
HAMMOND REEF GOLD PROJECT RESPONSE TO COMMENTS ON FINAL EIS/EA

COMMENT – A-7

Source: Canadian Environmental Assessment Agency

Summary of Comment

EC has reviewed the Proponent's assessment of alternatives for waste rock and tailings disposal, including the additional details provided in response to information requests (IRs) following the review of the draft EIS. EC is of the view that the Proponent has, in general, followed EC's "Guidelines for the Assessment of Alternatives for Mine Waste Disposal" (Guidelines).

EC examined the Proponent's multiple accounts analysis (MAA) in terms of the selection of indicators, assigned scores and methodology for establishing the weightings.

EC's comments are stated below:

- There does not seem to be consideration given to the discriminating factor relative to the ability of the various alternatives to hold additional volumes of tailings and waste rock in the event of a mine expansion in the future.
- For the indicator 'geotechnical risk' under the Technical Account, the maximum height of dams has been used as the metric in the scoring scheme. It is not clear whether the proponent has considered the number of dams as a discriminating factor between the various alternatives.
- EC noted that some metrics are used more than once to assess impacts for different indicators. Some examples are provided below:
 - Dam Height was used to assess the Geotechnical risk indicator (page 36) as well as the Maximum height of TMF dam (page 43).
 - Number of Seepage Collection Ponds was used to assess both the Number of collection ponds (page 38) and the Impact to groundwater (page 31) resulting in the same outcome for two different alternatives.
 - The Area of tailings was used to assess the Net run-off from tailings (page 37), Potential for dust generation (page 32), Impact to flora/fauna due to TMF footprint (page 25), and the Complexity of Closure Indicator (page 39).
 - The Length of tailings pipeline was used to assess Impact to Flora/Fauna due to TMF infrastructure (page 25), Pumping requirements (page 35) and the Pipeline length (page 36).
 - The 'Foundation Conditions' indicator is not well described in the text. It may be difficult for a non-technical stakeholder to follow it.
- There are no references to support the Proponent's scoring. The alternatives assessment, including the description of the indicators and associated scoring, needs to provide enough detail that a third party reviewer can understand how all scores for indicators were determined, and assess whether or not the scores are valid. At present, such detail is lacking for some indicators.

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Proposed Action

The Proponent is requested to eliminate duplicate metrics, incorporate the additional metrics noted, address comments T-4 through T-9 in Table 1: Federal Information Requests on Osisko [Canadian Malartic Corporation] Hammond Reef Gold's Final Environmental Assessment Report (Environmental Impact Statement) and submit a revised MAA.

The proponent is requested to define the 'Foundation Conditions' indicator.

The proponent is requested to provide references such as studies or technical memorandums to allow EC to track the information and evaluate the assessment.

Reference to EIS

7.4

Appendix 4.1 Mine Waste Disposal Alternatives Assessment Version 2

Response

Comment: There does not seem to be consideration given to the discriminating factor relative to the ability of the various alternatives to hold additional volumes of tailings and waste rock in the event of a mine expansion in the future.

Response: The mine waste alternative assessment was based on the mine plan presented and assessed in the Final EIS/EA Report and was therefore based on the best available information. All TMF alternatives, to a reasonable degree, would have the ability to contain additional tailings by modifying the dam heights and adding new dams, if required, within the same general footprint. Similarly, the WRMF alternatives would have the ability to store additional waste rock by expanding the height or footprint area of the stockpile. In the future, if Canadian Malartic Corporation decides to pursue an expansion to their mine and the selected TMF and WRMF locations cannot contain the increased tailings/waste rock volumes without significant modification to their currently proposed configurations (based on a reasonable interpretation), the mine waste alternatives assessment will be updated.

Comment: For the indicator 'geotechnical risk' under the Technical Account, the maximum height of dams has been used as the metric in the scoring scheme. It is not clear whether the proponent has considered the number of dams as a discriminating factor between the various alternatives.

Response: The number of dams was not used to assess the geotechnical risk. All TMF alternatives were assumed to contain the same volume of tailings and the relative height of the tailings above the existing ground (assessed based on the maximum dam height) was considered to be the best metric for evaluation.

