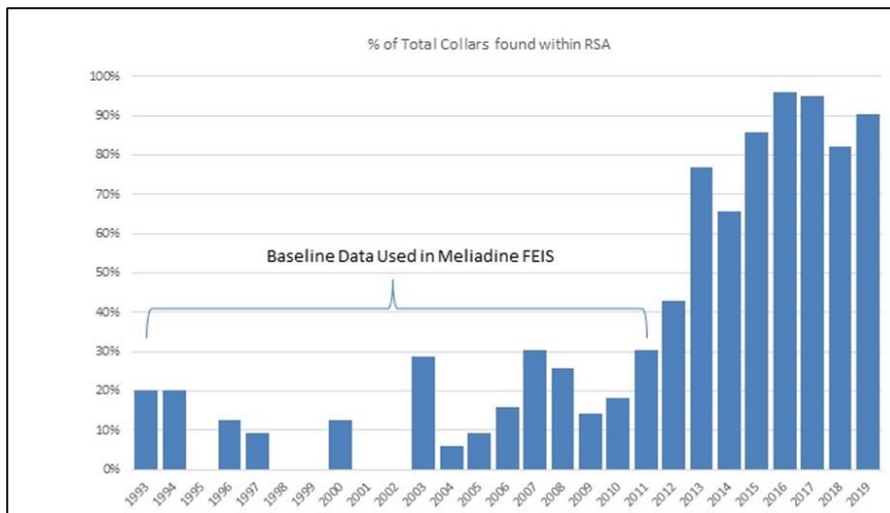


Figure 2. Percentage of collared Qamanirjuaq caribou entering the Regional Study Area (RSA) for the Meliadine Gold Project. (GN unpublished data, 1993-2019)

### AWAR Traffic

As noted by Proponent in the FEIS Addendum (ERM 2020) and demonstrated in numerous studies, traffic intensity is a major determinant of the impact of roads on barren-ground caribou movements. For example, as stated in the FEIS Addendum:

“Beyond the physical structure, traffic volume is the most important factor affecting caribou response to roads (Curatolo and Murphy 1986, Murphy and Curatolo 1987, Wolfe et al . 2000, Lawhead et al. 2006).” and;

“Wilson et al.(2016) studied road crossing behaviour near the Red Dog mine in Alaska. In the study, they examined movement rates of individual caribou at a road with an average of 4 vehicles per hour. They reported two responses to caribou encountering roads: “normal crossers” that proceeded virtually uninterrupted in their migration; and “slow crossers” that remained on the upstream side of the road by an average of 32 days, and following crossing travelled at 1.5 faster times that of normal crossing animals.” (ERM 2020)

Subtracting vehicles involved in saline effluent discharge to the marine environment, the Proponent reports that mine-related traffic levels for the approved Project in 2019 were 43, 51, and 70 trips (vehicles) per day in the months of May, June and July, respectively (AEM 2020, responses to NIRB-IR-012 and GN-IR-06).

Comparing these data to predictions in the 2014 FEIS (AEM 2014, SD 2-9, Table 6-1 – see table 2 below) shows that during July, when most caribou interacted with the Project and its AWAR, the observed mine-related traffic level exceeded predictions by between 46% to 200% in 2019, dependent upon whether the upper or lower end of the traffic prediction ranges are used. These exceedances do not include public traffic on the AWAR. Observed levels of

public traffic have not been provided by the Proponent in the FEIS Addendum so it is unclear to what extent public traffic has or has not exceeded predictions.

As part of the Roads Management Plan, submitted during NIRB's review of the approved Project, the Proponent committed to collecting and reporting data on levels of public traffic on the AWAR, stating that:

"During Phase 1 operation of the FEIS, AEM will start to collect information on volume of people using the road (expected to start in the summer of 2014) but useful information is not yet available as during winter months public will be able to access the Meliadine area using snow mobiles, tracked vehicles and dog sleds which do not need to pass through the AWAR access gate. AEM commits to conduct periodic spot checks of public use of the AWAR once the Phase 2 is complete to gauge the accuracy of the predictions contained in Table 6-1. These will be periodic surveys conducted by AEM and not continuous monitoring." (AEM 2014, SD 2-9, section 6.6)

And the current version of this plan states that:

"During the Phase 1 operation of the AWAR, Agnico Eagle collects information on traffic volume on the road on a daily basis. The survey information records the number and types of mine vehicles, and the number and types of public vehicles using the AWAR over a 24-hour period. The surveys will gauge the accuracy of the predictions contained within Table 6-1. The survey results form part of Agnico Eagle's annual report." (AEM 2019, section 6.4)

The extent to which the Proponent has been monitoring levels of public traffic on the AWAR for comparison with FEIS (2014) predictions is unclear. The Proponent's 2017 Annual Report contains data on total levels of AWAR traffic (mine-related and public combined) but does elaborate on methods by which these data were collected (AEM 2018; table 11-4).

