



January 30, 2023

Mark Ayranto, Chief Operating Officer
Victoria Gold (Yukon) Corp.
Suite 1000, 1050 West Pender Street
Vancouver, BC V7X 1K8

By Email: mayranto@vitgoldcorp.com

Re: Eagle Gold Mine site – HLF Operations and Cyanide Management Desktop Review

Dear Mr. Ayranto:

In 2022, Mineral Resources Branch (MRB) retained a third party to conduct a review of Victoria Gold (Yukon) Corp's (VGC) operation of the heap leach facility and cyanide management at the Eagle Gold Mine. Mark Smith of Piteau Associates USA Ltd. was responsible for this review, and completed it by way of a desktop study. VGC had several opportunities to provide input throughout the process, including a review of draft technical memos and recommendations. The final report, issued on July 31, 2022 and provided to VGC on September 26, 2022, has taken into consideration the input received throughout the process. For completeness and ease of reference, the final report has been appended to this letter.

The final report included five technical memos that provided 82 recommendations in total. The recommendations resulted from a review of plans approved under the Quartz Mining License (the "License"), relevant operational manuals and procedures, and third-party audits conducted in accordance with License requirements. These recommendations mainly focused on plan inconsistencies, operational deficiencies, and corrective actions.

MRB has reviewed the report and has identified which recommendations VGC is required to implement, and the expected actions and desired outcomes for each area; these expectations are appended to this letter. At this time MRB has not identified submission requirements or timelines associated with the implementation of these recommendations. We understand that the implementation of these recommendations will require a significant amount of work by VGC and will require careful planning and prioritization. As such, we would like VGC to review the expectations outlined in the attachment, and provide an implementation plan by February 28, 2023.

M. Ayranto
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I would like to acknowledge the work of Hugh Coyle in his participation and continued responses to our inquiries. His responses provided great insight to the operations at the Eagle Gold Mine site and were very valuable to the review.

You can reach me at (867) 667-3126 or Todd.Powell@yukon.ca or you can have Hugh Coyle reach out to Monica Nordling, Mining Technologist at monica.nordling@yukon.ca for further implementation discussions.

Sincerely,



Todd Powell
Director, Mineral Resources Branch

Cc: Chief, First Nation of Na-Cho Nyäk Dun
Lands Manager, First Nation of Na-Cho Nyäk Dun
Natural Resources Officer, Major Mines Inspections, Government of Yukon
VP Environment, Victoria Gold Corp.

Encl: Appendix 1: Implementation Expectations
Appendix 2: Final Report and Recommendations

Appendix 1: Implementation Expectations

The following document outlines the actions and expectations that Victoria Gold (Yukon) Corp is to meet in the implementation of recommendations resulting from the third-party review of heap leach facility operations and cyanide management.

These are not listed in any particular order of preference, but rather align with the July 31, 2022 Final Report issued by Piteau Associates USA Ltd.

1. Development and consistent use of a **Calibrated, Operational Water Balance Model**

a. To include:

- i. DAS volumes as set in the WUL and HLF CWMP;
- ii. all material inputs and outputs (including LDSP transfers);
- iii. actual values of initial and residual moisture content;
- iv. inputs of license flow rate (2070 m³/hr) along side operational flow rate of (1500 m³/hr);
- v. actual values for the in-heap pond based on the verification test (June 2022)
- vi. consideration of the MWTP capacity when it becomes operational, including its influence on the overall site water balance so as to avoid the need to pump water from LDSP to EP.
- vii. consideration of no operating MWTP
- viii. Consideration of cyanide destruction
- ix. actual stacking rates, when appropriate (e.g., determining future actions or evaluating past circumstances)
- x. site-specific data modelling to estimate both peak and seasonal snowmelt volumes

b. To be calibrated and used:

- i. As a tool to support water management on site (e.g., eliminate encroachments on DAS that are not associated with extreme events in the HLF catchment, and reduce frequency and severity of all encroachments on the DAS) – modelling results should be linked to trigger levels and actions associated
- ii. To replicate infringements on DAS;
- iii. To verify ore properties (initial moisture, residual moisture, and active leaching moisture);
- iv. To verify sufficient pond capacity to safely store solution prior to freshet
- v. To determine the necessity and/or size of an Emergency Pond;
- vi. To evaluate whether additional mitigations are necessary to prepare for freshet each year (e.g., raincoats);

- c. The GoldSim water balance model should be updated regularly using monthly data
- d. The WBM should generally align with the OMS and other related documents.
- e. To be submitted pre-freshet, mid-summer, and late fall to be used by YG to assess predictive modelling potential for contingency or adaptive management activities.

