AGNICO EAGLE

Waterline FEIS Addendum – Meliadine Mine

Technical Comment Responses

Submitted to:

Nunavut Impact Review Board

Submitted by:

Agnico Eagle Mines Limited – Meliadine Division

November 20, 2020

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TERRESTRIAL BACKGROUNDER

Introduction

Agnico Eagle notes that a number of parties have made general comments and asked questions relating to the ongoing operation of the All Weather Access Road (AWAR). For clarity, there are no changes to the already permitted AWAR that are part of this application. Therefore, the appropriate venue for any general questions or concerns about the potential for the current AWAR to interact with caribou is in comments on the current monitoring programs required under the NIRB Project Certificate (No. 006), which usually occurs in relation to Agnico Eagle's annual report, as well as NIRB's annual report. While Agnico Eagle has prepared the following summary for convenience of the parties, our suggestion is that during the Technical Meeting parties should focus the discussions on questions relating to the waterline only. In the event there is time at the end of the Technical Meeting after the agenda is complete to discuss ongoing operational questions such as those that have been raised re the AWAR, Agnico Eagle would be open to such discussions but it is important to focus the meeting on the Waterline Application.

Very minimal questions specific to the Waterline have been raised in relation to caribou in the technical comments. Agnico Eagle conducted community consultation between January and August 2020. Comments were made by community members and Elders about caribou crossing the waterline and a desire to have the waterline covered. Agnico Eagle listened to these concerns and in September 2020 committed to covering 90% of the waterline. The waterline will effectively be buried in the side of the existing AWAR, and no changes to the existing right of way will be required to install this infrastructure.

The current application evaluates only the addition of the waterline into the AWAR structure. Potential effects due to the road have already been assessed and approved by the NIRB as part of the NIRB Project Certificate (No. 006). As a specific example, the potential for caribou to avoid or hesitate crossing the AWAR has been evaluated in the 2014 FEIS, the NIRB approved the project and provided Terms and Conditions for mitigation and monitoring which have been detailed in the Agnico Eagle Terrestrial Environment Management and Monitoring Plan (TEMMP). With the commitment to bury the majority of the waterline, there is no reasonable expectation the buried line will impede caribou movement. The areas that will not be buried are primarily water crossings that caribou are likely to avoid anyway and rocky outcrops where covering the line could damage the line. These segments are relatively short, on the order of 90-100 m each.

Comments have been received about the potential for the road and waterline to impede caribou movement. Again, Agnico Eagle wishes to emphasize that existing stringent mitigations and monitoring are already in place for the AWAR. The road has already been assessed in the 2014 FEIS, including the road structure and both traffic and harvesters on the road. The NIRB provided a Project Certificate (No. 006) for the road, including the existing phase 1 road (existing single lane) and phase 2 road (future double lane). Project Certificate (No. 006) includes Terms and Conditions specific to mitigation and monitoring of caribou crossing and behaviour due to the AWAR (T&Cs 48, 56, and 57). The TEMMP (2014 and 2020) includes regional monitoring for whether caribou are successfully crossing the AWAR, as well as a Hunter

Harvest Survey to look at harvesting effects of the road. Behaviour monitoring was updated in 2020 to examine whether caribou activity budgets change with distance from the road, and whether caribou are avoiding the road.

What follows gives further background details on the past assessments of the AWAR, and how the comments of intervenors on caribou crossing the AWAR are out of scope for the waterline application and have already been fully addressed by the NIRB in previous assessments as part of the ongoing rigorous monitoring program at the Meliadine Mine.

The 2014 FEIS – Evaluation of the AWAR

The inclusion of the waterline will not expand the footprint of the AWAR beyond that already permitted. The 2014 FEIS already included the construction of the AWAR along a height of land connecting Rankin Inlet with the Meliadine Mine. A pre-existing ATV trail occurred on the route. Phase 1 of the AWAR includes a single lane road with passing locations between Rankin Inlet and the Meliadine Mine (permitted, and currently constructed road). Phase 2 of the road includes widening the existing road to a 2-lane road and adding a parallel haul truck road from the Mine Site to the Discovery pit at the south end of Meliadine Lake (permitted, but not constructed). The waterline can be placed primarily within this already planned and permitted footprint.

For caribou, the 2014 FEIS evaluated the potential effects of habitat loss, habitat fragmentation (from caribou avoiding crossing the road), and improved access for harvesters.

Habitat fragmentation was evaluated using IQ gathered through interviews with community residents and the Rankin Inlet Hunters and Trappers Association and through an analysis of collar information.

Representatives of the Rankin Inlet HTO expressed concerns during interviews that the mining activities have potential to negatively affect caribou; although some participants expressed the belief that caribou can become accustomed to mining activities. Participants were concerned that the caribou migrations may be adversely affected by motorized vehicles disturbing the caribou, and suggested the road be patrolled while caribou are in the area. While hunting of herds that arrive early in the migration is thought to scare caribou off their route, too many snowmobiles and ATVs can do the same; the caribou change their route and migrate further to the west (FEIS Volume 9, Section 9.3).

The TEMMP (2014) included in the FEIS described monitoring using GPS collars and ground-based surveys to identify when caribou are in the Project area, and shut the AWAR when groups of >50 caribou are present. Agnico Eagle also committed to working with the KIA and HTO to monitor areas where the road may be impeding caribou migration.

With this mitigation, potential effects due to the AWAR were expected to be negative, but low magnitude over a regional extent, and deemed Not Significant.

The NIRB Certificate – Mitigation and Monitoring of the AWAR

The NIRB Project Certificate (No. 006) includes Terms and Conditions related specifically measuring and reporting whether caribou are avoiding the AWAR and crossing the AWAR.

- T&C 48 (Road Management) includes closing the AWAR to Project vehicles and ATVs when >50 caribou are within 1 km of the road.
- T&C 56 (Reporting) includes an analysis of caribou distribution relative to the Project.
- T&C 57 (Reporting) includes an analysis of wildlife response to operations with emphasis on wildlife behaviour, mortalities, and displacements.

The TEMMP – Mitigation and Monitoring of the AWAR

The 2020 TEMMP includes monitoring programs for caribou to trigger mitigation and monitor for Project effects. These programs will be sufficient to monitor caribou interactions with the AWAR in the future, when the waterline will be buried in the side of the road. These include:

Monitoring to inform mitigation:

1. Caribou Monitoring during the Migration Season (Section 4.2.1)
   - This program includes vehicle-based and height of land monitoring during the periods prior to and when caribou are common at site. This monitoring is used to determine when large groups of caribou (>50) approach the site and trigger closure of the AWAR (when within 1 km) and Mine Site (when within 4 km).
2. Wildlife Sightings Log and Road Surveillance (Section 4.3)
   - This program includes incidental observations of caribou on the AWAR and weekly driving surveys with the KHTO.
3. Site Surveillance Monitoring (Section 4.4)
   - This program includes regular surveys of the Meliadine Mine to examine for wildlife attractants and mortalities.

Regional-Scale monitoring includes:

1. Caribou Collaring Program (Section 4.7)
   - The objective of this program is to measure whether caribou movement is hindered by Project infrastructure. Agnico Eagle is currently negotiating a Memorandum of Understanding (MOU) with the GN to supply funds for collaring studies.
   - To date, the collars being used by the GN have had relatively low fix rates (frequency of daily locations) which has not been appropriate for examining road crossing or zone of influence metrics. Agnico Eagle is interested in pursuing gated collars that collect additional data near the Project through its discussion the MOU.
2. Hunter Harvest Survey (Section 4.8)
   - The hunter harvest survey is currently being developed in collaboration with the KHTO.

Local-Scale monitoring includes:

1. Caribou Behaviour Monitoring (Section 4.5)
   - The caribou behaviour monitoring program has two objectives, i) to compare activity budgets near vs. far from infrastructure, and ii) to determine if caribou avoid the mine.

- A trial year was conducted in 2019 and following comments from reviewers, the program was updated in 2020 following guidance to follow standardized behaviour scan sampling methods from the GNWT ENR. This program was successfully trialed in 2020.

2. Trail Camera Monitoring. This monitoring program was successfully trialed in 2020 along the AWAR and around the Mine Site.

BAKER LAKE HUNTERS AND TRAPPERS ORGANIZATION (BLHTO)

Interested Party:	BLHTO	Rec No.:	BLHTO-TRC-01
Re:	Caribou		

Recommendation Made by Interested Party:
Recommendations to Agnico Eagle
1) Agnico Eagle should explain whether or not the operation of the Meliadine mine and access road might be playing a role in the changes Baker Lake hunters have observed in the Qamanirjuaq caribou herd's annual migrations.

2) Agnico Eagle should clarify exactly how much of the pipeline will be buried

3) Agnico Eagle should indicate which sections will be above ground.

4) Agnico Eagle should clarify whether or not construction activities will take place during the post-calving season.

Agnico Eagle's Response to Recommendation:
Part 1
Agnico Eagle does not believe that the Meliadine Mine has played a role in any observed changes that Baker Lake hunters have observed in the Qamanirjuaq herd's annual migrations. The Qamanirjuaq herd has less range overlap with Baker Lake compared to other herds (e.g., Lorillard and Wager Bay herds), however, it is recognized that hunters travel a fair distance for harvesting forays. Agnico Eagle welcomes the opportunity to further discuss this topic with the Baker Lake HTO to better understand your observations of the Qamanirjuaq herd annual migration and when the BLHTO harvests this herd.

It should be noted that Traditional Knowledge (TK) and Inuit Qaujimajatuqangit (IQ) information collected as part of the FEIS for the Mine from Elders in the region indicated that caribou are continually changing their migration patterns and use the Project development area approximately every 6 to 12 years (FEIS Volume 9, Section 9.3, Agnico Eagle 2014). This suggests that there is some TK of changing migration patterns. Therefore, the change from having fewer caribou to having more caribou in the Meliadine Mine area appears to be part of a larger herd movements. In the future, it is expected that these shifts will continue with some years without many caribou and some years with many caribou in the Meliadine area, as indicated by TK above.

Part 2
As mentioned in earlier correspondence (KivIA-IR-08; Agnico Eagle 2020) Agnico Eagle has committed in burying 80-90 % of the waterline.

Part 3
Figure BLHTO-TC-01 displays the waterline cover from Rankin Inlet to Meliadine Mine. The construction plan is to place the waterlines beside the All Weather Access Road (AWAR) on the east side. The type of cover for the waterline is divided into three types:

1) Covered – A layer of fine-grained esker material, similar to that used to construct the AWAR is placed over the waterline. Outside of the mine site, approximately 90% of the waterline is covered.
2) Exposed – The waterline is placed on areas of exposed rocks and is not covered. Outside of the mine site, approximately 6% of the waterline is exposed.
3) Culvert/Bridge – The waterline is exposed above culverts or attached to bridges. Outside of the mine site, approximately 4.6% of the waterline is above culverts or attached to bridges.

Part 4

The Qamanirjuaq herd generally overlaps with the Meliadine Mine site during late June to mid-July when they move rapidly through the site. Based on collar data, individual animals generally spend less than 2 days near the mine site and it usually takes 7-10 days for all caribou to move through and leave the area. Consequently, Agnico Eagle will cease any waterline construction activities during this time frame, which is also consistent with mitigation implemented through the Terrestrial Environment Management and Monitoring Plan (TEMMP) that initiates an operational shutdown during caribou movement along the AWAR and through the mine site.

References

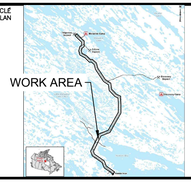
Agnico Eagle (Agnico Eagle Mines Limited). 2014. Agnico Eagle. 2014. Final Environmental Impact Statement (FEIS) - Meliadine Gold Project, Nunavut from: ftp://ftp.nirb.ca/02-REVIEWS/ACTIVE%20REVIEWS/11MN034-Agnico Eagle%20MELIADINE/2-REVIEW/09-FINAL%20EIS/FEIS.

Agnico Eagle. 2020. Waterline FEIS Addendum – Meliadine Mine Information Request Responses. Submitted to Nunavut Impact Review Board. October 13, 2020.

NO. DESSIN
DRAWING NO. 65-180-230-245

FORMAT ARCHD

PLAN CLÉ
KEY PLAN



SNC-Lavalin Stavibel inc.
150, rue Gamble Ouest
Rouyn-Noranda (Québec) J9X 2R7
Tél. : 819 764-0181 Téléc. : 819 797-0158
www.snclavalin.com

Projet No. : 674195

NOTES GÉNÉRALES / GENERAL NOTES

COORDINATES SYSTEMS

UTM15-RKI (-0+250 TO 13+000) :
UTM15 NAD83 CSRS/SCRS (GEOID HT V2.0)
BENCHMARK CCM-14-92977013 :
EAST : 545280.004
NORTH : 6965803.749
ELE : 19.045

UTM15-MEL (13+000 TO 35+000) :
UTM15 NAD83 (GEOID HT V2.0)
BENCHMARK CCM-14-92977013 :
EAST : 545279.894
NORTH : 6965802.926
ELE : 22.598

POUR COMMENTAIRES
FOR COMMENTS
AGNICO EAGLE
DATE : 2020-10-05

DESSINS EN RÉFÉRENCE / REFERENCE DRAWINGS

TITRE / TITLE	# DWG

AGNICO EAGLE

REV.	DATE	DESCRIPTION	PAR/BY	APP.	CLIENT
A	2020/10-05	FOR COMMENTS	A.L.	A.L.	B.R.

REVISIONS

TITRE / TITLE
AGNICO EAGLE – MELIADINE DIVISION
180 – SALINE EFFLUENT DISCHARGE SYSTEM
230 – GENERAL EARTH WORKS
PLAN
DISCHARGE TO SEA
BURIED WATERLINE LOCALIZATION

DESSINÉ PAR / DRAWN BY	PATRICK BUREAU, Tech.	DATE 2020/10/05
VERIFIÉ PAR / CHECKED BY	ANDRÉ LEVESQUE,P.Eng.	2020/10/05
APPROUVÉ PAR / APPROVED BY	ANDRÉ LEVESQUE,P.Eng.	2020/10/05
ÉCHELLE / SCALE 1:40000	DATE 2020/10/05	

NO. DESSIN / DRAWING NO. 65-180-230-245

NO. PROJET / PROJECT NO.	REVISION	FEUILLE / SHT
6526	A	1 / 1

AE-CART-ARCH D

FILE NO.

Interested Party:	**BLHTO**	**Rec No.:**	**BLHTO-TRC-02**
Re:	**Process**		

Recommendation Made by Interested Party:
Recommendations to the Nunavut Impact Review Board
1) The NIRB should address the organizational issues in the public registry to allow intervenors to access relevant documents.

Agnico Eagle's Response to Recommendation:
Agnico Eagle notes the BLHTO has directed this response to the NIRB to address.

Interested Party:	**BLHTO**	**Rec No.:**	**BLHTO-TRC-03**
Re:	**Process**		

Recommendation Made by Interested Party:
Recommendations to the Government of Canada
1) For future NIRB reviews, intervenor funding should be provided much earlier during the process (e.g. well in advance of information requests).

2) Core funding to HTOs should be increased, so additional full-time staff can be hired to increase capacity for participation in regulatory processes.

Agnico Eagle's Response to Recommendation:
Agnico Eagle notes the BLHTO has directed this response to the Government of Canada to address.

CROWN-INDIGENOUS RELATIONS AND NORTHERN AFFAIRS CANADA (CIRNAC)

Interested Party:	CIRNAC	Rec No.:	CIRNAC-TRC-01
Re:	Clarification of Underground Mine Groundwater Inflows		

Recommendation Made by Interested Party:
CIRNAC requests that AEM:
a) provide a data summary that compares the current predictions of groundwater inflow rates with those that were originally predicted. This information is necessary to verify that Project is justified based on saline groundwater inflow rates being greater than previously predicted. The data summary should span the entire anticipated operational period for the mine (i.e., 2019 to 2027).

Agnico Eagle's Response to Recommendation:
Groundwater inflows included in the 2020 Waterline application were predicted based on a comprehensive model update completed in 2019; in contrast, the groundwater inflows included in the 2014 FEIS application were predicted based on data available at the time of the 2014 application (Table CIRNAC-TRC-01a). The effects of grouting are not included in these predictions. The predicted base case groundwater inflow rates from the 2019 analysis are similar to the groundwater inflow predictions in the 2014 FEIS (Agnico Eagle 2014).

Sensitivity analysis was conducted in the 2019 model update to assess the potential uncertainty in predicted groundwater flow rates due to the uncertainty in model input parameters. Considering the sensitivity analysis conducted on the bedrock and fault properties, predicted inflows over the life of mine were predicted to be up to 950 m^3/day, which corresponds to the year 2026 in the sensitivity simulation for the bulk bedrock hydraulic conductivity. Based on this recent sensitivity analysis, saline groundwater flows are greater than previously predicted.

