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PROJECT: **NWB 2AM-MEL1631; NWB 2BB-MEL-1424; NIRB Project Certificate No. 6;**

DATE: **July 6, 2020**

SUBJECT: **Review of Meliadine 2019 Annual Report**

1. Introduction

The Kivalliq Inuit Association (KIA) have conducted a review of the 2019 Annual Report for the Meliadine Gold Project. This document was submitted by Agnico Eagle Mines Ltd. (Agnico Eagle) to address requirements within the following authorizations:

- NWB Type A water license 2AM-MEL1631;
- NWB Type B Water License 2BB-MEL1424;
- NIRB Project Certificate No. 6;
- KIA Permit KVCA07Q08;
- KIA Permit KVCA11Q01;
- KIA Production Lease KVPL11D01; and
- The Meliadine IIBA:

KIA has completed this review with the support of the following consultants:

- Hutchinson Environmental Sciences Ltd. (HESL), aquatic environment specialists
- Aurora Wildlife Research (AWR), terrestrial specialists, and
- GeoVector Management Inc. (GeoVector), geoscience specialists.

Agnico Eagle's report consisted of the 2019 Annual Report itself, and the following 43 appendices:

- A-1 Drill Site Locations
- A-2 Daily volume of fresh Water obtained from Meliadine Lake (MEL-1 and MEL-2)
- A-3 Daily quantities, in cubic meters, of Mine water pumped from the underground
- B-1 Annual geotechnical inspection report
- B-2 2018 Annual Geotechnical Report Agnico Eagle Reponses and Action Table
- B-3 2019 Annual Geotechnical Report Agnico Eagle Reponses and Action Table
- B-4 Site wide GTC Locations and Readings
- C-1 Geochemical report
- C-2 Results of the tailings supernatant sampling
- D-1 Hazardous Waste documentation
- E-1 Stack Testing report
- F-1 Toolbox presentations
- F-2 Mock scenario report

- F-3 Reportable spills and follow up reports
- G-1 AEMP
- H-1 Analysis certificates for EEM samples
- H-2 Calibration results
- H-3 Water monitoring stations results
- H-4 Blast monitoring report
- H-5 Noise monitoring report
- H-6 Air monitoring report
- H-7 TEMMP report
- H-8 MMSO report
- H-9 Raptors Report
- I-1 Water Management Plan
- I-2 Groundwater Management Plan
- I-3 Mine Waste Management Plan
- I-4 Ore Storage
- I-5 Explosives Management Plan
- I-6 Blast Monitoring Plan
- I-7 Ammonia Management Plan
- I-8 Noise Abatement and Monitoring Plan
- I-9 Air Quality Monitoring Plan
- I-10 OPEP
- I-11 Mine Plan
- I-1 Management plans updates
- J-1 Daily AWAR users
- J-2 Post Oil transfer Report
- K-1 Public consultation Report
- K-2 Public consultations and engagements
- K-3 Socio Economic Monitoring Report
- L-1 Training list
- M-1 Project Certificate 006 terms and conditions cross-reference table

Our review comments are summarized in Section 1.1. Full comments and recommendations are provided in Section 2 of this technical memorandum.

1.1 Summary of Comments

Comments pertaining to the aquatic environment are summarized as follows:

- Insufficient rationale has been provided to justify why the drawdown of CP1 was not completed.
- Deviations have been observed from water quality and quantity model input scenarios that may prevent Agnico Eagle from managing project impacts such that they conform to FEIS predictions and may compromise Agnico Eagle's capacity to meet closure objectives.
- KIA is concerned with the potential impacts of nutrient enrichment in Meliadine Lake, and the effective implementation of mitigation measures.
- Agnico Eagle has encountered operational difficulties with the Saline Water Treatment Plant.
- Inaccuracies in tailings and waste rock volumes.

- KIA notes there has been a lack of comparison between currently observed and historical spill frequencies and types.
- KIA is concerned with the use of unsubstantiated assumptions used as part of the Marine Mammal and Seabird Observer monitoring, and inconsistencies in Agnico Eagle's recording of key variables
- Adequate compensation based on loss of non CRA fish species habitat.

Comments pertaining to the terrestrial environment are summarized as follows:

- Traffic volume along the All-Weather Access Road (AWAR) in 2019 continues to exceed volumes predicted in the FEIS.
- Agnico Eagle has not presented data on caribou observations or collar movements, nor the types of monitoring that triggered enhanced mitigation.
- There appears to be an over reliance on observed caribou numbers without the inclusion of descriptive statistics or fitting trends.
- Continued failure to report on caribou displacements and deflections in response to operations in the annual report.
- No detailed results are provided other than a summary of overall annual numbers and percentages for different species for the weekly track surveys undertaken by foot.
- Lack of clarity regarding Agnico Eagle's efforts to minimize wildlife attractants at the mine site.
- Concerns with how caribou data is used to make decisions regarding management and mitigations, in particular along the AWAR.
- Ongoing concerns regarding adequacy of dust suppression activities, and the availability of reporting on those activities.

