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Δ' ǂǂǂǂ - CHESTERFIELD INLET/ǂǂǂǂǂǂ - BAKER LAKE/ǂǂǂǂǂǂ - RANKIN INLET/
ǂǂǂǂǂǂ - WHALE COVE/ǂǂǂǂ - CORAL HARBOUR/ǂǂǂǂ - NAUJAAT/ǂǂǂǂ - ARVIAT

1.1 Summary of Comments

- Agnico Eagles should provide better reporting of the use of convoys and design and implement a pilot haul truck convoy program.
- Agnico Eagle should provide more data on caribou road crossing shown in the wildlife summary report Table 11;
- The Government of Nunavut and Agnico Eagle should develop a long-term data share agreement to enable the mine to use collar data to evaluate the potential impacts of the development on caribou.
- Agnico Eagle should compare the contribution road surveys versus viewshed surveys make in triggering changes in mitigation along the Whale Tail Haul Road.
- Agnico Eagle should conduct a comprehensive analysis of the 2018, 2019 and 2020 camera photos.
- Agnico Eagle should justify and re-examine their definition of 'tolerant' caribou, especially why almost all 'tolerant' caribou were on the upstream side of the roads during migration and why this was not interpreted as a mine-induced delay in movement.
- In caribou behaviour studies, Agnico Eagle should examine how long since the last vehicle passage and whether caribou were on the upstream or downstream side of the roads.
- Agnico Eagle should integrate monitoring results to determine their effectiveness in sampling caribou distribution relative to proposing thresholds.
- Agnico Eagle should present a timeline and 'road map' for design of the widening of the Whale Tail Haul Road from 9.5 to 15 m.

- Agnico Eagle should include more detailed plans for bench-scale testing on water treatment to ensure the appropriate water quality is achievable.
- Agnico Eagle should continue monitoring the nutrient loads and phytoplankton biomass and taxa richness.
- Agnico Eagle should consider removing Nemo Lake as a mercury study reference lake should large volume discharges to the watershed resume.
- Agnico Eagle should provide details on the steps they have taken to prevent a fuel spill from occurring at the Baker Lake Farm.

2. Technical Review

2.1 Terrestrial Technical Comments

Reviewer	#	Reference	Comment	Recommendation
Meadowbank Complex 2020 Annual Report				
AWR on behalf of KivIA	1	S 11.9.2.1.1 Baker Lake HTO	The annual report lists topics discussed in meetings with the Baker Lake HTO during 2020. One of the topics listed was the “ <i>Whale Tail Caribou Management Plan</i> ”.	Agnico Eagle should clarify what management plan they are referring to.
Appendix 47: Meadowbank and Whale Tail 2020 Wildlife Monitoring Summary Report				
AWR on behalf of KivIA	2	Overall	The 2020 wildlife summary report and related appendices provide an overview of the different methods for monitoring caribou and other wildlife and mitigation actions. The KivIA is pleased that Agnico Eagle has responded to a number of our recommendations on the 2019 summary report, including clarifying vehicle passages and providing additional details on the reasons/triggers for enhanced mitigation and road closures. The latter is progress towards providing more information for which to evaluate the effectiveness of monitoring.	N/A
AWR on behalf of KivIA	3	S 2 Road surveys; TEMP V7	Use of convoys figures prominently in management of traffic disturbance on caribou (S 2.6.6, pg 2-19; TEMP V7: Figs. 6, 8). Convoing of vehicles, especially large trucks, during caribou migration has the potential to deflect or delay caribou crossing during migration depending on number and spacing of convoys. Convoys are often used during road closures (Tables 9, 10) yet there has been no reporting on the frequency and size of the convoys, and no study or reporting of the efficacy of convoing, the spacing between convoy disturbance events, or the duration of time since disturbance that caribou are more likely to cross.	Agnico Eagle should: i) report on the number, size and spacing/timing of convoys on both the AWAR and WTHR; and ii) in collaboration with the Terrestrial Advisory Group (TAG), design and implement a pilot haul truck convoy program that could test patterns of timing of road closure and convoing to determine whether convoys of vehicles (including and without heavy equipment) both would

