

To: Brittany Hogaluk
Public Registry Coordinator
Nunavut Impact Review Board

From: Luis Manzo, Director of Lands, Kivalliq Inuit Association

Date: June 10, 2024

Re: Review of Agnico Eagle Mines Limited's Meliadine Gold Mine Project 2022 Annual Report;
NIRB File No.: 11MN034

1. Introduction

The Kivalliq Inuit Association (KivIA) have conducted a review of the Agnico Eagle Mines Ltd. (Agnico Eagle) 2023 Annual Report for the Meliadine Gold Project. Agnico Eagle's submission consisted of the Meliadine Gold Mine 2023 Annual Report (March 2024) supported by 39 appendices. These documents were submitted by Agnico Eagle to address requirements within the following authorizations:

- NIRB Project Certificate No. 006 (Amendment No.002);
- KivIA Permit KVCA07Q08;
- KivIA Permit KVCA11Q01;
- KivIA Production Lease KVPL11D01; and
- The Meliadine Inuit Impact and Benefit Agreement (IIBA).

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

- Aurora Wildlife Research (AWR; Anne Gunn), terrestrial specialist;
- Prairie Scientific Inc. (PSI; Matt McDougall), aquatic environment specialist; and
- GeoVector Management Inc. (GeoVector; Alan Sexton), geoscience specialist.

Full comments and recommendations are provided in Section 2 of this technical memorandum.





2.1 Terrestrial Environment Technical Comments

Comment No. KivIA 1: Terrestrial Advisory Group
Reference: Appendix 32 Terrestrial Advisory Group; T&C 132 (TAG)
Comment: <p>The KivIA appreciates progress consistent with T&C 132 as the four TAG meetings in 2023 (April, May, June and October) were collaborative and the meetings are well organized especially the competent minute taking. Although,</p> <p>Agnico Eagle comments on the lack of written comments from TAG members (App. 32, Table 2), the KivIA would like to assure NIRB that KivIA has provided written comments on Commitment 38 (4 March 2024), the TEMMP (23 February 2024) and as well, a baseline analysis of calf abandonment by Qamanirjuaq caribou cows (23 January 2024).</p> <p>KivIA had previously recommended that Agnico Eagle ensure that TAG annual report include either copies of reports and presentations or, alternatively, where they are archived (KivIA comments 2022 Annual Report). Agnico Eagle has appended to Appendix 32, Commitment 38 report in its entirety but none of the other 2023 presentations or reports were included. The Meliadine web site did not, in May 2024, appear to have the reports.</p> <p>While KivIA is uncertain about the status of their 2022 recommendation, KivIA has, during the 2023 and 2024 TAG meetings, come to realize that there is a wider problem. The problem is that Information provided to the TAG is not included in the 2023 Annual Report. For example, Agnico Eagle provided the TAG (26 January 2024) with an analysis integrating 3023 collar movements and Height of Land caribou observations to describe monitoring for the approach of caribou. However, the integrated information was not included in the 2023 Annual Report although it is a useful analysis. A second example is the 2023 calving distribution maps were provided to the TAG but the maps or a summarized description were not included in the 2023 Annual Report although they would have been highly relevant. A third example is a report on the reduction in mine site noise during 2023 Level 3 mitigation was provided to the TAG (October 2023). Its importance for the Annual Report is that it relates to the effectiveness of mitigation.</p>
Request 24-01:



i. Agnico Eagle to ensure that the availability of presentations and reports provided to the TAG are in accessible archives and the summarized information is also available in the annual Terrestrial Environmental Mitigation and Monitoring Report.

Comment No. KivIA 2: Collared caribou analysis

References: Appendix 32; Appendix 25 Caribou monitoring; S. 12.3 Collared Caribou Inventory; S. 12.5 Accuracy of Impact Predictions Table 18; T&C 44, T&C 57b

1. Gap/Issue

Although Commitment 38 investigated deflections and was completed in 2023, Table 18 (App. 25, S. 12.5) records that the accuracy of impact for sensory disturbance (threshold <10% deflections from AWAR) was not assessed in 2023.

The gap is whether this is an oversight or whether it reflects the on-going TAG discussion about the adequacy of Commitment 38?

2. Disagreement with the Annual Report conclusion

The KivIA is not yet satisfied about how Commitment 38 tests impact predictions for caribou responses to AWAR and the mine site.

3. Reasons for disagreement with the Annual Report conclusion

The KivIA appreciates Agnico Eagle's efforts for the Commitment 38 analysis and for seeking TAG advice on design and comments on the preliminary results. The report was well presented and is included in the 2023 Annual TAG Report (Appendix 32). Agnico Eagle in Commitment 38, states that it is complete. This leaves uncertainty as Agnico Eagle also describes Commitment 38's status for the TAG as on-going (App. 32, Table 2). The KivIA's concern is that Commitment 38 was intended to meet T&C 44. T&C 44 specifies that "Monitoring should be adequate to test impact predictions, monitor impact thresholds and trends over time, and to support implementation of mitigation measures".