2. Updated **Cyanide Management Plan**

- a. To reflect current site conditions including, but not limited to:
 - i. The current water management system (e.g., water transfers, discharges, etc.)
 - ii. Retrofits to secondary containment at ADR and preventative measures taken to ensure solution does not flow beyond HLP containment in active areas (e.g., access points for stacking)
- b. To include:
 - i. Protocols for the transfer of storm water to the EP to verify there is no cyanide in the EP (intent is to ensure Section 5.4.1 is not violated)

3. Updated **HLF Operations, Maintenance and Surveillance Manual**

- a. To include:
 - i. Specific procedures that ensure granular material near edge of HLP does not leave containment, nor does it allow solution to move beyond containment
 - ii. Routine inspection of mechanical connectors to ensure they are safely located or shielded
 - iii. Frequent inspection of every location where granular material crosses containment (e.g., daily)
 - iv. And identify triggers for the construction of the Emergency Pond based on modelling, monitoring and reporting
 - v. A map or maps of the instrumentation and monitoring locations
 - vi. Ice management procedures to ensure that ice does not block the spillways of the in-heap pond or EP, or lead to overland flow on the heap that could escape containment
 - vii. Triggers and procedure to clarify when the CWMP, ERP (and any other relevant plans or SOPs) should be implemented (e.g., encroachment on the DAS) which also need to be consistent with the QPOs in the CDA's

Technical Bulletin, Application of CDA dam safety guidelines to mining dams (2019).

- viii. A blanket approach to corrective actions following a breach of containment or spill (e.g., leak at blind flange would trigger all mechanical fittings near the edge of containment to be checked and secured appropriately)
- ix. Specific criteria to trigger the Earthquake Occurrence inspections (see ERP Table 5.2-1)
- x. A requirement for a list of critical parts and supplies inventory in appropriate locations (e.g., critical parts for and redundant pumps)
- xi. Mac 2019 and 2021 recommendations as applicable (e.g., Trigger Action Response Plans in Appendix 3 of MAC 2021a)
- xii. Trigger and response actions that align with the existing dam break analysis, and updated when that analysis is updated (e.g., issuing warnings and evacuating downstream areas)
- xiii. Specify surveillance frequency for instruments which cannot be automatically reported (e.g., inclinometers)
- xiv. Discussion on how critical instrumentation data will be retrieved during an extended power outage (e.g., Piezometers)
- xv. A reduction in variety of personnel responsible for collection of monitoring data, where practical and consistent with shift rotation (see Table 9.1-1 in OMS)
- xvi. Table 9.1-1 consistent with the language of Section 9 and actual practice
- xvii. Clear actions to bring EP levels back down after DAS is exceeded (e.g., stop solution transfers into the system)
- xviii. A more aggressive response to in-heap pond RL 3, mandatory actions to reduce leakage flow rates to RL 2 in a timely manner, and RL 3 should also include an engineering assessment to ensure pressurization of the secondary liner
- xix. Significantly lower RL (1-4) associated with the EP; RL 3 should mandate repair of the liner during the next dry seasons as well as pond level reduction
- xx. Alert levels and actions for the monitoring of survey monuments and inclinometers with clear monitoring frequencies (e.g., when there is evidence of movement of embankment distress)
- xxi. Trigger levels and actions associated seepage and underdrain monitoring
- xxii. Delineation events that trigger event-driven inspection (e.g., earthquake movement, size or intensity of a large precipitation event, etc.)