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				impact caribou movements and optimal timing between convoys.
AWR on behalf of KivIA	4	S 2.6.6 Caribou Crossings	Road surveys and incidental sightings provided records of numbers and locations of caribou crossing mine roads (Table 11, pg 2-19). The source for about half of the observations is listed in the notes, primarily from the Wildlife Log. The notes stating “Tolerant Observations” are perplexing, as it is unclear how these were determined and what this has to do with crossing the roads. These data would be strengthened with the addition of road closure status, current traffic level (since various kinds of traffic often occurred on closed roads), and direction that the caribou crossed.	Agnico Eagle should: i) add the following data to Table 11: road closure status, current traffic level, and direction that the caribou crossed; and ii) clarify what “Tolerant Observations” notes mean.
AWR on behalf of KivIA	5	S 5 Caribou Satellite-Collaring Program	<i>“Agnico Eagle requested access to 2020 collared caribou data on October 27, 2020. The data had not been received at the time of publication of this report”</i> (S 5.6, pg 5-2). The KivIA is extremely disappointed that the Government of Nunavut (GN) and Agnico Eagle were unable to sign a data share agreement to enable the mine to evaluate collar movements relative to their mining operations. Action 2.3c of the Nunavut Caribou Strategy (2014) states that the GN will <i>“Work with industry to make caribou information available for baseline studies and impact assessments”</i> . These collar data are an important component of the multitude of data used to assess the effectiveness of monitoring and the accuracy of impact predictions.	Agnico Eagle and the Government of Nunavut should develop a long-term data share agreement to enable the mine to use collar data to evaluate the potential impacts of the development on caribou.
AWR on behalf of KivIA	6	S 6 Viewshed surveys	Viewshed surveys were implemented in February 2020 to replace height of land (HOL) surveys (S 6.1, pg 6-1) and are well-reported (S 6.6, pgs 6-2 to 6-5). These surveys are designed to help trigger enhanced mitigation when caribou are within 4 km of the haul road, an early warning system for detecting caribou approaching the haul road. Viewshed surveys are effectively 10-minute stops at 12 set locations along the Whale Tail Haul Road (WTHR). The report	Agnico Eagle should provide: i) the distance from the road that caribou groups were observed during road surveys (to compare with viewshed surveys); ii) a discussion on why more viewshed surveys were not

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			<p>recommended “increasing the frequency of viewshed surveys in 2021 should be a primary objective” (S 6.7, pg 6-6).</p> <p>The KivIA questions whether the viewshed surveys are making a significant contribution to monitoring that triggers changes in mitigation, or whether these are driven by the more rapid and more frequent road surveys. Only 6% of 163 viewshed surveys observed caribou, although many of these did not occur during migration (S 6.6, pg 6-6), and it is unclear why more viewshed surveys were not conducted throughout the spring migration. Despite viewshed surveys being in place during both migration seasons, the method was only acknowledged once as a trigger for road restrictions on the WTHR (Table 10, pg 2-18).</p> <p>The viewshed surveys should theoretically provide further distance monitoring of caribou numbers for triggers (average distance was 630 m for the road, with furthest 1 km) (S 6.6, pg 6-6) but it is unclear how far off the road caribou were spotted during road surveys.</p>	<p>conducted during spring migration 2020; and</p> <p>iii) a comparison of the contribution road surveys versus viewshed surveys make in triggering changes in mitigation along the WTHR.</p>
AWR on behalf of KivIA	7	S 7 Remote cameras – App. J	<p>The primary objective of the remote camera program is “to monitor caribou behavioural interactions with the WTHR, and adapt management practices (i.e., traffic mitigation) as required” and to “... allow[s] for comparisons to determine if caribou crossing locations along the WTHR are related to the physical parameters of the road” (S 7.2, pg 7-1). With only 8 locations (16 paired cameras), the KivIA questions whether there is sufficient sample size to quantify road characteristics and caribou crossing. The “Infrequent capture of caribou crossing events” (S 7.5, pg 7-3) and the data suggest the cameras are not overly useful to document crossings.</p> <p>This section goes on to state “The amount of time since last vehicle passed is shorter when the WTHR is open than closed, which suggests that caribou are not responding immediately to WTHR closures” (S 7.6, pg 7-6). The KivIA respectfully submits that there is a total lack of data to support this statement (all but one crossing occurred during</p>	<p>Agnico Eagle should:</p> <p>i) comprehensively analyze 2018, 2019 and 2020 photos; and</p> <p>ii) recommend any revisions in sampling design for the 2021 TEMP and for TAG review.</p>