Comments pertaining to the geophysical environment are summarized as follows:

- Rectify the 4,492,000 t discrepancy in the total tonnage to be extracted in 2020.
- Provide complete documentation of all the risk assessments and workshops related to the High Risk operational status of D-CP-1.
- Confirm of the correct values of NP-Ca and Total S% related to the filtered tailings.
- Confirm the discussion schedule for the updated 2019 closure and reclamation cost estimated ($59,514,717).

2. Technical Review

2.1 Aquatic Environment Technical Comments

Reviewer	#	Reference	Comment	Recommendation
HESL on behalf of KIA	1.	Meliadine Gold Project 2019 Annual Report Section 3.1.4	Agnico Eagle provides a summary of the 2019 monthly and annual volumes of water discharged from CP-1 to Meliadine Lake. Discharges began in July 2019, increased in August and September, and were minimal in October 2019. Agnico Eagle states *"Agnico Eagle was not able to complete the drawdown of CP1 in 2019. The current accumulation of contact water in CP1 meets all discharge criteria under the Metal and Diamond Mining Effluent Regulations (MDMER) and the Water Licence, with the exception of the TDS discharge criteria set out at Part F, Item 3 of the Water Licence."* This statement is not supported by a comparison of monitoring data presented in Appendix H-3 for MEL-14 (the post treatment site) and MEL-12 (the pre-treatment site). TDS measured at MEL-12 in CP1 indicated that TDS increased from the first measurement in 2019 on June 24 where it was measured at 1,570 mg/L, to 2,100 mg/L August 7, 2019, and then to a maximum measured value of 2,600 mg/L on September 3, 2019. TDS then decreased in the two subsequent measurements at MEL-12 on September 24 and October 1, 2019. Concentrations in late September and early October were 2490 mg/L and 2450 mg/L TDS respectively. Given these concentrations were within the range of those measured when discharges to Meliadine Lake from CP1 were ongoing, it is unclear as to why Agnico Eagle was not able to meet the TDS discharge criterion.	Agnico Eagle should elaborate on why they were unable to meet the TDS discharge criterion at MEL-14 resulting in the failure to complete drawdown of CP1 in 2019. We further recommend that Agnico Eagle take steps to address the identified problem to ensure future adherence to the 1,400 mg/L discharge criterion outlined in the water licence while still drawing down CP1 by the fall of each calendar year.

Reviewer	#	Reference	Comment	Recommendation
HESL on behalf of KIA	2.	Meliadine Gold Project 2019 Annual Report Section 7.8.3 Climate; Appendix G-1 AEMP Report, Section 2.4.2 Numerical Water Quality Predictions in the FEIS, Section 3.2 Appendix I-1 Water Management Plan Sections 4.3 Meliadine Lake Diffuser Effluent Flow Rates, 5. Water Balance	Agnico Eagle notes that the water quality model will be updated for the 2020 Annual Report. *"The results* [of the current water quality model] *indicated TDS, chloride, and sodium would gradually increase in the east basin of Meliadine Lake during construction and operations. Maximum concentrations were predicted in the last year of operations, with TDS at 176 mg/L, chloride at 66 mg/L, and sodium at 19 m/L (Volume 7 of the FEIS, Agnico Eagle 2014). Predicted concentrations in Meliadine Lake are expected to exceed the range of concentrations observed during the baseline period; however, concentrations of are predicted to remain below the water quality guidelines (Cl = 120 mg/L [CCME], Health Canada aesthetic drinking water quality guidelines for TDS [500 mg/L] or sodium [200 mg/L]).*" These model results do not account for the deviations from the modeled water quantity and load balance as presented in the FEIS, and rely on what may now be considered outdated model inputs. We note as an example that additional groundwater has been encountered on site resulting in Agnico Eagle's applications to discharge saline water to Melvin Bay. We also note that the water management strategies as currently implemented have been less successful than anticipated as evidenced by Agnico Eagle's inability to maintain discharges from CP1 at the permitted discharge criterion. We are concerned that decisions based on previous modelling results have not been successful at ensuring the mine can effectively manage water as outlined in either the Environmental Impact Statement or the Water Licence, and meet closure objectives.	The next iteration of the water quality and water balance models include sensitivity analysis to predict the implications of, at minimum: • Encountering higher concentrations of key parameters including TDS in contact water. • Encountering greater inflows of saline groundwater within the underground. • Wet year scenarios that exceed the 95 percentile as calculated from measurements collected at the ECCC Rankin A weather station. Note that wet year scenarios should be calculated based on a period of record that includes measurements collected at the Rankin A weather station after the last iteration of the water balance model. We further recommend Agnico Eagle develop specific adaptive management strategies within the scope of the existing Water Licence and Project Certificate that can be used to mitigate potential impacts to the environment and circumvent the need for future project