- xxiii. Information on required back-up power and the generator capacity to support operations
- b. To align better with related licensing documents (e.g., Water balance model, CMP, etc.)
- c. The term “trigger” should be more consistently and accurately used and be consistent with MAC guidelines
- d. Reconcile language of Table 9.1-1 with the balance of the language of Section 9 and actual practice
- e. Re-evaluate trigger levels (EP elevations) and recommended or required response actions to ensure that the operators have adequate time to resolve the problem without advancing to the next condition level (i.e., there is little room to act on the orange level before getting to the red zone)
- f. Provide operators with a number of simple ways to conservatively estimate the available in-heap dynamic storage capacity using available information

4. Updated **Emergency Response Plan**

- a. To include:
 - i. Evacuation routes that are well removed from inundation zones (e.g., Figure 8.1-1 shows dam break evacuation route crossing inundation zone)
 - ii. Added detail and specificity to Table 5.2-1 as consistent with current operations, including the ADR plant (e.g., thresholds for slope failure, dam failure, etc.)
 - iii. Additional clarity and details, as needed, to section 6 and tie preventative measures, site response, potential effects, and follow-up to specific causes
 - iv. Clear authority and trigger events to order evacuation and make it clear that rapid evacuation is essential when there is a potential embankment failure
 - v. An update to Figure 8.8-1 to reflect as-built condition and revise the evacuation routes to provide quicker access to high ground and to keep evacuation routes away from the inundation zone (e.g., different routes may be needed for different locations)
 - vi. A figure to show the entire extent of the inundation zone for an embankment failure
- b. Should reflect current operating conditions and as-built facilities

- c. Align with MAC 2021a, MAC 2021b, CDA 2013, and CDA 2019 as referenced in the report.
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5. Updated **HLF Contingency Water Management Plan**
 - a. To include:
 - i. Available dynamic storage capacity expressed relative to the key variables influencing it
 - ii. Consideration of a scenario where the majority of dynamic storage has been used, there is a full or partial pumping failure and a design storm event, where the 72-hr draindown could be as much as 180,000 m³.
 - iii. Triggers linked with response actions consistent with WUL Clause 48 and the recommendations of MAC (2021a, 2021b)
 - iv. Specific triggers and response action to implement the intent of WUL 102c (e.g., snow removal)
 - v. Ranges of total storage volume available in each facility and associated variables influencing them (e.g., dynamic storage volumes in in-heap pond depend on a 5th pump being available, DAS is unavailable, etc.)
 - vi. The minimum daily capacity of the MWTP to treat HLF solutions (i.e., cyanide destruction)
 - vii. Reference to the required inventory of reagents and supplies (including quantities) for the MWTP – list should be maintained in MWTP operating plan, once commissioned
 - viii. Triggers to implement the ERP

 6. On-site activities
 - a. Ground around ADR plant must be regraded to provide adequate secondary containment as described in the CMP and ADR Plan
 - b. Where there is any risk of solution flowing through granular layers beyond containment, the areas should be retrofitted in ways which effectively eliminate this risk in all seasons (e.g., access points for stacking)
 - i. Granular material that crosses over the edge of containment should be sloped so that flow direction is into the contained area
 - c. Post inventory lists in appropriate locations for critical parts and supplies (e.g., pumping parts)
 - d. Install level-actuated pumps for the LDRS pumps in both the in-heap pond and the EP which monitor, record and report on flow and level data

- e. Evaluate the pump redundancy in terms of solution accumulation during an extended multi-pump failure (i.e., determine need for any additional pond capacity or full replacement kits on site) – results to be included in OMS
 - f. Evaluate motor control center (MCC) failure (i.e., the need for a back-up MCC, spare parts, etc.)
 - g. Have spare pump for EP on-site (e.g., complete pump and motor, or complete repair kit for pump and motor)
 - h. Recommendations resulting from annual inspections, performance reviews, and any other reports or studies required should be implemented in a timely manner.
 - i. Install 8 survey monuments along the embankment crest (Forte, 2022). These monuments should be anchored in concrete to reduce noise and detect movement more reliably.
7. EOR sign-off on:
- a. No need for a network of survey prisms to the crest and downstream slopes of both the in-heap pond and events pond embankments
 - b. No need for a second inclinometer in the embankment

References

CDA (2013). "Dam Safety Guidelines 2007 (2013 edition)," Canadian Dam Association.

CDA (2019). "Technical Bulletin, Application of CDA dam safety guidelines to mining dams," the Canadian Dam Association.

Forte Dynamics, Inc. (2022). "2021 Annual Inspection of Eagle Gold HLF," 25 March 2022.

MAC (2021a). "Developing an operation, maintenance and surveillance Manual for tailings and water management facilities," Mining Association of Canada, Version 2.1.

MAC (2021b). "A Guide to the Management of Tailings Facilities," Mining Association of Canada, Version 3.2.