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			road closure). The limited sample of photos in the 2019 Summary Report (Appendix J) showed delays in when the caribou cross the haul road after traffic. This is a useful start and requires a comprehensive report covering all camera data collected to date.	
AWR on behalf of KivIA	8	S 9 Caribou Management Decision Tree; S 2.6.6; Appendix B	<p>The Terrestrial Ecosystem Management Plan (TEMP V7) defines ‘project tolerant caribou’ as “<i>an animal or group of animals (i) observed within a mitigation distance buffer for greater than 72 hours during the winter or 48 hours during other seasons; and (ii) not visibly disturbed by the Project</i>” (TEMP V7, pg 40). Presence of ‘tolerant’ caribou next to the road results in an exemption to Level 3 road closures in the caribou decision trees (TEMP V7, Figs. 6–9). The reporting of ‘tolerant’ caribou is a new item for annual reporting and is a concern to KivIA given the high numbers. Over 22,000 caribou were classified as project tolerant in 2020, ~37% of all caribou observed, the vast majority during migrations. Well over 95% of these ‘tolerant’ caribou were detected on the upstream side of the road during migration (the west side in spring and east side in fall; Appendix B).</p> <p>The KivIA is concerned with these statistics and their implication to mitigation:</p> <p>i) Without continual monitoring, what was used to determine that it was the same group of caribou in the same area for >48 hrs?</p> <p>ii) “Not visually disturbed” is subjective. Agnico Eagle stated “<i>To understand visible disturbance to the animals, behavioural monitoring (i.e., group scans) will be completed when the animal(s) are encountered and at least once per day until they are deemed Project-tolerant</i>” (S 9.5, pg 9-2) but did this happen in 2020 or is it proposed for the future. No data on behaviour of ‘tolerant’ caribou were presented.</p>	<p>KivIA suggests that defining ‘tolerant’ caribou should be a topic for TAG in view of more recent information on caribou delaying their road crossings. Agnico Eagle should justify their interpretation and classification of caribou as ‘tolerant’. This should include:</p> <p>i) how caribou residency for >48 hrs was determined;</p> <p>ii) how ‘not visually disturbed’ was assessed;</p> <p>iii) an explanation why almost all ‘tolerant’ caribou were on the upstream side of the roads during migration and why this was not interpreted as a mine-induced delay in movement; and</p> <p>iv) Agnico Eagle in consultation with TAG should design an application of the behaviour sampling to test a diagnosis for ‘tolerant’ caribou and for the presence of ‘tolerant’ caribou as</p>