Agnico Eagle's analysis, Commitment 38, was designed to describe impacts on caribou and it concluded that an adverse response was not measurable (App. 32, S.12.3, p.40). The KivIA disagrees that the impacts were adequately described and has attached the KivIA's technical review as shared with the TAG to this 2023 Annual Report review.

Agnico Eagle did acknowledge the sample size limitations and that the analysis was unable to separate responses to the mine site compared to AWAR. The KivIA agrees and sees those two points as being partly why the KivIA questions whether the analysis is inadequate especially that the number of collars did not have sufficient statistical power to detect a response to the AWAR and mine site given the number of habitat variables and the high individual variation among the cows. The analysis





Commitment 38 only used the collars and did not integrate information from road surveys, remote camera and behavior monitoring. This is a limitation as each of the four sets of monitoring information samples a particular aspect of caribou responses. We know that caribou cross the AWAR, but we are uncertain under what conditions they cross (traffic, hunting, mosquitos, for example). The behavior and camera monitoring (App. 25; Apps. F and G) have added to the depth of understanding about caribou responses, the frequency of traffic and the extent that the road closures are partial (App. 25; App. F S. 6.4, p. 25). Integrating the monitoring information could further progress to a detailed analysis of wildlife responses to the all-weather access road and assessing the effectiveness of AWAR closures (T&C 57b).

- i) The KivIA requests Agnico Eagle to clarify whether rate of deflections measured in the Commitment 38 is applicable to assess the accuracy of sensory disturbance threshold for and whether the rate of deflections should be annually measured given the trend to earlier distribution of caribou in the Regional Study Area.
- ii) The KivIA requests Agnico Eagle provide options for integrating collar, road surveys, behavior and camera monitoring to assess the effectiveness of the road closures.
- iii) The KivIA requests Agnico Eagle provide options for amending Commitment 38 in light of KIA's technical questions about the results.

References: Appendix 32 S.9 Table 8 Wildlife Observations; T&C 45

1. Gap/Issue

The wildlife road surveys and the incidental wildlife sightings are not discussed relative to implications for ecology, monitoring and mitigation.

¹ Severson, J.P., T.C. Vosburgh, & H.E. Johnson (2023). Effects of vehicle traffic on space use and road crossings of caribou in the Arctic. *Ecological Applications*: 33 (8) e2923.
<https://doi.org/10.1002/eap.2923>

2. Disagreement with the Annual Report conclusion

The 2023 Annual Report includes the wildlife survey and incidental sightings (App. 25, S. 9.0, Table 8) for the 5 years previous to 2023 which is potentially useful. But Agnico Eagle does not comment on any trends in sightings or provide insight into how its monitoring could be coordinated with other monitoring initiatives.

3. Reasons for disagreement with the Annual Report conclusion

Although the numbers do not include any measure of survey effort, they likely capture broad trends. There was no cross-reference to the similar trends for foxes and hares detected on the remote cameras (App.25, App. G, Table 6.2.1).

The trends include wildlife likely to fluctuate or cycle in number (Arctic Fox, Arctic Hare and Ptarmigan). Agnico Eagle relies on tables but in some cases, graphs may draw the reader's attention to the trends (Figure 1). The trends are likely predictive for monitoring and mitigation. For example, if the sightings of Arctic foxes peaked in 2022, then it is uncertain whether the increased mitigation in 2023 (App. 25, S. 9.5.2) was effective or that there were fewer foxes. The increasing trend in raven sightings (App. 25, S. 9.0, Table 8) may reflect an increase in scavenging opportunities, whether the trends include those species which are presently declining (App. 25, S.85).

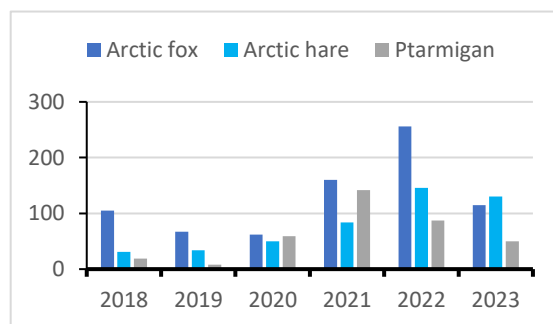


Figure 1. Wildlife survey and incidental sightings based on 2023 Annual Report (App. 25, S.9.0 Table 8).

T&C 45 states that “The Proponent shall demonstrate consideration for cooperating with existing and planned regional and/or community-based monitoring initiatives associated with terrestrial wildlife and wildlife habitat . . .”.

for example, the Nunavut General Monitoring Plan. The 2023 Annual Report does not describe whether there was cooperation with NGMP or other monitoring initiatives. The possible trends would also be an opportunity to ask Inuit elders about changes in numbers and how the mine may be contributing to ecological changes.

