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March 9, 2018

Sent by E-mail

Steve Lines  
Environmental Assessment and Permitting Manager  
Greenstone Gold Mines  
2381 Bristol Circle, Suite B203  
Oakville, ON L6H 5S9  
[Steve.Lines@ggmines.com](mailto:Steve.Lines@ggmines.com)

Dear Mr. Lines,

**SUBJECT: Outcome of completeness check of the responses provided by Greenstone Gold Mines to Information Requirement #1 on the Environmental Impact Statement for the Hardrock Gold Mine Project**

Thank you for the response dated February 23, 2018, to Information Requirement #1 (IR-1) on the Environmental Impact Statement (EIS) for the Hardrock Gold Mine Project (the Project). The Canadian Environmental Assessment Agency (the Agency) has conducted a completeness check, to form an opinion on whether the information required has been provided to enable the Agency to proceed with the federal environmental assessment (EA), and has concluded that the response is incomplete.

The Agency reviewed the completeness of the response to IR-1 to determine whether the responses provided by Greenstone Gold Mines (GGM) contained sufficient details and were consistent with the direction provided in IR-1. Responses to the technical questions itemized in IR-1 are necessary for the Agency to draw conclusions to support advice to the federal Minister of Environment and Climate Change on whether the Project, taking into account the implementation of any mitigation measures, is likely to cause significant adverse environmental effects, as described in Section 5 of *the Canadian Environmental Assessment Act, 2012* (CEAA 2012). In addition to potential environmental effects with respect to Indigenous peoples, IR-1 also included questions to support the Agency's advice to the Minister on the potential for the Project to impact Aboriginal and/or Treaty rights.

Upon review of the response to IR-1, the Agency has concluded that the response does not meet the requirements of IR-1. The responses were incomplete with respect to a number of topics, including changes to water quantity and quality, effects on current use of lands and resources for traditional purposes, potential effects of accidents and malfunctions on human health, effects that are directly and indirectly associated with federal authorizations as described by subsection 5(2) of the *Canadian Environmental Assessment Act, 2012* (CEAA 2012). Specifically, responses to 19 of the 86 information requirements in Annex 1 of IR-1 were found to be incomplete.

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While the Agency has deemed the remainder of GGM's responses as complete, we may have information requirements based on the technical review of these responses. In particular, we anticipate seeking further clarification on CEEA\_1, CEEA\_2, and CEEA\_4, related to the timing, duration and sequencing of specific project activities, specific mitigation measures, and on specific follow-up programs.

For the Agency to confirm that the responses are complete to proceed with the EA, all deficiencies in the response to IR-1, which are further detailed in the attached Annex 1, must be corrected prior to resubmission. Based on the nature of the comments, the Agency has determined that GGM must resubmit a revised IR-1 response package that addresses the original IR-1 by correcting all identified deficiencies.

The outcome of this completeness check, including this letter and Annex 1, will be shared with federal and provincial authorities and Indigenous groups and will be posted on the Canadian Environmental Assessment Registry Internet Site. Upon your submission of a revised response to IR-1, the Agency may take up to a maximum of 15 days to complete another completeness check without the timeline for the EA resuming. The timeline would then resume if the Agency has not come to a conclusion after 15 days.

Following the next completeness check, the Agency will notify you in writing about the outcomes and next steps. If the Agency determines that the revised response to IR-1 has addressed the deficiencies identified in Annex 1, the Agency will begin a technical review of the response and will notify Indigenous groups of the outcome. If the deficiencies are not addressed, the Agency will notify you of the information required.

The Agency welcomes the opportunity to discuss the outcome of this completeness check with you and provide further advice on how to best address the information requirements identified. The Agency recommends scheduling a meeting to discuss the findings detailed in Annex 1. Please contact me at 647-262-8219 or via email at [Hardrock@ceaa-acee.gc.ca](mailto:Hardrock@ceaa-acee.gc.ca) to schedule a meeting.