Reviewer	#	Reference	Comment	Recommendation
			We also note that the water balance is based on a mean climate year, as well as 1:100 year wet and dry conditions. The values for these inputs were selected during the FEIS and Water Licencing process, and do not appear to have been updated since.	certificate and water licence amendments.
HESL on behalf of KIA	3.	7.5.1 Context for Assessing Nutrient Enrichment in Meliadine Lake	Agnico Eagle notes that an increase in nitrogen loading was observed *"to the NF in 2018 and 2019 [which] coincides with the onset of treated effluent discharge from CP1. The increase in nitrogen from < 500 kg/year in 2017 to over 4,000 kg/year in 2018 and 2019 is likely related to blasting residue leaching from waste rock as underground and surface construction advanced."* Agnico Eagle also notes that *"Broad experimental evidence from nitrogen and phosphorous enrichment studies suggests that phosphorous is far less limiting than was previously thought and that primary productivity is often co-limited by both nitrogen and phosphorus (Esler et al. 2007, Lewis and Wurtsbaugh 2008, Sterner 2008)."* While we accept the assessment that only minor enrichment has occurred in the near field area relative to the rest of Meliadine Lake, we assert that Agnico Eagle should include additional considerations in their blasting practices to limit nitrogen loading to the receiving environment from blasting residue.	Agnico Eagle should provide appropriate mine staff with additional guidance to help minimize nitrogenous blasting residues and subsequent loading to Meliadine Lake. Considerations should additional effort to keep blasting materials dry prior to ignition.
HESL on behalf of KIA	4.	7.5.2 Spatial and Temporal Trends	Agnico Eagle states *"Due to their low natural concentrations of nutrients, oligotrophic lakes are considered very sensitive to small changes in the supply of either TN or TP (Bergstrom 2010). … The relationships were all highly variable and did not show consistent changes in phytoplankton biomass with increasing nutrient concentrations… Given the uncertainty regarding the representativeness of TP and TN of their bioavailable forms, these results, by themselves, provide little insight to support nor refute the possibility that effluent loading to Meliadine Lake may be affecting the phytoplankton community."*	Agnico Eagle should include soluble reactive phosphorus or orthophosphate in the list of parameters assessed at both MEL-13 and MEL-14, and use those concentrations in addition to TP to evaluate the relationship between nutrient concentrations and phytoplankton biomass.

Reviewer	#	Reference	Comment	Recommendation
			We suggest that a detailed investigation of TP bioavailability may be warranted to inform future management decisions in the event changes in the phytoplankton community of the receiving environment be observed in future monitoring years. We further note Agnico Eagle has worked to establish a relationship between nearfield (MEL-13) TP concentrations with phytoplankton rather than with TP concentrations measured in the effluent (MEL-14). While comparison between phytoplankton biomass and nearfield TP concentrations are useful, we note that phytoplankton take up phosphorus from the water column as they grow thereby potentially degrading the relationship in nutrient limited settings.	
HESL on behalf of KIA	5.	Section 4.4.1 TSF Capacity	There are discrepancies in values reported for total volume of tailings placed in the TSF, and waste rock placed as progressive cover material, between the text and tables in the Annual Report. The total tailings volume for 2019 is reported in the text as 507,583 m^3 but in Table 10 it is reported as 595,202 m^3. Similarly, 75,082 m^3 of waste rock is reported as being placed around the TSF in 2019 in the text, but 89,272 m^3 is reported in Table 10.	Please clarify the total volume of tailings and waste rock placed in the TSF in 2019.
HESL on behalf of KIA	6.	Section 6. Spill Management	Agnico Eagle states that 25 reportable spills occurred in 2019 (compared to 22 in 2018) and 63 non-reportable spills. How does the number of non-reportable spills compare to previous years? According to Table 15, a 20 L fuel spill occurred on April 16 due to "*nozzle mishandling*". The following corrective action was carried out: "*Employee reached his supervisor, who then immediately dispatched the upper level supervisor to inspect the level of contamination*". Agnico Eagle should provide additional details on whether the spill was left or cleaned up. According to Table 15, a 5 L spill was noted in Cell 6 TSF on May 19, but the hazardous material is not specified.	Please provide the missing information on (i) how the number of non-reportable spills compares to previous years, (ii) what ultimate action was taken to manage the April 16 fuel spill, and (iii) what hazardous material was spilled on May 19 in Cell 6 TSF. This information should be provided in future Annual Reports.