It is important to note that as mining advances, inflow rates are susceptible to rapid and sustained increase if water bearing structures are intercepted within stopes, where grouting is not possible. As such, mining in areas known to contain highly-pressurized, large-scale water bearing structures is currently being avoided due to limited capacity to manage forecasted inflow rates.

Table CIRNAC-TRC-01a: Predicted Groundwater Inflows

Year	Quarter	Predicted Groundwater Inflow (m^3/day)					
		2014 FEIS[a]	2020 Addendum[b]				
		Base Case	Base Case	Inclusion of Open Talik below Lakes B5 and A8	K of Lower Fault Splay Factor of 3 Higher	K of ENE and Lower Fault Splay Factor of 3 Higher	K of Bulk Bedrock Factor of 3 Higher
2020	Q4	540	420	430	650	700	630
2021	Q1	540	420	430	640	680	630
2021	Q2	540	430	440	640	680	650
2021	Q3	540	440	450	640	690	680
2021	Q4	540	460	470	650	700	700
2022	Q1&2	540	480	500	680	720	750
2022	Q3&4	540	510	540	700	750	810
2023	-	640	530	570	720	760	840
2024	-	640	540	580	750	780	850
2025	-	640	580	620	770	810	930
2026	-	640	570	620	750	790	950
2027	-	640	530	590	700	730	900
2028	-	640	510	570	670	700	870
2029	-	640	490	550	650	680	860
2030	-	640	480	540	630	660	840
2031	-		470	530	610	640	830
2032	-		460	530	600	630	820
2033	-		450	520	590	620	810

a) Table 7.2-B7 from Appendix 7.2-B of the 2014 FEIS (Agnico Eagle 2014)

b) Table 2 from the 2020 FEIS Addendum Application

References

Agnico Eagle (Agnico Eagle Mines Limited). 2014. Agnico Eagle. 2014. Final Environmental Impact Statement (FEIS) - Meliadine Gold Project, Nunavut from: ftp://ftp.nirb.ca/02-REVIEWS/ACTIVE%20REVIEWS/11MN034-Agnico Eagle%20MELIADINE/2-REVIEW/09-FINAL%20EIS/FEIS.

Interested Party:	CIRNAC	Rec No.:	CIRNAC-TRC-02
Re:	Surface Contact Water Discharge via Waterline to Melvin Bay		

Recommendation Made by Interested Party:

CIRNAC requests that AEM:

a) provide a table summarizing and differentiating between the anticipated volumes of saline groundwater and surface contact water that will be conveyed by the proposed waterline on an annual basis;

b) estimate the range of effluent salinities likely to be discharged to Melvin Bay;

c) perform a sensitivity analysis of effluent dispersion modelling to confirm that lower salinity effluents will not affect the general conclusions presented in the FEIS Addendum;

d) confirm whether or not its current practice of trucking and discharging effluent to Melvin Bay combines saline groundwater and surface contact water; and,

e) confirm whether approval of the SETP Design Report by NWB provides AEM with authorization for the discharge of surface contact water to the ocean at Melvin Bay.

Agnico Eagle's Response to Recommendation:

Part a

Agnico Eagle refers CIRNAC to the Meliadine Saline Water Balance and Water Quality Model - Saline Water Management presented in the Appendix H of the August 2020 FEIS Addendum. Table 1 shows the Total Volume discharge to Melvin Bay. It is anticipated that up to half of the Total Volume discharge to Melvin Bay will be Saline Groundwater and the second half will be Surface Contact Water.

Table 1: Annual Saline Water Treatment Results (Average Year Scenario)

Year	Surface Water Inventory (m^3)	Groundwater inflows to the UG mine (m^3/day)		Discharge from Surface Inventory (m^3/day)	Total Discharge to Melvin Bay (m^3/day)
		Daily Inflows (on an annual basis)	Inflows prorated over discharge period (85 days)		
2020	187,245	630	2,705	0	1,600
2021	333,953	700	3,006	0	1,600
2022	503,806	810	3,478	8,152	11,630
2023	277,768	840	3,607	7,908	11,515
2024	47,688	850	3,650	3,794	7,444
2025	0	930	3,994	3,994	7,987
2026	0	950	4,079	4,079	8,159
2027	0	900	3,865	3,865	7,729

Part b

In the current application (Section 3.3 of the Main Document), Agnico Eagle stated that discharge quality will be required to comply with end of pipe discharge criteria, and that discharge quality is expected to remain within the ranges projected by the 2018 FEIS Addendum (Agnico Eagle 2018). The expected

discharge quality range was provided in Table 9 (Section 3.4.7.3) of the Main Document from the 2018 submission. Proposed total dissolved solid (TDS) discharge criteria is 37,700 mg/L.

For the current application, and assessment of effects to the marine environment, salinity of the discharge was modelled at 39.6 Practical Salinity Unit (PSU; conservatively converted from a TDS concentration of 39,600 mg/L) for three discharge scenarios: 6,000 to 12,000 m^3/day, and as an alternative, up to 20,000 m^3/day (Tetra Tech 2020a,b). A new analysis composed of less saline water (14.9 PSU; conservatively converted from a TDS concentration of 14,900 mg/L) at a discharge of 20,000 m^3/day was also conducted (Attachment TC-02). Results from this lower salinity effluent simulation aligned with results from the higher salinity effluent simulations (see response to Part c).

The range of salinities likely to be discharged to Melvin Bay will be 14,900 to 39,600 mg/L TDS.

Part c

A hydrodynamic modelling simulation was conducted on an discharge quality with lower salinity (14.9 PSU) and a daily discharge of 20,000 m^3/day (Attachment TC-02). Under this scenario, the discharge is buoyant and rises higher in the water column than the scenario modelled with the non-buoyant higher salinity discharge (Tetra Tech 2020b). The main conclusions for this lower saline effluent scenario are aligned with the higher saline discharge scenario and are summarized as:

- The receiving embayment will not fluctuate by more than ±10% with respect to chloride or salinity from the effluent discharge; specifically, the target dilution factor of 11:1 or target concentration of 9% effluent or less at the 100-m mixing zone is always satisfied during or post the discharge season (as noted in response to ECCC-TC-01, effluent concentrations are predicted to be less than 1% at the edge of the mixing zone);
- Temperature and salinity changes due to discharge are well below the regulated thresholds (i.e., 0.2ºC change and ±10% PSU change, respectively) at the 100-m mixing zone throughout the discharge season. In other words, the discharge has little impact on the ambient temperature and salinity at the edge of the mixing zone;
- Based on simulated conditions, the system takes slightly less than 20 days following the end of the discharge to recover to a near pre- discharge conditions (less than 0.001% of total released effluent remains in the domain); and
- The Melvin Bay metocean conditions lead to very efficient flushing capacity of the study area that easily satisfies the various regulations and guidelines on discharge of all of the studied cases.

Part d

Agnico Eagle refers CIRNAC to the approved SETP design report (NWB 2020) for further details on the current practice for the Saline Discharge to Sea. However, in summary, saline water (from SP1 or SP4) is combined with surface contact water upstream of the SETP as the raw water source. Water exiting the SETP is discharged to SP3. Water is then pumped to a tanker truck and transported to Itivia for discharge through the diffuser.

Part e

The SETP design document was submitted to the NWB on 19 June 2020 and distributed for a three-week review period (NWB 2020). The design document submitted for review included blending of different sources of contact water, underground saline water and contact water from CP1, before discharge to the marine environment as long as the final discharge water met the MDMER discharge criteria. The NWB approved the design document on 28 August 2020.

References

Agnico Eagle (Agnico Eagle Mines Limited). 2018. Meliadine Gold Mine – Final Environmental Impact Statement Addendum, Environmental Assessment of Treated Groundwater Effluent Discharge into Marine Environment, Rankin Inlet. June 2018.

NWB (Nunavut Water Board). 2020. Design Report for the Saline Effluent Treatment Plant Upgrade; Type A Water Licence 2AM-MEL1631, Meliadine Gold Project. Letter to Agnico Eagle Mines Limited from the NWB acknowledging and approving the SETP design report. 9 September 2020

Tetra Tech. 2020a. Meliadine Mine Melvin Bay Diffuser Conceptual Design – Effluent Near-field Modelling. Prepared for Agnico Eagle Mines Ltd. Appendix A of the Environmental Assessment of Treated Groundwater Effluent Discharge. April 2020.

Tetra Tech. 2020b. Melvin Bay Hydrodynamic Modelling and Characterization of the Fate and Behaviors of the Discharged Saline Effluent. Prepared for Agnico Eagle Mines Ltd. Response to Information Request CIRNAC-IR-8. October 2020.

Interested Party:	CIRNAC	Rec No.:	CIRNAC-TRC-03
Re:	SETP Increased Treatment Capacity and Relevant Contingency Plan		

Recommendation Made by Interested Party:
CIRNAC requests that AEM:
a) provide additional details on the operation and management aspects related to water treatment and sludge management for the proposed expanded SETP; and,

b) clarify what contingencies will be put in place to manage situations where the treatment capacity of the SETP is less than required.

Agnico Eagle's Response to Recommendation:
Part a
Agnico Eagle considers that the operation and management aspects to water treatment and sludge management presented in the SETP design report (NWB 2020), approved by NWB in August 2020, are still applicable even with the increase flows. The sludge quantity will depend on the equipment selected for the SETP increase. The final design criteria will be presented in the next version of the SETP upgrade design report. Agnico Eagle will continue to evaluate opportunities to improve water treatment and sludge management on site as part of the ongoing operation.

Part b
Agnico Eagle is planning increasing SETP capacity and resubmitting to NWB the design report for approval if the Project is deemed approved. The main contingency that this design report will include is a treatment capacity of 20,000 m^3/d. This maximal operational flow would provide opportunities to treat more flow if required. If less flow is required to be treated, the approach would consist of operating the treatment plan by batch or at lower flow during the discharge season.

Reference
NWB (Nunavut Water Board). 2020. Design Report for the Saline Effluent Treatment Plant Upgrade; Type A Water Licence 2AM-MEL1631, Meliadine Gold Project. Letter to Agnico Eagle Mines Limited from the NWB acknowledging and approving the SETP design report. 9 September 2020

Interested Party:	CIRNAC	Rec No.:	CIRNAC-TRC-04
Re:	Process Modifications to Avoid Non-Compliance Issues		

Recommendation Made by Interested Party:
CIRNAC requests that AEM:
a) describe the actions that will be taken to test and store treated effluent until confirmation that the treated water is compliant with applicable regulatory criteria prior to its discharge to Melvin Bay, whether by indirect or direct means to the waterline.

Agnico Eagle's Response to Recommendation:
Prior to initiating discharge to the waterline, the SETP will be operated in recirculation mode, meaning that the treated water will be recirculated from the SETP and back to the saline storage ponds. This annual commissioning step is completed to optimize treatment. During this process, water quality from the treatment plant will be monitored on a regular basis for several parameters such as pH, conductivity, chlorine, ammonia, and turbidity. These results will be compared to the regulatory discharge limits (e.g., MDMER criteria or operational targets) for discharge to Melvin Bay. Once water quality results meet the discharge criteria, treated water will then be diverted to the waterline.

If during operations, water quality concentrations exceed the discharge criteria, the discharge to Melvin Bay will be stopped and water will be recirculated to the saline storage ponds. At this point, the treatment plant will go through the optimization process again. Once water quality results meet the discharge criteria, treated water will then be diverted to the waterline.

In addition to testing of water during the optimization process, regular compliance sampling will be performed as per MDMER to crosscheck field analysis.

Interested Party:	CIRNAC	Rec No.:	CIRNAC-TRC-05
Re:	Water Quality and Load Balance Conceptual Model		

Recommendation Made by Interested Party:
CIRNAC requests that AEM:
a) provide a revised conceptual Water Quality and Load Balance Model for all aspects of the Project, assuming the proposed amendment is authorized to proceed. The model should clearly indicate all proposed water management changes (quality and quantity) relative to the Meliadine Gold Mine Project Certificate 006, Amendment 001.

Agnico Eagle's Response to Recommendation:
Agnico Eagle has developed a water quality and load balance model for surface contact water and saline water. While these have been modelled together, they have been presented in separate documents. Through this response, Agnico Eagle is presenting the summary of information for this integrated model with reference to where the information has been previously presented (Table CIRNAC-TRC-05a,b,c).

For the scenario where the waterline is deemed not approved, treated saline water will continue to be trucked to Melvin Bay for discharge through the diffuser at a rate of 1,600 m^3/day (Table CIRNAC-TRC-05a). Discharge of water to Meliadine Lake will remain the same as presented in the water and load balance for the Type A Water Licence Amendment (Golder 2020a; SNC 2020).

For the scenario where the waterline is approved, treated saline water will be discharged to Melvin Bay through the waterline and the upgraded diffuser at a rate of 6,000 to 12,000 m^3/day (Table CIRNAC-TRC-05b,c). The saline water balance for this scenario was presented in the saline water and load balance for the Waterline application (Golder 2020a). Under this scenario, the discharge to Melvin Bay would be increased and the discharge to Meliadine Lake would be decreased even under a wet precipitation year.

Changes in site water management that will occur as a result of the waterline include:

- Decommissioning of the salt water treatment plant (as noted in response to CIRNAC-IR-2).
- The capacity of the saline effluent treatment plant will be increased to 20,000 m^3/day.
- Discharge to Meliadine Lake will decrease.
- Saline water will be transported to Melvin Bay by the waterline rather than trucks along the AWAR.

Operation of the water management structures are not expected to change.

Table CIRNAC-TRC-05a: Water Balance Summary for Saline and Surface Contact Water (Average Precipitation) if Waterline is not Deemed Approved

Year	Total Discharge to Melvin Bay (m^3/day)	Total Discharge to Melvin Bay (m^3/year)[a]	TDS Concentration in Discharge to Melvin Bay (mg/L)	Discharge to Meliadine Lake (m^3/day)[b]	Discharge to Meliadine Lake (m^3/year)[c]
2021	1600	136,000	39,600	6,665	566,507
2022	1600	136,000	39,600	6,238	530,209
2023	1600	136,000	39,600	6,253	531,536
2024	1600	136,000	39,600	6,884	585,135
2025	1600	136,000	39,600	7,134	606,411
2026	1600	136,000	39,600	7,313	621,621
2027	1600	136,000	39,600	7,047	598,985

Table CIRNAC-TRC-05b: Water Balance Summary for Saline and Surface Contact Water (Average Precipitation) if Waterline Approved

Year	Total Discharge to Melvin Bay (m^3/day)[d]	Total Discharge to Melvin Bay (m^3/year)[a]	TDS Concentration in Discharge to Melvin Bay (mg/L)	Discharge to Meliadine Lake (m^3/day)[c]	Discharge to Meliadine Lake (m^3/year)
2021	1,600	136,000	39,600	6,665	566,507
2022	11,630	988,550	39,600	1,223	103,934
2023	11,515	978,775	39,600	1,296	110,149
2024	7,444	632,740	39,600	3,962	336,765
2025	7,987	678,895	39,600	3,941	334,964
2026	8,159	693,515	39,600	4,034	342,864
2027	7,729	656,965	39,600	3,982	338,503

Table CIRNAC-TRC-05c: Water Balance Summary for Saline and Surface Contact Water (1:100 Wet Year) if Waterline Approved

Year	Total Discharge to Melvin Bay (m^3/day)[d]	Total Discharge to Melvin Bay (m^3/year)[a]	TDS Concentration in Discharge to Melvin Bay (mg/L)	Discharge to Meliadine Lake (m^3/day)[b]	Discharge to Meliadine Lake (m^3/year)
2021	1,600	136,000	39,600	7,643	649,659
2022	11,630	988,550	39,600	1,223	103,934
2023	11,515	978,775	39,600	1,296	110,149
2024	7,444	632,740	39,600	3,962	336,765
2025	**12,000**	**1,020,000**	14,900	**4,761**	**404,662**
2026	8,159	693,515	39,600	5,134	436,390
2027	7,729	656,965	39,600	3,982	338,470

a) Annual volume calculated from daily volume assuming discharge over 85 days.

b) Daily volume calculated from annual volume assuming discharge over 85 days.

c) From Golder 2020b (Appendix A of the Type A Amendment); revised in response to ECCC-WL-IR-3.

d) From Golder 2020a (Appendix H of the Waterline application); blended saline water and surface contact water.

References

Golder (Golder Associates Ltd.). 2020a. Meliadine Saline Water Balance and Water Quality Model – Saline Water Management. Submitted as Appendix H in application Agnico Eagle Meliadine Gold Mine – Final Environmental Impact Statement Addendum. Environmental Assessment of Treated Groundwater Effluent Discharge into Marine Environment, Rankin Inlet. August 2020.

Golder. 2020b. Meliadine Site Water Balance and Water Quality Model. Submitted as Appendix A in application Agnico Eagle Meliadine Division, Type A Water Licence 2AM-MEL1631 Amendment. August 2020.