Sincerely,

<Original signed by>

Marc Léger  
Project Manager

Attachments (1)

Annex 1: Completeness check requirements directed to the proponent

cc: Ian Horne, Greenstone Gold Mines  
Gavin Battarino, Ontario Ministry of the Environment and Climate Change

***Annex 1: Completeness check requirements directed to the proponent***

**ID:** CEAA\_6

**IR-1 Reference #:** FH(1)-02

**Complete:** A. No; B-G. TBD

**Rationale:** The response is incomplete or unclear in relation to a major project component or physical activity and the associated environmental effects.

**Context and Information Required for a Complete Response:**

- The response does not adequately address Part A of the information requirement (IR). Revise the response to provide an evaluation of covering the leftover historical tailings with overburden and topsoil. As noted in the rationale of the original IR, it is unclear whether topsoil stored on site will be suitable for such use.
- The responses to parts B-G will be reassessed upon revision of the response to Part A.

**ID:** CEAA\_11

**IR-1 Reference #:** FH(1)-07

**Complete:** A. No; B. No

**Rationale:** The response does not address each sub-question of the IR.

**Context and Information Required for a Complete Response:**

- The response does not adequately address Parts A and B of the information requirement (IR). Although a reference was made to Appendix F10, Figure 9-1 of the EIS for flood extent in Goldfield Creek Diversion and Southwest Arm Tributary, details on the flow rate, depth and velocity were not provided. Revise the response to provide the information required, along with the hydrometeorological parameters required in part B.

**ID:** CEAA\_18

**IR-1 Reference #:** FH(1)-14

**Complete:** A. Yes; B. No; C. No

**Rationale:** The response does not address each sub-question of the IR.

**Context and Information Required for a Complete Response:**

- The response does not adequately address Parts B and C of the information requirement (IR). Revise the response to describe the conditions under which the modifications to the field kinetic testing program will be considered, and the measures that will be taken if the results of testing programs show an unexpected increase in metal leaching over time.

**ID:** CEAA\_21

**IR-1 Reference #:** FH(1)-17

**Complete:** No

**Rationale:** The response does not address each sub-question of the IR.

**Context and Information Required for a Complete Response:**

- The response does not adequately address the information requirement (IR). Revise the response to provide a rationale for conducting partial digestion instead of total digestion.

**ID:** CEAA\_22

**IR-1 Reference #:** FH(1)-18

**Complete:** A. No; B. No

**Rationale:** The supplementary material or changes to EIS documents or TSDs provided as part of the response is/are insufficient to adequately meet the request.

**Context and Information Required for a Complete Response:**

- The response does not adequately address Part A of the information requirement (IR). Revise the response with a direct response to whether the TMF has the capacity to handle resulting higher portions of non-PAG material directed to the TMF.
- The responses to part B will be reassessed upon revision of the response to Part A.

**ID:** CEAA\_37

**IR-1 Reference #:** TW(1)-08

**Complete:** A. Yes; B. No

**Rationale:** The information provided is insufficient to allow a technical review.

**Context and Information Required for a Complete Response:**

- The response does not adequately address Part B of the information requirement (IR). It is unclear that the presence of the bald eagle nesting site, any proposed mitigation measures (protection plans) and residual effects are considered in the responses to IRs HE(1)-01, HE(1)-04 and HE(1)-09. Revise the response to indicate how this information was included in the responses to the other three IRs. If it was not, also revise IRs HE(1)-01, HE(1)-04 and HE(1)-09 to include this information as per the original IR.

**ID:** CEAA\_38

**IR-1 Reference #:** TW(1)-09

**Complete:** A. No; B. No; C. No

**Rationale:** The information provided is insufficient to allow a technical review.

**Context and Information Required for a Complete Response:**

- The response does not adequately address Part A of the information requirement (IR). Revise the response to specify deterrents to be implemented during the Project. Note that the response provided discusses an adaptive management approach, which is not considered a mitigation measure as per Part 2, Section 6.4 of the EIS Guidelines.
- The response does not adequately address Parts B and C of the IR. The response suggests that the “known effectiveness” of the deterrents precludes the need for a follow-up program; however, the response also names deterrents that can be implemented after “visual monitoring” of the TMF pond. Conceptual details that should be provided include locations, frequency, duration of program, and what would trigger the application of further mitigation measures.