Comment: EC noted that some metrics are used more than once to assess impacts for different indicators. Some examples are provided below:

Response: It is acknowledged that the same metrics were used to evaluate different indicators. This is considered to be a reasonable and sensible approach considering that many indicators, selected to evaluate different environmental/technical/economic/social considerations, are at their foundation based on similar key metrics (e.g., footprint area, haul road length, etc.). The assessment is considered to adequately evaluate the potential impacts and technical, economic and social considerations.

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Comment: Dam Height was used to assess the Geotechnical risk indicator (page 36) as well as the Maximum height of TMF dam (page 43).

Response: It is considered reasonable to use dam height to assess both the geotechnical risk indicator and the visual impact indicator.

Comment: Number of Seepage Collection Ponds was used to assess both the Number of collection ponds (page 38) and the Impact to groundwater (page 31) resulting in the same outcome for two different alternatives.

Response: It is considered reasonable to assess both the potential impact to groundwater and the complexity of the seepage collection system using the number of collection ponds required.

Comment: The Area of tailings was used to assess the Net run-off from tailings (page 37), Potential for dust generation (page 32), Impact to flora/fauna due to TMF footprint (page 25), and the Complexity of Closure Indicator (page 39).

Response: It is considered reasonable to assess the potential water management requirements (using net runoff from tailings), potential for dust generation and complexity of closure using the area of the tailings deposit as the metric. The impact to flora/fauna due to the TMF footprint is evaluated based on the total TMF footprint area, not the tailings area.

Comment: The Length of tailings pipeline was used to assess Impact to Flora/Fauna due to TMF infrastructure (page 25), Pumping requirements (page 35) and the Pipeline length (page 36).

Response: It is considered reasonable to assess the potential impact to Flora/Fauna due to TMF infrastructure, pumping requirements, the technical complexity (through the pipeline length indicator) using pipeline length as the metric.

Comment: The 'Foundation Conditions' indicator is not well described in the text. It may be difficult for a non-technical stakeholder to follow it.

Response: The foundation conditions indicator description provided can be simplified as:

In areas where the underlying geology is weak (e.g., organic based soils, soft clays) complicated engineering solutions and additional costs to remove unsuitable soils can be required to provide adequate containment of tailings. Therefore, areas where the underlying geology is strong (e.g., tight bedrock) are preferred for construction of tailings containment facilities.

Comment: There are no references to support the Proponent's scoring. The alternatives assessment, including the description of the indicators and associated scoring, needs to provide enough detail that a third party reviewer can understand how all scores for indicators were determined, and assess whether or not the scores are valid. At present, such detail is lacking for some indicators.

Response: The scoring is based on information contained in the Final EIS/EA Report and the Terms of Reference, quantification of key parameters using publically available geographical information and the professional judgement of engineers and environmental specialists. The assessment was completed by Golder Associates Ltd., a credible engineering and environmental consulting company, and is presented in a

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transparent manner. It is considered that the level of detail provided in the mine waste alternatives report is adequate for a third party reviewer to determine that the conclusions of the assessment are valid.

Comment: The Proponent is requested to eliminate duplicate metrics, incorporate the additional metrics noted, address comments T-4 through T-9 in Table 1: Federal Information Requests on Osisko [Canadian Malartic Corporation] Hammond Reef Gold's Final Environmental Assessment Report (Environmental Impact Statement) and submit a revised MAA.

Response: It is not considered reasonable to eliminate the indicators that are evaluated using the same metrics. Doing so would eliminate the consideration of several key indicators required for a fulsome assessment.

As discussed in the response to T-8, following a meeting with Environment Canada (EC), Canadian Malartic Corporation expanded the list of indicators to include recommendations from EC. A preliminary list, including proposed metrics, was then set to EC for review. Through their review, EC suggested additional indicators and these were added to the assessment. EC did not provide comment on the proposed metrics to be used. Canadian Malartic Corporation does not feel that it is reasonable for EC to request the inclusion of more indicators be included at this stage. It is considered that the mine waste alternatives assessment is complete and the conclusions are transparent and valid.