Reviewer	#	Reference	Comment	Recommendation
HESL on behalf of KIA	7.	Appendix F-3 Reportable Spills and Follow-up Reports	Several government spill report forms do not give a report number, while others are out of order and/or are duplicated later in the year (e.g., April reports appear in April and December). Some spill reports are missing a government spill report form and only have a follow-up report.	Please ensure consistency in reporting for all reportable spills, by providing government spill report forms for all spills, reporting numbers for all spills, and organizing spill reports in chronological order.
HESL on behalf of KIA	8.	Appendix F-3 Reportable Spills and Follow-up Reports	Report # 19-171 indicates that a 5 L oil spill occurred on April 16 from a drill. The heat from the drill melted the ice, allowing contaminants to leak into Lake B7. The spill, however, was not reported until April 24. The follow-up investigations determined that "*more thorough pre-op inspections must be completed in order to identify equipment failures*". Agnico Eagle should indicate what steps will be taken to prevent a delay of over one week in responding to and reporting on spills. Given that clean-up efforts did not start until eight days after the spill, how does AE know that the absorbent pads removed all the oil from Lake B7?	Please explain how lengthy delays in responding to and reporting spills to water will be avoided in the future. Please also discuss how effective the delayed clean-up efforts were at removing oil from lake B7.
HESL on behalf of KIA	9.	Appendix F-3 Reportable Spills and Follow-up Reports	Report # 19-169 indicates that a 4 L oil spill occurred at a drill hole under Rig 6 on April 24, and because the drill had melted the ice, the oil leaked into Lake B7, as with the Report # 19-171 spill. Drill heat melting the ice seems to be a recurring problem (i.e., this was the second occurrence in eight days). What steps are being taken to stop this problem? Has Agnico Eagle considered only operating drills on ice below a certain temperature to minimize this risk? Agnico Eagle states in the report that "*During the investigation it was determined a spill occurred 15th February 2019, at this location*". It was determined that a miscommunication had occurred between the contractor and the Environment Department, and while an internal report was filed by the contractor, the spill was not reported to regulatory authorities. It is not clear how this problem will be avoided in future.	Please indicate what steps are being taken to avoid heat from drills melting ice on waterbodies where work is being conducted. Please describe how spill reporting requirements are communicated to contractors to avoid delays in reporting to regulatory authorities, and what follow-up is in place to ensure compliance.

Reviewer	#	Reference	Comment	Recommendation
HESL on behalf of KIA	10.	Appendix F-3 Reportable Spills and Follow-up Reports	Report # 19-346 indicates that the August 19 discharge to sea exceeded the MDMER limit for TSS. Internal investigations showed that algae in Saline Pond 3 was a contributing factor, and thus chlorine dosing was increased in the Saline Effluent Treatment Plant (SETP) as a corrective measure. Acute toxicology tests in September, however, indicated that discharge was toxic following mitigation and consequently "*discharge to the environment ceased immediately upon reception of preliminary results of the second failed acute lethality test September 12th and resumed September 24th 2019 after in-house analysis showed it was safe to do so*". It is not clear what in-house analysis was conducted to determine that discharge could resume following September 24, as no data are presented.	Please provide more details on the in-house analysis conducted to determine that discharge could resume on September 24, including results of the in-house acute lethality tests.
HESL on behalf of KIA	11.	Appendix H-8 Marine Mammal and Seabird Observer (MMSO) Report for the 2019 Shipping Season Sections 2.3 Seabirds and 3.2.2 Environmental Variables and Sighting Conditions Weather	Agnico Eagle states that environmental conditions were not summarized for seabird monitoring but were assumed to be similar to those collected for marine mammal surveys because they alternated with them "*numerous times throughout daily monitoring*". We are concerned that this may not be a robust assumption since weather and sea state conditions could change significantly between survey types that occur over several hours, while ships are traversing large distances. Ultimately, these differences could affect detection of seabirds. Agnico Eagle summarizes environmental conditions for marine mammal surveys in Section 3.2.2, indicating that in 18% of surveys no weather conditions were recorded and in 5% of surveys no sea state conditions were recorded. We are concerned at the lack of consistency in documenting environmental variables during marine mammal monitoring.	Please discuss whether the assumption that environmental conditions are similar between different survey types (potentially separated by several hours and hundreds of kilometres) is valid. Agnico Eagle should improve the consistency of reporting during MMSO surveys to ensure environmental conditions are reported during each survey. Please explain how environmental variables are used in the analysis of monitoring data.