However, it appears that public road use in 2017 may have been underestimated since the report states that:

"Obtained from Sarliaq, a traffic log contains partial information on public ATV traffic on AWAR; (AEM 2018, s11.4)

The 2018 annual report presented separate estimates of mine-related and public traffic but likewise did not elaborate on methods of data collection (AEM 2019; table 10.3). The reliability of the public traffic estimates for 2017 and 2018 is therefore unclear. Finally, the Proponent's 2019 annual report contains data on mine-related traffic only (AEM 2020c; table 25).

In response to a GN information request for separate mine-related and public AWAR traffic data for each year of the approved Project, submitted as part of the FEIS Addendum review, the Proponent provided a table of 2019 traffic data and stated that "Public traffic (ATV) is not recorded as part of this dataset" (AEM 2020, response to GN-IR-05). It is unclear whether public traffic data were collected in 2019.

Overall, the GN finds that traffic levels on the AWAR have significantly exceeded the 2014 FEIS predictions in 2017, 2018 and 2019. The full extent of these exceedances is not apparent from the information made available by the Proponent to date because of uncertainty regarding levels of public traffic on the AWAR. Levels of public traffic have not been reported, methods of data collection have not been described and/or the accuracy of the data has not been assessed. Based on the limited data available regarding levels of public traffic on the AWAR, the combined minimum estimates of mine-related and public traffic were approximately 4.5 vehicles per hour for 2017 and 2018. This is comparable to rates on other mine roads (with or without public access for harvesting) where significant effects on caribou movements and habitat use have been detected (e.g. Wilson et al. 2016; Plante et al. 2018).

The availability and quality of data on public use of the AWAR should be clarified. If the data exist, they should be presented as part of the NIRB's review of the FEIS Addendum and incorporated into a revised effects assessment for caribou. If they do not exist, or the data themselves are incomplete (i.e. underestimates), this creates a significant gap in the FEIS Addendum that should be reported.

Table 6-1 Estimated Average Daily Traffic on the AWAR

Type of vehicle # of vehicles	Winter		Summer	
	Week Days	Weekends	Week Days	Weekends
<b>Mine-related Traffic</b>				
Pick-up Trucks	10-12	4-8	12-14	6-10
Cube Vans	6	2	8	2
Passenger Vans/Buses	4	1	4	1
Fuel Trucks <sup>1</sup>	8	8	8	8
Transport Trucks <sup>2</sup>	1	1	6-14	6-14
<b>Public Road Use</b>				
Pick-up Trucks	4-6	2-4	6-8	12-16
ATVs/Snowmobiles	4-8	4-10	10-16	10-20

<sup>1</sup>Transport of fuel will be continuous, year round. A fuel truck will carry on average 45,000 litres.

<sup>2</sup>Transport of dry goods will largely take place over a 4-month period, from August to November.

Table 2. Predicted traffic levels on the Meliadine All-Weather-Access-Road. (Source: Final Environmental Impact Statement (FEIS) for the Meliadine Gold Project (2014) – Document SD 2-9 Road Management Plan)

### Summary

The comparisons presented above highlight the fact that baseline conditions for the Project and its interactions with caribou have changed well beyond those used in the analyses presented in the 2014 FEIS. Traffic levels have exceeded predictions in the FEIS and are in the range where significant effects on caribou have been reported in the peer reviewed



literature. In addition, recent and relevant studies suggest that assumptions made in the 2014 FEIS about the spatial extent (i.e. ZOI) of the Project's effects on caribou may be inaccurate.

This raises concern that use of the 2014 FEIS as part of the FEIS Addendum may not provide a reliable basis for assessment of the proposed Project. An updated assessment, incorporating recent project-specific collar data, recent project-specific traffic data, recent literature on road effects on caribou and recent project-specific road-related harvest data is required.

#### **REVIEWER'S RECOMMENDATIONS**

The GN offers the following recommendations with respect to the disposition of this issue:

1. That the Proponent provide a table summarizing, separately, the frequency of public (non mine-related) and mine-related traffic on the Project's AWAR in May, June, July and August for each year since the approved Project began. This table should compare observed traffic frequencies to those predicted in the 2014 FEIS. Please include a description of the methods used to collect data.
2. That the Proponent provide an updated effects assessment for caribou incorporating recent project-specific collar data, recent project-specific traffic data, recent literature on road effects on caribou and recent project-specific road-related harvest data.