**ID:** CEAA\_43

**IR-1 Reference #:** HE(1)-01

**Complete:** A. TBD; B. Yes

**Rationale:** The response does not address each sub-question of the IR.

**Context and Information Required for a Complete Response:**

- The response to Part A of HE(1)-01 will be reassessed upon revision of the responses to HE(1)-05, HE(1)-06, HE(1)-09, and HE(1)-10.

**ID:** CEAA\_47

**IR-1 Reference #:** HE(1)-05

**Complete:** A. No; B. TBD; C. Yes

**Rationale:** The information provided is insufficient to allow a technical review.

**Context and Information Required for a Complete Response:**

- The response to Part A of the information requirement (IR) does not provide enough information to allow for the Agency to proceed to a technical review for the following reasons:
  - The updated Appendix O provides an analysis of effects of changes to the environment on the current use of lands and resources for traditional purposes. For the consideration of the quality of experience and value of location, the sections of the updated Appendix O referenced in the response to Part A (4.4, 7.4 and 8.2.4) only provide a description of the biophysical indicators (noise, light, air quality). These biophysical indicators are not linked to the quality of experience of the current use (if it occurs within areas impacted by these biophysical changes), such as an Indigenous group's potential avoidance of a particular area for hunting or fishing due to the predicted levels of noise, light or air quality. An example of this issue being raised by Indigenous groups is fishing in Kenogamisis Lake and effects from noise and dust from blasting. Provide an analysis that links the biophysical indicators to the quality of experience of the current use, if there is such an interaction; otherwise, provide a rationale for there not being an interaction.
  - The section responding to the request for the inclusion of effects to intangible aspects of the current use of lands and resources for traditional purposes (Section 7.4.3.3 of the updated Appendix O) provides a description of several cultural values, but does not provide enough information with respect to the potential effects and mitigation. For example, section 7.4.3.3 states that "AFN noted that land use is important to the traditional and cultural life and provides a social fabric to relationships with other AFN members". In order to understand the potential effects, information regarding the seasonality, interconnectedness of the use to their cultural well-being, and the meaning of the loss of land use to AFN is required. A description of the proposed specific measures to ensure land use can be maintained is also required. The rationale provided that states effects on tangible values are "primarily addressed through project design and siting", and that the Project site is a brownfield site, does not provide specifics on mitigation, given that the available information indicates that Indigenous groups currently use the area of the Project site.
- Revise the response to Part A of the IR to address these points. The response to Part B will be reassessed upon revision of Part A and of HE(1)-06.

**ID:** CEAA\_48

**IR-1 Reference #:** HE(1)-06

**Complete:** No

**Rationale:** The information provided is insufficient to allow a technical review.

**Context and Information Required for a Complete Response:**

- The response to the information requirement (IR) does not provide enough information to allow for the Agency to proceed to a technical review, as your response does not integrate the following:
  - the regional value of traditional use of the project area and the anticipated effects to traditional practice of the Aboriginal group, including alienation of lands from Aboriginal traditional use; and
  - indirect effects such as avoidance of the area by Aboriginal peoples due to increased disturbance (e.g. noise, presence of workers).
- Ensure that the revised response to HE(1)-05 incorporates these points.

**ID:** CEAA\_51

**IR-1 Reference #:** HE(1)-09

**Complete:** A. TBD; B. Yes

**Rationale:** The information provided is insufficient to allow a technical review.

**Context and Information Required for a Complete Response:**

- Revise the response to Part A to take into consideration any changes made to the responses to HE(1)-05 and HE(1)-06.

**ID:** CEAA\_52

**IR-1 Reference #:** HE(1)-10

**Complete:** A. Yes; B. No; C. No

**Rationale:** The response does not address each sub-question of the IR.

**Context and Information Required for a Complete Response:**

- The response does not adequately address Part B of the information requirement (IR). Revise the response to identify which mitigation measures were proposed by Indigenous groups.
- The response does not adequately address Part C of the IR. Table 6-1 in the updated Appendix O does not identify the specific effects that each proposed mitigation measure is expected to reduce. Revise the response to provide the information required in the original IR.