Reviewer	#	Reference	Comment	Recommendation
			How are environmental variables incorporated into determination of detection rate for marine mammals and seabirds?	
HESL on behalf of KIA	12.	Appendix H-8 MMSO Report Section 3.2 Marine Mammals	Agnico Eagle states that for marine mammal monitoring, "*the total survey effort is likely greater than presented…as many datasheets were missing survey times, dates and/or GPS coordinates and therefore could not be incorporated into the analysis*". We are concerned that inconsistencies in monitoring are creating significant gaps in data for the MMSO analysis. Improvements need to be made to the data collection protocol and training to ensure consistent, systematic and reliable sampling, rather than a haphazard approach that produces unusable data. What are the plans to fix this problem?	Please explain how inconsistencies in monitoring are being addressed to avoid missing data, which makes the corresponding surveys unusable for analysis.
HESL on behalf of KIA	13.	Appendix I-1 Water Management Plan, Appendix B – Freshet Management Plan, Section 3 Freshet Risk Management, 3.5.1 Camp Pads and Surroundings	Agnico Eagle indicates that it conducts visual inspections for excessive water pooling and "*if pooled water is observed to flow into a water body, a water sample will be collected and monitored for TSS. Follow-up samples will be collected on a weekly basis thereafter*". A similar approach is taken for snowmelt runoff. Agnico Eagle does not explain whether TSS measured in pooled water and snowmelt runoff triggers any management response beyond simply monitoring it. Is there a TSS concentration in pooled water and snowmelt runoff that triggers action, and, if so, what action is taken? What mitigation will be taken to address any TSS exceedances?	Please discuss whether TSS measured in pooled water and snowmelt runoff triggers a management response. If so, please explain what level of TSS triggers action, what action is taken, and what mitigation measures are used to prevent recurrence of the problem.
HESL on behalf of KIA	14.	Appendix I-2 Groundwater Management Plan Section 3.4.2.1 Saltwater	Agnico Eagle reports that since being commissioned in 2019, the Saline Water Treatment Plant (SWTP) has under-performed compared to its design rate. This resulted in a total treatment rate of 46.5 m^3/day instead of the design total of 120 m^3/day; thus only 6045 m^3 of groundwater was treated in Q3 and Q4 of 2019, compared with the expected 20,862 m^3 based on design capacity.	Please explain why the SWTP did not meet its design capacity for treating groundwater in 2019. Please discuss how its performance will be improved in the future.

Reviewer	#	Reference	Comment	Recommendation
		Treatment Plant - Desalination	Consequently, "*a greater than predicted accumulation of saline water inventory on site*". It is not clear why the SWTP fell short of its design capacity in 2019, nor what steps are being taken to fix the situation.	
HESL on behalf of KIA	15.	Appendix I-2 Groundwater Management Plan Section 3.4.2.4	The observed groundwater inflow rates to the underground mine are compared annually to model predictions. Agnico Eagle states that if significant deviations from the model are found, then "*the assumptions/inputs behind the model will be reviewed and the model updated, if required*". What is considered a significant difference from the predicted inflow rates which would warrant this review and update? We note that a significant deviation may have already occurred based on the understanding that Agnico Eagle has submitted an application to discharge up to 12,000 m^3/day of saline groundwater into Melvin Bay during the open water season, up from the currently permitted 800 m^3/day.	Please clarify what is considered a significant difference between predicted and observed groundwater inflow rates. We recommend Agnico Eagle updates the groundwater inflow rates in the forthcoming iteration of the water balance model.
HESL on behalf of KIA	16.	Appendix I-3 Mine Waste Management Plan, Section 4 Waste Rock and Overburden Management, 4.2 Waste Rock Storage Facility Locations	Waste Rock Storage Facility (WRSF) 1 will cover one pond, while WRSF 2 will cover five ponds. Agnico Eagle reports that none of these ponds provide habitat for fish designated as commercial, recreational or aboriginal (CRA) fish species. Furthermore, Nine-spine stickleback, found in two of the ponds within the WRSF 2 footprint, is not considered a fish species that supports CRA fisheries. The 2019 update to the *Fisheries Act*, however, requires that all fish and fish habitat be protected, not just CRA fish species and supporting species. Agnico Eagle should explain how WRSFs 1 and 2 will be developed so they will comply with the 2019 *Fisheries Act* prohibition against the harmful alteration, disruption or destruction of fish habitat.	Please explain how the development of WRSFs 1 and 2 will comply with the 2019 *Fisheries Act* prohibition against the harmful alteration, disruption or destruction of fish habitat.