SNC. 2020. Assessment of Water Balance and Water Quality Forecast around Pond CP1 at Meliadine. Prepared for Agnico Eagle Mines Ltd. Submitted as Attachment 3 to the Nunavut Water Board for the Meliadine Mine Type A Water Licence 2AM-MEL1631 Amendment, Technical Comment Responses. November 2020.

Interested Party:	CIRNAC	Rec No.:	CIRNAC-TRC-06
Re:	Waterline Failure Modes and Potential Effects		

Recommendation Made by Interested Party:
CIRNAC requests that AEM:
a) identify and quantify relevant scenarios involving accidental releases of saline effluent to the terrestrial, freshwater and marine environments. The scenarios should quantify the maximum volume of effluent that could credibly be released to the environment. The evaluation should be provided prior to the finalization of detailed designs for the waterline.

Agnico Eagle's Response to Recommendation:
A Failure Modes and Effects Analysis (FMEA) was completed by Agnico Eagle and supporting subject matter experts (Attachment TC-01). The FMEA highlights accidental releases and the associated risk.

Interested Party:	CIRNAC	Rec No.:	CIRNAC-TRC-07
Re:	Potential Impacts of Saline Water to Ice-Rich Soils		

Recommendation Made by Interested Party:
CIRNAC requests that AEM:
a) assess the impacts associated with the release of saline water to the terrestrial environment at locations where ice-rich soils are present. The impacts should be based on a reasonable worst case release scenario (e.g., x minutes of uncontrolled release from the waterline) as identified in the Failure Modes Assessment recommended under CIRNAC-TRC #6.

Agnico Eagle's Response to Recommendation:
A Failure Modes and Effects Analysis (FMEA) was completed by Agnico Eagle and supporting subject matter experts (Attachment TC-01). An assessment of risks to permafrost from the construction and operation of the waterline is provided in Attachment TC-03. A reasonable worst-case saline water release scenario is described in the FMEA. The conclusions of the FMEA indicated that a "worst" case scenario would have "low" environmental, health & safety, and societal impacts (where "low" is several orders-of-magnitude lower than release into a river) (Attachment TC-01).

In the event of a large spill as defined above it is anticipated that there would be localized impacts where ice-rich soils are present and that there would be a loss ice-rich soils where the spill occurred, but this highly dependent on where the spill occurred (Attachment TC-03). It is anticipated that this impact would be short in duration (i.e., less than a day), an isolated event but would be irreversible.

Interested Party:	CIRNAC	Rec No.:	CIRNAC-TRC-08
Re:	Monitoring and Prevention of Waterline Spills Using Fiber Optic Leak Detection System		

Recommendation Made by Interested Party:

CIRNAC requests that AEM:

a) consistent with CIRNAC-IR #11, provide additional details regarding the design and function of the fiber optic leak detection system and how emergency response would be actioned; and,

b) provide specific examples of projects where similar systems have been used effectively in northern climates

Agnico Eagle's Response to Recommendation:

Part a

The fiber optic is an independent system from the pipes, it does not rely on pressure or flow readings. When a leak occurs, the acoustic vibrations in the ground and on the pipes are detected by the fiber optic cable. Even the lowest frequency and faint vibrations can be detected by the cable and in the same effect, the light going through the optic fiber, which then gives out a signal to the black box back on site. The system gives out an alarm with the location of the leak after detecting a vibration profile that matches a leak.

Part b

As explained in a), the faintest leaks can and will be detected by this system. The caveat is that it is actually very sensitive and will also pick up background noise, such as traffic and wildlife. This will cause many false alarms during the time of the commissioning of the fiber optic, which is expected to be the first year of operation. After the first year, enough data will have been gathered to be able to differentiate a leak from an unrelated vibration signature.

Interested Party:	CIRNAC	Rec No.:	CIRNAC-TRC-09
Re:	Annual Waterline Shutdown and Restart Plan		

Recommendation Made by Interested Party:
CIRNAC requests that AEM:
a) describe what steps will be taken each open water season to ensure waterline integrity before saline water is pumped into the waterlines.

Agnico Eagle's Response to Recommendation:
Every year, before the saline water pumping operation will begin, a thorough visual inspection of the whole waterline will be conducted to identify and correct any deficiencies. Since the majority of the waterline (80-90%) will be covered with granular materials, it will be protected from outside influence and damage. For those sections, the visual inspection of the backfill will locate any areas of significant settlement or cover degradation, which will be mended before the start of the operation.

For the areas without cover, the line as well as the fiber optic will be inspected. Following this, a low-pressure air test will be done to detect any pin-holes and small leaks that would otherwise be undetectable with a visual inspection. If they occur, they will be mended according to the Plastic Pipe Institute HDPE and manufacturer specifications.

Interested Party:	CIRNAC	Rec No.:	CIRNAC-TRC-10
Re:	Closure and Reclamation Plan Related to Burial of the Waterline		

Recommendation Made by Interested Party:
CIRNAC requests that AEM:
a) describe how the burial of the waterlines will affect the reclamation and closure strategy (plans and liabilities) for the Meliadine Gold Mine Project Certificate 006, Amendment 001.

Agnico Eagle's Response to Recommendation:
During mine closure, all components of the waterline system will be decommissioned.

The closure decommissioning activities will include excavation of the buried sections of waterline and dismantling of the pipeline network components to be removed and disposed on-site in the landfill. The additional material placed to increase the width of the AWAR and the bypass road to bury the waterline will be scarified along with the road embankments. As initially planned, the water effluent diffuser will also be dismantled and removed from the shore area and water, using best practices to minimize disturbance, and disposed on-site in the landfill.

The reclamation cost estimate for the waterline system covers the closure and reclamation of all components of the waterline system, including the buried sections of the waterline. The estimated closure and reclamation costs for the waterline system are presented in Table CIRNAC-TRC-10a.

In addition to the reclamation cost, the excavation of the buried sections of waterline represents an estimated total 49,766 m^3 of excavation to expose the pipelines for removal, based on a conservative 90% of the total length of the waterline being covered. The additional surface of road to be scarified represents a total of 11.81 ha, based on an additional average width of 3.2 m required for the roads to bury the waterline (ref. KivIA-IR-13).

The additional reclamation costs related to the buried waterlines represents a total of $264,776.88 (items 1.2 and 2.2). The indirect costs calculated based on a percentage of the direct costs (Project management and engineering, Health and safety plans / monitoring, QA & QC and Engagement costs, Bonding / insurance, Contingency) are also presented based on the updated waterline reclamation direct costs.

The estimated closure and reclamation costs for the waterline system represent a total of $2,772,354.25. This total includes $2,084,476.88 of direct costs and $687,877.37 of indirect costs.

Table CIRNAC-TRC-10a: Estimated Closure and Reclamation Costs for the Waterline System

	ACTIVITY/MATERIALS	Units	Quantity	Unit Cost ($)	Cost ($)
1	**DIRECT COSTS**				
1.1	SURFACE AND GROUNDWATER MANAGEMENT				
1.2	Excavation of the buried waterline pipelines	m^3	49 766	4,30	213 993,88
1.3	Removal of waterline pipes (2 pipes along the AWAR and Bypass road)	m	82 000	22,00	1 804 000,00
1.4	Removal of the outfall pipe	m	75	72,00	5 400,00
1.5	Removal of the diffuser	each	1	6 000,00	6 000,00
2	BUILDINGS AND EQUIPMENT				0,00
2.1	Scarification/grading pad at Itivia for diffuser	ha	1	4 300,00	4 300,00
2.2	Scarification of additional road width required (3.2m)	ha	11,81	4 300,00	50 783,00
	TOTAL DIRECT COSTS ($)				**2 084 476,88**
3	**INDIRECT COSTS**				
3.1	ENGINEERING		5%		104 223,84
3.2	PROJECT MANAGEMENT		5%		104 223,84
3.3	HEALTH AND SAFETY PLANS/MONITORING & QA/QC		2%		41 689,54
3.4	**BONDING/INSURANCE**		**1%**		**20 844,77**
3.5	CONTINGENCY		20%		416 895,38
	TOTAL INDIRECT COSTS ($)				**687 877,37**
	TOTAL COSTS ($)				**2 772 354,25**

ENVIRONMENT AND CLIMATE CHANGE CANADA (ECCC)

Interested Party:	ECCC	Rec No.:	ECCC-TRC-01
Re:	Monitoring in the Marine environment		

Recommendation Made by Interested Party:
ECCC requests that AEM:
a) add invertebrate sampling as a monitoring objective of the ODMP.

Agnico Eagle's Response to Recommendation:
The Ocean Discharge Monitoring Plan (ODMP) currently focuses on water quality only because no adverse effects are predicted from the marine discharge. Agnico Eagle has developed the ODMP to comply with the Federal Metal and Diamond Mining Effluent Regulations (MDMER). Under the MDMER, monitoring for benthic invertebrates is required if "the highest concentration of effluent in the exposure area, during a period in which there are deposits, is greater than 1% at any location that is 100 m from a point at which effluent enters the area" (GC 2020).

Results of hydrodynamic modelling conducted for the Project suggest that effluent salinity will be less than 1% by 100 m from the discharge point under the scenarios of high salinity effluent (i.e., 39.6 PSU [Practical Salinity Unit]; Tetra Tech 2020) and low salinity effluent (i.e., 14.9 PSU; Attachment TC-02) and as summarized in Table ECCC-TRC-01a. The low salinity effluent simulation presented results with slightly higher concentrations at the edge of the mixing zone compared to the high salinity effluent simulations. Therefore, Figure ECCC-TRC-01 presents the results corresponding to the low salinity effluent simulation: the percentage of maximum salinity change throughout the water column and at the edge of the mixing zone was calculated for the entire open-water season. The maximum salinity change reaches about 0.3%, and is well below the 1%.

In absolute values, since the ambient ocean salinity ranges between 30 and 32 PSU in the vicinity of the diffuser, a 1% change corresponds to a value of 0.3 PSU, which is never reached, as shown in Tetra Tech (2020) Figure 5.15 and Attachment TC-02 Figure 3.8.

To confirm the percent of effluent at the edge of the mixing zone, Agnico Eagle will undertake a plume delineation study (a requirement of the MDMER) to confirm the percent of effluent at the edge of the 100 m mixing zone. This plume delineation study will be conducted during the first open-water season once discharge from the waterline and the new diffuser is initiated. If effluent is measured at more than 1% at the edge of the 100 m mixing zone, a benthic invertebrate study will be conducted. The benthic invertebrate study will follow the requirements of the MDMER for biological studies.

Table ECCC-TRC-01a: Estimated Effluent Percent at Edge of Mixing Zone

Modelled Salinity (PSU)[a]	Modelled Discharge Rate (m^3/day)	Modelled Effluent % (as salinity) at 100 m	Source
39.6	6,000	less than 1%	Tetra Tech 2020
39.6	12,000	less than 1%	Tetra Tech 2020
39.6	20,000	less than 1%	Tetra Tech 2020, Figure 5.15[b]
14.9	20,000	Less than 1%	Attachment TC-02, Figure 3.8[b]

a) salinity PSU of 39.6 and 14.9 is roughly equivalent to TDS of 39,600 and 14,900 mg/L, respectively
b) Ambient ocean salinity ranges between 30 to 32 PSU during the open-water season in the vicinity of the diffuser. A 1% change in salinity at the edge of the mixing zone corresponds to a value of 0.3 PSU difference.

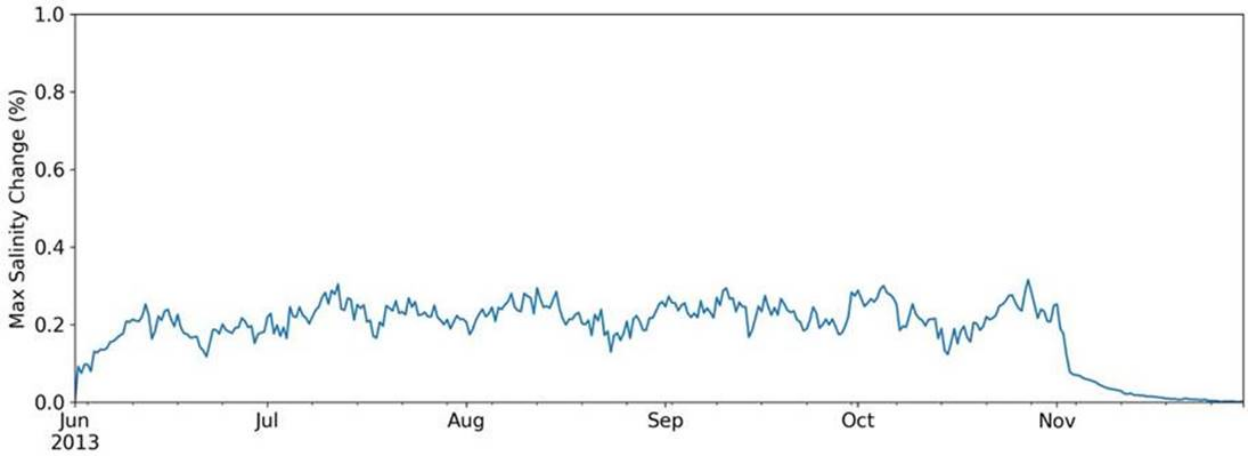


Figure ECCC-TRC-01: Percentage of Maximum Salinity Change throughout the Water Column at the Edge of the Mixing Zone for the Low Salinity Effluent Scenario

References

GC (Government of Canada). 2020. Metal and Diamond Mining Effluent Regulations. SOR/2002-222. Last amended on June 18, 2020.

Tetra Tech. 2020. Melvin Bay Hydrodynamic Modelling and Characterization of the Fate and Behaviors of the Discharged Saline Effluent. Prepared for Agnico Eagle Mines Ltd. Submitted as Appendix IR-9 to the Nunavut Impact Review Board for the Waterline FEIS Addendum – Meliadine Mine Information Request Responses. October 2020.

Interested Party:	ECCC	Rec No.:	ECCC-TRC-02
Re:	Drainage reductions		

Recommendation Made by Interested Party:
ECCC requests that AEM:
a) specify the volumes of freshwater that will be discharged to the marine environment (i.e. removed from the Meliadine watershed), including diverted freshwater and contact water from other sources (e.g. make-up water and potable water withdrawals from Meliadine Lake). If the total results removed from the watershed are greater than the volumes identified in the Technical Memorandum, the effects should be reassessed.

Agnico Eagle's Response to Recommendation:
Agnico Eagle assessed the potential effects of diverting site runoff from the away from Meliadine Lake to Melvin Bay on the flow and water level regimes of Meliadine Lake (Golder 2020). The assessment considered the diversion of runoff from the entire A and B sub-watersheds, and 741,706 m^3/yr for freshwater. The assessment notes that the assumed diverted quantities are conservative as only a portion of the A and B sub-watersheds is expected to be diverted.

While not explicitly presented in the assessment (Golder 2020), the following baseline mean annual water yields were considered:

- Meliadine Lake: 91,700,000 m^3/yr
- Sub-Watershed A: 1,670,000 m^3/yr
- Sub-Watershed B: 4,000,000 m^3/yr

The total diverted quantity, inclusive of 5,670,000 m^3/yr for the A and B sub-watersheds and of 741,000 m^3/yr, was therefore assumed to be approximately 6,410,000 m^3/yr. This total diverted quantity corresponds to approximately 7% of the annual water yield of Meliadine Lake (i.e., 91,700,000 m^3/yr), consistent with the potential effects reported in the assessment (Golder 2020).

The actual expected diversion quantities became available following the aforementioned assessment (Golder 2020) and were provided in response to CIRNAC-TRC-05. These values are provided below:

- 1,200,000 m^3/yr comprising surface contact water from the A and B sub-watersheds. It is noted that this value is the most conservative estimate based on a diversion rate of 14,000 m^3/day.
- 741,000 m^3/yr for freshwater

The total diverted quantity is therefore expected to be approximately 1,941,000 m^3/yr, corresponding to approximately 2% of the annual water yield of Meliadine Lake.

This confirms that the assessment (Golder 2020) is conservative.

Assessment of effects to Melvin Bay of diverting all water from the A and B sub-watersheds is not required because on a conservative estimate, only of 1,200,000 m^3/yr out of 5,670,000 m^3/yr, may be diverted in a given year.

Reference

Golder (Golder Associates Ltd.). 2020. Impact Assessment of the Diversion of Site Runoff to Melvin Bay on the flow and Water Level Regimes of Meliadine Lake. Prepared for Agnico Eagle Mines Ltd. Submitted as Appendix IR-2 to the Nunavut Impact Review Board for the Waterline FEIS Addendum – Meliadine Mine Information Request Responses. October 2020.