**ID:** CEAA\_58

**IR-1 Reference #:** HE(1)-16

**Complete:** A. Yes; B. No; C. No; D. Yes; E. No

**Rationale:** The responses across IR responses or in consideration of the EIS and TSDs contain contradictory information.

**Context and Information Required for a Complete Response:**

- The response to Part B appears to contradict the information that it references in the EIS. The response indicates that “Appendix A (Ambient Monitoring Plan) of Appendix M7 - Conceptual Air Quality Management and Monitoring Plan includes measuring metals concentrations in total suspended particulate.” While that appendix acknowledges that “dust may contain metals such as arsenic, cadmium, cobalt, lead, manganese, nickel, vanadium, zinc etc.”, it does not indicate that metals will be monitored, and Page A-3 states that “the monitoring program will be conducted to measure off property ambient air concentrations at locations around the Project site of the following contaminants: TSP, PM<sub>10</sub>, dustfall.”
- The response to Part C to the IR needs to be resubmitted, as information on the monitoring of metals, as the information required related to monitoring of metals is not included in Appendix A of Appendix M7.
- The response does not adequately address Part E of the IR. Revise the response to describe mitigation measures that could be adjusted, and proposed additional mitigation measures that would be implemented, if required.

**ID:** CEAA\_65

**IR-1 Reference #:** HE(1)-23

**Complete:** A. No; B. Yes; C. Yes; D. Yes

**Rationale:** The response does not address each sub-question of the IR.

**Context and Information Required for a Complete Response:**

- The response does not address Part A of the information requirement (IR). Revise the response to provide a discussion of uncertainties associated with the use of surrogate species.

**ID:** CEAA\_74

**IR-1 Reference #:** HE(1)-32

**Complete:** A. Yes; B. No

**Rationale:** The information provided is insufficient to allow a technical review.

**Context and Information Required for a Complete Response:**

- The response does not adequately address Part B of the information requirement (IR). The response is unclear as to how changes in metal concentrations in wild meat, along with the soil monitoring study would be used to infer changes in tissue concentrations in vegetation. Revise the response to describe how vegetation would be incorporated into the follow-up program, identifying the specific chemicals of potential concern that would be considered as part of this follow-up program, and how this would be used to validate the assumptions made in the HHRA. The information requested in this IR is required as part of the EA process, in order to determine how the follow-up program will verify EA predictions. The Agency understands that some details may be finalized as part of a permitting process, and as part of consultation with Indigenous groups and other government departments.

**ID:** CEAA\_75

**IR-1 Reference #:** AM(1)-01

**Complete:** A. No; B. Yes; C. Yes; D. No; E. Yes

**Rationale:** The information provided is insufficient to allow a technical review.

**Context and Information Required for a Complete Response:**

- The responses to Parts A and D of the information requirement (IR) are insufficient to allow for a technical review. While the proponent indicates that it presented a worst-case effects assessment in section 22.4.1 of the EIS, the scenario assumed for the worst-case effects assessment is not described in the EIS, and chapter 22 of the EIS does not discuss potential effects of the accident on human health.
- Revise the response to Part A to provide a clear description of the worst-case scenario for a TMF failure in the context of human health, and revise the response to Part D to provide sufficient detail on the possible effects to human health resulting from the accident. The note that effects on human health would be addressed through the Emergency Response Plan (given in the response to Part A) is insufficient for technical review.
- The responses to Parts B, C and E, while considered complete at this time, will be reassessed upon revision of Parts A and D.

**ID:** CEAA\_76

**IR-1 Reference #:** AM(1)-02

**Complete:** A. Yes; B. No; C. No; D. Yes

**Rationale:** The information provided is insufficient to allow a technical review.

**Context and Information Required for a Complete Response:**

- The response does not adequately address Part B of the information requirement (IR). While section 22.4.1.3 of the EIS discusses the quality of the water in the TMF, it does not discuss the water quality in the receiving waterbodies (identified as Kenogamisis Lake), or the extent to which changes to water quality could be observed. Revise the response to provide these details.
- The response does not adequately address Part C of the information requirement (IR). Revise the response to provide sufficient detail as to the effects on sensitive habitats, migratory birds or human health resulting from the accident, in the LAA and beyond. This information is not described in section 22.4.1.3 of the EIS.

