

MITIGATION MEASURES/PRACTICES OBSERVATIONS

- The documents uses a **widespread use of vague terminology** when describing the proposed mitigation measures. There is no quantification of how effective the measures will be, and there is no contingency plan in case a proposed mitigation measure fails to deliver the expected outcome. The comments below focus on the Environmental Impact Statement section reporting on the proposed mitigation measures for Caribou (Section 7.8.2.2, Table 7.7, pages 7.50, 7.51, and 7.52.). However, the issue highlighted above is recurrent throughout the EIS.
- The proponent indicates a total of 30 **mitigation measures** to reduce negative impacts on Caribou. Of these, approximately **1/3 contain vague terms** such as “to the extent practicable”, “where feasible”, “limited to that which is necessary”, “proper handling and storage”.
- For example, when the proponent states “Vehicles and heavy equipment will be maintained in good working order and will be equipped with appropriate mufflers to reduce noise.”, many questions remain unanswered:
 - What is the definition of “good working order” and what standards are being followed?
 - What is an “appropriate muffler”?
 - What is the reduction in noise emission expected from the implementation of the measure?
 - How will the proponent evaluate whether or not the measure is effective?
 - What will be done in case maintaining a “good working order” and using “appropriate mufflers” are found to be ineffective at mitigating noise?
- Some of the measures are deferred, pointing to the **development of management plans** (e.g., “Project facilities and infrastructure will be designed to limit noise emissions”; “Marathon will develop and implement a Traffic Management Plan to manage transportation of workers and materials to site, product leaving site, the number of vehicles accessing the site, and to reduce traffic delays”). Such **management and design plans should be included in the**

EIA documentation, as there is no way for the public to understand and evaluate their content and appropriateness as mitigation measures.

- Other measures seem to stem from **arbitrary thresholds**. For example, changes in Caribou habitat use have been observed to occur as far as 23 km from a mining site (Plante et al., 2018). Similarly, what is the justification for limiting project-related air-traffic to 500 m? For example, mountain Caribous still have 30 to 40% probability of reacting to helicopter passes at altitudes between 500-1000 m (Wilson & Wilmshurst, 2019).

If the project involves frequent use of aircrafts and helicopters, what is the expected acoustic disturbance from such activities?

- And again, activities will be reduced if Caribou is sighted within 500 m from project activities. Considering that avoidance and behavioral effects can occur at tens of kilometers from the site, this threshold does not seem appropriate, especially as a buffer for blasting activities.
- There are different references to **the adoption of adaptive management strategies** in case of negative events, however, this is a reactive approach rather than a proactive approach. The adaptive management cycle should start prior to the occurrence of such events, not be triggered by them. In addition to this, adaptive management should be a project-wide strategy and the application of its principles should not be tailored to specific events. In other words, the ***adaptive management approach should be applied to all mitigation measures – including monitoring their outcomes and updating the measures if found to be inefficient.***
- Lastly, there is a **contrast of objectives between different proposed mitigation measures**. The proponent indicates that movement of Caribou (and other wildlife) will be facilitated by, for example, creating openings in snowbanks and providing low areas when building the access roads ditches. At the same time, placing of boulders / gates / fences is indicated as a mitigation measure to limit public access to the site.
 - ***How are these two measures compatible? How is the proponent making sure that the barriers put in place to restrict public access will not affect Caribou (and other wildlife) movement as well?***

ACOUSTIC DISTURBANCE

EIA DOCS:

- Valentine Gold Project Environmental Impact Statement Chapter 5 – Atmospheric Environment
- Valentine Gold Project Baseline Study Appendix 6 – Sound Quality
- Valentine Gold Project Appendix 5H – Sound Sources
- Valentine Gold Project Appendix 5L – Sound Sources