FISHERIES AND OCEANS CANADA (DFO)

Interested Party:	DFO	Rec No.:	DFO-TRC-01
Re:	Waterline Pipe Installation		

Recommendation Made by Interested Party:

DFO requests that AEM:

a) *install fish friendly waterline crossings such as: clearspan crossings and Horizontal Directional Drilling (HDD); and,*
b) *engage with DFO to ensure that all fish frequented watercourses adequately enable fish passage and to determine if a RFR for impacts under the FA is required. AEM has already identified streams to have minimal potential to support fish based on the descriptions of flow and bank morphology. If these streams are found to support fish please engage with DFO.*

Agnico Eagle's Response to Recommendation:

Part a

Agnico Eagle is committed to incorporate DFO's Fish and Fish Habitat Protection Measures and applicable Best Management Practices to avoid any risks to fish and fish habitat. For the Melvin Bay section of the Project, Agnico Eagle selected HDD (Horizontal Directional Drilling) methods versus open cuts or bottom lay methods (which is the current method) for installation. The advantages of this method include an underground pipe that will not be impacted by ice erosion during the winter season, and minimal disturbance during installation to the marine bed sediment within the intertidal zone. For the waterlines along the AWAR and the bypass road, all proposed activities will be above the high water mark for fish-bearing or potentially fish-bearing water. The waterlines will run directly under, and secured to the existing and approved bridges, avoiding any potential disturbance to habitat below the high watermark. Where the waterlines intersect with streams with minimal potential to support fish, such as those where flows are not visible and where there are no defined bed and banks, the waterlines will be positioned to lay over the existing and approved culverts to allow for unobstructed flows during spring freshet conditions, maintaining bank integrity and vegetation. Heavy machinery will not be used within the high watermark during installation. As such, it is expected that there are no risks to fish and fish habitat from the construction and operation of the waterline from the Mine to Itivia Fuel Farm Facility.

Part b

Agnico Eagle is committed to engage with DFO to resolve issues raised during the permitting process to meet the requirements of the *Fisheries Act*. As requested by DFO, a Request for Review application was submitted to DFO at the time of preparation of this response. The application summarizes previously submitted information on potential effects of the Project on fish and fish habitat, focusing on the proposed marine discharge infrastructure at the Itivia Fuel Farm Facility where the discharge pipe enters Melvin Bay. The application also highlights the protection measures that Agnico Eagle has incorporated into Project design and management.

Interested Party:	DFO	Rec No.:	DFO-TRC-02
Re:	Construction/Installation of discharge pipe and diffuser		

Recommendation Made by Interested Party:
DFO requests that AEM:
a) provide a RFR for the proposed waterline installation into Melvin Bay; and,
b) continue to work with DFO to avoid causing death of fish and HADD of fish habitat.

Agnico Eagle's Response to Recommendation:
Part a
As per the above reply to DFO-TRC-01, a Request for Review application was submitted to DFO at the time of preparation of this response. The application summarizes previously submitted information on potential effects of the Project on fish and fish habitat, focusing on the proposed marine discharge infrastructure at the Itivia Fuel Farm Facility where the discharge pipe enters Melvin Bay. The application also highlights the protection measures that Agnico Eagle has incorporated into Project design and management.

Part b
Agnico Eagle is confident in our understanding of the potential impacts of the Project and has proposed a suite mitigation ensures to avoid any risks to fish and fish habitat. As per the above reply to DFO-TRC-01, Agnico Eagle will remain committed to engage with DFO through the permitting process to meet the requirements of the *Fisheries Act*.

GOVERNMENT OF NUNAVUT (GN)

Interested Party:	GN	Rec No.:	GN-TRC-01
Re:	Potential impacts from effluent spill to terrestrial surface water		

Recommendation Made by Interested Party:
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.

Agnico Eagle's Response to Recommendation:
Part 1
Given the intent to avoid placement of waterlines in freshwater and stay above the high water mark along the waterline (DFO-TRC-1) the only potential for an interaction is through an accident or malfunction, which would result in a spill. Spills are addressed under accidents and malfunctions, with clearly defined management processes to identify a spill or release and respond to address the issue. Beyond accidents and malfunctions, the project does not have any other clear interaction with surface water (i.e., there is no pathway to effects from the project associated with the project design because of design features and mitigations is broken).

To date, Agnico Eagle has provided additional information on spills due to community concerns as noted by the GN. However, a spill is not part of the Project design, it is a potential accident or malfunction that requires design measures and mitigations to avoid and or to limit the likelihood.

Information Request CIRNAC-IR-9 discusses the impacts to surface in the event of an accident or malfunction such as a leak or spill of the waterline (Agnico Eagle 2020).

The FMEA also evaluated the effects of a spill to the environment, including into freshwater. The conclusions were as follows:

- The waterline will not be covered where there are freshwater ephemeral streams and/or permanent waterflows, such as rivers
- Spills may occur into freshwater environments, particularly, rivers, but it unlikely due to a failure of the leak detection system, but rather another stressor, such as damage to the waterline.
- The potential consequences of an effluent release event generally depend on the location and magnitude of effluent release, where the magnitude depends on the size of waterline failure, the flow rate, pump and valve shutoff times (which in turn is a function of the leak detection system and its connections to the pumps and valves)

- In the event of a "worst" case scenario spill into a river, there would be high environmental consequences over the short-term. The length of time in which the consequences would occur for would be highly dependent on the volume of the spill and the volume of water in the stream/river.

Part 2

Potential impacts associated with an effluent release along the waterline thru planning, construction, and operation was further assessed by Agnico Eagle, with subject matter experts, thru a FMEA (Attachment TC-01). Mitigation are provided below:

- QA/QC, initial inspection/pressure testing, on-going visual examination of the surface condition of the pipes
- Construction inspection, visual examination of pipes after installation, initial pressure testing
- Calibration of the leak detection system

Reference

Agnico Eagle (Agnico Eagle Mines Limited). 2020. Waterline FEIS Addendum- Meliadine Mine Information Request Responses. Submitted to Nunavut Impact Review Board. October 13, 2020.

Interested Party:	GN	Rec No.:	GN-TRC-02
Re:	Bioaccumulative potential of contaminants in treated effluent		

Recommendation Made by Interested Party:
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).*

Agnico Eagle's Response to Recommendation:
Part 1
In the context of this response, the CSAP (2015) report provides a list of inorganic and organic constituent groups that have the potential for bioaccumulating and biomagnifying processes in the biological receptors receiving environment. CSAP (2015) is a reference to address and manage risk at contaminated sites where constituent concentrations are consistently above concentrations that may potentially pose unacceptable risk to human or ecological health in the environment.

Meliadine Mine and Melvin Bay are not contaminated sites; however, Agnico Eagle have referenced the constituents in CSAP (2015) to consider how this document may inform the potential for bioaccumulation from discharge to Melvin Bay.

CSAP (2015) state that an evaluation of potential for bioaccumulation should only be conducted when there is reason to believe constituents in the receiving environment that are bioaccumulative have the potential to pose an unacceptable risk to human or ecological health. The constituents listed in CSAP (2015; Table 1) that have a bioaccumulation potential in aquatic and terrestrial environments include metals, pesticides and polychlorinated biphenyls, semi-volatile compounds, polycyclic aromatic hydrocarbons, dioxins, and chlorinated aromatic hydrocarbons. The majority of these groups (i.e., the pesticide, organic and hydrocarbon constituent groups) are unlikely to be present in the saline discharge to Melvin Bay. Metals are expected to be present in the saline discharge, but their concentrations in the discharge will be at levels that will not exert acute toxicity at the discharge point (end of pipe) or result in chronic toxicity effects at the edge of the mixing zone, and thus have no bioaccumulation potential. Agnico Eagle would like to highlight that TDS is not part of the constituents listed in CSAP (2015; Table 1) because it does not have a potential to bioaccumulate in aquatic and terrestrial environments.

Part 2

Agnico Eagle have committed that discharge will meet MDMER regulated concentrations for Schedule 4 constituents, which include arsenic, copper, lead, nickel, and zinc (also listed in Table 1 of CSAP [2015]), at the end of pipe. The remaining list of metals in Table 1 of CSAP (2015), excluding tributyl tin (which can be accounted for by monitoring tin), will be monitored in the discharge and receiving environment, with results in the receiving environment samples compared to CCME chronic (long-term) guidelines for protection of marine organisms.

Part 3

It is important to note that CSAP (2015) states that regardless of any bioaccumulative characteristics of constituents included in the monitoring, those with concentrations below the above stated limits at end of pipe or edge of mixing zone do not require further consideration in a bioaccumulative assessment as the environment is not considered to be at risk (i.e., contaminated) with those constituents.

Further, three-dimensional hydrodynamic modelling (Tetra Tech 2020) of varying discharge scenarios has shown that the engineered diffuser will effectively disperse the discharge in the 100 m mixing zone, which will then attenuate rapidly with distance from the diffuser due to the depth of the bay and energy of the daily tidal regime. As noted in response to ECCC-TRC-01, depending on the daily volume of discharge, discharge will make up less than 1% and possibly up to 2% of the water volume at the edge of the 100 m mixing zone. Discharge is limited to the open water season, and the hydrodynamic modelling has also shown that following the cessation of each annual discharge period, residual discharge in the bay is fully flushed from the bay before the next open water discharge commences.

Interested Party:	GN	Rec No.:	GN-TRC-03
Re:	Identification of marine and avian wildlife receptors in vicinity of treated effluent discharge consumed as country foods		

Recommendation Made by Interested Party:
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.

Agnico Eagle's Response to Recommendation:
As per response to GN-TRC-02, the potential for bioaccumulation of constituents of saline discharge into avian and marine species that may be consumed as country foods is considered to be negligible and not require further analysis based upon the guidance provided by CSAP (2015). Therefore, no avian nor marine species that are consumed as country foods are expected to be impacted by substances that have the potential to bioaccumulate in the vicinity of the discharge and no further assessment is required.

Interested Party:	GN	Rec No.:	GN-TRC-04
Re:	Consumption of marine and avian wildlife and country foods by Nunavummiut		

Recommendation Made by Interested Party:

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.

Agnico Eagle's Response to Recommendation:

Part 1

Please refer to the responses to GN-TRC-02 and GN-TRC-03.

Part 2

While marine species that are consumed as country foods may come into contact with the discharge in Melvin Bay, as described in the response to GN-TRC-03, there are insufficient concentrations of bioaccumulative substances to warrant consideration of bioaccumulation as a potential pathway. Therefore, the pathway between discharge and country foods is incomplete because the contaminant is not present at a sufficient concentration to pose a potential risk.

The reviewer is also referred to Agnico Eagle's response to HC-TRC-01 related to human health risk assessment, which speaks further to the contaminant-pathway-receptor paradigm used in risk assessment.

Part 3

Please refer to the response to GN-TRC-04 Part 2 above; an operable pathway between discharge and country foods does not exist and therefore no further assessment is required.

Part 4

As noted in response to GN-TRC-02, the potential for substances in the discharge to Melvin Bay to bioaccumulate is negligible, the discharge is well mixed within the 100 m mixing zone, and the bay is fully flushed prior to the start of the next discharge season. Please refer to the response to GN-TRC-04 Part 2 above; an operable pathway between discharge and country foods does not exist and therefore no further assessment is required. Also as noted in response to HC-TRC-01, there is no impact to human health from the discharge.

Interested Party:	GN	Rec No.:	GN-TRC-05
Re:	Caribou Behavioral Monitoring		

Recommendation Made by Interested Party:

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.*

Agnico Eagle's Response to Recommendation:

Part 1

Provided in Attachment TC-04.

Part 2

The FEIS Addendum predicted two primary pathways for caribou as follows: 1) sensory disturbance and avoidance of areas (i.e., effects to distribution) as a result of construction of the waterlines; and 2) disruption or alteration of migration routes from the presence of the waterlines. Although caribou can physically cross a 16" waterline, it was predicted that there would be a delayed response to crossing.

This was based on opportunistic monitoring of caribou moving through the mine site in July 2020, where observers monitored caribou interacting with a similar sized waterline placed on the tundra. After an approximately 20 minute delay, caribou crossed over the waterline using an existing ATV ramp.

It should be noted that the prediction that caribou may be delayed crossing the waterline applies to the uncovered waterline included in the 2020 FEIS Addendum submitted in August 2020. Since that time, Agnico Eagle has considered the feedback from Elders and community members, and available data such as the opportunistic monitoring results described above and committed to cover 80-90% of the waterline.

Agnico Eagle consulted with Inuit Elders, Kangiqliniq Hunters and Trappers Association (KHTO), Baker Lake Hunters and Trappers Association (BLHTO), Rankin Inlet Community Lands and Resources Committee (CLARC) and community members to identify Inuit Qaujimajatuqangit (IQ), Traditional Knowledge (TK) and land-user perspectives on the waterline. Agnico Eagle also referenced scientific studies and best management practices for waterlines and caribou.

Agnico Eagle's proposal on the waterline evolved throughout each phase of the consultation process with different community groups in 2020. IQ was incorporated in the design at many levels. Based on the feedback from community members, Agnico Eagle has adapted the design, starting with a single waterline alone with a 20-inch diameter to 2 lines of 16-inches diameter to reduce potential impact on caribou movement (the version described in the 2020 FEIS Addendum). During the summer of 2020, Agnico Eagle

added a commitment to construct 70 crossings on the waterline; one every 500 m (the version described in the August 2020 submission).

In September 2020, in response to comments from Elders and community members, Agnico Eagle committed to cover 80-90% of the waterline. Consequently, mitigation to alleviate these effects include construction of the waterlines during periods when caribou are not on site (i.e., outside of late June to early July and based on observations) and to cover the waterline with esker material, similar to that used for construction of the existing AWAR.

As a consequence of this commitment to cover the majority of the waterline, Agnico Eagle anticipates that the existing interactions of caribou with the AWAR (which is already permitted) will not change with the addition of the covered waterline.

References

ERM Rescan. 2014. Ekati Diamond Mine: 2013 Wildlife Effects Monitoring Program. Prepared for Dominion Diamond Ekati Corporation by ERM Rescan: Yellowknife, Northwest Territories.

Golder (Golder Associates Ltd.). 2004. 2003 Wildlife Effects Monitoring Program. Prepared for BHP Billiton Diamonds Inc. by Golder Associates, Yellowknife, Northwest Territories.

Golder. 2014. Gahcho Kué Winter Access Road Caribou Behaviour Monitoring 2014. Prepared for DeBeers Canada Inc. by Golder Associates, Yellowknife, Northwest Territories.

Interested Party:	GN	Rec No.:	GN-TRC-06
Re:	Caribou Monitoring		

Recommendation Made by Interested Party:

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 approached 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.

Agnico Eagle's Response to Recommendation:
Agnico Eagle is of the position that several of these requests are not within the scope of this specific assessment because they relate to caribou crossing the existing and permitted AWAR. The proposed waterlines are being embedded within the existing AWAR. The Terrestrial Environment Management and Monitoring Program (TEMMP) outlines several monitoring and mitigation measures for the AWAR and the existing mine. Many of the requests brought forward by the GN, although in some instances are an improvement on clarity, are provided in annual reports.

Part 1
1.1. Road surveys are used for understanding proximity, distribution, and abundance of caribou to give early warning to the mine site in preparation for shutdown as caribou move through the mine area between late June and mid-July.

Behavioural surveys are used to understand whether behaviours change with distance to the Project and in response to stressors by measuring activity budgets in behaviour categories. Data are presented annually with a more comprehensive analysis every three years proposed. The annual report provides a summary of data collected each year, behavioural monitoring is opportunistic due to the on-site caribou alert/shut down status restricting activity.

However, it will be impractical to isolate waterline effects independent of other stressor sources such as the AWAR, traffic and harvesting. Behaviour and camera monitoring pilot programs were implemented in 2020. In general, the behaviour data suggests that caribou display predominantly calm behaviours around the road. However, for some smaller groups there was some indication of a higher level of alertness within 300 m of the road, but it was difficult to tell if the elevated alert status was simply due to the presence of the truck with the observers in it and this would not be unexpected for smaller groups. This information will be presented in the annual monitoring report.

Data robustness will require at least 3 years of data, if not more, for meaningful conclusions given the short duration that caribou are near the site. However, annual reports are produced each year with a high level summary of observations to determine if there are areas for additional mitigation or adaptive management on an annual basis.

1.2. Collar data is likely not appropriate for fine-scale analysis unless the GN is interested in gated collars, which would greatly decrease the lifespan of collars and change the current GN objective for use of collar

data. Agnico Eagle and other proponents use the collar data to understand caribou distribution as they approach the mine site so that the mine is prepared for shutdown protocols, and in some years uncollared caribou are on site prior to the first collars being in close proximity and early warning to the site has already been provided by community members and/or on-site road surveys.

What collar data is available will be summarized in the 2020 TEMMP Report. An overview of the results to date include:

- During 2019, 13 collared animals were moving towards the Project and entered the Local Study Area (LSA, extending 1.5 km from the Project footprint).
- Of these 13 collared caribou that entered the LSA, 12 (i.e., 92%) crossed the AWAR.
- The remaining one animal entered the LSA as it was traveling north at the Discovery Site on the east tip of Meliadine Lake where there is no AWAR to cross. The animal transited the LSA, crossed to the North Side of Meliadine Lake and continued north-west.
- These results indicate that all of the collared caribou who were approaching the AWAR crossed the AWAR.
- This collar analysis will be reported in the 2020 TEMMP Report appended to the 2020 Annual NIRB Report.