<b>GN-TRC-08: Caribou Protection Measures</b>	
<b>Department</b>	Environment
<b>Organization</b>	Government of Nunavut
<b>Subject/Topic</b>	Caribou Protection Measures
<b>References</b>	<ul style="list-style-type: none"> <li>• Final Environmental Impact Statement - Meliadine Gold Project, Nunavut. Vol. 6 Terrestrial Environment and Impact Assessment, Section 6.6.4.1.1 Methods (AEM 2014)</li> <li>• Agnico Eagle Mines (AEM), Meliadine Division. (2020a). Meliadine Gold Mine Final Environmental Impact Assessment Addendum – Environmental Assessment of Treated Groundwater Effluent Discharge into Marine Environment, Rankin Inlet.</li> <li>• Agnico Eagle Mines (AEM), Meliadine Division. (2020b). Terrestrial Environment Management and Monitoring Plan (TEMMP), version 3.</li> <li>• Agnico Eagle Mines (AEM), Meliadine Division. (2020c). 2019 Terrestrial Effects Monitoring and Mitigation Program Annual Report (Appendix H-7 of the Meliadine Gold Project 2019 Annual Report).</li> <li>• Government of Nunavut (GN). (2020). Comments on the Meliadine Gold Project 2019 Annual Report.</li> </ul>
<b>IDENTIFICATION OF ISSUE</b>	
<p>The Proponent indicates that Caribou Protection Measures (CPMs) for the Approved Project, that will also be applied to the proposed Project, are conservative and will mitigate potential adverse effects on caribou, such as disruption of migratory movements.</p> <p>The GN notes that the effectiveness of these CPMs has not been evaluated by the Proponent and evidence to support their conservative nature has not been presented within the FEIS Addendum or in other documents. The assumption these measures are effective represents an area of significant uncertainty and risk associated with the proposed Project.</p>	
<b>REVIEWER'S COMMENTS AND SUPPORTING RATIONALE</b>	
<p>Within the FEIS Addendum (AEM 2020a, section 8.1.6), the Proponent asserts that the risk of adverse effects of the approved and proposed Project on caribou, such as changes in migratory movements, can be mitigated by the CPMs in the Project's Terrestrial Environment Management and Monitoring Plan (TEMMP). These CPMs include monitoring activities to detect caribou approaching the Project and mitigation actions such as work stoppages at the</p>	

mine, and closure of the Project's all-weather-access-road (AWAR) when a group of more than 50 caribou is observed within a specified distance (AEM 2020b, section 4.1). The Proponent states that:

"[T]he TEMMP is already one of the most conservative management plans for caribou. For example, mitigation measures include closure of the mine site when a group of 50 caribou are within 5 km of the site, and closure of the road when a group of 50 caribou are observed along the road." (AEM 2020a, section 8.1.6)

And commits to:

"Adhere to triggers and thresholds for operations for caribou monitoring and mitigation developed for the all-weather access road" (AEM 2020a, table 14)

However, the FEIS Addendum does not present sufficient evidence to support the notion these CPMs have been fully implemented or that when implemented they have been effective.

For example, the FEIS Addendum presents:

- No data on the number and timing of AWAR road surveys that have been conducted during caribou migration periods in the years since the approved Project began.
- No data showing how the observation of each group of 50 or more caribou has been linked to a road closure or other activity reductions, as required by the TEMMP's CPMs.
- No assessment of the effectiveness of the trigger for road closures or mine shutdowns (i.e. 50 or more caribou).
- No data on the number of caribou deflected by the approved Project for comparison with the TEMMP's effects threshold of 10% deflection.
- No analyses of caribou collar data to assess the Project's zone-of-influence relative to that used in the FEIS (AEM 2014) or its effects on movements relative to predictions.
- No analyses of behavioral observations of caribou interacting with the approved Project since the approved Project began (GN TRC 5 Caribou Behavioral Monitoring).
- No evidence in the form of data on the recorded levels and types of public traffic to demonstrate, as required under the Road Management Plan (AEM 2019, Section 10.2) and Project Certificate (Term and Condition 48), that "[D]uring periods when large aggregations of caribou (greater than 50 individuals) are detected within 1 km of the AWAR, the southern gate is closed to public cars and trucks. Public access using ATVs will still be allowed." (see also GN TRC 6 - Reliability of the 2014 FEIS as a basis for assessing the Project amendment)

Similar concerns were recently identified by the GN, in its review of the Meliadine Division 2019 Terrestrial Effects Monitoring and Mitigation Program Annual Report (GN 2020a, comment 3, 4, 5). From a technical perspective, reviewers of the FEIS Addendum lack quantitative information to assess the extent to which the CPMs are being implemented and whether they are effective.

As such, the GN is unable to provide the NIRB with a technical evaluation of the proposed Project's CPMs. Consequently, the GN views the Proponent's conclusion of 'no significant impact on caribou' as having low degree of confidence since it is unclear if adverse effects will be mitigated by these CPMs.

This lack of evidence represents a significant deficiency in the FEIS Addendum for one of the key VECs. Uncertainty around the CPMs increases the risks associated with the Project. To resolve this uncertainty, more evidence is required in order to complete a technical review.

#### **REVIEWER'S RECOMMENDATIONS**

The GN offers the following recommendations with respect to the disposition of this issue:

1. A table showing the number and timing of AWAR road surveys that were conducted during the year being reported.
2. A table linking all observations of greater than 50 caribou (by date, time, location and distance from Project) to a documented mine or road closure, as required under the TEMMP.
3. A table showing levels and types of public traffic using the AWAR during June, July and August. A second table showing levels and type of public traffic using the AWAR when the AWAR is closed due to the presence of 50 or more caribou, as required under the TEMMP and Road Management Plan.