2.2 Terrestrial Technical Comments

Reviewer	#	Reference	Comment	Recommendation
Meliadine Gold Project 2019 Annual Report (April 2020)				
AWR on behalf of KIA	17.	S 10.3 AWAR	The traffic volume along the All-Weather Access Road (AWAR) in 2019 continues to exceed volumes predicted in the FEIS. Even removing the 1,620 brine tanker passages attributed to saline discharge during August-October (App. J-1, AWAR Usage), annual traffic on AWAR exceeded levels predicted in the FEIS by 42% (S 10.3, Table 25, pg 81). Traffic volumes during July, which coincided with caribou movement through the site, were double those predicted in the FEIS despite the closure of AWAR between 26 June and 6 July due to caribou migration.	Agnico Eagle should clarify whether and when traffic volumes predicted in the FEIS will be attained, and if they won't be attained, what implications this has for assessment of impacts of the project on wildlife.
Appendix H-7 2019 Terrestrial Effects Monitoring and Mitigation Program Annual Report				
AWR on behalf of KIA	18.	TEMMP	The TEMMP report provides a brief overview of the different methods for monitoring caribou and other wildlife. While it is clear that Agnico Eagle, working with KIA land use inspectors, the HTO, community, and government, is taking steps to protect caribou, there are no data presented on caribou observations or collar movements, nor the types of monitoring that triggered enhanced mitigation. Given that in most recent years caribou come through the Meliadine area during late June or July when cows and calves are highly vulnerable to disturbance and stress and given the traffic volume in 2018 and 2019 greatly exceeded what was expected and stated in the FEIS, the TEMMP reporting must be far more rigorous. The objectives state in part that "*Adaptive management will be implemented if the Project impacts exceed the predictions*" (S 2.0, pg 9). Rigorous reporting is required to enable effective adaptive management of caribou and other wildlife at the Meliadine project.	Agnico Eagle should include in the annual TEMMP systematic and detailed caribou observations and collar data, details of the frequency and type of monitoring and systematic records of the triggers that resulted in increased mitigation (e.g., work stoppages and road closures).
AWR on behalf of KIA	19.	S 1.1 Background	The report's purpose includes describing the "*natural variation and potential Project-related changes in wildlife populations*" (S 1.1, pg 1). However, the report relies on observed numbers or averages without descriptive statistics or fitting trends. The lack of even basic statistical analysis hinders comparing the 2019 data with the previous years and	Agnico Eagles should use descriptive statistics and trend analyses to report on natural variation and potential mine-related changes in wildlife.

Reviewer	#	Reference	Comment	Recommendation
			the extent to which, if any, it lies outside the range of natural variation and is more likely to be an effect of the mine.	
AWR on behalf of KIA	20.	S 2.0 Review of Impact Predictions	One of the impact prediction thresholds is "*<10% caribou deflections from AWAR*" to be monitored using ground surveys (Table 2, pg 10). Table 12 (S 8.3, pg 26) states that this threshold was not exceeded in 2019. There is absolutely no indication in S 8 Barren-ground Caribou that this threshold was evaluated in any way. Term and Condition (T&C) 57 clearly states that the Annual Report shall incorporate a review section which includes "*b. A detailed analysis of wildlife responses to operations with emphasis on wildlife behavior, mortalities and* ***displacements*** [emphasis added] *(if any), and responses to operations of the all-weather access road and associated access roads/trails*". And as noted in T&C 44, monitoring "*should be adequate to test impact predictions, monitor impact thresholds and trends over time, and to support implementation of mitigation measures*". In response to KIA comments on the 2018 Annual Report (Comment 25), Agnico Eagle stated they would "*report these displacements/deflections of caribou and responses to operations in its annual report*". This did not occur in the 2019 Annual Report or TEMMP. Analysis to back up the assertion that sensory disturbance impact predictions were not exceeded requires examination of individual collar trajectories on approach to site or another ground-based methodology.	Agnico Eagle should conduct an evaluation of caribou movements through the mine site and AWAR to examine displacement/deflection of caribou and responses to operations during migration. Data analysis should be conducted to test impact predictions, monitor impact thresholds and trends over time, and to support implementation of mitigation measures.
AWR on behalf of KIA	21.	S 6.1 Wildlife Track Surveys	Project certificate T&C 118 includes "…*weekly winter track surveying and summer and fall surveys undertaken on foot twice per month*" (Table 1, pg 5). No objectives, locations or methodology are provided in the wildlife tracks survey section (S 6.1, pg 15), especially for the summer surveys, and no detailed results are provided other than a summary of overall annual numbers and percentages for different species. Comparisons with 2018 track surveys are limited to being	Agnico Eagle should clarify the objectives of the wildlife track surveys and present the results in a manner to enable examination of objectives and of spatial and temporal trends over time.