Collar data can be suitable and helpful for environmental assessment; however, other sources of data may be more suited to specific questions. It will be very difficult to differentiate caribou response to the covered waterlines from caribou response to the AWAR given that they will be perceived as the same entity by caribou (e.g., a small change to the berm on one side of the AWAR).

Currently, we know caribou regularly cross the AWAR as they move through the area in late June to mid-July primarily foraging. The waterlines will be covered and embedded within the road footprint, consequently we expect caribou to continue to cross the AWAR. Albeit, over time Agnico Eagle is striving to gather data to substantiate these generalized observations and predictions. The GN and Agnico Eagle are currently in discussions regarding data sharing and programs, however, it is not the responsibility of Agnico Eagle to dictate to the GN the design of the caribou collaring program given that there are likely more prudent issues related to caribou populations that should be the focus of future research led by the GN (e.g., harvesting pressure, population demographics, climate change, seasonal range use).

In terms of power analysis, the residual effect of the covered waterlines is predicted to be negligible to caribou populations, which would be a small statistical change if measurable at all. Small statistical changes typically require large amounts of data. However, small statistical changes may be of little consequence at ecological scales. Current numbers of collared caribou should be adequate to detect large statistical effects that may be more meaningful at ecological scales.

1.3 See above related to road surveys, but again they are used to alert the mine site when caribou are approaching so that the site can be prepared for shutdowns.

The objectives of the camera program are: i) to identify areas where caribou are more likely to cross the road. These data will supplement information on road crossing locations from TK, road surveys and collars; ii) to compare crossing rates based on road configuration (height, side slope); and iii) to identify any unaccounted for behaviour by caribou near the road. An objective to compare crossing rates where the waterline is covered and uncovered can be added to evaluate the success of this mitigation. Details of setup and analysis will be included in the Annual Report.

Part 2

See responses above in Part 1.

Part 3

Monitoring for caribou is divided into periods when caribou are more likely to be on-site (late June through the end of July) and periods when caribou are unlikely to be on site.

- In 2020, Meliadine Environment was receiving the caribou collaring maps on a daily basis, not including the weekend. This provides an indication of when the herd is moving.

During periods when caribou are less likely to be on-site:

- Incidental observations of all types of wildlife (caribou, muskox, etc.) are recorded by all drivers. There are transports, pickup trucks driving on the AWAR on a daily basis. The individuals driving these pieces of equipment inform the environmental department if caribou are spotted near or around the AWAR.
- The Energy and Infrastructure Supervisor also conducts AWAR inspection on a daily basis. This inspection is looking at road quality, bridges, culverts etc. but at the same time they are looking for wildlife such as caribou, muskox etc. When they see these animals, they then contact the Environmental Department, who do a field investigation.
- The AWAR is also surveyed on a daily basis by the Environment Department.
- Through an agreement with the KHTO under a memorandum of understanding (MOU), the KHTO are doing AWAR inspections twice per week, and report observations to the Environment Department.
- In addition, the KIA, GN, and KHTO report incidental observations that they receive of wildlife near Meliadine. When animals are reported, the Environment Department does an investigation.

When the caribou are more likely to be on site, then inspections occur per the instructions in the TEMMP and the decision tree is provided below.

- At a level 1, if 50 caribou or more are within 10 km of Meliadine, ground surveys occur every 2 days. This includes site inspections, from elevated positions, and inspections on the AWAR by Environment Technicians.

- At a level 2, if less than 50 caribou are within 5 km of Meliadine, ground surveys occur every 2 days. This includes site inspections, from elevated positions, and inspections on the AWAR by Environment Technicians.
- At a level 3, if 50 caribou or more are within 5 km of Meliadine, ground surveys occur three times per day. This includes site inspections, from elevated positions, and inspections on the AWAR by Environment Technicians.

Part 4

Please refer to the answer to Part 3.

Interested Party:	GN	Rec No.:	GN-TRC-07
Re:	Reliability of the 2014 FEIS as a basis for assessing the Project amendment		

Recommendation Made by Interested Party:
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.

Agnico Eagle's Response to Recommendation:
Part 1
The Project that is before NIRB is to install and operate waterlines next to the AWAR. The installation of the waterlines will reduce traffic on the roads.

Below is a summary of traffic data as reported in the annual reports prepared by Agnico Eagle. One of the outcomes of this review is to note that data has not been collected in the same manner each year, which has led to confusion in terms of comparing to initial predictions. For example, in 2017 only mine-related traffic data was collected, in 2018 both mine-related and public traffic data were collected and in 2019 only mine-related traffic data were collected.

Since 2014 and the original FEIS, estimates of traffic have been predicted and/or measured in different ways, dependent on the requirement. In the FEIS (Agnico Eagle 2014a) and in the Roads Management Plan (Agnico Eagle 2014b, 2017, 2019a), daily traffic is estimated based on winter and summer (or frozen and unfrozen conditions) and weekdays and weekends. In the Annual Reports data has been reported differently as well between years (Agnico Eagle 2018a, 2019b, 2020a). In different years traffic data has been report differently in 2018 in the Annual Report both mine-related and public traffic was counted and reported; however only mine-related traffic was collected in 2017 and 2019. Table GN-TRC-07a provides a summary of this information.

Table GN-TRC-07a: 2017, 2018 and 2019 Total Project-related and Non-Project related Vehicle Counts on the AWAR and Predicted Traffic FEIS 2014

Month	Project- Related 2017	Project-Related 2018	Non-Project Related 2018	Project -Related Traffic 2019	Total Predicted Traffic FEIS
January	703	1146	10	1076	1178
February	696	1203	0	1028	1064
March	810	940	4	1202	1178
April	898	946	5	1333	1140
May	1327	1361	8	1333	1178
June	1621	2159	239	1530	1062
July	3313	2653	593	2177	1087
August	3826	3449	435	3014	1099
September	3293	3023	388	2980	1056
October	2905	2612	207	2523	1178
November	2232	1942	55	1412	1140
December	907	1492	0	1169	1178
Total	**22531**	**22926**	**1944**	**20777**	**13538**

Total traffic is higher in 2017, 2018 and 2019; however, these years contain a substantial amount of construction, which is higher than what was predicted in the FEIS, which is based on operational numbers.

To provide a consistent measure that can be applied year after year a comparison between predictions made in the FEIS and subsequent FEIS addendums (Agnico Eagle 2018b, 2020b) and the Road Management Plan, predictions were converted to number of round trips per day. Total counts of traffic reported in the annual report was also converted to number of round trips per day. For predictions the following approach was taken:

- For annual monitoring data collected, where trips from Meliadine Mine to Rankin Inlet did not match trips from Rankin Inlet to Meliadine Mine, the higher number was used.
- 102 unfrozen days (or summer days- consisting of June, July, August and the first 10 days of September) and 263 frozen days were assumed in a typical year.
- To account for the differences between weekday and weekend estimates, it was assumed there were 21.7 weekdays per month and 30 day months had 8.3 weekend days and 31-day months had 9.3 weekend days. February was assumed to have 19.7 weekdays and 8.3 weekend days.
- Only monitoring data from 2019 is included herein.

- Where a range of estimates was provided, the maximum number was used.

Table GN-TRC-07b provides a summary of predictions by number of round trips per day. The intent is to use Table 2 to compare annual AWAR Traffic to future predictions using the same format. Only the 2019 monitoring data is presented below because 2019 is assumed to most similar to an operational year, rather than a construction year and predictions from the FEIS and other documentation are primarily based on operational years, rather than construction years.

In summary, predictions for 2020 are below predictions from the 2014 FEIS (Agnico Eagle 2014a) and the 2018 FEIS Addendum (Agnico Eagle 2018b), except for summer construction and September and October operations. The months of August, September and October have higher traffic reported in 2019 Annual Report than was estimated in the 2014 FEIS. Traffic in July 2019, when caribou are typically along the AWAR, was lower than previous predictions and similar to the traffic estimate when the waterline is operational and water trucks are no longer required to haul treated groundwater effluent for discharge. However, when caribou are in the area of the AWAR all mine-related traffic is stopped and subsequently there is no interaction between caribou and mine-related traffic.

Table GN-TRC-07b: Summary of Predictions by Number of Round Trips per day

Month	2014 FEIS Predictions	2018 Predictions (with trucking of groundwater effluent)	2019 Roads Management Plan	2020 Predictions		2019 Annual Monitoring Data
	Round Trips per day	Round Trips per day	Round Trips per day	Round Trips per day Construction of the Waterline[a] (Water Trucks Required)	Round Trips Operation of Waterline[b] (Water Trucks no longer required)	Round Trips per day
January	**28.40**	**19.30**	**20.40**	**17.50**	**17.50**	**17.93**
February	**28.44**	**19.33**	**18.63**	**18.50**	**18.50**	**18.39**
March	**28.40**	**19.30**	**18.60**	**19.50**	**19.50**	**19.42**
April	**28.68**	**19.51**	**18.79**	**22.00**	**22.00**	**22.33**
May	**28.40**	**19.30**	**18.60**	**21.50**	**21.50**	**21.61**
June	***44.40***	***49.79***	***30.89***	***38.50***	***25.50***	***25.70***
July	***44.10***	***49.60***	***30.80***	***57.00***	***35.00***	***35.26***
August	***44.10***	***49.60***	***30.80***	***62.50***	***40.50***	***48.90***
September (20 days and/or no water trucks for ocean discharge)	**30.00**	**20.40**	**19.65**	**48.5**	**41.50**	**n/a**
September (10 days and/or with water trucks for ocean discharge)	***44.10***	***49.60***	***30.80***	***63.50***	***41.50***	***48.16[c]***
October	**28.40**	**19.30**	**18.60**	**60.00**	**38.00**	**42.60**
November	**28.68**	**19.51**	**18.79**	**23.50**	**23.50**	**23.06**
December	**28.40**	**19.30**	**18.60**	**19.00**	**19.00**	**19.63**

Note: Blue, italicized text indicates typical months of discharge

a) 1,600 m/day based on approval from the NIRB re: July 9, 2020 Nunavut Impact Review Board Direction Regarding the "2020 Saline Discharge Strategy"

b) This is based on approval in July 2021 and the waterline operational in 2022. Trucking will continue in 2021 and possibly in 2022 in the range of 1600 m^3/day.

c) Water trucks used for ocean discharge could not be distinguished from water trucks used for other purposes and therefore September traffic is reported as traffic with water trucks being used for ocean discharge.

Part 2

Agnico Eagle has evaluated links between caribou and the Project that is currently before the NIRB, which is to construct and operate a waterline.

The GN request for traffic data above is not related to the Project before the NIRB for the following reasons:

- The Construction and Operation of the AWAR, including the expansion of the AWAR to Discovery and the building of a parallel haul road between Discovery and the Mine Site is already permitted under the NIRB. The 2014 FEIS evaluated the potential for traffic and harvest to alter caribou movement and these potential effects (negative, low magnitude, regional and beyond regional extent) were approved by the NIRB.
- The Project will not change harvesting as the road is built and accessible, the waterline will not increase access, which may increase harvesting. At this time, Agnico Eagle, has no mandate nor measure that allows Agnico Eagle to manage public traffic to stop the local Inuit from exercising their traditional practices of harvesting caribou. If this is desired by the GN, then Agnico Eagle would need to be directed by the GN to close the road to community members beyond the measures in the TEMMP (i.e., road closed to all traffic via barriers).
- Mine-related traffic does not interact with caribou because the TEMMP includes mitigation that leads to a stop work/shutdown when caribou are along the AWAR and within the mine site. The only Agnico Eagle vehicles to use the AWAR are essential vehicles that are tightly controlled. Therefore, there is no link between caribou and mine-related traffic.
- Much of this request is addressed annually in the TEMMP annual report as part of assessing the effects from the approved Project.

References

Agnico Eagle (Agnico Eagle Mines Limited). 2014a. Agnico Eagle. 2014. Final Environmental Impact Statement (FEIS) - Meliadine Gold Project, Nunavut from: ftp://ftp.nirb.ca/02-REVIEWS/ACTIVE%20REVIEWS/11MN034-Agnico Eagle%20MELIADINE/2-REVIEW/09-FINAL%20EIS/FEIS.

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Agnico Eagle. 2017. Meliadine Gold Project, Roads Management Plan. Version 5. March 2017.

Agnico Eagle. 2018a. Meliadine Gold Project NIRB Project Certificate 006, 2017 Annual Report. March 31, 2018.

Agnico Eagle. 2018b. Meliadine Gold Mine – Final Environmental Impact Statement Addendum, Environmental Assessment of Treated Groundwater Effluent Discharge into Marine Environment, Rankin Inlet. June 2018.

Agnico Eagle. 2019a. Meliadine Gold Project, Roads Management Plan. Version 8. December 2019.

Agnico Eagle. 2019b. Meliadine Gold Project, 2018 Annual Report. March 31, 2019.

Agnico Eagle. 2020a. Meliadine Gold Project, 2019 Annual Report. April 2020.

Agnico Eagle. 2020b. Waterline FEIS Addendum – Meliadine Mine. Information Request Responses. Submitted to Nunavut Impact Review Board. October 13, 2020.

Interested Party:	GN	Rec No.:	GN-TRC-08
Re:	Caribou Protection Measures		

Recommendation Made by Interested Party:
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.

Agnico Eagle's Response to Recommendation:
Agnico Eagle is of the position this request is not within the scope of the waterline assessment as the Project does not change the use of the AWAR by the public in any way. The AWAR is built and permitted and public access has been agreed upon.

Part 1
This will be included as part of the annual report.

Part 2
This will be included as part of the annual report.

Part 3
For context, the TEMMP under Term and Condition 48 Agnico Eagle is required to close the road to Project and public traffic when large groups are aggregated along the AWAR. Agnico Eagle does close the road when caribou are aggregated. However, there is a network of traditionally used trails in the area that continue to be used. From a historical perspective, Agnico Eagle has allowed access on the AWAR per requests from the communities to use the road to access their land (Agnico Eagle 2014).

Agnico Eagle does not collect data on the public traffic use as prior to the construction of the AWAR the road area was a locally used trail and therefore continues to be an access route for local Inuit to continue to practice their traditional ways.

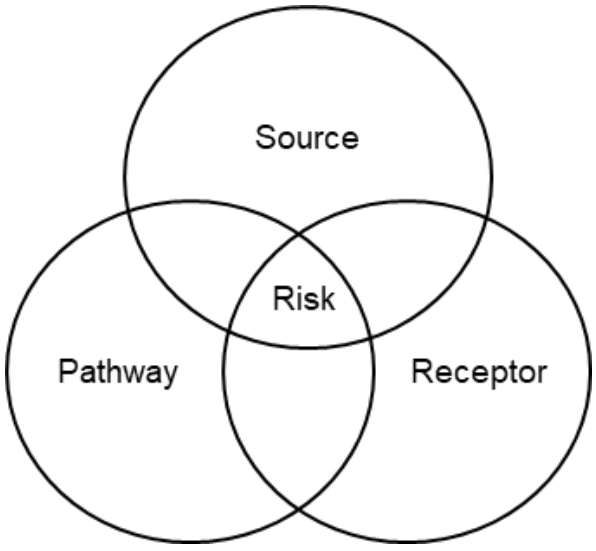
HEALTH CANADA (HC)

Interested Party:	HC	Rec No.:	HC-TRC-01
Re:	Human Health Risk Assessment (HHRA)		

Recommendation Made by Interested Party:
HC requests that AEM:
a) Provide an HHRA in accordance with the requirements set out in the NIRB's FEIS Addendum Guidelines. This HHRA should consider multiple environmental media (e.g., air, soil, water, food) in order to evaluate all potential exposure pathways (e.g., ingestion, inhalation, and dermal contact) for all phases of the Project. A CSM, which provides a complete description of the contaminants, their sources, and exposure routes to identified human receptors, should be included.

HC has published Guidance for Evaluating Human Health Impacts in Environmental Assessment: Human Health Risk Assessment (2019)1, which describes appropriate methods and approaches for completing an HHRA. This guidance should support AEM in completing an assessment of potential health risks and improve accessibility to relevant information in the FEIS Addendum 2020.

Agnico Eagle's Response to Recommendation:
Agnico Eagle has evaluated the potential for human health risk as a result of the waterline application for the project activity (source of contaminant)-effect pathway-receptor combinations that are anticipated to be primary pathways (the source-pathway-receptor relationship is shown below, often termed the "risk paradigm"). All three components must be present in order for a potential risk to be present.



As a first step in the risk assessment, Agnico Eagle first considered the "primary" pathways from the 2014 FEIS which may be bounding scenarios for the waterline application (Attachment TC-05), but also considered additional pathways that would be unique to the waterlines specifically.

The primary pathways related to human health risk for the waterline application are as follows:

- Generation of dust during the construction and operations phases of the waterlines, specifically related to dust generated through excavating trenches for the placement of the buried waterline, placement of materials over the buried waterline, and operation of vehicles on the access road. Dusts can be inhaled by members of the public.
- Saline effluent discharging into Melvin Bay and indirect exposure via consumption of marine country foods (e.g., fish, geese, marine mammals).