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			iii) Why were almost all 'tolerant' caribou observed on the upstream side of migration, and why were almost no 'tolerant' caribou observed downstream of the roads during migration? One interpretation would be that the upstream caribou are not tolerant but are being delayed by the mine infrastructure and activities and less eager to cross, and with their designation as 'tolerant' the continued traffic activity would heighten their reluctance to cross.	evidence for mitigation effectiveness.
AWR on behalf of KivIA	9	S 17.2 Caribou behaviour; Appendix I	<p>The Caribou behaviour study, 2020 report (Appendix I) is a clear and useful account of a trial project to describe caribou behaviour. KivIA has the following comments:</p> <p>i) The categorization of walking as a non-response (calm) behaviour is not supported in the literature. Wolfe et al. (2000)¹ described walking as a response to aircraft, and Reimers and Colman (2006)² included both running and walking as a restless (responsive) behavior. We suggest that walking is more likely to be a response (disturbed) behaviour and should be classified as such.</p> <p>ii) The number of disturbances is relatively high but it is not clear how many, if any, behaviour observations occurred when the road was closed or other mitigation was in effect (e.g., speed limits, traffic halted). Whether the road is closed or not should be included as a variable in analyses, or the objectives should be focused to answer a specific question such as whether the frequency of responses decreases when the road is closed versus when the road is open to traffic during a single migratory season. With the latter we mean that "normal" behaviour and responses to disturbance likely differ between spring and fall migration.</p> <p>iii) It is not clear why the number of small groups and groups closer to the road was relatively low; the report states this may be because</p>	<p>Agnico Eagle should:</p> <p>i) justify that walking is indeed a non-response behaviour;</p> <p>ii) include whether the road is closed or not and how long since the last vehicle passage as variables in analyses;</p> <p>iii) include whether caribou were on the upstream or downstream side of the roads as a covariate in analyses; and</p> <p>iv) examine whether 'tolerant' caribou do indeed have a lower frequency of response behaviours.</p>

¹ Wolfe, S. A., B. Griffith and C. A. Gray Wolfe. 2000. Response of reindeer and caribou to human activities. *Polar Research* 19:1–11.

² Reimers, E., Colman, J.E., 2006. Reindeer and caribou (*Rangifer tarandus*) response towards human activities. *Rangifer* 26, 55–71.

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			<p>caribou “<i>tend to avoid areas within 100-300 m of the road</i>” (pg 11). Boulanger et al. (2020)³ reported that caribou were delayed on the upstream side of the road, which implies the caribou were congregating and waiting to cross. Analyses of the road survey data by Stephen Atkinson also showed that the number of groups observed were far more numerous on the upstream side of roads, likely affecting the size of caribou groups being observed. Given that the behaviour report described “<i>distance to road should be considered as a better explanatory variable for caribou behaviour than group size for this pilot program in 2020</i>” (pg 14), an objective could be to increase the sample size for 100–300 m from the road and determine if there are behavioural differences for near and far caribou groups. In addition, although it was recorded which side of the road caribou groups were located, it would also be useful to consider whether caribou were on the upstream or downstream side of the roads as a covariate in analyses.</p> <p>iv) An information gap that the behaviour study potentially could address is the question of whether project-tolerant caribou are really tolerant (i.e., whether they have a lower frequency of response behaviours).</p>	
AWR on behalf of KivIA	10	S 11 Integration	While Section 11 Integration is a useful summary of the nine monitoring methods for caribou (Table 11.1) there is no quantitative analysis to describe the effectiveness of the different methods and how adequately they sample caribou distribution at different timescales and spatial scales.	Agnico Eagles should provide TAG with a study design for analyses to integrate monitoring results to determine their effectiveness in sampling caribou distribution relative to proposing thresholds.

Appendix 4 - Whale Tail Haul Road Whale Tail Haul Road KVRW15F01 2021 Work Plan

³ Boulanger, J., R. Kite, M. Campbell, J. Shaw, and D.S. Lee. 2020. Analysis of Caribou Movements Relative to the Meadowbank Mine and Roads during Spring Migration. Government of Nunavut, Department of Environment Technical Report Series – No:01-2020. 31 July 2020.

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AWR on behalf of KivIA	11	S 3 2021 Planned Activities	Widening of the Whale Tail Haul Road from 9.5 m to 15 m has been permitted under Water License 2AM-WTP1830 will be conducted at some point after 2021. In 2018 and 2019 there was much discussion at Terrestrial Advisory Group (TAG) meetings to develop caribou-friendly slopes to the road in specific areas, driven by caribou trails, collar data and IQ. Acknowledging the delays imposed by the Covid-19 pandemic beginning in March 2020, these discussions and planning should continue in preparation for road widening.	Agnico Eagle should present a timeline and 'road map' for design of the widening of the Whale Tail Haul Road from 9.5 to 15 m.