**ID:** CEAA\_77

**IR-1 Reference #:** AM(1)-03

**Complete:** A. No; B. Yes; C. Yes; D. No; E. Yes; F. No; G. No

**Rationale:** The information provided is insufficient to allow a technical review.

**Context and Information Required for a Complete Response:**

- The response does not adequately address Part A of the information requirement (IR). Appendix D of Appendix F5 of the EIS does not contain concentrations for potential contaminants in a fully mixed pit lake. Revise the response to provide this information, and to discuss the connection between a fully mixed pit lake and Kenogamisis Lake, and the movement of contaminants between them.
- The response does not adequately address Part D of the IR. Revise the response to provide sufficient detail as to the effects to migratory birds and human health resulting from the accident.
- The response does not adequately address Parts F and G of the IR. Revise the responses to provide the information required. While the reference to the EIS mentions monitoring, it does not indicate how this monitoring could inform a decision to treat the discharge. The treatment of the discharge is also not discussed.
- The responses to Parts B, C and E, while considered complete at this time, will be reassessed upon revision of Parts A, D, F and G.

**ID:** CEAA\_86

**IR-1 Reference #:** FD(1)-01

**Complete:** A-I. No

**Rationale:** The response is incomplete or unclear in relation to environmental effects as defined in section 5 of CEAA 2012.

**Context and Information Required for a Complete Response:**

- The response does not adequately address the information request (IR). The response does not follow the questions posted in the original IR, and the submitted attachment does not provide an analysis of potential effects that are directly and indirectly associated with federal decisions (a federal authority's exercise of a power or performance of a duty or function), as described by subsection 5(2) of the *Canadian Environmental Assessment Act, 2012* (CEAA 2012).
- The changes to the environment summarized in the portion of Table 1-4 dedicated to section 5(2), starting on page 1.33, refers the reader to effects to fish and fish habitat. Note that paragraph 5(2)(a) of CEAA 2012 considers "a change, other than those referred to in paragraphs (1)(a) and (b), that may be caused to the environment...". Changes to the environment to be considered under paragraph 5(2)(a) of CEAA 2012 involve project activities that needed to be carried out in order to undertake the activity that is authorized by the federal decisions. As a specific example, where GGM proposes to construct a realigned channel as offset habitat for an authorization under the *Fisheries Act*, consider changes to the environment that may result from the activities associated with creating the proposed realigned channel. This may include, as one example, the removal of a wetland, which can lead to a loss of nesting locations for birds or habitat for particular animals, amphibians or reptiles. The removal of the wetland may also cause a loss of wetland function in the vicinity, leading to changes in hydrology.
- Revise the response by following the steps presented in the original IR. The following examples from the Pacific Northwest LNG Project in British Columbia show an EIS which presented an analysis of potential effects under subsection 5(2) of CEAA 2012. A description of project activities associated with each federal decision (*i.e.*, project activities that needed to be carried out in order to undertake the activity that is authorized by the federal decisions) is shown in Section 25.3, pages 25-13 and 25-14 of <http://www.ceaa.gc.ca/050/documents/p80032/98699E.pdf>. A table working through the changes that may be caused to the environment captured under paragraph 5(2)(a) of CEAA 2012 from those project activities, and potential effects to the environment captured under paragraph 5(2)(b) of CEAA 2012 resulting from those changes, is shown in table 26-2, pages 26-5 to 26-8 of <http://www.ceaa.gc.ca/050/documents/p80032/100775E.pdf>.
- The Agency encourages GGM to prepare a table that includes the information as seen in Section 26.3 linked above. Note that most of the information that GGM would require to undertake this analysis appears to exist in their effects assessment chapters (7-19); the Agency requires that they are presented in a manner to focus the scope of its assessment of effects to be taken into account under subsection 5(2) of CEAA 2012. The Agency also encourages GGM to arrange a meeting to discuss the implementation of this IR.