Each of these pathways has been assessed by Agnico Eagle using the general approaches and methods described in Health Canada's Guidance for Evaluating Human Health Impacts in Environmental Assessment: Human Health Risk Assessment (2019).

- Generation of dust was previously assessed in the response to Health Canada's Information Request #3 (Agnico Eagle 2020). In brief, the concentrations of dust anticipated to be generated during the construction and operations phases of the waterlines are expected to be lower in comparison to the concentrations of dusts predicted for the Meliadine Mine Project as evaluated in the 2014 FEIS. Given that the 2014 FEIS concluded that risks to human health due to dusts were expected to be negligible, similarly negligible risks are expected for the waterline application.
- Indirect effects to marine country foods (e.g., fish, geese, marine mammals) as a result of saline effluent discharging to Melvin Bay are not expected, given that bioaccumulation is not an operable pathway as evaluated in the responses to GN-TRC-02, GN-TRC-03, and GN-TRC-04. Given that there is no pathway linkage between saline effluent and uptake / bioaccumulation into country foods, country food quality is not anticipated to be affected by the saline discharge. Therefore, potential risks to human health are considered to be negligible.

As insufficient concentrations of dust are present (i.e., the source component of the risk paradigm is incomplete) and there is no operable pathway for the saline effluent to accumulate in country foods (i.e., the pathway component of the risk paradigm is incomplete), further risk assessment is not considered to be required for this project.

References

Agnico Eagle (Agnico Eagle Mines Limited). 2014. Agnico Eagle. 2014. Final Environmental Impact Statement (FEIS) - Meliadine Gold Project, Nunavut from: ftp://ftp.nirb.ca/02-REVIEWS/ACTIVE%20REVIEWS/11MN034-Agnico Eagle%20MELIADINE/2-REVIEW/09-FINAL%20EIS/FEIS.

Agnico Eagle. 2020. Waterline FEIS Addendum – Meliadine Mine Information Request Responses. Submitted to Nunavut Impact Review Board. October 13, 2020.

Health Canada. 2019. Guidance for Evaluating Human Health Impacts in Environmental Assessment: Human Health Risk Assessment. Published 2019-06-25. Available by email request from: hc.ead-dee.sc@canada.ca

KIVALLIQ INUIT ASSOCIATION (KIVIA)

Interested Party:	KivIA	Rec No.:	KivIA-IR-01
Re:	Socio-economic benefits to Inuit		

Recommendation Made by Interested Party:
We appreciate the information provided and consider this issue resolved for the purposes of the technical review.

We note that this issue will be revisited due to the changing COVID-19 situation in Nunavut.

Agnico Eagle's Response to Recommendation:
Agnico Eagle acknowledges the information provided to the information request addresses KivIA's needs for this matter.

Interested Party:	KivIA	Rec No.:	KivIA-IR-02
Re:	20,000 m^3/day alternative and the discharge of surface contact water		

Recommendation Made by Interested Party:

Part A

We appreciate the model provided by Agnico Eagle. The information provided in Appendix IR-9 adequately demonstrates that there is sufficient exchange between Melvin Bay and Hudson Bay to prevent a building up saline groundwater within the embayment. However, the effects of a combined effluent discharge were not modeled. Without this modelling, there is still uncertainty around the environmental effects and viability of a combined surface and subsurface effluent discharge.

We recommend Agnico Eagle update the hydrodynamic model using a combined surface and subsurface water effluent scenario discharged to Melvin Bay. This modelling should include at an assessment of diverting Meliadine Site runoff to Melvin Bay using volumes outlined in Appendix IR-2, and an assessment of diverting all surface contact water from the Meliadine Site (i.e. all water that would be discharged from CP1 to Meliadine Lake) to Melvin Bay.

Part B

The assessment of water levels provided in Appendix IR-2 adequately demonstrates that the effect of diverting surface runoff from the from Meliadine Lake on water levels in that waterbody will not be significant. However, Agnico Eagle has neglected to assess the impacts of diverting all surface contact water from the Meliadine Site to Melvin Bay such that discharges to Meliadine Lake are no longer required.

We request Agnico Eagle provide an assessment of the impacts to water levels and the resulting hydrological regime in Meliadine Lake of diverting all contact water from the Meliadine Site to Melvin Bay.

Summary

KIA recommends that Agnico Eagle provide all necessary documentation for the NIRB and other stakeholders to fully consider the discharge of blended surface contact water and saline groundwater effluent to Melvin Bay via the pipeline and diffusers. KIA further recommends Agnico Eagle expand their application before the NIRB to include permitting of the blended effluent discharge.

Agnico Eagle's Response to Recommendation:

Part A

As noted in response to CIRNAC-TRC-02, the application submitted by Agnico Eagle considered a discharge to Melvin Bay (6,000 to 12,000 m^3/day, and as an alternative, up to 20,000 m^3/day). This discharge is a blend of saline and surface contact water (see response to CIRNAC-TRC-05). These results of the blended effluent discharge have been presented in two hydrodynamic model reports (Tetra Tech 2020; Attachment TC-02).

As noted in response to ECCC-TRC-02, the assessment completed in Appendix IR-2 considered the potential effects of diverting site runoff from Meliadine Lake to Melvin Bay primarily based on the flow and water level regimes of Meliadine Lake (Golder 2020). This was a conservative assessment, and diversion of all water from the A and B sub-watersheds is not realistic. The actual and expected diversion quantities were provided in response to CIRNAC-TRC-05. Agnico Eagle has completed hydrodynamic modelling scenarios aligned with the proposed Project; these results are summarized in response to ECCC-TRC-01 with the details in Tetra Tech 2020 and Attachment TC-02.

Agnico Eagle intends to maximize the diversion of contact water to the Melvin Bay but cannot commit to diverting all contact water to Melvin Bay. Contact water management relies on the discharge to Meliadine Lake. Monitoring programs were developed, as part of the Project Certificate, and based on community inputs and IQ, to mitigate the impact of the discharge of contact water in Meliadine Lake.

Part B

Agnico Eagle has provided models and estimates of saline and surface contact water quantity and quality, and the dispersion of that discharge in the marine environment. These models account for treatment capacity and waterline capacity. Agnico Eagle has presented a Project to the NIRB that provides for management of groundwater in environmentally responsible way while allowing mining and development to proceed. Another discharge scenario, where all surface contact water from the Meliadine Mine is diverted to Melvin Bay is not necessary. The alternative 20,000 m^3/day discharge to Melvin Bay will reduce the discharge to Meliadine Lake. However, maintaining the discharge to Meliadine Lake is required to maintain flexibility of water management at the site.

Summary

Agnico Eagle considers that the information presented as part of this process is sufficient to assess the alternative 20,000 m^3/day discharge to Melvin Bay. If further studies are required, those would be conducted as part of the implementation of the alternative.

References

Golder. 2020. Impact Assessment of the Diversion of Site Runoff to Melvin Bay on the flow and Water Level Regimes of Meliadine Lake. Prepared for Agnico Eagle Mines Ltd. Submitted as Appendix IR-2 to the Nunavut Impact Review Board for the Waterline FEIS Addendum – Meliadine Mine Information Request Responses. October 2020.

Tetra Tech. 2020. Melvin Bay Hydrodynamic Modelling and Characterization of the Fate and Behaviors of the Discharged Saline Effluent. Prepared for Agnico Eagle Mines Ltd. Submitted as Appendix IR-9 to the Nunavut Impact Review Board for the Waterline FEIS Addendum – Meliadine Mine Information Request Responses. October 2020.

Interested Party:	**KivIA**	**Rec No.:**	**KivIA-IR-03**
Re:	**HDPE pipe capacity**		

Recommendation Made by Interested Party:
This information request is resolved.

Agnico Eagle's Response to Recommendation:
Agnico Eagle acknowledges the information provided to the information request addresses KivIA's needs for this matter.

Interested Party:	KivIA	Rec No.:	KivIA-IR-04
Re:	Mid and far field water quality in Melvin Bay		

Recommendation Made by Interested Party:
We appreciate the hydrodynamic model provided by Agnico Eagle. The information provided in Appendix IR-9 adequately demonstrates that there is sufficient exchange between Melvin Bay and Hudson Bay to prevent a building up saline groundwater within the embayment. The model also demonstrates acceptable water quality in the mid and far field areas during periods of discharge.

However, the effects of a combined effluent discharge were not modeled. Without this modelling, there is still uncertainty around the environmental effects and viability of a combined surface and subsurface effluent discharge.

As per KIA-IR#2, we recommend Agnico Eagle update the hydrodynamic model using a combined surface and subsurface water effluent scenario discharged to Melvin Bay. This modelling should include at an assessment of diverting Meliadine Site runoff to Melvin Bay using volumes outlined in Appendix IR-2, and an assessment of diverting all surface contact water from the Meliadine Site (i.e. all water that would be discharged from CP1 to Meliadine Lake) to Melvin Bay.

Agnico Eagle's Response to Recommendation:
Please see response to KivIA-IR-02.

Interested Party:	KivIA	Rec No.:	KivIA-IR-05
Re:	Divergence from SWTP design criteria		

Recommendation Made by Interested Party:
We appreciate the response provided to CIRNAC and KIA. We also appreciate Agnico Eagle's commitment to upgrade the treatment capabilities of the SWTP controlling effluent chemistry in the discharges to Melvin Bay from the current maximum capacity of 1,600 m^3/day to 20,000 m^3/day as per Agnico Eagle's response to NIRB-IR-2.

We consider this information request resolved.

Agnico Eagle's Response to Recommendation:
Agnico Eagle acknowledges the information provided to the information request addresses KivIA's needs for this matter.

Interested Party:	KivIA	Rec No.:	KivIA-IR-06
Re:	Water balance model scenarios		

Recommendation Made by Interested Party:
We consider this information request resolved.

Agnico Eagle's Response to Recommendation:
Agnico Eagle acknowledges the information provided to the information request addresses KivIA's needs for this matter.

Interested Party:	**KivIA**	**Rec No.:**	**KivIA-IR-07**
Re:	**Saline water and surface water storage facilities on the Meliadine mine site.**		

Recommendation Made by Interested Party:
This issue is resolved.

Agnico Eagle's Response to Recommendation:
Agnico Eagle acknowledges the information provided to the information request addresses KivIA's needs for this matter.

Interested Party:	KivIA	Rec No.:	KivIA-IR-08
Re:	**Unsubstantiated justification that the proposed twin 16" waterlines will not prevent caribou passage.**		

Recommendation Made by Interested Party:
This issue is resolved.

Agnico Eagle's Response to Recommendation:
Agnico Eagle acknowledges the information provided to the information request addresses KivIA's needs for this matter.

Interested Party:	**KivIA**	**Rec No.:**	**KivIA-IR-09**
Re:	**Caribou collar and sighting data**		

Recommendation Made by Interested Party:
This issue is resolved.

Agnico Eagle's Response to Recommendation:
Agnico Eagle acknowledges the information provided to the information request addresses KivIA's needs for this matter.

Interested Party:	**KivIA**	**Rec No.:**	**KivIA-IR-10**
Re:	**Clarification of recent caribou behaviour and experience in Alberta**		

Recommendation Made by Interested Party:
This issue is resolved.

Agnico Eagle's Response to Recommendation:
Agnico Eagle acknowledges the information provided to the information request addresses KivIA's needs for this matter.

Interested Party:	**KivIA**	**Rec No.:**	**KivIA-IR-11**
Re:	**Mitigation of the potential impact of the waterlines on caribou**		

Recommendation Made by Interested Party:
This issue is resolved.

Agnico Eagle's Response to Recommendation:
Agnico Eagle acknowledges the information provided to the information request addresses KivIA's needs for this matter.

Interested Party:	**KivIA**	**Rec No.:**	**KivIA-IR-12**
Re:	**AWAR length varies from 25 km to 30 km to 34 km**		

Recommendation Made by Interested Party:
This issue is resolved.

Agnico Eagle's Response to Recommendation:
Agnico Eagle acknowledges the information provided to the information request addresses KivIA's needs for this matter.

Interested Party:	**KivIA**	**Rec No.:**	**KivIA-IR-13**
Re:	**Width of the AWAR and the water pipeline cover.**		

Recommendation Made by Interested Party:
This issue is resolved.

Agnico Eagle's Response to Recommendation:
Agnico Eagle acknowledges the information provided to the information request addresses KivIA's needs for this matter.

Interested Party:	KivIA	Rec No.:	KivIA-TC-14
Re:	Annual confirmatory ocean discharge monitoring		

Recommendation Made by Interested Party:
KIA recommends Agnico Eagle update the Ocean Discharge Monitoring Plan to include an additional sampling event following the cessation of discharges to Melvin Bay each year. Specifically, KIA recommends Agnico Eagle collect water quality samples and water column measurements from all 7 stations in the receiving environment and all 3 samples from Reference Area A at least 10 days but ideally 20 days following the conclusion of discharges each year going forward. Samples should be collected as close to the full 20 days following the cessation of discharges to the marine environment given appropriate consideration to the potential formation of ice and the associated safety concerns. This recommended sampling is intended to confirm that annual flushing of the effluent from Melvin Bay has occurred as predicted.

Agnico Eagle's Response to Recommendation:
Agnico Eagle commits to conducting one sampling event after discharge to Melvin Bay has stopped for the year. The timing for the sampling event will depend on ice conditions in the Bay and safe access. Samples will be collected from all 7 stations in the receiving environment and all 3 samples from Reference Area A.

Interested Party:	KivIA	Rec No.:	KivIA-TC-15
Re:	Spill management for covered waterline		

Recommendation Made by Interested Party:
We request Agnico Eagle clarify how the decision to cover the waterlines will impact the approach to managing and mitigating spills and include this updated approach in future iterations of the Spill Contingency Plan. We recommend Agnico Eagle commit to suspending discharge from a waterline if a leak has been identified understanding that overall discharge can continue given the presence of a second undamaged waterline.

Agnico Eagle's Response to Recommendation:
The approach to managing and mitigating spills will not change substantially and will still include visual inspection and a leak detection system. The primary mitigation is the leak detection system whether the line is covered or uncovered. Agnico Eagle has committed to a leak detection system, which is very sensitive to any changes in flow or disturbance (refer to CIRNAC-TRC-08 for additional details). Any notification of a leak would result in ceasing discharge through the waterline until a visual inspection can be completed. The Failure Modes and Effects Analysis determined that a "worst" case scenario spill would be approximately 5,000 m^3, which would include a delay of 5 hours and includes the line draining (Attachment TC-01). Agnico Eagle agrees that details on how the leak detection system functions and the response procedure will be included in the Spill Contingency Plan prior to construction.

Agnico Eagle agrees to commit to suspend discharge from a waterline if a leak has been identified.

Interested Party:	KivIA	Rec No.:	KivIA-TC-16
Re:	Monitoring of effects of AWAR and waterlines on caribou movement		

Recommendation Made by Interested Party:

Agnico Eagle should:

a) Provide detailed methodology of the monitoring proposed for the waterline-road complex (Site visits by Elders; GPS collar tracking; camera study; and KHTO road monitoring), and show how this monitoring will feed into adaptive management of caribou movement through the project. Behavioural monitoring data must be presented to support the IS Addendum conclusions. Agnico Eagle should clarify which triggers will result in changes to mitigation, and what that enhanced mitigation might entail.

b) The KIA also recommends that Agnico Eagle establish a Terrestrial Advisory Group (TAG) similar to the TAG in place at Meadowbank/Whale Tail, so that regulators and interested parties can collaboratively work with Agnico Eagle to develop sound and systematic TEMMP monitoring and reporting to facilitate Agnico Eagle's adaptive management of wildlife, especially caribou.

Agnico Eagle's Response to Recommendation:

Part A

Existing monitoring of the AWAR will capture monitoring of the covered waterlines because the covered waterlines are adjacent to/buried within the AWAR. No new or additional monitoring is required and the changes to caribou behaviour from the covered waterlines are predicted to be negligible and not measurable. Responses to GN-TRC-06 addresses details associated with monitoring.

One of the objectives of the camera monitoring program trialed in 2020 (and not a part of the TEMMP) was to compare the crossing rates of caribou at different locations along the waterline. Crossing rates can be compared to the structure of the road, which was measured at each location (height, material, side slope) to determine if the structure of the road has any effect on crossing frequency. Cameras could be placed on some of the 5% of the waterline that will be uncovered to compare for crossing with and without a cover.

Part B

Agnico Eagle agrees that the formation of a Terrestrial Advisory Group (TAG) would benefit the monitoring programs at Meliadine. Agnico Eagle is in the early stages of planning a TAG, including deciding on membership, Terms of Reference, etc. and is open to discussing this potential group with the KivIA.