Conclusion/Request 24.03



- Comment No. KivIA 5: Behavior and remote camera monitoring**

References: Appendix 25; S. 12.4.2. Appendices F and G; T&C 57b

1. Gap/Issue

Gaps include that specific results were not reported for the mine site, whether there was an increase in the duration of the responses in 2023 and that there were no recommendations for future sampling and analyses especially to assess mitigation effectiveness.

2. Disagreement with the Annual Report conclusion

The KivIA notes that the reports (App. 25, App. F and G) did not address how the monitoring could be further developed to analyze caribou responses to operations including the different types of traffic, groups with and without calves and to describe mitigation effectiveness.

3. Reasons for disagreement with the Annual Report conclusion

The behavior and camera monitoring have contributed to describing responses to the AWAR which is consistent with T&C 57. However, the lack of information on the responses to the mine site, the duration of responses (behavior monitoring) and traffic-type specific responses were a limitation for 2023. Although sample size may be a restriction, the results for the mine site separate from AWAR should have been reported for 2023 even as descriptive statistics. The duration of responses in 2023 appeared to be longer than 2022, for example, but this is from a visual comparison of graphs (App. G, Figures 6.3.6) as descriptive statistics were not provided. The on-going shift in calving to the vicinity of the mine was not considered nor spatial trends (mine site versus southern AWAR) and year (in 2023, cows with younger calves). The impact of groups with young calves was not included as a variable in the analyses but cows with younger calves are likely more responsive.

In 2023, 10 cameras were placed at the mine site and behavior was sampled (App. F and G) for which KivIA thanks Agnico Eagle and for including the traffic type and frequency results. But the KivIA in 2022 had requested cameras be placed on both sides of the narrows and this did not apparently happen in 2023 (App.32 Table 2). Additionally, the cameras in the vicinity of the mine site faced away the mine site and thus could not detect whether vehicle movements were visible despite the sea-can





The issue is how the monitoring results, including the all-weather access road and associated access roads/trails, and waterlines contribute to cumulative effects of the project.

2. Disagreement with the Annual Report conclusion

The KivA is concerned that cumulative impacts are not mentioned in the 2023 Annual Report nor even preliminary analyses or methodology are presented.

3. Reasons for disagreement with the Annual Report conclusion

T&C 57c states that “A demonstration and description of how the monitoring results, including the all-weather access road, and associated access roads/trails, and waterlines contribute to cumulative effects of the project;” The reporting requirement for the Terms and Conditions (App. 36) state that “the Proponent shall provide its discussion of these factors to the NIRB through the Proponent’s annual monitoring report.” Although Agnico Eagle for T&C57c (App. 36), refers to the Annual Report (Section 7.9.1 and 11.11) and Appendix 25, these sections do not describe how the monitoring could or does contribute to measuring cumulative impacts.

The annual monitoring such as the behavior monitoring lends itself to projecting cumulative effects. The measured responses of caribou being alerted or trotting all represent interruptions in forage intake typically up to 6 min/disturbance (App. 25, App. F). The frequency of disturbances can be measured through the remote cameras and road surveys. Forage intake can be modelled to project from individual to herd-scale responses² for example. The 2023 Annual Report did estimate the proportion of the herd exposed to the mine site and AWAR based on the collars (although more correctly it was the proportion of the cows not the overall herd) but did not use the information in the context of cumulative impacts.

Conclusion/Request

i) The KivA requests that Agnico Eagle to provide design options for the TAG to measure how monitoring results at Meliadine contribute to cumulative impacts and toward meeting T&C57c.

Comment No. KivA 7 Harvesting Access

² Russell, D., A. Gunn and R. White. 2021. A decision support tool for assessing cumulative effects on an Arctic migratory tundra caribou population. Ecology and Society 26 (1):4. [online] URL: <https://www.ecologyandsociety.org/vol26/iss1/art4/>





ᑕᑕᓐᓐᓐᓐ P.O. Box 340
ᑲᓐᓐᓐᓐᓐᓐ, ᓄᓄᓐᓐ Rankin Inlet, Nunavut
X0C0G0

T&C 46 (Harvest Study) T&C 48 (Harvest Access)

The 2023 Monitoring Report does not have a section on assessing if and how the all-weather access road changed harvesting access.

T&C 48 lists measures to ensure mitigation and monitoring consider increases to harvesting from improved access. However, the 2023 Annual Monitoring report does not provide information on how to measure changes in harvest levels if access did have an impact. An additional consideration is whether harvesting associated with the use of ATVs modifies the responsiveness of caribou to the AWAB.