2.2 Aquatic Environment Technical Comments

Reviewer	#	Reference	Comment	Recommendation
Meadowbank Complex 2020 Annual Report				
PSI on behalf of KivA	12	2020 Annual Report, 4.4.3 Predicted Vs Measured Water Quality, 4.4.3.1 Meadowbank Site Appendix 11: Meadowbank 2020 Water Management Report and Plan Version 9, Appendix C	<p><i>"Based on the results of the water quality mass balance presented in Section 4.2 of the Meadowbank Water Quality Forecasting Update for the 2020 Water Management Plan, treatment of the reclaim water at the end of in-pit deposition will be required for metals removal (such as for aluminium, arsenic, copper, iron and nickel) and TSS removal. Ammonia removal may also be needed, as well as Total Dissolved Solids reduction."</i></p> <p>The concerns remain that treatment in perpetuity may be required to ensure the mined out pit are suitable aquatic habitats. Contaminant loads continue to exceed forecasted values, possibly exacerbated due to increased leaching of arsenic and other metals from Whale Tail ore.</p>	<p>Agnico Eagle should include more detailed plans for bench-scale testing on water treatment to ensure the appropriate water quality is achievable.</p> <p>Further, should small scale testing indicate that short-term treatment is inadequate for long term habitat suitability, Agnico Eagle should explore alternative habitat offsetting strategies.</p>

Reviewer	#	Reference	Comment	Recommendation
PSI on behalf of KivA	13	2020 Annual Report, 8.1.2 Whale Tail Site	<p><i>“Nutrients – trigger exceedances were statistically significant for total Kjeldahl nitrogen (TKN) at NF areas. Trigger exceedances were statistically significant for total phosphorous (TP), total organic carbon (TOC) and dissolved organic carbon (DOC) at WTS, likely the result of inputs from flooded terrestrial habitats following impoundment and dewatering inputs from WTN. Trigger exceedances were also statistically significant for TOC and DOC at MAM and Lake A20.”</i></p> <p>Exceeding the CCME guidelines for total phosphorus and increased nutrient levels may result in long term changes in trophic level of the water system. Such deviations may also be indicated by variations in phytoplankton taxa richness.</p>	Agnico Eagle should continue monitoring the nutrient loads and phytoplankton biomass and taxa richness. Should total phosphorus and other nutrient concentrations continue to increase, Agnico Eagle should propose a mitigation strategy, as well as discuss how this might impact closure objectives and timelines.
PSI on behalf of KivA	14	2020 Annual Report, 8.2 Methylmercury Studies Whale Tail Site Appendix 33: Meadowbank and Whale Tail 2020 Core Receiving Environment Monitoring Program Report, Appendix G	Nemo Lake continues to be used as a reference lake for mercury loading studies; discharge to the Nemo watershed in 2020 was limited to 180,829 m ³ , down from 1,080,667 m ³ in 2019. Should discharge to the watershed again reach 2019 levels, Nemo Lake would not be a suitable spatial reference for mercury concentration.	Agnico Eagle should consider removing Nemo Lake as a mercury study reference lake should large volume discharges to the watershed resume.
PSI on behalf of KivA	15	2020 Annual Report, Section 7, Spill Management	<i>“During a routine inspection at the Baker Lake Farm, fuel was observed in the secondary containment of fuel tanks 5 & 6. After further inspection, a small fuel leak was observed”</i>	KivA recommends Agnico Eagle provides details on the steps they have taken to prevent

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			Baker Lake is culturally significant and an important source of fish for the people of the Baker Lake community. A fuel spill resulting in 403,000 L of contaminated water so close its shores is a cause for concern.	another such spill from occurring

2.3 Geophysical Technical Comments

Reviewer	#	Reference	Comment	Recommendation
GeoVector	16	Annual Report Geoscience technical section	KivIA have no comments on the geotechnical section for Meadowbank and Whale Tail. No issues were found in the annual monitoring report.	

3. Closing

KivIA appreciates the opportunity to provide comments on the 2019 Annual Report for the Meadowbank and Whale Tail Gold Project. Please contact Luis Manzo, Director of Lands, should you require more information.

Regards,

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