Interested Party:	KivIA	Rec No.:	KivIA-TC-17
Re:	Optimal side slope of the berms on the waterline covering		

Recommendation Made by Interested Party:
Agnico Eagle should ensure that the side slopes on the waterline coverings are at minimum 1:3 slope or preferably 1:5 slope to facilitate caribou passage through the road-waterline corridor. If the design is not changed to accommodate a shallower side slope, then Agnico Eagle should justify why a steeper side slope is warranted against the recommendations of their literature review.

Agnico Eagle's Response to Recommendation:
The existing AWAR has been constructed with a feathered edge, with an average slope of 1:3.2 (rise:run) and that generally varies between 1:2.1 (first quartile) to 1:4 (third quartile). The cover over the waterline will be constructed with a planned side slope of 1:2.5. In general, the slope may deviate from this average as a result of cut and fill locations, bedrock outcrops, and watercourse crossings.

The planned cover will be composed of esker material. Large sections of the AWAR are made of this material, as are the ATV crossings on the existing on-site waterline at Meliadine. This material provides for a firm substrate that allows people, caribou, and ATVs to cross easily.

KIVALLIQ WILDLIFE BOARD (KWB)

Interested Party:	KWB	Rec No.:	KWB-TRC-01
Re:	Caribou		

Recommendation Made by Interested Party:

The KWB makes the following recommendations in regards to this issue:

1. *AEM (2020:80) notes the "waterlines will be installed outside of sensitive times of the year for caribou and caribou migrations." If the project is approved, the KWB recommends that this commitment be followed. Construction should not occur during the caribou migration season. Furthermore, if construction work is halted for the migration, any barriers that might impact the migration should be mitigated and minimized (e.g., layed down pipes should be buried at the time of migration).*
2. *Preferably closer to 90% of the pipelines should be covered rather than 80%. AEM should distribute the map of where the pipeline will be covered and uncovered to the people of Rankin Inlet so they can offer any potential concerns with the plan.*
3. *Based on insight from hunters, the KWB is concerned that noise and vibrations are affecting wildlife near the mine. Noise monitoring should be occurring every year and reporting of the monitoring should be done as scheduled.*
4. *The scientific literature emphasizes that the scale of study is incredibly important when reporting disturbance effects from industrial activity (Skarin and Åhman 2014; Vistnes and Nellemann, 2008). Studies focused only on the local scale miss effects at the regional scale, and a lot of the scientific literature emphasizes that impacts on caribou are often at the regional scale. The KWB recommends that, if the proposed amendment is approved, the Government of Nunavut's Regional Biologists work with the KWB on a regional and cumulative impact assessment of the project over the life of the project to better understand regional and long term impacts on caribou.*

Agnico Eagle's Response to Recommendation:

Bullet 1

During the past three years, caribou have typically been on site during the period between the last 1-3 days of June and generally the first 2 weeks of July, however groups have been observed in the third and fourth weeks of July as well. Note that these periods correspond to the end of post-calving and early summer on the caribou calendar. The Terrestrial Environment Mitigation and Monitoring Plan (TEMMP 2020) includes planning for avoiding construction during these periods, and for conducting Mine Site and AWAR when groups of caribou approach. The current procedures will be maintained, as the waterline is not an exception to our current operations.

Agnico Eagle is committed to not do any work on the waterline, whether it be planned, permitted, or allowed, during periods when caribou may occur on site.

Bullet 2

A detailed map of the waterline cover is included in the response to BLHTO-TRC-01.

The amount of waterline that can be covered is based on engineering feasibility. There are locations that cannot be covered:

- Water-crossings and or areas of ephemeral streams to avoid impacts to the freshwater environment
- Areas of rock outcrops where it is infeasible to take out the rocky outcrop, specifically to bury the line

Bullet 3

Agnico Eagle currently has to monitor for noise and vibrations as part of the Terms and Conditions of the existing Project Certificate. These results can be found in the annual report.

Bullet 4

The TEMMP (2020) already includes programs for monitoring caribou at both a regional and local scale. These programs include:

1) Collars - A regional program to monitor caribou using satellite collars on caribou. The objective of this program is to examine crossing of caribou on the AWAR. Agnico Eagle is a contributor and supporter of the GN's caribou collaring program and will continue to work with the GN to help understand regional caribou issues and concerns.
2) Hunter Harvest Survey – Agnico Eagle is working with the HTO to develop a regional hunter harvest survey that will examine caribou harvest in the region surrounding Rankin Inlet and the Meliadine Mine.
3) Behaviour Surveys – A local-scale program that monitors the behaviours of caribou from the Meliadine Mine and AWAR. This program compares behaviours near vs. far from infrastructure.
4) Trail Cameras – A local-scale program that monitors the occurrence and crossings of caribou at locations along the AWAR and surrounding the Mine Site.

A detailed description of the first three of these programs is included in the TEMMP (2020) and the results of these programs are reported in the Annual Report. Agnico Eagle will continue to collaborate with the GN, KivIA, KWB and HTOs in the development and review of these programs and their results.

Interested Party:	KWB	Rec No.:	KWB-TRC-02
Re:	Spill Mitigation and Management for the Terrestrial Environment and Freshwater Ecosystems		

Recommendation Made by Interested Party:

The KWB recommends the following:

5. *Potential impacts from spills into the terrestrial environment and freshwater ecosystems need to be included in the spill contingency plan;*
6. *Robust mitigation measures need to be developed in order to ensure impacts from a spill into the terrestrial environment and freshwater ecosystems are minimized.*

Agnico Eagle's Response to Recommendation:

Bullet 1

A Failure Modes and Effects Analysis (FMEA) was completed that addressed the potential impacts to terrestrial and environment and freshwater ecosystems and is provided in Attachment TC-01. As noted in TRC responses CIRNAC-TRC-06 and KivIA-TC-15, the Spill Contingency Plan will be updated to include the volume of a "worst" case scenario on the tundra and into the freshwater, with a description of how the leak detection system will function.

Bullet 2

Agnico Eagle is in agreement that robust mitigations are required to ensure impacts from a spill are minimized. Current mitigations planned based on the outcome of the FMEA:

- QA/QC, initial inspection/pressure testing, on-going visual examination of the surface condition of the pipes
- Construction inspection, visual examination of pipes after installation, initial pressure testing
- Calibration of the leak detection system
- Leak detection system that allows for immediate shut down of the waterline
- A reporting line to call in spills/leak
- Designed for corrosion protection and freeze/thaw consistent with northern environments
- Winterize the waterline to remove any accumulated sediment
- Regular maintenance and internal inspections

The leak detection system is very sensitive and will respond to the slightest changes in pressure within the waterline (CIRNAC-TCR-08). Agnico Eagle will have the ability to turn off the waterline when the leak detection system is triggered allowing for timely reaction. The leak detection system is the primary mitigation to address links and spills. The leak detection system will be calibrated when it is first implemented so that a leak or spill can be distinguished from an ATV or vehicle or caribou crossing the waterlines.

Interested Party:	KWB	Rec No.:	KWB-TRC-03
Re:	Hunting and Inuit Land Use		

Recommendation Made by Interested Party:

Being that the impact of a no-shooting zone around the AWAR would be felt by hunters in Rankin Inlet, in order for the KWB to agree to the proponent's proposed no-shooting zone, the KIA and the KHTO would need to hold a public meeting in Rankin Inlet. The meeting should be treated as a by-law creating meeting where the proponent must:

7. *Provide the HTO membership 28 days notice that the meeting will happen;*
8. *Provide clear maps of proposed no hunting zone;*
9. *A quorum of at least 75 members is required in order to pass the by-law in accordance with the K-HTO by-laws.*

Agnico Eagle's Response to Recommendation:

Agnico Eagle refers KWB to the Project Certificate Term and Condition 48 for details related to the implementation of the no-shooting zone. This no-shooting zone was included into the Road Management Plan following the term and condition of the Project Certificate presented below:

> *In consultation with the Government of Nunavut, the Kivalliq Inuit Association, the Kivalliq Wildlife Board and local Hunters and Trappers Organizations, the Proponent shall develop appropriate monitoring and mitigation measures relating to the harvesting of caribou and improved harvesting access granted by the all-weather access road. These measures shall be included within a Road Access Management Agreement that must be in place prior to construction of phase 2 of the all-weather access road. The Road Management Agreement shall include the following specific measures:*
>
> - *During periods when large aggregations of caribou (greater than 50 individuals) are detected within 1 km of the all-weather access road (AWAR), the road will be closed to public access via car and truck by means of a barrier at the southern gate. Public access using all-terrain vehicles (ATVs) will be allowed.*
> - *During periods when large aggregations of caribou (greater than 50 individuals) are observed within 1 km of the AWAR, the road will be closed to public access via barriers at bridges on the AWAR to prevent all vehicle access, including ATVs. This will allow ATVs to enter areas previously accessible along existing trails while not facilitating access via bridges constructed specifically for the Project.*
> - *Following consultation with the Nunavut Wildlife Management Board, as required under the Nunavut Wildlife Act, it is recommended that a no-shooting zone (1 km wide) on either side of the road should be established as a condition of public access to the AWAR and compliance with this Agnico Eagle policy should be monitored and reported by the Proponent.*

- *Dedicated 'road monitors' should patrol the road to ensure compliance with the provisions of the Road Management Plan (SD 2-9) relating to public safety and wildlife. Monitoring should be increased during periods of road closure when large aggregations of caribou are present.*

- *All incidents of hunting involving shooting along or across the AWAR should be reported by the Proponent to the GN.*

- *During periods when large aggregations of caribou are detected near the Project, harvest monitoring intensity should be increased to ensure that levels of caribou harvesting are properly documented.*

Based on the 2019 Annual Report Recommendation from NIRB, Agnico Eagle did comply with Term and Condition 48 and does not agree that the proposed public meeting and the associated conditions by KWB are required.

Interested Party:	KWB	Rec No.:	KWB-TRC-04
Re:	General Comments		

Recommendation Made by Interested Party:

The KWB's general comments include:

1. *AEM should not be trying to determine who can or cannot participate in the technical review process, and they should not be trying to limit public participation in the process.*

2. *Monitoring of the marine environment should include monitoring of shellfish and mussels to determine if any contaminants increase in them over time.*

3. *Regulators should hold AEM to the standards of existing legislation, license requirements, and terms and conditions of project certificates.*

Agnico Eagle's Response to Recommendation:

Item 1

For clarity, Agnico Eagle is fully supportive of public participation in the NIRB process and has made that point clear in its previous correspondence to the Board. It has always been open for any member of the public to submit comments on a project to the NIRB registry, and it is expected that the NIRB would post all comments received to the registry and consider such comments in its consideration of the application. Agnico Eagle's submissions on this topic are focused on the application of the NIRB Rules of Procedure (2009) which designate a process that must be followed and specific considerations that should be applied by the Board before individuals or groups are given full intervenor status.

Item 2

Based on three-dimensional modelling studies conducted, it is expected that the saline discharge in Melvin Bay will disperse quickly without accumulation of substances (see response to ECCC-TRC-02 and GN-TRC-02). Agnico Eagle will be happy to discuss further the results of these studies at the technical meeting and hearing.

Historically, shellfish harvesting occurred along the north shore of Melvin Bay, but in recent years, the harvest mainly occurs outside the harbour due to related health advisories from the Department of Health and Social Services (Agnico Eagle 2014). Agnico Eagle would consider developing a community-based monitoring program for shellfish and mussels which would include analysis of samples for contaminants. The purpose of the program would be to document current conditions of shellfish in areas where shellfish are typically collected by the community.

Item 3

With respect to the comments regarding compliance, Agnico Eagle confirms that it has designed its programs to operate in compliance with existing legislation, licence requirements and terms and conditions of the Project Certificate.

NUNAVUT TUNNGAVIK INC. (NTI)

Interested Party:	NTI	Rec No.:	NTI-TRC-01
Re:	Technical Review Comments on Agnico Eagle Mines Limited's "Saline Effluent Discharge to Marine Environment'' Project Proposal		

Recommendation Made by Interested Party:
Nunavut Tunngavik Inc. (NTI) appreciates the opportunity provided by the Nunavut Impact Review Board (NIRB) to comment during the technical review period of Agnico Eagle Mines Limited (AEM)'s "Saline Effluent Discharge to Marine Environment" Project Proposal (Proposal).

NTI is mandated to safeguard the interests, rights and benefits of Nunavut Inuit pursuant to the 1993 Agreement Between the Inuit of the Nunavut Settlement Area and Her Majesty the Queen in right of Canada (Nunavut Agreement), in practice NTI coordinates the management of this responsibility with Inuit organizations, including those designated under the Nunavut Agreement. With respect to NIRB's review of AEM's Proposal, Inuit organizations participating in the review include the Kivalliq Inuit Association (KIA), the Kivalliq Wildlife Board (KWB), as well as the Hunters and Trappers Organizations (HTOs) of potentially affected Kivalliq communities-most notably Rankin Inlet's Kangiqliniq HTO (KHTO).

NTI supports and has utmost confidence in the capacity of the KIA, KWB, KHTO and other Kivalliq HTOs to bring Inuit issues and concerns relating to the Proposal to the attention of the NIRB; NTI will therefore not duplicate their efforts with the filing of a separate technical comment submission.

NTI wishes, however, to reserve its ability to more actively intervene at a later stage of the NIRB proceedings, once it becomes possible to comprehensively review technical comments-and assess AEM's response to them-in anticipation of the public hearing. In this regard, NTI particularly attentive to the consideration of community engagement and environmental monitoring, as the broad-ranging character of these topics of importance to Inuit is not ideally suited to the detailed focus of technical comments.

Agnico Eagle's Response to Recommendation:
Thank-you for your submission and we look forward to discussions with the NTI at a later date.

SAYISI DENE FIRST NATION (SDFN)

Interested Party:	SDFN	Rec No.:	SDFN-TRC-01
Re:	Caribou Crossings/Deflections		

Recommendation Made by Interested Party:
SDFN requests that the Proponent provide a concise, consolidated technical description/report on the crossings and deflections of caribou in relation to the AWAR which incorporates data collected since its construction. It is recognized that some of this data has been presented in the 2019 TEMMP Annual Report and in Agnico Eagle's responses to Information Requests and that further data analysis is planned to be reported in the 2020 TEMMP Annual Report. The report should address the Proponent's assumption that caribou can be expected to cross the road-waterline structure in the same manner that they cross the existing AWAR.

Agnico Eagle's Response to Recommendation:
The 2020 Terrestrial Environment Mitigation and Monitoring Plan (TEMMP 2020) includes several monitoring programs to detect caribou and use this information to manage the Project, including closure of the AWAR and Mine Site. The TEMMP (2020) also includes three monitoring programs specifically intended to measure the effects of the Project on Qamanirjuaq caribou, including the caribou collaring program, hunter harvest survey and behaviour monitoring (as described below).

The 2014 FEIS included the 2014 TEMMP, which included a collar monitoring program with the objective to provide early warning for the mine of approaching caribou and trigger height of land surveys for caribou. This objective has been updated to examine crossing success of the AWAR by caribou (TEMMP 2020). Crossing success of caribou will be reported in the 2020 TEMMP Report, as part of the NIRB Annual Report.

An overview of the results to date include:

- During 2019, 13 collared animals were moving towards the Project and entered the Local Study Area (LSA, extending 1.5 km from the Project footprint).
- Of these 13 collared caribou that entered the LSA, 12 (i.e., 92%) crossed the AWAR.
- The remaining one animal entered the LSA as it was traveling north at the Discovery Site on the east tip of Meliadine Lake where there is no AWAR to cross. The animal transited the LSA, crossed to the North Side of Meliadine Lake and continued north-west.
- This results indicate that all of the collared caribou who were approaching the AWAR crossed the AWAR.
- This collar analysis will be reported in the 2020 TEMMP Report appended to the 2020 Annual NIRB Report.

Regional-Scale monitoring includes:

1. Caribou Collaring Program (TEMMP 2020 Section 4.7). The objective of this program is to measure whether caribou movement is hindered by Project infrastructure including the AWAR. Agnico Eagle is currently negotiating an Agreement with the GN for Nunavut collaring studies.

2. Hunter Harvest Survey (Section 4.8). The hunter harvest survey is currently being developed in collaboration with the KHTO.

Local-Scale monitoring includes:

1. Caribou Behaviour Monitoring (Section 4.5). The caribou behaviour monitoring program has two objectives, i) to compare activity budgets near vs. far from infrastructure, and ii) to determine if caribou avoid the mine. A trial year was conducted in 2019 and following comments from reviewers, the program was updated in 2020 following guidance to follow standardized behaviour scan sampling methods from the GNWT ENR. This program was successfully trialed in 2020.
2. Trail Camera Monitoring. This monitoring program was successfully trialed in 2020 along the AWAR and around and in the Mine Site.

A detailed description of the first three of these programs is included in the TEMMP (2020) and the results of these programs are reported in the Annual Report. The NIRB provides the TEMMP (2020) and the Annual Report for interveners to comment on. Agnico Eagle will continue to collaborate with stakeholders in the development and review of these programs and their results.