Reviewer	#	Reference	Comment	Recommendation
			"*largely comparable*" (S 6.1, pg 15). The usefulness of these surveys to wildlife monitoring and mitigation is unclear.	
AWR on behalf of KIA	22.	S 6.3 Incidents and Mortalities	After 22 Arctic foxes were trapped and dispatched in 2018 (2018 TEMMP Annual Report), another 15 foxes mortalities were recorded in 2019 (Table 6, pg 17), 13 of which (87%) were associated with the landfill, "*under main kitchen*" or around the mine site. These statistics suggest the mine remains an attractant for foxes. The observation of foxes under the main kitchen suggest inadequate skirting to prevent access to a potential attractant. Agnico Eagle's response to GN Comment 1 on the 2018 Annual Report states "*The increase in fox rabies compared to previous years is also to be considered in the amount of fox mortalities in 2018*" but no discussion of rabies was provided in the 2019 Annual Report. Similarly, Agnico Eagle's response to the KIA Comment 22 indicated one fox was sent for rabies testing, but no results were provided in 2019.	Agnico Eagle should clearly indicate what waste and infrastructure management protocols are being implemented to reduce site attraction and fox mortality. Data on past rabies testing and current concerns are also warranted.
AWR on behalf of KIA	23.	8.1 Caribou Behavior Monitoring	Behavioural data from scan sampling of 12 groups of caribou are presented in Table 8 (pg 21). No information on distance from infrastructure, group composition or the proportions of the varying behaviours observed are provided, restricting the usefulness of these data.	Agnico Eagle should provide data on distance from infrastructure, group composition or the proportions of the varying behaviours observed.
AWR on behalf of KIA	24.	S 8.1.2.2 Collared Caribou Inventory	Collar data indicate that 11 collared individuals were within the Local Study Area for 1.1 days in 2019 (Table 9, pg 23). The AWAR was shut down for 10 days between 26 June and 6 July due to the presence of large numbers of caribou (S 8.2.2., pg 24), indicating that the collar data alone are not a good metric for monitoring movements to trigger mitigation on site.	Agnico Eagle should compare the efficacy of collar data and ground observations as triggers for mitigating potential impacts for caribou movement through the mine site.
AWR on behalf of KIA	25.	S 8.1.2.2 Collared Caribou Inventory	In response to KIA Comment 20 on the 2018 Annual Report (related to presentation of collar movements), Agnico Eagle stated "*these are confidential but are part of the tools used to increase mitigation*" and no collar movement figures were presented in the 2019 Annual Report. Collar movements at broad and fine scales are presented in Agnico	Agnico Eagle should provide figures of collar movements at broad and fine (individual collar trajectories) scales in Meliadine Annual Reports to aid in

Reviewer	#	Reference	Comment	Recommendation
			Eagle's 2019 Meadowbank Annual Report (Figs. 6.1–6.6) thus stating that these data are confidential and inferring they cannot be presented is somewhat insulting. Broad movement figures for the Meliadine area would inform timing of patterns of annual variation in interaction of the Qamanirjuaq herd with the mine. Fine scale mapping (e.g., 2019 Meadowbank Annual Report Fig. 6.2 – individual collar trajectories) would provide a visual showing individual collared caribou movement through the mine site and AWAR.	interpretation of monitoring and efficacy of mitigation.
AWR on behalf of KIA	26.	S 8.2 Caribou Advisory	The reporting of triggers that initiated the mitigation measures/caribou advisories shown in Tables 10 and 11 is lacking.	Agnico Eagle should provide detailed and clear reporting of the monitoring that triggered thresholds to intensify (or scale down) mitigation (e.g., collars, incidental observations, site and road surveillance monitoring) and at what distance from infrastructure that monitoring occurred.
Appendix H-9: Raptor Report/Appendix B: Arctic Raptor Research Program, 2019 (no date)				
AWR on behalf of KIA	27.	Results	i. The raptor report provides extensive raptor species descriptions, terminology and methodology of analyses, but appears light on data presentation. A table of number of known territories, occupied territories, productive territories, and mean productivity over time would be a valuable addition to follow trends in raptor nesting ecology within the study area. ii. The results indicate that there are "*29 nesting sites*" for peregrines falcons, but the following page notes there are "*29 unique peregrine falcon… territories in the study area*". We assume that there may be multiple nest sites within a given nesting territory, and that the first reference should have been to territories rather than nesting sites. Note that Table 2 indicated 30 known peregrine falcon territories in 2019.	Agnico Eagle should: i. Provide a table of raptor nesting metrics; ii. Clarify peregrine falcon nesting sites and territories; and iii. Provide more information on raptor nesting metrics to better inform trends over time.