Overall

*“Acoustic environment was selected as a subcomponent of the atmospheric environment because noise resulting from the **Project can affect human health and wellbeing, and wildlife and wildlife habitat.** The acoustic assessment includes baseline sound pressure level monitoring near the Project and predicted noise levels associated with construction and operation activities **using acoustic modelling.** The baseline and predicted noise levels were used to estimate the potential effects of the Project activities on the acoustic environment. The acoustic assessment was based on equivalent sound pressure levels (Leq) for the daytime and nighttime periods*

*(Ld and Ln), and the day-night average sound level (Ldn). The predicted and baseline noise levels were assessed **using criteria recommended by Health Canada (2017),** which includes a threshold associated with an estimate of the change in percentage of people highly annoyed (%HA) by noise emissions from Project activities.” (Valentine Gold Project Environmental Impact Statement Chapter 5 – Atmospheric Environment, page 5.2)*

Although the Environmental Impact Statement recognizes that noise affects both human health and wildlife, **the estimation of noise pollution is tailored to human health only, without any specific evaluation of wildlife impacts.** The EIA disregards a large and growing body of work documenting the effects of anthropogenic noise on wildlife (For example, see: Farina, 2017; Kight & Swaddle, 2011; Kunc & Schmidt, 2019; Shannon et al., 2016). More importantly, many of the taxonomic groups considered as VC have been shown to be affected by noise pollution. Bats (Bunkley & Barber, 2015), birds (Francis et al., 2009; Injaian et al., 2018; Ng et al., 2020), and even Caribous (Slabbekoorn et al., 2018) respond to anthropogenic noise and can be negatively impacted by it.

Bradshaw et al. (1997) showed how blasting for petroleum exploration may reduce foraging time and induce temporary habitat loss in woodland Caribou. Blasting is recognized as a source of noise in the EIA and this activity is scheduled to happen during daytime, with one pit active at a time, and if sensitive wildlife receptors are in the area,

this may result in negative effects. Some species of bats, for example, may reduce the use of areas in which blasting activity occur (Tanalgo et al., 2017). However, the proposed analysis and results are most likely underestimating the overall acoustic output of the project and related activities. **Blasting is not explicitly included in the acoustic evaluation**, even though Health Canada identifies blasting as being either a highly impulsive or a high-energy impulsive type of noise, recommending the implementation of a + 12 dB adjustment for the estimated project acoustic footprint.

Baseline Measurements

“Current ambient sound levels within the Study Area were characterized by conducting a baseline sound quality monitoring survey. The baseline sound quality monitoring survey was conducted from June 15 to 19, 2020 at one location near the mine site (Figure 3-1) and is representative of the nearest seasonal receptor.” (Valentine Gold Project Baseline Study Appendix 6 – Pages 6 and 14)

The acoustic assessment is based on the contrast between the estimated project sound input and the measured baseline values. However, the baseline relies **on four days of sound quality monitoring at a single location. Only two full records (midnight to midnight)**, collected in June 16 and 17 2020 were used to calculate the Ld, Ln, Lnd, and %HA values, indicating that the baseline estimated by the proponent relies solely on two days of acoustic monitoring. **Two days of monitoring at a single location are not enough to capture the natural variability of the project area acoustic environment.** Seasonal and daily changes in natural background noise occur throughout the year and are caused by changes in environmental conditions (e.g., temperature, precipitations, presence of snow and fog), and by changes in species distribution. For example, dusk and dawn are known to be times at which species vocal activity tend to increase, resulting in significant changes to the acoustic environment and in a higher potential of noisy project activities to cause disturbance. Furthermore, acoustic propagation is not constant across space, as natural features (e.g., exposed rocks, tree cover, natural barriers) and environmental conditions (e.g., humidity and temperature) contribute to small changes in acoustic propagation at the macro (kilometers) and micro (meters) scale. This means that the **baseline presented in this study is characteristic of the recorder’s specific location, not of the entire project area.**

Another shortcoming is the **absence of regular acoustic monitoring during all of the project phases** (construction, operation, decommission). The proponent needs to provide evidence that the mitigation measures contained in the EIS will actually result in noise levels that are below the threshold of disturbance for the different Valued Components.

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