Interested Party:	SDFN	Rec No.:	SDFN-TRC-02
Re:	Trends for Caribou within FEIS Predictions		

Recommendation Made by Interested Party:
SDFN requests that the Proponent explain this statement and provide details of the analysis on which it is based.

Agnico Eagle's Response to Recommendation:
As Part of GN-IR-04, the GN stated that more caribou are using the Regional Study Area (RSA) during the last few years compared to the period leading up to the 2014 FEIS. The GN questioned whether the 2014 FEIS still applied, i.e., whether it evaluated a condition where greater numbers of caribou may occur in the RSA and interact with the Project.

Agnico Eagle evaluated the potential for greater numbers of caribou to interact with the Project than baseline conditions in 2012 by acknowledging the year to year variability in caribou distribution in the 2014 FEIS. Traditional Knowledge collected for the Project indicated that caribou numbers rise and fall in the Rankin Inlet area, as caribou alter their movement patterns. The 2014 FEIS acknowledged that caribou numbers would likely increase and decrease over time, as has occurred. Therefore, the trends observed to date of higher than historic caribou numbers in the RSA are within FEIS predictions from the 2014 FEIS. In addition, the 2014 FEIS also concluded that effects to migration would be regional to beyond-regional in extent. This means that the 2014 FEIS evaluated a worst case scenario where the effects of caribou interacting with the Project would be felt regionally by caribou.

The 2014 FEIS evaluated a suite of potential conditions, including a potential future scenario where greater numbers of caribou would interact with the Project:

> Elders believe that caribou migrate through the area approximately every 6 to 12 years, and that although this is an important hunting area when caribou are present, this area is not unique (2014 FEIS, Section 6.6.4.2.2).

Agnico Eagle predicted that effects of the Project on habitat fragmentation and altered migration routes would be negative, of low magnitude, but of regional and beyond-regional extent, at the scale of the home range of caribou.

> Members of the Rankin Inlet HTO believe that the construction and mining operations at the Project could potentially affect caribou. Several Elders in Rankin Inlet noted during IQ studies that the caribou population changed their migratory route in response to previous mining activities and the associated establishment of the Hamlet of Rankin Inlet (Volume 9, Section 9.3.1.3.2.1). Changes in the migration patterns of caribou are expected to be negative but low in magnitude effects for both the incremental and cumulative cases (Table 6.6-30). The extent of the effect will be regional to beyond regional, occurring at the home range scale. Permanent changes at the main mine site will result in long-term disruption or alteration of migratory routes but the effect to wildlife populations is reversible. This effect is likely to occur in the next 10 years, as elders

suggest caribou move through the main mine site region every 6 to 10 years (2014 FEIS, Section 6.6.10.2).

Therefore, the potential for greater numbers of caribou to interact than occurred in 2012 was incorporated into the 2014 FEIS and impact predictions.

Interested Party:	SDFN	Rec No.:	SDFN-TRC-03
Re:	Spills or Accidental Release of Treated Groundwater		

Recommendation Made by Interested Party:
Given that the statements in the August 2020 FEIS Addendum were general in nature (applying to all non-marine wildlife) and lack certainty (unlikely, possible, anticipate, expected), SDFN recommends the proponent do further research on this subject to determine if there is any additional information specific to caribou, and caribou calves in particular. And that in the interim, should this Project be approved, the Spill Contingency Plan be amended to recognize the potential vulnerability of caribou calves to the ingestion of treated groundwater resulting from a spill or accidental release from the waterlines and measures be incorporated in any site-specific spill management plans to prevent caribou from accessing it.

Agnico Eagle's Response to Recommendation:
Agnico Eagle agrees that prior to construction Agnico Eagle will confirm that risks to caribou ingesting the treated effluent are low, in the event of a significant spill while caribou are on-site. Based on a general understanding of saline water and reactions by large ungulates, the risks are low for the following reasons:

- The typical response to drinking of saline water is an upset stomach
- No effects are expected from eating vegetation in proximity to saline water, as the components of salinity are not taken up into plants and would not affect the overall tissue quality of plants
- Most ungulates only drink saline water when there is a lack of freshwater available. In the case of the waterline route, there are many opportunities to drink freshwater
- It is expected that caribou would not like the taste of saline water and if attempted to drink it would avoid it in the future
- This scenario only occurs in the event of a large undetected spill, which is extremely unlikely given the leak detections system in place.

In the event of a spill, Agnico Eagle agrees that the Spill Contingency Plan should include measures that will prevent caribou from accessing an area if a spill occurs. Agnico Eagle is installing a leak detection system as described in KWB-TRC-02 that is highly sensitive to changes in pressure. To be protective to caribou, any notification from the leak detection system would result in an immediate shutdown of that waterline, when caribou are in the vicinity of the AWAR, until it can be confirmed whether a leak has occurred.

Interested Party:	**SDFN**	**Rec No.:**	**SDFN-TRC-04**
Re:	**Reclamation Plan**		

Recommendation Made by Interested Party:
It is requested that the proponent outline what, if any, changes are proposed in terms of a Reclamation Plan for the waterlines where they will be aligned with the road and covered.

Agnico Eagle's Response to Recommendation:
Please refer to response to CIRNAC-TRC-10 in this document for more details on the reclamation plan for the waterline where they will be aligned with the road and covered.

TRANSPORT CANADA (TC)

Interested Party:	TC	Rec No.:	TC-TRC-01
Re:	Engineered diffuser located in Melvin Bay		

Recommendation Made by Interested Party:
TC requests that AEM:
a) submit an application to TC for approval under the CNWA for all works within Melvin Bay including any temporary works and not commence construction of these works until an approval is issued. TC recommends that AEM contact TC's Navigation Protection Program to seek further guidance on obtaining an approval. AEM can find further details at: https://tc.canada.ca/en/marine/apply-npp#item_5

AEM should have the following information to support its application:

- *a map showing the work's exact Project location;*
- *the legal site description and position of the work in latitude and longitude;*
- *the plan view drawings (top down) with all related dimensions;*
- *the profile view drawings (side view) with all related dimensions;*
- *the general arrangement drawing (depicting new and entire existing work);*
- *a detailed Project description;*
- *the construction methodology explaining how the work will be done; and*
- *the expected start and end dates*

Agnico Eagle's Response to Recommendation:
Agnico Eagle will be submitting an application to Transport Canada for all works within Melvin Bay including all information identified above. Agnico Eagle will not commence with construction until Transport Canada approves the application.

Interested Party:	TC	Rec No.:	TC-TCR-02
Re:	Construction of waterlines above, across and through waterways		

Recommendation Made by Interested Party:

TC requests that AEM:

a) Complete an assessment of the navigability of the waterways in the Project area, under the CNWA, before starting construction of the waterlines. For non-minor works that could interfere with navigation in waterways deemed navigable, AEM must submit

an application to TC's Navigation Protection Program or complete the public resolution process outlined above prior to starting construction of the waterlines.

Agnico Eagle's Response to Recommendation:

Agnico Eagle agrees with the recommendation of Transport Canada. Agnico Eagle will complete an assessment of the navigability of the waterways in the Project area, under the CNWA before starting construction on the waterlines. Commencement of these works or any temporary works will not begin until a Transport Canada approval is issued.

Interested Party:	TC	Rec No.:	TC-TRC-03
Re:	Construction of waterlines across the Meliadine River		

Recommendation Made by Interested Party:
TC requests that AEM:
a) review the Minor Works Order prior to construction and determine if this proposed work meets all the criteria established by the Order. For more information on the types of structures that fall within the Minor Works Order, AEM can refer to https://lawslois.justice.gc.ca/eng/regulations/SOR-2019-320/index.html. If the waterlines' crossing of the Meliadine River is not a minor work then, as detailed in TC-TRC #2, AEM must submit an application to TC's Navigation Protection Program or complete the public resolution process prior to starting construction of the waterlines.

Agnico Eagle's Response to Recommendation:
Agnico Eagle has reviewed the Minor Works Order as per SOR/2019-320 and can confirm that the minor modification work to be done to the bridges to attach the waterline does not fall under a major work order.

B. ZAWADKSI

Interested Party:	B. Zawadski	Rec No.:	BZ-TRC-01
Re:	Additional Comments on Agnico Eagle Mines Limited's "2020 Saline Discharge Strategy" Proposal and "Saline Effluent Discharge to Marine Environment" Amendment		

Recommendation Made by Interested Party:
AEM has stated that they were led to understand caribou will cross over a 20 inch pipe and I wish to contest such an unsubstantiated and misleading statement with the evidence hereby presented. Further, as I have stated previously, we have seen the kind behaviour by migrating caribou around the Rankin Inlet domestic water pipeline a number of years ago. Therefore, I again state my opinion that the proposed water lines, based on this visual evidence, will negatively affect the behaviour and movement of caribou and no water lines should be constructed from the mine to Melvin Bay.

One of the videos (850-0270) displays some golden side lighting of the migration caribou which is reminiscent of classic African wildlife cinematography– for sure it is visually stimulating. Having said that, and I stand to be corrected, the dust cloud arising from the caribou must be the result of dust generated by the mining operations and settled downwind where it was being disturbed by the feet of the passing caribou.

Another consideration and negative aspect of the water lines will be the unaesthetic appearance along the road way making the scenic ride more like that of a tour of an industrial site.

I believe AEM has not done their due diligence on the behaviour of caribou around waterlines and have undertaken a strategy to push their proposal through the regulatory process to the future detriment of the caribou. I suggest any statements AEM may make in regards to their caring for the environment be taken with trepidation and that installation of the water lines should not be permitted.

Agnico Eagle's Response to Recommendation:
Agnico Eagle appreciates the detailed comments on caribou interactions with the existing waterline on-site at the Meliadine Mine. These observations are largely consistent with our own observations of a group of caribou, however those animals crossed the waterline at the existing ATV ramp. In response to concerns raised during consultation on the waterline, in September, Agnico Eagle has committed to cover 80-90% of the waterline as described below (from the response to KIA-IR-8). We trust that this commitment alleviates any concerns that caribou will not cross the proposed waterline.

With this cover in place, caribou are expected to cross the road-waterline structure in the same way they currently cross the road. Caribou will not have to cross an un-covered waterline or use crossing structures.

This response describes the process that Agnico Eagle followed to design mitigation measures for caribou on the waterline. Agnico Eagle consulted with Inuit Elders, Kangiqliniq Hunters and Trappers Association (KHTO), Baker Lake Hunters and Trappers Association (BLHTO), Rankin Inlet Community Lands and Resources Committee (CLARC) and community members to identify Inuit Qaujimajatuqangit (IQ),

Traditional Knowledge (TK) and land-user perspectives on the waterline. Agnico Eagle also referenced scientific studies and best management practices for waterlines and caribou.

Agnico Eagle's proposal on the waterline evolved throughout each phase of the consultation process with different community groups in 2020. IQ was incorporated in the design at many levels. Based on the feedback from community members, Agnico Eagle has adapted the design, starting with a single waterline alone with a 20-inch diameter to 2 lines of 16-inches diameter to reduce potential impact on caribou movement. Moreover, Agnico Eagle added a commitment to construct 70 crossings on the waterline (one every 500 m), and finally a commitment to cover 80-90% of the waterline. This process is described below.

The first iteration of the waterline was designed as a single 20-inch (50 cm) high-density polyethylene (HDPE) laid beside the road from the Meliadine Mine to the discharge point south of Rankin Inlet. This first iteration was proposed by engineers as the simplest way to move water to the ocean.

Agnico Eagle understands the importance of caribou migration and of caribou to the livelihood and culture of the Inuit. IQ collected for the Project indicates that caribou periodically travel through the middle area of the AWAR, with up to 6-12 years between periods when there are large groups of caribou in the area. "The KHTO discussed the movement of caribou and noted that there are definite fluctuations in caribou populations, and that caribou alter their migration patterns in response to predators, snow conditions, and food availability" (Agnico Eagle 2020). Land users indicated that the AWAR is used for harvesting when caribou are present, particularly in the area north of the Meliadine River.

Before proposing a 20-inch waterline, Agnico Eagle evaluated the current scientific research on what types of obstacles caribou can cross, and the standard mitigation measures used at other mines in the Arctic and in the south, for woodland caribou. This review of the scientific literature indicated that caribou could likely cross a structure of 20" (50 cm) because they can cross snowbanks of this height. In addition, best management practices for waterlines and pipelines in the Arctic and south include crossing ramps as standard mitigation procedures.

In response to concerns raised during the initial consultation process about whether caribou would cross the waterline and following best practices for waterlines, Agnico Eagle updated the design of the waterline to be two 16-inch (40 cm) waterlines with periodic crossings to allow caribou to cross the waterline. This design was included in the August 2020 FEIS Addendum.

Agnico Eagle conducted a first round of consultation with Inuit Elders, Inuit Organizations and Communities between January and March 2020, using the twin 16–inch waterline with periodic crossings as a design for discussion. These discussions were carried out in person, until the Covid-19 related restrictions imposed by Nunavut Chief Public Health Officer after which, discussions were carried out using compliant COVID-19 engagement procedures and digital engagement tools.

The first round of consultations began in January 2020. Agnico Eagle described the twin 16-inch waterline with crossing structures for caribou, ATVs, and snowmobiles. Wildlife concerns made up approximately 24% of the questions and comments on the waterline, with concerns expressed that caribou may not be able to cross the waterline and requesting additional crossing structures or for the waterline to be buried.

Example comments gathered during the first round of community consultation (Agnico Eagle Waterline Consultation Report, August 28 2020):

- "I don't think that the caribou can jump over the pipe - it should be buried under the road." – Public Meeting Booth
- "Will the waterline be buried?" – Hamlet Meeting

During June 2020, Agnico Eagle hosted a group of Inuit Elders to the Meliadine Mine where demonstration waterlines had been laid on the tundra near the road. Feedback from Inuit Elders indicated that concern that caribou may not cross the waterline and suggested more frequent crossing locations or covering the waterline to assist caribou in crossing.

In response to these consultations, Agnico Eagle proposed Waterline Commitments #1 through 4 to install additional crossings – 70 in total, one every 500 m – with locations to determined based on TK and scientific studies, and including long-term monitoring described in the Terrestrial Ecosystem Management and Monitoring Plan (TEMMP 2020).

A second round of consultations were conducted in July and August 2020, where community members raised concerns about caribou crossing the waterline despite the commitment for 70 crossing ramps. 17% of comments were about caribou, crossings or burying the waterline. There were also several questions about whether it was possible to cover the waterline to allow caribou to cross.

Example comments gathered during the second round of community consultation (Agnico Eagle Waterline Consultation Report, August 28, 2020 [NIRB Public Registry ID 331287]):

- "Might not be safe for snowmobilers and ATV riders to come across the pipeline so that line should be buried." – Meeting with Rankin Inlet HTO & KWB
- "Would prefer to see the waterlines buried with sand as it allows for natural growth overtime. They expressed that they are very knowledgeable in caribou migration routes and would like to see Elders help identify routes." – Open house participant
- "Why not cover the entire pipeline because we do not know where the caribou will migrate across. Because AEM is going to be around, it should be covered." – Meeting with Rankin Inlet CLARC

Based on continued concern from community members about whether caribou would cross the waterline, Agnico Eagle decided to install a cover on 80-90% of the waterline, and this has been added as Commitment #9 (NIRB Public Registry ID 331287):

> *Agnico Eagle will bury/cover between 80-90% of the waterline and will continue to work with the HTO, KIA, Elders, and the community on site specific locations. This will replace Commitment 1 to build crossings if this is the preferred mitigation method.*

The waterline will be located on the tundra beside the existing road, covered with a layer of esker material. The construction of the waterline cover is displayed in Figure BZ-TRC-01a. The waterline cover is planned

to be at most 80 cm tall where excavation is not possible (from the tundra to the top of the cover) which will place it below the level of the road surface, so will not produce a visual or physical barrier to caribou. The road profile will be unchanged on the west side, but on the east side, will have a step down from the road surface, and then a second step down to the tundra. The existing AWAR has been constructed with a feathered edge, with a slope that generally varies between 1:2.5 and 1:3 (rise:run). The cover over the waterline will be constructed with a planned side slope of 1:2.5.

The planned cover will be composed of esker material. Large sections of the AWAR are made of this material, as are the ATV crossings on the existing on-site waterline at Meliadine. This material provides for a firm substrate that allows people, caribou and ATVs to cross easily.

In some cases, the waterline will not be covered. These locations include, watercourse crossings and in rock cuts and rocky ground where a cover could damage the waterline.

Preliminary design of the waterline cover indicates that uncovered sections on the road amount to approximately 8% of the length. Planned exposed sections are quite short, with an average of approximately 90 m in length (Q1: 34.5 m, Q3: 106 m).

Figure BZ-TRC-01a**. Conceptual design of waterline cover on the east side of the All Weather Access Road.**

From the perspective of a caribou, their interactions with the AWAR will remain as before, but the road surface will be wider than the current road and there will be less traffic, with the removal of water trucks.