The 2023 Annual Monitoring Report lists when the AWAR was closed (Level 3), the estimated group size and the distance of the sighting (App. 25, App. H). But the listing does not separate when the AWAR bridges were closed to ATVs. The behavior monitoring does mention that GN and the KHTO closed the AWAR in 2023 to all traffic including hunters (App. 25, App. F. p.,2). The behavior monitoring did report the frequency of disturbance by vehicle type but did not separate responses relative to the type of disturbance. Annually, light trucks are the majority of vehicles on the AWAR and ATVs are only 5% of all one-way trips (App. 25, 17). But in summer, the situation changes based on the traffic monitored with the remote cameras (App. 25, App. G). When the AWAR is closed, ATVs are second to light trucks, 40% and 56%, respectively, of all vehicles (App. 5, App. G. Table 6.4.1). When AWAR was open (17 July 2023 onwards). ATVs were 10% and light trucks 35%, respectively.

The harvest study does not report monthly caribou harvests which would reveal the number of caribou harvested during the period when the caribou are most likely in the vicinity of the AWAR. The Harvest Study does not summarize methods such as ATV, on foot or a light truck or effort.

- i. The KivIA requests that Agnico Eagle explore options with TAG to measure if and how the all-weather access road changed harvesting access.
- ii. The KivIA requests that Agnico Eagle reports the caribou harvest on a monthly basis and add harvesting effort to the reporting of caribou harvest.



**Comment No. KivIA 8:**

References: App. 25, S. 4.0 Environmental variables
T&C 56e

1. Gap/Issue

The 2023 Annual Report has a brief reporting of annual environmental conditions including timing of snowmelt, green-up for 2023 as required in T&C 56e but not with reference to previous years.

2. Disagreement with the Annual Report conclusion

The KivA suggests that the trends of annual environmental conditions are part of an assessment and are an essential context for describing monitoring and mitigation.

3. Reasons for disagreement with the Annual Report conclusion

The 2023 Annual Report (App. 25, S.4.0) only reports the bare minimum for environmental variables. However, knowing trends and annual variability is essential to support separating environmental effects from project impacts. For example, the shift in calving is likely related to trends in the timing of plant green up and baseline information is available³; comparing the annual green-up timing relative to previous years could contribute to understanding caribou local distribution. During the public hearings for the Meliadine Extension Project, there was discussion about whether caribou had abandoned the traditional crossing west of the mine site in response to mine activities or the timing of lake ice break-up. This suggests that more information such as the timing of Meliadine Lake break-up as well as the date of snowmelt (App. 25, S. 4.0) would be useful.

The significance of describing the minimum temperatures (App. 25, S. 4.0) is not explained; more useful would be, for example, the number of hot days (>20°C) which is relevant to caribou behavior and movements. The temperature, wind speeds and directions are included in the behavioral monitoring (App. 25, App. F; App. B). Although, they did not show as significant variables, most of the behavior scans were earlier in summer before the mosquito season and hot weather (App. 25, App. F, S. 6.3.4).

³ Mallory CD, Williamson SN, Campbell MW, Boyce MS. 2020. Response of barren-ground caribou to advancing spring phenology. *Oecologia* 192: 837-852.



ᐱᐱᓐᓐᓐᓐᓐ P.O. Box 340
ᐅᐱᓐᓐᓐᓐᓐ, ᐃᐃᓐᓐ Rankin Inlet, Nunavut
X0C0G0

Conclusion/Request

- i) Agnico Eagle to consult with TAG to compile a list of environment variables that would contribute as a context for monitoring and mitigation.
- ii) Agnico Eagle to present the annual environmental variables as trends over time and to use graphs to allow distinguishing particularly severe or benign years.

2.2 Aquatic Environment Technical Comments

Comment No. KivIA 9: Reference Sites for the AEMP

Reference: Appendix 17- AEMP, Prairie Scientific. 2024. Aquatic State of Environment Report for Meliadine Lake. March 2024.

Comment:

There is evidence of impacts to the Far Field areas in Meliadine Lake due to mining activity. Additional control areas in the local area should be incorporated into the AEMP to better distinguish between mine related impacts and local variability in the watershed.

Recommendation:

1. As committed to by Agnico Eagle during the NWB licence amendment Technical Meeting, June 6, 2024, additional reference areas at Peter Lake and other lakes should be monitored, with results reported as an annex to the AEMP



ᐱᐱᕐᑲᕐᑲᕐᑲᕐᑲ P.O. Box 340
ᑲᕐᑲᕐᑲᕐᑲᕐᑲᕐᑲ, ᐃᐃᕐᑲ Rankin Inlet, Nunavut
X0C0G0

3. Closing

KivIA appreciates the opportunity to provide comments on the 2023 Annual Report for the Meliadine Gold Project.

Regards,

for:

Luis Manzo
Director of Lands