Reviewer	#	Reference	Comment	Recommendation
			iii. According to Fig. 7 (no page numbering) occupancy of nest sites by peregrine falcons was 50% in 2019, presumably about half of the 29 territories identified within the study area. According to the right-hand figure there was no productivity in 2019, meaning none of the approximately 14–15 peregrine falcon nest sites raised young to a sufficient age to be considered fledged. If correct this warrants discussion in the results. There is a hint of nest failure due to precipitation and cold weather in some of the nest-specific management plan accounts in the discussion, but it would have been useful to present these results for all occupied territories.	
Appendix I-9 – Air Quality Monitoring Plan, Version 2, April 2020; Appendix H-6 – 2019 Air Quality Monitoring Report, April 2020				
AWR on behalf of KIA	28.	Air quality reporting	Dust generation continues to be a concern to area residents and NIRB (Nunavut Impact Review Board 2018-2019 Monitoring Report; NIRB File No. 11MN034, pgs 22, 27). NIRB indicates that use of dust suppressants has not been adequate (NIRB 2018-2019 Monitoring Report, pg 22). Discussion in the 2018-2019 Monitoring Report indicates that dust suppressants are used along the AWAR, but the 2019 Annual Report provides little details on suppressants used and efficacy of the treatments. The main Annual Report provides only freshwater volumes used for road dust suppression activities (Table 4, pg 19). The Air Quality Monitoring Plan, Version 2 (April 2020), directs the reader to the Road Management Plan, Version 8 (December, 2019) and the Dust Management Plan, Version 5 (March, 2019). The 2019 Air Quality Monitoring Report (April 2020), which seems like the logical location for annual reporting of dust suppression, make only a single reference to dust suppression (pg 21) but does not report what was conducted for dust suppression on AWAR and the Bypass Road during 2019.	Agnico Eagle should clearly detail dust suppression activities conducted on Meliadine roads. If these activities are not reported in the annual Air Quality Monitoring Report, then Agnico Eagle should clarify where these data are annually presented.

2.3 Geophysical Technical Comments

Reviewer	#	Reference	Comment	Recommendation
GeoVector on behalf of KIA	29.	Annual Report; 2020 Mine Work Plan, Section 2.2, page 17. Appendix I-11	The total tonnage to be extracted in 2020 from the underground (2,260,000 t) and open pit (4,500,00 t) totals 6,760,000. However, the tonnages of waste rock (528,000 t), marginal ore (70,000 t) and ore (1,322,000 t) only 2,268,000 t. This is a discrepancy of 4,492,000 t.	The KIA would appreciate confirmation that the tonnages to be extracted and milled in 2020 are those described in Appendix I-11.
GeoVector on behalf of KIA	30.	Geotechnical Monitoring, Section 4.1, page 24. Appendix B-3, Section 3.0 (Dike Repair / Maintenance)	Risk assessments and multiple workshops related to D-CP-1 placed the dike into a High Risk operational situation. The only information available (Appendix B-3) recommended that snow clearance on the downstream crest would mitigate the impact of high-water levels. reviewer was unable to find any information related to these risk assessments and workshops.	The KIA would appreciate if the complete documentation of all the risk assessments and workshops be made available and included in the 2019 Annual Report for review.
GeoVector on behalf of KIA	31.	Geochemical Monitoring, Section 4.2, page 28.	NP-Ca noted in text for ARD from filtered tailings for CaCO3/t from lowest (29 kg) to median (61 kg) and highest (76 kg) is different than the same parameters noted in Table 1 of Appendix C-1, which are lowest (0.4 kg) to median (106 kg) and highest (367 kg). A similar issue occurs with the Total S% with the text noting lowest (1.4%) to median (1.7%) and highest (2.5%), while the values in Table 1 of Appendix C-1, are lowest (0.1%) to median (0.23%) and highest (2.2%).	The KIA would appreciate confirmation of the correct values.
GeoVector on behalf of KIA	32.	Closure, Section 8.2, page 76.	The closure and reclamation costs have increased $4,979,858.50 from the 2017 security deposit ($49,555,000) to the 2019 estimated ($59,514,717). The discussions regarding this cost estimate are to be help in 2020.	The KIA would appreciate any information on the possible schedule for these discussions.

3. Closing

KIA appreciates the opportunity to provide comments on the 2019 Annual Report for the Meliadine Gold Project. Please contact Luis Manzo, Director of Lands, should you require more information.

Regards,

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